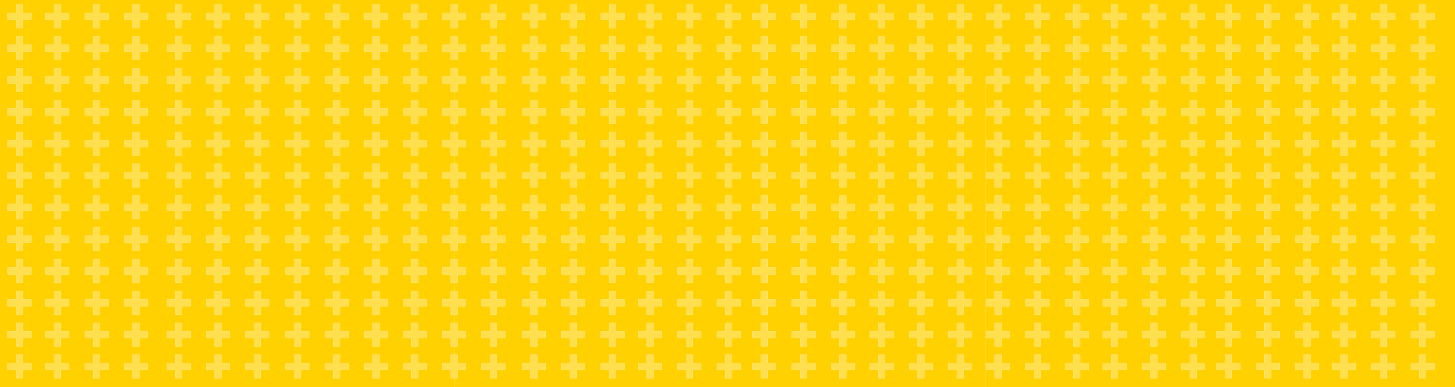


SYSTEMS+



CONTENTS



GENERAL INFORMATION

A

- A 2** PRELIMINARIES
- A 6** MATERIALS

- A 10** DESIGN
- A 25** USER GUIDE



ACOUSTIC REQUIREMENTS

B

- B 2** INTRODUCTION
- B 3** MULTI-RESIDENTIAL BUILDINGS

- B 4** COMMERCIAL BUILDINGS
- B 6** EDUCATIONAL FACILITIES
- B 8** HEALTH CARE BUILDINGS



STEEL STUD WALLS

C

- C 2** INTRODUCTION
- C 14** QUICK SELECTION TABLES
- C 19** LINED ONE SIDE
- C 26** LINED BOTH SIDES

- C 42** QUIET STUD
- C 57** STAGGERED STUD
- C 73** TWIN STUD



TIMBER STUD WALLS

D

- D 2** INTRODUCTION
- D 8** QUICK SELECTION TABLES
- D 13** LINED ONE SIDE
- D 18** LINED BOTH SIDES

- D 30** FURRED
- D 43** STAGGERED STUD
- D 57** TWIN STUD



EXTERNAL WALLS

E

- E 2** INTRODUCTION
- E 5** OUTRWALL®

- E 9** BRICK VENEER WALLS
- E 10** FIRECLAD®



MASONRY UPGRADES

F

- F 2** INTRODUCTION
- F 6** ACOUSTIC UPGRADES
 - F 6** Internal Walls
 - F 12** Blade Columns
 - F 14** Shaft/Stair Walls
 - F 16** AAC Panels

- F 18** FIRE UPGRADES



CEILINGS

G

- G 2** INTRODUCTION
- G 11** CEILING UNDER TIMBER FLOOR
- G 18** CEILING UNDER CONCRETE FLOOR

- G 20** CEILINGS UNDER ROOF
- G 24** SPANNING CEILINGS
- G 26** ACOUSTIC CEILINGS
- G 28** OVER PARTITION SYSTEMS



MULTI-RESIDENTIAL

H

- H 2** INTRODUCTION
- H 11** MULTIFRAME™
- H 14** SERVICES SEPARATION

- H 15** PARTIWALL®
- H 18** INTRWALL®



SPECIALTY SYSTEMS

I

- I 2** INTRODUCTION
- I 8** LIFT & SERVICES SHAFTS
 - I 8** Shaftwall™
 - I 9** Ventshaft™

- I 10** COLUMN PROTECTION
- I 13** BEAM PROTECTION
- I 14** FIRE TUNNEL™



JUNCTIONS & PENETRATIONS

J

- J 2** INTRODUCTION
- J 4** FIRE RATED STEEL STUD WALLS
- J 22** NON-FIRE RATED STEEL STUD WALLS

- J 27** FIRE RATED TIMBER STUD WALLS
- J 33** FIRE RATED CEILINGS
- J 43** NON-FIRE RATED CEILINGS



REFERENCE TABLES

K

- K 2** OLD/NEW SYSTEM REFERENCE GUIDE

- K 5** SYSTEM INDEX

PREFACE

USG Boral Building Products Pty Limited (ACN 004 231 976) is a plasterboard and ceilings Joint Venture between USG Corporation and Boral Limited, and is one of the leading players in this field.

Operating throughout Asia, Australasia and in the Middle East, USG Boral Building Products combines USG's innovative building products technologies with Boral's extensive plasterboard manufacturing and distribution footprint in Asia and Australia.

USG Boral Building Products is well positioned to service the Australian market through its manufacturing facilities in New South Wales, Queensland and Victoria, and Australia-wide distribution network of around 100 company-owned stores and independent resellers.

For more information on USG Boral Building Products refer to usgboral.com

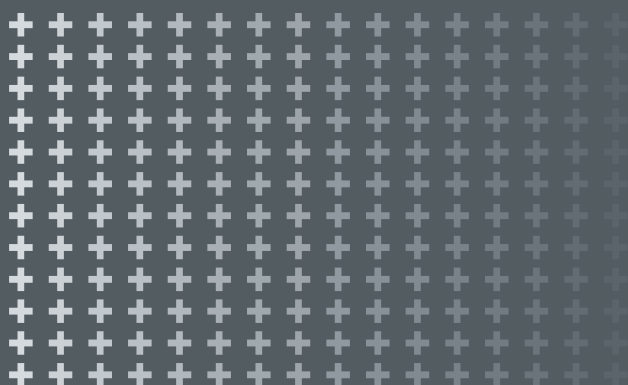


USG Boral Operations

A 2	PRELIMINARIES
A 6	MATERIALS
A 10	DESIGN
A 25	USER GUIDE

A

GENERAL INFORMATION



PRELIMINARIES

INTRODUCTION

This manual is intended for use by building designers, builders, certifiers and plastering contractors dealing with fire rated and acoustic construction. It provides fire rating, acoustic and structural performance data and installation specifications for a wide range of USG Boral building systems including lightweight wall and ceiling systems, masonry upgrades and beam/column fire protection systems.

In addition to the systems listed in this publication, USG Boral offers many other system configurations to suit specific project requirements. Performance data on the full range of USG Boral systems can be found at usgboral.com/eselector

SCOPE

This manual lists USG Boral fire rated wall systems up to FRL -/240/240 and 180/180/180.

Fire rated ceiling systems are available up to FRL 120/120/120 (from below) and beam/column fire protection systems up to FRL 180/-/-.

A wide range of acoustic systems is available to meet Building Code of Australia and other performance requirements. These include plasterboard wall and ceiling systems with $R_w+C_{tr}=50$ or higher, and a range of USG Boral acoustic ceiling tiles up to NRC = 1.00

CERTIFICATION

USG Boral systems have been assessed to meet the relevant requirements of Australian Standards and the Building Code of Australia (BCA):

FIRE RESISTANCE

Fire testing and assessment has been done to AS 1530.4 *Methods for fire tests on building materials, components and structures — Fire resistance test of elements of construction* and carried out by:

- CSIRO, Manufacturing and Infrastructure Technology, North Ryde, NSW
- Warrington Fire Research, Dandenong, Victoria
- BHP Research, Clayton, Victoria
- BRANZ, Judgeford, New Zealand.

ACOUSTIC INSULATION

All acoustic ratings listed in this publication have been verified by acoustic consultants Renzo Tonin & Associates (RT&A) and are covered by the stated opinion number in each table. Acoustic ratings are based on similar tested systems. A list of tested systems can be provided on request.

STRUCTURAL

Structural testing of wall systems has been carried out at the NATA registered laboratories of USG Boral at Port Melbourne. Structural appraisal of the systems was carried out by Wynton Stone Australia Pty Ltd and Taylor Thomson Whitting of Melbourne.

Fire, acoustic and structural test reports and opinions can be made available on request from USG Boral.

NOTES:

- Various system certifications are valid only when the relevant systems are constructed in accordance with USG Boral specifications and using the stated materials and components. Fastening should be of the same type and at centres no greater than detailed for particular systems.
- While USG Boral systems are certified to achieve the stated fire resistance and acoustic ratings, it is the responsibility of the relevant project consultant to ensure that the selected systems satisfy project requirements.
- Acoustic ratings provided are based on laboratory tests carried out under ideal conditions. In-situ performance may experience some variation from stated ratings due to flanking effects.

» PRELIMINARIES

STANDARDS

The following Australian and other Standards are referenced in this publication:

- AS 1530.4 *Methods for fire tests on building materials, components and structures — Fire resistance test of elements of Construction*
- AS/NZS 717.1 *Acoustics — Rating of sound insulation in buildings and of building elements — Airborne sound insulation*
- AS ISO 717.2 *Acoustics — Rating of sound insulation in buildings and of building elements — Impact sound insulation*
- AS 1191 *Acoustics — Method for laboratory measurement of airborne sound transmission insulation of building elements*
- AS/NZS 2499 *Acoustics — Measurements of sound insulation in buildings and of building elements — Laboratory measurement of room-to-room airborne sound insulation of a suspended ceiling with a plenum above it*
- AS ISO 11654 *Acoustics — Rating of sound absorption — Materials and systems*
- AS 1170.2 *Structural Design Actions — Wind actions*
- AS 1170.4 *Structural Design Actions — Earthquake actions*
- AS 1397 *Steel Sheet and Strip — hot dipped, zinc coated or aluminium/zinc coated*
- AS 1684 *Timber framed construction*
- AS 1716 *Respiratory protective devices*
- AS/NZS 2588 *Gypsum Plasterboard*
- AS 2589 *Gypsum Linings — Application and finishing*
- AS 3566 *Self-drilling screws for the building and construction industries*
- AS 3600 *Concrete Structures*
- AS 3700 *Masonry Structures*
- AS 3740 *Waterproofing of domestic wet areas*
- AS 4055 *Wind loads for housing*
- AS/NZS 4600 *Cold-formed steel structures*
- AS 4858 *Wet Area Membranes*
- AS 5601.1 *Gas installations – General installations*
- AS/NZS ISO 9001 *Quality management systems — Requirements*
- ISO 9002 *Quality systems – Model for quality assurance in production, installation and servicing*
- ASTM G21-09 *Determining Resistance of Synthetic Polymeric Materials to Fungi*
- ASTM D3273 *Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.*

ABBREVIATIONS

The following abbreviations are used throughout this manual:

TABLE A1: ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AAAC	Association of Australian Acoustical Consultants
BCA	Building Code of Australia
BMT	Base Metal Thickness
ctrs	Centres
Max	Maximum
LB	Load Bearing
Min	Minimum
NLB	Non-Load Bearing
Nom	Nominal
NA	Not Applicable
p	Page
pbd	Plasterboard
RT&A	Renzo Tonin & Associates
UNO	Unless Noted Otherwise

PERFORMANCE INDICATORS

The following performance indicators are mentioned in various parts of this manual:

TABLE A2: PERFORMANCE INDICATORS

INDICATOR	DESCRIPTION
Fire Resistance Properties	
EFH	Early Fire Hazard
FRL	Fire Resistance Level
RISF	Resistance to Incipient Spread of Fire
Acoustic Properties	
α_w	Weighted Sound Absorption Coefficient
CAC	Ceiling Attenuation Class
$D_{nc,w}$	Weighted Suspended Ceiling Normalised Level Difference (laboratory performance)
$D_{nT,w}$	Weighted Standardised Sound Level Difference (field performance)
$D_{nT,w} + C_{tr}$	Weighted Standardised Sound Level Difference with Spectrum Adaptation Term
IIC	Impact Insulation Class
L_{Aeq}	Equivalent Sound Pressure Level
$L_{Amax, avg}$	Average Maximum Sound Pressure Level
$L_{n,w} + C_i$	Weighted Normalised Impact Sound Pressure Level with Spectrum Adaptation Term (laboratory performance)
$L'_{nT,w}$	Weighted Standardised Impact Sound Pressure Level (field performance)
NRC	Noise Reduction Coefficient
R_w	Weighted Sound Reduction Index
$R_w + C_{tr}$	Weighted Sound Reduction Index with Spectrum Adaptation Term
T_{60}	Reverberation Time
Other	
LR	Light Reflectance

For the full description of various performance indicators refer to the relevant parts of the General Information section.

» PRELIMINARIES

QUALITY ASSURANCE

USG Boral is a Quality Endorsed Company (Lic No 0400) conforming to AS/NZS ISO 9001 *Quality management systems – Requirements*.

All Australian USG Boral plasterboard production facilities are certified under ISO 9002 *Quality systems – Model for quality assurance in production, installation and servicing*.

USG Boral plasterboard is machine made under a continuous process to the requirements of AS/NZS 2588 *Gypsum plasterboard*.

SUSTAINABILITY

RAW MATERIALS

Gypsum used in locally manufactured USG Boral plasterboard products is mined from abundant resources at Kevin in South Australia.

The mine has in place a rehabilitation and revegetation strategy aimed at creating a landscape with natural appearance and native local vegetation.

Plasterboard paper liner is manufactured from 100% recycled waste paper fibre and contains no virgin paper fibre.

Fiberock® gypsum board contains 95% recycled content.

MANUFACTURE

Apart from natural gypsum and recycled paper, the key inputs in the plasterboard manufacturing process are natural gas and potable water.

USG Boral aims at exceeding the local Environment Protection requirements and at maximising the use of recycled water at its manufacturing facilities.

RECYCLING

Regular plasterboard can be recycled into new plasterboard or as soil conditioner.

For further information contact your local USG Boral office.

GECA CERTIFICATION

The following USG Boral products have been certified by Good Environmental Choice Australia (GECA):

- 13mm ENVIRO™ plasterboard
- 13mm/16mm Firestop® plasterboard
- 13mm Soundstop® plasterboard
- 13mm/16mm Multistop™ 3/4/5 plasterboard
- 10mm/13mm/16mm Fiberock® gypsum board.
- 25mm Shaftliner™ plasterboard.

EMBODIED ENERGY

As shown in the following table, embodied energy per kg of plasterboard compares favourably with other common lining materials:

TABLE A3: EMBODIED ENERGY OF LINING MATERIALS	
MATERIAL	PER* EMBODIED ENERGY (mj/kg)
Plasterboard	4.4
Fibre cement	4.8
Particleboard	8.0
Plywood	10.4
MDF	11.3
Hardboard	24.2

*PER - Process Energy Requirements.
Source: Building Materials Energy and the Environment, Bill Lawson, The Royal Australian Institute of Architects, 1996.

SAFETY

The following precautions are recommended when installing and finishing plasterboard:

- Avoid creating dust when handling plasterboard or mixing plaster compounds.
- When sanding, minimise the effects of dust by:
 - providing adequate ventilation
 - wearing eye protection
 - wearing a respiratory mask conforming to AS 1716 *Respiratory protective devices*
 - using mechanical sanding tools fitted with dust extractor and storage bag.
- Keep tools and materials out of reach of children.
- In addition, the users should observe Occupational Health and Safety tips contained on the packaging labels for USG Boral products as well as safe manual handling practices.

FIRST AID

- If plaster compound or dust comes into contact with the eyes, wash eyes thoroughly with clean potable water.
- If plaster compound or dust comes into contact with skin, wash skin thoroughly with soap and water.
- If dust is inhaled, move to a fresh air environment.
- If plastering compound or dust is ingested, drink plenty of water.

Material Safety Data Sheets for USG Boral products can be downloaded from usgboral.com

In emergencies call **1800 033 011**

For poison assistance call **13 11 26**

» PRELIMINARIES

PLASTERBOARD PROPERTIES**THERMAL RESISTANCE**

The thermal resistance ratings (R-values) of some plasterboard produced by USG Boral, are provided in the following table:

TABLE A4: THERMAL RESISTANCE	
PLASTERBOARD PRODUCT	R-VALUE
10mm REGULAR	0.056m ² K/W±10%
13mm REGULAR	0.073m ² K/W±10%
13mm FIRESTOP®	0.061m ² K/W±10%
10mm FIBEROCK®	0.038m ² K/W±10%
13mm FIBEROCK®	0.049m ² K/W±10%
16mm FIRESTOP®	0.074m ² K/W±10%
25mm SHAFTLINER™	0.112m ² K/W±10%

Calculation of the above R-values is based on test data of thermal conductivity as reported in BRANZ Report No EC0713, 22/10/2003. Fiberock R-values are based on tests carried out by USG.

When plasterboard is fixed to framework, creating a cavity construction, R-values of plasterboard systems can be easily upgraded through addition of bulk or reflective insulation.

Thermal resistance ratings of various external wall systems are shown in the relevant system tables.

SPECIFIC HEAT CAPACITY

The Specific Heat Capacity is a measure of a material's capacity to store heat, the higher the Specific Heat Capacity the greater the capacity to store heat.

TABLE A5: SPECIFIC HEAT		
PRODUCT	SPECIFIC HEAT CAPACITY	BASIS
10mm REGULAR	1028 J/kgK ±10%	BRANZ Report No EC0713/2, 22/10/03
13mm FIRESTOP®	960 J/kgK ±10%	BRANZ Report No EC0713/2, 22/10/03
25mm SHAFTLINER™	979 J/kgK ±10%	BRANZ Report No EC0713/2, 22/10/03

TEMPERATURE EFFECTS

Thermal co-efficient of linear expansion of plasterboard is 16.2x10⁻⁶mm/(mm°C) over the range 4°C to 38°C.

USG Boral does not recommend the use of radiant heating systems continuously subjecting plasterboard ceilings to temperatures in excess of 42°C.

MOISTURE EFFECTS

The hygrometric co-efficient of linear expansion of plasterboard is 7.2 x 10⁻⁶mm/(mm% RH) over the range 5% to 90% relative humidity.

As exposure to moisture may affect performance of plasterboard linings, it is recommended that plasterboard is installed in well ventilated areas protected from moisture penetration.

Building designers should be aware that some types of bulk insulation tend to absorb and retain the moisture against the face of plasterboard.

IMPACT RESISTANT LININGS

USG Boral offers a number of lining products specifically developed for applications requiring enhanced impact resistance:

TABLE A6: IMPACT RESISTANCE LININGS	
PRODUCT	RELATIVE IMPACT RESISTANCE
IMPACTSTOP® MULTISTOP™	Moderate
IMPACTSTOP® HI MULTISTOP™ HI	High
FIBEROCK®	Very High

MOISTURE AND MOULD RESISTANCE

Although plasterboard is not a waterproof material, USG Boral offers a number of lining products classified as moisture resistant under the BCA requirements for domestic wet areas. These products include:

- Wet Area Board™
- Wet Area Firestop®
- Multistop™ 4, 4HI, 5 and 5HI
- Fiberock® gypsum board.

The following USG Boral products are classified as mould resistant:

- Multistop™ 5 and 5HI (achieved no mould growth with a rating of 0 when tested in accordance with ASTM G21-09)
- Fiberock® gypsum board (achieved the highest score of 10 when tested in accordance with ASTM D3273).

MATERIALS

PLASTERBOARD

USG Boral offers a wide range of plasterboard products to suit various applications:

TABLE A7: USG BORAL PLASTERBOARD

PRODUCT NAME	THICKNESS mm	WEIGHT kg/m ²	APPLICATIONS
SHEETROCK® Brand Wall Board	10	5.4	Lightweight wall linings
SHEETROCK® Brand Ceiling Board	10	5.9	Lightweight ceiling linings
SHEETROCK® Brand Standard	13	7.0	Lightweight wall & ceiling linings
REGULAR	10 13	6.2 8.3	Wall and ceiling linings
UNISPAN®	10	6.9	Ceiling linings
WET AREA BOARD™	10 13	7.4 9.6	Tiling substrate in wet areas
SOUNDSTOP®	10 13	9.2 12.0	Sound isolation between rooms
ECHOSTOP®	12.5	10.0	Sound absorption within a room
FIRESTOP®	13 16	10.5 13.0	Fire resistant linings
WET AREA FIRESTOP®	13 16	10.5 13.0	Fire resistant linings in tiled wet areas
IMPACTSTOP® 2/2HI	10 13	9.2 11.8	Impact resistant linings
MULTISTOP™ 3/3HI MULTISTOP™ 4/4HI MULTISTOP™ 5/5HI	13 16	11.8 14.6	Fire, sound and impact resistant linings (optional moisture and mould resistant properties)
FLEXIBOARD®	6.5	4.1	Curved wall and ceiling linings
SHAFTLINER™	25	20.5	Shaft enclosures & separating walls
FIBEROCK® Aqua-Tough (paperless gypsum board)	10 13 16	9.5 12.0 15.0	Impact, moisture & mould resistant linings
X-Block®	13	17.2	X-ray radiation protection

Note:

Product availability should be checked with USG Boral as some products may only be available on order and/or in minimum order quantities.



SHEETROCK BRAND
WALL BOARD



WET AREA FIRESTOP



SHEETROCK BRAND
CEILING BOARD



IMPACTSTOP



SHEETROCK BRAND
STANDARD



MULTISTOP



REGULAR



FLEXIBOARD



UNISPAN



SHAFTLINER



WET AREA BOARD



FIBEROCK



SOUNDSTOP



X-BLOCK



FIRESTOP

Figure A1: USG Boral Plasterboards

» MATERIALS

METAL COMPONENTS

STEEL STUD WALLS

USG Boral steel stud wall systems utilise Rondo lipped C-studs, wall tracks and deflection head tracks as listed in the Steel Stud Walls section.

SHAFTWALL

USG Boral Shaftwall system utilises Rondo CH-Studs and other components as listed in Specialty Systems - Lift and Service Shafts.

FURRED SYSTEMS

USG Boral furred wall and ceiling systems utilise Rondo furring channels and fixing clips as outlined in the relevant sections of this manual.

SUSPENDED CEILINGS

USG Boral suspended ceilings utilise the following suspension systems:

- USG Boral DONN® Brand Exposed Grid
- USG Boral Drywall Grid
- Rondo KEY-LOCK® Suspended Ceiling System
- Rondo DUO® Exposed Grid Ceiling System.

TIMBER SECTIONS

USG Boral timber stud wall systems utilise standard stud and plate sizes as listed in the Timber Stud Walls section.

Acoustic ratings of timber framed floor/ceiling systems are based on 240mm deep joists.

INSULATION

GLASSWOOL INSULATION

The following Fletcher Insulation glasswool products have been utilised in USG Boral systems for acoustic and/or thermal insulation purposes:

- 25mm Pink® Partition 24kg/m³ density
- 50mm Pink® Partition 11kg/m³ density
- 75mm Pink® Partition 11kg/m³ density
- 90mm Pink® Partition 11kg/m³
- 90mm Pink Acousti-Therm® HD nom density 24kg/m³
- R1.5 Pink Wall Batts® 65mm nom density 11kg/m³
- R2.0 Pink Wall Batts® 90mm nom density 11kg/m³
- R2.5 Pink Ceiling Batts® 130mm nom density 11kg/m³
- R3.0 Pink Ceiling Batts® 160mm nom density 11kg/m³
- Permastop® Building Blanket.

110mm USG Boral Partiwall Acoustic Batt has been utilised in some Partiwall systems.

POLYESTER INSULATION

The following Polyester insulation products have been utilised in USG Boral systems:





- 30mm Polyester Insulation 14kg/m³ density
- 50mm Polyester Insulation 14kg/m³ density
- 70mm Polyester Insulation 14kg/m³ density
- 75mm Polyester Insulation 14kg/m³ density
- 90mm Polyester Insulation 14kg/m³ density
- 50mm Polyester Insulation 7kg/m³ density (TSB2 by Tontine Insulation or equivalent).

» MATERIALS

FASTENERS

The following fasteners are suitable for fixing of plasterboard linings:

TABLE A8: PLASTERBOARD SCREWS¹

SCREW TYPE		APPLICATION
S		Steel BMT* up to 0.75mm
W		Timber only
D		Steel BMT* 0.75 - 2.00mm
L		Gypsum board laminating

* BMT – Base Metal Thickness.

TABLE A9: PLASTERBOARD TO PLASTERBOARD FASTENERS

NUMBER OF LAYERS OF PLASTERBOARD x THICKNESS		TYPE L ¹⁰ SCREWS FOR FIXING PLASTERBOARD A TO B
PLASTERBOARD A	PLASTERBOARD B	
1 x 13mm	13mm	10-8 x 32mm
1 x 16mm	16mm	10-8 x 38mm
1 x 16mm	2 x 16mm	6-8 x 50mm

TABLE A10: PLASTERBOARD TO FRAME FASTENERS

PLASTERBOARD THICKNESS mm	TIMBER FRAME				STEEL FRAME
	USG BORAL SMOOTH SHANK GOLD PASSIVATED NAILS ⁹	USG BORAL ANNULAR RING SHANK NAILS ⁹ AND UNI-NAILS ⁹	GALVANISED NAILS ⁹ (2.8mm DIA UNO)	TYPE W SCREWS ²	TYPE S ³ AND TYPE D ⁴ SCREWS
1 x 10	40 softwood 30 hardwood	30	40 softwood 30 hardwood	6-9 x 25W wall 6-9 x 32W ceiling	6-18 x 25 ⁷ D, S
1 x 13	40 softwood 30 hardwood	30	40 softwood 30 hardwood	6-9 x 32W	6-18 x 25 ⁷ D, S
1 x 16	50	-	50 softwood 40 hardwood	6-9 x 40W	6-18 x 30 D, S
1 x 25	-	-	-	-	6-18 x 40D, S
2 x 10	50	-	50	6-9 x 40W	6-18 x 30D, S
2 x 13	65	-	50	6-9 x 50W	6-18 x 40D, S
13 + 16	65	-	50	6-9 x 50W	6-18 x 40D, S
2 x 16	65	-	65	6-9 x 60W	6-18 x 45D, S
3 x 13	-	-	75 x 3.75	8-8 x 60W	7-16 x 50S
3 x 16	-	-	75 x 3.75	8-8 x 75W	8-15 x 60S

NOTES:

- All screws to be to Australian Standard AS 3566 *Corrosion Class 1*.
- “W” is a single start, needle point, bugle head type W gypsum screw for fixing to hardwood and softwood framing. In some instances double start thread screws are permissible (refer USG Boral).
- “S” is a double start, needle point, bugle head type S gypsum screw for fixing to steel gauges of up to 0.80mm BMT.
- “D” is a double start, drill point, bugle head type D gypsum screw for fixing to steel gauges 0.80 to 2.00mm BMT.
- “L” is a single start, needle point, bugle head type L gypsum screw for fixing plasterboard to plasterboard.
- Screw designation given as (minimum screw gauge) – (threads per inch +1) x (minimum screw length).
- For ease of construction with framing steel gauges of less than 0.8mm BMT use 30mm minimum screw length.
- Correct screw length is critical when fastening to resilient furring channel to avoid acoustic bridging.
- Nail lengths are minimums, however care is needed when selecting longer nails to avoid nail bending in hardwoods or popping of plasterboard with unseasoned timber.
- For wall systems only. Tables to be read in conjunction with plasterboard installation details.

» MATERIALS

JOINTING TAPES

Jointing tapes are used to provide reinforcement to plasterboard joints and angles.

Paper tape is recommended by USG Boral for jointing of gypsum wall and ceiling linings due to its high strength and suitability for all jointing compounds and applications.

Paper jointing tape must be used in wet area and fire rated applications and with air-drying type jointing compounds.

USG Boral SHEETROCK Brand paper tape is a high strength special cross-fibre paper tape possessing exceptional wet strength and resisting stretching, wrinkling and tearing.

USG Boral SHEETROCK Brand jointing tape is available in 75m and 150m x 50mm wide rolls.



Figure A2: **Paper Jointing Tape**

JOINTING COMPOUNDS

USG Boral offers a wide range of setting and air-drying jointing compounds suitable for a variety of application methods and requirements. A jointing system may consist of one or both of these types of compounds in combination with jointing tape.

Refer to USG Boral Installation Manual for the full range of USG Boral jointing compounds and plasterboard jointing specification.

SEALANTS

H.B. Fuller Firesound™ sealant is recommended for sealing of perimeter gaps and penetrations in USG Boral fire rated and acoustic systems.

USG Boral Wet Area Sealant™ is recommended for use in non-fire rated wet area systems (see Wet Areas).

DESIGN

STRUCTURAL

As required by the BCA and relevant Australian Standards, in addition to any acoustic or fire design, building elements must be checked for structural adequacy under dead, live, wind and other applicable loads.

Wall design must allow for:

- Expected vertical deflection due to building movement
- Thermal expansion during fire service
- The support, including lateral support of any door or access panel frames, supported external cladding, internal lining, dampers, shelves, cupboards, attachments or other loadings required to be supported by the wall or wall embedded frame
- Any loadings due to internal or external pressure differentials
- Vertical loads.

HEAD CLEARANCE

Almost all structures will deflect during service. Designers should be aware of the expected deflections of the building structure as they affect partitions. These deflections may be due to both dead and live loadings. Non-load bearing partitions are not designed to take any axial loading due to building deflection.

In fire rated steel stud walls, thermal expansion of studs of up to 5mm/m should be expected during fire service. Stud shortening due to thermal bowing may reduce the expansion, especially in thinner walls.

Designers should make due allowance for expected vertical deflections and stud thermal expansion in considering deflection head requirements and, where necessary, refer to USG Boral for further information. Standard partition head details should accommodate normal service deflections.

PLASTERBOARD AS STRUCTURAL BRACING

USG Boral does not recommend the use of plasterboard ceiling linings to brace the roof structure or individual roof truss chords.

USG Boral does not recommend the use of plasterboard for dedicated bracing of walls.

MAXIMUM WALL HEIGHTS

Wall heights for non-load bearing steel stud walls must not exceed the maximum heights specified in Steel Stud Walls section.

Maximum heights for non-load bearing steel stud walls have been provided for 0.25kPa lateral pressure and are based on L/240 deflection criteria set out in the BCA. For maximum heights at 0.35kPa pressure refer usgboral.com/eselector

For other design pressures contact TecASSIST 1800 811 222

LOAD BEARING WALLS

A load bearing wall is a wall that is intended to resist vertical forces in addition to its own weight.

Refer to Steel Stud Walls section for notes on load bearing steel stud frames.

Refer to Timber Stud Walls section for maximum loads on fire rated timber framed walls.

SHELF LOADING

Walls, including fire rated walls, that carry shelf loadings must be designed accordingly. Refer to Steel Stud Walls section for permissible shelf loadings on steel stud walls.

The following shear loads can be supported directly by Fiberock linings:

TABLE A11: MAXIMUM LOADS ON FIBEROCK® GYPSUM BOARD	
FIBEROCK THICKNESS	MAXIMUM POINT LOAD PARALLEL TO THE BOARD*
10mm	10kg
13mm	13kg
16mm	16kg

*Loads should be attached with minimum 8 gauge high thread screws installed with the thread for the full thickness of the board.

ALLOWABLE CEILING LOADS

Plasterboard spans and loads directly supported on ceiling linings must not exceed the maximum values indicated in Table G1 in the Ceilings section.

» DESIGN

FIRE RESISTANCE**FIRE RESISTANCE LEVEL (FRL)**

Fire rating requirements of the Building Code of Australia are specified in terms of Fire Resistance Level (FRL). The FRL specifies the performance, in minutes, for each of the following three design criteria when specimens are fire tested to the requirements of the Australian Standard AS 1530 *Methods for Fire Tests on Building materials, Components and Structures — Part 4: Fire-Resistance Tests of Elements of Building Construction*:

Structural Adequacy

The specimen can no longer carry its load (self weight and superimposed loads).

Integrity

Cracks or openings develop that allow the passage of flames or hot gasses.

Insulation

The unexposed face temperature rises by more than 140°C on average or 180°C for a single point.

For example, a wall system under fire test that carries its load for 120 minutes and maintains its integrity and insulation for 120 minutes is given a FRL of 120/120/120, ie 120 minutes structural adequacy, 120 minutes integrity and 120 minutes insulation.

Systems that achieve a particular FRL can be used to satisfy the requirements for a lesser FRL.

SUPPORT

Any structure required to support a fire rated system must have a fire resistance structural adequacy level of at least that of the system. This includes vertical support to ceilings and walls and lateral support to the top of walls which may be provided from both sides. Refer BCA for specific requirements.

ADJACENT STRUCTURE

The BCA requires that building elements, other than roof sarking or certain roof battens, must not pass through or cross a fire rated wall unless the Fire Resistance Level of that wall is maintained. Where trusses and beams pass over or through a fire rated partition, the following measures can be taken to ensure that the Fire Resistance Level of the partition is not degraded due to a failure of these members in the case of fire:

- Construct a fire rated ceiling that protects the structural members

- Fire protect the structural member or
- Ensure the partition can carry loading from the fire affected structural member and that the member can still carry its loading when it is supported on a partition (for trusses this may mean the inclusion of additional webbing above the partition). Ensuring the partition can carry these new loadings may require:
 - Making it into a load bearing partition
 - Constructing the partition with a protected column within it or
 - Constructing unprotected columns on both sides of the partition.

PORTAL FRAME BEHAVIOUR

In portal frames affected by the fire the rafters often push outwards on the column members until the ridge sinks and then pulls the columns inwards. Should drywall be used to provide a fire separation within portal framed building, the above mode of failure needs to be recognised by the designer.

As mentioned above, load bearing elements may need to be incorporated within, or adjacent to, the partition to maintain support to the roof structure during a fire event.

DIRECTION OF ATTACK BY FIRE

In most cases the direction of attack by fire is assumed to be from both sides of the partition. In some cases, for example in exterior walls adjacent to a fire source feature (as defined in the BCA), the rating may be required from one side only. For conventional fire rated plasterboard ceiling systems direction of attack by fire is always from below, while for spanning ceilings it can also be from both sides or from above. Applicable fire attack direction is indicated for each fire rated system listed in this manual.

MAXIMUM HEIGHTS

Maximum heights listed for fire rated steel stud partitions are the lesser of maximum fire heights and structural heights for a given wall configuration and stated lateral pressure. Maximum fire heights were derived from full scale tests carried out by CSIRO, BHP, BRANZ and from fire engineering principles.

Maximum structural heights have been obtained by computation and from extensive mechanical testing. These heights meet the requirements of the Building Code of Australia and have been certified by Wynton Stone Australia Pty Ltd and Taylor Thomson Whitting of Melbourne.

» DESIGN

RESISTANCE TO INCIPIENT SPREAD OF FIRE (RISF)

The BCA stipulates instances when a ceiling system must be resistant to the incipient spread of fire. This requirement determines the ability of the ceiling to provide adequate thermal insulation to combustible materials within the ceiling plenum thus avoiding the danger of the materials there igniting.

Many of the ceiling systems in this manual carry an RISF rating which is noted as such. RISF is a more onerous requirement than FRL.

Systems that achieve a particular RISF may be used to satisfy the requirements for a lesser RISF.

INSULATION MATERIALS

Insulation for thermal or acoustic reasons may be placed within partition cavities. The following is a list of insulation materials, that will not adversely affect the FRL:

TABLE A12: INSULATION MATERIALS	
MATERIAL	RESTRICTION
Foil-backed sarking: batt, blanket or loose rockwool or ceramic fibre	No restriction
Batt, blanket or loose glasswool	Any density or thickness, but no greater than 10% binder
Batt, blanket or loose polyester or polyurethane sheet foam (with or without vinyl laminate)	Any thickness but density within 20% of tested value
Batt, blanket or loose wool	Any thickness but density not less than a tested system

FIRE HAZARD PROPERTIES

Wall and ceiling lining materials in certain types of buildings must comply with the Fire Hazard Properties requirements of the BCA.

All USG Boral gypsum board lining products are classified as Group 1 (least hazardous) materials and have a smoke growth rate index less than 100 and average specific extinction area less than 250m²/kg when tested in accordance with the BCA.

COMBUSTIBILITY

In accordance with the BCA, gypsum boards can be used wherever a non-combustible material is required.

GAS RETICULATION IN FIRE RATED WALLS

Oxygen or combustible fluid reticulation systems should not be located within fire rated walls unless designed, fire tested and constructed to suit this application.

PENETRATIONS

Penetrations in a fire rated system must be treated strictly in accordance with relevant test reports and approved installation details in order to maintain the system's Fire Resistance Level.

Where components by others are specified in USG Boral fire rated penetration details (ie dampers, GPO's, fire collars, etc), such components must be installed in accordance with the manufacturer's specifications. It is the responsibility of the component manufacturer to ensure that the fire rating performance of the system is not affected.

SMOKE WALLS

Where smoke walls are required in accordance with the BCA, such walls can be lined with minimum 13mm thick Regular plasterboard.

JOINTING

Compounds used for finishing plasterboard joints in fire rated systems may be any plaster or vinyl based compounds supplied by USG Boral that are normally used for this purpose.

USG Boral vinyl jointing compounds have been shown by test not to self ignite at temperatures below 200°C and thus are suitable for use in fire rated systems.

» DESIGN

ACOUSTICS**WEIGHTED SOUND REDUCTION INDEX (R_W)**

The BCA has adopted the Weighted Sound Reduction Index (R_W) as a measure of sound isolating properties of building elements. A partition with a high R_W rating isolates sound better than a partition with a low R_W rating (an increase of 10 points in R_W rating indicates doubling in perceived sound isolating performance).

R_W ratings are obtained from tests carried out in certified laboratories, under controlled conditions. Determination of R_W is defined in AS/NZS ISO 717.1 *Acoustics – Rating of sound insulation in buildings and of building elements Part 1: Airborne sound insulation*.

Provided below are examples of R_W levels of some USG Boral wall systems:

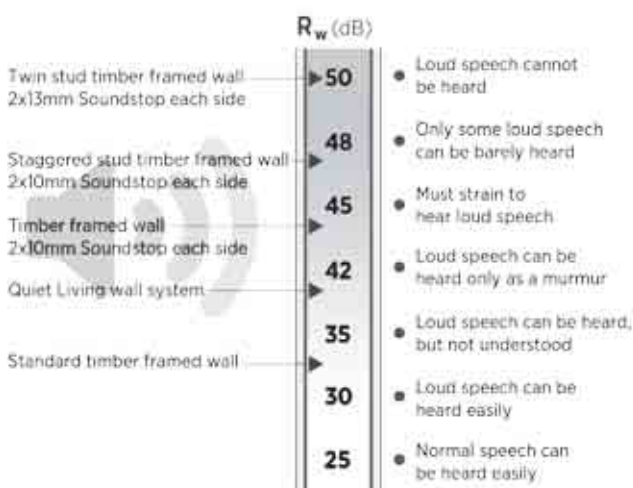


Figure A3: Noise Levels

SPECTRUM ADAPTATION TERM (C_{tr})

The R_W alone is not a good indicator of how well the partition isolates low frequency (bass) sounds. To improve the low frequency performance of wall & floor/ceiling partitions, the BCA requires specific walls to meet an R_W+C_{tr} criterion.

When the C_{tr} is combined with the R_W the result is a single number index which provides a more reliable indicator of the ability of the partition to isolate noise containing low frequency components.

Two partitions with the same R_W+C_{tr} value will typically have similar low frequency isolation properties regardless if their respective C_{tr} terms are vastly different. The higher the R_W+C_{tr} value for a wall or ceiling partition the better the sound insulation performance, particularly in the low frequencies.

The C_{tr} typically ranges between -1dB to -15dB and is calculated from the airborne performance of a partition in the range of frequency bands measured. Determination of C_{tr} is defined in AS/NZS ISO 717.1 *Acoustics – Rating of sound insulation in buildings and of building elements Part 1: Airborne sound insulation*.

IMPACT SOUND INSULATION**Walls**

BCA requires that certain walls between sole occupancy units in multi-residential buildings Class 1, 2, 3 and 9c must provide impact sound insulation.

Under the deemed-to-comply provisions of the BCA walls requiring impact sound insulation in Class 2 and 3 buildings must be of 'discontinuous construction'. The BCA defines discontinuous construction as a wall having a minimum 20mm cavity between two separate leaves, and:

- For masonry, where wall ties are required to connect leaves, the ties are of the resilient type
- For other than masonry, there is no mechanical linkage between leaves except at the periphery.

USG Boral wall systems qualifying as 'discontinuous construction' include:

- Twin stud wall systems, both in timber and steel
- IntRwall® systems (which include a separate steel stud at least to one side)
- Partiwall® systems (with aligned floors on each side of separate dwellings)
- Masonry acoustic upgrade systems with a free-standing wall at least on one side.

NOTE:

The BCA states that a staggered stud wall is not deemed to be discontinuous construction.

Floors

In addition to a minimum sound isolation performance (R_W+C_{tr}), the BCA contains a requirement for an impact sound rating of floors between sole occupancy units in multi-residential buildings Class 2 and 3, expressed as $L_{n,w}+C_i$.

The Weighted normalised impact sound pressure level ($L_{n,w}$) is measured in a laboratory and indicates how much sound reaches the receiving room from a standard tapping machine. The lower the number the better the performance of the floor at isolating impact sounds.

The Spectrum adaptation term (C_i) is used to modify $L_{n,w}$ to more closely simulate foot step noise.

» DESIGN

$L_{n,w}$ and C_I are defined in AS ISO 717-2 *Acoustics — Rating of sound insulation in buildings and of building elements — Impact sound insulation*.

DIFFERENCE BETWEEN LABORATORY AND FIELD ACOUSTIC PERFORMANCE

When identical partitions are tested on site it is often found that the site rating is lower than the R_w (laboratory performance). This reduction in performance can be due to:

- Incorrect installation procedures
- Flanking paths (ie noise passing through adjacent parts of the building)
- Non-ideal measurement conditions. For instance, small room sizes may affect accurate measurements in particular frequencies.

On-site field testing is allowed as a verification method to comply with the provisions of the BCA. The on-site rating measurement under the BCA is the $D_{nT,w}$ (Weighted Standardised Level Difference) and is, technically, slightly different to the laboratory R_w assessment. The BCA allows a 5dB concession between the laboratory performance and the field performance to allow for flanking and the technical difference in units. Therefore, the $D_{nT,w} + C_{tr}$ may be up to 5dB less than the $R_w + C_{tr}$.

For the transmission of impact generated sound through floors, the BCA does not allow any concession from the laboratory performance to the field performance. Therefore, the on-site performance requirement, $L_{nT,w}$ (Weighted Standardised Impact Sound Pressure Level) + C_I , cannot exceed the $L_{n,w} + C_I$.

SOUND INSULATION RATING OF SERVICES

The BCA requires ducts, soil and waste pipes and water supply pipes located in a party wall or floor cavity to be acoustically separated by a construction with a minimum $R_w + C_{tr}$ rating.

Supplementary to the airborne rating, the BCA requires that water supply pipes must only be installed in the cavity of discontinuous construction.

To achieve the sound insulation requirements of the BCA, one of the options for soil and waste pipe treatment includes acoustic lagging of the pipes which typically comprises a loaded vinyl isolated from the pipe with foam or fibreglass. It is important that the lagging and pipe are not in contact with ceilings, walls or supports and the pipe mounts and supports are not contact the surrounding bulkheads or risers.

OVER-PARTITION NOISE RATING

Sound can easily travel through an exposed grid or flush suspended ceiling and over the top of a partition where it abuts the underside of a suspended ceiling. This is a common source of sound transmission particularly where the ceiling is porous to sound.

In this case the sound rating of the ceiling element is stated as the $D_{n,c,w}$ — Weighted Suspended-ceiling Normalised Level Difference.

Where sound insulation is important, partitions should, wherever possible, continue through the ceiling to the structural soffit and be sealed at their perimeter.

Determination of $D_{n,c,w}$ is defined in AS/NZS 2499 *Acoustics — Measurements of sound insulation in buildings and of building elements — Laboratory measurement of room-to-room airborne sound insulation of a suspended ceiling with a plenum above it*.



Figure A4: Sound Transfer Over Partition

SOUND ABSORPTION RATING

The level of sound absorbency for a material is stated as the Weighted Sound Absorption Coefficient (α_w). The rating formerly used was NRC (Noise Reduction Coefficient). Determination of α_w is defined in AS ISO 11654 *Acoustics — Rating of sound absorption — Materials and systems*.

CONSTRUCTION CHANGES AND SUBSTITUTIONS

Changes in construction and substitution of different materials can increase or decrease the acoustical isolation of wall and floor/ceiling systems and may result in the acoustical isolation falling below the specification or BCA requirements. The following comments apply to wall systems unless otherwise noted:

» DESIGN

Studs

- Except for staggered stud and twin stud wall systems, substituting timber studs in place of steel studs generally results in a significant decrease in sound isolation.
- In single stud walls lined both sides increasing the thickness of steel studs from 0.55 BMT to 0.75 BMT or 1.15 BMT will generally decrease sound isolation.
- Decreasing the stud spacing will decrease the sound isolation.

Plasterboard

Substituting with lighter plasterboard will usually result in a change in R_w of around 1-2dB for most systems, although a greater reduction may occur with separating wall systems such as Partiwall®.

Insulation

- Thinner insulation may decrease the sound isolation.
- Thicker insulation may increase the sound isolation.
- The following insulation of the same thickness will typically have a similar performance:
 - Mineral wool blanket or batts not less than 30kg/m³ density
 - Glasswool blanket or batts not less than 10kg/m³ density
 - Acoustic grade polyester fibre blanket or batts not less than 14kg/m³ density.

Fixings

- Using more screws or nails than specified may reduce the sound isolation.
- Using cornice adhesive or other methods of laminating plasterboard, other than nailing or screw fixing, will reduce the sound isolation.

PERIMETER ACOUSTICAL SEALING

It should be noted that as the sound isolation requirement of a partition increases, the control of flanking paths becomes more critical. Consequently, the perimeter sealing requirements for a low sound rating wall, such as $R_w=30$ dB, are much lower than for a high sound rating wall, such as $R_w=60$ dB. It cannot be over-emphasised that for high performance walls, the sealing of each face must be virtually airtight.

For a sealant to be effective at controlling noise passing through gaps, it must have the following properties:

- Good flexibility, elastic set
- Low hardness

- Excellent adhesion, usually to concrete, timber, plaster and galvanised steel
- Minimal shrinkage (less than 5%)
- Density greater than 800kg/m³
- Fire rated (where required).

All of the above properties must be maintained over the useful life of the building.

Some silicone sealants and some acrylic latex sealants are examples of suitable sealants. Reference should be made to the manufacturer to ensure the particular type or grade of sealant is suitable for the purpose.

NOTE:

The use of expanding foam sealants is not acceptable.

USG Boral recommends H.B. Fuller Firesound™ sealant for caulking of acoustic systems.

NOISE FLANKING

Noise flanking can significantly reduce the perceived isolation of a wall or floor/ceiling system and should therefore be given careful consideration.

Typical flanking paths for a wall include:

- Through ceilings and the above ceiling cavity
- Through floors and the below floor crawl space
- Through windows
- Through light switches, or GPO's, located in the wall
- Through shared building elements such as floor boards, floor joists, continuous plasterboard walls, continuous plasterboard ceilings and even continuous concrete walls and floors
- Through any sound leaks
- Through the perimeter joints between the wall and the floor, or the wall and the ceiling (or underside of the floor slab) or wall junctions.

Typical flanking paths for a floor/ceiling system include:

- Through windows
- Through light fittings or air conditioning fixtures in the ceiling
- Through shared building elements, such as external walls
- Through any sound leaks
- Through the perimeter joints between the floor and walls, or between the ceiling and wall.

» DESIGN

ACOUSTIC PERFORMANCE ON SITE

Acoustic ratings stated in this manual have been achieved by testing or calculated based on controlled laboratory conditions.

To reproduce the stated performance in the field, attention to detail in the design and construction of the partition/ceiling and its associated structure is of prime importance. Even the most basic principles, if ignored, can significantly downgrade the sound insulation performance.

USG Boral cannot guarantee the field performance matching laboratory test results or estimated ratings. However, with careful attention during erection of the wall or ceiling, correct installation to specification and proper caulking/sealing, the assembly should produce a field performance close to and comparable with tested or estimated values.

Apart from installation procedures, workmanship and caulking the following factors can also affect the acoustic performance on site:

Doors

Hollow core and even solid doors generally provide unsatisfactory sound insulation between rooms. Doors can also provide direct air leaks between rooms thus having a detrimental effect on the overall sound insulation of the partition in which they are inserted. The higher the insulation of the partition, the worse is the effect of doors.

Where sound insulation is important, specialised heavyweight doors or, preferably, two doors separated by an absorbent lined airspace or lobby should be used.

Because air leakage largely determines the sound insulation of a single door, consideration must be given to providing airtight seals between the door and the frame and at the threshold. The joints between the door frame and partition structure should also be sealed. The door seal must be compatible with the fire resistance of a door if required.

Lightweight Panels Above Doors

These are often incorporated for aesthetic reasons, however, the performance of a partition with high sound insulation can be considerably downgraded by lightweight panels.

Air Paths through Gaps, Cracks or Holes

Gaps, cracks or openings, however small, readily conduct airborne sounds and can considerably reduce the sound insulation of a construction.

Appliances

In cases where sound insulation is important, noise producing fixtures or appliances such as water closets, cisterns, water storage tanks, dishwashers, washing machines and pumps should be repositioned or isolated from the structure with resilient mountings and flexible service leads and connections.

Where fittings are duplicated on opposite sides of partitions, such as back to back baths or unit shower cubicles, the partition wall should be continuous between the fittings, otherwise a path for direct sound transmission will exist.

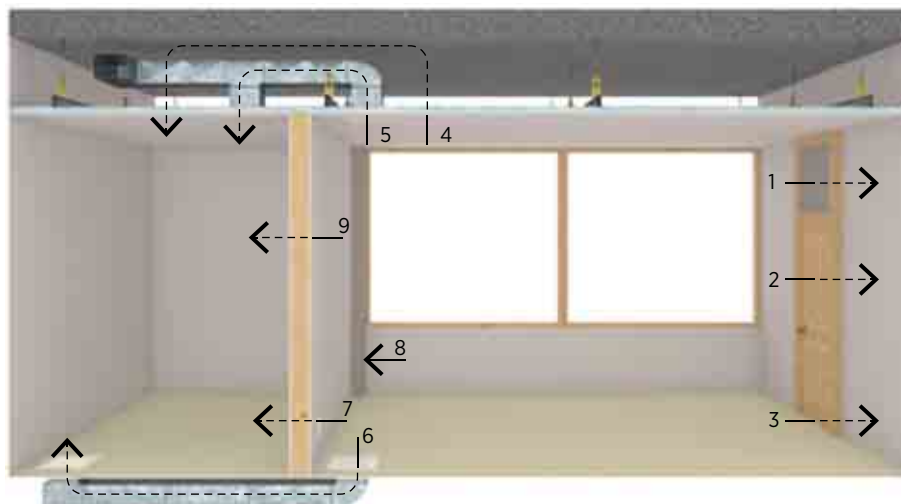


Figure A5: Sound Flanking Paths

Diagram Key

1. Lightweight panels above doors
2. Doors
3. Air leaks through gaps, cracks or holes
4. Sound transmission via suspended ceilings/partitions
5. Common ventilation system without sound absorbent treatment
6. Common floor duct
7. Electrical outlets and service pipes
8. Lightweight mullions or mullion/partition closers
9. Partition performance.

» DESIGN

Electrical Outlets and Service Pipe Penetrations

Penetrations in separating walls should be avoided. This includes recessed fittings or ducts such as skirting heating, electrical or telephone wiring trunking, light fittings, intercommunication systems and alarms, medical and laboratory gas outlets.

Plumbing connections between fittings or appliances on opposite sides of a partition offer a path for transmission of sound and should be sealed. If possible introduce discontinuity in the pipe work between fittings, such as a flexible connection within or on the face of a partition.

The acoustic performance may be downgraded where penetrations or services exist within the wall unless extreme care is taken at the detailing and construction stages. This is especially likely with acoustical bridging caused by plumbing or electrical services or by structural members including flooring.

Where penetrations are not avoidable in separating walls, electrical outlets, switch boxes and similar penetrations should not be placed back-to-back. Seal backs and sides of boxes and the perimeter of all penetrations with acoustic sealant. Preferably, sound-rated electrical outlets and switches should be used, or outlets and switches should be surface mounted on sound rated walls.

The BCA states that electrical outlets must be offset from each other in timber or steel framed walls not less than 300mm.

Penetrations in Linings Separating Soil and Waste Pipes

The acoustic ratings for unlagged soil and waste pipes are provided in the Multi-Residential section.

The effect of penetrations differs between the unlagged and lagged and clad pipes. Lagging and cladding has the benefit of reducing the noise emitted from the pipe itself.

Refer to lagging manufacturer's data for acoustic ratings of lagged soil and waste pipes.

WET AREAS**REGULATORY REQUIREMENTS**

Wet area as defined in the Building Code of Australia (BCA) is an area within a building supplied with water from a water supply system and includes bathrooms, showers, laundries and sanitary compartments.

According to BCA, building elements in wet areas must be waterproof or water resistant depending on the location within a wet area and must comply with AS 3740 *Waterproofing of Wet Areas Within Residential Buildings*.

AS 3740 sets out minimum material, design and installation requirements for waterproofing of wet areas within residential buildings and other buildings with a similar usage intensity. It also outlines typical wet area construction materials and methods.

Water-resistant plasterboard manufactured to AS 2588 *Gypsum Plasterboard* constitutes a water resistant substrate for the purposes of AS 3740.

Waterproofing membranes used in wet areas must comply with AS 4858 *Wet Area Membranes*.

Refer to AS 3740 for minimum extent of waterproofing in wet areas.

CEILINGS OVER WET AREAS

As the Building Code of Australia does not require the use of water resistant ceiling linings over wet areas, USG Boral non-water resistant gypsum boards provide an adequate solution for this application. USG Boral water resistant gypsum boards can be used in wet area ceilings if desirable.

USG Boral recommends that ceiling paint in wet areas should be impervious to moisture.

USG BORAL WET AREA SYSTEM™

USG Boral Wet Area System comprises materials and installation details outlined in USG Boral Installation Manual and must be installed in accordance with USG Boral specification to achieve the required performance.

USG Boral Wet Area System complies with the requirements of AS 3740 and is therefore suitable for use in residential buildings and other buildings with a similar usage of wet areas.

USG Boral Wet Area System is not suitable for use in high exposure applications such as group shower rooms, steam rooms, etc.

» DESIGN

RADIATION PROTECTION

Medical X-ray diagnostic rooms require protective barriers to shield operators and occupants of adjacent areas against excessive levels of radiation.

Radiation intensity depends on the application and the minimum shielding requirements are set out by the relevant Government Authorities. Advice on X-ray protection for a particular installation must be sought from a qualified Health Physicist to ensure the requirements for occupational and public protection are met.

Shielding for diagnostic X-ray rooms tends to be specified in terms of the thickness of lead required to achieve the appropriate level of protection.

USG Boral X-Block® is a lead-free plasterboard that provides X-ray and Gamma ray protection. X-block avoids the health and waste disposal issues associated with using lead and is lighter and easier to install than lead based solutions.

Refer to X-Block Technical Data Sheet for product performance data and installation specifications.

THERMAL INSULATION

Under the Deemed-to-Satisfy provisions of the BCA, the elements of building envelope must achieve minimum thermal resistance (R) values stipulated for various Classes of buildings and Climate Zones (thermal resistance requirements for Class 2 buildings are summarised in Multi-Residential section).

The total R-value of a building system is a sum of R-values of the system components, enclosed air gaps and internal and external air layers. R-values of various USG Boral lining products are shown in Table A4.

Although plasterboard itself does not provide high thermal resistance, R-values of framed plasterboard systems can be significantly increased by incorporating bulk or reflective cavity insulation.

Refer to the Multi-Residential section for thermal resistance ratings of USG Boral external wall systems.

DESIGN CONSIDERATIONS

CONDENSATION

Condensation occurs when warm and humid air comes into contact with cold surfaces.

Condensation on internal building surfaces is more likely to occur where there are large temperature fluctuations and the moisture content inside a house (often generated in a bathroom, laundry or kitchen) is high.

Repeat or prolonged condensation may lead to; nail-popping, sagging ceiling linings, rotting, mould growth, joint and corner cracking and deterioration of internal air quality. If left untreated, condensation may result in structural damage to the building and health concerns for the building occupants.

The following precautions can help minimise internal condensation:

- Keep air spaces well ventilated to promote moisture dissipation, especially in the roof and sub-floor spaces.
- In rooms such as bathrooms, kitchens and laundries exhaust moisture-laden air to the outside of the building and not into the roof or ceiling space.
- Use vapour barriers in conjunction with insulation around the building envelope. Place vapour barrier on the warm side of insulation.
- Use thermal breaks on steel framing members (refer BCA).

DEVICES GENERATING HEAT

USG Boral Plasterboard does not recommend the use of radiant heating systems continuously subjecting plasterboard ceilings to temperatures in excess of 42°C.

Prolonged exposure to temperatures higher than 42°C may cause changes in the chemical composition of the gypsum core and loss of plasterboard integrity over time.

The following regulatory and normative requirements must be followed in order to prevent plasterboard deterioration due to excessive temperatures from heat generating devices:

- BCA provisions for installation of heating appliances, fireplaces, chimneys and flues
- AS 2918 *Domestic solid-fuel burning appliances – Installation*
- AS 5601 *Gas installations*.

In accordance with AS 5601, gypsum based wall boards within 200mm of the edge of the nearest burner must be protected to a height of not less than 150mm above the periphery of that burner and for the full length of the cooking surface area with a fire resistant facing material. In no case the periphery of the burner should be closer than 140mm to wall linings.

6mm fibre cement board constitutes acceptable method of protection for 10mm plasterboard in domestic installations.

13mm Fiberock lining is approved by Energy Safe Victoria for use behind 5mm toughened safety glass splashbacks in non-load carrying situations (refer to ESV Gas Information Sheet No 03 issued 07/14).

Refer splashback fire protection requirements by relevant State and Territory authorities.

» DESIGN

CONTROL AND MOVEMENT JOINTS

The purpose of control joints is to accommodate hygrometric (moisture caused) and/or thermally caused changes in plasterboard dimensions. Control joints are required in unbroken plasterboard walls and ceilings at no greater than 12 metre centres in both directions (6m maximum spacing for external ceilings).

Movement joints are required in walls and/or ceilings in order to accommodate movements in the building structure (ie due to shrinkage, settlement, wind or seismic forces) and include construction and expansion joints and joints at changes in substrate materials.

Control joints in non fire rated systems can be formed by fitting Rondo P35 control joint or plastic expansion beads that leave a neat and flexible joint.

Control joints in plasterboard walls and ceilings must coincide with control/movement joints in superstructure.

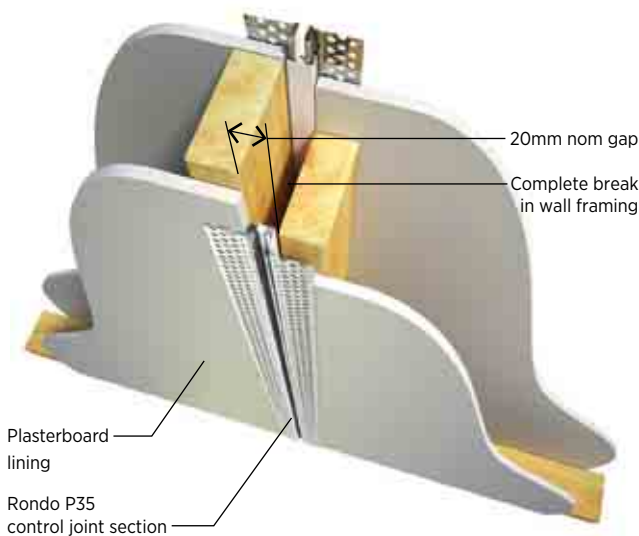


Figure A6: **Control Joint in Non-Fire Rated System**

Refer to Junctions and Penetrations section for details of control and movement joints in fire rated systems.

JOINTING

Compounds used for finishing plasterboard joints in fire rated systems may be any plaster or vinyl based compounds supplied by USG Boral that are normally used for this purpose.

USG Boral vinyl jointing compounds have been shown by test not to self ignite at temperatures below 200°C and thus are suitable for use in fire rated systems.

IMPACT RESISTANCE

Impacts on walls come in three basic forms: soft body, abrasive and hard body. Each of these can affect the wall lining in different ways and consequently affect the choice of the lining system.

Soft Body Impact

Soft body impact is the type of impact one would associate with people hitting walls with their shoulder or hip. Soft body impact testing is a requirement under the BCA for certain types of wall systems.

Up to the point of breaking the lining, soft body impacts rarely leave any visible marks on the face of the wall, unlike hard body and abrasive impacts.

Where required, USG Boral systems comply with the soft body impact resistance provisions of the BCA.



Figure A7: **Impact Test In Progress**

Hard Body Impact

These impacts result in dents or gouges and sometimes penetration of the wall lining. Examples of hard body impacts would include kicks and hits with trolleys or hockey sticks.

The BCA specifies a static test measuring resistance to indentation of wall linings (Specification C1.8), but no hard body impact requirements. All plasterboard products produced by USG Boral meet this surface indentation criteria.

» DESIGN

Abrasive Impact

This impact occurs when an object is scraped along the face of the wall and usually is seen by marks in the paint covering the wall lining.

Resistance against abrasion is more a function of the surface coating over the face of the wall lining, than the lining itself.

With a glancing impact, where a hard body object strikes the wall at an angle of less than 90 degrees, the damage will often be a combination of abrasion and denting.

DESIGN OPTIONS

The following design options can be incorporated in USG Boral wall systems if required:

Insulation

Various forms of insulation can be placed within wall cavities and over ceilings to achieve acoustic or thermal requirements. However, designers should be aware of the following:

- The mass of insulation acting directly on ceilings must not exceed maximum loads indicated in Table G1 in the Ceilings section.
- Insulation that attracts and holds moisture for prolonged periods is not recommended for use in USG Boral ceiling systems.

Overall Width of Partition

Twin and staggered stud walls, often used to form a services duct, can be varied in width to suit the building design. Note that reducing the width may adversely affect the acoustic properties of the partitions.

Where discontinuous construction is required by the BCA, the gap between the two leaves of the partition should not be less than 20mm.

Frame

Other factors remaining the same, steel stud depth and gauge greater than that specified may be used without adversely affecting the fire resistance of the wall system (note that changes in stud size or gauge may affect the system acoustic rating).

Permissible variations for fire rated timber framed systems include the following:

- Timber sections other than specified can be used provided that they are of the same:
 - stress grade or higher
 - section or deeper, and/or wider
 - or higher average density.

- Treated timber can be used in place of untreated timber provided that its charring rate is proven by fire testing to be no greater.
- Studs or noggings may be paired, or installed at closer centres than shown (acoustic considerations may limit the minimum stud centres).
- Flat strap, sheet or angle bracing flattened over studs before lining is applied may be used in timber framed walls without affecting the FRL or design capacity of the system provided the studs remain unnotched. These types of bracing can also be used in staggered stud walls.
- Top plates in timber framed walls should be designed by a suitably qualified Structural Engineer where dead and/or live loads are applied at more than 1.5 x plate depth from the stud.

Frame Spacing

Unless noted otherwise, all plasterboard supporting framework must be spaced at no greater than 600mm centres.

Stud Substitution

Rondo steel studs have been used in the development of USG Boral acoustic and fire rated systems.

Limiting heights and spans listed are for Rondo studs only. Other stud sections should not be used unless it can be shown that they are at least equal to Rondo studs in all of the relevant performance characteristics.

Structural and fire properties of unlippped C-studs can vary significantly from those of lipped studs, therefore unlippped C-studs must not be used without their independent assessment by a qualified Engineer.

Cavity Structures

Ballistic or forcible entry protective items may be included within walls. In the case of fire rated walls, adequate allowance must be made for expansion relief at the perimeter of ballistic/protective steel sheets. Security mesh may be incorporated within steel framed fire rated walls to USG Boral details.

Noggings and plywood bracing may be incorporated within steel framed fire rated walls except that the maximum weight of external attachments fixed to timber noggings or backing plates must not exceed 50% of that applicable to an equivalent non-fire rated wall. Contact TecASSIST 1800 811 222 for nogging and plywood backing details.

» DESIGN

Board Orientation

In wall systems the sheets of plasterboard may be oriented with the bound edges horizontal, vertical or, in the case of multilayer systems, both horizontally and vertically oriented layers. This option may be useful in achieving the best outcome in the prevailing lighting conditions.

Beams and Columns

Wall support beams, walls under beams, structural frames and columns within walls may be incorporated as per standard USG Boral details.

Fastener Size and Spacing

Screws and nails of greater gauge and at lesser centres than specified may be used without adversely affecting the fire resistance level of a partition or ceiling (note that acoustic performance of the system may be affected).

Curved Walls and Ceilings

Refer to USG Boral for construction details for curved fire rated and non-fire rated walls and ceilings.

Curved fire rated ceilings to have a radius of no less than 6000mm.

Attachments, Shelf Loading Capacity

In general, items may be attached through a fire rated lining to the wall frame providing that:

- The frame is designed and constructed to take the loading from the attachments and
- The attachments have a self ignition temperature of greater than 200°C.

Electrical conduits may be attached to steel stud partitions by means of clipping to screw fixed pressed metal sections without detrimentally affecting the FRL of the partition provided that:

- The conduits are self supporting and do not impose any axial load on the partition and
- The clips used to restrain the conduits are manufactured from a material having a melting point not exceeding 250°C.

Refer to USG Boral for attachment options for non-load bearing walls. For load bearing steel stud walls, framing and fastenings are to be designed by an appropriately qualified Structural Engineer and shall comply with AS 4600 *Cold-formed steel structures*.

Exterior Cladding, Lining

Exterior cladding or interior lining may be added to walls providing the frame is designed and constructed to accommodate the extra loading and, in the case of fire rated walls, the self ignition temperature of the cladding components exceeds 200°C.

As with other materials, plasterboard lined exterior walls will require careful detailing to avoid possible problems associated with effects of moisture.

Penetrations

Access hatch, duct, GPO, lighting recesses, tapsets, pipe and cable penetrations in fire rated walls and ceilings are to be constructed to fire tested or assessed details.

The incorporation of services and penetrations must not adversely affect the structural capacity of the framing members or the acoustic properties of the wall system.

Lighting Recesses and Service Chases

Where items such as lights, plumbing, heating or electrical services are fitted within or pass up through a fire rated wall, the recess/chase must first be framed out then the top, bottom, sides and back are to be lined using the same thickness and number of linings as on the penetrated face of the wall.

All corners between plasterboard linings are to be formed herringbone style, backed by a stud, metal stud track or angle of greater than 0.4mm BMT and any cable penetrations are to be sealed with an approved fire grade sealant. Refer to the relevant details in the Junctions and Penetrations section.

NOTES:

- The acoustic isolation capacity of walls is likely to suffer where chases and/or lighting recesses are provided within the wall or ceiling.
- Lighting or other heat producing items should not be included within walls where there is any likelihood that, through continuous, extensive use, temperatures in the plasterboard surrounding the fitting remain above 42°C for a prolonged period of time.

» DESIGN

Access Panels

Access panels up to 600mm square may be constructed within non-load bearing fire rated walls with a FRL of up to -/120/120. Prefabricated non-fire rated and fire rated access panels are also available (refer to panel manufacturers for installation details and fire test reports/certificates).

Ducts, Dampers and Grilles

Where items such as ducts, dampers and grilles pass through a fire rated wall, the penetration systems must be fire tested or assessed for compliance by Fire Testing Authority. The aperture must first be framed out allowing for lining and sealing of the aperture and expansion of the penetrating item during fire service where required. A useful rule of thumb for the amount of expansion to be allowed for is 10mm + 1% of the side under consideration. Some dampers are built to absorb their thermal expansion within their outside dimensions (refer to damper manufacturer's specifications).

The wall frame may need to be strengthened locally to account for any crippling of studs causing redistribution of loadings into the adjacent full height studs (ie these studs may be required to be boxed or require additional structural steel).

The aperture should be lined using the same thickness and number of linings as on the face of the wall. The sealing/mounting system around the penetrating item is to be as tested or assessed for that particular item.

APPEARANCE

LEVELS OF FINISH

The term 'Level of Finish' applies to non-fire rated plasterboard systems.

AS 2589 *Gypsum linings — Application and finishing* defines three Levels of Finish: 3, 4 and 5. Level 4 is the default level of finish for plasterboard surfaces, unless specified otherwise.

It is essential that the level of finish is determined at the design stage since each level of finish has specific requirements for substrate tolerances and plasterboard installation, jointing and finishing. The desired level of finish may not be achieved unless all of these requirements are met through various stages of construction.

Levels of Finish recommended for various lighting conditions and surface decoration are shown in Figure A8.

For a full description of Levels of Finish refer AS 2589. A summary of various Levels of Finish is provided below:

Level 3

This level of finish is used in areas that do not require decoration or where finish is not important (for example, above ceilings or inside service shafts and the like).

All joints and interior angles must have tape embedded in the joint compound and one separate coat of joint compound applied over all joints and fastener heads.

Butt joints and recessed joints in walls and ceilings can be on framing members.

Level 4

This is the default and generally accepted level of plasterboard finish. All joints and interior angles must have tape embedded in the jointing compound and a minimum of two separate coats of joint compound applied over all joints, angles, fastener heads and accessories.

Butt joints in walls and ceilings must be between framing members. Recessed joints in the ceilings must be between framing members.

If Level 4 surface is to be exposed to critical (glancing) light, it should be covered with textured finishes or wall coverings. Smooth textured finishes and flat/matt or low sheen paints can be used when Level 4 finish is illuminated by non-critical lighting. Flat paints in this situation tend to conceal joints.

Weight, texture and sheen level of wall coverings/finishes should be carefully evaluated and joints should be adequately concealed if wall-covering material is lightweight, glossy or lightly patterned.

» DESIGN

NOTES:

- In critical lighting conditions, surface variations may still be apparent in a Level 4 surface finish.
- Gloss, semi-gloss or deep tone paints are not recommended for Level 4 finish, as they accentuate surface variations.

Level 5

Level 5 finish should be used where gloss or semi-gloss paints are specified or where flat or low sheen paints will be exposed to critical lighting conditions.

Level 5 finish is characterised by a parity of surface texture and porosity. All joints and interior angles must have tape embedded in the jointing compound and a minimum of two separate coats of jointing compound applied over all joints, angles, fastener heads and accessories.

Butt joints in walls and ceilings must be between framing members. Recessed joints in the ceilings must be between framing members.

The work is finished with proprietary surface preparations or skim coating to remove differential surface textures and porosity. A suitable paint or plaster material is sprayed, rolled or trowelled over the defined area. The surface texture must be random and monolithic, concealing joints and fixing points.

NOTES:

- If Level 5 finish is desired for a decorated plasterboard surface, this must be specified at the design stage.
- Level 5 finish does not mean the surface is without texture variation.
- Level 5 finish is difficult to achieve and always requires the cooperation of the framer, plasterer and painter in establishing suitable work practices that deliver the agreed painted finish for the given project.
- Some minor surface variations may still be visible in Level 5 finish, however, these will be minimised.
- The surface of the defined area may require sanding to be suitable for decoration.

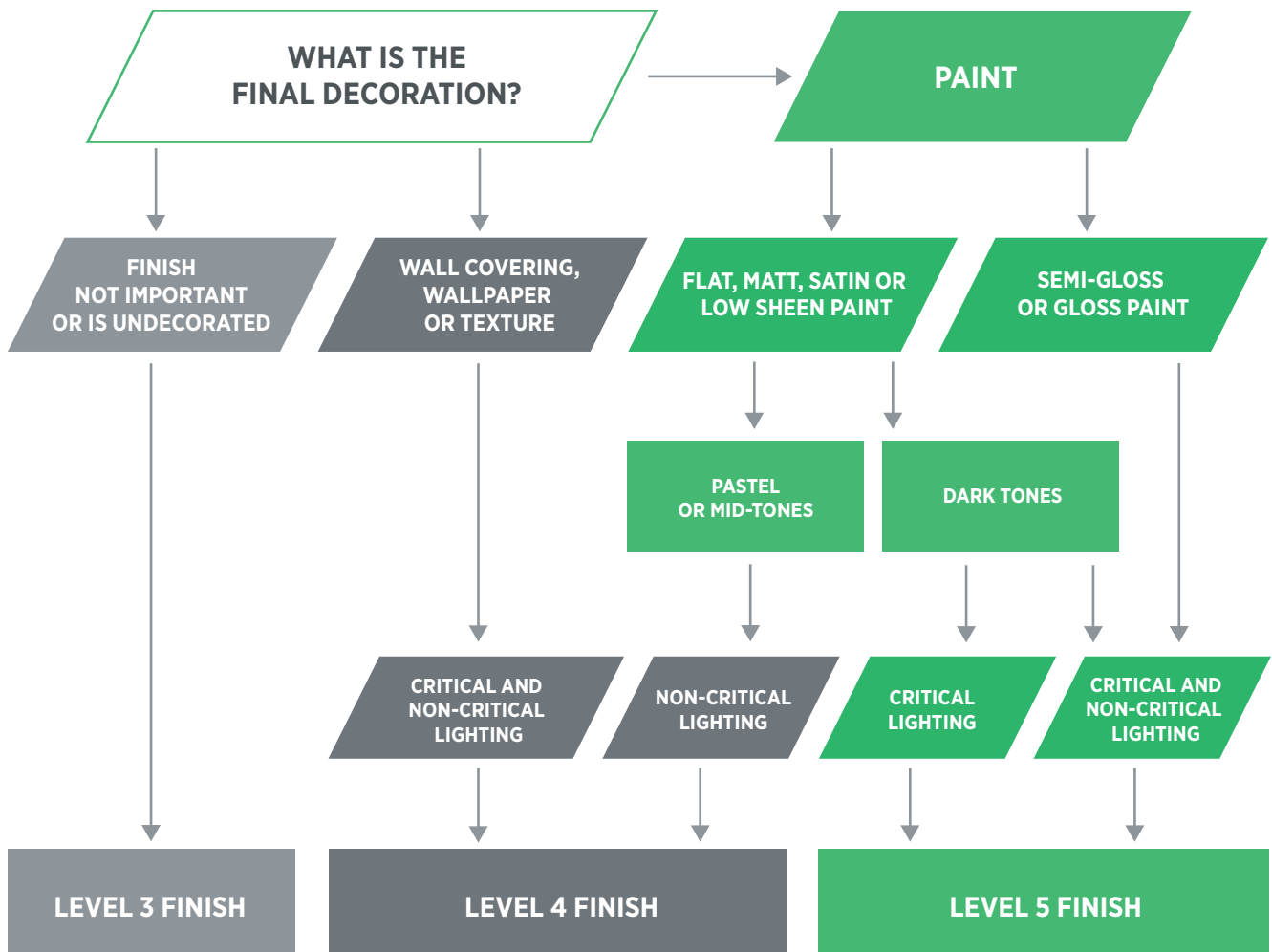


Figure A8: Levels of Finish

» DESIGN

FRAMING TOLERANCES

Maximum deviations in the bearing surface of the finished framing immediately prior to installation of linings when measured with 1.8m straight edge are as follows:

TABLE A13: FRAMING TOLERANCES mm			
FRAMING AREA	LEVEL 3	LEVEL 4	LEVEL 5
90% of area	4	4	3
remaining area	5	5	4

*Deviation at any point of the bearing surface of the finished framing immediately prior to installation of lining when measured with 1.8m straight edge.

INFLUENCES

There are many factors in modern building design that influence the overall appearance of a wall or ceiling.

Modern features such as lower unbroken ceiling areas across adjoining rooms, large open living areas, and importantly, larger windows with greater use of natural light from skylights and mirrored walls etc often create conditions in which it is difficult to achieve the desired level of finish.

Consumers are often not aware of the difficulties involved in achieving their expectations, particularly when some design conditions highlight rather than camouflage surface conditions. It is therefore very important that the consumer’s expected standard of finish matches the level of finish the tradesperson is capable of achieving given the particular design features of the project.

GLANCING LIGHT

Glancing light is the light that shines across the surface of a wall or ceiling rather than directly on it. When considering the type of finish required it is important to understand how the overall appearance is likely to be affected by glancing light in a particular situation.

Refer USG Boral publication *Guide to Lighting and Decoration of Plasterboard* for guidance on good lighting and decoration practices.

GLOSS/SHEEN PAINTS

Full gloss paint finish is not recommended on plasterboard walls or ceilings. When semi-gloss paint is to be used in large open rooms or vast areas with uncurtained windows, the highest level of finish (Level 5) is essential.

Where gloss or impervious sheen paint finishes are desired for purely functional reasons eg, kitchens, bathrooms etc, some loss of appearance should be accepted.

PAINT DISCOLOURATION

Whilst a plasterboard installation may conform to the relevant Australian Standards, discolouration of the joints may occur due to effects of condensation, mould growth, contaminated paint or other factors.

The risk of paint discolouration can be reduced through good design practices and the use of quality products and workmanship.

USER GUIDE

SYSTEM IDENTIFICATION

USG Boral has developed a user friendly system naming convention based on system type and fire rating. System names uniquely identify each system by incorporating the following information:

- System Type designation
- Non-load bearing fire rating (or load bearing fire rating if this is the only one applicable) for fire rated systems
- System variation.

USG Boral system types and corresponding designations are shown in Table A14.

Lining Configurations and Lining Types are designated by numbers or letters depending on the system.

Shown below are some examples of USG Boral system names:

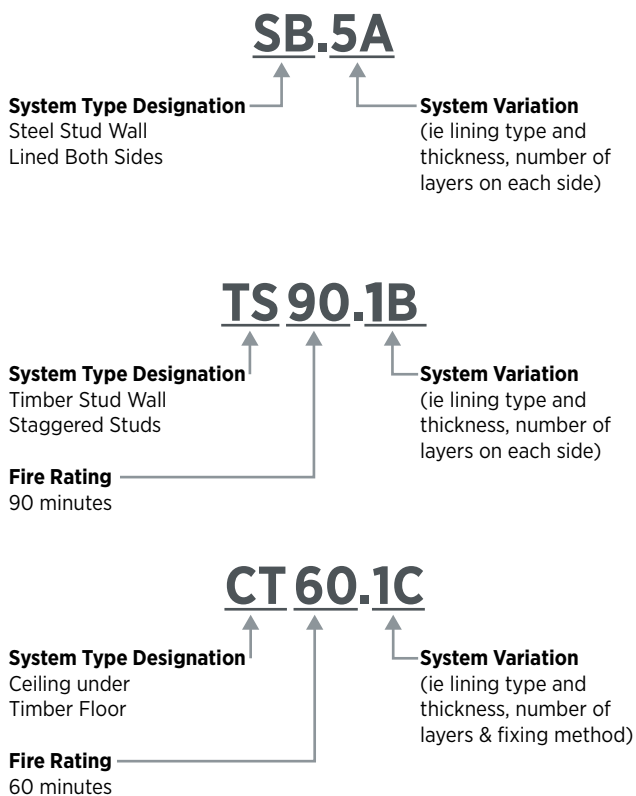


Figure A9: System Identification

TABLE A14: SYSTEM TYPE DESIGNATION	
SYSTEM TYPE	SYSTEM TYPE DESIGNATION
STEEL STUD WALLS	
Lined One Side	SO
Lined Both Sides	SB SBF* SBS†
Quiet Stud	SQ SQF*
Staggered Stud	SS SSF*
Twin Stud	ST STF*
TIMBER STUD WALLS	
Lined One Side	TO TOF*
Lined Both Sides	TB TBF* TBS†
Furred	TF TFF*
Staggered Stud	TS TSF*
Twin Stud	TT TTF*
MULTI-RESIDENTIAL	
Partiwall (timber)	PWT
IntRwall	IW
EXTERNAL WALLS	
OutRwall (timber)	OWT
Brick Veneer	BV
Fireclad	FC
MASONRY UPGRADES	
Acoustic Upgrades – Internal Walls	MWI
Acoustic Upgrades – Blade Columns	MWB
Acoustic Upgrades – Lift and Stair Shafts	MWS
Autoclaved Aerated Concrete	AAC
Fire Upgrades	MW
CEILINGS	
Ceilings under Timber Floors	CT
Ceilings under Roofs	CR
Ceilings under Concrete Floors	CC
Spanning ceilings – C-stud	CS
Spanning Ceilings – CH-stud	CH
Over Partition	OP
SPECIALTY SYSTEMS	
Shaftwall	SH
Ventshaft	VS
Protection – Steel Column	PSC
Protection – Concrete Column	PCC
Protection – Timber Column	PTC
Protection – Steel Beam	PSB
Protection – Timber Beam	PTB
Fire Tunnels	FT

*Fiberock systems.

†Sheetrock systems.

» USER GUIDE

SYSTEM SECTIONS OVERVIEW

All System sections follow a common format, starting with the Introduction, followed by System Tables.

An Introduction provides a brief outline of various types of systems contained in the section, grouping information under the following headings:

- Description
- Design Options
- Materials
- Design Considerations
- Installation.

Introductions to Steel Stud Walls and Timber Stud Walls sections also contain general plasterboard fixing drawings, whereas Introductions to Multi-Residential and Specialty Systems sections contain a brief outline of BCA fire and acoustic requirements for multi-residential buildings.

System tables pages have been arranged in a logical order reflecting a typical system selection process.

While system table format varies depending on the type of system, all system table pages contain key information required for system selection and specification. System table pages also incorporate a number of visual cues and other common features and information to assist in system selection:

STEEL STUD WALLS

C

SB60.3

FIRE RESISTANCE LEVEL
NLB -/60/60
LB 30/30/30
FROM BOTH SIDES

FRL Basis: FCG-1345, FCG-1360

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	STUD SPACING mm					PRESSURE: 0.25 kPa				
				STUD SIZE mm					PRESSURE: 0.25 kPa				
				51	64	76	92	150	51	64	76	92	150
SB60.3A	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	NIL	42	43	44	45	36	37	37	36		
			TSB2	47	48	49	50	41	41	42	42		
			50G11, 50P14	48	50	50	51	49	42	42	43	43	
			75G11, 75P14	-	-	51	52	50	-	43	45	44	
90G11, 90P14	-	-	-	53	51	-	-	-	46	45			

SYSTEM DESCRIPTION

Side 1: 1x13mm Wet Area Firestop + 1x10mm Steel stud

Framing: Refer to

Insulation: 1x13mm Wet Area Firestop + 1x10mm Fiberrock

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

STUD SPACING mm	400					800				
	51	64	76	92	150	51	64	76	92	150
0.50	3500 f	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA
0.55	NA	NA	45	50 d	NA	NA	NA	4130 d	4940 d	NA
0.75	NA	4530 d	530	550 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d
1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d

HEIGHT LIMITING FACTOR: d = deflection; 2d = deflection (2 rows of noggings); f = fix height

*Refer to code for maximum heights for load bearing walls

SYSTEM PAGE FEATURES

1. Colour coded page tabs and table headers corresponding to the Section colour code.
2. Description of the System Type at the top of the page.
3. Prominently displayed System Types and Fire Resistance Levels (where applicable).
4. System thumbnails showing basic system configuration.
5. Brief description of a system under a particular System Type.
6. Table containing the following system information as applicable:

7. System references and corresponding lining types/configurations under a particular System Type.
8. R_w and R_w+C_{tr} ratings with and without insulation.
9. Colour coded key acoustic rating brackets.
10. Full Insulation description.
11. Water resistant linings indicated in blue font.
12. Maximum Height/Width/Span tables where and as applicable (height limiting factors included for Steel Stud Walls).
13. Acoustic opinion.
14. FRL basis.

» USER GUIDE

SYSTEM SELECTION**SYSTEM SELECTION EXAMPLE**

Select non load bearing steel stud wall system that satisfies the following performance requirements:

Fire rating:	FRL -/60/60 from both sides
Acoustic rating:	$R_w=45$
Impact resistance:	Moderate impact resistance on one side only
Height:	4100mm slab to slab
Head deflection:	20mm
Design pressure:	0.25kPa

Step 1: Identify the relevant section and system type.

- Locate Steel Stud Walls section by referring to section name (Steel Stud Walls), section designation letter (B), page numbers (B1, B2, etc) and/or colour coded page tabs and table headers (Purple).
- Locate walls Lined Both Sides by referring to the system type at the top of the page (Lined Both Sides).

Step 2: Identify systems achieving the required fire rating.

- Locate system SB60.1 by referring to fire identifier within system designation (60).
- Verify system fire rating by referring to the Fire Resistance Level box below (NLB -/60/60).

Step 3: Identify systems achieving required acoustic ratings.

- Identify systems SB60.1A, SB60.1B and SB60.1C by referring to R_w acoustic ratings and using acoustic ratings colour coding.

Step 4: Select system with linings satisfying any additional performance criteria.

- Select system SB60.1C with Firestop plasterboard on one side and Multistop plasterboard on the other side (moderate impact resistance on one side only).

Step 5: Select the most economical stud/insulation combination satisfying structural requirements.

- Select 76mm stud 0.55mm Base Metal Thickness @ 600mm (max height 4130mm limited by deflection).
- Select 75G11 or 75P14 insulation.

C STEEL STUD WALLS**Step 1****LINED BOTH SIDES****SB60.1**

Step 2 **ANCE LEVEL**
NLB -/60/60
LB 30/30/30
FROM BOTH SIDES

FRL Basis: FCO-1045, FCO-1360,
EWFA 27311-00

**SYSTEM DESCRIPTION**

Side 1: 1x13mm fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd

ACOUSTIC RATINGS: BASIS: RT&A TE405-05F02

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	STUD SIZE mm					INSULATION*				
				77	90	102	118	176	77	90	102	118	176
				51	64	76	92	150	51	64	76	92	150
SB60.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	NIL	34	35	36	37	36	27	28	28	30	27
			TSB2	39	41	42	42	41	29	32	33	33	33
			50G11, 50P14	40	42	43	43	42	30	33	34	34	34
			75G11, 75P14	-	-	45	45	44	-	-	36	36	36
			90G11, 90P14	-	-	-	45	44	-	-	-	36	36
SB60.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	NIL	36	37	38	39	37	28	29	30	31	29
			TSB2	41	42	43	44	42	31	34	34	36	35
			50G11, 50P14	41	43	43	45	43	32	35	35	37	36
			75G11, 75P14	-	-	45	46	44	-	-	36	38	37
			90G11, 90P14	-	-	-	46	44	-	-	-	38	37
SB60.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	NIL	35	36	37	38	36	28	28	30	30	28
			TSB2	40	42	42	43	42	30	33	33	35	35
			50G11, 50P14	41	43	43	45	43	31	34	34	36	36
			75G11, 75P14	-	-	45	46	44	-	-	36	37	37
			90G11, 90P14	-	-	-	46	44	-	-	-	37	37

* 90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tymbre Insulation (or equivalent)
Correspondence = 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS: NON-LOAD BEARING WALLS*

STUD SPACING mm	STUD SIZE mm	400					600				
		51	64	76	92	150	51	64	76	92	150
		0.50	3500 f	4020 d	NA	NA	3200 d	3720 d	NA	NA	NA
BASE METAL THICKNESS mm	0.55	NA	NA	4530 d	NA	NA	NA	NA	4130 d	4940 d	NA
	0.75	NA	NA	4530 d	5220 d	5220 d	NA	4220 d	5020 d	5500 d	6990 d
	1.15	NA	NA	4810 d	5720 d	5720 d	NA	4430 d	5220 d	5750 d	7520 d
	1.15	NA	NA	4810 d	5720 d	5720 d	NA	4430 d	5220 d	5750 d	7520 d

Height Limiting Factor: d = deflection, 2d = deflection (2 max of ruggings)

* Refer to table for maximum heights for load bearing walls

» USER GUIDE

SYSTEM SPECIFICATION

MINIMUM SPECIFICATION

It is recommended that the following minimum information is included as appropriate when specifying USG Boral systems:

- System name
- System description
 - Linings configuration, type and fixing
 - Substrate type, size and arrangement
 - Insulation type, thickness and location
 - Other components contributing to the performance of the system.
- Fire Resistance Level and direction
- Acoustic rating.

OPTIONAL INFORMATION

The following information is optional in order to ensure a full and unambiguous system specification:

- Overall width/depth
- Maximum height/length/span
- Design pressure/vertical/shelf loads
- Design deflection
- Number, location and size of noggings and fixing plates
- Requirement for special heads
- Additional furring channels
- The required level of finish
- The presence within the system of other items (eg protective steel mesh or sheet).

SYSTEM SPECIFICATION EXAMPLE

Provided below is the system specification based on the system selection example above:

Minimum Specification

- USG Boral system SB60.1C
- Lining Side 1: 1x13mm Firestop plasterboard
- Lining Side 2: 1x13mm Multistop 3* plasterboard
- 76mm Rondo C-studs 0.55mm Base Metal Thickness @ 600mm
- 75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation or 75mm Polyester insulation 14kg/m³†
- FRL -/60/60 (non-load bearing)
- $R_w=45$.

* Multistop 3 pbd satisfies design performance criteria of moderate impact resistance

† Provide full insulation description rather than abbreviated designation

Optional Information

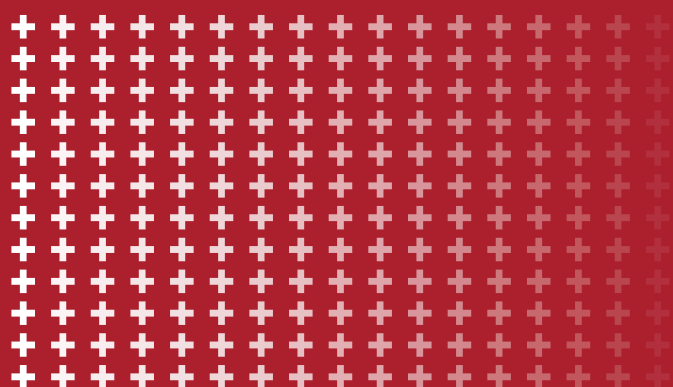
- Nom wall width 102mm
- Maximum height 4130mm
- Design pressure 0.25kPa
- Design deflection L/240
- One row of noggings at mid-height*
- Deflection Head Track 0.75mm Base Metal Thickness (BMT)†
- Level 4 finish UNO.

* At least one mid height row of noggings is required in all wall 3600mm and higher (refer to Steel Stud Walls section)

† Deflection head track is required to accommodate 20mm vertical deflection. Maximum head track reaction capacity of 0.75mm BMT Deflection Head Track in this system is 0.44kN (refer to Steel Stud Walls section for head track reaction capacities)

B 2	INTRODUCTION
B 3	MULTI-RESIDENTIAL BUILDINGS
B 4	COMMERCIAL BUILDINGS
B 6	EDUCATIONAL FACILITIES
B 8	HEALTH CARE BUILDINGS

ACOUSTIC REQUIREMENTS



INTRODUCTION

MULTI-RESIDENTIAL BUILDINGS

Any wall or floor/ceiling system separating sole-occupancy units in a multi-residential building (Class 1a, 2, 3 and 9c) must comply with the acoustic provisions of the BCA (refer to the Multi-Residential section for a summary of BCA acoustic requirements).

While BCA specifies minimum levels for sound isolation between attached dwellings, these levels may not always be sufficient to meet the expectations of the building occupants. In view of this, a higher degree of sound insulation, commensurate with the expectations of the end user, may need to be considered.

To this end the Association of Australian Acoustical Consultants (AAAC) developed the Guideline for Apartment and Townhouse Acoustic Rating providing a 'Star Rating' system that ranks the acoustical quality of multi-residential buildings on a scale from 2 (worst performing) to 6 (best performing) stars.

The Star Rating system covers noises associated with inter-tenancy activities such as voices, home theatre, internal building services and appliances (ie air conditioning, lifts, water supply systems) as well as external noise intrusion (ie road, rail, and air traffic).

Provided on pages B3 are the performance indicators for star ratings meeting or exceeding BCA requirements (4 to 6 stars) for separating walls and floors. The full description of Star Rated system refer to the Guideline for Apartment and Townhouse Acoustic Rating available at AAAC web site aaac.org.au

COMMERCIAL BUILDINGS

Concerned with the limited building regulations governing acoustical quality of commercial buildings, AAAC has developed the Guideline for Commercial Building Acoustics focusing in particular on office buildings.

In developing this Guideline, AAAC aimed at encouraging consistency between different developments and at highlighting the importance of buildings acoustics to the apparent quality of commercial buildings.

This Guideline is intended to complement the relevant AS/NZS Standards (in particular AS/NZS 2107 *Acoustics – Recommended design sound levels and reverberation times for building interiors*) and Green Building Council Australia (GBCA) rating tools for Office Design and Office Interiors. It addresses such major issues as external noise, noise from building services, noise transfer between separate tenancies and noise transfer within the same tenancy.

Extracts from the Guideline for Commercial Building Acoustics specific to noise isolation are provided on pages B4 and B5.

The full Guideline can be found at aaac.org.au

EDUCATIONAL BUILDINGS

In the absence of consistent Australia-wide regulations and standards encompassing all aspects of the acoustic qualities of Educational buildings, AAAC has developed the Guideline for Education Facilities Acoustics.

This Guideline is intended to be complimentary to local authority building requirements and individual and state guidelines (where they exist) and is consistent with the requirements of the BCA.

The Guideline is aimed at achieving appropriate sound levels within teaching spaces while taking into account not only the activities that occur inside classrooms and teaching spaces, but also the activities that typically occur in adjacent spaces and outside during the course of a day.

Extracts from the Guideline for Education Facilities Acoustics are provided on pages B6 and B7. The full Guideline can be found at aaac.org.au

HEALTH CARE BUILDINGS

The design of health care facilities in Australia must comply with the BCA, the relevant Australian Standards and state regulations. In addition, Australasian Health Facility Guidelines (AushFG) provide general guidance on various aspects of typical Health Care Facilities in order to facilitate the provision of appropriate physical environments.

In relation to acoustic requirements for health care buildings, AushFG refers to AS/NZS 2107 *Acoustics – Recommended design sound levels and reverberation times for building interiors*.

As a further guide for designers and builders of health care facilities, included on page B8 are acoustic rating recommendations contained in UK Health Technical Memorandum HTM 08-01: Acoustics.

MULTI-RESIDENTIAL BUILDINGS

Extract from AAAC Guidelines

TABLE B1: INDICATIVE SOUND INSULATION PERFORMANCE OF THE VARIOUS STAR RATINGS IN RESPECT TO CONTROLLING TYPICAL DOMESTIC NOISE

TYPE OF NOISE SOURCE	SOUND INSULATION EXPRESSED AS $D_{nT,w} + C_{tr}$		
	45*	50	55
	4 STAR	5 STAR	6 STAR
Normal Speech	Not Audible	Not Audible	Not Audible
Raised Speech	Just Audible	Not Audible	Not Audible
Dinner Party/Laughter	Just Audible	Not Audible	Not Audible
Shouting	Audible	Just Audible	Not Audible
Small Television/Small Entertainment	Audible	Just Audible	Not Audible
Large Television/Large Hi-fi Music System	Clearly Audible	Audible	Just Audible
DVD With Surround Sound	Clearly Audible	Audible	Audible
Digital Television With Surround Sound	Clearly Audible	Audible	Audible

*Min BCA requirement

TABLE B2: MINIMUM IN-SITU ACOUSTIC PERFORMANCE OF SEPARATING WALLS AND FLOORS, $D_{nT,w} + C_{tr}$

INTERTENANCY ACTIVITIES	4 STAR	5 STAR	6 STAR
(A) AIRBORNE SOUND INSULATION FOR WALLS AND FLOORS			
Between Separate Tenancies $D_{nT,w} + C_{tr} \geq$	45*	50	55
Between A Lobby/Corridor & Bedroom $D_{nT,w} + C_{tr} \geq$	40	45	50
Between A Lobby/Corridor & Living Area $D_{nT,w} + C_{tr} \geq$	40	40	45
Corridor, Foyer To Living Space Via Door(s) $D_{nT,w} \geq$	30	35	40
(B) IMPACT ISOLATION OF FLOORS			
Between Tenancies $L_{nT,w} \leq$	50	45	40
Between All Other Spaces & Tenancies $L_{nT,w} \leq$	50	45	40
(C) IMPACT ISOLATION OF WALLS			
Between Tenancies	Yes	Yes	Yes
Between Common Areas & Tenancies	No	Yes	Yes

* Min BCA requirement.

NOTE:

Wall and floor/ceiling systems separating sole-occupancy units in a multi-residential building must comply with the minimum acoustic provisions of the BCA (refer to the Multi-Residential section for a summary of BCA acoustic requirements).

COMMERCIAL BUILDINGS

Extract from AAAC Guidelines

TABLE B3: ACCEPTABLE R_w VALUES DEPENDING ON A ROOMS'S NOISE LEVEL AND THE TOLERANCE IN THE ADJACENT SPACE

NOISE TOLERANCE IN RECEIVING ROOM	SOURCE ROOM ACTIVITY NOISE			
	LOW	AVERAGE	HIGH	VERY HIGH
High	R_w 35	R_w 40	R_w 45	R_w 50
Medium	R_w 40	R_w 45	R_w 50	R_w 55
Low	R_w 45	R_w 50	R_w 55	R_w 60
Very Low	R_w 50	R_w 55	R_w 60	R_w 65

For guidance on expected noise source levels and tolerance for various room occupancies refer to table B4.

TABLE B4: ROOM NOISE SOURCE LEVELS AND TOLERANCE

TYPE OF OCCUPANCY/ACTIVITY	SOURCE ACTIVITY LEVEL	NOISE TOLERANCE
Board and Conference Rooms	High	Very Low
Cafeterias	Very High	High
Call Centres	Average - High	Low - Medium
Computer (Server) Rooms	High	Medium - High
Corridors and Lobbies	Average	High
Design Offices	Average	Low
Drafting Offices	Average	Low
General Office Areas	Average	Medium
Private Offices	Low	Low
Public Spaces	Average	High
Reception Areas	Average	Medium
Rest Rooms and Tea Rooms	High	High
Toilets	Average	High
Undercover Car Parks	Very High	High

COMMERCIAL BUILDINGS

Extract from AAAC Guidelines

TABLE B5: PERFORMANCE REQUIREMENTS BETWEEN SEPARATE TENANCIES WHERE SPACE USE IS UNKNOWN				
WEIGHTED SOUND REDUCTION INDEX (R _w)				
POOR	AVERAGE	GOOD	VERY GOOD	EXCELLENT
40	45	50	55	60

TABLE B5: Provides acoustic quality as it relates to the quality of the development and where the use of the spaces either side of a common wall is unknown. The AAAC Guideline suggests a minimum Rw 50 between tenancies.

TABLE B6: PERFORMANCE REQUIREMENTS WITHIN THE SAME TENANCY WHERE SPACE USE IS YET TO BE DEFINED				
WEIGHTED SOUND REDUCTION INDEX (R _w)				
POOR	AVERAGE	GOOD	VERY GOOD	EXCELLENT
35	40	45	50	55

TABLE B6: Provides acoustic quality as it relates to the quality of the development and where the use of spaces on each side of the wall is yet to be defined, otherwise table B3 can be used.

For office areas where walls do not extend full height, the ceiling selected will also become critical.
Refer to Ceilings — Over Partition Systems for ceiling configurations required to maintain wall acoustic rating.

EDUCATIONAL FACILITIES

Extract from AAC Guidelines

TABLE B8 REQUIRED FLOOR IMPACT INSULATION RATINGS DEPENDING ON ROOM NOISE SOURCE LEVELS AND TOLERANCE

ROOM		SOUND ISOLATION		
		MAXIMUM IMPACT INSULATION RATING, $L'_{nT,w}$	SOURCE ROOM ACTIVITY NOISE	RECEIVING SPACE NOISE TOLERANCE
AS2107 Educational Buildings	Also applicable to:			
Art/craft studios		60	Average	Medium
Assembly halls up to 250 seats		60	High	Low
Assembly halls over 250 seats		60	High	Low
Audio-visual areas		60	High	Low
Computer rooms - Teaching		60	Average	Low
Computer rooms - Laboratories		60	Average	Medium
Conference room		55	Average	Low
Corridors and lobbies		65	Average	High
Drama Studios	Dance Studios	55	High	Very Low
Duplicating rooms/stores		65	High	High
Engineering workshops		65	High	High
Gymnasiums		65	High	Medium
Interview/counselling rooms		55	Average	Low
Laboratories - Teaching		60	Average	Low
Laboratories - Working		65	Average	Medium
Lecture rooms - up to 50 seats		60	Average	Low
Lecture theatres - without speech reinforcement and >50 seats		55	Average	Very Low
Lecture theatres - with speech reinforcement		55	Average	Low
Libraries - General areas		55	Low	Low
Libraries - Reading areas		55	Low	Low
Libraries - Stack areas		65	Average	Medium
Manual arts workshops		65	Average	Medium
Medical rooms (First aid)		60	Average	Low
Music practice rooms		55	Very High	Low
Music studios		55	Very High	Very Low
Office areas	Study rooms	60	Low	Low
Professional and administrative offices		60	Low	Low
Teaching spaces - Primary schools		55	Average	Low
Teaching spaces - Secondary schools		55	Average	Low
Staff common rooms		65	Average	Medium
Toilet/change/showers		-	Average	High
Other AS2107 rooms				
AS2107 Educational Buildings	Also applicable to:			
General office areas (Office Buildings)	Open plan teaching spaces	60	Average	Medium
Other				
Teaching spaces - Hearing impaired		55	Average	Very Low
Swimming pools		65	High	High
Plant rooms		-	High	High
Nursery school - Play rooms		65	High	Low
Nursery school - Quiet rooms		60	Low	Low
Atria		65	Average	Medium

EDUCATIONAL FACILITIES

Extract from AAAC Guidelines

TABLE B9: SOUND INSULATION RATINGS DEPENDING ON A ROOM'S NOISE LEVEL AND THE NOISE TOLERANCE IN THE ADJACENT SPACE $D_{nT,w}$

NOISE TOLERANCE IN RECEIVING ROOM	ACTIVITY NOISE IN SOURCE ROOM			
	LOW	AVERAGE	HIGH	VERY HIGH
High	30	35	45	55
Medium	35	40	50	55
Low	40	45	55	55
Very Low	45	50	55	60

HEALTH CARE BUILDINGS

Extract from UK Health Technical Memorandum HTM 08-01: Acoustics

TABLE B10: IN-SITU SOUND INSULATION PERFORMANCE REQUIREMENTS FOR VARIOUS AREAS IN HEALTHCARE BUILDINGS

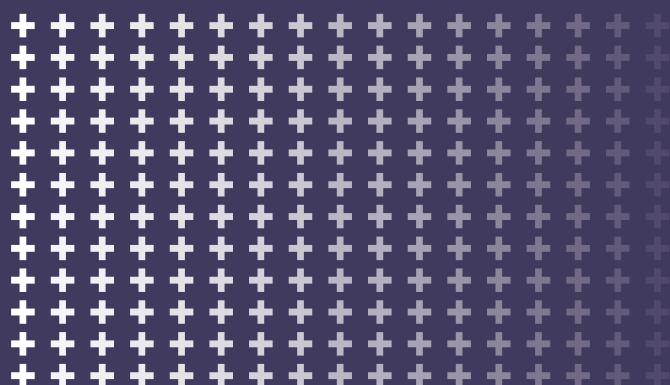
SOURCE ROOM \ RECEIVING ROOM		CLINICAL AREAS														PUBLIC AREAS				STAFF AREAS															
		SINGLE-BED WARD	MULTI-BED WARD	CHILDREN AND OLDER PEOPLE (SINGLE BED)		CHILDREN AND OLDER PEOPLE (MULTI-BED)		CONSULTING ROOM	EXAMINATION ROOM	TREATMENT ROOM	COUNSELLING/BEREAVEMENT ROOM	OPERATING THEATRE SUITE	NURSERIES	BIRTHING ROOM	LABORATORIES	DIRTY UTILITY	SPEECH AND LANGUAGE THERAPY	MULTI-FAITH / CHAPEL	DINING	TOILETS	WAITING (LARGE - > 20 PEOPLE)	TOILETS	MAIN KITCHEN	REST ROOM	LOCKER / CHANGING ROOM	LARGE TRAINING / SEMINAR (>35m²)	SMALL TRAINING / SEMINAR (<35m²)	LECTURE THEATRE	SINGLE PERSON OFFICE	MULTI-PERSON OFFICE (2 - 4 PEOPLE)	BOARDROOM	LARGE MEETING ROOM (>35m²)	SMALL MEETING ROOM (≤ 35m²)		
CLINICAL AREAS	SINGLE-BED WARD	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47		
	MULTI-BED WARD	37	37	37	37	37	37	37	37	37	42	42	37	37	37	37	37	42	37	37	37	37	37	37	37	37	37	37	42	37	37	37	37	37	
	CHILDREN AND OLDER PEOPLE (SINGLE BED)	47	47	47	47	47	47	47	47	47	52	47	47	47	42	52	52	42	42	42	42	42	42	42	47	42	47	47	52	47	47	47	47	47	
	CHILDREN AND OLDER PEOPLE (MULTI-BED)	42	42	42	42	42	42	42	42	42	47	42	42	42	42	37	47	47	37	37	37	37	37	42	37	42	37	42	42	47	42	42	42	42	
	CONSULTING ROOM	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	
	EXAMINATION ROOM	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	
	TREATMENT ROOM	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	
	COUNSELLING/BEREAVEMENT ROOM	47	47	47	47	47	47	47	47	47	52	47	47	47	47	47	52	52	47	47	47	47	47	47	47	47	47	47	52	47	47	47	47	47	
	OPERATING THEATRE SUITE	42	42	42	42	42	42	42	42	42	47	42	42	42	42	42	47	47	42	42	42	42	42	42	42	42	42	42	42	47	42	42	42	42	42
	NURSERIES	52	52	52	52	52	52	52	52	52		52	52	52	47			47	47	47	47	47	47	52	47	52	52		52	52	52	52	52	52	
	BIRTHING ROOM	52	52	52	52	52	52	52	52	52		52	52	52	47			47	47	47	47	47	47	52	47	52	52		52	52	52	52	52	52	
	LABORATORIES	37	37	37	37	37	37	37	37	37	42	37	37	37	37	42	42	37	37	37	37	37	37	37	37	37	37	37	42	37	37	37	37	37	
	DIRTY UTILITY	42	42	42	42	42	42	42	42	42	47	42	42	42	-	47	47	-	-	-	-	-	-	-	42	-	42	42	47	42	42	42	42	42	
	SPEECH AND LANGUAGE THERAPY	47	47	47	47	47	47	47	47	47	52	47	47	47	47	52	52	47	47	47	47	47	47	47	47	47	47	47	52	47	47	47	47	47	
PUBLIC AREAS	MULTI-FAITH / CHAPEL	47	47	47	47	47	47	47	47	47	52	47	47	47	42	52	52	42	42	42	42	47	47	47	47	47	47	52	47	47	47	47	47		
	DINING	42	42	42	42	42	42	42	42	42	47	42	42	42	-	47	47	-	-	-	-	-	-	42	-	42	42	42	47	42	42	42	42		
	TOILETS	37	37	37	37	37	37	37	37	37	42	37	37	37	37	42	42	37	37	37	37	37	37	37	37	37	37	37	42	37	37	37	37	37	
	WAITING (LARGE - > 20 PEOPLE)	42	42	42	42	42	42	42	42	42	47	42	42	42	-	47	47	-	-	-	-	-	-	42	-	42	42	42	47	42	42	42	42	42	
STAFF AREAS	TOILETS	37	37	37	37	37	37	37	37	42	37	37	37	37	42	42	37	37	37	37	37	37	37	37	37	37	37	37	42	37	37	37	37	37	
	MAIN KITCHEN	52	52	52	52	52	52	52	52		52	52	52	47			47	47	47	47	47	47	52	47	52	52		52	52	52	52	52	52		
	REST ROOM	42	42	42	42	42	42	42	42	47	42	42	42	37	47	47	37	37	37	37	37	37	37	37	42	37	42	47	42	42	42	42	42	42	
	LOCKER / CHANGING ROOM	37	37	37	37	37	37	37	37	42	37	37	37	37	42	42	37	37	37	37	37	37	37	37	37	37	37	42	37	37	37	37	37		
	LARGE TRAINING / SEMINAR (>35m²)	47	47	47	47	47	47	47	47	52	47	47	47	42	52	52	42	42	42	42	42	42	42	42	42	42	42	47	52	47	47	47	47		
	SMALL TRAINING / SEMINAR (<35m²)	42	42	42	42	42	42	42	42	47	42	42	42	42	42	47	47	42	42	42	42	42	42	42	42	42	42	42	47	42	42	42	42	42	
	LECTURE THEATRE	47	47	47	47	47	47	47	47	52	47	47	47	42	52	52	42	42	42	42	42	42	42	42	42	42	42	47	52	47	47	47	47		
	SINGLE PERSON OFFICE	42	42	42	42	42	42	42	42	47	42	42	42	42	42	47	47	42	42	42	42	42	42	42	42	42	42	42	47	42	42	42	42	42	
	MULTI-PERSON OFFICE (2 - 4 PEOPLE)	37	37	37	37	37	37	37	37	42	37	37	37	37	37	42	42	37	37	37	37	37	37	37	37	37	37	37	42	37	37	37	37	37	
	BOARDROOM	47	47	47	47	47	47	47	47	52	47	47	47	47	52	52	47	47	47	47	47	47	47	47	47	47	47	52	47	47	47	47	47		
	LARGE MEETING ROOM (>35m²)	47	47	47	47	47	47	47	47	52	47	47	47	47	42	52	52	42	42	42	42	42	42	42	42	42	42	47	52	47	47	47	47	47	
SMALL MEETING ROOM (≤ 35m²)	42	42	42	42	42	42	42	42	47	42	42	42	42	42	47	47	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42		

Legend: ■ Avoid room combination (-) No rating

Refer to the Association of Australian Acoustical Consultants (AAAC) for status of draft guideline for health care building acoustics as it relates to Australia.

C 2	INTRODUCTION
C 14	QUICK SELECTION TABLES
C 19	LINED ONE SIDE
C 26	LINED BOTH SIDES
C 42	QUIET STUD
C 57	STAGGERED STUD
C 73	TWIN STUD

STEEL STUD WALLS



INTRODUCTION

DESCRIPTION

USG Boral Steel Stud Wall systems consist of single or multiple layers of plasterboard, screw fixed to one or both sides of light gauge Rondo C-stud or QUIET STUD® framing.

DESIGN OPTIONS

Steel stud wall systems outlined in this manual provide Designers and Builders with a wide range of options to suit project specific requirements in regard to fire rating, acoustic isolation, water resistance and impact resistance. A large number of hybrid systems have been included, providing cost effective solutions when impact and/or water resistance requirements differ on each side of the wall.

Steel Stud Wall Systems are available in non-fire rated configurations with acoustic ratings up to $R_w+C_{tr} = 62$ ($R_w=68$) and in fire rated configurations up to Fire Resistance Level -/240/240 (180/180/180) and acoustic ratings up to $R_w+C_{tr} = 70$ ($R_w=78$).

The following types of Steel Stud Wall Systems are outlined in this manual:

- Lined One Side
- Lined Both Sides
- QUIET STUD
- Staggered Stud
- Twin Stud.

MATERIALS

PLASTERBOARD LININGS

- 10mm SHEETROCK Brand Wall Board
- 13mm SHEETROCK Brand Standard plasterboard
- 10mm/13mm Regular plasterboard
- 10mm/13mm/16mm Fiberock
- 10mm/13mm Soundstop plasterboard
- 10mm/13mm Impactstop plasterboard
- 13mm/16mm Firestop plasterboard
- 13mm/16mm Multistop plasterboard
- 25mm Shaftliner plasterboard.

INSULATION

Glasswool

- 50mm, 75mm and 90mm Pink® Partition 11kg/m³ by Fletcher Insulation.

Polyester

- 50mm, 75mm and 90mm polyester insulation 14kg/m³ density
- TSB2 by Tontine Insulation (or equivalent).

STEEL FRAMING

USG Boral steel stud wall systems utilise Rondo framing as outlined below:

Lipped C-studs

Lipped C-studs are available in a number of sizes and Base Metal Thicknesses (BMT):

TABLE C1: RONDO LIPPED C-STUDS				
STUD SIZE mm	BASE METAL THICKNESS (BMT) mm			
	0.50	0.55	0.75	1.15
51	•		•	
64	•		•	•
76		•	•	•
92		•	•	•
150			•	•



Figure C1: Rondo Lipped C-studs

QUIET STUD®

Rondo QUIET STUD is available in 92mm size and 0.55mm or 0.75mm BMT (lead times apply).



Figure C2: Rondo QUIET STUD®

» INTRODUCTION

Wall Tracks

Rondo Wall Tracks are available in the following sizes and Base Metal Thicknesses:

TABLE C2: RONDO WALL TRACKS			
STUD SIZE mm	BASE METAL THICKNESS (BMT) mm		
	0.50	0.70	1.15
51	•	•	
64	•	•	•
76	•	•	•
92	•	•	•



Figure C3: Wall Track

Deflection Head Tracks

Deflection head tracks are available in the following sizes and Base Metal Thicknesses:

TABLE C3: RONDO DEFLECTION HEAD TRACKS				
STUD SIZE mm	BASE METAL THICKNESS (BMT) mm			
	0.50	0.70	0.75	1.15
51		•		
64	•	•		•
76	•	•		•
92	•	•		•
150			•	•



Figure C4: Deflection Head Tracks

Screws

For screw types suitable for various lining configurations and steel stud BMT's refer to General Information — Materials.

DESIGN CONSIDERATIONS

MAXIMUM HEIGHTS

Wall heights for non load bearing walls must be within the maximum heights as set out in the maximum wall height tables for various systems.

Maximum heights for non load bearing steel framed walls have been provided for 0.25kPa lateral pressures and are based on L/240 deflection criteria set out in the BCA. Refer also to Notes to Maximum Height Tables below

NOTES TO MAXIMUM HEIGHT TABLES

General

- Limiting Factor Symbols:
 - s = permissible strength limits
 - d = deflection limits
 - h = head track capacity limits
 - f = fire height limits
 - sl = slenderness ratio limits.
- Where 2d appears, deflection limits the design and 2 rows of equally spaced noggings are required. Similarly 2s means strength controls the design and 2 rows of equally spaced noggings are required.
- Fire height limit (f) does not apply if fire resistant linings are used in non fire rated walls. Refer USG Boral for maximum wall heights in such situations.
- Minimum yield stress of steel sections to be 270MPa.
- Deflection limit is height/240 to a maximum of 30mm (for walls generally).
- Maximum slenderness ratio $l/r = 300$.
- Wall heights tabled are for single piece Rondo lipped C-studs at maximum centres shown.
- Wall heights tabled are for non-load bearing walls and account for self weight and lateral pressures stated.
- Shelf loading is not permitted for the tabulated maximum wall heights. Refer USG Boral for maximum heights with shelf loadings.
- Tabulated heights are for internal walls only. Refer to USG Boral if walls are subject to external pressures.
- For fire service, 50Pa pressure assumed. Where pressures are greater than 50Pa and fire loadings are likely to be coincident, USG Boral should be consulted.
- All plasterboard is to be manufactured by USG Boral.
- Walls are to be constructed to USG Boral standard C-Stud fire rated or screw-fixed non-fire rated wall details as appropriate but with 300mm maximum screw centres.

» INTRODUCTION

Head Track Capacities

Systems Lined Both Sides

- Wall heights tabled are calculated using standard head track reaction capacities as follows:

TABLE C4: STANDARD HEAD TRACK REACTION CAPACITY kN

TRACK BMT mm	PLASTERBOARD					
	1x10	1x13	1x16	2x10	2x13	2x16
0.55	0.40	0.60	0.90	0.40	0.60	0.90
0.75	0.40	0.60	0.90	0.40	0.60	0.90
1.15	0.40	0.60	0.90	0.40	0.60	0.90

Notes:

- 10mm max clearance at top of stud, board
- Wall head to Rondo detail TDS/03-103 dated 20th May 1998.

- The tabulated heights have not been checked for a deflection head track requirements as outlined below.
- Where greater vertical deflection capacity is required, Rondo deflection heads may be used with allowable head track reaction capacities as follows:

TABLE C5: DEFLECTION HEAD TRACK REACTION CAPACITY kN

TRACK BMT mm	PLASTERBOARD					
	1x10	1x13	1x16	2x10	2x13	2x16
0.75	0.40	0.44	0.44	0.40	0.44	0.44
1.15	0.40	0.60	0.90	0.40	1.03	1.03

Notes:

- 20mm max clearance at top of stud, board
- Wall head to Rondo detail TDS/03-107 dated 20th May 1998.

- Alternative head track installations must be checked in accordance with Rondo head track capacity tables.
- The allowable head track reactions noted above, rely on the plasterboard for restraint and must be installed strictly in accordance with Rondo details.
- Alternatively – select connections from Rondo tables TDS/03-101 for standard track and TDS/03-105 for deflection head.
- Plasterboard to be fixed to both sides of the wall frame to the full nominal height of the wall exclusive of any allowance for soffit deflection.
- At least one mid height row of noggings is required on all walls 3600mm and higher, additional rows of noggings may be included in the wall frame to maintain stability during construction.
- The nogging track requirements may be omitted if the linings stop within 100mm from the soffit.

- Detailed seismic analysis requires site/building specific parameters and has not been performed, however, tabulated wall heights comply with AS 1170.4 clause 5.2.1, category 3, provided that:

- the walls have been designed for 0.25kPa pressure (minimum)
- the walls including attachments have a total mass (Gc) not exceeding 100kg/m²
- acceleration $a \leq 0.08$
- Site Factor $S \leq 2.0$
- $a_x \leq 2.0$
- $a_c \leq 1.0$
- $Cc1 \leq 0.9$
- $I = 1.0$

Systems Lined One Side

TABLE C6: WALL HEAD/BASE DESIGN

WALL CONSTRUCTION	CLEARANCE	REACTION CAPACITY
Twin stud, Head track	10mm max clearance at top of stud, board	Reaction capacity, refer to Rondo TDS/03-102
	20mm max clearance at top of stud, board	Reaction capacity, refer to Rondo TDS/03-106
Twin stud, Base track	(Studs hard down into track)	Reaction capacity, refer to Rondo TDS/03-108
Staggered Stud	30mm max clearance at top of stud, board	Reaction capacity at head and base: 0.47kN

Notes for staggered stud only:

- Top Hat track to USG Boral detail 209710-A
- min 13mm plasterboard.

For other reaction capacities refer Rondo or USG Boral.

Nogged wall frames with board to one side only (ie twin stud walls) require one row of noggings/nogging track 100mm max below soffit and other noggings as below:

TABLE C7: NOGGINGS

WALL HEIGHT	ROWS OF NOGGINGS
Up to 3000mm	One row noggings/nogging track at mid height
3000mm to 6000mm	Two rows noggings/nogging track at third points of height
6000mm to 8000mm	Three rows noggings/nogging track at quarter points of height

» INTRODUCTION

LOAD BEARING WALLS

A load bearing wall is a wall that is intended to resist vertical forces additional to those due to its own weight.

Maximum loads for load bearing non-fire rated steel stud walls can be determined by the normal structural design. Maximum wall heights for load bearing fire rated steel stud walls can be similarly determined by structural design, however an appropriate lining must be used to provide fire protection to the wall frame as outlined below.

The following wall types with board to each side of single stud or twin stud wall may be used as load-bearing fire rated walls achieving the FRLs stated under the conditions listed below:

TABLE C8: FRLs FOR LOAD BEARING WALLS			
FIRESTOP OR MULTISTOP WALL LINING		FIRE RESISTANCE LEVEL	FIRE ATTACK DIRECTION
SIDE 1	SIDE 2		
1x13mm	1x13mm	30/30/30	Both sides
1x16mm	1x16mm	60/60/60	Both sides
2x13mm	2x13mm	90/90/90	Both sides
2x16mm	2x16mm	120/120/120	Both sides

Conditions:

- All joints to be backed by nogging or studs. Elsewhere nogging to be provided at 1200mm maximum centres.
- Bracing to be provided within the wall as required by structural design ignoring plasterboard contribution.
- Frame to be designed by an appropriately qualified Structural Engineer and shall comply with AS/NZS 4600: *Cold-formed steel structures*.
- Any structure providing support, including lateral support, to the load bearing fire rated wall must have an FRL of at least that of the wall.
- Stud splicing not allowed.
- Otherwise wall to be lined to standard USG Boral non-load bearing fire rated details.

Refer Rondo for load bearing wall details.

SHELF LOADS

Walls that carry shelf loadings must be designed accordingly. Refer to Rondo Design Manual for permissible shelf loadings for non fire rated steel stud walls. Refer to USG Boral for design of fire rated steel stud walls with shelf loadings.

PENETRATIONS

Penetrations in a fire rated system must be treated strictly in accordance with relevant test reports and approved installation details in order to maintain the system's Fire Resistance Level.

Where components by others are specified in USG Boral fire-rated penetration details (ie. dampers, GPO's, fire collars, etc), such components must be installed in accordance with the manufacturer's specifications. It is the responsibility of the component manufacturer to ensure that the fire rating performance of the system is not affected.

» INTRODUCTION

INSTALLATION

USG Boral steel stud wall systems must be assembled strictly in accordance with the details and specifications outlined in this manual in order to achieve stated Fire Resistance Levels and acoustic ratings.

NOTE:

Where proprietary products have been tested in USG Boral systems by other manufacturers, reference should be made to the product manufacturer's specifications for details of tested designs and related Standards.

INSTALLATION AND FASTENING SEQUENCE

Unlike rigid timber framing, light gauge steel studs are prone to flexing and twisting when driving fasteners to secure plasterboard sheets.

The first plasterboard sheet installed at a joint should be fixed to the open side of a stud flange. Additional sheets are then installed in the direction toward the closed side of the stud web.

When installing the first side, screw-fasten the plasterboard sheets to studs at edges only, as illustrated in Figure C5 (positions 1 and 2). Then, on the second side, fasten the edge (position 3) followed by intermediate studs (position 4). Return to the first side and fasten sheets to previously unattached studs (position 5).

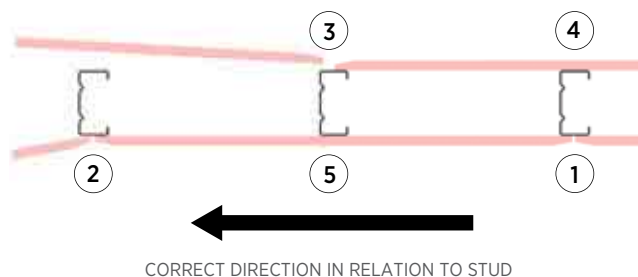


Figure C5: **Correct Fastening Sequence**

The correct direction of sheet installation is in the direction from the open side of the stud to the closed side of the stud web (Figure C5). The first sheet installed at a joint is screwed to the flange at the open side of the stud. The flange will initially deflect then straighten as the screw pulls tight. Ensure that the stud is adequately supported to avoid twisting, and fully screw this sheet to the stud before continuing.

The next sheet is now screwed to the flange at the closed side of the stud. The deflection on this part of the flange is very small, and the previously installed sheet helps keep the assembly rigid during the installation of the second sheet.

If fixed correctly the result is a flat joint with no lipping. The correct installation sequence is illustrated in Figure C6 below:

Do fix plasterboard sheets in the direction from the open side of the stud to the closed side of the stud:

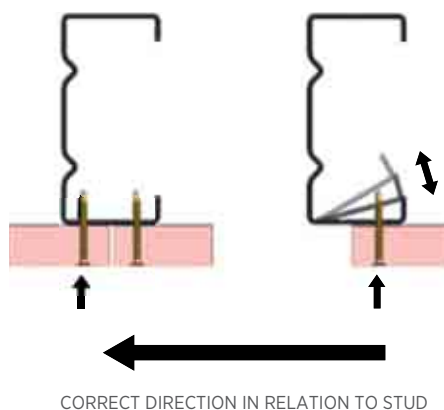


Figure C6: **Correct Fastening Sequence Detail**

LAYING OUT

- Accurately mark wall layouts.
- Always check individual measurements against overall site dimensions.
- Align the top and bottom tracks accurately according to the plan layout. Attach at ceiling and floor to structural elements.
- Use suitable fasteners for anchoring top and bottom tracks. Locate fasteners at 50mm from each end and spaced at maximum 600mm centres along each track.

FRAMING INSTALLATION

- For studs in fire rated walls up to 3000mm high, cut studs nom 15mm short of the floor-to-ceiling height to allow 15mm expansion gap at top.
- For studs in walls higher than 3000mm, allow 5mm gap per 1000mm of height for expansion. Allowance should be made for possible deflection of floor/roof structure over walls.
- Studs may be boxed together to provide greater frame strength. Studs are usually boxed to frame door and other openings and to support heavy fixtures on the partition.
- Studs in fire rated partitions are not to be fastened to top tracks except boxed studs at fire door openings which should be pop riveted to the tracks. When framing openings, secure both flanges of boxed studs to the tracks, using pop rivets (refer to Junctions and Penetrations section Figure J19).

» INTRODUCTION

- In addition to noggings specified in the maximum heights notes, noggings are required as headers above doorways, for reinforcement behind fixture attachments, and where special circumstances require additional stiffening of the frame. (Noggings are formed from lengths of steel track, approximately 100mm longer than the stud spacing. Cut the track flanges at approximately 45 degrees and bend the track ends at right angles to fit between the studs. Position and fasten with stud crimper, or with pop rivets for fire door application).

PLASTERBOARD APPLICATION

- Plasterboard linings can be installed vertically or horizontally in fire rated and non-fire rated wall systems. Refer Figures C7–C15 for optional plasterboard configurations in steel stud wall systems.
- If no deflection requirement exists, cut plasterboard sheets to provide 10mm maximum gap at floor and ceiling (refer to Junctions and Penetrations section for typical head and base details).
- Centre abutting vertical sheet edges on stud flanges. Refer to Table C9 for minimum joint offsets.
- Fasten plasterboard sheets to steel framing with appropriate screws as outlined in General Information section. Place screws 10mm–16mm from sheet ends and edges UNO. Do not fasten plasterboard to top and bottom tracks in fire rated systems. Sheets should be installed by advancing in the direction of the stud web (refer Figures C5 and C6).
- Refer to Table C10 for maximum screw spacings. Refer Figures C9–C11 for screw layouts in multiple layer fire rated steel stud systems.

TABLE C9: MINIMUM JOINT OFFSETS (mm)

LINING LAYER	VERTICAL JOINTS	HORIZONTAL JOINTS
Inner/single layers on opposite sides or Adjacent layers on same side	One stud spacing (300mm min)	300

TABLE C10: MAXIMUM SCREW SPACING (mm)

LINING LAYER	INTERMEDIATE STUDS	VERTICAL EDGES	INTERNAL/EXTERNAL CORNERS AND AROUND OPENINGS
Outer/single layer	300	200 (stagger screws in abutting sheets)	200
Inner layers	600	600	600

JOINTING AND FINISHING

- Finish all joints and internal and external corners in face layers with the appropriate USG Boral jointing system (refer to USG Boral Plasterboard Installation Manual). Joints and junctions in inner layers of multiple layer systems are not required to be stopped.
- Paper tape must be used in fire rated and wet area systems.
- Stop exposed fasteners on face layers.

CAULKING

Caulk perimeter gaps and penetrations in fire rated and acoustic walls with H.B. Fuller Firesound sealant (refer details in Junctions and Penetrations section).

DECORATING

Apply paint or other decorative finishes as required. Refer to USG Boral Plasterboard Installation Manual for recommendations on decoration of plasterboard.

» INTRODUCTION

WALL CONSTRUCTION NOTES

- Steel stud wall systems are non load bearing unless noted otherwise.
- Wall systems should not be used where conditions of constant excessive moisture or humidity are prevalent ie, in excess of 90% relative humidity.
- Movement joints should be put at building construction joint locations. Control joints should be spaced at not more than 12 metre maximum centres.
- All approved fire rated penetrations must be installed and caulked in accordance with details provided in this manual. Components by others must be installed in accordance with manufacturer's specifications and test reports.
- Fire rated systems must be assembled strictly in accordance with relevant test reports, opinions, approved system details and specifications.
- Steel Studs in fire rated partitions are not to be fastened to top and bottom tracks except boxed studs facing fire door openings, in which case the boxed studs are pop riveted to the tracks.
- Steel wall framing must be constructed to Rondo specifications and spaced at 600mm centres maximum.
- Components must not be used if fractured or damaged.
- Butt joints to be backed by stud or nogging for fire rated systems.
- Mid span nogging is recommended for erection purposes for steel stud walls greater than 3600mm.

PLASTERBOARD INSTALLATION – FIRE RATED WALLS

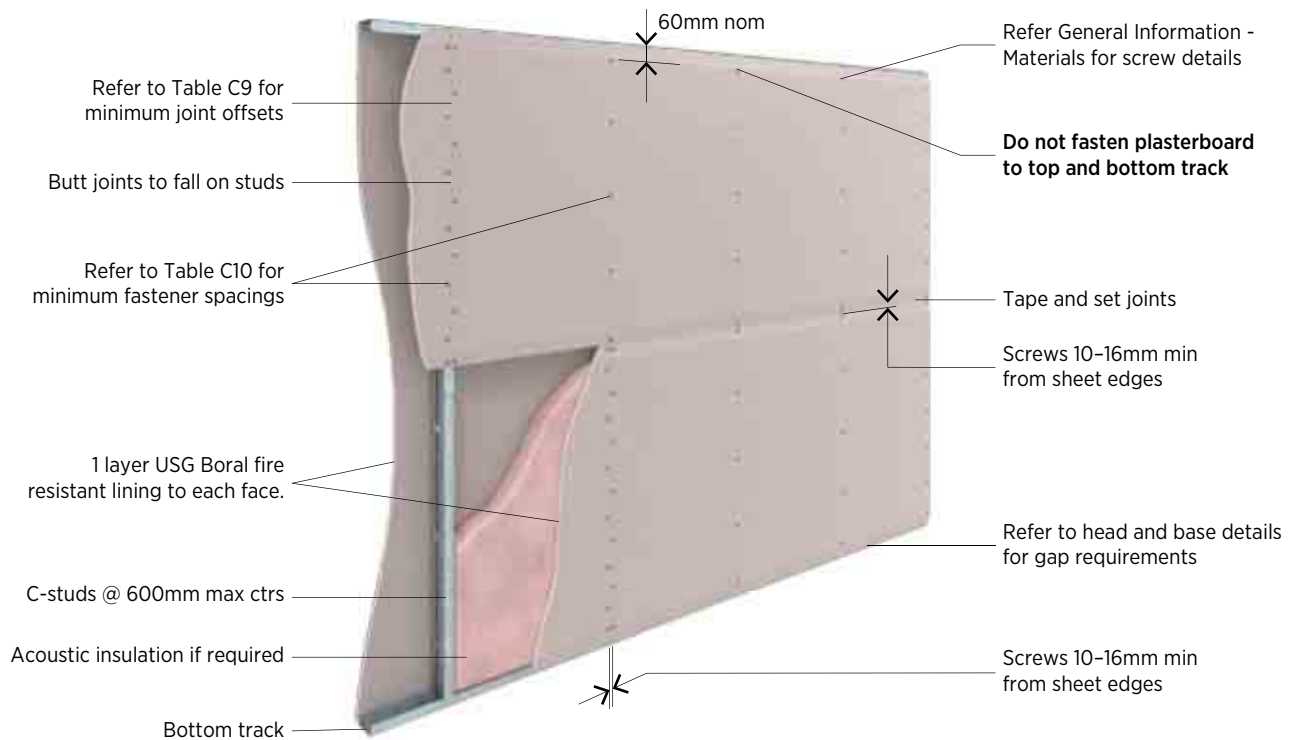


Figure C7: **Fire Rated Steel Stud – Horizontal Fixing – Single Layer**

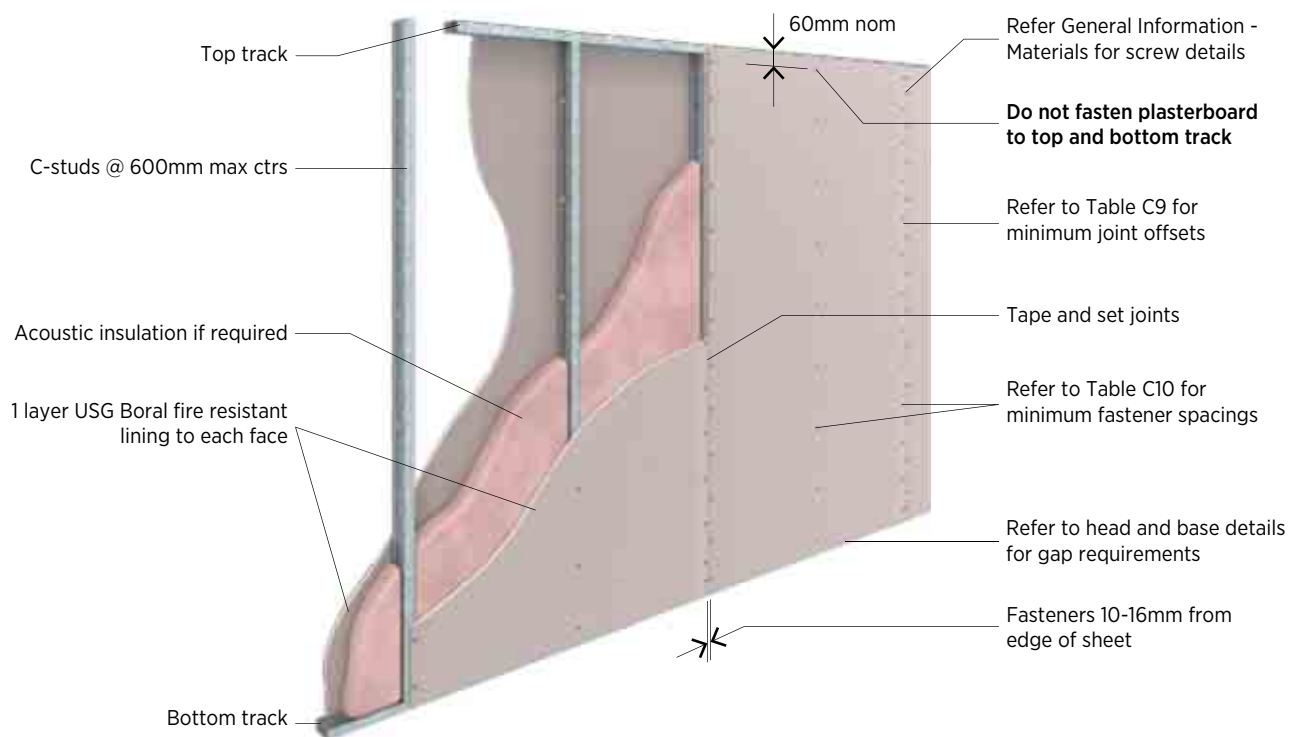


Figure C8: **Fire Rated Steel Stud – Vertical Fixing – Single Layer**

» INTRODUCTION

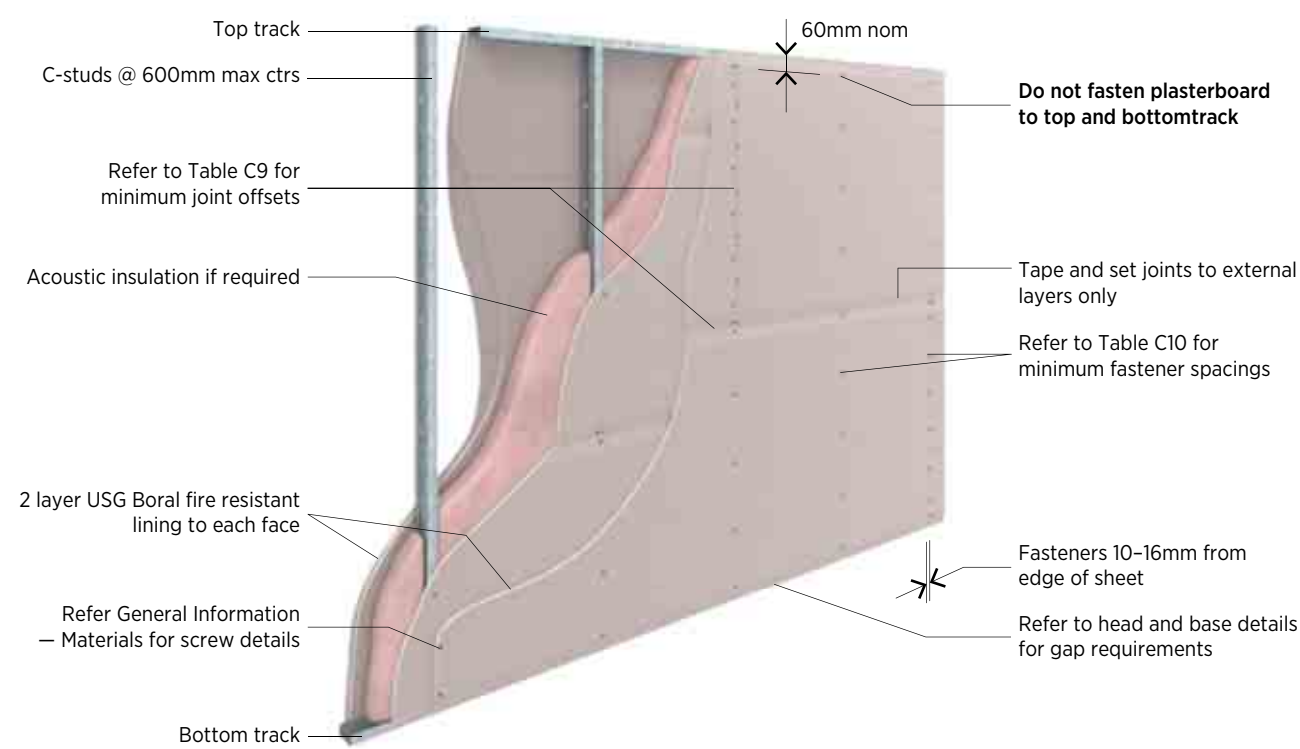


Figure C9: Fire Rated Steel Stud - Horizontal Fixing - Multiple Layer

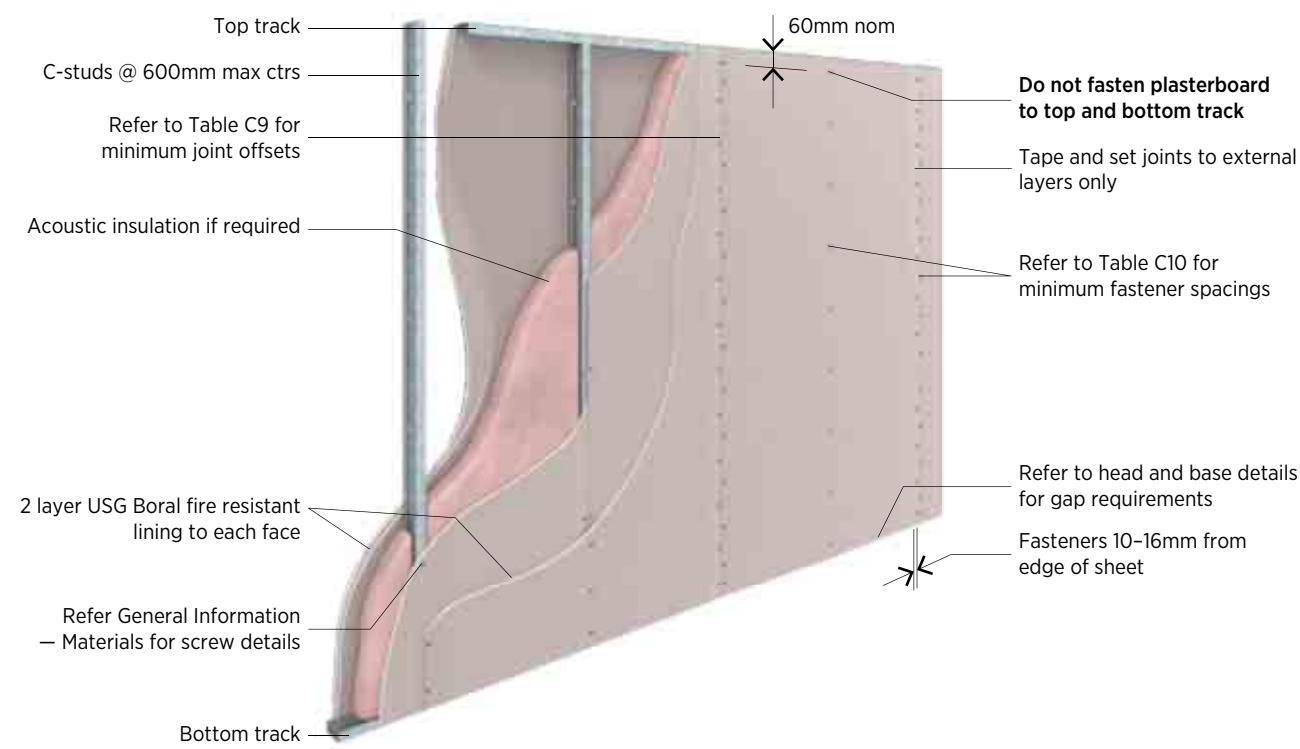


Figure C10: Fire Rated Steel Stud - Vertical Fixing - Multiple Layer

» INTRODUCTION

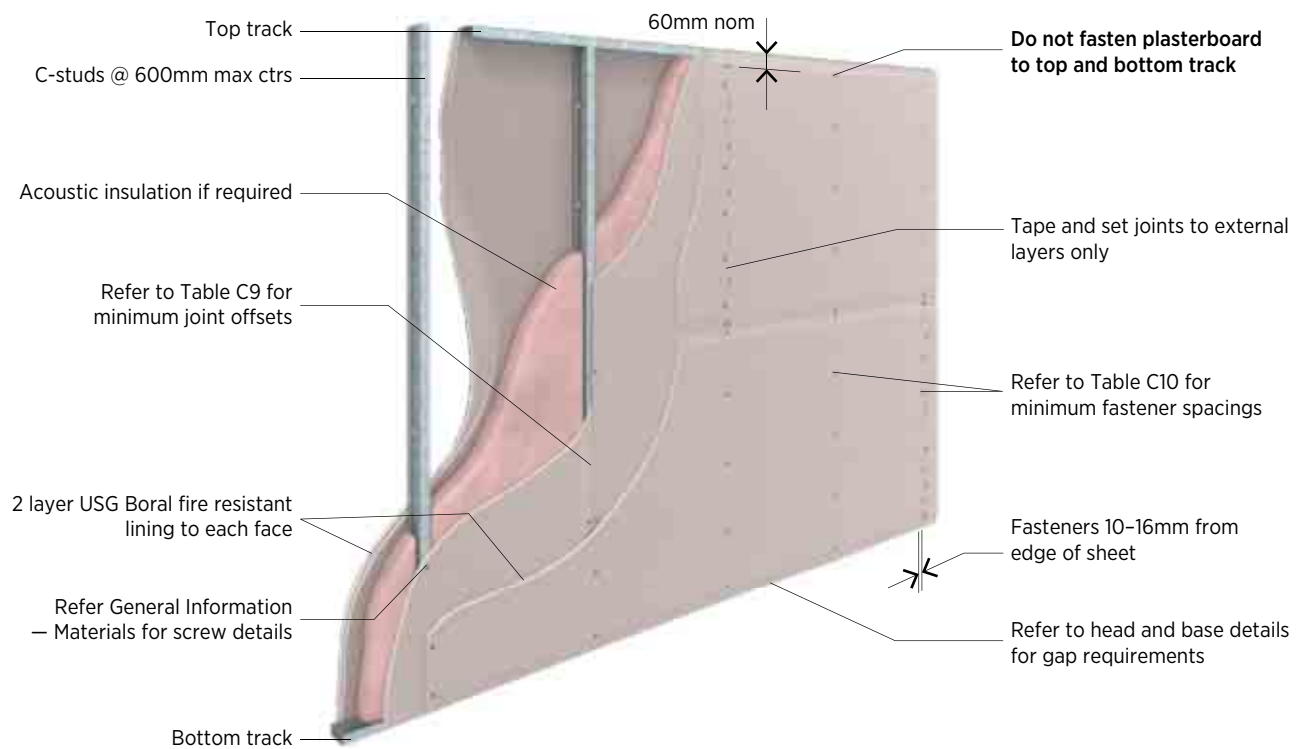


Figure C11: Fire Rated Steel Stud – Mixed Orientation – Multiple Layer

» INTRODUCTION

PLASTERBOARD INSTALLATION – NON-FIRE RATED WALLS

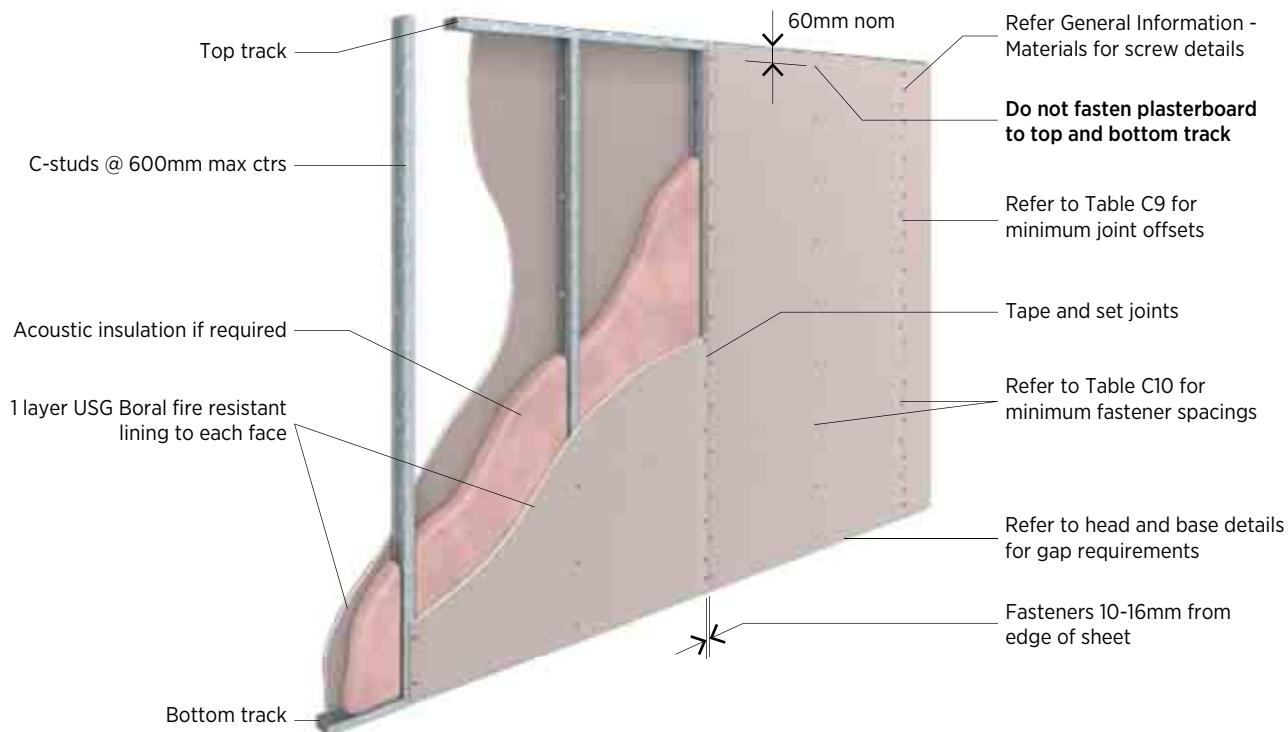


Figure C12: **Non-Fire Rated Steel Stud – Vertical Fixing – Single Layer (fully screw fixed)**

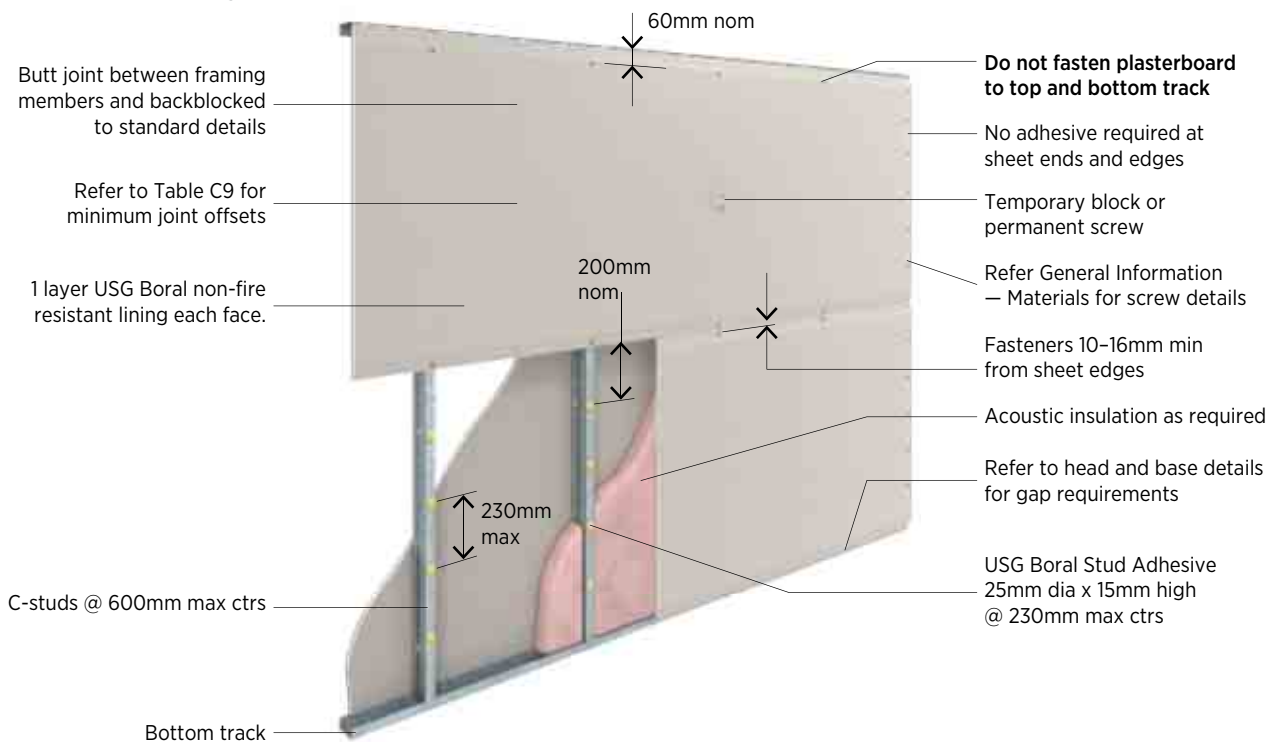


Figure C13: **Non-Fire Rated Steel Stud – Horizontal Fixing – Single Layer (combination adhesive and mechanical fixing option)**

NOTES:

- For Level 4 and 5 finish, butt joints to fall between framing members, otherwise butt joints may be fixed to studs.
- Combination adhesive and mechanical fixing method must not be used for Fiberock linings — full screw fixing only is allowed.

» INTRODUCTION

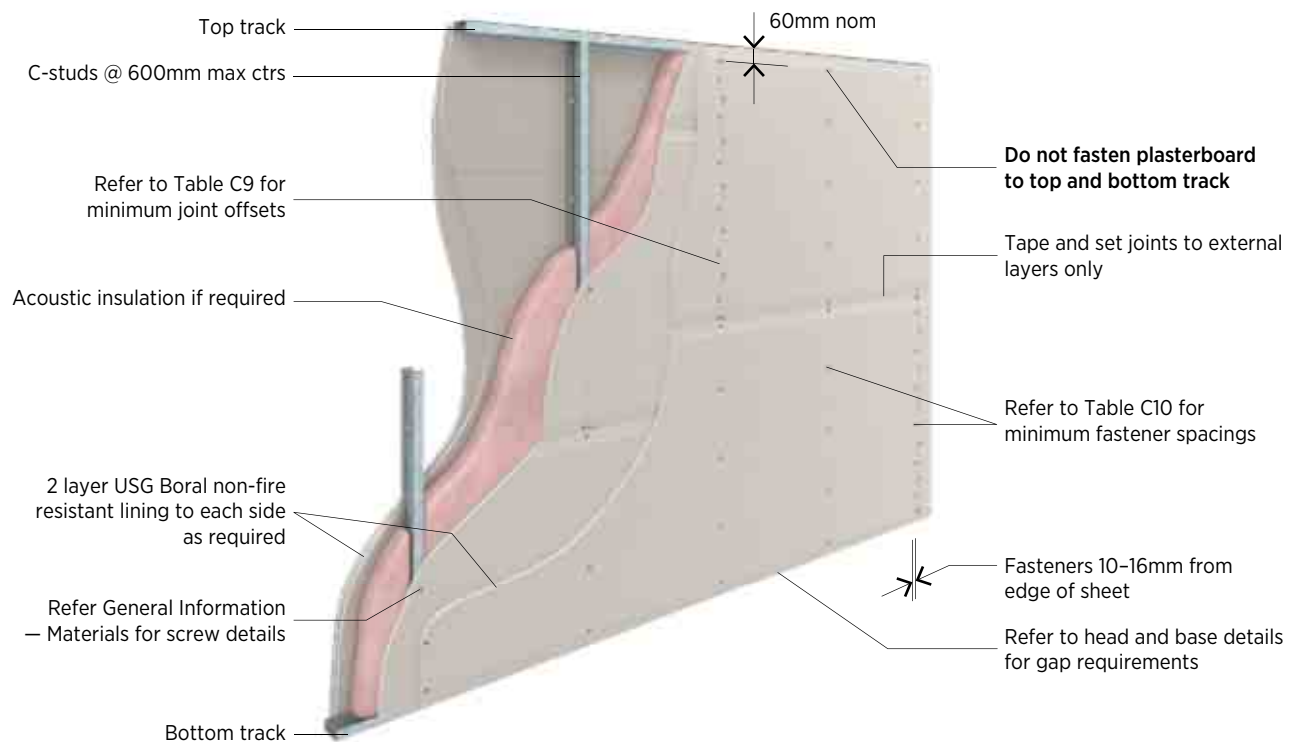


Figure C14: Non-Fire Rated Steel Stud - Horizontal Fixing - Double Layer

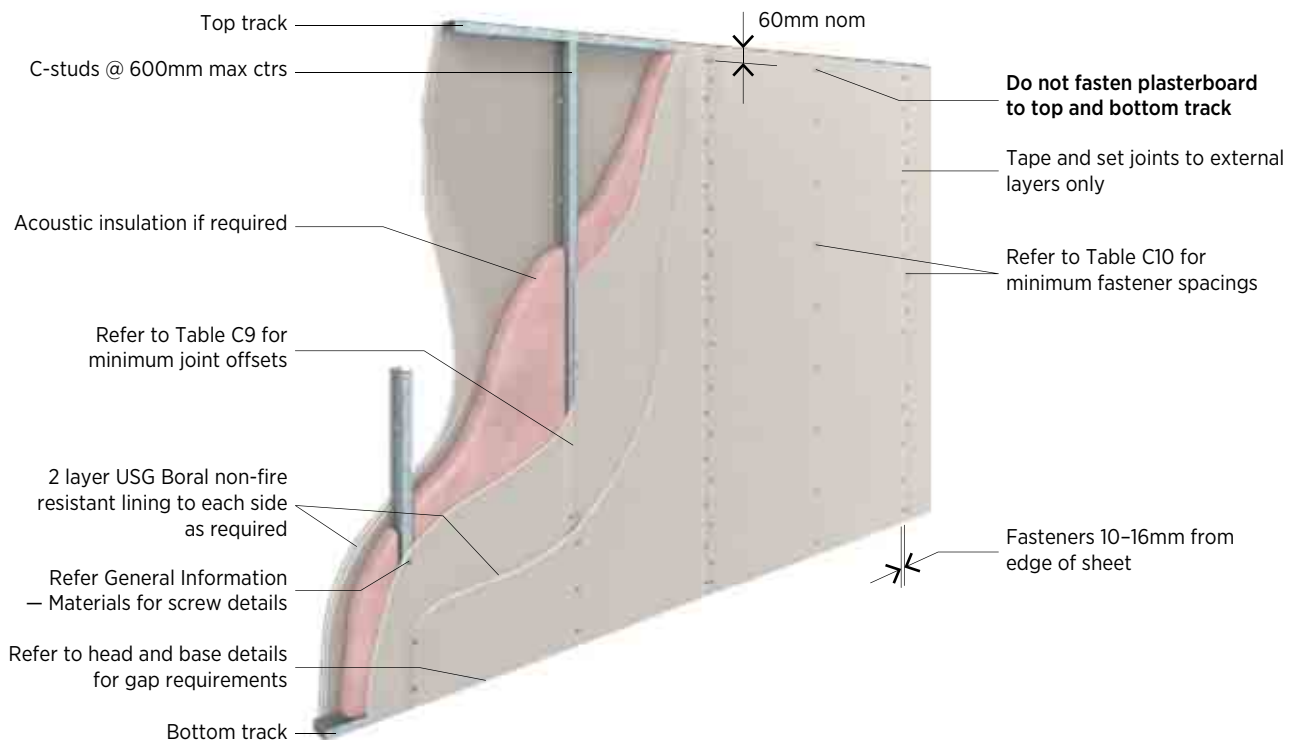


Figure C15: Non-Fire Rated Steel Stud - Vertical Fixing - Double Layer

QUICK SELECTION TABLES

WALLS LINED ONE SIDE						
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	STUD SIZE mm	ANY STUD	
				FRL (from lining side only)	R _w	R _w +C _{tr}
SO.1	C 19	1x10mm non-fire resistant pbd	NA	non-fire rated	27-28	23-26
SO.2	C 19	2x10mm non-fire resistant pbd	NA	non-fire rated	33-34	29-32
SO.3	C 20	1x13mm non-fire resistant pbd	NA	non-fire rated	28-29	25-27
SO30.1	C 20	1x16mm fire resistant pbd	NA	-/30/30	30	27-28
SO60.1	C 21	2x16mm fire resistant pbd	NA	60/60/60	36	33-34
SO90.1	C 21	3x13mm fire resistant pbd	NA	90/90/90	38-39	36
SO120.1	C 22	3x16mm fire resistant pbd	NA	120/120/120	39-40	37-38
SOF.1	C 23	1x10mm Fiberock	NA	non-fire rated	28	26
SOF.2	C 23	2x10mm Fiberock	NA	non-fire rated	34	32
SOF.3	C 23	1x13mm Fiberock	NA	non-fire rated	29	27
SOF30.1	C 24	1x16mm Fiberock	NA	-/30/30	30	28
SOF60.1	C 24	2x16mm Fiberock	NA	60/60/60	36	34
SOF90.1	C 25	3x16mm Fiberock	NA	90/90/90	40	38

QUICK SELECTION TABLES

WALLS LINED BOTH SIDES														
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
				FRL	R _w					R _w +C _{tr}				
SBS.1	C 26	1x10mm SHEETROCK BRAND pbd	1x10mm SHEETROCK BRAND pbd	non-fire rated	30-34	30-34	31-37	31-39	29-39	22-25	23-25	23-27	23-28	21-28
SBS.2	C 26	1x13mm SHEETROCK BRAND pbd	1x13mm SHEETROCK BRAND pbd	non-fire rated	32-35	32-37	33-39	34-41	32-40	24-26	25-27	25-28	26-31	24-31
SB.1	C 27	1x10mm non-fire resistant pbd	1x10mm non-fire resistant pbd	non-fire rated	31-41	32-42	32-44	33-45	32-44	24-30	25-31	25-35	25-36	24-36
SB.2	C 28	2x10mm non-fire resistant pbd	2x10mm non-fire resistant pbd	non-fire rated	37-48	38-49	39-51	39-52	38-51	28-38	29-40	30-42	30-45	29-45
SB.3	C 29	1x13mm non-fire resistant pbd	1x13mm non-fire resistant pbd	non-fire rated	33-42	34-43	35-45	35-46	34-44	26-32	26-35	27-36	27-38	25-37
SB.4	C 30	1x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	37-47	38-47	39-49	40-51	39-49	29-37	29-37	30-40	31-41	29-41
SB.5	C 31	2x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	42-50	43-50	44-52	45-53	44-51	34-42	35-43	36-45	36-48	34-47
SB60.1	C 32	1x13mm fire resistant pbd	1x13mm fire resistant pbd	-/60/60 30/30/30	34-42	35-43	36-45	37-46	36-44	27-32	28-35	28-36	30-38	27-37
SB60.2	C 32	1x13mm fire resistant pbd	1x13mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 30/30/30	-	-	-	50	-	-	-	-	40	-
SB60.3	C 33	1x13mm fire resistant pbd + 1x10mm FIBEROCK	1x13mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 30/30/30	42-48	43-50	44-51	45-53	44-51	36-39	36-42	37-43	37-46	36-45
SB90.1	C 33	1x13mm fire resistant pbd	2x13mm fire resistant pbd	-/90/90 30/30/30	40-47	41-47	42-49	42-50	41-49	30-37	32-37	32-40	32-42	31-42
SB90.2	C 34	1x16mm fire resistant pbd	1x16mm fire resistant pbd	-/90/90 60/60/60	38-45	39-46	40-48	41-48	40-46	33-39	34-39	35-42	35-43	34-43
SB90.3	C 34	1x16mm fire resistant pbd	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/90/90 60/60/60	-	-	-	50	-	-	-	-	41	-
SB90.4	C 35	1x16mm fire resistant pbd + 1x10mm FIBEROCK	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/90/90 60/60/60	43-49	44-50	45-51	45-53	45-51	38-41	38-43	38-45	39-47	37-46
SB120.1	C 35	2x13mm fire resistant pbd	2x13mm fire resistant pbd	-/120/120 90/90/90	44-50	45-51	46-52	47-54	46-51	37-42	37-44	37-46	38-48	37-47
SB180.1	C 36	2x16mm fire resistant pbd	2x16mm fire resistant pbd	-/180/180 120/120/120	45-51	46-52	47-53	47-54	47-52	38-43	38-44	39-46	39-48	38-47
SB180.2	C 36	1x25mm SHAFTLINER + 1x16mm fire resistant pbd	1x25mm SHAFTLINER + 1x16mm fire resistant pbd	-/180/180 120/120/120	48-56	49-56	50-56	50-56	50-53	42-51	43-52	44-52	44-53	44-50
SB240.1	C 37	2x25mm SHAFTLINER + 1x16mm fire resistant pbd	2x25mm SHAFTLINER + 1x16mm fire resistant pbd	-/240/240 180/180/180	54-60	55-60	56-60	57-60	56-57	48-56	49-57	50-57	51-57	50-55
SBF.1	C 38	1x10mm FIBEROCK	1x10mm FIBEROCK	non-fire rated	34-41	35-42	35-44	36-45	35-44	26-30	27-31	27-35	28-36	26-36
SBF.2	C 38	2x10mm FIBEROCK	2x10mm FIBEROCK	non-fire rated	41-48	41-49	42-51	43-52	42-51	32-38	32-40	33-42	34-45	32-45
SBF30.1	C 39	1x13mm FIBEROCK	1x13mm FIBEROCK	-/30/30 30/30/30	36-42	37-44	38-45	39-46	37-44	28-32	29-35	30-36	31-38	29-37
SBF30.2	C 39	1x13mm FIBEROCK	2x13mm FIBEROCK	-/30/30 30/30/30	40-47	42-47	42-49	43-51	42-49	31-37	33-37	33-40	34-42	32-42
SBF60.1	C 40	1x16mm FIBEROCK	1x16mm FIBEROCK	-/60/60 60/60/60	38-45	39-46	40-48	41-48	40-46	33-39	35-39	36-42	36-43	35-43
SBF90.1	C 40	2x13mm FIBEROCK	2x13mm FIBEROCK	-/90/90	NA	47-51	47-52	NA	NA	NA	39-44	39-46	NA	NA
SBF120.1	C 41	2x13mm FIBEROCK	2x13mm FIBEROCK	-/120/120	NA	NA	NA	48-54	47-51	NA	NA	NA	39-48	38-47
SBF120.2	C 41	2x16mm FIBEROCK	2x16mm FIBEROCK	-/120/120	46-51	47-52	47-53	48-54	47-52	39-43	40-44	40-46	41-48	39-47

QUICK SELECTION TABLES

QUIET STUD WALLS						
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	STUD SIZE mm	92	
				FRL	R _w	R _w +C _{tr}
SQ.1	C 42	1x10mm non-fire resistant pbd	1x10mm non-fire resistant pbd	non-fire rated	37-48	29-38
SQ.2	C 43	2x10mm non-fire resistant pbd	2x10mm non-fire resistant pbd	non-fire rated	44-56	36-48
SQ.3	C 44	1x13mm non-fire resistant pbd	1x13mm non-fire resistant pbd	non-fire rated	39-51	31-43
SQ.4	C 45	1x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	45-56	37-49
SQ.5	C 46	2x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	45-57	38-53
SQ60.1	C 47	1x13mm fire resistant pbd	1x13mm fire resistant pbd	-/60/60 30/30/30	42-51	34-43
SQ60.2	C 47	1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd	1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd	-/60/60 30/30/30	56-57	50
SQ60.3	C 48	1x13mm fire resistant pbd	1x13mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 30/30/30	51-52	44-46
SQ60.4	C 48	1x13mm fire resistant pbd + 1x10mm FIBEROCK	1x13mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 30/30/30	46-56	38-50
SQ90.1	C 49	1x13mm fire resistant pbd	2x13mm fire resistant pbd	-/90/90 30/30/30	46-56	38-49
SQ90.2	C 49	1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd	2x13mm fire resistant pbd	-/90/90 30/30/30	56	50
SQ90.3	C 50	1x16mm fire resistant pbd	1x16mm fire resistant pbd	-/90/90 60/60/60	43-51	36-43
SQ90.4	C 50	1x16mm fire resistant pbd + 1x13mm non-fire resistant pbd	1x16mm fire resistant pbd + 1x13mm non-fire resistant pbd	-/90/90 60/60/60	55	50
SQ90.5	C 51	1x16mm fire resistant pbd	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/90/90 60/60/60	52-54	46-47
SQ90.6	C 51	1x16mm fire resistant pbd + 1x10mm FIBEROCK	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/90/90 60/60/60	47-57	40-52
SQ120.1	C 52	2x13mm fire resistant pbd	2x13mm fire resistant pbd	-/120/120 90/90/90	47-57	40-53
SQ180.1	C 52	2x16mm fire resistant pbd	2x16mm fire resistant pbd	-/180/180 120/120/120	49-59	41-54
SQF.1	C 53	1x10mm FIBEROCK	1x10mm FIBEROCK	non-fire rated	40-48	32-38
SQF.2	C 53	2x10mm FIBEROCK	2x10mm FIBEROCK	non-fire rated	48-56	40-48
SQF30.1	C 54	1x13mm FIBEROCK	1x13mm FIBEROCK	-/30/30	43-51	35-43
SQF30.2	C 54	1x13mm FIBEROCK	2x13mm FIBEROCK	-/30/30	48-56	40-49
SQF60.1	C 55	1x16mm Fiberock	1x16mm Fiberock	-/60/60	43-51	38-43
SQF90.1	C 55	2x13mm Fiberock	2x13mm Fiberock	-/90/90	49-57	41-53
SQF120.1	C 56	2x16mm FIBEROCK	2x16mm FIBEROCK	-/120/120	50-60	42-54

QUICK SELECTION TABLES

STAGGERED STUD WALLS								
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	TRACK SIZE mm	92	150	92	150
				FRL	R _w		R _w +C _{tr}	
SS.1	C 57	1x10mm non-fire resistant pbd	1x10mm non-fire resistant pbd	non-fire rated	36-48	38-51	30-38	32-43
SS.2	C 58	2x10mm non-fire resistant pbd	2x10mm non-fire resistant pbd	non-fire rated	42-58	44-61	35-49	37-53
SS.3	C 59	1x13mm non-fire resistant pbd	1x13mm non-fire resistant pbd	non-fire rated	38-51	40-53	32-39	33-43
SS.4	C 60	1x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	42-56	44-58	35-48	36-51
SS.5	C 61	2x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	45-60	47-61	39-53	40-57
SS60.1	C 62	1x13mm fire resistant pbd	1x13mm fire resistant pbd	-/60/60	40-51	42-53	35-39	35-43
SS60.2	C 62	1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd	1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd	-/60/60	57-58	57	50-51	51
SS60.3	C 63	1x13mm fire resistant pbd	1x13mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60	52	-	44	-
SS60.4	C 63	1x13mm fire resistant pbd + 1x10mm FIBEROCK	1x13mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60	47-58	49-60	40-50	42-54
SS90.1	C 64	1x13mm fire resistant pbd	2x13mm fire resistant pbd	-/90/90	43-56	46-58	36-48	38-51
SS90.2	C 64	1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd	2x13mm fire resistant pbd	-/90/90	57-58	58-59	50	52-53
SS90.3	C 65	1x16mm fire resistant pbd	1x16mm fire resistant pbd	-/90/90	43-54	46-56	36-45	39-49
SS90.4	C 65	1x16mm fire resistant pbd + 1x13mm non-fire resistant pbd	1x16mm fire resistant pbd + 1x13mm non-fire resistant pbd	-/90/90	57	58	50	52-53
SS90.5	C 66	1x16mm fire resistant pbd	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/90/90	58	-	51	-
SS90.6	C 66	1x16mm fire resistant pbd + 1x10mm FIBEROCK	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/90/90	48-59	50-61	42-52	43-56
SS120.1	C 67	2x13mm fire resistant pbd	2x13mm fire resistant pbd	-/120/120	47-60	50-61	41-53	43-57
SS180.1	C 68	2x16mm fire resistant pbd	2x16mm fire resistant pbd	-/180/180	48-60	51-61	41-55	42-58
SSF.1	C 69	1x10mm FIBEROCK	1x10mm FIBEROCK	non-fire rated	39-48	41-51	33-38	34-43
SSF.2	C 69	2x10mm FIBEROCK	2x10mm FIBEROCK	non-fire rated	46-58	48-61	39-49	40-53
SSF30.1	C 70	1x13mm FIBEROCK	1x13mm FIBEROCK	-/30/30	42-51	44-53	36-39	37-43
SSF30.2	C 70	1x13mm FIBEROCK	2x13mm FIBEROCK	-/30/30	45-56	48-58	38-48	39-51
SSF60.1	C 71	1x16mm FIBEROCK	1x16mm FIBEROCK	-/60/60	44-54	47-56	39-46	40-49
SSF90.1	C 71	2x13mm FIBEROCK	2x13mm FIBEROCK	-/90/90	49-60	51-61	42-53	44-57
SSF120.1	C 72	2x13mm FIBEROCK	2x13mm FIBEROCK	-/120/120	NA	51-61	NA	44-57
SSF120.2	C 72	2x16mm FIBEROCK	2x16mm FIBEROCK	-/120/120	49-60	52-61	42-56	44-58

QUICK SELECTION TABLES

TWIN STUD WALLS												
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	STUD SIZE mm	64	76	92	150	64	76	92	150
				FRL	R _w				R _w +C _{tr}			
ST.1	C 73	1x10mm non-fire resistant pbd	1x10mm non-fire resistant pbd	non-fire rated	39-54	39-55	40-55	42-56	32-44	33-45	33-46	34-49
ST.2	C 74	2x10mm non-fire resistant pbd	2x10mm non-fire resistant pbd	non-fire rated	46-62	47-63	48-63	51-64	39-51	39-53	40-54	42-57
ST.3	C 75	1x13mm non-fire resistant pbd	1x13mm non-fire resistant pbd	non-fire rated	41-58	42-59	43-59	45-59	35-48	35-49	35-50	37-52
ST.4	C 76	2x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	50-64	51-66	52-67	55-68	42-55	43-57	44-59	45-62
ST60.1	C 77	1x13mm fire resistant pbd	1x13mm fire resistant pbd	-/60/60 30/30/30	43-58	44-59	46-59	47-59	36-48	37-49	39-50	39-52
ST60.2	C 78	1x13mm fire resistant pbd	1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd	-/60/60 30/30/30	59-60	59-61	60-62	60-62	49-50	50-52	51-53	54-55
ST60.3	C 78	1x13mm fire resistant pbd	1x13mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 30/30/30	59-60	60-61	60-62	61-62	49-50	50-52	52-53	54-55
ST60.4	C 79	1x13mm fire resistant pbd + 1x10mm FIBEROCK	1x13mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 30/30/30	49-58	50-60	51-62	54-62	41-48	42-50	42-52	45-55
ST90.1	C 80	1x13mm fire resistant pbd	2x13mm fire resistant pbd	-/90/90 30/30/30	48-64	49-64	50-66	52-66	41-53	42-54	42-56	44-59
ST90.2	C 81	1x16mm fire resistant pbd	1x16mm fire resistant pbd	-/90/90 60/60/60	46-61	47-62	48-63	51-64	39-52	40-53	40-56	42-58
ST90.3	C 81	1x16mm fire resistant pbd + 1x10mm FIBEROCK	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/90/90 60/60/60	51-60	52-62	54-64	57-64	43-50	54-52	44-54	46-57
ST120.1	C 82	2x13mm fire resistant pbd	2x13mm fire resistant pbd	-/120/120 90/90/90	53-64	54-66	55-67	58-68	45-55	45-57	46-59	49-62
ST180.1	C 83	2x16mm fire resistant pbd	2x16mm fire resistant pbd	-/180/180 120/120/120	54-64	55-66	56-67	60-68	46-56	47-58	48-60	51-62
ST180.2	C 84	1x25 SHAFTLINER + 1x16mm Firestop pbd	1x25 SHAFTLINER + 1x16mm Firestop pbd	-/180/180 120/120/120	53-65	55-67	56-69	59-70	44-56	45-58	46-60	49-62
ST240.1	C 84	2x25 SHAFTLINER + 1x16mm FIRESTOP pbd	2x25 SHAFTLINER + 1x16mm FIRESTOP pbd	-/240/240 180/180/180	62-74	63-76	65-78	68-78	52-65	53-67	54-69	57-70
STF.1	C 85	1x10mm FIBEROCK	1x10mm FIBEROCK	non-fire rated	42-54	43-55	44-55	46-56	35-44	36-45	36-46	38-49
STF.2	C 85	2x10mm FIBEROCK	2x10mm FIBEROCK	non-fire rated	50-62	51-63	52-63	55-64	42-51	43-53	44-54	46-57
STF.3	C 86	1x13mm FIBEROCK	1x13mm FIBEROCK	non-fire rated	45-58	45-59	46-59	49-59	38-48	38-49	39-50	41-52
STF30.1	C 86	1x13mm FIBEROCK	2x13mm FIBEROCK	-/30/30	50-63	51-64	52-65	55-66	42-53	43-54	44-56	46-59
STF60.1	C 87	1x16mm FIBEROCK	1x16mm FIBEROCK	-/60/60	48-62	49-63	50-64	53-65	41-53	41-54	42-56	44-59
STF90.1	C 87	2x13mm FIBEROCK	2x13mm FIBEROCK	-/90/90	55-64	56-66	NA	NA	46-55	47-57	NA	NA
STF120.1	C 88	2x13mm FIBEROCK	2x13mm FIBEROCK	-/120/120	NA	NA	57-67	60-67	NA	NA	48-59	50-62
STF120.2	C 88	2x16mm FIBEROCK	2x16mm FIBEROCK	-/120/120	56-65	57-66	58-68	61-69	48-56	49-58	50-60	53-62

R_w	40-44	45-49	50-54
R_w+C_{tr}			

LINED ONE SIDE

SO.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	10 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
SO.1A	1x10mm REGULAR	NA	Nil	27	23
SO.1B	1x10mm SOUNDSTOP	NA	Nil	28	26
SO.1C	1x10mm IMPACTSTOP	NA	Nil	28	26

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2720 d	NA	NA	NA
	0.55	NA	NA	3200 2d	3610 2s	NA
	0.75	NA	3130 d	3580 2d	4130 2d	5330 2h
	1.15	NA	3530 d	4050 2d	4690 2d	5330 2h

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2h – head track capacity (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings)

SO.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	20 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
SO.2A	2x10mm REGULAR	NA	Nil	33	29
SO.2B	2x10mm SOUNDSTOP	NA	Nil	34	32

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2720 d	NA	NA	NA
	0.55	NA	NA	3200 2d	3610 2s	NA
	0.75	NA	3130 d	3580 2d	4130 2d	5330 2h
	1.15	NA	3530 d	4050 2d	4690 2d	5330 2h

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2h – head track capacity (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

LINED ONE SIDE

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SO.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	13 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R _w	R _w +C _{tr}
SO.3A	1x13mm REGULAR	NA	Nil	28	25
SO.3B	1x13mm SOUNDSTOP	NA	Nil	29	27
SO.3C	1x13mm IMPACTSTOP	NA	Nil	29	27

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2720 d	NA	NA	NA
	0.55	NA	NA	3240 2d	3610 2s	NA
	0.75	NA	3250 d	3820 2d	4180 2d	5370 2s
	1.15	NA	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

SO30.1

FIRE RESISTANCE LEVEL NLB -/30/30 FROM LINED SIDE ONLY

FRL Basis: FCO-0568, FCO-1658, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	16 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R _w	R _w +C _{tr}
SO30.1A	1x16mm FIRESTOP	NA	Nil	30	27
SO30.1B	1x16mm MULTISTOP	NA	Nil	30	28

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2750 s	NA	NA	NA
	0.55	NA	NA	3250 2d	3610 2s	NA
	0.75	NA	3280 d	3870 2d	4200 2d	5370 2s
	1.15	NA	3590 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

LINED ONE SIDE

S060.1

FIRE RESISTANCE LEVEL
LB **60/60/60**
FROM LINED SIDE ONLY

FRL Basis: FCO-0037, FCO-1763,
EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	32 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	$R_w + C_{tr}$
S060.1A	2x16mm FIRESTOP	NA	Nil	36	33
S060.1B	2x16mm MULTISTOP	NA	Nil	36	34

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2750 d	NA	NA	NA
	0.55	NA	NA	3250 2d	3610 2s	NA
	0.75	NA	3280 d	3870 2d	4200 2d	5370 2s
	1.15	NA	3590 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

S090.1

FIRE RESISTANCE LEVEL
LB **90/90/90**
FROM LINED SIDE ONLY

FRL Basis: FCO-2423, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 3x13mm fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	39 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	$R_w + C_{tr}$
S090.1A	3x13mm FIRESTOP	NA	Nil	38	36
S090.1B	3x13mm MULTISTOP	NA	Nil	39	36

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

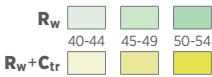
STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2720 d	NA	NA	NA
	0.55	NA	NA	3240 2d	3610 2s	NA
	0.75	NA	3250 d	3820 2d	4180 2d	5370 2s
	1.15	NA	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

LINED ONE SIDE



SO120.1

FIRE RESISTANCE LEVEL
LB 120/120/120
FROM LINED SIDE ONLY

FRL Basis: FSV-0538, EWFA 27211-00



SYSTEM DESCRIPTION

- Side 1: 3x16mm fire resistant pbd
- Framing: Steel studs
- Insulation: Refer to table
- Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01					
SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	48 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R _w	R _w +C _{tr}
SO120.1A	3x16mm FIRESTOP	NA	Nil	39	37
SO120.1B	3x16mm MULTISTOP	NA	Nil	40	38

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*					PRESSURE: 0.25 kPa	
STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2750 d	NA	NA	NA
	0.55	NA	NA	3250 2d	3610 2s	NA
	0.75	NA	3280 d	3870 2d	4200 2d	5370 2s
	1.15	NA	3590 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – LINED ONE SIDE

SOF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	10 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
SOF.1A	1x10mm FIBEROCK	NA	Nil	28	26

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2720 d	NA	NA	NA
	0.55	NA	NA	3200 2d	3610 2s	NA
	0.75	NA	3130 d	3580 2d	4130 2d	5330 2h
	1.15	NA	3530 d	4050 2d	4690 2d	5330 2h

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2h – head track capacity (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings)

SOF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	20 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
SOF.2A	2x10mm FIBEROCK	NA	Nil	34	32

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2720 d	NA	NA	NA
	0.55	NA	NA	3200 2d	3610 2s	NA
	0.75	NA	3130 d	3580 2d	4130 2d	5330 2h
	1.15	NA	3530 d	4050 2d	4690 2d	5330 2h

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2h – head track capacity (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings)

SOF.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	13 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
SOF.3A	1x13mm FIBEROCK	NA	Nil	29	27

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2720 d	NA	NA	NA
	0.55	NA	NA	3240 2d	3610 2s	NA
	0.75	NA	3250 d	3820 2d	4180 2d	5370 2s
	1.15	NA	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – LINED ONE SIDE

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SOF30.1

FIRE RESISTANCE LEVEL
NLB **-/30/30**
FROM LINED SIDE ONLY

FRL Basis: FR30SS1



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	16 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
SOF30.1A	1x16mm FIBEROCK	NA	Nil	30	28

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2750 s	NA	NA	NA
	0.55	NA	NA	3250 2d	3610 2s	NA
	0.75	NA	3280 d	3870 2d	4200 2d	5370 2s
	1.15	NA	3590 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

SOF60.1

FIRE RESISTANCE LEVEL
LB **60/60/60**
FROM LINED SIDE ONLY

FRL Basis: FR60SS2



SYSTEM DESCRIPTION

Side 1: 2x16mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	32 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
SOF60.1A	2x16mm FIBEROCK	NA	Nil	36	34

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2720 d	NA	NA	NA
	0.55	NA	NA	3240 2d	3610 2s	NA
	0.75	NA	3250 d	3820 2d	4180 2d	5370 2s
	1.15	NA	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

FIBEROCK – LINED ONE SIDE

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SOF90.1

FIRE RESISTANCE LEVEL
LB **90/90/90**
FROM LINED SIDE ONLY

FRL Basis: FR90SS3



SYSTEM DESCRIPTION

Side 1: 3x16mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: NA

ACOUSTIC RATINGS BASIS: RT&A TE405-05F01

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	48 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
SOF90.1A	3x16mm FIBEROCK	NA	Nil	40	38

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2320 d	2750 d	NA	NA	NA
	0.55	NA	NA	3250 2d	3610 2s	NA
	0.75	NA	3280 d	3870 2d	4200 2d	5370 2s
	1.15	NA	3590 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), s – permissible strength, 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector

SHEETROCK BRAND – LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SBS.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Sheetrock Brand Wall Board
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x10mm Sheetrock Brand Wall Board

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	71	84	96	112	170	71	84	96	112	170
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SBS.1A	1x10mm SHEETROCK BRAND WALL BOARD	1x10mm SHEETROCK BRAND WALL BOARD	Nil	30	30	31	31	29	22	23	23	23	21
			TSB2	32	33	34	36	36	24	24	25	26	26
			50G11, 50P14	34	34	36	37	37	25	25	26	27	27
			75G11, 75P14	-	-	37	38	38	-	-	27	28	28
			90G11, 90P14	-	-	-	39	39	-	-	-	28	28

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3130 d	3690 d	NA	NA	NA	2770 d	3330 d	NA	NA	NA
	0.55	NA	NA	4160 d	4990 d	NA	NA	NA	3700 d	4540 d	NA
	0.75	NA	4280 d	4930 d	5460 d	7340 2d	NA	3930 d	4430 d	4830 d	5330 h
	1.15	NA	4590 d	5240 d	5840 d	7970 2h	NA	4170 d	4650 d	5110 d	5330 h

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), h – head track capacity, 2h – head track capacity (2 rows of noggings)

SBS.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm Sheetrock Brand Standard
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x13mm Sheetrock Brand Standard

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	77	90	102	118	176	77	90	102	118	176
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SBS.2A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	Nil	32	32	33	34	32	24	25	25	26	24
			TSB2	34	36	37	39	38	25	26	26	29	29
			50G11, 50P14	35	37	38	40	39	26	27	27	30	30
			75G11, 75P14	-	-	39	41	40	-	-	28	31	31
			90G11, 90P14	-	-	-	41	40	-	-	-	31	31

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3510 d	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA
	0.55	NA	NA	4530 d	5330 d	NA	NA	NA	4130 d	4940 d	NA
	0.75	NA	4530 d	5450 d	6050 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d
	1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), h – head track capacity, 2h – head track capacity (2 rows of noggings)

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

LINED BOTH SIDES

SB.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x10mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	71	84	96	112	170	71	84	96	112	170
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB.1A	1x10mm REGULAR	1x10mm REGULAR	Nil	31	32	32	33	32	24	25	25	25	24
			TSB2	35	37	37	39	39	25	27	27	29	29
			50G11, 50P14	36	38	38	40	40	26	28	28	30	30
			75G11, 75P14	-	-	39	41	41	-	-	29	31	31
			90G11, 90P14	-	-	-	41	41	-	-	-	31	31
SB.1B	1x10mm WET AREA	1x10mm WET AREA	Nil	33	33	33	34	33	25	25	25	26	25
			TSB2	36	38	39	41	40	27	28	28	31	31
			50G11, 50P14	37	39	40	42	41	28	29	29	32	32
			75G11, 75P14	-	-	41	43	42	-	-	30	33	33
			90G11, 90P14	-	-	-	43	42	-	-	-	33	33
SB.1C	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	Nil	34	35	35	36	35	26	27	27	28	26
			TSB2	40	40	42	42	42	29	30	33	33	33
			50G11, 50P14	41	42	43	44	43	30	31	34	35	35
			75G11, 75P14	-	-	44	45	44	-	-	35	36	36
			90G11, 90P14	-	-	-	45	44	-	-	-	36	36
SB.1D	1x10mm IMPACTSTOP	1x10mm IMPACTSTOP	Nil	34	35	35	36	35	26	27	27	28	26
			TSB2	40	40	42	42	42	29	30	33	33	33
			50G11, 50P14	41	42	43	44	43	30	31	34	35	35
			75G11, 75P14	-	-	44	45	44	-	-	35	36	36
			90G11, 90P14	-	-	-	45	44	-	-	-	36	36
SB.1E	1x10mm REGULAR	1x10mm WET AREA	Nil	32	33	33	34	33	25	25	25	25	24
			TSB2	35	37	38	40	39	26	27	27	30	30
			50G11, 50P14	37	39	39	41	41	27	28	28	31	31
			75G11, 75P14	-	-	40	42	42	-	-	29	32	32
			90G11, 90P14	-	-	-	42	42	-	-	-	32	32
SB.1F	1x10mm REGULAR	1x10mm SOUNDSTOP	Nil	33	33	34	35	34	26	26	26	27	24
			TSB2	37	39	40	41	41	27	28	29	32	32
			50G11, 50P14	38	40	41	43	42	29	29	31	33	33
			75G11, 75P14	-	-	42	44	43	-	-	32	34	34
			90G11, 90P14	-	-	-	44	43	-	-	-	34	34
SB.1G	1x10mm SOUNDSTOP	1x10mm WET AREA	Nil	33	34	35	35	34	26	26	26	27	25
			TSB2	38	39	40	42	41	28	28	30	33	33
			50G11, 50P14	39	40	42	43	42	29	29	31	34	34
			75G11, 75P14	-	-	43	44	43	-	-	32	35	35
			90G11, 90P14	-	-	-	44	44	-	-	-	35	35
SB.1H	1x10mm REGULAR	1x10mm IMPACTSTOP	Nil	33	33	34	35	34	26	26	26	27	24
			TSB2	37	39	40	41	41	27	28	29	32	32
			50G11, 50P14	38	40	41	43	42	29	29	31	33	33
			75G11, 75P14	-	-	42	44	43	-	-	32	34	34
			90G11, 90P14	-	-	-	44	43	-	-	-	34	34

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS							NON-LOAD BEARING WALLS					PRESSURE: 0.25 kPa	
STUD SPACING mm		400					600						
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150		
BASE METAL THICKNESS mm	0.50	3130 d	3690 d	NA	NA	NA	2770 d	3330 d	NA	NA	NA		
	0.55	NA	NA	4160 d	4990 d	NA	NA	NA	3700 d	4540 d	NA		
	0.75	NA	4280 d	4930 d	5460 d	7340 2d	NA	3930 d	4430 d	4830 d	5330 h		
	1.15	NA	4590 d	5240 d	5840 d	7970 2h	NA	4170 d	4650 d	5110 d	5330 h		

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), h - head track capacity, 2h - head track capacity (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SB.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x10mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	91	104	116	132	150	91	104	116	132	150
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB.2A	2x10mm REGULAR	2x10mm REGULAR	Nil	37	38	39	39	38	28	29	30	30	29
			TSB2	43	44	46	47	46	33	33	35	37	37
			50G11, 50P14	44	45	47	48	47	34	34	36	39	38
			75G11, 75P14	-	-	48	49	48	-	-	37	40	39
			90G11, 90P14	-	-	-	50	49	-	-	-	41	41
SB.2B	2x10mm WET AREA	2x10mm WET AREA	Nil	38	39	40	40	39	29	31	31	31	30
			TSB2	45	45	47	48	46	35	35	37	38	38
			50G11, 50P14	46	47	48	49	48	36	36	38	39	39
			75G11, 75P14	-	-	49	50	49	-	-	39	41	41
			90G11, 90P14	-	-	-	51	50	-	-	-	42	42
SB.2C	2x10mm SOUNDSTOP	2x10mm SOUNDSTOP	Nil	41	41	42	43	42	32	32	33	34	32
			TSB2	46	47	48	48	47	36	38	40	40	40
			50G11, 50P14	48	49	50	50	49	38	40	41	43	42
			75G11, 75P14	-	-	51	51	50	-	-	42	44	44
			90G11, 90P14	-	-	-	52	51	-	-	-	45	45
SB.2D	2x10mm IMPACTSTOP	2x10mm IMPACTSTOP	Nil	41	41	42	43	42	32	32	33	34	32
			TSB2	46	47	48	48	47	36	38	40	40	40
			50G11, 50P14	48	49	50	50	49	38	40	41	43	42
			75G11, 75P14	-	-	51	51	50	-	-	42	44	44
			90G11, 90P14	-	-	-	52	51	-	-	-	45	45
SB.2E	2x10mm REGULAR	2x10mm WET AREA	Nil	37	39	40	40	39	28	30	31	31	29
			TSB2	44	45	46	48	46	34	34	36	38	38
			50G11, 50P14	45	46	47	49	47	35	35	37	39	39
			75G11, 75P14	-	-	49	50	48	-	-	38	40	40
			90G11, 90P14	-	-	-	51	49	-	-	-	41	41
SB.2F	2x10mm REGULAR	2x10mm SOUNDSTOP	Nil	39	40	41	41	40	30	32	32	32	30
			TSB2	46	46	47	48	47	36	36	38	39	39
			50G11, 50P14	47	48	49	49	48	37	37	39	40	40
			75G11, 75P14	-	-	50	51	49	-	-	40	42	42
			90G11, 90P14	-	-	-	52	50	-	-	-	43	42
SB.2G	2x10mm SOUNDSTOP	2x10mm WET AREA	Nil	40	41	41	42	41	31	32	32	32	31
			TSB2	45	47	48	48	47	34	37	39	40	40
			50G11, 50P14	46	48	49	50	48	35	38	40	41	41
			75G11, 75P14	-	-	50	51	49	-	-	41	42	42
			90G11, 90P14	-	-	-	52	50	-	-	-	43	43
SB.2H	2x10mm REGULAR	2x10mm IMPACTSTOP	Nil	39	40	41	41	40	30	32	32	32	30
			TSB2	46	46	47	48	47	36	36	38	39	39
			50G11, 50P14	47	48	49	49	48	37	37	39	40	40
			75G11, 75P14	-	-	50	51	49	-	-	40	42	42
			90G11, 90P14	-	-	-	52	50	-	-	-	43	42

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS										PRESSURE: 0.25 kPa				
STUD SPACING mm		400					600							
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150			
BASE METAL THICKNESS mm	0.50	3130 d	3690 d	NA	NA	NA	2770 d	3330 d	NA	NA	NA			
	0.55	NA	NA	4160 d	4990 d	NA	NA	NA	3700 d	4540 d	NA			
	0.75	NA	4280 d	4930 d	5460 d	7340 2d	NA	3930 d	4430 d	4830 d	5330 h			
	1.15	NA	4590 d	5240 d	5840 d	7970 2h	NA	4170 d	4650 d	5110 d	5330 h			

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), h - head track capacity, 2h - head track capacity (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

LINED BOTH SIDES

SB.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	77	90	102	118	176	77	90	102	118	176
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB.3A	1x13mm REGULAR	1x13mm REGULAR	Nil	33	34	35	35	34	26	26	27	27	25
			TSB2	38	38	40	41	40	28	28	30	32	32
			50G11, 50P14	39	39	41	42	41	28	29	31	33	33
			75G11, 75P14	-	-	42	43	42	-	-	32	34	34
			90G11, 90P14	-	-	-	43	42	-	-	-	34	34
SB.3B	1x13mm WET AREA	1x13mm WET AREA	Nil	34	35	36	36	35	26	27	28	29	26
			TSB2	39	40	41	42	41	28	30	32	33	33
			50G11, 50P14	40	41	42	43	42	29	31	33	34	34
			75G11, 75P14	-	-	43	44	43	-	-	34	35	35
			90G11, 90P14	-	-	-	44	43	-	-	-	35	35
SB.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	Nil	36	37	38	39	37	28	29	30	31	29
			TSB2	41	42	43	44	42	31	34	34	36	35
			50G11, 50P14	42	43	44	45	43	32	35	35	37	36
			75G11, 75P14	-	-	45	46	44	-	-	36	38	37
			90G11, 90P14	-	-	-	46	44	-	-	-	38	37
SB.3D	1x13mm IMPACTSTOP	1x13mm IMPACTSTOP	Nil	36	37	38	39	37	28	29	30	31	29
			TSB2	41	42	43	44	42	31	34	34	36	35
			50G11, 50P14	42	43	44	45	43	32	35	35	37	36
			75G11, 75P14	-	-	45	46	44	-	-	36	38	37
			90G11, 90P14	-	-	-	46	44	-	-	-	38	37
SB.3E	1x13mm REGULAR	1x13mm WET AREA	Nil	33	34	35	36	35	28	29	29	30	28
			TSB2	38	39	41	41	41	28	29	31	32	32
			50G11, 50P14	39	40	42	42	42	29	30	32	33	33
			75G11, 75P14	-	-	43	43	43	-	-	33	34	34
			90G11, 90P14	-	-	-	43	43	-	-	-	34	34
SB.3F	1x13mm REGULAR	1x13mm SOUNDSTOP	Nil	35	36	36	37	36	27	28	28	29	27
			TSB2	40	41	42	42	41	29	31	34	34	33
			50G11, 50P14	41	42	43	43	42	30	32	35	35	34
			75G11, 75P14	-	-	44	44	43	-	-	36	36	35
			90G11, 90P14	-	-	-	44	43	-	-	-	36	35
SB.3G	1x13mm SOUNDSTOP	1x13mm WET AREA	Nil	35	36	37	38	37	28	28	29	30	28
			TSB2	40	41	42	43	42	29	32	35	35	34
			50G11, 50P14	41	42	43	44	43	30	33	36	36	35
			75G11, 75P14	-	-	44	45	44	-	-	37	37	36
			90G11, 90P14	-	-	-	45	44	-	-	-	37	36
SB.3H	1x13mm REGULAR	1x13mm IMPACTSTOP	Nil	35	36	36	37	36	27	28	28	29	27
			TSB2	40	41	42	42	41	29	31	33	33	33
			50G11, 50P14	41	42	43	43	42	30	32	34	34	34
			75G11, 75P14	-	-	44	44	43	-	-	35	35	35
			90G11, 90P14	-	-	-	44	43	-	-	-	35	35

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS							NON-LOAD BEARING WALLS					PRESSURE: 0.25 kPa	
STUD SPACING mm		400					600						
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150		
BASE METAL THICKNESS mm	0.50	3510 d	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA		
	0.55	NA	NA	4530 d	5330 d	NA	NA	NA	4130 d	4940 d	NA		
	0.75	NA	4530 d	5450 d	6050 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d		
	1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d		

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SB.4

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	90	103	115	131	189	90	103	115	131	189
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB.4A	1x13mm REGULAR	2x13mm REGULAR	Nil	37	38	39	40	39	29	29	30	31	29
			TSB2	42	43	44	45	44	30	32	32	34	34
			50G11, 50P14	43	44	45	46	45	31	33	33	35	35
			75G11, 75P14	-	-	46	47	46	-	-	34	36	36
			90G11, 90P14	-	-	-	48	47	-	-	-	37	37
SB.4B	1x13mm WET AREA	2x13mm WET AREA	Nil	39	39	40	41	40	29	30	31	31	30
			TSB2	43	45	45	46	45	31	34	34	36	36
			50G11, 50P14	44	46	46	47	46	32	35	35	37	37
			75G11, 75P14	-	-	47	48	47	-	-	36	38	38
			90G11, 90P14	-	-	-	49	48	-	-	-	39	39
SB.4C	1x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	40	42	42	43	42	31	33	33	34	32
			TSB2	46	46	47	48	46	36	36	38	38	38
			50G11, 50P14	47	47	48	49	47	37	37	39	39	39
			75G11, 75P14	-	-	49	50	48	-	-	40	40	40
			90G11, 90P14	-	-	-	51	49	-	-	-	41	41
SB.4D	1x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	40	42	42	43	42	31	33	33	34	32
			TSB2	46	46	47	48	46	36	36	38	38	38
			50G11, 50P14	47	47	48	49	47	37	37	39	39	39
			75G11, 75P14	-	-	49	50	48	-	-	40	40	40
			90G11, 90P14	-	-	-	51	49	-	-	-	41	41
SB.4E	1x13mm REGULAR	2x13mm WET AREA	Nil	38	39	40	41	39	29	29	31	32	29
			TSB2	42	44	45	46	44	30	33	33	35	35
			50G11, 50P14	43	45	46	47	45	31	34	34	36	36
			75G11, 75P14	-	-	47	48	46	-	-	35	37	37
			90G11, 90P14	-	-	-	49	47	-	-	-	38	38
SB.4F	1x13mm REGULAR	2x13mm SOUNDSTOP	Nil	39	40	41	42	41	30	31	32	32	31
			TSB2	44	46	46	47	45	32	35	36	37	37
			50G11, 50P14	45	47	47	48	46	33	36	37	38	38
			75G11, 75P14	-	-	48	49	47	-	-	38	39	39
			90G11, 90P14	-	-	-	50	48	-	-	-	40	40
SB.4G	1x13mm SOUNDSTOP	2x13mm WET AREA	Nil	40	41	42	42	41	31	32	33	33	31
			TSB2	44	45	46	47	46	33	34	36	38	37
			50G11, 50P14	45	46	47	48	47	34	35	37	39	38
			75G11, 75P14	-	-	48	49	48	-	-	38	40	39
			90G11, 90P14	-	-	-	50	49	-	-	-	41	40
SB.4H	1x13mm REGULAR	2x13mm IMPACTSTOP	Nil	39	40	41	42	41	30	31	32	32	31
			TSB2	44	46	46	47	45	32	35	36	37	37
			50G11, 50P14	45	47	47	48	46	33	36	37	38	38
			75G11, 75P14	-	-	48	49	47	-	-	38	39	39
			90G11, 90P14	-	-	-	50	48	-	-	-	40	40

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS										PRESSURE: 0.25 kPa				
STUD SPACING mm		400					600							
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150			
BASE METAL THICKNESS mm	0.50	3510 d	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA			
	0.55	NA	NA	4530 d	5330 d	NA	NA	NA	4130 d	4940 d	NA			
	0.75	NA	4530 d	5450 d	6050 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d			
	1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d			

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

LINED BOTH SIDES

SB.5

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x13mm non-fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	103	116	128	144	202	103	116	128	144	202
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB.5A	2x13mm REGULAR	2x13mm REGULAR	Nil	42	43	44	45	44	34	35	36	36	34
			TSB2	46	47	48	49	47	35	38	39	40	40
			50G11, 50P14	47	48	49	50	48	36	39	40	41	41
			75G11, 75P14	-	-	50	51	49	-	-	41	42	42
			90G11, 90P14	-	-	-	52	50	-	-	-	43	43
SB.5B	2x13mm WET AREA	2x13mm WET AREA	Nil	44	44	45	46	45	36	36	36	37	35
			TSB2	47	48	49	49	47	37	40	40	42	42
			50G11, 50P14	48	49	50	50	48	38	41	41	43	43
			75G11, 75P14	-	-	51	51	49	-	-	42	44	44
			90G11, 90P14	-	-	-	52	50	-	-	-	45	45
SB.5C	2x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	46	47	47	48	47	38	39	39	39	38
			TSB2	49	49	50	50	48	41	42	43	45	44
			50G11, 50P14	50	50	51	51	49	42	43	44	46	45
			75G11, 75P14	-	-	52	52	50	-	-	45	47	46
			90G11, 90P14	-	-	-	53	51	-	-	-	48	47
SB.5D	2x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	46	47	47	48	47	38	39	39	39	38
			TSB2	49	49	50	50	48	41	42	43	45	44
			50G11, 50P14	50	50	51	51	49	42	43	44	46	45
			75G11, 75P14	-	-	52	52	50	-	-	45	47	46
			90G11, 90P14	-	-	-	53	51	-	-	-	48	47
SB.5E	2x13mm REGULAR	2x13mm WET AREA	Nil	43	44	45	45	45	35	35	36	36	35
			TSB2	46	48	48	49	47	36	39	40	41	41
			50G11, 50P14	47	49	49	50	48	37	40	41	42	42
			75G11, 75P14	-	-	50	51	49	-	-	42	43	43
			90G11, 90P14	-	-	-	52	50	-	-	-	44	44
SB.5F	2x13mm REGULAR	2x13mm SOUNDSTOP	Nil	45	45	46	47	46	37	37	37	38	36
			TSB2	47	49	49	50	48	38	41	41	43	42
			50G11, 50P14	48	50	50	51	49	39	42	42	44	43
			75G11, 75P14	-	-	51	52	50	-	-	43	45	44
			90G11, 90P14	-	-	-	53	51	-	-	-	46	45
SB.5G	2x13mm SOUNDSTOP	2x13mm WET AREA	Nil	45	46	47	47	47	37	37	38	38	37
			TSB2	48	49	49	50	48	39	41	42	43	43
			50G11, 50P14	49	50	50	51	49	40	42	43	44	44
			75G11, 75P14	-	-	51	52	50	-	-	44	45	45
			90G11, 90P14	-	-	-	53	51	-	-	-	46	46
SB.5H	2x13mm REGULAR	2x13mm IMPACTSTOP	Nil	45	45	46	47	46	37	37	37	38	36
			TSB2	47	49	49	50	48	38	41	41	43	42
			50G11, 50P14	48	50	50	51	49	39	42	42	44	43
			75G11, 75P14	-	-	51	52	50	-	-	43	45	44
			90G11, 90P14	-	-	-	53	51	-	-	-	46	45

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS							PRESSURE: 0.25 kPa				
STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3510 d	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA
	0.55	NA	NA	4530 d	5330 d	NA	NA	NA	4130 d	4940 d	NA
	0.75	NA	4530 d	5450 d	6050 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d
	1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SB60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **30/30/30**
FROM BOTH SIDES

FRL Basis: FCO-1045, FCO-1360, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	77	90	102	118	176	77	90	102	118	176
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB60.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	Nil	34	35	36	37	36	27	28	28	30	27
			TSB2	39	41	42	42	41	29	32	33	33	33
			50G11, 50P14	40	42	43	43	42	30	33	34	34	34
			75G11, 75P14	-	-	45	45	44	-	-	36	36	36
			90G11, 90P14	-	-	-	45	44	-	-	-	36	36
SB60.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	Nil	36	37	38	39	37	28	29	30	31	29
			TSB2	41	42	43	44	42	31	34	34	36	35
			50G11, 50P14	42	43	44	45	43	32	35	35	37	36
			75G11, 75P14	-	-	45	46	44	-	-	36	38	37
			90G11, 90P14	-	-	-	46	44	-	-	-	38	37
SB60.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	Nil	35	36	37	38	36	28	28	30	30	28
			TSB2	40	42	42	43	42	30	33	33	35	35
			50G11, 50P14	41	43	43	45	43	31	34	34	36	36
			75G11, 75P14	-	-	45	46	44	-	-	36	37	37
			90G11, 90P14	-	-	-	46	44	-	-	-	37	37

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3500 f	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA
	0.55	NA	NA	4530 d	5330 d	NA	NA	NA	4130 d	4940 d	NA
	0.75	NA	4530 d	5300 f	6050 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d
	1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

SB60.2

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **30/30/30**
FROM BOTH SIDES

FRL Basis: FCO-1045, FCO-1360



SYSTEM DESCRIPTION

Side 1: 1x13mm Firestop
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	87	100	112	128	186	87	100	112	128	186
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB60.2A	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	90G11, 90P14	-	-	-	50	-	-	-	-	40	-

* 50/75/90G11 - 90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50/75/90P14 - 90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS *

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3500 f	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA
	0.55	NA	NA	4530 d	5330 d	NA	NA	NA	4130 d	4940 d	NA
	0.75	NA	4530 d	5300 f	6050 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d
	1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector

R_w	40-44	45-49	50-54
R_w+C_{tr}			

LINED BOTH SIDES

SB60.3

FIRE RESISTANCE LEVEL
NLB -/60/60
LB 30/30/30
FROM BOTH SIDES

FRL Basis: FCO-1045, FCO-1360



SYSTEM DESCRIPTION

Side 1: 1x13mm Wet Area Firestop + 1x10mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	97	110	122	138	196	97	110	122	138	195
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					R_w+C_{tr}				
SB60.3A	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	42	43	44	45	44	36	36	37	37	36
			TSB2	47	48	49	50	48	38	41	41	42	42
			50G11, 50P14	48	50	50	51	49	39	42	42	43	43
			75G11, 75P14	-	-	51	52	50	-	-	43	45	44
			90G11, 90P14	-	-	-	53	51	-	-	-	46	45

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3500 f	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA
	0.55	NA	NA	4530 d	5330 d	NA	NA	NA	4130 d	4940 d	NA
	0.75	NA	4530 d	5300 f	6050 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d
	1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), f - fire height

*Refer Rondo for maximum heights for load bearing walls

SB90.1

FIRE RESISTANCE LEVEL
NLB -/90/90
LB 30/30/30
FROM BOTH SIDES

FRL Basis: SI 515, FCO-1360, FCO-1045, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	90	103	115	131	189	90	103	115	131	189
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					R_w+C_{tr}				
SB90.1A	1x13mm FIRESTOP	2x13mm FIRESTOP	Nil	40	41	42	42	41	30	32	32	32	31
			TSB2	44	45	46	47	45	33	34	35	37	37
			50G11, 50P14	45	46	47	48	47	34	35	37	39	38
			75G11, 75P14	-	-	48	49	48	-	-	38	40	39
			90G11, 90P14	-	-	-	50	49	-	-	-	41	40
SB90.1B	1x13mm MULTISTOP	2x13mm MULTISTOP	Nil	40	42	42	43	42	31	33	33	34	32
			TSB2	46	46	47	48	46	36	36	38	38	38
			50G11, 50P14	47	47	48	49	47	37	37	39	40	40
			75G11, 75P14	-	-	49	50	48	-	-	40	41	41
			90G11, 90P14	-	-	-	51	49	-	-	-	42	42
SB90.1C	1x13mm FIRESTOP	2x13mm MULTISTOP	Nil	40	41	42	43	42	30	33	33	33	32
			TSB2	45	46	47	47	46	35	35	37	38	38
			50G11, 50P14	46	47	48	49	47	36	36	38	39	39
			75G11, 75P14	-	-	49	50	48	-	-	39	40	40
			90G11, 90P14	-	-	-	51	49	-	-	-	41	41

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2900 f	3500 f	NA	NA	NA	2900 f	3500 f	NA	NA	NA
	0.55	NA	NA	4100 f	5100 f	NA	NA	NA	4100 f	4940 d	NA
	0.75	NA	3900 f	4500 f	5200 f	7500 f	NA	3900 f	4500 f	5200 f	6990 2d
	1.15	NA	4300 f	5000 f	5800 f	8190 2d	NA	4300 f	5000 f	5750 d	7520 2d

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), f - fire height

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SB90.2

FIRE RESISTANCE LEVEL
NLB -/90/90
LB 60/60/60
FROM BOTH SIDES

FRL Basis: FCO-1360, FCO-1045, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	83	96	108	124	182	83	96	108	124	182
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R _w					R _w +C _{tr}				
SB90.2A	1x16mm FIRESTOP	1x16mm FIRESTOP	Nil	38	39	40	41	40	33	34	35	35	34
			TSB2	43	44	45	46	44	35	36	38	40	39
			50G11, 50P14	44	45	46	47	45	37	37	39	41	40
			75G11, 75P14	-	-	48	48	46	-	-	41	43	42
			90G11, 90P14	-	-	-	48	46	-	-	-	43	42
SB90.2B	1x16mm MULTISTOP	1x16mm MULTISTOP	Nil	38	39	40	41	40	33	35	36	36	35
			TSB2	44	45	46	46	44	38	38	40	41	40
			50G11, 50P14	45	46	47	47	45	39	39	41	42	42
			75G11, 75P14	-	-	48	48	46	-	-	42	43	43
			90G11, 90P14	-	-	-	48	46	-	-	-	43	43
SB90.2C	1x16mm FIRESTOP	1x16mm MULTISTOP	Nil	38	39	40	41	40	33	35	36	36	34
			TSB2	44	44	45	46	44	37	37	39	41	40
			50G11, 50P14	45	45	46	47	45	38	38	40	42	41
			75G11, 75P14	-	-	47	48	46	-	-	41	43	42
			90G11, 90P14	-	-	-	48	46	-	-	-	43	42

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3400 f	4100 f	NA	NA	NA	3390 d	3910 d	NA	NA	NA
	0.55	NA	NA	4700 d	5560 d	NA	NA	NA	4300 d	5180 d	NA
	0.75	NA	4500 f	5200 f	6100 f	7750 2d	NA	4350 d	5260 d	5710 d	7190 2d
	1.15	NA	4950 d	5800 f	6580 d	8300 2d	NA	4520 d	5420 d	5930 d	7630 2d

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), f - fire height

*Refer Rondo for maximum heights for load bearing walls

SB90.3

FIRE RESISTANCE LEVEL
NLB -/90/90
LB 60/60/60
FROM BOTH SIDES

FRL Basis: FCO-1360, FCO-1045



SYSTEM DESCRIPTION

Side 1: 1x16mm Firestop
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	93	106	118	134	192	93	106	118	134	192
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R _w					R _w +C _{tr}				
SB90.3A	1x16mm FIRESTOP	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	50G11, 50P14	-	-	-	50	-	-	-	-	41	-

* 50/75/90G11 - 90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50/75/90P14 - 90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3400 f	4100 f	NA	NA	NA	3390 d	3910 d	NA	NA	NA
	0.55	NA	NA	4700 d	5560 d	NA	NA	NA	4300 d	5180 d	NA
	0.75	NA	4500 f	5200 f	6100 f	7750 2d	NA	4350 d	5260 d	5710 d	7190 2d
	1.15	NA	4950 d	5800 f	6580 d	8300 2d	NA	4520 d	5420 d	5930 d	7630 2d

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), f - fire height

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

LINED BOTH SIDES

SB90.4

FIRE RESISTANCE LEVEL
NLB **-/90/90**
LB **60/60/60**
FROM BOTH SIDES

FRL Basis: FCO-1360, FCO-1045



SYSTEM DESCRIPTION

Side 1: 1x16mm Wet Area Firestop + 1x10mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	103	116	128	144	202	103	116	128	144	202
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB90.4A	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	43	44	45	45	45	38	38	38	39	37
			TSB2	48	49	49	50	48	40	41	43	44	43
			50G11, 50P14	49	50	50	51	49	41	43	44	45	44
			75G11, 75P14	-	-	51	52	50	-	-	45	46	45
			90G11, 90P14	-	-	-	53	51	-	-	-	47	46

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3400 f	4100 f	NA	NA	NA	3390 d	3910 d	NA	NA	NA
	0.55	NA	NA	4700 d	5560 d	NA	NA	NA	4300 d	5180 d	NA
	0.75	NA	4500 f	5200 f	6100 f	7750 2d	NA	4350 d	5260 d	5710 d	7190 2d
	1.15	NA	4950 d	5800 f	6580 d	8300 2d	NA	4520 d	5420 d	5930 d	7630 2d

Height Limiting Factor: d - deflection, 2d - deflection (2 rows noggings), f - fire height

*Refer Rondo for maximum heights for load bearing walls

SB120.1

FIRE RESISTANCE LEVEL
NLB **-/120/120**
LB **90/90/90**
FROM BOTH SIDES

FRL Basis: SI 720, SI 474, FCO-1360, FCO-1045, WFRA C91228, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 2x13mm fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	103	116	128	144	202	103	116	128	144	202
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB120.1A	2x13mm FIRESTOP	2x13mm FIRESTOP	Nil	44	45	46	47	46	37	37	37	38	37
			TSB2	48	48	49	50	48	39	41	42	43	43
			50G11, 50P14	49	50	50	51	49	40	42	43	44	44
			75G11, 75P14	-	-	51	52	50	-	-	44	45	45
			90G11, 90P14	-	-	-	53	51	-	-	-	46	46
SB120.1B	2x13mm MULTISTOP	2x13mm MULTISTOP	Nil	46	47	47	48	47	38	39	39	39	38
			TSB2	49	49	50	50	48	41	42	43	45	44
			50G11, 50P14	50	51	51	52	49	42	44	45	46	45
			75G11, 75P14	-	-	52	53	50	-	-	46	47	46
			90G11, 90P14	-	-	-	54	51	-	-	-	48	47
SB120.1C	2x13mm FIRESTOP	2x13mm MULTISTOP	Nil	45	46	47	47	47	38	38	38	39	37
			TSB2	48	49	50	50	48	40	42	43	44	43
			50G11, 50P14	49	50	51	51	49	42	43	44	45	45
			75G11, 75P14	-	-	52	52	50	-	-	45	46	46
			90G11, 90P14	-	-	-	53	51	-	-	-	47	47

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	2600 f	3100 f	NA	NA	NA	2600 f	3100 f	NA	NA	NA
	0.55	NA	NA	3700 f	4600 f	NA	NA	NA	3700 f	4600 f	NA
	0.75	NA	3500 f	4000 f	4700 f	6700 f	NA	3500 f	4000 f	4700 f	6700 f
	1.15	NA	3900 f	4500 f	5200 f	7700 f	NA	3900 f	4500 f	5200 f	7520 2d

Height Limiting Factor: 2d - deflection (2 rows noggings), f - fire height

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SB180.1

FIRE RESISTANCE LEVEL
 NLB **-/180/180**
 LB **120/120/120**
 FROM BOTH SIDES

FRL Basis: SI 1453, FCO-1360,
 FCO-1045, WFRA C91228,
 EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x16mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs
 and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	115	128	140	156	214	115	128	140	156	214
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R _w					R _w +C _{tr}				
SB180.1A	2x16mm FIRESTOP	2x16mm FIRESTOP	Nil	45	46	47	47	47	38	38	39	39	38
			TSB2	49	50	50	51	49	40	42	43	44	43
			50G11, 50P14	50	51	51	52	50	41	43	44	45	44
			75G11, 75P14	-	-	53	53	51	-	-	45	46	46
			90G11, 90P14	-	-	-	54	52	-	-	-	47	47
SB180.1B	2x16mm MULTISTOP	2x16mm MULTISTOP	Nil	46	47	47	48	47	39	40	40	41	39
			TSB2	50	51	51	51	49	42	43	44	45	44
			50G11, 50P14	51	52	52	52	50	43	44	45	46	45
			75G11, 75P14	-	-	53	53	51	-	-	46	47	46
			90G11, 90P14	-	-	-	54	52	-	-	-	48	47
SB180.1C	2x16mm FIRESTOP	2x16mm MULTISTOP	Nil	45	46	47	48	47	38	39	39	40	39
			TSB2	50	50	51	51	49	41	42	43	44	44
			50G11, 50P14	51	51	52	52	50	42	44	44	45	45
			75G11, 75P14	-	-	53	53	51	-	-	45	46	46
			90G11, 90P14	-	-	-	54	52	-	-	-	47	47

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS (SB180.1 & SB180.2)*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	1900 f	2300 f	NA	NA	NA	1900 f	2300 f	NA	NA	NA
	0.55	NA	NA	2700 f	3500 f	NA	NA	NA	2700 f	3500 f	NA
	0.75	NA	2700 f	3000 f	3500 f	5000 f	NA	2700 f	3000 f	3500 f	5000 f
	1.15	NA	3000 f	3500 f	4000 f	5900 f	NA	3000 f	3500 f	4000 f	5900 f

Height Limiting Factor: f - fire height

*Refer Rondo for maximum heights for load bearing walls

SB180.2

FIRE RESISTANCE LEVEL
 NLB **-/180/180**
 LB **120/120/120**
 FROM BOTH SIDES

FRL Basis: FCO-2440



SYSTEM DESCRIPTION

Side 1: 1x25 Shaftliner pbd
 + 1x16mm Firestop pbd
Framing: Steel studs + Linerstrips
Insulation: Refer to table
Side 2: 1x25 Shaftliner pbd
 + 1x16mm Firestop pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs
 and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	133	146	158	174	232	133	146	158	174	232
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R _w					R _w +C _{tr}				
SB180.2A	1x25mm SHAFTLINER + 1x16mm FIRESTOP	1x25mm SHAFTLINER + 1x16mm FIRESTOP	Nil	48	49	50	50	50	42	43	44	44	44
			TSB2	56	56	56	56	53	51	52	52	53	50
			50G11, 50P14	56	56	56	56	53	51	52	52	53	50
			75G11, 75P14	-	-	56	56	53	-	-	52	53	50
			90G11, 90P14	-	-	-	56	53	-	-	-	53	50

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

For maximum wall heights contact USG Boral

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	<div></div>	<div></div>	<div></div>
	40-44	45-49	50-54
$R_w + C_{tr}$	<div></div>	<div></div>	<div></div>

SB240.1

FIRE RESISTANCE LEVEL

NLB **-/240/240**

LB **180/180/180**

FROM BOTH SIDES

FRL Basis: FCO-2440



SYSTEM DESCRIPTION

Side 1: 2x25mm Shaftliner pbd
+ 1x16mm Firestop pbd

Framing: Steel studs + Linerstrips

Insulation: Refer to table

Side 2: 2x25mm Shaftliner pbd
+ 1x16mm Firestop pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs
and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	183	196	208	224	282	183	196	208	224	282
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SB240.1A	2x25mm SHAFTLINER + 1x16mm FIRESTOP	2x25mm SHAFTLINER + 1x16mm FIRESTOP	Nil	54	55	56	57	56	48	49	50	51	50
			TSB2	60	60	60	60	57	56	57	57	57	55
			50G11, 50P14	60	60	60	60	57	56	57	57	57	55
			75G11, 75P14	-	-	60	60	57	-	-	57	57	55
			90G11, 90P14	-	-	-	60	57	-	-	-	57	55

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)

50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

For maximum wall heights contact USG Boral

FIBEROCK – LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SBF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	71	84	96	112	170	71	84	96	112	170
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SBF.1A	1x10mm FIBEROCK	1x10mm FIBEROCK	Nil	34	35	35	36	35	26	27	27	28	26
			TSB2	40	40	42	42	42	29	30	33	33	33
			50G11, 50P14	41	42	43	44	43	30	31	34	35	35
			75G11, 75P14	-	-	44	45	44	-	-	35	36	36
			90G11, 90P14	-	-	-	45	44	-	-	-	36	36

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3130 d	3690 d	NA	NA	NA	2770 d	3330 d	NA	NA	NA
	0.55	NA	NA	4160 d	4990 d	NA	NA	NA	3700 d	4540 d	NA
	0.75	NA	4280 d	4930 d	5460 d	7340 2d	NA	3930 d	4430 d	4830 d	5330 h
	1.15	NA	4590 d	5240 d	5840 d	7970 2h	NA	4170 d	4650 d	5110 d	5330 h

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), h – head track capacity, 2h – head track capacity (2 rows of noggings)

SBF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	91	104	116	132	190	91	104	116	132	190
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SBF.2A	2x10mm FIBEROCK	2x10mm FIBEROCK	Nil	41	41	42	43	42	32	32	33	34	32
			TSB2	46	47	48	48	47	36	38	40	40	40
			50G11, 50P14	48	49	50	50	49	38	40	41	43	42
			75G11, 75P14	-	-	51	51	50	-	-	42	44	44
			90G11, 90P14	-	-	-	52	51	-	-	-	45	45

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3130 d	3690 d	NA	NA	NA	2770 d	3330 d	NA	NA	NA
	0.55	NA	NA	4160 d	4990 d	NA	NA	NA	3700 d	4540 d	NA
	0.75	NA	4280 d	4930 d	5460 d	7340 2d	NA	3930 d	4430 d	4830 d	5330 h
	1.15	NA	4590 d	5240 d	5840 d	7970 2h	NA	4170 d	4650 d	5110 d	5330 h

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), h – head track capacity, 2h – head track capacity (2 rows of noggings)

R_w	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – LINED BOTH SIDES

SBF30.1

FIRE RESISTANCE LEVEL
 NLB **-/30/30**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FAR2396, FAR3242



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	77	90	102	118	176	77	90	102	118	176
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					R_w+C_{tr}				
SBF30.1A	1x13mm FIBEROCK	1x13mm FIBEROCK	Nil	36	37	38	39	37	28	29	30	31	29
			TSB2	41	42	43	44	42	31	34	34	36	35
			50G11, 50P14	42	44	44	45	43	32	35	35	37	36
			75G11, 75P14	-	-	45	46	44	-	-	36	38	37
			90G11, 90P14	-	-	-	46	44	-	-	-	38	37

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3510 d	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA
	0.55	NA	NA	4530 d	5330 d	NA	NA	NA	4130 d	4940 d	NA
	0.75	NA	4530 d	5450 d	6050 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d
	1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

SBF30.2

FIRE RESISTANCE LEVEL
 NLB **-/30/30**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FAR2396, FAR3242



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	90	103	115	131	189	90	103	115	131	189
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					R_w+C_{tr}				
SBF30.2A	1x13mm FIBEROCK	2x13mm FIBEROCK	Nil	40	42	42	43	42	31	33	33	34	32
			TSB2	46	46	47	48	46	36	36	38	38	38
			50G11, 50P14	47	47	48	49	47	37	37	39	40	40
			75G11, 75P14	-	-	49	50	48	-	-	40	41	41
			90G11, 90P14	-	-	-	51	49	-	-	-	42	42

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3510 d	4020 d	NA	NA	NA	3200 d	3720 d	NA	NA	NA
	0.55	NA	NA	4530 d	5330 d	NA	NA	NA	4130 d	4940 d	NA
	0.75	NA	4530 d	5450 d	6050 d	7610 2d	NA	4220 d	5020 d	5500 d	6990 2d
	1.15	NA	4810 d	5720 d	6380 d	8190 2d	NA	4430 d	5220 d	5750 d	7520 2d

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SBF60.1

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **60/60/60**
 FROM BOTH SIDES

FRL Basis: FSV1427a, FAR2311



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x16mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	83	96	108	124	182	83	96	108	124	182
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SBF60.1A	1x16mm FIBEROCK	1x16mm FIBEROCK	Nil	38	39	40	41	40	33	35	36	36	35
			TSB2	44	45	46	46	44	38	38	40	41	40
			50G11, 50P14	45	46	47	47	45	39	39	41	42	42
			75G11, 75P14	-	-	48	48	46	-	-	42	43	43
			90G11, 90P14	-	-	-	48	46	-	-	-	43	43

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS[†]

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3620 d	4220 d	NA	NA	NA	3390 d	3910 d	NA	NA	NA
	0.55	NA	NA	4700 d	5560 d	NA	NA	NA	4300 d	5180 d	NA
	0.75	NA	4710 d	5710 d	6280 d	7750 d	NA	4350 d	5260 d	5710 d	7190 d
	1.15	NA	4950 d	5950 d	6580 d	8300 d	NA	4520 d	5420 d	5930 d	7630 d

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), f – fire height

[†]Refer Rondo for maximum heights for load bearing walls

SBF90.1[^]

FIRE RESISTANCE LEVEL
 NLB **-/90/90**
 FROM BOTH SIDES

FRL Basis: FAR4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	103	116	128	144	202	103	116	128	144	202
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					$R_w + C_{tr}$				
SBF90.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	NA	47	47	NA	NA	NA	39	39	NA	NA
			TSB2	NA	49	50	NA	NA	NA	42	43	NA	NA
			50G11, 50P14	NA	51	51	NA	NA	NA	44	45	NA	NA
			75G11, 75P14	-	-	52	NA	NA	-	-	46	NA	NA
			90G11, 90P14	-	-	-	NA	NA	-	-	-	NA	NA

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	NA	4020 d	NA	NA	NA	NA	3720 d	NA	NA	NA
	0.55	NA	NA	4530 d	NA	NA	NA	NA	4130 d	NA	NA
	0.75	NA	4530 d	5450 d	NA	NA	NA	4220 d	5020 d	NA	NA
	1.15	NA	4810 d	5720 d	NA	NA	NA	4430 d	5220 d	NA	NA

Height Limiting Factor: d – deflection

[^]System SBF90.1 must utilise 64mm or 76mm studs only.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – LINED BOTH SIDES

SBF120.1[^]

FIRE RESISTANCE LEVEL
NLB -/120/120
FROM BOTH SIDES

FRL Basis: FAR4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	103	116	128	144	202	103	116	128	144	202
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					R_w+C_{tr}				
SBF120.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	NA	NA	NA	46	45	NA	NA	NA	39	38
			TSB2	NA	NA	NA	50	48	NA	NA	NA	44	44
			50G11, 50P14	NA	NA	NA	52	49	NA	NA	NA	46	45
			75G11, 75P14	-	-	NA	53	50	-	-	NA	47	46
			90G11, 90P14	-	-	-	54	51	-	-	-	48	47

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)

50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	0.55	NA	NA	NA	5330 d	NA	NA	NA	NA	4940 d	NA
	0.75	NA	NA	NA	6050 d	7610 2d	NA	NA	NA	5500 d	6990 2d
	1.15	NA	NA	NA	6380 d	8190 2d	NA	NA	NA	5750 d	7520 2d

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings)

[^]System SBF120.1 must utilise 92mm or 150mm studs only.

SBF120.2

FIRE RESISTANCE LEVEL
NLB -/120/120
FROM BOTH SIDES

FRL Basis: FSV1401a



SYSTEM DESCRIPTION

Side 1: 2x16mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x16mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F02

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	115	128	140	156	214	115	28	140	156	214
			STUD SIZE mm	51	64	76	92	150	51	64	76	92	150
			INSULATION*	R_w					R_w+C_{tr}				
SBF120.2A	2x16mm FIBEROCK	2x16mm FIBEROCK	Nil	46	47	47	48	47	39	40	40	41	39
			TSB2	50	51	51	51	49	42	43	44	45	44
			50G11, 50P14	51	52	52	52	50	43	44	45	46	45
			75G11, 75P14	-	-	53	53	51	-	-	46	47	46
			90G11, 90P14	-	-	-	54	52	-	-	-	48	47

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)

50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		400					600				
STUD SIZE mm		51	64	76	92	150	51	64	76	92	150
BASE METAL THICKNESS mm	0.50	3620 d	4220 d	NA	NA	NA	3390 d	3910 d	NA	NA	NA
	0.55	NA	NA	4700 d	5560 d	NA	NA	NA	4300 d	5180 d	NA
	0.75	NA	4710 d	5710 d	6280 d	7750 2d	NA	4350 d	5260 d	5710 d	7190 2d
	1.15	NA	4950 d	5950 d	6580 d	8300 2d	NA	4520 d	5420 d	5930 d	7630 2d

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector

QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQ.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 1x10mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	112	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQ.1A	1x10mm REGULAR	1x10mm REGULAR	Nil	37	29
			TSB2	41	32
			50G11, 50P14	43	33
			75G11, 75P14	44	34
			90G11, 90P14	44	34
SQ.1B	1x10mm WET AREA	1x10mm WET AREA	Nil	38	30
			TSB2	43	34
			50G11, 50P14	44	35
			75G11, 75P14	45	36
			90G11, 90P14	45	36
SQ.1C	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	Nil	40	32
			TSB2	45	36
			50G11, 50P14	47	37
			75G11, 75P14	48	38
			90G11, 90P14	48	38
SQ.1D	1x10mm IMPACTSTOP	1x10mm IMPACTSTOP	Nil	40	32
			TSB2	45	36
			50G11, 50P14	47	37
			75G11, 75P14	48	38
			90G11, 90P14	48	38
SQ.1E	1x10mm REGULAR	1x10mm WET AREA	Nil	38	30
			TSB2	42	33
			50G11, 50P14	43	34
			75G11, 75P14	44	35
			90G11, 90P14	44	35
SQ.1F	1x10mm REGULAR	1x10mm SOUNDSTOP	Nil	39	31
			TSB2	44	35
			50G11, 50P14	45	36
			75G11, 75P14	46	37
			90G11, 90P14	46	38
SQ.1G	1x10mm SOUNDSTOP	1x10mm WET AREA	Nil	39	31
			TSB2	45	36
			50G11, 50P14	46	37
			75G11, 75P14	47	38
			90G11, 90P14	47	38
SQ.1H	1x10mm REGULAR	1x10mm IMPACTSTOP	Nil	39	31
			TSB2	44	35
			50G11, 50P14	45	36
			75G11, 75P14	46	37
			90G11, 90P14	46	38

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS			PRESSURE: 0.25 kPa	
STUD SPACING mm			450	600
STUD SIZE mm			92	
BASE METAL THICKNESS mm	0.55		4020	3700

Source: Rondo Building Systems

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQ.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 2x10mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	132	
			STUD SIZE mm	92	
			INSULATION*	R_w	R_w+C_{tr}
SQ.2A	2x10mm REGULAR	2x10mm REGULAR	Nil	44	36
			TSB2	50	41
			50G11, 50P14	51	42
			75G11, 75P14	52	43
			90G11, 90P14	53	44
SQ.2B	2x10mm WET AREA	2x10mm WET AREA	Nil	45	37
			TSB2	51	41
			50G11, 50P14	52	42
			75G11, 75P14	53	44
			90G11, 90P14	54	45
SQ.2C	2x10mm SOUNDSTOP	2x10mm SOUNDSTOP	Nil	48	40
			TSB2	53	45
			50G11, 50P14	54	46
			75G11, 75P14	55	47
			90G11, 90P14	56	48
SQ.2D	2x10mm IMPACTSTOP	2x10mm IMPACTSTOP	Nil	48	40
			TSB2	53	45
			50G11, 50P14	54	46
			75G11, 75P14	55	47
			90G11, 90P14	56	48
SQ.2E	2x10mm REGULAR	2x10mm WET AREA	Nil	45	37
			TSB2	50	41
			50G11, 50P14	51	42
			75G11, 75P14	53	43
			90G11, 90P14	54	44
SQ.2F	2x10mm REGULAR	2x10mm SOUNDSTOP	Nil	46	38
			TSB2	50	42
			50G11, 50P14	51	43
			75G11, 75P14	54	45
			90G11, 90P14	55	46
SQ.2G	2x10mm SOUNDSTOP	2x10mm WET AREA	Nil	47	38
			TSB2	52	43
			50G11, 50P14	53	44
			75G11, 75P14	55	45
			90G11, 90P14	56	46
SQ.2H	2x10mm REGULAR	2x10mm IMPACTSTOP	Nil	46	38
			TSB2	50	42
			50G11, 50P14	51	43
			75G11, 75P14	54	45
			90G11, 90P14	55	46

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS			PRESSURE: 0.25 kPa
STUD SPACING mm		450	600
STUD SIZE mm		92	
BASE METAL THICKNESS mm	0.55	4020	3700

Source: Rondo Building Systems

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQ.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 1x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	118	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQ.3A	1x13mm REGULAR	1x13mm REGULAR	Nil	39	31
			TSB2	45	37
			50G11, 50P14	46	38
			75G11, 75P14	48	39
			90G11, 90P14	48	39
SQ.3B	1x13mm WET AREA	1x13mm WET AREA	Nil	40	32
			TSB2	46	36
			50G11, 50P14	47	37
			75G11, 75P14	48	38
			90G11, 90P14	48	38
SQ.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	Nil	43	35
			TSB2	48	40
			50G11, 50P14	50	42
			75G11, 75P14	51	43
			90G11, 90P14	51	43
SQ.3D	1x13mm IMPACTSTOP	1x13mm IMPACTSTOP	Nil	43	35
			TSB2	48	40
			50G11, 50P14	50	42
			75G11, 75P14	51	43
			90G11, 90P14	51	43
SQ.3E	1x13mm REGULAR	1x13mm WET AREA	Nil	40	32
			TSB2	45	35
			50G11, 50P14	46	36
			75G11, 75P14	48	38
			90G11, 90P14	48	37
SQ.3F	1x13mm REGULAR	1x13mm SOUNDSTOP	Nil	41	33
			TSB2	47	37
			50G11, 50P14	48	38
			75G11, 75P14	49	39
			90G11, 90P14	49	39
SQ.3G	1x13mm SOUNDSTOP	1x13mm WET AREA	Nil	42	34
			TSB2	47	38
			50G11, 50P14	49	39
			75G11, 75P14	50	40
			90G11, 90P14	50	40
SQ.3H	1x13mm REGULAR	1x13mm IMPACTSTOP	Nil	41	33
			TSB2	47	37
			50G11, 50P14	48	38
			75G11, 75P14	49	39
			90G11, 90P14	49	39

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS			PRESSURE: 0.25 kPa	
STUD SPACING mm			450	600
STUD SIZE mm			92	
BASE METAL THICKNESS mm	0.55		4410	4130

Source: Rondo Building Systems

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQ.4

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant lining

Framing: Rondo QUIET STUD

Insulation: Refer to table

Side 2: 2x13mm non-fire resistant lining

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs
and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	131	
			STUD SIZE mm	92	
			INSULATION*	R_w	R_w+C_{tr}
SQ.4A	1x13mm REGULAR	2x13mm REGULAR	Nil	45	37
			TSB2	49	41
			50G11, 50P14	50	42
			75G11, 75P14	52	43
			90G11, 90P14	53	44
SQ.4B	1x13mm WET AREA	2x13mm WET AREA	Nil	46	37
			TSB2	50	43
			50G11, 50P14	52	44
			75G11, 75P14	53	45
			90G11, 90P14	54	46
SQ.4C	1x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	48	40
			TSB2	52	46
			50G11, 50P14	54	47
			75G11, 75P14	55	48
			90G11, 90P14	56	49
SQ.4D	1x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	48	40
			TSB2	52	46
			50G11, 50P14	54	47
			75G11, 75P14	55	48
			90G11, 90P14	56	49
SQ.4E	1x13mm REGULAR	2x13mm WET AREA	Nil	46	38
			TSB2	50	42
			50G11, 50P14	51	43
			75G11, 75P14	52	44
			90G11, 90P14	53	45
SQ.4F	1x13mm REGULAR	2x13mm SOUNDSTOP	Nil	47	38
			TSB2	51	44
			50G11, 50P14	53	45
			75G11, 75P14	54	46
			90G11, 90P14	55	47
SQ.4G	1x13mm SOUNDSTOP	2x13mm WET AREA	Nil	47	39
			TSB2	52	45
			50G11, 50P14	53	46
			75G11, 75P14	54	47
			90G11, 90P14	55	48
SQ.4H	2x13mm REGULAR	2x13mm IMPACTSTOP	Nil	47	38
			TSB2	51	44
			50G11, 50P14	53	45
			75G11, 75P14	54	46
			90G11, 90P14	55	47

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS			PRESSURE: 0.25 kPa	
STUD SPACING mm		450	600	
STUD SIZE mm		92		
BASE METAL THICKNESS mm	0.55	4410	4130	

Source: Rondo Building Systems

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQ.5

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x13mm non-fire resistant lining
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 2x13mm non-fire resistant lining

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQ.5A	2x13mm REGULAR	2x13mm REGULAR	Nil	45	38
			TSB2	51	45
			50G11, 50P14	53	46
			75G11, 75P14	54	47
			90G11, 90P14	55	48
SQ.5B	2x13mm WET AREA	2x13mm WET AREA	Nil	46	39
			TSB2	52	46
			50G11, 50P14	54	47
			75G11, 75P14	55	48
			90G11, 90P14	56	49
SQ.5C	2x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	49	41
			TSB2	54	50
			50G11, 50P14	55	51
			75G11, 75P14	56	52
			90G11, 90P14	57	53
SQ.5D	2x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	49	41
			TSB2	54	50
			50G11, 50P14	55	51
			75G11, 75P14	56	52
			90G11, 90P14	57	53
SQ.5E	2x13mm REGULAR	2x13mm WET AREA	Nil	46	38
			TSB2	52	45
			50G11, 50P14	53	47
			75G11, 75P14	54	48
			90G11, 90P14	55	49
SQ.5F	2x13mm REGULAR	2x13mm SOUNDSTOP	Nil	49	41
			TSB2	53	47
			50G11, 50P14	54	48
			75G11, 75P14	55	50
			90G11, 90P14	56	51
SQ.5G	2x13mm SOUNDSTOP	2x13mm WET AREA	Nil	48	40
			TSB2	53	48
			50G11, 50P14	54	49
			75G11, 75P14	56	50
			90G11, 90P14	57	51
SQ.5H	2x13mm REGULAR	2x13mm IMPACTSTOP	Nil	49	41
			TSB2	53	47
			50G11, 50P14	54	48
			75G11, 75P14	55	50
			90G11, 90P14	56	51

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS			PRESSURE: 0.25 kPa	
STUD SPACING mm		450	600	
STUD SIZE mm		92		
BASE METAL THICKNESS mm	0.55	4410	4130	

Source: Rondo Building Systems

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

QUIET STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SQ60.1

FIRE RESISTANCE LEVEL

NLB -/60/60

LB 30/30/30

FROM BOTH SIDES

FRL Basis: FCO-2646, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd

Framing: Rondo QUIET STUD

Insulation: Refer to table

Side 2: 1x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	118	
			STUD SIZE mm	92	
			INSULATION*	R_w	$R_w + C_{tr}$
SQ60.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	Nil	42	34
			TSB2	47	38
			50G11, 50P14	48	39
			75G11, 75P14	49	40
			90G11, 90P14	49	40
SQ60.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	Nil	43	35
			TSB2	48	40
			50G11, 50P14	50	42
			75G11, 75P14	51	43
			90G11, 90P14	51	43
SQ60.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	Nil	42	35
			TSB2	48	39
			50G11, 50P14	49	40
			75G11, 75P14	50	41
			90G11, 90P14	50	41

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)

50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*			PRESSURE: 0.25 kPa
STUD SPACING mm		450	600
STUD SIZE mm		92	
BASE METAL THICKNESS mm	0.55	4410	4130

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

SQ60.2

FIRE RESISTANCE LEVEL

NLB -/60/60

LB 30/30/30

FROM BOTH SIDES

FRL Basis: FCO-2646



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd

+ 1x13mm non-fire resistant pbd

Framing: Rondo QUIET STUD

Insulation: Refer to table

Side 2: 1x13mm fire resistant pbd + 1x13mm non fire rated pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	
			STUD SIZE mm	92	
			INSULATION*	R_w	$R_w + C_{tr}$
SQ60.2A	1x13mm FIRESTOP + 1x13mm REGULAR	1x13mm FIRESTOP + 1x13mm REGULAR	90G11, 90P14	56	50
SQ60.2B	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	90G11, 90P14	57	50

* 90G11 - 90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 90P14 - 90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*			PRESSURE: 0.25 kPa	
STUD SPACING mm		450	600	
STUD SIZE mm		92		
BASE METAL THICKNESS mm	0.55	4410	4130	

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector. Check product availability when specifying Multistop and Impactstop linings.

QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQ60.3

FIRE RESISTANCE LEVEL
 NLB -/60/60
 LB 30/30/30
 FROM BOTH SIDES

FRL Basis: FCO-2646



SYSTEM DESCRIPTION

Side 1: 1x13mm Wet Area Firestop pbd
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	128	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQ60.3A	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	TSB2	51	44
			50G11, 50P14	52	46

* 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50P14 - 50mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		450	600
STUD SIZE mm		92	
BASE METAL THICKNESS mm	0.55	4410	4130

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

SQ60.4

FIRE RESISTANCE LEVEL
 NLB -/60/60
 LB 30/30/30
 FROM BOTH SIDES

FRL Basis: FCO-2646



SYSTEM DESCRIPTION

Side 1: 1x13mm Wet Area pbd + 1x10mm Fiberock
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	138	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQ60.4A	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	46	38
			TSB2	52	47
			50G11, 50P14	54	48
			75G11, 75P14	55	49
			90G11, 90P14	56	50

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		450	600
STUD SIZE mm		92	
BASE METAL THICKNESS mm	0.55	4410	4130

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector

QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQ90.1

FIRE RESISTANCE LEVEL

NLB -/90/90

LB 30/30/30

FROM BOTH SIDES

FRL Basis: FCO-2646, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd

Framing: Rondo QUIET STUD

Insulation: Refer to table

Side 2: 2x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	131	
			STUD SIZE mm	92	
			INSULATION*	R_w	R_w+C_{tr}
SQ90.1A	1x13mm FIRESTOP	2x13mm FIRESTOP	Nil	46	38
			TSB2	51	45
			50G11, 50P14	53	46
			75G11, 75P14	54	47
			90G11, 90P14	55	48
SQ90.1B	1x13mm MULTISTOP	2x13mm MULTISTOP	Nil	48	40
			TSB2	52	46
			50G11, 50P14	54	47
			75G11, 75P14	55	48
			90G11, 90P14	56	49
SQ90.1C	1x13mm FIRESTOP	2x13mm MULTISTOP	Nil	47	39
			TSB2	52	45
			50G11, 50P14	53	46
			75G11, 75P14	54	47
			90G11, 90P14	56	49

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*			PRESSURE: 0.25 kPa	
STUD SPACING mm			450	600
STUD SIZE mm			92	
BASE METAL THICKNESS mm	0.55		4410	4130

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

SQ90.2

FIRE RESISTANCE LEVEL

NLB -/90/90

LB 30/30/30

FROM BOTH SIDES

FRL Basis: FCO-2646



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd

+ 1x13mm non-fire resistant pbd

Framing: Rondo QUIET STUD

Insulation: Refer to table

Side 2: 2x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	
			STUD SIZE mm	92	
			INSULATION*	R_w	R_w+C_{tr}
SQ90.2A	1x13mm FIRESTOP + 1x13mm REGULAR	2x13mm FIRESTOP	90G11, 90P14	56	50
SQ90.2B	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	2x13mm WET AREA FIRESTOP	90G11, 90P14	56	50

* 90G11 - 90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. 90P14 - 90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*			PRESSURE: 0.25 kPa	
STUD SPACING mm			450	600
STUD SIZE mm			92	
BASE METAL THICKNESS mm	0.55		4410	4130

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector. Check product availability when specifying Multistop and Impactstop linings.

QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQ90.3

FIRE RESISTANCE LEVEL
 NLB -/90/90
 LB 60/60/60
 FROM BOTH SIDES

FRL Basis: FCO-2646, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	124	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQ90.3A	1x16mm FIRESTOP	1x16mm FIRESTOP	Nil	43	36
			TSB2	47	39
			50G11, 50P14	49	40
			75G11, 75P14	50	43
			90G11, 90P14	50	43
SQ90.3B	1x16mm MULTISTOP	1x16mm MULTISTOP	Nil	43	37
			TSB2	48	40
			50G11, 50P14	50	42
			75G11, 75P14	51	43
			90G11, 90P14	51	43
SQ90.3C	1x16mm FIRESTOP	1x16mm MULTISTOP	Nil	43	37
			TSB2	48	40
			50G11, 50P14	49	42
			75G11, 75P14	50	43
			90G11, 90P14	50	43

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm	450	600
STUD SIZE mm	92	
BASE METAL THICKNESS mm	0.55	
	4580	4300

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

SQ90.4

FIRE RESISTANCE LEVEL
 NLB -/90/90
 LB 60/60/60
 FROM BOTH SIDES

FRL Basis: FCO-2646



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd + 1x13mm non fire resistant pbd
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 1x16mm fire resistant + 1x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	150	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQ90.4A	1x16mm FIRESTOP + 1x13mm REGULAR	1x16mm FIRESTOP + 1x13mm REGULAR	75G11, 75P14	55	50
SQ90.4B	1x16mm WET AREA FIRESTOP + 1x13mm WET AREA	1x16mm WET AREA FIRESTOP + 1x13mm WET AREA	75G11, 75P14	55	50

* 75G11 - 75mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. 75P14 - 75mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm	450	600
STUD SIZE mm	92	
BASE METAL THICKNESS mm	0.55	
	4580	4300

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

QUIET STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SQ90.5

FIRE RESISTANCE LEVEL

NLB -/90/90

LB 60/60/60

FROM BOTH SIDES

FRL Basis: FCO-2646



SYSTEM DESCRIPTION

Side 1: 1x16mm Firestop pbd**Framing:** Rondo QUIET STUD**Insulation:** Refer to table**Side 2:** 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	134	
			STUD SIZE mm	92	
			INSULATION*	R_w	$R_w + C_{tr}$
SQ90.5A	1x16mm FIRESTOP	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	TSB2	52	46
			50G11, 50P14	54	47

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)

50P14 – 50mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm	450	600
STUD SIZE mm	92	
BASE METAL THICKNESS mm	0.55	
	4580	4300

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

SQ90.6

FIRE RESISTANCE LEVEL

NLB -/90/90

LB 60/60/60

FROM BOTH SIDES

FRL Basis: FCO-2646



SYSTEM DESCRIPTION

Side 1: 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock**Framing:** Rondo QUIET STUD**Insulation:** Refer to table**Side 2:** 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	
			STUD SIZE mm	92	
			INSULATION*	R_w	$R_w + C_{tr}$
SQ90.6A	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	47	40
			TSB2	53	49
			50G11, 50P14	54	50
			75G11, 75P14	56	51
			90G11, 90P14	57	52

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)

50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS (SQ90.5 & SQ90.6)*

PRESSURE: 0.25 kPa

STUD SPACING mm	450	600
STUD SIZE mm	92	
BASE METAL THICKNESS mm	0.55	
	4580	4300

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector

QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQ120.1

FIRE RESISTANCE LEVEL
 NLB **-/120/120**
 LB **90/90/90**
 FROM BOTH SIDES

FRL Basis: FCO-2646, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 2x13mm fire resistant pbd
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQ120.1A	2x13mm FIRESTOP	2x13mm FIRESTOP	Nil	47	40
			TSB2	53	48
			50G11, 50P14	54	49
			75G11, 75P14	55	50
			90G11, 90P14	57	52
SQ120.1B	2x13mm MULTISTOP	2x13mm MULTISTOP	Nil	49	41
			TSB2	54	50
			50G11, 50P14	55	51
			75G11, 75P14	56	52
			90G11, 90P14	57	53
SQ120.1C	2x13mm FIRESTOP	2x13mm MULTISTOP	Nil	48	41
			TSB2	54	49
			50G11, 50P14	55	50
			75G11, 75P14	56	51
			90G11, 90P14	57	52

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm	450	600
STUD SIZE mm	92	
BASE METAL THICKNESS mm	0.55	
	4410	4130

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls

SQ180.1

FIRE RESISTANCE LEVEL
 NLB **-/180/180**
 LB **120/120/120**
 FROM BOTH SIDES

FRL Basis: FCO-2646, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 2x16mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	156	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQ180.1A	2x16mm FIRESTOP	2x16mm FIRESTOP	Nil	49	41
			TSB2	56	49
			50G11, 50P14	57	50
			75G11, 75P14	58	51
			90G11, 90P14	59	52
SQ180.1B	2x16mm MULTISTOP	2x16mm MULTISTOP	Nil	50	42
			TSB2	56	50
			50G11, 50P14	57	52
			75G11, 75P14	58	53
			90G11, 90P14	59	54
SQ180.1C	2x16mm FIRESTOP	2x16mm MULTISTOP	Nil	49	41
			TSB2	56	50
			50G11, 50P14	57	51
			75G11, 75P14	58	52
			90G11, 90P14	59	53

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm	450	600
STUD SIZE mm	92	
BASE METAL THICKNESS mm	0.55	
	4580	4300

Source: Rondo Building Systems

*Refer Rondo for maximum heights for load bearing walls.

Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – QUIET STUD

SQF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	112	
			STUD SIZE mm	92	
			INSULATION*	R_w	R_w+C_{tr}
SQF.1A	1x10mm FIBEROCK	1x10mm FIBEROCK	Nil	40	32
			TSB2	45	36
			50G11, 50P14	47	37
			75G11, 75P14	48	38
			90G11, 90P14	48	38

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		450	600
STUD SIZE mm		92	
BASE METAL THICKNESS mm	0.55	4020	3700

Source: Rondo Building Systems

SQF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 2x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	132	
			STUD SIZE mm	92	
			INSULATION*	R_w	R_w+C_{tr}
SQF.2A	2x10mm FIBEROCK	2x10mm FIBEROCK	Nil	48	40
			TSB2	53	45
			50G11, 50P14	54	46
			75G11, 75P14	55	47
			90G11, 90P14	56	48

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		450	600
STUD SIZE mm		92	
BASE METAL THICKNESS mm	0.55	4020	3700

Source: Rondo Building Systems

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – QUIET STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SQF30.1

FIRE RESISTANCE LEVEL
NLB **-/30/30**
FROM BOTH SIDES

FRL Basis: Contact USG Boral



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 1x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	118	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQF30.1A	1x13mm FIBEROCK	1x13mm FIBEROCK	Nil	43	35
			TSB2	48	40
			50G11, 50P14	50	42
			75G11, 75P14	51	43
			90G11, 90P14	51	43

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		450	600
STUD SIZE mm		92	
BASE METAL THICKNESS mm	0.55	4410	4130

Source: Rondo Building Systems

SQF30.2

FIRE RESISTANCE LEVEL
NLB **-/30/30**
FROM BOTH SIDES

FRL Basis: Contact USG Boral



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	131	
			STUD SIZE mm	92	
			INSULATION*	R _w	R _w +C _{tr}
SQF30.2A	1x13mm FIBEROCK	2x13mm FIBEROCK	Nil	48	40
			TSB2	52	46
			50G11, 50P14	54	47
			75G11, 75P14	55	48
			90G11, 90P14	56	49

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		450	600
STUD SIZE mm		92	
BASE METAL THICKNESS mm	0.55	4410	4130

Source: Rondo Building Systems

R_w	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – QUIET STUD

SQF60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
FROM BOTH SIDES

FRL Basis: Contact USG Boral



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 1x16mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	124	
			STUD SIZE mm	92	
			INSULATION*	R_w	R_w+C_{tr}
SQF60.1A	1x16mm FIBEROCK	1x16mm FIBEROCK	Nil	43	38
			TSB2	48	41
			50G11, 50P14	50	42
			75G11, 75P14	51	43
			90G11, 90P14	51	43

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm	450	600
STUD SIZE mm	92	
BASE METAL THICKNESS mm	0.55	
	4580	4300

Source: Rondo Building Systems

SQF90.1

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: Contact USG Boral



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04

Based on studs @ 600mm ctrs and thinnest available stud gauge

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	
			STUD SIZE mm	92	
			INSULATION*	R_w	R_w+C_{tr}
SQF90.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	49	41
			TSB2	54	50
			50G11, 50P14	55	51
			75G11, 75P14	56	52
			90G11, 90P14	57	53

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

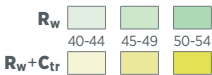
PRESSURE: 0.25 kPa

STUD SPACING mm	450	600
STUD SIZE mm	92	
BASE METAL THICKNESS mm	0.55	
	4410	4130

Source: Rondo Building Systems

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – QUIET STUD



SQF120.1

FIRE RESISTANCE LEVEL
NLB -/120/120
FROM BOTH SIDES

FRL Basis: Contact USG Boral



SYSTEM DESCRIPTION
Side 1: 2x16mm Fiberock
Framing: Rondo QUIET STUD
Insulation: Refer to table
Side 2: 2x16mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F04						Based on studs @ 600mm ctrs and thinnest available stud gauge	
SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	156			
			STUD SIZE mm	92			
			INSULATION*	R _w	R _w +C _{tr}		
SQF120.1A	2x16mm FIBEROCK	2x16mm FIBEROCK	Nil	50	42		
			TSB2	56	51		
			50G11, 50P14	58	52		
			75G11, 75P14	59	53		
			90G11, 90P14	60	54		

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS			PRESSURE: 0.25 kPa	
STUD SPACING mm		450	600	
STUD SIZE mm		92		
BASE METAL THICKNESS mm	0.55	4580	4300	

Source: Rondo Building Systems

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SS.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x10mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	112	170	112	170
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS.1A	1x10mm REGULAR	1x10mm REGULAR	Nil	36	38	30	32
			TSB2	41	44	32	35
			50G11, 50P14	42	46	33	36
			75G11, 75P14	44	47	34	37
			90G11, 90P14	44	47	34	38
SS.1B	1x10mm WET AREA	1x10mm WET AREA	Nil	37	39	31	33
			TSB2	43	46	34	37
			50G11, 50P14	44	47	35	38
			75G11, 75P14	45	48	36	39
			90G11, 90P14	45	49	36	39
SS.1C	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	Nil	39	41	33	34
			TSB2	46	48	35	40
			50G11, 50P14	47	50	36	41
			75G11, 75P14	48	51	38	42
			90G11, 90P14	48	51	38	43
SS.1D	1x10mm IMPACTSTOP	1x10mm IMPACTSTOP	Nil	39	41	33	34
			TSB2	46	48	35	40
			50G11, 50P14	47	50	36	41
			75G11, 75P14	48	51	38	42
			90G11, 90P14	48	51	38	43
SS.1E	1x10mm REGULAR	1x10mm WET AREA	Nil	37	39	31	32
			TSB2	42	45	33	36
			50G11, 50P14	43	47	34	37
			75G11, 75P14	44	48	35	38
			90G11, 90P14	44	48	35	38
SS.1F	1x10mm REGULAR	1x10mm SOUNDSTOP	Nil	38	40	32	32
			TSB2	44	47	35	38
			50G11, 50P14	45	48	36	39
			75G11, 75P14	46	49	38	39
			90G11, 90P14	47	49	38	40
SS.1G	1x10mm SOUNDSTOP	1x10mm WET AREA	Nil	38	40	32	33
			TSB2	45	47	36	39
			50G11, 50P14	46	49	37	40
			75G11, 75P14	47	50	38	41
			90G11, 90P14	47	50	39	41
SS.1H	1x10mm REGULAR	1x10mm IMPACTSTOP	Nil	38	40	32	32
			TSB2	44	47	35	38
			50G11, 50P14	45	48	36	39
			75G11, 75P14	46	49	38	39
			90G11, 90P14	47	49	38	40

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d - deflection, s - permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SS.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x10mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	132	190	132	190
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS.2A	2x10mm REGULAR	2x10mm REGULAR	Nil	42	44	35	37
			TSB2	51	54	42	45
			50G11, 50P14	52	55	43	46
			75G11, 75P14	53	56	44	47
			90G11, 90P14	54	57	45	48
SS.2B	2x10mm WET AREA	2x10mm WET AREA	Nil	43	46	36	38
			TSB2	52	55	42	46
			50G11, 50P14	53	56	44	47
			75G11, 75P14	54	57	45	48
			90G11, 90P14	56	59	46	50
SS.2C	2x10mm SOUNDSTOP	2x10mm SOUNDSTOP	Nil	46	48	39	40
			TSB2	55	57	46	50
			50G11, 50P14	56	58	47	51
			75G11, 75P14	57	59	48	52
			90G11, 90P14	58	61	49	53
SS.2D	2x10mm IMPACTSTOP	2x10mm IMPACTSTOP	Nil	46	48	39	40
			TSB2	55	57	46	50
			50G11, 50P14	56	58	47	51
			75G11, 75P14	57	59	48	52
			90G11, 90P14	58	61	49	53
SS.2E	2x10mm REGULAR	2x10mm WET AREA	Nil	43	45	36	37
			TSB2	51	54	42	45
			50G11, 50P14	53	56	43	47
			75G11, 75P14	54	57	44	48
			90G11, 90P14	55	58	45	49
SS.2F	2x10mm REGULAR	2x10mm SOUNDSTOP	Nil	44	46	37	38
			TSB2	53	56	43	47
			50G11, 50P14	54	57	45	48
			75G11, 75P14	56	58	46	50
			90G11, 90P14	57	59	47	51
SS.2G	2x10mm SOUNDSTOP	2x10mm WET AREA	Nil	45	47	37	39
			TSB2	54	56	44	48
			50G11, 50P14	55	58	45	49
			75G11, 75P14	56	59	46	50
			90G11, 90P14	57	60	48	51
SS.2H	2x10mm REGULAR	2x10mm IMPACTSTOP	Nil	44	46	37	38
			TSB2	53	56	43	47
			50G11, 50P14	54	57	45	48
			75G11, 75P14	56	58	46	50
			90G11, 90P14	57	59	47	51

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SS.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	118	176	118	176
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS.3A	1x13mm REGULAR	1x13mm REGULAR	Nil	38	40	32	33
			TSB2	44	47	33	36
			50G11, 50P14	46	48	34	37
			75G11, 75P14	47	49	35	38
			90G11, 90P14	47	50	35	38
SS.3B	1x13mm WET AREA	1x13mm WET AREA	Nil	39	41	33	34
			TSB2	45	48	32	36
			50G11, 50P14	47	49	33	38
			75G11, 75P14	48	50	34	39
			90G11, 90P14	48	51	34	39
SS.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	Nil	42	44	36	37
			TSB2	48	50	37	40
			50G11, 50P14	49	52	38	41
			75G11, 75P14	50	53	39	42
			90G11, 90P14	51	53	39	43
SS.3D	1x13mm IMPACTSTOP	1x13mm IMPACTSTOP	Nil	42	44	36	37
			TSB2	48	50	37	40
			50G11, 50P14	49	52	38	41
			75G11, 75P14	50	53	39	42
			90G11, 90P14	51	53	39	43
SS.3E	1x13mm REGULAR	1x13mm WET AREA	Nil	39	41	33	34
			TSB2	44	47	31	36
			50G11, 50P14	46	49	32	37
			75G11, 75P14	47	50	33	38
			90G11, 90P14	47	50	33	38
SS.3F	1x13mm REGULAR	1x13mm SOUNDSTOP	Nil	40	42	34	35
			TSB2	46	49	33	38
			50G11, 50P14	48	50	34	39
			75G11, 75P14	49	51	35	40
			90G11, 90P14	49	52	36	40
SS.3G	1x13mm SOUNDSTOP	1x13mm WET AREA	Nil	41	43	35	37
			TSB2	47	49	34	38
			50G11, 50P14	48	51	35	40
			75G11, 75P14	49	52	36	41
			90G11, 90P14	49	52	37	41
SS.3H	1x13mm REGULAR	1x13mm IMPACTSTOP	Nil	40	42	34	35
			TSB2	46	49	33	38
			50G11, 50P14	48	50	34	39
			75G11, 75P14	49	51	35	40
			90G11, 90P14	49	52	36	40

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d - deflection, s - permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SS.4

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	131	189	131	189
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS.4A	1x13mm REGULAR	2x13mm REGULAR	Nil	42	44	35	36
			TSB2	48	51	39	43
			50G11, 50P14	50	53	40	44
			75G11, 75P14	51	54	41	45
			90G11, 90P14	52	55	42	46
SS.4B	1x13mm WET AREA	2x13mm WET AREA	Nil	43	45	35	37
			TSB2	50	52	41	44
			50G11, 50P14	51	54	42	46
			75G11, 75P14	52	55	43	47
			90G11, 90P14	54	56	44	48
SS.4C	1x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	45	48	38	39
			TSB2	52	54	44	48
			50G11, 50P14	54	56	45	49
			75G11, 75P14	55	57	47	50
			90G11, 90P14	56	58	48	51
SS.4D	1x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	45	48	38	39
			TSB2	52	54	44	48
			50G11, 50P14	54	56	45	49
			75G11, 75P14	55	57	47	50
			90G11, 90P14	56	58	48	51
SS.4E	1x13mm REGULAR	2x13mm WET AREA	Nil	43	45	36	36
			TSB2	49	52	40	44
			50G11, 50P14	51	53	41	45
			75G11, 75P14	52	54	42	46
			90G11, 90P14	53	56	43	47
SS.4F	1x13mm REGULAR	2x13mm SOUNDSTOP	Nil	44	46	36	38
			TSB2	51	53	42	45
			50G11, 50P14	52	55	43	47
			75G11, 75P14	54	56	44	48
			90G11, 90P14	55	57	46	49
SS.4G	1x13mm SOUNDSTOP	2x13mm WET AREA	Nil	44	47	37	38
			TSB2	52	53	43	45
			50G11, 50P14	53	55	44	47
			75G11, 75P14	54	56	45	48
			90G11, 90P14	55	57	46	50
SS.4H	1x13mm REGULAR	2x13mm IMPACTSTOP	Nil	44	46	36	38
			TSB2	51	53	42	45
			50G11, 50P14	52	55	43	47
			75G11, 75P14	54	56	44	48
			90G11, 90P14	55	57	46	49

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d - deflection, s - permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SS.5

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x13mm non-fire resistant pbd

Framing: Staggered steel studs

Insulation: Refer to table

Side 2: 2x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	202	144	202
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS.5A	2x13mm REGULAR	2x13mm REGULAR	Nil	45	47	39	40
			TSB2	53	55	45	48
			50G11, 50P14	54	57	46	50
			75G11, 75P14	55	58	47	51
			90G11, 90P14	56	59	48	52
SS.5B	2x13mm WET AREA	2x13mm WET AREA	Nil	46	49	40	41
			TSB2	54	56	46	50
			50G11, 50P14	55	58	47	51
			75G11, 75P14	57	59	49	52
			90G11, 90P14	58	60	50	53
SS.5C	2x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	49	51	42	44
			TSB2	56	58	50	53
			50G11, 50P14	58	59	51	55
			75G11, 75P14	59	60	52	56
			90G11, 90P14	60	61	53	57
SS.5D	2x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	49	51	42	44
			TSB2	56	58	50	53
			50G11, 50P14	58	59	51	55
			75G11, 75P14	59	60	52	56
			90G11, 90P14	60	61	53	57
SS.5E	2x13mm REGULAR	2x13mm WET AREA	Nil	46	48	39	41
			TSB2	54	56	45	49
			50G11, 50P14	55	57	47	50
			75G11, 75P14	56	58	48	52
			90G11, 90P14	57	59	49	53
SS.5F	2x13mm REGULAR	2x13mm SOUNDSTOP	Nil	47	50	41	42
			TSB2	55	57	47	51
			50G11, 50P14	56	58	49	52
			75G11, 75P14	57	59	50	53
			90G11, 90P14	58	60	51	54
SS.5G	2x13mm SOUNDSTOP	2x13mm WET AREA	Nil	48	50	41	43
			TSB2	55	57	48	52
			50G11, 50P14	57	58	49	53
			75G11, 75P14	58	60	50	54
			90G11, 90P14	59	61	52	55
SS.5H	2x13mm REGULAR	2x13mm IMPACTSTOP	Nil	47	50	41	42
			TSB2	55	57	47	51
			50G11, 50P14	56	58	49	52
			75G11, 75P14	57	59	50	53
			90G11, 90P14	58	60	51	54

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)

50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d - deflection, s - permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SS60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	118	176	118	176
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R _w		R _w +C _{tr}	
SS60.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	Nil	40	42	35	35
			TSB2	46	49	34	38
			50G11, 50P14	48	50	35	39
			75G11, 75P14	49	51	36	41
			90G11, 90P14	49	52	36	41
SS60.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	Nil	42	44	36	37
			TSB2	48	50	37	40
			50G11, 50P14	49	52	38	41
			75G11, 75P14	50	53	39	42
			90G11, 90P14	51	53	39	43
SS60.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	Nil	41	43	36	36
			TSB2	47	49	35	39
			50G11, 50P14	49	51	37	40
			75G11, 75P14	50	52	38	42
			90G11, 90P14	50	52	38	42

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

SS60.2

FIRE RESISTANCE LEVEL
NLB **-/60/60**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	202	144	202
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R _w		R _w +C _{tr}	
SS60.2A	1x13mm FIRESTOP + 1x13mm REGULAR	1x13mm FIRESTOP + 1x13mm REGULAR	50G11, 50P14	-	57	-	51
			90G11, 90P14	57	-	50	-
SS60.2B	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	50G11, 50P14	-	57	-	51
			90G11, 90P14	58	-	51	-

* 50/90G11 – 50/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50/90P14 – 50/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS




PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

SS60.3

FIRE RESISTANCE LEVEL
NLB **-/60/60**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x13mm Firestop pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	128	186	128	186
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		R_w+C_{tr}	
SS60.3A	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	50G11, 50P14	52	-	44	-

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50P14 – 50mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

SS60.4

FIRE RESISTANCE LEVEL
NLB **-/60/60**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x13mm Wet Area Firestop pbd + 1x10mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	138	196	138	196
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		R_w+C_{tr}	
SS60.4A	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	47	49	40	42
			TSB2	54	56	47	51
			50G11, 50P14	56	58	48	52
			75G11, 75P14	57	59	49	53
			90G11, 90P14	58	60	50	54

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector

STAGGERED STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SS90.1

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	131	189	131	189
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R _w		R _w +C _{tr}	
SS90.1A	1x13mm FIRESTOP	2x13mm FIRESTOP	Nil	43	46	36	38
			TSB2	51	53	43	46
			50G11, 50P14	53	55	44	47
			75G11, 75P14	54	56	45	48
			90G11, 90P14	55	57	46	49
SS90.1B	1x13mm MULTISTOP	2x13mm MULTISTOP	Nil	45	48	38	39
			TSB2	52	54	44	48
			50G11, 50P14	54	56	45	49
			75G11, 75P14	55	57	47	50
			90G11, 90P14	56	58	48	51
SS90.1C	1x13mm FIRESTOP	2x13mm MULTISTOP	Nil	44	47	37	39
			TSB2	52	54	43	47
			50G11, 50P14	53	55	45	48
			75G11, 75P14	54	56	46	49
			90G11, 90P14	55	58	47	50

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

SS90.2

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	202	144	202
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R _w		R _w +C _{tr}	
SS90.2A	1x13mm FIRESTOP + 1x13mm REGULAR	2x13mm FIRESTOP	50G11, 50P14	-	58	-	52
			75G11, 75P14	57	-	50	-
SS90.2B	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	2x13mm WET AREA FIRESTOP	50G11, 50P14	-	59	-	53
			75G11, 75P14	58	-	50	-

* 50/75G11 – 50/75mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. 50/75P14 – 50/75mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

SS90.3

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370,
EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	124	182	124	182
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS90.3A	1x16mm FIRESTOP	1x16mm FIRESTOP	Nil	43	46	36	39
			TSB2	50	52	41	44
			50G11, 50P14	51	53	43	46
			75G11, 75P14	52	55	44	47
			90G11, 90P14	53	55	44	47
SS90.3B	1x16mm MULTISTOP	1x16mm MULTISTOP	Nil	44	46	38	40
			TSB2	51	53	43	46
			50G11, 50P14	52	54	44	47
			75G11, 75P14	53	55	45	49
			90G11, 90P14	54	56	45	49
SS90.3C	1x16mm FIRESTOP	1x16mm MULTISTOP	Nil	44	47	38	40
			TSB2	51	52	44	45
			50G11, 50P14	52	54	44	47
			75G11, 75P14	53	55	45	48
			90G11, 90P14	53	55	45	48

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d - deflection, s - permissible strength

SS90.4

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd + 1x13mm non-fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd + 1x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	150	208	150	208
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS90.4A	1x16mm FIRESTOP + 1x13mm REGULAR	1x16mm FIRESTOP + 1x13mm REGULAR	50G11, 50P14	-	58	-	52
			75G11, 75P14	57	-	50	-
SS90.4B	1x16mm WET AREA FIRESTOP + 1x13mm WET AREA	1x16mm WET AREA FIRESTOP + 1x13mm WET AREA	50G11, 50P14	-	58	-	53
			75G11, 75P14	57	-	50	-

* 50/75G11 - 50/75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50/75P14 - 50/75mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d - deflection, s - permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SS90.5

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x16mm Firestop pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	134	192	134	192
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS90.5A	1x16mm FIRESTOP	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	50G11, 50P14	58	-	51	-

* 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. 50P14 - 50mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d - deflection, s - permissible strength

SS90.6

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	202	144	202
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS90.6A	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	48	50	42	43
			TSB2	55	57	49	52
			50G11, 50P14	57	58	50	54
			75G11, 75P14	58	60	51	55
			90G11, 90P14	59	61	52	56

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d - deflection, s - permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector

STAGGERED STUD

SS120.1

FIRE RESISTANCE LEVEL
NLB -/120/120
 FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370,
 EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 2x13mm fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ACOUSTIC RATINGS

BASIS: RT&A TE405-05F03

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	202	144	202
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SS120.1A	2x13mm FIRESTOP	2x13mm FIRESTOP	Nil	47	50	41	43
			TSB2	55	57	45	52
			50G11, 50P14	56	58	49	53
			75G11, 75P14	57	59	50	54
			90G11, 90P14	58	60	51	55
SS120.1B	2x13mm MULTISTOP	2x13mm MULTISTOP	Nil	49	51	42	44
			TSB2	56	58	50	53
			50G11, 50P14	58	59	51	55
			75G11, 75P14	59	60	52	56
			90G11, 90P14	60	61	53	57
SS120.1C	2x13mm FIRESTOP	2x13mm MULTISTOP	Nil	48	51	42	44
			TSB2	56	57	49	52
			50G11, 50P14	57	58	50	53
			75G11, 75P14	58	60	51	55
			90G11, 90P14	59	61	52	56

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SS180.1

FIRE RESISTANCE LEVEL
NLB -/180/180
 FROM BOTH SIDES

FRL Basis: FR2539, FCO-0512, 99/1370, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x16mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	156	214	156	214
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R _w		R _w +C _{tr}	
SS180.1A	2x16mm FIRESTOP	2x16mm FIRESTOP	Nil	48	51	41	42
			TSB2	56	57	50	53
			50G11, 50P14	57	59	52	55
			75G11, 75P14	58	60	53	56
			90G11, 90P14	59	61	54	57
SS180.1B	2x16mm MULTISTOP	2x16mm MULTISTOP	Nil	49	52	42	44
			TSB2	57	58	52	55
			50G11, 50P14	58	59	53	56
			75G11, 75P14	59	60	54	57
			90G11, 90P14	60	61	55	58
SS180.1C	2x16mm FIRESTOP	2x16mm MULTISTOP	Nil	49	52	41	43
			TSB2	56	58	51	54
			50G11, 50P14	58	59	52	55
			75G11, 75P14	59	60	53	56
			90G11, 90P14	60	61	55	58

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	1900 f	2300 f	NA	NA
	0.55	NA	NA	2610 f	2740 s
	0.75	NA	2700 f	3000 f	3190 s
	1.15	NA	3000 f	3500 f	3750 s

Height Limiting Factor: f – fire height, s – permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

FIBEROCK – STAGGERED STUD

SSF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	112	170	112	170
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SSF.1A	1x10mm FIBEROCK	1x10mm FIBEROCK	Nil	39	41	33	34
			TSB2	46	48	35	40
			50G11, 50P14	47	50	36	41
			75G11, 75P14	48	51	38	42
			90G11, 90P14	48	51	38	43

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

SSF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	132	190	132	190
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SSF.2A	2x10mm FIBEROCK	2x10mm FIBEROCK	Nil	46	48	39	40
			TSB2	55	57	46	50
			50G11, 50P14	56	58	47	51
			75G11, 75P14	57	59	48	52
			90G11, 90P14	58	60	49	53

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – STAGGERED STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SSF30.1

FIRE RESISTANCE LEVEL
NLB **-/30/30**
FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	118	176	118	176
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R _w		R _w +C _{tr}	
SSF30.1A	1x13mm FIBEROCK	1x13mm FIBEROCK	Nil	42	44	36	37
			TSB2	48	50	37	40
			50G11, 50P14	49	52	38	41
			75G11, 75P14	50	53	39	42
			90G11, 90P14	51	53	39	43

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

SSF30.2

FIRE RESISTANCE LEVEL
NLB **-/30/30**
FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	131	189	131	189
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R _w		R _w +C _{tr}	
SSF30.2A	1x13mm FIBEROCK	2x13mm FIBEROCK	Nil	45	48	38	39
			TSB2	52	54	44	48
			50G11, 50P14	54	56	45	49
			75G11, 75P14	55	57	47	50
			90G11, 90P14	56	58	48	51

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

For the full range of USG Boral systems refer to usgboral.com/eselector

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

FIBEROCK – STAGGERED STUD

SSF60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x16mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	124	182	124	182
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SSF60.1A	1x16mm FIBEROCK	1x16mm FIBEROCK	Nil	44	47	39	40
			TSB2	51	53	43	47
			50G11, 50P14	53	55	44	48
			75G11, 75P14	54	56	46	49
			90G11, 90P14	54	56	46	49

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000 s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

SSF90.1^

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FAR4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	202	144	202
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SSF90.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	49	51	42	44
			TSB2	56	58	50	53
			50G11, 50P14	58	59	51	55
			75G11, 75P14	59	60	52	56
			90G11, 90P14	60	61	53	57

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	NA
	0.75	NA	2830 s	3000 s	NA
	1.15	NA	3510 s	3600 s	NA

Height Limiting Factor: d – deflection, s – permissible strength

^System SSF90.1 must utilise 51mm, 64mm or 76mm studs only.

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

SSF120.1^

FIRE RESISTANCE LEVEL
NLB **-/120/120**
FROM BOTH SIDES

FRL Basis: FAR4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	144	202	144	202
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SSF120.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	NA	51	NA	44
			TSB2	NA	58	NA	53
			50G11, 50P14	NA	59	NA	55
			75G11, 75P14	NA	60	NA	56
			90G11, 90P14	NA	61	NA	57

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	NA	NA	NA	NA
	0.55	NA	NA	NA	2740 s
	0.75	NA	NA	NA	3190 s
	1.15	NA	NA	NA	3750 s

Height Limiting Factor: s – permissible strength

^System SSF120.1 must utilise 92mm studs only.

SSF120.2

FIRE RESISTANCE LEVEL
NLB **-/120/120**
FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 2x16mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x16mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F03

Based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	156	214	156	214
			TRACK SIZE mm	92	150	92	150
			INSULATION*	R_w		$R_w + C_{tr}$	
SSF120.2A	2x16mm FIBEROCK	2x16mm FIBEROCK	Nil	49	52	42	44
			TSB2	57	58	52	55
			50G11, 50P14	58	59	54	56
			75G11, 75P14	59	60	55	57
			90G11, 90P14	60	61	56	58

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		51	64	76	92
BASE METAL THICKNESS mm	0.50	2320 d	2375 s	NA	NA
	0.55	NA	NA	2610 s	2740 s
	0.75	NA	2830 s	3000s	3190 s
	1.15	NA	3510 s	3600 s	3750 s

Height Limiting Factor: d – deflection, s – permissible strength

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x10mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	168	192	224	340	168	192	224	340
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST.1A	1x10mm REGULAR	1x10mm REGULAR	Nil	39	39	40	42	32	33	33	34
			TSB2	45	46	47	47	35	37	38	40
			50G11, 50P14	46	47	47	48	36	37	38	41
			75G11, 75P14	-	47	47	48	-	37	38	41
			90G11, 90P14	-	-	48	48	-	-	39	41
			TSB2	48	49	50	50	38	40	41	43
			50G11, 50P14	49	50	50	51	39	40	41	44
			75G11, 75P14	-	50	50	51	-	40	41	44
			90G11, 90P14	-	-	51	51	-	-	42	44
ST.1B	1x10mm WET AREA	1x10mm WET AREA	Nil	40	41	41	43	33	33	34	35
			TSB2	47	48	48	49	37	39	39	42
			50G11, 50P14	47	48	49	49	37	39	40	42
			75G11, 75P14	-	49	49	50	-	39	40	42
			90G11, 90P14	-	-	49	50	-	-	40	43
			TSB2	50	51	51	52	40	42	42	45
			50G11, 50P14	50	51	52	52	40	42	43	45
			75G11, 75P14	-	52	52	53	-	42	43	45
			90G11, 90P14	-	-	52	53	-	-	43	46
ST.1C	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	Nil	42	43	44	46	35	36	36	38
			TSB2	50	50	51	51	40	41	43	45
			50G11, 50P14	51	51	52	52	41	42	43	46
			75G11, 75P14	-	52	52	53	-	42	43	46
			90G11, 90P14	-	-	52	53	-	-	43	46
			TSB2	53	53	54	54	43	44	46	48
			50G11, 50P14	54	54	55	55	44	45	46	49
			75G11, 75P14	-	55	55	56	-	45	46	49
			90G11, 90P14	-	-	55	56	-	-	46	49
ST.1D	1x10mm IMPACTSTOP	1x10mm IMPACTSTOP	Nil	42	43	44	46	35	36	36	38
			TSB2	50	50	51	51	40	41	43	45
			50G11, 50P14	51	51	52	52	41	42	43	46
			75G11, 75P14	-	52	52	53	-	42	43	46
			90G11, 90P14	-	-	52	53	-	-	43	46
			TSB2	53	53	54	54	43	44	46	48
			50G11, 50P14	54	54	55	55	44	45	46	49
			75G11, 75P14	-	55	55	56	-	45	46	49
			90G11, 90P14	-	-	55	56	-	-	46	49

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS					PRESSURE: 0.25 kPa	
STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		64	76	92	150	
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA	
	0.55	NA	3200 2d	3610 2s	NA	
	0.75	3130 d	3580 2d	4130 2d	5330 2h	
	1.15	3530 d	4050 2d	4690 2d	5330 2h	

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), 2h - head track capacity (2 rows of noggings), 2s - strength (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x10mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	188				188			
				STUD SIZE mm				STUD SIZE mm			
			INSULATION*	R_w				$R_w + C_{tr}$			
ST.2A	2x10mm REGULAR	2x10mm REGULAR	Nil	46	47	48	51	39	39	40	42
			TSB2	53	54	54	55	43	44	45	48
			50G11, 50P14	54	55	55	56	43	44	46	48
			75G11, 75P14	-	55	55	56	-	45	46	48
			90G11, 90P14	-	-	55	56	-	-	46	49
			TSB2	56	57	57	58	46	47	48	51
			50G11, 50P14	57	58	58	59	46	47	49	51
			75G11, 75P14	-	58	58	59	-	48	49	51
			90G11, 90P14	-	-	58	59	-	-	49	52
			TSB2	57	58	59	59	47	48	50	52
ST.2B	2x10mm WET AREA	2x10mm WET AREA	Nil	48	48	49	52	40	40	41	43
			TSB2	54	55	56	56	44	45	47	49
			50G11, 50P14	55	56	56	57	45	46	47	50
			75G11, 75P14	-	56	57	57	-	46	47	50
			90G11, 90P14	-	-	57	58	-	-	47	50
			TSB2	57	58	59	59	47	48	50	52
			50G11, 50P14	58	59	59	60	48	49	50	53
			75G11, 75P14	-	59	60	60	-	49	50	53
			90G11, 90P14	-	-	60	61	-	-	50	53
			TSB2	61	61	61	62	51	52	52	56
ST.2C	2x10mm SOUNDSTOP	2x10mm SOUNDSTOP	Nil	50	51	52	55	42	43	44	46
			TSB2	58	58	58	59	48	49	49	53
			50G11, 50P14	59	59	60	60	48	50	51	53
			75G11, 75P14	-	60	60	61	-	50	51	54
			90G11, 90P14	-	-	60	61	-	-	51	54
			TSB2	61	61	61	62	51	52	52	56
			50G11, 50P14	62	62	63	63	51	53	54	56
			75G11, 75P14	-	63	63	64	-	53	54	57
			90G11, 90P14	-	-	63	64	-	-	54	57
			TSB2	61	61	61	62	51	52	52	56
ST.2D	2x10mm IMPACTSTOP	2x10mm IMPACTSTOP	Nil	50	51	52	55	42	43	44	46
			TSB2	58	58	58	59	48	49	49	53
			50G11, 50P14	59	59	60	60	48	50	51	53
			75G11, 75P14	-	60	60	61	-	50	51	54
			90G11, 90P14	-	-	60	61	-	-	51	54
			TSB2	61	61	61	62	51	52	52	56
			50G11, 50P14	62	62	63	63	51	53	54	56
			75G11, 75P14	-	63	63	64	-	53	54	57
			90G11, 90P14	-	-	63	64	-	-	54	57
			TSB2	61	61	61	62	51	52	52	56

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS					PRESSURE: 0.25 kPa	
STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		64	76	92	150	
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA	
	0.55	NA	3200 2d	3610 2s	NA	
	0.75	3130 d	3580 2d	4130 2d	5330 2h	
	1.15	3530 d	4050 2d	4690 2d	5330 2h	

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), 2h - head track capacity (2 rows of noggings),
 2s - strength (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	174	198	230	346	174	198	230	346
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST.3A	1x13mm REGULAR	1x13mm REGULAR	Nil	41	42	43	45	35	35	35	37
			TSB2	50	50	51	51	40	40	42	44
			50G11, 50P14	51	51	52	52	40	41	42	44
			75G11, 75P14	-	51	52	53	-	41	42	45
			90G11, 90P14	-	-	52	53	-	-	42	45
			TSB2	53	53	54	54	43	43	45	47
			50G11, 50P14	54	54	55	55	43	44	45	47
			75G11, 75P14	-	54	55	56	-	44	45	48
			90G11, 90P14	-	-	55	56	-	-	45	48
ST.3B	1x13mm WET AREA	1x13mm WET AREA	Nil	42	43	44	46	36	36	36	38
			TSB2	51	52	52	53	41	42	43	45
			50G11, 50P14	52	53	53	54	41	42	43	46
			75G11, 75P14	-	53	53	54	-	42	44	46
			90G11, 90P14	-	-	53	54	-	-	44	46
			TSB2	54	55	55	56	44	45	46	48
			50G11, 50P14	55	56	56	57	44	45	46	49
			75G11, 75P14	-	56	56	57	-	45	47	49
			90G11, 90P14	-	-	56	57	-	-	47	49
ST.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	Nil	45	45	46	49	38	38	39	41
			TSB2	54	55	55	55	44	45	47	49
			50G11, 50P14	55	55	56	56	45	46	47	49
			75G11, 75P14	-	56	56	56	-	46	47	49
			90G11, 90P14	-	-	56	56	-	-	47	49
			TSB2	57	58	58	58	47	48	50	52
			50G11, 50P14	58	58	59	59	48	49	50	52
			75G11, 75P14	-	59	59	59	-	49	50	52
			90G11, 90P14	-	-	59	59	-	-	50	52
ST.3D	1x13mm IMPACTSTOP	1x13mm IMPACTSTOP	Nil	45	45	46	49	38	38	39	41
			TSB2	54	55	55	55	44	45	47	49
			50G11, 50P14	55	55	56	56	45	46	47	49
			75G11, 75P14	-	56	56	56	-	46	47	49
			90G11, 90P14	-	-	56	56	-	-	47	49
			TSB2	57	58	58	58	47	48	50	52
			50G11, 50P14	58	58	59	59	48	49	50	52
			75G11, 75P14	-	59	59	59	-	49	50	52
			90G11, 90P14	-	-	59	59	-	-	50	52

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS					PRESSURE: 0.25 kPa	
STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		64	76	92	150	
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA	
	0.55	NA	3240 2d	3610 2s	NA	
	0.75	3250 d	3820 2d	4180 2d	5370 2s	
	1.15	3580 d	4050 2d	4690 2d	6810 3s	

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), 2s - strength (2 rows of noggings), 3s - strength (3 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST.4

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x13mm non-fire resistant pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	200	224	256	372	200	224	256	372
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST.4A	2x13mm REGULAR	2x13mm REGULAR	Nil	50	51	52	55	42	43	44	45
			TSB2	56	57	57	57	46	48	48	51
			50G11, 50P14	57	58	58	58	47	49	49	52
			75G11, 75P14	-	59	59	59	-	50	50	53
			90G11, 90P14	-	-	60	60	-	-	51	54
			TSB2	59	60	60	60	49	51	51	54
			50G11, 50P14	60	61	61	61	50	52	52	55
			75G11, 75P14	-	62	62	62	-	53	53	56
			90G11, 90P14	-	-	63	63	-	-	54	57
ST.4B	2x13mm WET AREA	2x13mm WET AREA	Nil	52	53	54	57	44	44	45	47
			TSB2	57	58	58	57	47	48	50	50
			50G11, 50P14	58	59	59	58	48	49	51	51
			75G11, 75P14	-	60	60	59	-	50	52	52
			90G11, 90P14	-	-	61	60	-	-	53	53
			TSB2	60	61	61	60	50	51	53	53
			50G11, 50P14	61	62	62	61	51	52	54	54
			75G11, 75P14	-	63	63	62	-	53	55	55
			90G11, 90P14	-	-	64	63	-	-	56	56
ST.4C	2x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	55	56	57	60	46	47	48	50
			TSB2	60	61	61	62	51	52	53	56
			50G11, 50P14	61	62	62	63	52	53	54	57
			75G11, 75P14	-	63	63	64	-	54	55	58
			90G11, 90P14	-	-	64	65	-	-	56	59
			TSB2	63	64	64	65	54	55	56	59
			50G11, 50P14	64	65	65	66	55	56	57	60
			75G11, 75P14	-	66	66	67	-	57	58	61
			90G11, 90P14	-	-	67	68	-	-	59	62
ST.4D	2x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	55	56	57	60	46	47	48	50
			TSB2	60	61	61	62	51	52	53	56
			50G11, 50P14	61	62	62	63	52	53	54	57
			75G11, 75P14	-	63	63	64	-	54	55	58
			90G11, 90P14	-	-	64	65	-	-	56	59
			TSB2	63	64	64	65	54	55	56	59
			50G11, 50P14	64	65	65	66	55	56	57	60
			75G11, 75P14	-	66	66	67	-	57	58	61
			90G11, 90P14	-	-	67	68	-	-	59	62

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	3610 2s	NA
	0.75	3250 d	3820 2d	4180 2d	5370 2s
	1.15	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST60.1

FIRE RESISTANCE LEVEL
 NLB -/60/60
 LB 30/30/30
 FROM BOTH SIDES

FRL Basis: FR 2539, 99/1370,
 EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	174	198	230	346	174	198	230	346
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST60.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	Nil	43	44	46	47	36	37	39	39
			TSB2	52	53	53	54	42	43	44	47
			50G11, 50P14	53	54	54	55	43	44	45	48
			75G11, 75P14	-	54	54	55	-	44	45	48
			90G11, 90P14	-	-	55	55	-	-	46	48
			TSB2	55	56	56	57	45	46	47	50
			50G11, 50P14	56	57	57	58	46	47	48	51
			75G11, 75P14	-	57	57	58	-	47	48	51
			90G11, 90P14	-	-	58	58	-	-	49	51
ST60.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	Nil	45	45	46	49	38	38	39	41
			TSB2	54	55	55	55	44	45	47	49
			50G11, 50P14	55	55	56	56	45	46	47	49
			75G11, 75P14	-	56	56	56	-	46	47	49
			90G11, 90P14	-	-	56	56	-	-	47	49
			TSB2	57	58	58	58	47	48	50	52
			50G11, 50P14	58	58	59	59	48	49	50	52
			75G11, 75P14	-	59	59	59	-	49	50	52
			90G11, 90P14	-	-	59	59	-	-	50	52
ST60.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	Nil	44	45	45	48	37	38	38	40
			TSB2	53	54	54	55	43	44	46	48
			50G11, 50P14	54	55	55	56	44	45	46	49
			75G11, 75P14	-	55	55	56	-	45	46	49
			90G11, 90P14	-	-	56	56	-	-	46	49
			TSB2	56	57	57	58	46	47	49	51
			50G11, 50P14	57	58	58	59	47	48	49	52
			75G11, 75P14	-	58	58	59	-	48	49	52
			90G11, 90P14	-	-	59	59	-	-	49	52

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	3610 2s	NA
	0.75	3250 d	3820 2d	4180 2d	5370 2s
	1.15	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), 2s - strength (2 rows of noggings),
 3s - strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST60.2

FIRE RESISTANCE LEVEL
NLB -/60/60
LB 30/30/30
FROM BOTH SIDES

FRL Basis: FR 2539, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x13mm Firestop pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd
+ 1x13mm non-fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		187	211	243	359	187	211	243	359
					64	76	92	150	64	76	92	150
					R_w				$R_w + C_{tr}$			
ST60.2A	1x13mm FIRESTOP	1x13mm FIRESTOP + 1x13mm REGULAR	50G11, 50P14	Both Sides	59	59	60	60	49	50	51	54
			75G11, 75P14		60	61	61	62	50	51	53	55
ST60.2B	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	50G11, 50P14	Both Sides	59	60	60	61	49	50	52	54
			75G11, 75P14		60	61	62	62	50	52	53	55

* 50/75G11 - 50/75mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. 50/75P14 - 50/75mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	3610 2s	NA
	0.75	3250 d	3820 2d	4180 2d	5370 2s
	1.15	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), 2s - strength (2 rows of noggings), 3s - strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

ST60.3

FIRE RESISTANCE LEVEL
NLB -/60/60
LB 30/30/30
FROM BOTH SIDES

FRL Basis: FR 2539, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x13mm Firestop pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		184	208	240	356	184	208	240	356
					64	76	92	150	64	76	92	150
					R_w				$R_w + C_{tr}$			
ST60.3A	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	50G11, 50P14	Both Sides	59	60	60	61	49	50	52	54
			75G11, 75P14		60	61	62	62	50	52	53	55

* 50/75G11 - 50/75mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. 50/75P14 - 50/75mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	3610 2s	NA
	0.75	3250 d	3820 2d	4180 2d	5370 2s
	1.15	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), 2s - strength (2 rows of noggings), 3s - strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST60.4

FIRE RESISTANCE LEVEL

NLB -/60/60

LB 30/30/30

FROM BOTH SIDES

FRL Basis: FR 2539, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x13mm Wet Area Firestop
pbd + 1x10mm Fiberock

Framing: Twin steel studs

Gap: 20mm

Insulation: Refer to table

Side 2: 1x13mm Wet Area Firestop
pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	194	218	250	366	194	218	250	366
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST60.4A	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	49	50	51	54	41	42	42	45
			TSB2	57	58	58	59	47	48	49	52
			50G11, 50P14	58	59	59	60	48	49	50	53
			75G11, 75P14	-	60	60	61	-	50	51	54
			90G11, 90P14	-	-	62	62	-	-	52	55

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	3610 2s	NA
	0.75	3250 d	3820 2d	4180 2d	5370 2s
	1.15	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2s – strength (2 rows of noggings),
3s – strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST90.1

FIRE RESISTANCE LEVEL
 NLB -/90/90
 LB 30/30/30
 FROM BOTH SIDES

FRL Basis: SI 515, FR 2539, 99/1370, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	187	211	243	359	187	211	243	359
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST90.1A	1x13mm FIRESTOP	2x13mm FIRESTOP	Nil	48	49	50	52	41	42	42	44
			TSB2	56	57	57	58	46	47	48	51
			50G11, 50P14	57	58	58	59	47	48	49	52
			75G11, 75P14	-	59	59	60	-	49	50	53
			90G11, 90P14	-	-	60	61	-	-	51	54
			TSB2	59	60	60	61	49	50	51	54
			50G11, 50P14	60	61	61	62	50	51	52	55
			75G11, 75P14	61	62	62	63	51	52	53	56
			90G11, 90P14	-	-	63	64	-	-	54	57
ST90.1B	1x13mm MULTISTOP	2x13mm MULTISTOP	Nil	50	51	52	55	42	43	44	46
			TSB2	59	59	60	60	48	49	50	53
			50G11, 50P14	60	60	61	61	49	50	51	54
			75G11, 75P14	-	61	62	62	-	51	52	55
			90G11, 90P14	-	-	63	63	-	-	53	56
			TSB2	62	62	63	63	51	52	53	56
			50G11, 50P14	63	63	64	64	52	53	54	57
			75G11, 75P14	64	64	65	65	53	54	55	58
			90G11, 90P14	-	-	66	66	-	-	56	59
ST90.1C	1x13mm FIRESTOP	2x13mm MULTISTOP	Nil	50	50	51	54	42	42	43	45
			TSB2	57	58	58	59	47	48	49	52
			50G11, 50P14	58	59	59	60	48	49	50	53
			75G11, 75P14	-	60	60	61	-	50	51	54
			90G11, 90P14	-	-	61	62	-	-	52	55
			TSB2	60	61	61	62	50	51	52	55
			50G11, 50P14	61	62	62	63	51	52	53	56
			75G11, 75P14	62	63	63	64	52	53	54	57
			90G11, 90P14	-	-	64	65	-	-	55	58

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	3610 2s	NA
	0.75	3250 d	3820 2d	4180 2d	5370 2s
	1.15	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), 2s - strength (2 rows of noggings), 3s - strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST90.2

FIRE RESISTANCE LEVEL
 NLB -/90/90
 LB 60/60/60
 FROM BOTH SIDES

FRL Basis: FR 2539, 99/1370,
 EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	180	204	236	352	180	204	236	352
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST90.2A	1x16mm FIRESTOP	1x16mm FIRESTOP	Nil	46	47	48	51	39	40	40	42
			TSB2	54	54	55	55	45	46	48	50
			50G11, 50P14	55	55	56	56	46	47	49	51
			75G11, 75P14	-	56	57	57	-	48	50	52
			90G11, 90P14	-	-	58	58	-	-	51	53
			TSB2	57	57	58	58	48	49	51	53
			50G11, 50P14	58	58	59	59	49	50	52	54
			75G11, 75P14	59	59	60	60	50	51	53	55
			90G11, 90P14	-	-	61	61	-	-	54	56
ST90.2B	1x16mm MULTISTOP	1x16mm MULTISTOP	Nil	48	48	49	52	41	41	42	44
			TSB2	56	57	57	58	47	48	50	52
			50G11, 50P14	57	58	58	59	48	49	51	53
			75G11, 75P14	-	59	59	60	-	50	52	54
			90G11, 90P14	-	-	60	61	-	-	53	55
			TSB2	59	60	60	61	50	51	53	55
			50G11, 50P14	60	61	61	62	51	52	54	56
			75G11, 75P14	61	62	62	63	52	53	55	57
			90G11, 90P14	-	-	63	64	-	-	56	58
ST90.2C	1x16mm FIRESTOP	1x16mm MULTISTOP	Nil	47	48	49	51	40	40	41	43
			TSB2	55	56	56	57	46	47	49	51
			50G11, 50P14	56	57	57	58	47	48	50	52
			75G11, 75P14	-	58	58	59	-	49	51	53
			90G11, 90P14	-	-	59	60	-	-	52	54
			TSB2	58	59	59	60	49	50	52	54
			50G11, 50P14	59	60	60	61	50	51	53	55
			75G11, 75P14	60	61	61	62	51	52	54	56
			90G11, 90P14	-	-	62	63	-	-	55	57

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³
 Refer Max Wall Heights table below.

ST90.3

FIRE RESISTANCE LEVEL
 NLB -/90/90
 LB 60/60/60
 FROM BOTH SIDES

FRL Basis: FR 2539, 99/1370



SYSTEM DESCRIPTION

Side 1: 1x16mm Wet Area Firestop
 pbd + 1x10mm Fiberock
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x16mm Wet Area Firestop
 pbd + 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	200	224	256	372	200	224	256	372
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST90.3A	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	51	52	54	57	43	43	44	46
			TSB2	59	60	60	61	49	50	51	53
			50G11, 50P14	60	61	61	62	50	51	52	54
			75G11, 75P14	-	62	63	63	-	52	53	56
			90G11, 90P14	-	-	64	64	-	-	54	57

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS* (ST90.2 & ST90.3)

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2750 s	NA	NA	NA
	0.55	NA	3250 2d	3610 2s	NA
	0.75	3280 d	3870 2d	4200 2d	5370 2s
	1.15	3590 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d - deflection, s - permissible strength, 2d - deflection (2 rows noggings), 2s - strength (2 rows noggings), 3s - strength (3 rows noggings)

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST120.1

FIRE RESISTANCE LEVEL
 NLB -/120/120
 LB 90/90/90
 FROM BOTH SIDES

FRL Basis: FR 2539, 99/1370,
 EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 2x13mm fire resistant pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	200	224	256	372	200	224	256	372
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST120.1A	2x13mm FIRESTOP	2x13mm FIRESTOP	Nil	53	54	55	58	45	45	46	49
			TSB2	58	59	59	60	49	50	50	54
			50G11, 50P14	59	60	60	61	50	51	51	55
			75G11, 75P14	-	61	61	62	-	52	52	56
			90G11, 90P14	-	-	62	63	-	-	53	57
			TSB2	61	62	62	63	52	53	53	57
			50G11, 50P14	62	63	63	64	53	54	54	58
			75G11, 75P14	-	64	64	65	-	55	55	59
			90G11, 90P14	-	-	65	66	-	-	56	60
ST120.1B	2x13mm MULTISTOP	2x13mm MULTISTOP	Nil	55	56	57	60	46	47	48	50
			TSB2	60	61	61	62	51	52	53	56
			50G11, 50P14	61	62	62	63	52	53	54	57
			75G11, 75P14	-	63	63	64	-	54	55	58
			90G11, 90P14	-	-	64	65	-	-	56	59
			TSB2	63	64	64	65	54	55	56	59
			50G11, 50P14	64	65	65	66	55	56	57	60
			75G11, 75P14	-	66	66	67	-	57	58	61
			90G11, 90P14	-	-	67	68	-	-	59	62
ST120.1C	2x13mm FIRESTOP	2x13mm MULTISTOP	Nil	54	55	56	59	46	46	47	50
			TSB2	59	60	60	61	50	51	52	55
			50G11, 50P14	60	61	61	62	51	52	53	56
			75G11, 75P14	-	62	62	63	-	53	54	57
			90G11, 90P14	-	-	63	64	-	-	55	58
			TSB2	62	63	63	64	53	54	55	58
			50G11, 50P14	63	64	64	65	54	55	56	59
			75G11, 75P14	-	65	65	66	-	56	57	60
			90G11, 90P14	-	-	66	67	-	-	58	61

* 50/75/90G11 - 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	3610 2s	NA
	0.75	3250 d	3820 2d	4180 2d	5370 2s
	1.15	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d - deflection, 2d - deflection (2 rows of noggings), 2s - strength (2 rows of noggings),
 3s - strength (3 rows of noggings)

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST180.1

FIRE RESISTANCE LEVEL
 NLB -/180/180
 LB 120/120/120
 FROM BOTH SIDES

FRL Basis: FR 2539, 99/1370,
 EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x16mm fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	212	236	268	384	212	236	268	384
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST180.1A	2x16mm FIRESTOP	2x16mm FIRESTOP	Nil	54	55	56	60	46	47	48	51
			TSB2	60	60	61	61	50	51	52	54
			50G11, 50P14	61	61	62	62	51	52	53	55
			75G11, 75P14	-	62	63	63	-	53	54	56
			90G11, 90P14	-	-	64	64	-	-	55	57
			TSB2	63	63	64	64	53	54	55	57
			50G11, 50P14	64	64	65	65	54	55	56	58
			75G11, 75P14	-	65	66	66	-	56	57	59
			90G11, 90P14	-	-	67	67	-	-	58	60
ST180.1B	2x16mm MULTISTOP	2x16mm MULTISTOP	Nil	55	56	57	61	48	49	50	53
			TSB2	60	61	61	62	52	53	54	56
			50G11, 50P14	61	62	62	63	53	54	55	57
			75G11, 75P14	-	63	63	64	-	55	56	58
			90G11, 90P14	-	-	64	65	-	-	57	59
			TSB2	63	64	64	65	55	56	57	59
			50G11, 50P14	64	65	65	66	56	57	58	60
			75G11, 75P14	-	66	66	67	-	58	59	61
			90G11, 90P14	-	-	67	68	-	-	60	62
ST180.1C	2x16mm FIRESTOP	2x16mm MULTISTOP	Nil	53	54	55	59	47	48	49	52
			TSB2	60	60	61	61	51	52	53	55
			50G11, 50P14	61	61	62	62	52	53	54	56
			75G11, 75P14	-	62	63	63	-	54	55	57
			90G11, 90P14	-	-	64	64	-	-	56	58
			TSB2	63	63	64	64	54	55	56	58
			50G11, 50P14	64	64	65	65	55	56	57	59
			75G11, 75P14	-	65	66	66	-	57	58	60
			90G11, 90P14	-	-	67	67	-	-	59	61

* 50/75/90G11 - 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 - 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS*					PRESSURE: 0.25 kPa	
STUD SPACING mm		600 (NOGGED)				
STUD SIZE mm		64	76	92	150	
BASE METAL THICKNESS mm	0.50	2300 f	NA	NA	NA	
	0.55	NA	2700 f	3500 f	NA	
	0.75	2700 f	3000 f	3500 f	5000 f	
	1.15	3000 f	3500 f	4000 f	5900 f	

Height Limiting Factor: f - fire height

*Refer Rondo for maximum heights for load bearing walls

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

ST180.2

FIRE RESISTANCE LEVEL
 NLB **-/180/180**
 LB **120/120/120**
 FROM BOTH SIDES

FRL Basis: FCO-2440



SYSTEM DESCRIPTION

Side 1: 1x25mm Shaftliner pbd
 + 1x16mm Firestop pbd
Framing: Twin steel studs + Linerstrips
 For maximum wall heights
 contact USG Boral
Gap: 20mm
Insulation: Refer to table
Side 2: 2x16mm fire resistant lining

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	230	254	286	402	230	254	286	402
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST180.2A	1x25mm SHAFTLINER + 1x16mm FIRESTOP	1x25mm SHAFTLINER + 1x16mm FIRESTOP	Nil	53	55	56	59	44	45	46	49
			TSB2	61	62	62	63	52	53	54	56
			50G11, 50P14	63	64	64	65	54	55	56	58
			75G11, 75P14	-	65	66	66	-	56	57	59
			90G11, 90P14	-	-	67	68	-	-	58	60
			TSB2	63	64	64	65	54	55	56	58
			50G11, 50P14	65	66	66	67	56	57	58	60
			75G11, 75P14	-	67	68	68	-	58	59	61
			90G11, 90P14	-	-	69	70	-	-	60	62

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

For maximum wall heights contact USG Boral

ST240.1

FIRE RESISTANCE LEVEL
 NLB **-/240/240**
 LB **180/180/180**
 FROM BOTH SIDES

FRL Basis: FCO-2440



SYSTEM DESCRIPTION

Side 1: 2x25mm Shaftliner pbd
 + 1x16mm Firestop pbd
Framing: Twin steel studs + Linerstrips
 For maximum wall heights
 contact USG Boral
Gap: 20mm
Insulation: Refer to table
Side 2: 2x25mm Shaftliner
 + 1x16mm Firestop

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	280	304	336	452	280	304	336	452
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
ST240.1A	2x25mm SHAFTLINER + 1x16mm FIRESTOP	2x25mm SHAFTLINER + 1x16mm FIRESTOP	Nil	62	63	65	68	52	53	54	57
			TSB2	70	70	71	72	61	62	63	64
			50G11, 50P14	72	73	73	74	63	64	65	66
			75G11, 75P14	-	74	74	75	-	65	66	67
			90G11, 90P14	-	-	76	76	-	-	67	68
			TSB2	72	72	73	74	63	64	65	66
			50G11, 50P14	74	75	75	76	65	66	67	68
			75G11, 75P14	-	76	76	77	-	67	68	69
			90G11, 90P14	-	-	78	78	-	-	69	70

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

For maximum wall heights contact USG Boral

For the full range of USG Boral systems refer to usgboral.com/eselector

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

FIBEROCK – TWIN STUD

STF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	168	192	224	340	168	192	224	340
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
STF.1A	1x10mm FIBEROCK	1x10mm FIBEROCK	Nil	42	43	44	46	35	36	36	38
			TSB2	50	50	51	51	40	41	43	45
			50G11, 50P14	51	51	52	52	41	42	43	46
			75G11, 75P14	-	52	52	53	-	42	43	46
			90G11, 90P14	-	-	52	53	-	-	43	46
			TSB2	53	53	54	54	43	44	46	48
			50G11, 50P14	54	54	55	55	44	45	46	49
			75G11, 75P14	-	55	55	56	-	45	46	49
			90G11, 90P14	-	-	55	56	-	-	46	49

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3200 2d	3610 2s	NA
	0.75	3130 d	3580 2d	4130 2d	5330 2h
	1.15	3530 d	4050 2d	4690 2d	5330 2h

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2h – head track capacity (2 rows of noggings), 2s – strength (2 rows of noggings)

STF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x10mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	188	212	244	360	188	212	244	360
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
STF.2A	2x10mm FIBEROCK	2x10mm FIBEROCK	Nil	50	51	52	55	42	43	44	46
			TSB2	58	58	58	59	48	49	49	53
			50G11, 50P14	59	59	60	60	48	50	51	53
			75G11, 75P14	-	60	60	61	-	50	51	54
			90G11, 90P14	-	-	60	61	-	-	51	54
			TSB2	61	61	61	62	51	52	52	56
			50G11, 50P14	62	62	63	63	51	53	54	56
			75G11, 75P14	-	63	63	64	-	53	54	57
			90G11, 90P14	-	-	63	64	-	-	54	57

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3200 2d	3610 2s	NA
	0.75	3130 d	3580 2d	4130 2d	5330 2h
	1.15	3530 d	4050 2d	4690 2d	5330 2h

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2h – head track capacity (2 rows of noggings), 2s – strength (2 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

STF.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm Fiberock

ACOUSTIC RATINGS

BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	174	198	230	346	174	198	230	346
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
STF.3A	1x13mm FIBEROCK	1x13mm FIBEROCK	Nil	45	45	46	49	38	38	39	41
			TSB2	54	54	55	55	44	45	46	49
			50G11, 50P14	55	55	56	56	45	46	47	49
			75G11, 75P14	-	56	56	56	-	46	47	49
			90G11, 90P14	-	-	56	56	-	-	47	49
			TSB2	57	57	58	58	47	48	49	52
			50G11, 50P14	58	58	59	59	48	49	50	52
			75G11, 75P14	-	59	59	59	-	49	50	52
			90G11, 90P14	-	-	59	59	-	-	50	52

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	3610 2s	NA
	0.75	3250 d	3820 2d	4180 2d	5370 2s
	1.15	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

STF30.1

FIRE RESISTANCE LEVEL
 NLB -/30/30
 FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	187	211	243	359	187	211	243	359
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				$R_w + C_{tr}$			
STF30.1A	1x13mm FIBEROCK	2x13mm FIBEROCK	Nil	50	51	52	55	42	43	44	46
			TSB2	58	59	59	60	48	49	50	53
			50G11, 50P14	59	60	60	61	49	50	51	54
			75G11, 75P14	-	61	61	62	-	51	52	55
			90G11, 90P14	-	-	62	63	-	-	53	56
			TSB2	61	62	62	63	51	52	53	56
			50G11, 50P14	62	63	63	64	52	53	54	57
			75G11, 75P14	63	64	64	65	53	54	55	58
			90G11, 90P14	-	-	65	66	-	-	56	59

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
 50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	3610 2s	NA
	0.75	3250 d	3820 2d	4180 2d	5370 2s
	1.15	3580 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings), 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

R_w	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – TWIN STUD

STF60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x16mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	180	204	236	352	180	204	236	352
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				R_w+C_{tr}			
STF60.1A	1x16mm FIBEROCK	1x16mm FIBEROCK	Nil	48	49	50	53	41	41	42	44
			TSB2	57	58	58	59	48	49	50	53
			50G11, 50P14	58	59	59	60	49	50	51	54
			75G11, 75P14	-	60	60	61	-	51	52	55
			90G11, 90P14	-	-	61	62	-	-	53	56
			TSB2	60	61	61	62	51	52	53	56
			50G11, 50P14	61	62	62	63	52	53	54	57
			75G11, 75P14	62	63	63	64	53	54	55	58
			90G11, 90P14	-	-	64	65	-	-	56	59

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2750 s	NA	NA	NA
	0.55	NA	3250 2d	3610 2s	NA
	0.75	3280 d	3870 2d	4200 2d	5370 2s
	1.15	3590 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, s – permissible strength, 2d – deflection (2 rows of noggings), 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

STF90.1[^]

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FAR4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	200	224	256	372	200	224	256	372
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R_w				R_w+C_{tr}			
STF90.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	55	56	NA	NA	46	47	NA	NA
			TSB2	60	61	NA	NA	51	52	NA	NA
			50G11, 50P14	61	62	NA	NA	52	53	NA	NA
			75G11, 75P14	-	63	NA	NA	-	54	NA	NA
			90G11, 90P14	-	-	NA	NA	-	-	NA	NA
			TSB2	63	64	NA	NA	54	55	NA	NA
			50G11, 50P14	64	65	NA	NA	55	56	NA	NA
			75G11, 75P14	-	66	NA	NA	-	57	NA	NA
			90G11, 90P14	-	-	NA	NA	-	-	NA	NA

* 50/75/90G11 – 50/75/90mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2720 d	NA	NA	NA
	0.55	NA	3240 2d	NA	NA
	0.75	3250 d	3820 2d	NA	NA
	1.15	3580 d	4050 2d	NA	NA

Height Limiting Factor: d – deflection, 2d – deflection (2 rows of noggings)

[^]System STF90.1 must utilise 64mm or 76mm studs only.

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – TWIN STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

STF120.1[^]

FIRE RESISTANCE LEVEL
NLB **-/120/120**
FROM BOTH SIDES

FRL Basis: FAR4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	200	224	256	372	200	224	256	372
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R _w				R _w +C _{tr}			
STF120.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	NA	NA	57	60	NA	NA	48	50
			TSB2	NA	NA	61	61	NA	NA	53	56
			50G11, 50P14	NA	NA	62	62	NA	NA	54	57
			75G11, 75P14	-	NA	63	63	-	NA	55	58
			90G11, 90P14	-	-	64	64	-	-	56	59
			TSB2	NA	NA	64	64	NA	NA	56	59
			50G11, 50P14	NA	NA	65	65	NA	NA	57	60
			75G11, 75P14	-	NA	66	66	-	NA	58	61
			90G11, 90P14	-	-	67	67	-	-	59	62

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	NA	NA	NA	NA
	0.55	NA	NA	3610 2s	NA
	0.75	NA	NA	4810 2d	5370 2s
	1.15	NA	NA	4690 2d	6810 3s

Height Limiting Factor: 2d – deflection (2 rows of noggings), 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

[^]System STF120.1 must utilise 92mm or 150mm studs only.

STF120.2

FIRE RESISTANCE LEVEL
NLB **-/120/120**
FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 2x16mm Fiberock
Framing: Twin steel studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x16mm Fiberock

ACOUSTIC RATINGS BASIS: RT&A TE405-05F05

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	212	236	268	384	212	236	268	384
			STUD SIZE mm	64	76	92	150	64	76	92	150
			INSULATION*	R _w				R _w +C _{tr}			
STF120.2A	2x16mm FIBEROCK	2x16mm FIBEROCK	Nil	56	57	58	61	48	49	50	53
			TSB2	61	61	62	63	52	53	54	56
			50G11, 50P14	62	62	63	64	53	54	55	57
			75G11, 75P14	-	63	64	65	-	55	56	58
			90G11, 90P14	-	-	65	66	-	-	57	59
			TSB2	64	64	65	66	55	56	57	59
			50G11, 50P14	65	65	66	67	56	57	58	60
			75G11, 75P14	-	66	67	68	-	58	59	61
			90G11, 90P14	-	-	68	69	-	-	60	62

* 50/75/90G11 – 50/75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
50/75/90P14 – 50/75/90mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS NON-LOAD BEARING WALLS

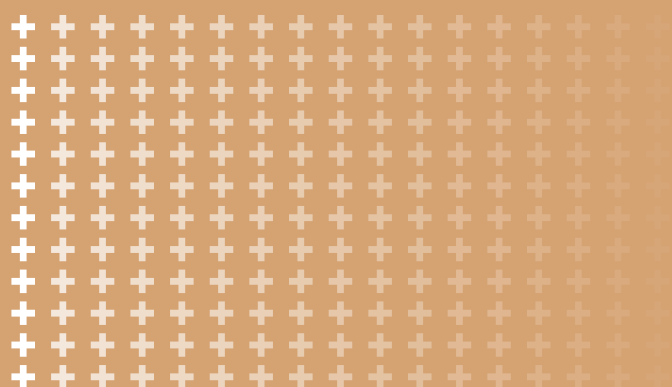
PRESSURE: 0.25 kPa

STUD SPACING mm		600 (NOGGED)			
STUD SIZE mm		64	76	92	150
BASE METAL THICKNESS mm	0.50	2750 d	NA	NA	NA
	0.55	NA	3250 2d	3610 2s	NA
	0.75	3280 d	3870 2d	4200 2d	5370 2s
	1.15	3590 d	4050 2d	4690 2d	6810 3s

Height Limiting Factor: d – deflection, s – permissible strength, 2d – deflection (2 rows of noggings), 2s – strength (2 rows of noggings), 3s – strength (3 rows of noggings)

For the full range of USG Boral systems refer to usgboral.com/eselector

D 2	INTRODUCTION
D 8	QUICK SELECTION TABLES
D 13	LINED ONE SIDE
D 18	LINED BOTH SIDES
D 30	FURRED
D 43	STAGGERED STUD
D 57	TWIN STUD



TIMBER STUD WALLS

INTRODUCTION

DESCRIPTION

USG Boral Timber Stud Wall Systems consist of single or multiple layers of plasterboard, fixed to one or both sides of timber stud framing.

DESIGN OPTIONS

Timber stud wall systems outlined in this manual provide Designers and Builders with a wide range of options to suit project specific requirements in regard to fire rating, acoustic isolation, water resistance and impact resistance. A large number of hybrid systems have been included, providing cost effective solutions where impact and/or water resistance requirements differ on each side of the wall.

Timber Stud Wall Systems are available in non-fire rated configurations with acoustic ratings up to $R_w+C_{tr}=50$ ($R_w=59$) and in fire rated configurations with Fire Resistance Levels up to 120/120/120 and acoustic ratings up to $R_w+C_{tr}=60$ ($R_w=68$).

The following types of Timber Stud Wall Systems are outlined in this manual:

- Lined One Side
- Lined Both Sides
- Furred Stud
- Staggered Stud
- Twin Stud.

MATERIALS

PLASTERBOARD LININGS

- 10mm SHEETROCK Brand Wall Board
- 13mm SHEETROCK Brand Standard plasterboard
- 10mm/13mm Regular plasterboard
- 10mm/13mm/16mm Fiberock
- 10mm/13mm Soundstop plasterboard
- 10mm/13mm Impactstop plasterboard
- 13mm/16mm Firestop plasterboard
- 13mm/16mm Multistop plasterboard.

TIMBER SECTIONS

- 70mm studs
- 90mm studs
- 120mm plates (staggered stud walls)
- 140mm plates (staggered stud walls).

DEFLECTION HEAD TRACK

Rondo Deflection Head Track is used where allowance needs to be made for deflection of the floor/roof structure above a fire rated timber stud wall system (refer to Junctions and Penetrations section)

FURRING CHANNELS AND FIXING CLIPS

Rondo 129 Furring Channel and 237 Fixing Clip are used in Furred Systems:



Figure D1: Rondo 129 Furring Channel and 237 Fixing Clip

INSULATION

Glasswool

- R1.5 Pink Wall Batts® 65mm by Fletcher Insulation
- R2.0 Pink Wall Batts® 90mm by Fletcher Insulation.

Polyester

- 50mm, 70mm and 90mm polyester insulation 14kg/m³ density
- TSB2 by Tontine Insulation (or equivalent).

SCREWS

Refer General Information – Materials for plasterboard screws suitable for timber framed systems.

SEALANTS

H.B. Fuller Firesound® sealant is recommended for use in USG Boral fire rated and acoustic systems.

» INTRODUCTION

DESIGN CONSIDERATIONS

MAXIMUM HEIGHTS AND LOADS

Timber framed walls must be designed in accordance with AS 1684 *Timber framed construction*.

In addition to design loads under normal service conditions, fire rated timber framed walls must be checked for maximum loads under the design fire exposure.

Maximum loads for fire rated timber framed walls depend on the extent of timber charring in a fire situation.

Maximum loads for some USG Boral fire rated timber framed walls are provided in Table D1. Refer to systems Fire/Acoustic tables for load bearing system types. Refer to USG Boral for maximum loads for other fire rated timber framed walls and timber stress grades.

MULTI-RESIDENTIAL BUILDINGS

Separating walls in multi-residential buildings must satisfy BCA fire rating and acoustic requirements (refer to the Multi-Residential section).

Class 1 Buildings

USG Boral Partiwall® is a family of BCA compliant separating wall systems for attached dwellings in Class 1 buildings.

For more information on Partiwall separating walls refer to the Multi-Residential section and to

usgboral.com/partiwall

TABLE D1: MAXIMUM VERTICAL LOADS ON FIRE RATED TIMBER STUD WALLS (kN/STUD)

SYSTEM TYPE	TYPE 1				TYPE 2			
TIMBER STRESS GRADE	F8		F14		F8		F14	
STUD SIZE mm	90x45	90x35	90x45	90x35	90x45	90x35	90x45	90x35
WALL HEIGHT m								
2	22.4	16.1	37.5	27.4	17.8	12.3	31.4	22.4
2.1	21.6	15.5	35.8	26.1	17.1	11.8	30.0	21.4
2.2	20.7	14.9	34.1	24.9	16.4	11.3	28.6	20.4
2.3	19.9	14.3	32.5	23.7	15.8	10.9	27.2	19.4
2.4	19.1	13.7	30.9	22.6	15.1	10.4	25.9	18.4
2.5	18.3	13.1	29.4	21.5	14.5	10.0	24.7	17.6
2.6	17.6	12.6	28.0	20.4	13.9	9.5	23.5	16.7
2.7	16.8	12.0	26.7	19.4	13.3	9.1	22.3	15.9
2.8	16.1	11.5	25.4	18.5	12.7	8.7	21.3	15.1
2.9	15.4	11.0	24.1	17.6	12.2	8.3	20.2	14.4
3	14.7	10.5	23.0	16.7	11.6	8.0	19.2	13.7
3.1	14.1	10.1	21.8	15.9	11.1	7.6	18.3	13.0
3.2	13.5	9.6	20.8	15.2	10.6	7.3	17.4	12.4
3.3	12.9	9.2	19.8	14.4	10.1	6.9	16.6	11.8
3.4	12.3	8.8	18.9	13.8	9.7	6.6	15.8	11.2
3.5	11.8	8.4	18.0	13.1	9.3	6.3	15.1	10.7
3.6	11.3	8.0	17.2	12.5	8.9	6.0	14.4	10.2
3.7	10.8	7.7	16.4	11.9	8.5	5.8	13.7	9.7
3.8	10.3	7.4	15.6	11.4	8.1	5.5	13.1	9.3
3.9	9.9	7.0	14.9	10.9	7.7	5.3	12.5	8.8
4	9.4	6.7	14.2	10.4	7.4	5.0	11.9	8.4

» INTRODUCTION

Class 2 and 3 Buildings

BCA allows the use of timber framed construction in low rise multi-residential buildings Class 2 and 3 (Refer to BCA for height limitations on such buildings).

Various structural elements in Class 2 and 3 buildings must satisfy BCA fire rating and acoustic requirements as summarised in the Multi-Residential section.

USG Boral Multiframe™ system is a compilation of timber framed wall and floor/ceiling solutions satisfying BCA requirements for Class 2 and 3 buildings. For more information refer to the Multi-Residential section and to usgboral.com/multiframe

PENETRATIONS

Penetrations in a fire rated system must be treated strictly in accordance with relevant test reports and approved installation details in order to maintain the system's Fire Resistance Level.

Where components by others are specified in USG Boral fire rated penetration details (ie dampers, GPO's, fire collars, etc), such components must be installed in accordance with the manufacturer's specifications. It is the responsibility of the component manufacturer to ensure that the fire rating performance of the system is not affected.

INSTALLATION

Fire rated and acoustic systems must be assembled strictly in accordance with the installation details and specifications outlined in this manual and in the relevant USG Boral publications in order to achieve stated Fire Resistance Levels and acoustic ratings.

FRAMING

- Accurately mark wall layouts. Always check individual measurements against overall site dimensions.
- Cut timber studs to length allowing for deflection of floor/roof structure above.
- Use suitable fasteners and clips for anchoring top and bottom plates. Locate fasteners 50mm from each end and spaced at maximum 600mm centres along the wall plate.
- Noggings are required as headers above doorways, for reinforcement behind fixture attachments, and where special circumstances require additional stiffening of the frame.

PLASTERBOARD APPLICATION

- Plasterboard linings can be installed vertically or horizontally Refer Figures D2-D6 for optional plasterboard configurations in fire rated timber stud walls.

- Cut plasterboard sheets to provide 10mm maximum gap at floor and ceiling (refer to Junctions and Penetrations section for typical head and base details).
- Vertical sheet ends and edges in fire rated systems are to fall on studs. Refer to Table D2 for minimum joint offsets in fire rated systems.
- Fasten plasterboard sheets to timber framing with appropriate screws as outlined in General Information section. Place screws 10mm-16mm from sheet ends and edges UNO.
- Refer to Table D3 for maximum screw spacings in fire rated systems.
- Refer to USG Boral Installation Manual for plasterboard fixing specification for non-fire rated timber stud wall systems.

TABLE D2: MINIMUM JOINT OFFSETS (mm)

LINING LAYER	VERTICAL JOINTS	HORIZONTAL JOINTS
Inner/single layers on opposite sides or Adjacent layers on same side	One stud spacing (300mm min)	300

TABLE D3: MAXIMUM SCREW SPACING (mm)

LINING LAYER	INTERMEDIATE STUDS	VERTICAL EDGES, TOP AND BOTTOM PLATES	INTERNAL/EXTERNAL CORNERS & AROUND OPENINGS
Outer/single layer	300	200 (stagger screws in abutting sheets)	200
Inner layers	600	600	600

JOINTING AND FINISHING

- Finish all joints and internal and external corners in face layers with the appropriate USG Boral jointing system (refer to USG Boral Installation Manual). Joints and junctions in inner layers of multiple layer systems are not required to be stopped.
- Paper tape must be used in fire rated and wet area systems
- Stop exposed fasteners on face layers.

CAULKING

Perimeter gaps and penetrations in fire rated and acoustic systems must be caulked with an appropriate sealant (refer to Junctions and Penetrations section).

DECORATION

Apply paint or other decorative finishes as required. Refer to General Information – Appearance for recommendations on decorating of plasterboard.

» INTRODUCTION

PLASTERBOARD INSTALLATION – FIRE RATED WALLS

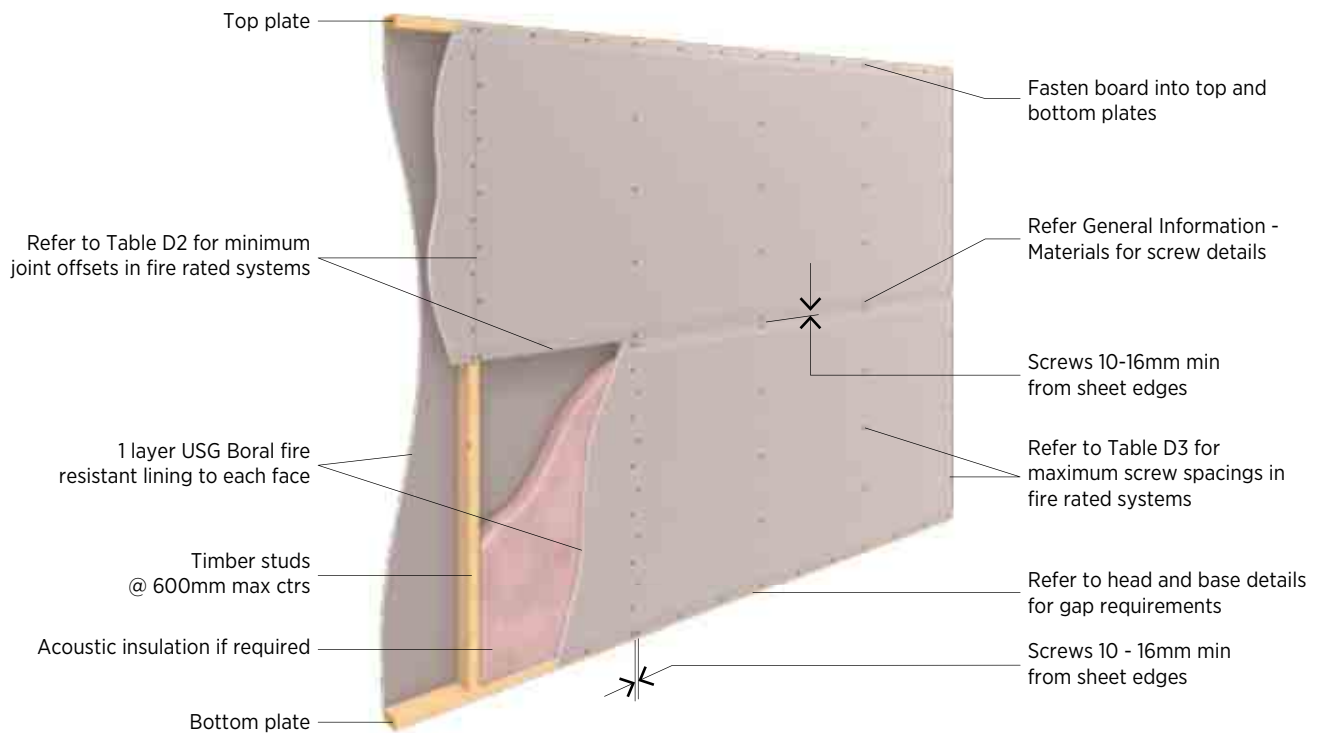


Figure D2: Fire Rated Timber Stud - Horizontal Fixing - Single Layer

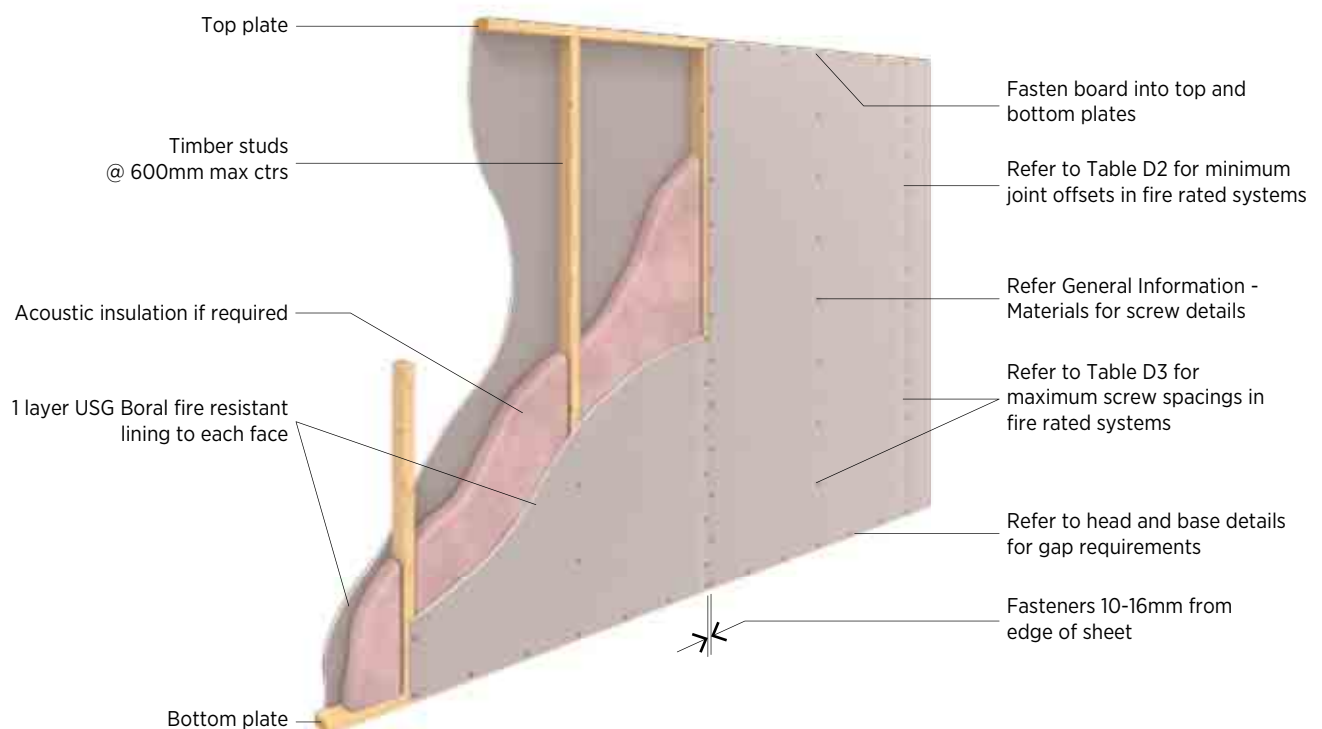


Figure D3: Fire Rated Timber Stud - Vertical Fixing - Single Layer

» INTRODUCTION

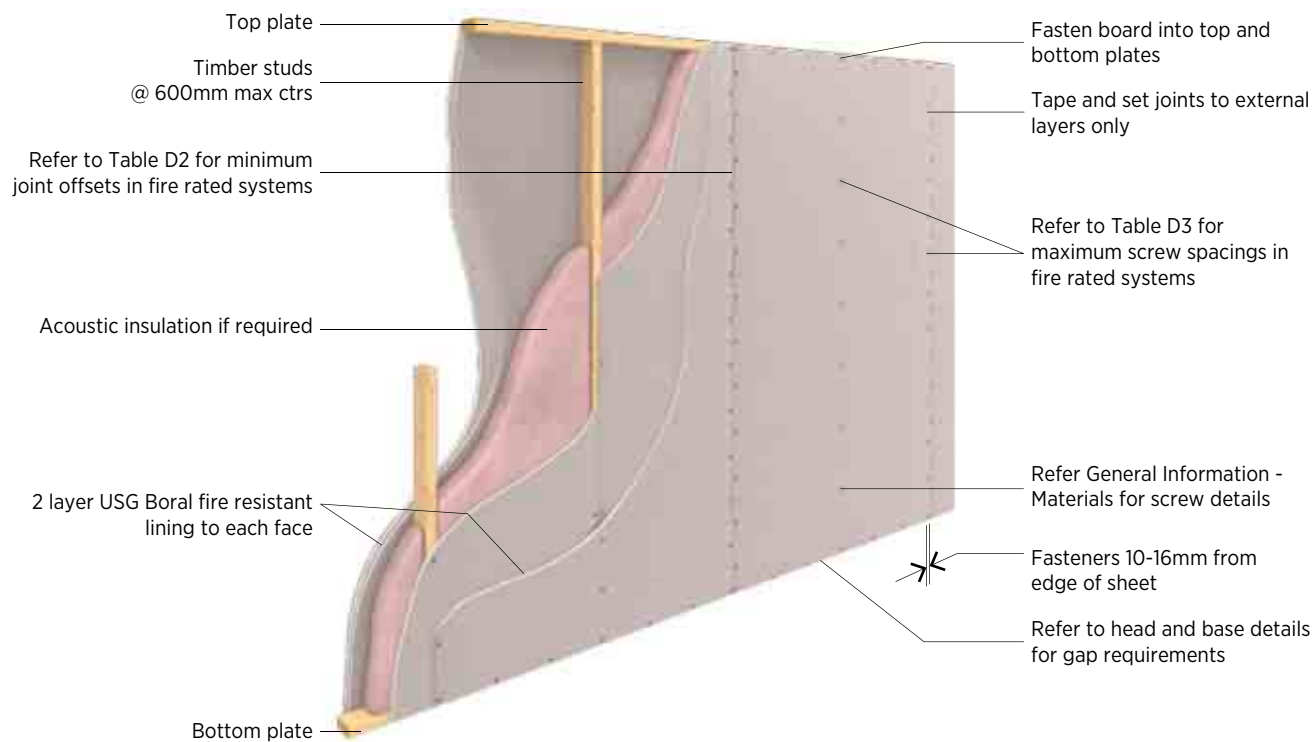


Figure D4: **Fire Rated Timber Stud - Vertical Fixing - Multiple Layer**

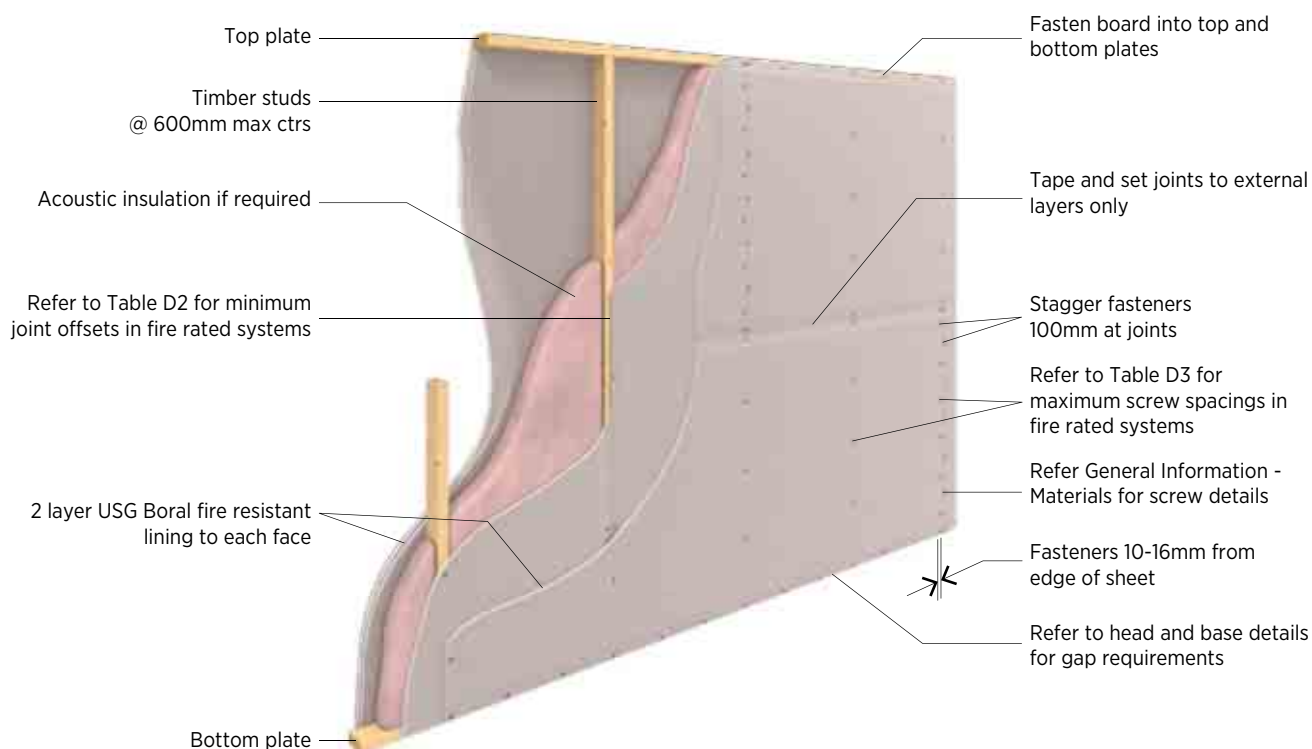


Figure D5: **Fire Rated Timber Stud - Mixed Orientation - Multiple Layer**

» INTRODUCTION

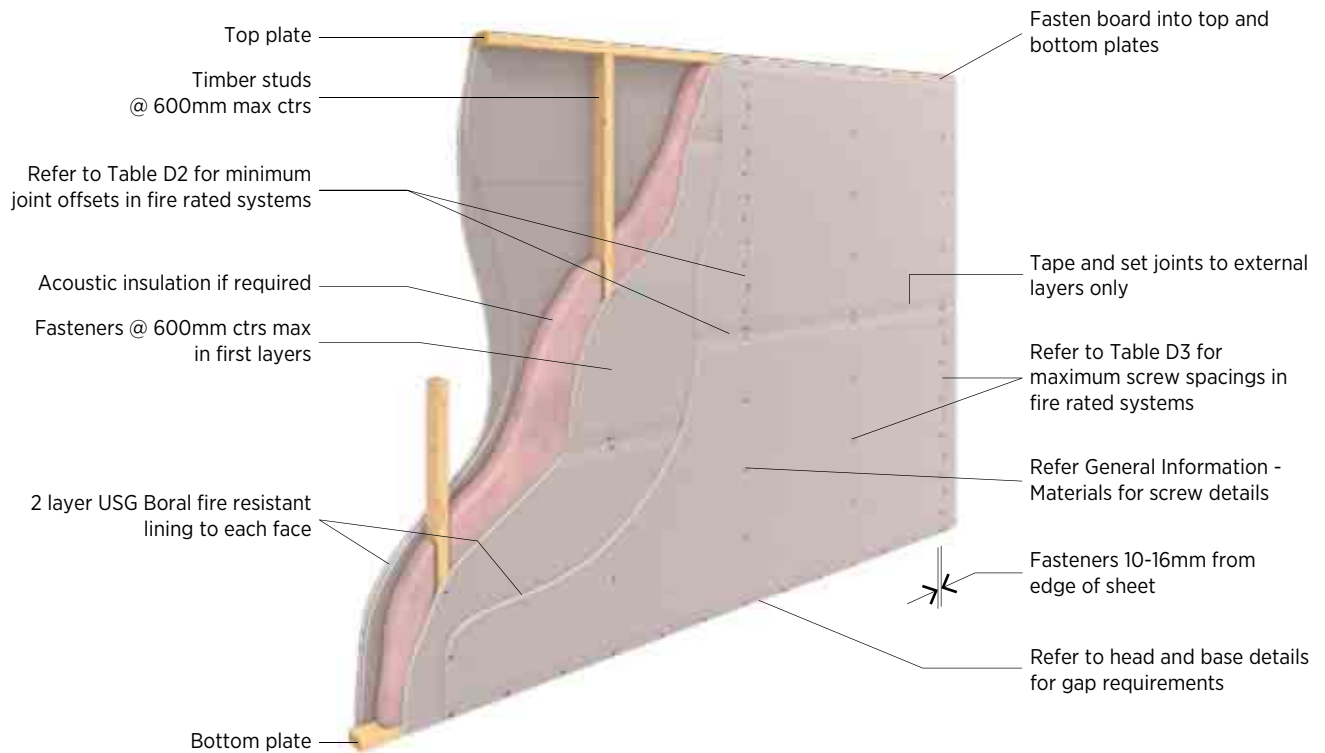


Figure D6: Fire Rated Timber Stud - Horizontal Fixing - Multiple Layer

QUICK SELECTION TABLES

WALLS LINED ONE SIDE						
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	STUD SIZE mm	ANY STUD	
				FRL (from lining side only)	R _w	R _w +C _{tr}
TO.1	D 13	1x10mm non-fire resistant pbd	NA	non-fire rated	27-28	23-26
TO.2	D 13	2x10mm non-fire resistant pbd	NA	non-fire rated	33-34	29-32
TO.3	D 13	1x13mm non-fire resistant pbd	NA	non-fire rated	28-29	25-27
TO30.1	D 14	1x16mm fire resistant pbd	NA	-/30/30	30	27-28
TO60.1	D 14	2x16mm fire resistant pbd	NA	60/60/60	36	33-34
TO90.1	D 15	3x13mm fire resistant pbd	NA	90/90/90	38-39	36
TO120.1	D 15	3x16mm fire resistant pbd	NA	120/120/120	39-40	37-38
TOF.1	D 16	1x10mm Fiberock	NA	non-fire rated	28	26
TOF.2	D 16	2x10mm FIBEROCK	NA	non-fire rated	34	32
TOF.3	D 16	1x13mm FIBEROCK	NA	non-fire rated	29	27
TOF30.1	D 17	1x16mm FIBEROCK	NA	-/30/30	30	28
TOF60.1	D 17	2x16mm FIBEROCK	NA	-/60/60	36	34
TOF90.1	D 17	3x16mm FIBEROCK	NA	-/90/90	40	38

Acoustic ratings are based on 600mm stud spacings.

QUICK SELECTION TABLES

WALLS LINED BOTH SIDES								
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	STUD SIZE mm	70	90	70	90
				FRL	R _w		R _w +C _{tr}	
TBS.1	D 18	1x10mm SHEETROCK Brand pbd	1x10mm SHEETROCK Brand pbd	non-fire rated	27-36	28-37	21-26	21-27
TBS.2	D 18	1x13mm SHEETROCK Brand pbd	1x13mm SHEETROCK Brand pbd	non-fire rated	29-37	30-38	24-28	25-29
TB.1	D 19	1x10mm non-fire resistant pbd	1x10mm non-fire resistant pbd	non-fire rated	30-40	31-41	23-32	24-33
TB.2	D 20	2x10mm non-fire resistant pbd	2x10mm non-fire resistant pbd	non-fire rated	36-47	36-47	29-40	29-41
TB.3	D 21	1x13mm non-fire resistant pbd	1x13mm non-fire resistant pbd	non-fire rated	31-41	32-42	26-33	26-35
TB.4	D 22	1x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	37-44	38-45	30-37	31-39
TB.5	D 23	2x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	37-48	38-48	31-44	32-45
TB60.1	D 24	1x13mm fire resistant pbd	1x13mm fire resistant pbd	-/60/60 30/30/30	32-41	33-42	26-34	28-35
TB60.2	D 24	1x13mm fire resistant pbd	2x13mm fire resistant pbd	-/60/60 30/30/30	39-44	39-45	32-37	32-39
TB60.3	D 25	1x16mm fire resistant pbd	1x16mm fire resistant pbd	-/60/60 60/60/60	34-42	34-42	28-37	29-38
TB90.1	D 25	2x13mm fire resistant pbd	2x13mm fire resistant pbd	-/90/90 90/90/90	39-48	40-48	33-44	34-45
TB120.1	D 26	2x16mm fire resistant pbd	2x16mm fire resistant pbd	-/120/120 120/120/120	41-48	41-48	35-45	36-45
TBF.1	D 27	1x10mm FIBEROCK	1x10mm FIBEROCK	non-fire rated	32-40	33-41	26-32	26-33
TBF.2	D 27	2x10mm FIBEROCK	2x10mm FIBEROCK	non-fire rated	38-47	39-47	31-40	32-41
TBF30.1	D 27	1x13mm FIBEROCK	1x13mm FIBEROCK	-/30/30 30/30/30	33-41	34-42	28-33	29-35
TBF30.2	D 28	1x13mm FIBEROCK	2x13mm FIBEROCK	-/30/30 30/30/30	39-44	40-45	34-37	34-39
TBF60.1	D 28	1x16mm FIBEROCK	1x16mm FIBEROCK	-/60/60 60/60/60	34-42	35-43	29-37	30-39
TBF90.1	D 29	2x13mm FIBEROCK	2x13mm FIBEROCK	-/90/90	40-48	40-48	34-44	35-45
TBF120.1	D 29	2x16mm FIBEROCK	2x16mm FIBEROCK	-/120/120	41-48	42-48	36-45	37-45

Acoustic ratings are based on 600mm stud spacings.

QUICK SELECTION TABLES

FURRED WALLS								
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	STUD SIZE mm	70	90	70	90
				FRL	R _w		R _w +C _{tr}	
TF.1	D 30	1x10mm non-fire resistant pbd	1x10mm non-fire resistant pbd	non-fire rated	35-46	36-47	29-36	30-38
TF.2	D 31	2x10mm non-fire resistant pbd	2x10mm non-fire resistant pbd	non-fire rated	43-56	44-56	36-48	36-49
TF.3	D 32	1x13mm non-fire resistant pbd	1x13mm non-fire resistant pbd	non-fire rated	37-49	38-50	31-41	32-42
TF.4	D 33	2x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	46-58	47-59	38-51	39-52
TF60.1	D 34	1x13mm fire resistant pbd	1x13mm fire resistant pbd	-/60/60 30/30/30	39-49	40-50	33-41	33-42
TF60.2	D 34	1x13mm fire resistant pbd	1x13mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 30/30/30	51	52	42	44
TF60.3	D 35	1x13mm fire resistant pbd + 1x13mm FIBEROCK	1x13mm fire resistant pbd + 1x13mm FIBEROCK	-/60/60 30/30/30	49-55	50-55	41-49	42-50
TF60.4	D 35	1x13mm fire resistant pbd	2x13mm fire resistant pbd	-/60/60 30/30/30	44-53	45-54	37-45	37-46
TF60.5	D 36	1x16mm fire resistant pbd	1x16mm fire resistant pbd	-/60/60 60/60/60	42-51	42-52	35-43	36-44
TF60.6	D 36	1x16mm fire resistant pbd	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 60/60/60	53	54	45	46
TF60.7	D 37	1x16mm fire resistant pbd + 1x13mm FIBEROCK	1x16mm fire resistant pbd + 1x13mm FIBEROCK	-/60/60 60/60/60	50-58	51-58	43-51	43-52
TF90.1	D 37	2x13mm fire resistant pbd	2x13mm fire resistant pbd	-/90/90 90/90/90	49-58	49-59	41-51	41-52
TF120.1	D 38	2x16mm fire resistant pbd	2x16mm fire resistant pbd	-/120/120 120/120/120	51-59	52-60	43-52	44-53
TFF.1	D 39	1x10mm FIBEROCK	1x10mm FIBEROCK	non-fire rated	38-46	39-47	32-36	32-38
TFF.2	D 39	2x10mm FIBEROCK	2x10mm FIBEROCK	non-fire rated	47-56	48-56	39-48	40-49
TFF30.1	D 40	1x13mm FIBEROCK	1x13mm FIBEROCK	-/30/30 30/30/30	40-49	41-50	34-41	34-42
TFF30.2	D 40	1x13mm FIBEROCK	2x13mm FIBEROCK	-/30/30 30/30/30	45-53	46-54	38-45	39-46
TFF60.1	D 41	1x16mm FIBEROCK	1x16mm FIBEROCK	-/60/60 60/60/60	42-51	43-52	36-43	37-45
TFF90.1	D 41	2x13mm FIBEROCK	2x13mm FIBEROCK	-/90/90	50-58	51-59	42-51	43-53
TFF120.1	D 42	2x16mm FIBEROCK	2x16mm FIBEROCK	-/120/120	52-60	53-60	45-52	46-53

Acoustic ratings are based on 600mm stud spacings.

QUICK SELECTION TABLES







STAGGERED STUD WALLS										
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	PLATE SIZE mm	90	120	140	90	120	140
				FRL	R _w			R _w +C _{tr}		
TS.1	D 43	1x10mm non-fire resistant pbd	1x10mm non-fire resistant pbd	non-fire rated	34-46	35-47	36-48	25-35	26-38	26-41
TS.2	D 44	2x10mm non-fire resistant pbd	2x10mm non-fire resistant pbd	non-fire rated	40-55	41-56	42-56	30-48	31-49	31-50
TS.3	D 45	1x13mm non-fire resistant pbd	1x13mm non-fire resistant pbd	non-fire rated	35-47	36-47	37-48	28-38	29-39	29-40
TS.4	D 46	1x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	40-52	41-52	41-53	34-46	34-47	34-48
TS.5	D 47	2x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	44-56	45-56	45-56	37-51	37-52	38-53
TS60.1	D 48	1x13mm fire resistant pbd	1x13mm fire resistant pbd	-/60/60 30/30/30	38-47	38-47	39-48	31-38	31-39	31-40
TS60.2	D 48	1x13mm fire resistant pbd + 1x10mm non-fire resistant pbd	1x13mm fire resistant pbd + 1x10mm non-fire resistant pbd	-/60/60 30/30/30	53-54	54	54	47-48	48-49	49-50
TS60.3	D 49	1x13mm fire resistant pbd	1x13mm fire resistant pbd + 10mm FIBEROCK	-/60/60 30/30/30	48-50	49-51	49-51	42-44	43-45	43-45
TS60.4	D 49	1x13mm fire resistant pbd + 10mm FIBEROCK	1x13mm fire resistant pbd + 10mm FIBEROCK	-/60/60 30/30/30	46-56	47-57	48-57	38-48	39-50	40-51
TS60.5	D 50	1x13mm fire resistant pbd	2x13mm fire resistant pbd	-/60/60 30/30/30	42-52	43-52	44-53	35-46	36-47	36-48
TS60.6	D 50	1x13mm fire resistant pbd + 1x13mm non-fire resistant pbd	2x13mm fire resistant pbd	-/60/60 30/30/30	53-54	54	54	48	49	49-50
TS60.7	D 51	1x16mm fire resistant pbd	1x16mm fire resistant pbd	-/60/60 60/60/60	39-48	40-48	41-48	32-40	33-41	33-42
TS60.8	D 52	1x16mm fire resistant pbd + 1x13mm non-fire resistant pbd	1x16mm fire resistant pbd + 1x13mm non-fire resistant pbd	-/60/60 60/60/60	53-54	53-54	53-54	48-49	49-50	50
TS60.9	D 53	1x16mm fire resistant pbd	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 60/60/60	50	50	50	44	45	46
TS60.10	D 53	1x16mm fire resistant pbd + 1x10mm FIBEROCK	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 60/60/60	47-56	48-57	49-57	40-50	41-51	41-52
TS90.1	D 54	2x13mm fire resistant pbd	2x13mm fire resistant pbd	-/90/90 90/90/90	46-56	48-56	49-56	39-51	41-52	42-53
TS120.1	D 54	2x16mm fire resistant pbd	2x16mm fire resistant pbd	-/120/120 120/120/120	48-56	49-56	50-56	41-53	42-53	43-54
TSF.1	D 54	1x10mm FIBEROCK	1x10mm FIBEROCK	non-fire rated	37-46	38-47	38-48	28-35	29-38	29-41
TSF.2	D 55	2x10mm FIBEROCK	2x10mm FIBEROCK	non-fire rated	43-55	45-56	45-56	33-48	34-49	35-50
TSF30.1	D 55	1x13mm FIBEROCK	1x13mm FIBEROCK	-/30/30 30/30/30	38-47	39-47	40-48	32-38	32-39	32-40
TSF30.2	D 55	1x13mm FIBEROCK	2x13mm FIBEROCK	-/30/30 30/30/30	43-52	44-52	44-53	36-46	37-47	38-48
TSF60.1	D 55	1x16mm FIBEROCK	1x16mm FIBEROCK	-/60/60 60/60/60	40-48	41-48	42-48	33-40	34-42	35-42
TSF90.1	D 56	2x13mm FIBEROCK	2x13mm FIBEROCK	-/90/90	47-56	48-56	49-56	40-51	41-52	42-53
TSF120.1	D 56	2x16mm FIBEROCK	2x16mm FIBEROCK	-/120/120	49-56	50-56	50-56	43-53	44-54	44-54

Acoustic ratings are based on 600mm stud spacings.

QUICK SELECTION TABLES

TWIN STUD WALLS								
SYSTEM	PAGE NO	LINING SIDE 1	LINING SIDE 2	STUD SIZE mm	70	90	70	90
				FRL	R _w		R _w +C _{tr}	
TT.1	D 57	1x10mm non-fire resistant pbd	1x10mm non-fire resistant pbd	non-fire rated	36-54	37-55	29-44	30-46
TT.2	D 58	2x10mm non-fire resistant pbd	2x10mm non-fire resistant pbd	non-fire rated	44-62	45-63	36-52	37-54
TT.3	D 59	1x13mm non-fire resistant pbd	1x13mm non-fire resistant pbd	non-fire rated	39-58	39-59	32-48	32-50
TS.4	D 60	2x13mm non-fire resistant pbd	2x13mm non-fire resistant pbd	non-fire rated	48-65	49-67	40-57	41-59
TT60.1	D 61	1x13mm fire resistant pbd	1x13mm fire resistant pbd	-/60/60 30/30/30	41-58	42-59	34-48	35-50
TT60.2	D 61	1x13mm fire resistant pbd	1x13mm fire resistant pbd + 1x10mm non-fire resistant pbd	-/60/60 30/30/30	59-61	60-61	50-51	51-53
TT60.3	D 62	1x13mm fire resistant pbd	1x13mm fire resistant pbd + 10mm FIBEROCK	-/60/60 30/30/30	59-61	60-61	50-51	51-53
TT60.4	D 62	1x13mm fire resistant pbd + 10mm FIBEROCK	1x13mm fire resistant pbd + 10mm FIBEROCK	-/60/60 30/30/30	50-60	51-61	41-49	42-52
TS60.5	D 63	1x13mm fire resistant pbd	2x13mm fire resistant pbd	-/60/60 30/30/30	56-61	47-63	38-51	39-54
TS60.6	D 64	1x16mm fire resistant pbd	1x16mm fire resistant pbd	-/60/60 60/60/60	44-61	45-63	36-52	37-55
TS60.7	D 64	1x16mm fire resistant pbd + 1x10mm FIBEROCK	1x16mm fire resistant pbd + 1x10mm FIBEROCK	-/60/60 60/60/60	52-62	53-64	43-51	44-54
TT90.1	D 65	2x13mm fire resistant pbd	2x13mm fire resistant pbd	-/90/90 90/90/90	51-65	52-67	42-57	43-59
TT120.1	D 66	2x16mm fire resistant pbd	2x16mm fire resistant pbd	-/120/120 120/120/120	50-66	51-67	42-57	43-60
TTF.1	D 67	1x10mm FIBEROCK	1x10mm FIBEROCK	non-fire rated	39-54	40-55	33-44	33-46
TTF.2	D 67	2x10mm FIBEROCK	2x10mm FIBEROCK	non-fire rated	48-62	49-63	40-52	40-54
TTF30.1	D 68	1x13mm FIBEROCK	1x13mm FIBEROCK	-/30/30	42-58	43-59	35-48	36-50
TTF30.2	D 68	1x13mm FIBEROCK	2x13mm FIBEROCK	-/30/30	47-61	48-63	40-51	40-54
TTF60.1	D 69	1x16mm FIBEROCK	1x16mm FIBEROCK	-/60/60 60/60/60	45-61	46-63	38-52	39-55
TTF90.1	D 69	2x13mm FIBEROCK	2x13mm FIBEROCK	-/90/90	52-65	53-67	44-57	45-59
TTF120.1	D 70	2x16mm FIBEROCK	2x16mm FIBEROCK	-/120/120	52-66	53-68	44-58	45-60

Acoustic ratings are based on 600mm stud spacings.

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

LINED ONE SIDE

TO.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	10 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TO.1A	1x10mm REGULAR	NA	Nil	27	23
TO.1B	1x10mm SOUNDSTOP	NA	Nil	28	26
TO.1C	1x10mm IMPACTSTOP	NA	Nil	28	26

TO.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	20 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TO.2A	2x10mm REGULAR	NA	Nil	33	29
TO.2B	2x10mm SOUNDSTOP	NA	Nil	34	32

TO.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	13 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TO.3A	1x13mm REGULAR	NA	Nil	28	25
TO.3B	1x13mm SOUNDSTOP	NA	Nil	29	27
TO.3C	1x13mm IMPACTSTOP	NA	Nil	29	27

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

LINED ONE SIDE

R_w	40-44	45-49	50-54
R_w+C_{tr}			

TO30.1

FIRE RESISTANCE LEVEL
-/30/30
 FROM LINED SIDE ONLY

FRL Basis: FCO-1658, FCO-0568,
 EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Timber studs
Insulation: Refer to table
Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	16 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TO30.1A	1x16mm FIRESTOP	NA	Nil	30	27
TO30.1B	1x16mm MULTISTOP	NA	Nil	30	28

TO60.1

FIRE RESISTANCE LEVEL
60/60/60
 FROM LINED SIDE ONLY

FRL Basis: SI95, EWFA 27211-00









SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Timber studs
Insulation: Refer to table
Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	32 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TO60.1A	2x16mm FIRESTOP	NA	Nil	36	33
TO60.1B	2x16mm MULTISTOP	NA	Nil	36	34

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

LINED ONE SIDE

TO90.1

FIRE RESISTANCE LEVEL
90/90/90
 FROM LINED SIDE ONLY

FRL Basis: FCO-2423, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 3x13mm fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	39 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TO90.1A	3x13mm FIRESTOP	NA	Nil	38	36
TO90.1B	3x13mm MULTISTOP	NA	Nil	39	36

TO120.1

FIRE RESISTANCE LEVEL
120/120/120
 FROM LINED SIDE ONLY

FRL Basis: FSV-0538, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 3x16mm fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	48 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TO120.1A	3x16mm FIRESTOP	NA	Nil	39	37
TO120.1B	3x16mm MULTISTOP	NA	Nil	40	38

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

FIBEROCK – LINED ONE SIDE

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TOF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	10 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	$R_w + C_{tr}$
TOF.1A	1x10mm FIBEROCK	NA	Nil	28	26

TOF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	20 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	$R_w + C_{tr}$
TOF.2A	2x10mm FIBEROCK	NA	Nil	34	32

TOF.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock

Framing: Timber studs







Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	13 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	$R_w + C_{tr}$
TOF.3A	1x13mm FIBEROCK	NA	Nil	29	27

For the full range of USG Boral systems refer to usgboral.com/eselector

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – LINED ONE SIDE

TOF30.1

FIRE RESISTANCE LEVEL

NLB -/30/30

FROM LINED SIDE ONLY

FRL Basis: FAR 3590



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	16 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TOF30.1A	1x16mm FIBEROCK	NA	Nil	30	28

TOF60.1

FIRE RESISTANCE LEVEL

NLB -/60/60

FROM LINED SIDE ONLY

FRL Basis: FAR 3590



SYSTEM DESCRIPTION

Side 1: 2x16mm Fiberock

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	32 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TOF60.1A	2x16mm FIBEROCK	NA	Nil	36	34

TOF90.1

FIRE RESISTANCE LEVEL

NLB -/90/90

FROM LINED SIDE ONLY

FRL Basis: FAR 3590



SYSTEM DESCRIPTION

Side 1: 3x16mm Fiberock

Framing: Timber studs

Insulation: Refer to table

Side 2: NA.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F06

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	48 + STUD	
			STUD SIZE mm	ANY STUD	
			INSULATION	R_w	R_w+C_{tr}
TOF90.1A	3x16mm FIBEROCK	NA	Nil	40	38

For the full range of USG Boral systems refer to usgboral.com/eselector

SHEETROCK BRAND – LINED BOTH SIDES

R_w	40-44	45-49	50-54
R_w+C_{tr}			

TBS.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd
Framing: Timber studs
Insulation: Refer to table
Side 2: 1x10mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	90	110	90	110
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TBS.1A	1x10mm SHEETROCK BRAND WALL BOARD	1x10mm SHEETROCK BRAND WALL BOARD	Nil	27	28	21	21
			TSB2	35	36	25	26
			50G11, 50P14	35	36	25	26
			R1.5, 70P14	36	37	26	27
			R2.0, 90P14	-	37	-	27

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TBS.2

NON-FIRE RATED



SYSTEM DESCRIPTION







Side 1: 1x13mm non-fire resistant pbd
Framing: Timber studs
Insulation: Refer to table
Side 2: 1x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	96	116	96	116
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TBS.2A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	Nil	29	30	24	25
			TSB2	36	37	27	28
			50G11, 50P14	36	37	27	28
			R1.5, 70P14	37	38	28	29
			R2.0, 90P14	-	38	-	29

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

LINED BOTH SIDES

TB.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: 1x10mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on
studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	90	110	90	110
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TB.1A	1x10mm REGULAR	1x10mm REGULAR	Nil	30	31	23	24
			TSB2	38	38	28	29
			50G11, 50P14	38	38	28	29
			R1.5, 70P14	39	39	29	30
			R2.0, 90P14	-	39	-	30
TB.1B	1x10mm WET AREA	1x10mm WET AREA	Nil	31	32	24	24
			TSB2	38	39	27	30
			50G11, 50P14	38	39	28	30
			R1.5, 70P14	39	40	29	31
			R2.0, 90P14	-	40	-	31
TB.1C	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	Nil	32	33	26	26
			TSB2	39	40	31	32
			50G11, 50P14	39	40	31	32
			R1.5, 70P14	40	41	32	33
			R2.0, 90P14	-	41	-	33
TB.1D	1x10mm IMPACTSTOP	1x10mm IMPACTSTOP	Nil	32	33	26	26
			TSB2	39	40	31	32
			50G11, 50P14	39	40	31	32
			R1.5, 70P14	40	41	32	33
			R2.0, 90P14	-	41	-	33
TB.1E	1x10mm REGULAR	1x10mm WET AREA	Nil	30	31	23	24
			TSB2	38	38	28	30
			50G11, 50P14	38	39	28	30
			R1.5, 70P14	39	40	29	31
			R2.0, 90P14	-	40	-	31
TB.1F	1x10mm REGULAR	1x10mm SOUNDSTOP	Nil	31	32	25	25
			TSB2	38	39	28	31
			50G11, 50P14	38	39	29	32
			R1.5, 70P14	39	40	30	33
			R2.0, 90P14	-	40	-	33
TB.1G	1x10mm SOUNDSTOP	1x10mm WET AREA	Nil	32	32	25	25
			TSB2	38	39	29	32
			50G11, 50P14	38	40	29	32
			R1.5, 70P14	40	41	30	33
			R2.0, 90P14	-	41	-	33
TB.1H	1x10mm REGULAR	1x10mm IMPACTSTOP	Nil	31	32	25	25
			TSB2	38	39	28	31
			50G11, 50P14	38	39	29	32
			R1.5, 70P14	39	40	30	33
			R2.0, 90P14	-	40	-	33

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TB.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: 2x10mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	110	130	110	130
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TB.2A	2x10mm REGULAR	2x10mm REGULAR	Nil	36	36	29	29
			TSB2	44	45	35	37
			50G11, 50P14	45	46	36	38
			R1.5, 70P14	46	46	37	38
			R2.0, 90P14	-	46	-	38
TB.2B	2x10mm WET AREA	2x10mm WET AREA	Nil	37	37	30	30
			TSB2	45	45	36	37
			50G11, 50P14	46	46	37	39
			R1.5, 70P14	46	46	37	39
			R2.0, 90P14	-	46	-	39
TB.2C	2x10mm SOUNDSTOP	2x10mm SOUNDSTOP	Nil	38	39	31	32
			TSB2	46	46	39	39
			50G11, 50P14	47	47	40	41
			R1.5, 70P14	47	47	40	41
			R2.0, 90P14	-	47	-	41
TB.2D	2x10mm IMPACTSTOP	2x10mm IMPACTSTOP	Nil	38	39	31	32
			TSB2	46	46	39	39
			50G11, 50P14	47	47	40	41
			R1.5, 70P14	47	47	40	41
			R2.0, 90P14	-	47	-	41
TB.2E	2x10mm REGULAR	2x10mm WET AREA	Nil	36	37	29	29
			TSB2	45	45	36	38
			50G11, 50P14	46	46	37	39
			R1.5, 70P14	46	46	37	39
			R2.0, 90P14	-	46	-	39
TB.2F	2x10mm REGULAR	2x10mm SOUNDSTOP	Nil	38	38	31	30
			TSB2	45	46	37	38
			50G11, 50P14	46	47	38	38
			R1.5, 70P14	46	47	38	39
			R2.0, 90P14	-	47	-	40
TB.2G	2x10mm SOUNDSTOP	2x10mm WET AREA	Nil	38	38	30	31
			TSB2	45	46	38	39
			50G11, 50P14	46	47	39	40
			R1.5, 70P14	46	47	39	40
			R2.0, 90P14	-	47	-	40
TB.2H	2x10mm REGULAR	2x10mm IMPACTSTOP	Nil	38	38	31	30
			TSB2	45	46	37	38
			50G11, 50P14	46	47	38	38
			R1.5, 70P14	46	47	38	39
			R2.0, 90P14	-	47	-	40

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

LINED BOTH SIDES

TB.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: 1x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on
studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	96	116	96	116
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TB.3A	1x13mm REGULAR	1x13mm REGULAR	Nil	31	32	26	26
			TSB2	39	40	29	32
			50G11, 50P14	39	40	29	32
			R1.5, 70P14	40	41	30	33
			R2.0, 90P14	-	41	-	33
TB.3B	1x13mm WET AREA	1x13mm WET AREA	Nil	33	33	27	28
			TSB2	39	40	31	31
			50G11, 50P14	39	40	31	31
			R1.5, 70P14	40	41	32	32
			R2.0, 90P14	-	41	-	32
TB.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	Nil	34	35	29	30
			TSB2	40	40	32	34
			50G11, 50P14	40	40	32	34
			R1.5, 70P14	41	41	33	35
			R2.0, 90P14	-	42	-	35
TB.3D	1x13mm IMPACTSTOP	1x13mm IMPACTSTOP	Nil	34	35	29	30
			TSB2	40	40	32	34
			50G11, 50P14	40	40	32	34
			R1.5, 70P14	41	41	33	35
			R2.0, 90P14	-	42	-	35
TB.3E	1x13mm REGULAR	1x13mm WET AREA	Nil	32	33	27	27
			TSB2	39	40	30	32
			50G11, 50P14	39	40	30	33
			R1.5, 70P14	40	41	31	34
			R2.0, 90P14	-	41	-	34
TB.3F	1x13mm REGULAR PBD	1x13mm SOUNDSTOP	Nil	33	34	28	28
			TSB2	40	40	32	32
			50G11, 50P14	40	40	32	32
			R1.5, 70P14	41	41	33	33
			R2.0, 90P14	-	41	-	33
TB.3G	1x13mm SOUNDSTOP	1x13mm WET AREA	Nil	33	34	27	29
			TSB2	40	40	32	33
			50G11, 50P14	40	40	33	33
			R1.5, 70P14	41	41	34	34
			R2.0, 90P14	-	41	-	34
TB.3H	1x13mm REGULAR	1x13mm IMPACTSTOP	Nil	33	34	28	28
			TSB2	40	40	32	32
			50G11, 50P14	40	40	32	32
			R1.5, 70P14	41	41	33	33
			R2.0, 90P14	-	41	-	33

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TB.4

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: 2x13mm non-fire resistant pbd.







ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	109	129	109	129
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TB.4A	1x13mm REGULAR	2x13mm REGULAR	Nil	37	38	30	31
			TSB2	42	42	34	34
			50G11, 50P14	43	44	35	35
			R1.5, 70P14	43	44	35	35
			R2.0, 90P14	-	45	-	36
TB.4B	1x13mm WET AREA	2x13mm WET AREA	Nil	38	39	31	33
			TSB2	42	43	33	35
			50G11, 50P14	43	44	34	36
			R1.5, 70P14	43	44	34	36
			R2.0, 90P14	-	45	-	37
TB.4C	1x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	39	40	34	34
			TSB2	43	43	36	36
			50G11, 50P14	44	44	37	37
			R1.5, 70P14	44	44	37	37
			R2.0, 90P14	-	45	-	39
TB.4D	1x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	39	40	34	34
			TSB2	43	43	36	36
			50G11, 50P14	44	44	37	37
			R1.5, 70P14	44	44	37	37
			R2.0, 90P14	-	45	-	39
TB.4E	1x13mm REGULAR	2x13mm WET AREA	Nil	37	38	30	32
			TSB2	42	43	33	34
			50G11, 50P14	43	44	34	35
			R1.5, 70P14	43	44	34	35
			R2.0, 90P14	-	45	-	37
TB.4F	1x13mm REGULAR	2x13mm SOUNDSTOP	Nil	39	39	32	34
			TSB2	43	43	34	35
			50G11, 50P14	44	44	35	36
			R1.5, 70P14	44	44	35	36
			R2.0, 90P14	-	45	-	37
TB.4G	1x13mm SOUNDSTOP	2x13mm WET AREA	Nil	39	39	33	33
			TSB2	43	43	35	35
			50G11, 50P14	44	44	36	36
			R1.5, 70P14	44	44	36	36
			R2.0, 90P14	-	45	-	37
TB.4H	1x13mm REGULAR	2x13mm IMPACTSTOP	Nil	39	39	32	34
			TSB2	43	43	34	35
			50G11, 50P14	44	44	35	36
			R1.5, 70P14	44	44	35	36
			R2.0, 90P14	-	45	-	37

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

LINED BOTH SIDES

TB.5

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x13mm non-fire resistant pbd

Framing: Timber studs

Insulation: Refer to table

Side 2: 2x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	122	142	122	142
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TB.5A	2x13mm REGULAR	2x13mm REGULAR	Nil	37	38	31	32
			TSB2	46	47	41	42
			50G11, 50P14	47	48	42	43
			R1.5, 70P14	47	48	42	43
			R2.0, 90P14	-	48	-	43
TB.5B	2x13mm WET AREA	2x13mm WET AREA	Nil	38	39	32	33
			TSB2	47	47	42	43
			50G11, 50P14	48	48	43	44
			R1.5, 70P14	48	48	43	44
			R2.0, 90P14	-	48	-	44
TB.5C	2x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	40	40	34	35
			TSB2	47	47	43	44
			50G11, 50P14	48	48	44	45
			R1.5, 70P14	48	48	44	45
			R2.0, 90P14	-	48	-	45
TB.5D	2x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	40	40	34	35
			TSB2	47	47	43	44
			50G11, 50P14	48	48	44	45
			R1.5, 70P14	48	48	44	45
			R2.0, 90P14	-	48	-	45
TB.5E	2x13mm REGULAR	2x13mm WET AREA	Nil	38	39	32	33
			TSB2	47	47	42	42
			50G11, 50P14	48	48	43	43
			R1.5, 70P14	48	48	43	43
			R2.0, 90P14	-	48	-	43
TB.5F	2x13mm REGULAR	2x13mm SOUNDSTOP	Nil	39	40	33	34
			TSB2	47	47	42	43
			50G11, 50P14	48	48	44	44
			R1.5, 70P14	48	48	44	44
			R2.0, 90P14	-	48	-	44
TB.5G	2x13mm SOUNDSTOP	2x13mm WET AREA	Nil	39	40	34	34
			TSB2	47	47	43	43
			50G11, 50P14	48	48	44	44
			R1.5, 70P14	48	48	44	44
			R2.0, 90P14	-	48	-	44
TB.5H	2x13mm REGULAR	2x13mm IMPACTSTOP	Nil	39	40	33	34
			TSB2	47	47	42	43
			50G11, 50P14	48	48	44	44
			R1.5, 70P14	48	48	44	44
			R2.0, 90P14	-	48	-	44

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TB60.1

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-2393, WFRA 460081,
 WFRA C91550, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Timber studs
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	96	116	96	116
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TB60.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	Nil	32	33	26	28
			TSB2	40	40	32	32
			50G11, 50P14	40	40	32	33
			R1.5, 70P14	41	41	33	34
			R2.0, 90P14	-	41	-	34
TB60.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	Nil	33	34	28	29
			TSB2	40	40	32	34
			50G11, 50P14	40	40	32	34
			R1.5, 70P14	41	41	33	35
			R2.0, 90P14	-	42	-	35
TB60.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	Nil	33	34	27	29
			TSB2	40	40	33	33
			50G11, 50P14	40	40	33	33
			R1.5, 70P14	41	41	34	34
			R2.0, 90P14	-	41	-	34

* 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink* Wall Batts 65mm by Fletcher Insulation.
 R2.0 - R2.0 Pink Wall Batts* 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TB60.2

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-2393, WFRA 460081,
 WFRA C91550, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Timber studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	109	129	109	129
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TB60.2A	1x13mm FIRESTOP	2x13mm FIRESTOP	Nil	39	39	32	32
			TSB2	43	43	34	36
			50G11, 50P14	44	44	35	37
			R1.5, 70P14	44	44	35	37
			R2.0, 90P14	-	45	-	38
TB60.2B	1x13mm MULTISTOP	2x13mm MULTISTOP	Nil	39	40	34	34
			TSB2	43	43	36	36
			50G11, 50P14	44	44	37	37
			R1.5, 70P14	44	44	37	37
			R2.0, 90P14	-	45	-	39
TB60.2C	1x13mm FIRESTOP	2x13mm MULTISTOP	Nil	39	40	33	33
			TSB2	43	43	35	36
			50G11, 50P14	44	44	36	37
			R1.5, 70P14	44	44	36	37
			R2.0, 90P14	-	45	-	38

* 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink* Wall Batts 65mm by Fletcher Insulation.
 R2.0 - R2.0 Pink Wall Batts* 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
R_w+C_{tr}	40-44	45-49	50-54

LINED BOTH SIDES

TB60.3

FIRE RESISTANCE LEVEL
NLB -/60/60
LB 60/60/60
FROM BOTH SIDES

FRL Basis: WFRA C91202, FCO-0619,
FCO-0626, EWFA 27211-00
LOAD BEARING SYSTEM TYPE 1[†]



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Timber studs
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	102	122	102	122
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TB60.3A	1x16mm FIRESTOP	1x16mm FIRESTOP	Nil	34	34	28	29
			TSB2	41	41	35	36
			50G11, 50P14	41	41	35	36
			R1.5, 70P14	42	42	36	37
			R2.0, 90P14	-	42	-	38
TB60.3B	1x16mm MULTISTOP	1x16mm MULTISTOP	Nil	34	35	29	30
			TSB2	41	41	36	37
			50G11, 50P14	41	41	36	37
			R1.5, 70P14	42	42	37	38
			R2.0, 90P14	-	42	-	38
TB60.3C	1x16mm FIRESTOP	1x16mm MULTISTOP	Nil	34	35	28	30
			TSB2	41	41	36	37
			50G11, 50P14	41	41	36	37
			R1.5, 70P14	42	42	37	38
			R2.0, 90P14	-	42	-	38

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³
† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

TB90.1

FIRE RESISTANCE LEVEL
NLB -/90/90
LB 90/90/90
FROM BOTH SIDES

FRL Basis: FCO-2564, 91/103
EWFA 27211-00
LOAD BEARING SYSTEM TYPE 1[†]



SYSTEM DESCRIPTION

Side 1: 2x13mm fire resistant pbd
Framing: Timber studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	122	142	122	142
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TB90.1A	2x13mm FIRESTOP	2x13mm FIRESTOP	Nil	39	40	33	34
			TSB2	47	47	43	43
			50G11, 50P14	48	48	44	44
			R1.5, 70P14	48	48	44	44
			R2.0, 90P14	-	48	-	44
TB90.1B	2x13mm MULTISTOP	2x13mm MULTISTOP	Nil	40	40	34	35
			TSB2	47	47	43	44
			50G11, 50P14	48	48	44	45
			R1.5, 70P14	48	48	44	45
			R2.0, 90P14	-	48	-	45
TB90.1C	2x13mm FIRESTOP	2x13mm MULTISTOP	Nil	40	40	34	35
			TSB2	47	47	43	44
			50G11, 50P14	48	48	44	45
			R1.5, 70P14	48	48	44	45
			R2.0, 90P14	-	48	-	45

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³
† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

LINED BOTH SIDES

R_w	40-44	45-49	50-54
R_w+C_{tr}			

TB120.1

FIRE RESISTANCE LEVEL
 NLB -/120/120
 LB 120/120/120
 FROM BOTH SIDES

FRL Basis: FCO-2564, EWFA 27211-00
 LOAD BEARING SYSTEM TYPE 2†



SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Timber studs
Insulation: Refer to table
Side 2: 2x16mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	134	154	134	154
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TB120.1A	2x16mm FIRESTOP	2x16mm FIRESTOP	Nil	41	41	35	36
			TSB2	47	47	44	44
			50G11, 50P14	48	48	45	45
			R1.5, 70P14	48	48	45	45
			R2.0, 90P14	-	48	-	45
TB120.1B	2x16mm MULTISTOP	2x16mm MULTISTOP	Nil	41	41	36	37
			TSB2	47	47	44	44
			50G11, 50P14	48	48	45	45
			R1.5, 70P14	48	48	45	45
			R2.0, 90P14	-	48	-	45
TB120.1C	2x16mm FIRESTOP	2x16mm MULTISTOP	Nil	41	41	36	36
			TSB2	47	47	44	44
			50G11, 50P14	48	48	45	45
			R1.5, 70P14	48	48	45	45
			R2.0, 90P14	-	48	-	45

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

R_w	40-44	45-49	50-54
R_w+C_{tr}	40-44	45-49	50-54

FIBEROCK - LINED BOTH SIDES

TBF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	90	110	90	110
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TBF.1A	1x10mm FIBEROCK	1x10mm FIBEROCK	Nil	32	33	26	26
			TSB2	39	40	31	32
			50G11, 50P14	39	40	31	32
			R1.5, 70P14	40	41	32	33
			R2.0, 90P14	-	41	-	33

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TBF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock
Framing: Steel studs
Insulation: Refer to table
Side 2: 2x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	110	130	110	130
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TBF.2A	2x10mm FIBEROCK	2x10mm FIBEROCK	Nil	38	39	31	32
			TSB2	46	46	39	39
			50G11, 50P14	47	47	40	41
			R1.5, 70P14	47	47	40	41
			R2.0, 90P14	-	47	-	41

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TBF30.1

FIRE RESISTANCE LEVEL
 NLB -/30/30
 LB 30/30/30
 FROM BOTH SIDES

FRL Basis: FR3242, FAR2236



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Timber studs
Insulation: Refer to table
Side 2: 1x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	96	116	96	116
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TBF30.1A	1x13mm FIBEROCK	1x13mm FIBEROCK	Nil	33	34	28	29
			TSB2	40	40	32	34
			50G11, 50P14	40	40	32	34
			R1.5, 70P14	41	41	33	35
			R2.0, 90P14	-	42	-	35

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – LINED BOTH SIDES

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TBF30.2

FIRE RESISTANCE LEVEL

NLB **-/30/30**

LB **30/30/30**

FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock

Framing: Timber studs

Insulation: Refer to table

Side 2: 2x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	109	129	109	129
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TBF30.2A	1x13mm FIBEROCK	2x13mm FIBEROCK	Nil	39	40	34	34
			TSB2	43	43	36	36
			50G11, 50P14	44	44	37	37
			R1.5, 70P14	44	44	37	37
			R2.0, 90P14	-	45	-	39

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TBF60.1

FIRE RESISTANCE LEVEL

NLB **-/60/60**

LB **60/60/60**

FROM BOTH SIDES

FRL Basis: FAR2339

LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock

Framing: Timber studs

Insulation: Refer to table

Side 2: 1x16mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	102	122	102	122
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TBF60.1A	1x16mm FIBEROCK	1x16mm FIBEROCK	Nil	34	35	29	30
			TSB2	41	42	36	38
			50G11, 50P14	41	42	36	38
			R1.5, 70P14	42	43	37	39
			R2.0, 90P14	-	43	-	39

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – LINED BOTH SIDES

TBF90.1

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FAR4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock

Framing: Timber studs

Insulation: Refer to table

Side 2: 2x13mm Fiberock

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	122	142	122	142
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TBF90.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	40	40	34	35
			TSB2	47	47	43	44
			50G11, 50P14	48	48	44	45
			R1.5, 70P14	48	48	44	45
			R2.0, 90P14	-	48	-	45

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TBF120.1

FIRE RESISTANCE LEVEL
NLB **-/120/120**
FROM BOTH SIDES

FRL Basis: FAR2364



SYSTEM DESCRIPTION

Side 1: 2x16mm Fiberock

Framing: Timber studs

Insulation: Refer to table

Side 2: 2x16mm Fiberock

ACOUSTIC RATINGS RT&A TE405-05F07

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	134	154	134	154
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TBF120.1A	2x16mm FIBEROCK	2x16mm FIBEROCK	Nil	41	42	36	37
			TSB2	47	47	44	44
			50G11, 50P14	48	48	45	45
			R1.5, 70P14	48	48	45	45
			R2.0, 90P14	-	48	-	45

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector

FURRED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x10mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F08







Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	120	140	120	140
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TF.1A	1x10mm REGULAR	1x10mm REGULAR	Nil	35	36	29	30
			TSB2	41	42	33	33
			50G11, 50P14	41	42	33	33
			R1.5, 70P14	41	42	33	33
			R2.0, 90P14	42	42	33	33
TF.1B	1x10mm WET AREA	1x10mm WET AREA	Nil	37	37	30	31
			TSB2	43	43	34	34
			50G11, 50P14	43	43	34	34
			R1.5, 70P14	43	44	35	35
			R2.0, 90P14	43	44	35	35
TF.1C	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	Nil	38	39	32	32
			TSB2	45	46	36	38
			50G11, 50P14	46	47	36	38
			R1.5, 70P14	46	47	36	38
			R2.0, 90P14	46	47	36	38
TF.1D	1x10mm IMPACTSTOP	1x10mm IMPACTSTOP	Nil	38	39	32	32
			TSB2	45	46	36	38
			50G11, 50P14	46	47	36	38
			R1.5, 70P14	46	47	36	38
			R2.0, 90P14	46	47	36	38
TF.1E	1x10mm REGULAR	1x10mm WET AREA	Nil	36	37	30	30
			TSB2	42	43	34	34
			50G11, 50P14	42	43	34	34
			R1.5, 70P14	42	43	34	34
			R2.0, 90P14	42	43	34	34
TF.1F	1x10mm REGULAR	1x10mm SOUNDSTOP	Nil	38	38	31	31
			TSB2	43	44	33	35
			50G11, 50P14	43	45	33	35
			R1.5, 70P14	43	45	33	35
			R2.0, 90P14	43	45	33	35
TF.1G	1x10mm SOUNDSTOP	1x10mm WET AREA	Nil	38	38	32	31
			TSB2	43	45	33	35
			50G11, 50P14	44	45	34	36
			R1.5, 70P14	44	45	34	36
			R2.0, 90P14	44	46	34	36
TF.1H	1x10mm REGULAR	1x10mm IMPACTSTOP	Nil	38	38	31	31
			TSB2	43	44	33	35
			50G11, 50P14	43	45	33	35
			R1.5, 70P14	43	45	33	35
			R2.0, 90P14	43	45	33	35

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

FURRED STUD

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

TF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd

Framing: Timber studs

Furring: Rondo 129 furring channel

Insulation: Refer to table

Side 2: 2x10mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	140	160	140	160
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TF.2A	2x10mm REGULAR	2x10mm REGULAR	Nil	43	44	36	36
			TSB2	51	52	42	44
			50G11, 50P14	51	53	42	44
			R1.5, 70P14	52	53	43	44
			R2.0, 90P14	52	53	43	44
TF.2B	2x10mm WET AREA	2x10mm WET AREA	Nil	44	45	37	37
			TSB2	52	54	44	45
			50G11, 50P14	53	54	44	45
			R1.5, 70P14	53	54	44	45
			R2.0, 90P14	53	54	44	45
TF.2C	2x10mm SOUNDSTOP	2x10mm SOUNDSTOP	Nil	47	48	39	40
			TSB2	55	56	47	49
			50G11, 50P14	55	56	47	49
			R1.5, 70P14	56	56	48	49
			R2.0, 90P14	56	56	48	49
TF.2D	2x10mm IMPACTSTOP	2x10mm IMPACTSTOP	Nil	47	48	39	40
			TSB2	55	56	47	49
			50G11, 50P14	55	56	48	49
			R1.5, 70P14	56	56	48	49
			R2.0, 90P14	56	56	48	49
TF.2E	2x10mm REGULAR	2x10mm WET AREA	Nil	44	44	36	37
			TSB2	52	53	43	44
			50G11, 50P14	52	53	43	45
			R1.5, 70P14	52	53	43	45
			R2.0, 90P14	52	54	43	45
TF.2F	2x10mm REGULAR	2x10mm SOUNDSTOP	Nil	45	46	38	38
			TSB2	53	54	45	46
			50G11, 50P14	54	55	45	46
			R1.5, 70P14	54	55	45	46
			R2.0, 90P14	54	55	45	47
TF.2G	2x10mm SOUNDSTOP	2x10mm WET AREA	Nil	46	46	38	38
			TSB2	54	55	45	47
			50G11, 50P14	54	55	46	47
			R1.5, 70P14	54	55	46	47
			R2.0, 90P14	55	56	46	47
TF.2H	2x10mm REGULAR	2x10mm IMPACTSTOP	Nil	45	46	38	38
			TSB2	53	54	45	46
			50G11, 50P14	54	55	45	46
			R1.5, 70P14	54	55	45	46
			R2.0, 90P14	54	55	45	47

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

FURRED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TF.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F08







Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	126	146	126	146
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TF.3A	1x13mm REGULAR	1x13mm REGULAR	Nil	37	38	31	32
			TSB2	44	45	35	37
			50G11, 50P14	44	46	35	37
			R1.5, 70P14	44	46	35	38
			R2.0, 90P14	45	46	36	38
TF.3B	1x13mm WET AREA	1x13mm WET AREA	Nil	38	39	32	32
			TSB2	45	46	37	39
			50G11, 50P14	46	47	37	39
			R1.5, 70P14	46	47	37	39
			R2.0, 90P14	46	47	37	39
TF.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	Nil	40	41	34	34
			TSB2	48	49	41	42
			50G11, 50P14	48	49	41	42
			R1.5, 70P14	49	50	41	42
			R2.0, 90P14	49	50	41	42
TF.3D	1x13mm IMPACTSTOP	1x13mm IMPACTSTOP	Nil	40	41	34	34
			TSB2	48	49	41	42
			50G11, 50P14	48	49	41	42
			R1.5, 70P14	49	50	41	42
			R2.0, 90P14	49	50	41	42
TF.3E	1x13mm REGULAR	1x13mm WET AREA	Nil	38	39	32	32
			TSB2	45	46	36	38
			50G11, 50P14	45	46	36	38
			R1.5, 70P14	45	47	36	38
			R2.0, 90P14	45	47	36	38
TF.3F	1x13mm REGULAR	1x13mm SOUNDSTOP	Nil	39	40	33	33
			TSB2	46	48	38	40
			50G11, 50P14	47	48	39	41
			R1.5, 70P14	47	48	39	41
			R2.0, 90P14	47	48	39	41
TF.3G	1x13mm SOUNDSTOP	1x13mm WET AREA	Nil	39	40	33	33
			TSB2	47	48	39	40
			50G11, 50P14	48	48	40	41
			R1.5, 70P14	48	49	40	41
			R2.0, 90P14	48	49	40	41
TF.3H	1x13mm REGULAR	1x13mm IMPACTSTOP	Nil	39	40	33	33
			TSB2	46	48	38	40
			50G11, 50P14	47	48	39	41
			R1.5, 70P14	47	48	39	41
			R2.0, 90P14	47	48	39	41

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

FURRED STUD

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

TF.4

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x13mm non-fire resistant pbd

Framing: Timber studs

Furring: Rondo 129 furring channel

Insulation: Refer to table

Side 2: 2x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on
studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	152	172	152	172
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TF.4A	2x13mm REGULAR	2x13mm REGULAR	Nil	46	47	38	39
			TSB2	54	55	45	46
			50G11, 50P14	55	55	45	47
			R1.5, 70P14	55	56	46	47
			R2.0, 90P14	55	56	46	47
TF.4B	2x13mm WET AREA	2x13mm WET AREA	Nil	47	48	39	40
			TSB2	55	56	47	48
			50G11, 50P14	56	56	47	48
			R1.5, 70P14	56	57	47	48
			R2.0, 90P14	56	57	47	48
TF.4C	2x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	50	51	42	43
			TSB2	57	58	50	51
			50G11, 50P14	58	58	51	52
			R1.5, 70P14	58	58	51	52
			R2.0, 90P14	58	59	51	52
TF.4D	2x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	50	51	42	43
			TSB2	57	58	50	51
			50G11, 50P14	58	58	51	52
			R1.5, 70P14	58	58	51	52
			R2.0, 90P14	58	59	51	52
TF.4E	2x13mm REGULAR	2x13mm WET AREA	Nil	46	47	39	39
			TSB2	55	56	46	47
			50G11, 50P14	55	56	46	47
			R1.5, 70P14	55	56	46	48
			R2.0, 90P14	55	56	46	48
TF.4F	2x13mm REGULAR	2x13mm SOUNDSTOP	Nil	48	49	40	41
			TSB2	56	57	48	49
			50G11, 50P14	56	57	48	49
			R1.5, 70P14	57	57	48	49
			R2.0, 90P14	57	57	48	50
TF.4G	2x13mm SOUNDSTOP	2x13mm WET AREA	Nil	49	50	41	41
			TSB2	56	57	48	50
			50G11, 50P14	57	57	49	50
			R1.5, 70P14	57	58	49	50
			R2.0, 90P14	57	58	49	50
TF.4H	2x13mm REGULAR	2x13mm IMPACTSTOP	Nil	48	49	40	41
			TSB2	56	57	48	49
			50G11, 50P14	56	57	48	49
			R1.5, 70P14	57	57	48	49
			R2.0, 90P14	57	57	48	50

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

FURRED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TF60.1

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-239, WFRA 460081,
 WFRA C91550, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	126	146	126	146
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TF60.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	Nil	39	40	33	33
			TSB2	47	47	39	40
			50G11, 50P14	47	48	39	40
			R1.5, 70P14	47	48	39	40
			R2.0, 90P14	47	48	39	40
TF60.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	Nil	40	41	34	34
			TSB2	48	49	41	42
			50G11, 50P14	48	49	41	42
			R1.5, 70P14	49	50	41	42
			R2.0, 90P14	49	50	41	42
TF60.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	Nil	40	41	33	34
			TSB2	48	48	40	41
			50G11, 50P14	48	49	41	41
			R1.5, 70P14	48	49	41	41
			R2.0, 90P14	48	49	41	41

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
 R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TF60.2

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-2393, WFRA 460081,
 WFRA C91550



SYSTEM DESCRIPTION

Side 1: 1x13mm Firestop pbd
Framing: Timber stud
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop
 pbd + 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	138	158	138	158
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TF60.2A	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP +1x10mm FIBEROCK	50G11, 50P14	51	52	42	44

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50P14 - 50mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

FURRED STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

TF60.3

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **30/30/30**
FROM BOTH SIDES

FRL Basis: FCO-2393, WFRA 460081, WFRA C91550



SYSTEM DESCRIPTION

Side 1: 1x13mm Wet Area Firestop pbd + 1x13mm Fiberock
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	152	172	152	172
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TF60.3A	1x13mm WET AREA FIRESTOP +1x13mm FIBEROCK	1x13mm WET AREA FIRESTOP +1x13mm FIBEROCK	Nil	49	50	41	42
			TSB2	55	55	49	50
			50G11, 50P14	55	55	49	50
			R1.5, 70P14	55	55	49	50
			R2.0, 90P14	55	55	49	50

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TF60.4

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **30/30/30**
FROM BOTH SIDES

FRL Basis: FCO-2393, WFRA 460081, WFRA C91550, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	139	159	139	159
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TF60.4A	1x13mm FIRESTOP	2x13mm FIRESTOP	Nil	44	45	37	37
			TSB2	51	52	43	44
			50G11, 50P14	52	52	43	44
			R1.5, 70P14	52	53	43	44
			R2.0, 90P14	52	53	43	44
TF60.4B	1x13mm MULTISTOP	2x13mm MULTISTOP	Nil	45	46	38	39
			TSB2	52	53	44	46
			50G11, 50P14	53	54	45	46
			R1.5, 70P14	53	54	45	46
			R2.0, 90P14	53	54	45	46
TF60.4C	1x13mm FIRESTOP	2x13mm MULTISTOP	Nil	45	46	38	38
			TSB2	52	53	44	45
			50G11, 50P14	52	53	44	45
			R1.5, 70P14	53	53	44	45
			R2.0, 90P14	53	54	44	45

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

FURRED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TF60.5

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **60/60/60**
 FROM BOTH SIDES

FRL Basis: WFRA C91202, FCO-0619,
 FCO-0626, EWFA 27211-00
LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	132	152	132	152
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TF60.5A	1x16mm FIRESTOP	1x16mm FIRESTOP	Nil	42	42	35	36
			TSB2	49	50	40	41
			50G11, 50P14	49	50	41	42
			R1.5, 70P14	50	51	41	43
			R2.0, 90P14	50	51	41	43
TF60.5B	1x16mm MULTISTOP	1x16mm MULTISTOP	Nil	42	43	36	36
			TSB2	50	51	42	43
			50G11, 50P14	50	51	42	43
			R1.5, 70P14	51	51	42	43
			R2.0, 90P14	51	52	43	44
TF60.5C	1x16mm FIRESTOP	1x16mm MULTISTOP	Nil	42	43	36	36
			TSB2	49	50	41	42
			50G11, 50P14	50	51	41	43
			R1.5, 70P14	50	51	42	43
			R2.0, 90P14	50	51	42	43

* 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink* Wall Batts 65mm by Fletcher Insulation.
 R2.0 - R2.0 Pink Wall Batts* 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

TF60.6

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **60/60/60**
 FROM BOTH SIDES

FRL Basis: WFRA C91202, FCO-0619,
 FCO-0626
LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Side 1: 1x16mm Firestop pbd
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x16mm Wet Area Firestop
 pbd + 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	142	162	142	162
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TF60.6A	1x16mm FIRESTOP	1x16mm WET AREA FIRESTOP +1x10mm FIBEROCK	50G11, 50P14	53	54	45	46

* 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. 50P14 - 50mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

FURRED STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

TF60.7

FIRE RESISTANCE LEVEL
NLB -/60/60
LB 60/60/60
FROM BOTH SIDES

FRL Basis: WFRA C91202, FCO-0619, FCO-0626



SYSTEM DESCRIPTION

Side 1: 1x16mm Wet Area Firestop pbd + 1x13mm Fiberock
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x16mm Wet Area Firestop pbd + 1x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	158	178	158	178
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TF960.7A	1x16mm WET AREA FIRESTOP + 1x13mm FIBEROCK	1x16mm WET AREA FIRESTOP + 1x13mm FIBEROCK	Nil	50	51	43	43
			TSB2	58	58	51	52
			50G11, 50P14	58	58	51	52
			R1.5, 70P14	58	58	51	52
			R2.0, 90P14	58	58	51	52

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TF90.1

FIRE RESISTANCE LEVEL
NLB -/90/90
LB 90/90/90
FROM BOTH SIDES

FRL Basis: FCO-2564, 91/103, EWFA 27211-00

LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Side 1: 2x13mm fire resistant pbd
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	152	172	152	172
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TF90.1A	2x13mm FIRESTOP	2x13mm FIRESTOP	Nil	49	49	41	41
			TSB2	56	57	48	49
			50G11, 50P14	57	57	49	50
			R1.5, 70P14	57	57	49	50
			R2.0, 90P14	57	58	49	50
TF90.1B	2x13mm MULTISTOP	2x13mm MULTISTOP	Nil	50	51	42	43
			TSB2	57	58	50	51
			50G11, 50P14	58	58	51	52
			R1.5, 70P14	58	58	51	52
			R2.0, 90P14	58	59	51	52
TF90.1C	2x13mm FIRESTOP	2x13mm MULTISTOP	Nil	49	50	41	42
			TSB2	57	57	49	50
			50G11, 50P14	57	58	50	51
			R1.5, 70P14	57	58	50	51
			R2.0, 90P14	57	58	50	51

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

FURRED STUD

R_w 40-44 45-49 50-54
R_w+C_{tr} 40-44 45-49 50-54

TF120.1

FIRE RESISTANCE LEVEL
 NLB -/120/120
 LB 120/120/120
 FROM BOTH SIDES

FRL Basis: FCO-2564, EWFA 27211-00
 LOAD BEARING SYSTEM TYPE 2†



SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 2x16mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	164	184	164	184
			STUD SIZE mm	70	90	70	90
			INSULATION*	R _w		R _w +C _{tr}	
TF120.1A	2x16mm FIRESTOP	2x16mm FIRESTOP	Nil	51	52	43	44
			TSB2	57	58	49	50
			50G11, 50P14	58	59	50	51
			R1.5, 70P14	59	59	50	51
			R2.0, 90P14	59	59	50	51
TF120.1B	2x16mm MULTISTOP	2x16mm MULTISTOP	Nil	52	53	44	45
			TSB2	58	58	50	51
			50G11, 50P14	59	60	51	53
			R1.5, 70P14	59	60	52	53
			R2.0, 90P14	59	60	52	53
TF120.1C	2x16mm FIRESTOP	2x16mm MULTISTOP	Nil	52	53	44	45
			TSB2	58	58	49	50
			50G11, 50P14	59	59	51	52
			R1.5, 70P14	59	59	51	52
			R2.0, 90P14	59	59	51	52

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
 R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – FURRED STUD

TFF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	120	140	120	140
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TFF.1A	1x10mm FIBEROCK	1x10mm FIBEROCK	Nil	38	39	32	32
			TSB2	45	46	36	38
			50G11, 50P14	46	47	36	38
			R1.5, 70P14	46	47	36	38
			R2.0, 90P14	46	47	36	38

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TFF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 2x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	140	160	140	160
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TFF.2A	2x10mm FIBEROCK	2x10mm FIBEROCK	Nil	47	48	39	40
			TSB2	55	56	47	49
			50G11, 50P14	55	56	48	49
			R1.5, 70P14	56	56	48	49
			R2.0, 90P14	56	56	48	49

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

FIBEROCK – FURRED STUD

R_w 40-44 45-49 50-54
 $R_w + C_{tr}$

TFF30.1

FIRE RESISTANCE LEVEL
 NLB **-/30/30**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FR3242, FAR2236



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	126	146	126	144
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TFF30.1A	1x13mm FIBEROCK	1x13mm FIBEROCK	Nil	40	41	34	34
			TSB2	48	49	41	42
			50G11, 50P14	48	49	41	42
			R1.5, 70P14	49	49	41	42
			R2.0, 90P14	49	50	41	42

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TFF30.2

FIRE RESISTANCE LEVEL
 NLB **-/30/30**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 2x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	139	159	139	159
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TFF30.2A	1x13mm FIBEROCK	2x13mm FIBEROCK	Nil	45	46	38	39
			TSB2	52	53	44	46
			50G11, 50P14	53	54	45	46
			R1.5, 70P14	53	54	45	46
			R2.0, 90P14	53	54	45	46

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

R_w	40-44	45-49	50-54
R_w+C_{tr}			

FIBEROCK – FURRED STUD

TFF60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **60/60/60**
FROM BOTH SIDES

FRL Basis: FAR2339
LOAD BEARING SYSTEM TYPE 1[†]



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 1x16mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	132	152	132	152
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TFF60.1A	1x16mm FIBEROCK	1x16mm FIBEROCK	Nil	42	43	36	37
			TSB2	50	51	43	44
			50G11, 50P14	51	52	43	45
			R1.5, 70P14	51	52	43	45
			R2.0, 90P14	51	52	43	45

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³
† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

TFF90.1

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FAR4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 2x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	152	172	152	172
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TFF90.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	50	51	42	43
			TSB2	57	58	50	51
			50G11, 50P14	58	58	51	52
			R1.5, 70P14	58	58	51	52
			R2.0, 90P14	58	59	51	53

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – FURRED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TFF120.1

FIRE RESISTANCE LEVEL
NLB **-/120/120**
FROM BOTH SIDES

FRL Basis: FAR2364



SYSTEM DESCRIPTION

Side 1: 2x16mm Fiberock
Framing: Timber studs
Furring: Rondo 129 furring channel
Insulation: Refer to table
Side 2: 2x16mm Fiberock.







ACOUSTIC RATINGS RT&A TE405-05F08

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	164	184	164	184
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TFF120.1A	2x16mm FIBEROCK	2x16mm FIBEROCK	Nil	52	53	45	46
			TSB2	58	59	51	52
			50G11, 50P14	59	60	52	53
			R1.5, 70P14	60	60	52	53
			R2.0, 90P14	60	60	52	53

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

STAGGERED STUD

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

TS.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd

Framing: Staggered timber studs

Insulation: Refer to table

Side 2: 1x10mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on
studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	110	140	160	110	140	160
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			R_w+C_{tr}		
TS.1A	1x10mm REGULAR	1x10mm REGULAR	Nil	34	35	36	25	26	26
			TSB2	40	43	43	30	33	33
			50G11, 50P14	42	44	44	31	34	34
			R1.5, 70P14	43	45	45	32	35	35
			R2.0, 90P14	43	45	45	32	35	35
TS.1B	1x10mm WET AREA	1x10mm WET AREA	Nil	35	36	37	26	27	27
			TSB2	42	43	43	31	32	34
			50G11, 50P14	43	44	45	32	33	35
			R1.5, 70P14	44	45	46	33	34	36
			R2.0, 90P14	44	45	46	34	34	36
TS.1C	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	Nil	37	38	38	28	29	29
			TSB2	43	45	45	33	36	37
			50G11, 50P14	45	46	46	34	37	39
			R1.5, 70P14	46	47	47	35	38	40
			R2.0, 90P14	46	47	48	35	38	41
TS.1D	1x10mm IMPACTSTOP	1x10mm IMPACTSTOP	Nil	37	38	38	28	29	29
			TSB2	43	45	45	33	36	37
			50G11, 50P14	45	46	46	34	37	39
			R1.5, 70P14	46	47	47	35	38	40
			R2.0, 90P14	46	47	48	35	38	41
TS.1E	1x10mm REGULAR	1x10mm WET AREA	Nil	35	35	36	25	26	27
			TSB2	41	42	43	30	31	33
			50G11, 50P14	42	44	44	32	32	34
			R1.5, 70P14	43	45	45	33	33	35
			R2.0, 90P14	44	45	46	33	33	35
TS.1F	1x10mm REGULAR	1x10mm SOUNDSTOP	Nil	36	37	38	27	28	28
			TSB2	43	44	44	33	33	35
			50G11, 50P14	44	45	45	34	34	36
			R1.5, 70P14	45	46	46	35	35	37
			R2.0, 90P14	45	46	46	35	36	37
TS.1G	1x10mm SOUNDSTOP	1x10mm WET AREA	Nil	36	37	38	26	28	28
			TSB2	43	44	44	33	34	36
			50G11, 50P14	44	45	46	34	35	37
			R1.5, 70P14	45	46	47	35	36	38
			R2.0, 90P14	45	46	47	35	36	38
TS.1H	1x10mm REGULAR	1x10mm IMPACTSTOP	Nil	36	37	38	27	28	28
			TSB2	43	44	44	33	33	35
			50G11, 50P14	44	45	45	34	34	36
			R1.5, 70P14	45	46	46	35	35	37
			R2.0, 90P14	45	46	46	35	36	37

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TS.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd

Framing: Staggered timber studs

Insulation: Refer to table

Side 2: 2x10mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	130	160	180	130	160	180
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS.2A	2x10mm REGULAR	2x10mm REGULAR	Nil	40	41	42	30	31	31
			TSB2	50	51	52	41	42	43
			50G11, 50P14	52	52	53	42	43	44
			R1.5, 70P14	53	53	54	43	44	45
			R2.0, 90P14	54	54	55	44	45	46
TS.2B	2x10mm WET AREA	2x10mm WET AREA	Nil	41	42	43	31	32	32
			TSB2	51	52	52	41	43	44
			50G11, 50P14	52	53	53	43	44	45
			R1.5, 70P14	53	54	54	44	46	46
			R2.0, 90P14	54	55	55	45	47	48
TS.2C	2x10mm SOUNDSTOP	2x10mm SOUNDSTOP	Nil	43	45	45	33	34	35
			TSB2	52	53	53	44	46	46
			50G11, 50P14	53	54	54	46	47	48
			R1.5, 70P14	54	55	55	47	48	49
			R2.0, 90P14	55	56	56	48	49	50
TS.2D	2x10mm IMPACTSTOP	2x10mm IMPACTSTOP	Nil	43	45	45	33	34	35
			TSB2	52	53	53	44	46	46
			50G11, 50P14	53	54	54	46	47	48
			R1.5, 70P14	54	55	55	47	48	49
			R2.0, 90P14	55	56	56	48	49	50
TS.2E	2x10mm REGULAR	2x10mm WET AREA	Nil	41	42	42	31	31	32
			TSB2	51	51	52	42	43	44
			50G11, 50P14	52	53	53	43	44	45
			R1.5, 70P14	53	54	54	44	45	46
			R2.0, 90P14	54	55	55	45	46	47
TS.2F	2x10mm REGULAR	2x10mm SOUNDSTOP	Nil	42	43	44	32	33	33
			TSB2	51	52	52	42	44	45
			50G11, 50P14	53	53	53	44	45	46
			R1.5, 70P14	54	54	55	45	46	47
			R2.0, 90P14	55	55	56	46	47	48
TS.2G	2x10mm SOUNDSTOP	2x10mm WET AREA	Nil	43	44	44	32	33	34
			TSB2	52	52	53	43	45	46
			50G11, 50P14	53	53	54	44	46	47
			R1.5, 70P14	54	54	55	45	47	48
			R2.0, 90P14	55	55	56	46	48	49
TS.2H	2x10mm REGULAR	2x10mm IMPACTSTOP	Nil	42	43	44	32	33	33
			TSB2	51	52	52	42	44	45
			50G11, 50P14	53	53	53	44	45	46
			R1.5, 70P14	54	54	55	45	46	47
			R2.0, 90P14	55	55	56	46	47	48







* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			
	40-44	45-49	50-54

TS.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd

Framing: Staggered timber studs

Insulation: Refer to table

Side 2: 1x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on
studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	116	146	166	116	146	166
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			R_w+C_{tr}		
TS.3A	1x13mm REGULAR	1x13mm REGULAR	Nil	35	36	37	28	29	29
			TSB2	42	43	44	32	33	34
			50G11, 50P14	44	44	45	34	34	35
			R1.5, 70P14	45	45	46	35	35	37
			R2.0, 90P14	45	45	46	36	36	38
TS.3B	1x13mm WET AREA	1x13mm WET AREA	Nil	36	37	38	29	30	30
			TSB2	43	44	44	32	34	35
			50G11, 50P14	44	45	45	33	36	36
			R1.5, 70P14	45	46	47	34	37	37
			R2.0, 90P14	45	46	47	34	37	37
TS.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	Nil	38	39	40	32	32	32
			TSB2	44	45	45	35	37	38
			50G11, 50P14	46	46	46	37	38	39
			R1.5, 70P14	47	47	48	38	39	40
			R2.0, 90P14	47	47	48	38	39	40
TS.3D	1x13mm IMPACTSTOP	1x13mm IMPACTSTOP	Nil	38	39	40	32	32	32
			TSB2	44	45	45	35	37	38
			50G11, 50P14	46	46	46	37	38	39
			R1.5, 70P14	47	47	48	38	39	40
			R2.0, 90P14	47	47	48	38	39	40
TS.3E	1x13mm REGULAR	1x13mm WET AREA	Nil	35	36	37	28	29	29
			TSB2	43	43	44	33	34	35
			50G11, 50P14	44	45	45	34	35	36
			R1.5, 70P14	45	46	46	35	36	37
			R2.0, 90P14	45	46	46	35	36	37
TS.3F	1x13mm REGULAR	1x13mm SOUNDSTOP	Nil	37	38	38	30	30	31
			TSB2	43	44	45	32	36	36
			50G11, 50P14	44	45	46	34	37	37
			R1.5, 70P14	45	47	47	35	38	38
			R2.0, 90P14	45	47	47	35	38	38
TS.3G	1x13mm SOUNDSTOP	1x13mm WET AREA	Nil	37	38	39	31	31	31
			TSB2	44	45	45	33	36	37
			50G11, 50P14	45	46	46	35	37	38
			R1.5, 70P14	46	47	47	36	38	39
			R2.0, 90P14	46	47	47	36	39	39
TS.3H	1x13mm REGULAR	1x13mm IMPACTSTOP	Nil	37	38	38	30	30	31
			TSB2	43	44	45	32	36	36
			50G11, 50P14	44	45	46	34	37	37
			R1.5, 70P14	45	47	47	35	38	38
			R2.0, 90P14	45	47	47	35	38	38

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TS.4

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd

Framing: Staggered timber studs

Insulation: Refer to table

Side 2: 2x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	129	159	179	129	159	179
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS.4A	1x13mm REGULAR	2x13mm REGULAR	Nil	40	41	41	34	34	34
			TSB2	47	48	48	38	40	41
			50G11, 50P14	48	49	49	39	41	42
			R1.5, 70P14	49	50	50	41	43	43
			R2.0, 90P14	50	51	51	42	44	45
TS.4B	1x13mm WET AREA	2x13mm WET AREA	Nil	41	42	42	35	35	35
			TSB2	48	48	49	40	41	42
			50G11, 50P14	49	50	50	41	43	44
			R1.5, 70P14	50	51	51	42	44	45
			R2.0, 90P14	51	52	52	43	45	46
TS.4C	1x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	43	44	44	36	37	38
			TSB2	49	49	49	43	44	45
			50G11, 50P14	50	50	51	44	45	46
			R1.5, 70P14	51	51	52	45	46	47
			R2.0, 90P14	52	52	53	46	47	48
TS.4D	1x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	43	44	44	36	37	38
			TSB2	49	49	49	43	44	45
			50G11, 50P14	50	50	51	44	45	46
			R1.5, 70P14	51	51	52	45	46	47
			R2.0, 90P14	52	52	53	46	47	48
TS.4E	1x13mm REGULAR	2x13mm WET AREA	Nil	40	41	42	35	34	35
			TSB2	47	48	48	39	41	42
			50G11, 50P14	48	49	50	40	42	43
			R1.5, 70P14	50	50	51	41	43	44
			R2.0, 90P14	51	51	52	42	44	45
TS.4F	1x13mm REGULAR	2x13mm SOUNDSTOP	Nil	42	43	43	36	36	36
			TSB2	48	49	49	41	43	43
			50G11, 50P14	49	50	50	42	44	45
			R1.5, 70P14	51	51	52	43	45	46
			R2.0, 90P14	52	52	53	44	46	47
TS.4G	1x13mm SOUNDSTOP	2x13mm WET AREA	Nil	42	43	44	36	36	37
			TSB2	49	49	49	42	43	44
			50G11, 50P14	50	50	51	43	44	45
			R1.5, 70P14	51	51	52	44	45	46
			R2.0, 90P14	52	52	53	45	46	47
TS.4H	1x13mm REGULAR PBD	2x13mm IMPACTSTOP	Nil	42	43	43	36	36	36
			TSB2	48	49	50	41	43	45
			50G11, 50P14	49	50	50	42	44	45
			R1.5, 70P14	51	51	52	43	45	46
			R2.0, 90P14	52	52	53	44	46	47







* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w			
	40-44	45-49	50-54
R_w+C_{tr}			

TS.5

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x13mm non-fire resistant pbd

Framing: Staggered timber studs

Insulation: Refer to table

Side 2: 2x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	142	172	192	142	172	192
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			R_w+C_{tr}		
TS.5A	2x13mm REGULAR	2x13mm REGULAR	Nil	44	45	45	37	37	38
			TSB2	52	52	53	45	46	47
			50G11, 50P14	53	53	54	46	47	48
			R1.5, 70P14	54	54	55	47	48	49
			R2.0, 90P14	55	56	56	48	50	50
TS.5B	2x13mm WET AREA	2x13mm WET AREA	Nil	45	46	47	38	38	39
			TSB2	52	53	53	46	47	48
			50G11, 50P14	53	54	54	47	48	49
			R1.5, 70P14	54	55	55	48	49	50
			R2.0, 90P14	55	56	56	49	51	51
TS.5C	2x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil	47	48	49	40	41	42
			TSB2	53	53	53	48	49	50
			50G11, 50P14	54	54	54	49	50	51
			R1.5, 70P14	55	55	55	50	51	52
			R2.0, 90P14	56	56	56	51	52	53
TS.5D	2x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil	47	48	49	40	41	42
			TSB2	53	53	53	48	49	50
			50G11, 50P14	54	54	54	49	50	51
			R1.5, 70P14	55	55	55	50	51	52
			R2.0, 90P14	56	56	56	51	52	53
TS.5E	2x13mm REGULAR	2x13mm WET AREA	Nil	44	45	46	37	38	38
			TSB2	52	53	53	45	47	47
			50G11, 50P14	53	54	54	46	48	49
			R1.5, 70P14	54	55	55	47	49	50
			R2.0, 90P14	55	56	56	48	50	51
TS.5F	2x13mm REGULAR	2x13mm SOUNDSTOP	Nil	45	47	47	39	39	40
			TSB2	53	53	53	47	48	49
			50G11, 50P14	54	54	54	48	49	50
			R1.5, 70P14	55	55	55	49	50	51
			R2.0, 90P14	56	56	56	50	51	52
TS.5G	2x13mm SOUNDSTOP	2x13mm WET AREA	Nil	46	47	48	39	40	40
			TSB2	53	53	53	47	48	49
			50G11, 50P14	54	54	54	48	50	50
			R1.5, 70P14	55	55	55	49	51	51
			R2.0, 90P14	56	56	56	50	52	52
TS.5H	2x13mm REGULAR	2x13mm IMPACTSTOP	Nil	45	47	47	39	39	40
			TSB2	53	53	53	47	48	49
			50G11, 50P14	54	54	54	48	49	50
			R1.5, 70P14	55	55	55	49	50	51
			R2.0, 90P14	56	56	56	50	51	52

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TS60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **30/30/30**
FROM BOTH SIDES

FRL Basis: FCO-2393, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	116	146	166	116	146	166
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	Nil	38	38	39	31	31	31
			TSB2	43	45	45	33	36	36
			50G11, 50P14	45	46	46	34	37	38
			R1.5, 70P14	46	47	47	35	38	39
			R2.0, 90P14	46	47	47	35	38	39
TS60.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	Nil	38	39	40	32	32	32
			TSB2	44	45	45	35	37	38
			50G11, 50P14	46	46	46	37	38	39
			R1.5, 70P14	47	47	48	38	39	40
			R2.0, 90P14	47	47	48	38	39	40
TS60.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	Nil	38	39	40	31	31	32
			TSB2	44	45	45	34	36	37
			50G11, 50P14	45	46	46	35	37	38
			R1.5, 70P14	46	47	47	37	39	39
			R2.0, 90P14	46	47	47	37	39	39

* 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink* Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts* 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TS60.2

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **30/30/30**
FROM BOTH SIDES

FRL Basis: FCO-2393



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd + 1x13mm non fire resistant pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd + 1x13mm non fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	142	172	192	142	172	192
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.2A	1x13mm FIRESTOP + 1x13mm REGULAR	1x13mm FIRESTOP + 1x13mm REGULAR	R2.0, 90P14	53	54	54	47	48	49
TS60.2B	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	R2.0, 90P14	54	54	54	48	49	50

* R2.0 - R2.0 Pink Wall Batts* 90mm by Fletcher Insulation. 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TS60.3

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-2393



SYSTEM DESCRIPTION

Side 1: 1x13mm Firestop pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 1x13mm Firestop pbd +
 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	126	156	176	126	156	176
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.3A	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	50G11, 50P14	48	49	49	42	43	43
			R2.0, 90P14	50	51	51	44	45	45

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50P14 - 50mm Polyester Insulation 14kg/m³
 R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. 90P14 - 90mm Polyester Insulation 14kg/m³

TS60.4

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-2393



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd +
 1x13mm non fire resistant pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd +
 1x13mm non fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	136	166	186	136	166	186
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.4A	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	46	47	48	38	39	40
			TSB2	53	54	54	45	47	48
			50G11, 50P14	54	55	55	46	48	49
			R1.5, 70P14	55	56	56	47	49	50
			R2.0, 90P14	56	57	57	48	50	51

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
 R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TS60.5

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-2393, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	129	159	179	129	159	179
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.5A	1x13mm FIRESTOP	2x13mm FIRESTOP	Nil	42	43	44	35	36	36
			TSB2	48	49	49	41	43	43
			50G11, 50P14	49	50	50	43	44	45
			R1.5, 70P14	50	51	51	44	45	46
			R2.0, 90P14	51	52	52	45	46	47
TS60.5B	1x13mm MULTISTOP	2x13mm MULTISTOP	Nil	43	44	44	36	37	38
			TSB2	49	49	49	43	44	45
			50G11, 50P14	50	50	51	44	45	46
			R1.5, 70P14	51	51	52	45	46	47
			R2.0, 90P14	52	52	53	46	47	48
TS60.5C	1x13mm FIRESTOP	2x13mm MULTISTOP	Nil	42	44	44	36	37	37
			TSB2	49	49	49	42	44	44
			50G11, 50P14	50	50	51	43	45	45
			R1.5, 70P14	51	51	52	44	46	46
			R2.0, 90P14	52	52	53	45	47	48

* 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink* Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts* 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TS60.6

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-2393, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd + 1x13mm non fire resistant pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	142	172	192	142	172	192
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.6A	1x13mm FIRESTOP + 1x13mm REGULAR	2x13mm FIRESTOP	R2.0, 90P14	53	54	54	48	49	49
TS60.6B	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	2x13mm WET AREA FIRESTOP	R2.0, 90P14	54	54	54	48	49	50

* R2.0 - R2.0 Pink Wall Batts* 90mm by Fletcher Insulation. 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$	40-44	45-49	50-54

TS60.7

FIRE RESISTANCE LEVEL
NLB -/60/60
LB 60/60/60
FROM BOTH SIDES

FRL Basis: FCO-0626, EWFA 27211-00
LOAD BEARING SYSTEM TYPE 1[†]



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	122	152	172	122	152	172
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.7A	1x16mm FIRESTOP	1x16mm FIRESTOP	Nil	39	40	41	32	33	33
			TSB2	45	45	46	37	38	39
			50G11, 50P14	46	47	47	38	39	40
			R1.5, 70P14	47	48	48	39	40	41
			R2.0, 90P14	47	48	48	39	40	41
TS60.7B	1x16mm MULTISTOP	1x16mm MULTISTOP	Nil	39	41	41	33	34	34
			TSB2	45	46	46	38	39	40
			50G11, 50P14	46	47	47	39	40	41
			R1.5, 70P14	48	48	48	40	41	42
			R2.0, 90P14	48	48	48	40	41	42
TS60.7C	1x16mm FIRESTOP	1x16mm MULTISTOP	Nil	39	41	41	33	34	34
			TSB2	45	46	46	38	39	39
			50G11, 50P14	46	47	47	39	40	40
			R1.5, 70P14	47	48	48	40	41	41
			R2.0, 90P14	47	48	48	40	41	41

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³
† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

TS60.8

FIRE RESISTANCE LEVEL
NLB -/60/60
LB 60/60/60
FROM BOTH SIDES

FRL Basis: FCO-0626
LOAD BEARING SYSTEM TYPE 1[†]



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd + 1x13mm non-fire rated pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd + 1x13mm non-fire rated pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	148	178	198	148	178	198
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.8A	1x16mm FIRESTOP + 1x13mm REGULAR	1x16mm FIRESTOP + 1x13mm REGULAR	R2.0, 90P14	53	53	53	48	49	50
TS60.8B	1x16mm WET AREA FIRESTOP + 1x13mm WET AREA	1x16mm WET AREA FIRESTOP + 1x13mm WET AREA	R2.0, 90P14	54	54	54	49	50	50

* R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. 90P14 - 90mm Polyester Insulation 14kg/m³
† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TS60.9

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **60/60/60**
 FROM BOTH SIDES

FRL Basis: FCO-0626
 LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Side 1: 1x16mm Firestop pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 1x16mm Firestop pbd + 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	132	162	182	132	162	182
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.9A	1x16mm FIRESTOP	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	50G11, 50P14	50	50	50	44	45	46

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50P14 - 50mm Polyester Insulation 14kg/m³
 † Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

TS60.10

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **60/60/60**
 FROM BOTH SIDES

FRL Basis: FCO-0626
 LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Side 1: 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 1x16mm Wet Area Firestop pbd + 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	142	172	192	142	172	192
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS60.10A	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	47	48	49	40	41	41
			TSB2	53	54	54	47	48	49
			50G11, 50P14	54	55	55	48	49	50
			R1.5, 70P14	55	56	56	49	50	51
			R2.0, 90P14	56	57	57	50	51	52

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink® Wall Batts 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³
 † Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TS90.1

FIRE RESISTANCE LEVEL
 NLB -/90/90
 LB 90/90/90
 FROM BOTH SIDES

FRL Basis: FCO-2564, EWFA 27211-00
 LOAD BEARING SYSTEM TYPE 1[†]



SYSTEM DESCRIPTION

Side 1: 2x13mm fire resistant pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	142	172	192	142	172	192
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS90.1A	2x13mm FIRESTOP	2x13mm FIRESTOP	Nil	46	48	49	39	41	42
			TSB2	53	53	53	47	48	49
			50G11, 50P14	54	54	54	48	49	50
			R1.5, 70P14	55	55	55	49	50	51
			R2.0, 90P14	56	56	56	50	51	52
TS90.1B	2x13mm MULTISTOP	2x13mm MULTISTOP	Nil	47	48	49	40	41	42
			TSB2	53	53	53	48	49	50
			50G11, 50P14	54	54	54	49	50	51
			R1.5, 70P14	55	55	55	50	51	52
			R2.0, 90P14	56	56	56	51	52	53
TS90.1C	2x13mm FIRESTOP	2x13mm MULTISTOP	Nil	47	48	49	39	41	42
			TSB2	53	53	53	48	49	49
			50G11, 50P14	54	54	54	49	50	50
			R1.5, 70P14	55	55	55	50	51	51
			R2.0, 90P14	56	56	56	51	52	52

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink® Wall Batts 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³
[†] Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

TS120.1

FIRE RESISTANCE LEVEL
 NLB -/120/120
 LB 120/120/120
 FROM BOTH SIDES

FRL Basis: FCO-2564, EWFA 27211-00
 LOAD BEARING SYSTEM TYPE 2[†]



SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 2x16mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on
 studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	154	184	204	154	184	204
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TS120.1A	2x16mm FIRESTOP	2x16mm FIRESTOP	Nil	48	49	50	41	42	43
			TSB2	53	53	53	49	50	50
			50G11, 50P14	54	54	54	50	51	51
			R1.5, 70P14	55	55	55	51	52	52
			R2.0, 90P14	56	56	56	52	53	53
TS120.1B	2x16mm MULTISTOP	2x16mm MULTISTOP	Nil	48	49	50	42	43	44
			TSB2	53	53	53	50	50	51
			50G11, 50P14	54	54	54	51	51	52
			R1.5, 70P14	55	55	55	52	52	53
			R2.0, 90P14	56	56	56	53	53	54
TS120.1C	2x16mm FIRESTOP	2x16mm MULTISTOP	Nil	48	49	50	42	43	43
			TSB2	53	53	53	49	50	50
			50G11, 50P14	54	54	54	50	51	51
			R1.5, 70P14	55	55	55	51	52	52
			R2.0, 90P14	56	56	56	52	53	53

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink® Wall Batts 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³
[†] Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

FIBEROCK – STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TSF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	110	140	160	110	140	160
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TSF.1A	1x10mm FIBEROCK	1x10mm FIBEROCK	Nil	37	38	38	28	29	29
			TSB2	43	45	45	33	36	37
			50G11, 50P14	45	46	46	34	37	39
			R1.5, 70P14	46	47	47	35	38	40
			R2.0, 90P14	46	47	48	35	38	41

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TSF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock
Framing: Staggered steel studs
Insulation: Refer to table
Side 2: 2x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	130	160	180	130	160	180
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TSF.2A	2x10mm FIBEROCK	2x10mm FIBEROCK	Nil	43	45	45	33	34	35
			TSB2	52	53	53	44	46	46
			50G11, 50P14	53	54	54	46	47	48
			R1.5, 70P14	54	55	55	47	48	49
			R2.0, 90P14	55	56	56	48	49	50

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TSF30.1

FIRE RESISTANCE LEVEL
 NLB -/30/30
 FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 1x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	116	146	166	116	146	166
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TSF30.1A	1x13mm FIBEROCK	1x13mm FIBEROCK	Nil	38	39	40	32	32	32
			TSB2	44	45	45	35	37	38
			50G11, 50P14	46	46	46	37	38	39
			R1.5, 70P14	47	47	48	38	39	40
			R2.0, 90P14	47	47	48	38	39	40

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector

R_w	40-44	45-49	50-54
$R_w + C_{tr}$	40-44	45-49	50-54

FIBEROCK – STAGGERED STUD

TSF30.2

FIRE RESISTANCE LEVEL

NLB -/30/30

LB 30/30/30

FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock

Framing: Staggered timber studs

Insulation: Refer to table

Side 2: 2x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	129	159	179	129	159	179
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TSF30.2A	1x13mm FIBEROCK	2x13mm FIBEROCK	Nil	43	44	44	36	37	38
			TSB2	49	49	49	43	44	45
			50G11, 50P14	50	50	51	44	45	46
			R1.5, 70P14	51	51	52	45	46	47
			R2.0, 90P14	52	52	53	46	47	48

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TSF60.1

FIRE RESISTANCE LEVEL

NLB -/60/60

LB 60/60/60

FROM BOTH SIDES

FRL Basis: FAR2418

LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock

Framing: Staggered timber studs

Insulation: Refer to table

Side 2: 1x16mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	122	152	172	122	152	172
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TSF60.1A	1x16mm FIBEROCK	1x16mm FIBEROCK	Nil	40	41	42	33	34	35
			TSB2	46	46	46	38	39	40
			50G11, 50P14	47	47	47	39	41	41
			R1.5, 70P14	48	48	48	40	42	42
			R2.0, 90P14	48	48	48	40	42	42

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – STAGGERED STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TSF90.1

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FAR 4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 2x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	142	172	192	142	172	192
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TSF90.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	47	48	49	40	41	42
			TSB2	53	53	53	48	49	50
			50G11, 50P14	54	54	54	49	50	51
			R1.5, 70P14	55	55	55	50	51	52
			R2.0, 90P14	56	56	56	51	52	53

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TSF120.1

FIRE RESISTANCE LEVEL
NLB **-/120/120**
FROM BOTH SIDES

FRL Basis: FAR2396, FAR2364



SYSTEM DESCRIPTION

Side 1: 2x16mm Fiberock
Framing: Staggered timber studs
Insulation: Refer to table
Side 2: 2x16mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F09

Acoustic ratings are based on studs @ 600mm ctrs

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	154	184	204	154	184	204
			PLATE SIZE mm	90	120	140	90	120	140
			INSULATION*	R_w			$R_w + C_{tr}$		
TSF120.1A	2x16mm FIBEROCK	2x16mm FIBEROCK	Nil	49	50	50	43	44	44
			TSB2	53	53	53	50	50	51
			50G11, 50P14	54	54	54	51	52	52
			R1.5, 70P14	55	55	55	52	53	53
			R2.0, 90P14	56	56	56	53	54	54

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TT.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm non-fire resistant pbd

Framing: Twin timber studs

Gap: 20mm

Insulation: Refer to table

Side 2: 1x10mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		180	220	180	220
			STUD SIZE mm		70	90	70	90
			INSULATION*		R_w		$R_w + C_{tr}$	
TT.1A	1x10mm REGULAR	1x10mm REGULAR	Nil		36	37	29	30
			One Side	TSB2	46	46	36	38
				50G11, 50P14	46	47	37	38
				R1.5, 70P14	47	47	37	38
				R2.0, 90P14	-	48	-	39
			Both Sides	TSB2	49	49	39	41
				50G11, 50P14	49	50	40	41
				R1.5, 70P14	50	50	40	41
				R2.0, 90P14	-	51	-	42
TT.1B	1x10mm WET AREA	1x10mm WET AREA	Nil		37	38	30	31
			One Side	TSB2	47	48	38	39
				50G11, 50P14	48	49	38	39
				R1.5, 70P14	48	49	38	40
				R2.0, 90P14	-	49	-	40
			Both Sides	TSB2	50	51	41	42
				50G11, 50P14	51	52	41	42
				R1.5, 70P14	51	52	41	43
				R2.0, 90P14	-	52	-	43
TT.1C	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	Nil		39	40	33	33
			One Side	TSB2	50	51	41	42
				50G11, 50P14	51	52	41	43
				R1.5, 70P14	51	52	41	43
				R2.0, 90P14	-	52	-	43
			Both Sides	TSB2	53	54	44	45
				50G11, 50P14	54	55	44	46
				R1.5, 70P14	54	55	44	46
				R2.0, 90P14	-	55	-	46
TT.1D	1x10mm IMPACTSTOP	1x10mm IMPACTSTOP	Nil		39	40	33	33
			One Side	TSB2	50	51	41	42
				50G11, 50P14	51	52	41	43
				R1.5, 70P14	51	52	41	43
				R2.0, 90P14	-	52	-	43
			Both Sides	TSB2	53	54	44	45
				50G11, 50P14	54	55	44	46
				R1.5, 70P14	54	55	44	46
				R2.0, 90P14	-	55	-	46

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TT.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm non-fire resistant pbd.
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x10mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		200	240	200	240
			STUD SIZE mm		70	90	70	90
			INSULATION*		R _w		R _w +C _{tr}	
TT.2A	2x10mm REGULAR	2x10mm REGULAR	Nil		44	45	36	37
			TSB2	One Side	54	54	43	45
			50G11, 50P14		54	55	44	46
			R1.5, 70P14		54	55	44	46
			R2.0, 90P14		-	55	-	46
			TSB2	Both Sides	57	57	46	48
			50G11, 50P14		57	58	47	49
			R1.5, 70P14		57	58	47	49
R2.0, 90P14	-	58	-		49			
TT.2B	2x10mm WET AREA	2x10mm WET AREA	Nil		45	46	37	38
			TSB2	One Side	55	56	45	47
			50G11, 50P14		56	56	45	47
			R1.5, 70P14		56	57	45	47
			R2.0, 90P14		-	57	-	47
			TSB2	Both Sides	58	59	48	50
			50G11, 50P14		59	59	48	50
			R1.5, 70P14		59	60	48	50
R2.0, 90P14	-	60	-		50			
TT.2C	2x10mm SOUNDSTOP	2x10mm SOUNDSTOP	Nil		48	49	40	40
			TSB2	One Side	58	59	49	50
			50G11, 50P14		59	60	49	51
			R1.5, 70P14		59	60	49	51
			R2.0, 90P14		-	60	-	51
			TSB2	Both Sides	61	62	52	53
			50G11, 50P14		62	63	52	54
			R1.5, 70P14		62	63	52	54
R2.0, 90P14	-	63	-		54			
TT.2D	2x10mm IMPACTSTOP	2x10mm IMPACTSTOP	Nil		48	49	40	40
			TSB2	One Side	58	59	49	50
			50G11, 50P14		59	60	49	51
			R1.5, 70P14		59	60	49	51
			R2.0, 90P14		-	60	-	51
			TSB2	Both Sides	61	62	52	53
			50G11, 50P14		62	63	52	54
			R1.5, 70P14		62	63	52	54
R2.0, 90P14	-	63	-		54			

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

TT.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x13mm non-fire resistant pbd

Framing: Twin timber studs

Gap: 20mm

Insulation: Refer to table

Side 2: 1x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		186	226	186	226
			STUD SIZE mm		70	90	70	90
			INSULATION*		R_w		R_w+C_{tr}	
TT.3A	1x13mm REGULAR	1x13mm REGULAR	Nil		39	39	32	32
			One Side	TSB2	50	51	40	41
				50G11, 50P14	51	52	40	42
				R1.5, 70P14	51	52	40	42
				R2.0, 90P14	-	52	-	42
			Both Sides	TSB2	53	54	43	44
				50G11, 50P14	54	55	43	45
				R1.5, 70P14	54	55	43	45
				R2.0, 90P14	-	55	-	45
TT.3B	1x13mm WET AREA	1x13mm WET AREA	Nil		40	41	33	33
			One Side	TSB2	51	52	41	43
				50G11, 50P14	52	53	42	43
				R1.5, 70P14	52	53	42	43
				R2.0, 90P14	-	53	-	44
			Both Sides	TSB2	54	55	44	46
				50G11, 50P14	55	56	45	46
				R1.5, 70P14	55	56	45	46
				R2.0, 90P14	-	56	-	47
TT.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	Nil		42	43	35	36
			One Side	TSB2	54	55	45	46
				50G11, 50P14	55	56	45	47
				R1.5, 70P14	55	56	45	47
				R2.0, 90P14	-	56	-	47
			Both Sides	TSB2	57	58	48	49
				50G11, 50P14	58	59	48	50
				R1.5, 70P14	58	59	48	50
				R2.0, 90P14	-	59	-	50
TT.3D	1x13mm IMPACTSTOP	1x13mm IMPACTSTOP	Nil		42	43	35	36
			One Side	TSB2	54	55	45	46
				50G11, 50P14	55	56	45	47
				R1.5, 70P14	55	56	45	47
				R2.0, 90P14	-	56	-	47
			Both Sides	TSB2	57	58	48	49
				50G11, 50P14	58	59	48	50
				R1.5, 70P14	58	59	48	50
				R2.0, 90P14	-	59	-	50

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TT.4

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x13mm non-fire resistant pbd.
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm non-fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		212	252	212	252
			STUD SIZE mm		70	90	70	90
			INSULATION*		R _w		R _w +C _{tr}	
TT.4A	2x13mm REGULAR	2x13mm REGULAR	Nil		48	49	40	41
			One Side	TSB2	56	57	46	48
				50G11, 50P14	57	58	47	49
				R1.5, 70P14	58	59	48	50
				R2.0, 90P14	-	60	-	51
			Both Sides	TSB2	59	60	49	51
				50G11, 50P14	60	61	50	52
				R1.5, 70P14	61	62	51	53
R2.0, 90P14	-	63		-	54			
TT.4B	2x13mm WET AREA	2x13mm WET AREA	Nil		49	51	41	42
			One Side	50G11, 50P14	57	58	48	50
				R1.5, 70P14	58	59	49	51
				R2.0, 90P14	59	60	50	52
				R2.0, 90P14	-	61	-	53
			Both Sides	TSB2	60	61	51	53
				50G11, 50P14	61	62	52	54
				R1.5, 70P14	62	63	53	55
R2.0, 90P14	-	64		-	56			
TT.4C	2x13mm SOUNDSTOP	2x13mm SOUNDSTOP	Nil		52	53	44	45
			One Side	TSB2	60	61	52	53
				50G11, 50P14	61	62	53	54
				R1.5, 70P14	62	63	54	55
				R2.0, 90P14	-	64	-	56
			Both Sides	TSB2	63	64	55	56
				50G11, 50P14	64	65	56	57
				R1.5, 70P14	65	66	57	58
R2.0, 90P14	-	67		-	59			
TT.4D	2x13mm IMPACTSTOP	2x13mm IMPACTSTOP	Nil		52	53	44	45
			One Side	TSB2	60	61	52	53
				50G11, 50P14	61	62	53	54
				R1.5, 70P14	62	63	54	55
				R2.0, 90P14	-	64	-	56
			Both Sides	TSB2	63	64	55	56
				50G11, 50P14	64	65	56	57
				R1.5, 70P14	65	66	57	58
R2.0, 90P14	-	67		-	59			

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

TT60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **30/30/30**
FROM BOTH SIDES

FRL Basis: FCO-2393, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		186	226	186	226
			STUD SIZE mm		70	90	70	90
			INSULATION*		R _w		R _w +C _{tr}	
TT60.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	Nil		41	42	34	35
			TSB2	One Side	53	53	43	44
			50G11, 50P14		54	54	43	45
			R1.5, 70P14		54	54	43	45
			R2.0, 90P14		-	55	-	45
			TSB2	Both Sides	56	56	46	47
			50G11, 50P14		57	57	46	48
			R1.5, 70P14		57	57	46	48
			R2.0, 90P14			58		48
TT60.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	Nil		42	43	35	36
			TSB2	One Side	54	55	45	46
			50G11, 50P14		55	56	45	47
			R1.5, 70P14		55	56	45	47
			R2.0, 90P14		-	56	-	47
			TSB2	Both Sides	57	58	48	49
			50G11, 50P14		58	59	48	50
			R1.5, 70P14		58	59	48	50
			R2.0, 90P14		-	59	-	50
TT60.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	Nil		42	43	35	35
			TSB2	One Side	54	54	44	45
			50G11, 50P14		55	55	44	46
			R1.5, 70P14		55	56	44	46
			R2.0, 90P14		-	56	-	46
			TSB2	Both Sides	57	57	47	48
			50G11, 50P14		58	58	47	49
			R1.5, 70P14		58	59	47	49
			R2.0, 90P14		-	59	-	49

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TT60.2

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **30/30/30**
FROM BOTH SIDES

FRL Basis: FCO-2393



SYSTEM DESCRIPTION

Side 1: 1x13mm Firestop pbd
Framing: Twin timber stud
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm fire resistant + 1x13mm non fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		199	239	199	139
			STUD SIZE mm		70	90	70	90
			INSULATION*		R_w		R_w+C_{tr}	
TT60.2A	1x13mm FIRESTOP	1x13mm FIRESTOP + 1x13mm REGULAR	50G11, 50P14	Both Sides	59	60	50	51
					60	61	51	52
TT60.2B	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP + 1x13mm WET AREA	50G11, 50P14	Both Sides	59	60	50	52
					61	61	51	53

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TT60.3

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-2393



SYSTEM DESCRIPTION

Side 1: 1x13mm Firestop pbd
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		196	236	196	236
			STUD SIZE mm		70	90	70	90
			INSULATION*		R_w		$R_w + C_{tr}$	
TT60.3A	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	50G11, 50P14	Both Sides	59	60	50	51
			R1.5, 70P14		61	61	51	53

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³

TT60.4

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **30/30/30**
 FROM BOTH SIDES

FRL Basis: FCO-2393



SYSTEM DESCRIPTION

Side 1: 1x13mm Wet Area pbd + 1x10mm Fiberock
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm Wet Area Firestop pbd + 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		206	246	206	246
			STUD SIZE mm		70	90	70	90
			INSULATION*		R_w		$R_w + C_{tr}$	
TT60.4A	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x13mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil	One Side	50	51	41	42
			TSB2		57	58	47	49
			50G11, 50P14		58	59	48	50
			R1.5, 70P14		60	60	49	51
			R2.0, 90P14		-	61	-	52

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
 R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TT60.5

FIRE RESISTANCE LEVEL
 NLB -/60/60
 LB 30/30/30
 FROM BOTH SIDES

FRL Basis: FCO-2393, EWFA 27211-00



SYSTEM DESCRIPTION

Side 1: 1x13mm fire resistant pbd
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		199	239	199	239
			STUD SIZE mm		70	90	70	90
			INSULATION*		R _w		R _w +C _{tr}	
TT60.5A	1x13mm FIRESTOP	2x13mm FIRESTOP	Nil		46	47	38	39
			TSB2	One Side	54	54	44	45
			50G11, 50P14		56	56	45	47
			R1.5, 70P14		57	57	46	48
			R2.0, 90P14		-	59	-	49
			TSB2	Both Sides	57	57	47	48
			50G11, 50P14		59	59	48	50
			R1.5, 70P14		60	60	49	51
			R2.0, 90P14		-	62	-	52
TT60.5B	1x13mm MULTISTOP	2x13mm MULTISTOP	Nil		47	48	40	40
			TSB2	One Side	55	56	46	47
			50G11, 50P14		57	58	47	49
			R1.5, 70P14		58	59	48	50
			R2.0, 90P14		-	60	-	51
			TSB2	Both Sides	58	59	49	50
			50G11, 50P14		60	61	50	52
			R1.5, 70P14		61	62	51	53
			R2.0, 90P14		-	63	-	54
TT60.5C	1x13mm FIRESTOP	2x13mm MULTISTOP	Nil		47	48	39	40
			TSB2	One Side	55	55	45	46
			50G11, 50P14		57	57	46	48
			R1.5, 70P14		58	59	47	49
			R2.0, 90P14		-	60	-	50
			TSB2	Both Sides	58	58	48	49
			50G11, 50P14		60	60	49	51
			R1.5, 70P14		61	62	50	52
			R2.0, 90P14		-	63	-	53

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.

Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TT60.6

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **60/60/60**
 FROM BOTH SIDES

FRL Basis: FCO-0626, EWFA 27211-00
 LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Side 1: 1x16mm fire resistant pbd
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x16mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		192	232	192	232
			STUD SIZE mm		70	90	70	90
			INSULATION*		R _w		R _w +C _{tr}	
TT60.6A	1x16mm FIRESTOP	1x16mm FIRESTOP	Nil		44	45	36	37
			TSB2	One Side	53	54	44	46
			50G11, 50P14		55	56	46	47
			R1.5, 70P14		57	57	47	49
			R2.0, 90P14		-	59	-	50
			TSB2	Both Sides	56	57	47	49
			50G11, 50P14		58	59	49	50
			R1.5, 70P14		60	60	50	52
			R2.0, 90P14		-	62	-	53
TT60.6B	1x16mm MULTISTOP	1x16mm MULTISTOP	Nil		44	45	37	38
			TSB2	One Side	55	55	46	48
			50G11, 50P14		57	57	48	49
			R1.5, 70P14		58	59	49	50
			R2.0, 90P14		-	60	-	52
			TSB2	Both Sides	58	58	49	51
			50G11, 50P14		60	60	51	52
			R1.5, 70P14		61	62	52	53
			R2.0, 90P14		-	63	-	55
TT60.6C	1x16mm FIRESTOP	1x16mm MULTISTOP	Nil		44	45	37	38
			TSB2	One Side	54	55	45	47
			50G11, 50P14		56	57	47	48
			R1.5, 70P14		57	58	48	50
			R2.0, 90P14		-	59	-	51
			TSB2	Both Sides	57	58	48	50
			50G11, 50P14		59	60	50	51
			R1.5, 70P14		60	61	51	53
			R2.0, 90P14		-	62	-	54

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

TT60.7

FIRE RESISTANCE LEVEL
 NLB **-/60/60**
 LB **60/60/60**
 FROM BOTH SIDES

FRL Basis: FCO-0626
 LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Side 1: 1x16mm Firestop pbd + 1x10mm Fiberock
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x16mm Firestop pbd + 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		212	252	212	252
			STUD SIZE mm		70	90	70	90
			INSULATION*		R _w		R _w +C _{tr}	
TT60.7A	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	1x16mm WET AREA FIRESTOP + 1x10mm FIBEROCK	Nil		52	53	43	44
			TSB2	One Side	59	60	49	51
			50G11, 50P14		60	61	50	52
			R1.5, 70P14		62	62	51	53
			R2.0, 90P14		-	64	-	54

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TT90.1

FIRE RESISTANCE LEVEL
 NLB -/90/90
 LB 90/90/90
 FROM BOTH SIDES

FRL Basis: FCO-2564, EWFA 27211-00
 LOAD BEARING SYSTEM TYPE 1[†]



SYSTEM DESCRIPTION

Side 1: 2x13mm fire resistant pbd
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	212	252	212	252
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		$R_w + C_{tr}$	
TT90.1A	2x13mm FIRESTOP	2x13mm FIRESTOP	Nil	51	52	42	43
			TSB2	59	59	50	50
			50G11, 50P14	60	60	51	51
			R1.5, 70P14	61	61	52	52
			R2.0, 90P14	-	62	-	53
			TSB2	62	62	53	53
			50G11, 50P14	63	63	54	54
			R1.5, 70P14	64	64	55	55
			R2.0, 90P14	-	65	-	56
TT90.1B	2x13mm MULTISTOP	2x13mm MULTISTOP	Nil	52	53	44	45
			TSB2	60	61	52	53
			50G11, 50P14	61	62	53	54
			R1.5, 70P14	62	63	54	55
			R2.0, 90P14	-	64	-	56
			TSB2	63	64	55	56
			50G11, 50P14	64	65	56	57
			R1.5, 70P14	65	66	57	58
			R2.0, 90P14	-	67	-	59
TT90.1C	2x13mm FIRESTOP	2x13mm MULTISTOP	Nil	52	53	43	44
			TSB2	60	60	51	52
			50G11, 50P14	61	61	52	53
			R1.5, 70P14	62	62	53	54
			R2.0, 90P14	-	63	-	55
			TSB2	63	63	54	55
			50G11, 50P14	64	64	55	56
			R1.5, 70P14	65	65	56	57
			R2.0, 90P14	-	66	-	58

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TT120.1

FIRE RESISTANCE LEVEL
NLB -/120/120
LB 120/120/120
FROM BOTH SIDES

FRL Basis: FCO-2564, EWFA 27211-00
LOAD BEARING SYSTEM TYPE 2†



SYSTEM DESCRIPTION

Side 1: 2x16mm fire resistant pbd
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x16mm fire resistant pbd.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		224	264	224	264
			STUD SIZE mm		70	90	70	90
			INSULATION*		R _w		R _w +C _{tr}	
TT120.1A	2x16mm FIRESTOP	2x16mm FIRESTOP	Nil		50	51	42	43
			TSB2	One Side	60	60	50	52
			50G11, 50P14		61	61	51	53
			R1.5, 70P14		62	62	52	54
			R2.0, 90P14		-	63	-	55
			TSB2	Both Sides	63	63	53	55
			50G11, 50P14		64	64	54	56
			R1.5, 70P14		65	65	55	57
			R2.0, 90P14		-	66	-	58
TT120.1B	2x16mm MULTISTOP	2x16mm MULTISTOP	Nil		51	52	43	45
			TSB2	One Side	61	61	52	54
			50G11, 50P14		62	62	53	55
			R1.5, 70P14		63	63	54	56
			R2.0, 90P14		-	64	-	57
			TSB2	Both Sides	64	64	55	57
			50G11, 50P14		65	65	56	58
			R1.5, 70P14		66	66	57	59
			R2.0, 90P14		-	67	-	60
TT120.1C	2x16mm FIRESTOP	2x16mm MULTISTOP	Nil		51	52	43	44
			TSB2	One Side	60	61	51	53
			50G11, 50P14		61	62	52	54
			R1.5, 70P14		62	63	53	55
			R2.0, 90P14		-	64	-	56
			TSB2	Both Sides	63	64	54	56
			50G11, 50P14		64	65	55	57
			R1.5, 70P14		65	66	56	58
			R2.0, 90P14		-	67	-	59

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

FIBEROCK – TWIN STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

TTF.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 1x10mm Fiberock
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	180	220	180	220
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TTF.1A	1x10mm FIBEROCK	1x10mm FIBEROCK	Nil	39	40	33	33
			TSB2	50	51	41	42
			50G11, 50P14	51	52	41	43
			R1.5, 70P14	51	52	41	43
			R2.0, 90P14	-	52	-	43
			TSB2	53	54	44	45
			50G11, 50P14	54	55	44	46
			R1.5, 70P14	54	55	44	46
			R2.0, 90P14	-	55	-	46

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
 R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TTF.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Side 1: 2x10mm Fiberock
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x10mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	200	240	200	240
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TTF.2A	2x10mm FIBEROCK	2x10mm FIBEROCK	Nil	48	49	40	40
			TSB2	58	59	49	50
			50G11, 50P14	59	60	49	51
			R1.5, 70P14	59	60	49	51
			R2.0, 90P14	-	60	-	51
			TSB2	61	62	52	53
			50G11, 50P14	62	63	52	54
			R1.5, 70P14	62	63	52	54
			R2.0, 90P14	-	63	-	54

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.
 R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).
 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

FIBEROCK – TWIN STUD

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

TTF30.1

FIRE RESISTANCE LEVEL
NLB **-/30/30**
FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		186	226	186	226
			STUD SIZE mm		70	90	70	90
			INSULATION*		R _w		R _w +C _{tr}	
TTF30.1A	1x13mm FIBEROCK	1x13mm FIBEROCK	Nil		42	43	35	36
			TSB2	One Side	54	55	45	46
			50G11, 50P14		55	56	45	47
			R1.5, 70P14		55	56	45	47
			R2.0, 90P14		-	56	-	47
			TSB2	Both Sides	57	58	48	49
			50G11, 50P14		58	59	48	50
			R1.5, 70P14		58	59	48	50
			R2.0, 90P14		-	59	-	50

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink® Wall Batts 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

TTF30.2

FIRE RESISTANCE LEVEL
NLB **-/30/30**
FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 1x13mm Fiberock
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		199	239	199	239
			STUD SIZE mm		70	90	70	90
			INSULATION*		R _w		R _w +C _{tr}	
TTF30.2A	1x13mm FIBEROCK	2x13mm FIBEROCK	Nil		47	48	40	40
			TSB2	One Side	55	56	46	47
			50G11, 50P14		57	58	47	49
			R1.5, 70P14		58	59	48	50
			R2.0, 90P14		-	60	-	51
			TSB2	Both Sides	58	59	49	50
			50G11, 50P14		60	61	50	52
			R1.5, 70P14		61	62	51	53
			R2.0, 90P14		-	63	-	54

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink® Wall Batts 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

FIBEROCK – TWIN STUD

R_w	40-44	45-49	50-54
R_w+C_{tr}			

TTF60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
LB **60/60/60**
FROM BOTH SIDES

FRL Basis: FAR2418
LOAD BEARING SYSTEM TYPE 1[†]



SYSTEM DESCRIPTION

Side 1: 1x16mm Fiberock
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 1x16mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	192	232	192	232
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TTF60.1A	1x16mm FIBEROCK	1x16mm FIBEROCK	Nil	45	46	38	39
			TSB2	55	56	47	48
			50G11, 50P14	57	58	48	50
			R1.5, 70P14	58	59	49	51
			R2.0, 90P14	-	60	-	52
			TSB2	58	59	50	51
			50G11, 50P14	60	61	51	53
			R1.5, 70P14	61	62	52	54
			R2.0, 90P14	-	63	-	55

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³
† Refer to Table D1 for maximum vertical loads on load bearing fire rated walls.

TTF90.1

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FAR4405



SYSTEM DESCRIPTION

Side 1: 2x13mm Fiberock
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x13mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm	212	252	212	252
			STUD SIZE mm	70	90	70	90
			INSULATION*	R_w		R_w+C_{tr}	
TTF90.1A	2x13mm FIBEROCK	2x13mm FIBEROCK	Nil	52	53	44	45
			TSB2	60	61	52	53
			50G11, 50P14	61	62	53	54
			R1.5, 70P14	62	63	54	55
			R2.0, 90P14	-	64	-	56
			TSB2	63	64	55	56
			50G11, 50P14	64	65	56	57
			R1.5, 70P14	65	66	57	58
			R2.0, 90P14	-	67	-	59

* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation. R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent). 50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector

FIBEROCK – TWIN STUD

R_w
40-44 45-49 50-54

R_w+C_{tr}

TTF120.1

FIRE RESISTANCE LEVEL
NLB -/120/120
FROM BOTH SIDES

FRL Basis: FAR2396



SYSTEM DESCRIPTION

Side 1: 2x16mm Fiberock
Framing: Twin timber studs
Gap: 20mm
Insulation: Refer to table
Side 2: 2x16mm Fiberock.

ACOUSTIC RATINGS RT&A TE405-05F10

SYSTEM	LINING SIDE 1	LINING SIDE 2	MIN WALL WIDTH mm		224	264	224	264	
			STUD SIZE mm		70	90	70	90	
			INSULATION*		R _w		R _w +C _{tr}		
TTF120.1A	2x16mm FIBEROCK	2x16mm FIBEROCK	Nil		52	53	44	45	
			TSB2		One Side	61	62	53	54
			50G11, 50P14			62	63	54	55
			R1.5, 70P14			63	64	55	56
			R2.0, 90P14			-	65	-	57
			TSB2		Both Sides	64	65	56	57
			50G11, 50P14			65	66	57	58
			R1.5, 70P14			66	67	58	59
			R2.0, 90P14			-	68	-	60

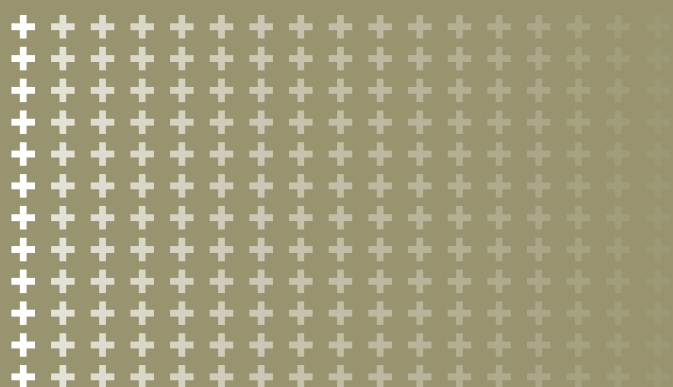
* 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. R1.5 - R1.5 Pink® Wall Batts 65mm by Fletcher Insulation.

R2.0 - R2.0 Pink Wall Batts® 90mm by Fletcher Insulation. TSB2 - TSB2 by Tontine Insulation (or equivalent).

50P14 - 50mm Polyester Insulation 14kg/m³ 70P14 - 70mm Polyester Insulation 14kg/m³ 90P14 - 90mm Polyester Insulation 14kg/m³

E 2	INTRODUCTION
E 5	OUTRWALL®
E 9	BRICK VENEER WALLS
E 10	FIRECLAD®

EXTERNAL WALLS



INTRODUCTION

The following USG Boral external wall systems are outlined in this manual:

- OutRwall®
- Brick Veneer
- Fireclad®.

OUTRWALL®

DESCRIPTION

USG Boral OutRwall is a lightweight fire rated external wall system for buildings requiring fire protection from outside due to their proximity to the boundary. OutRwall systems are also available in configurations fire rated from both sides as may be required in multi-residential buildings (refer to Multi-Residential section).

USG Boral OutRwall external wall systems utilise lightweight external cladding and plasterboard linings direct fixed to one or both sides of wall framing.

This manual outlines OutRwall systems with timber framing. Refer USG Boral for OutRwall systems with steel framing.

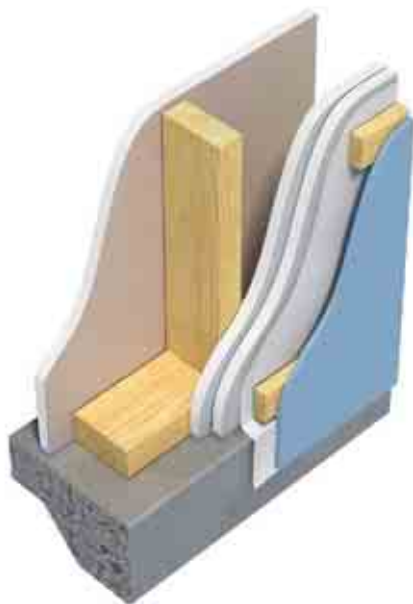


Figure E1: OutRwall®

DESIGN OPTIONS

USG Boral OutRwall comprises a range of lightweight external wall systems utilising fire resistant or non-fire resistant internal linings and, if required, water- and fire-resistant plasterboard linings between lightweight external cladding and wall frame.

Timber framed OutRwall systems that are outlined in this manual are available in fire ratings up to FRL 90/90/90 from one or both sides.

NOTE

Stated R-values and acoustic ratings are based on R2.5 glasswool wall batts cavity insulation as required to achieve minimum BCA thermal resistance ratings for external walls. Higher R-values and acoustic ratings can be achieved by upgrading cavity insulation.

OutRwall systems can be used with any type of approved lightweight external cladding.

MATERIALS

PLASTERBOARD LININGS

- 10mm SHEETROCK Brand Wall Board
- 10mm Regular plasterboard
- 10mm Fiberock
- 13mm Firestop plasterboard
- 16mm Firestop plasterboard
- 13mm Wet Area Firestop plasterboard
- 16mm Wet Area Firestop plasterboard.

EXTERNAL CLADDING

Any type of approved external cladding fixed on battens.

MOISTURE BARRIER

Tyvek® HomeWrap membrane.

INSULATION

R2.5 Pink Wall Batt® glasswool by Fletcher Insulation.

SCREWS

Refer to General Information – Materials section for plasterboard screw types.

CAULKING

H.B. Fuller Firesound sealant.

» INTRODUCTION

DESIGN CONSIDERATIONS

- Refer to BCA Fire Resistance requirements for external walls.
- Refer to Timber Stud Walls section for load bearing capacities of fire rated timber framed walls.
- Beware of flanking sound effects on acoustic performance (refer to General Information – Design).
- Water resistant linings must be used in wet areas
- Water and fire-resistant plasterboard must be used on the outer side of timber framing where required.
- Plasterboard linings on the outer side of timber framing must be protected by an approved moisture barrier.
- Refer to General Information – Design for notes on Condensation and Ventilation.
- External wall systems must satisfy BCA thermal resistance requirements. Cavity insulation must be selected accordingly. Refer to Multi-Residential section for thermal resistance requirements for external walls in Class 1, 2 and 3 buildings.
- External cladding must be installed on battens.

INSTALLATION

GENERAL

- Fire rated and acoustic systems must be installed strictly in accordance with USG Boral specifications in order to achieve stated Fire Resistance Levels and acoustic ratings.
- Refer to Timber Stud Walls and Junctions and Penetrations for installation specifications for fire rated timber framed walls.
- Refer to OutRwall brochure for detailed system specifications.
- Timber framing must comply with AS 1684 *Timber framed construction*.

JOINTING AND FINISHING

- Stop and finish face layers of internal linings with the appropriate USG Boral jointing system (refer to USG Boral Plasterboard Installation Manual). Joints and junctions in inner layers of multiple layer systems are not required to be stopped.
- Paper tape must be used in fire rated and wet area systems.

CAULKING

Perimeter gaps and penetrations in fire rated and acoustic systems must be caulked with an approved sealant (refer to Junctions and Penetrations).

BRICK VENEER WALLS

DESCRIPTION

USG Boral Brick Veneer wall systems utilise fire rated or non fire rated brick veneer and USG Boral internal linings direct fixed to steel or timber framing.

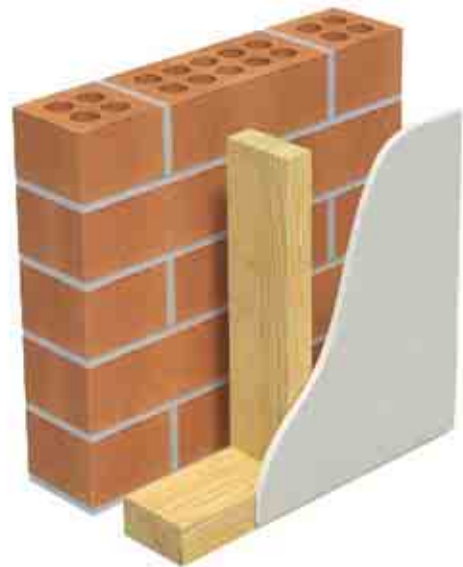


Figure E2: **Brick Veneer Wall**

DESIGN OPTIONS

USG Boral Brick Veneer wall systems are available in non-fire rated or fire rated configurations up to FRL 120/120/120 from one or both sides.

Acoustic ratings have been provided for systems with 70mm and 90mm studs. All acoustic ratings are based on 110mm clay brick 170kg/m² and 50mm gap between brick veneer and internal framing.

MATERIALS

PLASTERBOARD LININGS

- 10mm SHEETROCK Brand Wall Board
- 10mm Regular plasterboard
- 13mm Firestop plasterboard
- 16mm Firestop plasterboard.

BRICK VENEER

- Non-fire rated Brick Veneer (min 110mm clay brick 170kg/m²)
- FRL 60/60/60 Brick Veneer
- FRL 90/90/90 Brick Veneer
- FRL 120/120/120 Brick Veneer.

» INTRODUCTION

INSULATION

R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.

SCREWS

Refer to General Information – Materials section for plasterboard screw types.

CAULKING

H.B. Fuller Firesound sealant.

DESIGN CONSIDERATIONS

See OutRwall notes.

INSTALLATION

- Brick veneer must be constructed in accordance with BCA and AS 3700 *Masonry Structures*.
- See OutRwall for other Installation notes.

FIRECLAD®

DESCRIPTION

USG Boral Fireclad is a lightweight fire rated external wall system for portal framed industrial buildings that require fire protection from outside.

Fireclad consists of multiple layers of Firestop plasterboard attached to steel girts behind external steel cladding.

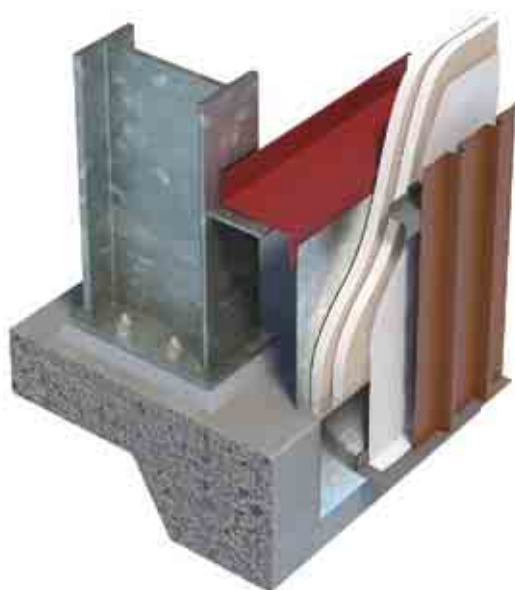


Figure E3: **Fireclad**

DESIGN OPTIONS

USG Boral Fireclad systems are available in Fire Resistance Levels up to 120/120/120 from outside only.

MATERIALS

Plasterboard Linings

- 13mm Firestop plasterboard
- 16mm Firestop plasterboard.

External Cladding

Approved external steel cladding on battens

Moisture Barrier

Tyvek® HomeWrap membrane

Screws

Refer to General Information – Materials section for plasterboard screw types

Caulking

Firesound sealant

DESIGN CONSIDERATIONS

- Refer to BCA Fire Resistance requirements for external walls.
- The weight of the Fireclad system should be supported by the steel frame or reacted through to the floor slab using girt bridging or sag rods.
- Plasterboard linings must be protected by an approved moisture barrier.
- Fire rated details are available where the Fireclad system is penetrated by pipes, cables, ducts and windows, for various treatments at gutters and base of walls, and where control joints or transitions to non fire rated areas are required.

INSTALLATION

Refer to USG Boral Fireclad brochure for installation instructions and details.

OUTRWALL

R_w	<div></div>	<div></div>	<div></div>
	40-44	45-49	50-54
$R_w + C_{tr}$	<div></div>	<div></div>	<div></div>

OWT.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Internal Lining:

1x10mm non fire resistant lining

Framing:

Timber Studs

Insulation:

Refer to table

External Lining:

Nil

External Cladding:

Lightweight External Cladding on battens over Tyvek® HomeWrap membrane.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F11

SYSTEM	INTERNAL LINING	EXTERNAL LINING	WALL WIDTH mm	80 + CLADDING SYSTEM		100 + CLADDING SYSTEM		MIN TOTAL R-VALUE m²K/W
			STUD SIZE mm	70		90		
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	
OWT.1A	1x10mm SHEETROCK BRAND WALL BOARD	Nil	R2.5 GW Wall Batts	26	23	26	23	2.9
OWT.1B	1x10mm REGULAR	Nil	R2.5 GW Wall Batts	27	24	27	24	2.9
OWT.1C	1x10mm WET AREA	Nil	R2.5 GW Wall Batts	28	24	28	24	2.9
OWT.1D	1x10mm FIBEROCK	Nil	R2.5 GW Wall Batts	30	26	30	26	2.9

* R2.5 GW Wall Batts - R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.

OWT30.1

FIRE RESISTANCE LEVEL
LB 30/30/30
FROM BOTH SIDES

FRL Basis: FCO-2393, WFRA 460081, WFRA C91550



SYSTEM DESCRIPTION

Internal Lining:

1x13mm fire resistant pbd

Framing:

Timber Studs

Insulation:

Refer to table

External Lining:

1x13mm fire/water resistant pbd

External Cladding:

Lightweight External Cladding on battens over Tyvek® HomeWrap membrane.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F11

SYSTEM	INTERNAL LINING	EXTERNAL LINING	WALL WIDTH mm	96 + CLADDING SYSTEM		116 + CLADDING SYSTEM		MIN TOTAL R-VALUE m²K/W
			STUD SIZE mm	70		90		
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	
OWT30.1A	1x13mm FIRESTOP	1x13mm WET AREA FIRESTOP	R2.5 GW Wall Batts	41	33	41	34	3.2
OWT30.1B	1x13mm WET AREA FIRESTOP	1x13mm WET AREA FIRESTOP	R2.5 GW Wall Batts	41	33	41	34	3.2

* R2.5 GW Wall Batts - R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.

For the full range of USG Boral systems refer to usgboral.com/eselector

OUTRWALL

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

OWT60.1

FIRE RESISTANCE LEVEL
LB 60/60/60
FROM OUTSIDE ONLY

FRL Basis: C91580
LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Internal Lining:

1x10mm non fire resistant lining

Framing: Timber Studs

Insulation: Refer to table

External Lining:

1x16mm fire/water resistant pbd

External Cladding:

Lightweight External Cladding on battens over Tyvek® HomeWrap membrane.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F11

SYSTEM	INTERNAL LINING	EXTERNAL LINING	WALL WIDTH mm	96 + CLADDING SYSTEM		116 + CLADDING SYSTEM		MIN TOTAL R-VALUE m²K/W
			STUD SIZE mm	70		90		
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	
OWT60.1A	1x10mm SHEETROCK BRAND WALL BOARD	1x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	39	30	40	33	3.2
OWT60.1B	1x10mm REGULAR	1x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	41	33	41	34	3.2
OWT60.1C	1x10mm WET AREA BOARD	1x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	41	33	41	34	3.2
OWT60.1D	1x10mm FIBEROCK	1x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	42	34	42	35	3.2

* R2.5 GW Wall Batts - R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.

† Refer to Timber Stud Walls section Table D1 for maximum vertical loads on load bearing fire rated walls.

OWT60.2

FIRE RESISTANCE LEVEL
LB 60/60/60
FROM BOTH SIDES

FRL Basis: FCO-0619, FCO-0626
LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Internal Lining:

1x16mm fire resistant pbd

Framing: Timber Studs

Insulation: Refer to table

External Lining:

1x16mm fire/water resistant pbd

External Cladding:

Lightweight External Cladding on battens over Tyvek® HomeWrap membrane.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F11

SYSTEM	INTERNAL LINING	EXTERNAL LINING	WALL WIDTH mm	102 + CLADDING SYSTEM		122 + CLADDING SYSTEM		MIN TOTAL R-VALUE m²K/W
			STUD SIZE mm	70		90		
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	
OWT60.2A	1x16mm FIRESTOP	1x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	42	36	42	38	3.2
OWT60.2B	1x16mm WET AREA FIRESTOP	1x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	42	36	42	38	3.2

* R2.5 GW Wall Batts - R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.

† Refer to Timber Stud Walls section Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector

OUTRWALL

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

OWT90.1

FIRE RESISTANCE LEVEL
LB 90/90/90
 FROM OUTSIDE ONLY

FRL Basis: C91580



SYSTEM DESCRIPTION

Internal Lining:

1x10mm non fire resistant lining

Framing: Timber Studs

Insulation: Refer to table

External Lining:

2x16mm fire/water resistant pbd

External Cladding:

Lightweight External Cladding on battens over Tyvek® HomeWrap membrane.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F11

SYSTEM	LINING SIDE 1	LINING SIDE 2	WALL WIDTH mm	112 + CLADDING SYSTEM		132 + CLADDING SYSTEM		MIN TOTAL R-VALUE m²K/W
			STUD SIZE mm	70		90		
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	
OWT90.1A	1x10mm SHEETROCK BRAND WALL BOARD	2x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	41	36	42	38	3.2
OWT90.1B	1x10mm REGULAR	2x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	43	39	43	40	3.2
OWT90.1C	1x10mm WET AREA	2x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	43	39	43	40	3.2
OWT90.1D	1x10mm FIBEROCK	2x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	44	39	44	40	3.2

* R2.5 GW Wall Batts - R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.

OWT90.2

FIRE RESISTANCE LEVEL
LB 90/90/90
 FROM OUTSIDE
LB 60/60/60
 FROM INSIDE

FRL Basis: C91580

LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

Internal Lining:

1x16mm fire resistant pbd

Framing: Timber Studs

Insulation: Refer to table

Internal Lining:

2x16mm fire/water resistant pbd

External Cladding:

Lightweight External Cladding on battens over Tyvek® HomeWrap membrane.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F11

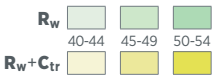
SYSTEM	LINING SIDE 1	LINING SIDE 2	WALL WIDTH mm	118 + CLADDING SYSTEM		138 + CLADDING SYSTEM		MIN TOTAL R-VALUE m²K/W
			STUD SIZE mm	70		90		
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	
OWT90.2A	1x16mm FIRESTOP	2x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	45	41	45	42	3.3
OWT90.2B	1x16mm WET AREA FIRESTOP	2x16mm WET AREA FIRESTOP	R2.5 GW Wall Batts	45	41	45	42	3.3

* R2.5 GW Wall Batts - R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.

† Refer to Timber Stud Walls section Table D1 for maximum vertical loads on load bearing fire rated walls.

For the full range of USG Boral systems refer to usgboral.com/eselector

OUTRWALL



OWT90.3

FIRE RESISTANCE LEVEL
LB 90/90/90
FROM BOTH SIDES

FRL Basis: FCO-2564, C91/103
LOAD BEARING SYSTEM TYPE 1†



SYSTEM DESCRIPTION

- Internal Lining: 2x13mm fire resistant pbd
- Framing: Timber Studs
- Insulation: Refer to table
- External Lining: 2x13mm fire/water resistant pbd
- External Cladding: Lightweight External Cladding on battens over Tyvek® HomeWrap membrane.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F11								
SYSTEM	LINING SIDE 1	LINING SIDE 2	WALL WIDTH mm	122 + CLADDING SYSTEM		142 + CLADDING SYSTEM		MIN TOTAL R-VALUE m²K/W
			STUD SIZE mm	70		90		
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	
OWT90.3A	2x13mm FIRESTOP	2x13mm WET AREA FIRESTOP	R2.5 GW Wall Batts	48	44	48	45	3.3
OWT90.3B	2x13mm WET AREA FIRESTOP	2x13mm WET AREA FIRESTOP	R2.5 GW Wall Batts	48	44	48	45	3.3

* R2.5 GW Wall Batts - R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.
† Refer to Timber Stud Walls section Table D1 for maximum vertical loads on load bearing fire rated walls.

BRICK VENEER WALLS

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

BVT

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FCO-0626, FCO-0021,
FCO-0966



SYSTEM DESCRIPTION

Brick Veneer:

110 clay brick, min 170kg/m²

Framing: Timber

Gap: 50mm

Insulation: Refer to table

Internal Lining:
Refer to table.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F12

SYSTEM	FIRE RESISTANCE LEVEL		INTERNAL LINING	WALL WIDTH mm	230 + LINING		250 + LINING		TOTAL R-VALUE m²K/W
	FROM INSIDE	FROM OUTSIDE		STUD SIZE mm	70		90		
				INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	
BVT.1A	-/-/-	BRICK VENEER FRL	1x10mm SHEETROCK BRAND WALL BOARD	R2.5 GW Wall Batts	59	49	59	50	3.3
BVT.1B	-/-/-	BRICK VENEER FRL	1x10mm REGULAR	R2.5 GW Wall Batts	60	51	61	52	3.3
BVT30.1A	LB 30/30/30	MIN 30/30/30 BRICK VENEER FRL	1x13mm FIRESTOP	R2.5 GW Wall Batts	64	55	65	56	3.3
BVT60.1A LOAD BEARING SYSTEM TYPE 1†	LB 60/60/60	MIN 60/60/60 BRICK VENEER FRL	1x16mm FIRESTOP	R2.5 GW Wall Batts	66	56	67	58	3.3
BVT90.1A LOAD BEARING SYSTEM TYPE 1†	LB 90/90/90	MIN 90/90/90 BRICK VENEER FRL	2x13mm FIRESTOP	R2.5 GW Wall Batts	70	61	71	62	3.3

* R2.5 GW Wall Batts - R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.

† Refer to Timber Stud Walls section Table D1 for maximum vertical loads on load bearing fire rated walls.

BVS

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FAR-4356



SYSTEM DESCRIPTION

Brick Veneer:

110 clay brick, min 170kg/m²

Framing: Steel stud

Gap: 50mm

Insulation: Refer to table

Internal Lining:
Refer to table.

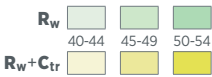
ACOUSTIC RATINGS BASIS: RT&A TE405-05F12

SYSTEM	FIRE RESISTANCE LEVEL		INTERNAL LINING	WALL WIDTH mm	236 + LINING		252 + LINING		TOTAL R-VALUE m²K/W
	FROM INSIDE	FROM OUTSIDE		STUD SIZE mm	76		92		
				INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	
BVS.1A	-/-/-	BRICK VENEER FRL	1x10mm SHEETROCK BRAND WALL BOARD	R2.5 GW Wall Batts	59	49	59	50	3.3
BVS.1B	-/-/-	BRICK VENEER FRL	1x10mm REGULAR	R2.5 GW Wall Batts	60	51	61	52	3.3
BVS60.1A	NLB -/60/60	MIN 60/60/60 BRICK VENEER FRL	1x13mm FIRESTOP	R2.5 GW Wall Batts	64	55	65	56	3.3
BVS90.1A	NLB -/90/90 LB 60/60/60	MIN 90/90/90 BRICK VENEER FRL	1x16mm FIRESTOP	R2.5 GW Wall Batts	66	56	67	58	3.3
BVS90.2A	LB 90/90/90	MIN 90/90/90 BRICK VENEER FRL	2x13mm FIRESTOP	R2.5 GW Wall Batts	70	61	71	62	3.3

* R2.5 GW Wall Batts - R2.5 Pink Wall Batts® glasswool by Fletcher Insulation.

For the full range of USG Boral systems refer to usgboral.com/eselector

FIRECLAD



FC

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FCO-1419, FCO-1555, FCO-1890



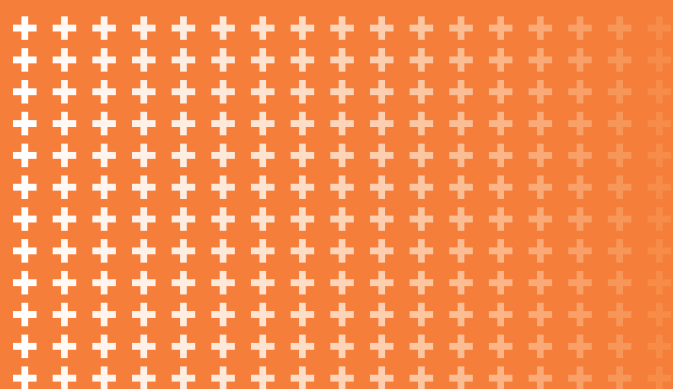
SYSTEM DESCRIPTION

- External Lining:**
- Steel cladding on battens
 - Tyvek Housewrap waterproofing membrane
 - Two or more layers of fire resistant pbd fixed to girts.

ACOUSTIC RATINGS						
SYSTEM	FRL	LINING	NOM WALL WIDTH mm	INSULATION	R _w	R VALUE m²K/W
FC60.1A	60/60/60 from outside only	2x16mm FIRESTOP	Adds 54mm	NA	34	0.5
FC90.1A	90/90/90 from outside only	3x13mm FIRESTOP	Adds 61mm	NA	37	0.5
FC120.1A	120/120/120 from outside only	3x16mm FIRESTOP	Adds 70mm	NA	38	0.5

For the full range of USG Boral systems refer to usgboral.com/eselector

F 2	INTRODUCTION
F 6	ACOUSTIC UPGRADES
F 6	Internal Walls
F 12	Blade Columns
F 14	Shaft/Stair Walls
F 16	AAC Panels
F 18	FIRE UPGRADES



MASONRY UPGRADES

INTRODUCTION

DESCRIPTION

USG Boral Masonry Upgrades encompass a range of Acoustic and Fire Upgrades systems with plasterboard linings on one or both sides of masonry walls.

DESIGN OPTIONS

MASONRY ACOUSTIC UPGRADES

Masonry Acoustic Upgrades systems outlined in this manual achieve acoustic ratings up to $R_w+C_{tr}=63$ ($R_w=75$).

The following types of Acoustic Upgrades systems have been included:

TABLE F1: TYPES OF ACOUSTIC UPGRADES

SYSTEM TYPE	WALL TYPE
MWI	Internal masonry walls
MWB	Enclosed blade columns
MWS	Lift and stair shaft walls

Internal Walls

Acoustic ratings have been provided for the following types of internal masonry walls:

- 150mm Concrete Panel
- 200mm Concrete Panel
- 140mm Concrete Block (core filled)
- 190mm Concrete Block (core filled).

Refer to USG Boral for acoustic upgrades of other types of masonry walls.

Acoustic Upgrades of internal masonry walls utilise 13mm non-fire resistant plasterboard fixed to one or both sides of the wall via:

- Direct adhesive fixings
- 28mm furring channels
- Free standing 64mm studs.

Blade Columns

Acoustic upgrades of enclosed blade columns are provided for 150mm and 200mm concrete thicknesses.

Lining configurations are based on various fire rated steel stud wall systems with the following fixing options:

- 28mm furring channels on both sides
- 28mm furring channel on one side and free standing 64mm studs on the other side.

Shaft/Stair Walls

Acoustic upgrades of shaft and stair walls are based on the same masonry and lining types as upgrades of internal walls, with linings fixed only to one side of the wall via 28mm furring channels or free standing 64mm steel studs.

Autoclaved Aerated Concrete (AAC) Panels

Acoustic ratings have been provided for 75mm AAC panels.

MASONRY FIRE UPGRADES

Masonry Fire Upgrades systems outlined in this manual provide additional Fire Resistance Levels up to +90/+90/+90 from one side only or +90/+180/+180 from both sides.

Fire Upgrades systems utilise single or multiple layers of fire resistant plasterboard fixed to one or both sides of masonry walls on 28mm furring channels.

» INTRODUCTION

MATERIALS

MASONRY ACOUSTIC UPGRADES

Plasterboard Linings

- 13mm SHEETROCK Brand Standard plasterboard
- 13mm Regular plasterboard
- 13mm Soundstop plasterboard
- 13mm/16mm Firestop plasterboard (blade columns).

Metal components

- Rondo 129 Furring Channel and direct fixing clips
- Rondo 64mm C-studs and tracks.

Insulation

- 25mm Pink® Partition 24kg/m³ glasswool by Fletcher Insulation
- 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation
- 75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation
- 30mm polyester insulation 14kg/m³
- 75mm polyester insulation 14kg/m³

Screws

Refer to General Information – Materials for plasterboard screw types suitable for fixing to metal sections.

Masonry Adhesive

USG Boral Masonry Adhesive is a plaster-based setting compound that has been specifically designed for direct fixing of plasterboard linings to masonry walls.

Caulking

H.B. Fuller Firesound sealant.

MASONRY FIRE UPGRADES

Plasterboard Linings

- 13mm Firestop plasterboard
- 16mm Firestop plasterboard.

Metal components

- Rondo 129 Furring Channel and direct fixing clips.

Screws

Refer to General Information – Materials for plasterboard screw types suitable for fixing to metal sections.

Caulking

H.B. Fuller Firesound sealant.

DESIGN CONSIDERATIONS

- Refer to the Multi-Residential section for BCA Acoustic and Fire Resistance requirements for multi-residential buildings.
- Systems with free standing steel studs satisfy BCA requirements for impact sound insulation as well as allow a cavity space for services to run between the masonry wall and plasterboard.
- Beware of flanking sound effects on acoustic performance (refer to General Information – Design).
- Refer Steel Stud Walls section for maximum heights of 64mm studs lined one side.
- Refer to masonry manufacturer for Fire Resistance Levels of masonry walls.

» INTRODUCTION

INSTALLATION

GENERAL

- Fire rated and acoustic upgrade systems must be assembled strictly in accordance with the installation details and specifications outlined in this manual to achieve stated Fire Resistance Levels and acoustic ratings.
- Blockwork masonry walls must be constructed in accordance with AS 3700 *Masonry Structures*.
- Concrete walls must be constructed in accordance with AS 3600 *Concrete Structures*.
- Refer to AAC manufacturer's specification for AAC system installation instructions.

MASONRY ADHESIVE METHOD

NOTE:

Masonry adhesive method must not be used for installation of fire resistant linings in fire upgrade systems.

- It is essential that all new masonry surfaces be allowed to dry to normal levels before installing USG Boral plasterboards.
- Masonry walls in wet areas, such as bathrooms and laundries may be lined with Wet Area Board or Fiberock as per the wet area installation requirements (refer USG Boral Plasterboard Installation Manual). Linings in tiled areas must be mechanically fastened.
- Masonry walls should be checked for flatness and level using a straight edge or string line before determining the fixing method.
- Wall surfaces with high/low spots over 15mm or out of plumb by more than 15mm will need to be straightened with a series of levelling pads.

- Masonry adhesive method should not be used for walls over 3m high or where the wall surface requires more than 25mm of packing to bring it back to a true line.
- All services should be in place prior to plasterboard installation.
- Masonry walls must be dry and free from dust, oil, flaking paint, efflorescence, release agents, or any other material or treatment that could adversely affect bonding of masonry adhesive.
- Adhesion can also be affected by the porosity and/or previous surface treatment of a wall. Surfaces that are particularly dry or porous may need to be dampened. For best results masonry walls should be coated with a bonding agent before applying masonry adhesive.
- Masonry adhesive daubs should be about 50mm diameter by 15mm thickness. Space adhesive daubs at maximum 450mm centres vertically and horizontally and 50mm from sheet ends and edges.
- Ribbons or additional daubs of masonry adhesive must be applied at sheet ends and at cornice and skirting lines. Additional daubs of masonry adhesive are also required at external angles and fixtures.

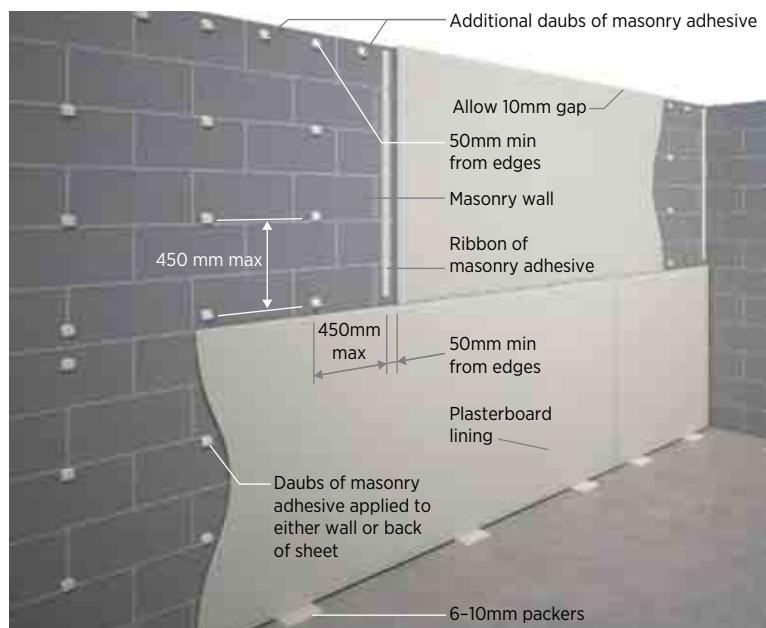


Figure F1: Fixing to a true wall surface

For detailed Masonry Adhesive Method installation instructions refer to USG Boral Plasterboard Installation Manual.

» INTRODUCTION

INSTALLATION USING FURRING CHANNELS

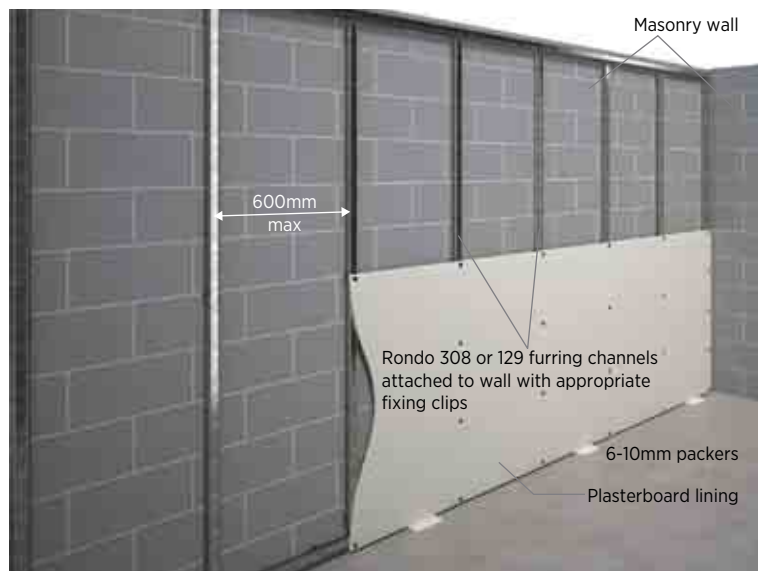


Figure F2: **Fixing to furring channels clipped to wall**

- Set out fixing clips for vertical channels spaced at maximum 600mm centres and for top and bottom horizontal channels. Pack clips where required to achieve a true surface.
- Fix clips to masonry with suitable fasteners.
- Fix plasterboard to furring channels using an appropriate method.
- Refer to Steel Stud Wall section for plasterboard installation instructions for fire rated and non-fire rated systems.

NOTES:

- Fire resistant linings in fire upgrade systems must be mechanically fixed. Adhesive fixing is not permitted.
- In fire upgrade systems clips must be fixed to masonry with metal only fasteners. Plastic sleeves are not permitted.

INSTALLATION ON STEEL STUDS

Refer to Steel Stud Walls and Junctions and Penetrations sections for installation instructions for fire rated and non-fire rated systems.

JOINTING AND FINISHING

- Finish all joints and internal and external corners in face layers with the appropriate USG Boral jointing system (refer to USG Boral Plasterboard Installation Manual). Joints and junctions in inner layers of multiple layer systems are not required to be stopped.
- Paper tape must be used in fire rated and wet area systems.

CAULKING

Perimeter gaps and penetrations in fire rated and acoustic systems must be caulked with an approved sealant (refer to Junctions and Penetrations).

ACOUSTIC UPGRADES - INTERNAL WALLS

R_w	40-44	45-49	50-54
R_w+C_{tr}			

MWI.1

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side 1:

- 1x13mm non fire resistant pbd, adhesive fixed

Masonry:

- Refer to table

Side 2:

- 1x13mm non fire resistant pbd, adhesive fixed.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION	R _w	R _w +C _{tr}
					SIDE 1	SIDE 2			
MWI.1A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	150mm Concrete Panel	180	NA	NA	Nil	44	39
			200mm Concrete Panel	230	NA	NA	Nil	47	42
			140mm Concrete Block (Core Filled)	170	NA	NA	Nil	48	43
			190mm Concrete Block (Core Filled)	220	NA	NA	Nil	52	45
MWI.1B	1x13mm REGULAR	1x13mm REGULAR	150mm Concrete Panel	180	NA	NA	Nil	46	41
			200mm Concrete Panel	230	NA	NA	Nil	49	44
			140mm Concrete Block (Core Filled)	170	NA	NA	Nil	50	45
			190mm Concrete Block (Core Filled)	220	NA	NA	Nil	52	48

ACOUSTIC UPGRADES - INTERNAL WALLS

R_w	40-44	45-49	50-54
R_w+C_{tr}			

MWI.2

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side 1:

- 1x13mm non-fire resistant pbd, adhesive fixed

Masonry:

- Refer to table

Side 2:

- 1x13mm non fire resistant pbd
- 28mm furring channels @ 600mm ctrs fixed to masonry wall with direct fix clips
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION*	R_w	R_w+C_{tr}
					SIDE 1	SIDE 2			
MWI.2A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	150mm Concrete Panel	208	NA	30	Nil	48	41
							25G24, 30P14 (furring cavity)	55	45
			200mm Concrete Panel	258	NA	30	Nil	51	44
							25G24, 30P14 (furring cavity)	58	48
			140mm Concrete Block (Core Filled)	198	NA	30	Nil	46	41
							25G24, 30P14 (furring cavity)	54	44
			190mm Concrete Block (Core Filled)	248	NA	30	Nil	49	43
							25G24, 30P14 (furring cavity)	56	45
MWI.2B	1x13mm REGULAR	1x13mm REGULAR	150mm Concrete Panel	208	NA	30	Nil	50	43
							25G24, 30P14 (furring cavity)	57	47
				228	NA	50	Nil	53	44
							50G11, 50P14 (furring cavity)	63	50
			200mm Concrete Panel	258	NA	30	Nil	53	46
							25G24, 30P14 (furring cavity)	60	50
			140mm Concrete Block (Core Filled)	198	NA	30	Nil	48	43
							25G24, 30P14 (furring cavity)	56	46
				218	NA	50	Nil	51	45
							50G11, 50P14 (furring cavity)	61	50
			190mm Concrete Block (Core Filled)	248	NA	30	Nil	56	50
							25G24, 30P14 (furring cavity)	63	52
MWI.2C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	140mm Concrete Block (Core Filled)	218	NA	50	Nil	53	50
							50G11, 50P14 (furring cavity)	63	54

* 25G24 - 25mm Pink® Partition 24kg/m³ glasswool by Fletcher Insulation, 30/50P14 - 30/50mm polyester insulation 14kg/m³ density. 50G11 - 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation.

ACOUSTIC UPGRADES - INTERNAL WALLS

R_w	40-44	45-49	50-54
R_w+C_{tr}			

MWI.3

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side 1:

- 1x13mm non fire resistant pbd
- 28mm furring channels @ 600mm ctrs fixed to masonry wall with direct fix clips
- Insulation (refer to table)

Masonry:

- Refer to table

Side 2:

- 1x13mm non fire resistant pbd
- 28mm furring channels @ 600mm ctrs fixed to masonry wall with direct fix clips
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION*	R _w	R _w +C _{tr}
					SIDE 1	SIDE 2			
MWI.3A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	150mm Concrete Panel	236	30	30	Nil	48	39
							25G24, 30P14 (both cavities)	59	46
			200mm Concrete Panel	286	30	30	Nil	51	42
							25G24, 30P14 (both cavities)	62	49
			140mm Concrete Block (Core Filled)	226	30	30	Nil	48	40
							25G24, 30P14 (both cavities)	56	42
			190mm Concrete Block (Core Filled)	276	30	30	Nil	50	40
							25G24, 30P14 (both cavities)	59	46
MWI.3B	1x13mm REGULAR	1x13mm REGULAR	150mm Concrete Panel	236	30	30	Nil	50	41
							25G24, 30P14 (both cavities)	61	50
			200mm Concrete Panel	286	30	30	Nil	53	44
							25G24, 30P14 (both cavities)	64	53
			140mm Concrete Block (Core Filled)	226	30	30	Nil	50	42
							25G24, 30P14 (both cavities)	58	44
			190mm Concrete Block (Core Filled)	276	30	30	Nil	52	42
							25G24, 30P14 (both cavities)	61	48
MWI.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	140mm Concrete Block (Core Filled)	266	50	50	Nil	52	43
							50G11, 50P14 (both cavities)	64	50
			190mm Concrete Block (Core Filled)	276	30	30	Nil	54	44
							25G24, 30P14 (both cavities)	62	50
							Nil	54	44
							50G11, 50P14 (both cavities)	62	50
							Nil	54	44
							50G11, 50P14 (both cavities)	62	50

* 25G24 - 25mm Pink* Partition 24kg/m³ glasswool by Fletcher Insulation, 30/50P14 - 30/50mm polyester insulation 14kg/m³ density. 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

ACOUSTIC UPGRADES - INTERNAL WALLS

MWI.4

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side 1:

- 1x13mm non fire resistant pbd, adhesive fixed

Masonry:

- Refer to table

Side 2:

- 1x13mm non fire resistant pbd
- 64mm C-studs @ 600mm ctrs
- 20mm gap between steel frame and masonry
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION*	R_w	R_w+C_{tr}
					SIDE 1	SIDE 2			
MWI.4A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	150mm Concrete Panel	260	NA	84	Nil	52	46
							75G11, 75P14 (stud cavity)	65	56
			200mm Concrete Panel	310	NA	84	Nil	55	49
							75G11, 75P14 (stud cavity)	65	59
			140mm Concrete Block (Core Filled)	250	NA	84	Nil	51	45
							75G11, 75P14 (stud cavity)	64	56
			190mm Concrete Block (Core Filled)	300	NA	84	Nil	53	46
							75G11, 75P14 (stud cavity)	66	56
MWI.4B	1x13mm REGULAR	1x13mm REGULAR	150mm Concrete Panel	260	NA	84	Nil	54	48
							75G11, 75P14 (stud cavity)	67	58
			200mm Concrete Panel	310	NA	84	Nil	57	51
							75G11, 75P14 (stud cavity)	70	61
			140mm Concrete Block (Core Filled)	250	NA	84	Nil	53	47
							75G11, 75P14 (stud cavity)	66	58
			190mm Concrete Block (Core Filled)	300	NA	84	Nil	58	50
							75G11, 75P14 (stud cavity)	68	58
MWI.4C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	150mm Concrete Panel	260	NA	84	Nil	56	50
							75G11, 75P14 (stud cavity)	69	60
			140mm Concrete Block (Core Filled)	250	NA	84	Nil	56	50
							75G11, 75P14 (stud cavity)	69	60

* 75G11 - 75mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation, 75P14 - 75mm polyester insulation 14kg/m³ density.

ACOUSTIC UPGRADES - INTERNAL WALLS

R_w	40-44	45-49	50-54
R_w+C_{tr}			

MWI.5

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side 1:

- 1x13mm non fire resistant pbd
- 28mm furring channels @ 600mm ctrs fixed to masonry wall with direct fix clips
- Insulation (refer to table)

Masonry:

- Refer to table

Side 2:

- 1x13mm non fire resistant pbd
- 64mm C-studs @ 600mm ctrs
- 20mm gap between steel frame and masonry
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION*	R _w	R _w +C _{tr}
					SIDE 1	SIDE 2			
MWI.5A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	150mm Concrete Panel	290	30	84	Nil	57	47
							75G11, 75P14 (stud cavity only)	65	52
			200mm Concrete Panel	340	30	84	Nil	60	50
							75G11, 75P14 (stud cavity only)	68	55
			140mm Concrete Block (Core Filled)	280	30	84	Nil	56	46
							75G11, 75P14 (stud cavity only)	65	51
MWI.5B	1x13mm REGULAR	1x13mm REGULAR	190mm Concrete Block (Core Filled)	330	30	84	Nil	58	48
							75G11, 75P14 (stud cavity only)	69	54
			150mm Concrete Panel	290	30	84	Nil	60	50
							75G11, 75P14 (stud cavity only)	68	55
			200mm Concrete Panel	340	30	84	Nil	63	53
							75G11, 75P14 (stud cavity only)	71	58
			140mm Concrete Block (Core Filled)	280	30	84	Nil	59	49
							75G11, 75P14 (stud cavity only)	68	54
			190mm Concrete Block (Core Filled)	330	30	84	Nil	61	51
							75G11, 75P14 (stud cavity only)	71	57

* 75G11 - 75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation, 75P14 - 75mm polyester insulation 14kg/m³ density.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

ACOUSTIC UPGRADES - INTERNAL WALLS

MWI.6

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side 1:

- 1x13mm non fire resistant pbd
- 64mm C-studs @ 600mm ctrs
- 20mm gap between steel frame and masonry
- Insulation (refer to table)

Masonry:

- Refer to table

Side 2:

- 1x13mm non fire resistant pbd
- 64mm C-studs @ 600mm ctrs
- 20mm gap between steel frame and masonry
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION*	R_w	R_w+C_{tr}
					SIDE 1	SIDE 2			
MWI.6A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	150mm Concrete Panel	344	84	84	Nil	57	45
							75G11, 75P14 (both cavities)	69	57
			200mm Concrete Panel	394	84	84	Nil	60	48
							75G11, 75P14 (both cavities)	72	60
			140mm Concrete Block (Core Filled)	334	84	84	Nil	58	44
							75G11, 75P14 (both cavities)	68	54
MWI.6B	1x13mm REGULAR	1x13mm REGULAR	150mm Concrete Panel	344	84	84	Nil	60	48
							75G11, 75P14 (one cavity)	65	55
							75G11, 75P14 (both cavities)	72	60
			200mm Concrete Panel	394	84	84	Nil	63	51
							75G11, 75P14 (one cavity)	68	58
							75G11, 75P14 (both cavities)	75	63
			140mm Concrete Block (core filled)	334	84	84	Nil	61	47
							75G11, 75P14 (one cavity)	64	54
							75G11, 75P14 (both cavities)	71	57
			190mm Concrete Block (core filled)	384	84	84	Nil	62	48
							75G11, 75P14 (one cavity)	65	55
							75G11, 75P14 (both cavities)	73	59

* 75G11 - 75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation, 75P14 - 75mm polyester insulation 14kg/m³ density.

ACOUSTIC UPGRADES - BLADE COLUMNS

R_w	40-44	45-49	50-54
R_w+C_{tr}			

MWB.1

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side1:

- One or more layers of fire resistant pbd
- 28mm furring channels @ 600mm ctrs fixed to concrete wall with direct fix clips
- Insulation (refer to table)

Concrete panel:

- Refer to table

Lining Side 2:

- One or more layers of fire resistant pbd
- 28mm furring channels @ 600mm ctrs fixed to concrete wall with direct fix clips
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION*	R _w	R _w +C _{tr}
					SIDE 1	SIDE 2			
MWB.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	150mm Concrete Panel	236	30	30	Nil	51	42
							25G24, 30P14 (both cavities)	62	51
			200mm Concrete Panel	286	30	30	Nil	53	44
							25G24, 30P14 (both cavities)	64	55
MWB.1B	1x13mm FIRESTOP	2x13mm FIRESTOP	150mm Concrete Panel	249	30	30	Nil	54	45
							25G24, 30P14 (both cavities)	65	54
			200mm Concrete Panel	299	30	30	Nil	56	47
							25G24, 30P14 (both cavities)	67	58
MWB.1C	2x13mm FIRESTOP	2x13mm FIRESTOP	150mm Concrete Panel	262	30	30	Nil	57	47
							25G24, 30P14 (both cavities)	68	56
			200mm Concrete Panel	312	30	30	Nil	59	49
							25G24, 30P14 (both cavities)	70	60
MWB.1D	1x16mm FIRESTOP	1x16mm FIRESTOP	150mm Concrete Panel	242	30	30	Nil	53	44
							25G24, 30P14 (both cavities)	64	53
			200mm Concrete Panel	292	30	30	Nil	55	46
							25G24, 30P14 (both cavities)	66	57
MWB.1E	2x16mm FIRESTOP	2x16mm FIRESTOP	150mm Concrete Panel	274	30	30	Nil	59	49
							25G24, 30P14 (both cavities)	70	58
			200mm Concrete Panel	324	30	30	Nil	61	51
							25G24, 30P14 (both cavities)	72	62

* 25G24 - 25mm Pink® Partition 24kg/m³ glasswool by Fletcher Insulation, 30P14 - 30mm polyester insulation 14kg/m³ density.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

ACOUSTIC UPGRADES - BLADE COLUMNS

MWB.2

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side1:

- One or more layers of fire resistant pbd
- 28mm furring channels @ 600mm ctrs fixed to concrete wall with direct fix clips
- Insulation (refer to table)

Concrete panel:

- Refer to table

Side 2:

- One or more layers of fire resistant pbd
- 64mm steel studs @ 600mm ctrs
- 20mm gap between steel frame and concrete wall
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION*	R_w	R_w+C_{tr}
					SIDE 1	SIDE 2			
MWB.2A	1x13mm FIRESTOP	1x13mm FIRESTOP	150mm Concrete Panel	290	30	84	Nil	60	50
							75G11, 75P14 (stud cavity only)	68	55
			200mm Concrete Panel	340	30	84	Nil	62	52
							75G11, 75P14 (stud cavity only)	71	58
MWB.2B	1x13mm FIRESTOP	2x13mm FIRESTOP	150mm Concrete Panel	303	30	84	Nil	63	53
							75G11, 75P14 (stud cavity only)	71	58
			200mm Concrete Panel	353	30	84	Nil	66	56
							75G11, 75P14 (stud cavity only)	74	61
MWB.2C	2x13mm FIRESTOP	2x13mm FIRESTOP	150mm Concrete Panel	316	30	84	Nil	66	55
							75G11, 75P14 (stud cavity only)	74	60
			200mm Concrete Panel	366	30	84	Nil	69	58
							75G11, 75P14 (stud cavity only)	77	63
MWB.2D	1x16mm FIRESTOP	1x16mm FIRESTOP	150mm Concrete Panel	296	30	84	Nil	62	52
							75G11, 75P14 (stud cavity only)	70	57
			200mm Concrete Panel	346	30	84	Nil	64	54
							75G11, 75P14 (stud cavity only)	72	59
MWB.2E	2x16mm FIRESTOP	2x16mm FIRESTOP	150mm Concrete Panel	328	30	84	Nil	68	57
							75G11, 75P14 (stud cavity only)	76	62
			200mm Concrete Panel	378	30	84	Nil	71	60
							75G11, 75P14 (stud cavity only)	79	65

* 75G11 - 75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation, 75P14 - 75mm polyester insulation 14kg/m³ density.

ACOUSTIC UPGRADES - SHAFT/STAIR WALLS

R_w	40-44	45-49	50-54
R_w+C_{tr}			

MWS.1

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side 1:

- Nil linings

Masonry:

- Refer to table

Side 2:

- 1x13mm non fire resistant pbd
- 28mm furring channels @ 600mm ctrs fixed to masonry wall with direct fix clips
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION*	R _w	R _w +C _{tr}
					SIDE 1	SIDE 2			
MWS.1A	Nil	1x13mm SHEETROCK BRAND STANDARD	150mm Concrete Panel	193	NA	30	Nil	48	41
							25G24, 30P14 (furring cavity)	55	44
			200mm Concrete Panel	243	NA	30	Nil	51	44
							25G24, 30P14 (furring cavity)	58	48
			140mm Concrete Block (Core Filled)	183	NA	30	Nil	46	41
							25G24, 30P14 (furring cavity)	54	44
			190mm Concrete Block (Core Filled)	233	NA	30	Nil	49	43
							25G24, 30P14 (furring cavity)	56	44
MWS.1B	Nil	1x13mm REGULAR	150mm Concrete Panel	193	NA	30	Nil	49	43
							25G24, 30P14 (furring cavity)	56	46
				213	NA	50	Nil	52	43
							25G24, 30P14 (furring cavity)	63	50
			200mm Concrete Panel	243	NA	30	Nil	53	46
							25G24, 30P14 (furring cavity)	60	49
				183	NA	30	Nil	48	43
							25G24, 30P14 (furring cavity)	55	46
			140mm Concrete Block (Core Filled)	203	NA	50	Nil	50	44
							25G24, 30P14 (furring cavity)	61	50
				233	NA	30	Nil	56	50
							25G24, 30P14 (furring cavity)	62	52
MWS.1C	Nil	1x13mm SOUNDSTOP	140mm Concrete Block (Core Filled)	203	NA	50	Nil	53	50
							25G24, 30P14 (furring cavity)	62	53

* 25G24 - 25mm Pink* Partition 24kg/m³ glasswool by Fletcher Insulation, 30P14 - 30mm polyester insulation 14kg/m³ density.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

ACOUSTIC UPGRADES - SHAFT/STAIR WALLS

MWS.2

FIRE RESISTANCE LEVEL
(refer masonry manufacturer)



SYSTEM DESCRIPTION

Side 1:

- Nil linings

Masonry:

- Refer to table

Side 2:

- 1x13mm non fire resistant pbd
- 64mm C-studs @ 600mm ctrs
- 20mm gap between steel frame and masonry
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F13

SYSTEM	LINING SIDE 1	LINING SIDE 2	MASONRY TYPE	NOM WALL WIDTH mm	CAVITY mm		INSULATION*	R_w	R_w+C_{tr}
					SIDE 1	SIDE 2			
MWS.2A	Nil	1x13mm SHEETROCK BRAND STANDARD	150mm Concrete Panel	247	NA	84	Nil	51	44
							75G11, 75P14 (stud cavity)	64	55
			200mm Concrete Panel	297	NA	84	Nil	55	49
							75G11, 75P14 (stud cavity)	65	59
			140mm Concrete Block (Core Filled)	237	NA	84	Nil	51	45
							75G11, 75P14 (stud cavity)	64	55
			190mm Concrete Block (Core Filled)	287	NA	84	Nil	53	46
							75G11, 75P14 (stud cavity)	66	56
MWS.2B	Nil	1x13mm REGULAR	150mm Concrete Panel	247	NA	84	Nil	53	47
							75G11, 75P14 (stud cavity)	66	58
			200mm Concrete Panel	297	NA	84	Nil	56	51
							75G11, 75P14 (stud cavity)	67	61
			140mm Concrete Block (Core Filled)	237	NA	84	Nil	52	47
							75G11, 75P14 (stud cavity)	66	58
			190mm Concrete Block (Core Filled)	287	NA	84	Nil	58	50
							75G11, 75P14 (stud cavity)	67	58
MWS.2C	Nil	1x13mm SOUNDSTOP	150mm Concrete Panel	247	NA	84	Nil	54	48
							75G11, 75P14 (stud cavity)	69	59
			140mm Concrete Block (Core Filled)	237	NA	84	Nil	56	50
							75G11, 75P14 (stud cavity)	69	59

* 75G11 - 75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 75P14 - 75mm polyester insulation 14kg/m³ density.

ACOUSTIC UPGRADES - AAC PANELS

R_w	40-44	45-49	50-54
R_w+C_{tr}			

AAC.1

FIRE RESISTANCE LEVEL
(refer AAC panel manufacturer)



SYSTEM DESCRIPTION

Side 1:

- 1x13mm non fire resistant pbd adhesive fixed to AAC panels (refer to table)

Fire Barrier:

- 75mm AAC panel min 500kg/m³ density

Side 2:

- 1x13mm non fire resistant pbd (refer to table)
- 64mm C-studs @ 600mm ctrs
- 20mm gap between steel frame and AAC panels
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F21

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R _w	R _w +C _{tr}
AAC.1A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	185 (20)	50G11	56	46
AAC.1B	1x13mm REGULAR	1x13mm REGULAR	185 (20)	50G11	58	48
AAC.1C	1x13mm REGULAR	1x13mm REGULAR	200 (35)	75G11	60	50

* 50/75G11 - 50/75mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation.

AAC.2

FIRE RESISTANCE LEVEL
(refer AAC panel manufacturer)



SYSTEM DESCRIPTION

Side 1:

- 1x13mm non fire resistant pbd (refer to table)
- 28mm furring channels @ 600mm ctrs fixed to AAC panels with direct fix clips

Fire Barrier:

- 75mm AAC panels min 500kg/m³ density

Side 2:

- 1x13mm non fire resistant pbd (refer to table)
- 64mm C-studs @ 600mm ctrs
- 20mm gap between steel frame and AAC panels
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F21

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R _w	R _w +C _{tr}
AAC.2A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	215 (20)	50G11 (stud cavity only)	54	43
AAC.2B	1x13mm REGULAR	1x13mm REGULAR	215 (20)	50G11 (stud cavity only)	53	42

* 50G11 - 50mm Pink* Partition 11kg/m³ glasswool by Fletcher Insulation.

R_w	40-44	45-49	50-54
R_w+C_{tr}			

ACOUSTIC UPGRADES - AAC PANELS

AAC.3

FIRE RESISTANCE LEVEL
(refer AAC panel manufacturer)



SYSTEM DESCRIPTION

Side 1:

- 1x13mm non fire resistant pbd (refer to table)
- 64mm C-studs @ 600mm ctrs
- 20mm gap between steel frame and AAC panels
- Insulation (refer to table)

Fire Barrier:

- 75mm AAC panels min 500kg/m³ density

Side 2:

- 1x13mm non fire resistant pbd (refer to table)
- 64mm C-studs @ 600mm ctrs
- 20mm gap between steel frame and AAC panels
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F21

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R_w	R_w+C_{tr}
AAC.3A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	270 (20)	50G11 (both cavities)	64	50
AAC.3B	1x13mm REGULAR	1x13mm REGULAR	270 (20)	50G11 (both cavities)	66	52

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation.

FIRE UPGRADES

MW

FIRE RESISTANCE LEVEL (refer to table)

FRL Basis: FCO-0394R



SYSTEM DESCRIPTION

Lining Side 1:

- Refer to table

Masonry wall:

- fire rated or non fire rated masonry wall

Lining Side 2:

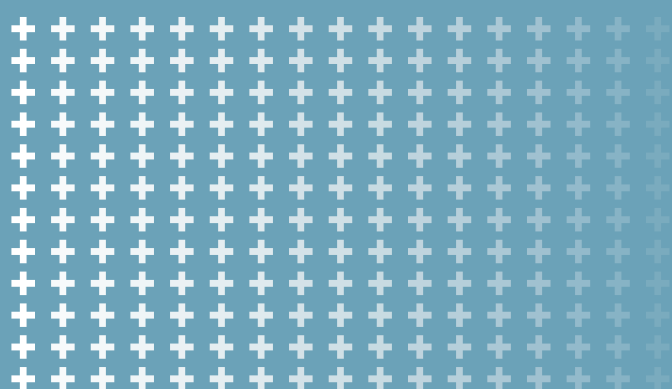
- Refer to table.

FIRE RATINGS

SYSTEM	ADDITIONAL FRL	LINING SIDE 1	LINING SIDE 2
MW30.1A	+30/+30/+30 from lined side only	1x16mm FIRESTOP on 28mm furring channels @ 600mm ctrs	Nil
MW30.2A	+30/+60/+60 from both sides	1x16mm FIRESTOP on 28mm furring channels @ 600mm ctrs	1x16mm FIRESTOP on 28mm furring channels @ 600mm ctrs
MW60.1A	+60/+60/+60 from lined side only	2x13mm FIRESTOP on 28mm furring channels @ 600mm ctrs	Nil
MW60.2A	+60/+120/+120 from both sides	2x13mm FIRESTOP on 28mm furring channels @ 600mm ctrs	2x13mm FIRESTOP on 28mm furring channels @ 600mm ctrs
MW90.1A	+90/+90/+90 from lined side only	2x16mm FIRESTOP on 28mm furring channels @ 600mm ctrs	Nil
MW90.2A	+90/+180/+180 from both sides	2x16mm FIRESTOP on 28mm furring channels @ 600mm ctrs	2x16mm FIRESTOP on 28mm furring channels @ 600mm ctrs

G 2	INTRODUCTION
G 11	CEILING UNDER TIMBER FLOOR
G 18	CEILING UNDER CONCRETE FLOOR
G 20	CEILINGS UNDER ROOF
G 24	SPANNING CEILINGS
G 26	ACOUSTIC CEILINGS
G 28	OVER PARTITION SYSTEMS

CEILINGS



INTRODUCTION

CONVENTIONAL CEILINGS

DESCRIPTION

USG Boral conventional ceilings comprise single or multiple-layer plasterboard linings attached to the underside of floor or roof structure above.

DESIGN OPTIONS

USG Boral offers a wide range of plasterboard ceiling systems for application under floors or roofs.

CEILINGS UNDER TIMBER FLOORS

Acoustic ratings are provided for ceilings under timber framed floors with min 240mm joists, 19mm particleboard and the following floor covering options:

- Timber flooring (min 8.5kg/m²) with or without acoustic underlay
- Carpet with foam underlay
- Ceramic Floor Tiles on nom 6mm Cement Sheet (total mass min 15kg/m²).

Non-fire rated ceiling systems are available with acoustic ratings up to $R_w=53$ or $R_w+C_{tr}=47$.

FIRE RATED CEILINGS

Fire rated ceiling systems are available with Fire Resistance Levels up to 120/120/120, Resistance to Incipient Spread of Fire (RISF) up to 120min, and acoustic ratings up to $R_w=60$ or $R_w+C_{tr}=55$.

CEILINGS UNDER CONCRETE FLOORS

Acoustic ratings for ceilings under concrete floors are provided for 150mm and 200mm slab thicknesses and the following floor coverings:

- Timber flooring (min 8.5kg/m²) with or without acoustic underlay.
- Carpet + underlay.
- Tiled floor with or without acoustic underlay.

CEILINGS UNDER ROOFS

Acoustic ratings for ceilings under roofs are provided for:

- Tiled pitched roofs with sarking
- Metal pitched roofs with roofing blanket insulation
- Metal Flat Roofs with roofing blanket insulation and min 190mm rafters.

ATTACHMENT OPTIONS

Ceiling attachment options vary depending on the structure above and include:

- Direct fixed
- Furred
- Furred with acoustic mounts
- Suspended
- Suspended with acoustic mounts.

DESIGN CONSIDERATIONS

- USG Boral ceiling systems are not designed to support the weight of construction or maintenance personnel, additional plant or storage of goods.
- Fire rated ceiling can be curved to a minimum radius of 6000mm.
- Ceiling can be constructed to a pitch of up to 70 degrees from the Horizontal.
- Ceiling systems can incorporate the following approved features: Access Panels, Bulkheads, Light & Luminaire fittings, Plumbing Pipe penetrations, Power Cable penetrations, Loaded penetrations, Control Joints, Protection to Steel and Timber Beams, Changes in ceiling slope direction and a variety of Perimeter Details.
- The use of false ceilings may eliminate the need for penetrations in fire rated ceilings. Refer USG Boral for acoustic rating of fire rated ceiling systems with false ceilings.
- Suspension grids must be installed in accordance with Rondo and USG Boral specifications.

NOTES

- Each suspension point must be capable of supporting a weight of 50kg in addition to the self-weight of the system and pressure loads.
- Extra suspension components must be provided to support light fittings, bulkheads and other fixtures.

- Plasterboard spans and total loads directly supported on ceiling linings must not exceed the values indicated in Table G1. Any additional loads must be independently supported from a roof or ceiling structure.
- Spans of Rondo 129 furring channels must not exceed the values indicated in Table G2.
- Spacings of acoustic ceiling mounts must not exceed the values indicated in Table G3.
- Refer to USG Boral for maximum spans and spacings of USG Boral Drywall Grid System.

» INTRODUCTION

TABLE G1: MAXIMUM LOADS AND SPANS FOR INTERNAL NON-FIRE RATED CEILINGS

PLASTERBOARD TYPE	SPAN mm	MAXIMUM TOTAL LOAD* FOR GIVEN WIND CLASS kg/m ²			
		N1	N2	N3	N4
10mm SHEETROCK BRAND CEILING BOARD 13mm SHEETROCK BRAND STANDARD	600 (max)	2.6 [†]	2.6 [†]	2.0	2.0
	450	2.6 [†]			
10mm UNISPAN 13mm REGULAR	600 (max)	2.0			
	450	2.6 [†]			
10mm SHEETROCK BRAND WALL BOARD 10mm REGULAR 10mm WET AREA BOARD	450 (max)	2.0			

* Total Load includes weight of insulation and any fixtures directly supported on ceiling linings.

† 1/3 Fixing method or full screw fixing must be used for non-fire rated ceilings if directly supported load exceeds 2.0kg/m² (maximum load 2.6kg/m²).

NOTE:

Loads in excess of the above must be supported independently from a roof or ceiling structure.

TABLE G2: MAXIMUM SPANS OF CONTINUOUS RONDO 129 FURRING CHANNELS

CEILING LINING	WIND CLASS N2		WIND CLASS N3	
	@ 450mm	@ 600mm	@ 450mm	@ 600mm
1x10mm (7.2kg/m ² max)	2070	1900	1850	1630
1x13mm (9.2kg/m ² max)	2060	1850	1810	1600
1x16mm (13kg/m ² max)	1890	1760	1750	1540
2x10mm (14.4kg/m ² max)	1680	1530	1680	1525
2x13mm (18.4kg/m ² max)	1650	1530	1650	1470
2x16mm (26kg/m ² max)	1510	1400	1510	1390

Source: Rondo Building Services

TABLE G3: MAXIMUM SPANS AND SPACINGS OF FURRING CHANNELS WITH ACOUSTIC MOUNTS*

PLASTERBOARD LININGS	JOISTS @ 450mm		JOISTS @ 600mm	
	FURRING CHANNEL SPAN mm	FURRING CHANNEL SPACING mm	FURRING CHANNEL SPAN mm	FURRING CHANNEL SPACING mm
1x13mm SOUNDSTOP or FIRESTOP	1350 (R, B)	600	1200 (R, B)	600
1x16mm FIRESTOP	1350 (R, B)	600	1200 (R, B)	600
2x13mm SOUNDSTOP or FIRESTOP	1350 (W)	600	1200 (R, B)	600
1x13mm + 1x16mm FIRESTOP	1350 (W)	600	1200 (B)	600
2x16mm FIRESTOP	1350 (W)	600	1200 (W)	600
	900 (R, B)	600	600 (R, B)	600
3x16mm FIRESTOP	900 (W)	600	1200 (W)	450
4x16mm FIRESTOP	900 (W)	450	600 (W)	600
	450 (R, B)	450	600 (R, B)	450

* Based on maximum allowable loads with acoustic mounts

Legend:

R Rondo STWC Sound Isolation Mount (max load 16kg/mount)

B Embelton Acoustic Mount – 'Blue' dot rubber element (max load 17kg/mount with 5mm static deflection)

W Embelton Acoustic Mount – 'White' dot rubber element (max load 25kg/mount with 5mm static deflection)

» INTRODUCTION

MATERIALS

The following materials and components are utilised in USG Boral conventional ceiling systems listed in this manual:

CEILING LININGS

- 10mm SHEETROCK Brand Ceiling Board
- 13mm SHEETROCK Brand Standard plasterboard
- 10mm Unispan plasterboard
- 13mm Regular plasterboard
- 10mm/13mm Soundstop plasterboard
- 13mm/16mm Firestop plasterboard.

FURRING CHANNELS AND FIXING CLIPS



Figure G1: **Rondo 129 Furring Channel**



Figure G2: **Rondo 237 Fixing Clip**



Figure G3: **Rondo STWC Sound Isolation Mount**



Figure G4: **Embelton Ceiling Isolation Hanger LB Bracket (Blue Dot Rubber Element)**



Figure G5: **Embelton Ceiling Isolation Hanger HB Bracket (White Dot Rubber Element)**

SUSPENDED CEILING SYSTEMS

- USG Boral Drywall Grid System
- Rondo KEY-LOCK® Concealed Suspended Ceiling.

INSULATION

- R2.5 Pink Ceiling Batts® by Fletcher Insulation
- R3.0 Pink Ceiling Batts® by Fletcher Insulation
- 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation
- 50mm Polyester insulation 7kg/m³ density
- Sisalation® reflective foil insulation by Fletcher Insulation
- Permastop® building blanket by Fletcher Insulation.

INSTALLATION

DIRECT FIXED SYSTEMS

Where fixing direct to timber or steel framing, framework spacing must not exceed plasterboard span values indicated in Table G1 or 600mm for fire resistant boards.

NOTE

Furred systems are recommended to minimise the risk of ceiling damage due to structural, thermal and seasoning movements.

FURRED AND SUSPENDED SYSTEMS

- Ensure that furring channels or suspended grid are installed to a true and level plane.
- Plasterboard supporting members must be spaced at max 600mm ctrs.
- Furring channels should be taken to and provided within 100mm of ceiling perimeter (min 15mm end clearance is required at walls).
- Allow for an expansion gap at the rate of 3mm per 1 metre run in abutting furring channels and Top Cross Rails in fire rated systems.
- Rondo KEY-LOCK concealed suspended ceiling system must be installed in accordance with Rondo specifications.
- USG Boral Drywall Grid System must be installed in accordance with USG Boral specifications.

» INTRODUCTION

PENETRATIONS

Penetrations in a fire rated system must be treated strictly in accordance with relevant test reports and approved installation details in order to maintain the system's Fire Resistance Level.

Where components by others are specified in USG Boral fire rated penetration details (ie dampers, GPO's, fire collars, etc), such components must be installed in accordance with the manufacturer's specifications. It is the responsibility of the component manufacturer to ensure that the fire rating performance of the system is not affected.

MOVEMENT AND CONTROL JOINTS

- Control joints in internal ceilings should be spaced at 12m max intervals in both directions (15 metre intervals in ceilings with perimeter relief). Control joints in external ceilings should be spaced at 6m max intervals in both directions.
- Control joints must be provided over movement joints in the substrate or structural elements and at every change of lining or substrate material.
- Refer to Junctions and Penetrations section for control joint details in fire rated ceilings.
- Control joints in non-fire rated ceilings can be formed by fitting Rondo P35 Control Joint or plastic expansion beads.
- In multi-layer non-fire rated systems control joints can be provided in the face layers only.

PLASTERBOARD FIXING

Fire Rated Ceilings

- Plasterboard linings in fire rated plasterboard ceilings must be installed using screw fixing only. Adhesives are not permitted.
- Apply plasterboard sheets with recessed edges at right angles to framing members.
- In single layer systems, place butt joints on framing or mid-way between the framing members and back-block as shown in the Junctions and Penetrations section.
- Screw fix the first (uppermost) layer sheets at 200mm max centres in the field of the board and at 150mm max centres along the board ends and edges. Stagger edge screw fixings in adjacent sheets.
- Screw fix additional plasterboard layers in the same manner as the first layer but with all joints in adjacent layers staggered min 200mm. If butt joints in additional layers fall between the framing members, screw laminate sheet ends to the previous layer with appropriate Laminating screws at 200mm max centres (refer to General Information — Materials — Screws).

Non-fire Rated Ceilings

- Apply plasterboard sheets with recessed edges at right angles to framing members.
- Single layer non-fire rated plasterboard ceiling systems can be fixed using combination of Adhesive and Mechanical Fasteners as outlined in USG Boral Installation Manual (see Figure G7) or Mechanical Fasteners Only.
- Multi-layer non-fire rated plasterboard ceiling systems must be fixed using Mechanical Fasteners Only method.
- In single layer systems, butt joints must be between the framing members and back-blocked as described in USG Boral Installation Manual. All recessed joints in an area containing three or more joints must also be back-blocked.

NOTE

USG Boral recommends back-blocking of all ceiling joints.

JOINTING AND FINISHING

- Stop and finish face layer plasterboard joints with USG Boral jointing system as outlined in USG Boral Installation Manual.
- Plasterboard joints in inner layers of multi-layer fire rated and non-fire rated systems are not required to be stopped.

NOTE

Paper jointing tape must be used in fire rated systems.

» INTRODUCTION

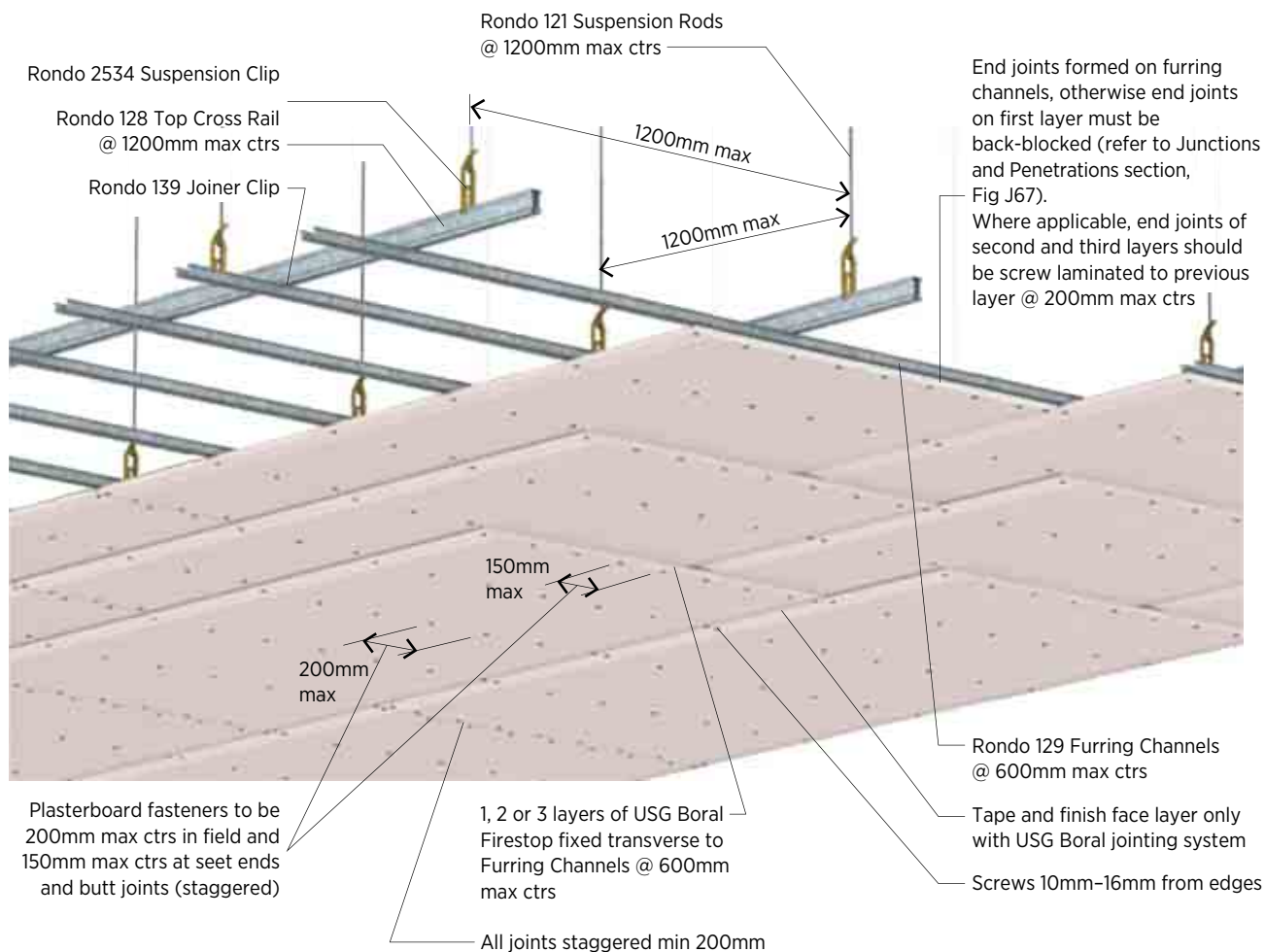


Figure G6: Fire Rated Ceiling – Screw Fixing Layout

» INTRODUCTION

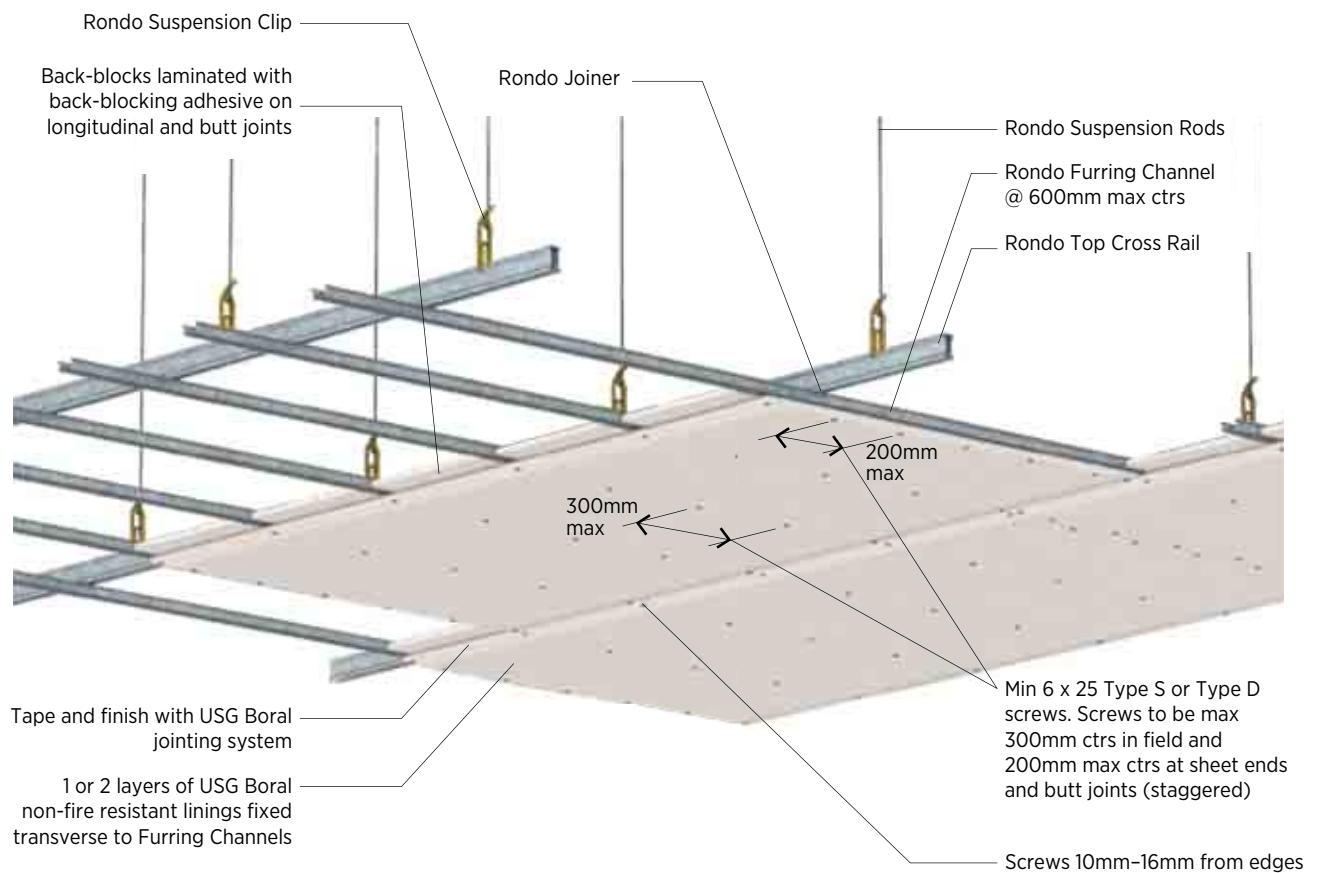


Figure G7: **Non-Fire Rated Ceiling – Screw Fixing Layout**

TABLE G4: SCREW FIXING LAYOUT	
MINIMUM FIXING POINTS PER SHEET WIDTH	
PLASTERBOARD WIDTH (mm)	SINGLE SCREWS
900	4
1200	5
1350	6

» INTRODUCTION

SPANNING CEILINGS

DESCRIPTION

USG Boral Spanning Ceilings are self-supporting fire rated plasterboard ceilings utilising Rondo C-stud or CH-stud sections as joists.

While construction of C-stud ceilings requires access from above and below, CH-stud ceilings can be constructed from one side only.

DESIGN OPTIONS

USG Boral Spanning Ceilings are available in Fire Resistance Levels up to 120/120/120 from both directions and up to 180/180/180 from above only.

MATERIALS

The following materials and components are utilised in USG Boral Spanning Ceilings:

CEILING LININGS

- 13mm/16mm Firestop plasterboard
- 25mm Shaftliner plasterboard.

CEILING JOISTS

- 150mm Rondo lipped C-studs 0.75mm Base Metal Thickness (BMT)
- 64mm Rondo CH-studs 0.55mm and 0.90mm BMT
- 102mm Rondo CH-studs 0.55mm and 0.90mm BMT.

INSULATION

- 50mm/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation
- 50mm/90mm Polyester insulation 14kg/m³ density.



Figure G8: Rondo 150mm C-stud

CEILING SPANS

Ceiling spans must not exceed the maximum values shown in the corresponding Maximum Spans tables.

INSTALLATION

- For screw fixing requirements refer plasterboard installation instructions for fire rated conventional ceilings.
- In spanning C-stud ceilings, stagger joints on opposite sides of the ceiling by 300mm min.
- Stagger joints in adjacent plasterboard layers by 200mm min.
- Caulk perimeter gaps with approved fire rated sealant.

JOINTING AND FINISHING

- Stop and finish visible plasterboard joints with USG Boral jointing system as outlined in USG Boral Installation Manual.
- Plasterboard joints in inner layers of multi-layer systems are not required to be stopped.

NOTE

Paper jointing tape must be used in fire rated systems.



Figure G9: Rondo CH-Stud

» INTRODUCTION

ACOUSTIC CEILINGS**DESCRIPTION**

USG Boral Acoustic Ceilings comprise a wide range of mineral fibre tile and perforated plasterboard ceilings with various sound absorption ratings (NRC and α_w) and over partition ratings (CAC and $D_{nc,w}$).

Custom perforated Pixels metal panels are also available for bespoke applications. Refer USG Boral for more information.

DESIGN OPTIONS**MINERAL FIBRE TILE CEILINGS**

USG Boral mineral fibre tiles offer designers and builders a wide range of options with respect to:

- Surface textures and colours
- Edge and Grid profiles
- Noise Reduction Coefficient (NRC)
- Ceiling Attenuation Class (CAC)
- Light Reflectance (LR)
- Volatile Organic Compound (VOC) emissions
- Mould and bacteria resistance
- Recycled content
- Cost.

Refer Acoustic Ceilings tables for the range of available Mineral Fibre Tile products.

ECHOSTOP® PLASTERBOARD CEILINGS

Echostop perforated plasterboard ceilings offer combined benefits of decorative finish and a high level of sound absorption.

Echostop perforated plasterboard is suitable for full ceiling installation or feature panels on walls or ceilings.

Created for noise absorption treatment, Echostop is available in a number of stylish designs to suit multiple applications:

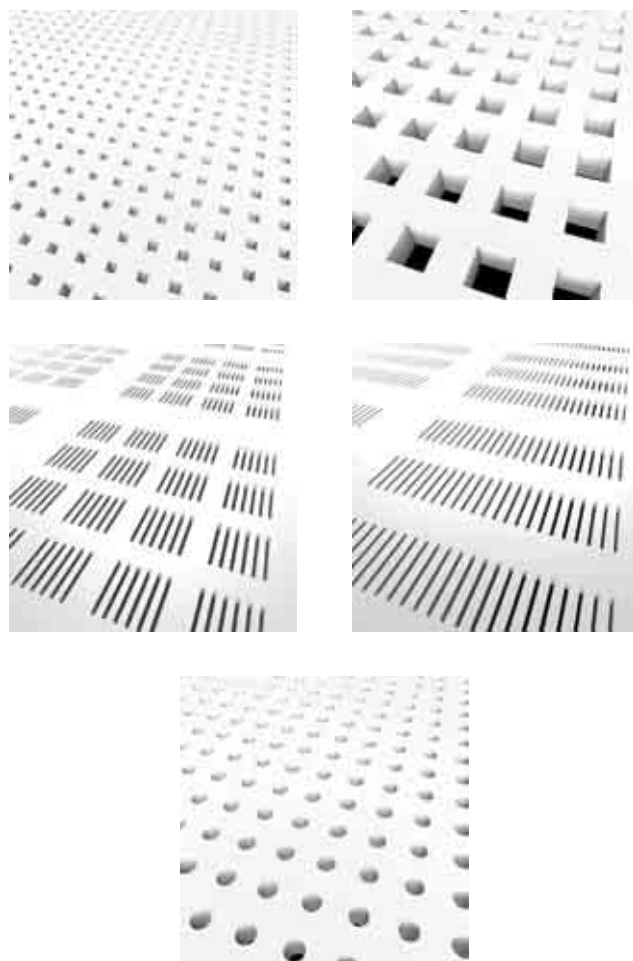


Figure G10: **Echostop patterns**

Refer to Echostop datasheets for acoustic performance of various Echostop panels.

» INTRODUCTION

DESIGN CONSIDERATIONS

Selection of an appropriate acoustic ceiling solution may involve a large number of considerations such as aesthetics, acoustic performance, VOC emissions, mould and bacteria resistance, cost, etc.

Acoustic Ceilings tables included in this manual provide essential information on performance and features of USG Boral acoustic panels. For additional information refer relevant product Data Sheets at usgboral.com

MATERIALS

- USG Boral Mineral Fibre Tile Ceilings comprise mineral fibre tiles laid into DONN® Brand Exposed Grid system.
- Echostop panels can be screw fixed to USG Boral Drywall Grid system or to Rondo Key-Lock concealed ceiling system.

INSTALLATION

Refer to the USG Boral and Rondo installation specifications on:

- USG Boral Drywall Grid system
- USG Boral DONN suspension system
- Rondo KEY-LOCK concealed ceiling system
- Rondo DUO Exposed grid ceiling systems
- Echostop Perforated Plasterboard.

OVER PARTITION CEILING SYSTEMS

Over partition performance of ceiling tiles is typically documented as a Ceiling Attenuation Class (CAC) value. More recently, this rating has been replaced by $D_{nc,w}$ – Weighted Suspended-ceiling Normalised Level Difference.

The solutions provided in the Over Partition Ceiling Systems tables are based on an extensive laboratory test program conducted at Acoustic Laboratories Australia Pty Ltd that comprised sixteen (16) configurations in total. Variables tested included:

- Differing heights of extended wall linings above the ceiling level
- Different ceiling types on one and both sides of the dividing wall
- With and without above ceiling treatments
- Effect of ceiling penetrations.

The following key findings were made as a result of the testing program:

- No acoustical benefit whether the wall linings extend 100mm above the ceiling as opposed to a nominal distance of 20mm
- Penetrations such as standard light troffers both sides of the dividing wall do not degrade the $D_{nc,w}$ of the ceiling (other types of ceiling penetrations will need to be assessed by a suitably qualified Acoustical Engineer).



Figure G11: Echostop Ceiling

$R_w + C_{tr} \geq 50$
 $L_{n,w} + C_l \leq 62$

CEILING UNDER TIMBER FLOOR

CT.1

NON-FIRE RATED



SYSTEM DESCRIPTION

Floor Covering: Refer to table

Floor Structure: min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs

Insulation: Refer to table

Ceiling Lining: One or more layers of non-fire resistant pbd

Ceiling Fixing: Direct fixed to ceiling joists

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w	$R_w + C_{tr}$	$L_{n,w} + C_l$
CT.1A	1x10mm SHEETROCK BRAND CEILING BOARD	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	Nil	41	34	84
				R2.5 GW Ceiling Batts	42	39	73
			Carpet + Foam Underlay	Nil	41	34	60
				R2.5 GW Ceiling Batts	42	39	55
CT.1B	1x13mm SHEETROCK BRAND STANDARD	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	Nil	41	35	83
				R2.5 GW Ceiling Batts	41	38	73
			Carpet + Foam Underlay	Nil	41	35	60
				R2.5 GW Ceiling Batts	41	38	55
CT.1C	1x10mm UNISPAN	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	Nil	42	36	83
				R2.5 GW Ceiling Batts	43	40	72
			Carpet + Foam Underlay	Nil	42	36	60
				R2.5 GW Ceiling Batts	43	40	55
CT.1D	1x13mm REGULAR	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	Nil	42	36	82
				R2.5 GW Ceiling Batts	42	39	73
			Carpet + Foam Underlay	Nil	42	36	60
				R2.5 GW Ceiling Batts	42	39	55
CT.1E	1x10mm SOUNDSTOP	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	Nil	43	37	82
				R2.5 GW Ceiling Batts	43	40	72
			Carpet + Foam Underlay	Nil	43	37	60
				R2.5 GW Ceiling Batts	43	40	55
CT.1F	2x10mm SOUNDSTOP	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	Nil	46	40	77
				R2.5 GW Ceiling Batts	45	42	72
			Carpet + Foam Underlay	Nil	46	40	60
				R2.5 GW Ceiling Batts	45	42	55

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

For the full range of USG Boral systems refer to usgboral.com/eselector

CEILING UNDER TIMBER FLOOR

$R_w + C_{tr} \geq 50$
 $L_{n,w} + C_i \leq 62$

CT.2

NON-FIRE RATED



SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd
Ceiling Fixing: On furring channels @ 600mm ctrs

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w	$R_w + C_{tr}$	$L_{n,w} + C_i$
CT.2A	1x10mm SHEETROCK BRAND CEILING BOARD	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	Nil	42	35	79
				R2.5 GW Ceiling Batts	44	41	68
			Carpet + Foam Underlay	Nil	42	35	58
				R2.5 GW Ceiling Batts	44	41	53
CT.2B	1x13mm SHEETROCK BRAND STANDARD	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	Nil	42	36	78
				R2.5 GW Ceiling Batts	44	41	68
			Carpet + Foam Underlay	Nil	42	36	58
				R2.5 GW Ceiling Batts	44	41	53
CT.2C	1x10mm UNISPAN	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	Nil	43	36	76
				R2.5 GW Ceiling Batts	45	42	67
			Carpet + Foam Underlay	Nil	43	36	58
				R2.5 GW Ceiling Batts	45	42	53
CT.2D	1x13mm REGULAR	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	Nil	43	37	77
				R2.5 GW Ceiling Batts	44	41	67
			Carpet + Foam Underlay	Nil	43	37	58
				R2.5 GW Ceiling Batts	44	41	53
CT.2E	1x13mm SOUNDSTOP	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	Nil	44	38	75
				R2.5 GW Ceiling Batts	46	43	67
			Carpet + Foam Underlay	Nil	44	38	58
				R2.5 GW Ceiling Batts	46	43	53
CT.2F	2x13mm SOUNDSTOP	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	Nil	47	42	72
				R2.5 GW Ceiling Batts	48	45	67
			Carpet + Foam Underlay	Nil	47	42	58
				R2.5 GW Ceiling Batts	48	45	53

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

CT.3

NON-FIRE RATED



SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd
Ceiling Fixing: Furred with Rondo STWC Sound Isolation Mounts

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w	$R_w + C_{tr}$	$L_{n,w} + C_i$
CT.3A	1x13mm SOUNDSTOP	Furred on Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5kg/m ²)	Nil	51	42	70
				R2.5 GW Ceiling Batts	53	47	65

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

For the full range of USG Boral systems refer to usgboral.com/eselector
Refer to Table G2 in Ceilings - Introduction for maximum spans of Rondo 129 furring channel.
Refer to Table G3 in Ceilings - Introduction for maximum spans and spacings of furring channels with acoustic mounts.

$$R_w + C_{tr} \geq 50$$

$$L_{n,w} + C_l \leq 62$$

CEILING UNDER TIMBER FLOOR

CT30.1

FIRE RESISTANCE LEVEL
30/30/30
FROM BELOW
Fire Protective Covering

FRL Basis: FCO-1658



Direct fixed system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table

Floor Structure: Min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs

Insulation: Refer to table

Ceiling Lining: 1x13mm fire resistant pbd

Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R _w	R _w +C _{tr}	L _{n,w} +C _l
CT30.1A	1x13mm FIRESTOP	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	43	40	70
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	43	40	51
CT30.1B	1x13mm FIRESTOP	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	45	42	65
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	45	42	49
CT30.1C	1x13mm FIRESTOP	Furred @ 600mm ctrs with Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5kg/m ²)	R3.0 GW Ceiling Batts	52	46	64

* R2.5 GW Ceiling Batt – R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

R3.0 GW Ceiling Batt – R3.0 Pink Ceiling Batts* glasswool by Fletcher Insulation

CT30.2

FIRE RESISTANCE LEVEL
30/30/30
FROM BELOW
RISF 30min

FRL Basis: FCO-1658, FCO-0568



Direct fixed system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table

Floor Structure: Min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs

Insulation: Refer to table

Ceiling Lining: 1x16mm fire resistant pbd

Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R _w	R _w +C _{tr}	L _{n,w} +C _l
CT30.2A	1x16mm FIRESTOP	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	43	40	70
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	43	40	51
CT30.2B	1x16mm FIRESTOP	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	45	42	65
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	45	42	49
CT30.2C	1x16mm FIRESTOP	Furred @ 600mm ctrs with Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5kg/m ²)	R3.0 GW Ceiling Batts	52	46	64

* R2.5 GW Ceiling Batt – R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

R3.0 GW Ceiling Batt – R3.0 Pink Ceiling Batts* glasswool by Fletcher Insulation

For the full range of USG Boral systems refer to usgboral.com/eselector

Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILING UNDER TIMBER FLOOR

 $R_w + C_{tr} \geq 50$
 $L_{n,w} + C_i \leq 62$

CT60.1

FIRE RESISTANCE LEVEL
60/60/60
 FROM BELOW
 RISF 30min

FRL Basis: FCO-1658



Furred system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs
Insulation: Refer to table
Ceiling Lining: 2x13mm fire resistant pbd
Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w	$R_w + C_{tr}$	$L_{n,w} + C_i$
CT60.1A	2x13mm FIRESTOP	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²) + min 4.5mm Acoustic Underlay†	R2.5 GW Ceiling Batts	58	50	52
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	56	50	38
			Min 6mm Ceramic Floor Tiles + 6mm Cement Sheet or 10mm Fiberock (total mass min 15kg/m ²) + min 4.5mm Acoustic Underlay†	R2.5 GW Ceiling Batts	60	52	57
CT60.1B	2x13mm FIRESTOP	Furred @ 600mm ctrs with Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5kg/m ²)	R3.0 GW Ceiling Batts	58	52	62
			Min 6mm Ceramic Floor Tiles + 6mm Cement Sheet or 10mm Fiberock (total mass min 15kg/m ²)	R3.0 GW Ceiling Batts	58	50	62
CT60.1C	2x13mm FIRESTOP	Furred @ 600mm ctrs with Embelton Acoustic Mounts	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	58	52	57
			Min 6mm Ceramic Floor Tiles + 6mm Cement Sheet or 10mm Fiberock (total mass min 15kg/m ²)	R2.5 GW Ceiling Batts	58	50	58

* R2.5 GW Ceiling Batt – R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

R3.0 GW Ceiling Batt – R3.0 Pink Ceiling Batts* glasswool by Fletcher Insulation

† 4.5mm Acoustic Underlay – Regupol 4515 acoustic underlay or equivalent.

 For the full range of USG Boral systems refer to usgboral.com/eselector

Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

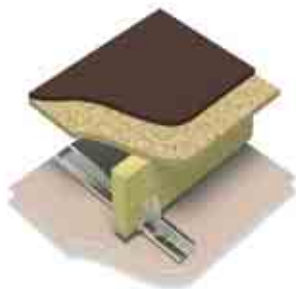
CEILING UNDER TIMBER FLOOR

 $R_w + C_{tr} \geq 50$
 $L_{n,w} + C_l \leq 62$

CT60.2

FIRE RESISTANCE LEVEL
60/60/60
 FROM BELOW
 RISF 60min

FRL Basis: FCO-1658



Furred system shown

SYSTEM DESCRIPTION
Floor Covering: Refer to table

Floor Structure: Min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs

Insulation: Refer to table

Ceiling Lining: 1x13mm fire resistant pbd + 1x16mm fire resistant pbd

Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w	$R_w + C_{tr}$	$L_{n,w} + C_l$
CT60.2A	1x13mm FIRESTOP + 1x16mm FIRESTOP	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²) + min 4.5mm Acoustic Underlay [†]	R2.5 GW Ceiling Batts	60	52	52
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	56	50	38
			Min 6mm Ceramic Floor Tiles + 6mm Cement Sheet or 10mm Fiberock (total mass min 15kg/m ²) + min 4.5mm Acoustic Underlay [†]	R2.5 GW Ceiling Batts	61	53	57
CT60.2B	1x13mm FIRESTOP + 1x16mm FIRESTOP	Furred @ 600mm ctrs with Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5kg/m ²)	R3.0 GW Ceiling Batts	60	54	62
			Min 6mm Ceramic Floor Tiles + 6mm Cement Sheet or 10mm Fiberock (total mass min 15kg/m ²)	R3.0 GW Ceiling Batts	60	52	62
CT60.2C	1x13mm FIRESTOP + 1x16mm FIRESTOP	Furred @ 600mm ctrs with Embelton Acoustic Mounts	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	60	54	57
			Min 6mm Ceramic Floor Tiles + 6mm Cement Sheet or 10mm Fiberock (total mass min 15kg/m ²)	R2.5 GW Ceiling Batts	60	52	58

* R2.5 GW Ceiling Batt – R2.5 Pink Ceiling Batts® glasswool by Fletcher Insulation

R3.0 GW Ceiling Batt – R3.0 Pink Ceiling Batts® glasswool by Fletcher Insulation

† 4.5mm Acoustic Underlay – Regupol 4515 acoustic underlay or equivalent.

 For the full range of USG Boral systems refer to usgboral.com/eselector

Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

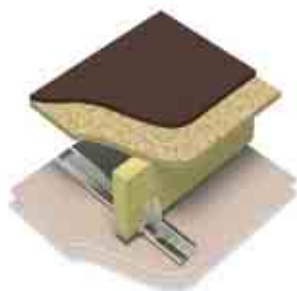
CEILING UNDER TIMBER FLOOR

 $R_w + C_{tr} \geq 50$
 $L_{n,w} + C_l \leq 62$

CT90.1

FIRE RESISTANCE LEVEL
90/90/90
 FROM BELOW
 RISF 60min

FRL Basis: FCO-1658, FCO-0629



Furred system shown

SYSTEM DESCRIPTION
Floor Covering: Refer to table

Floor Structure: Min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs

Insulation: Refer to table

Ceiling Lining: 2x16mm fire resistant pbd

Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R_w	$R_w + C_{tr}$	$L_{n,w} + C_l$
CT90.1A	2x16mm FIRESTOP	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²) + min 4.5mm Acoustic Underlay†	R2.5 GW Ceiling Batts	61	52	52
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	57	50	38
			Min 6mm Ceramic Floor Tiles + 6mm Cement Sheet or 10mm Fiberock (total mass min 15kg/m ²) + min 4.5mm Acoustic Underlay†	R2.5 GW Ceiling Batts	62	54	57
CT90.1B	2x16mm FIRESTOP	Furred @ 600mm ctrs with Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5kg/m ²)	R3.0 GW Ceiling Batts	60	55	62
			Min 6mm Ceramic Floor Tiles + 6mm Cement Sheet or 10mm Fiberock (total mass min 15kg/m ²)	R3.0 GW Ceiling Batts	61	53	62
CT90.1C	2x16mm FIRESTOP	Furred @ 600mm ctrs with Embelton Acoustic Mounts	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	60	55	57
			Min 6mm Ceramic Floor Tiles + 6mm Cement Sheet or 10mm Fiberock (total mass min 15kg/m ²)	R2.5 GW Ceiling Batts	61	53	58

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

R3.0 GW Ceiling Batt - R3.0 Pink Ceiling Batts* glasswool by Fletcher Insulation

† 4.5mm Acoustic Underlay - Regupol 4515 acoustic underlay or equivalent.

 For the full range of USG Boral systems refer to usgboral.com/eselector

Refer to Table G2 in Ceilings - Introduction for maximum spans of Rondo 129 furring channel.

Refer to Table G3 in Ceilings - Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILING UNDER TIMBER FLOOR

$$R_w + C_{tr} \geq 50$$

$$L_{n,w} + C_l \leq 62$$

CT120.1

FIRE RESISTANCE LEVEL
120/120/120
FROM BELOW
RISF 90min

FRL Basis: SI 1891, FTO-0029, FCO-1658



Direct fixed system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table

Floor Structure: Min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs

Insulation: Refer to table

Ceiling Lining: 2x16mm fire resistant pbd

Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R _w	R _w +C _{tr}	L _{n,w} +C _l
CT120.1A	3x16mm FIRESTOP	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	47	44	69
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	47	44	50
CT120.1B	3x16mm FIRESTOP	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	49	47	63
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	49	47	48
CT120.1C	3x16mm FIRESTOP	Furred @ 600mm ctrs with Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5kg/m ²)	R3.0 GW Ceiling Batts	60	53	59

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

R3.0 GW Ceiling Batt - R3.0 Pink Ceiling Batts* glasswool by Fletcher Insulation

CT120.2

FIRE RESISTANCE LEVEL
120/120/120
FROM BELOW
RISF 120min

FRL Basis: FCO-1856



Direct fixed system shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table

Floor Structure: Min 19mm particleboard flooring on 240mm deep joists @ 450mm ctrs

Insulation: Refer to table

Ceiling Lining: 2x16mm fire resistant pbd + furring channel + 2x16mm fire resistant pbd

Ceiling Fixing: Refer to table

ACOUSTIC RATINGS BASIS: RT&A TE405-05F14

SYSTEM	CEILING LINING	FIXING	FLOORING TYPE	INSULATION*	R _w	R _w +C _{tr}	L _{n,w} +C _l
CT120.2A	2x16mm FIRESTOP + furring channel + 2x16mm FIRESTOP	Direct Fixed	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	56	51	61
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	56	51	48
CT120.2B	2x16mm FIRESTOP + furring channel + 2x16mm FIRESTOP	Furred @ 600mm ctrs	Timber Flooring (min 8.5kg/m ²)	R2.5 GW Ceiling Batts	58	53	51
			Carpet + Foam Underlay	R2.5 GW Ceiling Batts	58	53	46
CT120.2C	2x16mm FIRESTOP + furring channel + 2x16mm FIRESTOP	Furred @ 600mm ctrs with Rondo STWC Sound Isolation Mounts	Timber Flooring (min 8.5kg/m ²)	R3.0 GW Ceiling Batts	60	54	55

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

R3.0 GW Ceiling Batt - R3.0 Pink Ceiling Batts* glasswool by Fletcher Insulation

For the full range of USG Boral systems refer to usgboral.com/eselector

Refer to Table G2 in Ceilings - Introduction for maximum spans of Rondo 129 furring channel.

Refer to Table G3 in Ceilings - Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILING UNDER CONCRETE FLOOR

$R_w + C_{tr} \geq 50$
 $L_{n,w} + C_l \leq 62$

CC.1

FIRE RESISTANCE LEVEL
(refer to slab FRL)



Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd
Ceiling Fixing: Furred @ 600mm ctrs (100mm nom ceiling cavity)

ACOUSTIC RATINGS BASIS: RT&A TE405-05F15

SYSTEM	CEILING LINING	FLOORING TYPE	SLAB THICKNESS	150mm			200mm		
			INSULATION*	R_w	$R_w + C_{tr}$	$L_{n,w} + C_l$	R_w	$R_w + C_{tr}$	$L_{n,w} + C_l$
CC.1A	1x13mm SHEETROCK BRAND STANDARD	Bare Concrete	Nil	57	50	66	59	51	65
			50G11, 50P7	62	55	62	64	56	61
		Timber Flooring (min 8.5kg/m ²) + min 4.5mm Acoustic Underlay†	Nil	59	53	59	62	55	56
			50G11, 50P7	64	56	53	67	58	49
		Carpet + Foam Underlay	Nil	59	53	44	62	55	40
			50G11, 50P7	64	56	39	67	58	36
CC.1B	1x13mm REGULAR	Bare Concrete	Nil	59	52	64	61	53	63
			50G11, 50P7	64	57	60	66	58	59
		Timber Flooring (min 8.5kg/m ²) + min 4.5mm Acoustic Underlay†	Nil	60	53	57	63	55	54
			50G11, 50P7	66	57	51	69	59	48
		Carpet + Foam Underlay	Nil	60	53	42	63	55	38
			50G11, 50P7	66	57	37	69	59	34
		Tiled Floor + min 4.5mm Acoustic Underlay†	Nil	59	53	57	62	55	53
			50G11, 50P7	64	56	51	67	58	47

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50P7 – 50mm Polyester Insulation 7kg/m³

† 4.5mm Acoustic Underlay – Regupol 4515 acoustic underlay or equivalent.

CC.2

FIRE RESISTANCE LEVEL
(refer to slab FRL)



Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd
Ceiling Fixing: Furred @ 600mm ctrs with Rondo STWC Sound Isolation Mounts (100mm nom ceiling cavity)

ACOUSTIC RATINGS BASIS: RT&A TE405-05F15

SYSTEM	CEILING LINING	FLOORING TYPE	SLAB THICKNESS	150mm			200mm		
			INSULATION*	R_w	$R_w + C_{tr}$	$L_{n,w} + C_l$	R_w	$R_w + C_{tr}$	$L_{n,w} + C_l$
CC.2A	1x13mm SHEETROCK BRAND STANDARD	Bare Concrete	Nil	58	51	62	62	54	60
			50G11, 50P7	65	56	57	68	58	53
		Timber Flooring (min 8.5kg/m ²)	Nil	59	53	60	62	55	60
			50G11, 50P7	66	56	55	68	58	54
		Tiled Floor	Nil	59	53	58	62	55	56
			50G11, 50P7	64	56	54	67	58	52
CC.2B	1x13mm REGULAR	Bare Concrete	Nil	59	52	61	63	55	58
			50G11, 50P7	66	57	55	70	59	51
		Timber Flooring (min 8.5kg/m ²)	Nil	60	53	58	63	55	58
			50G11, 50P7	67	58	53	70	60	52
		Tiled Floor	Nil	60	53	57	63	55	55
			50G11, 50P7	66	57	50	69	59	48

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50P7 – 50mm Polyester Insulation 7kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector

Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILING UNDER CONCRETE FLOOR

$$R_w + C_{tr} \geq 50$$

$$L_{n,w} + C_l \leq 62$$

CC.3

FIRE RESISTANCE LEVEL
(refer to slab FRL)


Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd
Ceiling Fixing: Suspended (300mm nom ceiling cavity)

ACOUSTIC RATINGS BASIS: RT&A TE405-05F15

SYSTEM	CEILING LINING	FLOORING TYPE	SLAB THICKNESS	150mm			200mm		
			INSULATION*	R _w	R _w +C _{tr}	L _{n,w} +C _l	R _w	R _w +C _{tr}	L _{n,w} +C _l
CC.3A	1x13mm SHEETROCK BRAND STANDARD	Bare Concrete	Nil	60	52	64	63	53	63
			50G11, 50P7	63	56	60	66	58	59
		Timber Flooring (min 8.5kg/m ²) + min 4.5mm Acoustic Underlay [†]	Nil	63	55	57	65	56	53
			50G11, 50P7	65	59	51	69	62	48
		Carpet + Foam Underlay	Nil	64	56	41	66	57	37
			50G11, 50P7	66	60	36	70	63	33
CC.3B	1x13mm REGULAR	Bare Concrete	Nil	62	54	62	65	55	61
			50G11, 50P7	65	58	58	68	60	57
		Timber Flooring (min 8.5kg/m ²) + min 4.5mm Acoustic Underlay [†]	Nil	64	56	56	66	57	52
			50G11, 50P7	66	60	50	70	63	47
		Carpet + Foam Underlay	Nil	63	55	43	65	56	39
			50G11, 50P7	65	59	38	69	62	35

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50P7 – 50mm Polyester Insulation 7kg/m³

† 4.5mm Acoustic Underlay – Regupol 4515 acoustic underlay or equivalent.

CC.4

FIRE RESISTANCE LEVEL
(refer to slab FRL)


Bare concrete floor shown

SYSTEM DESCRIPTION

Floor Covering: Refer to table
Floor Structure: Concrete slab (refer to table)
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd
Ceiling Fixing: Suspended with Rondo STSU Sound Isolation Hangers (300mm nom ceiling cavity)

ACOUSTIC RATINGS BASIS: RT&A TE405-05F15

SYSTEM	CEILING LINING	FLOORING TYPE	SLAB THICKNESS	150mm			200mm		
			INSULATION*	R _w	R _w +C _{tr}	L _{n,w} +C _l	R _w	R _w +C _{tr}	L _{n,w} +C _l
CC.4A	1x13mm SHEETROCK BRAND STANDARD	Bare Concrete	Nil	61	53	59	65	56	57
			50G11, 50P7	67	59	54	71	63	51
		Timber Flooring (min 8.5kg/m ²)	Nil	63	55	57	65	56	57
			50G11, 50P7	68	60	52	71	63	52
		Tiled Floor	Nil	63	55	55	65	56	53
			50G11, 50P7	65	59	51	69	62	49
CC.4B	1x13mm REGULAR	Bare Concrete	Nil	63	55	58	66	57	55
			50G11, 50P7	68	61	53	72	64	49
		Timber Flooring (min 8.5kg/m ²)	Nil	64	56	56	66	57	56
			50G11, 50P7	69	62	50	72	64	49
		Tiled Floor	Nil	64	56	54	66	57	52
			50G11, 50P7	66	60	48	70	63	46

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50P7 – 50mm Polyester Insulation 7kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector

Refer to Table G2 in Ceilings – Introduction for maximum spans of Rondo 129 furring channel.

Refer to Table G3 in Ceilings – Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER ROOF

R_w	40-44	45-49	50-54
R_w+C_{tr}			

CR.1

NON-FIRE RATED



Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)
Ceiling Fixing: Direct fixed

ACOUSTIC RATINGS BASIS: RT&A TE405-05F16

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH SISALATION REFLECTIVE FOIL INSULATION		METAL PITCHED ROOF WITH PERMASTOP BUILDING BLANKET INSULATION		METAL FLAT ROOF WITH PERMASTOP BUILDING BLANKET INSULATION (190mm RAFTERS)	
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}
CR.1A	1x10mm SHEETROCK BRAND CEILING BOARD	Direct fixed to roof trusses @ 600mm ctrs	R2.5 GW Ceiling Batts	42	34	NA	NA	NA	NA
CR.1B	1x10mm UNISPAN	Direct fixed to roof trusses @ 600mm ctrs	R2.5 GW Ceiling Batts	44	37	NA	NA	NA	NA
CR.1C	1x13mm SOUNDSTOP	Direct fixed to roof trusses @ 600mm ctrs	R2.5 GW Ceiling Batts	48	41	NA	NA	NA	NA
CR.1D	2x10mm SHEETROCK BRAND CEILING BOARD	Direct fixed to roof trusses @ 600mm ctrs	R2.5 GW Ceiling Batts	47	40	NA	NA	NA	NA
CR.1E	2x10mm UNISPAN	Direct fixed to roof trusses @ 600mm ctrs	R2.5 GW Ceiling Batts	49	42	NA	NA	NA	NA
CR.1F	2x13mm SOUNDSTOP	Direct fixed to roof trusses @ 600mm ctrs	R2.5 GW Ceiling Batts	54	47	NA	NA	NA	NA

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

CR.2

NON-FIRE RATED



Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)
Ceiling Fixing: On furring channels @ 600mm ctrs (nom 30mm gap)

ACOUSTIC RATINGS BASIS: RT&A TE405-05F16

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH SISALATION REFLECTIVE FOIL INSULATION		METAL PITCHED ROOF WITH PERMASTOP BUILDING BLANKET INSULATION		METAL FLAT ROOF WITH PERMASTOP BUILDING BLANKET INSULATION (190mm RAFTERS)	
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}
CR.2A	1x10mm SHEETROCK BRAND CEILING BOARD	On furring channels @ 600mm ctrs (nom 30mm gap)	R2.5 GW Ceiling Batts	43	36	42	34	40	32
CR.2B	1x10mm UNISPAN	On furring channels @ 600mm ctrs (nom 30mm gap)	R2.5 GW Ceiling Batts	45	38	44	36	42	34
CR.2C	1x13mm SOUNDSTOP	On furring channels @ 600mm ctrs (nom 30mm gap)	R2.5 GW Ceiling Batts	49	42	48	40	48	38
CR.2D	2x10mm SHEETROCK BRAND CEILING BOARD	On furring channels @ 600mm ctrs (nom 30mm gap)	R2.5 GW Ceiling Batts	48	41	47	39	45	37
CR.2E	2x10mm UNISPAN	On furring channels @ 600mm ctrs (nom 30mm gap)	R2.5 GW Ceiling Batts	50	43	49	41	47	39
CR.2F	2x13mm SOUNDSTOP	On furring channels @ 600mm ctrs (nom 30mm gap)	R2.5 GW Ceiling Batts	55	48	54	46	52	44

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

For the full range of USG Boral systems refer to usgboral.com/eselector
 Refer to Table G2 in Ceilings - Introduction for maximum spans of Rondo 129 furring channel.
 Refer to Table G3 in Ceilings - Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER ROOF

R_w	40-44	45-49	50-54
R_w+C_{tr}			

CR.3

NON-FIRE RATED



Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table

Insulation: Refer to table

Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)

Ceiling Fixing: On furring channels @ 600mm ctrs attached with Rondo STWC Sound Isolation Mounts (nom 50mm gap)

ACOUSTIC RATINGS BASIS: RT&A TE405-05F16

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH SISALATION REFLECTIVE FOIL INSULATION		METAL PITCHED ROOF WITH PERMASTOP BUILDING BLANKET INSULATION		METAL FLAT ROOF WITH PERMASTOP BUILDING BLANKET INSULATION (190mm RAFTERS)	
				R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}
CR.3A	1x10mm SHEETROCK BRAND CEILING BOARD	On furring channels @ 600mm ctrs attached with Rondo STWC Sound Isolation Mounts (nom 50mm gap)	R2.5 GW Ceiling Batts	48	38	47	36	45	34
CR.3B	1x10mm UNISPAN	On furring channels @ 600mm ctrs attached with Rondo STWC Sound Isolation Mounts (nom 50mm gap)	R2.5 GW Ceiling Batts	50	40	49	38	47	36
CR.3C	1x13mm SOUNDSTOP	On furring channels @ 600mm ctrs attached with Rondo STWC Sound Isolation Mounts (nom 50mm gap)	R2.5 GW Ceiling Batts	54	44	53	42	51	40
CR.3D	2x10mm SHEETROCK BRAND CEILING BOARD	On furring channels @ 600mm ctrs attached with Rondo STWC Sound Isolation Mounts (nom 50mm gap)	R2.5 GW Ceiling Batts	54	43	53	41	51	39
CR.3E	2x10mm UNISPAN	On furring channels @ 600mm ctrs attached with Rondo STWC Sound Isolation Mounts (nom 50mm gap)	R2.5 GW Ceiling Batts	56	46	55	44	53	42

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

For the full range of USG Boral systems refer to usgboral.com/eselector

Refer to Table G2 in Ceilings - Introduction for maximum spans of Rondo 129 furring channel.

Refer to Table G3 in Ceilings - Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER ROOF

R_w	40-44	45-49	50-54
R_w+C_{tr}			

CR.4

NON-FIRE RATED



Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)
Ceiling Fixing: Suspended

ACOUSTIC RATINGS BASIS: RT&A TE405-05F16

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH SISALATION REFLECTIVE FOIL INSULATION		METAL PITCHED ROOF WITH PERMASTOP BUILDING BLANKET INSULATION		METAL FLAT ROOF WITH PERMASTOP BUILDING BLANKET INSULATION (190mm RAFTERS)	
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}
CR.4A	1x10mm SHEETROCK BRAND CEILING BOARD	Suspended	R2.5 GW Ceiling Batts	NA	NA	47	37	45	35
CR.4B	1x10mm UNISPAN	Suspended	R2.5 GW Ceiling Batts	NA	NA	49	39	47	37
CR.4C	1x13mm SOUNDSTOP	Suspended	R2.5 GW Ceiling Batts	NA	NA	59	49	57	47
CR.4D	2x10mm SHEETROCK BRAND CEILING BOARD	Suspended	R2.5 GW Ceiling Batts	NA	NA	52	42	50	40
CR.4E	2x10mm UNISPAN	Suspended	R2.5 GW Ceiling Batts	NA	NA	55	45	53	43
CR.4F	2x13mm SOUNDSTOP	Suspended	R2.5 GW Ceiling Batts	NA	NA	53	43	51	41

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

CR.5

NON-FIRE RATED



Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Refer to table
Insulation: Refer to table
Ceiling Lining: One or more layers of non-fire resistant pbd (refer to table)
Ceiling Fixing: Suspended with Rondo STSU Sound Isolation Hangers

ACOUSTIC RATINGS BASIS: RT&A TE405-05F16

SYSTEM	LINING	FIXING	ROOF TYPE	TILED PITCHED ROOF WITH SISALATION REFLECTIVE FOIL INSULATION		METAL PITCHED ROOF WITH PERMASTOP BUILDING BLANKET INSULATION		METAL FLAT ROOF WITH PERMASTOP BUILDING BLANKET INSULATION (190mm RAFTERS)	
			INSULATION*	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}
CR.5A	1x10mm SHEETROCK BRAND CEILING BOARD	Suspended with Rondo Sound Isolation Hangers	R2.5 GW Ceiling Batts	NA	NA	50	39	48	37
CR.5B	1x10mm UNISPAN	Suspended with Rondo Sound Isolation Hangers	R2.5 GW Ceiling Batts	NA	NA	52	41	50	39
CR.5C	1x13mm SOUNDSTOP	Suspended with Rondo Sound Isolation Hangers	R2.5 GW Ceiling Batts	NA	NA	56	45	54	43
CR.5D	2x10mm SHEETROCK BRAND CEILING BOARD	Suspended with Rondo Sound Isolation Hangers	R2.5 GW Ceiling Batts	NA	NA	55	44	53	42
CR.5E	2x10mm UNISPAN	Suspended with Rondo Sound Isolation Hangers	R2.5 GW Ceiling Batts	NA	NA	58	47	56	45

* R2.5 GW Ceiling Batt - R2.5 Pink Ceiling Batts* glasswool by Fletcher Insulation

For the full range of USG Boral systems refer to usgboral.com/eselector

Refer to Table G2 in Ceilings - Introduction for maximum spans of Rondo 129 furring channel.

Refer to Table G3 in Ceilings - Introduction for maximum spans and spacings of furring channels with acoustic mounts.

CEILINGS UNDER ROOF – FIRE UPGRADE

CR

FIRE RESISTANCE LEVEL
(refer to table)FRL Basis: FCO-1658, FCO-0568, SI 1891,
FTO-0029, FCO-1856

Pitched roof shown

SYSTEM DESCRIPTION

Roof Type: Any
Ceiling Lining: One or more layers of
 fire resistant pbd
 (refer to table)
Ceiling Fixing: Any

FIRE RATINGS

SYSTEM	FIRE RESISTANT LEVEL	RISF	LINING
CR30.1A	30/30/30 from below	NA	1x13mm FIRESTOP
CR30.2A	30/30/30 from below	30min	1x16mm FIRESTOP
CR60.1A	60/60/60 from below	30min	2x13mm FIRESTOP
CR60.2A	60/60/60 from below	60min	1x13mm FIRESTOP + 1x16mm FIRESTOP
CR90.1A	90/90/90 from below	60min	2x16mm FIRESTOP
CR120.1A	120/120/120 from below	90min	3x16mm FIRESTOP
CR120.2A	120/120/120 from below	120min	2x16mm FIRESTOP + Furring +2x16mm FIRESTOP

For the full range of USG Boral systems refer to usgboral.com/eselector

SPANNING CEILINGS C-SECTION

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

CS

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FCO-1160, FCO-1161, FCO-1162, FCO-1213, FCO-0411



System CS60.1A shown

SYSTEM DESCRIPTION

Top Lining: One or more layers of fire resistant pbd
Framing: 150mm C-studs
 0.75mm BMT
 @ 600mm ctrs
Bottom Lining: One or more layers of fire resistant pbd

ACOUSTIC RATINGS BASIS: RT&A TE405-05F17

SYSTEM	FRL	TOP LINING	BOTTOM LINING	STUD SIZE mm	150		MAX SPANS FOR POINT LOAD AT MIDSPAN† mm	
				BMT mm	0.75			
				INSULATION*	R _w	R _w +C _{tr}	1400N	900N
CS60.1A	60/60/60 from above only	1x16mm FIRESTOP	1x16mm FIRESTOP	Nil	39	33	2000	3000
				90G11, 90P14	46	42		
CS90.1A	90/90/90 from above only	2x13mm FIRESTOP	1x13mm FIRESTOP	Nil	40	31	2000	2900
				90G11, 90P14	49	40		
CS120.1A	120/120/120 from above only	2x16mm FIRESTOP	1x16mm FIRESTOP + 1x10mm REGULAR	Nil	46	38	1900	2650
				90G11, 90P14	52	47		
CS120.1B	120/120/120 from above 60/60/60 from below	2x16mm FIRESTOP	2x16mm FIRESTOP	Nil	47	38	1900	2650
				90G11, 90P14	52	47		
CS120.1C	120/120/120 from both sides	2x16mm FIRESTOP	3x16mm FIRESTOP	Nil	49	41	1850	2500
				90G11, 90P14	54	50		
CS180.1A	180/180/180 from above only	2x25mm SHAFTLINER	1x16mm FIRESTOP	Nil	48	40	1900	2600
				90G11, 90P14	54	50		

* 90G11 – 90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 90P14 – 90mm Polyester Insulation 14kg/m³

† Maximum spans are based on non trafficable ceilings in accordance with AS 1170.1 cl 3.5.2.
 End connections using Rondo SWC3 or 201 web cleats.

CH

FIRE RESISTANCE LEVEL
(refer to table)FRL Basis: FCO-0672, FCO-0410,
FCO-1658, FCO-2212

System CH120.1A shown

SYSTEM DESCRIPTION

- Top Lining:** One or more layers of fire resistant pbd
- Framing:** CH-studs @ 600mm ctrs (refer to table)
- Bottom Lining:** One or more layers of fire resistant pbd

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SPANNING CEILINGS CH-SECTION

ACOUSTIC RATINGS BASIS: RT&A TE405-05F17

SYSTEM	FRL	TOP LINING	BOTTOM LINING	STUD SIZE mm	64		102		64		102	
				BMT mm	0.55	0.90	0.55	0.90	0.55	0.90	0.55	0.90
				INSULATION*	R_w				R_w+C_{tr}			
CH60.1A	60/60/60 from both sides	1x25mm SHAFTLINER	2x16mm FIRESTOP	Nil	43	40	45	42	34	31	36	33
				50G11, 50P14	50	47	51	48	40	37	42	39
CH120.1A	120/120/120 from both sides	1x25mm SHAFTLINER	3x16mm FIRESTOP	Nil	45	42	46	43	36	33	37	34
				50G11, 50P14	52	49	52	49	42	39	43	40
CH120.2A	120/120/120 from both sides	3x16mm FIRESTOP	1x25mm SHAFTLINER	Nil	45	42	46	43	36	33	37	34
				50G11, 50P14	52	49	52	49	42	39	43	40

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 50P14 – 50mm Polyester Insulation 14kg/m³

MAXIMUM SPANS

STUD SIZE mm	64	64	102	102	64	64	102	102
BMT mm	0.55	0.90	0.55	0.90	0.55	0.90	0.55	0.90
FRAME SPACING	0.00kPa PRESSURE				0.25kPa PRESSURE			
	300	2000	2530	2690	3410	2000	2530	2690
600	1760	2200	2360	2960	1480	1850	1980	2500

Maximum spans are based on:

- 600Pa self weight
- Maximum working stress of steel of 80MPa under fire load
- Non trafficable ceilings and no additional loadings from construction or maintenance personnel
- Simply supported, laterally restrained joists.

For the full range of USG Boral systems refer to usgboral.com/eselector

ACOUSTIC CEILINGS – MINERAL FIBRE TILES

APPLICATION GUIDELINES																									
PANEL	FACE TEXTURE	APPLICATION																							
		AIRPORTS	BANKS	BOARDROOMS / CONFERENCE	CINEMAS / THEATRES	COMPUTER ROOMS	FACTORIES / WORKSHOPS	FOODHALLS	GYMNASIUMS	HOSPITALS / MEDICAL CENTRES	LABORATORIES / CLEANROOMS	LIBRARIES	LIGHT INDUSTRIAL CONSTRUCTION	LOBBIES / RECEPTIONS	OFFICES	OPEN PLAN OFFICES	RESTAURANTS / CAFES	RETAIL	SCHOOLS	SERVICE STATIONS	SHOPPING CENTRES	SHOWROOMS / EXHIBITION AREAS	SWIMMING POOLS	WASHROOMS	FIRE RATED
CLEAN ROOM CP CLASS 10M-100M (PERF)	F					•	•	•	•	•	•	•			•		•	•	•	•	•		•	•	•
ECLIPSE CLIMAPLUS	M	•	•	•	•					•		•									•	•			
EUROCOUSTIC MINERVAL LUX	M	•	•	•	•	•		•		•		•		•	•	•	•	•	•	•	•	•			
EUROCOUSTIC TONGA	M	•	•	•	•	•		•		•		•		•	•	•	•	•	•	•	•	•			
HALCYON CLIMAPLUS	M	•	•	•	•	•		•		•		•		•	•	•	•	•	•	•	•	•			
IMPRESSIONS CLIMAPLUS	F	•	•	•	•					•		•	•								•	•			
MARS CLIMAPLUS	F	•	•	•	•	•		•		•	•	•									•	•			
MARS CLEANROOM CP	F					•	•			•	•									•			•	•	
MARS CP HEALTHCARE	F					•		•		•	•						•		•					•	
MARS CLIMAPLUS HIGH NRC	F	•	•	•	•			•		•		•		•	•	•	•	•	•	•	•	•			
MILLENNIA CLIMAPLUS	F	•	•	•	•			•		•		•									•	•			
OLYMPIA MICRO CLIMAPLUS	F	•	•	•	•					•		•	•	•	•						•	•			
OLYMPIA 11 MICRO CLIMAPLUS 0.65	F	•	•	•	•					•		•	•	•	•		•	•	•		•	•			
RADAR CERAMIC CLIMAPLUS	M																			•			•	•	•
RADAR CLIMAPLUS	M	•	•	•	•																				•
RADAR CLIMAPLUS ILLUSIONS	M	•	•	•	•																				
RADAR CLIMAPLUS HIGH NRC	M	•	•	•	•					•							•	•	•		•	•			•
RADAR CLIMAPLUS HIGH NRC/CAC	M	•	•	•	•			•		•		•	•		•	•	•	•	•		•	•			•
ROCK FACE CLIMAPLUS	M	•	•						•	•			•					•	•		•				•

ACOUSTIC CEILINGS – MINERAL FIBRE TILES

TECHNICAL DATA										
PANEL	EDGE	CEILING GRID	NRC	CAC RANGE	LR	VOC EMISSIONS	ANTI-MOULD & MILDEW	RECYCLED CONTENTS	PANEL WEIGHT kg/m ²	PANEL COST CATEGORY
CLEAN ROOM CLIMAPLUS CLASS 100	SQ	DX	—	35–39	0.79	—	—	51%	5.4	\$\$\$\$
CLEAN ROOM CP CLASS 10M–100M	SQ	DX	0.55–0.65	35–39	0.79	—	—	51%	5.4	\$\$\$\$
ECLIPSE CLIMAPLUS	SQ SLT FL	DX/DXT	0.70–0.75	35–39	0.86	Low	●	77%	4.7	\$\$\$
EUROCOUSTIC MINERVAL LUX	SQ SLT FL	DX/DXT	0.90	—	0.75	0.05mg/m ³	○	50%	1.9	\$\$\$
EUROCOUSTIC TONGA	SQ SLT FL	DX/DXT	0.95	—	0.75	0.05mg/m ³	○	50%	2.2	\$\$\$\$
HALCYON CLIMAPLUS	SQ SLT FLB	DX/DXT	0.90–1.00	20–30	0.88	Zero	○	35.1%	1.85–3.3	\$\$\$\$
IMPRESSIONS CLIMAPLUS	SQ SLT FLB	DX/DXT	0.50–0.60	35–39	0.84	Low	●	44%	3.0	\$
MARS CLIMAPLUS	SQ SLT FLB	DX/DXT	0.70 0.85	35–39	0.90	Low	●	76%	4.7	\$\$\$\$
MARS CLEANROOM CP	—	—	0.70/0.85+	35–39	0.90	Low	●	76%	5.2	\$\$\$\$
MARS CLIMAPLUS HEALTHCARE	—	—	0.70/0.85+	35–39	0.90	Low	●	76%	5.2	\$\$\$\$
MARS CLIMAPLUS HIGH NRC	—	—	0.80/0.85+	35–39	0.90	Low	●	76%	5.9	\$\$\$\$
MILLENNIA CLIMAPLUS	SQ SLT FLB	DX/DXT	0.70	35–39	0.85	Low	●	75%	5.0	\$\$\$
OLYMPIA MICRO CLIMAPLUS	SQ SLT FL	DX/DXT	0.50+	35–39	0.87	Low	●	52%	3.8	\$\$
OLYMPIA 11 MICRO CLIMAPLUS	SQ SLT FL	DX/DXT	0.65+	35–39	0.87	Low	●	56%	5.0	\$\$\$
RADAR CLIMAPLUS	SQ SLT FLB	DX/DXT	0.50–0.60	35–39	0.84	Low	●	28–44%	3.0	\$
RADAR CLIMAPLUS ILLUSIONS	SLT	DX/DXT	0.55–0.65	35–39	0.89	Low	●	44%	4.2	\$\$
RADAR CLIMAPLUS HIGH NRC	SQ/SLT	DX/DXT	0.70–0.75	35–39	0.84	Low	●	58%	5.8	\$\$\$
RADAR CLIMAPLUS HIGH NRC/CAC	SQ	DX/DXT	0.70+	40	0.84	Low	●	56%	5.8	\$\$\$
RADAR CERAMIC CLIMAPLUS	SQ	DX	0.50	42	0.82	Low	○	45%	8.0	\$\$\$\$
ROCK FACE CLIMAPLUS	SQ	DX	0.55	37–41	0.86	Low	●	49%	4.9	\$\$\$

Low Emissions (VOC Class)

Classified as low-emitting per standards established by the Collaborative for High-Performance Schools (CHPS), following California Specification 01350 testing methods. Low-emitting is defined as having less than 13.5 ppb/0.017 mg/m³.

Edge Profiles

SQ Square Edge
SL Shadowline
SLT Shadowline Tapered
FL Fineline
FLB Fineline Bevel

● CLIMAPLUS Superior Performance

Contains a broad-spectrum antimicrobial treatment on the face and back of the panel that provides resistance against the growth of mould/mildew, fungi, yeast, and odour/ stain-causing Gram-positive and Gram-negative bacteria.

○ CLIMAPLUS Inherent Performance

Substrate is inherently resistant to the growth of mould, mildew and bacteria.

Panel Cost Category

Economical \$
Moderate \$\$
Mid Range \$\$\$
Premium \$\$\$\$

OVER PARTITION SYSTEMS

OVER PARTITION CEILING SYSTEMS					
WALL ACOUSTIC RATING	SYSTEM	ACCEPTABLE CEILING CONFIGURATION TO MAINTAIN WALL ACOUSTIC RATING			
		SIDE A	SIDE B	CONTINUOUS / DISCONTINUOUS CEILING	ABOVE CEILING TREATMENT
$R_w \leq 35$	OP.1	Mineral Fibre Panels Group A, B or C	Mineral Fibre Panels Group A, B or C	Continuous or Discontinuous	None
	OP.2	13mm SHEETROCK Brand Standard	13mm SHEETROCK Brand Standard	Continuous or Discontinuous	None
$R_w = 40$	OP.3	Mineral Fibre Panels Group A or B	Mineral Fibre Panels Group A or B	Discontinuous	13mm plasterboard wall lining on one side of stud only continued up to u/s of concrete slab or roof lining
	OP.4	Mineral Fibre Panels Group C	Mineral Fibre Panels Group C	Discontinuous	Total of 150G11* extend min 1200mm each side of wall
	OP.5	13mm Regular plasterboard ceiling	Mineral Fibre Panels Group A or B	Discontinuous	50G11* extend min 1200mm each side of wall
	OP.6	13mm Regular plasterboard ceiling	Mineral Fibre Panels Group C	Discontinuous	None
	OP.7	13mm Regular plasterboard ceiling	13mm Regular plasterboard ceiling	Continuous or Discontinuous	None
	OP.2	13mm SHEETROCK Brand Standard	13mm SHEETROCK Brand Standard	Continuous or Discontinuous	None
$R_w = 45$	OP.8	Mineral Fibre Panels Group A, B or C	Mineral Fibre Panels Group A, B or C	Discontinuous	13mm plasterboard wall lining on one side of stud only continued up to u/s of concrete slab or roof lining + 50G11* extend min 1200mm each side of wall
	OP.9	13mm Regular plasterboard ceiling	13mm Regular plasterboard ceiling	Discontinuous	50G11* over entire ceiling both sides of wall
$R_w = 50$	OP.10	13mm Regular plasterboard ceiling	13mm Regular plasterboard ceiling	Discontinuous	13mm Firestop plasterboard wall lining on both sides of stud to extend full height to u/s of concrete slab or roof lining

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. 150G11 – 2x75mm or 3x50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation.

- Notes:**
- Refer to USG BORAL CEILING PANEL CLASSIFICATION table on p G29 for suitable ceiling panels
 - Acoustic ratings based on nom. 700mm plenum depth.
 - For continuous ceilings, junction of wall to suspended ceiling to be acoustically sealed.
 - For continuous or discontinuous ceilings, no acoustical treatment required to shadowline stopping angle at head of wall.
 - Other acceptable materials (ie. barium loaded vinyl) can be used in lieu of a plasterboard barrier in ceiling space.
 - Insulation blankets must not be in direct contact with mineral fibre panels and must be supported by the suspension system only
 - Insulation batts can be laid directly on mineral fibre panels only to the extent required in the above over partition systems and provided that the batts are the same size as the panels.

OVER PARTITION SYSTEMS

USG BORAL ACOUSTIC CEILING PANELS CLASSIFICATION				
CEILING PANEL GROUP	PRODUCT NAME	PANEL THICKNESS	NRC	CAC
GROUP A	RADAR CLIMAPLUS	15mm	0.50-0.60	33-35
	IMPRESSIONS CLIMAPLUS	15mm	0.50-0.60	33-35
	RADAR CLIMAPLUS HIGH-NRC	19mm	0.70	35
GROUP B	MARS CLIMAPLUS HEALTHCARE	19mm	0.70-0.80	35-39
	MARS CLEANROOM CP	19mm	0.70/0.85+	35-39
	MARS CLIMAPLUS HEALTHCARE	19mm	0.70/0.85+	35-39
	MARS CLIMAPLUS HIGH NRC	22mm	0.80/0.85+	35-39
	MILLENIA CLIMAPLUS	19mm	0.70	35-39
	OLYMPIA MICRO CLIMAPLUS	15mm	0.50	35-39
	OLYMPIA 11 MICRO CLIMAPLUS	19mm	0.65	35-39
	ECLIPSE CLIMAPLUS	19mm	0.65-0.75	35-39
	ROCK FACE CLIMAPLUS	15mm	0.50-0.60	35-39
	CLEAN ROOM CLIMAPLUS	15mm	0.50-0.60	35-39
GROUP C	RADAR CLIMAPLUS HIGH-NRC, HIGH-CAC	19mm	0.70	40
	IMPRESSIONS CLIMAPLUS HIGH-CAC	15mm	0.60	40

OVER PARTITION SYSTEMS

TYPICAL LAYOUTS



Figure G12: Ceiling configuration to maintain an $R_w \leq 35$ wall acoustic rating
(System OP.1 shown)

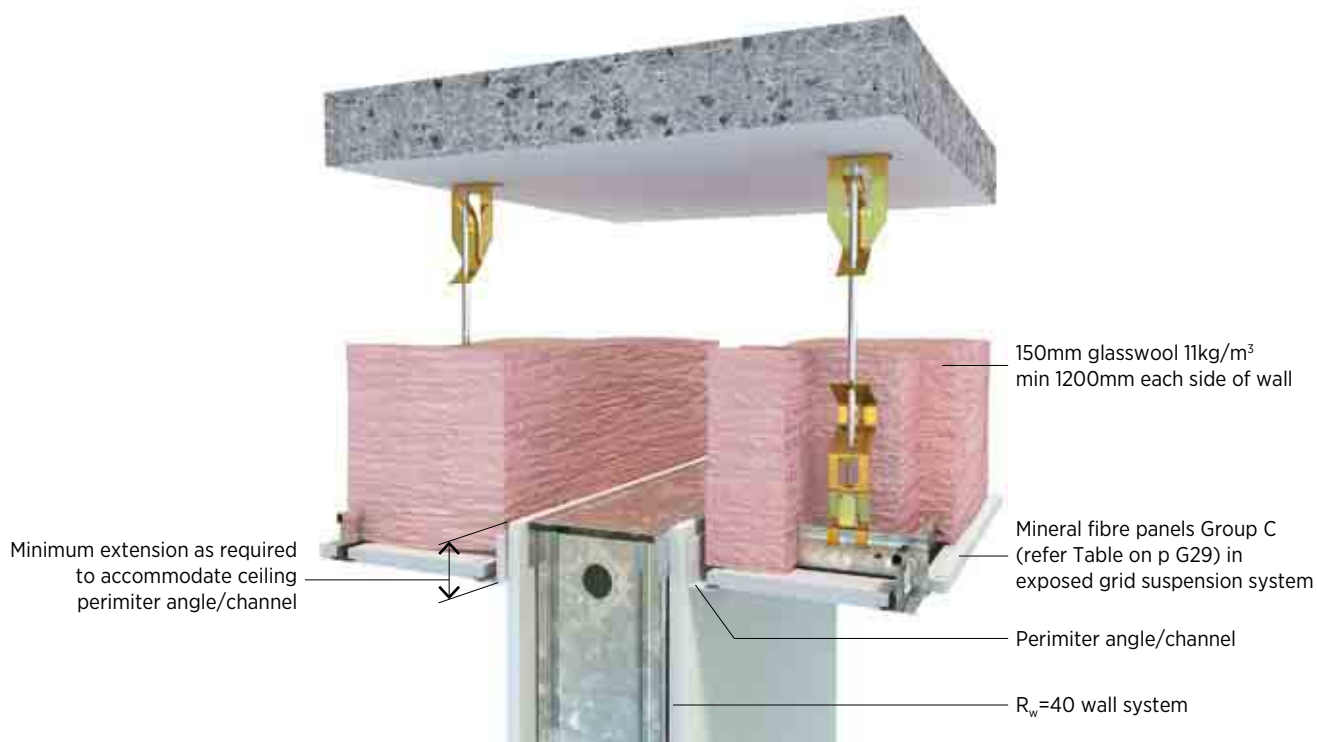


Figure G13: Ceiling configuration to maintain an $R_w = 40$ wall acoustic rating
(System OP.4 shown)

OVER PARTITION SYSTEMS



Figure G14: **Ceiling configuration to maintain an R_w=40 wall acoustic rating**
(System OP.5 shown)

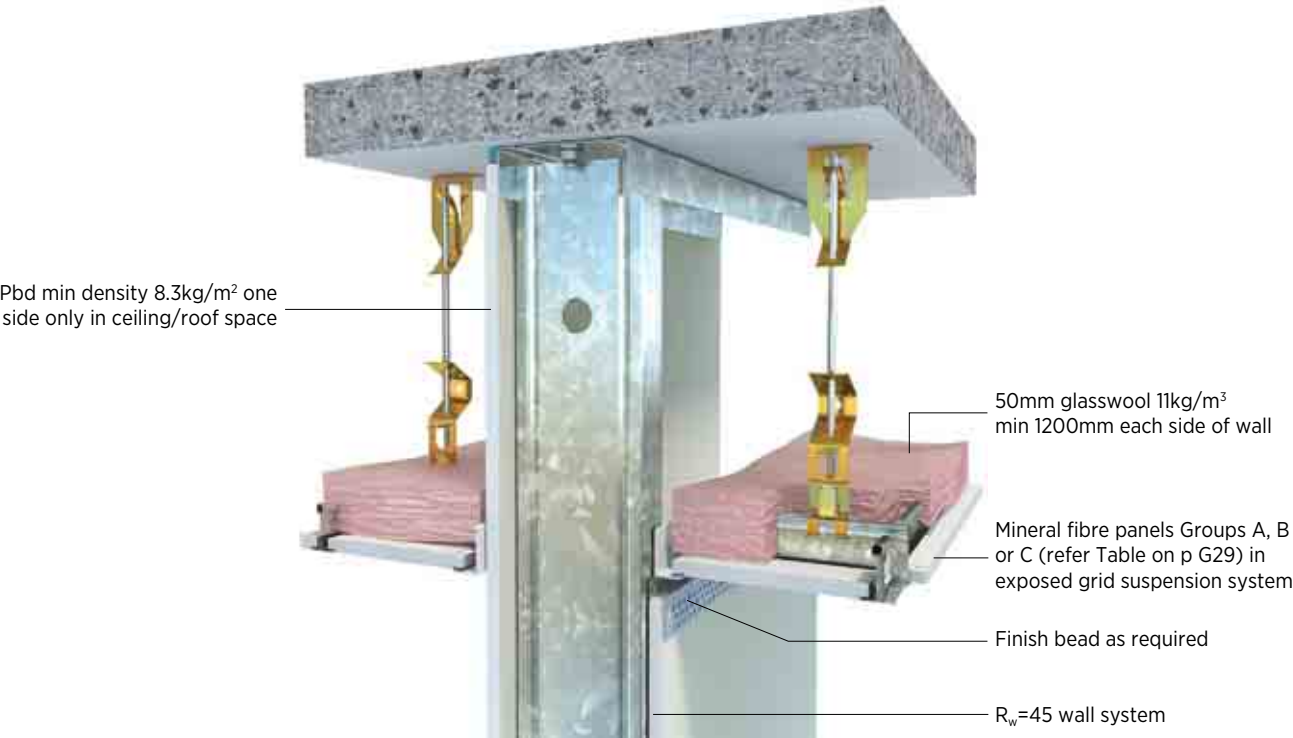


Figure G15: **Ceiling configuration to maintain an R_w=45 wall acoustic rating**
(System OP.8 shown)

OVER PARTITION SYSTEMS

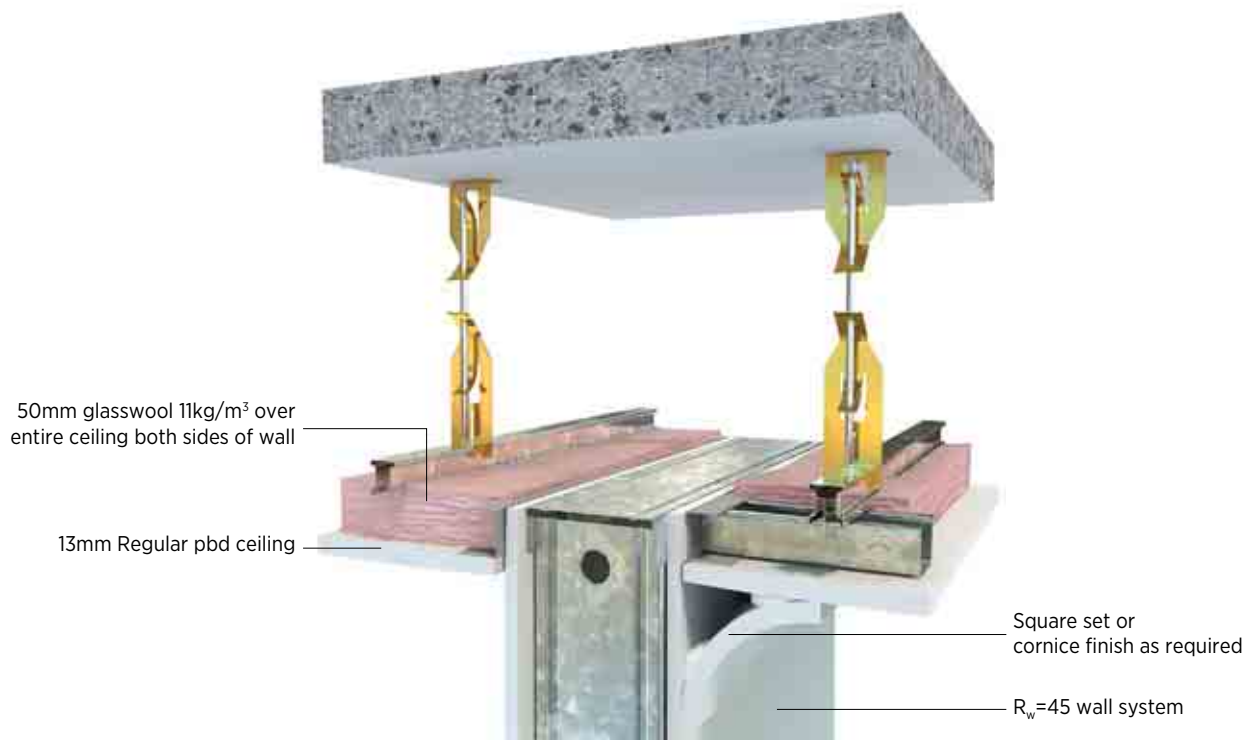


Figure G16: **Ceiling configuration to maintain an R_w=45 wall acoustic rating**
(System OP.9 shown)

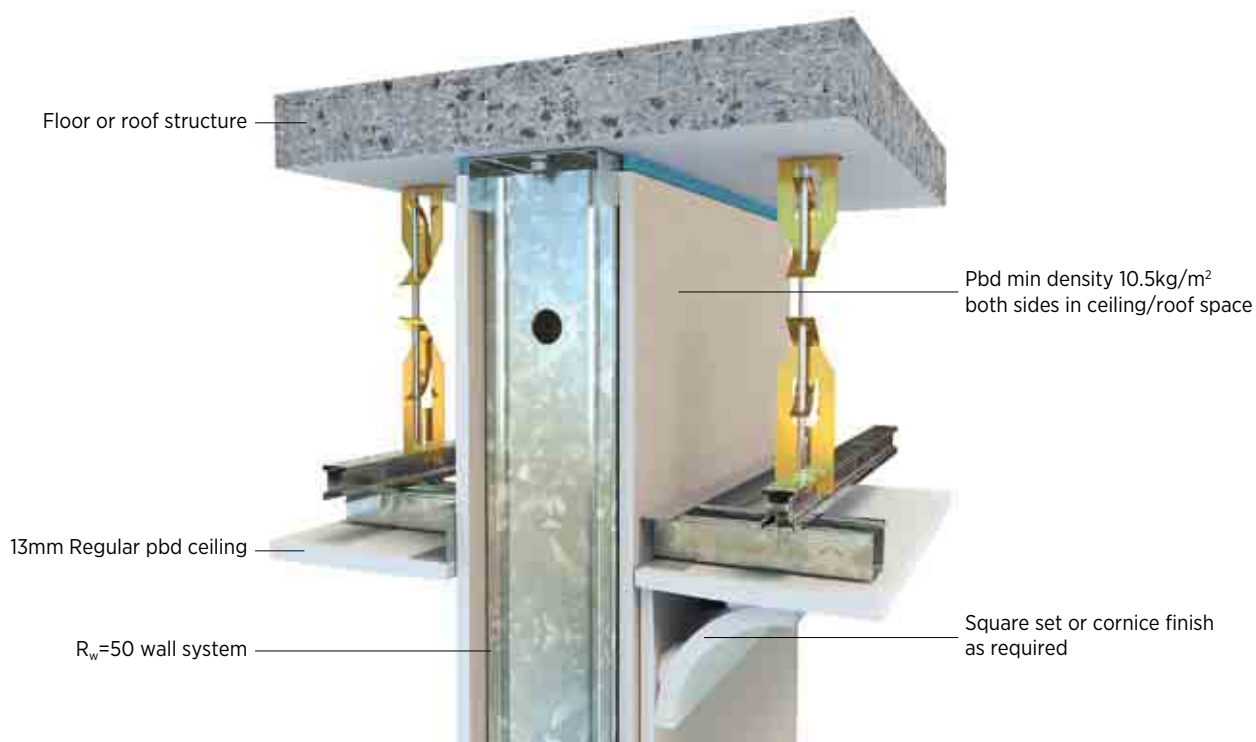
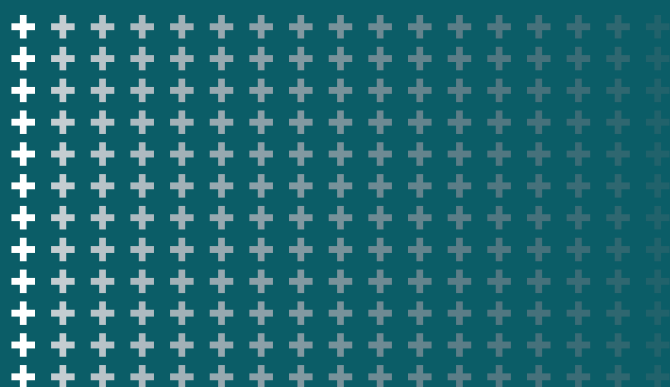


Figure G17: **Ceiling configuration to maintain an R_w=50 wall acoustic rating**
(System OP.10 shown)

H 2	INTRODUCTION
H 11	MULTIFRAME™
H 14	SERVICES SEPARATION
H 15	PARTIWALL®
H 18	INTRWALL®

MULTI-RESIDENTIAL



INTRODUCTION

USG Boral offers a range of BCA compliant fire and acoustic rated building systems for the Multi-Residential sector. These include:

- **Partiwall®** separating walls for Class 1 attached dwellings
- **IntRwall®** separating walls for Class 2 and 3 buildings with concrete slabs
- **Multiframe™** timber framed construction system for low rise buildings Class 2 and 3.

A brief overview of the above systems and BCA requirements for Multi-Residential buildings is provided below. For more information on various systems refer to the relevant USG Boral publications and usgboral.com

BCA REQUIREMENTS

NOTE:

Extracts of BCA requirements provided below are intended for guidance only and should not be used as a substitute for professional advice. Refer to BCA for the full set of performance requirements for Multi-Residential buildings.

FIRE RESISTANCE

FIRE RESISTANCE LEVELS

In accordance with BCA, certain elements in multi-residential buildings must achieve stipulated Fire Resistance Levels (FRL).

Class 1 Buildings

Separating walls between Class 1 buildings (ie attached villa units and townhouses) must have an FRL of not less than 60/60/60.

Class 2 and 3 Buildings

Building elements in Class 2 and 3 buildings (ie apartments, boarding houses, hotels) must have minimum FRLs depending the type of fire resisting construction ranging from Type A (the most fire resistant) to Type C (the least fire resistant):

TABLE H1: TYPES OF FIRE RESISTING CONSTRUCTION FOR CLASS 2 AND 3 BUILDINGS

RISE IN STOREYS	TYPE OF CONSTRUCTION
4 or more	A
3	A
2	B
1	C

Refer to BCA for:
 -Calculations of rise in storeys.
 -Treatment of buildings with multiple classifications.
 -Concession for Class 2 and 3 Buildings.

Minimum FRL's for Class 2 and 3 buildings are outlined in tables H3 and H4

Class 9c Buildings

Refer to the BCA for fire resistance requirements for Class 9c buildings.

FIRE HAZARD PROPERTIES OF LINING MATERIALS

Under the BCA, wall and ceiling lining materials are assigned a group number from Group 1 (best performing) to Group 4 (worst performing) based on their Fire Hazard Properties.

The following table outlines permitted group numbers of wall and ceiling lining materials in Class 2 buildings:

TABLE H2: PERMITTED GROUPS FOR WALL AND CEILING MATERIALS

CLASS OF BUILDING	FIRE-ISOLATED EXITS & FIRE CONTROL ROOMS	PUBLIC CORRIDORS		SOLE OCCUPANCY UNITS		OTHER AREAS
	WALL/CEILING	WALL	CEILING	WALL	CEILING	WALL/CEILING
Unsprinklered	1	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3
Sprinklered	1	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3

SMOKE-PROOF WALLS

Public corridors in Class 2 or 3 buildings must be divided at intervals of not more than 40m with smoke-proof walls complying with Specification C2.5 of BCA.

STRUCTURAL TESTS FOR LIGHTWEIGHT CONSTRUCTION

Fire-resisting walls of lightweight construction must satisfy the structural test criteria outlined in Specification C1.8 of BCA.

NON-COMBUSTIBLE MATERIALS

Under Clause C1.12 of BCA, plasterboard is deemed to be a non-combustible material. Where Class 2 building is constructed using timber framing, insulation in the cavity of a fire-resisting wall must be non-combustible.

» INTRODUCTION

TABLE H3: MINIMUM FRLs OF BUILDING ELEMENTS IN A CLASS 2 AND 3 BUILDING WITHOUT SPRINKLERS					
BUILDING ELEMENT	TYPE OF FIRE RESISTING CONSTRUCTION				
	TYPE A		TYPE B		TYPE C
	LOAD BEARING	NON-LOAD BEARING	LOAD BEARING	NON-LOAD BEARING	LOAD BEARING
External wall (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is:					
Less than 1.5m	90/90/90	-/90/90	90/90/90	-/90/90	90/90/90
1.5m to less than 3m	90/60/60	-/60/60	90/60/30	-/60/30	-/-/-
3m to less than 9m	90/60/30	-/-/-	90/30/30	-/-/-	-/-/-
9m to less than 18m	90/60/30	-/-/-	90/30/-	-/-/-	-/-/-
18m or more	90/60/30	-/-/-	-/-/-	-/-/-	-/-/-
External Column (not incorporated in an external wall) Distance from a fire-source feature:					
Less than 1.5m	90/-/-	-/-/-	90/-/-	-/-/-	90/-/-
1.5m to less than 3m	90/-/-	-/-/-	90/-/-	-/-/-	-/-/-
3m or more	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-
Internal Walls					
Fire-resisting lift shafts	90/90/90	-/90/90	90/90/90	-/-/-	-/-/-
Fire-resisting stair shafts	90/90/90	-/90/90	90/90/90	-/90/90	60/60/60
Bounding public corridors, public lobbies and the like	90/90/90	-/60/60	60/60/60	-/60/60	60/60/60
Between or bounding sole-occupancy units	90/90/90	-/60/60	60/60/60	-/60/60	60/60/60
Ventilating, pipe, garbage and like shafts not used for the discharge of hot products of combustion	90/90/90	-/90/90	-/-/-	-/-/-	-/-/-
Other Loadbearing Internal Walls	90/-/-	NA	60/-/-	NA	-/-/-
Loadbearing Internal Columns	90/-/-	NA	60/-/-	NA	-/-/-
Internal Beams	90/-/-	NA	Ref BCA	NA	Ref BCA
Floors	90/90/90	NA	Ref BCA	NA	NA

- Where fire rated internal wall extends to the underside of a ceiling immediately below the roof, such ceiling must have Resistance to Incipient Spread of Fire (RISF) of not less than 60 minutes.
- Where the lowest storey is used solely for car parking or some other ancillary purpose, such storey must be separated from the storey above by construction having an FRL of not less than 90/90/90.
- Refer to BCA for concessions for Class 2 and 3 buildings without sprinklers.

» INTRODUCTION

TABLE H4: MINIMUM FRLs OF BUILDING ELEMENTS IN A CLASS 2 AND 3 BUILDING WITH SPRINKLERS

BUILDING ELEMENT	TYPE OF FIRE RESISTING CONSTRUCTION				
	TYPE A		TYPE B		TYPE C
	LOAD BEARING	NON-LOAD BEARING	LOAD BEARING	NON-LOAD BEARING	LOAD BEARING
External wall (including any column and other building element incorporated therein) or other external building element Distance from a fire-source feature:					
Less than 1.5m	90/90/90	-/90/90	90/90/90	-/90/90	90/90/90
1.5m to less than 3m	90/60/60	-/60/60	90/60/30	-/60/30	-/-/-
3m to less than 9m	90/60/30	-/-/-	90/30/30	-/-/-	-/-/-
9m to less than 18m	90/60/30	-/-/-	90/30/-	-/-/-	-/-/-
18m or more	90/60/30	-/-/-	-/-/-	-/-/-	-/-/-
External Column (not incorporated in an external wall) Distance from a fire-source feature:					
Less than 1.5m	90/-/-	-/-/-	90/-/-	-/-/-	90/-/-
1.5m to less than 3m	90/-/-	-/-/-	90/-/-	-/-/-	-/-/-
3m or more	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-
Internal Walls					
Fire-resisting lift shafts	60/60/60	-/-/-	60/60/60	-/-/-	-/-/-
Fire-resisting stair shafts	60/60/60	-/-/-	60/60/60	-/-/-	60/60/60
Bounding public corridors, public lobbies and the like	60/60/60	-/-/-	60/60/60	-/-/-	60/60/60
Between or bounding sole-occupancy units	60/60/60	-/-/-	60/60/60	-/-/-	60/60/60
Ventilating, pipe, garbage and like shafts not used for the discharge of hot products of combustion	60/60/60	-/-/-	-/-/-	-/-/-	-/-/-
Other Loadbearing Internal Walls	60/-/-	NA	60/-/-	NA	-/-/-
Loadbearing Internal Columns	90/-/-	NA	60/-/-	NA	-/-/-
Internal Beams	90/-/-	NA	Ref BCA	NA	Ref BCA
Floors	60/60/60	NA	Ref BCA	NA	Ref BCA

-Where fire rated internal wall extends to the underside of a ceiling immediately below the roof, such ceiling must have Resistance to Incipient Spread of Fire (RISF) of not less than 60 minutes.

-Where the lowest storey is used solely for car parking or some other ancillary purpose, such storey must be separated from the storey above by construction having an FRL of not less than 90/90/90.

-Refer to BCA for concessions for Class 2 and 3 buildings with sprinklers.

» INTRODUCTION

ACOUSTICS

In accordance with BCA, separating walls and floors in multi-residential buildings must provide minimum levels of acoustic isolation as summarised below:

TABLE H5: CLASS 9C BUILDINGS		
BUILDING ELEMENT	IMPACT SOUND INSULATION (Separate Leaves)	R _w
Floor	NA	45
Wall separating sole occupancy units or sole occupancy unit from a bathroom, sanitary compartment (not being associated with ensuite), plant room or utilities room	No	45
Wall separating sole occupancy unit from kitchen or laundry	Yes	45

TABLE H6: CLASS 1 BUILDINGS		
WALL TYPE	DISCONTINUOUS CONSTRUCTION	R _w +C _{tr}
Separating wall between bathroom, sanitary compartment, laundry or kitchen and habitable room (other than kitchen) in adjoining Class 1 building	Yes	50
In all other cases to those listed above	No	50
Duct, soil, waste or water supply pipe or storm water pipe that passes through a separating wall between class 1 buildings if the adjacent room is a habitable room (other than a kitchen)	No	40
As above, if the adjacent room is a kitchen or any other room	No	25

TABLE H7: SUMMARY OF BCA ACOUSTIC REQUIREMENTS FOR FLOORS, WALLS AND SERVICES IN CLASS 2 AND 3 BUILDINGS							
APPLICATION	BCA DEEMED-TO-SATISFY PROVISION (Laboratory performance)				BCA VERIFICATION METHOD (in-situ performance)		
	R _w (not less than)	R _w +C _{tr} (not less than)	IMPACT SOUND INSULATION (discontinuous construction, walls only)	L _{n,w} +C _l (not more than - floor only)	D _{nt,w} (not less than)	D _{nt,w} +C _{tr} (not less than)	L _{n,w} +C _l (not more than - floor only)
Floors separating sole-occupancy units	-	50	-	62	-	45	62
Floors separating a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification	-	50	-	62	-	45	62
Walls separating sole-occupancy units ie habitable rooms adjoining, or, non-habitable rooms adjoining	-	50	No	-	-	45	-
Walls separating a sole-occupancy unit from a stairway, public corridor, public lobby or the like	50	-	No	-	45	-	-
Walls separating a sole-occupancy unit from a plant room or lift shaft	50	-	Yes	-	45	-	-
Walls separating a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy from a habitable room (other than a kitchen) in an adjoining unit	-	50	Yes	-	-	45	-
Duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, that serves or passes through more than one sole-occupancy unit if the adjacent room is a habitable room (other than a kitchen)	-	40	-	-	-	-	-
Duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, that serves or passes through more than one sole-occupancy unit if the adjacent room is a kitchen or non-habitable room	-	25	-	-	-	-	-

NOTES:

- Refer to General Information - Acoustics for:
- Explanation of various sound insulation terms.
- Definition of discontinuous construction.
- Sound insulation ratings of services.

» INTRODUCTION

THERMAL INSULATION

Under the Deemed-to-Satisfy provisions of the Energy Efficiency requirements of the BCA, walls, roofs and ceilings forming part of a building envelope of a Class 1 or 2 building must achieve the minimum total R-values for various Climate Zones as outlined in Tables H8 and H9:

TABLE H8: MINIMUM R VALUES FOR CLASS 1 BUILDINGS

CLIMATE ZONE	EXAMPLE CITY	ROOFS AND CEILINGS			EXTERNAL WALLS
		RED, GREEN, DARK GREY	LIGHT GREY, YELLOW	LIGHT CREAM, OFF WHITE	
1	Darwin	5.1	4.6	4.1	2.8
2	Brisbane	5.1	4.6	4.1	2.8
3	Alice Springs	5.1	4.6	4.1	2.8
4	Broken Hill, Mildura	5.1	4.6	4.1	2.8
5	Sydney East, Adelaide, Perth	5.1	4.6	4.1	2.8
6	Melbourne, Sydney West, Ballarat	5.1	4.6	4.1	2.8
7	Canberra, Hobart	5.1	4.6	4.1	2.8
8	Mount Buller	6.3	6.3	6.3	3.8

TABLE H9: MINIMUM R VALUES FOR CLASS 2 BUILDINGS

CLIMATE ZONE	EXAMPLE CITY	ROOFS AND CEILINGS			INTERNAL FLOORS	EXTERNAL WALLS
		RED, GREEN, DARK GREY	LIGHT GREY, YELLOW	LIGHT CREAM, OFF WHITE		
1	Darwin	4.2	3.7	3.2	2.0	3.3
2	Brisbane	4.2	3.7	3.2	2.0	3.3
3	Alice Springs	4.2	3.7	3.2	2.0	3.3
4	Broken Hill, Mildura	4.2	3.7	3.2	2.0	2.8
5	Sydney East, Adelaide, Perth	4.2	3.7	3.2	2.0	2.8
6	Melbourne, Sydney West, Ballarat	3.2	3.2	3.2	2.0	2.8
7	Canberra, Hobart	3.7	3.7	3.7	2.0	2.8
8	Mount Buller	4.8	4.8	4.8	3.5	3.8

Notes to Tables H8 and H9

Refer to the BCA for:

-Full set of Deemed-to-Satisfy Energy Efficiency provisions

-Outline of Climate Zones

-Definition of a building envelope for the purposes of thermal design

-Thermal construction compliance and installation requirements

-Adjustments of minimum R-values for roofs and ceilings to account for loss of ceiling insulation due to exhaust fans, flues, recessed downlights, etc

-Reduction of minimum R-value requirements for external walls to account for their thermal mass, orientation, shading and composition.

WET AREAS

Wet areas as defined in BCA is an area within a building supplied with water from a water supply system and includes bathrooms, showers, laundries and sanitary compartments.

According to BCA, building elements in wet areas must be waterproof or water resistant depending on the location within a wet area and must comply with AS 3740 *Waterproofing of Domestic Wet Areas*.

» INTRODUCTION

USG BORAL MULTI-RESIDENTIAL SYSTEMS PARTIWALL®

DESCRIPTION

USG Boral Partiwall is a family of separating wall systems for Class 1 buildings.

Purpose-designed to suit Australian construction techniques, Partiwall is a twin stud wall system incorporating a 25mm Shaftliner plasterboard fire barrier within the wall cavity. Cavity insulation is placed on one or both sides of the wall as required to achieve stated acoustic ratings.

Shaftliner panels are held in position by lightweight H-studs that are fixed to timber framing on both sides with aluminium clips. In the case of fire, aluminium clips on the fire side will melt, while the Shaftliner fire barrier is supported by, and provides protection to the structure on the opposite side.



Figure H1: Partiwall System PWT60.1

FEATURES AND BENEFITS

- No wet trades required.
- No additional trades required at framing stage.
- Permits easy incorporation of services and service penetrations in internal linings without the need for fire treatment.
- Wall linings are installed at the plastering stage as per normal installation specifications.

NOTE:

Partiwall system is designed to provide fire protection to the adjacent dwelling and not to dwellings above or below.

As such, Partiwall system is not suitable for use in timber framed Class 2 or 3 buildings.

DESIGN OPTIONS

Partiwall systems are available in three basic fire rated configurations:

TABLE H10: PARTIWALL SYSTEM TYPES

SYSTEM TYPE	FIRE BARRIER	FRL
PWT60.1	1x25mm SHAFTLINER	60/60/60
PWT90.1	1x25mm SHAFTLINER + 1x16mm FIRESTOP	90/90/90
PWT90.2	2x25mm SHAFTLINER	90/90/90

All fire rated configurations are available with a wide range of outer linings, including hybrid linings with different impact and/or water resistance properties on each side of the wall.

All Partiwall systems listed in this manual achieve acoustic ratings equal to or exceeding $R_w + C_{tr} = 50$ and provide acoustic impact isolation as defined in the BCA (Discontinuous Construction).

While only timber framed Partiwall systems have been listed in this manual, Partiwall is also available in steel framed configurations. Contact USG Boral for more information.

MATERIALS

FIRE BARRIER

- 25mm Shaftliner
- 25mm H-studs or 50mm I-studs
- Rondo 25mm or 50mm steel track
- Partiwall aluminium clips
- USG Boral Firepack® mineral wool packer.

LININGS

- 10mm/13mm Soundstop plasterboard
- 10mm/13mm Impactstop plasterboard
- 10mm/13mm Wet Area plasterboard
- 10mm Fiberock
- 6mm Villaboard® fibre cement.

» INTRODUCTION

INSULATION

- R2.0 Pink Wall Batts® 90mm glasswool by Fletcher Insulation
- 110mm USG Boral Partiwall Acoustic Batt
- 90mm Pink® Acousti-Therm® HD glasswool 24kg/m³ by Fletcher Insulation.

SEALANT

H.B. Fuller Firesound sealant.

FASTENERS

Refer Partiwall brochure for fastener types used in construction of Partiwall system.

DESIGN CONSIDERATIONS

MAXIMUM HEIGHTS AND LOADS

- Overall height of Shaftliner fire barrier must not exceed 12.0m.
- Spacing between aluminium clips supporting H-studs or I-studs must not exceed 3.0m vertically and 600mm horizontally.
- Timber framing is to be designed for normal service conditions and must comply with AS 1684 *Timber Framed Construction*.
- Partiwall is suitable for wind classification N1 and N2 as determined by AS 4055 *Wind Loads for Housing*. Where Partiwall is proposed for higher wind classification areas contact USG Boral for advice.

FIRE RATING

- Linings in the occupancy areas do not need be fire rated and are constructed using the normal installation and finishing methods outlined in USG Boral Plasterboard Installation Manual.
- Normal service penetrations are allowed through outer linings and are not required to be fire rated.
- Service penetrations through Shaftliner fire barrier are allowed only in the roof space (refer Partiwall brochure for details of approved penetrations). There should be no other penetrations through the fire barrier.
- Use only the specified Partiwall aluminium clips to attach the H-studs or I-studs to framing members. Other than the clips, there should be no attachments to the fire barrier.

ACOUSTICS

- All Partiwall systems outlined in this manual are covered by acoustical opinion RT&A TE-405-05F19 from Acoustical Consultants Renzo Tonin & Assoc.
- Partiwall® satisfies BCA acoustic requirements for separating walls of $R_w+C_{tr}=50$ and acoustic impact isolation, and $R_w+C_{tr}=25$ and $R_w+C_{tr}=40$ acoustic separation of adjoining soil and waste pipes within the wall cavity. To maintain acoustic performance, service pipes must not be in contact with the Shaftliner fire barrier.
- Small penetrations in outer linings (ie switches, power points, light fittings and pipes) do not need to be acoustically sealed, however Shaftliner fire barrier base and internal lining junctions with floors must be sealed with H.B. Fuller Firesound sealant.
- Stair stringers and treads should be kept clear of the separating wall in order to reduce the likelihood of stair impact sound travelling through the wall.

WET AREAS

Wet areas (as defined in the BCA) must be waterproofed as per the wet area details contained in USG Boral Installation Manual.

Partiwall Systems extending into wet areas must incorporate water resistant linings.

INSTALLATION

Partiwall system must be installed strictly in accordance with USG Boral installation specifications in order to achieve design fire and acoustic ratings. Refer to Partiwall brochure for installation specifications.

» INTRODUCTION

INTRWALL®

DESCRIPTION

IntRwall system is a non-load bearing separating wall system utilising 25mm Shaftliner plasterboard fire barrier with various configurations of outer linings on both sides. Cavity insulation is placed on one or both sides of the wall as required to achieve stated acoustic ratings.

Shaftliner panels are held in position by light gauge steel I-studs or H-studs.



Figure H2: IntRwall System IW60.1

FEATURES AND BENEFITS

- A simple, panelised lightweight system that can be installed by a plastering contractor.
- All components are manually handled and do not require heavy lifting equipment.
- Easy inspection of acoustic and fire sealing.
- Services can be easily incorporated in the wall cavities.
- If required, the stud centres can be reduced so that the system can be used in areas subject to higher than normal pressures.

DESIGN OPTIONS

IntRwall systems are available in seven basic configurations with Fire Resistance Levels up to -/120/120 and acoustic ratings up to $R_w+C_{tr}=59$ with acoustic impact isolation.

Various IntRwall configurations represent different options in regard to the type and fixing of outer linings to suit fire rating and services cavity requirements.

Each configuration also provides a number of options in regard to impact and moisture resistance of outer linings on each side of the wall.

MATERIALS

The following materials are used in USG Boral IntRwall systems:

PLASTERBOARD

- 25mm Shaftliner plasterboard
- 13mm Firestop plasterboard
- 13mm Multistop plasterboard
- 13mm SHEETROCK Brand Standard plasterboard
- 13mm Regular plasterboard
- 13mm Wet Area plasterboard
- 13mm Soundstop plasterboard
- 10mm Fiberock
- 6mm Villaboard® fibre cement.

RONDO STEEL COMPONENTS

- 50mm I-stud
- 25mm H-stud
- 64mm C-stud
- 51mm Deflection Head track
- 35x35x0.75mm angle
- 28mm Furring Channel
- 237 Fixing Clip.

INSULATION

- 30mm, 75mm and 90mm Pink Partition 11kg/m³ glasswool by Fletcher Insulation
- 75mm and 90mm Polyester insulation 14kg/m³ density.

SEALANTS AND PACKERS

- H.B. Fuller Firesound sealant
- IBS intumescent rod by Promat.

FASTENERS

Refer to IntRwall brochure for fasteners used in installation of the system.

» INTRODUCTION

DESIGN CONSIDERATIONS

FIRE RATING

- IntRwall system IW90.1A has been fire tested at CSIRO laboratories at North Ryde in Sydney and system IW60.1B has been tested at Warrington Fire Research facility in Melbourne. Refer to IntRwall tables for fire test reports and assessments numbers for various IntRwall systems.
- Penetrations in single layer Shaftliner systems are not permitted.
- Services penetrations in double-layer Shaftliner fire barrier and/or fire resistant outer linings must be treated to maintain fire rating. Refer IntRwall brochure for details.
- Services penetrations in non-fire resistant outer linings are not required to be fire rated.
- Where IBS rod is specified in the top track, it must be installed in order to achieve the stated Fire Resistance Levels.

STRUCTURAL

The IntRwall system has been tested in USG Boral NATA accredited laboratory in Port Melbourne and satisfies the requirements of the BCA Specification C1.8 to a maximum height of 3.0m. For greater wall heights refer to USG Boral.

System IW90.1 meets BCA serviceability requirements for walls of shafts and fire isolated exits (max deflection $L/240$ @ 350Pa lateral pressure). All IntRwall systems meet BCA requirements for walls generally (max deflection $L/240$ @ 250Pa lateral pressure).

For maximum heights of independent studs in IntRwall systems refer to Steel Stud Walls Lined One Side.

NOTE:

In high-rise apartment construction, confirmation of internal design pressures should be obtained from the project Structural Engineer, especially where there are large openings such as sliding glass doors onto balconies. Consult USG Boral for stud sizes, heights and spacing for design pressures other than those specified above.

ACOUSTICS

IntRwall system has been the subject of a series of acoustic tests at the CSIRO Acoustic Laboratory at Highett, Victoria.

All IntRwall systems outlined in this manual are covered by Acoustical Opinion RT&A TE405-05F20 from Acoustic Consultants Renzo Tonin & Assoc.

IntRwall systems with free standing framing on either side satisfy BCA Discontinuous Construction requirement where separating wall must provide impact sound isolation.

If services (duct, soil, waste or water supply pipe) are to be located within an IntRwall system and the adjacent dwelling is a habitable room (other than a kitchen), minimum construction on the adjacent dwelling's side in order to achieve BCA acoustic isolation requirement of $R_w + C_{tr} = 40$ must be as follows:

- 13mm Regular plasterboard (or heavier)
- 64mm free-standing studs
- 20mm gap between Shaftliner barrier and free standing studs
- 75mm Glasswool insulation 11kg/m^3 or 75mm Polyester insulation 14kg/m^3

All IntRwall systems achieve minimum $R_w + C_{tr} = 25$ required for separation of services where the adjacent room is a kitchen or non-habitable room.

WET AREAS

Wet areas (as defined in the BCA) must be waterproofed as per the wet area details contained in USG Boral Installation Manual.

IntRwall Systems extending into wet areas must incorporate water resistant linings.

LIMITATIONS

- IntRwall is not suitable for use in lift shafts or in other applications where it would be subjected to cyclical loading.
- Independent studs must be checked for pressure and other imposed loads (including shelf loads) as determined by the Project Structural Engineer.
- Penetrations in Shaftliner panels are not permitted unless it is a tested system. Contact USG Boral for further information.

INSTALLATION

IntRwall system must be installed strictly in accordance with USG Boral installation specification in order to achieve design fire and acoustic ratings. Refer to IntRwall brochure for installation specification and details.

» INTRODUCTION

MULTIFRAME™

DESCRIPTION

Multiframe is a family of timber framed wall and ceiling systems satisfying BCA Fire Resistance and Acoustic requirements for low rise multi-residential buildings Class 2 and 3 (refer to BCA for height restrictions for timber framed Multi-Residential buildings).

DESIGN OPTIONS

Multiframe includes a range of wall and ceiling systems as outlined below. Refer the relevant sections of this manual for configurations and acoustic ratings of various systems.

TABLE H11: SEPARATING WALLS

SYSTEM TYPE	NON-LOAD BEARING FRL	LOAD BEARING FRL
TT90.2	-/90/90	60/60/60
TT90.3	-/90/90	60/60/60
TT120.1	-/120/120	90/90/90

TABLE H12: CORRIDOR WALLS

SYSTEM TYPE	NON-LOAD BEARING FRL	LOAD BEARING FRL
TT90.2	-/90/90	60/60/60
TT120.1	-/120/120	90/90/90
TF90.2	-/90/90	60/60/60
TF120.1	-/120/120	90/90/90

TABLE H13: LOAD BEARING INTERNAL WALLS

SYSTEM TYPE	NON-LOAD BEARING FRL	LOAD BEARING FRL
TB90.2	-/90/90	60/60/60
TB120.1	-/120/120	90/90/90

TABLE H14: EXTERNAL WALLS - LIGHTWEIGHT

SYSTEM TYPE	NON-LOAD BEARING FRL	LOAD BEARING FRL
OWT.1	Non fire rated	Non fire rated
OWT30.1	NA	30/30/30
OWT60.2	NA	60/60/60
OWT90.1	NA	90/90/90 from outside only
OWT90.2	NA	90/90/90 from outside
OWT.90.3	NA	90/90/90

TABLE H15: EXTERNAL WALLS - BRICK VENEER

SYSTEM TYPE	FRL FORM INSIDE	FRL FROM OUTSIDE
BV.1	-/-/-	As required
BV30.1	30/30/30	As required
BV60.1	60/60/60	As required
BV90.1	90/90/90	As required

TABLE H16: FLOOR/CEILINGS

SYSTEM TYPE	FRL FROM BELOW	RISF
CF60.1	60/60/60	30min
CF60.2	60/60/60	60min
CF90.1	90/90/90	90min

FEATURES AND BENEFITS

- Cost effective (independent costings are available from Aqunta Consulting)
- Lightweight
- Comprehensive solution (full range of systems to meet BCA requirements)
- Ease of incorporating thermal and acoustic insulation.

MATERIALS

Refer to the relevant sections of this manual for materials used in Multiframe wall and ceiling systems.

DESIGN CONSIDERATIONS

FIRE RATING

Insulation Materials

Fletcher Insulation glasswool satisfies the requirement for non-combustible insulation in fire rated walls in timber framed Class 2 and 3 buildings. Refer to manufacturer's information for combustibility of polyester insulation.

Fire Rated Walls under Ceilings

Where in accordance with BCA a fire rated wall can terminate at the underside of the ceiling with Resistance to Incipient Spread of Fire (RISF) of not less than 60min, USG Boral ceiling systems with 1x13mm Firestop pbd + 1x16mm Firestop pbd satisfy this requirement.

Penetrations

Penetrations in a fire rated system must be treated strictly in accordance with relevant test reports and approved installation details in order to maintain the system's Fire Resistance Level.

Where components by others are specified in USG Boral fire rated penetration details (ie dampers, GPO's, fire collars, etc), such components must be installed in accordance with the manufacturer's specifications. It is the responsibility of the component manufacturer to ensure that the fire rating performance of the system is not affected.

» INTRODUCTION

ACOUSTICS

Structural Flanking

One of the main flanking routes occurs around the wall and floor structure as shown in Figure H3. These routes particularly apply to walls and floors between sole occupancy units but may also apply to external and internal walls within the sole-occupancy unit.

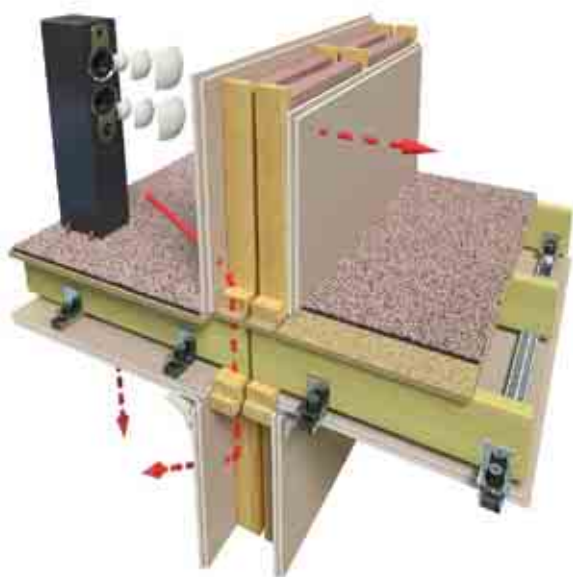


Figure H3: **Flanking and Airborne Noise Pathways Through Floor/Wall Junction**

A recommended solution to minimise structural flanking at wall floor intersections is to fix plasterboard linings to timber studs via furring channels with resilient mounts.



Figure H4: **Furred Lining With Sound Isolation Mounts**

NOTE

Sound Isolation Mounts may be required to both sides of wall system. Refer to USG Boral TecASSIST® for advice on appropriate detailing for flanking sound control.

Floors

The floor systems in this manual are provided with three types of floor coverings; bare timber floor with or without acoustic underlay, carpet and underlay, and ceramic floor tiles with or without acoustic underlay. These floor coverings, in combination with the specified acoustic underlays/mounts and fire rated ceilings underneath, contribute to the overall acoustic performance of the system in order to achieve the minimum acoustic provisions of the BCA.

Consideration should be given to the possibility of occupants changing floor coverings from one type to another that may affect the acoustic performance of the total system. For instance, replacing carpet with timber or another type of floor covering (eg tiles, linoleum), may result in a reduction in acoustic performance that no longer meets the minimum acoustic provisions of the BCA.

If required, contact USG Boral for advice on a suitable floor system where the contribution of floor coverings is not an integral part of meeting the acoustic provisions of the BCA.

Appliances

Noise producing appliances such as dishwashers, clothes dryers, washing machines and pumps should not be affixed to separating walls or should be isolated from the structure with resilient mountings and flexible service leads and connections.

Recessed Light Fittings, Electrical Outlets and Service Pipe Penetrations

Penetrations in fire rated separating walls and ceilings such as recessed light fittings, electrical outlets and supply and return air grilles must themselves be fire rated. The associated detailing of these penetrations for fire rating purposes will also provide an adequate acoustic seal ensuring that the acoustic integrity of the system is maintained.

» INTRODUCTION

Sound Isolation Within Roof Space

In accordance with the BCA, where a wall required to have sound insulation has a roof above, the wall must continue to:

- the underside of the roof or
- a ceiling that provides the sound insulation required for the wall.

Where option (b) is adopted, the ceiling must be designed to ensure that the acoustic rating of over partition flanking path matches the performance of the wall.



Figure H5: **Sound Isolation in Roof Space**

The following ceiling treatment is required to achieve over partition acoustic rating of $R_w + C_{tr} = 50$ where separating wall terminates at the ceiling:

- The minimum ceiling lining is 1x13mm Firestop + 1x16mm Firestop (FRL 60/60/60, RISF 60min).
- Insulation must be laid over the entire ceiling either side of the wall and must be either minimum 90mm thick glasswool 14 kg/m³ or minimum 130mm thick glasswool, 11kg/m³ (R2.5 ceiling batt).
- The plasterboard ceiling must not be continuous over the separating wall.
- In the case where ceiling members/roof trusses run perpendicular over the party wall, the ceiling on both sides must be fixed via steel furring channel on Rondo STWC Sound Isolation Mounts or Embelton Ceiling Isolation Hangers to minimise the effects of flanking sound.
- Ceiling penetrations such as A/C ducts and recessed light fittings are required to be fire rated. The associated detailing will provide adequate acoustic seal ensuring that the acoustic integrity of the system is maintained.

Additional treatments will be required for separating walls with specified acoustic performance above $R_w + C_{tr} = 50$. Contact USG Boral for further advice.

STRUCTURAL

Design Loads

Multiframe™ fire rated and acoustic systems are heavier than regular internal partitions and ceilings due to the use of specialised plasterboard linings and other components (ie insulation and furring channels). This increase in weight, together with the weight of the timber framing, must be taken into account when determining dead loads on Multiframe™ systems and supporting structure.

Refer General Information – Materials for weights of various USG Boral plasterboard products.

WET AREAS

Wet Areas (as defined in the BCA) must be waterproofed as per the Wet Area details contained in USG Boral Installation Manual and in the Junctions and Penetrations section of this publication.

Multiframe wall systems extending into Wet Areas must incorporate water resistant linings.

INSTALLATION

Refer to the relevant sections of this manual for installation instructions for various Multiframe systems.

» INTRODUCTION

SERVICES SEPARATION

As demonstrated in Table H17, fire rated linings of Boral Multiframe systems incorporating lagged or unlagged pipes meet or exceed the minimum BCA requirement of $R_w+C_{tr}=25$ and $R_w+C_{tr}=40$ respectively:

TABLE H17: R_w+C_{tr} ACOUSTIC RATINGS OF USG BORAL MULTIFRAME™ PLASTERBOARD LININGS

PLASTERBOARD LINING CONFIGURATION	UNLAGGED PIPES	LAGGED/CLAD PIPES
1x16mm Firestop	30	40
1x16mm Firestop + 1x10mm Regular	32	42
2x13mm Firestop	33	42
1x13mm Firestop + 1x16mm Firestop*	34	42
2x16mm Firestop	34	43

-For lagged and clad pipes, any insulation that is listed as part of the system assembly is acceptable.

-Acoustic ratings based on pipe lagged and clad with Soundlag 4525C from Pyrotek Noise Control or similar.

Designers should be aware of the reduction in acoustic performance of wall and ceiling linings due to penetrations such as downlights, exhaust grills, etc.

The following USG Boral lining configurations satisfy acoustic requirement of $R_w+C_{tr}=25$:

- Two or more layers of USG Boral linings with or without insulation and having any number of penetrations listed in Table H18, excluding 2x10mm SHEETROCK Brand Wall Board and 2x10mm SHEETROCK Brand Ceiling Board as indicated in Table H18.
- Single layer USG Boral lining configurations as indicated in Table H18.

TABLE H18: USG BORAL ACOUSTIC LININGS ACHIEVING $R_w+C_{tr}=25$

WALL OR CEILING LINING	INSULATION	MAXIMUM NUMBER OF PENETRATIONS		
		2 DOWNLIGHTS	4 DOWNLIGHTS	SMALL TOILET EXHAUST GRILLE AND UP TO 4 DOWNLIGHTS
1x13mm SHEETROCK Brand Standard Board	Nil	●		
	50G11, 50P14	●	●	
1x10mm UNISPAN	Nil	●		
	50G11, 50P14	●	●	
1x13mm REGULAR	Nil	●		
	50G11, 50P14	●	●	
1x10mm SOUNDSTOP	Nil	●	●	
	50G11, 50P14	●	●	●
1x10mm FIBEROCK	Nil	●	●	
	50G11, 50P14	●	●	●
1x13mm WET AREA	Nil	●	●	
	50G11, 50P14	●	●	●
1x13mm SOUNDSTOP	Nil	●	●	
	50G11, 50P14	●	●	●
1x13mm FIRESTOP	Nil	●	●	
	50G11, 50P14	●	●	●
1x16mm FIRESTOP	Nil	●	●	
	50G11, 50P14	●	●	●
2x10mm SHEETROCK Brand Wall Board	Nil	●	●	
	50G11, 50P14	●	●	●
2x10mm SHEETROCK Brand Ceiling Board	Nil	●	●	
	50G11, 50P14	●	●	●

NOTES:

-Downlights must be no closer than 900mm.

-Downlights are of any non-gimbal type with glass cover, suitable for a circular cut-out of up to 80mm diameter.

-Toilet exhaust grille with a cut-out of up to 150mm diameter or 150mm x 150mm.

-50G11 – 50mm glasswool 11kg/m³, 50P14 – 50mm polyester 14kg/m³

PARTIWALL

R_w	40-44	45-49	50-54
$R_w + C_{tr}$	40-44	45-49	50-54

PWT60.1

FIRE RESISTANCE LEVEL
LB 60/60/60
FROM BOTH SIDES

FRL Basis: FCO-2256



SYSTEM DESCRIPTION

Side 1:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table)

Fire Barrier:

- 1x25mm SHAFTLINER between 25mm H-studs @ 600mm ctrs

Side 2:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F19

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WIDTH mm	STUD SIZE (GAP) mm	70 (20)		70 (40) or 90 (20)	
				INSULATION*	R_w	$R_w + C_{tr}$	R_w	$R_w + C_{tr}$
PWT60.1A	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	265	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT60.1B	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	231	R2.0 GW Wall Batts (both cavities)	62	52	NA	NA
			271	R2.0 GW Wall Batts (both cavities)	NA	NA	64	55
				110mm USG Boral PARTIWALL Acoustic Batt (one cavity only)	NA	NA	59	51
PWT60.1C	1x13mm WET AREA	1x13mm WET AREA	271	110mm USG Boral PARTIWALL Acoustic Batt (both cavities)	NA	NA	63	51
PWT60.1D	1x10mm SOUNDSTOP	1x10mm WET AREA	265	110mm USG Boral PARTIWALL Acoustic Batt (both cavities)	NA	NA	63	51
PWT60.1E	1x13mm SOUNDSTOP	1x10mm WET AREA	228	90G24 (both cavities)	60	50	NA	NA
			268	R2.0 GW Wall Batts (both cavities)	NA	NA	62	53
PWT60.1F	1x10mm FIBEROCK	1x10mm FIBEROCK	265	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT60.1G	1x10mm SOUNDSTOP	1x10mm FIBEROCK	265	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT60.1H	1x13mm SOUNDSTOP	1x10mm FIBEROCK	228	R2.0 GW Wall Batts (both cavities)	60	50	NA	NA
			268	R2.0 GW Wall Batts (both cavities)	NA	NA	64	55
				110mm USG Boral PARTIWALL Acoustic Batt (one cavity only)	NA	NA	58	50
PWT60.1I	1x6mm VILLABOARD	1x6mm VILLABOARD	257	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT60.1J	1x10mm SOUNDSTOP	1x6mm VILLABOARD	261	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT60.1K	1x13mm SOUNDSTOP	1x6mm VILLABOARD	224	R2.0 GW Wall Batts (both cavities)	60	50	NA	NA
			264	R2.0 GW Wall Batts (both cavities)	NA	NA	64	55
				110mm USG Boral PARTIWALL Acoustic Batts (one cavity only)	NA	NA	59	51

* R2.0 GW Wall Batts - R2.0 Pink Wall Batts® 90mm glasswool by Fletcher Insulation.
90G24 - 90mm Pink® Acousti-Therm® HD 24kg/m³ glasswool by Fletcher Insulation.

For the full range of USG Boral systems refer to usgboral.com/eselector

PARTIWALL

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

PWT90.1

FIRE RESISTANCE LEVEL
LB 90/90/90
 FROM BOTH SIDES

FRL Basis: FCO-2713



SYSTEM DESCRIPTION

Side 1:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table)

Fire Barrier:

- 1x25mm SHAFTLINER between 25mm H-studs @ 600mm ctrs + 1x16mm FIRESTOP direct fixed to H-studs

Side 2:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F19

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WIDTH mm	STUD SIZE (GAP) mm	70 (20)		70 (40) or 90 (20)	
				INSULATION*	R_w	$R_w + C_{tr}$	R_w	$R_w + C_{tr}$
PWT90.1A	1x10mm REGULAR	1x10mm REGULAR	285	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT90.1B	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	245	R2.0 GW Wall Batts (both cavities)	64	52	NA	NA
			285	R2.0 GW Wall Batts (both cavities)	NA	NA	67	55
PWT90.1C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	290	R2.0 GW Wall Batts (one cavity only)	NA	NA	62	50
PWT90.1D	1x10mm WET AREA	1x10mm WET AREA	285	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.1E	1x10mm REGULAR	1x10mm WET AREA	285	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT90.1F	1x10mm SOUNDSTOP	1x10mm WET AREA	285	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.1G	1x13mm SOUNDSTOP	1x10mm WET AREA	245	R2.0 GW Wall Batts (both cavities)	63	53	NA	NA
			285	R2.0 GW Wall Batts (one cavity only)	NA	NA	59	50
PWT90.1H	1x10mm FIBEROCK	1x10mm FIBEROCK	245	R2.0 GW Wall Batts (both cavities)	64	52	NA	NA
			285	R2.0 GW Wall Batts (both cavities)	NA	NA	67	55
PWT90.1I	1x10mm REGULAR	1x10mm FIBEROCK	285	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.1J	1x10mm SOUNDSTOP	1x10mm FIBEROCK	245	R2.0 GW Wall Batts (both cavities)	64	52	NA	NA
			285	R2.0 GW Wall Batts (both cavities)	NA	NA	67	55
PWT90.1K	1x13mm SOUNDSTOP	1x10mm FIBEROCK	285	R2.0 GW Wall Batts (one cavity only)	NA	NA	61	52
PWT90.1L	1x6mm VILLABOARD	1x6mm VILLABOARD	275	R2.0 GW Wall Batts (both cavities)	NA	NA	66	53
PWT90.1M	1x10mm REGULAR	1x6mm VILLABOARD	280	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT90.1N	1x10mm SOUNDSTOP	1x6mm VILLABOARD	280	R2.0 GW Wall Batts (both cavities)	NA	NA	66	53
				110mm USG Boral PARTIWALL Acoustic Batt (one cavity only)	NA	NA	62	50
PWT90.1O	1x13mm SOUNDSTOP	1x6mm VILLABOARD	245	R2.0 GW Wall Batts (both cavities)	65	55	NA	NA
			285	R2.0 GW Wall Batts (one cavity only)	NA	NA	61	52

* R2.0 GW Wall Batts - R2.0 Pink Wall Batts* 90mm glasswool by Fletcher Insulation

For the full range of USG Boral systems refer to usgboral.com/eselector

PARTIWALL

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

PWT90.2

FIRE RESISTANCE LEVEL
LB 90/90/90
 FROM BOTH SIDES

FRL Basis: FCO-1446, FCO-2016,
FCO-2256



SYSTEM DESCRIPTION

Side 1:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table)

Fire Barrier:

- 2x25mm SHAFTLINER BETWEEN 51mm I-studs @ 600mm ctrs

Side 2:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F19

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WIDTH mm	STUD SIZE (GAP) mm	70 (20)		70 (40) or 90 (20)	
				INSULATION*	R_w	$R_w + C_{tr}$	R_w	$R_w + C_{tr}$
PWT90.2A	1x10mm REGULAR	1x10mm REGULAR	290	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.2B	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	250	R2.0 GW Wall Batts (both cavities)	64	52	NA	NA
			290	R2.0 GW Wall Batts (both cavities)	NA	NA	68	56
				110mm USG Boral PARTIWALL Acoustic Batt (one cavity only)	NA	NA	62	51
PWT90.2C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	296	R2.0 GW Wall Batts (one cavity only)	NA	NA	62	50
PWT90.2D	1x10mm WET AREA	1x10mm WET AREA	290	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.2E	1x10mm REGULAR	1x10mm WET AREA	290	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.2F	1x10mm SOUNDSTOP	1x10mm WET AREA	290	R2.0 GW Wall Batts (both cavities)	NA	NA	65	52
PWT90.2G	1x13mm SOUNDSTOP	1x10mm WET AREA	253	R2.0 GW Wall Batts (both cavities)	64	54	NA	NA
			293	R2.0 GW Wall Batts (one cavity only)	NA	NA	60	51
PWT90.2H	1x13mm SOUNDSTOP	1x13mm WET AREA	256	R2.0 GW Wall Batts (both cavities)	66	56	NA	NA
			296	R2.0 GW Wall Batts (one cavity only)	NA	NA	62	53
PWT90.2I	1x10mm FIBEROCK	1x10mm FIBEROCK	250	R2.0 GW Wall Batts (both cavities)	64	52	NA	NA
			290	R2.0 GW Wall Batts (both cavities)	NA	NA	68	56
				110mm USG Boral PARTIWALL Acoustic Batt (one cavity only)	NA	NA	62	51
PWT90.2J	1x10mm REGULAR	1x10mm FIBEROCK	290	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.2K	1x10mm SOUNDSTOP	1x10mm FIBEROCK	250	R2.0 GW Wall Batts (both cavities)	64	52	NA	NA
			290	R2.0 GW Wall Batts (both cavities)	NA	NA	68	56
				110mm USG Boral PARTIWALL Acoustic Batt (one cavity only)	NA	NA	62	51
PWT90.2L	1x13mm SOUNDSTOP	1x10mm FIBEROCK	293	R2.0 GW Wall Batts (one cavity only)	NA	NA	62	53
PWT90.2M	1x6mm VILLABOARD	1x6mm VILLABOARD	242	R2.0 GW Wall Batts (both cavities)	64	50	NA	NA
			282	R2.0 GW Wall Batts (both cavities)	NA	NA	68	55
PWT90.2N	1x10mm REGULAR	1x6mm VILLABOARD	286	R2.0 GW Wall Batts (both cavities)	NA	NA	65	52
PWT90.2O	1x10mm SOUNDSTOP	1x6mm VILLABOARD	246	R2.0 GW Wall Batts (both cavities)	64	50	NA	NA
			286	R2.0 GW Wall Batts (both cavities)	NA	NA	67	54
PWT90.2P	1x13mm SOUNDSTOP	1x6mm VILLABOARD	250	R2.0 GW Wall Batts (both cavities)	66	56	NA	NA
			290	R2.0 GW Wall Batts (both cavities)	NA	NA	70	57

* R2.0 GW Wall Batts - R2.0 Pink Wall Batts* 90mm glasswool by Fletcher Insulation

For the full range of USG Boral systems refer to usgboral.com/eselector

INTRWALL

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

IW60.1

FIRE RESISTANCE LEVEL
NLB **-/60/60**
FROM BOTH SIDES

FRL Basis: FCO-2660, WFRA 40970,
WFRA 41038, FCO-2256



SYSTEM DESCRIPTION

Side 1:

- Non fire resistant lining (refer to table)
- 64mm steel C-studs @ 600mm ctrs
- 20mm or 36mm gap between C-studs and fire barrier
- Insulation (refer to table)

Fire Barrier:

- 2x25mm Shaftliner between 51mm I-studs @ 600mm ctrs

Side 2:

- Non fire resistant lining direct fixed to I-studs.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F20

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R_w	$R_w + C_{tr}$
IW60.1A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	161 (20)	75G11, 75P14 (stud cavity)	55	46
IW60.1B	1x13mm REGULAR	1x13mm REGULAR	177 (36)	90G11, 90P14 (stud cavity)	59	51
IW60.1C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	161 (20)	75G11, 75P14 (stud cavity)	60	51
IW60.1D	1x13mm WET AREA	1x13mm WET AREA	177 (36)	90G11, 90P14 (stud cavity)	60	51
IW60.1E	1x13mm WET AREA	1x13mm SHEETROCK BRAND STANDARD	177 (36)	90G11, 90P14 (stud cavity)	59	51
IW60.1F	1x13mm WET AREA	1x13mm REGULAR	177 (36)	90G11, 90P14 (stud cavity)	60	51
IW60.1G	1x13mm WET AREA	1x13mm SOUNDSTOP	177 (36)	90G11, 90P14 (stud cavity)	60	51
IW60.1H	1x13mm FIBEROCK	1x13mm FIBEROCK	171 (36)	90G11, 90P14 (stud cavity)	61	53
IW60.1I	1x13mm FIBEROCK	1x13mm SHEETROCK BRAND STANDARD	177 (36)	90G11, 90P14 (stud cavity)	60	52
IW60.1J	1x13mm FIBEROCK	1x13mm REGULAR	177 (36)	90G11, 90P14 (stud cavity)	61	52
IW60.1K	1x13mm FIBEROCK	1x13mm SOUNDSTOP	177 (36)	90G11, 90P14 (stud cavity)	61	53

* 75/90G11 – 75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation. TSB2 by Tontine Insulation (or equivalent)
75/90P14 – 75/90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

INTRWALL

R_w	40-44	45-49	50-54
$R_w + C_{tr}$	40-44	45-49	50-54

IW60.2

FIRE RESISTANCE LEVEL
NLB -/60/60
FROM BOTH SIDES

FRL Basis: FCO-2660, FSU-0883,
FCO-2256, WFRA 40970



SYSTEM DESCRIPTION

Side 1:

- Non fire resistant lining (refer to table)
- 64mm C-studs @ 600mm ctrs
- 20mm gap between C-studs and fire barrier
- Insulation (refer to table)

Fire Barrier:

- 2x25mm Shaftliner between 51mm I-studs @ 600mm ctrs

Side 2:

- Non fire resistant lining
- 28mm furring channels @ 600mm ctrs
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F20

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R_w	$R_w + C_{tr}$
IW60.2A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	191 (20)	75G11, 75P14 (stud cavity only)	47	37
IW60.2B	1x13mm REGULAR	1x13mm REGULAR	191 (20)	75G11, 75P14 (stud cavity only)	50	40
IW60.2C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	191 (20)	75G11, 75P14 (stud cavity only)	54	43
IW60.2D	1x13mm WET AREA	1x13mm WET AREA	191 (20)	75G11, 75P14 (stud cavity only)	51	41
IW60.2E	1x13mm WET AREA	1x13mm SHEETROCK BRAND STANDARD	191 (20)	75G11, 75P14 (stud cavity only)	50	41
IW60.2F	1x13mm WET AREA	1x13mm REGULAR	191 (20)	75G11, 75P14 (stud cavity only)	51	41
IW60.2G	1x13mm WET AREA	1x13mm SOUNDSTOP	191 (20)	75G11, 75P14 (stud cavity only)	52	40
IW60.2H	1x13mm FIBEROCK	1x13mm FIBEROCK	191 (20)	75G11, 75P14 (stud cavity only)	54	43
IW60.2I	1x13mm FIBEROCK	1x13mm SHEETROCK BRAND STANDARD	191 (20)	75G11, 75P14 (stud cavity only)	53	42
IW60.2J	1x13mm FIBEROCK	1x13mm REGULAR	191 (20)	75G11, 75P14 (stud cavity only)	53	42
IW60.2K	1x13mm FIBEROCK	1x13mm SOUNDSTOP	191 (20)	75G11, 75P14 (stud cavity only)	54	43
IW60.2L	2x13mm SOUNDSTOP	1x13mm SOUNDSTOP	204 (20)	75G11, 75P14 (stud cavity) 30G11 (furring cavity)	63	50

* 30/75G11 - 30/75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation.
75P14 - 75mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

INTRWALL

R_w	40-44	45-49	50-54
R_w+C_{tr}			

IW60.3

FIRE RESISTANCE LEVEL
NLB **-/60/60**
FROM BOTH SIDES

FRL Basis: FCO-2256



SYSTEM DESCRIPTION

Side 1:

- Non fire resistant lining (refer to table)
- 64mm C-studs @ 600mm ctrs
- 20mm or 36mm gap between C-studs and fire barrier
- Insulation (refer to table)

Fire Barrier:

- 1x25mm Shaftliner between 25mm H-studs @ 600mm ctrs

Side 2:

- Non fire resistant lining (refer to table)
- 64mm C-studs @ 600mm ctrs
- 20mm or 36mm gap between C-studs and fire barrier
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F20

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R _w	R _w +C _{tr}
IW60.3A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	220 (20)	75G11, 75P14 (both cavities)	55	40
IW60.3B	1x13mm REGULAR	1x13mm REGULAR	220 (20)	75G11, 75P14 (both cavities)	59	44
IW60.3C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	220 (20)	75G11, 75P14 (both cavities)	66	51
IW60.3D	1x13mm WET AREA	1x13mm WET AREA	251 (36)	90G11, 90P14 (both cavities)	67	52
IW60.3E	1x13mm WET AREA	1x13mm SHEETROCK BRAND STANDARD	220 (20)	75G11, 75P14 (both cavities)	59	44
IW60.3F	1x13mm WET AREA	1x13mm REGULAR	251 (36)	90G11, 90P14 (both cavities)	66	51
IW60.3G	1x13mm WET AREA	1x13mm SOUNDSTOP	251 (36)	90G11, 90P14 (both cavities)	68	53
IW60.3H	1x10mm FIBEROCK	1x10mm FIBEROCK	245 (36)	90G11, 90P14 (both cavities)	65	50
IW60.3I	1x10mm FIBEROCK	1x13mm SHEETROCK BRAND STANDARD	217 (20)	75G11, 75P14 (both cavities)	58	43
IW60.3J	1x10mm FIBEROCK	1x13mm REGULAR	248 (36)	90G11, 90P14 (both cavities)	65	50
IW60.3K	1x10mm FIBEROCK	1x13mm SOUNDSTOP	248 (36)	90G11, 90P14 (both cavities)	67	52
IW60.3L	1x6mm VILLABOARD	1x6mm VILLABOARD	237 (36)	90G11, 90P14 (both cavities)	66	51
IW60.3M	1x6mm VILLABOARD	1x13mm SHEETROCK BRAND STANDARD	213 (20)	75G11, 75P14 (both cavities)	58	43
IW60.3N	1x6mm VILLABOARD	1x13mm REGULAR	244 (36)	90G11, 90P14 (both cavities)	65	50
IW60.3O	1x6mm VILLABOARD	1x13mm SOUNDSTOP	244 (36)	90G11, 90P14 (both cavities)	68	52

* 75/90G11 – 75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation.
75/90P14 – 75/90mm Polyester Insulation 14kg/m³

NOTES:

- Systems IW60.3 are not to be used for corridor walls unless approved by USG Boral.
- Penetrations in Shaftliner panels are not permitted.
- Contact USG Boral for further information.

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

INTRWALL

R_w	40-44	45-49	50-54
$R_w + C_{tr}$			

IW90.1

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FCO-2660, FSV 0883,
EWFA 2724-00



SYSTEM DESCRIPTION

Side 1:

- Nil linings

Fire Barrier:

- 2x25mm Shaftliner between 51mm I-studs @ 600mm ctrs
- IBS rod in top track

Side 2:

- 1x13mm fire resistant pbd direct fixed to I-studs

ACOUSTIC RATINGS BASIS: RT&A TE405-05F20

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	INSULATION	R_w	$R_w + C_{tr}$
IW90.1A	Nil	1x13mm FIRESTOP	65	NA	36	33
IW90.1B	Nil	1x13mm MULTISTOP	65	NA	36	33

IW90.2

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: FCO-2660, FSV 0883,
EWFA 2724-00



SYSTEM DESCRIPTION

Side 1:

- 1x 13mm fire resistant pbd
- 64mm C-studs @ 600mm ctrs
- 20mm gap between C-studs and fire barrier
- Insulation between studs (refer to table)

Fire Barrier:

- 2x25mm Shaftliner between 51mm I-studs @ 600mm ctrs

Side 2:

- Nil linings.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F20

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R_w	$R_w + C_{tr}$
IW90.2A	1x13mm FIRESTOP	Nil	150 (20)	75G11, 75P14 (stud cavity only)	57	48
IW90.2B	1x13mm MULTISTOP	Nil	150 (20)	75G11, 75P14 (stud cavity only)	58	49

* 75G11 – 75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation.
75P14 – 75mm Polyester Insulation 14kg/m³

NOTES:

- Penetrations in Systems IW90.2 must be fire rated.
- Contact USG Boral for further information.

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

INTRWALL

R_w	40-44	45-49	50-54
R_w+C_{tr}			

IW90.3

FIRE RESISTANCE LEVEL
NLB -/90/90
 FROM BOTH SIDES

FRL Basis: FCO-2660, FCO-2434,
 EWFA 2724-00



SYSTEM DESCRIPTION

Side 1:

- 1x13mm fire resistant pbd
- 64mm C-studs @ 600mm ctrs
- 20mm gap between C-studs and fire barrier
- Insulation (refer to table)

Fire Barrier:

- 2x25mm Shaftliner between 51mm I-studs @ 600mm ctrs

Side 2:

- 1x13mm fire resistant pbd direct fixed to I-studs.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F20

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R _w	R _w +C _{tr}
IW90.3A	1x13mm FIRESTOP	1x13mm FIRESTOP	160 (20)	75G11, 75P14 (stud cavity only)	59	50
IW90.3B	1x13mm MULTISTOP	1x13mm MULTISTOP	160 (20)	75G11, 75P14 (stud cavity only)	60	51
IW90.3C	1x13mm FIRESTOP	1x13mm MULTISTOP	160 (20)	75G11, 75P14 (stud cavity only)	59	50

* 75G11 - 75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation.
 75P14 - 75mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
 Check product availability when specifying Multistop and Impactstop linings.

INTRWALL

R_w	40-44	45-49	50-54
$R_w + C_{tr}$	40-44	45-49	50-54

IW90.4

FIRE RESISTANCE LEVEL
NLB **-/90/90**
FROM BOTH SIDES

FRL Basis: WFRA 40970, FSV 0883



SYSTEM DESCRIPTION

Side 1:

- Non fire resistant lining (refer to table)
- 64mm steel C-studs @ 600mm ctrs
- 20mm or 36mm gap between C-studs and fire barrier
- Insulation (refer to table)

Fire Barrier:

- 2x25mm Shaftliner between 51mm I-studs @ 600mm ctrs

Side 2:

- Non fire resistant lining (refer to table)
- 64mm C-studs @ 600mm ctrs
- 20mm or 36mm gap between C-studs and fire barrier
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F20

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R_w	$R_w + C_{tr}$
IW90.4A	1x13mm SHEETROCK BRAND STANDARD	1x13mm SHEETROCK BRAND STANDARD	245 (20)	75G11, 75P14 (both cavities)	58	44
IW90.4B	1x13mm REGULAR	1x13mm REGULAR	245 (20)	75G11, 75P14 (both cavities)	64	50
IW90.4C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	245 (20)	75G11, 75P14 (both cavities)	69	55
IW90.4D	1x13mm WET AREA	1x13mm WET AREA	245 (20)	75G11, 75P14 (both cavities)	66	51
IW90.4E	1x13mm WET AREA	1x13mm SHEETROCK BRAND STANDARD	277 (36)	90G11, 90P14 (both cavities)	66	52
IW90.4F	1x13mm WET AREA	1x13mm REGULAR	245 (20)	75G11, 75P14 (both cavities)	65	51
IW90.4G	1x13mm WET AREA	1x13mm SOUNDSTOP	245 (20)	75G11, 75P14 (both cavities)	67	53
IW90.4H	1x10mm FIBEROCK	1x10mm FIBEROCK	239 (20)	75G11, 75P14 (both cavities)	65	51
IW90.4I	1x10mm FIBEROCK	1x13mm SHEETROCK BRAND STANDARD	274 (36)	90G11, 90P14 (both cavities)	66	52
IW90.4J	1x10mm FIBEROCK	1x13mm REGULAR	242 (20)	75G11, 75P14 (both cavities)	65	50
IW90.4K	1x10mm FIBEROCK	1x13mm SOUNDSTOP	242 (20)	75G11, 75P14 (both cavities)	67	53
IW90.4L	1x6mm VILLABOARD	1x6mm VILLABOARD	231 (20)	75G11, 75P14 (both cavities)	66	52
IW90.4M	1x6mm VILLABOARD	1x13mm SHEETROCK BRAND STANDARD	270 (36)	90G11, 90P14 (both cavities)	66	52
IW90.4N	1x6mm VILLABOARD	1x13mm REGULAR	238 (20)	75G11, 75P14 (both cavities)	65	51
IW90.4O	1x6mm VILLABOARD	1x13mm SOUNDSTOP	238 (20)	75G11, 75P14 (both cavities)	68	53

* 75/90G11 – 75/90mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation.
75/90P14 – 75/90mm Polyester Insulation 14kg/m³

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

INTRWALL

R_w	40-44	45-49	50-54
R_w+C_{tr}			

IW120.1

FIRE RESISTANCE LEVEL
NLB **-/120/120**
FROM BOTH SIDES

FRL Basis: FCO-2434, EWFA 2724-00



SYSTEM DESCRIPTION

Side 1:

- 1x13mm fire resistant pbd
- 64mm C-studs @ 600mm ctrs
- 20mm gap between C-studs and fire barrier
- Insulation (refer to table)

Fire Barrier:

- 2x25mm Shaftliner between 51mm I-studs @ 600mm ctrs

Side 2:

- 1x13mm fire resistant pbd
- 64mm C-studs @ 600mm ctrs
- 20mm gap between C-studs and fire barrier
- Insulation (refer to table).

ACOUSTIC RATINGS BASIS: RT&A TE405-05F20

SYSTEM	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH (GAP) mm	INSULATION*	R _w	R _w +C _{tr}
IW120.1A	1x13mm FIRESTOP	1x13mm FIRESTOP	245 (20)	75G11, 75P14 (both cavities)	67	53
IW120.1B	1x13mm MULTISTOP	1x13mm MULTISTOP	245 (20)	75G11, 75P14 (both cavities)	69	55
IW120.1C	1x13mm FIRESTOP	1x13mm MULTISTOP	245 (20)	75G11, 75P14 (both cavities)	68	54

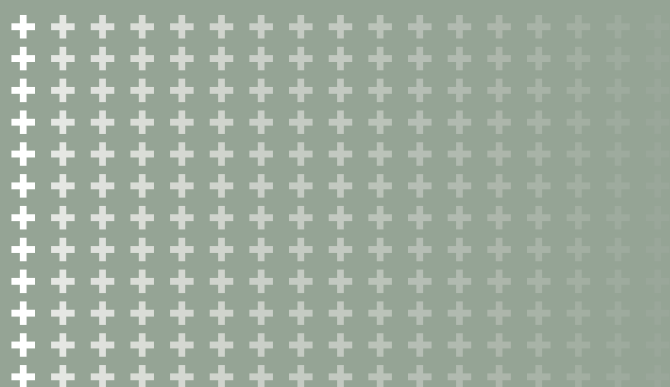
* 75G11 - 75mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation.
75P14 - 75mm Polyester Insulation 14kg/m³

NOTES:

- Penetrations in Systems IW120.1 must be fire rated.
- Contact USG Boral for further information.

For the full range of USG Boral systems refer to usgboral.com/eselector.
Check product availability when specifying Multistop and Impactstop linings.

I2	INTRODUCTION
I8	LIFT & SERVICES SHAFTS
I8	Shaftwall
I9	Ventshaft
I10	COLUMN PROTECTION
I13	BEAM PROTECTION
I14	FIRE TUNNEL



SPECIALTY SYSTEMS

INTRODUCTION

The following USG Boral Specialty Systems are outlined in this manual:

- Lift and Services Shafts
 - Shaftwall™
 - Ventshaft® (services shafts only)
- Column and Beam Protection
- Fire Tunnel™

LIFT AND SERVICES SHAFTS

BCA REQUIREMENTS

FIRE RATING

- Refer to Multi-Residential section for fire rating requirements for lift and services shafts in Class 2 and 3 buildings.
- Refer to BCA for fire ratings requirements for lift and services shafts in other Classes of buildings.

ACOUSTICS

- The BCA requirement for a wall between a lift shaft and a sole-occupancy unit in Class 2 and 3 buildings is $R_w=50$ and discontinuous construction.
- Refer Multi-residential section for BCA requirements for ducts, soil, waste and water supply pipes.

STRUCTURAL

Refer to BCA for structural requirements for lift and services shafts.



» INTRODUCTION

SHAFTWALL™

DESCRIPTION

Shaftwall systems utilise 25mm Shaftliner friction fit between Rondo CH-Studs, and Firestop plasterboard screw fixed on one or both sides of the wall.

Most Shaftwall systems outlined in this manual can be fully constructed from one side and can be used for enclosure of lift and services shafts.



Figure I1: Shaftwall

DESIGN OPTIONS

Shaftwall systems are available with various configurations of Firestop linings achieving Fire Resistance Levels up to -/120/120 from both sides and acoustic ratings up to $R_w=50$ ($R_w+C_w=42$).

A number of stud sizes and thicknesses are available allowing construction of some Shaftwall systems up to 4.8m (refer to Shaftwall Maximum Wall Heights table).

MATERIALS

Plasterboard Linings

- 25mm Shaftliner plasterboard
- 13mm Firestop plasterboard
- 16mm Firestop plasterboard.

Steel Sections

The following Rondo steel sections are utilised in Shaftwall systems:

TABLE I1: RONDO SHAFTWALL COMPONENTS		
SECTION TYPE & SIZE	SECTION SIZE	BASE METAL THICKNESS
CH-stud	64mm and 102mm	0.55mm and 0.90mm
E-stud	64mm and 102mm	0.55mm and 0.90mm
J-track	64mm and 102mm	0.80mm
Deflection track	64mm and 102mm	0.80mm



Figure I2: CH-Stud

Insulation

- 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation
- 50mm Polyester Insulation 14kg/m³ density.

Screws

Refer to General Information — Materials section for plasterboard screw types.

Caulking

H.B. Fuller Firesound sealant.

DESIGN CONSIDERATIONS

- Refer to BCA for performance requirements for lift and services shafts.
- Refer to USG Boral Shaftwall brochure for Shaftwall design considerations.

» INTRODUCTION

NOTES TO SHAFTWALL HEIGHT TABLES:

- Symbols:
d = deflection limits
h = head track capacity limits
f = fire height limits.
- Minimum yield stress of steel sections to be 270MPa.
- Deflection limit is height/240 to a maximum of 20mm for CH-studs.
- Wall heights tabled are for single length studs at maximum centres shown.
- The tabulated heights need to be checked against head track reaction capacity as listed below.
- Wall heights tabled are not for axial loads but include self-weight and lateral pressures stated.
- Wall heights tabled are not applicable to steel lipped C-studs.
- Shelf loading is not permitted for tabulated maximum wall heights. Refer USG Boral for maximum heights with shelf loadings.
- Tabulated heights are for internal walls only. Refer to USG Boral if walls are subjected to external loadings.
- All plasterboard is to be manufactured by USG Boral.
- Walls are to be constructed with Firestop plasterboard to USG Boral standard Shaftwall fire rated wall details as appropriate.
- For fire service 50Pa pressure assumed. Where pressures are >50Pa and fire loadings are likely to be coincident, USG Boral should be consulted.
- Detailed seismic analysis requires site/building specific parameters and has not been performed, however tabulated wall heights comply with AS 1170.4 clause 5.2.1, category 3, provided that:
 - the walls have been designed for 0.25kPa pressure (minimum)
 - the walls, including attachments, have a total mass (Gc) not exceeding 100kg/m²
 - acceleration $a \leq 0.08$
 - Site Factor $S \leq 2.0$
 - $a_x \leq 2.0$
 - $a_c \leq 1.0$
 - $Cc1 \leq 0.9$
 - $I = 1.0$

HEAD TRACK REACTION CAPACITIES

Tabulated maximum heights for Shaftwall systems are based on the following head track reaction capacities for 50mm x 0.80mm BMT head runner flange and 20mm max clearance at top of stud:

TABLE I2: HEAD TRACK REACTION CAPACITIES

STUD	HEAD TRACK REACTION CAPACITY kN
64CH55, 102CH55	0.28
64CH90, 102CH90	0.44

Refer to USG Boral where reactions and/or required clearance at top of stud exceed the above.

The following head track reaction capacities can be used for 0.80mm BMT standard J runner at head and base and 10mm max clearance at top of stud:

TABLE I3: HEAD TRACK REACTION CAPACITIES

STUD	HEAD TRACK REACTION CAPACITY kN
64CH55, 102CH55	0.40
64CH90, 102CH90	0.75

The head track reaction capacities listed above rely on the plasterboard for restraint.

Head track installation must be strictly in accordance with USG Boral and Rondo details. Contact USG Boral or Rondo for alternative head track installations.

INSTALLATION

Refer to USG Boral Shaftwall brochure for system installation instructions and details.

» INTRODUCTION

VENTSHAFT™

DESCRIPTION

Ventshaft is a family of laminated wall systems utilising 25mm Shaftliner and Firestop plasterboard. Some Ventshaft systems outlined in this manual incorporate free-standing steel or timber stud wall with 10mm Regular plasterboard lining.

Ventshaft systems can be fully constructed from one side and are suitable for enclosure of services shafts.

NOTE:

Ventshaft systems are not suitable for enclosure of lift shafts.



Figure I3: Ventshaft

DESIGN OPTIONS

Ventshaft systems are available in Fire Resistance Levels up to -/120/120 from both sides and acoustic ratings up to $R_w=54$.

MATERIALS

Plasterboard Linings

- 25mm Shaftliner plasterboard
- 13mm Firestop plasterboard
- 16mm Firestop plasterboard.

Steel Sections

- 20mm x 38mm galv angle 0.75mm BMT
- 35mm x 35mm galv angle 0.75mm BMT.

Screws

- Plasterboard laminating screws (Type L)
- Plasterboard to steel frame screws (Type S).

Refer to USG Boral Ventshaft brochure for plasterboard screw type specification.

Sealants and Packers

- H.B. Fuller Firesound sealant
- IBS intumescent rod.

INSULATION (Systems VST120.1A & VSS120.1A)

- 50mm polyester insulation 7kg/m³ density.

DESIGN CONSIDERATIONS

- Refer to BCA for performance requirements for services shafts.
- Static pressure testing of Ventshaft™ VS120.1A and resistance to impact testing to BCA C1.8 was carried out at USG Boral NATA accredited laboratory. Consulting Engineers Taylor Thomson Whitting observed the static testing, and maximum Ventshaft™ VS120.1A panel sizes were subsequently computed as listed in the Max Ventshaft Panel Size table.
- Impact resistance testing on 3000 x 3000mm Ventshaft™ VS120.1A panel show the panel to meet BCA criteria for bag drop heights of 100mm and 150mm.

INSTALLATION

Refer to USG Boral Laminated Wall Systems brochure for system installation instructions and details.

» INTRODUCTION

COLUMN & BEAM PROTECTION

DESCRIPTION

USG Boral Column & Beam Protection systems utilise fire resistant plasterboard for fire protection of various types of columns and beams.

Fire protection systems are available for the following types of columns and beams:

- Free standing concrete columns
- Free standing I-section, CHS and SHS steel columns
- Steel columns within a fire rated wall
- Free standing timber columns
- Steel beams under concrete floor
- Timber beams under fire rated floor.



Figure I4: **Beam Protection System PSB120.ID**

DESIGN OPTIONS

Steel column protection systems are available with Fire Resistance Levels up to 180/-/-

Concrete and timber column protection systems are available with Fire Resistance Levels up to 120/-/-

Steel and timber beam protection systems are available with Fire Resistance Levels up to 120/-/-

MATERIALS

Plasterboard Linings

- 25mm Shaftliner plasterboard
- 13mm Firestop plasterboard
- 16mm Firestop plasterboard.

Steel Sections

Refer systems tables and USG Boral Column & Beam Protection brochure.

Screws

Refer to General Information — Materials for plasterboard screw types.

Sealants and Packers

H.B. Fuller Firesound® sealant

DESIGN CONSIDERATIONS

- Refer to BCA for fire rating requirements for load bearing columns and beams.
- Load bearing columns and beams are to be designed in accordance with BCA and relevant Australian Standards.

INSTALLATION

- Refer to USG Boral Column & Beam Protection brochure for system installation instructions and details.
- Refer to Junctions and Penetrations for beam protection details under fire rated timber floor.

» INTRODUCTION

FIRE TUNNEL™

DESCRIPTION

USG Boral Fire Tunnel provides a lightweight solution for fire isolated passageways as outlined in the BCA.

Fire Tunnel is a self-supported steel framed system constructed using Rondo 150mm stud and track and lined with USG Boral Firestop plasterboard inside and outside.



Figure I5: Fire Tunnel

DESIGN OPTIONS

USG Boral Fire Tunnels are available with Fire Resistance Levels up to -/120/120 from both sides or -/180/180 from outside only.

Fire Tunnels can be constructed without structural design calculations to an internal width of 2000mm, and an internal height of 2200mm. Refer to USG Boral if larger size Fire Tunnel is required.

MATERIALS

Plasterboard

- 25mm Shaftliner plasterboard
- 13mm Firestop plasterboard
- 16mm Firestop plasterboard
- 10mm Regular plasterboard.

Rondo Steel Sections

- 150mm C-stud 0.75mm BMT
- 150mm track 0.75mm BMT
- 75mm x 75mm steel angle 0.75mm BMT.

Fasteners

- 10 x 16 Drill Point Wafer Head screws
- 6 x 3 dia all steel pop rivets
- 6 x 32, 8 x 60 Needle Point screws.

DESIGN CONSIDERATIONS

- Refer to BCA for fire rating requirements for Fire Isolated Passageways.
- Refer to USG Boral Fire Tunnel brochure for Fire Tunnel design considerations.
- Fire Tunnel systems are designed to support their own weight only. Fire Tunnel roof is not trafficable and must not be used for storage of materials or equipment.

INSTALLATION

- Refer to Steel Stud Wall section for general installation instructions for fire rated steel stud walls.
- Refer to Junctions and Penetrations for fire rated steel stud wall construction details.
- Refer to USG Boral Fire Tunnel brochure for Fire Tunnel frame construction details.

LIFT & SERVICES SHAFTS – SHAFTWALL

R_w	40-44	45-49	50-54
R_w+C_{tr}			

SH

FIRE RESISTANCE LEVEL (refer to table)

FRL Basis: FCO-1556, FCO-1828,
FCO-1503, SI 1017, FCO-1659, FR 1429



SYSTEM DESCRIPTION

If side 1 specified:

1x25mm Shaftliner pbd
(+ 1x16mm Firestop pbd
if specified)

Framing: Steel CH-studs
(refer to table)

Insulation: Refer to table

Side 2: One or more layers of fire
resistant pbd.

ACOUSTIC RATINGS BASIS: RT&A TE405-05F23

SYSTEM	FRL	LINING SIDE 1	LINING SIDE 2	NOM WALL WIDTH mm	INSULATION*	NIL		50G11, 50P14	
					STUD SIZE mm	R _w	R _w +C _{tr}	R _w	R _w +C _{tr}
SH60.1A	-/60/60 from both sides	1x25mm SHAFTLINER	1x16mm FIRESTOP	80	64CH55	39	30	47	35
					64CH90	36	27	44	32
				118	102CH55	41	32	48	39
					102CH90	38	29	45	36
SH120.1A	-/120/90 from occupancy -/120/120 from shaft	1x25mm SHAFTLINER	2x13mm FIRESTOP	90	64CH55	42	32	50	40
					64CH90	39	29	47	37
				128	102CH55	44	35	50	41
					102CH90	41	32	47	38
SH120.2A	-/120/120 from both sides	1x25mm SHAFTLINER	1x16mm FIRESTOP + 1x13mm FIRESTOP	93	64CH55	42	33	50	40
					64CH90	39	30	47	37
				131	102CH55	44	35	51	42
					102CH90	41	32	48	39
SH120.3A	-/120/120 from both sides	1x25mm SHAFTLINER	2x16mm FIRESTOP	96	64CH55	43	34	50	40
					64CH90	40	31	47	37
				134	102CH55	45	36	51	42
					102CH90	42	33	48	39
SH120.4A	-/120/120 from both sides	1x25mm SHAFTLINER + 1x16mm FIRESTOP	1x16mm FIRESTOP	96	64CH55	42	33	51	40
					64CH90	39	30	48	37
				134	102CH55	45	36	52	42
					102CH90	42	33	49	39

* 50G11 – 50mm Pink® Partition 11kg/m³ glasswool by Fletcher Insulation, 50P14 – 50mm Polyester Insulation 14kg/m³

MAX WALL HEIGHTS mm

SYSTEM	STUD SIZE mm	BASE METAL THICKNESS mm	PRESSURE kPa	
			0.25	0.35
SH60.1A SH120.1A SH120.2A SH120.4A	64	0.55	2950d	2640 d
		0.90	3460 d	3090 d
	102	0.55	3730h	2660 h
		0.90	4980 d	4190 h
SH120.3A	64	0.55	3730 h	2660 h
		0.90	4380 d	3890 d
	102	0.55	3730 h	2660 h
		0.90	5510 d	4190 h

Height Limiting Factor: d - deflection (L/240 ≤ 20mm), h - head track capacity

SERVICES SHAFTS – VENTSHAFT

VS

FIRE RESISTANCE LEVEL
(refer to table)FRL Basis: FCO-2423, FSV-0538,
FCO-1665, FCO-1480, FSV-0169

SYSTEM DESCRIPTION

Side 1:

Multiple layers of fire resistant
plasterboard screw laminated together

Side 2 (if specified):

- 10mm Regular pbd
- timber or steel framing
- 20mm gap between framing and laminated panel
- Cavity insulation (refer to table).

R_w			
	40-44	45-49	50-54
$R_w + C_{tr}$			

ACOUSTIC RATINGS BASIS: RT&A TE405-05F24

SYSTEM	FRL	SIDE 1	SIDE 2	CAVITY mm	STUD SIZE (Gap) mm	NOM WALL WIDTH mm	INSULATION*	R_w	$R_w + C_{tr}$
VS90.1A	-/90/90 from both sides	3x13mm FIRESTOP screw laminated together	NA	NA	NA	39	NA	38	37
VS120.1A	-/120/120 from both sides	3x16mm FIRESTOP screw laminated together	NA	NA	NA	48	NA	39	38
VS120.2A	-/120/120 from both sides	16mm FIRESTOP adhesive + screw laminated to each side of 1x25mm SHAFTLINER	NA	NA	NA	57	NA	39	38
VST120.1A	-/120/120 from both sides	3x16mm FIRESTOP screw laminated together	1x10mm REGULAR on free-standing 70mm timber stud	90	70 (20)	148	Nil	47	41
							50P7	53	45
VSS120.1A	-/120/120 from both sides	3x16mm FIRESTOP screw laminated together	1x10mm REGULAR on free-standing 64mm steel stud	85	64 (20)	142	Nil	48	42
							50P7	54	46

* 50P7 – 50mm Polyester Insulation 7kg/m³

MAX SIZES OF NON LOAD BEARING VENTSHAFT (VS120.1A, VS120.2A, VST120.1A & VSS120.1A)

WALL PRESSURE			
0.25kPa		0.35kPa	
WIDTH mm	HEIGHT mm	WIDTH mm	HEIGHT mm
1200	6000	1200	6000
1800	4800	1800	2800
2400	3300	2400	2100
3000	2700	3000	1700

Height Limiting Factor: $L/240 \leq 20mm$

Notes:

- All four edges of the panel must be supported
- Plasterboard layers 1 and 3 to be aligned along long direction of panel, layer 2 across
- Wall heights tabled are not for axial loads but include self weight and lateral pressures stated
- The maximum panel sizes are based on testing performed using USG Boral Firestop plasterboard
- Deflection heads to be designed and used as required
- Panel size of up to 3000mm x 3000mm have been fire tested at pressures of 50Pa. However, the panel size will in most cases be limited by cold structural considerations.

COLUMN PROTECTION

PSC.1

FIRE RESISTANCE LEVEL (refer to table)

FRL Basis: FCO-1972



SYSTEM DESCRIPTION

One or more layers of fire resistant pbd around periphery on encasement channel forming gap around column

COLUMN PROTECTION - STEEL I-SECTIONS

SYSTEM	FRL	LINING (All Sides)	FIXING
PSC30.1A	30/-/-	1x13mm FIRESTOP	Around periphery, spaced from column
PSC60.1A	60/-/-	2x13mm FIRESTOP or 1x25mm SHAFTLINER	Around periphery, spaced from column
PSC90.1A	90/-/-	2x16mm FIRESTOP	Around periphery, spaced from column
PSC120.1A	120/-/-	3x13mm FIRESTOP or 1x13mm FIRESTOP + 1x25mm SHAFTLINER	Around periphery, spaced from column

PSC.2

FIRE RESISTANCE LEVEL (refer to table)

FRL Basis: FCO-1972



SYSTEM DESCRIPTION

One or more layers of fire resistant pbd around periphery on Rondo 142 track forming min 18mm gap around column

COLUMN PROTECTION - STEEL SHS/RHS SECTIONS

SYSTEM	FRL	LINING (All Sides)	FIXING
PSC30.2A	30/-/-	1x13mm FIRESTOP	Around periphery, spaced from column
PSC60.2A	60/-/-	2x13mm FIRESTOP or 1x25mm Shaftliner	Around periphery, spaced from column
PSC90.2A	90/-/-	2x16mm FIRESTOP	Around periphery, spaced from column
PSC120.2A	120/-/-	3x13mm FIRESTOP or 1x13mm FIRESTOP + 1x25mm SHAFTLINER	Around periphery, spaced from column

PSC.3

FIRE RESISTANCE LEVEL (refer to table)

FRL Basis: FCO-1972



SYSTEM DESCRIPTION

One or more layers of fire resistant pbd around periphery on Rondo 0.75mm BMT track forming gap around column

COLUMN PROTECTION - STEEL CHS SECTIONS

SYSTEM	FRL	LINING (All Sides)	FIXING
PSC30.3A	30/-/-	1x13mm FIRESTOP	Around periphery, spaced from column
PSC60.3A	60/-/-	2x13mm FIRESTOP or 1x25mm SHAFTLINER	Around periphery, spaced from column
PSC90.3A	90/-/-	2x16mm FIRESTOP	Around periphery, spaced from column
PSC120.3A	120/-/-	3x13mm FIRESTOP or 1x13mm FIRESTOP + 1x25mm SHAFTLINER	Around periphery, spaced from column

COLUMN PROTECTION

PSC.4

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FCO-1972



SYSTEM DESCRIPTION

One or more layers of fire resistant pbd direct fixed to studs forming min 10mm gap from column

COLUMN PROTECTION – STEEL COLUMNS WITHIN WALL

SYSTEM	FRL	LINING (Both Sides)	FIXING
PSC30.4A	30/-/-	1x13mm FIRESTOP	Direct to stud
PSC60.4A	60/-/-	2x13mm FIRESTOP	Direct to stud
PSC90.4A	90/-/-	2x16mm FIRESTOP	Direct to stud
PSC120.4A	120/-/-	3x13mm FIRESTOP	Direct to stud

PSC.5

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FCO-1972, BHP980804, BHP980216, BHP940810, BHP950915



SYSTEM DESCRIPTION

One or more layers of 25mm Shaftliner pbd direct fixed around periphery with corner angles and wire ligatures
1x10mm Regular pbd direct fixed over Shaftliner pbd (PSC120.5A only)

COLUMN PROTECTION – STEEL I-SECTIONS

SYSTEM	FRL INCREASE	LINING (All Sides)	FIXING
PSC120.5A	120/-/-	1x25mm SHAFTLINER + 1x10mm REGULAR	Direct to column of ESA/M<9.45m ² /t*
PSC120.5B	120/-/-	2x25mm SHAFTLINER	Direct to column of ESA/M<45m ² /t*
PSC180.5A	180/-/-	3x25mm SHAFTLINER	Direct to column of ESA/M<45m ² /t*

* ESA/M – Ratio of exposed surface area (m²) to mass (t) per metre length

COLUMN PROTECTION

PCC.1

FIRE RESISTANCE LEVEL (refer to table)

FRL Basis: FCO-2074



SYSTEM DESCRIPTION

1x fire resistant pbd furred

COLUMN PROTECTION - CONCRETE COLUMNS

SYSTEM	FRL INCREASE	LINING (All Sides)	FIXING
PCC30.1A	30/-/-	1x13mm FIRESTOP	Furred
PCC120.1A	120/-/-	1x25mm SHAFTLINER	Furred

PTC.1

FIRE RESISTANCE LEVEL (refer to table)

FRL Basis: 91/183, 91/169



SYSTEM DESCRIPTION

One or more layers of fire resistant pbd
direct fixed or furred (refer to table)

COLUMN PROTECTION - TIMBER COLUMNS

SYSTEM	FRL INCREASE	LINING (All Sides)	FIXING
PTC30.1A	30/-/-	1x13mm FIRESTOP	Direct or Furred
PTC60.1A	60/-/-	2x13mm FIRESTOP	Direct or Furred
PTC90.1A	90/-/-	3x13mm FIRESTOP	Direct or Furred
PTC120.1A	120/-/-	3x16mm FIRESTOP	Direct or Furred

BEAM PROTECTION

PSB.1

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: FCO-1972, FCO-0410,
FSU-0115, BHP930630



SYSTEM DESCRIPTION

Refer to table

BEAM PROTECTION - STEEL BEAMS

SYSTEM	FRL INCREASE	LINING (All Sides)	FIXING
PSB30.1A	30/-/-	1x16mm FIRESTOP	Over SHAFTLINER packers to sides and bottom of steel beam of ESA/m < 30m ² /t
PSB120.1A	120/-/-	3x13mm FIRESTOP or 1x25mm SHAFTLINER + 1x13mm FIRESTOP	Spaced from sides and bottom of steel beam
PSB120.1B	120/-/-	2x25mm SHAFTLINER cap to SHS	RHS steel beam supporting horizontal Shaft Wall
PSB120.1C	120/-/-	3x16mm FIRESTOP	PFC steel beam within wall clad both sides
PSB120.1D	120/-/-	Furring + 2x16mm FIRESTOP + Furring + 1x16mm FIRESTOP	Spaced from sides and bottom of steel supporting concrete floor
PSB120.1E	120/-/-	Ceiling bulkhead or Furring + 2x16mm FIRESTOP + Furring + 1x16mm FIRESTOP	Spaced from sides and bottom of steel beam supporting timber floor

* ESA/M – Ratio of exposed surface area (m²) to mass (t) per metre length

PTB.1

FIRE RESISTANCE LEVEL
(refer to table)

FRL Basis: 93/402



SYSTEM DESCRIPTION

One or more layers of fire resistant pbd
direct fixed

BEAM PROTECTION - TIMBER BEAMS

SYSTEM	FRL INCREASE	LINING (All Sides)	FIXING
PTB30.1A	30/-/-	1x13mm FIRESTOP	Direct
PTB60.1A	60/-/-	2x13mm FIRESTOP	Direct
PTB90.1A	90/-/-	3x13mm FIRESTOP	Direct
PTB120.1A	120/-/-	3x16mm FIRESTOP	Direct

FIRE TUNNEL

FT

FIRE RESISTANCE LEVEL (refer to table)

FRL Basis: FCO-0645R, FCO-0411R,
FCO-1160, FCO-1161, FCO-1162,
FCO-1213



SYSTEM DESCRIPTION

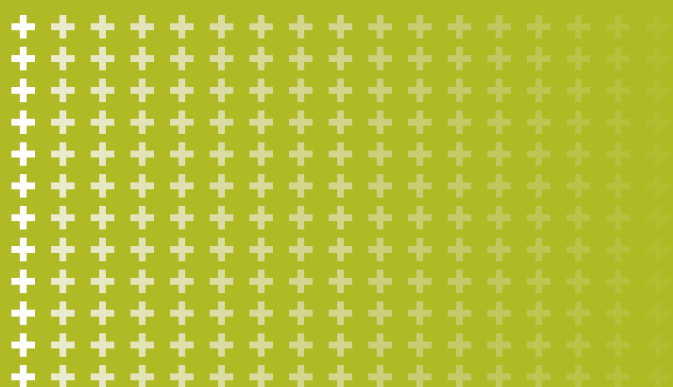
One or more layers of fire resistant pbd direct fixed to both sides of steel framed walls and ceiling.

FIRE TUNNELS

SYSTEM	FRL	FRAME	LINING
FT60.1A	-/60/60 from outside	Welded steel frame ex 150mm Rondo studs, track and corner angles	1x16mm FIRESTOP over and under ceiling 1x16mm FIRESTOP to both sides of wall frame
FT60.2A	-/60/60 from both sides	Welded steel frame ex 150mm Rondo studs, track and corner angles	2x16mm FIRESTOP over and under ceiling 1x16mm FIRESTOP to both sides of wall frame
FT90.1A	-/90/90 from outside	Welded steel frame ex 150mm Rondo studs, track and corner angles	2x13mm FIRESTOP over ceiling and outside walls 1x13mm FIRESTOP under ceiling and inner walls
FT120.1A	-/120/120 from outside	Welded steel frame ex 150mm Rondo studs, track and corner angles	2x16mm FIRESTOP over ceiling and outside walls 1x16mm FIRESTOP + 1x10mm REGULAR under ceiling and inner walls
FT120.2A	-/120/120 from both sides	Welded steel frame ex 150mm Rondo studs, track and corner angles	2x16mm FIRESTOP over ceiling 3x16mm FIRESTOP under ceiling 2x16mm FIRESTOP to both sides of wall frame
FT180.1A	-/180/180 from outside	Structural support steel frames	2x25mm SHAFTLINER over ceiling 1x16mm FIRESTOP under ceiling 2x16mm FIRESTOP to both sides of NLB wall frame

J 2	INTRODUCTION
J 4	FIRE RATED STEEL STUD WALLS
J 22	NON-FIRE RATED STEEL STUD WALLS
J 27	FIRE RATED TIMBER STUD WALLS
J 33	FIRE RATED CEILINGS
J 43	NON-FIRE RATED CEILINGS

JUNCTIONS & PENETRATIONS



INTRODUCTION

DESCRIPTION

This section contains the most common junctions and penetrations details in conventional plasterboard systems, including:

- Fire rated and non-fire rated Steel Stud Walls
- Fire rated Timber Stud Walls
- Fire rated Ceilings
- Non-fire rated suspended ceilings.

Refer USG Boral for installation details not covered in this manual.

Refer to USG Boral Installation Manual for junctions in non-fire rated timber framed walls and ceilings.

Refer to relevant USG Boral publications and usgboral.com for construction details of the following specialty systems:

- Partiwall
- IntRwall
- OutRwall
- Fireclad
- Shaftwall
- Ventshaft
- Fire Tunnel
- Spanning ceilings
- Column & Beam Protection.

DESIGN OPTIONS

The following types of details can be found in this section:

WALL JUNCTIONS

- X, T and L intersections
- Base and Head details
- Movement/Control Joints
- Door Details.

WALL PENETRATIONS

- uPVC Pipe penetration
- Copper/Steel Pipe penetration
- Typical Plumbing penetration
- GPO details
- Cable penetrations
- HVAC penetrations
- Access Panel.

CEILING JUNCTIONS

- Back-blocking
- Perimeter details
- Bulkhead
- Movement/Control Joints
- Recessed Lights
- Beam Protection.

CEILING PENETRATIONS

- Electrical penetrations
- Loaded penetration
- uPVC Pipe penetration
- Copper Pipe penetration
- Sprinkler Pipe penetration.

» INTRODUCTION

MATERIALS

Refer to General Information and other relevant system sections of this manual for information on the following materials utilised in USG Boral systems:

- Linings
- Metal components
- Timber sections
- Insulation
- Fasteners
- Jointing tapes
- Jointing compounds
- Sealants
- Proprietary components.

Refer to junctions and penetrations details for materials used in specific details.

DESIGN CONSIDERATIONS

Refer to the General Information section for general design considerations and design notes on:

- Structural
- Fire
- Acoustics
- Wet Area
- Thermal Insulation
- Appearance.

Refer to the Steel Stud Walls section for:

- System configurations required to achieve specified fire and acoustic ratings
- Maximum wall heights for various system configurations and stud sizes
- Head track requirements to satisfy design vertical deflection and head reaction
- Load bearing walls
- Movement/Control Joint requirements.

Refer to the Timber Stud Walls section for:

- System configurations required to achieve specified fire and acoustic ratings
- Maximum stud loads for fire rated timber stud walls.

Refer to the Ceilings section for:

- System configurations required to achieve specified fire and acoustic ratings
- Plasterboard spans
- Furring Channel spans
- Acoustic Mount spacing.

INSTALLATION

Refer to General Information and the relevant sections in this manual for:

- General construction notes
- Plasterboard fixing instructions
- Frame installation instructions
- Perimeter caulking
- Movement/Control Joint locations
- Jointing and Finishing.

Refer to various junctions and penetrations details for detail-specific installation instructions.

PENETRATIONS

Penetrations in a fire rated system must be treated strictly in accordance with relevant test reports and approved installation details in order to maintain the system's Fire Resistance Level.

Where components by others are specified in USG Boral fire rated penetration details (ie dampers, GPO's, fire collars, etc), such components must be installed in accordance with the manufacturer's specifications. It is the responsibility of the component manufacturer to ensure that the fire rating performance of the system is not affected.

FIRE RATED STEEL STUD WALLS

TERMINALS AND JUNCTIONS

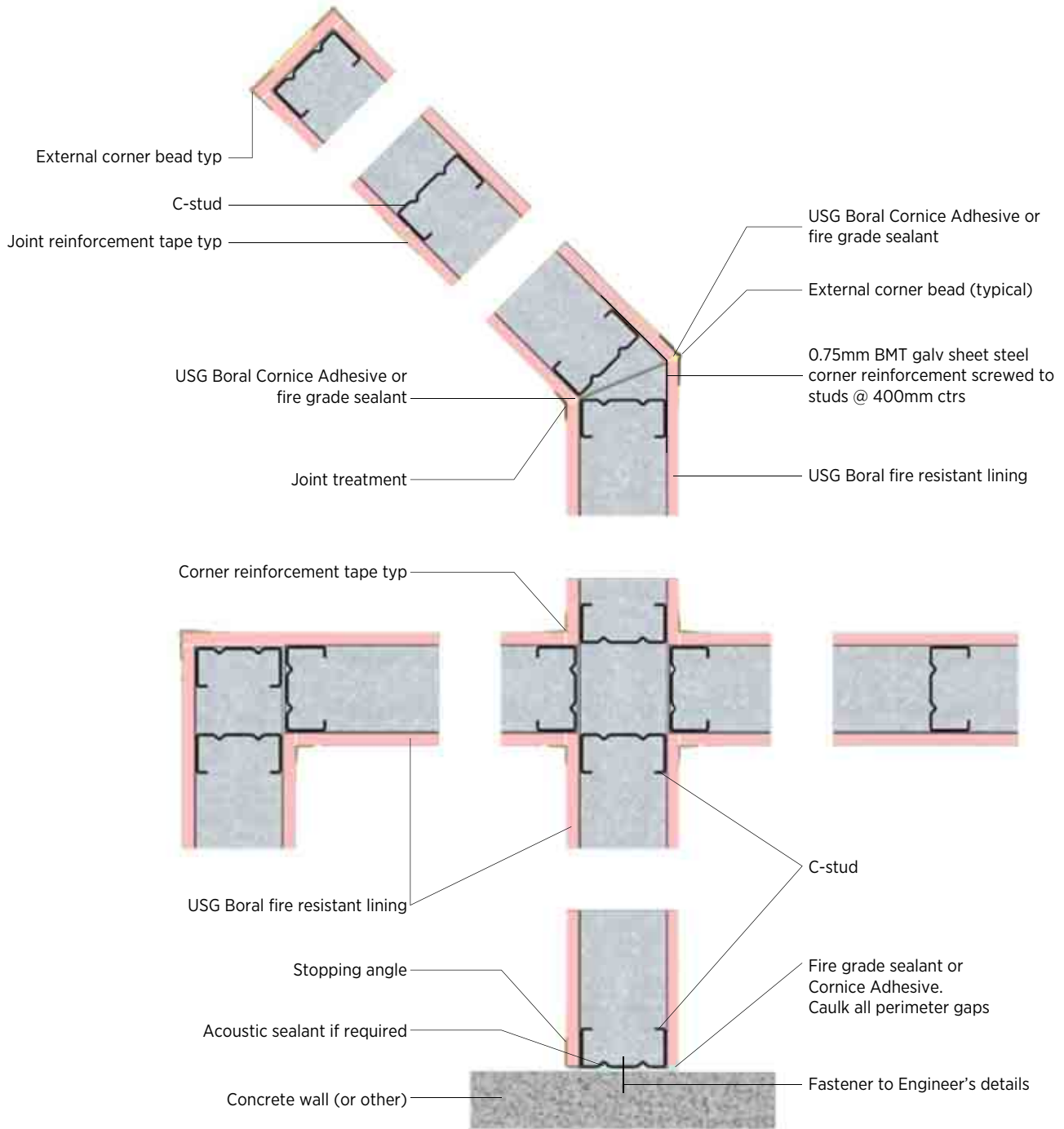


Figure J1: **Single Stud Terminal and Junction Details (Twin stud, staggered stud layout similar)**

NOTES:

- Control joints must coincide with those occurring in the main building structure and/or at maximum 12 metre centres.
- Location of control joints should be verified with Structural Engineer.

» FIRE RATED STEEL STUD WALLS

TERMINALS AND JUNCTIONS

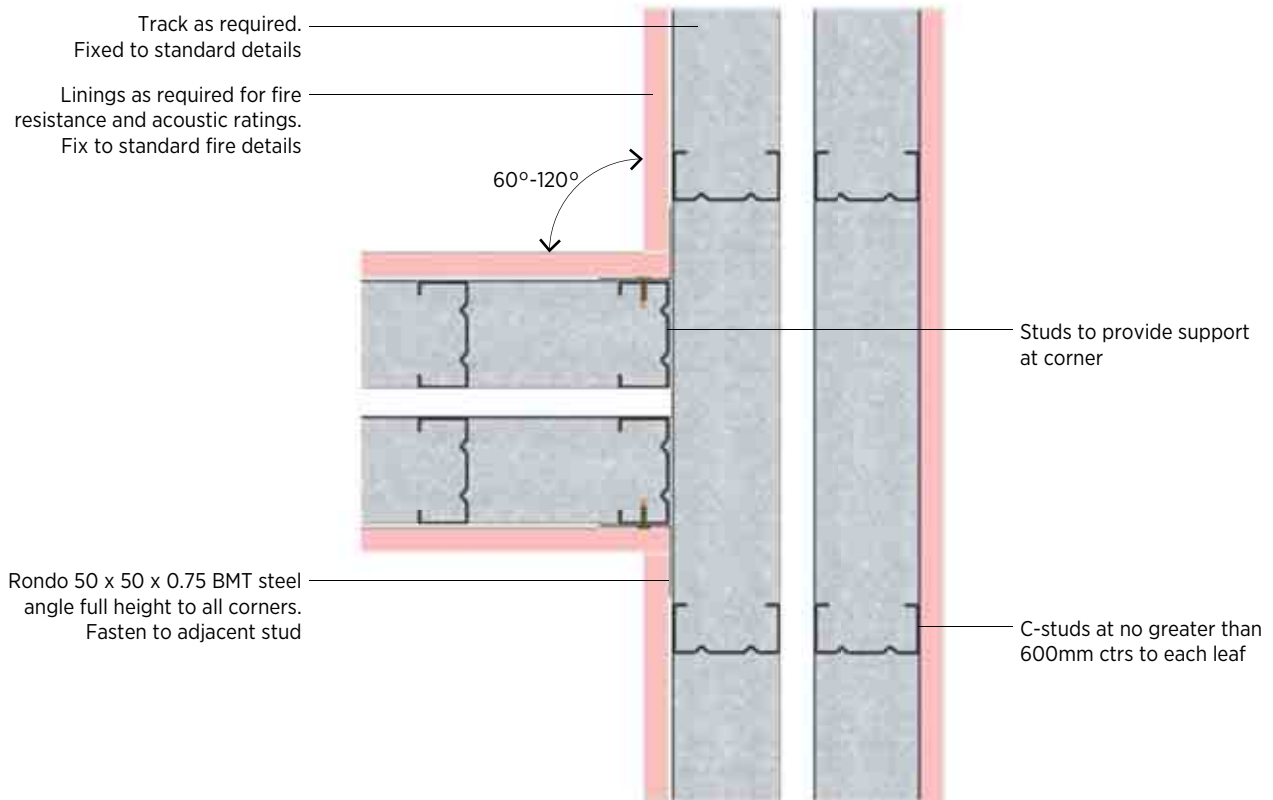


Figure J2: **Twin Steel Stud T-Junction Detail**

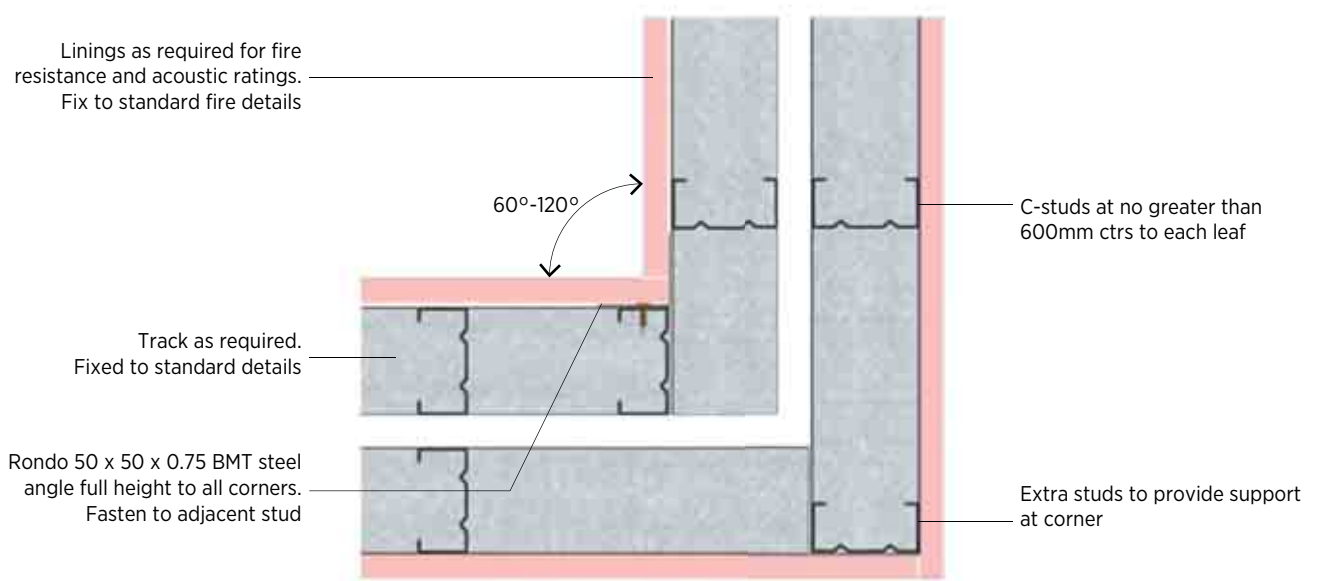


Figure J3: **Twin Steel Stud Corner Detail**

» FIRE RATED STEEL STUD WALLS

TERMINALS AND JUNCTIONS

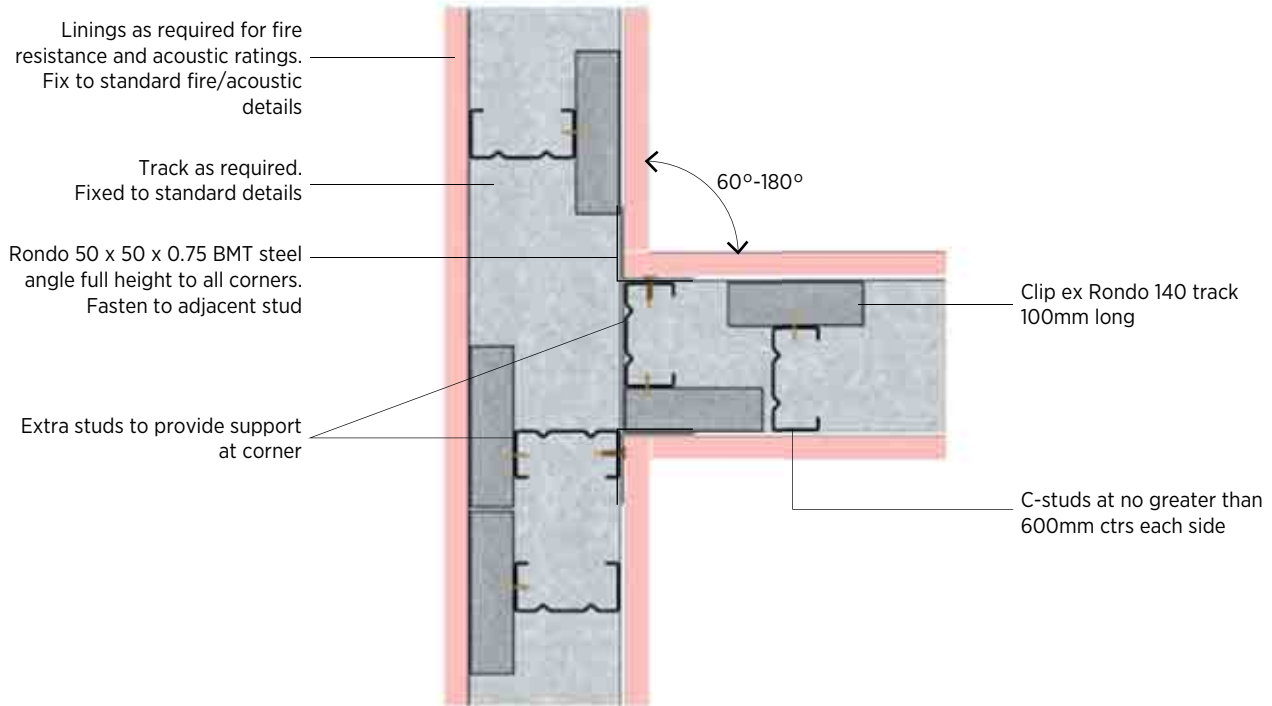


Figure J4: **Staggered Steel Stud T-Junction Detail**

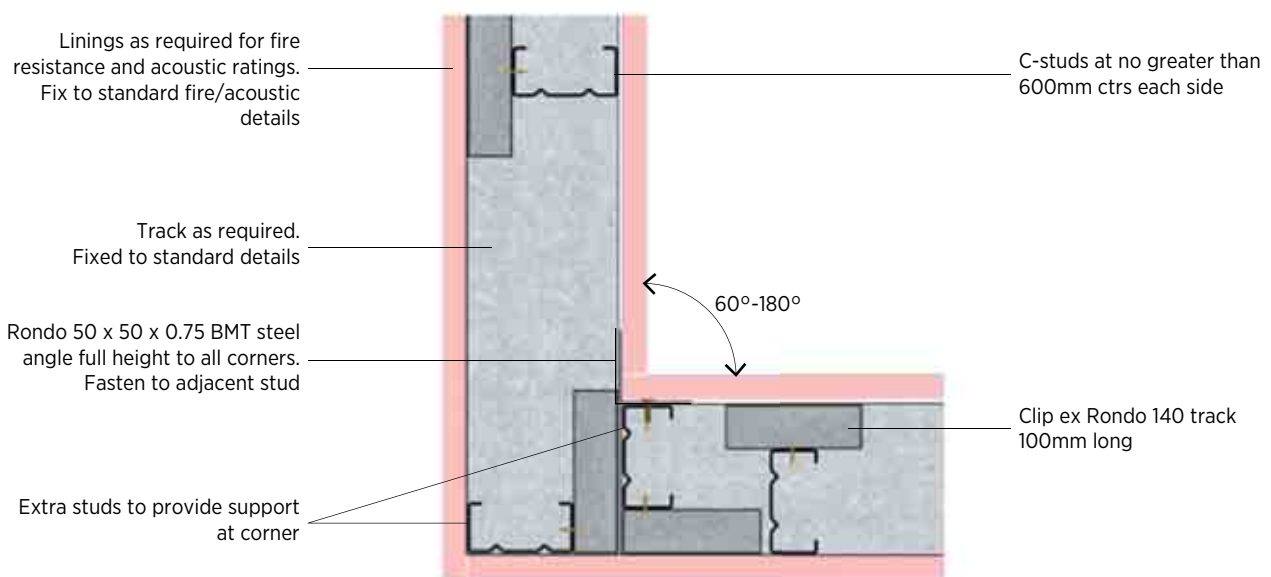


Figure J5: **Staggered Steel Stud Corner Detail**

» FIRE RATED STEEL STUD WALLS

BASE DETAILS

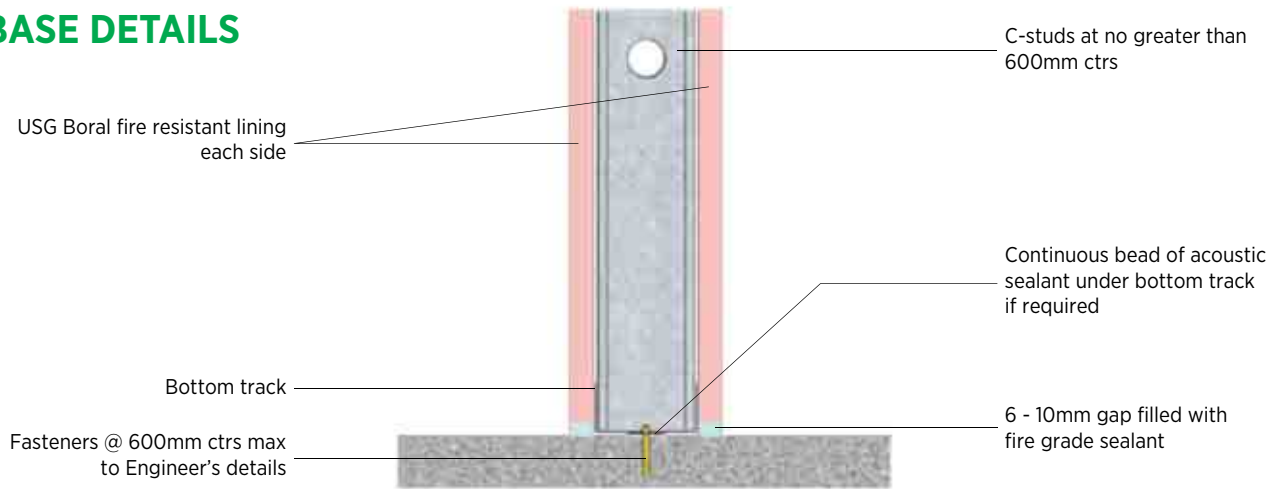


Figure J6: Partition Base Detail

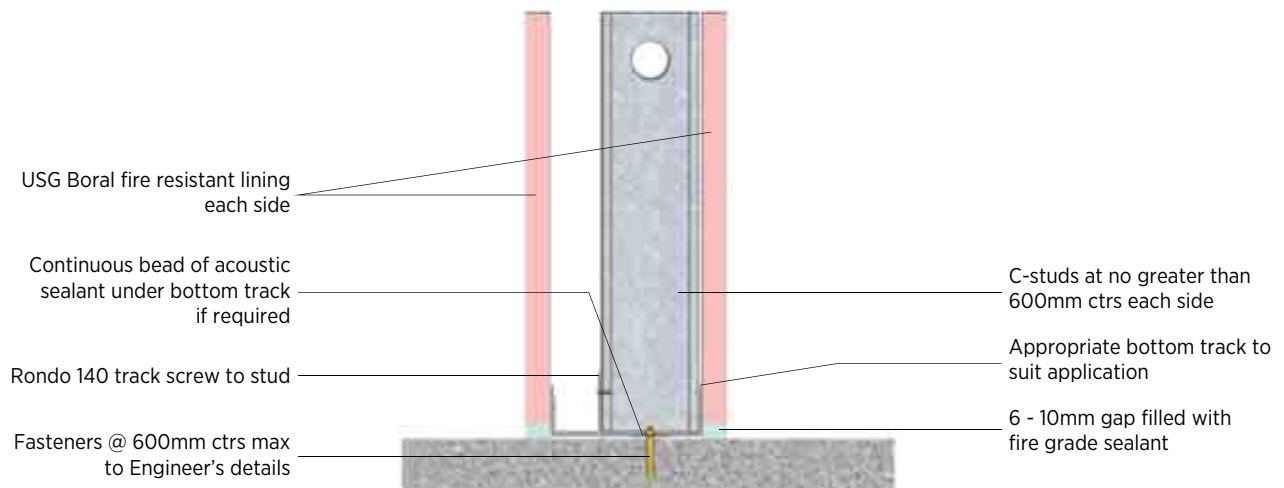


Figure J7: Staggered Stud Base Detail

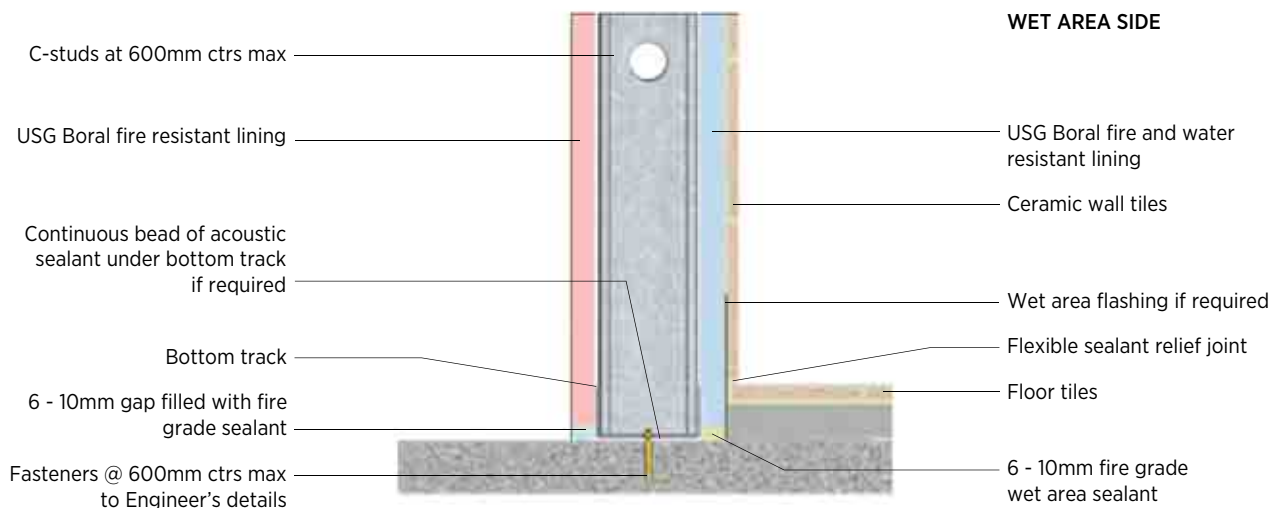


Figure J8: Partition Wet Area Base Detail

» FIRE RATED STEEL STUD WALLS

HEAD DETAILS

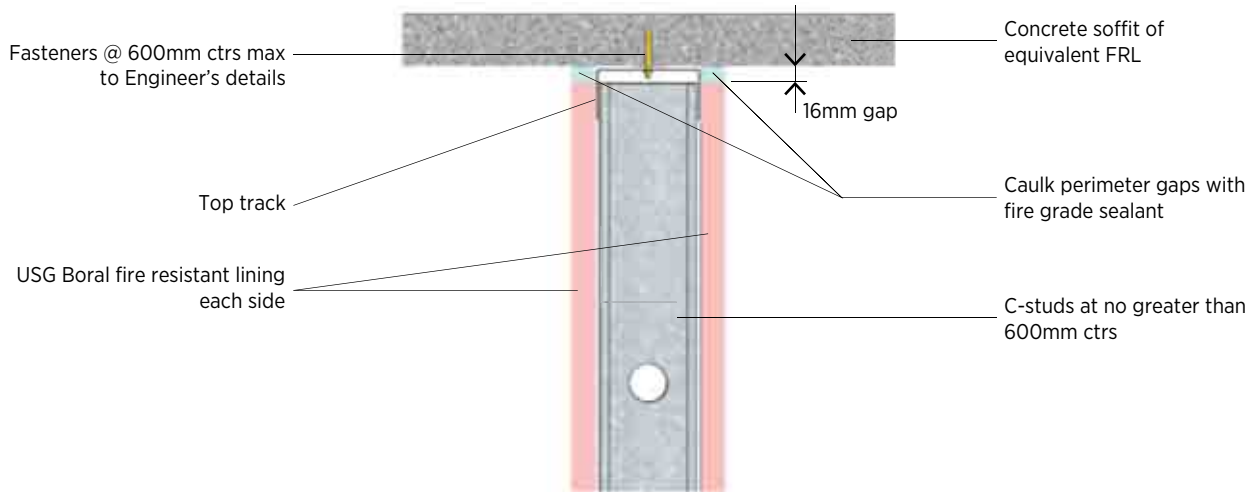


Figure J9: **Partition Head Detail**

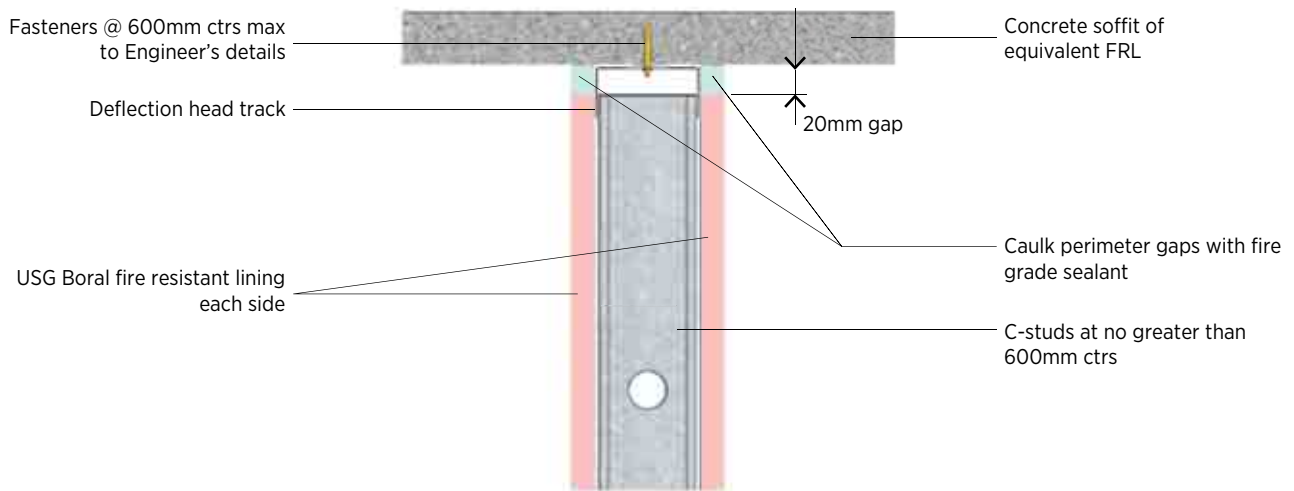


Figure J10: **Deflection Head Detail**

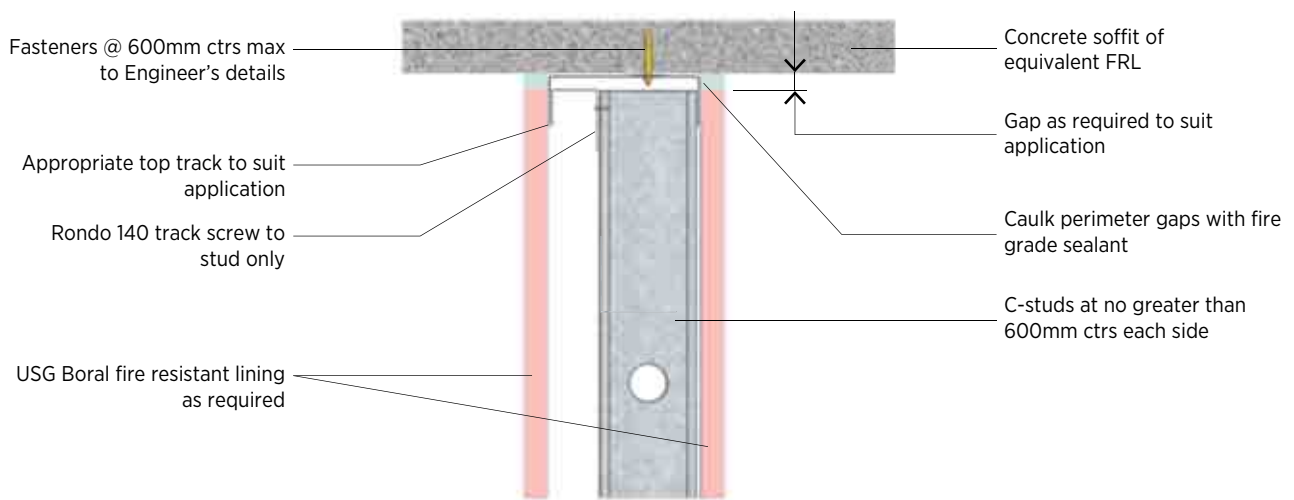


Figure J11: **Staggered Stud Head Detail**

» FIRE RATED STEEL STUD WALLS

HEAD DETAILS

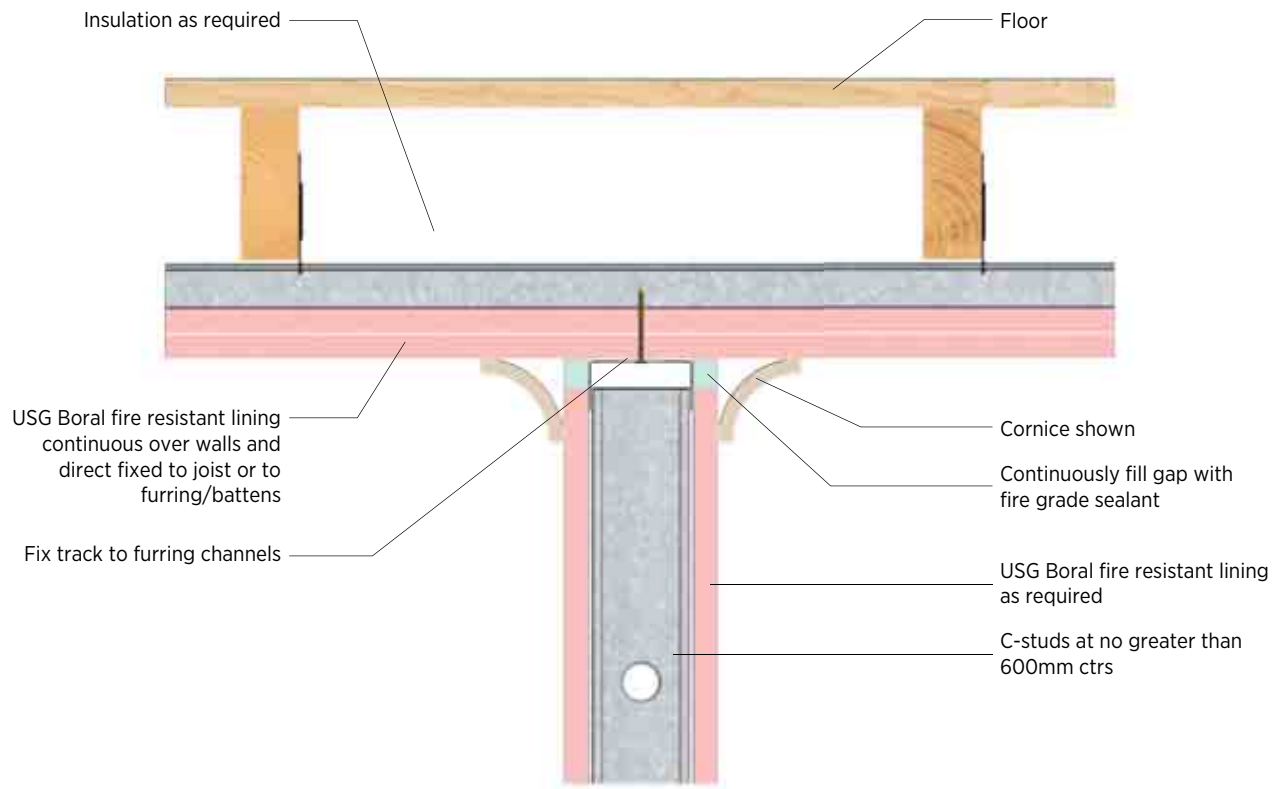


Figure J12: **Fire Rated Wall to Fire Rated Ceiling Detail**

» FIRE RATED STEEL STUD WALLS

CONTROL / MOVEMENT JOINTS

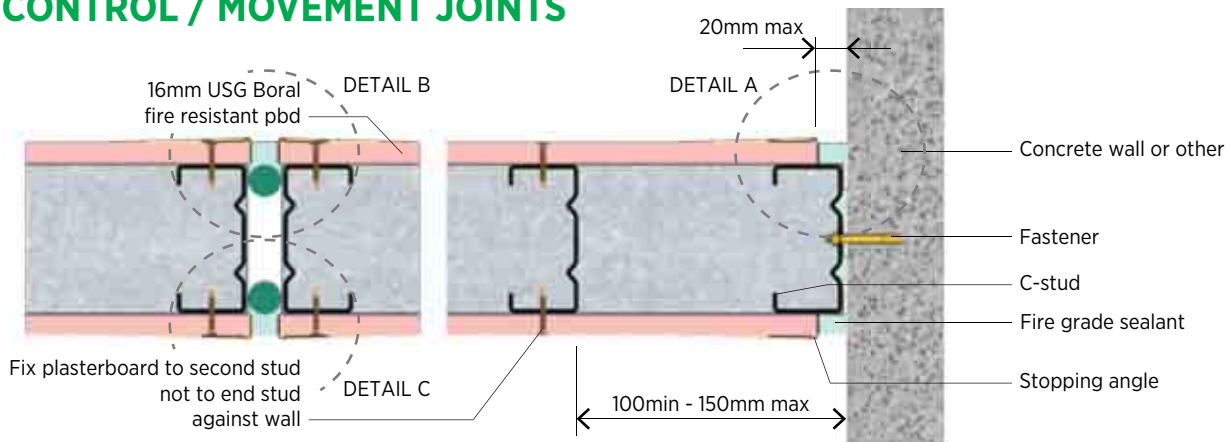


Figure J13: Control Joint Details FRL 60/60/60 (also available in other FRLs)

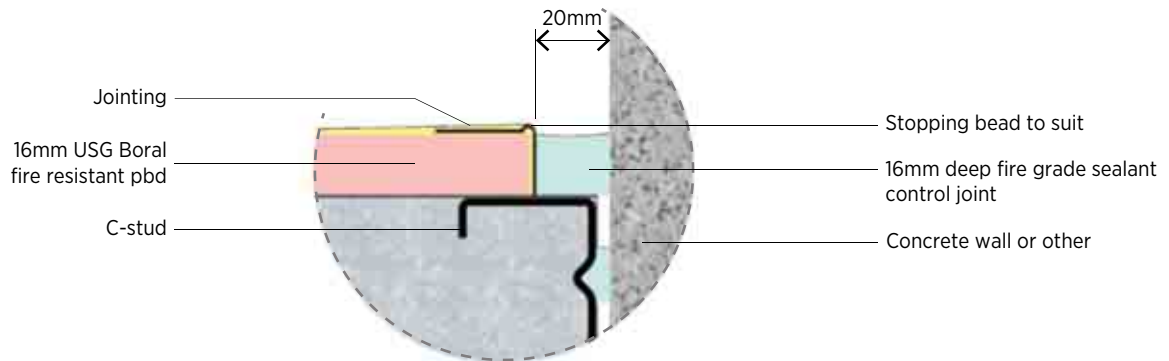


Figure J14: Detail A

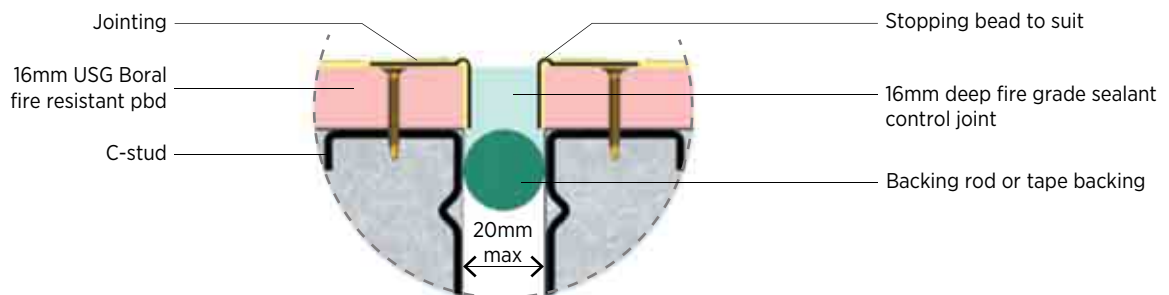


Figure J15: Detail B

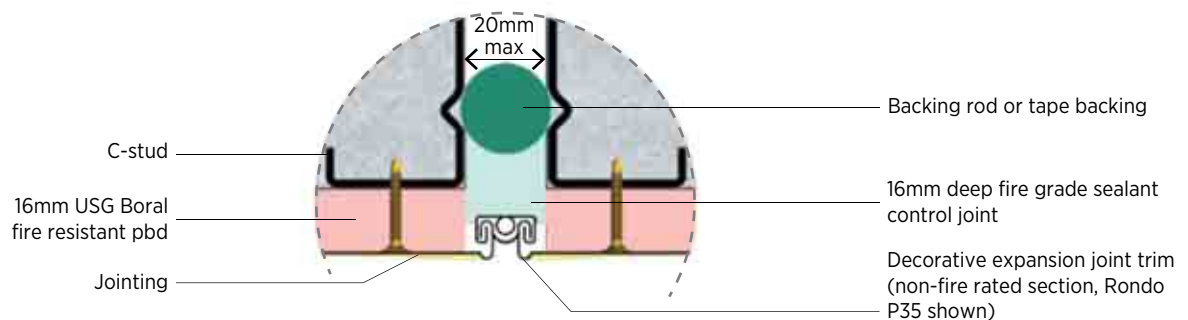


Figure J16: Detail C

» FIRE RATED STEEL STUD WALLS

CONTROL / MOVEMENT JOINTS

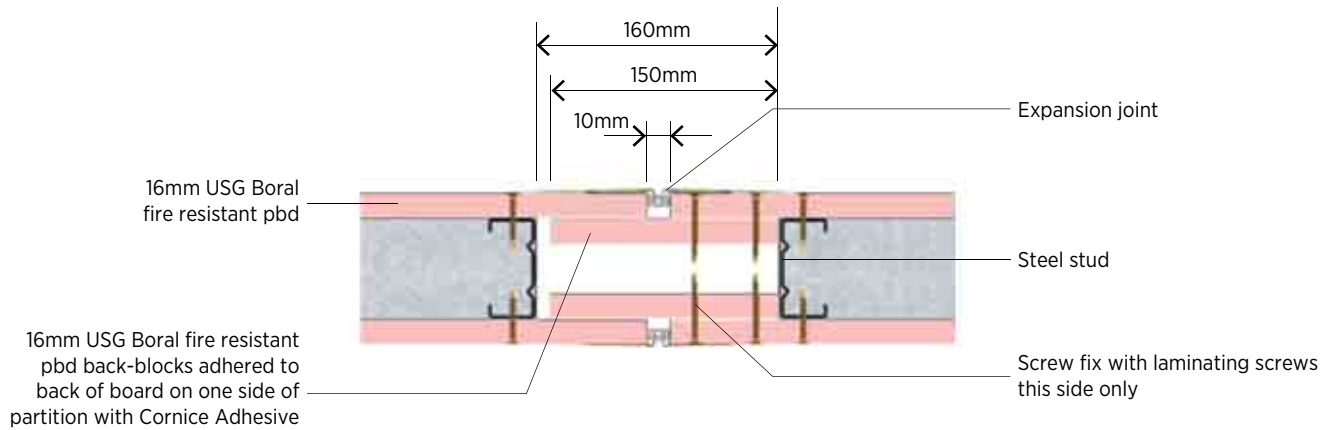


Figure J17: Movement Joint Detail FRL 60/60/60

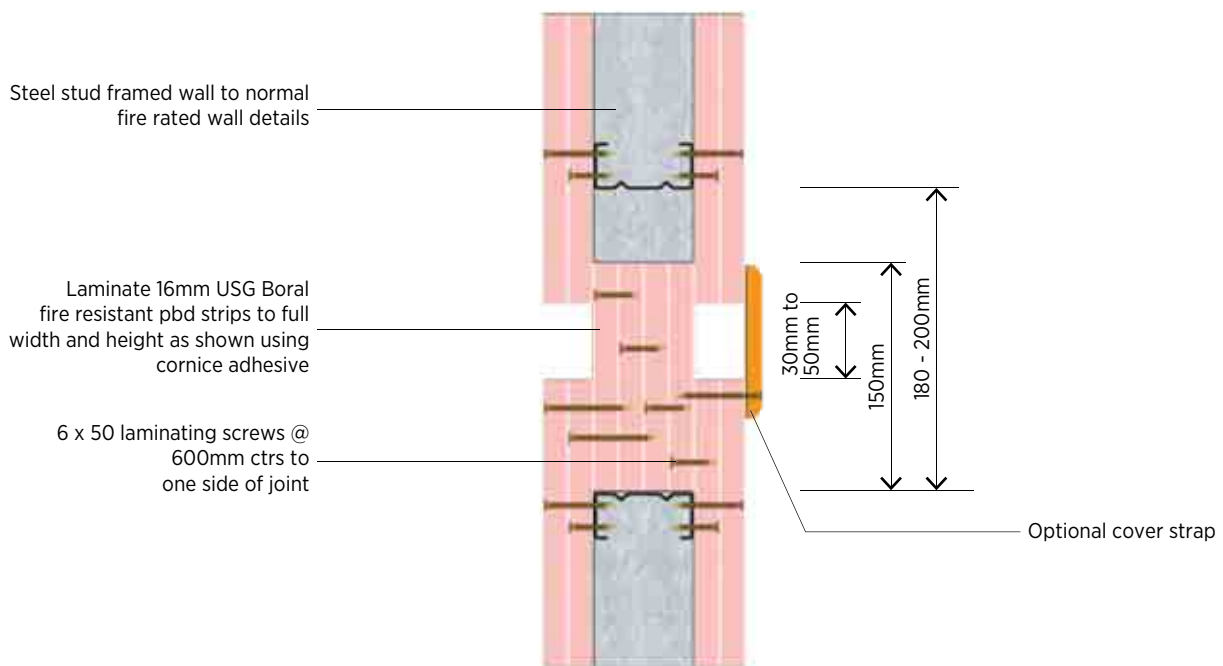


Figure J18: Movement Joint Detail FRL 120/120/120

NOTES:

- Maximum joint movement capacity +/-20mm horizontally in plane of wall.
- FRL of wall not to exceed 120/120/120.
- Floor tracks to be cut over width of required control joint.

» FIRE RATED STEEL STUD WALLS

DOOR DETAILS

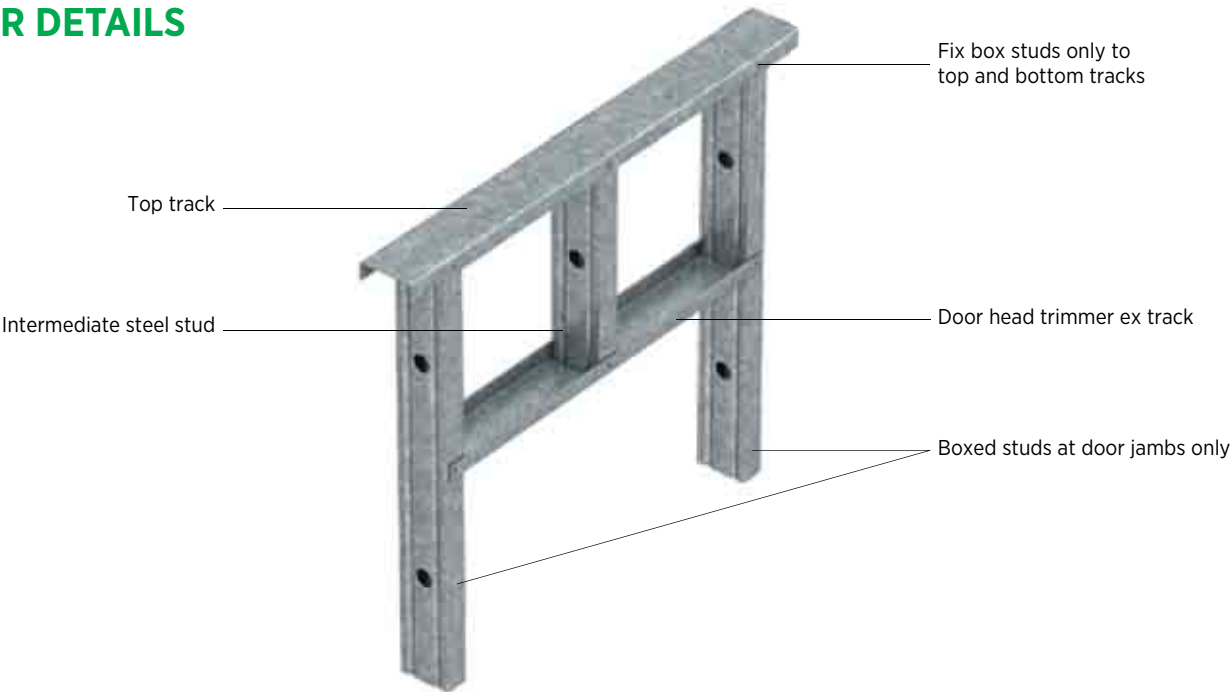


Figure J19: **Door Head Trimmer Detail**

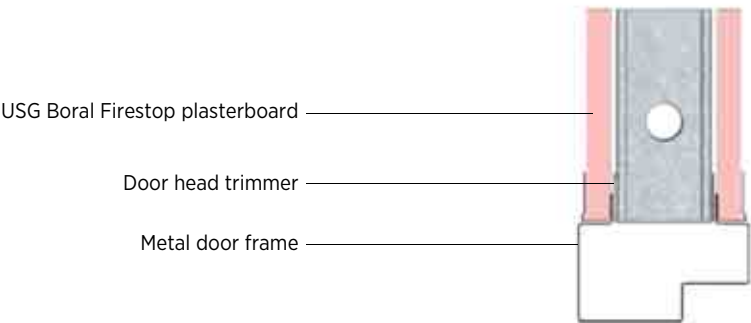


Figure J20: **Door Head Detail**



Figure J21: **Door Jamb Detail**

NOTE:

- Jamb studs may consist of double CS studs or boxed CS studs. This may be determined by structural requirements or the fixing details recommended by the door frame manufacturer.

» FIRE RATED STEEL STUD WALLS

PLUMBING PENETRATIONS

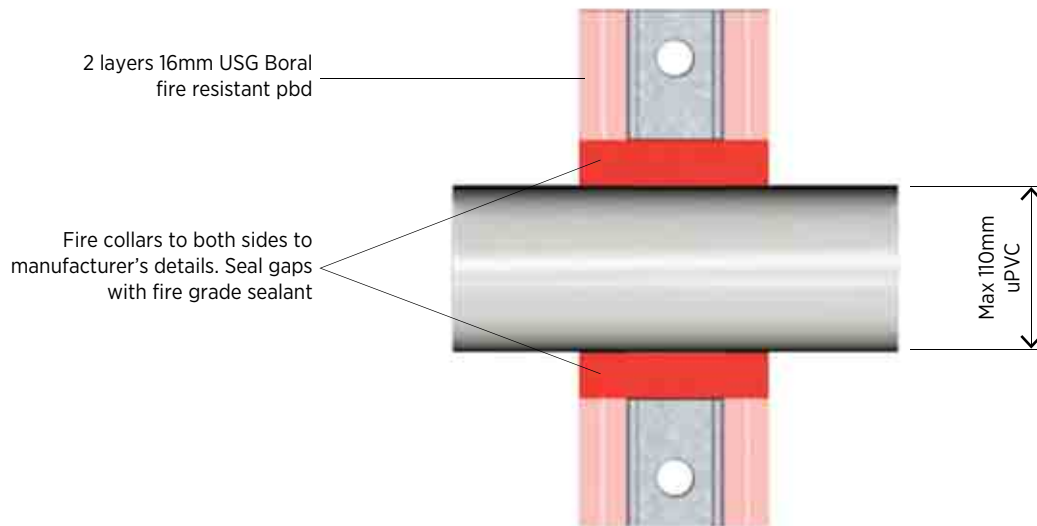


Figure J22: Penetration Detail - uPVC Pipe - Single Stud - FRL NA/120/NA

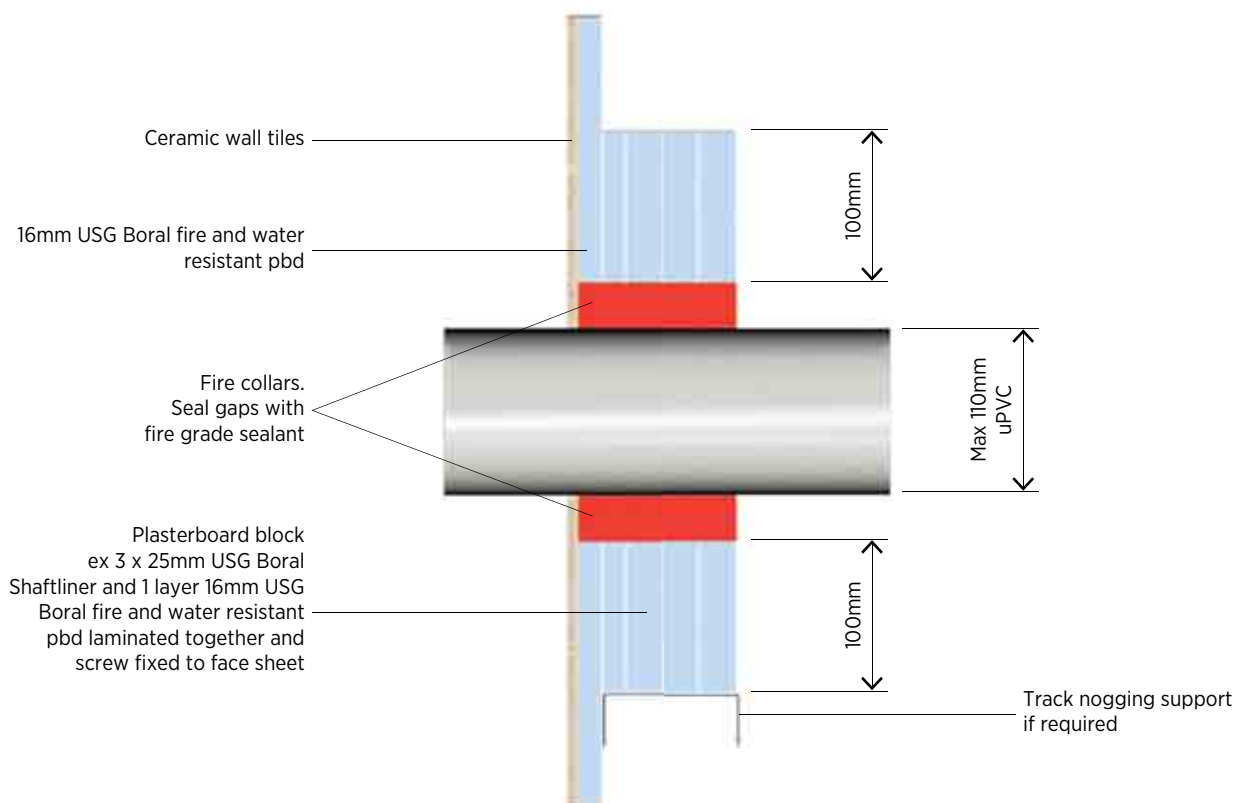


Figure J23: Penetration Detail - uPVC Pipe - Twin Stud - FRL 60/60/60

» FIRE RATED STEEL STUD WALLS

PLUMBING PENETRATIONS

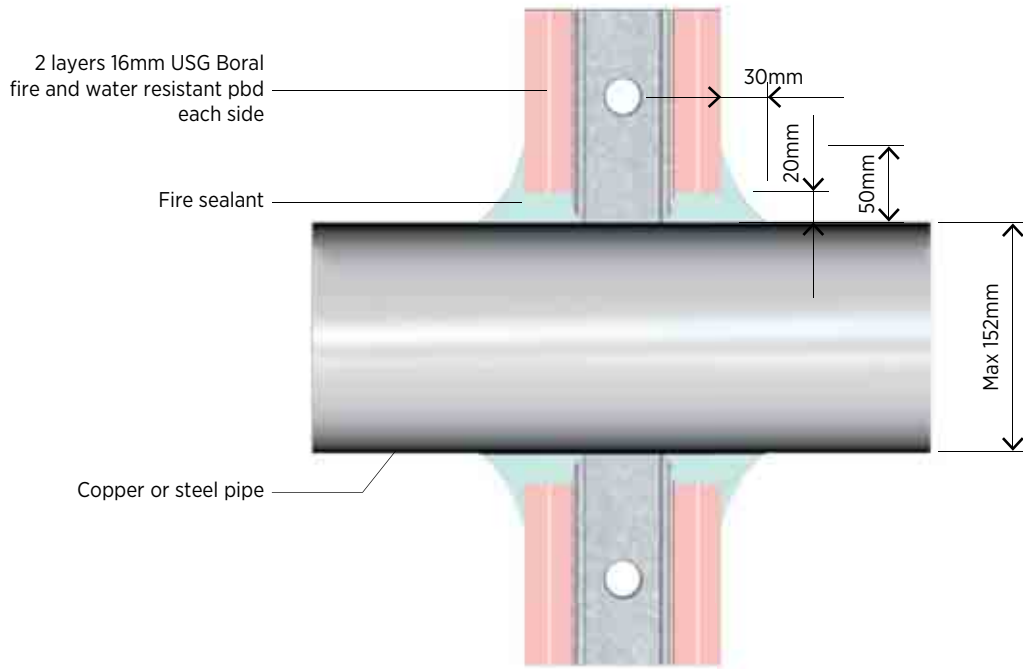


Figure J24: **Penetration Detail - Copper/Steel Pipe - Single Stud - FRL 120/120/-**

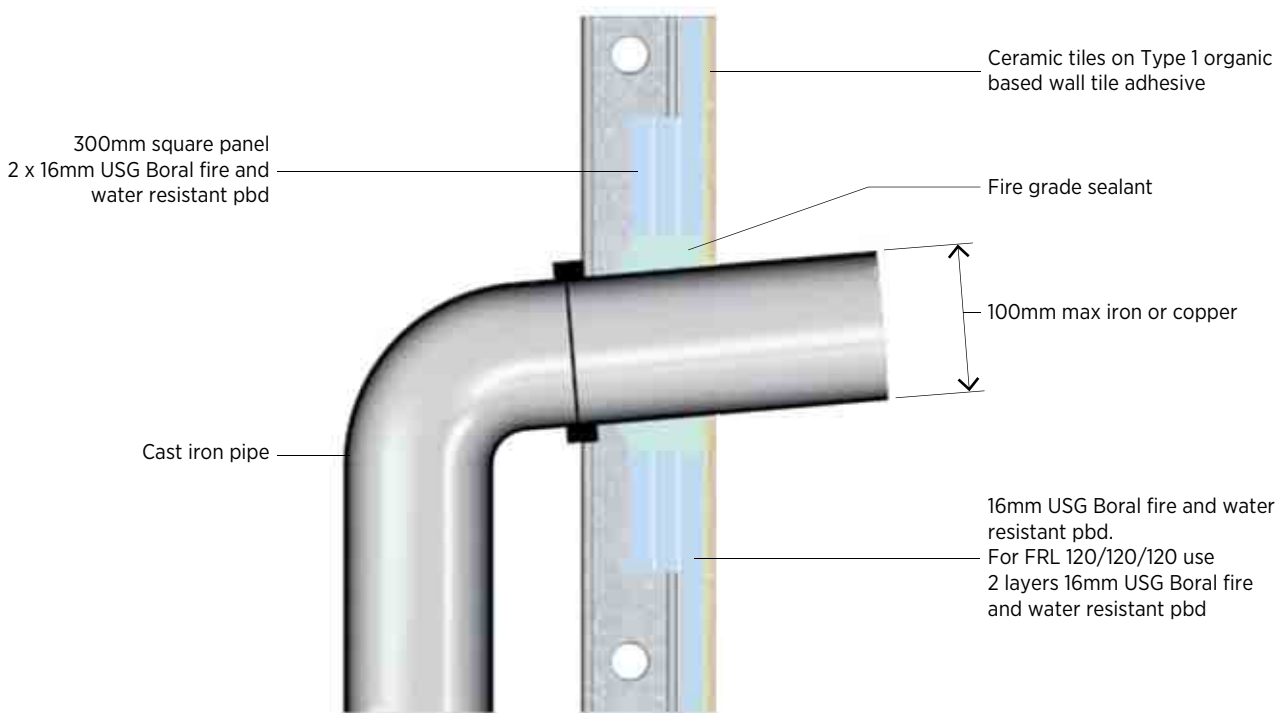


Figure J25: **Penetration Detail - Copper/Steel Pipe - Twin Stud - FRL 60/60/60**

» FIRE RATED STEEL STUD WALLS

PLUMBING PENETRATIONS

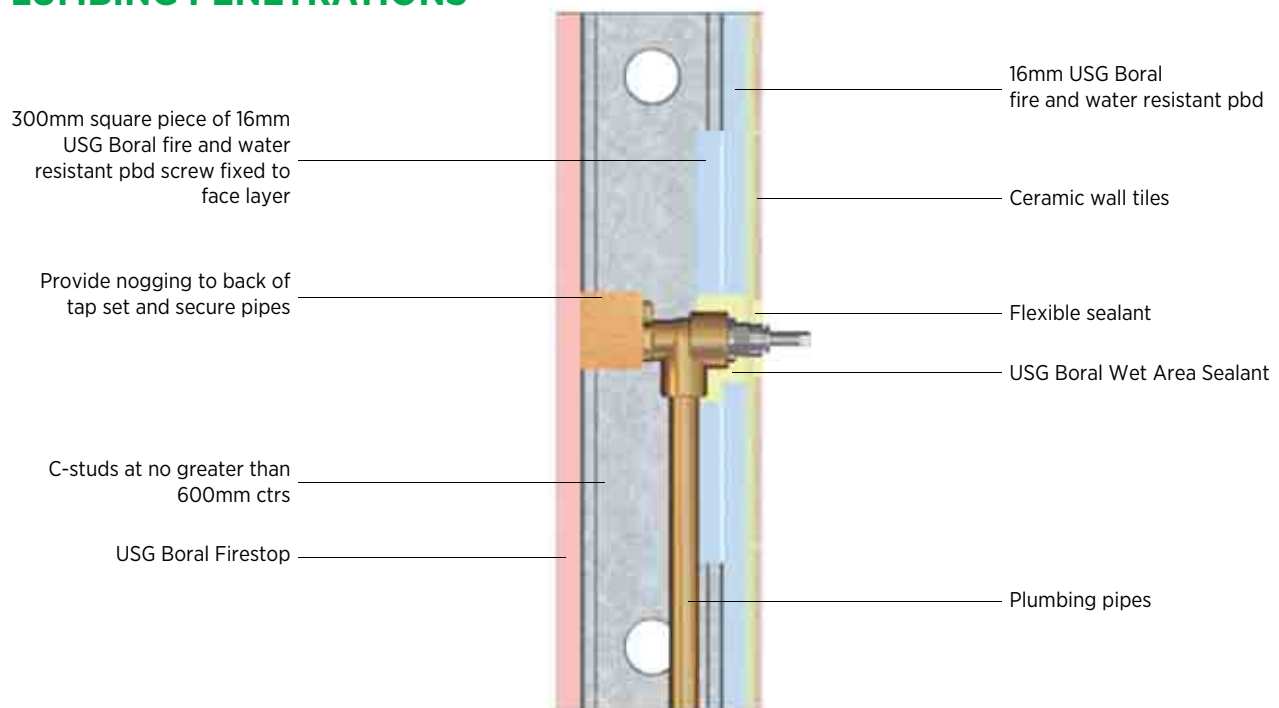


Figure J26: Typical Plumbing Penetration Detail - Section

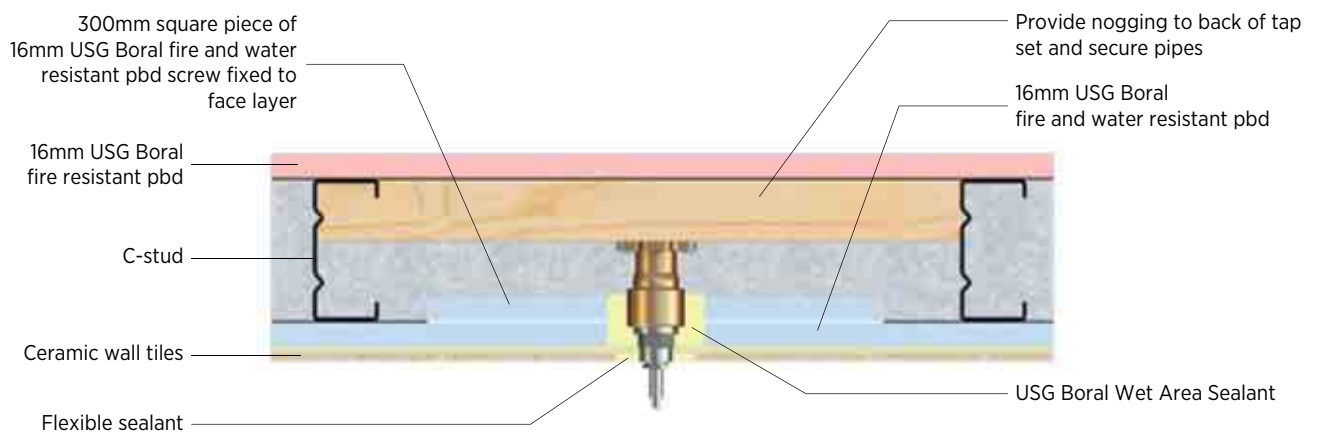


Figure J27: Typical Plumbing Penetration Detail - Plan

NOTES:

The following instructions must be followed to achieve satisfactory results:

- Care should be taken to isolate copper pipes away from contact with steel framing to avoid problems with corrosion.
- Plasterboard linings are not to act as supports for piping.
- Piping is to be kept clear of face sheets and baffles.
- Ensure that baffles protect the areas immediately behind wall penetrations.
- Pipes are to penetrate one face only of the partition between any two wall studs.
- Total area of all openings between any two wall studs must be no greater than 5000mm²

» FIRE RATED STEEL STUD WALLS

ELECTRICAL PENETRATIONS

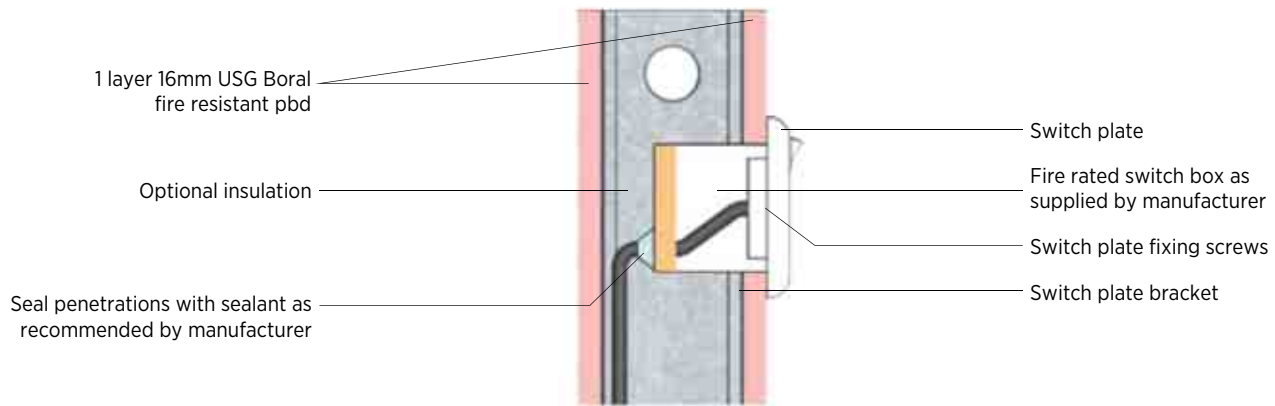


Figure J28: Fire Rated GPO Detail Only - Partition FRL 60/60/60

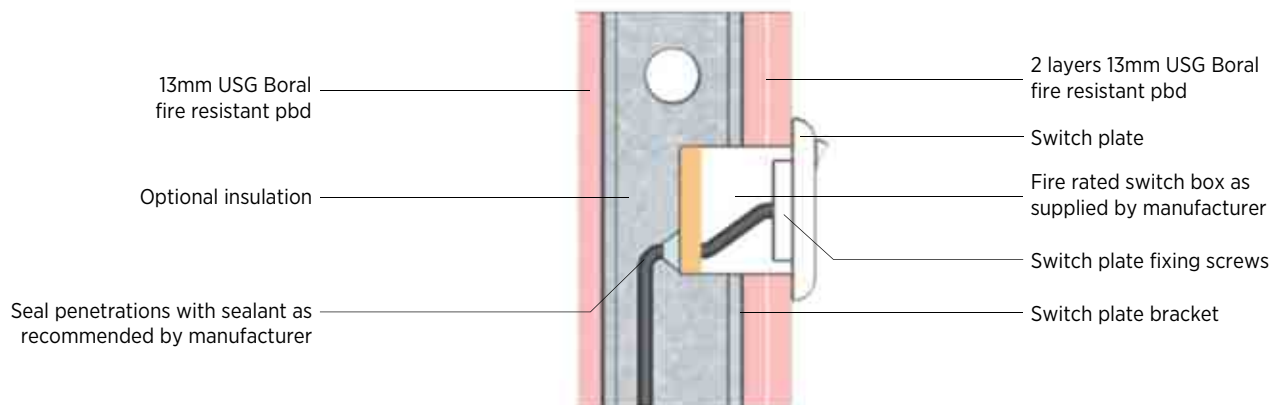


Figure J29: Fire Rated GPO Detail Only - Partition FRL 90/90/90

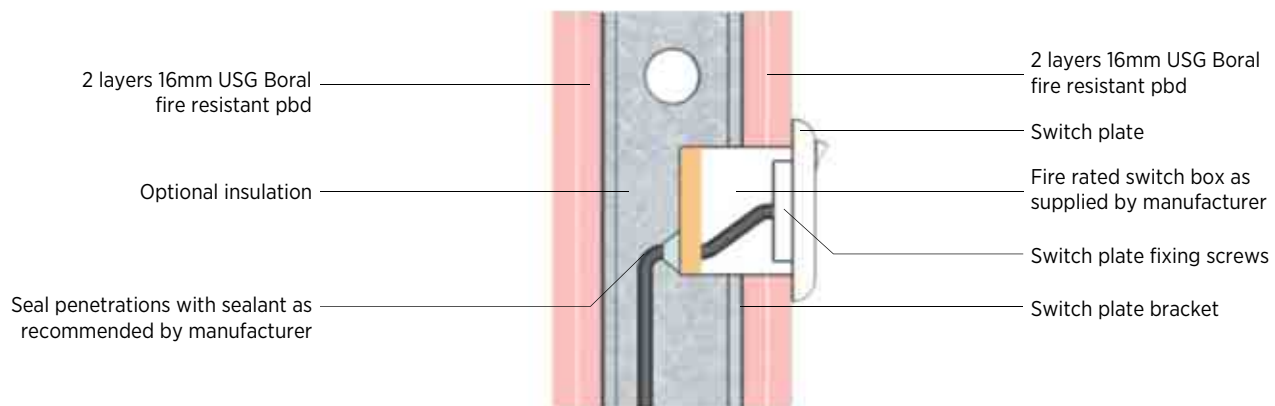


Figure J30: Fire Rated GPO Detail Only - Partition FRL 120/120/120

» FIRE RATED STEEL STUD WALLS

ELECTRICAL PENETRATIONS

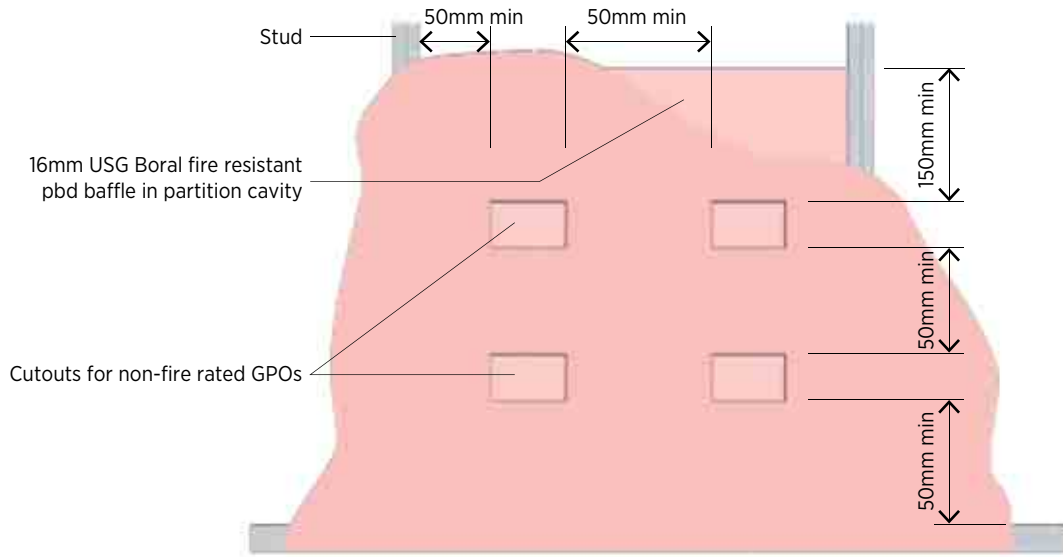


Figure J31: Typical Layout Elevation - Non Fire Rated GPOs in Fire Rated Partition

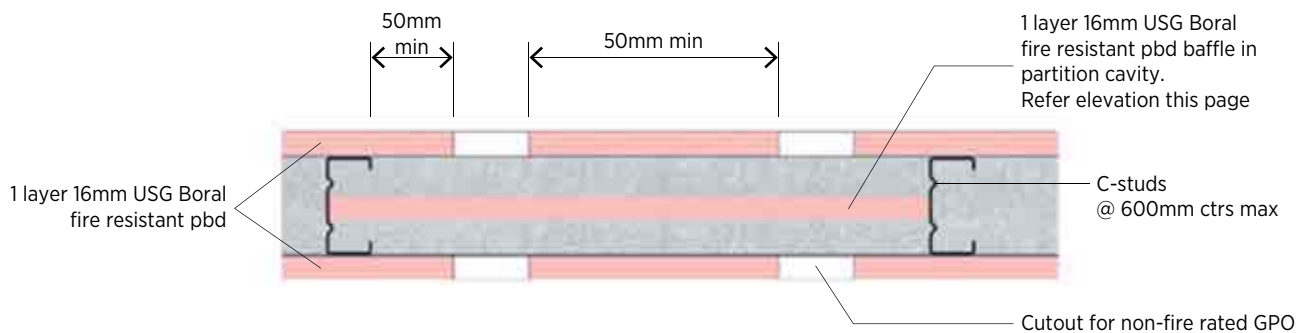


Figure J32: Typical Layout Plan - Non Fire Rated GPOs in FRL 60/60/60 Partition

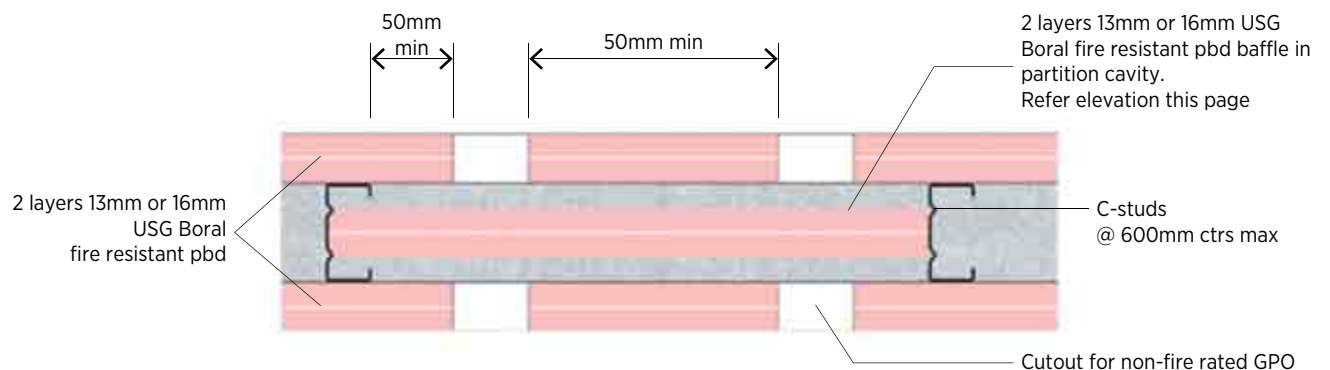


Figure J33: Typical Layout Plan - Non Fire Rated GPOs in FRL 90/90/90 and FRL 120/120/120 Partition

NOTE:

- Only 2 non fire rated GPOs on any wall face per stud panel.

» FIRE RATED STEEL STUD WALLS

ELECTRICAL PENETRATIONS

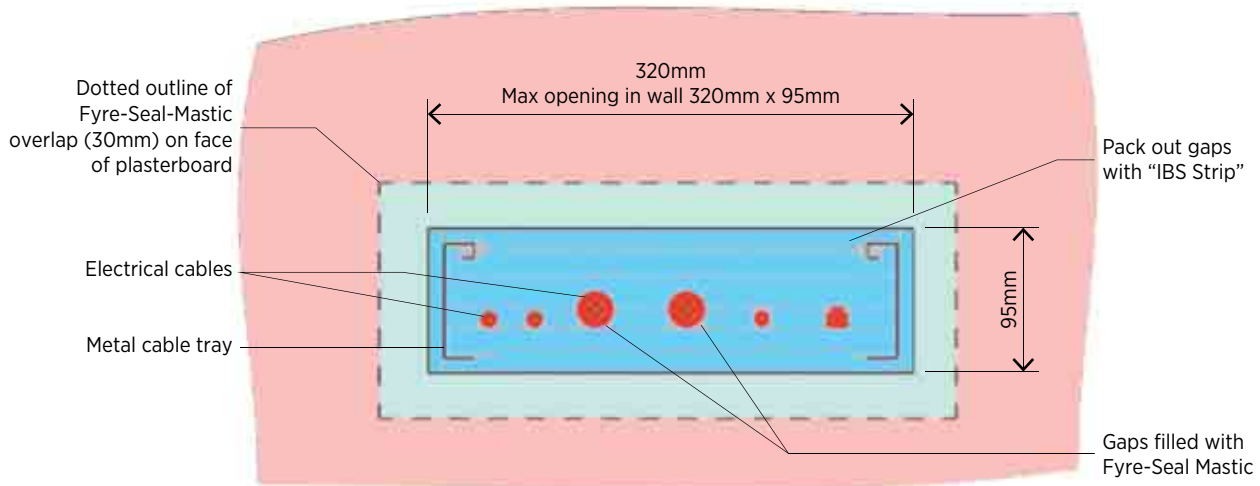


Figure J34: Penetration Detail - Cable Tray - Section Through Tray

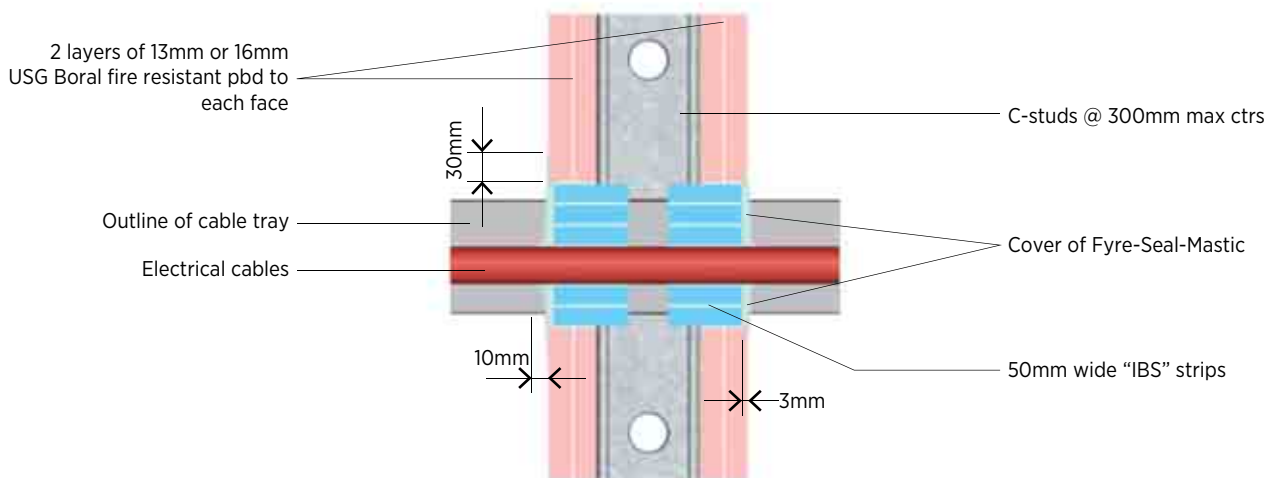


Figure J35: Penetration Detail - Cable Tray - Section Through Wall

NOTE:

- For larger openings refer to penetration manufacturer for details and certification.

» FIRE RATED STEEL STUD WALLS

HVAC PENETRATIONS

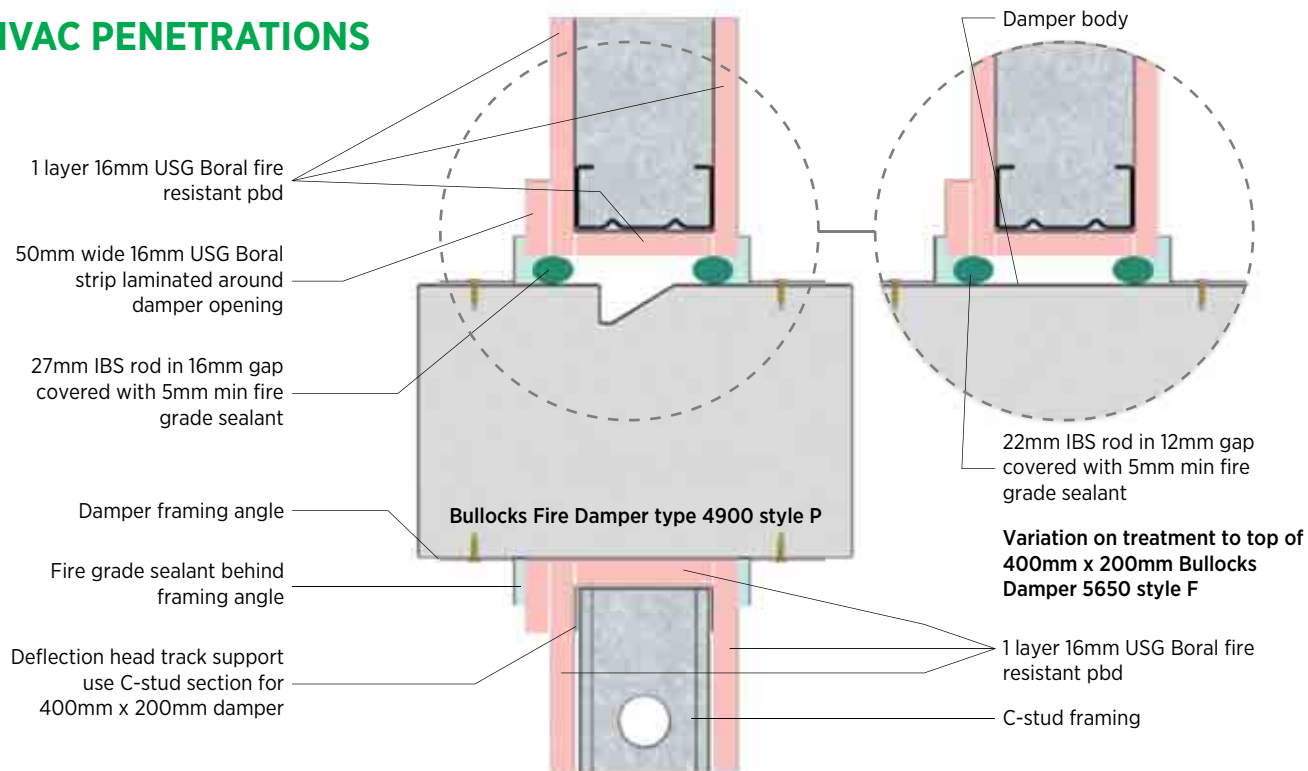


Figure J36: Typical Fire Damper Detail - FRL 60/60/60 Steel Stud Wall

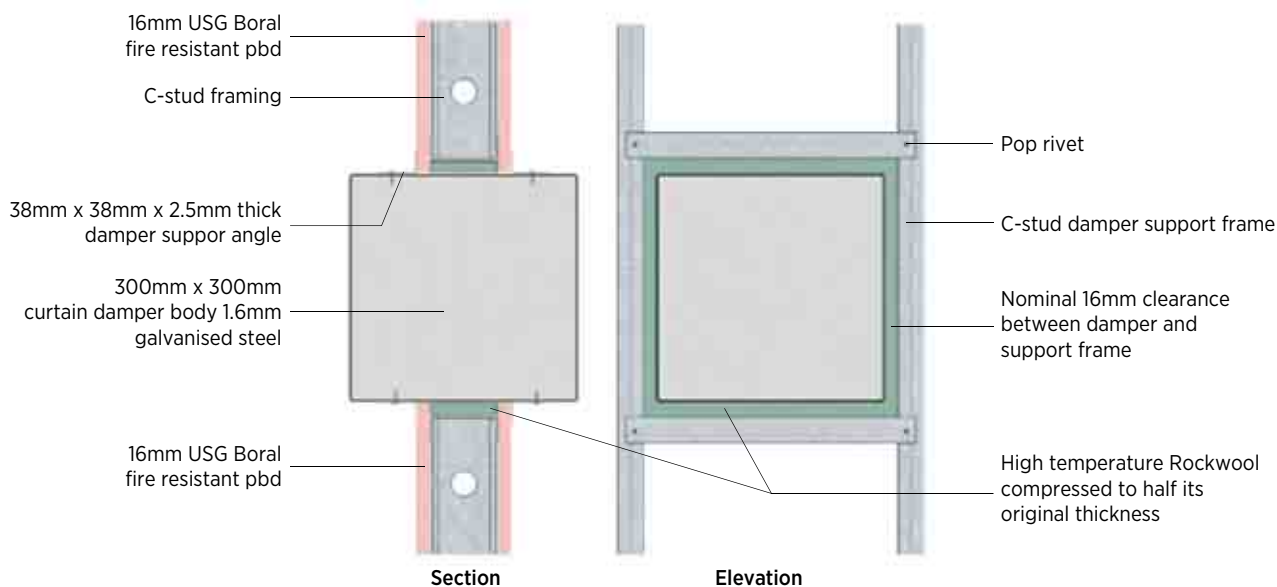


Figure J37: Typical Fire Damper Detail - FRL 60/60/60 Steel Stud Wall

NOTES:

- Damper penetration details on pages J19 and J20 are specific to the type/model of dampers shown. For other damper types/models, refer to the damper manufacturer for penetration details to ensure the fire rating of the wall is maintained.
- Consult with Mechanical and Structural Engineers for details of methods of supporting damper at wall, especially if damper opening exceeds 600mm x 900mm.
- Refer to fire damper manufacturer for alternative or additional fixing details.

» FIRE RATED STEEL STUD WALLS

HVAC PENETRATIONS

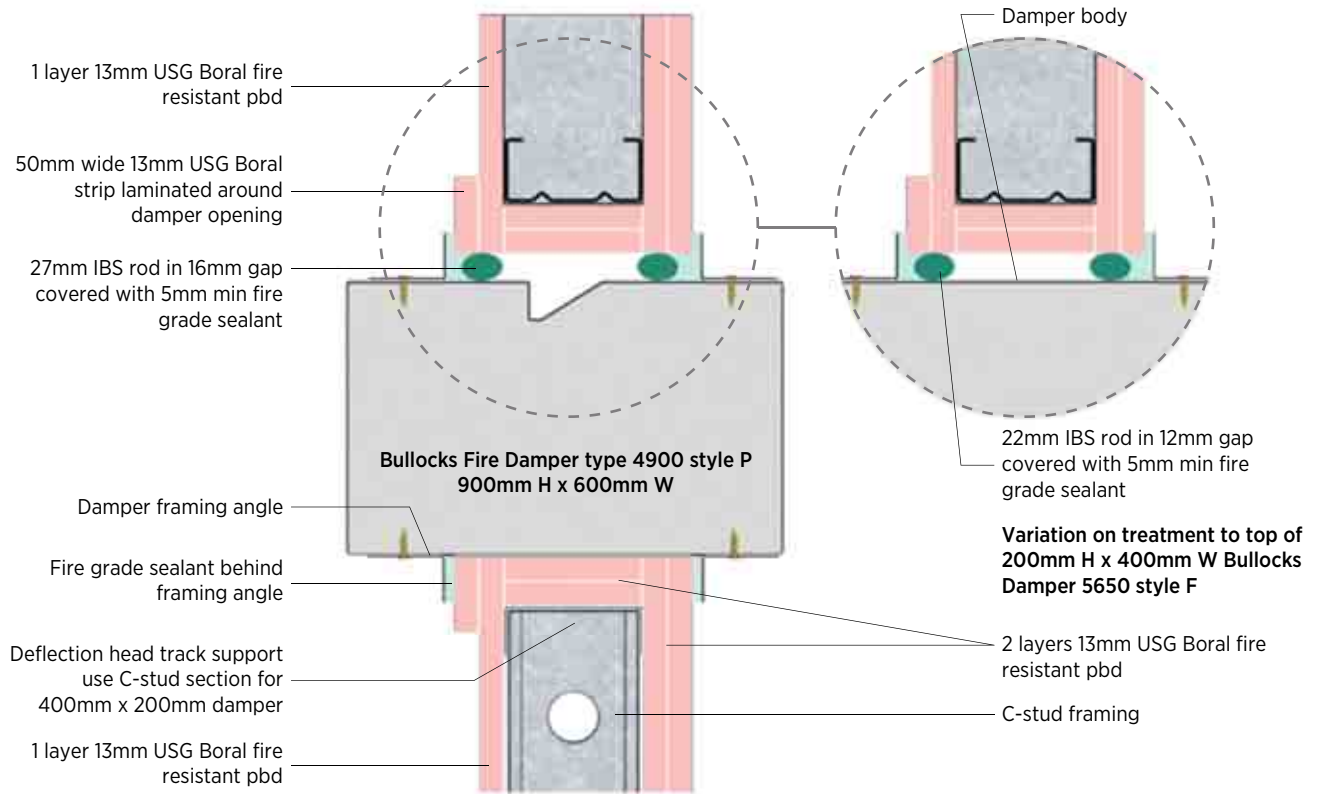


Figure J38: Typical Fire Damper Detail - FRL 90/90/90 Steel Stud Wall

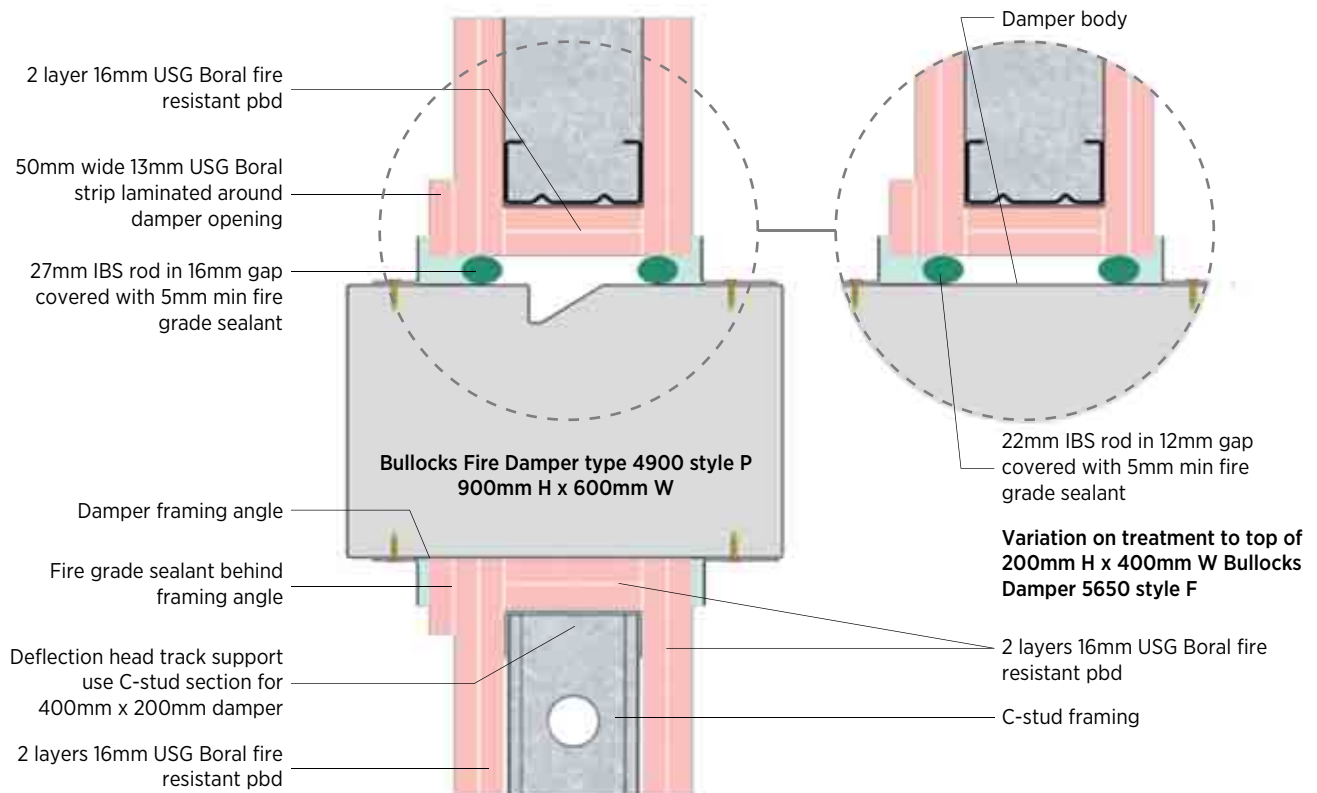


Figure J39: Typical Fire Damper Detail - FRL 120/120/120 Steel Stud Wall

» FIRE RATED STEEL STUD WALLS

HVAC PENETRATIONS

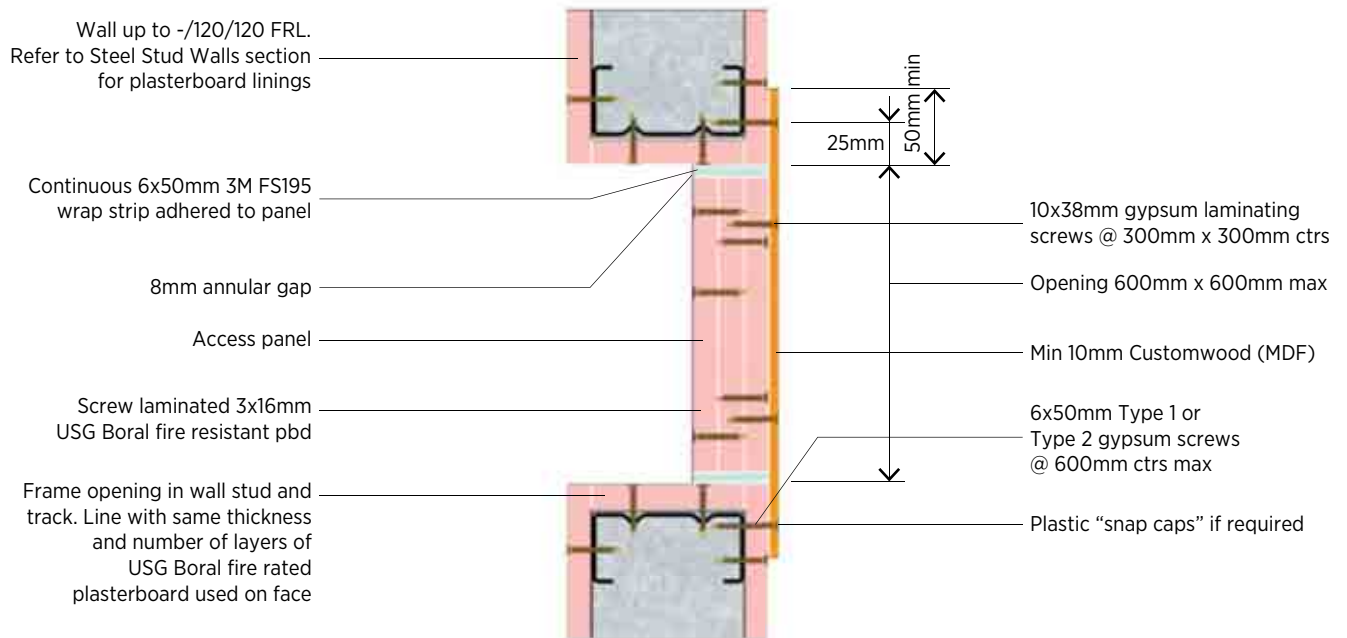


Figure J40: Access Panel Detail

NON-FIRE RATED STEEL STUD WALLS

PLUMBING PENETRATIONS

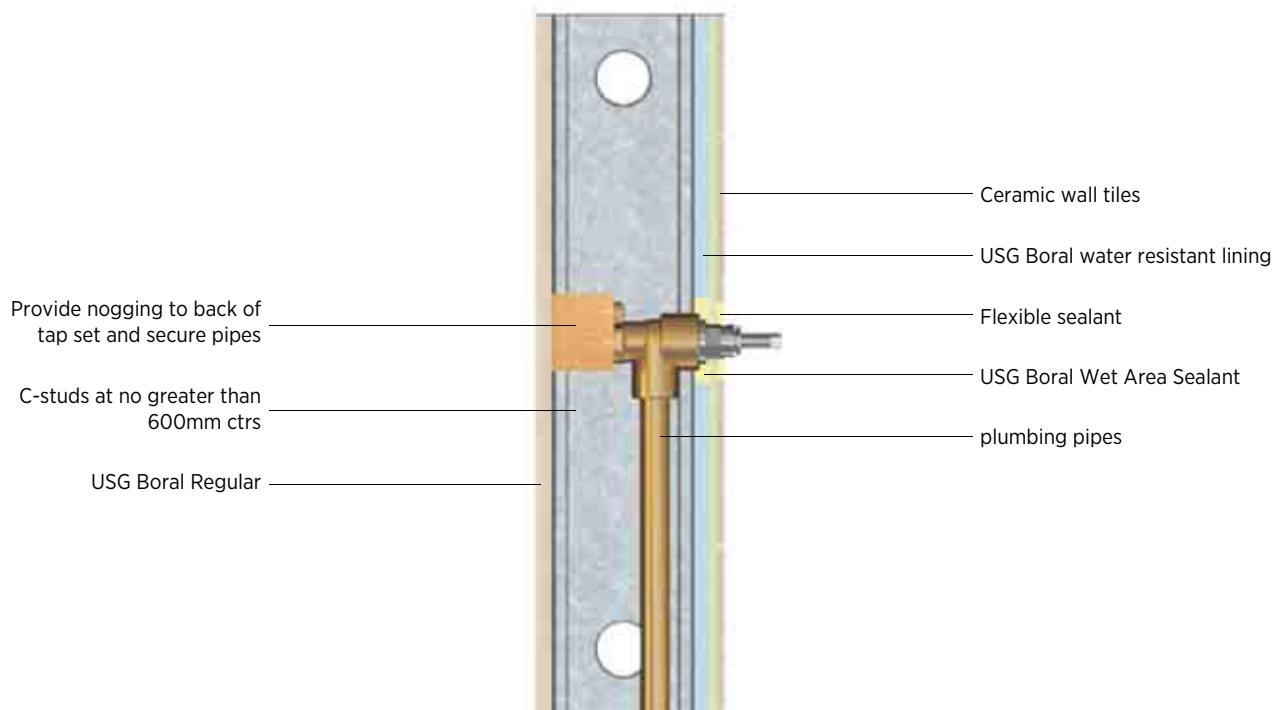


Figure J41: **Typical Plumbing Penetration Detail - Section**

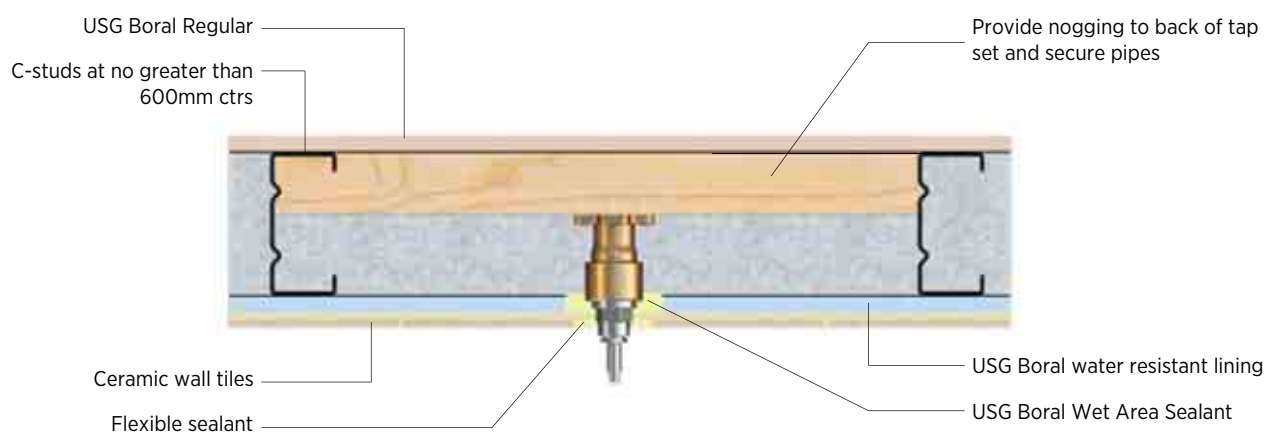


Figure J42: **Typical Plumbing Penetration Detail - Plan**

NOTES:

The following instructions must be followed to achieve satisfactory results:

- Care should be taken to isolate copper pipes away from contact with steel framing to avoid problems with corrosion.
- Linings are not to act as supports for piping.
- Piping is to be kept clear of face sheets.

» NON-FIRE RATED STEEL STUD WALLS

BACK-BLOCKING

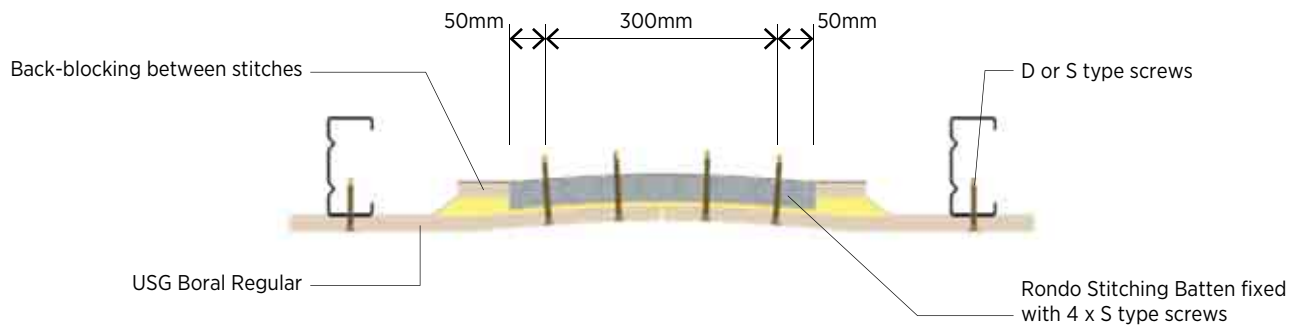


Figure J43: **Back-Blocking Using Stitching Batten Detail**

DOOR DETAILS

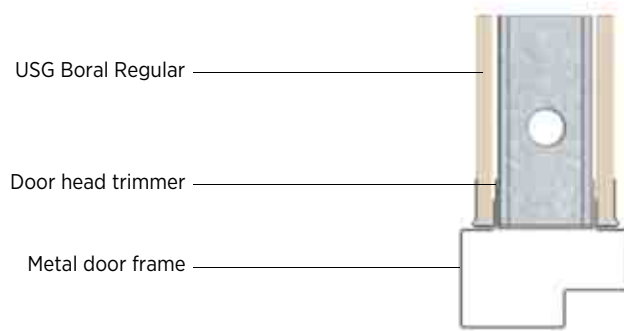


Figure J44: **Door Head Detail - Non-Fire Rated**

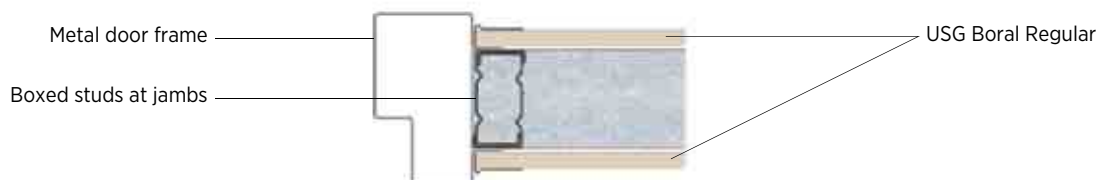


Figure J45: **Door Jamb Detail - Non-Fire Rated**

NOTES:

- Details shown are generic only.
- Check with specific door frame manufacturer for alternative detailing.

» **NON-FIRE RATED STEEL STUD WALLS**

CONTROL JOINTS

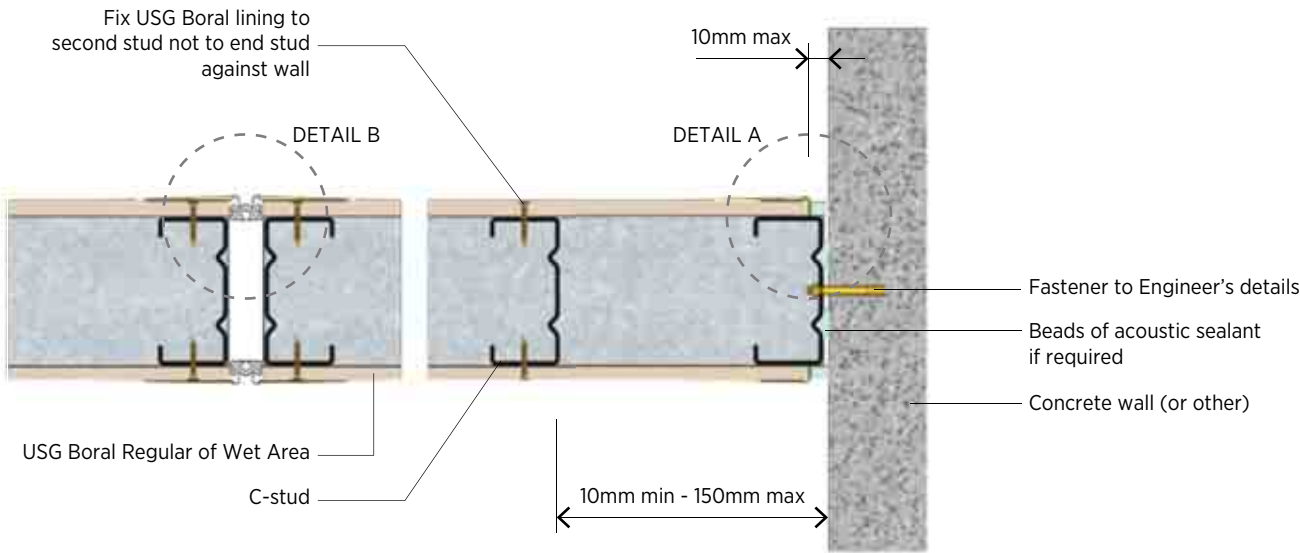


Figure J46: **Control Joint Plan Detail**

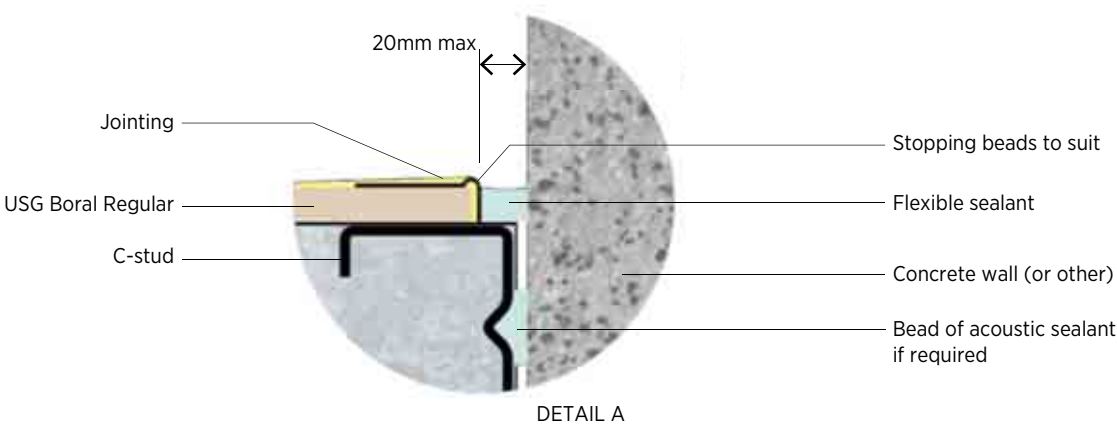


Figure J47: **Control Joint - Detail A**

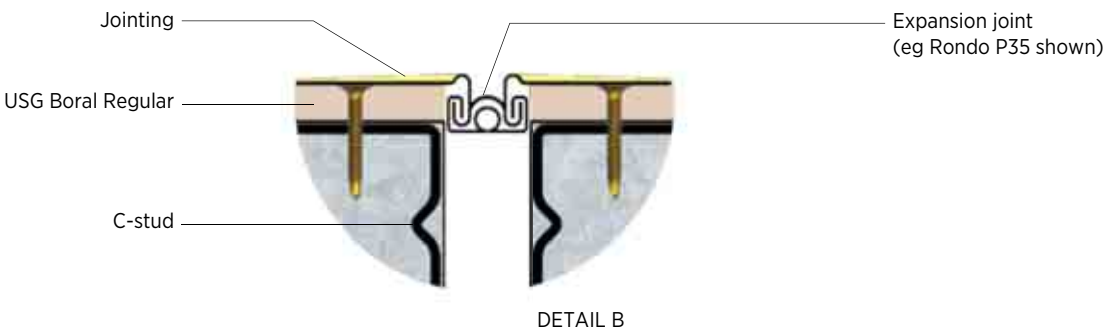


Figure J48: **Control Joint - Detail B**

» NON-FIRE RATED STEEL STUD WALLS

HEAD DETAILS

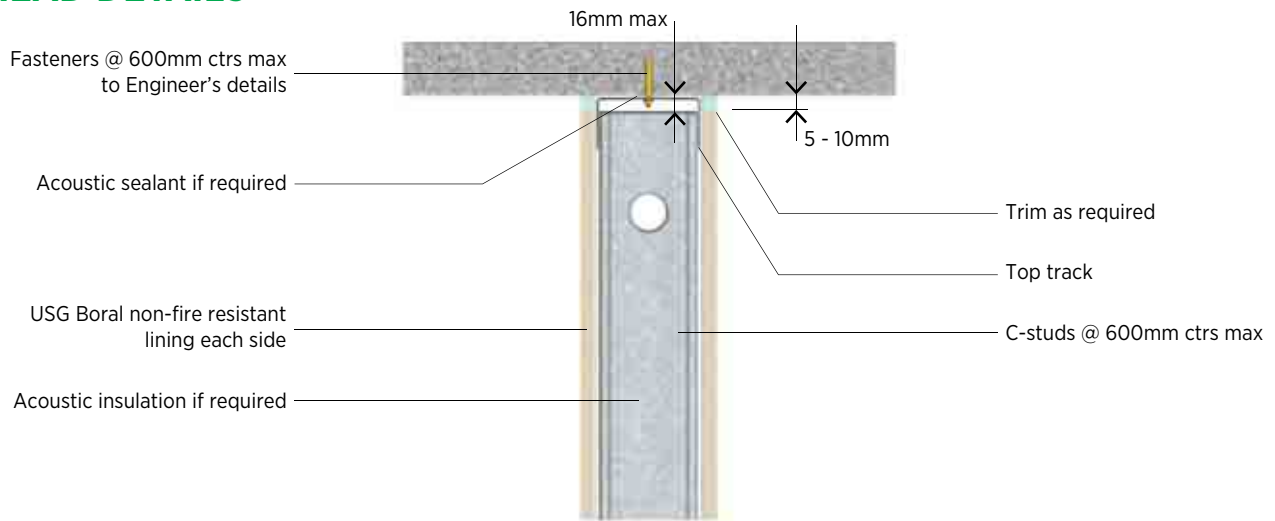


Figure J49: **Standard Non-Fire Rated Wall Head Detail**

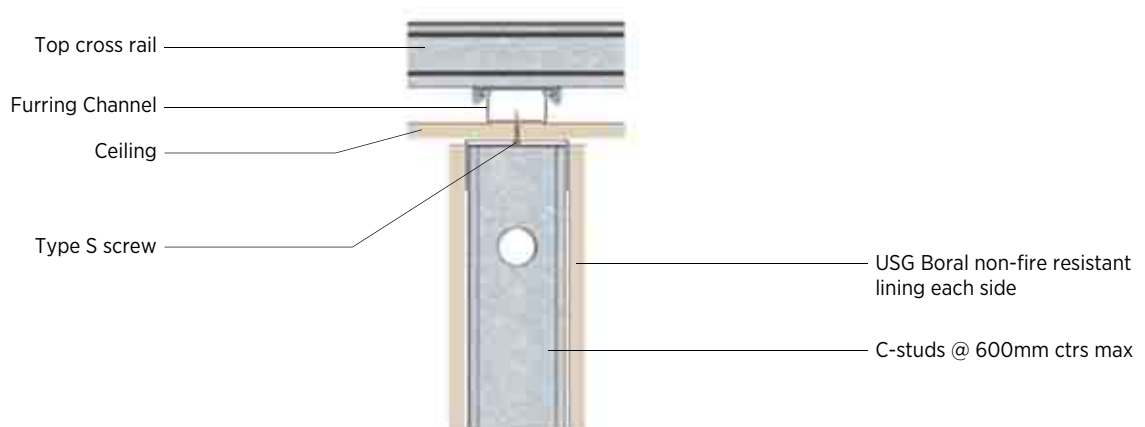


Figure J50: **Wall Head Fixing to Suspended Ceiling Detail - Parallel to Furring**

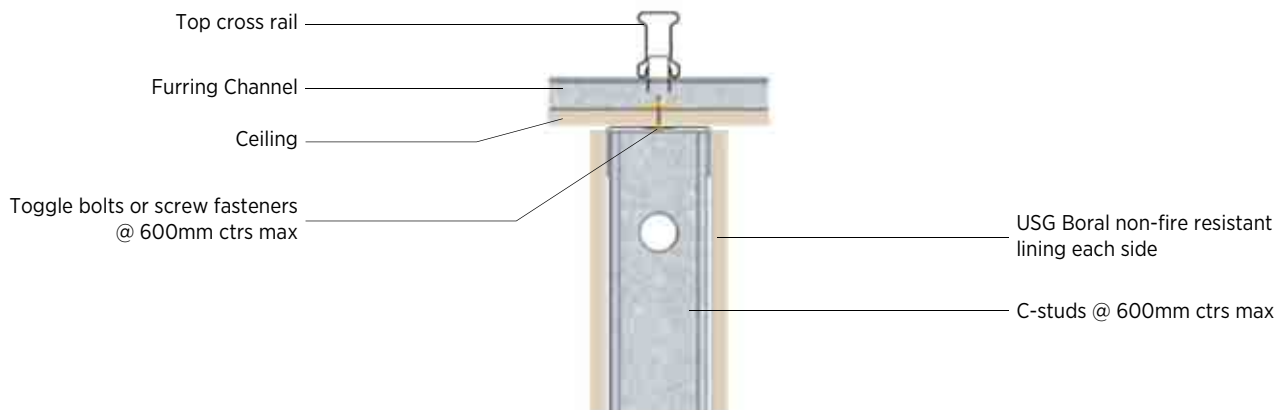


Figure J51: **Wall Head Fixing to Suspended Ceiling Detail - Perpendicular to Furring**

» NON-FIRE RATED STEEL STUD WALLS

BASE DETAILS

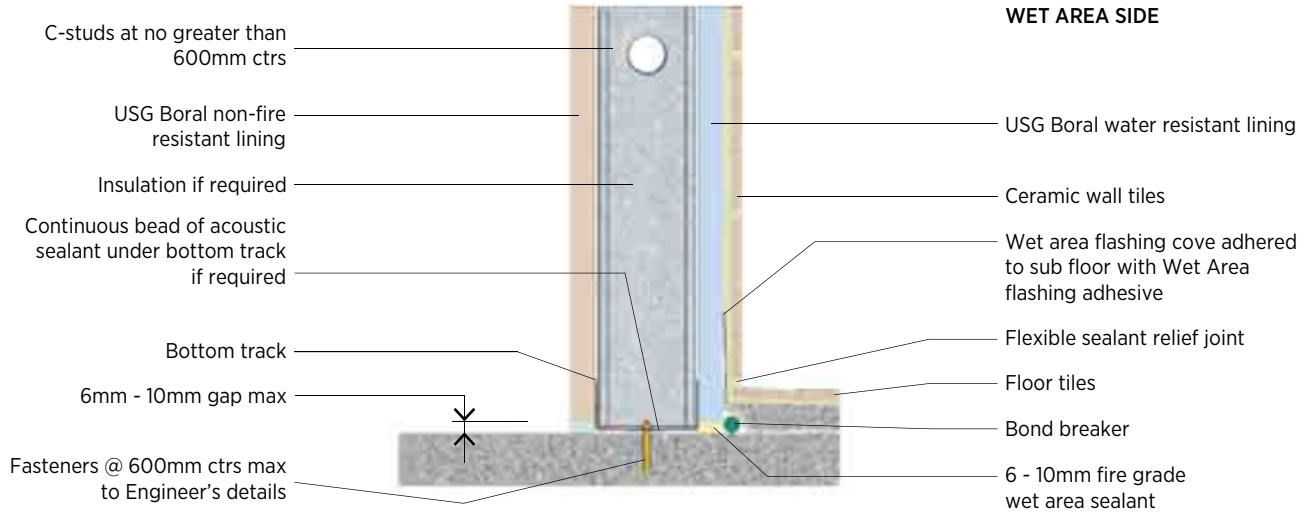


Figure J52: **Standard Non-Fire Rated Wall Base Detail**

FIRE RATED TIMBER STUD WALLS

WALL JUNCTIONS

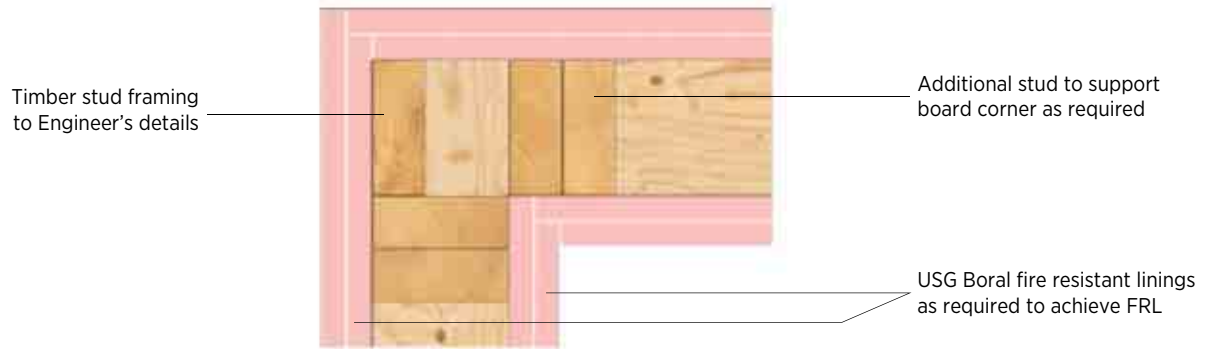


Figure J53: **Single Timber Stud Wall Corner Junction Detail**

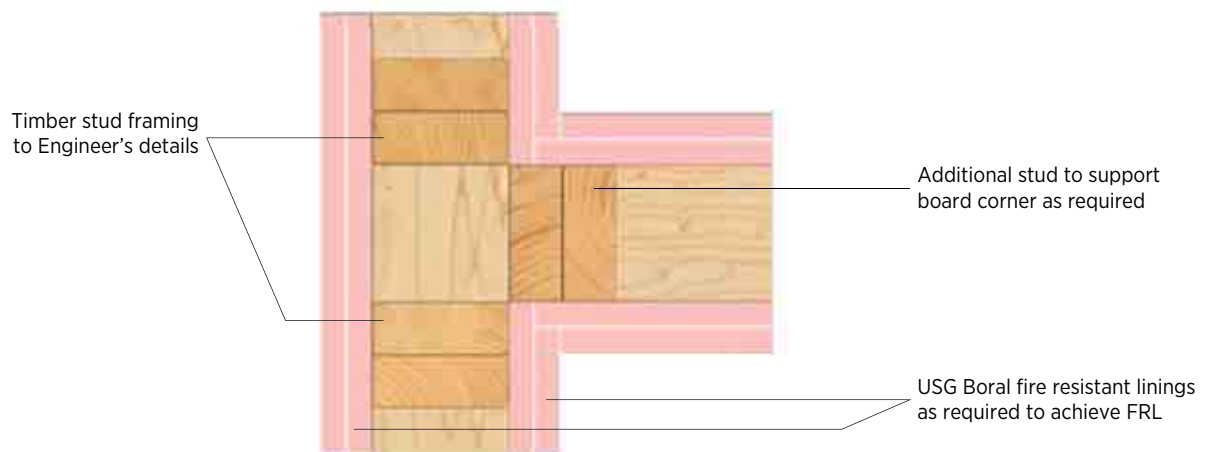


Figure J54: **Single Timber Stud Wall T Junction Detail**

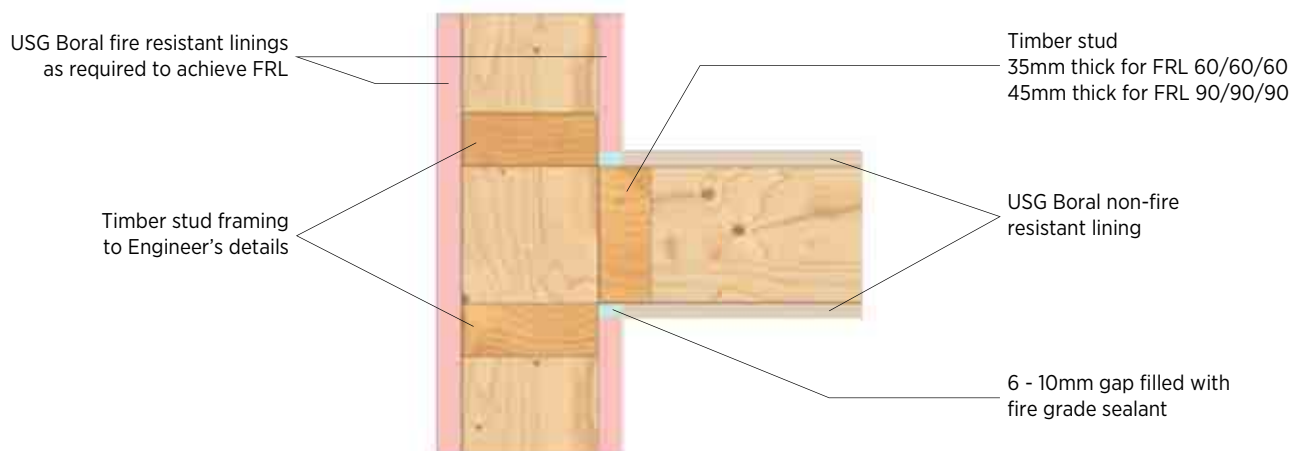


Figure J55: **Single Timber Stud Fire Rated Wall to Non Fire Rated Wall T Junction Detail**

» FIRE RATED TIMBER STUD WALLS

WALL JUNCTIONS

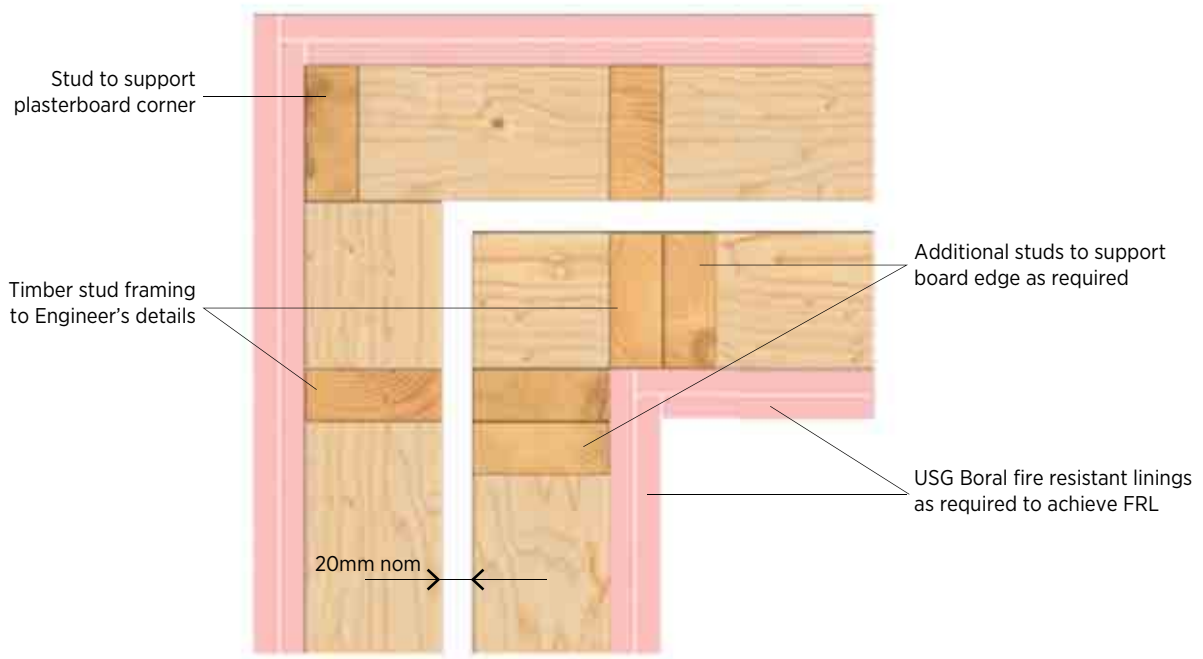


Figure J56: **Twin Timber Stud Wall - Corner Junction Detail**

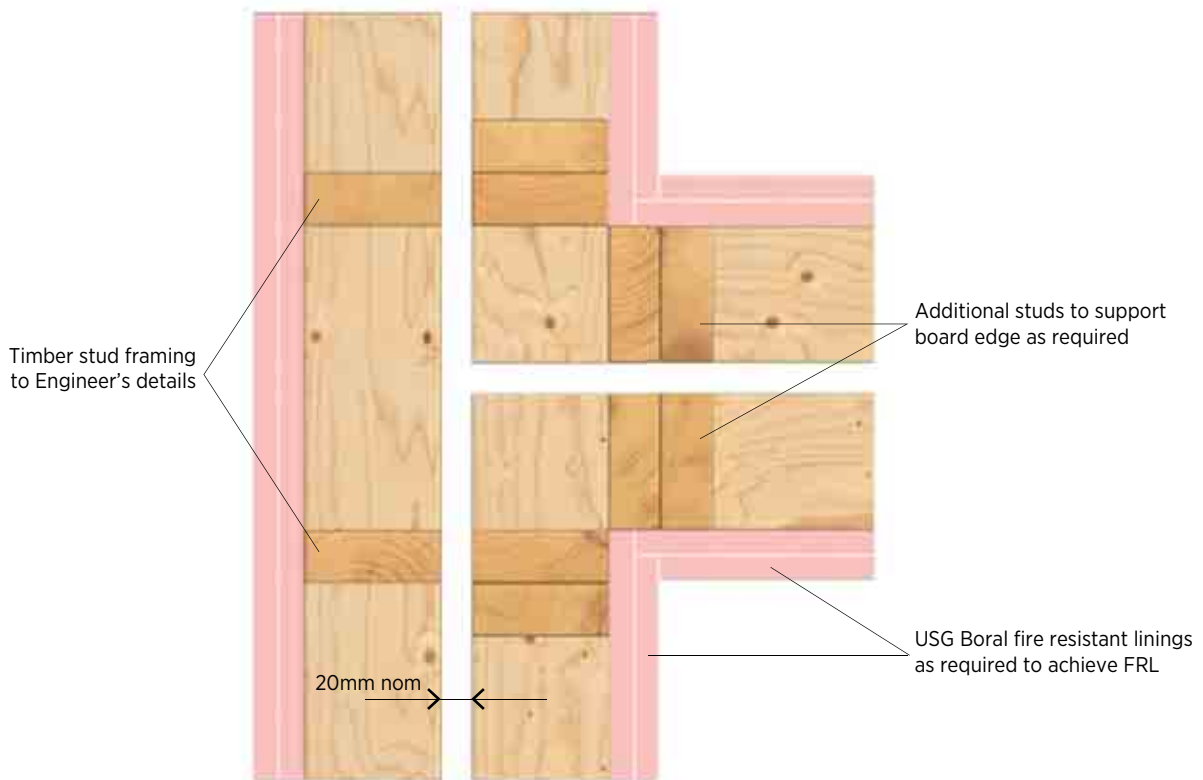


Figure J57: **Twin Timber Stud Wall - T Junction Detail**

» FIRE RATED TIMBER STUD WALLS

WALL JUNCTIONS

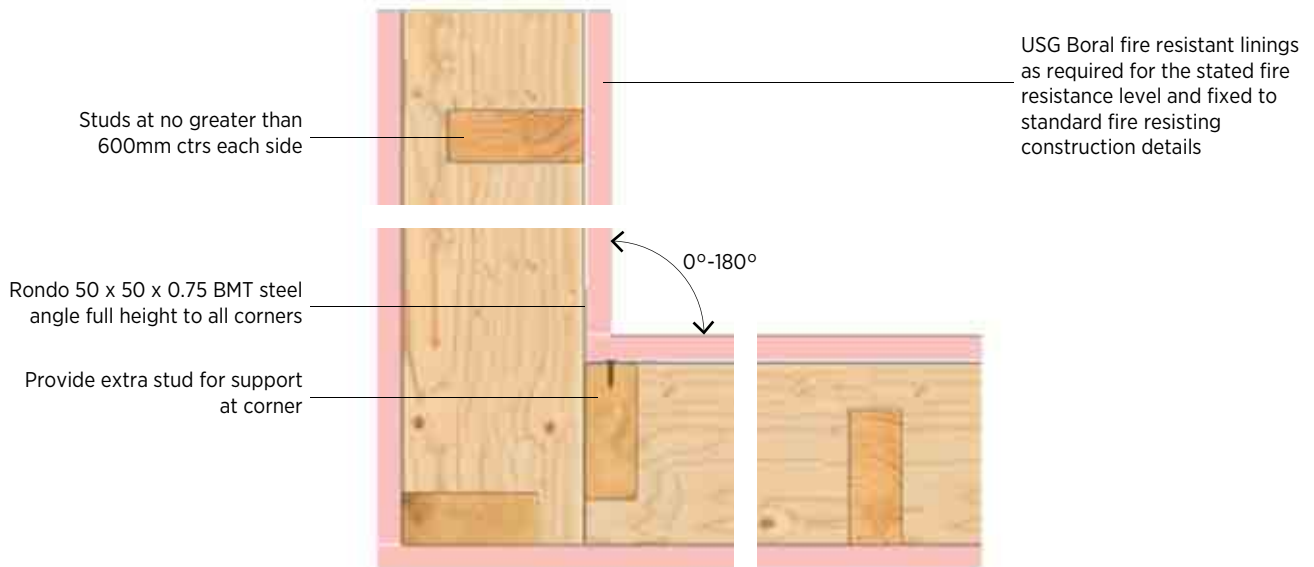


Figure J58: **Staggered Timber Stud Wall - Corner Junction Detail**

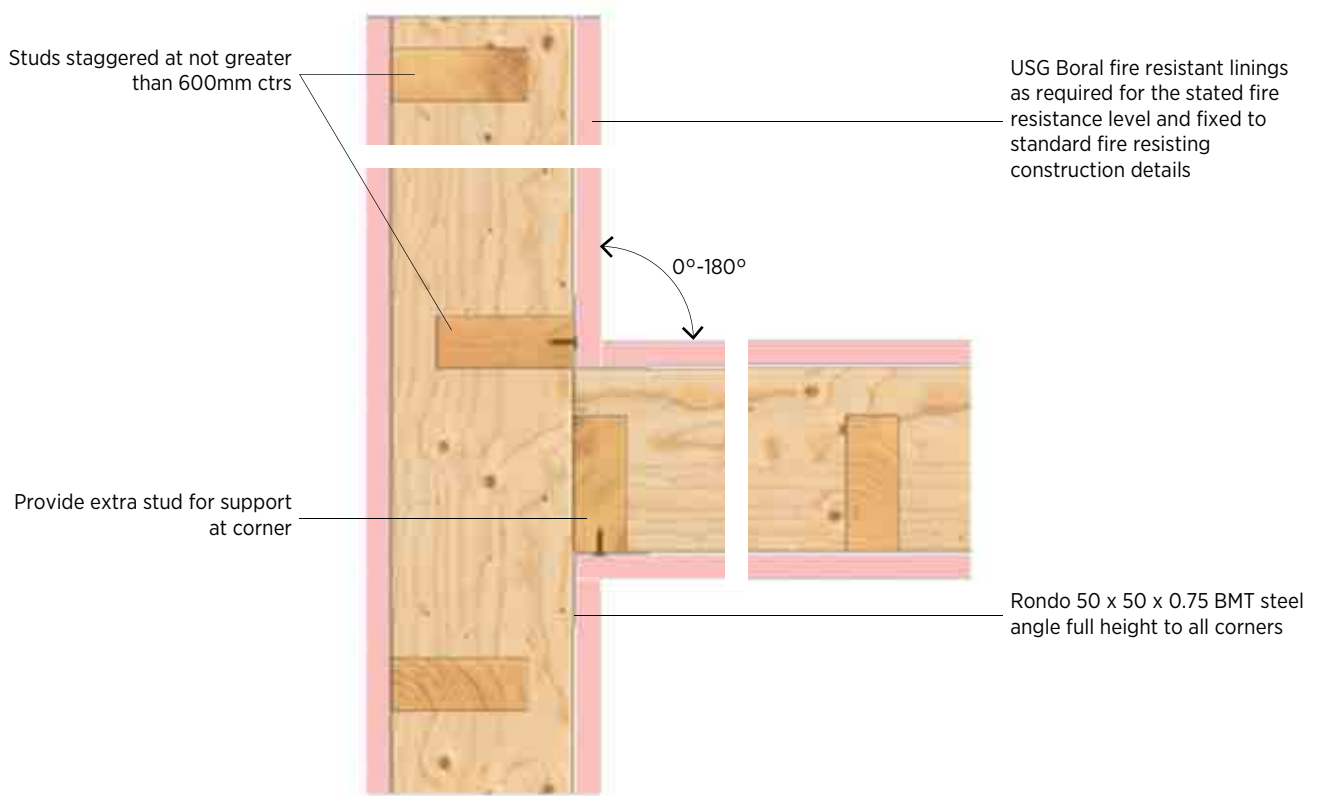


Figure J59: **Staggered Timber Stud Wall - T Junction Detail**

» FIRE RATED TIMBER STUD WALLS

BASE DETAIL

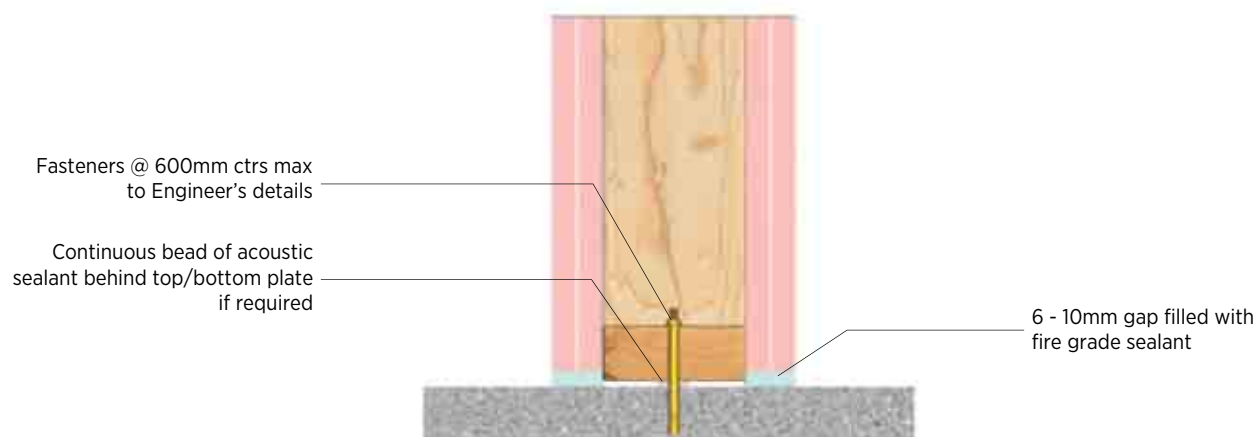


Figure J60: **Standard Timber Stud Wall - Base Detail**

» FIRE RATED TIMBER STUD WALLS

HEAD DETAILS

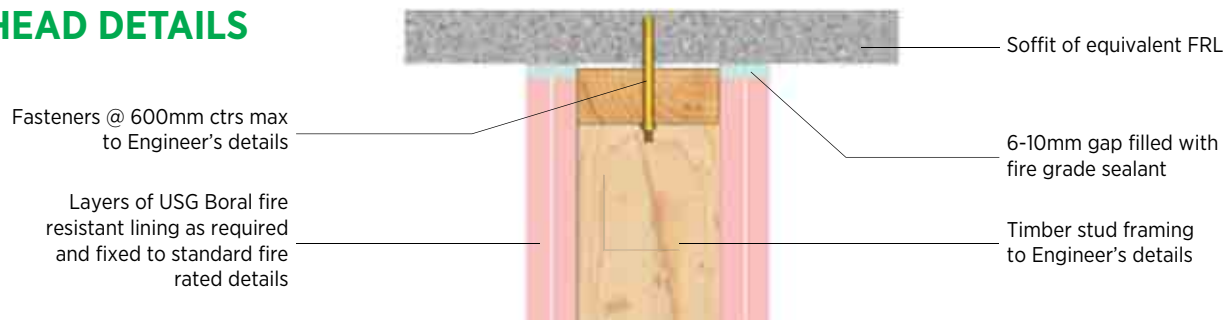


Figure J61: Standard Timber Stud Wall - Head Detail

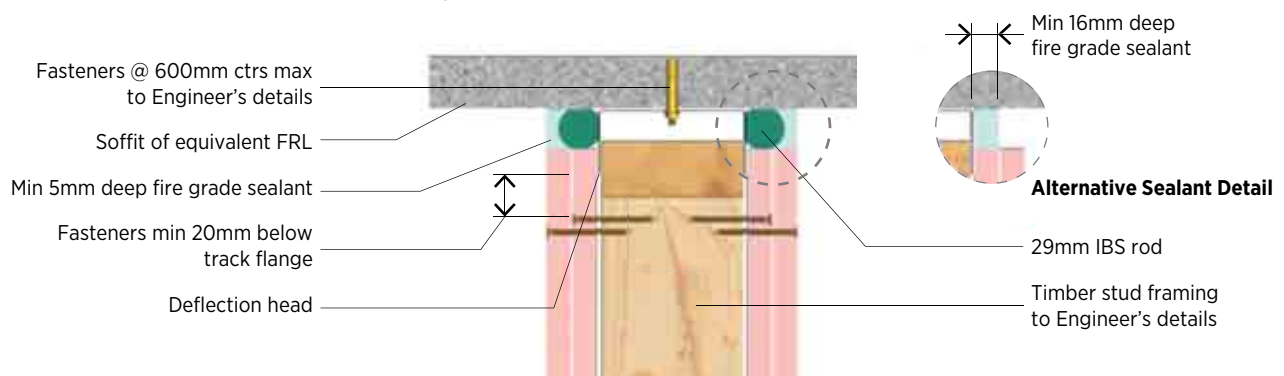


Figure J62: Standard Timber Stud Wall - Deflection Head Detail

NOTES:

- Maximum FRL 120/120/120.
- Caulk all gaps with Boral Cornice Adhesive or fire grade sealant.
- Head track reaction and fastenings to Engineer's designs.

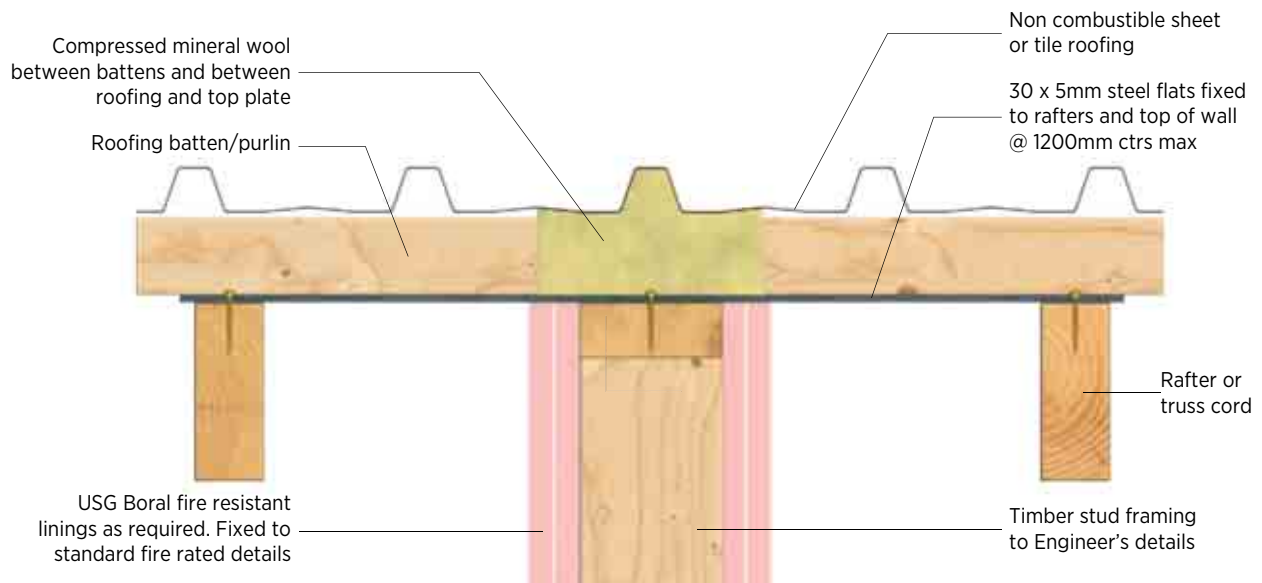


Figure J63: Standard Timber Stud Wall - Head to Roof Junction Detail

NOTE:

- Maximum FRL 120/120/120.

» FIRE RATED TIMBER STUD WALLS

ACOUSTIC DETAILS

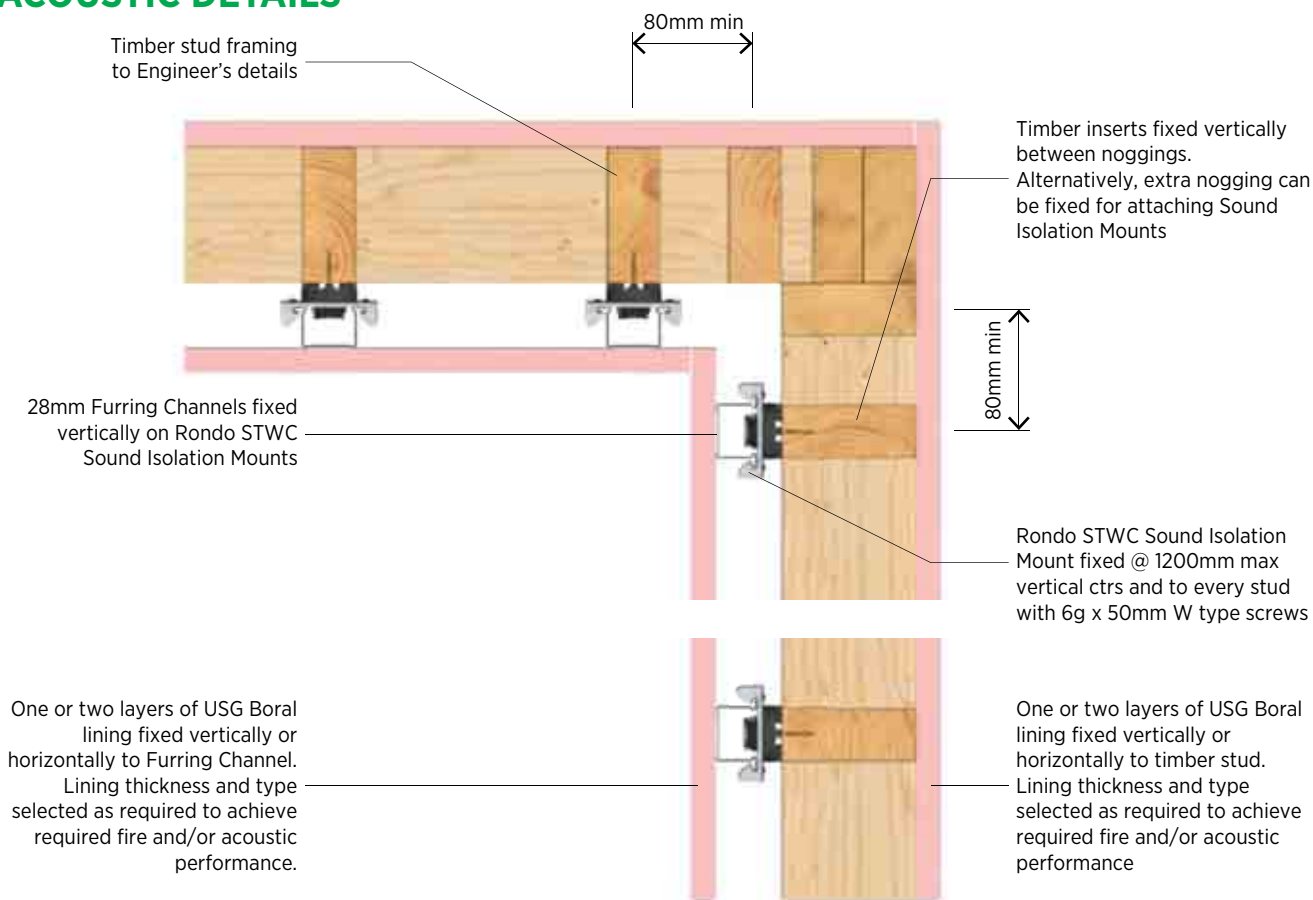


Figure J64: **Sound Isolation Mount - Corner Detail**

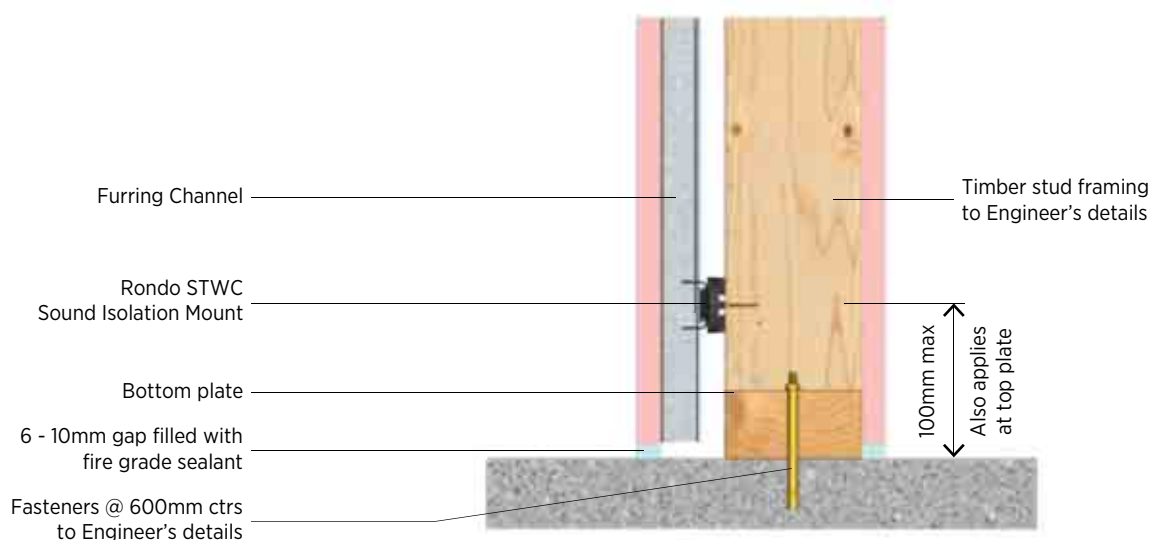


Figure J65: **Sound Isolation Mount - Base Detail**

FIRE RATED CEILINGS

BACK-BLOCKING

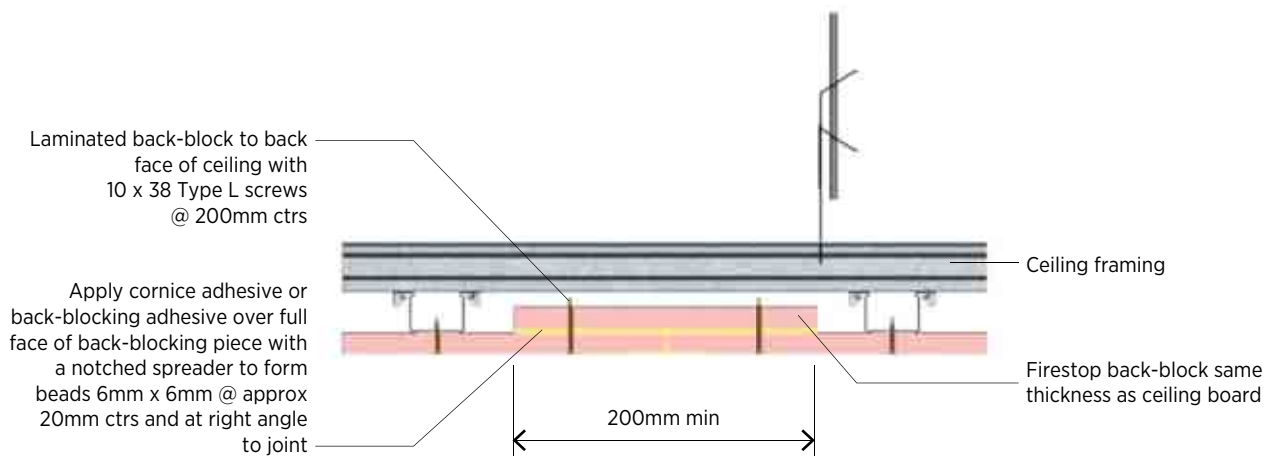


Figure J66: **Single Layer Back-block Detail**

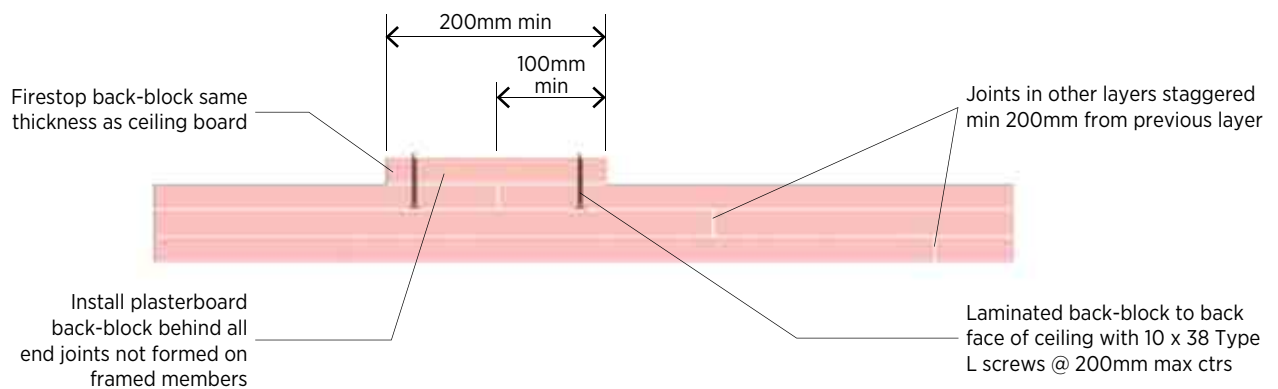


Figure J67: **Multi Layer Back-block Detail**

» FIRE RATED CEILINGS

PERIMETER

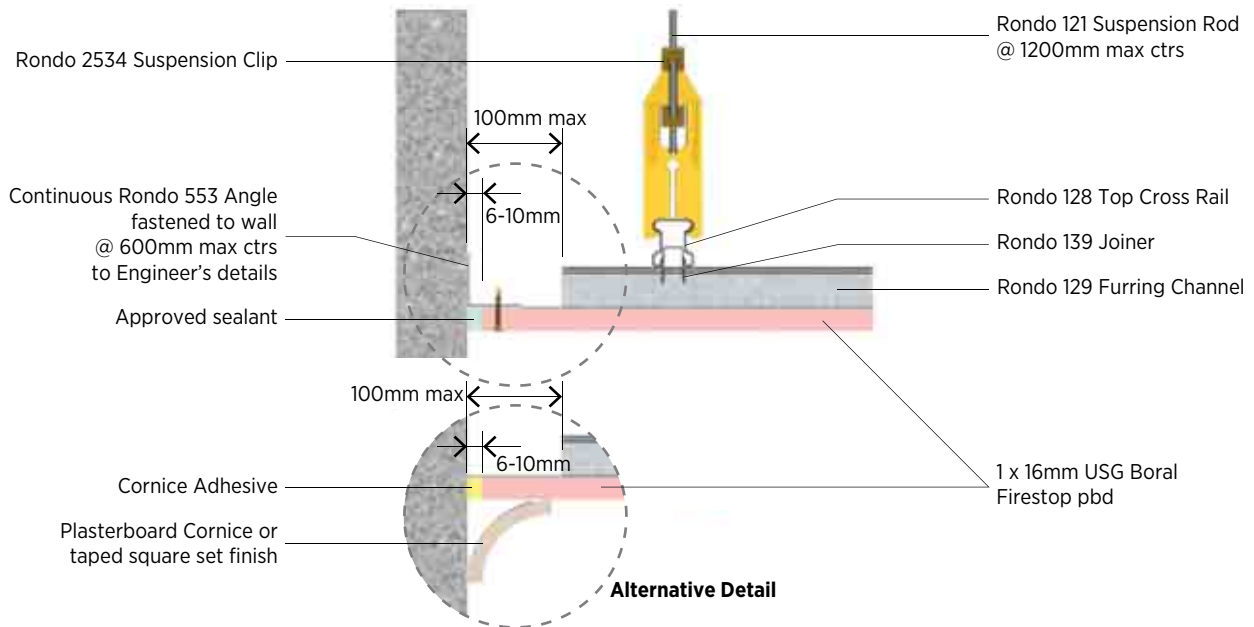


Figure J68: **Typical Perimeter Detail - FRL 30/30/30**

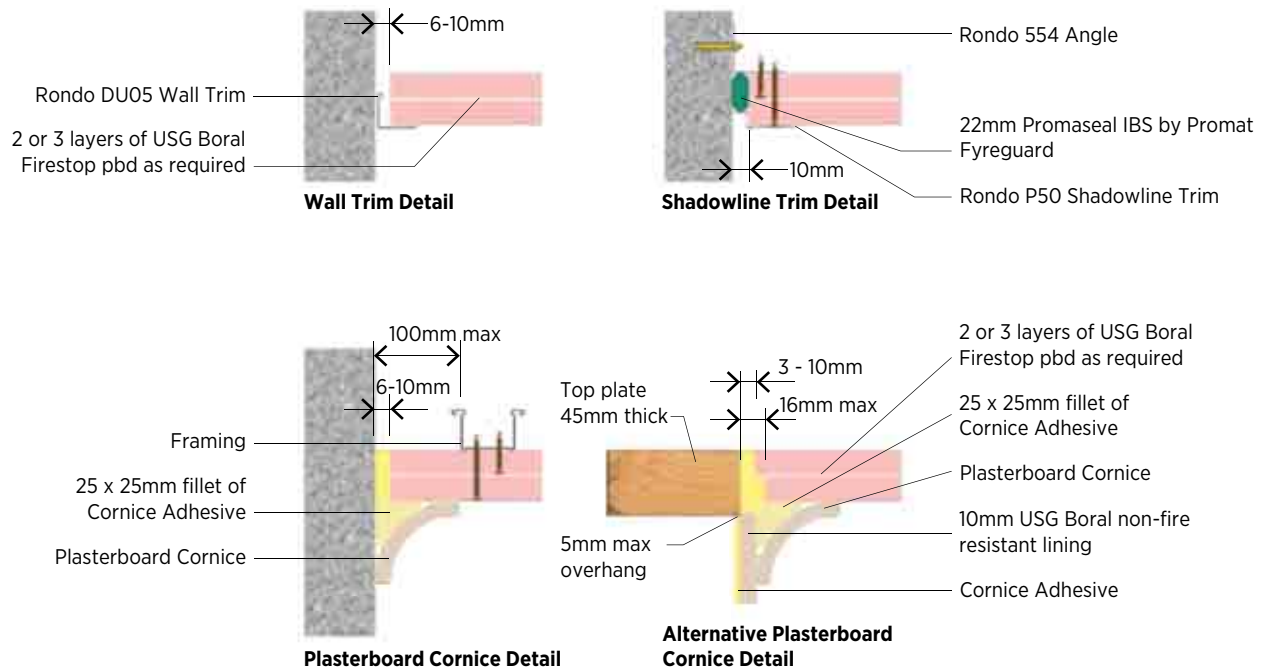


Figure J69: **Typical Perimeter Detail - FRL 60/60/60**

» FIRE RATED CEILINGS

PERIMETER

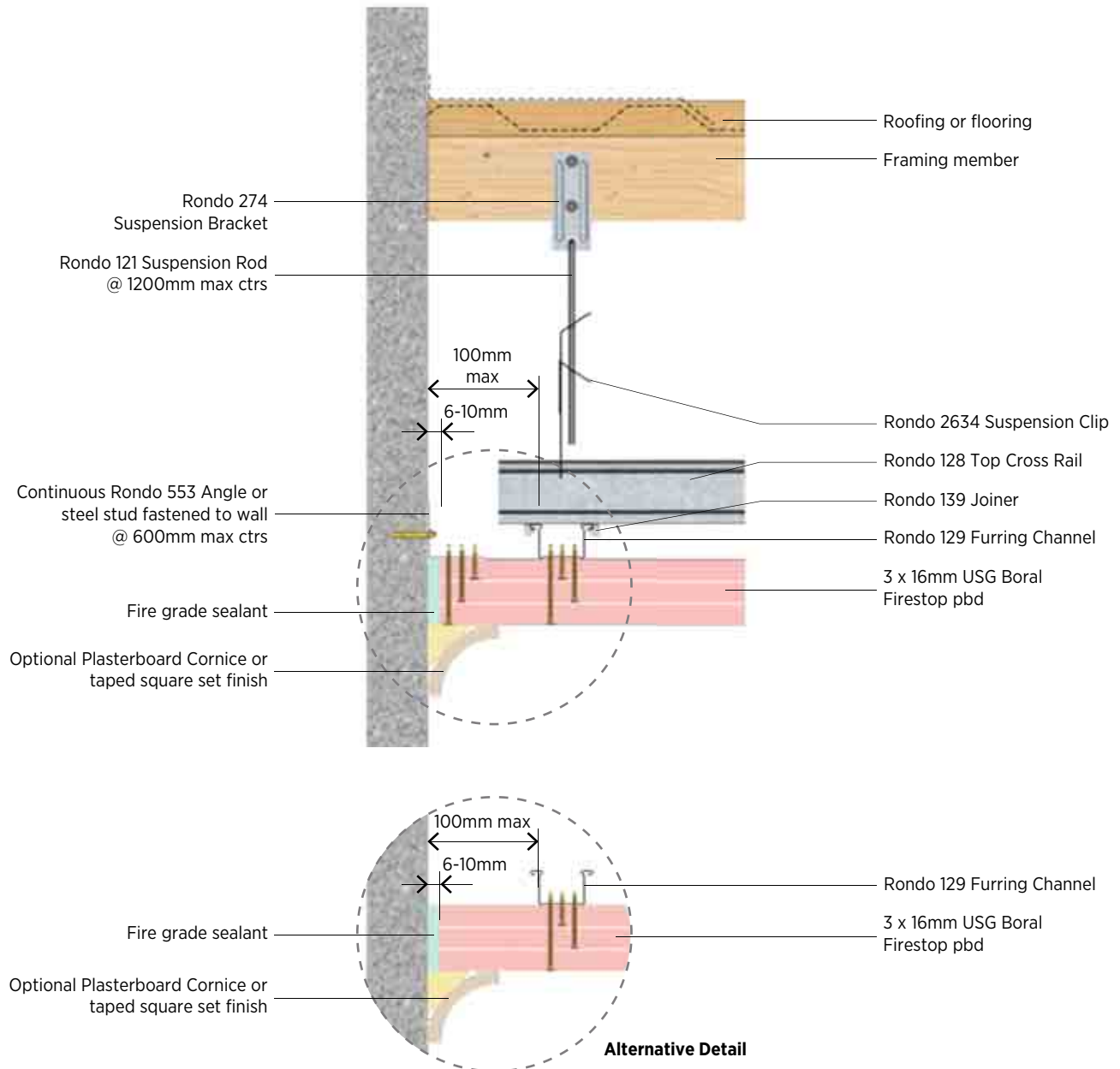


Figure J70: Typical Perimeter Detail - FRL 90/90/90

» FIRE RATED CEILINGS

PERIMETER

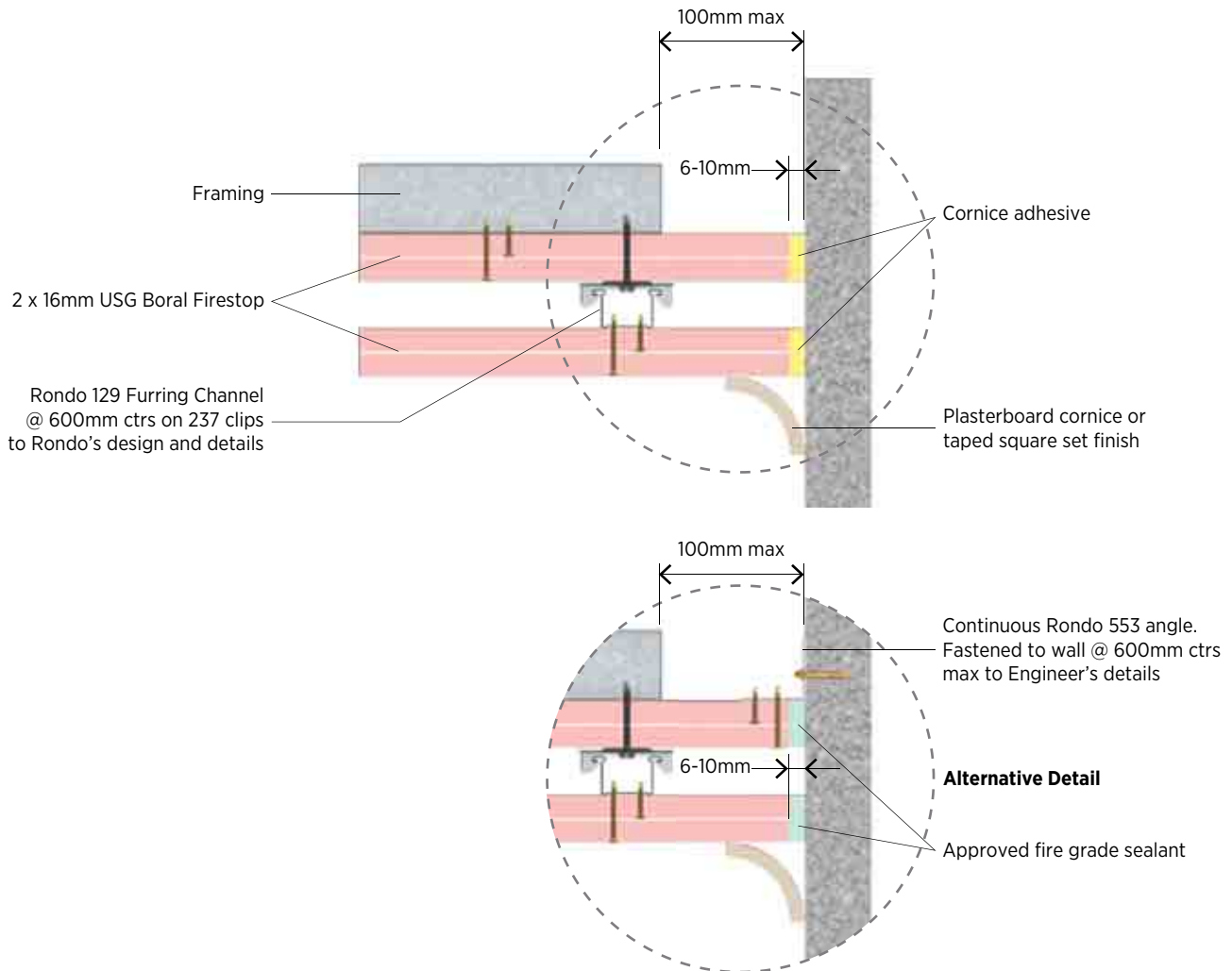


Figure J71: **Typical Perimeter Detail - FRL 120/120/120**

» FIRE RATED CEILINGS

BULKHEAD

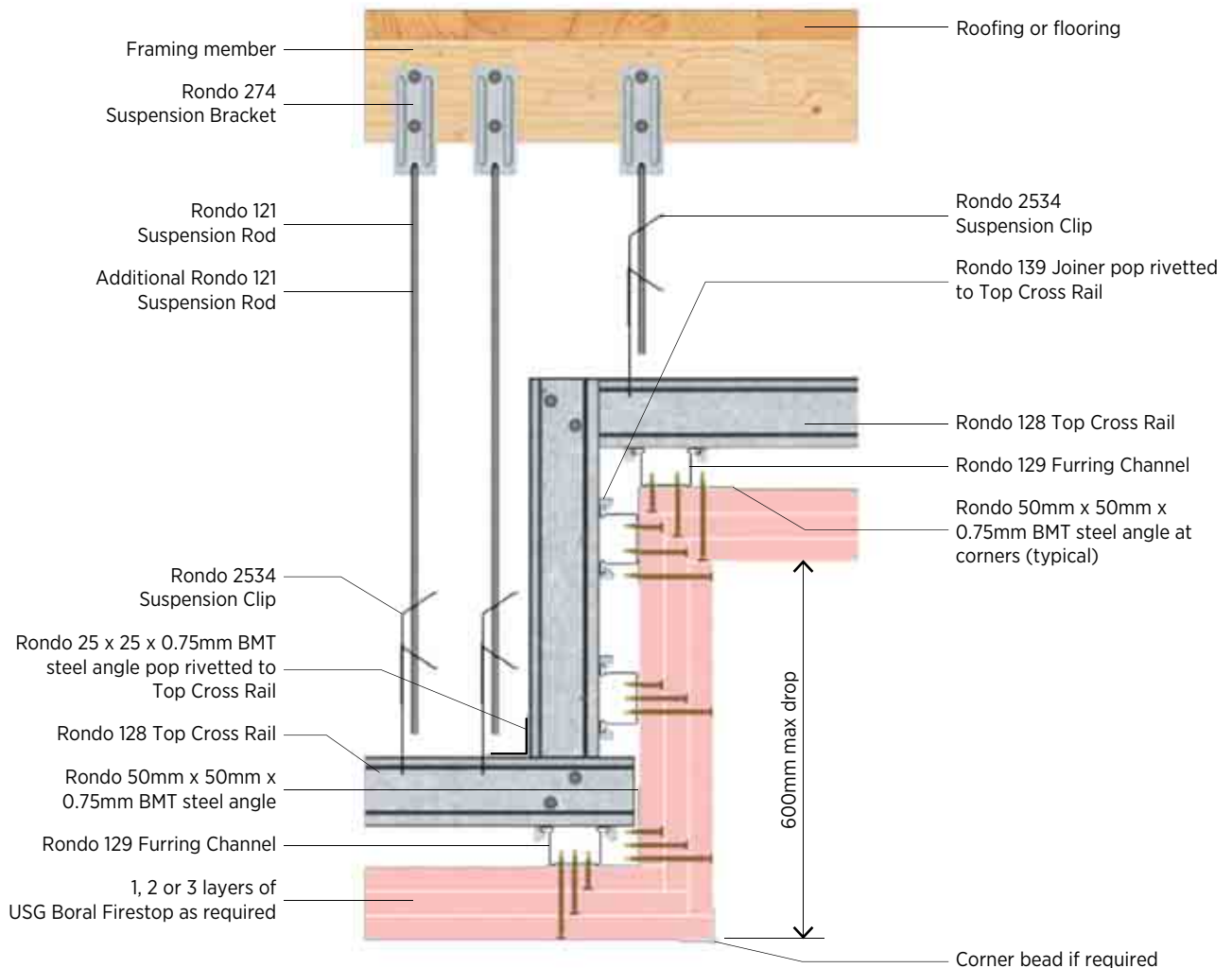


Figure J72: **Typical Bulkhead Detail**

» FIRE RATED CEILINGS

MOVEMENT/CONTROL JOINTS

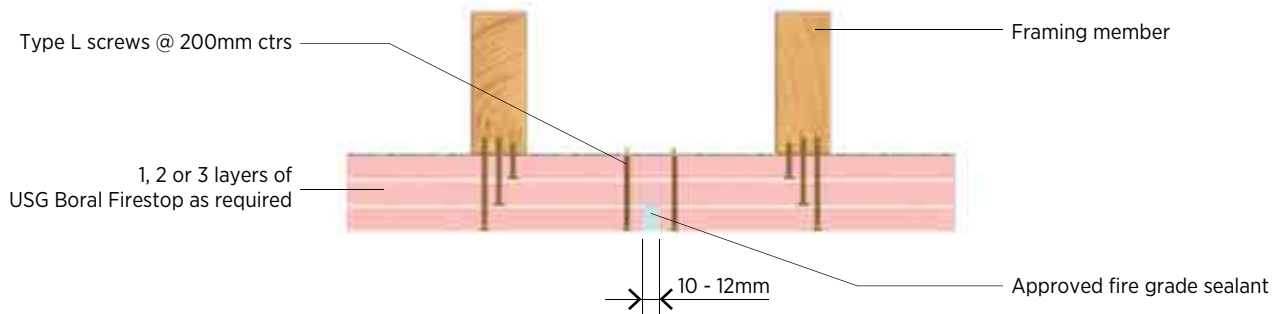


Figure J73: Typical Control Joint Detail

NOTES:

- Locate joint centrally between framing members when parallel to framing.
- Minimum of one layer of USG Boral Firestop plasterboard continuous over joint.
- Ensure single layer system is back blocked.

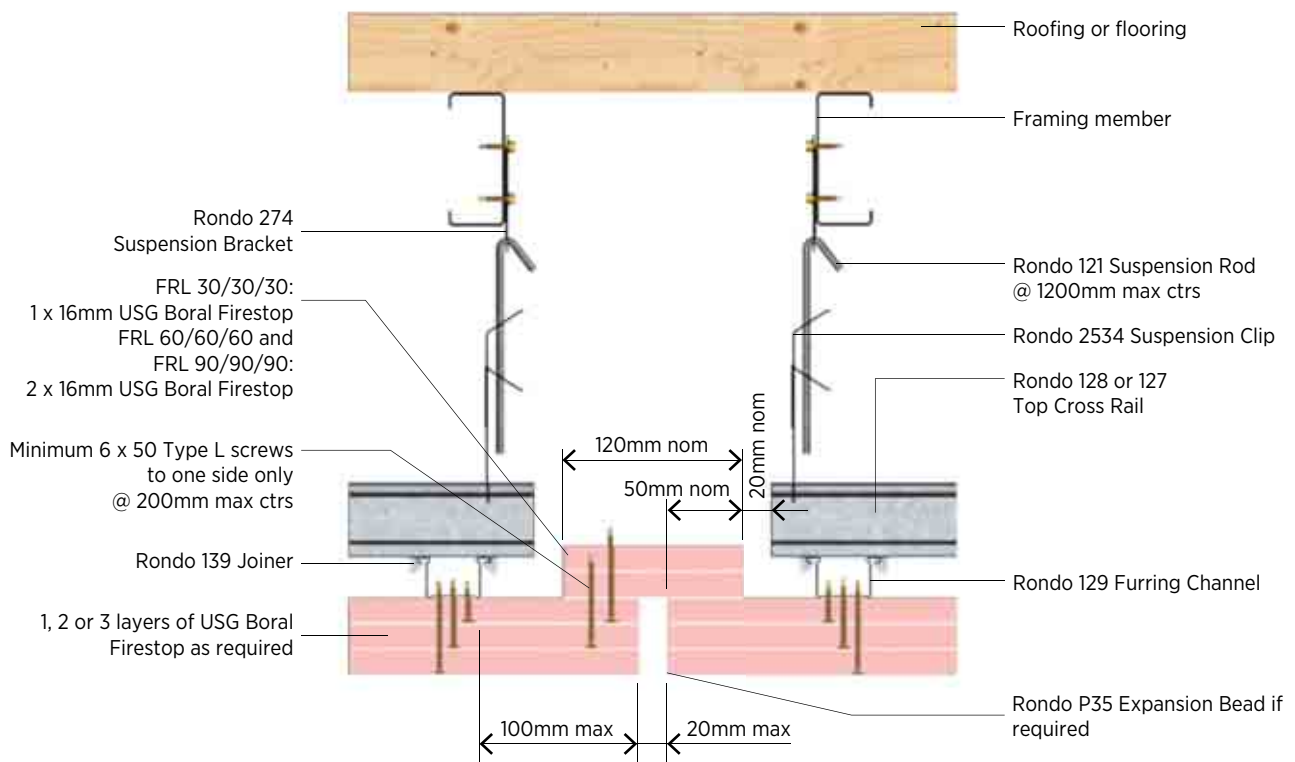


Figure J74: Typical Movement Joint Detail

» FIRE RATED CEILINGS

LIGHTS

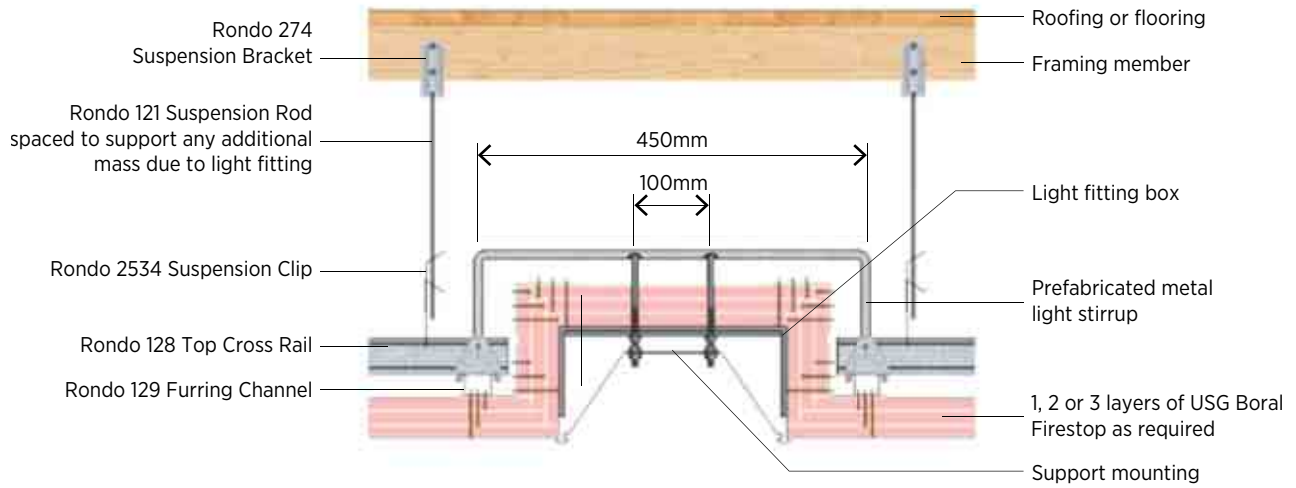


Figure J75: **Typical Light Recess Detail**

» FIRE RATED CEILINGS

ELECTRICAL AND LOADED PENETRATIONS

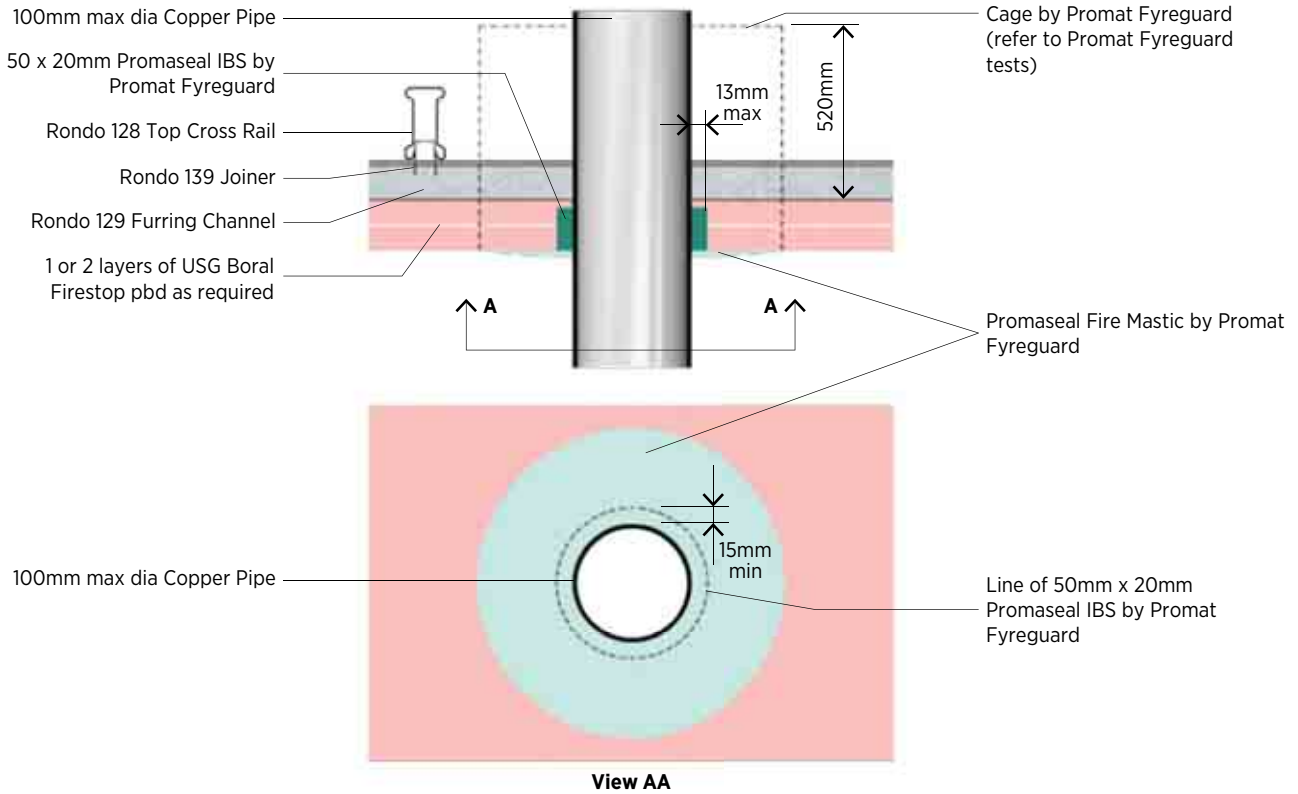


Figure J76: **Typical Copper Pipe Penetration - FRL 30/30/30 and FRL 60/60/60**

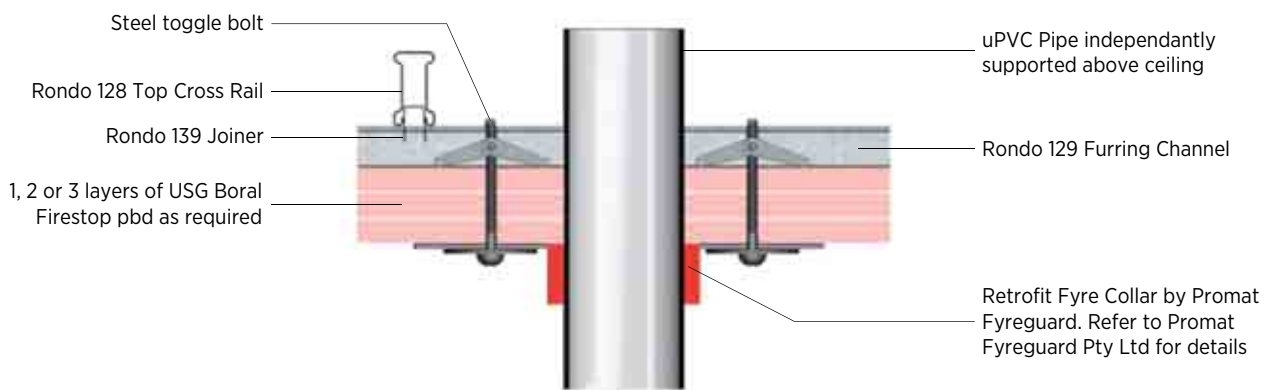


Figure J77: **Typical uPVC Pipe Penetration**

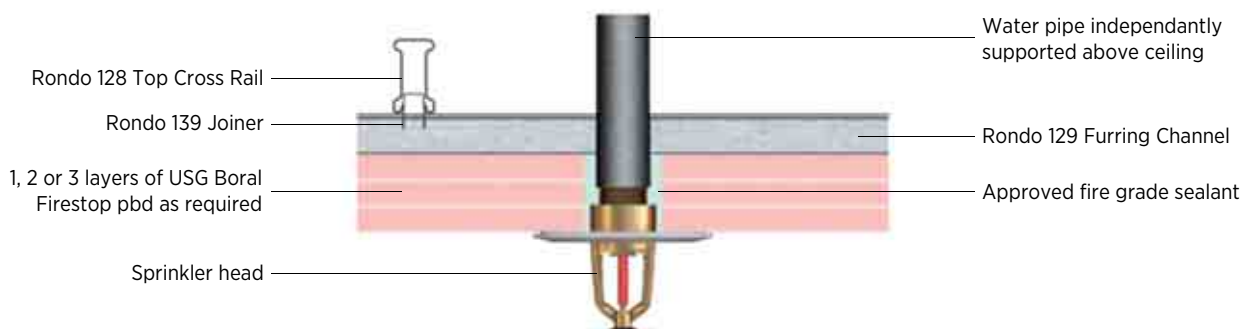


Figure J78: **Typical Sprinkler Pipe Penetration**

» FIRE RATED CEILINGS

PLUMBING PENETRATIONS

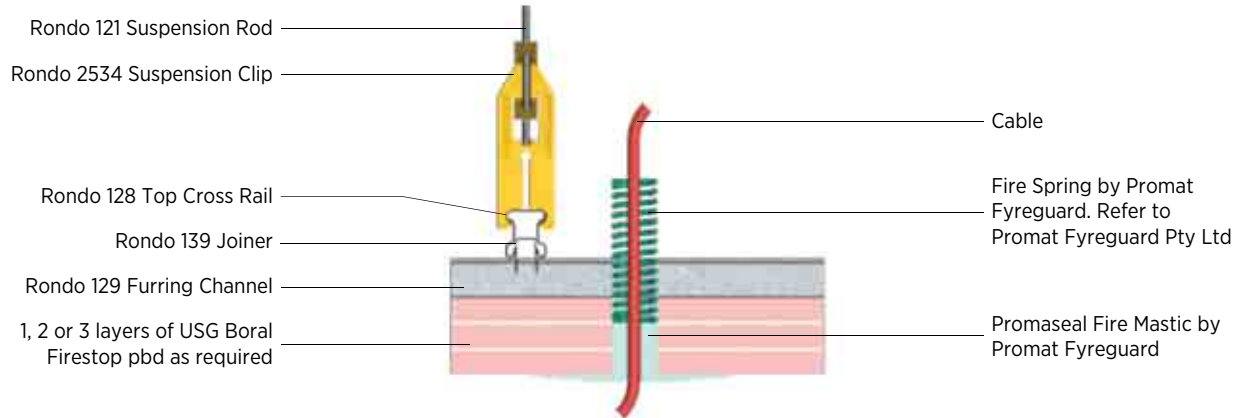


Figure J79: Cable Penetration Detail

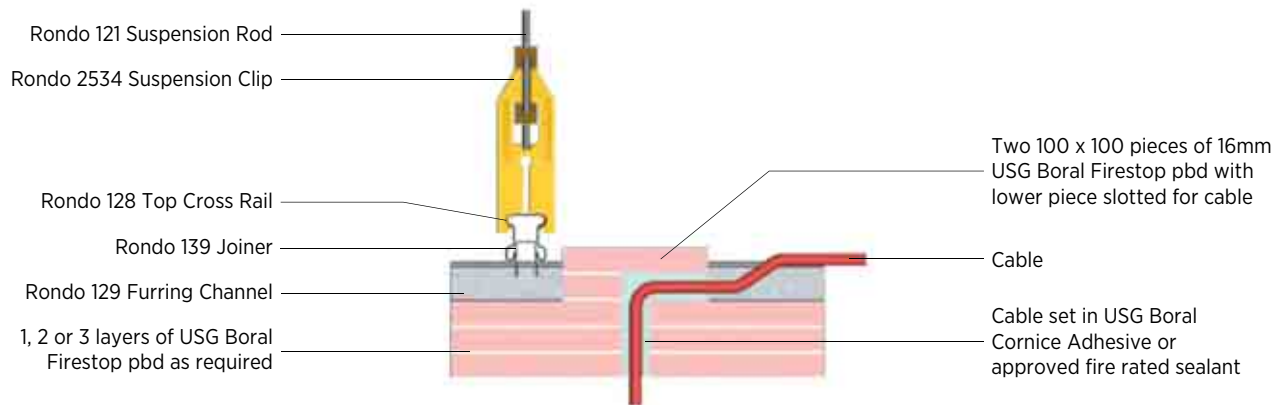


Figure J80: Alternative Cable Penetration Detail

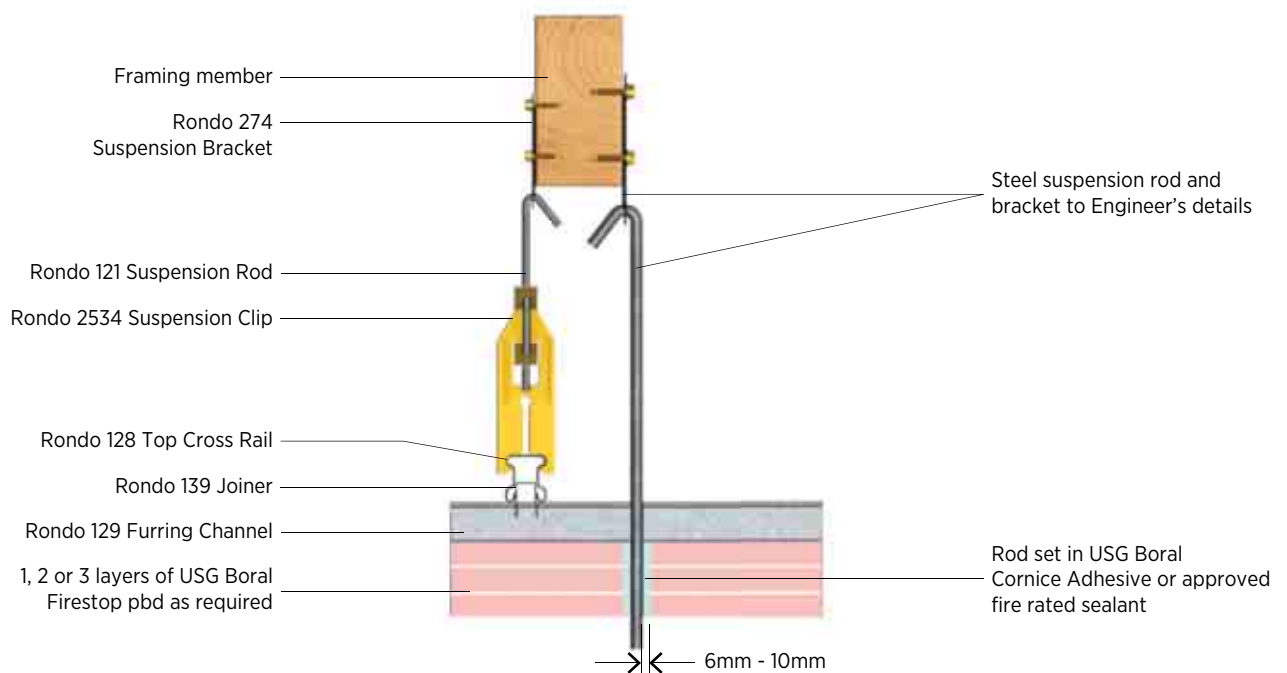


Figure J81: Typical Loaded Penetration Detail

» FIRE RATED CEILINGS

BEAM PROTECTION

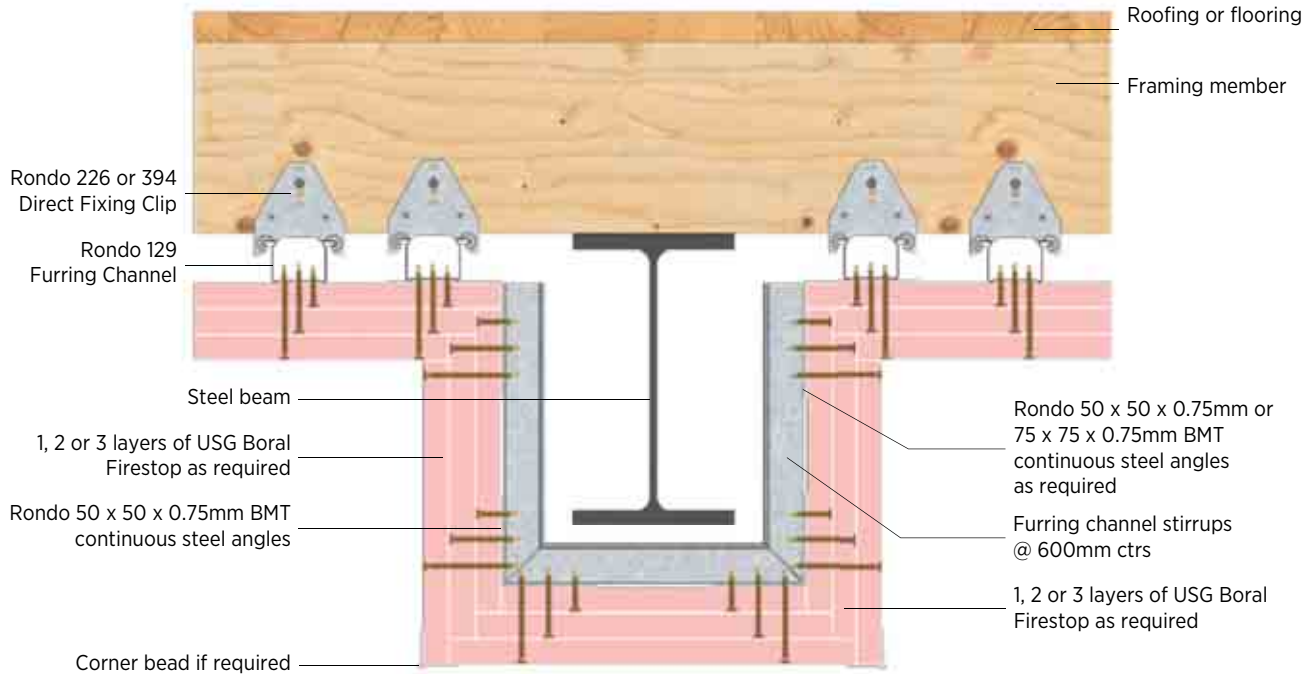


Figure J82: Typical Steel Beam Protection Detail

NOTE:

- Vertical plasterboard fixed as per ceiling

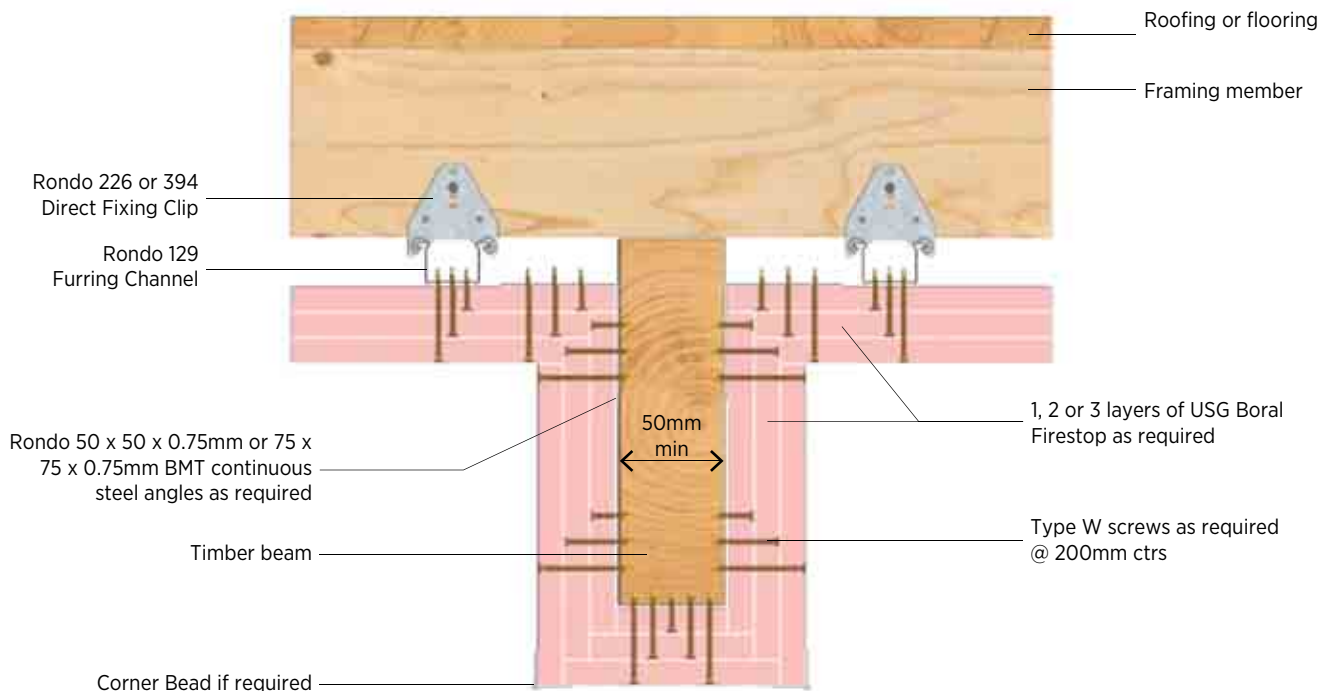


Figure J83: Typical Timber Beam Protection Detail

NON-FIRE RATED CEILINGS

PERIMETER

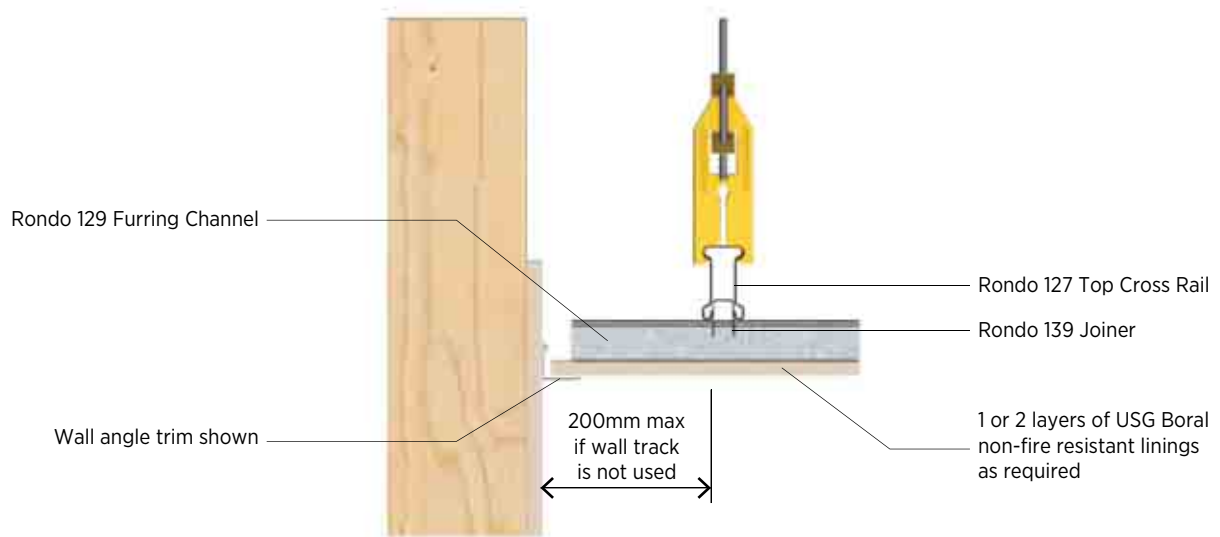


Figure J84: **Typical Perimeter Detail - Section Through Top Cross Rail**

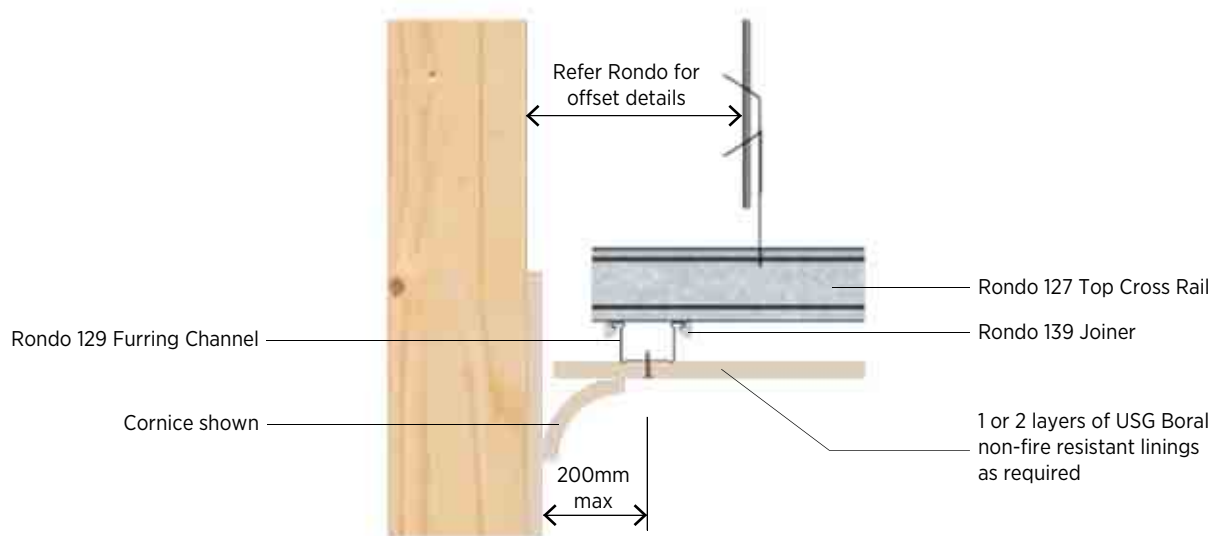


Figure J85: **Typical Perimeter Detail - Section Through Furring Channel**

» **NON-FIRE RATED CEILINGS**

BULKHEADS

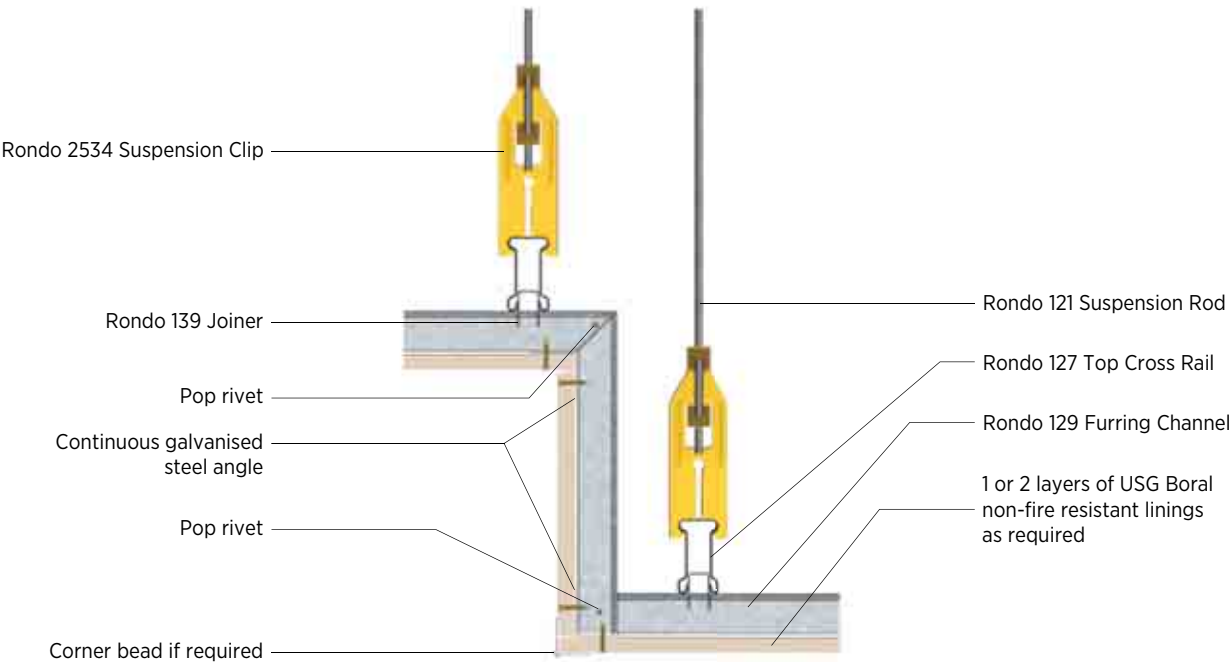


Figure J86: **Typical Bulkhead Detail - Section Through Top Cross Rail**

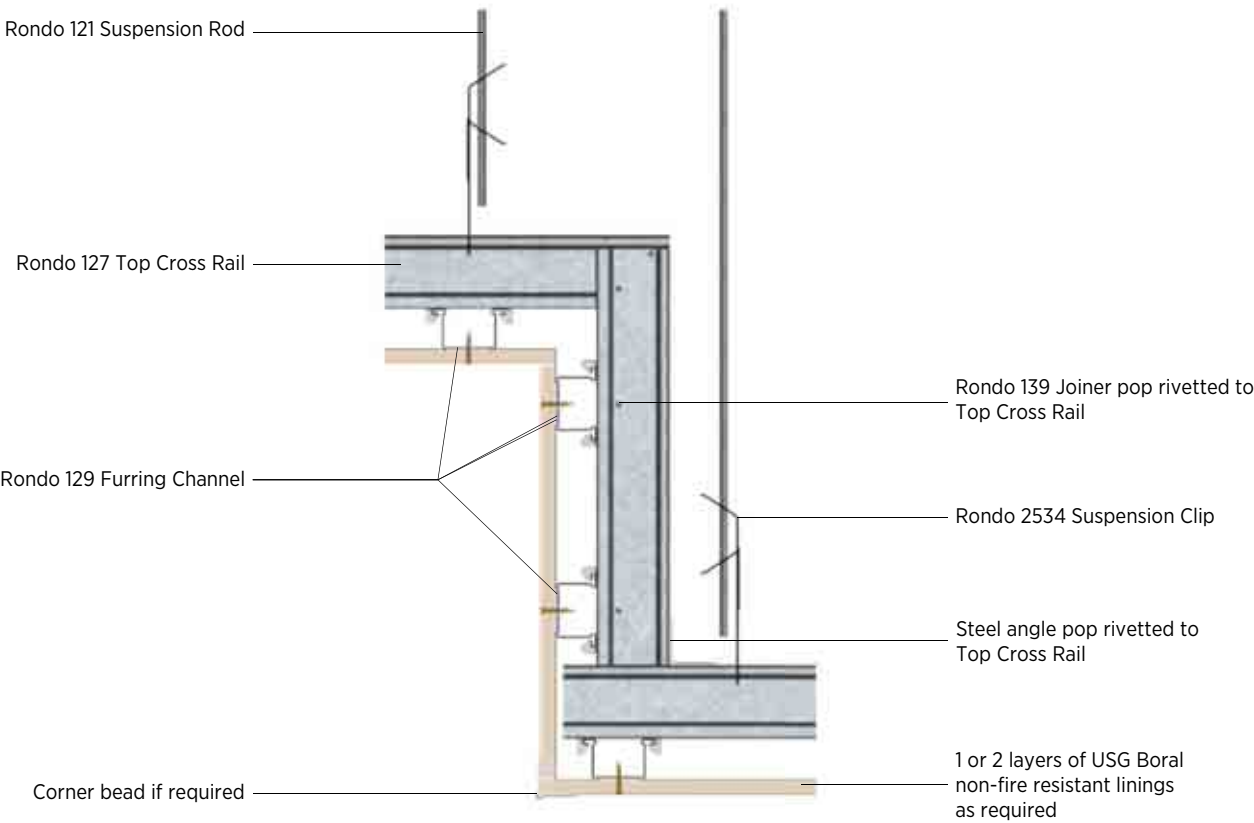
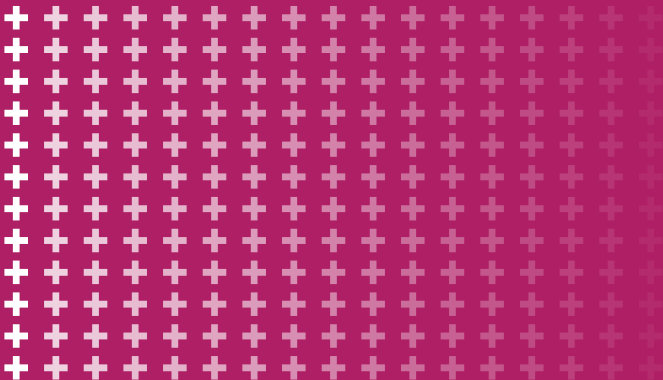


Figure J87: **Typical Bulkhead Detail - Section Through Furring Channel**

K 2 OLD/NEW SYSTEM REFERENCE GUIDE
K 5 SYSTEM INDEX

K

REFERENCE
TABLES



OLD/NEW SYSTEM REFERENCE GUIDE

STEEL STUD WALLS	
OLD REF	NEW REF
S10	SO.1A
S13	SO.3A
S13A	SO.3B
S16F	SO30.1A
S32F	SO60.1A
S39F	SO90.1A
S48F	SO120.1A
S1010	SB.1A
S1010A	SB.1C
S1313A	SB.3C
S1313F	SB60.1A
S1326F	SB90.1A
S1616F	SB90.2A
S1616F13	NA
S2020	SB.2A
S2020A	SB.2C
S2626	SB.5A
S2626A	SB.5C
S2626F	SB120.1A
S3232F	SB180.1A
S4141F	SB180.2A
S6666F	SB240.1A
SS1010A	SS.1C
SS1313A	SS.3C
SS1313F	SS60.1A
SS1313F13	NA
SS1616F	SS90.3A
SS1616F13	SS90.4A
SS2020A	SS.2C
SS2626A	SS.5C
SS2626F	SS120.1A
SS3232F	SS180.1A
ST1010	ST.1A
ST1313	ST.3A
ST1313A	ST.3C
ST1313F	ST60.1A
ST1313F13	ST60.2A
ST1326F	ST90.1A
ST1616F	ST90.2A
ST1616F10	NA
ST1616F1010	NA
ST2626A	ST.4C
ST2626F	ST120.1A
ST3232F	ST180.1A
ST4141F	ST180.2A
ST4848F	NA
ST6666F	ST240.1A

TIMBER STUD WALLS	
OLD REF	NEW REF
T10	TO.1A
T13	TO.3A
T13A	TO.3B
T16F	TO30.1A
T32F	TO60.1A
T39F	TO90.1A
T48F	TO120.1A
T1010	TB.1A
T1010A	TB.1C
TR1010A	NA
T1313	TB.3A
T1313A	TB.3C
T1313F	TB60.1A
TR1313A	NA
TI616F	TB90.2A
TF1616F	TF90.2A
TR1616F	NA
TR1616F10	NA
T2020	TB.2A
T2020A	TB.2C
TR26A10	NA
TF26(13)A10	NA
T2626	TB.5A
T2626F	TB120.1A
TR2626A	TB.5C
TR2626F	NA
T3232F	TB180.1A
TR3232F	NA
TF39(26)A10	NA
TS1010A	TS.1C
TS1313A	TS.3C
TS1313F	TS60.1A
TS1313F10	NA
TS1616F	TS90.3A
TS2020A	TS.2C
TS2626F	TS120.1A
TS3232F	TS180.1A
TT1010	TT.1A
TT1313	TT.3A
TT1313A	TT.3C
TT1313F	TT60.1A
TT1326F	TT90.1A
TT13F1313F13	NA
TT1616F	TT90.2A
TT16F1016F10	NA
TT2626A	TT.4C
TT2626F	TT120.1A
TT2929F	NA
TT3232F	TT180.1A

EXTERNAL WALLS	
OLD REF	NEW REF
FC32F	FC60.1A
FC39F	FC90.1A
FC48F	FC120.1A
OW16WF10	OWT60.1B
OW16WFR10A	NA
OW16WF16F	NA
OW16WF26F	NA
OW26WF10	NA
OW32WF10	OW90.1B
OW32WF16F	OW90.2B
TBV10	BVT.1B
TBV10A	NA
TBV16F	BVT60.1A
TBV20A	NA
TBV26A	NA
TBV26F	BVT90.1A
TBV32F	BVT120.1A
SBV10	BVS.1B
SBV10A	NA
SBV20A	NA
SBV26A	NA

MASONRY UPGRADES	
OLD REF	NEW REF
M10	NA
M1010	NA
M90B	NA
M110B	NA
M150B	NA
M125C	NA
M150C	MW1.1-MW1.6
M10.01	NA
M15.01	NA
M20.01	NA
M15.01CF	MW1.1-MW1.6
M20.01CF	MW1.1-MW1.6
MF16F	MW30.1A
MF32F	MW90.1A
MF1616F	MW30.2A
MF2626F	MW60.2A
MF3232F	MW90.2A

SEPARATING WALLS	
OLD REF	NEW REF
25TP1010	NA
25TP1010A	PWT60.1A
25TP1313A	PWT60.1B
25TP2020	NA
25SP1010	NA
25SP1010A	NA
25SP1313A	NA
25SP2020	NA
41TP1010	PWT90.1A
41TP1010A	PWT90.1B
41TP1313A	PWT90.1C
50TP1010	PWT90.2A
50TP1010A	PWT90.2B
50TP1313A	PWT90.2C
50SP1010	NA
50SP1313A	NA
50IW13	NA
50IW13F	IW90.1A
50IWS13	NA
50IW13S13	IW60.1B
50IW13FS13F	IW90.3A
50IW13AS13A	IW60.3C
50IWFR10S13A	NA
50IWF13S13	IW60.2B
50IWF13FS13F	NA
50IWF13AS13A	IW60.2C
50IWS13S13	IW90.4B
50IWS13AS13A	IW90.4C
50IWS13FS13F	IW120.1A
50IWS13WS13W	IW90.4D
25IWS13S13	IW60.3B
25IWS13AS13A	IW60.3C
25IWS13WS13W	IW60.3D
25IWS20S20	NA

LIFT/STAIR SHAFTS	
OLD REF	NEW REF
SH16F	SH60.1A
SH26F	SH120.1A
SH29F	SH120.2A
SH32F	SH120.3A
SH1616F	SH120.4A
VS39F	VS90.1A
VS48F	VS120.1A
VS57F	NA
VS48F+T10	VST120.1A
VS48F+S10	VSS120.1A

» OLD/NEW SYSTEM REFERENCE GUIDE

CEILINGS		CEILINGS		CEILINGS		CEILINGS	
OLD REF	NEW REF	OLD REF	NEW REF	OLD REF	NEW REF	OLD REF	NEW REF
C10A	NA	CR32F	NA	C13	CT.1D	CF29F	NA
C10U	CR.1B	CS10U	CR.4B	C13A	NA	CF32F	NA
C13	NA	CS13	NA	C13F	CT30.1A	CF48F	NA
C13A	CR.1C	CS16F	NA	C16F	CT30.2A	CF64F	NA
C13F	NA	CS20A	NA	C20A	CT.1F	CFA10A	NA
C16F	NA	CS26F	NA	C26F	NA	CFA13A	NA
C20A	NA	CS29F	NA	C29F	NA	CFA13F	NA
C26F	NA	CS32F	NA	C32F	NA	CFA16F	NA
C29F	NA	CS48F	NA	C48F	CT120.1A	CFA20A	NA
C32F	NA	CS64F	NA	C64F	CT120.2A	CFA26A	NA
C48F	NA	CSA20A	NA	CF10A	NA	CFA26F	CT60.1B
C64F	NA	C10	NA	CF10U	CT.2C	CFA29F	CT60.2B
CF10A	NA	C10A	CT.1E	CF13	CT.2D	CFA32F	CT90.1B
CF10U	CR.2B	C10U	CT.1C	CF13A	CT.2E	CFA48F	NA
CF13	NA	C13	CT.1D	CF13F	CT30.1B	CFA64F	NA
CF13A	CR.2C	C13F	CT30.1A	CF16F	CT30.2B	CR10A	NA
CF13F	NA	C16F	CT30.2A	CF20A	NA	CR13A	NA
CF16F	NA	C20A	CT.1F	CF26A	CT.2F	CR13F	NA
CF20A	NA	C26F	NA	CF26F	CT60.1A	CR16F	NA
CF26F	NA	C29F	NA	CF29F	CT60.2A	CR20A	NA
CF29F	NA	C32F	NA	CF32F	CT90.1A	CR26F	NA
CF32F	NA	C48F	CT120.1A	CF48F	CT120.1B	CR29F	NA
CF48F	NA	C64F	CT120.2A	CF64F	CT120.2B	CR32F	NA
CF64F	NA	CF10U	CT.2C	CFA10A	NA	CF10U	NA
CFA20A	NA	CF13	CT.2D	CFA13A	NA	CF13	CC.1B
CFA26A	NA	CF13F	CT30.1B	CFA20A	NA	CF13F	NA
CR10A	NA	CF16F	CT30.2B	CFA26A	NA	CF16F	NA
CR13A	NA	CF26F	CT60.1A	CFA26F	NA	CF26F	NA
CR16F	NA	CF29F	CT60.2A	CFA29F	NA	CF29F	NA
CR20A	NA	CF32F	CT90.1A	CFA32F	NA	CF32F	NA
C10U	NA	CF48F	CT120.1B	CFA48F	NA	CF48F	NA
C13	NA	CF64F	CT120.2B	CR10A	NA	CFA10U	NA
C16F	NA	CFA10A	NA	CR13A	NA	CFA13	CC.2B
C26F	NA	CFA13A	CT.3A	CR13F	NA	CFA13F	NA
C29F	NA	CFA13F	CT30.1C	CR16F	NA	CFA16F	NA
C32F	NA	CFA16F	CT30.2C	CR20A	NA	CFA26F	NA
C48F	NA	CFA20A	NA	CR26F	NA	CFA29F	NA
C64F	NA	CFA26A	NA	CR29F	NA	CFA32F	NA
CF10U	CR.2B	CFA26F	CT60.1B	CR32F	NA	CFA48F	NA
CF13	NA	CFA29F	CT60.2B	C10	NA	CS10U	NA
CF16F	NA	CFA32F	CT90.1B	C10U	NA	CS13	CC.3B
CF20A	NA	CFA48F	CT120.1C	C13	NA	CS13A	NA
CF26F	NA	CFA64F	CT120.2C	C13F	NA	CS13F	NA
CF29F	NA	CR10A	NA	C16F	NA	CS16F	NA
CF32F	NA	CR13A	NA	C20A	NA	CS20U	NA
CF48F	NA	CR13F	NA	C26F	NA	CS26	NA
CF64F	NA	CR16F	NA	C29F	NA	CS26F	NA
CFA20A	NA	CR20A	NA	C32F	NA	CS29F	NA
CFA26A	NA	CR26A	NA	C48F	NA	CS32F	NA
CR10A	NA	CR26F	NA	C64F	NA	CS48F	NA
CR13A	NA	CR29F	NA	CF10U	NA	CSA13	CC.4B
CR16F	NA	CR32F	NA	CF13	NA	CSA13F	NA
CR20A	NA	C10	NA	CF13F	NA	CSA16F	NA
CR26F	NA	C10A	CT.1E	CF16F	NA	CSA26A	NA
CR29F	NA	C10U	CT.1C	CF26F	NA	CSA26F	NA

» OLD/NEW SYSTEM REFERENCE GUIDE

CEILINGS	
OLD REF	NEW REF
CSA29F	NA
CSA32F	NA
CSA48F	NA
CF10U	NA
CF13	CC.1B
CF13F	NA
CF16F	NA
CF26F	NA
CF29F	NA
CF32F	NA
CF48F	NA
CS10U	NA
CS13	CC.3B
CS13F	NA
CS16F	NA
CS20U	NA
CS26	NA
CS26F	NA
CS29F	NA
CS32F	NA
CS48F	NA
COCT10U	NA
COC10U	NA
COC13	NA
COC16F	NA
COC26F	NA
COC32F	NA
CODT10U	NA
COD10U	NA
COD13	NA
COD16F	NA
COD26F	NA
COD32F	NA
COBT10U	NA
COB10U	NA
COB13	NA
COB16F	NA
COB26F	NA
COB32F	NA
CD26F	NA
CD29F	NA
CD48F	NA
CSP1616F	CS60.1A
CSP2613F	CS90.1A
CSP3216F10	CS120.1A
CSP5016F	CS180.1A
CSP3232F	CS120.1B
CSP3248F	CS120.1C
CHS32F	CH60.1A
CHS48F	CH120.1A
CHS148F	CH120.2A
C105F	NA
PCS25F	NA

SOIL & WASTE PIPES	
OLD REF	NEW REF
WP10	See p H 14
WP10A	See p H 14
WP13	See p H 14
WP13A	See p H 14
WP20	See p H 14
WP20A	See p H 14
WP26	See p H 14
WP26A	See p H 14
WP39F	See p H 14
WP48F	See p H 14
WPL10	See p H 14
WPL10A	See p H 14
WPL13	See p H 14
WPL13A	See p H 14
WPL20	See p H 14
WPL20A	See p H 14
WPL26	See p H 14
WPL26A	See p H 14
WPL32F	See p H 14
WPL39F	See p H 14
WPL48F	See p H 14
WP2010U	See p H 14
WPB1313	See p H 14
WPB2626	See p H 14
SWP1020/WP13A	See p H 14
TWP1020/WP13A	See p H 14

BEAM PROTECTION	
OLD REF	NEW REF
PSB16F	PSB30.1
PSB38F	PSB120.1A
PSB50F	PSB120.1B
PSB3232F	PSB120.1C
PSBC48F	PSB120.1D
PSBT48F	PSB120.1E
PTB13F	PTB30.1A
PTB26F	PTB60.1A
PTB39F	PTB90.1A
PTB48F	PTB120.1A

FIRE TUNNEL	
OLD REF	NEW REF
FTB32F32F	FT60.1A
FTO16F16F	FT60.2A
FTO26F13F	FT90.1A
FTO32F16F10	FT120.1A
FTB32F48F	FT120.2A
FTO50F16F	FT180.1A

COLUMN PROTECTION	
OLD REF	NEW REF
PCC13F	PCC30.1A
PCC25F	PCC120.1A
PSC13F	PSC30.1A/2A/3A
PSC25F	PSC60.1A/2A/3A
PSC25F10	PSC120.5A
PSC32F	PSC90.1A/2A/3A
PSC38F	PSC120.1A / 2A / 3A
PSC50F	PSC120.5B
PSC75F	PSC180.5A
PSC1313F	PSC30.4A
PSC2626F	PSC60.4A
PSC3232F	PSC90.4A
PSC3939F	PSC120.4A
PTC13F	PTC30.1A
PTC26F	PTC60.1A
PTC39F	PTC90.1A
PTC48F	PTC120.1A

OTHER SYSTEMS	
OLD REF	NEW REF
SP1616F	NA
SP1326F	NA
SP2626F	NA
SP3232F	NA
SP3245F	NA
SF32F	NA

SYSTEM INDEX

STEEL STUD WALLS	
SYSTEM REF	PAGE
SO.1	C 19
SO.2	C 19
SO.3	C 20
SO30.1	C 20
SO60.1	C 21
SO90.1	C 21
SO120.1	C 22
SOF.1	C 23
SOF.2	C 23
SOF.3	C 23
SOF30.1	C 24
SOF60.1	C 24
SOF90.1	C 25
SBS.1	C 26
SBS.2	C 26
SB.1	C 27
SB.2	C 28
SB.3	C 29
SB.4	C 30
SB.5	C 31
SB60.1	C 32
SB60.2	C 32
SB60.3	C 33
SB90.1	C 33
SB90.2	C 34
SB90.3	C 34
SB90.4	C 35
SB120.1	C 35
SB180.1	C 36
SB180.2	C 36
SB240.1	C 37
SBF.1	C 38
SBF.2	C 38
SBF30.1	C 39
SBF30.2	C 39
SBF60.1	C 40
SBF90.1	C 40
SBF120.1	C 41
SBF120.2	C 41
SQ.1	C 42
SQ.2	C 43
SQ.3	C 44
SQ.4	C 45
SQ.5	C 46
SQ60.1	C 47
SQ60.2	C 47
SQ60.3	C 48
SQ60.4	C 48
SQ90.1	C 49
SQ90.2	C 49
SQ90.3	C 50
SQ90.4	C 50
SQ90.5	C 51
SQ90.6	C 51
SQ120.1	C 52
SQ180.1	C 52

STEEL STUD WALLS	
SYSTEM REF	PAGE
SQF.1	C 53
SQF.2	C 53
SQF30.1	C 54
SQF30.2	C 54
SQF60.1	C 55
SQF90.1	C 55
SQF120.1	C 56
SS.1	C 57
SS.2	C 58
SS.3	C 59
SS.4	C 60
SS.5	C 61
SS60.1	C 62
SS60.2	C 62
SS60.3	C 63
SS60.4	C 63
SS90.1	C 64
SS90.2	C 64
SS90.3	C 65
SS90.4	C 65
SS90.5	C 66
SS90.6	C 66
SS120.1	C 67
SS180.1	C 68
SSF.1	C 69
SSF.2	C 69
SSF30.1	C 70
SSF30.2	C 70
SSF60.1	C 71
SSF60.2	C 71
SSF90.1	C 71
SSF120.1	C 72
SSF120.2	C 72
ST.1	C 73
ST.2	C 74
ST.3	C 75
ST.4	C 76
ST60.1	C 77
ST60.2	C 78
ST60.3	C 78
ST60.4	C 79
ST90.1	C 80
ST90.2	C 81
ST90.3	C 81
ST120.1	C 82
ST180.1	C 83
ST180.2	C 84
ST240.1	C 84
STF.1	C 85
STF.2	C 85
STF.3	C 86
STF30.1	C 86
STF60.1	C 87
STF60.2	C 87
STF90.1	C 87
STF120.1	C 88
STF120.2	C 88

TIMBER STUD WALLS	
SYSTEM REF	PAGE
TO.1	D 13
TO.2	D 13
TO.3	D 13
TO30.1	D 14
TO60.1	D 14
TO90.1	D 15
TO120.1	D 15
TOF.1	D 16
TOF.2	D 16
TOF.3	D 16
TOF30.1	D 17
TOF60.1	D 17
TOF90.1	D 17
TBS.1	D 18
TBS.2	D 18
TB.1	D 19
TB.2	D 20
TB.3	D 21
TB.4	D 22
TB.5	D 23
TB60.1	D 24
TB60.2	D 24
TB60.3	D 25
TB90.1	D 25
TB120.1	D 26
TBF.1	D 27
TBF.2	D 27
TBF30.1	D 27
TBF30.2	D 28
TBF60.1	D 28
TBF60.2	D 29
TBF120.1	D 29
TF.1	D 30
TF.2	D 31
TF.3	D 32
TF.4	D 33
TF60.1	D 34
TF60.2	D 34
TF60.3	D 35
TF60.4	D 35
TF60.5	D 36
TF60.6	D 36
TF60.7	D 37
TF90.1	D 37
TF120.1	D 38
TFF.1	D 39
TFF.2	D 39
TFF30.1	D 40
TFF30.2	D 40
TFF60.1	D 41
TFF60.2	D 41
TFF120.1	D 42

TIMBER STUD WALLS	
SYSTEM REF	PAGE
TS.1	D 43
TS.2	D 44
TS.3	D 45
TS.4	D 46
TS.5	D 47
TS60.1	D 48
TS60.2	D 48
TS60.3	D 49
TS60.4	D 49
TS60.5	D 50
TS60.6	D 50
TS60.7	D 51
TS60.8	D 51
TS60.9	D 52
TS60.10	D 52
TS90.1	D 53
TS120.1	D 53
TSF.1	D 54
TSF.2	D 54
TSF30.1	D 54
TSF30.2	D 55
TSF60.1	D 55
TSF60.2	D 56
TSF120.1	D 56
TT.1	D 57
TT.2	D 58
TT.3	D 59
TT.4	D 60
TT60.1	D 61
TT60.2	D 61
TT60.3	D 62
TT60.4	D 62
TT60.5	D 63
TT60.6	D 64
TT60.7	D 64
TT90.1	D 65
TT120.1	D 66
TTF.1	D 67
TTF.2	D 67
TTF30.1	D 68
TTF30.2	D 68
TTF60.1	D 69
TTF60.2	D 69
TTF120.1	D 70

» SYSTEM INDEX

EXTERNAL WALLS	
SYSTEM REF	PAGE
OWT.1	E 5
OWT30.1	E 5
OWT60.1	E 6
OWT60.2	E 6
OWT90.1	E 7
OWT90.2	E 7
OWT90.3	E 8
BVT	E 9
BVS	E 9
FC	E 10

MASONRY UPGRADES	
SYSTEM REF	PAGE
MWI.1	F 6
MWI.2	F 7
MWI.3	F 8
MWI.4	F 9
MWI.5	F 10
MWI.6	F 11
MWB.1	F 12
MWB.2	F 13
MWS.1	F 14
MWS.2	F 15
AAC.1	F 16
AAC.2	F 16
AAC.3	F 17
MW	F 18

CEILINGS	
SYSTEM REF	PAGE
CT.1	G 11
CT.2	G 12
CT.3	G 12
CT30.1	G 13
CT30.2	G 13
CT60.1	G 14
CT60.2	G 15
CT90.1	G 16
CT120.1	G 17
CT120.2	G 17
CC.1	G 18
CC.2	G 18
CC.3	G 19
CC.4	G 19
CR.1	G 20
CR.2	G 20
CR.3	G 21
CR.4	G 22
CR.5	G 22
CR	G 23
CS	G 24
CH	G 25
Acoustic Ceilings	G 26

OVER PARTITION SYSTEMS	
SYSTEM REF	PAGE
OP1	G 28
OP2	G 28
OP3	G 28
OP4	G 28
OP5	G 28
OP6	G 28
OP7	G 28
OP8	G 28
OP9	G 28
OP10	G 28

SEPARATING WALLS	
SYSTEM REF	PAGE
PWT60.1	H 15
PWT90.1	H 16
PWT90.2	H 17
IW60.1	H 18
IW60.2	H 19
IW60.3	H 20
IW90.1	H 21
IW90.2	H 21
IW90.3	H 22
IW90.4	H 23
IW120.1	H 24

LIFT/STAIR SHAFTS	
SYSTEM REF	PAGE
SH	I 8
VS	I 9

COLUMN PROTECTION	
SYSTEM REF	PAGE
PSC.1	I 10
PSC.2	I 10
PSC.3	I 10
PSC.4	I 11
PSC.5	I 11
PCC.1	I 12
PTC.1	I 12

BEAM PROTECTION	
SYSTEM REF	PAGE
PSB.1	I 13
PTB.1	I 13

FIRE TUNNEL	
SYSTEM REF	PAGE
FT	I 14

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