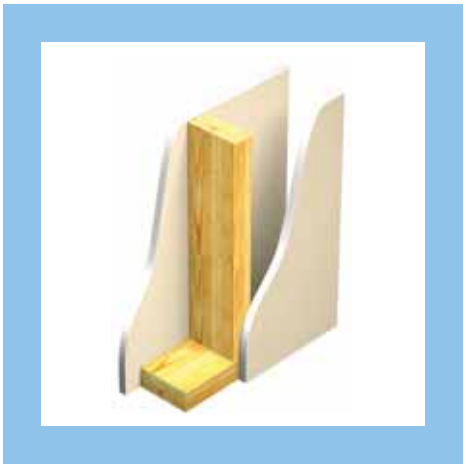
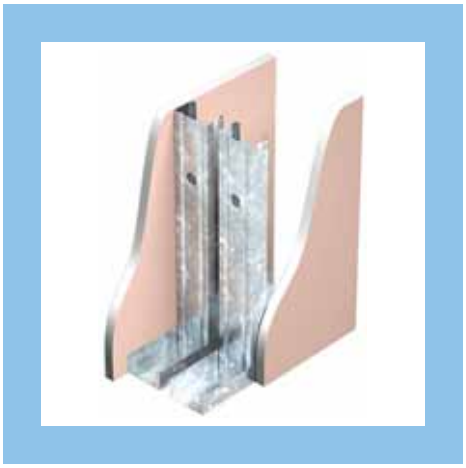
PB101
April 2007

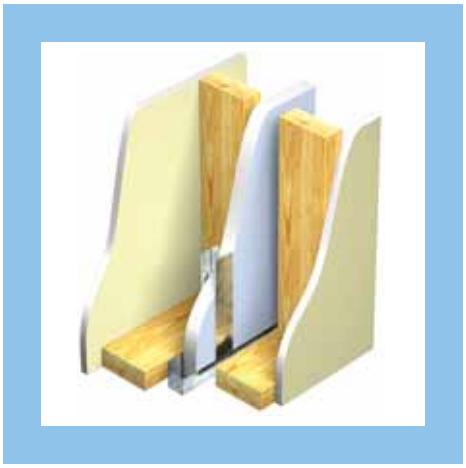
BORAL

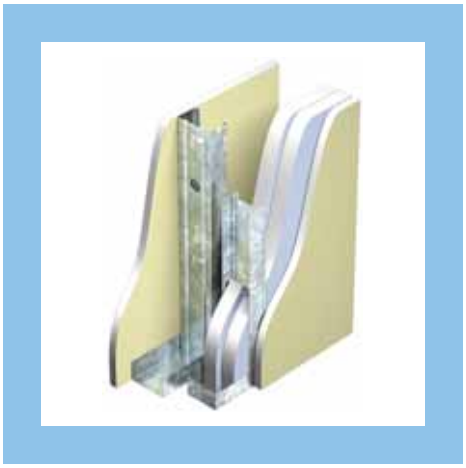
Selector

Plasterboard Systems









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A. General Information




Contents

A1. Introduction

This document is a guide to the extensive range of Boral Plasterboard construction systems and assemblies. These products include acoustic and fire rated systems and have been designed to meet the needs and constraints of Australian conditions, while also providing space saving, dry, and lightweight constructions that are fast and economical to construct.

It has been compiled for specifiers, builders, contractors and Boral Plasterboard sales personnel. It consolidates fire rated and non fire rated plasterboard systems and incorporates more recent testing and advances in plasterboard technology.

Applications

Applications possible with lightweight plasterboard construction include partitioning, acoustic and fire rated walls and ceilings, load bearing walls, security walls, chase walls, shaft walls, separating walls, duct enclosures and structure protecting systems.

The scope of fire rated systems includes systems with a fire resistance of up to four hours.

Ceiling systems are available to provide a horizontal fire separating barrier to roof plenums and between occupancies. For the usual fire resistance levels required it is often the lightest and most suitable solution for horizontal fire separation. Fire resistance for most of the horizontal systems represented in this manual are assessed for fire attack from below as is the usual requirement. Also listed are other horizontal systems which are assessed for fire attack from both above and below or from above only.

Refer to relevant Boral Plasterboard publications for further details.

Advantages

Boral Plasterboard systems accommodate the heights/spans and pressures as listed by utilising appropriate stud depths, sizes/gauges and centres. Plasterboard systems with the appropriate cavity insulation have been tested acoustically to achieve high sound insulation ratings. Fire rated systems of up to -/240/240 and 120/120/120 fire resistance level (FRL) as defined in the BCA are readily achievable.

Building systems design and performance

As noted elsewhere in this manual, the performance ratings provided are based on laboratory tests carried out under ideal conditions. In-situ performance may experience some variation from the tested result. Whilst Boral Plasterboard confirms the performance ratings of the building systems listed in this manual, it is the responsibility of the appointed project consultant to ensure the building system specified is suitable for its intended in-service conditions.

Abbreviations Used in This Document

A	Boral SoundSTOP® plasterboard
AM	Acoustic Mounting for furred or suspended systems
AS	Australian Standard
AWTA	Australian Wool Testing Authority
BCA	Building Code of Australia
BFT	BHP fire test
BHP	BHP fire assessment
BMT	Base metal thickness (mm), ie taken underneath any zinc or other coating
BRANZ	Building Research Association of New Zealand
BS	Both sides
CAC	Ceiling Attenuation Class
CCAA	Cement and Concrete Association of Australia
Cf	Charfactor, as used in fire rated timber wall design
CH	C+H section galvanized steel Shaft Wall stud
CS	Lipped Rondo C section galvanized steel stud
CSIRO	Commonwealth Scientific and Industrial Research Organization
CT	Rondo C section galvanized steel track, 32mm flanges
ctrs	Centres
dir	Fire resistance is directional
$D_{n,c,w}$	Weighted suspended ceiling normalised sound level difference (applies to over partition systems)
$D_{n,T,w} + C_{tr}$	Weighted standardised sound level difference with spectrum adaptation term (field performance)
DR	Galvanized steel Shaft Wall deflection head runner, 50mm and 75mm flanges
DT	Rondo C section galvanized steel deflection head track, 50mm flanges
EFH	Early Fire Hazard
ES	E section galvanized steel Shaft Wall stud
ESA/M	Exposed surface area of steel member (m^2) divided by its mass per metre length (tonnes)
F	Boral FireSTOP™ plasterboard
FAR	BRANZ fire assessment
FCO	CSIRO fire assessment
FPC	Fire Protective Covering
FR	BRANZ fire test
FRFC	Face recessed furring channel
FRL	Fire resistance level (structural adequacy/integrity/ insulation)
FSH	CSIRO horizontal fire test
FSP	CSIRO pilot fire test
FSV	CSIRO vertical fire test
GHA	Graeme E Harding & Associates Pty Ltd
GW	Glasswool
HW	Hardwood
IIC	Impact Insulation Class (acoustic classification)
Iso	Fire rating applies from lined side only
JR	Galvanized steel Shaft Wall runner, 25mm and 57mm flanges
JS	Unlipped C section galvanized steel Shaft Wall jamb stud, 50mm and 75mm flanges
kN	Kilonewton (unit of force)
kPa	Kilopascal (1000 Pascals)
$L_{n,T,w} + C_I$	Floor weighted standardised impact sound pressure level with spectrum adaptation term (field)
$L_{n,w} + C_I$	Floor weighted normalised impact sound pressure level with spectrum adaptation term (laboratory)
MPa	Megapascal (unit of stress)
NA	Not Applicable
NAL	National Acoustic Laboratories
NR	Not Required
NRC	Noise Reduction Coefficient
NZS	New Zealand Standard
OS	One side
Pa	Pascal (unit of pressure)
Pbd	Plasterboard
pgs	Pages
prev	Previous
pl	Plate
RC	Resilient Channel
RH	Relative Humidity
RISF	Resistance to the incipient spread of fire
RMIT	Royal Melbourne Institute of Technology
R_w	Weighted sound reduction index (laboratory)
$R_w + C_{tr}$	Weighted sound reduction index with spectrum adaptation term (laboratory)
R'_w	Weighted apparent sound reduction index (field test)
Sht	Sheet
SI	CSIRO fire test (Sponsored Investigation)
Srf	(for masonry walls) Maximum Slenderness Ratio
STC	Sound Transmission Class
std	Standard
TE-FIRTO	Technical Evaluation of The Loss Prevention Council UK
TR	CSIRO fire test
U	Boral UniSPAN® plasterboard
U of C	University of California
W	Boral Wet Area plasterboard
WF	Boral Wet Area FireSTOP™ plasterboard
WFIIC	Impact Insulation Class for walls by field testing (acoustic classification)
WFRA	Warrington Fire Research (Aust) Pty Ltd
WIIC	Impact Insulation Class for walls by laboratory testing (acoustic classification)
Wt	Weight
WT	BHP fire test
xxCHyy	Designation (for Rondo CH studs) in format of stud depth (mm), CH stud, BMT (mm x 100)
xxCSyy	Designation (for Rondo lipped C studs) in format of stud depth (mm), CS stud, BMT (mm x 100)
xxCTyy	Designation (for Rondo (32mm flange) standard track) in format of track depth (mm), CT track, BMT (mm x 100)
xxDSyy	Designation for tophat stud sections in format of stud depth (mm), DS stud, BMT (mm x 100)
xxDTyy	Designation (for Rondo (50mm flange) deflection track) in format of track depth (mm), DT track, BMT (mm x 100)
xxGyy	Glasswool insulation in format of thickness (mm), G (glasswool), density (kg/m^3)
xxPyy	Polyester insulation (Tontine or equivalent) in format of thickness (mm), P, density (kg/m^3)

System designation

Systems are called up by their system number, eg TS1313. This new system numbering replaces the previous system identification which is also referenced in the System Index for convenience. Refer to Section B for an explanation of the new system identification.

Steel component designation

Stud Sections are called up by depth and gauge, for example a 64mm deep C Stud of 0.75mm base metal thickness (BMT) is called up as a "64CS75". Track sections are similarly named. Unless otherwise noted the steel studs, associated tracks and other component types in the various sizes referred to in this selector are to be manufactured by Rondo Building Services Pty Ltd. These are distributed by Boral Plasterboard.

Steel C Stud (CS)

Certification

Boral Plasterboard systems have been assessed to meet the relevant requirements of Australian Standards and the Building Code of Australia.

Fire testing and assessment has been done to Australian Standard AS 1530 Part 4 `Methods for fire tests on building materials, components and structures - Fire resistance tests of elements of building construction´ carried out by:

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

Acoustic testing has been done to Australian Standard AS 1191 `Acoustics - Method for laboratory measurement of airborne sound transmission insulation of building elements´ & AS/NZS 1276 `Acoustics - Rating of sound insulation in buildings and of building elements - Airborne sound insulation´ carried out by:

- Royal Melbourne Institute of Technology (RMIT), Victoria
- CSIRO, Highett, Victoria
- National Acoustic Laboratories, Chatswood, NSW.

Structural testing of wall systems has been carried out at the NATA registered laboratories of Boral Plasterboard 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 all Boral Plasterboard Sales Offices.

The systems published in this document and their certification are valid only when constructed in accordance with Boral Plasterboard details and using the stated Boral plasterboard manufactured in Australia by Boral Australian Gypsum Limited, ie Boral Standard Core, FlexiBOARD®, UniSPAN®, SoundSTOP®, FireSTOP™, Wet Area Board™, Wet Area FireSTOP™ and ShaftLINER™. Fastening should be of the same type and at centres no greater than detailed for particular systems.

Quality assurance

Boral Plasterboard is a Quality Endorsed Company (Lic No 0400) conforming to AS/NZS ISO 9001:2000 `Quality management systems – Requirements´.

Boral plasterboard is machine made under a continuous process to the requirements of AS/NZS 2588:1998 `Gypsum plasterboard´.

Environmental issues

Boral Plasterboard is manufactured from naturally occurring Gypsum mined at Kevin in South Australia by Gypsum Resources Australia Pty Ltd. The mine has a remediation plan in place which will result in a gently undulating landscape using the overburden previously stripped and will allow re-growth of native local vegetation, mostly salt bush.

The paper liner is manufactured from recycled pulp with almost all of it coming from used paper and cardboard packaging.

In Australia, Boral Plasterboard has developed an environmental policy which targets the recycling of its plaster products. The Standard Core plasterboard products (which is the majority of production) can all be recycled either into new plasterboard or soil conditioner.

The company can also accept clean plasterboard off-cuts from some building sites to recycle for use in new plaster products.

For further information contact a local Boral Plasterboard office.

Safety and first aid

Although there are no health hazards known in the normal use and application of plasterboard, observe the following precautions:

- Avoid creating dust when handling plasterboard or mixing plasterboard products
- Reduce sanding by passing a wet sponge over the edges of the finished joints after trowelling
- If dry sanding is necessary and dust is created, provide adequate ventilation, wear eye protection and a disposable respiratory mask conforming to AS/NZS 1716:1994 `Respiratory protective devices´
- Keep all construction materials and tools out of reach of children
- Compound or dust in the eyes - Wash the eyes thoroughly with water
- Compound or dust on skin - Wash the skin with soap and water
- Dust inhalation - Move to fresh air area
- Ingestion of compounds or dust - Drink plenty of water
- Material Safety Data Sheets for Boral Plasterboard products are available on Boral website www.boral.com.au or through Boral TecASSIST 1800 811 222.

A2. Plasterboard Properties

The following is information on various properties and aspects of plasterboard that the designer may find useful in specifying plasterboard systems.

Board weights

The weights for various board types produced by Boral Plasterboard are provided in the following table:

Boral Plasterboard Weights

Plasterboard Type	Thickness (mm)	Mass (kg/m²)
FlexiBOARD®	6	4.1
Std Core	10	6.8
Std Core	13	8.6
UniSPAN®	10	7.2
Wet Area Board™	10	7.4
Wet Area Board™	13	9.4
FireSTOP™	13	10.5
FireSTOP™	16	13
Wet Area FireSTOP™	13	10.5
Wet Area FireSTOP™	16	13
SoundSTOP®	10	8.2
SoundSTOP®	13	11.2
Foil-backed board	10	6.8
Foil-backed board	13	8.6
ShaftLINER™	25	20.5

Embodied energy

The Process Energy Requirement (PER) of plasterboard is 4.4MJ/kg of plasterboard. This PER refers to the amount of energy required in the manufacture of the plasterboard including the mining of the gypsum, shipping the gypsum to the plant, and the production of the paper liner. The energy used in the transport of the plasterboard from the manufacturing plant to the distribution outlets or building site is not included in the PER figure.

Thermal resistance

Commonly, plasterboard is fixed to framework, creating a cavity construction. Thus, thermal resistance ratings (R-values) of plasterboard systems can be easily upgraded through addition of bulk or reflective insulation.

The R-values of various plasterboard products produced by Boral are provided in the following table:

Thermal Resistance

Plasterboard Product	R-value
10mm Std Core pbd	0.056m²K/W ±10%
13mm Std Core pbd	0.073m²K/W ±10%
13mm FireSTOP™ pbd	0.061m²K/W ±10%
16mm FireSTOP™ pbd	0.074m²K/W ±10%
25mm ShaftLINER™	0.112m²K/W ±10%

Calculation of the above R-values is from test data of thermal conductivity as reported in BRANZ Report No EC0713, 22/10/2003. Thermal resistance ratings of various external wall systems are shown in the System Index.

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.

Specific Heat

Pbd Product	Specific Heat Capacity	Basis
Std Core pbd	1028J/kgK ±10%	BRANZ Report No EC0713/2, 22/10/03
FireSTOP™ pbd	960J/kgK ±10%	BRANZ Report No EC0713/2, 22/10/03
ShaftLINER™	979J/kgK ±10%	BRANZ Report No EC0713/2, 22/10/03

Temperature effects

Thermal co-efficient of linear expansion = 16.2×10^{-6}mm/(mm°C) over the range 4°C to 38°C.

Boral Plasterboard 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 $7.2x10^{-6}$mm/(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 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 Building Code of Australia (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, Boral plasterboard systems comply with the soft body impact resistance provisions of the BCA.

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. However, the harder the lining material is, the better it will resist determined scratching associated with vandalism.

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.

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 C1.8.6), but no hard body impact requirements. All plasterboard products produced by Boral Plasterboard meet this surface indentation criteria.

When considering what solution to use in a particular situation, it is important to look at the lifecycle costs for the alternatives available. Lifecycle costs include the up front capital cost to build the wall and the costs of maintaining the wall linings that are incurred over the life of the building. While some alternative systems may have lower maintenance costs in service, their up front installation costs may be quite high and plasterboard may provide a more cost effective solution.

A3. Appearance

Levels of finish

To quantify the quality of finish desired, the Australian/New Zealand Standard AS/NZS 2589.1:1997 `Gypsum Linings in Residential and Light Commercial Construction - Application and Finishing. Part 1: Gypsum Plasterboard´ applies a system known as `levels of finish´. There are 6 levels of finish (0-5), with Level 4 being the default for residential construction.

Since each level of finish requires specific tolerances for frame alignment and plasterboard fixing and finishing, it is essential that the level of finish required is determined at the design stage. The desired level of finish is achievable only when these requirements are met throughout the various stages of construction.

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 Boral Plasterboard publication `Lighting and Decoration – The Facts´ 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 in colder climate conditions/regions ie ACT, Tasmania and Alpine Regions, due to effects of condensation. Mould growth, contaminated paint, staining and smoke affected joints are among contributing factors of paint discolouration and visible joints in subtropical and tropical regions.

Refer to Boral Plasterboard publication `Lighting and Decoration – The Facts´ for good design practices aimed at avoiding paint discoloration due to the above causes.

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A4. Acoustics

Introduction

All acoustic ratings listed in Section B have been verified by acoustical consultants Graeme E Harding & Associates and are covered by opinion Sheet No 104 (copy attached at the end of this Section). A list of tested systems can be provided on request.

Building acoustics is the science of controlling noise in buildings, including the minimisation of noise transmission from one space to another and the control of noise levels and characteristics within a space. The term `building acoustics´ embraces sound insulation and sound absorption. The two functions are quite distinct and should not be confused.

Noise has been defined as sound which is undesired by the recipient, but it is very subjective and depends on the reactions of the individual. However, when a noise is troublesome it can reduce comfort and efficiency and, if a person is subjected to it for long enough periods, it can result in physical discomfort or mental distress. Ideally, the sound insulation requirements for a building should be considered at the design stage and take into account both internal and external sound transmission. Remedial measures, after occupation, can be expensive and inconvenient.

Sound insulation

Any wall or floor/ceiling partition system, that separates one sole-occupancy unit from another, must comply with the acoustic provisions as set out in the Building Code of Australia (BCA).

Walls or floor/ceilings that separate one room from another within the dwelling fall outside the scope of the BCA. However, an owner may wish to create quiet zones within the home by selecting internal wall or ceiling systems that have improved acoustic isolation properties.

There are two types of noise transfer through partitions, airborne transfer, and structure borne transfer. Both may need to be considered in order to achieve the desired result.

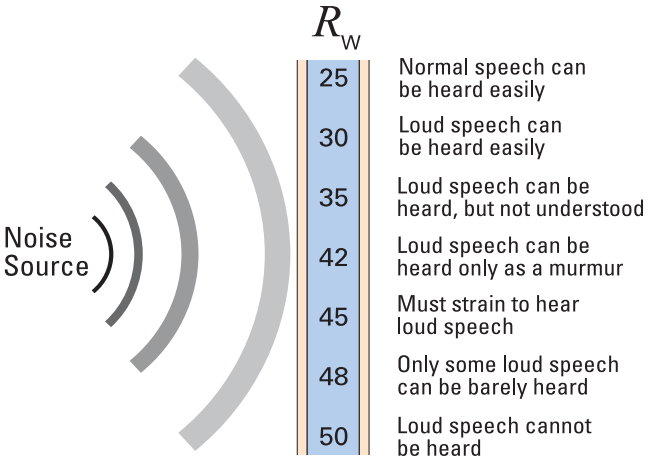
Airborne noise

Weighted Sound Reduction Index, (R_w)

Noise sources, such as voices, television sets/home theatre and musical instruments, generate noise in the air in one room, and this noise passes through the partition and into the room on the other side. This is known as airborne noise.

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. If two partitions are compared subjectively, and one has an R_w which is 10 rating points higher, then the noise passing through the better wall will be about half the loudness of the lesser wall. The 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.



Typical R_w Ratings

R_w vs STC

In 2000, the BCA replaced the Sound Transmission Class (STC) rating with R_w.

For most partitions STC = R_w, however the rating between the two can vary by as much as 3dB for the same partition. This is due to the different rules that apply when determining the two sets of numbers.

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 have similar low frequency isolation properties regardless if their respective Ctr 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.

Structure-borne noise

When a building element is directly, or indirectly, impacted or vibrated then some of the energy passes through the partition and is reradiated as noise to the room on the other side. This is called structure borne noise or impact noise.

Impact Sound Isolation for walls

The most common sources of structure borne noise through walls are:

- Cupboard doors, fixed to party walls, being closed
- Kitchen appliances being used on benches touching walls
- Plumbing fittings, particularly taps, being connected to walls
- Light switches being turned on and off
- Dishwashers, washing machines, clothes dryers, etc touching party walls.

The BCA has adopted the approach that for walls requiring impact sound performance then the construction 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.

Boral Plasterboard wall systems qualifying as `discontinuous construction´ include:

- Twin stud wall systems, both in timber and steel
- EurekaWALL™ systems (which include a separate steel stud at least to one side)
- PartiWALL® systems (with aligned floors on each side of separate dwellings)
- Masonry wall systems to Detail E & F only (ref Section B)

The BCA and the `Guide to the BCA´ states that for Class 1 Buildings and Class 2 to 9 Buildings respectively a staggered stud wall is not deemed to be discontinuous construction.

Impact Sound Isolation for floors

The most common source of structure borne noise to the occupants below is footsteps.

In addition to a minimum airborne sound isolation performance ($R_w + C_{tr}$), the BCA has introduced a requirement for an impact rating of floors between sole occupancy units of Class 2 or 3 Buildings expressed as $L_{n,w} + C_I$.

The $L_{n,w}$ (Weighted normalised impact sound pressure level) is measured in very controlled conditions 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.

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

The difference between laboratory and field test results

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:

- flanking paths, ie noise passing through adjacent parts of the building
- incorrect installation procedures, or
- non-ideal measurement conditions. For instance, small room sizes may affect accurate measurements in particular frequencies.

On-site field testing is now 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 $L_{n,w} + C_I$.

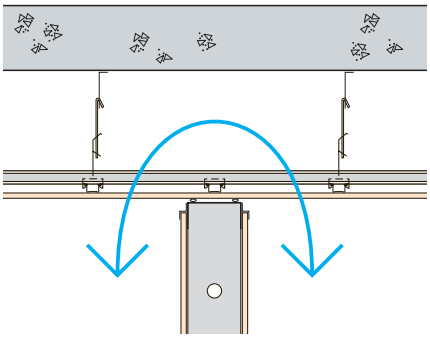
Sound insulation rating of services

The BCA requires ducts, soil & 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 & 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 to contact ceilings, walls or supports, and the pipe mounts and supports are not to 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. The rating formerly used was CAC (Ceiling Attenuation Class).

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 2499:2000 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.

Sound absorption rating

The level of sound absorbency for a material is stated as the `weighted sound absorption coefficient´ (α_w).

The α_w value is derived as a result of acoustic testing on a material and determined by shifting a reference curve over the measured values as specified in the Standard. The weighted sound absorption coefficient α_w is defined as the value of the shifted reference curve at 500Hz.

The rating formerly used was NRC (Noise Reduction Coefficient).

Determination of α_w is defined in AS ISO 11654-2002 Acoustics – Rating of sound absorption – Materials and systems.

Sound isolation criteria

The Building Code of Australia specifies minimum standards for sound isolation between attached dwellings. Experience has shown, however, that achieving these minimum standards is not always sufficient to meet the expectations of the building occupants. In view of this it is recommended that architects, developers, builders, etc consider a higher degree of sound insulation, commensurate with the expectations of the end user. To this end the Association of Australian Acoustical Consultants (AAAC) developed the acoustical `Star Rating´ system that ranks the acoustical quality of apartments and townhouses. The rating system covers noises associated with intertenancy activities eg voices and home theatre, internal building services and appliances eg air conditioning, lifts, water supply systems, and external noise intrusion eg road, rail, and air traffic.

The Acoustical Star Rating guidelines are available on the AAAC website www.aaac.org.au

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. Some variations may provide better sound isolation, while others may result in the acoustical isolation falling below the specification or code requirements. The following comments apply to wall systems unless otherwise noted.

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
- Increasing the thickness of steel studs from 0.55 BMT to 0.75 BMT or 1.15 BMT will decrease sound isolation
- Decreasing the stud spacing will decrease the sound isolation.

Plasterboard

- Substituting types of plasterboard of the same thickness, say Wet Area Board™ for Standard Core, will usually result in a change in R_w of less than 1dB for most systems, although a greater reduction may occur with membrane wall systems such as PartiWALL®
- Substituting with thinner plasterboard may result in a substantial reduction in sound isolation.

Insulation

- Thinner insulation will decrease the sound isolation
- Thicker insulation may increase the sound isolation
- The following insulation will typically have a similar performance:
  - Rockwool blanket or batts, 50mm thick, and not less than 30kg/m^3 density
  - Glass wool blanket or batts, 50mm thick, and not less than 10kg/m^3 density
  - Acoustic grade polyester fibre blanket or batts, 50mm thick, and not less than 14kg/m^3 density.

Fixings

- Using more screws or nails than specified may reduce the sound isolation
- Using cornice cement 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=30dB, are much lower than for a high sound rating wall, such as R_w=60dB. 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/m^3 and
- 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.

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:

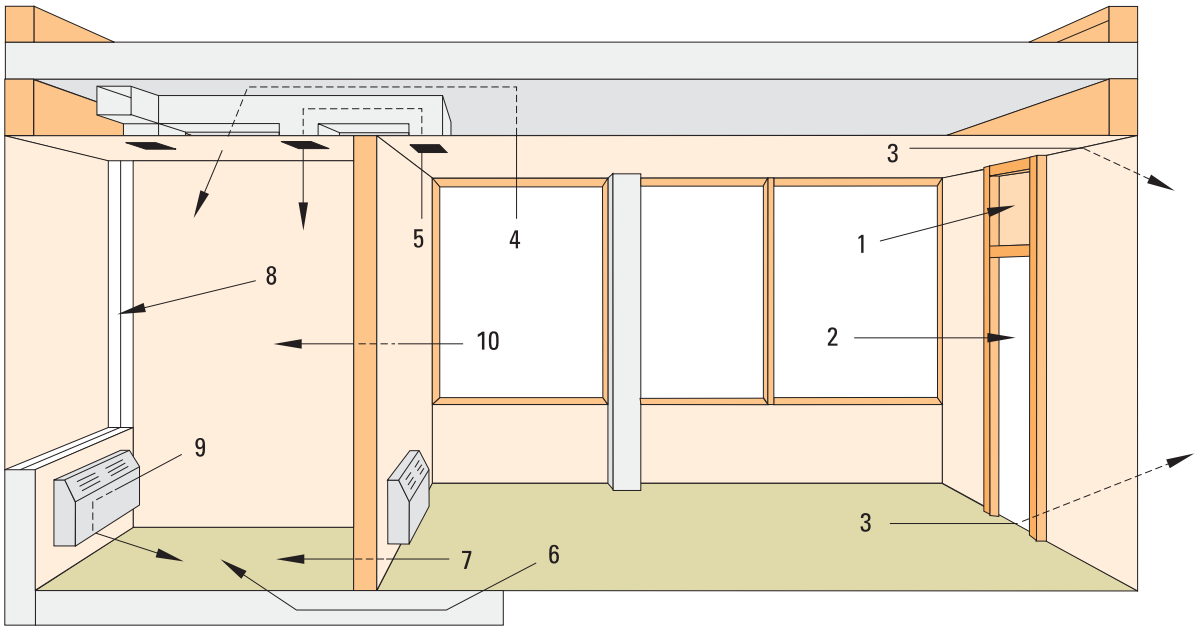
- Through ceilings and the above ceiling cavity
- Through floors and the below floor crawl space
- Through windows
- Through light switches, or GPO's, located in the wall
- Through shared building elements such as floor boards, floor joists, continuous plasterboard walls, continuous plasterboard ceilings, 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.

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 Continuous runs of ducting
10 Partition performance



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.

Boral Plasterboard 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, sluices, 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.

Electrical outlets and service pipe penetrations

Penetrations in party walls should be avoided where sound insulation is important. 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.

Electrical outlets and service pipe penetrations (cont)

Where penetrations are not avoidable in party 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 soil & waste pipes provided in Section B4 apply when the plasterboard linings are unpenetrated. In some cases, penetrations will downgrade the stated acoustic performance.

In wet areas, penetrations in ceiling linings typically include recessed lighting (eg down lights), together with a return air, air conditioning, or toilet exhaust grille.

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.

In the following tables, penetrations due to recessed adjustable low voltage gimble downlights and a toilet exhaust grille are used by way of example for the corresponding total area of opening in the wall or ceiling. To determine the estimated acoustic rating with penetrations, choose the appropriate range that the system without penetrations falls within and scroll down to the rating for the corresponding total opening area.

Pipes unlagged

The following table provides the revised R_w or $R_w + C_{tr}$ rating due to penetrations in the wall or ceiling partition systems listed on page B4.1. The ratings apply for systems with and without insulation.

Table 1

Unlagged soil & waste pipe systems - Estimated acoustic rating due to penetrations in the plasterboard lining

Total Area of Opening in Wall or Ceiling mm²	$R_w/R_w + C_{tr}$ of wall or ceiling partition system (with or without insulation)			
	25 - 29	30 - 34	35 - 39	40 - 45
300 (1 downlight)	25 – 29	30 – 33	34 – 38	38 – 41
600 (2 downlights)	25 – 29	30 – 33	34 – 36	37 – 39
1200 (4 downlights)	25 – 28	29 – 32	33 – 35	35 – 36
10,000 (small toilet exhaust grille)	23 - 25	26 - 27	27 - 28	27 - 28

The following is an example on the use of the table:

System specified: WP20 (ref pg B4.1)

Acoustic rating: R_w=31dB (without insulation)

Penetration: 4 downlights

Estimated acoustic rating from Table 1: R_w=29 - 32dB

Pipes lagged and clad

The following table provides the revised R_w or $R_w + C_{tr}$ rating due to penetrations in the wall or ceiling partition systems listed on page B4.2. The ratings apply for systems with and without insulation and assume that lagging and cladding of the pipe improves the effective R_w or $R_w + C_{tr}$ by 10dB.

Table 2

Lagged & clad soil & waste pipe systems - Estimated acoustic rating due to penetrations in the plasterboard lining

Total Area of Opening in Wall or Ceiling mm²	$R_w/R_w + C_{tr}$ of wall or ceiling partition system (with or without insulation)			
	30 - 34	35 - 39	40 - 44	45 - 49
300 (1 downlight)	30 – 34	35 – 39	40 – 43	44 – 48
600 (2 downlights)	30 – 34	35 – 39	40 – 43	44 – 46
1200 (4 downlights)	30 – 34	35 – 38	39 – 42	43 – 45
10,000 (small toilet exhaust grille)	29 - 33	33 - 35	36 - 37	37 - 38

The following is an example on the use of the table:

System specified: WPL13A (ref pg B4.2)

Acoustic rating: $R_w + C_{tr}$ =40dB (with insulation)

Penetration: small toilet exhaust grille

Estimated acoustic rating from Table 2:

$R_w + C_{tr}$ =36 - 37dB

Graeme E. Harding & Associates
Consultants in Acoustics, Noise and Vibration
A Division of Heggies Pty Ltd
ABN 29 001 584 612

Graeme E. Harding F.A.A.S., M.A.S.A., M.I.I.A.V., M.AIRAH, Principal
Gustaf Reutersward B.E.(Mech) (Hons), M.A.A.S., Office Manager
James B. Fowler B.E., M.A.A.S., Senior Consultant
Graeme R. Campbell B.App.Sc., M.A.A.S., Senior Consultant
Jim Antonopoulos B.App.Sc., M.A.A.S., Senior Consultant
Dianne L. Williams B.A.(Hons), B.App.Sc., M.A.A.S., Consultant

Suite 6, 131 Bulleen Road
BALWYN NORTH
Victoria 3104 Australia
Telephone: +61 3 9249 9400
Facsimile: +61 3 9249 9499
www.heggies.com

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ACOUSTICAL OPINION -
BORAL AUSTRALIAN GYPSUM LIMITED
PARTITION WALLS, FLOORS AND CEILINGS

Systems included in the Boral Selector - Plasterboard Systems (PB101, March 2007), which are not laboratory tested systems, have an acoustic rating which has been determined by opinion by Graeme E. Harding & Associates.

The acoustic rating was based either on the ratings of similar tested constructions from various sources, or by calculation using predictive models, or by a combination of both where appropriate.

Notes:

1. The R_W (Weighted Sound Reduction Index) is a single number index used to rate the sound isolation of a partition for noises which do not have significant low frequency components, such as speech. The R_W value given is the expected performance of a building element in a laboratory that tests to AS1191-2002 “Acoustics - Method for Laboratory Measurement of the Airborne Sound Transmission Loss of Building Partitions”, and determined according to the procedure in AS/NZS ISO 717.1:2004 “Acoustics - Rating of sound insulation in buildings and of building elements - Airborne sound insulation”.

   The expected tolerance of opinions is ±2dB for the R_W. This allows for variations in the test method, the difference between laboratories and the accuracy of the estimating techniques. The rating obtained on a building site, called the Weighted Apparent Sound Reduction Index (R'_W), may differ from the laboratory result.

2. The $R_W + C_{tr}$ is a single number index that provides a more reliable indicator of the ability of the partition to isolate noise containing significant low frequency components (such as traffic noise and home theater sound) than the R_W. In several countries the R_W combined with the C_{tr} (an adaptation term) is simplified to a single number rating, the $R_{A,2.}$ The $R_W + C_{tr}$ value given is the expected performance of a building element in a laboratory that tests to AS1191-2002 “Acoustics - Method for Laboratory Measurement of the Airborne Sound Transmission Loss of Building Partitions”, and determined according to the procedure in AS/NZS ISO 717.1:2004 “Acoustics - Rating of sound insulation in buildings and of building elements - Airborne sound insulation”.

   The expected tolerance of opinions is ±3dB for the R_W + Ctr. This allows for variations in the test method, the difference between laboratories and the accuracy of the estimating techniques. The rating obtained on a building site may differ from the laboratory result.

3. The $L_{n,w} + C_I$ is a single number index used to rate the sound isolation of a floor/ceiling partition against footfall noise, particularly high healed, hard surfaced shoes. The $L_{n,w} + C_I$ value is the expected performance in a laboratory that tests to ISO 140/6-1998 “Acoustics - Measurement of Sound Insulation of Buildings and of Building Elements - Part 6: Laboratory Measurements of Impact Insulation of Floors” and determined according to the procedure in AS ISO 717.2-2004 “Acoustics - Rating of sound insulation in buildings and of building elements - Impact sound insulation”.

   The expected tolerance of opinions is ±3dB for the $L_{n,w} + C_I$. The expected tolerance allows for variations due to the test method, differences between laboratories, and accuracy of the estimate. The $L_{n,w} + C_I$ rating does not allow for the amount of low frequency noise to the room below the partition when a person walks on the floor above. This low frequency noise can be significant with lightweight floor/ceiling systems. The field rating may differ significantly from the laboratory result.

Prepared by:

James B. Fowler, B.E., M.A.A.S.
Senior Consultant
2007 March 16

Member – Association of Australian Acoustical Consultants

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A5. Fire Resistance

Fire Resistance Levels (FRL)

Fire rating requirements of the Building Code of Australia are specified in terms of Fire Resistance Levels (FRL). The FRL specifies the performance, in minutes, of fire tested specimens for each of the following three design criteria when fire tested to the requirements of the Australian Standard AS1530 `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.

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 constructed to the standard required for a particular FRL may be used to satisfy the requirements of 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.

Adjacent structure

The BCA requires that building elements, other than roof sarking or certain roof battens, must not pass through or cross a fire wall unless the fire resistance of that fire 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 builder. 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 and this is the default condition for FRLs listed within the Systems Index. 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.

Limiting heights

Limiting 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. Limiting 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 Engineers.

Charfactors

Charfactor numbers apply only to timber stud partition systems listed in the System Index. A Charfactor number is a dimensionless factor relating the amount of permissible char area of timber studs, when under fire test at the time of its structural collapse, to a given height and loading.

Charfactor Tables are provided in Part C of this System Selector for the purpose of assisting the designer in the selection of the appropriate timber partition frame sizes to meet the fire-rating requirements of the Building Code of Australia. Charfactor numbers were derived from joint studies carried out by CSIRO and BRANZ, to develop a method of determining the expected fire performance of timber systems by extrapolation from existing test data. The methods used to derive these Charfactor numbers are detailed in CSIRO and BRANZ technical reports.

Resistance to the 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 System Selector carry an RISF rating which is noted as such. RISF is a more onerous requirement than a FRL. Systems constructed to the standard required for a particular RISF may be used to satisfy the requirements of 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.

Insulation Materials

Material	Restriction
Foil-backed sarking; batt, blanket, or loose rockwool or ceramic fibre	No restriction.
Batt, blanket, or loose glass wool	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

Plasterboard satisfies the Building Code of Australia requirements for Early Fire Hazard (EFH) properties of wall and ceiling linings. EFH properties for plasterboard and plaster products are as follows:

Early Fire Hazard Properties

Product	Ignitability (0-20)	Spread of Flame (0-10)	Heat Evolved (0-10)	Smoke Developed (0-10)	Basis
Boral Std Core pbd 10, 13mm	14	0	1	0-1	CSIRO FNE6351
Boral UniSPAN® 10mm	14	0	2	0-1	CSIRO FNE6142
Boral Wet Area pbd 10, 13mm	14	0	2	1	CSIRO FNE6032
Boral FireSTOP™ pbd 13, 16mm	13	0	1	2	CSIRO FNE6328
Boral Wet Area FireSTOP™ 13, 16mm	14	0	2	1	CSIRO FNE6032
Boral ShaftLINER™ 25mm	14	0	1	2	CSIRO FNE6031

The EFH classification for wall and ceiling linings is being replaced in the BCA by classifications derived from Cone Calorimeter testing. Testing to this requirement carried out by BRANZ produced the following results:

Cone Calorimeter Testing

Product	BCA Classification	Basis
Boral Std Core pbd	Group 1	BRANZ FH3235/FH2188
Boral UniSPAN® pbd	Group 1	BRANZ FH3470
Boral SoundSTOP® pbd	Group 1	BRANZ FH3471
Boral Wet Area pbd	Group 1	BRANZ FH3236/FH2189
Boral FireSTOP™ pbd	Group 1	BRANZ FH3237/FH2190
Boral ShaftLINER™ pbd	Group 1	BRANZ FH3473
Boral Wet Area FireSTOP™ pbd	Group 1	BRANZ FH3472

Combustibility

Plasterboard is deemed to be a non combustible material for the purposes of the Building Code of Australia.

Gas appliances

Care is needed in the detailing of plasterboard walls around domestic gas cooking appliances and commercial catering equipment. Designers should check with the instructions and clearance requirements set out in Australian Standard AS 5601/ AG601 `Gas Installations´.

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.

Smoke walls

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

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A6. Structure

As required by the relevant Australian design codes, walls must be checked against dead, live, and wind loads etc for structural adequacy independently of any acoustic or fire design.

The wall frame design must allow for:

- Deflection expected from building movement and thermal expansion during fire service
- The support, including lateral support of any door or access panel frames, wall 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 deflections

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.

For ceilings systems, specifiers should be aware of the likelihood of frame movement due to structural, thermal, or seasoning effects on direct fixed plasterboard ceilings. Where necessary specify a furred system to minimise the risk of ceiling damage due to these effects.

Designers should make due allowance for expected framing deflections in considering deflection head requirements, and where necessary refer to Boral Plasterboard Sales Offices for further information. Standard partition head details should accommodate normal service deflections. For load bearing, fire rated, steel stud walls, refer directly to Boral Plasterboard TecAssist 1800 811 222.

Plasterboard as structural bracing

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

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

Limiting heights

Wall heights for non load bearing walls must be within the maximum heights as set out in the tables in Section C.

Limiting heights for non load bearing steel framed walls have been provided for 0.25kPa and 0.35kPa lateral pressures and are based on L/240 deflection criteria set out in the BCA. Refer also to comments on limiting heights in Section A5.

For timber partition systems refer to comments on Charfactors in Section A5.

Maximum wall heights for load bearing non fire rated steel stud walls will be determined by the loadings, layout and sections used. Maximum wall heights for load bearing fire rated steel stud walls will be similarly determined by the loadings, layout and sections used, but an appropriate system must be adopted to provide protection to the wall frame as listed on page A6.2

Shelf loading

Walls, including fire rated walls, that carry shelf loadings must be designed accordingly. Refer to Boral Plasterboard for further information on shelf loadings.

Load bearing fire rated steel stud walls

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

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:

FRL For Load Bearing Walls

FireSTOP™ 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: 1996 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 Boral Plasterboard non load bearing fire rated details.

Limiting spans

Ceiling spans must be within the maximum spans as set out in the Design Tables in Section C.

Allowable ceiling loads

The mass of insulation or other materials supported directly by the plasterboard ceiling lining must not exceed 2kg/m^2. Unless fastened directly to the ceiling frame, designers must provide for extra framework above the ceiling to support heavy items such as large light fittings, hanging chairs, hanging TV monitors, etc.

A7. Wet Areas

Application

Boral Wet Area System™ is designed for use in wet areas of residential buildings and other buildings where the use of wet areas is similar to that in residential buildings.

A Wet Area is defined as an area within a building supplied with water from a water supply system and includes bathrooms, showers, laundries and sanitary compartments.

Boral Wet Area System™

Boral Wet Area System™ is a wall system comprising Boral Wet Area Board™, Boral Wet Area Taping Cement™, Boral Wet Area Sealant™ and Boral Wet Area SealCote™ (if required).

Boral Wet Area System™ must be installed in accordance with specification contained in Boral Plasterboard Installation Manual to achieve the intended performance and to be covered by the manufacturer's guarantee.

Standards

Boral Wet Area System™ complies with the requirements of AS3740-2004 `Waterproofing of wet areas within residential buildings´.

> Note:
> In South Australia installers should also refer Minister's Specification F1.7 for additional waterproofing requirements in wet areas.

Two liberal coats of Boral Wet Area SealCote™ (min coating 500g/sq m each coat) constitute a waterproofing membrane complying with the requirements of AS/NZS 4858-2004 `Wet area membranes´.

Boral Wet Area Board™ is manufactured to the requirements of ASTM C630 `Specification for water-resistant gypsum backing board´.

Boral Wet Area Board™

Boral Wet Area Board™ is manufactured with a moisture resistant core that stops water wicking up the board causing damage to the substrate or surface finish.

Boral Wet Area Board™ can be recognised by its blue-grey face liner and is manufactured with recessed edges for flush jointing within and outside of tiled areas.

Boral Wet Area Board™ must:

- Be fixed to framing only with mechanical fasteners when used as a substrate for tiling. Stud adhesives must not be used in tiled areas
- Be faced with ceramic tiles or other approved water resistant materials when installed in wet areas
- Only be applied to timber or steel framing or to a base layer of Boral Wet Area Board™, never to other types of plasterboard, plaster (gypsum or cement) or similar materials. Multiple layers of Boral Wet Area Board™ must be fastened to framing individually
- Be jointed with paper tape
- Not be installed over a vapour barrier
- Not be used in critical exposure areas such as group shower rooms or steam rooms
- Not be used in un-protected external applications
- Not be used if fractured or damaged.

Where fire isolation is required in wet areas Boral Wet Area FireSTOP™ plasterboard is available and may, thickness for thickness, be substituted in place of Boral FireSTOP™ plasterboard without adversely affecting the system's FRL.

Boral Plasterboard does not recommend the use of Wet Area Board™ in ceilings.

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A8. Design Considerations

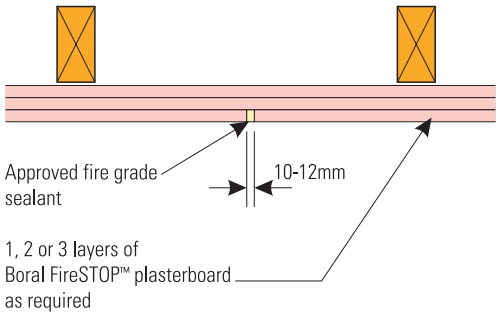
General

Design

In addition to the requirements for correct installation of linings, all wall and ceiling frames are to be designed and constructed to meet the relevant codes and regulations.

Control joints

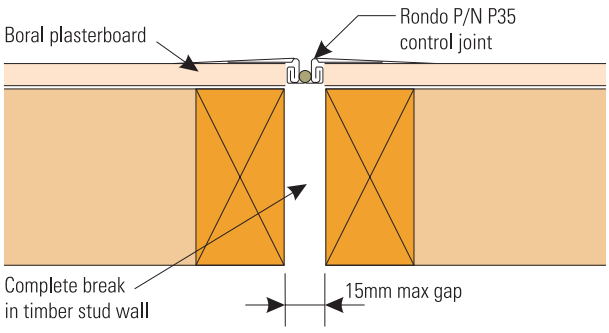
Control joints are required in unbroken walls and ceilings at no greater than 12 metre centres. Their purpose is to accommodate hygrometric (moisture caused) and/or thermally caused changes in the plasterboard dimensions.



Control Joint in Fire Rated System

Movement joints

These joints are required in walls and/or ceilings in order to accommodate movements in the building structure due to, for example, shrinkage, settlement, wind or seismic forces. They include construction and expansion joints and joints at changes in substrates.



Movement Joint

Acoustically isolated furring

Acoustically isolated furring systems listed in the System Index incorporate acoustic mounts with a rubber element. To work effectively in ceilings, the hardness of these elements must be matched to the ceiling weight. Several types of acoustic mounts are available depending on the type of ceiling frame and applied loading.

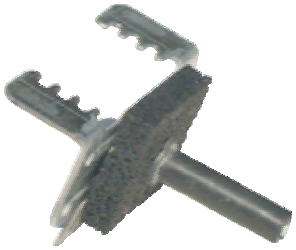
Boral Acoustic Ceiling Mounts are suitable for multiple layer ceiling systems. Rubber elements within the mounts are colour coded to indicate load bearing capacity (blue dot - 17kg max load, white dot - 25kg max load).

Rondo Sound Isolation Mounts are recommended for single layer ceilings.

Boral Acoustic Ceiling Mount - Direct Fix Application

Rondo Sound Isolation Mount STWC

Boral Acoustic Impact Clips have been used in acoustic upgrades of masonry wall systems.



Boral Acoustic Impact Clip

Resilient channel

This steel section, when fixed appropriately, provides a resilient mounting for plasterboard wall and ceiling linings thus reducing the transfer of acoustic energy between the frame and the linings. Care must be taken during construction that plasterboard screws do not bridge across the gap formed by the resilient channel.

General (cont)

Fasteners

For the correct selection of screws and nails for the construction of Boral Plasterboard systems refer to `Boral Plasterboard Installation Manual´ and the brochures for specific systems.

Jointing

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

Boral Plasterboard 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.

Wall systems

Unless specified otherwise, Boral Plasterboard wall systems are to be constructed using Rondo lipped C studs and track or timber frame with stud spacings of up to 600mm in straight, vertical sections and with standard fasteners and fastening centres. Base and head details, changes of direction and wall intersections, control and movement joints, doorways and plasterboard linings orientation and jointing should be in accordance with appropriate Boral Plasterboard installation details.

Changes in direction, intersections and terminations

Using the appropriate installation details, changes in direction, acute, right and obtuse angles and terminations may be formed in a wall without adversely affect the FRL of the wall.

Doors

At doorsets in steel framed walls the studs adjacent to the jamb are usually boxed together for the purposes of supporting the door jamb. The remaining studs are single studs unless required to be boxed for other reasons.

When in doubt contact Boral Plasterboard or the door frame manufacturer.

Ceiling systems

In fire rated ceiling systems the plasterboard may be attached directly to the frame or via furring and/or a suspension system without adversely affecting the FRL of the system.

All fire resisting and acoustic ceilings require the perimeter to be sealed and joints to be finished.

Unless otherwise noted, ceiling linings are assumed to be supported at 600mm centres.

Maximum plasterboard spans

Apart from the framing spacings determined by structural, fire and acoustic considerations, plasterboard support spacings should not exceed maximum plasterboard spans as indicated in the following table:

Maximum Plasterboard Spans (mm)

Plasterboard Type	Thickness (mm)	Walls	Internal Ceilings
FlexiBOARD®	6	300	-
Standard Core	10	600	450
	13	600	600
UniSPAN®	10	600	600
Wet Area Board™	10	600	300
	13	600	450
FireSTOP™	13	600	600
	16	600	600
Wet Area FireSTOP™	13	600	450
	16	600	600
SoundSTOP®	10	600	450
	13	600	600
Foil backed board	10	600	450
	13	600	600
ShaftLINER™	25	600	600

Reduced spans may be applicable to external ceilings. Greater plasterboard spans may be possible for some fire-rated wall systems such as D-Stud™ Cinema Wall. Refer Boral Plasterboard for further information.

Design options

The following design options can be incorporated in Boral plasterboard 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 2kg/m^2
- Insulation that attracts and holds moisture for prolonged periods is not recommended for use in Boral plasterboard ceiling systems.

Overall width of partition

Twin, chase 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 and fire resisting properties of the partitions.

Frame

Other aspects 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.

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
  - Of the same section or deeper, and/or wider
  - Of the same or higher average density.
- Treated timber can be used in place of untreated timber provided that its charring rate is proven to be no greater than by fire testing
- 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

UNO all plasterboard supporting framework must be spaced at no greater than 600mm centres. In some systems such as D-Stud™ Cinema Wall this spacing may be exceeded. Refer to Boral Plasterboard for further details.

Stud substitution

Rondo steel studs have been used in the development of Boral Plasterboard acoustic, fire rated and structural 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 unlipped C section studs can vary significantly from those of lipped studs, therefore unlipped C Studs must not be used without their independent assessment for the prevailing conditions.

The Cinema Wall and D-Stud™ systems were developed using Bluescope Steel and Stramit top hat sections. Other sections may be used providing their mechanical and geometrical properties are at least equivalent to those stated for Bluescope Steel and Stramit top hat sections.

Design options (cont)

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 Boral Plasterboard details.

Noggings and plates may be incorporated within steel framed fire rated walls except that:

- The minimum cross sectional dimension of timber fixing plates or noggings to be 35mm, and
- The maximum weight of external attachments fixed to timber noggings or plates must not exceed 50% of that applicable to an equivalent non fire rated wall.

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.

Fastener details and fixing

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.

Curved walls and ceilings

Curved non fire rated walls and ceilings are to be supported at spacings as specified in Boral Plasterboard Installation Manual.

Refer to Boral Plasterboard for construction details for curved fire rated walls.

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

Beams and columns

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

Attachments, shelf loading capacity

In general, items may be attached through a fire rated lining to the wall frame beneath 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 200ºC.

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

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

Refer to Boral Plasterboard 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/NZS 4600:1996 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 200ºC.

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

Design options (cont)

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 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 Boral Plasterboard technical publications for further details.

> Note:
> 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 42ºC for a prolonged period of time.

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. Pre-fabricated non fire rated and fire rated access panels are also available – refer to panel manufacturers for further 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 aperture must first be framed out allowing for lining and sealing of the aperture and expansion of the penetrating item during fire service. 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.

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).

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.

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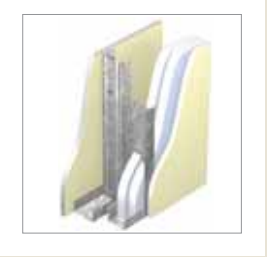
B. System Index



Contents

B1. System Index Notes

B2. Walls

B3. Ceilings

B4. Other Systems

B1. System Index Notes

System Identification

For some time it has been recognised that the naming of plasterboard systems varied widely within the industry and was not helpful in ready recognition of the system quoted or in the description of the system. Boral Plasterboard has derived and adopted an identifying method that reflects the basic physical form, be it a wall, a ceiling etc of all its plasterboard systems. An explanation of this system labelling as used in this publication is set out below.

How it works

System labels describe the physical system commencing with the frame and continuing through to the linings.

All labels are of the form AABBCCDD.

AA is the type of system in the order function/substrate/type as listed within the System Types (AA) table at the end of this subsection.

BB is the total thickness of plasterboard to the thinner, upper, outer, (or only) side of the system.

CC is the total plasterboard thickness to the other side of the system (if there is one).

DD is the board type applied as set out below where that type is not Standard Core plasterboard.

Key

DD	Plasterboard Type
A	Boral SoundSTOP®
F	Boral FireSTOP™ (may include ShaftLINER™)
W	Boral Wet Area Board™
WF	Boral Wet Area FireSTOP™
U	Boral UniSPAN®

Note:

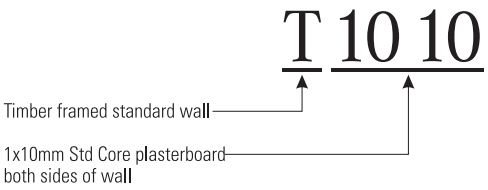
- Board type identifier has been omitted for Boral Standard Core plasterboard
- Where multiple layers of the same type of plasterboard are applied to one side of system, their thicknesses are combined into one total board thickness number followed by the board type identifier
- Where the same type of board is used on both sides of the system, total board thicknesses on each side are shown consecutively followed by the board type identifier
- Where different types of board are used in the system, the relevant board type identifier is shown for each type of board
- Board type identifiers should not be confused with the similar system type identifiers which may be present in the beginning of the system label
- Any plasterboard thickness shown in brackets is to be installed between the studs rather than across the stud flanges in the normal manner.

Plasterboard identification examples

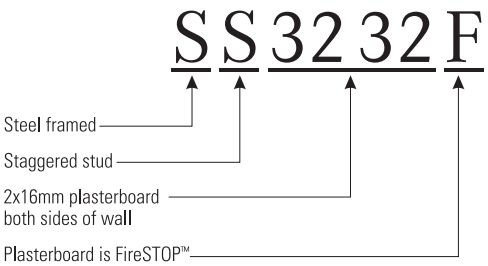
- 2x13mm FireSTOP™ plasterboard on one side only of a wall frame would be listed as 26F
- 13mm FireSTOP™ plasterboard on both sides of a wall frame would be listed as 1313F
- 1x16mm FireSTOP™ plasterboard on both sides of a wall frame + 13mm FireSTOP plasterboard on one side would be listed as 1629F
- 16mm FireSTOP™ plasterboard on both sides of a wall frame + 10mm Standard Core plasterboard on one side would be listed as 1616F10
- 16mm FireSTOP™ plasterboard + 13mm SoundSTOP® plasterboard on both sides of a wall frame would be listed as 16F13A16F13A.

System labelling examples

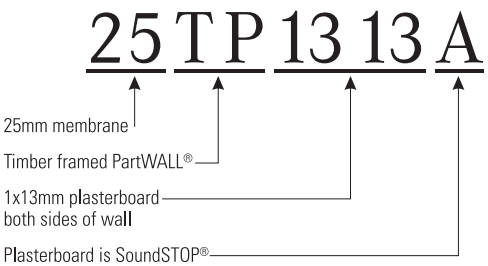
a Where previously a timber framed wall lined on both sides with a single layer of Boral 10mm Standard Core plasterboard was referred to as system ATS4 (in the Plasterboard Building Systems Acoustic Selector), it is now known as system T1010.



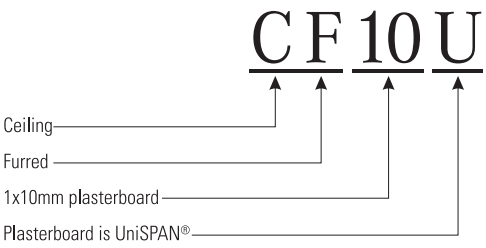
b Where previously a steel framed staggered stud wall lined on both sides with two layers of Boral 16mm FireSTOP™ plasterboard was referred to as system SSS4, it is now known as system SS3232F.



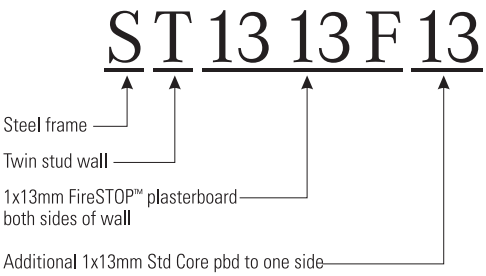
c Where previously a timber framed PartiWALL® lined on both sides with a single layer of Boral 13mm SoundSTOP® plasterboard was referred to as system PWT3, it is now known as system 25TP1313A.



d Where previously a ceiling lined with a single layer of Boral 10mm UniSPAN® plasterboard on furring channels was one of the CS18 systems, it is now known as system CF10U.



e A steel framed twin stud wall lined with a single layer of Boral 13mm FireSTOP™ plasterboard to both sides plus a layer of 13mm Standard Core plasterboard to one side only is now known as system ST1313F13.



System Index Overview

Abbreviations used in the index are listed in the Abbreviations part of Section A1.

Moving from left to right of the Index the first column is Layout. The layout graphic gives a ready visual identification of the generic system as a check.

Next column is System Reference. For those familiar with the old system references there is listing at the end of the System Selector comparing the new references with the old naming convention.

Both the Layout and System Reference should be read in conjunction with the comments in the Description column. Details A to J mentioned in the masonry and column protective system listings are as described prior to those listings.

The Description is followed by Approx Pbd Mass column containing the weights of plasterboard component of various systems in kg/m^2. The mass listed depends on the type, thickness and number of layers of plasterboard used.

Fire resistance

Fire Resistance columns contain the Fire Resistance Levels (FRL) of various systems and the basis, usually a fire test opinion, upon which the FRL is claimed.

Unless otherwise noted all fire ratings for ceilings and walls are from both directions. Note that FRL's without a structural adequacy figure (ie -/90/90), indicate non load bearing systems. In the case of some ceilings the FRL is followed by the Resistance to the Incipient Spread of Fire (RISF).

(Continued over)

B. System Index

Layout	System Ref	Description	Approx Pbd Mass (kg/m^2)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
Walls Lined Both Sides - Steel Framed											
 System **S1313** illustrated	**S1010**	1x10mm Std Core pbd to each side of stud	13.6	-/20/20	WRFA F91815	51	71	34	38	28	50G14, 50P14
						64	84	34	40	29	50G14, 50P14
						76	96	34	40	29	50G14, 50P14
						92	112	35	41	30	50G14, 50P14
						150	170	36	44	32	50G14, 50P14
	S1010A	1x10mm SoundSTOP pbd to each side of stud	16.4	Nil	NA	51	71	35	42	32	50G14, 50P14
						64	84	36	43	32	50G14, 50P14
						76	96	36	45	33	75G14, 75P14
						92	112	37	46	34	75G14, 75P14
						150	170	38	48	36	100G14, 100P14
	S1313	1x13mm Std Core pbd to each side of stud	17.2	-/30/30 20/20/20	WFRA C91553 WFRA C91555	51	77	35	42	32	50G14, 50P14
						64	90	35	43	32	50G14, 5P14
						76	102	36	44	33	50G14, 50P14
						92	118	37	45	34	50G14, 50P14
						150	176	38	47	36	50G14, 50P14
	S1313A	1x13mm SoundSTOP pbd to each side of stud	22.4	Nil	NA	51	77	36	44	34	50G14, 50P14
						64	90	37	45	35	50G14, 50P14
						76	102	38	**49**	**36**	75G14
						92	118	38	**49**	37	100G14, 100P14
						150	176	40	50	40	100G14, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold Acoustic Ratings indicate Tested System

Sample Table

System Index Overview (cont)

Physical features

The Stud Size is listed primarily to define the cavity for acoustic properties or to limit the range of stud sizes for fire resistance reasons.

The Nominal Width is the overall width of the system including the frame and the plasterboard lining on it.

Acoustic isolation

Acoustic ratings are provided for systems with or without insulation. All acoustic ratings are based on opinion Sheet No.104 from Graeme E. Harding and Associates Pty Ltd. For a copy of the opinion refer to Section A4.

All acoustic ratings listed are for a stud spacing of 600mm. Where insulation is listed, unless noted otherwise, it is required in one side only of staggered, twin or furred systems.

Twin timber or steel stud walls and some PartiWALL® and EurekaWALL™ systems comply as discontinuous construction under BCA 2005 vol 1, part F5 and vol 2, part 3.8.6. For PartiWALL® systems this assumes that floors are aligned. Staggered stud walls may be deemed to be discontinuous construction for certain types of building construction. A ruling from a building certifier would be required for specific projects.

$L_{n,w}+C_I$ ratings are provided for floor systems to indicate their impact noise isolation properties.

The acoustic values listed for timber floor/ceiling systems assume:

- A minimum of 19mm chipboard on 190mm deep joists
- All furred systems incorporate a clip for the attachment of the furring channel
- Tiles are laid on a 6mm thick cement sheet (total mass nom 15kg/m^2)
- Carpeted timber floors assume that an underlay is used.

For ceilings under concrete floors:

- The airborne and impact noise isolation of most ceilings is limited by flanking transmission
- Ceilings under bare concrete floors assume a minimum 150mm thickness of concrete.

Thermal resistance

Thermal Resistance (R) ratings are provided for external wall systems.

These R values:

- Include an allowance of 0.09 (internal) + 0.03 (external) = 0.12m^{2}K/W for surface resistance
- Assume, UNO, that all stud gauges are 1.15mm BMT
- Are calculated using the Isothermal Planes method according to H.A. Trethowan
- For Standard Core, FireSTOP™ and ShaftLINER™ plasterboard are calculated from thermal conductivities per BRANZ report EC0713 of 22 Oct 2003
- Are calculated assuming the insulation listed is fitted tightly between the studs.

System Selection

A System Key is included at the end of Section B1 to assist with selection of systems for particular applications.

System selection procedure example

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

Fire rating: FRL -/120/120 from both sides

Acoustic rating: R_w+C_{tr}=50dB and discontinuous construction

Height: 4100mm slab to slab

Head deflection: 20mm

Design pressure: 0.25kPa

Procedure

Step 1 - Select the most economical wall system satisfying fire rating requirements

- Refer to Section B2 Walls
- Under 'Steel Framed Twin Stud Systems', scroll down the Fire Resistance columns to find the first system with FRL -/120/120. This system is ST2626F (page B2.18).

Step 2 - Check if the system satisfies acoustic requirements

- On the same page move across to Acoustic Ratings columns to confirm that the system achieves R_w+C_{tr}=50dB. System S2626F with acoustic insulation exceeds R_w+C_{tr}=50dB acoustic rating for stud sizes from 51mm to 150mm

Step 3 - Select the stud size and spacing to satisfy structural requirements

- Refer to page C2.6 'Maximum Wall Heights: Non-load Bearing Steel C Studs – Lined One Side'
- Under Maximum Wall Pressure 0.25kPa and Maximum Stud Centres 600mm (Nogged) scroll down the column 2x13mm lining both sides FRL -/120/120 to find the wall height at least equal to 4100mm (in this case the table contains the height 4180mm with subscript '2d' indicating that this height is limited by deflection criteria)
- Move across to Stud column to identify the stud size required to achieve this height: 92CS75
- From the notes on page C2.2 we note that nogged walls lined one side that are between 3000mm – 6000mm in height require noggings at 1/3 spacing and an extra nogging 100mm from the top.

Step 4 - Check head track capacity

- Deflection head track (DT) must be used to accommodate 20mm head deflection
- Stud head (and base) reaction at 250Pa is 0.6 (stud spacing in metres) x 4.1 (stud height in metres)/2 x 250 (Pa pressure) = 308N (0.31kN)
- Refer to relevant table of head capacities (Rondo TDS/03-106) which, in this configuration, allows 0.44kN for track capacity with a 20mm gap at head for 0.75mm BMT gauge track. This capacity exceeds the 0.31kN required so is OK.

Step 5 - Confirm Acoustic Rating

- Refer back to Section B2 Walls
- For system ST2626F and stud size 92CS75 find that actual acoustic rating is R_w+C_{tr}=54dB (with 50G14 or 50P14 insulation).

Step 6 - Check List

- Refer to Check List to confirm that all the relevant aspects have been addressed.

Conclusion

System ST2626F with 92CT75 base tracks, 92DT75 deflection head tracks, 92CS75 studs at 600mm spacings with noggings at 1/3 spacing and 100mm from the top, satisfies fire, acoustic and structural performance requirements.

System Specification

Although the system label contains information about the basic system, it does not provide a full description of the system as required for the purposes of project specification.

For a full and unambiguous description of a Boral Plasterboard system, the label must be accompanied by the performance specification, which may include:

- Fire resistance level (FRL)
- Acoustic isolation rating (R_w or R_w+C_{tr})
- Acoustic impact noise isolation rating ($L_{n,w}+C_I$)
- Design lateral pressure
- Any imposed loads
- Maximum (or minimum) wall width
- Maximum wall deflection
- Expected soffit deflection.

To adequately specify a system, the above system label and performance specification should be accompanied by additional information such as:

- Stud size
- Wall height
- Type and location of acoustic/thermal insulation
- 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.

Example of system specification is:

Boral Plasterboard system SS3232F
FRL -/120/120
Rw =50dB
Max wall width 214mm
Wall height 3000mm
0.25kPa lateral pressure.

A check list is included at the end of Section C as a guide to parameters that may influence system design and specification.

System Construction

While adequate system specification is extremely important, Boral Plasterboard installation instructions must be followed in order to achieve the specified performance on site. Refer to relevant Boral Plasterboard publications for installation details of particular systems.

System Types (AA)

Membrane Thickness	Function	Substrate	Type	System Type
	(wall)	**T**imber frame	(standard)	T
	(wall)	**T**imber frame, furred	(standard)	TF
	(wall)	**T**imber frame, **R**C 1 side	(standard)	TR
	(wall)	**S**teel frame	(standard)	S
	(wall)	**T**imber frame	**S**taggered	TS
	(wall)	**S**teel frame	**S**taggered	SS
	(wall)	(only ever steel)	**D** stud	D
	(wall)	**T**imber frame	**T**win	TT
	(wall)	**S**teel frame	**T**win	ST
25 mm	(wall)	**T**imber frame	**P**artiWALL	25TP
50 mm	(wall)	**T**imber frame	**P**artiWALL	50TP
25 mm	(wall)	**S**teel frame	**P**artiWALL	25SP
50 mm	(wall)	**S**teel frame	**P**artiWALL	50SP
	(wall)	(only ever steel)	**E**ureka**W**ALL	EW
	(wall)	(only ever steel)	**E**ureka**W**ALL, **F**urred	EWF
	(wall)	(only ever steel)	**E**ureka**W**ALL, **FR**FC	EWFR
	(wall)	(only ever steel)	**SH**aft Wall	SH
	(wall)	(nil)	**V**ent**S**HAFT	VS
	(wall)	(only ever steel)	**S**ub **F**loor	SF
	(wall)	(only ever steel)	**F**ire**C**LAD	FC
	(wall)	(only ever timber)	**O**utR**W**ALL	OW
	(wall)	**T**imber frame	**B**rick **V**eneer	TBV
	(wall)	**S**teel frame	**B**rick **V**eneer	SBV
	(wall)	(only ever steel)	**SP**andrel	SP
	(wall)	**M**asonry	(upgrade)	M
	(wall)	**M**asonry	**F**urring	MF
	Ceiling	(steel or timber)	(standard)	C
	Ceiling	(steel or timber)	**F**urred	CF
	Ceiling	(steel or timber)	**F**urred, **A**coustic mount	CFA
	Ceiling	(steel or timber)	**R**esilient channel	CR
	Ceiling	(steel or timber)	**S**uspended	CS
	Ceiling	(steel or timber)	**S**uspend, **A**coustic mount	CSA
	Ceiling	(only ever steel)	**D**-Span	CD
	Ceiling	(only ever steel)	**SP**anning	CSP
	Ceiling	(only ever steel)	**H**orizontal **S**haft wall	CHS
	Ceiling	(steel or timber)	**O**ver Partition, Plenum **B**arrier	COB
	Ceiling	(steel or timber)	**O**ver Partition, **C**ontinuous Ceiling	COC
	Ceiling	(steel or timber)	**O**ver Partition, **D**iscontinuous Ceiling	COD
	Ceiling	(steel or timber)	**O**ver Partition, **O**arrier, **T**iled	COBT
	Ceiling	(steel or timber)	**O**ver Partition, **C**ontinuous, **T**iled	COCT
	Ceiling	(steel or timber)	**O**ver Partition, **D**iscontinuous, **T**iled	CODT
	(acoustic)	(steel or timber)	**W**aste **P**ipe	WP
	(acoustic)	(steel or timber)	**W**aste **P**ipe, **B**oxed	WPB
	(acoustic)	(steel or timber)	**W**aste **P**ipe, **L**agged	WPL
	(acoustic)	**S**teel frame adjacent	**W**aste **P**ipe	SWP
	(acoustic)	**T**imber frame adjacent	**W**aste **P**ipe	TWP
	Protection	**C**oncrete	**S**offit	PCS
	Protection	**C**oncrete	**C**olumn	PCC
	Protection	**S**teel	**C**olumn	PSC
	Protection	**T**imber	**C**olumn	PTC
	Protection	**S**teel	**B**eam	PSB
	Protection	**S**teel	**B**eam, **C**oncrete floor	PSBC
	Protection	**S**teel	**B**eam, **T**imber floor	PSBT
	Protection	**T**imber	**B**eam	PTB
	Fire **T**unnel	(only ever steel)	From **B**oth directions	FTB
	Fire **T**unnel	(only ever steel)	From **O**utside only	FTO

With reference to the above table note that:

- Shaft Wall and Horizontal Shaft Wall only ever has 1x25mm ShaftLINER™ and therefore this layer is identified within the SH and CHS labels.
- EurekaWALL™ only ever has 2x25mm Shaft LINER™s and therefore these layers are identified within the EW label.

B: System Index

System Key

Project Type	System																																																		
	Walls																											Ceilings									Shafts/Ducts					Protective									
	T	TF	TR	S	TS	SS	D	TT	ST	25TP	50TP	25SP	50SP	EW	EWF	EWRF	SH	STP	VS	SF	FC	OW	TBV	SBV	SP	M	MF	C	CF	CFA	CR	CS	CSA	CD	CSP	CHS	WP	WPB	WPL	SWP	TWP	PCS	PCC	PSC	PTC	PSB	PSBC	PSBT	PTB	FTB	FTO
Houses	•	•	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	-	•	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	-	•	•	-	-
Duplex	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	•	-	•	•	•	-	•	•	•	•	-	-	-	-	-	-	-	•	•	•	•	•	-	-	•	•	•	-	•	•	-	-
Row House	•	-	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	•	-	•	•	•	-	•	•	•	•	-	-	-	-	-	-	-	•	•	•	•	•	-	-	•	•	•	-	•	•	-	-
Terrace House	•	-	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	•	-	•	•	•	-	•	•	•	•	-	-	-	-	-	-	-	•	•	•	•	•	-	-	•	•	•	-	•	•	-	-
Town House	•	-	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	•	-	•	•	•	-	•	•	•	•	-	-	-	-	-	-	-	•	•	•	•	•	-	-	•	•	•	-	•	•	-	-
Villa Unit	•	-	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	•	-	•	•	•	-	•	•	•	•	-	-	-	-	-	-	-	•	•	•	•	•	-	-	•	•	•	-	•	•	-	-
Boarding House	•	-	•	•	•	•	•	•	•	-	-	-	-	•	•	•	•	-	•	•	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Guest House	•	-	•	•	•	•	•	•	•	-	-	-	-	•	•	•	•	-	•	•	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Backpackers'	•	-	•	•	•	•	•	•	•	-	-	-	-	•	•	•	•	-	•	•	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Hostels	•	-	•	•	•	•	•	•	•	-	-	-	-	•	•	•	•	-	•	•	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Lodging House	•	-	•	•	•	•	•	•	•	-	-	-	-	•	•	•	•	-	•	•	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Residential Garage	•	-	-	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	•	•	•	•	-	•	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	-	•	•	-	-
Multi Res. - Low Rise	•	-	•	•	•	•	•	•	•	-	-	-	-	•	•	•	•	-	•	•	-	-	•	•	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	•	•	•	•	•	•	-	-
Multi Res. - Hi Rise	•	-	•	•	•	•	•	•	•	-	-	-	-	•	•	•	•	-	•	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	•	•	-	•	•	-	-	-	-
Hotels/Motels	•	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•
Shops	•	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	-	-	-	•	•	-	•	•	•	•	-	-	•	•	-	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•
Cinemas	-	-	-	•	-	•	•		•	-	-	-	-	-	-	-	•	•	•	-	-	-	-	-	-	-	-	•	-	•	-	•	•	•	•	•	-	-	-	-	-	-	•	•	-	•	•	-	-	•	•
Office Building - High Rise	-	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	•	-	•	-	-	-	-	-	•	-	-	•	•	-	-	•		•	•	•	-	-	-	-	-	•	•	•	-	•	•	-	-	•	•
Office Building - Low Rise	•	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	•	-	•	-	-	-	-	-	•	•	•	•	•	-	-	•	•	•	•	•	-	-	-	-	-	-	•	•	•	•	•	•		•	•
Factory	•	-	-	•	-	-	•	-	-	-	-	-	-	-	-	-	-	•	-	-	•	-	-	-	-	•	•	•	•	-	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	-	-	•	•
Fire Tunnel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•
Institutional Building	•	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	•	-	•	•	-	•	•	•	•	•	•	•	-	•	•	•	•	•	•	•	•	•	•	•	-	•	•	•	•	•	•
Warehouse		-	-	•	-	-	•	-	-	-	-	-	-	-	-	-	-	•	-	-	•	-	-	-	-	-	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	•	-	-	-	•	•
Sports Stadiums	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	-	•	-	-	-	•	•
Hospital	•	-	•	•	•	•	•	•	•	-	-	-	-	•	•	•	•	-	•	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	T	TF	TR	S	TS	SS	D	TT	ST	25TP	50TP	25SP	50SP	EW	EWF	EWRF	SH	STP	VS	SF	FC	OW	TBV	SBV	SP	M	MF	C	CF	CFA	CR	CS	CSA	CD	CSP	CHS	WP	WPB	WPL	SWP	TWP	PCS	PCC	PSC	PTC	PSB	PSBC	PSBT	PTB	FTB	FTO
	Timber Stud			Steel Stud	Staggered Stud		D Stud	Twin Stud		PartiWALL®				EurekaWALL™			Shaft Wall	StudPlus	VentSHAFT	Subfloor	FireCLAD®	OuteRWALL®	Brick Veneer		Spandrels	Masonry								D-Span™									Columns			Beams				Fire Tunnel	

B. System Index

Walls Lined One Side - Timber Framed

System **T13** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insulation R_w	Acoustic Ratings Nil Insulation R_w+C_{tr}	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}
	T10	1x10mm Std Core pbd to one side of stud	6.8	Nil	NA	Any stud	10 + stud	28	25	NA	NA
	T13	1x13mm Std Core pbd to one side of stud	8.6	Nil	NA	Any stud	13 + stud	28	26	NA	NA
	T13A	1x13mm SoundSTOP pbd to one side of stud	11.2	Nil	NA	Any stud	13 + stud	30	28	NA	NA
	T16F	1x16mm FireSTOP pbd to one side of stud	13.0	-/30/30	FCO-1658 FCO-0568	Any stud	16 + stud	30	28	NA	NA
	T32F	2x16mm FireSTOP pbd to one side of stud	26.0	60/60/60 Iso	SI95	Any stud	32 + stud	34	31	NA	NA
	T39F	3x13mm FireSTOP pbd to one side of stud	31.5	90/90/90 Iso	FCO-2423	Any stud	39 + stud	37	34	NA	NA
	T48F	3x16mm FireSTOP pbd to one side of stud	39.0	120/120/120 Iso	FSV0538	Any stud	48 + stud	38	35	NA	NA

Walls Lined One Side - Steel Framed

System **S13** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insulation R_w	Acoustic Ratings Nil Insulation R_w+C_{tr}	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}
	S10	1x10mm Std Core pbd to one side of stud	6.8	Nil	NA	Any stud	10 + stud	**28**	**25**	NA	NA
	S13	1x13mm Std Core pbd to one side of stud	8.6	Nil	NA	Any stud	13 + stud	**28**	**26**	NA	NA
	S13A	1x13mm SoundSTOP pbd to one side of stud	11.2	Nil	NA	Any stud	13 + stud	**30**	**28**	NA	NA
	S16F	1x16mm FireSTOP pbd to one side of stud	13.0	-/30/30	FCO-0568 FCO-1658	Any stud	16 + stud	**30**	**28**	NA	NA
	S32F	2x16mm FireSTOP pbd to one side of stud	26.0	60/60/60 Iso	FCO-0037 FCO-1763	Any stud	32 + stud	34	31	NA	NA
	S39F	3x13mm FireSTOP pbd to one side of stud	31.5	90/90/90 Iso	FCO-2423	Any stud	39 + stud	37	35	NA	NA
	S48F	3x16mm FireSTOP pbd to one side of stud	39.0	120/120/120 Iso	FSV 0538	Any stud	48 + stud	38	36	NA	NA

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Walls Lined Both Sides - Timber Framed

System **T1313** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	T1010	1x10mm Std Core pbd to each side of stud	13.6	-/20/20	WFRA C91556	70x45	90	33	38	28	50G14, 50P14
				15/15/15	WFRA C91559	90x35	110	34	38	29	50G14, 50P14
	T1010A	1x10mm SoundSTOP pbd to each side of stud	16.4	Nil	NA	70x45	90	35	39	31	50G14, 50P14
						90x35	110	35	39	31	50G14, 50P14
	TR1010A	1x10mm SoundSTOP pbd to one side of stud RC and 1x10mm SoundSTOP pbd to other side	16.4	Nil	NA	70x45	103	39	45	32	75G14, 75P14
						90x35	123	39	45	32	75G14, 75P14
	T1313	1x13mm Std Core pbd to each side of stud	17.2	-/30/30	WFRA C91557	70x45	96	35	39	31	50G14, 50P14
				20/20/20	WFRA C91552	90x35	116	35	39	31	50G14, 50P14
	T1313A	1x13mm SoundSTOP pbd to each side of stud	22.4	Nil	NA	70x45	96	36	41	33	50G14, 50P14
						90x35	116	37	41	33	50G14, 50P14
	T1313F	1x13mm FireSTOP pbd to each side of stud	21.0	-/60/60	FCO-2393	70x45	96	36	40	32	50G14, 50P14
						90x35	116	37	40	32	50G14, 50P14
	TR1313A	1x13mm SoundSTOP to one side of stud RC and 1x13mm SoundSTOP pbd to other side	22.4	Nil	NA	70x35	109	39	47	34	75G14, 75P14
						90x35	129	40	48	35	75G14, 75P14
	T1616F	1x16mm FireSTOP pbd to each side of stud.	26.0	-/60/60 60/60/60 Cf11	WFRA C91202 FCO-0619 FCO-0626	70x45	102	37	41	33	50G14, 50P14
						90x35	122	38	42	34	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Walls Lined Both Sides - Timber Framed (cont)

System **T2626** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
	TR1616F	1x16mm FireSTOP to one side of stud RC and 1x16mm FireSTOP pbd to other side	26.0	60/60/60	FCO-0619	70x35	115	39	46	34	50G14, 50P14
						90x35	135	39	46	34	50G14, 50P14
						100x38 (HW)	145	40	**48**	35	R2.5 GW wall batt
	TR1616F10	1x16mm FireSTOP pbd to each side of stud Additional layer of 10mm Std Core pbd to one side Lining on double layer side is on resilient channel.	32.8	60/60/60	FCO-0619	70x35	125	42	48	39	50G14, 50P14
						90x35	145	43	49	40	50G14, 50P14
	T2020	2x10mm Std Core pbd to each side of stud	27.2	-/30/30	WFRA C91558	70x45	110	39	43	35	50G14, 50P14
						90x35	130	41	45	37	75G14, 75P14
	T2020A	2x10mm SoundSTOP pbd to each side of stud	32.8	Nil	NA	70x45	110	43	45	40	50G14, 50P14
						90x35	130	43	46	40	50G14, 50P14
	TR26A10	CinemaZone Bronze system 1x10mm Std Core pbd to one side RC and 2x13mm SoundSTOP pbd to other side	29.2	Nil	NA	70x45	119	39	45	37	75G14, 75P14
						90x35	139	39	45	37	75G14, 75P14
	TF26(13)A10	CinemaZone Silver retrofit system 2x13mm SoundSTOP pbd on resiliently mounted furring channel to one side 1x13mm SoundSTOP pbd between studs plus 1x10mm Std Core pbd to the other side	40.4	Nil	NA	70x45	151	49	55	47	75G14, 75P14
						90x35	171	49	55	47	75G14, 75P14
	T2626	2x13mm Std Core pbd to each side of stud	34.4	-/30/30	WFRA C91558	70x45	122	43	44	39	50G14, 50P14
						90x35	142	43	45	39	50G14, 50P14
	T2626F	2x13mm FireSTOP pbd to each side of stud	42.0	90/90/90 Cf11	FCO-2564 91/103	70x45	122	45	46	41	50G14, 50P14
						90x35	142	45	46	41	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Walls Lined Both Sides - Timber Framed (cont)

System **TF39(26)A10** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	TR2626A	2x13mm SoundSTOP pbd to one side of stud RC and 2x13mm SoundSTOP pbd to other side	44.8	Nil	NA	70x45	135	48	56	48	75G14, 75P14
						90x35	155	48	56	48	75G14, 75P14
	TR2626F	2x13mm FireSTOP pbd to one side of stud RC and 2x13mm FireSTOP pbd to other side	42.0	90/90/90	FCO-2564	70x45	135	48	54	46	50G14, 50P14,
						90x35	155	48	54	46	50G14, 50P14,
	T3232F	2x16mm FireSTOP pbd to each side of stud	52.0	120/120/120 Cf15	FCO-2564	70x45	134	43	46	40	50G14, 50P14
						90x35	154	43	46	40	50G14, 50P14
	TR3232F	2x16mm FireSTOP pbd to one side of stud RC and 2x16mm FireSTOP pbd to other side	52.0	120/120/120	FCO-2564	70x35	147	48	56	47	50G14, 50P14
						90x35	167	49	57	49	50G14, 50P14
	TF39(26)A10	CinemaZone Gold retrofit system 3x13mm SoundSTOP pbd on resiliently mounted furring channel to one side 2x13mm SoundSTOP pbd between studs plus 1x10mm Std Core pbd to the other	62.8	Nil	NA	70x45	164	57	65	57	100G14, 100P14
						90x35	184	57	65	57	100G14, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Walls Lined Both Sides - Steel Framed

System **S1313** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	S1010	1x10mm Std Core pbd to each side of stud	13.6	-/20/20	WRFA F91815	51	71	34	38	28	50G14, 50P14
						64	84	34	40	29	50G14, 50P14
						76	96	34	40	29	50G14, 50P14
						92	112	35	41	30	50G14, 50P14
						150	170	36	44	32	50G14, 50P14
	S1010A	1x10mm SoundSTOP pbd to each side of stud	16.4	Nil	NA	51	71	35	42	32	50G14, 50P14
						64	84	36	43	32	50G14, 50P14
						76	96	36	45	33	75G14, 75P14
						92	112	37	46	34	75G14, 75P14
						150	170	38	48	36	100G14, 100P14
	S1313	1x13mm Std Core pbd to each side of stud	17.2	-/30/30 20/20/20	WFRA C91553 WFRA C91555	51	77	35	42	32	50G14, 50P14
						64	90	35	43	32	50G14, 5P14
						76	102	36	44	33	50G14, 50P14
						92	118	37	45	34	50G14, 50P14
						150	176	38	47	36	50G14, 50P14
	S1313A	1x13mm SoundSTOP pbd to each side of stud	22.4	Nil	NA	51	77	36	44	34	50G14, 50P14
						64	90	37	45	35	50G14, 50P14
						76	102	38	**49**	**36**	75G14
						92	118	38	**49**	37	100G14, 100P14
						150	176	40	50	40	100G14, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Walls Lined Both Sides - Steel Framed (cont)

System **S1326F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	S1313F	1x13mm FireSTOP pbd to each side of stud	21.0	30/30/30 -/60/60	FCO-1045 FCO-1360	51CS55	77	36	44	33	50G14, 50P14
						64	90	**37**	45	35	50G14, 50P14
						76	102	37	45	34	50G14, 50P14
						76	102	**37**	**47**	**34**	75G14
						92	118	37	46	35	50G14, 50P14
						92	118	**37**	**44**	**32**	85P9
						150	176	40	47	36	50G14, 50P14
	S1326F	1x13mm FireSTOP pbd to each side of stud Additional 1x13mm FireSTOP pbd to one side only	31.5	-/90/90 30/30/30	SI 515 FCO-1360 FCO-1045	51	90	41	49	38	50G14, 50P14
						64	103	**40**	49	38	50G14, 50P14
						76	115	42	50	40	50G14, 50P14
						92	131	43	51	41	50G14, 50P14
						150	189	45	53	45	50G14, 50P14
	S1616F	1x16mm FireSTOP pbd to each side of stud	26.0	-/90/90 60/60/60	FCO- 1360 FCO-1045	51	83	37	45	36	50G14, 50P14
						64	96	**38**	45	36	50G14, 50P14
						76	108	39	46	37	50G14, 50P14
						92	124	40	47	39	50G14, 50P14
						92	124	**40**	**46**	**37**	R1.5 GW wall batt
						150	182	42	49	41	50G14, 50P14
	S1616F13	1x16mm FireSTOP pbd to each side of stud Additional 1x13mm Std Core pbd to one side only	34.6	-/90/90	FCO- 1360	51	96	42	49	37	50G14, 50P14
						64	109	43	50	40	50G14, 50P14
						76	121	43	50	41	50G14, 50P14
						92	137	44	52	42	50G14, 50P14
						150	195	46	53	45	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Walls Lined Both Sides - Steel Framed (cont)

System **S2626** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	S2020	2x10mm Std Core pbd to each side of stud	27.2	-/30/30	WFRA C91554	51	91	40	47	36	50G14, 50P14
						64	104	41	48	36	50G14, 50P14
						76	116	41	49	37	50G14, 50P14
						92	132	42	50	39	50G14, 50P14
						150	190	44	52	43	50G14, 50P14
	S2020A	2x10mm SoundSTOP pbd to each side of stud	32.8	Nil	NA	51	91	44	50	39	50G14, 50P14
						64	104	45	51	40	50G14, 50P14
						76	116	45	52	42	75G14, 75P14
						92	132	46	52	43	75G14, 75P14
						150	190	48	54	45	75G14, 75P14
	S2626	2x13mm Std Core pbd to each side of stud	34.4	-/30/30	WFRA C91554	51	103	43	49	38	50G14, 50P14
						64	116	44	50	39	50G14, 50P14
						76	128	44	51	40	50G14, 50P14
						92	144	45	51	41	50G14, 50P14
						150	202	47	53	44	50G14, 50P14
	S2626A	2x13mm SoundSTOP pbd to each side of stud	44.8	Nil	NA	51	103	46	52	42	50G14, 50P14
						64	116	47	53	45	50G14, 50P14
						76	128	48	55	46	75G14, 75P14
						92	144	48	55	47	75G14, 75P14
						150	202	50	56	48	75G14, 75P14
	S2626F	2x13mm FireSTOP pbd to each side of stud	42.0	-/120/120 90/90/90	SI 720 SI 474 FCO-1360 FCO-1045	51	103	45	52	42	50G14, 50P14
						64	116	46	53	44	50G14, 50P14
						76	128	46	54	45	50G14, 50P14
						92	144	47	54	46	50G14, 50P14
						150	202	49	55	47	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Walls Lined Both Sides - Steel Framed (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
 System **S3232F** illustrated	**S3232F**	2x16mm FireSTOP pbd to each side of stud	52.0	-/180/180 120/120/120	SI 1453 FCO-1360 FCO-1045	51	115	47	54	44	50G14, 50P14
						64	128	48	55	47	50G14, 50P14
						76	140	49	55	47	50G14, 50P14
						92	156	49	55	47	50G14, 50P14
						150	214	52	56	48	50G14, 50P14
	S4141F	LinerSTRIP LS1®, 1x25 ShaftLINER™ & 1x16 FireSTOP™ each side of frame	67.0	-/180/180 Both sides	FCO-2440	Refer Engineer	150	47	51	46	100G14, 100P14
			67.0	-/180/180 Both sides	FCO-2440	Refer Engineer	200	48	52	47	100G14, 100P14
 System **S4141F** illustrated	**S6666F**	LinerSTRIP LS1®, 2x25 ShaftLINER™ & 1x16 FireSTOP™ each side of frame	108.5	180/180/180 -/240/240 Both sides	FCO-2440	Refer Engineer	150	50	55	50	100G14, 100P14
			108.5	180/180/180 -/240/240 Both sides	FCO-2440	Refer Engineer	200	50	55	50	100G14, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Timber Framed Staggered Stud Systems

System **TS1313A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	TS1010A	1x10mm SoundSTOP pbd to each side of frame	16.4	Nil	NA	70x45, 90pl	110	36	46	36	75G14, 75P14
						90x35, 120pl	140	37	48	38	100G14, 100P14
	TS1313A	1x13mm SoundSTOP pbd to each side of frame	22.4	Nil	NA	70x45, 90pl	116	39	50	39	75G14
						90x35, 120pl	146	40	**50**	**40**	100G14, 100P14
	TS1313F	1x13mm FireSTOP pbd to each side of frame	21.0	-/60/60	FCO-2393	70x45, 90pl	116	39	45	36	50G14, 50P14
						90x35, 120pl	146	40	46	38	50G14, 50P14
	TS1313F10	1x13mm FireSTOP pbd to each side of frame Additional 1x10mm Std Core pbd to one side only	27.8	-/60/60	FCO-2393	70x45, 90pl	126	41	48	39	50G14, 50P14
						90x35, 120pl	156	42	49	41	50G14, 50P14
	TS1616F	1x16mm FireSTOP pbd to each side of frame	26.0	60/60/60 Cf11	FCO-0626	70x45, 90pl	122	40	46	38	50G14, 50P14
						90x35, 120pl	152	41	46	39	50G14, 50P14
	TS2020A	2x10mm SoundSTOP pbd to each side of frame	32.8	Nil	NA	70x45, 90pl	130	46	53	45	75G14, 75P14
						90x35, 120pl	160	47	54	46	100G14, 100P14
	TS2626F	2x13mm FireSTOP pbd to each side of frame	42.0	90/90/90 Cf11	FCO-2564	70x45, 90pl	142	47	52	47	50G14, 50P14
						90x35, 120pl	172	48	57	50	100G14, 100P14
	TS3232F	2x16mm FireSTOP pbd to each side of frame	52.0	120/120/120 Cf14	FCO-2564	70x45, 90pl	154	49	53	48	50G14, 50P14
						90x35, 120pl	184	50	58	51	100G14, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Steel Framed Staggered Stud Systems

System **SS16F1316F13** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	SS1010A	1x10mm SoundSTOP pbd to each side of frame	16.4	Nil	NA	(92 track)	112	38	46	36	75G14, 75P14
						(150 track)	170	39	48	39	100G14, 100P14
	SS1313A	1x13mm SoundSTOP pbd to each side of frame	22.4	Nil	NA	(92 track)	118	39	**50**	**39**	75G14
						(150 track)	176	41	53	43	100G14, 100P14
	SS1313F	1x13mm FireSTOP pbd to each side of frame	21.0	-/60/60	FR2539 99/1370 FCO-0512	(92 track)	118	39	48	37	50G14, 50P14
						(150 track)	176	40	50	38	50G14, 50P14
	SS1313F13	1x13mm FireSTOP pbd to each side of frame Additional layer of 13mm Std Core pbd to one side	29.6	-/60/60	FR2539 99/1370 FCO-0512	(92 track)	131	43	52	41	50G14, 50P14
						(150 track)	189	45	54	45	50G14, 50P14
	SS1616F	1x16mm FireSTOP pbd to each side of frame	26.0	-/90/90	FR2539 99/1370 FCO-0512	(92 track)	124	40	49	39	50G14, 50P14
						(92 track)	124	40	**52**	**44**	75G14
						(150 track)	182	43	51	42	50G14, 50P14
	SS16F1316F13	1x16mm FireSTOP plus 1x13mm Std Core pbd to each side of frame	43.2	-/90/90	FR2539 99/1370 FCO-0512	(92 track)	150	48	**57**	**50**	75P14
						(150 track)	208	51	58	50	50G14, 50P14
	SS2020A	2x10mm SoundSTOP pbd to each side of frame	32.8	Nil	NA	(92 track)	132	46	56	47	75G14, 75P14
						(150 track)	190	48	57	49	100G14, 100P14
	SS2626A	2x13mm SoundSTOP pbd to each side of frame	44.8	Nil	NA	(92 track)	144	48	57	50	75G14, 75P14
						(150 track)	202	51	58	52	100G14, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Steel Framed Staggered Stud Systems (cont)

System **SS2626F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	SS2626F	2x13mm FireSTOP pbd to each side of frame	42.0	-/120/120	FR2539 99/1370 FCO-0512	(92 track)	144	**49**	**55**	**48**	50P14
						(92 track)	144	49	**56**	**48**	50G14
						(92 track)	144	49	**54**	**47**	50P7
						(92 track)	144	49	**58**	**51**	100P14
						(150 track)	202	50	57	49	50G14, 50P14
	SS3232F	2x16mm FireSTOP pbd to each side of frame	52.0	-/180/180	FR2539 99/1370 FCO-0512	(92 track)	156	50	57	50	50G14, 50P14
						(92 track)	156	50	**59**	**54**	100P14
						(150 track)	214	52	58	51	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

D-Stud Walls

System **D16F1316F13** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	D1010A	1x10mm SoundSTOP pbd to each side of frame	16.4	Nil	NA	(92 track)	112	38	44	36	75G14, 75P14
						(150 track)	170	39	47	39	100G14, 100P14
	D1313A	1x13mm SoundSTOP pbd to each side of frame	22.4	Nil	NA	(92 track)	118	39	50	39	75G14, 75P14
						(150 track)	176	41	53	43	100G14, 100P14
	D1313F	1x13mm FireSTOP pbd to each side of frame	21.0	-/30/30	FCO-1485	(92 track)	118	39	45	36	50G14, 50P14
						(150 track)	176	40	46	38	50G14, 50P14
	D1313F13	1x13mm FireSTOP pbd to each side of frame Additional 13mm Std Core pbd to one side only	29.6	-/30/30	FCO-1485	(92 track)	131	43	52	41	50G14, 50P14
						(150 track)	189	45	54	45	50G14, 50P14
	D1616F	1x16mm FireSTOP pbd to each side of frame	26.0	-/90/60	FSV 0466 FC0-1485	(92 track)	124	**40**	**49**	**40**	50G14
						(92 track)	124	40	**47**	**39**	50P14
						(150 track)	182	43	51	42	50G14, 50P14
	D16F1316F13	1x16mm FireSTOP pbd plus 1x13mm Std Core pbd to each side of frame	43.2	-/90/90	FC0-1485	(92 track)	150	48	57	50	75G14, 75P14
						(150 track)	208	51	58	50	50G14, 50P14
	D2020A	2x10mm SoundSTOP pbd to each side of frame	32.8	Nil	NA	(92 track)	132	46	56	47	75G14, 75P14
						(150 track)	190	48	57	49	100G14, 100P14
	D2626A	2x13mm SoundSTOP pbd to each side of frame	44.8	Nil	NA	(92 track)	144	48	57	50	75G14, 75P14
						(150 track)	202	51	58	52	100G14, 100P14
	D2626F	2x13mm FireSTOP pbd to each side of frame	42.0	-/90/90	FCO-1485	(92 track)	144	48	56	46	50G14, 50P14
						(92 track)	144	48	58	51	100G14, 100P14
						(150 track)	202	50	57	49	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

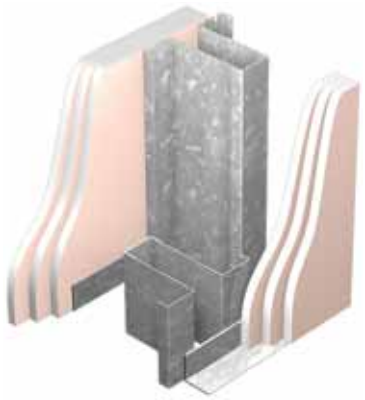
B. System Index

D-Stud Walls (cont)

System **D3232F**

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	D3232F	2x16mm FireSTOP pbd to each side of frame	52.0	-/120/120	FCO-1485	(92 track)	156	50	57	50	50G14, 50P14
						(92 track)	156	50	59	54	100G14, 100P14
						(150 track)	214	52	58	51	50G14, 50P14

D-Stud Cinema Walls



System **D4848F** illustrated

	D4848F	3x16mm FireSTOP pbd to each side of frame	78.0	-/180/180	FSV 1073	as required	500	63	74	-	200G14, 200P25
	D4864F	3x16mm FireSTOP pbd layers to one side of frame 4x16mm FireSTOP pbd to other side	91.0	-/180/180	FSV 1073	as required	500	64	76	-	200G14, 200P25
	D6464F	4x16mm FireSTOP pbd to each side of frame	104.0	-/180/180	FSV 1073	as required	500	64	77	-	200G14, 200P25

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Timber Framed Twin Stud Systems

System **TT1313** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	TT1010	1x10mm Std Core pbd to each side of frame	13.6	Nil	NA	70x45	185	35	43	31	50G14, 50P14
						90x35	225	36	45	34	50G14, 50P14
	TT1313	1x13mm Std Core pbd to each side of frame	17.2	Nil	NA	70x45	191	38	49	38	50G14, 50P14
						90x35	231	39	49	39	50G14, 50P14
	TT1313A	1x13mm SoundSTOP pbd to each side of frame	22.4	Nil	NA	70x45	191	42	55	45	100G14, 100P14
						90x35	231	43	56	46	100G14, 100P14
	TT1313F	1x13mm FireSTOP pbd to each side of frame	21.0	-/60/60	FCO-2393	70x45	191	41	51	41	50G14, 50P14
						90x35	231	42	52	42	50G14, 50P14
	TT1326F	1x13mm FireSTOP pbd to each side of frame Additional layer of 13mm FireSTOP to one side only	31.5	-/60/60	FCO-2393	70x45	204	47	57	47	50G14, 50P14
						90x35	244	47	58	48	50G14, 50P14
						90x35	244	47	62	50	200G14, 200P14
	TT13F1313F13	1x13mm FireSTOP pbd plus 1x13mm Std Core pbd to each side of frame	38.2	-/60/60	FCO-2393	70x45	217	50	63	52	50G14, 50P14
						90x35	257	51	64	53	50G14, 50P14
	TT1616F	1x16mm FireSTOP pbd to each side of frame	26.0	60/60/60	FCO-0626	70x45	197	44	54	44	50G14, 50P14
						90x35	237	45	55	46	50G14, 50P14
	TT16F1016F10	1x16mm FireSTOP pbd plus 1x10mm Std Core pbd to each side of frame	39.6	60/60/60	FCO-0626	70x45	217	51	63	53	50G14, 50P14
						90x35	257	52	64	54	50G14, 50P14
	TT2626A	CinemaZone Gold system 2x13mm SoundSTOP pbd to each side of frame	44.8	Nil	NA	70x45	217	53	65	55	100G14, 100P14
						90x35	257	54	66	56	200G14, 200P14
	TT2626F	2x13mm FireSTOP pbd to each side of frame	42.0	90/90/90 Cf21	FCO-2564	70x45	217	51	63	53	50G14, 50P14
						90x35	257	52	64	54	50G14, 50P14
	TT2929F	1x16mm + 1x13mm FireSTOP pbd to both sides of frame	47.0	90/90/90 Cf10	FCO-2564	70x45	223	52	65	54	50G14, 50P14
						90x35	263	53	65	55	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Timber Framed Twin Stud Systems (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
 System **TT3232F**	**TT3232F**	2x16mm FireSTOP pbd to each side of frame	52.0	120/120/120 Cf10	FCO-2564	70x45	229	54	66	56	50G14, 50P14
						90x35	269	55	67	57	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Steel Framed Twin Stud Systems

System **ST1313** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	ST1010	1x10mm Std Core pbd to each side of frame	13.6	Nil	NA	51	147	35	44	31	50G14, 50P14
						64	173	36	45	33	50G14, 50P14
						76	197	36	45	34	50G14, 50P14
						92	229	37	46	35	50G14, 50P14
						150	345	38	46	37	50G14, 50P14
	ST1313	1x13mm Std Core pbd to each side of frame	17.2	Nil	NA	51	153	37	47	36	50G14, 50P14
						64	179	38	48	37	50G14, 50P14
						76	203	39	49	38	50G14, 50P14
						92	235	39	49	39	50G14, 50P14
						150	351	42	51	41	50G14, 50P14
	ST1313A	1x13mm SoundSTOP pbd to each side of frame	22.4	Nil	NA	51	153	41	53	42	100G14, 100P14
						64	179	42	54	43	100G14, 100P14
						76	203	43	55	45	150G14, 150P14
						92	235	43	57	46	200G14, 200P14
						150	351	44	59	48	200G14, 200P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Steel Framed Twin Stud Systems (cont)

System **ST1326F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	ST1313F	1x13mm FireSTOP pbd to each side of frame	21.0	-/60/60	FR2539 99/1370	51	153	40	50	39	50G14, 50P14
						64	179	41	51	40	50G14, 50P14
						64	250	43	**51**	**41**	50P14
						64	250	43	**54**	**46**	100P14
						64	240	42	**55**	**40**	100G14
						64	240	42	**57**	**45**	200P14
						64	300	43	**54**	**43**	100P14
						76	203	42	51	41	50G14, 50P14
						92	235	42	52	43	50G14, 50P14
						150	351	45	53	45	50G14, 50P14
	ST1313F13	1x13mm FireSTOP pbd to each side of frame Additional 1x13mm Std Core pbd to one side only	29.6	-/60/60	FR2539 99/1370	51	166	44	56	45	50G14, 50P14
						64	193	45	57	46	50G14, 50P14
						64	253	46	**56**	**47**	50P14
						64	253	46	**60**	**50**	200P14
						76	216	46	57	47	50G14, 50P14
						92	248	46	58	48	50G14, 50P14
	ST1326F	1x13mm FireSTOP pbd to each side of frame Additional 1x13mm FireSTOP pbd to one side only	31.5	-/90/90	SI 515 FR2539 99/1370	51	166	45	56	45	50G14, 50P14
						64	192	46	57	46	50G14, 50P14
						76	216	47	57	47	50G14, 50P14
						92	248	47	58	48	50G14, 50P14
						92	253	47	60	50	200G14, 200P14
						150	364	50	59	51	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Steel Framed Twin Stud Systems (cont)

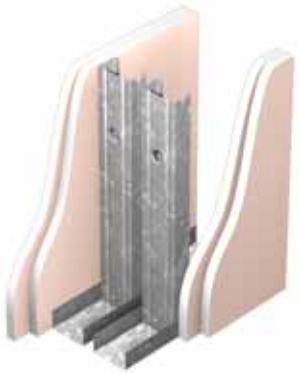
System **ST1616F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	ST1616F	1x16mm FireSTOP pbd to each side of frame	26.0	-/90/90	FR2539 99/1370	51	159	42	53	42	50G14, 50P14
						64	185	43	54	44	50G14, 50P14
						64	180	43 43	**58** **59**	**49** **50**	2 x 50G14 2 x 75G14
						76	209	44	54	45	50G14, 50P14
						76	204	44 44	**58** **60**	**48** **52**	2 x 50G14 2 x 75G14
						92	241	45	54	46	50G14, 50P14
						150	357	47	55	48	50G14, 50P14
	ST1616F10	1x16mm FireSTOP pbd to each side of frame Additional 1x10mm Std Core pbd to one side only	32.8	-/90/90	FR2539 99/1370	51	169	45	56	48	100G14, 100P14
						64	195	46	57	50	150G14, 150P14
						64	190	46	**56**	**49**	100P14
						76	219	47	57	50	150G14, 150P14
						92	251	48	58	51	150G14, 150P14
						150	367	50	59	53	150G14, 150P14
	ST16F1016F10	1x16mm FireSTOP pbd plus 1x10mm Std Core pbd to each side of frame	39.6	-/90/90	FR2539 99/1370	51	179	49	62	52	50G14, 50P14
						64	205	50	63	52	50G14, 50P14
						76	229	51	63	53	50G14, 50P14
						92	261	52	64	54	50G14, 50P14
						150	377	55	64	56	50G14, 50P14
	ST2626A	CinemaZone Gold system 2x13mm SoundSTOP pbd to each side of frame	44.8	Nil	NA	51	179	50	67	55	100G14, 100P14
						64	205	51	68	56	100G14, 100P14
						76	229	52	68	57	150G14, 150P14
						92	261	53	69	58	200G14, 200P14
						150	377	56	70	60	200G14, 200P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Steel Framed Twin Stud Systems (cont)



System **ST3232F** illustrated

System **ST4141F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
	ST2626F	2x13mm FireSTOP pbd to each side of frame	42.0	-/120/120	FR2539 99/1370	51	179	49	62	52	50G14, 50P14
						64	205	50	63	52	50G14, 50P14
						76	229	51	63	52	50G14, 50P14
						92	261	52	64	54	50G14, 50P14
						150	377	55	64	56	50G14, 50P14
	ST3232F	2x16mm FireSTOP pbd to each side of frame	52.0	-/180/180	FR2539 99/1370	51	197	52	65	54	50G14, 50P14
						64	217	53	66	55	50G14, 50P14
						76	241	54	66	56	50G14, 50P14
						92	273	55	67	58	50G14, 50P14
						150	389	58	67	60	50G14, 50P14
	ST4141F	LinerSTRIP LS1®, 1x25 ShaftLINER™ & 1x16 FireSTOP™ each side of frame	67.0	-/180/180 Both sides	FCO-2440	Refer Engineer	350	58	72	63	200G14, 200P14
							400	59	73	64	200G14, 200P14
							450	60	74	65	200G14, 200P14
	ST4848F	3x16mm FireSTOP pbd to each side of frame	78.0	-/180/180	FCO-2440	51	223	58	71	59	50G14, 50P14
						64	249	59	72	60	50G14, 50P14
						76	273	59	72	62	50G14, 50P14
						92	305	60	72	62	50G14, 50P14
						150	421	62	73	65	50G14, 50P14
	ST6666F	LinerSTRIP LS1®, 2x25 ShaftLINER™ & 1x16 FireSTOP™ each side of frame	108.5	180/180/180 -/240/240 Both sides	FCO-2440	Refer Engineer	350	63	76	67	200G14, 200P14
							400	64	77	68	200G14, 200P14
							450	65	78	69	200G14, 200P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Membrane Systems - PartiWALL®

System **25TP1313A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	25TP1010	1x25mm ShaftLINER membrane 1x10mm Std Core pbd to each side of timber frame	34.1	60/60/60 Cf NA	FSV 0381 FCO-2256	70x45	225	35	51	40	OS R2 GW wall batt, 100P14
						70x45	225	35	54	42	BS R2 GW wall batt, 100P14
						90x35	265	36	55	41	OS R2 GW wall batt, 100P14
						90x35	265	36	**60**	**42**	BS R2.5 GW wall batt
	25TP1010A	1x25mm ShaftLINER membrane 1x10mm SoundSTOP pbd to each side of timber frame	36.9	60/60/60 Cf NA	FCO-2256	70x45	225	36	57	46	OS 115mm thick R2.5 ceiling batt
						70x45	225	36	60	49	BS 115mm thick R2.5 ceiling batt
						90x35	265	37	59	48	OS 115mm thick R2.5 ceiling batt
						90x35	265	37	**63**	**53**	BS 115mm thick R2.5 ceiling batt
	25TP1313A	1x25mm ShaftLINER membrane 1x13mm SoundSTOP pbd to each side of timber frame	42.9	60/60/60 Cf NA	FCO-2256	70x45	231	37	59	46	OS R2 GW wall batt, 100P14
						70x45	231	37	**62**	**47**	BS R2 GW wall batt
						90x35	271	38	61	48	OS R2 GW wall batt, 100P14
						90x35	271	38	**62**	**50**	BS R2 GW wall batt
						90x35	271	38	**62**	**50**	BS 100P14
						90x35	271	38	**57**	**44**	BS 85P9
	25TP2020	1x25mm ShaftLINER membrane 2x10mm Std Core pbd to each side of timber frame	47.7	60/60/60 Cf NA	FCO-2256	70x45	245	38	64	50	BS R2 GW wall batt, 100P14
						90x35	285	38	**65**	**51**	BS R1.5 GW wall batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Membrane Systems - PartiWALL® (cont)

System **25SP1313A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
	25SP1010	1x25mm ShaftLINER membrane 1x10mm Std Core pbd to each side of steel frame	34.1	60/60/60 Cf NA	FCO-1945 FCO-2256	76	237	35	51	40	OS R2 GW wall batt, 100P14
						76	237	35	54	43	BS R2 GW wall batt, 100P14
						92	269	36	55	41	OS R2 GW wall batt, 100P14
						92	269	36	58	44	BS R2 GW wall batt, 100P14
	25SP1010A	1x25mm ShaftLINER membrane 1x10mm SoundSTOP pbd to each side of steel frame	36.9	60/60/60 Cf NA	FCO-2256	76	237	36	57	46	OS 115mm thick R2.5 ceiling batt
						76	237	36	60	49	BS 115mm thick R2.5 ceiling batt
						92	269	37	59	48	OS 115mm thick R2.5 ceiling batt
						92	269	37	63	53	BS 115mm thick R2.5 ceiling batt
	25SP1313A	1x25mm ShaftLINER membrane 1x13mm SoundSTOP pbd to each side of steel frame	42.9	60/60/60 Cf NA	FCO-2256	76	243	37	59	46	OS R2 GW wall batt, 100P14
						76	243	37	62	47	BS R2 GW wall batt, 100P14
						92	275	38	61	48	OS R2 GW wall batt, 100P14
						92	275	38	62	50	BS R2 GW wall batt, 100P14
						92	275	38	57	44	BS 85P9
	25SP2020	1x25mm ShaftLINER membrane 2x10mm Std Core pbd to each side of steel frame	47.7	60/60/60 Cf NA	FCO-2256	76	257	38	64	50	BS R2 GW wall batt, 100P14
						92	289	38	65	51	BS R1.5 GW wall batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Membrane Systems - PartiWALL® (cont)

System **50TP1313A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	50TP1010	2x25mm ShaftLINER membrane 1x10mm Std Core pbd to each side of timber frame	54.6	90/90/90 Cf NA	FCO-1446 FCO-2016 FCO-2256	70x45	250	38	54	41	OS R2 GW wall batt, 100P14
						70x45	250	38	57	44	BS R2 GW wall batt, 100P14
						90x35	290	39	59	46	OS R2 GW wall batt, 100P14
						90x35	290	39	62	49	BS R2 GW wall batt, 100P14
	50TP1313A	2x25mm ShaftLINER membrane 1x13mm SoundSTOP pbd to each side of timber frame	63.4	90/90/90 Cf NA	FCO-1446 FCO-2016 FCO-2256	70x45	256	40	62	50	OS R2 GW wall batt, 100P14
						70x45	256	40	65	53	BS R2 GW wall batt, 100P14
						90x35	296	41	65	53	OS R2 GW wall batt, 100P14
						90x35	296	41	68	56	BS R2 GW wall batt, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Membrane Systems - PartiWALL® (cont)

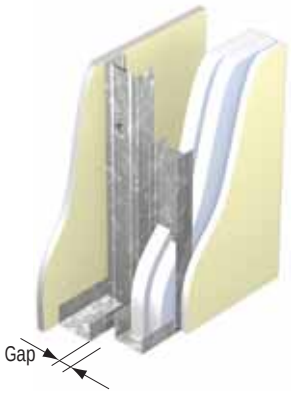
System **50SP1313A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
	50SP1010	2x25mm ShaftLINER membrane 1x10mm Std Core pbd to each side of steel frame	54.6	90/90/90 Cf NA	FCO-2256	76	262	38	54	41	OS R2 GW wall batt, 100P14
						76	262	38	57	44	BS R2 GW wall batt, 100P14
						92	294	39	59	46	OS R2 GW wall batt, 100P14
						92	294	39	62	49	BS R2 GW wall batt, 100P14
	50SP1313A	2x25mm ShaftLINER membrane 1x13mm SoundSTOP pbd to each side of steel frame	63.4	90/90/90 Cf NA	FCO-2256	76	268	40	62	50	OS R2 GW wall batt, 100P14
						76	268	40	65	53	BS R2 GW wall batt, 100P14
						92	300	41	65	53	OS R2 GW wall batt, 100P14
						92	300	41	68	56	BS R2 GW wall batt, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Membrane Systems - EurekaWALL™ Max height 3000mm (max pressure 0.35kPa)



System **EW13AS13A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	EW13	2x25mm ShaftLINER membrane 1x13mm Std Core pbd to one side	49.6	Nil	NA	51IS55	64	**35**	NA	**32**	Nil
	EW13F	2x25mm ShaftLINER membrane 1x13mm FireSTOP pbd to one side	51.5	-/120/90	FSV 0883	51IS55	64	36	NA	33	Nil
	EWS13	2x25mm ShaftLINER membrane 1x13mm Std Core pbd to one side on separate steel stud frame (min 20mm gap)	49.6	Nil	NA	51IS55 + min 64mm steel stud	148	45	50	40	50G14, 50P14
	EW13S13	2x25mm ShaftLINER membrane 1x13mm Std Core pbd to one side 1x13mm Std Core pbd to other side on separate steel stud frame (min 20mm gap)	58.2	-/120/90	WFRA 40970 41038 FCO-2256	51IS55 + min 64mm steel stud	161	45	50	42	50G14, 50P14
							161		**55**	**48**	75G14
		2x25mm ShaftLINER membrane 1x13mm Std Core pbd to one side 1x13mm Std Core pbd to other side on separate steel stud frame (min 36mm gap)				51IS55 + min 64mm steel stud	177	47	58	50	100G14, 100P14
	EW13FS13F	2x25mm ShaftLINER membrane 1x13mm FireSTOP pbd to one side 1x13mm FireSTOP pbd to other side on separate steel stud frame (min 20mm gap)	62.0	-/120/120	FCO-2434	51IS55 + min 64mm steel stud	161	46	**54**	**45**	75P9
									58	**49**	75P14
		2x25mm ShaftLINER membrane 1x13mm FireSTOP pbd to one side, 1x13mm FireSTOP pbd to other side on separate steel stud frame (min 20mm gap)				51IS55 + min 64mm steel stud	161	47	58	50	100G14, 100P14
	EW13AS13A	2x25mm ShaftLINER membrane 1x13mm SoundSTOP pbd to one side 1x13mm SoundSTOP pbd to other side on separate steel stud frame (min 20mm gap)	63.4	-/120/90	WFRA 40970	51IS55 + min 64mm steel stud	161	48	58	50	75G14, 75P14
							161		**57**	**49**	75P14
							161		**60**	**52**	100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)
• Bold acoustic ratings indicate a tested system

B. System Index

Membrane Systems - EurekaWALL™ (cont) Max height 3000mm (max pressure 0.35kPa)

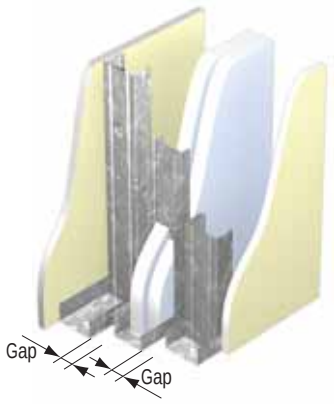
System **EWF13S13** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	EWFR10S13A	2x25mm ShaftLINER membrane 10mm Std Core pbd to one side on 13mm recessed face furring channels 1x13mm SoundSTOP pbd to other side on separate steel stud frame (min 49mm gap)	59.0	-/60/60	FCO-2256	51IS55 + min 64mm steel stud	200	44	**57**	**50**	100P14 (stud side)
	EWF13S13	2x25mm ShaftLINER 1x13mm Std Core pbd to one side on 28mm furring channel 1x13mm Std Core pbd to other side on separate steel stud frame (min 20mm gap).	58.2	-/120/90	FSV-0883	51IS55 + min 64mm steel stud	189	40	50	42	50G14, 50P14 (stud side)
	EWF13FS13F	2x25mm ShaftLINER membrane 1x13mm FireSTOP pbd to one side on 28mm furring channel 1x13mm FireSTOP pbd to other side on separate steel stud frame (min 20mm gap)	62.0	-/120/120	FCO-2434	51IS55 + min 64mm steel stud	180	43	**53**	**43**	75P14 (stud side)
	EWF13AS26A	2x25mm ShaftLINER membrane 1x13mm SoundSTOP pbd on 28mm furring channels to one side 2x13mm SoundSTOP pbd to other side on separate steel stud frame (min 20mm gap)	74.6	-/120/90	WFRA 40970	51IS55 + min 64mm steel stud	202	48	**60**	**50**	100P14 (stud side)

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)
• Bold acoustic ratings indicate a tested system

B. System Index

Membrane Systems - EurekaWALL™ (cont) Max height 3000mm (max pressure 0.35kPa)



System **EWS13AS13A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	EWS13S13	2x25mm ShaftLINER membrane 1x13mm Std Core pbd to one side on separate steel stud frame 1x13mm Std Core pbd to other side on separate steel stud frame (min 20mm gap both sides)	58.2	-/120/90	WFRA 40970	51IS55 + min 64mm steel stud	245	36	55	41	OS 50G14, 50P14
									62	**48**	BS 75G14
						51IS55 + min 64mm steel stud	245	36	61	50	BS 100G14, 100P14
	EWS13AS13A	2x25mm ShaftLINER membrane 1x13mm SoundSTOP pbd to one side on separate steel stud frame 1x13mm SoundSTOP pbd to other side on separate steel stud frame (min 20mm gap both sides)	63.4	-/120/90	FSV 0883	51IS55 + min 64mm steel stud	245	40	63	50	BS 75G14, 75P14
						51IS55 + min 64mm steel stud	257		**68**	**56**	BS R2 GW wall batt
	EWS13FS13F	2x25mm ShaftLINER membrane 1x13mm FireSTOP pbd to one side on separate steel stud frame 1x13mm FireSTOP pbd to other side on separate steel stud frame (min 20mm gap both sides)	62.0	-/120/120	FCO-2434	51IS55 + min 64mm steel stud	245	40	62	50	BS 100G14, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)
• Bold acoustic ratings indicate a tested system

B. System Index

Shaft Systems - Shaft Wall

System **SH32F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
	SH16F	1x25mm ShaftLINER 1x16mm FireSTOP pbd to other side of frame	33.5	-/60/60	FCO-1556	64CH55	80	38	46	34	50G14, 50P14
						64CH90	80	38	45	33	50G14, 50P14
						102CH55	118	42	48	37	50G14, 50P14
						102CH90	118	41	47	36	50G14, 50P14
	SH26F	1x25mm ShaftLINER 2x13mm FireSTOP pbd to other side of frame	41.5	-/120/90 from occupancy -/120/120 from shaft	FCO-1828 FCO-1503	64CH55	90	44	50	38	50G14, 50P14
						64CH90	90	43	49	37	50G14, 50P14
						102CH55	128	46	52	41	50G14, 50P14
						102CH90	128	45	51	41	50G14, 50P14
	SH29F	1x25mm ShaftLINER 1x16mm + 1x13mm FireSTOP pbd to other side of frame	44.0	-/120/120	FCO-1828 FCO-1503	64CH55	93	43	50	37	50G14, 50P14
						64CH90	93	42	49	36	50G14, 50P14
						102CH55	131	46	52	42	50G14, 50P14
						102CH90	131	45	51	41	50G14, 50P14
	SH32F	1x25mm ShaftLINER 2x16mm FireSTOP pbd to other side of frame	46.5	-/120/120	SI 1017 FCO-1828 FCO-1659 FCO-1503	64CH55	96	**43**	**50**	38	50G10
						64CH90	96	42	49	38	50G14, 50P14
						102CH55	134	46	52	42	50G14, 50P14
						102CH90	134	45	51	41	50G14, 50P14
	SH1616F	1x25mm ShaftLINER 1x16mm FireSTOP pbd to each side of frame	46.5	-/120/120	FR1429	64CH55	96	42	50	38	50G14, 50P14
						64CH90	96	41	49	37	50G14, 50P14
						102CH55	134	45	52	41	50G14, 50P14
						102CH90	134	44	51	40	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Shaft Systems - VentSHAFT

System **VS48F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
	VS39F	3x13mm FireSTOP pbd layers screw laminated together	31.5	-/90/90	FCO-2423	Nil	39	37	_	34	Nil
	VS48F	3x16mm FireSTOP pbd layers screw laminated together	39.0	-/120/120	FSV-0538	Nil	48	38	NA	35	Nil
	VS48F+T10	3x16mm FireSTOP pbd layers screw laminated together 1x10mm Std Core pbd on independent timber frame (85mm air cavity)	45.8	-/120/120	FCO-1665	70x45	143 min	43	53	40	50P7
	VS48F+S10	3x16mm FireSTOP pbd layers screw laminated together 1x10mm Std Core pbd on independent steel frame (85mm air cavity)	45.8	-/120/120	FCO-1480	64CS50	143 min	43	53	40	50P7
	VS57F	16mm FireSTOP pbd adhesive + screw laminated to each side of 1x25mm ShaftLINER	46.5	-/120/120	FSV-0169	Nil	60	31	NA	NA	Nil

Shaft Systems - EurekaWALL™

Refer systems EW13 and EW13F listed under Membrane Systems - EurekaWALL

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For maximum panel sizes refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings			
				FRL	Basis			Nil Insul	With Insulation		Insulation Type
								R_w	R_w	R_w+C_{tr}	
Masonry Wall Systems - Lining											
 System **M1010** illustrated	**M10**	1x10mm Std Core pbd to one side of masonry	6.8	NA	NA	Nil	12 + masonry	NA	NA	NA	NA
	M1010	1x10mm Std Core pbd to both sides of masonry	13.6	NA	NA	Nil	12 + masonry	NA	NA	NA	NA

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

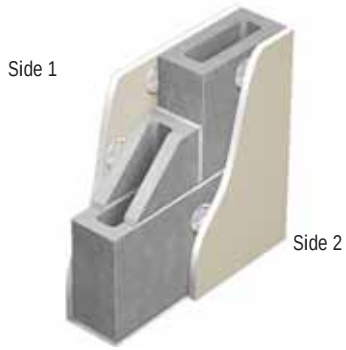
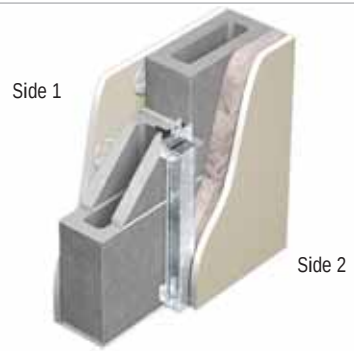
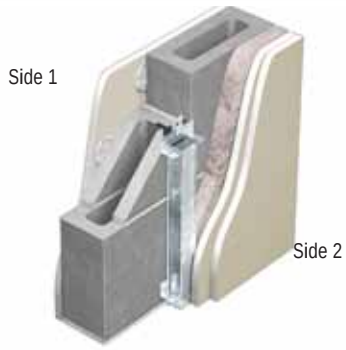
B. System Index

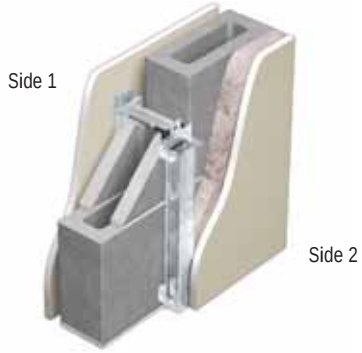
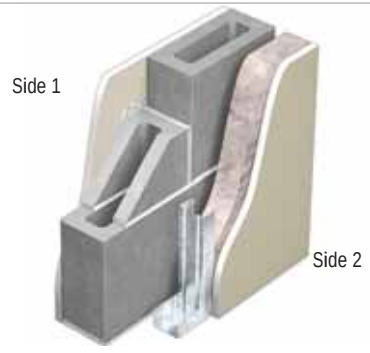
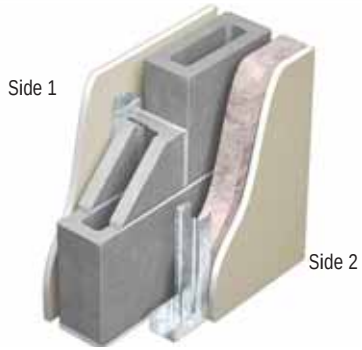
Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Width (mm)
Masonry Wall Systems - Fire Upgrades							
 System **MF3232F** illustrated	**MF16F**	1x16mm FireSTOP pbd furred to one side of masonry	13.0	X+30/X+30/X+30 from lined side only	FCO-0394R	NA	34 + masonry
	MF26F	2x13mm FireSTOP pbd furred to one side of masonry	21.0	X+60/X+60/X+60 from lined side only	FCO-0394R	NA	44 + masonry
	MF32F	2x16mm FireSTOP pbd furred to one side of masonry	26.0	X+90/X+90/X+90 from lined side only	FCO-0394R	NA	50 + masonry
	MF1616F	1x16mm FireSTOP pbd furred to both sides of masonry	26.0	X+30/X+60/X+60	FCO-0394R	NA	68 + masonry
	MF2626F	2x13mm FireSTOP pbd furred to both sides of masonry	42.0	X+60/X+120/X+120	FCO-0394R	NA	88 + masonry
	MF3232F	2x16mm FireSTOP pbd furred to both sides of masonry	52.0	X+90/X+180/X+180	FCO-0394R	NA	100 + masonry

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades

Description	Layout
Detail A Wall lining side 1: 1x13mm Boral Std Core plasterboard adhesive fixed Wall lining side 2: 1x13mm Boral Std Core plasterboard adhesive fixed	
Detail B Wall lining side 1: 1x13mm Boral Std Core plasterboard adhesive fixed Wall lining side 2: 1x13mm Boral Std Core plasterboard 28mm furring channels at 600mm centres Boral Acoustic Impact Clips 50G14 or 50P14 insulation (if required)	
Detail C Wall lining side 1: 1x13mm Boral Std Core plasterboard adhesive fixed Wall lining side 2: 2x13mm Boral Std Core plasterboard 28mm furring channels at 600mm centres Boral Acoustic Impact Clips 50G14 or 50P14 insulation (if required)	

Description	Layout
Detail D Wall lining side 1: 1x13mm Boral Std Core plasterboard 16mm furring channels at 600mm ctrs Furring channel clips Wall lining side 2: 1x13mm Boral Std Core plasterboard 28mm furring channels at 600mm centres Boral Acoustic Impact Clips 50G14 or 50P14 insulation (if required)	
Detail E Wall lining side 1: 1x13mm Boral Std Core plasterboard adhesive fixed Wall lining side 2: 1x13mm Boral Std Core plasterboard Minimum 51mm steel studs 20mm gap between masonry & stud 50G14 or 50P14 insulation (if required)	
Detail F Wall lining side 1: 1x13mm Boral Std Core plasterboard 16mm furring channels at 600mm ctrs Furring channel clips Wall lining side 2: 1x13mm Boral Std Core plasterboard Minimum 51mm steel studs 20mm gap between masonry & stud 50G14 or 50P14 insulation (if required)	

B. System Index

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
Masonry Wall Systems - Acoustic Upgrades											
Refer details on page B2.31	**M125C**	125mm conc tilt panel nom 300kg/m² To detail A	17.2	Refer CCAA	Refer CCAA	NA	155	51	NA	NA	NA
		125mm conc tilt panel nom 300kg/m² To detail B	17.2			NA	195	53	56	48	50G14, 50P14
		125mm conc tilt panel nom 300kg/m² To detail C	25.8			NA	208	56	63	54	50G14, 50P14
		125mm conc tilt panel nom 300kg/m² To detail D	17.2			NA	209	56	62	53	50G14, 50P14
		125mm conc tilt panel nom 300kg/m² To detail E	17.2			Min 51CS50	212	56	62	52	50G14, 50P14
		125mm conc tilt panel nom 300kg/m² To detail F	17.2			Min 51CS50	228	55	61	52	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
Refer details on page B2.31	**M150C**	150mm conc tilt panel nom 360kg/m² To detail A	17.2	Refer CCAA	Refer CCAA	NA	180	53	NA	NA	NA
		150mm con tilt panel nom 360kg/m² To detail B	17.2			NA	220	54	57	49	50G14, 50P14
		150mm conc tilt panel nom 360kg/m² To detail C	25.8			NA	233	58	64	55	50G14, 50P14
		150mm conc tilt panel nom 360kg/m² To detail D	17.2			NA	234	58	63	54	50G14, 50P14
		150mm conc tilt panel nom 360kg/m² To detail E	17.2			Min 51CS50	237	58	63	54	50G14, 50P14
		150mm conc tilt panel nom 360kg/m² To detail F	17.2			Min 51CS50	253	57	62	53	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
Refer details on page B2.31	**M10.01**	90mm Boral Masonry Hollow Block (10.01) nom 135kg/m² laid To detail A	17.2	Refer Boral Masonry	Refer Boral Masonry	NA	120	47	NA	NA	NA
		90mm Boral Masonry Hollow Block (10.01) nom 135kg/m² laid To detail B	17.2			NA	160	50	53	44	50G14, 50P14
		90mm Boral Masonry Hollow Block (10.01) nom 135kg/m² laid To detail C	25.8			NA	173	52	60	51	50G14, 50P14
		90mm Boral Masonry Hollow Block (10.01) nom 135kg/m² laid To detail D	17.2			NA	174	52	59	50	50G14, 50P14
		90mm Boral Masonry Hollow Block (10.01) nom 135kg/m² laid To detail E	17.2			Min 51CS50	177	52	59	50	50G14, 50P14
		90mm Boral Masonry Hollow Block (10.01) nom 135kg/m² laid To detail F	17.2			Min 51CS50	193	51	58	49	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
Refer details on page B2.31	**M15.01**	140mm Boral Masonry Hollow Block (15.01) nom 180kg/m² laid To detail A	17.2	Refer Boral Masonry	Refer Boral Masonry	NA	170	48	NA	NA	NA
		140mm Boral Masonry Hollow Block (15.01) nom 180kg/m² laid To detail B	17.2			NA	210	51	54	45	50G14, 50P14
		140mm Boral Masonry Hollow Block (15.01) nom 180kg/m² laid To detail C	25.8			NA	223	53	60	51	50G14, 50P14
		140mm Boral Masonry Hollow Block (15.01) nom 180kg/m² laid To detail D	17.2			NA	224	53	59	50	50G14, 50P14
		140mm Boral Masonry Hollow Block (15.01) nom 180kg/m² laid To detail E	17.2			Min 51CS50	229	53	59	50	50G14, 50P14
		140mm Boral Masonry Hollow Block (15.01) nom 180kg/m² laid To detail F	17.2			Min 51CS50	243	52	58	49	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
Refer details on page B2.31	**M15.01CF**	140mm Boral Masonry Hollow Block (15.01), core filled nom 295kg/m² laid To detail A	17.2	Refer Boral Masonry	Refer Boral Masonry	NA	170	50	NA	NA	NA
		140mm Boral Masonry Hollow Block (15.01), core filled nom 295kg/m² laid To detail B	17.2			NA	210	52	56	48	50G14, 50P14
		140mm Boral Masonry Hollow Block (15.01), core filled nom 295kg/m² laid To detail C	25.8			NA	223	55	63	54	50G14, 50P14
		140mm Boral Masonry Hollow Block (15.01), core filled nom 295kg/m² laid To detail D	17.2			NA	224	55	62	53	50G14, 50P14
		140mm Boral Masonry Hollow Block (15.01), core filled nom 295kg/m² laid To detail E	17.2			Min 51CS50	229	55	62	53	50G14, 50P14
		140mm Boral Masonry Hollow Block (15.01), core filled nom 295kg/m² laid To detail F	17.2			Min 51CS50	243	54	61	52	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
Refer details on page B2.31	**M20.01**	190mm Boral Masonry Hollow Block (20.01) nom 220kg/m² laid To detail A	17.2	Refer Boral Masonry	Refer Boral Masonry	NA	220	49	NA	NA	NA
		190mm Boral Masonry Hollow Block (20.01) nom 220kg/m² laid To detail B	17.2			NA	260	52	55	46	50G14, 50P14
		190mm Boral Masonry Hollow Block (20.01) nom 220kg/m² laid To detail C	25.8			NA	273	54	61	52	50G14, 50P14
		190mm Boral Masonry Hollow Block (20.01) nom 220kg/m² laid To detail D	17.2			NA	274	54	60	51	50G14, 50P14
		190mm Boral Masonry Hollow Block (20.01) nom 220kg/m² laid To detail E	17.2			Min 51CS50	279	54	60	52	50G14, 50P14
		190mm Boral Masonry Hollow Block (20.01) nom 220kg/m² laid To detail F	17.2			Min 51CS50	293	53	59	51	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
Refer details on page B2.31	**M20.01CF**	190mm Boral Masonry Hollow Block (20.01), core filled nom 400kg/m² laid To detail A	17.2	Refer Boral Masonry	Refer Boral Masonry	NA	220	52	NA	NA	NA
		190mm Boral Masonry Hollow Block (20.01), core filled nom 400kg/m² laid To detail B	17.2			NA	260	54	57	49	50G14, 50P14
		190mm Boral Masonry Hollow Block (20.01), core filled nom 400kg/m² laid To detail C	25.8			NA	273	57	64	55	50G14, 50P14
		190mm Boral Masonry Hollow Block (20.01), core filled nom 400kg/m² laid To detail D	17.2			NA	274	57	63	54	50G14, 50P14
		190mm Boral Masonry Hollow Block (20.01), core filled nom 400kg/m² laid To detail E	17.2			Min 51CS50	279	57	63	54	50G14, 50P14
		190mm Boral Masonry Hollow Block (20.01), core filled nom 400kg/m² laid To detail F	17.2			Min 51CS50	293	56	62	53	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
Refer details on page B2.31	**M90B**	90mm clay brick min wall surface density 130 kg/m² To detail A	17.2	Refer Boral Bricks/ Midland Bricks	Refer Boral Bricks/ Midland Bricks	NA	120	42	NA	NA	NA
		90mm clay brick min wall surface density 130 kg/m² To detail B	17.2			NA	160	46	53	45	50P14, 50G14
		90mm clay brick min wall surface density 130 kg/m² To detail C	25.8			NA	173	49	60	51	50P14, 50G14
		90mm clay brick min wall surface density 130 kg/m² To detail D	17.2			NA	174	49	59	50	50P14, 50G14
		90mm clay brick min wall surface density 130 kg/m² To detail E	17.2			Min 51CS50	177	49	59	49	50P14, 50G14
		90mm clay brick min wall surface density 130 kg/m² To detail F	17.2			Min 51CS50	193	48	58	49	50P14, 50G14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
Refer details on page B2.31	**M110B**	110mm clay brick min wall surface density 170kg/m² To detail A	17.2	Refer Boral Bricks/ Midland Bricks	Refer Boral Bricks/ Midland Bricks	NA	140	45	NA	NA	NA
		110mm clay brick min wall surface density 170kg/m² To detail B	17.2			NA	180	49	52	42	50P14, 50G14
		110mm clay brick min wall surface density 170kg/m² To detail C	25.8			NA	193	52	58	50	50P14, 50G14
		110mm clay brick min wall surface density 170kg/m² To detail D	17.2			NA	194	52	57	49	50P14, 50G14
		110mm clay brick min wall surface density 170kg/m² To detail E	17.2			Min 51CS50	197	52	57	49	50P14, 50G14
		110mm clay brick min wall surface density 170kg/m² To detail F	17.2			Min 51CS50	213	51	56	48	50P14, 50G14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Masonry Wall Systems - Acoustic Upgrades (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
Refer details on page B2.31	**M150B**	150mm clay brick min wall surface density 240kg/m² To detail A	17.2	Refer Boral Bricks/ Midland Bricks	Refer Boral Bricks/ Midland Bricks	NA	180	48	NA	NA	NA
		150mm clay brick min wall surface density 240kg/m² To detail B	17.2			NA	220	50	53	44	50P14, 50G14
		150mm clay brick min wall surface density 240kg/m² To detail C	25.8			NA	233	53	60	51	50P14, 50G14
		150mm clay brick min wall surface density 240kg/m² To detail D	17.2			NA	234	53	60	51	50P14, 50G14
		150mm clay brick min wall surface density 240kg/m² To detail E	17.2			Min 51CS50	237	53	59	50	50P14, 50G14
		150mm clay brick min wall surface density 240kg/m² To detail F	17.2			Min 51CS50	253	52	58	49	50P14, 50G14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights of steel C Studs refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

External Wall Systems - FireCLAD®

System **FC39F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings W/- Insul R_w	Insulation Type	*R* Value (m²K/W)
	FC32F	To girts, 2x16mm FireSTOP pbd followed by Tyvek® HomeWrap membrane, battens and cladding	26.0	60/60/60 from outside only	FCO-1419 FCO-1555 FCO-1890	NA	Adds 54mm	34	NA	Nil insulation, 20x0.75mm batten, 40mm wide	0.5
	FC39F	To girts, 3x13mm FireSTOP pbd followed by Tyvek® HomeWrap membrane, battens and cladding	31.5	90/90/90 from outside only	FCO-1419 FCO-1555 FCO-1890	NA	Adds 61mm	37	NA	Nil insulation, 20x0.75mm batten, 40mm wide	0.5
	FC48F	To girts, 3x16mm FireSTOP pbd followed by Tyvek® HomeWrap membrane, battens and cladding	39.0	120/120/120 from outside only	FCO-1890	NA	Adds 70mm	38	NA	Nil insulation, 20x0.75mm batten, 40mm wide	0.5

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

External Wall Systems - OutRWALL®

System **OW16WF10** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings W/- Insul R_w	Insulation Type	*R* Value (m²K/W)
	OW16WF10	1x16mm Wet Area FireSTOP pbd to external side of timber stud followed by Tyvek® HomeWrap membrane, battens and cladding 1x10mm Std Core pbd to internal side	19.8	60/60/60 from outside only Cf11	C91580	as required	26 + frame + cladding system	35	38	R2 GW wall batt	2.2
	OW16WFR10A	1x16mm Wet Area FireSTOP pbd to external side of timber stud followed by Tyvek® HomeWrap membrane, battens and cladding 1x10mm SoundSTOP pbd on resilient channel to internal side	21.2	60/60/60 from outside only Cf11	C91580	as required	39 + frame + cladding system	39	44	R2 GW wall batt	2.3
	OW16WF16F	1x16mm Wet Area FireSTOP pbd to external side of timber stud, Rockwool, followed by Tyvek® HomeWrap membrane, battens and cladding 1x16mm FireSTOP pbd to internal side	26.0	90/90/90 from outside 60/60/60 from inside	C91580 85 FCO-1708	as required	32 + frame + cladding system	37	40	R2 GW wall batt	2.3
	OW16WF26F (Rockwool)	1x16mm Wet Area FireSTOP pbd to external side of timber stud, Rockwool, followed by Tyvek® HomeWrap membrane, battens and cladding 2x13mm FireSTOP pbd to internal side	34.0	90/90/90	C91580 85 FCO-1708	as required	42 + frame + cladding system	39	42	R2 GW wall batt	2.4
	OW16WF26F (Double Stud)	1x16mm Wet Area FireSTOP pbd to external side of double timber stud followed by Tyvek® HomeWrap membrane, battens and cladding 2x13mm FireSTOP pbd to internal side	34.0	90/90/90	C91580 85	as required	42 + frame + cladding system	39	42	R2 GW wall batt	2.3

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

External Wall Systems - OutRWALL® (cont)

System **OW32WF10** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings W/- Insul R_w	Insulation Type	*R* Value (m²K/W)
	OW26WF10 (Rockwool)	2x13mm Wet Area FireSTOP pbd to external side of timber stud, Rockwool, followed by Tyvek® HomeWrap membrane, battens and cladding 1x10mm Std Core pbd to internal side	27.8	90/90/90 from outside only	C91580 85 FCO-1708	as required	36 + frame + cladding system	37	40	R2 GW wall batt	2.3
	OW26WF10 (Double Stud)	2x13mm Wet Area FireSTOP pbd to external side of double timber stud followed by Tyvek® HomeWrap membrane, battens and cladding 1x10mm Std Core pbd to internal side	27.8	90/90/90 from outside only	C91580 85	as required	36 + frame + cladding system	37	40	R2 GW wall batt	2.2
	OW32WF10	2x16mm Wet Area FireSTOP pbd to external side of timber stud followed by Tyvek® HomeWrap membrane, battens and cladding 1x10mm Std Core pbd to internal side	32.8	90/90/90 from outside only Cf21	C91580	as required	42 + frame + cladding system	37	40	R2 GW Wall batt	2.3
	OW32WF16F	2x16mm Wet Area FireSTOP pbd to external side of timber stud followed by Tyvek® HomeWrap membrane, battens and cladding 1x16mm Wet Area FireSTOP pbd to internal side	39.0	90/90/90 from outside 60/60/60 from inside.	C91580	as required	48 + frame + cladding system	40	43	R2 GW wall batt	2.3

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

External Wall Systems - Brick Veneer

System **TBV10** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings W/- Insul R_w	Insulation Type	*R* Value (m²K/W)
	TBV10	1x10mm Std Core pbd on timber stud with external FRL 60/60/60 brick veneer	6.8	60/60/60 from outside only	FCO-0626	as required	10 + frame + cav + veneer	52	55	R2 GW wall batt 90mm stud	2.2
	TBV10A	1x10mm SoundSTOP pbd on timber stud with external non fire rated brick veneer	8.2	Nil	NA	as required	10 + frame + cav + veneer	54	57	R2 GW wall batt 90mm stud	2.2
	TBV16F	1x16mm FireSTOP pbd on timber stud with external non fire rated brick veneer	13.0	60/60/60 from inside only	FCO-0021	as required	16 + frame + cav + veneer	55	60	R2 GW wall batt 90mm stud	2.2
		1x16mm FireSTOP pbd on timber stud with external FRL 60/60/60 brick veneer		60/60/60	FCO-0626		16 + frame + cav + veneer	55	60	R2 GW wall batt 90mm stud	2.2
	TBV20A	2x10mm SoundSTOP pbd on timber stud with external non fire rated brick veneer	16.4	Nil	NA	as required	20 + frame + cav + veneer	57	62	R2 GW wall batt 90mm stud	2.2
	TBV26A	2x13mm SoundSTOP pbd on timber stud with external non fire rated brick veneer	22.4	Nil	NA	as required	26 + frame + cav + veneer	59	64	R2 GW wall batt 90mm stud	2.2
	TBV26F	2x13mm FireSTOP pbd on timber stud with external FRL 90/90/90 brick veneer	21.0	90/90/90	FCO-0966	as required	26 + frame + cav + veneer	58	63	R2 GW wall batt 90mm stud	2.2
	TBV32F	2x16mm FireSTOP pbd on timber stud with external FRL 120/120/120 brick veneer	26.0	120/120/120	FCO-0966	as required	32 + frame + cav + veneer	60	65	R2 GW wall batt 90mm stud	2.3

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

External Wall Systems - Brick Veneer (cont)

System **SBV10** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings W/- Insul R_w	Insulation Type	*R* Value (m²K/W)
	SBV10	1x10mm Std Core pbd on steel stud with external FRL 60/60/60 brick veneer	6.8	60/60/60 from outside only	NA	as required	10 + frame + cav + veneer	50	52	R1.5 GW wall batt 75mm stud	1.3
	SBV10A	1x10mm SoundSTOP pbd on steel stud with external non fire rated brick veneer	8.2	Nil	NA	as required	10 + frame + cav + veneer	51	54	R1.5 GW wall batt 75mm stud	1.3
	SBV20A	2x10mm SoundSTOP pbd on steel stud with external non fire rated brick veneer	16.4	Nil	NA	as required	20 + frame + cav + veneer	54	59	R1.5 GW wall batt 75mm stud	1.4
	SBV26A	2x13mm SoundSTOP on steel stud with external non fire rated brick veneer	22.4	Nil	NA	as required	26 + frame + cav. + veneer	46	61	R1.5 GW wall batt 75mm stud	1.4

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

External Wall Systems - Spandrel max height 1000mm

System **SP2626F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings W/- Insul R_w	Insulation Type	*R* Value (m²K/W)
	SP1616F	1x16mm FireSTOP plasterboard to each side of steel spandrel frame	26.0	-/60/60	FCO-0504R FCO-0788R (hanging)	51	83	NA	NA	NA	NA
						64	96	NA	NA	NA	NA
						76	108	NA	NA	NA	NA
						92	124	NA	NA	NA	NA
						150	182	NA	NA	NA	NA
	SP1326F	2x13mm FireSTOP plasterboard to one side of steel spandrel frame, 1x13 to other side	31.5	-/90/90	FCO-0504R FCO-0788R (hanging)	51	90	NA	NA	NA	NA
						64	103	NA	NA	NA	NA
						76	115	NA	NA	NA	NA
						92	131	NA	NA	NA	NA
						150	189	NA	NA	NA	NA
	SP2626F	2x13mm FireSTOP plasterboard to each side of steel spandrel frame	42.0	-/120/120	FCO-0504R FCO-0788R (hanging)	51	103	NA	NA	NA	NA
						64	116	NA	NA	NA	NA
						76	128	NA	NA	NA	NA
						92	144	NA	NA	NA	NA
						150	202	NA	NA	NA	NA

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

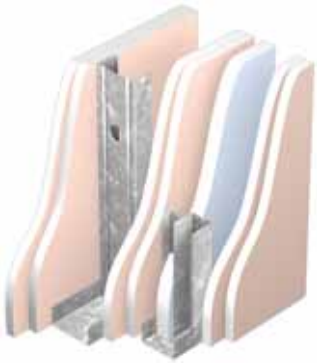
External Wall Systems - Spandrel (cont) max height 1000mm

System **SP3232F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings W/- Insul R_w	Insulation Type	*R* Value (m²K/W)
	SP3232F	2x16mm FireSTOP plasterboard to each side of steel spandrel frame	52.0	-/180/180	FCO-0504R	51	115	NA	NA	NA	NA
						64	128	NA	NA	NA	NA
						76	140	NA	NA	NA	NA
						92	156	NA	NA	NA	NA
						150	214	NA	NA	NA	NA
	SP3245F	2x16mm FireSTOP plasterboard to each side of steel spandrel frame, additional 1x13mm FireSTOP to interior face only	62.5	-/180/180	FCO-0788R (hanging)	51	115	NA	NA	NA	NA
						64	128	NA	NA	NA	NA
						76	140	NA	NA	NA	NA
						92	156	NA	NA	NA	NA
						150	214	NA	NA	NA	NA

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1

B. System Index

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Stud Size (mm)	Nom Wall Width (mm)	Acoustic Ratings Nil Insul R_w	Acoustic Ratings W/- Insulation R_w	Acoustic Ratings W/- Insulation R_w+C_{tr}	Insulation Type
Subfloor Separation											
 System **SF32F**	**SF32F**	2x16mm FireSTOP pbd screw laminated as per fire opinion	26.0	-/60/60	FCO-1763	nil	32	NA	NA	NA	NA
Hybrid Wall System - 4 Hour Fire Rated											
 System **S3232F+SH32F** illustrated	**S3232F +SH32F**	2x16mm FireSTOP pbd to each side of CS stud 1x25mm ShaftLINER on separate CH stud 2x16mm FireSTOP pbd to other side of frame	98.5	-/240/240	FCO-1163	xxCSyy + xxCHyy	211-348	NA	NA	NA	NA

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Heights refer Section C

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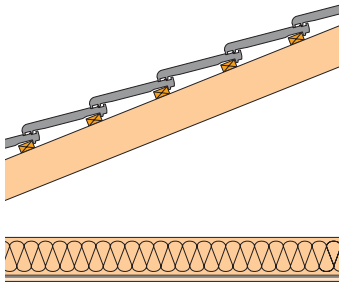
B. System Index

Ceilings Under Tile Roof - Direct Fixed



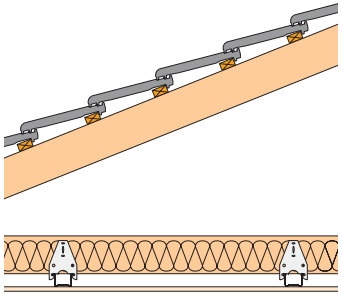
System **C10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings			
						Nil Insul	With Insulation		
				FRL	Basis	R_w	R_w	R_w+C_{tr}	Insulation Type
	C10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	34	43	37	R2.5 GW ceiling batt
	C10U	1x10mm UniSPAN pbd	7.2	Nil	NA	33	42	36	R2.5 GW ceiling batt
	C13	1x13mm Std Core pbd	8.6	Nil	NA	34	43	37	R2.5 GW ceiling batt
	C13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	35	44	38	R2.5 GW ceiling batt
	C13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	35	44	38	R2.5 GW ceiling batt
	C16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	36	45	39	R2.5 GW ceiling batt
	C20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	38	47	41	R2.5 GW ceiling batt
	C26F	2x13mm FireSTOP	21.0	60/60/60 from below RISF 30min	FCO-1658	40	49	43	R2.5 GW ceiling batt
	C29F	13+16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	40	49	43	R2.5 GW ceiling batt
	C32F	2x16mm FireSTOP	26.0	90/90/90 from below RISF 60min	FCO-1658	41	50	44	R2.5 GW ceiling batt
	C48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	44	53	47	R2.5 GW ceiling batt
	C64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	44	53	47	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Tile Roof - Furred

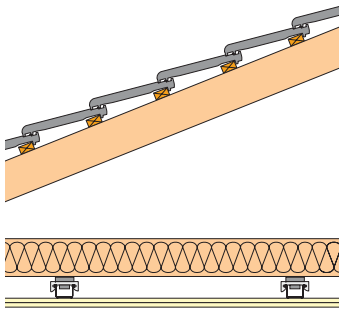
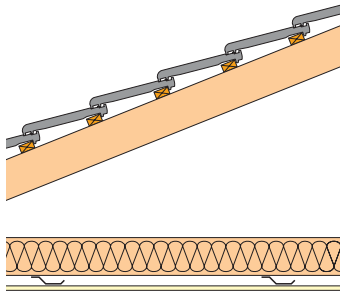


System **CF10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
	CF10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	36	45	39	R2.5 GW ceiling batt
	CF10U	1x10mm UniSPAN pbd	7.2	Nil	NA	35	44	38	R2.5 GW ceiling batt
	CF13	1x13mm Std Core pbd	8.6	Nil	NA	36	45	39	R2.5 GW ceiling batt
	CF13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	37	46	40	R2.5 GW ceiling batt
	CF16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	38	47	41	R2.5 GW ceiling batt
	CF20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	40	49	43	R2.5 GW ceiling batt
	CF26A	2x13mm SoundSTOP pbd	22.4	Nil	NA	42	51	45	R2.5 GW ceiling batt
	CF26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	42	51	45	R2.5 GW ceiling batt
	CF29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	42	51	45	R2.5 GW ceiling batt
	CF32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658	43	52	46	R2.5 GW ceiling batt
	CF48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	46	55	49	R2.5 GW ceiling batt
	CF64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	46	55	49	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

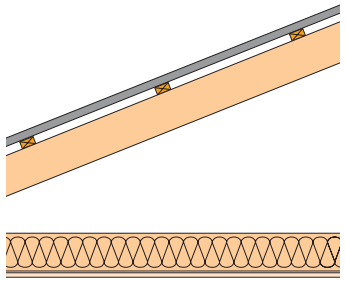
B. System Index

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings			
						Nil Insul	With Insulation		
				FRL	Basis	R_w	R_w	R_w+C_{tr}	Insulation Type
Ceilings Under Tile Roof - Furred On Acoustic Mounts									
 System **CFA26A** illustrated	**CFA20A**	2x10mm SoundSTOP pbd Acoustic mount	16.4	Nil	NA	42	51	45	R2.5 GW ceiling batt
	CFA26A	2x13mm SoundSTOP pbd Acoustic mount	22.4	Nil	NA	44	53	47	R2.5 GW ceiling batt
Ceilings Under Tile Roof - On Resilient Channels									
 System **CR10A** illustrated	**CR10A**	1x10mm SoundSTOP pbd	8.2	Nil	NA	38	47	41	R2.5 GW ceiling batt
	CR13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	39	48	42	R2.5 GW ceiling batt
	CR16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	40	49	43	R2.5 GW ceiling batt
	CR20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	42	51	45	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Metal Roof - Direct Fixed



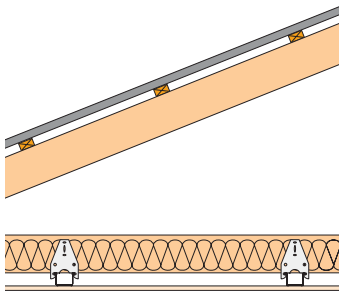
System **C10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings			
						Nil Insul	With Insulation		
				FRL	Basis	R_w	R_w	R_w+C_{tr}	Insulation Type
	C10U	1x10mm UniSPAN pbd	7.2	Nil	NA	32	41	34	R2.5 GW ceiling batt
	C13	1x13mm Std Core pbd	8.6	Nil	NA	33	42	35	R2.5 GW ceiling batt
	C16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	35	44	37	R2.5 GW ceiling batt
	C26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	39	48	41	R2.5 GW ceiling batt
	C29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	39	48	41	R2.5 GW ceiling batt
	C32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658	40	49	42	R2.5 GW ceiling batt
	C48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	43	52	45	R2.5 GW ceiling batt
	C64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	43	52	45	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Metal Roof - Furred



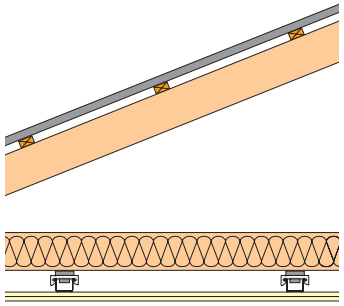
System **CF10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings			
						Nil Insul	With Insulation		
				FRL	Basis	R_w	R_w	R_w+C_{tr}	Insulation Type
	CF10U	1x10mm UniSPAN pbd	7.2	Nil	NA	34	43	36	R2.5 GW ceiling batt
	CF13	1x13mm Std Core pbd	8.6	Nil	NA	35	44	37	R2.5 GW ceiling batt
	CF16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	37	46	39	R2.5 GW ceiling batt
	CF20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	39	48	41	R2.5 GW ceiling batt
	CF26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	41	50	43	R2.5 GW ceiling batt
	CF29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	41	50	43	R2.5 GW ceiling batt
	CF32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658	42	51	44	R2.5 GW ceiling batt
	CF48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	45	54	47	R2.5 GW ceiling batt
	CF64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	45	44	47	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Metal Roof - Furred On Acoustic Mounts



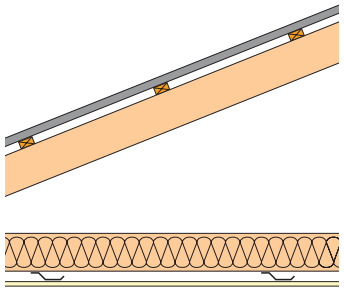
System **CFA26A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings			
						Nil Insul	With Insulation		
				FRL	Basis	R_w	R_w	R_w+C_{tr}	Insulation Type
	CFA20A	2x10mm SoundSTOP pbd Acoustic mount	16.4	Nil	NA	41	50	43	R2.5 GW ceiling batt
	CFA26A	2x13mm SoundSTOP pbd Acoustic mount	22.4	Nil	NA	42	51	44	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Metal Roof - On Resilient Channels



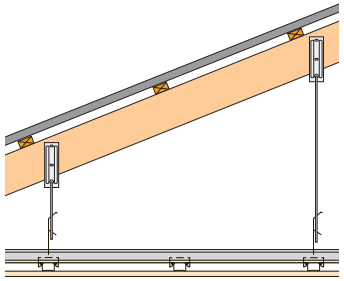
System **CR13A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings			
						Nil Insul	With Insulation		
				FRL	Basis	R_w	R_w	R_w+C_{tr}	Insulation Type
	CR10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	37	46	39	R2.5 GW ceiling batt
	CR13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	38	47	40	R2.5 GW ceiling batt
	CR16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	39	48	41	R2.5 GW ceiling batt
	CR20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	41	50	43	R2.5 GW ceiling batt
	CR26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	43	52	45	R2.5 GW ceiling batt
	CR29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	43	52	45	R2.5 GW ceiling batt
	CR32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658	44	53	46	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Metal Roof - Suspended



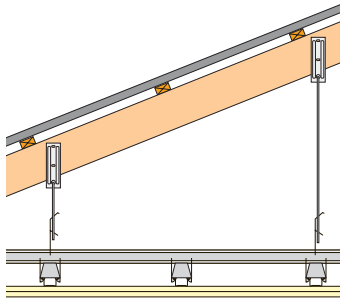
System **CS10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings			
						Nil Insul	With Insulation		
				FRL	Basis	R_w	R_w	R_w+C_{tr}	Insulation Type
	CS10U	1x10mm UniSPAN pbd	7.2	Nil	NA	35	44	37	R2.5 GW ceiling batt
	CS13	1x13mm Std Core pbd	8.6	Nil	NA	36	45	38	R2.5 GW ceiling batt
	CS16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	38	47	40	R2.5 GW ceiling batt
	CS20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	40	49	42	R2.5 GW ceiling batt
	CS26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	42	51	44	R2.5 GW ceiling batt
	CS29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	42	51	44	R2.5 GW ceiling batt
	CS32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658	43	52	45	R2.5 GW ceiling batt
	CS48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	46	55	48	R2.5 GW ceiling batt
	CS64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	46	55	48	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

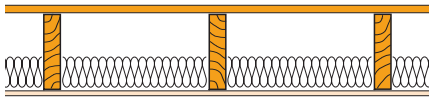
Ceilings Under Metal Roof - Suspended On Acoustic Mounts

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings			
						Nil Insul	With Insulation		
				FRL	Basis	R_w	R_w	R_w+C_{tr}	Insulation Type
 System **CSA20A**	**CSA20A**	2x10mm SoundSTOP pbd Acoustic mount	16.4	Nil	NA	42	51	44	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Bare Timber Floor - Direct Fixed



System **C10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	With Insulation R_w	With Insulation R_w+C_{tr}	With Insulation $L_{n,w}+C_l$	Insulation Type
	C10	1x10mm Std Core pbd	6.8	Nil	NA	29	30	24	85	R2.5 GW ceiling batt
	C10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	30	31	25	84	R2.5 GW ceiling batt
	C10U	1x10mm UniSPAN pbd	7.2	Nil	NA	29	30	24	85	R2.5 GW ceiling batt
	C13	1x13mm Std Core pbd	8.6	Nil	NA	30	31	25	84	R2.5 GW ceiling batt
	C13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC.	FCO-1658	32	33	27	82	R2.5 GW ceiling batt
	C16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	33	34	28	81	R2.5 GW ceiling batt
	C20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	35	36	30	79	R2.5 GW ceiling batt
	C26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	36	37	31	78	R2.5 GW ceiling batt
	C29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	37	38	32	77	R2.5 GW ceiling batt
	C32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	38	**39**	**33**	**76**	R2.5 GW ceiling batt
	C48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	42	43	37	74	R2.5 GW ceiling batt
	C64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	44	45	39	72	R2.5 GW ceiling batt

NOTES

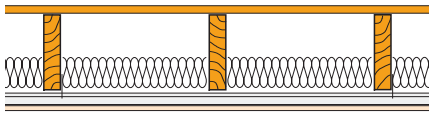
Acoustic ratings based on:

- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Ceilings Under Bare Timber Floor - Furred



System **CF10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_l$	Insulation Type
	CF10U	1x10mm UniSPAN pbd	7.2	Nil	NA	40	47	40	69	R2.5 GW ceiling batt
	CF13	1x13mm Std Core pbd	8.6	Nil	NA	41	48	41	68	R2.5 GW ceiling batt
	CF13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC.	FCO-1658	43	50	43	66	R2.5 GW ceiling batt
	CF16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	44	51	44	65	R2.5 GW ceiling batt
	CF26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	47	54	47	62	R2.5 GW ceiling batt
	CF29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	48	55	48	61	R2.5 GW ceiling batt
	CF32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	49	**56**	**49**	**60**	R2.5 GW ceiling batt
	CF48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	53	60	53	58	R2.5 GW ceiling batt
	CF64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	55	62	55	56	R2.5 GW ceiling batt

NOTES

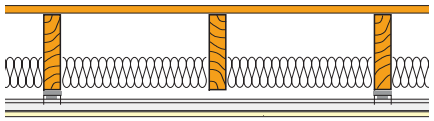
Acoustic ratings based on:

- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists
- Furring channel housed in a direct fixing clip arrangement.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Ceilings Under Bare Timber Floor - Furred On Acoustic Mounts



System **CFA13A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_l$	Insulation Type
	CFA10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	42	49	43	64	R2.5 GW ceiling batt
	CFA13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	44	51	45	62	R2.5 GW ceiling batt
	CFA13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	44	51	45	63	R2.5 GW ceiling batt
	CFA16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	45	52	46	61	R2.5 GW ceiling batt
	CFA20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	47	54	48	60	R2.5 GW ceiling batt
	CFA26A	2x13mm SoundSTOP pbd	22.4	Nil	NA	49	56	50	58	R2.5 GW ceiling batt
	CFA26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	48	55	49	59	R2.5 GW ceiling batt
	CFA29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	49	56	50	58	R2.5 GW ceiling batt
	CFA32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	50	**57**	**51**	**57**	R2.5 GW ceiling batt
	CFA48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	54	61	55	55	R2.5 GW ceiling batt
	CFA64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	56	63	57	53	R2.5 GW ceiling batt

NOTES

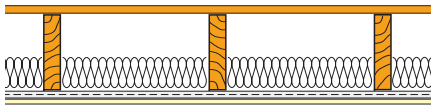
Acoustic ratings based on:

- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists
- Boral Acoustic Ceiling Mount / Rondo Sound Isolation Mount STWC.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Ceilings Under Bare Timber Floor - On Resilient Channels



System **CR13A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_l$	Insulation Type
	CR10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	42	49	43	66	R2.5 GW ceiling batt
	CR13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	44	51	45	64	R2.5 GW ceiling batt
	CR13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	44	51	45	64	R2.5 GW ceiling batt
	CR16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	45	52	46	63	R2.5 GW ceiling batt
	CR20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	47	54	48	61	R2.5 GW ceiling batt
	CR26A	2x13mm SoundSTOP	22.4	Nil	NA	49	56	50	59	R2.5 GW ceiling batt
	CR26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	48	55	49	60	R2.5 GW ceiling batt
	CR29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	49	56	50	59	R2.5 GW ceiling batt
	CR32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCo-0629	50	57	51	58	R2.5 GW ceiling batt

NOTES

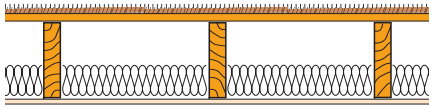
Acoustic ratings based on:

- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Carpeted Timber Floor - Direct Fixed



System **C10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	With Insulation R_w	With Insulation R_w+C_{tr}	With Insulation $L_{n,w}+C_I$	Insulation Type
	C10	1x10mm Std Core pbd	6.8	Nil	NA	30	31	25	58	R2.5 GW ceiling batt
	C10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	31	32	26	57	R2.5 GW ceiling batt
	C10U	1x10mm UniSPAN pbd	7.2	Nil	NA	30	31	25	58	R2.5 GW ceiling batt
	C13	1x13mm Std Core pbd	8.6	Nil	NA	31	32	26	56	R2.5 GW ceiling batt
	C13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	33	34	28	55	R2.5 GW ceiling batt
	C13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	33	34	28	55	R2.5 GW ceiling batt
	C16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCo-0568	34	35	29	54	R2.5 GW ceiling batt
	C20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	36	37	31	52	R2.5 GW ceiling batt
	C26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	37	38	32	51	R2.5 GW ceiling batt
	C29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	38	39	33	50	R2.5 GW ceiling batt
	C32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	39	40	34	49	R2.5 GW ceiling batt
	C48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	43	44	38	47	R2.5 GW ceiling batt
	C64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	45	46	40	45	R2.5 GW ceiling batt

NOTES

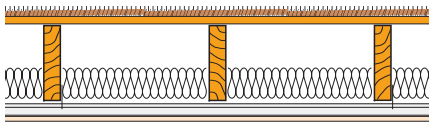
Acoustic ratings based on:

- An underlay used under carpet
- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Carpeted Timber Floor - Furred



System **CF10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_I$	Insulation Type
	CF10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	42	49	42	41	R2.5 GW ceiling batt
	CF10U	1x10mm UniSPAN pbd	7.2	Nil	NA	41	48	41	42	R2.5 GW ceiling batt
	CF13	1x13mm Std Core pbd	8.6	Nil	NA	42	49	42	40	R2.5 GW ceiling batt
	CF13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	44	51	44	39	R2.5 GW ceiling batt
	CF13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	44	51	44	39	R2.5 GW ceiling batt
	CF16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	45	52	45	38	R2.5 GW ceiling batt
	CF20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	47	54	47	36	R2.5 GW ceiling batt
	CF26A	2x13mm SoundSTOP pbd	22.4	Nil	NA	49	56	49	34	R2.5 GW ceiling batt
	CF26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	48	55	48	35	R2.5 GW ceiling batt
	CF29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	49	56	49	34	R2.5 GW ceiling batt
	CF32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	50	57	50	33	R2.5 GW ceiling batt
	CF48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	54	60	54	31	R2.5 GW ceiling batt
	CF64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	56	62	56	29	R2.5 GW ceiling batt

NOTES

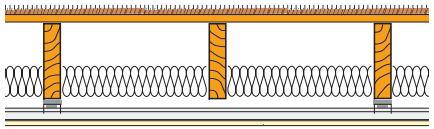
Acoustic ratings based on:

- An underlay used under carpet
- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists
- Furring channel housed in a direct fixing clip arrangement.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Carpeted Timber Floor - Furred On Acoustic Mounts



System **CFA13A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_l$	Insulation Type
	CFA10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	43	50	44	37	R2.5 GW ceiling batt
	CFA13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	45	52	46	35	R2.5 GW ceiling batt
	CFA20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	48	55	49	33	R2.5 GW ceiling batt
	CFA26A	2x13mm SoundSTOP pbd	22.4	Nil	NA	49	57	51	31	R2.5 GW ceiling batt
	CFA26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	49	56	50	32	R2.5 GW ceiling batt
	CFA29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	50	57	51	31	R2.5 GW ceiling batt
	CFA32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	51	58	52	**30**	R2.5 GW ceiling batt
	CFA48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	55	61	56	28	R2.5 GW ceiling batt

NOTES

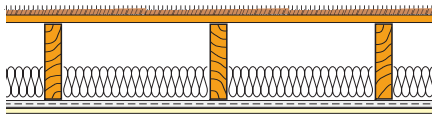
Acoustic ratings based on:

- An underlay used under carpet
- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists
- Boral Acoustic Ceiling Mount / Rondo Sound Isolation Mount STWC.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Ceilings Under Carpeted Timber Floor - On Resilient Channels



System **CR13A** illustrated

NOTES

Acoustic ratings based on:

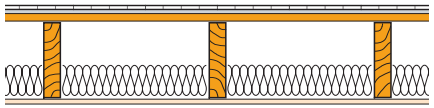
- An underlay used under carpet
- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists.

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_I$	Insulation Type
	CR10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	43	50	44	39	R2.5 GW ceiling batt
	CR13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	45	52	46	37	R2.5 GW ceiling batt
	CR13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	45	52	48	37	R2.5 GW ceiling batt
	CR16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	46	53	47	36	R2.5 GW ceiling batt
	CR20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	48	55	49	34	R2.5 GW ceiling batt
	CR26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	49	56	50	33	R2.5 GW ceiling batt
	CR29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	50	57	51	32	R2.5 GW ceiling batt
	CR32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	51	58	52	31	R2.5 GW ceiling batt

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Tiled Timber Floor - Direct Fixed



System **C10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	With Insulation R_w	With Insulation R_w+C_{tr}	With Insulation $L_{n,w}+C_l$	Insulation Type
	C10	1x10mm Std Core pbd	6.8	Nil	NA	37	38	32	82	R2.5 GW ceiling batt
	C10U	1x10mm UniSPAN pbd	7.2	Nil	NA	38	39	33	82	R2.5 GW ceiling batt
	C13	1x13mm Std Core pbd	8.6	Nil	NA	38	39	33	81	R2.5 GW ceiling batt
	C13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	39	40	34	79	R2.5 GW ceiling batt
	C16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	39	40	34	78	R2.5 GW ceiling batt
	C20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	40	41	35	76	R2.5 GW ceiling batt
	C26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	41	42	36	75	R2.5 GW ceiling batt
	C29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	42	43	37	74	R2.5 GW ceiling batt
	C32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	42	43	37	73	R2.5 GW ceiling batt
	C48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	45	46	40	71	R2.5 GW ceiling batt
	C64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	47	48	42	69	R2.5 GW ceiling batt

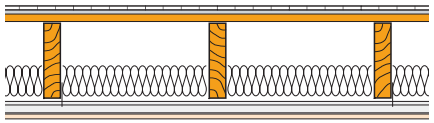
NOTES

Acoustic ratings based on:

- 6mm thick ceramic tiles laid on 6mm thick cement sheet having a total mass nom 15kg/m²
- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists.

B. System Index

Ceilings Under Tiled Timber Floor - Furred



System **CF10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings With Insulation $L_{n,w}+C_l$	Insulation Type
	CF10U	1x10mm UniSPAN pbd	7.2	Nil	NA	47	56	49	66	R2.5 GW ceiling batt
	CF13	1x13mm Std Core pbd	8.6	Nil	NA	49	56	49	65	R2.5 GW ceiling batt
	CF13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	50	57	50	63	R2.5 GW ceiling batt
	CF16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	50	57	50	63	R2.5 GW ceiling batt
	CF26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	52	59	52	59	R2.5 GW ceiling batt
	CF29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	53	60	53	58	R2.5 GW ceiling batt
	CF32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	53	60	53	57	R2.5 GW ceiling batt
	CF48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	56	63	56	55	R2.5 GW ceiling batt
	CF64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	58	65	58	53	R2.5 GW ceiling batt

NOTES

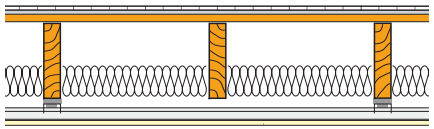
Acoustic ratings based on:

- 6mm thick ceramic tiles laid on 6mm thick cement sheet having a total mass nom 15kg/m²
- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists
- Furring channel housed in a direct fixing clip arrangement.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Tiled Timber Floor - Furred On Acoustic Mounts



System **CFA13A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_I$	Insulation Type
	CFA10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	50	57	51	62	R2.5 GW ceiling batt
	CFA13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	51	58	52	60	R2.5 GW ceiling batt
	CFA13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	51	58	52	60	R2.5 GW ceiling batt
	CFA16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	51	58	52	59	R2.5 GW ceiling batt
	CFA20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	52	59	53	57	R2.5 GW ceiling batt
	CFA26A	2x13mm SoundSTOP pbd	22.4	Nil	NA	54	61	55	55	R2.5 GW ceiling batt
	CFA26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	53	60	54	56	R2.5 GW ceiling batt
	CFA29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	54	61	55	55	R2.5 GW ceiling batt
	CFA32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	54	61	55	54	R2.5 GW ceiling batt
	CFA48F	3x16mm FireSTOP pbd	39.0	120/120/120 from below RISF 90min	SI 1891 FTO-0029 FCO-1658	57	64	58	52	R2.5 GW ceiling batt
	CFA64F	2x16mm FireSTOP pbd Furring 2x16mm FireSTOP pbd	52.0	120/120/120 from below RISF 120min	FCO-1856	59	66	60	50	R2.5 GW ceiling batt

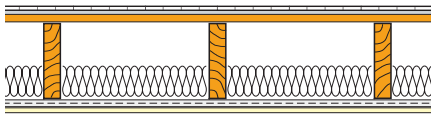
NOTES

Acoustic ratings based on:

- 6mm thick ceramic tiles laid on 6mm thick cement sheet having a total mass nom 15kg/m²
- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists
- Boral Acoustic Ceiling Mount / Rondo Sound Isolation Mount STWC.

B. System Index

Ceilings Under Tiled Timber Floor - On Resilient Channels



System **CR13A** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_I$	Insulation Type
	CR10A	1x10mm SoundSTOP pbd	8.2	Nil	NA	50	57	51	63	R2.5 GW ceiling batt
	CR13A	1x13mm SoundSTOP pbd	11.2	Nil	NA	51	58	52	61	R2.5 GW ceiling batt
	CR13F	1x13mm FireSTOP pbd	10.5	30/30/30 from below FPC	FCO-1658	51	58	52	61	R2.5 GW ceiling batt
	CR16F	1x16mm FireSTOP pbd	13.0	30/30/30 from below RISF 30min	FCO-1658 FCO-0568	51	58	52	60	R2.5 GW ceiling batt
	CR20A	2x10mm SoundSTOP pbd	16.4	Nil	NA	52	59	53	58	R2.5 GW ceiling batt
	CR26F	2x13mm FireSTOP pbd	21.0	60/60/60 from below RISF 30min	FCO-1658	53	60	54	57	R2.5 GW ceiling batt
	CR29F	13mm + 16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	FCO-1658	54	61	55	56	R2.5 GW ceiling batt
	CR32F	2x16mm FireSTOP pbd	26.0	90/90/90 from below RISF 60min	FCO-1658 FCO-0629	54	61	55	55	R2.5 GW ceiling batt

NOTES

Acoustic ratings based on:

- 6mm thick ceramic tiles laid on 6mm thick cement sheet having a total mass nom 15kg/m²
- Minimum 19mm particleboard flooring
- Minimum 190mm deep joists.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Ceilings Under Bare Concrete Floor - Furred

System **CF10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	With Insulation R_w	With Insulation R_w+C_{tr}	With Insulation $L_{n,w}$+C_l	Insulation Type
	CF10U	1x10mm UniSPAN pbd	7.2	Floor only	NA	53	58	48	64	25G20, 25P20
	CF13	1x13mm Std Core pbd	8.6	Floor only	NA	53	58	48	62	25G20, 25P20
	CF13F	1x13mm FireSTOP pbd	10.5	Min 30/30/30 from below	FCO-1658	53	58	49	62	25G20, 25P20
	CF16F	1x16mm FireSTOP pbd	13.0	Min 30/30/30 from below RISF 30min	FCO-1658	54	59	49	61	25G20, 25P20
	CF26F	2x13mm FireSTOP pbd	21.0	Min 60/60/60 from below RISF 30min	FCO-1658	56	62	51	59	25G20, 25P20
	CF29F	13mm+16mm FireSTOP pbd	23.5	Min 60/60/60 from below RISF 60min	FCO-1658	56	62	52	59	25G20, 25P20
	CF32F	2x16mm FireSTOP pbd	26.0	Min 90/90/90 from below RISF 60min	FCO-1658	57	63	53	58	25G20, 25P20
	CF48F	3x16mm FireSTOP pbd	39.0	Min120/120/120 from below RISF 90min	FCO-1658	58	63	54	58	25G20, 25P20

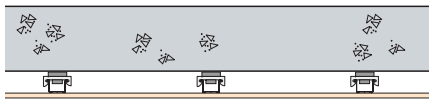
NOTES

Acoustic ratings based on:

- Nom 150mm thick concrete slab
- Furring channel housed in furring channel clip.

B. System Index

Ceilings Under Bare Concrete Floor - Furred on Acoustic Mounts



System **CFA10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	R_w+C_{tr}	$L_{n,w}+C_I$	Insulation Type
	CFA10U	1x10mm UniSPAN pbd	7.2	Floor only	NA	53	58	52	59	50G14, 50P14
	CFA13	1x13mm Std Core pbd	8.6	Floor only	NA	54	**59**	**53**	**51**	65P8
	CFA13F	1x13mm FireSTOP pbd	10.5	Min 30/30/30 from below	FCO-1658	54	60	54	52	50G14, 50P14
	CFA16F	1x16mm FireSTOP pbd	13.0	Min 30/30/30 from below RISF 30min	FCO-1658	55	60	55	51	50G14, 50P14
	CFA26F	2x13mm FireSTOP pbd	21.0	Min 60/60/60 from below RISF 30min	FCO-1658	57	60	55	49	50G14, 50P14
	CFA29F	13mm+16mm FireSTOP pbd	23.5	Min 60/60/60 from below RISF 60min	FCO-1658	57	60	55	49	50G14, 50P14
	CFA32F	2x16mm FireSTOP pbd	26.0	Min 90/90/90 from below RISF 60min	FCO-1658	58	60	55	49	50G14, 50P14
	CFA48F	3x16mm FireSTOP pbd	39.0	Min120/120/120 from below RISF 90min	FCO-1658	59	60	55	49	50G14, 50P14

NOTES

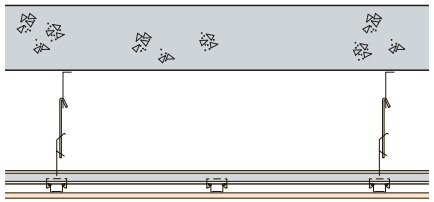
Acoustic ratings based on:

- Nom 150mmthick concrete slab
- Furring channel housed in Rondo Sound Isolation Mount STWC
- Nom 50mm ceiling cavity.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Ceilings Under Bare Concrete Floor - Suspended



System **CS10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	With Insulation R_w	With Insulation R_w+C_{tr}	With Insulation $L_{n,w}+C_l$	Insulation Type
	CS10U	1x10mm UniSPAN pbd	7.2	Floor only	NA	54	59	52	51	50G14, 75P9
	CS13	1x13mm Std Core pbd	8.6	Floor only	NA	55	59	54	50	50G14, 75P9
	CS13A	1x13mm SoundSTOP pbd	11.2	Floor only	NA	55	60	55	49	50G14, 75P9
	CS13F	1x13mm FireSTOP pbd	10.5	Min 30/30/30 from below	FCO-1658	55	59	54	49	50G14, 75P9
	CS16F	1x16mm FireSTOP pbd	13.0	Min 30/30/30 from below RISF 30min	FCO-1658	55	60	55	49	50G14, 75P9
	CS20U	2x10mm UniSPAN pbd	14.4	Floor only	NA	55	60	55	49	50G14, 75P9
	CS26	2x13mm Std Core pbd	17.2	Floor only	NA	56	**60**	**55**	**49**	75P9
	CS26F	2x13mm FireSTOP pbd	21.0	Min 60/60/60 from below RISF 30min	FCO-1658	57	60	55	49	50G14, 75P9
	CS29F	13mm+16mm FireSTOP pbd	23.5	Min 60/60/60 from below RISF 60min	FCO-1658	58	60	55	49	50G14, 75P9
	CS32F	2x16mm FireSTOP pbd	26.0	Min 90/90/90 from below RISF 60min	FCO-1658	59	60	55	49	50G14, 75P9
	CS48F	3x16mm FireSTOP pbd	39.0	Min120/120/120 from below RISF 90min	FCO-1658	60	60	55	49	50G14, 75P9

NOTES

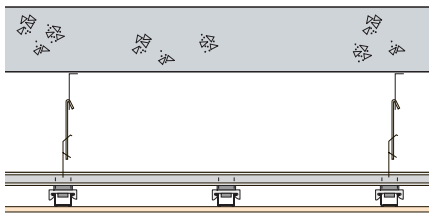
Acoustic ratings based on:

- Nom 150mmthick concrete slab
- Min 100mm ceiling cavity.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Ceilings Under Bare Concrete Floor - Suspended On Acoustic Mounts



System **CSA13** illustrated

NOTES

Acoustic ratings based on:

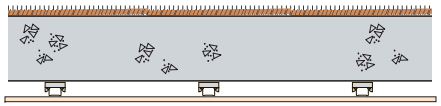
- Nom 150mmthick concrete slab
- Boral Acoustic Ceiling Mount / Rondo Sound Isolation Mount STWC
- Min 100mm ceiling cavity.

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_I$	Insulation Type
	CSA13	1x13mm Std Core pbd	8.6	Floor only	NA	55	**59**	**54**	**49**	75P9
	CSA13F	1x13mm FireSTOP pbd	10.5	Min 30/30/30 from below	FCO-1658	56	59	54	49	50G14, 75P9
	CSA16F	1x16mm FireSTOP pbd	13.0	Min 30/30/30 from below RISF 30min	FCO-1658	57	60	55	49	50G14, 75P9
	CSA26A	2x13mm SoundSTOP pbd	22.4	Floor only	NA	60	**60**	**55**	**49**	75P9
	CSA26F	2x13mm FireSTOP pbd	21.0	Min 60/60/60 from below RISF 30min	FCO-1658	60	60	55	49	50G14, 75P9
	CSA29F	13mm+16mm FireSTOP pbd	23.5	Min 60/60/60 from below RISF 60min	FCO-1658	60	60	55	49	50G14, 75P9
	CSA32F	2x16mm FireSTOP pbd	26.0	Min 90/90/90 from below RISF 60min	FCO-1658	60	60	55	49	50G14, 75P9
	CSA48F	3x16mm FireSTOP pbd	39.0	Min120/120/120 from below RISF 90min	FCO-1658	60	60	55	49	50G14, 75P9

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4) • Bold acoustic ratings indicate a tested system

B. System Index

Ceilings Under Carpeted Concrete Floor - Furred



System **CF10U** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance		Acoustic Ratings				
						Nil Insul	With Insulation			
				FRL	Basis	R_w	R_w	R_w+C_{tr}	$L_{n,w}+C_I$	Insulation Type
	CF10U	1x10mm UniSPAN pbd	7.2	Floor only	NA	53	58	48	<45	25G20
	CF13	1x13mm Std Core pbd	8.6	Floor only	NA	53	58	48	<45	25G20, 25P20
	CF13F	1x13mm FireSTOP pbd	10.5	Min 30/30/30 from below	FCO-1658	53	58	49	<45	25G20, 25P20
	CF16F	1x16mm FireSTOP pbd	13.0	Min 30/30/30 from below RISF 30min	FCO-1658	54	59	49	<45	25G20, 25P20
	CF26F	2x13mm FireSTOP pbd	21.0	Min 60/60/60 from below RISF 30min	FCO-1658	56	60	51	<45	25G20, 25P20
	CF29F	13mm+16mm FireSTOP pbd	23.5	Min 60/60/60 from below RISF 60min	FCO-1658	56	60	52	<45	25G20, 25P20
	CF32F	2x16mm FireSTOP pbd	26.0	Min 90/90/90 from below RISF 60min	FCO-1658	57	60	53	<45	25G20, 25P20
	CF48F	3x16mm FireSTOP pbd	39.0	Min120/120/120 from below RISF 90min	FCO-1658	58	60	54	<45	25G20, 25P20

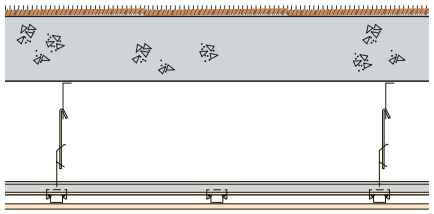
NOTES

Acoustic ratings based on:

- Nom 150mmthick concrete slab
- Furring channel housed in furring channel clip.

B. System Index

Ceilings Under Carpeted Concrete Floor - Suspended

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	R_w+C_{tr}	$L_{n,w}+C_I$	Insulation Type
 System **CS10U** illustrated	**CS10U**	1x10mm UniSPAN pbd	7.2	Floor only	NA	53	58	52	<45	50G14, 75P9
	CS13	1x13mm Std Core pbd	8.6	Floor only	NA	55	59	54	<45	50G14, 75P9
	CS13F	1x13mm FireSTOP pbd	10.5	Min 30/30/30 from below	FCO-1658	55	59	54	<45	50G14, 75P9
	CS16F	1x16mm FireSTOP pbd	13.0	Min 30/30/30 from below RISF 30min	FCO-1658	55	60	55	<45	50G14, 75P9
	CS20U	2x10mm UniSPAN pbd	14.4	Floor only	NA	55	60	55	<45	50G14, 75P9
	CS26	2x13mm Std Core pbd	17.2	Floor only	NA	56	60	55	<45	50G14, 75P9
	CS26F	2x13mm FireSTOP pbd	21.0	Min 60/60/60 from below RISF 30min	FCO-1658	57	60	55	<45	50G14, 75P9
	CS29F	13mm+16mm FireSTOP pbd	23.5	Min 60/60/60 from below RISF 60min	FCO-1658	58	60	55	<45	50G14, 75P9
	CS32F	2x16mm FireSTOP pbd	26.0	Min 90/90/90 from below RISF 60min	FCO-1658	59	60	55	<45	50G14, 75P9
	CS48F	3x16mm FireSTOP pbd	39.0	Min120/120/120 from below RISF 90min	FCO-1658	60	60	55	<45	50G14, 75P9

NOTES

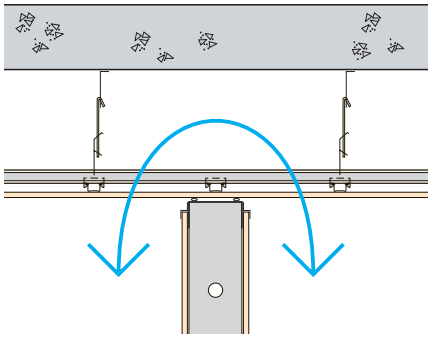
Acoustic ratings based on:

- Nom 150mmthick concrete slab
- Min 100mm ceiling cavity.

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Over Partition, Room-To-Room Via Ceiling



Ceiling continuous over partition wall

System **COCT10U** illustrated

NOTES

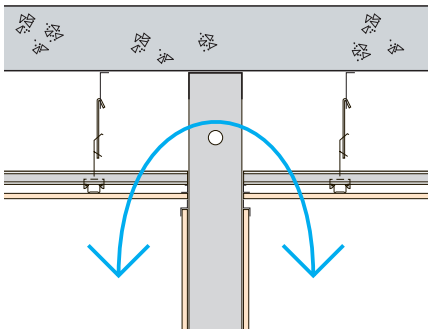
- Acoustic ratings based on nom 650mm plenum depth
- Junction of wall to suspended ceiling acoustically sealed
- Insulation to extend min 1200mm from each side of the wall
- To ensure that the acoustic performance of the wall is not degraded significantly by the flanking through the ceiling path, the $D_{n,c,w}$ of the ceiling should be min 3dB higher than the *R*w of the wall
- Penetrations such as return air grilles and recessed light fittings may degrade the stated acoustic performance.

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Acoustic Ratings		
				Nil Insulation	With Insulation	
				$D_{n,c,w}$	$D_{n,c,w}$	Insulation Type
	COCT10U	1x10mm Boral lay-in infill ceiling panel in Rondo DUO two-way exposed suspended ceiling grid system	7.2	35	40	100G14, 100P14
	COC10U	1x10mm Boral UniSPAN pbd fixed to Rondo KEY-LOCK concealed ceiling grid system	7.2	37	43	100G14, 100P14
	COC13	1x13mm Boral Std. Core plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	8.6	38	45	100G14, 100P14
	COC16F	1x16mm Boral FireSTOP plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	13.0	42	46	100G14, 100P14
	COC26F	2x13mm Boral FireSTOP plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	21.0	45	47	100G14, 100P14
	COC32F	2x16mm Boral FireSTOP plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	26.0	46	48	100G14, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Over Partition, Room-To-Room Via Ceiling (cont)



Ceiling discontinuous over partition wall

System **COD10U** illustrated

NOTES

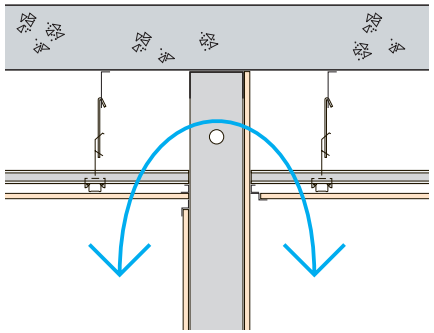
- Acoustic ratings based on nom 650mm plenum depth
- Junction of wall to suspended ceiling acoustically sealed
- Insulation to extend min 1200mm from each side of the wall
- To ensure that the acoustic performance of the wall is not degraded significantly by the flanking through the ceiling path, the $D_{n,c,w}$ of the ceiling should be min 3dB higher than the *R*w of the wall
- Shadowline stopping angle (P50) at head of wall to be acoustically sealed
- Penetrations such as return air grilles and recessed light fittings may degrade the stated acoustic performance.

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Acoustic Ratings		
				Nil Insulation	With Insulation	
				$D_{n,c,w}$	$D_{n,c,w}$	Insulation Type
	CODT10U	1x10mm Boral lay-in infill ceiling panel in Rondo DUO two-way exposed suspended ceiling grid system	7.2	37	42	100G14, 100P14
	COD10U	1x10mm Boral UniSPAN plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	7.2	40	46	100G14, 100P14
	COD13	1x13mm Boral Std. Core plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	8.6	41	47	100G14, 100P14
	COD16F	1x16mm Boral FireSTOP plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	13.0	43	48	100G14, 100P14
	COD26F	2x13mm Boral FireSTOP plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	21.0	47	50	100G14, 100P14
	COD32F	2x16mm Boral FireSTOP plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	26.0	49	51	100G14, 100P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Over Partition, Room-To-Room Via Ceiling (cont)



Plasterboard barrier in ceiling space

Ceiling discontinuous over partition wall

System **COB10U** illustrated

NOTES

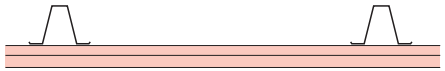
- Acoustic ratings based on nom 650mm plenum depth
- Junction of wall to suspended ceiling acoustically sealed
- To ensure that the acoustic performance of the wall is not degraded significantly by the flanking through the ceiling path, the $D_{n,c,w}$ of the ceiling should be min 3dB higher than the *R*w of the wall
- Other ceiling space barriers may include barium-loaded vinyl material eg Soundguard Wavebar.

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Acoustic Ratings		
				Nil Insulation	With Insulation	
				$D_{n,c,w}$	$D_{n,c,w}$	Insulation Type
	COBT10U	1x10mm Boral lay-in infill ceiling panel in Rondo DUO two-way exposed suspended ceiling grid system	7.2	50	NA	NA
	COB10U	1x10mm Boral UniSPAN plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	7.2	50	NA	NA
	COB13	1x13mm Boral Std. Core plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	8.6	50	NA	NA
	COB16F	1x16mm Boral FireSTOP plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	13.0	50	NA	NA
	COB26F	2x13mm Boral FireSTOP plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	21.0	50	NA	NA
	COB32F	2x16mm Boral FireSTOP plasterboard fixed to Rondo KEY-LOCK concealed ceiling grid system	26.0	50	NA	NA

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

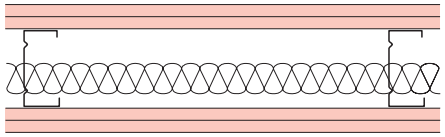
Spanning Ceiling Systems - D-Span™



System **CD29F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	CD26F	2x13mm FireSTOP pbd	21.0	60/30/30 from below RISF 30min	FSH 0753	34	NA	NA	Nil
	CD29F	1x13mm + 1x16mm FireSTOP pbd	23.5	60/60/60 from below RISF 60min	WFRA C91571	35	NA	NA	Nil
	CD48F	3x16mm FireSTOP pbd	39.0	120/90/90 from below RISF 90min	WFRA C91571	38	NA	NA	Nil

Spanning Ceiling Systems - C Sections



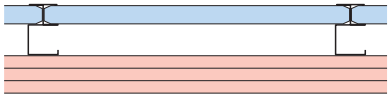
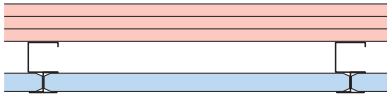
System **CSP3232F** illustrated

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Insulation Type
	CSP1616F	1x16mm FireSTOP pbd above 150CS75 @ 600 centres 1x16mm FireSTOP pbd below	26.0	60/60/60 from above only	FCO-1160	42	49	41	50G14, 50P14
	CSP2613F	2x13mm FireSTOP pbd above 150CS75 @ 600 centres 1x13mm FireSTOP pbd below	31.5	90/90/90 from above only	FCO-1161	45	52	43	50G14, 50P14
	CSP3216F10	2x16mm FireSTOP pbd above 150CS75 @ 600 centres 1x16mm FireSTOP pbd below plus 1x10mm Std Core pbd	45.8	120/120/120 from above only	FCO-1162	47	53	45	50G14, 50P14
	CSP5016F	2 x Shaft liner above 150CS75 @ 600 centres 1x16mm FireSTOP pbd below	54.0	180/180/180 from above only	FCO-1213	50	54	46	50G14, 50P14
	CSP3232F	2x16mm FireSTOP pbd above 150CS75 @ 600 centres 2x16mm FireSTOP pbd below	52.0	60/60/60	FCO-0411	52	56	48	50G14, 50P14
	CSP3248F	2x16mm FireSTOP pbd above 150CS75 @ 600 centres 3x16mm FireSTOP pbd below	65.0	120/120/120	FCO-0411	55	58	50	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Spans refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

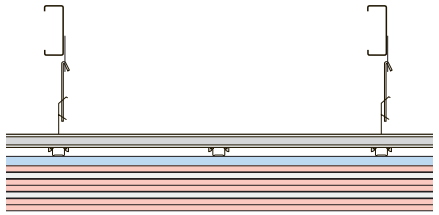
Spanning Ceiling Systems - Horizontal Shaft Wall

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
 System **CHS48F** illustrated	**CHS32F**	1x25mm ShaftLINER within 64CH55 sections @ 600mm ctrs 2x16mm FireSTOP pbd underneath	46.5	60/60/60	FCO-0672	43	50	40	50G10
		As prev except that 64CH90 used				42	49	39	50G14, 50P14
		As prev except that 102CH55 used				46	52	42	50G14, 50P14
		As prev except that 102CH90 used				45	51	41	50G14, 50P14
	CHS48F	1x25mm ShaftLINER within 64CH55 sections @ 600mm ctrs 3x16mm FireSTOP pbd underneath	59.5	120/120/120	FCO-0410 FCO-1658	46	52	42	50G14, 50P14
		As prev except that 64CH90 used				46	51	41	50G14, 50P14
		As prev except that 102CH55 used				49	54	46	50G14, 50P14
		As prev except that 102CH90 used				48	53	45	50G14, 50P14
 System **CHSI48F**	**CHSI48F**	1x25mm ShaftLINER within inverted 64CH55 sections @ 600mm ctrs 3x16mm FireSTOP pbd above	59.5	120/120/120	FCO-2212	46	52	42	50G14, 50P14
		As prev except that 64CH90 used				46	51	41	50G14, 50P14
		As prev except that 102CH55 used				49	54	46	50G14, 50P14
		As prev except that 102CH90 used				48	53	45	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • For Limiting Spans refer Section C • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Special Ceiling Systems

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Fire Resistance FRL	Fire Resistance Basis	Acoustic Ratings Nil Insul R_w	Acoustic Ratings With Insulation R_w	Acoustic Ratings With Insulation R_w+C_{tr}	Acoustic Ratings Insulation Type
 System **C105F**	**C105F**	Shaft liner + 16mm FireSTOP pbd furring 2x16mm FireSTOP pbd furring 2x16mm FireSTOP pbd	85.5	180/180/180 from below RISF 180min	FCO-1856	NA	NA	NA	NA
 System **PCS25F**	**PCS25F**	Shaft liner screw fixed to RC soffit	20.5	240/240/240 from below	FCO-1856, 0659R	NA	NA	NA	NA

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1

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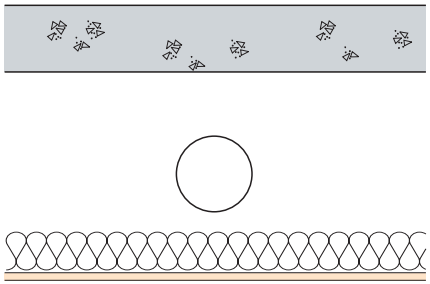
B. System Index

Soil & Waste Pipe Systems

Ceiling or Wall Partition of either;

- Concrete
- Masonry
- Drywall



System **WP13A** illustrated

NOTES

- Cavity insulation to extend min 1200mm each side of pipe
- Penetrations such as down lights and return air grilles will downgrade the stated acoustic performance (refer Section A4 for estimated acoustic ratings)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Acoustic Ratings				
				Nil Insul		With Insulation		
				R_w	R_w+C_{tr}	R_w	R_w+C_{tr}	Insulation Type
	WP10	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 1x10mm Std Core pbd	6.8	28	25	30	27	150G14, 150P14
	WP10A	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 1x10mm SoundSTOP pbd	8.2	28	26	30	28	50G14, 50P14
	WP13	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 1x13mm Std Core pbd	8.6	28	26	30	28	75G14, 75P14
	WP13A	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 1x13mm SoundSTOP pbd	11.2	30	28	32	30	50G14, 50P14
	WP20	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 2x10mm Std Core pbd	13.6	31	28	33	30	50G14, 50P14
	WP20A	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 2x10mm SoundSTOP pbd	16.4	32	29	35	32	75G14, 75P14
	WP26	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 2x13mm Std Core pbd	17.2	32	29	35	32	75G14, 75P14
	WP26A	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 2x13mm SoundSTOP pbd	22.4	33	30	36	33	75G14, 75P14
	WP39F	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 3x13mm FireSTOP pbd	31.5	37	34	40	37	75G14, 75P14
	WP48F	100mm dia unlagged soil/waste pipe adjacent to concrete wall/soffit 3x16mm FireSTOP pbd	39.0	38	35	41	38	75G14, 75P14

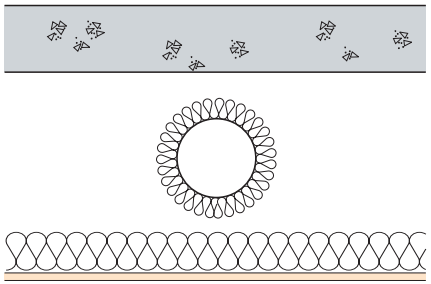
• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Soil & Waste Pipe Systems - Lagged

Ceiling or Wall Partition of either;

- Concrete
- Masonry
- Drywall



System **WPL13A** illustrated

NOTES

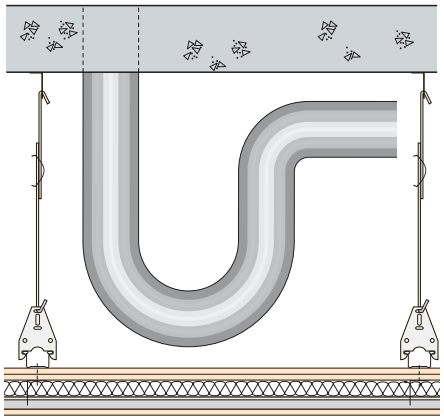
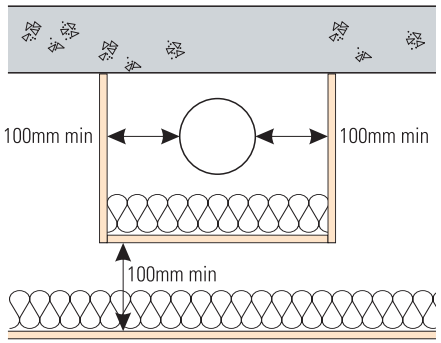
- Cavity insulation to extend minimum 1200mm each side of pipe
- PVC pipe lagged & clad with Insulation Solutions™ QuietPipe™ system or equivalent
- Penetrations such as down lights and return air grilles will downgrade the stated acoustic performance (refer Section A4 for estimated acoustic ratings)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Acoustic Ratings				
				Nil Insul		With Insulation		
				R_w	R_w+C_{tr}	R_w	R_w+C_{tr}	Insulation Type
	WPL10	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 1x10mm Std Core pbd	6.8	40	34	42	38	75G14, 75P14
	WPL10A	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 1x10mm SoundSTOP pbd	8.2	40	35	42	38	75G14, 75P14
	WPL13	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 1x13mm Std Core pbd	8.6	40	35	42	38	75G14, 75P14
	WPL13A	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 1x13mm SoundSTOP pbd	11.2	41	36	43	40	75G14, 75P14
	WPL20	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 2x10mm Std Core pbd	13.6	42	37	45	40	75G14, 75P14
	WPL20A	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 2x10mm SoundSTOP pbd	16.4	44	39	47	42	75G14, 75P14
	WPL26	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 2x13mm Std Core pbd	17.2	44	39	47	42	75G14, 75P14
	WPL26A	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 2x13mm SoundSTOP pbd	22.4	45	40	48	43	75G14, 75P14
	WPL32F	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 2x16mm FireSTOP pbd	26.0	45	40	48	43	75G14, 75P14
	WPL39F	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 3x13mm FireSTOP pbd	31.5	47	42	49	44	75G14, 75P14
	WPL48F	100mm dia lagged PVC soil/waste pipe adjacent to concrete wall/soffit 3x16mm FireSTOP pbd	39.0	48	43	51	46	75G14, 75P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

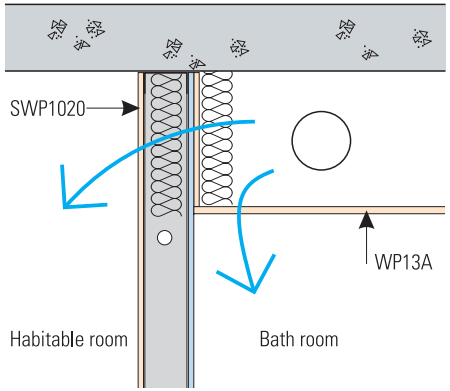
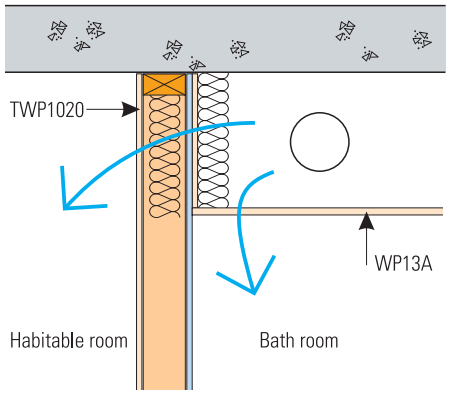
Soil & Waste Pipe Systems (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Acoustic Ratings				
				Nil Insul		With Insulation		
				R_w	R_w+C_{tr}	R_w	R_w+C_{tr}	Insulation Type
 System WP2010U	**WP2010U**	100mm dia unlagged PVC soil/waste pipe adjacent to concrete soffit Primary Ceiling - 2x10mm UniSPAN pbd Secondary Ceiling - 1x10mm UniSPAN pbd Insulation between primary and secondary ceilings	21.6	NA	NA	45	35	50G14, 50P14
 System **WPB1313** illustrated	**WPB1313**	100mm dia soil/waste pipe adjacent to concrete wall/soffit boxed three sides with 1x13mm Std Core pbd with insulation within box Room ceiling or wall comprising 1x13mm Std Core pbd lining A ≥ 100mm	NA	NA	NA	45	40	50G20, 50P20
	WPB2626	100mm dia soil/waste pipe adjacent to concrete wall/soffit boxed three sides with 2x13mm Std Core pbd with insulation within box Room ceiling or wall comprising 2x13mm Std Core pbd lining A ≥ 50mm	NA	NA	NA	45	40	50G20, 50P20

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

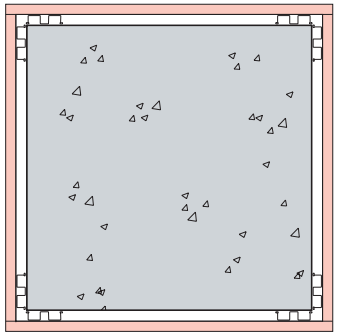
Soil & Waste Pipe Systems (cont)

Layout	System Ref	Description	Approx Pbd Mass (kg/m²)	Acoustic Ratings				
				Nil Insul		With Insulation		
				R_w	R_w+C_{tr}	R_w	R_w+C_{tr}	Insulation Type
 System **SWP1020/WP13A**	**SWP1020 (to habitable room)**	100mm dia uninsulated soil/waste pipe adjacent to concrete wall/soffit Pipe separated from habitable room with steel stud wall comprising: • 1x10mm Std Core pbd lining on habitable side • 64mm steel stud • insulation within cavity wall to extend down to ceiling line • 1x10mm Wet Area Board on bathroom side + additional layer 10mm Std Core pbd on partition wall within pipe cavity • Insulation within pipe cavity	NA	NA	NA	45	40	50G14, 50P14
	WP13A (bathroom ceiling)		NA	30	28	32	30	50G14, 50P14
 System **TWP1020/WP13A**	**TWP1020 (to habitable room)**	100mm dia uninsulated soil/waste pipe adjacent to concrete wall/soffit Pipe separated from habitable room with timber stud wall comprising: • 1x10mm Std Core pbd lining on habitable side • 70mm or 90mm timber stud • Insulation within cavity wall to extend down to ceiling line • 1x10mm Wet Area Board on bathroom side + additional layer 10mm Std Core pbd on partition wall within pipe cavity • Insulation within pipe cavity	NA	NA	NA	45	40	50G14, 50P14
	WP13A (bathroom ceiling)		NA	30	28	32	30	50G14, 50P14

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1 • Acoustic ratings by GHA, Sheet No 104 (refer Section A4)

B. System Index

Protection - Concrete Columns



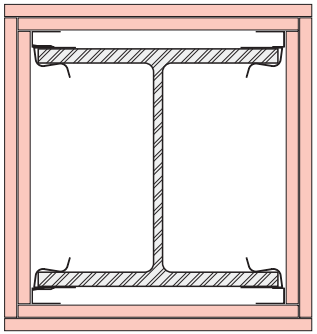
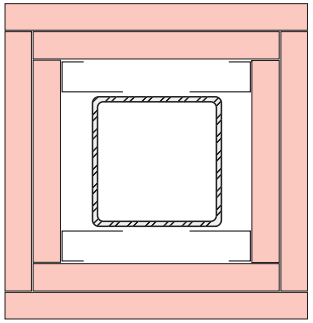
System **PCC13F** illustrated

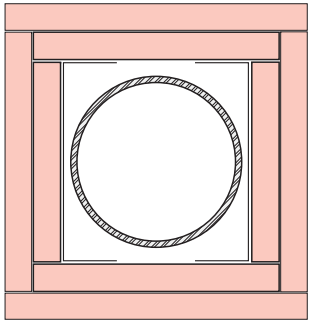
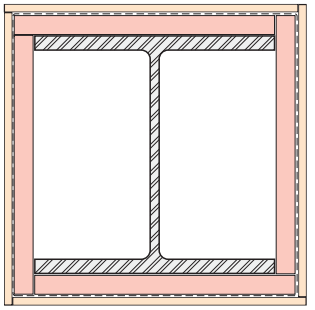
Layout	System Ref	Description	Fire Resistance	
			FRL	Basis
	PCC13F	1x13mm FireSTOP pbd applied direct or to furring fixed to concrete column	30/-/- increase	FCO-2074
	PCC25F	1x25mm ShaftLINER applied direct or to furring fixed to concrete column	120/-/- increase	FCO-2074

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1

B. System Index

Protection - Steel Columns

Description	Layout
Detail G Encasement channel or clips and angle to form gap around steel column, line with FireSTOP pbd as required for stated FRL	 System **PSC25F** illustrated
Detail H Rondo PN 142 track to form gap around steel SHS/RHS column, line with FireSTOP pbd as required for stated FRL	 System **PSC25F** illustrated

Description	Layout
Detail I Rondo 32mm flange x 0.75mm BMT track to form gap around circular steel column, line with FireSTOP pbd as required for stated FRL	 System **PSC25F** illustrated
Detail J ShaftLINER, corner angles and wire ligatures hard against steel column to achieve required FRL	 System **PSC25F10** illustrated

B. System Index

Protection - Steel Columns (cont)

Layout	System Ref	Description	Fire Resistance FRL	Fire Resistance Basis
Refer details on page B4.6	**PSC13F**	To detail G With 1x13mm FireSTOP pbd to periphery and spaced from I section steel column	30/-/-	FCO-1972
		To detail H With 1x13mm FireSTOP pbd to periphery and spaced from square steel column	30/-/-	FCO-1972
		To detail I With 1x13mm FireSTOP pbd to periphery and spaced from circular steel column	30/-/-	FCO-1972
	PSC25F	To detail G With 2x13mm FireSTOP pbd or 1x25mm ShaftLINER to periphery and spaced from I section steel column.	60/-/-	FCO-1972
		To detail H With 2x13mm FireSTOP pbd or 1x25mm ShaftLINER to periphery and spaced from square steel column.	60/-/-	FCO-1972
		To detail I With 2x13mm FireSTOP pbd or 1x25mm ShaftLINER to periphery and spaced from circular steel column	60/-/-	FCO-1972
	PSC25F10	To detail J 1x25mm ShaftLINER + 1x10mm Std Core pbd to periphery and applied directly to I section steel column of ESA/M < 9.45m^2/t	120/-/- increase	FCO-1972 BHP980804 BHP980216 BHP940810

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1

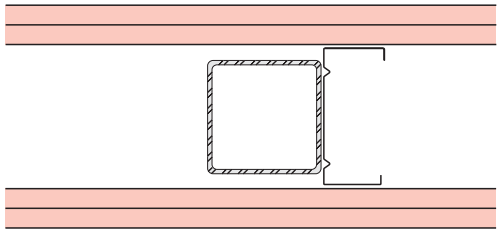
B. System Index

Protection - Steel Columns (cont)

Layout	System Ref	Description	Fire Resistance FRL	Fire Resistance Basis
Refer details on page B4.6	**PSC32F**	To detail G With 2x16mm FireSTOP pbd to periphery and spaced from I section steel column	90/-/-	FCO-1972
		To detail H With 2x16mm FireSTOP pbd to periphery and spaced from square steel column	90/-/-	FCO-1972
		To detail I With 2x16mm FireSTOP pbd to periphery and spaced from circular steel column	90/-/-	FCO-1972
	PSC38F	To detail G With 3x13mm FireSTOP pbd or 1x13mm + 1x25mm ShaftLINER to periphery and spaced from I section steel column	120/-/-	FCO-1972
		To detail H With 3x13mm FireSTOP pbd or 1x13mm + 1x25mm ShaftLINER to periphery and spaced from square steel column	120/-/-	FCO-1972
		To detail I With 3x13mm FireSTOP pbd or 1x13mm + 1x25mm ShaftLINER to periphery and spaced from circular steel column	120/-/-	FCO-1972
	PSC50F	To detail J 2x25mm ShaftLINER to periphery and applied directly to I section steel column of ESA/M < 45m^2/t	120/-/- increase	FCO-1972 BHP980804 BHP980216 BHP940810
	PSC75F	To detail J 3x25mm ShaftLINER to periphery and applied directly to I section steel column of ESA/M < 45m2/t	180/-/- increase	BHP950915

B. System Index

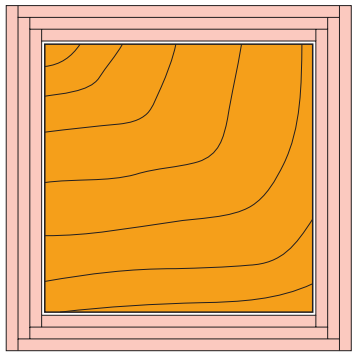
Protection - Steel Columns (cont)



System **PSC2626F** illustrated

Layout	System Ref	Description	Fire Resistance FRL	Fire Resistance Basis
	PSC1313F	1x13mm FireSTOP pbd to each side of wall within which steel column is located	30/-/-	FCO-1972
	PSC2626F	2x13mm FireSTOP pbd to each side of wall within which steel column is located	60/-/-	FCO-1972
	PSC3232F	2x16mm FireSTOP pbd to each side of wall within which steel column is located	90/-/-	FCO-1972
	PSC3939F	3x13mm FireSTOP pbd to each side of wall within which steel column is located	120/-/-	FCO-1972

Protection - Timber Columns



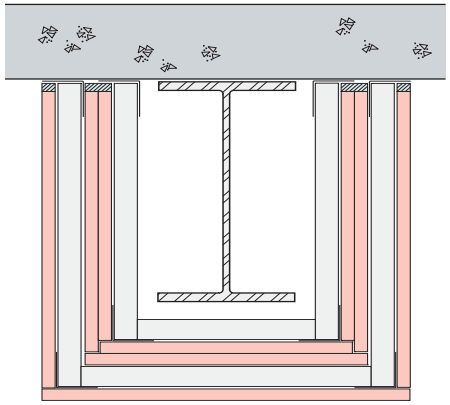
System **PTC39** illustrated

PTC13F	1x13mm FireSTOP pbd directly applied to timber column	30/-/-	91/183
PTC26F	2x13mm FireSTOP pbd furred or directly applied to timber column	60/-/-	91/169 91/183
PTC39F	3x13mm FireSTOP pbd directly applied to timber column	90/-/-	91/183
PTC48F	3x16mm FireSTOP pbd directly applied to timber column	120/-/-	91/183

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1

B. System Index

Protection - Steel Beams



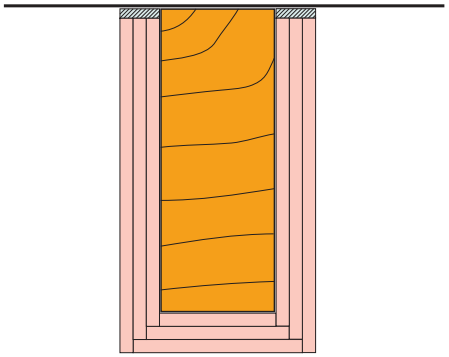
System **PSBC48F** illustrated

Layout	System Ref	Description	Fire Resistance FRL	Fire Resistance Basis
	PSB16F	1x16mm FireSTOP pbd over ShaftLINER packers to sides and bottom of steel beam of ESA/m < 30m²/t	30/-/-	BHP930630
	PSB38F	3x13mm FireSTOP pbd or 1x25mm ShaftLINER + 1x13mm FireSTOP pbd spaced from sides and bottom of steel beam	120/-/-	FCO-1972
	PSB50F	2x25mm ShaftLINER cap to SHS RHS steel beam supporting horizontal Shaft Wall	120/-/-	FCO-0410
	PSB3232F	PFC Steel beam within wall clad both sides in 2x16mm FireSTOP pbd	120/-/-	FSV 0115
	PSBC48F	Furring 2x16mm FireSTOP pbd furring 1x16mm FireSTOP pbd spaced from sides and bottom of steel beam supporting concrete floor	120/-/-	FCO-1972
	PSBT48F	Ceiling bulkhead or furring 2x16mm FireSTOP pbd furring 1x16mm FireSTOP pbd spaced from sides and bottom of steel beam supporting timber floor	120/-/-	FCO-1972

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1

B. System Index

Protection - Timber Beams



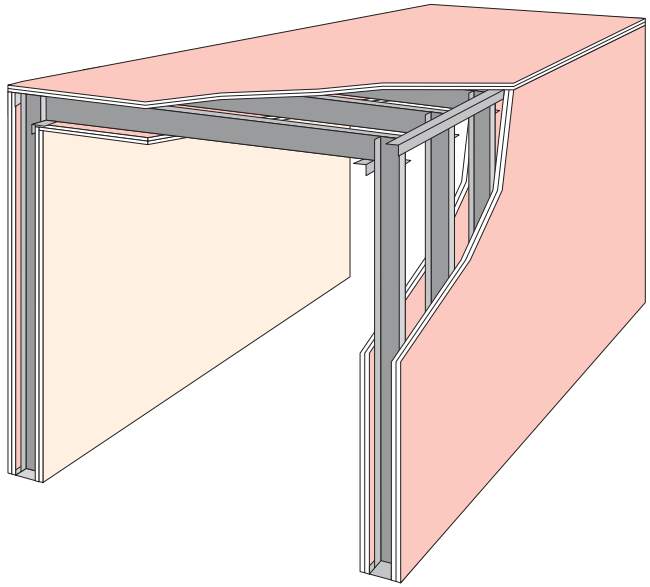
System **PTB39F** illustrated

Layout	System Ref	Description	Fire Resistance	
			FRL	Basis
	PTB13F	1x13mm FireSTOP pbd directly applied to timber beam	30/-/-	93/402
	PTB26F	2x13mm FireSTOP pbd directly applied to timber beam	60/-/-	93/402
	PTB39F	3x13mm FireSTOP pbd directly applied to timber beam	90/-/-	93/402
	PTB48F	3x16mm FireSTOP pbd directly applied to timber beam	120/-/-	93/402

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1

B. System Index

Fire Tunnels

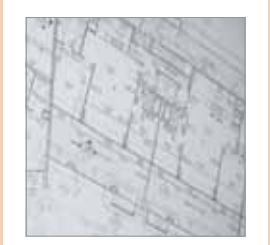


System **FTB32F32F** illustrated

Layout	System Ref	Description	Fire Resistance FRL	Fire Resistance Basis
	FTB32F32F	Welded steel frames ex 150mm Rondo studs, track and corner angles 2x16mm FireSTOP pbd over ceiling 2x16mm FireSTOP pbd under ceiling 1x16mm FireSTOP pbd to both sides of wall frame	-/60/60 from both sides	FCO-0645R FCO-0411R
	FTO16F16F	Welded steel frames ex 150mm Rondo studs, track and corner angles 1x16mm FireSTOP pbd over ceiling 1x16mm FireSTOP pbd under ceiling 1x16mm FireSTOP pbd to both sides of wall frame	-/60/60 from outside	FCO-1160
	FTO26F13F	Welded steel frames ex 150mm Rondo studs, track and corner angles 2x13mm FireSTOP pbd over ceiling and outside walls 1x13mm FireSTOP pbd under and to inner sides of wall frame	-/90/90 from outside	FCO-1161
	FTO32F16F10	Welded steel frames ex 150mm Rondo studs, track and corner angles 2x16mm FireSTOP pbd over ceiling and outside walls 1x16mm FireSTOP pbd plus 1x10mm Std Core pbd under ceiling and to inner sides of wall frame	-/120/120 from outside	FCO-1162
	FTB32F48F	Welded steel frames ex 150mm Rondo studs, track and corner angles 2x16mm FireSTOP pbd over ceiling 3x16mm FireSTOP pbd under ceiling 2x16mm FireSTOP pbd to both sides of wall frame	-/120/120 from both sides	FCO-0645R FCO-0411R
	FTO50F16F	Structural support steel frames 2x25mm FireSTOP pbd over ceiling 1x16mm FireSTOP pbd under ceiling 2x16 FireSTOP to both sides of NLB wall frame	-/180/180 from outside	FCO-1213

• These tables should be read in conjunction with Section A • For explanation of System Reference notation refer Section B1

C. Design Tables



Contents

C1. Frameless Wall Systems

Static pressure testing of VentSHAFT™ VS48F and resistance to impact testing to BCA C1.8 was carried out at Boral Plasterboard's NATA registered structures laboratory.

Consulting Engineers Taylor Thomson Whitting observed the static testing and maximum VentSHAFT™ VS48F panel sizes were subsequently computed as listed below.

Impact resistance testing on 3000 x 3000mm VentSHAFT™ VS48F panel show the panel to meet BCA criteria for bag drop heights of 100mm and 150mm.

Max Non Load Bearing Vent Shaft VS48F Panel Sizes

Maximum 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

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
- Deflection limit is span/240 to a maximum of 30mm
- Wall heights tabled are not for axial loads but include self weight and lateral pressures stated
- Shelf loading is not permitted
- The maximum panel sizes are based on testing performed using Boral Firestop Plasterboard manufactured by Boral Australian Gypsum Ltd
- Construction to be as detailed in the relevant report
- 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.

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C2. Steel Stud Height Tables
Non Load Bearing Steel C Studs

General Notes to Tables

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
- At least one mid height row of nogging is required on all walls 3600mm and higher, additional rows of nogging may be included in the wall frame to maintain stability during construction
- Minimum yield stress of steel sections to be 270MPa
- Deflection limit is height/240 to a maximum of 30mm
- Maximum slenderness ratio l/r = 300
- Wall heights tabled are for single piece Rondo Australian manufactured lipped C studs at maximum centres shown.
- Wall heights tabled are not for axial loads but include self weight and lateral pressures stated
- Shelf loading is not permitted for the tabulated maximum wall heights. Refer Boral Plasterboard for maximum heights with shelf loadings
- Tabulated heights are for internal walls only. Refer to Boral Plasterboard if walls are subject to external loadings
- For fire service, 50Pa pressure assumed. Where pressures are greater than 50Pa and fire loadings are likely to be coincident, Boral Plasterboard should be consulted
- All plasterboard is to be manufactured by Boral Plasterboard in Australia
- Walls are to be constructed with 13mm or 16mm Boral FireSTOP™, or, Wet Area FireSTOP™ or 10mm or 13mm Boral Standard Core plasterboard as required by fire rating and detailing
- Walls are to be constructed to Boral Plasterboard standard C Stud fire rated or screw-fixed non fire rated wall details as appropriate but with 300mm maximum screw centres.

Systems Lined Both Sides

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

Standard Head Track Reaction Capacity (kN)

	Plasterboard					
Track BMT (mm)	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 installation and the appropriate configuration must be selected for the allowable head track reaction tabulated below
- Where greater deflection capacity is required, 20mm deflection heads may be used with allowable head track reaction capacities as follows:

Deflection Head Track Reaction Capacity (kN)

	Plasterboard					
Track BMT (mm)	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
- UNO stud BMT = track BMT.

- 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

Continued over...

Systems lined both sides (cont)

- 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.
- 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/m^2
  - acceleration a ≤ 0.08
  - Site Factor S ≤ 2.0
  - ax ≤ 2.0
  - ac ≤ 1.0
  - Cc1 ≤ 0.9
  - I = 1.0

Systems Lined One Side

Wall head/base design

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 Boral Plasterboard detail 209710-A
- min 13mm plasterboard.

For other reaction capacities refer Rondo or Boral Plasterboard.

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 nogging as below:

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

C. Design Tables

Maximum Wall Heights - Non Load Bearing Steel C Studs

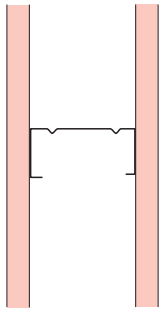
Lined Both Sides

Maximum Wall Pressure: **0.25kPa**

Maximum Stud Centres: **600mm**

Noggings optional

Lining Side 1 (no of layers x thickness in mm)		1x10	1x13			1x13		1x16			2x10	2x13			2x16		
Lining Side 2 (no of layers x thickness in mm)		1x10	1x13			2x13		1x16			2x10	2x13			2x16		
	FRL	Nil	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	Nil	-/90/90	-/120/120	Nil	-/120/120	-/180/180
Layout	Stud	Wall Heights (mm)															
	51CS50	2770 d	3200 d	3200 d	3200 d	3200 d	2900 f	3390 d	3390 d	3390 d	2770 d	3200 d	3200 d	2600 f	3390 d	3390 d	1900 f
	64CS50	3330 d	3720 d	3720 d	3720 d	3720 d	3500 f	3910 d	3910 d	3910 d	3330 d	3720 d	3720 d	3100 f	3910 d	3910 d	2300 f
	64CS75	3930 d	4220 d	4220 d	4220 d	4220 d	3900 f	4350 d	4350 d	4350 d	3930 d	4220 d	4220 d	3500 f	4350 d	4350 d	2700 f
	64CS115	4170 d	4430 d	4430 d	4430 d	4430 d	4300 f	4520 d	4520 d	4520 d	4170 d	4430 d	4430 d	3900 f	4520 d	4520 d	3000 f
	76CS55	3700 d	4130 d	4130 d	4130 d	4130 d	4100 f	4300 d	4300 d	4300 d	3700 d	4130 d	4130 d	3700 f	4300 d	4300 d	2700 f
	76CS75	4430 d	5020 d	5020 d	5020 d	5020 d	4500 f	5260 d	5260 d	5200 f	4430 d	5020 d	5020 d	4000 f	5260 d	5260 d	3000 f
	76CS115	4650 d	5220 d	5220 d	5220 d	5220 d	5000 f	5420 d	5420 d	5420 d	4650 d	5220 d	5220 d	4500 f	5420 d	5420 d	3500 f
	92CS55	4540 d	4940 d	4940 d	4940 d	4940 d	4940 d	5180 d	5180 d	5180 d	4540 d	4940 d	4940 d	4600 f	5180 d	5180 d	3500 f
	92CS75	4830 d	5500 d	5500 d	5500 d	5500 d	5200 f	5710 d	5710 d	5710 d	4830 d	5500 d	5500 d	4700 f	5710 d	5710 d	3500 f
	92CS115	5110 d	5750 d	5750 d	5750 d	5750 d	5750 d	5930 d	5930 d	5930 d	5110 d	5750 d	5750 d	5200 f	5930 d	5930 d	4000 f
	150CS75	5330 h	6990 2d	6990 2d	6990 2d	6990 2d	6990 2d	7190 2d	7190 2d	7190 2d	5330 h	6990 2d	6990 2d	6700 f	7190 2d	7190 2d	5000 f
	150CS115	5330 h	7520 2d	7520 2d	7520 2d	7520 2d	7520 2d	7630 2d	7630 2d	7630 2d	5330 h	7520 2d	7520 2d	7520 2d	7630 2d	7630 2d	5900 f



Board to each side of single stud
System S1616F illustrated

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pgs C2.1 & C2.2 • For stud designations refer Section A1

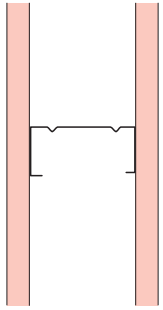
C. Design Tables

Maximum Wall Heights - Non Load Bearing Steel C Studs

Lined Both Sides

Maximum Wall Pressure: **0.25kPa** Maximum Stud Centres: **400mm** **Noggings optional**

Lining Side 1 (no of layers x thickness in mm)		1x10	1x13			1x13		1x16			2x10	2x13			2x16		
Lining Side 2 (no of layers x thickness in mm)		1x10	1x13			2x13		1x16			2x10	2x13			2x16		
	FRL	Nil	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	Nil	-/90/90	-/120/120	Nil	-/120/120	-/180/180
Layout	Stud	Wall Heights (mm)															
	51CS50	3130 d	3510 d	3510 d	3500 f	3510 d	2900 f	3620 d	3620 d	3400 f	3130 d	3510 d	3510 d	2600 f	3620 d	3620 d	1900 f
	64CS50	3690 d	4020 d	4020 d	4020 d	4020 d	3500 f	4220 d	4220 d	4100 f	3690 d	4020 d	4020 d	3100 f	4220 d	4220 d	2300 f
	64CS75	4280 d	4530 d	4530 d	4530 d	4530 d	3900 f	4710 d	4710 d	4500 f	4280 d	4530 d	4530 d	3500 f	4710 d	4710 d	2700 f
	64CS115	4590 d	4810 d	4810 d	4810 d	4810 d	4300 f	4950 d	4950 d	4950 d	4590 d	4810 d	4810 d	3900 f	4950 d	4950 d	3000 f
	76CS55	4160 d	4530 d	4530 d	4530 d	4530 d	4100 f	4700 d	4700 d	4700 d	4160 d	4530 d	4530 d	3700 f	4700 d	4700 d	2700 f
	76CS75	4930 d	5450 d	5450 d	5300 f	5450 d	4500 f	5710 d	5710 d	5200 f	4930 d	5450 d	5450 d	4000 f	5710 d	5710 d	3000 f
	76CS115	5240 d	5720 d	5720 d	5720 d	5720 d	5000 f	5950 d	5950 d	5800 f	5240 d	5720 d	5720 d	4500 f	5950 d	5950 d	3500 f
	92CS55	4990 d	5330 d	5330 d	5330 d	5330 d	5100 f	5560 d	5560 d	5560 d	4990 d	5330 d	5330 d	4600 f	5560 d	5560 d	3500 f
	92CS75	5460 d	6050 d	6050 d	6050 d	6050 d	5200 f	6280 d	6280 d	6100 f	5460 d	6050 d	6050 d	4700 f	6280 d	6280 d	3500 f
	92CS115	5840 d	6380 d	6380 d	6380 d	6380 d	5800 f	6580 d	6580 d	6580 d	5840 d	6380 d	6380 d	5200 f	6580 d	6580 d	4000 f
	150CS75	7340 2d	7610 2d	7610 2d	7610 2d	7610 2d	7500 f	7750 2d	7750 2d	7750 2d	7340 2d	7610 2d	7610 2d	6700 f	7750 2d	7750 2d	5000 f
	150CS115	7970 2h	8190 2d	8190 2d	8190 2d	8190 2d	8190 2d	8300 2d	8300 2d	8300 2d	7970 2h	8190 2d	8190 2d	7700 f	8300 2d	8300 2d	5900 f



Board to each side of single stud
System S1616F illustrated

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pgs C2.1 & C2.2 • For stud designations refer Section A1

C. Design Tables

Maximum Wall Heights - Non Load Bearing Steel C Studs

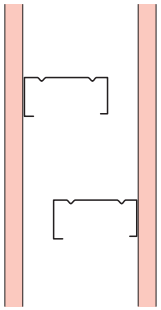
Lined One Side (Includes staggered stud wall systems)

Maximum Wall Pressure: **0.25kPa**

Maximum Stud Centres: **600mm**

Not Nogged

Lining Side 1 (no of layers x thickness in mm)		1x10	1x13			1x13		1x16			2x10	2x13			2x16		
Lining Side 2 (no of layers x thickness in mm)		1x10	1x13			2x13		1x16			2x10	2x13			2x16		
	FRL	Nil	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	Nil	-/90/90	-/120/120	Nil	-/120/120	-/180/180
Layout	Stud	Wall Heights (mm)															
	51CS50	2320 d	2320 d	2320 d	2320 d	2320 d	NA	2320 d	2320 d	2320 d	2320 d	2320 d	2320 d	2320 d	2320 d	2320 d	1900 f
	64CS50	2375 s	2375 s	2375 s	2375 s	2375 s	NA	2375 s	2375 s	2375 s	2375 s	2375 s	2375 s	2375 s	2375 s	2375 s	2300 f
	64CS75	2830 s	2830 s	2830 s	2830 s	2830 s	NA	2830 s	2830 s	2830 s	2830 s	2830 s	2830 s	2830 s	2830 s	2830 s	2700 f
	64CS115	3510 s	3510 s	3510 s	3510 s	3510 s	NA	3510 s	3510 s	3510 s	3510 s	3510 s	3510 s	3510 s	3510 s	3510 s	3000 f
	76CS55	2610 s	2610 s	2610 s	2610 s	2610 s	NA	2610 s	2610 s	2610 s	2610 s	2610 s	2610 s	2610 s	2610 s	2610 s	2610 s
	76CS75	3000 s	3000 s	3000 s	3000 s	3000 s	NA	3000 s	3000 s	3000 s	3000 s	3000 s	3000 s	3000 s	3000 s	3000 s	3000 f
	76CS115	3600 s	3600 s	3600 s	3600 s	3600 s	NA	3600 s	3600 s	3600 s	3600 s	3600 s	3600 s	3600 s	3600 s	3600 s	3500 f
	92CS55	2740 s	2740 s	2740 s	2740 s	2740 s	NA	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s
	92CS75	3190 s	3190 s	3190 s	3190 s	3190 s	NA	3190 s	3190 s	3190 s	3190 s	3190 s	3190 s	3190 s	3190 s	3190 s	3190 s
	92CS115	3750 s	3750 s	3750 s	3750 s	3750 s	NA	3750 s	3750 s	3750 s	3750 s	3750 s	3750 s	3750 s	3750 s	3750 s	3750 s
	150CS75	3660 s	3660 s	3660 s	3660 s	3660 s	NA	3660 s	3660 s	3660 s	3660 s	3660 s	3660 s	3660 s	3660 s	3660 s	3660 s
	150CS115	4150 s	4150 s	4150 s	4150 s	4150 s	NA	4150 s	4150 s	4150 s	4150 s	4150 s	4150 s	4150 s	4150 s	4150 s	4150 s



Board to single side of single stud
System SS1616F illustrated

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pgs C2.1 & C2.2 • For stud designations refer Section A1

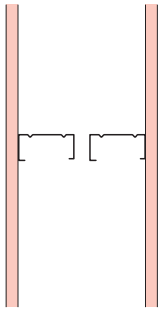
C. Design Tables

Maximum Wall Heights - Non Load Bearing Steel C Studs

Lined One Side (Includes twin stud wall systems)

Maximum Wall Pressure: **0.25kPa** Maximum Stud Centres: **600mm** **Nogged**

Lining Side 1 (no of layers x thickness in mm)		1x10	1x13			1x13		1x16			2x10	2x13			2x16		
Lining Side 2 (no of layers x thickness in mm)		1x10	1x13			2x13		1x16			2x10	2x13			2x16		
	FRL	Nil	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	Nil	-/90/90	-/120/120	Nil	-/120/120	-/180/180
Layout	Stud	Wall Heights (mm)															
	51CS50	2320 d	2320 d	2320 d	2320 d	2320 d	NA	2320 d	2320 d	2320 d	2320 d	2320 d	2320 d	2320 d	2320 d	2320 d	1900 f
	64CS50	2720 d	2720 d	2720 d	2720 d	2720 d	NA	2750 s	2750 s	2750 s	2720 d	2720 d	2720 d	2720 d	2750 d	2750 d	2300 f
	64CS75	3130 d	3250 d	3250 d	3250 d	3250 d	NA	3280 d	3280 d	3280 d	3130 d	3250 d	3250 d	3250 d	3280 d	3280 d	2700 f
	64CS115	3530 d	3580 d	3580 d	3580 d	3580 d	NA	3590 d	3590 d	3590 d	3530 d	3580 d	3580 d	3580 d	3590 d	3590 d	3000 f
	76CS55	3200 2d	3240 2d	3240 2d	3240 2d	3240 2d	NA	3250 2d	3250 2d	3250 2d	3200 2d	3240 2d	3240 2d	3240 2d	3250 2d	3250 2d	2700 f
	76CS75	3580 2d	3820 2d	3820 2d	3820 2d	3820 2d	NA	3870 2d	3870 2d	3870 2d	3580 2d	3820 2d	3820 2d	3820 2d	3870 2d	3870 2d	3000 f
	76CS115	4050 2d	4050 2d	4050 2d	4050 2d	4050 2d	NA	4050 2d	4050 2d	4050 2d	4050 2d	4050 2d	4050 2d	4050 2d	4050 2d	4050 2d	3500 f
	92CS55	3610 2s	3610 2s	3610 2s	3610 2s	3610 2s	NA	3610 2s	3610 2s	3610 2s	3610 2s	3610 2s	3610 2s	3610 2s	3610 2s	3610 2s	3500 f
	92CS75	4130 2d	4180 2d	4180 2d	4180 2d	4180 2d	NA	4200 2d	4200 2d	4200 2d	4130 2d	4180 2d	4180 2d	4180 2d	4200 2d	4200 2d	3500 f
	92CS115	4690 2d	4690 2d	4690 2d	4690 2d	4690 2d	NA	4690 2d	4690 2d	4690 2d	4690 2d	4690 2d	4690 2d	4690 2d	4690 2d	4690 2d	4000 f
	150CS75	5330 2h	5370 2s	5370 2s	5370 2s	5370 2s	NA	5370 2s	5370 2s	5370 2s	5330 2h	5370 2s	5370 2s	5370 2s	5370 2s	5370 2s	5000 f
	150CS115	5330 2h	6810 3s	6810 3s	6810 3s	6810 3s	NA	6810 3s	6810 3s	6810 3s	5330 2h	6810 3s	6810 3s	6810 3s	6810 3s	6810 3s	5900 f



Board to single side of single stud
System ST1616F illustrated

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pgs C2.1 & C2.2 • For stud designations refer Section A1

C. Design Tables

Maximum Wall Heights - Non Load Bearing Steel C Studs

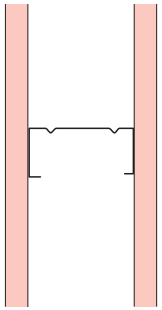
Lined Both Sides

Maximum Wall Pressure: **0.35kPa**

Maximum Stud Centres: **600mm**

Noggings optional

Lining Side 1 (no of layers x thickness in mm)		1x10	1x13			1x13		1x16			2x10	2x13			2x16		
Lining Side 2 (no of layers x thickness in mm)		1x10	1x13			2x13		1x16			2x10	2x13			2x16		
	FRL	Nil	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	Nil	-/90/90	-/120/120	Nil	-/120/120	-/180/180
Layout	Stud	Wall Heights (mm)															
	51CS50	2420 d	2810 d	2810 d	2810 d	2810 d	2810 d	3000 d	3000 d	3000 d	2420 d	2810 d	2810 d	2600 f	3000 d	3000 d	1900 f
	64CS50	2930 d	3290 d	3290 d	3290 d	3290 d	3290 d	3450 d	3450 d	3450 d	2930 d	3290 d	3290 d	3100 f	3450 d	3450 d	2300 f
	64CS75	3490 d	3750 d	3750 d	3750 d	3750 d	3750 d	3840 d	3840 d	3840 d	3490 d	3750 d	3750 d	3500 f	3840 d	3840 d	2700 f
	64CS115	3700 d	3940 d	3940 d	3940 d	3940 d	3940 d	3990 d	3990 d	3990 d	3700 d	3940 d	3940 d	3900 f	3990 d	3990 d	3000 f
	76CS55	3250 d	3650 d	3650 d	3650 d	3650 d	3650 d	3780 d	3780 d	3780 d	3250 d	3650 d	3650 d	3650 d	3780 d	3780 d	2700 f
	76CS75	3810 h	4430 d	4430 d	4430 d	4430 d	4430 d	4620 d	4620 d	4620 d	3810 h	4430 d	4430 d	4000 f	4620 d	4620 d	3000 f
	76CS115	3810 h	4600 d	4600 d	4600 d	4600 d	4600 d	4770 d	4770 d	4770 d	3810 h	4600 d	4600 d	4500 f	4770 d	4770 d	3500 f
	92CS55	3810 h	4390 d	4390 d	4390 d	4390 d	4390 d	4600 d	4600 d	4600 d	3810 h	4390 d	4390 d	4390 d	4600 d	4600 d	3500 f
	92CS75	3810 h	4840 d	4840 d	4840 d	4840 d	4840 d	5010 d	5010 d	5010 d	3810 h	4840 d	4840 d	4700 f	5010 d	5010 d	3500 f
	92CS115	3810 h	5060 d	5060 d	5060 d	5060 d	5060 d	5200 d	5200 d	5200 d	3810 h	5060 d	5060 d	5060 d	5200 d	5200 d	4000 f
	150CS75	3810 h	5710 h	5710 h	5710 h	5710 h	5710 h	6370 d	6370 d	6370 d	3810 h	5710 h	5710 h	5710 h	6370 d	6370 d	5000 f
	150CS115	3810 h	5710 h	5710 h	5710 h	5710 h	5710 h	6890 2d	6890 2d	6890 2d	3810 h	5710 h	5710 h	5710 h	6890 2d	6890 2d	5900 f



Board to each side of single stud
System S1616F illustrated

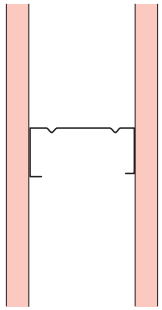
• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pgs C2.1 & C2.2 • For stud designations refer Section A1

C. Design Tables

Maximum Wall Heights - Non Load Bearing Steel C Studs

Lined Both Sides

Maximum Wall Pressure: **0.35kPa** Maximum Stud Centres: **400mm** **Noggings optional**

Lining Side 1 (no of layers x thickness in mm)		1x10	1x13			1x13		1x16			2x10	2x13			2x16		
Lining Side 2 (no of layers x thickness in mm)		1x10	1x13			2x13		1x16			2x10	2x13			2x16		
	FRL	Nil	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	Nil	-/90/90	-/120/120	Nil	-/120/120	-/180/180
Layout	Stud	Wall Heights (mm)															
 Board to each side of single stud System S1616F illustrated	51CS50	2750 d	3100 d	3100 d	3100 d	3100 d	2900 f	3210 d	3210 d	3210 d	2750 d	3100 d	3100 d	2600 f	3210 d	3210 d	1900 f
	64CS50	3260 d	3570 d	3570 d	3570 d	3570 d	3500 f	3740 d	3740 d	3740 d	3260 d	3570 d	3570 d	3100 f	3740 d	3740 d	2300 f
	64CS75	3810 d	4030 d	4030 d	4030 d	4030 d	4030 d	4170 d	4170 d	4170 d	3810 d	4030 d	4030 d	3500 f	4170 d	4170 d	2700 f
	64CS115	4090 d	4280 d	4280 d	4280 d	4280 d	4280 d	4390 d	4390 d	4390 d	4090 d	4280 d	4280 d	3900 f	4390 d	4390 d	3000 f
	76CS55	3680 d	4010 d	4010 d	4010 d	4010 d	4010 d	4160 d	4160 d	4160 d	3680 d	4010 d	4010 d	3700 f	4160 d	4160 d	2700 f
	76CS75	4350 d	4830 d	4830 d	4830 d	4830 d	4500 f	5050 d	5050 d	5050 d	4350 d	4830 d	4830 d	4000 f	5050 d	5050 d	3000 f
	76CS115	4630 d	5070 d	5070 d	5070 d	5070 d	5000 f	5260 d	5260 d	5260 d	4630 d	5070 d	5070 d	4500 f	5260 d	5260 d	3500 f
	92CS55	4430 d	4740 d	4740 d	4740 d	4740 d	4740 d	4950 d	4950 d	4950 d	4430 d	4740 d	4740 d	4600 f	4950 d	4950 d	3500 f
	92CS75	4810 d	5350 d	5350 d	5350 d	5350 d	5200 f	5540 d	5540 d	5540 d	4810 d	5350 d	5350 d	4700 f	5540 d	5540 d	3500 f
	92CS115	5150 d	5650 d	5650 d	5650 d	5650 d	5650 d	5810 d	5810 d	5810 d	5150 d	5650 d	5650 d	5200 f	5810 d	5810 d	4000 f
	150CS75	5710 h	6890 2d	6890 2d	6890 2d	6890 2d	6890 2d	7050 2d	7050 2d	7050 2d	5710 h	6890 2d	6890 2d	6700 f	7050 2d	7050 2d	5000 f
	150CS115	5710 h	7500 2d	7500 2d	7500 2d	7500 2d	7500 2d	7590 2d	7590 2d	7590 2d	5710 h	7500 2d	7500 2d	7500 2d	7590 2d	7590 2d	5900 f

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pgs C2.1 & C2.2 • For stud designations refer Section A1

C. Design Tables

Maximum Wall Heights - Non Load Bearing Steel C Studs

Lined One Side (Includes staggered stud wall systems)

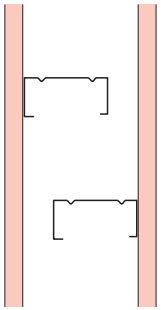
0.35kPa Serviceability Limit State Load, 0.53kPa Ultimate Limit State Load.

Maximum Wall Pressure: **0.35kPa**

Maximum Stud Centres: **600mm**

Not Nogged

Lining Side 1 (no of layers x thickness in mm)		1x10	1x13			1x13		1x16			2x10	2x13			2x16		
Lining Side 2 (no of layers x thickness in mm)		1x10	1x13			2x13		1x16			2x10	2x13			2x16		
	FRL	Nil	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	Nil	-/90/90	-/120/120	Nil	-/120/120	-/180/180
Layout	Stud	Wall Heights (mm)															
	51CS50	2070 d	2070 d	2070 d	2070 d	2070 d	NA	2070 d	2070 d	2070 d	2070 d	2070 d	2070 d	2070 d	2070 d	2070 d	1900 f
	64CS50	2140 s	2140 s	2140 s	2140 s	2140 s	NA	2140 s	2140 s	2140 s	2140 s	2140 s	2140 s	2140 s	2140 s	2140 s	2140 s
	64CS75	2590 s	2590 s	2590 s	2590 s	2590 s	NA	2590 s	2590 s	2590 s	2590 s	2590 s	2590 s	2590 s	2590 s	2590 s	2590 s
	64CS115	3160 s	3160 s	3160 s	3160 s	3160 s	NA	3160 s	3160 s	3160 s	3160 s	3160 s	3160 s	3160 s	3160 s	3160 s	3000 f
	76CS55	2350 s	2350 s	2350 s	2350 s	2350 s	NA	2350 s	2350 s	2350 s	2350 s	2350 s	2350 s	2350 s	2350 s	2350 s	2350 s
	76CS75	2740 s	2740 s	2740 s	2740 s	2740 s	NA	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s	2740 s
	76CS115	3270 s	3270 s	3270 s	3270 s	3270 s	NA	3270 s	3270 s	3270 s	3270 s	3270 s	3270 s	3270 s	3270 s	3270 s	3270 s
	92CS55	2510 s	2510 s	2510 s	2510 s	2510 s	NA	2510 s	2510 s	2510 s	2510 s	2510 s	2510 s	2510 s	2510 s	2510 s	2510 s
	92CS75	2920 s	2920 s	2920 s	2920 s	2920 s	NA	2920 s	2920 s	2920 s	2920 s	2920 s	2920 s	2920 s	2920 s	2920 s	2920 s
	92CS115	3400 s	3400 s	3400 s	3400 s	3400 s	NA	3400 s	3400 s	3400 s	3400 s	3400 s	3400 s	3400 s	3400 s	3400 s	3400 s
	150CS75	3350 s	3350 s	3350 s	3350 s	3350 s	NA	3350 s	3350 s	3350 s	3350 s	3350 s	3350 s	3350 s	3350 s	3350 s	3350 s
	150CS115	3800 s	3800 s	3800 s	3800 s	3800 s	NA	3800 s	3800 s	3800 s	3800 s	3800 s	3800 s	3800 s	3800 s	3800 s	3800 s



Board to single side of single stud
System SS1616F illustrated

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pgs C2.1 & C2.2 • For stud designations refer Section A1

C. Design Tables

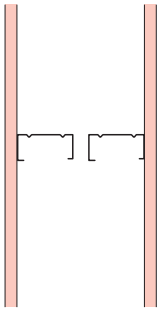
Maximum Wall Heights - Non Load Bearing Steel C Studs

Lined One Side (Includes twin stud wall systems)

0.35kPa Serviceability Limit State Load, 0.53kPa Ultimate Limit State Load.

Maximum Wall Pressure: **0.35kPa** Maximum Stud Centres: **600mm** **Nogged**

Lining Side 1 (no of layers x thickness in mm)		1x10	1x13			1x13		1x16			2x10	2x13			2x16		
Lining Side 2 (no of layers x thickness in mm)		1x10	1x13			2x13		1x16			2x10	2x13			2x16		
	FRL	Nil	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	Nil	-/90/90	-/120/120	Nil	-/120/120	-/180/180
Layout	Stud	Wall Heights (mm)															
	51CS50	2070 d	2070 d	2070 d	2070 d	2070 d	NA	2070 d	2070 d	2070 d	2070 d	2070 d	2070 d	2070 d	2070 d	2070 d	1900 f
	64CS50	2340 s	2340 s	2340 s	2340 s	2340 s	NA	2340 s	2340 s	2340 s	2340 s	2340 s	2340 s	2340 s	2340 s	2340 s	2300 f
	64CS75	2800 d	2800 d	2800 d	2800 d	2800 d	NA	2900 d	2900 d	2900 d	2800 d	2800 d	2800 d	2800 d	2900 d	2900 d	2700 f
	64CS115	3150 d	3170 d	3170 d	3170 d	3170 d	NA	3180 d	3180 d	3180 d	3150 d	3170 d	3170 d	3170 d	3180 d	3180 d	3000 f
	76CS55	2760 s	2760 s	2760 s	2760 s	2760 s	NA	2760 s	2760 s	2760 s	2760 s	2760 s	2760 s	2760 s	2760 s	2760 s	2700 f
	76CS75	3200 d	3370 2d	3370 2d	3370 2d	3370 2d	NA	3410 2d	3410 2d	3410 2d	3200 d	3370 2d	3370 2d	3370 2d	3410 2d	3410 2d	3000 f
	76CS115	3620 2d	3620 2d	3620 2d	3620 2d	3620 2d	NA	3620 2d	3620 2d	3620 2d	3620 2d	3620 2d	3620 2d	3620 2d	3620 2d	3620 2d	3500 f
	92CS55	3060 2s	3060 2s	3060 2s	3060 2s	3060 2s	NA	3060 2s	3060 2s	3060 2s	3060 2s	3060 2s	3060 2s	3060 2s	3060 2s	3060 2s	3060 2s
	92CS75	3700 2d	3700 2d	3700 2d	3700 2d	3700 2d	NA	3700 2d	3700 2d	3700 2d	3700 2d	3700 2d	3700 2d	3700 2d	3700 2d	3700 2d	3500 f
	92CS115	3810 2h	4200 2d	4200 2d	4200 2d	4200 2d	NA	4200 2d	4200 2d	4200 2d	3810 2h	4200 2d	4200 2d	4200 2d	4200 2d	4200 2d	4000 f
	150CS75	3810 2h	4830 2s	4830 2s	4830 2s	4830 2s	NA	4830 2s	4830 2s	4830 2s	3810 2h	4830 2s	4830 2s	4830 2s	4830 2s	4830 2s	4830 2s
	150CS115	3810 2h	5530 2s	5530 2s	5530 2s	5530 2s	NA	5530 2s	5530 2s	5530 2s	3810 2h	5530 2s	5530 2s	5530 2s	5530 2s	5530 2s	5530 2s



Board to single side of single stud
System ST1616F illustrated

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pgs C2.1 & C2.2 • For stud designations refer Section A1

Non Load Bearing Steel Shaft Walls

Notes to 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 section wall studs
- Shelf loading is not permitted for tabulated maximum wall heights. Refer Boral Plasterboard for maximum heights with shelf loadings
- Tabulated heights are for internal walls only. Refer to Boral Plasterboard if walls are subjected to external loadings
- All plasterboard is to be manufactured by Boral Plasterboard in Australia
- Walls are to be constructed with Boral FireSTOP™ plasterboard to Boral Plasterboard standard Shaft Wall fire rated wall details as appropriate
- For fire service 50Pa pressure assumed where pressures are >50Pa and fire loadings are likely to be coincident Boral Plasterboard 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/m^2
  - acceleration a ≤ 0.08
  - Site Factor S ≤ 2.0
  - ax ≤ 2.0
  - ac ≤ 1.0
  - Cc1 ≤ 0.9
  - I = 1.0
- Wall heights for systems tabled for CH studs are calculated with head runner min 50mm flange x 0.80mm BMT 20mm max clearance at top of stud and using head track reaction capacities as follows:

Head Track Reaction Capacities

Stud	Head track reaction capacity (kN)
64CH55, 102CH55	0.28
64CH90, 102CH90	0.44

- Refer to Boral Plasterboard where reactions and/or required clearance at top of stud exceeds the above
- Where lesser clearance is required other head track reaction capacities are as follows, with minimum 0.80mm BMT standard J runner at head and base and 10mm max clearance at top of stud:

Head Track Reaction Capacities

Stud	Head track reaction capacity (kN)
64CH55, 102CH55	0.40
64CH90, 102CH90	0.75

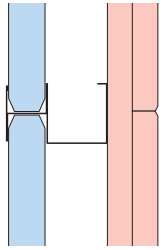
- Alternative head track installations must be checked with head track capacity tables
- The allowable head track reactions listed above rely on the plasterboard for restraint head track installation must be strictly in accordance with the appropriate details.

C. Design Tables

Maximum Wall Heights - Non Load Bearing Shaft Walls

System Ref		SH16F		SH26F			SH29F		SH32F	
Side 1 (no of layers x thickness in mm)		1x25		1x25			1x25		1x25	
Side 2 (no of layers x thickness in mm)		1x16		2x13			1x13 + 1x16		2x16	
Layout	FRL Direction From	Nil	-/60/60 Both	Nil	-/120/90 Occupancy	-/120/120 Shaft	Nil	-/120/120 Both	Nil	-/120/120 Both
	Stud	Wall Heights (mm)								

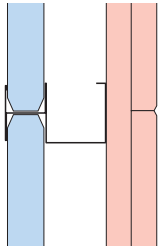
Maximum Wall Pressure: **0.25kPa** — Maximum Stud Centres: **600mm**



Board to standard Shaft Wall details
System SH32F illustrated

64CH55	2950 d	2950 d	2950 d	2950 d	2950 d	2950 d	2950 d	3730 h	3730 h
64CH90	3460 d	3460 d	3460 d	3460 d	3460 d	3460 d	3460 d	4380 d	4380 d
102CH55	3730 h	3730 h	3730 h	3730 h	3730 h	3730 h	3730 h	3730 h	3730 h
102CH90	4980 d	4980 d	4980 d	4980 d	4980 d	4980 d	4980 d	5510 d	5510 d

Maximum Wall Pressure: **0.35kPa** — Maximum Stud Centres: **600mm**



Board to standard Shaft Wall details
System SH32F illustrated

64CH55	2640 d	2640 d	2640 d	2640 d	2640 d	2640 d	2640 d	2660 h	2660 h
64CH90	3090 d	3090 d	3090 d	3090 d	3090 d	3090 d	3090 d	3890 d	3890 d
102CH55	2660 h	2660 h	2660 h	2660 h	2660 h	2660 h	2660 h	2660 h	2660 h
102CH90	4190 h	4190 h	4190 h	4190 h	4190 h	4190 h	4190 h	4190 h	4190 h

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pg C2.11 • For stud designations refer Section A1

Non Load Bearing Steel D-Stud™ Walls

General Notes to Tables

- Deflection limit is height/240 to a maximum of 30mm
- Wall heights tabled are for non load bearing walls and not for axial loads, but include self weight and lateral pressures stated
- Shelf loading is not permitted for the tabulated maximum wall heights. Refer Boral Plasterboard for maximum heights with shelf loadings
- The maximum heights tabulated are based on testing performed using Boral FireSTOP™ plasterboard manufactured by Boral Australian Gypsum Ltd
- Minimum yield stress of steel sections to be 550MPa UNO
- Walls to be constructed with 13mm or 16mm Boral FireSTOP™ or Wet Area FireSTOP™ or 10mm Boral Standard Core plasterboard to standard Boral Plasterboard fire rated D-Stud wall details

Head Track Reaction Capacities

Plasterboard	1x13	1x16	2x16 or more
Head Track Reaction Capacity (kN)	0.35	0.38	0.73

Note:
Heights shaded in D-Stud wall tables on the following pages exceed these reaction capacities and should be referred to Boral Plasterboard for appropriate detailing and approval

- Deflection heads to be designed and used as required.
- 50Pa pressure assumed for fire design. Where greater pressures and fire loadings are likely to be coincident Boral should be consulted
- Taller walls than those listed are possible with other sections. Refer Boral Plasterboard sales offices
- For construction details refer Boral Plasterboard publication `D-Stud High Performance Wall Systems´.

Non Load Bearing D-Stud Cinema Walls

Max Wall Heights (mm)

Max Wall Pressure: 0.25kPa

	Stud ctrs (mm)		
Stud Size	900	1000	1200
2xZ15012	8500	8300	8000
2xZ15015	9000	8800	8400
2xZ15019	9500	9300	8900
2xZ20015	11000	10700	10200
2xZ20019	11700	11400	10900
2xZ25019	13400	13000	12500

- Limiting heights indicated are calculated structural heights
- Minimum yield stress of steel sections to be 450MPa.

C. Design Tables

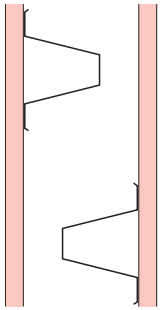
Maximum Wall Heights - Non Load Bearing Steel D-Stud™ Walls

Lined Both Sides (Includes staggered & twin stud wall systems)

Maximum Wall Pressure: **0.25kPa**

Maximum Stud Centres: **600mm**

Lining Side 1 (no of layers x thickness in mm)		1x13		1x13		1x16			1x16		2x13			2x16			4x16	
Lining Side 2 (no of layers x thickness in mm)		1x13		1x16		1x16			1x16 + 1x10		2x13			2x16			4x16	
	FRL	Nil	-/30/30	Nil	-/60/60	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	-/90/90	-/120/120	Nil	-/120/120
Layout	Stud	Wall Heights (mm) Refer page C2.13 re shaded wall height cells																
	40DS55	2182	2182	2182	2182	2219	2219	2219	2219	2219	2219	2219	2219	2219	2219	2219	2219	2219
	40DS60	2234	2234	2234	2234	2268	2268	2268	2268	2268	2268	2268	2268	2268	2268	2268	2268	2268
	40DS75	2373	2373	2373	2373	2401	2401	2401	2401	2401	2401	2401	2401	2401	2401	2401	2401	2401
	50DS60	2569	2569	2569	2569	2590	2590	2590	2590	2590	2590	2590	2590	2590	2590	2590	2590	2590
	50DS75	2741	2741	2741	2741	2755	2755	2755	2755	2755	2755	2755	2755	2755	2755	2755	2755	2755
	61DS75	3279	3279	3279	3279	3309	3309	3309	3309	3309	3309	3309	3309	3651	3651	3651	4113	3651
	61DS100	3565	3565	3565	3565	3587	3587	3587	3587	3587	3587	3587	3587	3866	3866	3866	4269	3866
	64DS75	3358	3358	3358	3358	3384	3384	3384	3384	3384	3384	3384	3384	3692	3692	3692	4132	3692
	64DS100	3746	3746	3746	3746	3762	3762	3762	3762	3762	3762	3762	3762	3998	3998	3998	4361	3998
	64DS120	3999	3999	3999	3999	4010	4010	4010	4010	4010	4010	4010	4010	4200	4200	4200	4512	4200
	96DS75	4795	4795	4795	4795	4854	4854	4854	4854	4854	4854	4854	4854	4854	4854	4854	4854	4854
	96DS100	5304	5304	5304	5304	5349	5349	5349	5349	5349	5349	5349	5349	5349	5349	5349	5349	5349
	96DS120	5646	5646	5646	5646	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683
	120DS70	6100	6100	6100	6100	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136
	120DS90	6578	6578	6578	6578	6604	6604	6604	6604	6604	6604	6604	6604	6604	6604	6604	6604	6604



Board to single side of single stud
System D1616F illustrated

- These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pg C2.13
- For stud designations refer Section A1

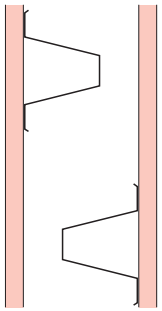
C. Design Tables

Maximum Wall Heights - Non Load Bearing Steel D-Stud™ Walls

Lined Both Sides (Includes staggered & twin stud wall systems)

Maximum Wall Pressure: **0.25kPa**

Maximum Stud Centres: **400mm**

Lining Side 1 (no of layers x thickness in mm)		1x13		1x13		1x16			1x16		2x13			2x16			4x16	
Lining Side 2 (no of layers x thickness in mm)		1x13		1x16		1x16			1x16 + 1x10		2x13			2x16			4x16	
	FRL	Nil	-/30/30	Nil	-/60/60	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	-/90/90	-/120/120	Nil	-/120/120
Layout	Stud	Wall Heights (mm) Refer page C2.13 re shaded wall height cells. Symbol `f` indicates fire height limit.																
 Board to single side of single stud System D1616F illustrated	40DS55	2467	2467	2467	2467	2502	2502	2502	2502	2500 f	2502	2502	2502	2502	2502	2502	2502	2502
	40DS60	2529	2529	2529	2529	2561	2561	2561	2561	2561	2561	2561	2561	2561	2561	2561	2561	2561
	40DS75	2696	2696	2696	2696	2723	2723	2723	2723	2700 f	2723	2723	2723	2723	2723	2723	2723	2723
	50DS60	2928	2928	2928	2928	2949	2949	2949	2949	2900 f	2949	2949	2949	2949	2949	2949	2949	2949
	50DS75	3132	3132	3132	3132	3147	3147	3147	3147	3100 f	3147	3147	3147	3147	3147	3147	3147	3147
	61DS75	3726	3726	3726	3726	3754	3754	3754	3754	3754	3754	3754	3754	4083	4083	4083	4569	4083
	61DS100	4065	4065	4065	4065	4086	4086	4086	4086	4086	4086	4086	4086	4353	4353	4353	4776	4353
	64DS75	3822	3822	3822	3822	3846	3846	3846	3846	3800 f	3846	3846	3846	4140	4140	4140	4600	4140
	64DS100	4279	4279	4279	4279	4295	4295	4295	4295	4200 f	4295	4295	4295	4522	4522	4522	4900	4522
	64DS120	4575	4575	4575	4575	4587	4587	4587	4587	4500 f	4587	4587	4587	4774	4774	4774	5101	4774
	96DS75	5423	5423	5423	5423	5476	5476	5476	5476	5400 f	5476	5476	5476	5476	5476	5476	5476	5476
	96DS100	6025	6025	6025	6025	6066	6066	6066	6066	5900 f	6066	6066	6066	6066	6066	6066	6066	6066
	96DS120	6428	6428	6428	6428	6462	6462	6462	6462	6300 f	6462	6462	6462	6462	6462	6462	6462	6462
	120DS70	6946	6946	6946	6946	6980	6980	6980	6980	6980	6980	6980	6980	6980	6980	6980	6980	6980
	120DS90	7430	7430	7430	7430	7450	7450	7450	7450	7450	7450	7450	7450	7450	7450	7450	7450	7450

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pg C2.13 • For stud designations refer Section A1

C. Design Tables

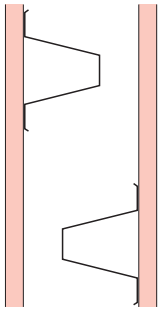
Maximum Wall Heights - Non Load Bearing Steel D-Stud™ Walls

Lined Both Sides (Includes staggered & twin stud wall systems)

Maximum Wall Pressure: **0.35kPa**

Maximum Stud Centres: **600mm**

Lining Side 1 (no of layers x thickness in mm)		1x13		1x13		1x16			1x16		2x13			2x16			4x16	
Lining Side 2 (no of layers x thickness in mm)		1x13		1x16		1x16			1x16 + 1x10		2x13			2x16			4x16	
	FRL	Nil	-/30/30	Nil	-/60/60	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	-/90/90	-/120/120	Nil	-/120/120
Layout	Stud	Wall Heights (mm) Refer page C2.13 re shaded wall height cells																
	40DS55	1942	1942	1942	1942	1972	1972	1972	1972	1972	1972	1972	1972	1972	1972	1972	1972	1972
	40DS60	1988	1988	1988	1988	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015
	40DS75	2112	2112	2112	2112	2134	2134	2134	2134	2134	2134	2134	2134	2134	2134	2134	2134	2134
	50DS60	2286	2286	2286	2286	2301	2301	2301	2301	2301	2301	2301	2301	2301	2301	2301	2301	2301
	50DS75	2439	2439	2439	2439	2448	2448	2448	2448	2448	2448	2448	2448	2448	2448	2448	2448	2448
	61DS75	2920	2920	2920	2920	2945	2945	2945	2945	2945	2945	2945	2945	3230	3230	3230	3230	3230
	61DS100	3176	3176	3176	3176	3192	3192	3192	3192	3192	3192	3192	3192	3419	3419	3419	3419	3419
	64DS75	2992	2992	2992	2992	3013	3013	3013	3013	3013	3013	3013	3013	3268	3268	3268	3268	3268
	64DS100	3338	3338	3338	3338	3350	3350	3350	3350	3350	3350	3350	3350	3537	3537	3537	3537	3537
	64DS120	3564	3564	3564	3564	3570	3570	3570	3570	3570	3570	3570	3570	3716	3716	3716	3716	3716
	96DS75	4274	4274	4274	4274	4323	4323	4323	4323	4323	4323	4323	4323	4323	4323	4323	4323	4323
	96DS100	4728	4728	4728	4728	4765	4765	4765	4765	4765	4765	4765	4765	4765	4765	4765	4765	4765
	96DS120	5033	5033	5033	5033	5062	5062	5062	5062	5062	5062	5062	5062	5062	5062	5062	5062	5062
	120DS70	5438	5438	5438	5438	5467	5467	5467	5467	5467	5467	5467	5467	5467	5467	5467	5467	5467
	120DS90	5866	5866	5866	5866	5885	5885	5885	5885	5885	5885	5885	5885	5885	5885	5885	5885	5885



Board to single side of single stud
System D1616F illustrated

- These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pg C2.13
- For stud designations refer Section A1

C. Design Tables

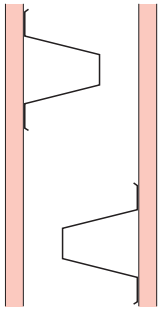
Maximum Wall Heights - Non Load Bearing Steel D-Stud™ Walls

Lined Both Sides (Includes staggered & twin stud wall systems)

Maximum Wall Pressure: **0.35kPa**

Maximum Stud Centres: **400mm**

Lining Side 1 (no of layers x thickness in mm)		1x13		1x13		1x16			1x16		2x13			2x16			4x16	
Lining Side 2 (no of layers x thickness in mm)		1x13		1x16		1x16			1x16 + 1x10		2x13			2x16			4x16	
	FRL	Nil	-/30/30	Nil	-/60/60	Nil	-/30/30	-/60/60	Nil	-/90/90	Nil	-/60/60	-/90/90	Nil	-/90/90	-/120/120	Nil	-/120/120
Layout	Stud	Wall Heights (mm) Refer page C2.13 re shaded wall height cells																
	40DS55	2199	2199	2199	2199	2228	2228	2228	2228	2228	2228	2228	2228	2228	2228	2228	2228	2228
	40DS60	2254	2254	2254	2254	2281	2281	2281	2281	2281	2281	2281	2281	2281	2281	2281	2281	2281
	40DS75	2404	2404	2404	2404	2425	2425	2425	2425	2425	2425	2425	2425	2425	2425	2425	2425	2425
	50DS60	2610	2610	2610	2610	2626	2626	2626	2626	2626	2626	2626	2626	2626	2626	2626	2626	2626
	50DS75	2792	2792	2792	2792	2804	2804	2804	2804	2804	2804	2804	2804	2804	2804	2804	2804	2804
	61DS75	3323	3323	3323	3323	3347	3347	3347	3347	3347	3347	3347	3347	3624	3624	3624	3624	3624
	61DS100	3626	3626	3626	3626	3643	3643	3643	3643	3643	3643	3643	3643	3864	3864	3864	3864	3864
	64DS75	3410	3410	3410	3410	3430	3430	3430	3430	3430	3430	3430	3430	3676	3676	3676	3676	3676
	64DS100	3818	3818	3818	3818	3830	3830	3830	3830	3830	3830	3830	3830	4015	4015	4015	4015	4015
	64DS120	4082	4082	4082	4082	4090	4090	4090	4090	4090	4090	4090	4090	4239	4239	4239	4239	4239
	96DS75	4839	4839	4839	4839	4884	4884	4884	4884	4884	4884	4884	4884	4884	4884	4884	4884	4884
	96DS100	5376	5376	5376	5376	5410	5410	5410	5410	5410	5410	5410	5410	5410	5410	5410	5410	5410
	96DS120	5737	5737	5737	5737	5764	5764	5764	5764	5764	5764	5764	5764	5764	5764	5764	5764	5764
	120DS70	6199	6199	6199	6199	6226	6226	6226	6226	6226	6226	6226	6226	6226	6226	6226	6226	6226
	120DS90	6702	6702	6702	6702	6722	6722	6722	6722	6722	6722	6722	6722	6722	6722	6722	6722	6722



Board to single side of single stud
System D1616F illustrated

• These tables should be read in conjunction with Sections A5, A6 & A8 & notes on pg C2.13 • For stud designations refer Section A1

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C3. Timber Stud Charfactor Tables

Charfactor Numbers

- Charfactor numbers apply only to timber stud wall systems listed in System Index Section of this manual
- A Charfactor number is defined as follows:

  A dimensionless factor relating the amount of permissible char area of the studs, when in a timber framed partition under fire test at the time of its structural collapse, for a given height and loading.

Selecting Studs Using Charfactor Tables

Non load bearing walls

- First establish the Charfactor number of the non load bearing timber stud partition system. This number is found in the "Fire Resistance" column of the System Index, in the system selection pages of this manual
- Enter the "Non Load Bearing Walls" table from the left at the wall height required
- Move horizontally across the columns till the value shown in the body of the table matches or just exceeds the chosen system's charfactor. The Stud size of this column is the least section that may be used in the given fire conditions but must also be checked against other structural requirements
- Larger sizes can of course be used instead
- Refer also to the following pages for an example of non load bearing stud selection using charfactors.

Load bearing walls

- For load bearing walls first establish the Charfactor Number of the timber partition system as before (see Non Load Bearing Walls)
- You need also to know the height and stress grade of the studs proposed and their imposed axial load
- Select the page with the appropriate 'Load bearing Walls' Charfactor number from those presented (11, 14, 15, 18, 21 or 22)
- Select the appropriate Timber Stress Grade table
- Enter the table from the left at the wall height required
- Move horizontally across the columns till the value shown in the body of the table matches or just exceeds the chosen system's axial load capacity
- The Stud size of this column is the least section that may be used in the given fire conditions but must also be checked against other structural requirements
- Larger sizes can, of course, be used instead
- Refer also to the following pages for an example of load bearing stud selection using charfactors.

General

- Where a required timber size is not listed, use the next smallest section (in both dimensions) that is listed for selection within the tables. This applies to tables for both load bearing and non load bearing walls
- In instances where a Charfactor number is not represented by set of tables, make selections using tables for a higher available Charfactor number
- The values shown on the tables for each Charfactor are the maximum load and heights achievable for that stud size
- Where a timber partition system calls for a stud size with a stress grade which is not represented on any of the tables for the Charfactor number, make your selection by using a table for a lower stress grade eg if F7 stress grade is called for, use a F5 stress grade table.

Selecting Studs Using Charfactor Tables (cont)

Example 1

Non load bearing walls

I have a non load bearing wall 4000mm high for which I seek to use a -/60/60 FRL T1616F system (formally TS7 system).

From the System Index I find that this system/FRL has a Charfactor of 11. I know I can use a stud size or height that gives me an equal or greater charfactor. Entering the "Non Load Bearing Walls" table at 4 metres height I move across to the 70x45 column which I find is the smallest size I can use with a Charfactor equal or greater than the Charfactor 11 of the T1616F system. Having checked the stud section for fire service I must now check it against normal structural requirements.

C. Design Tables

Charfactor Numbers - Timber Stud Non Lo

Wall Height (mm)	Stud size (mmxmm)							
	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35
3.0	30	28	30	26	26	20	17	14
3.1	30	28	30	26	26	20	17	14
3.2	30	28	30	26	25	20	17	13
3.3	30	28	30	26	25	20	16	13
3.4	30	28	30	26	24	19	16	12
3.5	30	28	30	25	24	19	15	12
3.6	30	28	30	25	23	18	15	11
3.7	30	27	30	25	23	18	14	11
3.8	30	27	30	25	22	18	14	10
3.9	30	27	30	24	22	17	13	10
4.0	30	27	30	24	21	17	12	9
4.1	30	26	30	24	21	16	12	9

Selecting Studs Using Charfactor Tables (cont)

Example 2

Load bearing walls

I have a load bearing 3 metre high timber framed wall for which I seek to use a 120/120/120 FRL TT3232F system (formally TS22 system). This wall is carrying an imposed load of 20kN on each of the F8 studs.

From the System Index I find that this system has a Charfactor of 14. Entering the left side of the "Load Bearing Walls" Charfactor 14 table at 3 metres height I move right, across to the F8 area and to the column that shows a load capacity equal to or greater than the 20kN load required. Reading up the table I find that a 120x45 stud is the smallest of the F8 stud sizes I can use. Having checked the stud section for fire service I must now check it against normal structural requirements.

C3.6 April 2007

Timber Charfactor Tables C3

C. Design Tables Timber Stud - **Charfactor 14**

Load Bearing Walls - Axial Load Capacity in kN/stud

Note: Where 100x3

Wall Height (mm)	Timber Stress Grade **F5** Stud size (mmxmm)								Timber Stress Grade **F8** Stud size (mmxmm)								Ti
	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45
2.0	24.0	16.1	18.4	12.3	10.3	6.9	5.5	3.6	42.8	30.0	33.1	23.2	18.9	13.1	10.3	7.1	76.4
2.1	23.6	15.9	18.0	12.1	9.9	6.6	5.2	3.4	42.1	29.5	32.4	22.6	18.1	12.6	9.7	6.7	74.8
2.2	23.2	15.6	17.6	11.8	9.6	6.4	4.9	3.3	41.4	29.0	31.6	22.1	17.4	12.1	9.2	6.4	73.1
2.3	22.8	15.3	17.2	11.5	9.2	6.1	4.7	3.1	40.6	28.4	30.8	21.5	16.7	11.7	8.7	6.0	71.4
2.4	22.4	15.0	16.8	11.2	8.9	5.9	4.4	2.9	39.8	27.9	30.0	21.0	16.1	11.2	8.2	5.7	69.7
2.5	22.0	14.7	16.4	11.0	8.5	5.6	4.2	2.7	39.0	27.3	29.2	20.4	15.4	10.7	7.8	5.4	67.9
2.6	21.6	14.4	16.0	10.7	8.2	5.4	3.9	2.6	38.2	26.8	28.4	19.9	14.7	10.2	7.3	5.1	66.2
2.7	21.1	14.2	15.6	10.4	7.8	5.2	3.7	2.4	37.4	26.2	27.6	19.3	14.1	9.8	6.9	4.8	64.4
2.8	20.7	13.8	15.1	10.1	7.5	5.0	3.5	2.3	36.6	25.6	26.8	18.7	13.5	9.4	6.5	4.5	62.6
2.9	20.3	13.5	14.7	9.8	7.2	4.7	3.3	2.2	35.8	25.0	26.0	18.2	12.9	9.0	6.2	4.3	60.9
3.0	19.8	13.2	14.3	9.5	6.9	4.5	3.1	2.0	34.9	24.4	25.3	17.6	12.4	8.6	5.8	4.0	59.1
3.1	19.4	12.9	13.9	9.2	6.6	4.3	2.9		34.1	23.8	24.5	17.1	11.8	8.2	5.5	3.8	57.4
3.2	18.9	12.6	13.5	8.9	6.3	4.1	2.8		33.2	23.2	23.7	16.5	11.3	7.8	5.2	3.6	55.7
3.3	18.5	12.3	13.1	8.7	6.0	3.9	2.6		32.4	22.6	23.0	16.0	10.8	7.5	4.9	3.4	54.0
3.4	18.0	12.0	12.7	8.4	5.7	3.8	2.4		31.6	22.0	22.2	15.5	10.3	7.1	4.7	3.2	52.3
3.5	17.6	11.7	12.3	8.1	5.5	3.6	2.3		30.7	21.4	21.5	15.0	9.9	6.8	4.4	3.0	50.7
3.6	17.1	11.4	11.9	7.9	5.2	3.4	2.2		29.9	20.9	20.8	14.5	9.4	6.5	4.2	2.8	49.1
3.7	16.7	11.1	11.5	7.6	5.0	3.3	2.0		29.1	20.3	20.1	14.0	9.0	6.2	3.9	2.7	47.5
3.8	16.3	10.8	11.1	7.3	4.8	3.1			28.3	19.7	19.4	13.5	8.6	5.9	3.7	2.5	46.0
3.9	15.8	10.5	10.7	7.1	4.5	2.9			27.5	19.2	18.8	13.0	8.2	5.7	3.5	2.4	44.5
4.0	15.4	10.2	10.4	6.8	4.3	2.8			26.8	18.6	18.2	12.6	7.9	5.4	3.3	2.3	43.1
4.1	15.0	9.9	10.0	6.6	4.1	2.7			26.0	18.1	17.5	12.2	7.5	5.2	3.2	2.1	41.7
4.2	14.6	9.6	9.7	6.4	3.9	2.5			25.3	17.6	16.9	11.7	7.2	4.9	3.0	2.0	40.4
4.3	14.2	9.3	9.4	6.1	3.7	2.4			24.5	17.1	16.4	11.3	6.9	4.7	2.8		39.1
4.4	13.8	9.1	9.0	5.9	3.6	2.3			23.8	16.5	15.8	10.9	6.6	4.5	2.7		37.8
4.5	13.4	8.8	8.7	5.7	3.4	2.2			23.1	16.1	15.3	10.6	6.3	4.3	2.5		36.6

Charfactor Numbers - Timber Stud Non Load Bearing Walls

Wall Height (mm)	Stud size (mmxmm)							
	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35
3.0	30	28	30	26	26	20	17	14
3.1	30	28	30	26	26	20	17	14
3.2	30	28	30	26	25	20	17	13
3.3	30	28	30	26	25	20	16	13
3.4	30	28	30	26	24	19	16	12
3.5	30	28	30	25	24	19	15	12
3.6	30	28	30	25	23	18	15	11
3.7	30	27	30	25	23	18	14	11
3.8	30	27	30	25	22	18	14	10
3.9	30	27	30	24	22	17	13	10
4.0	30	27	30	24	21	17	12	9
4.1	30	26	30	24	21	16	12	9
4.2	30	26	30	23	20	16	11	8
4.3	30	26	29	23	20	15	11	8
4.4	30	26	29	23	19	15	10	7
4.5	30	26	28	22	19	15	10	7
4.6	30	25	28	22	18	14	9	6
4.7	30	25	28	22	18	14	9	6
4.8	30	25	27	21	17	13	8	5
4.9	30	25	27	21	17	13	8	5
5.0	30	24	27	21	16	12	7	4
5.1	30	24	26	21	16	12	6	4
5.2	30	24	26	20	15	11	6	3
5.3	30	23	25	20	15	11	5	3
5.4	30	23	25	19	14	11	5	2
5.5	29	23	24	19	14	10	4	2
5.6	29	23	24	19	13	10	4	1
5.7	28	22	24	18	13	9	3	1
5.8	28	22	23	18	12	9	3	0
5.9	28	22	23	18	12	8	2	0
6.0	27	21	22	17	11	8	2	0

Note
Where design requirements are for the following sizes:
100x50 - build in this size using 90x45 height/load data
100x38 - build in this size using 90x35 height/load data
75x50 - build in this size using 70x45 height/load data.

C. Design Tables — Timber Stud - **Charfactor 11**

Load Bearing Walls - Axial Load Capacity in kN/stud

Note: Where design requirements are for the following sizes:- 100x50 - build in this size using 90x45 height / load data; 100x38 - build in this size using 90x35 height / load data; 75x50 - build in this size using 70x45 height / load data.

Wall Height (mm)	Timber Stress Grade **F5**								Timber Stress Grade **F8**								Timber Stress Grade **F14**								Timber Stress Grade **F22**							
	Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)							
	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35
2.0	28.5	20.0	22.2	15.6	12.9	9.0	7.2	5.0	48.8	35.2	38.2	27.5	22.4	16.1	12.6	9.0	84.4	62.0	65.5	48.0	37.5	27.4	20.7	15.0	134.0	99.4	102.2	75.7	56.3	41.5	30.1	22.1
2.1	28.1	19.7	21.8	15.2	12.5	8.7	6.9	4.8	48.0	34.6	37.4	26.9	21.6	15.5	12.0	8.5	82.7	60.7	63.6	46.6	35.8	26.1	19.4	14.1	130.4	96.7	98.5	73.0	53.2	39.2	28.0	20.6
2.2	27.6	19.4	21.3	14.9	12.1	8.4	6.5	4.5	47.2	34.0	36.5	26.3	20.7	14.9	11.3	8.1	80.8	59.3	61.7	45.3	34.1	24.9	18.2	13.2	126.6	93.9	94.9	70.2	50.3	37.1	26.1	19.2
2.3	27.2	19.0	20.8	14.6	11.6	8.1	6.2	4.3	46.4	33.4	35.6	25.6	19.9	14.3	10.7	7.6	79.0	58.0	59.9	43.9	32.5	23.7	17.1	12.4	122.9	91.1	91.2	67.5	47.5	35.0	24.4	17.9
2.4	26.7	18.7	20.4	14.2	11.2	7.8	5.8	4.0	45.5	32.8	34.7	25.0	19.1	13.7	10.1	7.2	77.1	56.6	58.0	42.5	30.9	22.6	16.1	11.7	119.1	88.3	87.6	64.9	44.9	33.1	22.7	16.7
2.5	26.2	18.4	19.9	13.9	10.7	7.5	5.5	3.8	44.6	32.1	33.8	24.3	18.3	13.1	9.6	6.8	75.2	55.1	56.1	41.1	29.4	21.5	15.1	11.0	115.4	85.5	84.1	62.2	42.4	31.3	21.2	15.6
2.6	25.8	18.0	19.4	13.5	10.3	7.2	5.2	3.6	43.7	31.5	32.9	23.6	17.6	12.6	9.0	6.4	73.2	53.7	54.2	39.7	28.0	20.4	14.2	10.3	111.6	82.7	80.7	59.7	40.1	29.5	19.9	14.6
2.7	25.3	17.7	18.9	13.2	9.9	6.9	5.0	3.4	42.8	30.8	32.0	23.0	16.8	12.0	8.5	6.1	71.3	52.3	52.4	38.3	26.7	19.4	13.3	9.7	107.9	79.9	77.4	57.2	37.9	27.9	18.6	13.7
2.8	24.8	17.3	18.4	12.8	9.5	6.6	4.7	3.2	41.9	30.1	31.1	22.3	16.1	11.5	8.1	5.7	69.4	50.8	50.6	37.0	25.4	18.5	12.6	9.1	104.2	77.2	74.2	54.8	35.8	26.4	17.5	12.8
2.9	24.3	17.0	17.9	12.5	9.1	6.3	4.4	3.0	40.9	29.4	30.2	21.7	15.4	11.0	7.6	5.4	67.4	49.4	48.8	35.7	24.1	17.6	11.8	8.6	100.6	74.5	71.0	52.5	33.9	25.0	16.4	12.1
3.0	23.7	16.6	17.4	12.1	8.7	6.1	4.2	2.9	40.0	28.7	29.3	21.0	14.7	10.5	7.2	5.1	65.5	48.0	47.0	34.4	23.0	16.7	11.1	8.1	97.1	71.9	68.1	50.3	32.1	23.7	15.4	11.3
3.1	23.2	16.2	16.9	11.8	8.4	5.8	4.0	2.7	39.0	28.1	28.4	20.4	14.1	10.1	6.8	4.9	63.6	46.6	45.3	33.1	21.8	15.9	10.5	7.6	93.7	69.3	65.2	48.2	30.4	22.4	14.5	10.7
3.2	22.7	15.8	16.4	11.4	8.0	5.5	3.7	2.6	38.1	27.4	27.5	19.7	13.5	9.6	6.5	4.6	61.7	45.2	43.7	31.9	20.8	15.2	9.9	7.2	90.3	66.8	62.4	46.1	28.8	21.3	13.7	10.0
3.3	22.2	15.5	16.0	11.1	7.7	5.3	3.5	2.4	37.2	26.7	26.7	19.1	12.9	9.2	6.1	4.3	59.8	43.8	42.1	30.7	19.8	14.4	9.4	6.8	87.0	64.4	59.8	44.2	27.4	20.2	12.9	9.5
3.4	21.7	15.1	15.5	10.8	7.3	5.1	3.3	2.3	36.2	26.0	25.8	18.5	12.3	8.8	5.8	4.1	58.0	42.5	40.5	29.6	18.9	13.8	8.9	6.4	83.9	62.1	57.3	42.3	26.0	19.2	12.2	8.9
3.5	21.2	14.7	15.0	10.4	7.0	4.8	3.1	2.1	35.3	25.3	25.0	17.9	11.8	8.4	5.5	3.9	56.2	41.1	39.0	28.5	18.0	13.1	8.4	6.1	80.8	59.8	54.9	40.6	24.7	18.2	11.5	8.5
3.6	20.6	14.4	14.5	10.1	6.7	4.6	3.0	2.0	34.4	24.6	24.2	17.3	11.3	8.0	5.2	3.7	54.4	39.8	37.5	27.4	17.2	12.5	7.9	5.8	77.9	57.6	52.6	38.9	23.5	17.3	10.9	8.0
3.7	20.1	14.0	14.1	9.8	6.4	4.4	2.8		33.4	24.0	23.4	16.7	10.8	7.7	4.9	3.5	52.7	38.6	36.1	26.4	16.4	11.9	7.5	5.5	75.0	55.5	50.4	37.3	22.3	16.5	10.3	7.6
3.8	19.6	13.6	13.6	9.5	6.1	4.2	2.6		32.5	23.3	22.6	16.2	10.3	7.4	4.7	3.3	51.0	37.3	34.8	25.4	15.6	11.4	7.1	5.2	72.3	53.5	48.3	35.7	21.3	15.7	9.7	7.2
3.9	19.1	13.3	13.2	9.1	5.9	4.0	2.5		31.6	22.7	21.9	15.6	9.9	7.0	4.4	3.1	49.4	36.1	33.5	24.5	14.9	10.9	6.8	4.9	69.7	51.5	46.4	34.3	20.3	14.9	9.2	6.8
4.0	18.6	12.9	12.8	8.8	5.6	3.8	2.3		30.8	22.0	21.1	15.1	9.4	6.7	4.2	3.0	47.8	35.0	32.3	23.6	14.2	10.4	6.4	4.7	67.1	49.7	44.5	32.9	19.3	14.3	8.8	6.5
4.1	18.1	12.6	12.4	8.5	5.4	3.7	2.2		29.9	21.4	20.4	14.6	9.0	6.4	4.0	2.8	46.3	33.8	31.1	22.7	13.6	9.9	6.1	4.4	64.7	47.9	42.7	31.6	18.4	13.6	8.3	6.1
4.2	17.6	12.2	12.0	8.3	5.1	3.5	2.1		29.1	20.8	19.7	14.1	8.7	6.1	3.8	2.7	44.8	32.8	29.9	21.9	13.0	9.5	5.8	4.2	62.4	46.2	41.0	30.3	17.6	13.0	7.9	5.8
4.3	17.1	11.9	11.6	8.0	4.9	3.3			28.2	20.2	19.1	13.6	8.3	5.9	3.6	2.5	43.3	31.7	28.8	21.0	12.4	9.0	5.5	4.0	60.1	44.5	39.4	29.1	16.8	12.4	7.5	5.5
4.4	16.7	11.5	11.2	7.7	4.7	3.2			27.4	19.6	18.4	13.2	7.9	5.6	3.4	2.4	41.9	30.7	27.8	20.3	11.9	8.7	5.2	3.8	58.0	42.9	37.9	28.0	16.1	11.9	7.2	5.3
4.5	16.2	11.2	10.8	7.4	4.5	3.0			26.6	19.1	17.8	12.7	7.6	5.4	3.2	2.3	40.6	29.7	26.8	19.5	11.4	8.3	5.0	3.6	55.9	41.4	36.4	26.9	15.4	11.3	6.8	5.0
4.6	15.7	10.9	10.4	7.2	4.2	2.9			25.9	18.5	17.2	12.3	7.3	5.1	3.0	2.1	39.3	28.7	25.8	18.8	10.9	7.9	4.7	3.4	54.0	39.9	35.0	25.9	14.7	10.8	6.5	4.8
4.7	15.3	10.6	10.1	6.9	4.1	2.7			25.1	18.0	16.6	11.9	7.0	4.9	2.9	2.0	38.0	27.8	24.9	18.1	10.4	7.6	4.5	3.3	52.1	38.5	33.7	24.9	14.1	10.4	6.2	4.5
4.8	14.8	10.2	9.7	6.7	3.9	2.6			24.4	17.4	16.1	11.4	6.7	4.7	2.7		36.8	26.9	24.0	17.5	10.0	7.3	4.3	3.1	50.3	37.2	32.4	24.0	13.5	9.9	5.9	4.3
4.9	14.4	9.9	9.4	6.4	3.7	2.5			23.7	16.9	15.5	11.1	6.4	4.5	2.6		35.6	26.0	23.1	16.9	9.6	7.0	4.1	2.9	48.6	35.9	31.2	23.1	12.9	9.5	5.6	4.1
5.0	14.0	9.6	9.1	6.2	3.5	2.4			23.0	16.4	15.0	10.7	6.1	4.3	2.4		34.5	25.2	22.3	16.3	9.2	6.7	3.9	2.8	46.9	34.7	30.1	22.2	12.4	9.1	5.4	3.9
5.1	13.6	9.4	8.7	6.0	3.3	2.2			22.3	15.9	14.5	10.3	5.8	4.1	2.3		33.4	24.4	21.5	15.7	8.8	6.4	3.7	2.7	45.3	33.5	29.0	21.4	11.9	8.8	5.1	3.8
5.2	13.2	9.1	8.4	5.8	3.2	2.1			21.6	15.4	14.0	10.0	5.6	3.9	2.2		32.3	23.6	20.8	15.1	8.4	6.1	3.5	2.5	43.8	32.4	27.9	20.6	11.4	8.4	4.9	3.6
5.3	12.8	8.8	8.1	5.6	3.0	2.0			21.0	15.0	13.5	9.6	5.4	3.8	2.1		31.3	22.9	20.0	14.6	8.1	5.9	3.3	2.4	42.3	31.3	26.9	19.9	10.9	8.1	4.7	3.4
5.4	12.4	8.5	7.9	5.3	2.9				20.4	14.5	13.1	9.3	5.1	3.6			30.3	22.1	19.4	14.1	7.8	5.6	3.2	2.3	40.9	30.3	26.0	19.2	10.5	7.7	4.4	3.3
5.5	12.0	8.3	7.6	5.2	2.7				19.8	14.1	12.6	9.0	4.9	3.5			29.4	21.4	18.7	13.6	7.5	5.4	3.0	2.2	39.6	29.3	25.1	18.5	10.1	7.4	4.2	3.1
5.6	11.7	8.0	7.3	5.0	2.6				19.2	13.7	12.2	8.7	4.7	3.3			28.5	20.8	18.0	13.1	7.2	5.2	2.9	2.1	38.3	28.3	24.2	17.9	9.7	7.1	4.1	3.0
5.7	11.3	7.7	7.0	4.8	2.5				18.6	13.2	11.8	8.4	4.5	3.2			27.6	20.1	17.4	12.7	6.9	5.0	2.7		37.1	27.4	23.4	17.2	9.3	6.9	3.9	2.8
5.8	11.0	7.5	6.8	4.6	2.3				18.1	12.9	11.4	8.1	4.3	3.0			26.7	19.5	16.8	12.3	6.6	4.8	2.6		35.9	26.5	22.6	16.7	9.0	6.6	3.7	2.7
5.9	10.6	7.3	6.5	4.4	2.2				17.5	12.5	11.0	7.8	4.1	2.9			25.9	18.9	16.3	11.9	6.3	4.6	2.5		34.7	25.7	21.8	16.1	8.6	6.3	3.5	2.6
6.0	10.3	7.0	6.3	4.2	2.1				17.0	12.1	10.6	7.5	3.9	2.7			25.1	18.3	15.7	11.5	6.1	4.4	2.3		33.6	24.9	21.1	15.5	8.3	6.1	3.4	2.5

• These tables should be read in conjunction with Sections A5, A6 & A8 and notes on pages C3.1 - C3.3

C. Design Tables — Timber Stud - **Charfactor 14**

Load Bearing Walls - Axial Load Capacity in kN/stud

Note: Where design requirements are for the following sizes:- 100x50 - build in this size using 90x45 height / load data; 100x38 - build in this size using 90x35 height / load data; 75x50 - build in this size using 70x45 height / load data.

Wall Height (mm)	Timber Stress Grade **F5**								Timber Stress Grade **F8**								Timber Stress Grade **F14**								Timber Stress Grade **F22**							
	Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)							
	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35
2.0	24.0	16.1	18.4	12.3	10.3	6.9	5.5	3.6	42.8	30.0	33.1	23.2	18.9	13.1	10.3	7.1	76.4	55.1	58.7	42.3	32.9	23.6	17.7	12.6	123.7	90.5	93.6	68.4	50.7	36.9	26.7	19.3
2.1	23.6	15.9	18.0	12.1	9.9	6.6	5.2	3.4	42.1	29.5	32.4	22.6	18.1	12.6	9.7	6.7	74.8	53.9	57.0	41.0	31.4	22.5	16.6	11.9	120.3	88.0	90.2	65.9	47.9	34.9	24.8	18.0
2.2	23.2	15.6	17.6	11.8	9.6	6.4	4.9	3.3	41.4	29.0	31.6	22.1	17.4	12.1	9.2	6.4	73.1	52.7	55.3	39.8	29.9	21.4	15.6	11.1	116.8	85.4	86.8	63.4	45.3	32.9	23.1	16.8
2.3	22.8	15.3	17.2	11.5	9.2	6.1	4.7	3.1	40.6	28.4	30.8	21.5	16.7	11.7	8.7	6.0	71.4	51.4	53.6	38.6	28.5	20.4	14.6	10.5	113.3	82.9	83.5	60.9	42.8	31.1	21.6	15.6
2.4	22.4	15.0	16.8	11.2	8.9	5.9	4.4	2.9	39.8	27.9	30.0	21.0	16.1	11.2	8.2	5.7	69.7	50.2	51.9	37.3	27.1	19.4	13.8	9.8	109.8	80.3	80.2	58.5	40.4	29.4	20.1	14.6
2.5	22.0	14.7	16.4	11.0	8.5	5.6	4.2	2.7	39.0	27.3	29.2	20.4	15.4	10.7	7.8	5.4	67.9	48.9	50.2	36.1	25.8	18.5	12.9	9.2	106.3	77.7	77.0	56.2	38.2	27.8	18.8	13.6
2.6	21.6	14.4	16.0	10.7	8.2	5.4	3.9	2.6	38.2	26.8	28.4	19.9	14.7	10.2	7.3	5.1	66.2	47.6	48.5	34.9	24.6	17.6	12.1	8.7	102.9	75.2	73.9	53.9	36.1	26.2	17.6	12.8
2.7	21.1	14.2	15.6	10.4	7.8	5.2	3.7	2.4	37.4	26.2	27.6	19.3	14.1	9.8	6.9	4.8	64.4	46.3	46.9	33.7	23.4	16.7	11.4	8.1	99.4	72.6	70.8	51.6	34.1	24.8	16.5	12.0
2.8	20.7	13.8	15.1	10.1	7.5	5.0	3.5	2.3	36.6	25.6	26.8	18.7	13.5	9.4	6.5	4.5	62.6	45.0	45.2	32.5	22.2	15.9	10.8	7.7	96.1	70.2	67.9	49.5	32.3	23.5	15.5	11.2
2.9	20.3	13.5	14.7	9.8	7.2	4.7	3.3	2.2	35.8	25.0	26.0	18.2	12.9	9.0	6.2	4.3	60.9	43.8	43.6	31.3	21.2	15.1	10.1	7.2	92.7	67.7	65.0	47.4	30.6	22.2	14.5	10.5
3.0	19.8	13.2	14.3	9.5	6.9	4.5	3.1	2.0	34.9	24.4	25.3	17.6	12.4	8.6	5.8	4.0	59.1	42.5	42.1	30.2	20.1	14.4	9.5	6.8	89.5	65.3	62.3	45.4	28.9	21.0	13.6	9.9
3.1	19.4	12.9	13.9	9.2	6.6	4.3	2.9		34.1	23.8	24.5	17.1	11.8	8.2	5.5	3.8	57.4	41.2	40.5	29.1	19.2	13.7	9.0	6.4	86.3	63.0	59.7	43.5	27.4	19.9	12.8	9.3
3.2	18.9	12.6	13.5	8.9	6.3	4.1	2.8		33.2	23.2	23.7	16.5	11.3	7.8	5.2	3.6	55.7	40.0	39.1	28.0	18.2	13.0	8.5	6.1	83.2	60.7	57.1	41.7	26.0	18.9	12.1	8.8
3.3	18.5	12.3	13.1	8.7	6.0	3.9	2.6		32.4	22.6	23.0	16.0	10.8	7.5	4.9	3.4	54.0	38.8	37.6	27.0	17.4	12.4	8.0	5.7	80.2	58.5	54.7	39.9	24.7	17.9	11.4	8.3
3.4	18.0	12.0	12.7	8.4	5.7	3.8	2.4		31.6	22.0	22.2	15.5	10.3	7.1	4.7	3.2	52.3	37.6	36.2	26.0	16.5	11.8	7.6	5.4	77.3	56.4	52.4	38.2	23.4	17.0	10.8	7.8
3.5	17.6	11.7	12.3	8.1	5.5	3.6	2.3		30.7	21.4	21.5	15.0	9.9	6.8	4.4	3.0	50.7	36.4	34.9	25.0	15.8	11.3	7.2	5.1	74.5	54.4	50.3	36.6	22.3	16.2	10.2	7.4
3.6	17.1	11.4	11.9	7.9	5.2	3.4	2.2		29.9	20.9	20.8	14.5	9.4	6.5	4.2	2.8	49.1	35.2	33.6	24.1	15.0	10.7	6.8	4.8	71.8	52.4	48.2	35.1	21.2	15.4	9.6	7.0
3.7	16.7	11.1	11.5	7.6	5.0	3.3	2.0		29.1	20.3	20.1	14.0	9.0	6.2	3.9	2.7	47.5	34.1	32.3	23.2	14.3	10.2	6.4	4.6	69.2	50.5	46.2	33.6	20.1	14.6	9.1	6.6
3.8	16.3	10.8	11.1	7.3	4.8	3.1			28.3	19.7	19.4	13.5	8.6	5.9	3.7	2.5	46.0	33.0	31.1	22.3	13.7	9.8	6.1	4.3	66.6	48.6	44.3	32.3	19.2	13.9	8.6	6.2
3.9	15.8	10.5	10.7	7.1	4.5	2.9			27.5	19.2	18.8	13.0	8.2	5.7	3.5	2.4	44.5	32.0	30.0	21.5	13.1	9.3	5.8	4.1	64.2	46.8	42.5	31.0	18.3	13.3	8.2	5.9
4.0	15.4	10.2	10.4	6.8	4.3	2.8			26.8	18.6	18.2	12.6	7.9	5.4	3.3	2.3	43.1	30.9	28.8	20.7	12.5	8.9	5.5	3.9	61.9	45.1	40.8	29.7	17.4	12.7	7.7	5.6
4.1	15.0	9.9	10.0	6.6	4.1	2.7			26.0	18.1	17.5	12.2	7.5	5.2	3.2	2.1	41.7	29.9	27.8	19.9	11.9	8.5	5.2	3.7	59.6	43.5	39.1	28.5	16.6	12.1	7.4	5.3
4.2	14.6	9.6	9.7	6.4	3.9	2.5			25.3	17.6	16.9	11.7	7.2	4.9	3.0	2.0	40.4	29.0	26.8	19.2	11.4	8.1	4.9	3.5	57.5	41.9	37.6	27.4	15.9	11.5	7.0	5.1
4.3	14.2	9.3	9.4	6.1	3.7	2.4			24.5	17.1	16.4	11.3	6.9	4.7	2.8		39.1	28.0	25.8	18.4	10.9	7.8	4.7	3.3	55.4	40.4	36.1	26.3	15.2	11.0	6.6	4.8
4.4	13.8	9.1	9.0	5.9	3.6	2.3			23.8	16.5	15.8	10.9	6.6	4.5	2.7		37.8	27.1	24.8	17.8	10.4	7.4	4.4	3.1	53.5	39.0	34.7	25.3	14.5	10.5	6.3	4.6
4.5	13.4	8.8	8.7	5.7	3.4	2.2			23.1	16.1	15.3	10.6	6.3	4.3	2.5		36.6	26.2	23.9	17.1	9.9	7.1	4.2	3.0	51.6	37.6	33.3	24.3	13.8	10.1	6.0	4.3
4.6	13.0	8.5	8.4	5.5	3.2	2.0			22.5	15.6	14.7	10.2	6.0	4.1	2.4		35.4	25.4	23.0	16.5	9.5	6.8	4.0	2.8	49.8	36.3	32.1	23.4	13.2	9.6	5.7	4.1
4.7	12.6	8.3	8.1	5.3	3.1				21.8	15.1	14.2	9.8	5.7	3.9	2.2		34.3	24.6	22.2	15.9	9.1	6.5	3.8	2.7	48.0	35.0	30.9	22.5	12.7	9.2	5.4	3.9
4.8	12.2	8.0	7.8	5.1	2.9				21.2	14.7	13.7	9.5	5.5	3.7	2.1		33.2	23.8	21.4	15.3	8.7	6.2	3.6	2.5	46.4	33.8	29.7	21.6	12.1	8.8	5.2	3.7
4.9	11.8	7.8	7.5	4.9	2.8				20.5	14.2	13.3	9.2	5.3	3.6			32.1	23.0	20.7	14.8	8.3	5.9	3.4	2.4	44.8	32.6	28.6	20.8	11.6	8.4	4.9	3.6
5.0	11.5	7.5	7.3	4.7	2.6				19.9	13.8	12.8	8.8	5.0	3.4			31.1	22.2	19.9	14.2	8.0	5.7	3.2	2.3	43.2	31.5	27.5	20.0	11.1	8.1	4.7	3.4
5.1	11.1	7.3	7.0	4.5	2.5				19.3	13.4	12.4	8.5	4.8	3.3			30.1	21.5	19.2	13.7	7.7	5.4	3.1	2.2	41.8	30.5	26.5	19.3	10.7	7.8	4.5	3.2
5.2	10.8	7.0	6.7	4.3	2.3				18.7	13.0	11.9	8.2	4.6	3.1			29.1	20.8	18.5	13.2	7.3	5.2	2.9	2.1	40.4	29.4	25.6	18.6	10.2	7.4	4.3	3.1
5.3	10.5	6.8	6.5	4.2	2.2				18.2	12.6	11.5	7.9	4.4	3.0			28.2	20.2	17.9	12.8	7.0	5.0	2.8		39.0	28.4	24.6	17.9	9.8	7.1	4.1	2.9
5.4	10.1	6.6	6.3	4.0	2.1				17.6	12.2	11.1	7.7	4.2	2.8			27.3	19.5	17.3	12.3	6.7	4.8	2.6		37.7	27.5	23.8	17.3	9.4	6.8	3.9	2.8
5.5	9.8	6.4	6.0	3.8					17.1	11.8	10.8	7.4	4.0	2.7			26.4	18.9	16.7	11.9	6.5	4.6	2.5		36.5	26.6	22.9	16.7	9.1	6.6	3.7	2.7
5.6	9.5	6.1	5.8	3.7					16.6	11.4	10.4	7.1	3.8	2.6			25.6	18.3	16.1	11.5	6.2	4.4	2.4		35.3	25.7	22.1	16.1	8.7	6.3	3.5	2.5
5.7	9.2	5.9	5.6	3.5					16.1	11.1	10.0	6.9	3.6	2.4			24.8	17.7	15.5	11.1	5.9	4.2	2.3		34.2	24.9	21.4	15.5	8.3	6.0	3.4	2.4
5.8	8.9	5.7	5.3	3.4					15.6	10.7	9.7	6.6	3.5	2.3			24.0	17.2	15.0	10.7	5.7	4.0	2.1		33.1	24.1	20.6	15.0	8.0	5.8	3.2	2.3
5.9	8.6	5.5	5.1	3.2					15.1	10.4	9.3	6.4	3.3	2.2			23.3	16.7	14.5	10.3	5.5	3.9	2.0		32.0	23.3	19.9	14.5	7.7	5.6	3.1	2.2
6.0	8.3	5.3	4.9	3.1					14.7	10.1	9.0	6.2	3.2	2.1			22.6	16.1	14.0	10.0	5.2	3.7			31.0	22.6	19.3	14.0	7.4	5.4	2.9	2.1

- These tables should be read in conjunction with Sections A5, A6 & A8 and notes on pages C3.1 - C3.3

C. Design Tables — Timber Stud - **Charfactor 15**

Load Bearing Walls - Axial Load Capacity in kN/stud

Note: Where design requirements are for the following sizes:- 100x50 - build in this size using 90x45 height / load data; 100x38 - build in this size using 90x35 height / load data; 75x50 - build in this size using 70x45 height / load data.

Wall Height (mm)	Timber Stress Grade **F5** — Stud size (mmxmm)								Timber Stress Grade **F8** — Stud size (mmxmm)								Timber Stress Grade **F14** — Stud size (mmxmm)								Timber Stress Grade **F22** — Stud size (mmxmm)							
	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35
2.0	22.6	14.9	17.2	11.4	9.5	6.3	5.0	3.2	41.0	28.4	31.5	21.9	17.8	12.3	9.6	6.6	73.9	52.9	56.6	40.4	31.4	22.4	16.8	11.9	120.3	87.6	90.9	66.1	48.9	35.4	25.6	18.4
2.1	22.2	14.7	16.9	11.1	9.2	6.0	4.7	3.1	40.3	27.9	30.8	21.3	17.1	11.8	9.1	6.2	72.3	51.8	55.0	39.3	30.0	21.4	15.8	11.2	117.0	85.2	87.6	63.6	46.3	33.5	23.8	17.2
2.2	21.9	14.4	16.5	10.9	8.9	5.8	4.5	2.9	39.6	27.4	30.1	20.8	16.4	11.3	8.6	5.9	70.7	50.6	53.3	38.1	28.6	20.4	14.8	10.5	113.7	82.7	84.3.	61.2	43.7	31.6	22.2	16.0
2.3	21.5	14.2	16.1	10.6	8.5	5.6	4.2	2.7	38.8	26.9	29.3	20.3	15.8	10.9	8.1	5.5	69.0	49.4	51.7	36.9	27.2	19.4	13.9	9.8	110.3	80.2	81.0	58.9	41.3	29.9	20.7	14.9
2.4	21.1	13.9	15.7	10.3	8.2	5.3	4.0	2.6	38.1	26.4	28.6	19.8	15.1	10.4	7.6	5.2	67.3	48.2	50.0	35.7	25.9	18.4	13.0	9.2	106.9	77.7	77.9	56.5	39.0	28.2	19.3	13.9
2.5	20.7	13.6	15.3	10.1	7.9	5.1	3.8	2.4	37.3	25.8	27.8	19.2	14.5	10.0	7.2	4.9	65.6	46.9	48.4	34.5	24.7	17.6	12.3	8.7	103.5	75.2	74.7	54.2	36.9	26.7	18.1	13.0
2.6	20.3	13.4	14.9	9.8	7.5	4.9	3.6	2.3	36.5	25.3	27.0	18.7	13.9	9.5	6.8	4.7	63.9	45.7	46.7	33.3	23.5	16.7	11.5	8.2	100.1	72.8	71.7	52.0	34.9	25.2	16.9	12.2
2.7	19.9	13.1	14.5	9.5	7.2	4.7	3.4	2.1	35.7	24.7	26.3	18.1	13.3	9.1	6.4	4.4	62.2	44.5	45.1	32.2	22.3	15.9	10.8	7.7	96.7	70.3	68.7	49.9	33.0	23.8	15.8	11.4
2.8	19.5	12.8	14.1	9.3	6.9	4.5	3.2	2.0	34.9	24.2	25.5	17.6	12.7	8.7	6.1	4.1	60.5	43.2	43.6	31.1	21.3	15.1	10.2	7.2	93.4	67.9	65.9	47.8	31.2	22.6	14.8	10.7
2.9	19.0	12.5	13.7	9.0	6.6	4.3	3.0		34.1	23.6	24.8	17.1	12.2	8.3	5.7	3.9	58.8	42.0	42.0	30.0	20.2	14.4	9.6	6.8	90.2	65.5	63.1	45.8	29.5	21.3	13.9	10.1
3.0	18.6	12.2	13.3	8.7	6.3	4.1	2.8		33.3	23.0	24.0	16.6	11.6	8.0	5.4	3.7	57.1	40.8	40.5	28.9	19.2	13.7	9.1	6.4	87.0	63.2	60.5	43.9	27.9	20.2	13.1	9.4
3.1	18.2	11.9	13.0	8.5	6.0	3.9	2.6		32.5	22.5	23.3	16.0	11.1	7.6	5.1	3.5	55.4	39.6	39.0	27.8	18.3	13.0	8.5	6.0	83.9	61.0	57.9	42.0	26.5	19.2	12.3	8.9
3.2	17.8	11.6	12.6	8.2	5.8	3.7	2.5		31.7	21.9	22.5	15.5	10.6	7.3	4.8	3.3	53.7	38.4	37.6	26.8	17.4	12.4	8.1	5.7	80.9	58.8	55.5	40.2	25.1	18.2	11.6	8.4
3.3	17.3	11.3	12.2	7.9	5.5	3.5	2.3		30.9	21.3	21.8	15.0	10.1	6.9	4.6	3.1	52.1	37.2	36.2	25.8	16.6	11.8	7.6	5.4	78.0	56.7	53.1	38.5	23.8	17.2	10.9	7.9
3.4	16.9	11.1	11.8	7.7	5.3	3.4	2.2		30.1	20.8	21.1	14.5	9.7	6.6	4.3	2.9	50.5	36.0	34.9	24.8	15.8	11.2	7.2	5.1	75.2	54.6	50.9	36.9	22.6	16.4	10.3	7.4
3.5	16.5	10.8	11.4	7.4	5.0	3.2	2.1		29.3	20.2	20.4	14.0	9.3	6.3	4.1	2.8	48.9	34.9	33.6	23.9	15.1	10.7	6.8	4.8	72.5	52.6	48.8	35.4	21.5	15.6	9.8	7.0
3.6	16.1	10.5	11.1	7.2	4.8	3.1			28.5	19.7	19.8	13.6	8.9	6.0	3.9	2.6	47.4	33.8	32.3	23.0	14.4	10.2	6.4	4.5	69.8	50.7	46.8	33.9	20.4	14.8	9.2	6.7
3.7	15.7	10.2	10.7	6.9	4.6	2.9			27.8	19.1	19.1	13.1	8.5	5.8	3.6	2.5	45.9	32.7	31.1	22.1	13.7	9.7	6.1	4.3	67.3	48.8	44.8	32.5	19.5	14.1	8.7	6.3
3.8	15.2	9.9	10.3	6.7	4.4	2.8			27.0	18.6	18.5	12.7	8.1	5.5	3.4	2.3	44.4	31.7	30.0	21.3	13.1	9.3	5.8	4.1	64.8	47.1	43.0	31.2	18.5	13.4	8.3	6.0
3.9	14.8	9.6	10.0	6.5	4.2	2.6			26.3	18.1	17.8	12.2	7.7	5.3	3.3	2.2	43.0	30.7	28.8	20.5	12.5	8.8	5.5	3.8	62.5	45.3	41.2	29.9	17.7	12.8	7.8	5.6
4.0	14.4	9.4	9.7	6.2	4.0	2.5			25.5	17.6	17.2	11.8	7.4	5.0	3.1	2.1	41.6	29.7	27.8	19.7	11.9	8.4	5.2	3.6	60.2	43.7	39.6	28.7	16.8	12.2	7.4	5.4
4.1	14.0	9.1	9.3	6.0	3.8	2.4			24.8	17.0	16.6	11.4	7.1	4.8	2.9		40.3	28.7	26.7	19.0	11.4	8.1	4.9	3.4	58.0	42.1	38.0	27.5	16.1	11.6	7.0	5.1
4.2	13.6	8.8	9.0	5.8	3.6	2.2			24.1	16.6	16.1	11.0	6.7	4.6	2.7		39.0	27.8	25.7	18.3	10.9	7.7	4.6	3.3	55.9	40.6	36.5	26.4	15.3	11.1	6.7	4.8
4.3	13.2	8.6	8.7	5.6	3.4	2.1			23.4	16.1	15.5	10.6	6.4	4.4	2.6		37.7	26.9	24.8	17.6	10.4	7.3	4.4	3.1	53.9	39.1	35.0	25.4	14.6	10.6	6.4	4.6
4.4	12.9	8.3	8.4	5.4	3.2	2.0			22.7	15.6	15.0	10.3	6.2	4.2	2.4		36.5	26.0	23.9	17.0	9.9	7.0	4.2	2.9	52.0	37.8	33.7	24.4	14.0	10.1	6.0	4.3
4.5	12.5	8.1	8.1	5.2	3.1				22.0	15.1	14.5	9.9	5.9	4.0	2.3		35.3	25.1	23.0	16.4	9.5	6.7	4.0	2.8	50.2	36.4	32.4	23.5	13.4	9.7	5.7	4.1
4.6	12.1	7.8	7.8	5.0	2.9				21.4	14.7	14.0	9.6	5.6	3.8	2.2		34.2	24.3	22.2	15.8	9.1	6.4	3.8	2.6	48.4	35.1	31.1	22.6	12.8	9.2	5.5	3.9
4.7	11.8	7.6	7.5	4.8	2.8				20.8	14.2	13.5	9.2	5.4	3.6	2.0		33.1	23.5	21.4	15.2	8.7	6.1	3.6	2.5	46.7	33.9	29.9	21.7	12.2	8.8	5.2	3.7
4.8	11.4	7.3	7.2	4.6	2.6				20.1	13.8	13.0	8.9	5.1	3.5			32.0	22.8	20.6	14.6	8.3	5.9	3.4	2.4	45.1	32.7	28.8	20.9	11.7	8.5	4.9	3.6
4.9	11.1	7.1	7.0	4.4	2.5				19.5	13.4	12.6	8.6	4.9	3.3			31.0	22.0	19.9	14.1	8.0	5.6	3.2	2.2	43.6	31.6	27.7	20.1	11.2	8.1	4.7	3.4
5.0	10.7	6.9	6.7	4.2	2.3				19.0	13.0	12.1	8.3	4.7	3.1			30.0	21.3	19.2	13.6	7.6	5.4	3.1	2.1	42.1	30.5	26.7	19.4	10.7	7.8	4.5	3.2
5.1	10.4	6.6	6.5	4.1	2.2				18.4	12.6	11.7	8.0	4.5	3.0			29.0	20.6	18.5	13.1	7.3	5.1	2.9	2.0	40.6	29.5	25.7	18.6	10.3	7.4	4.3	3.1
5.2	10.1	6.4	6.2	3.9	2.1				17.8	12.2	11.3	7.7	4.3	2.9			28.1	20.0	17.8	12.6	7.0	4.9	2.8		39.3	28.5	24.8	18.0	9.9	7.1	4.1	2.9
5.3	9.7	6.2	6.0	3.8					17.3	11.8	10.9	7.4	4.1	2.7			27.2	19.3	17.2	12.2	6.7	4.7	2.6		38.0	27.5	23.9	17.3	9.5	6.8	3.9	2.8
5.4	9.4	6.0	5.8	3.6					16.8	11.4	10.5	7.1	3.9	2.6			26.3	18.7	16.6	11.8	6.4	4.5	2.5		36.7	26.6	23.1	16.7	9.1	6.6	3.7	2.6
5.5	9.1	5.8	5.5	3.4					16.3	11.1	10.2	6.9	3.7	2.5			25.5	18.1	16.0	11.3	6.2	4.3	2.3		35.5	25.7	22.3	16.1	8.7	6.3	3.5	2.5
5.6	8.8	5.6	5.3	3.3					15.8	10.7	9.8	6.6	3.5	2.3			24.7	17.5	15.5	10.9	5.9	4.1	2.2		34.3	24.9	21.5	15.5	8.4	6.0	3.4	2.4
5.7	8.6	5.4	5.1	3.2					15.3	10.4	9.5	6.4	3.4	2.2			23.9	17.0	14.9	10.6	5.7	4.0	2.1		33.2	24.1	20.7	15.0	8.0	5.8	3.2	2.3
5.8	8.3	5.2	4.9	3.0					14.8	10.1	9.1	6.2	3.2	2.1			23.2	16.5	14.4	10.2	5.4	3.8			32.2	23.3	20.0	14.5	7.7	5.5	3.0	2.2
5.9	8.0	5.0	4.7	2.9					14.4	9.8	8.8	5.9	3.1	2.0			22.5	15.9	13.9	9.8	5.2	3.6			31.1	22.6	19.3	14.0	7.4	5.3	2.9	2.1
6.0	7.7	4.8	4.5	2.8					13.9	9.5	8.5	5.7	2.9				21.8	15.4	13.5	9.5	5.0	3.5			30.2	21.8	18.7	13.5	7.1	5.1	2.8	

• These tables should be read in conjunction with Sections A5, A6 & A8 and notes on pages C3.1 - C3.3

C. Design Tables

Timber Stud - **Charfactor 18**

Load Bearing Walls - Axial Load Capacity in kN/stud

Note: Where design requirements are for the following sizes:- 100x50 - build in this size using 90x45 height / load data; 100x38 - build in this size using 90x35 height / load data; 75x50 - build in this size using 70x45 height / load data.

Wall Height (mm)	Timber Stress Grade **F5**								Timber Stress Grade **F8**								Timber Stress Grade **F14**								Timber Stress Grade **F22**							
	Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)							
	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35
2.0	18.7	11.6	14.1	8.7	7.5	4.6	3.7	2.2	35.7	23.9	27.1	18.1	14.8	9.9	7.7	5.1	66.6	46.7	50.6	35.3	27.5	19.1	14.3	9.9	110.8	79.4	83.0	59.4	44.0	31.3	22.5	16.0
2.1	18.4	11.4	13.7	8.5	7.2	4.4	3.5	2.1	35.1	23.5	26.5	17.7	14.3	9.5	7.3	4.8	65.2	45.6	49.1	34.3	26.2	18.2	13.4	9.3	107.7	77.2	80.0	57.2	41.6	29.6	21.0	14.9
2.2	18.1	11.2	13.4	8.3	6.9	4.2	3.3		34.4	23.0	25.8	17.3	13.7	9.1	6.9	4.5	63.7	44.6	47.6	33.2	25.0	17.4	12.6	8.7	104.6	74.9	77.0	55.0	39.3	28.0	19.6	13.9
2.3	17.8	11.0	13.1	8.1	6.6	4.1	3.1		33.8	22.6	25.2	16.8	13.1	8.7	6.5	4.3	62.2	43.5	46.1	32.2	23.8	16.5	11.8	8.2	101.5	72.6	74.0	52.9	37.1	26.4	18.2	13.0
2.4	17.4	10.8	12.8	7.9	6.4	3.9	2.9		33.1	22.1	24.5	16.4	12.6	8.3	6.1	4.0	60.6	42.4	44.6	31.1	22.6	15.7	11.1	7.7	98.3	70.4	71.1	50.8	35.1	25.0	17.0	12.1
2.5	17.1	10.6	12.4	7.7	6.1	3.7	2.7		32.4	21.6	23.8	15.9	12.1	8.0	5.8	3.8	59.1	41.3	43.1	30.1	21.5	15.0	10.4	7.2	95.2	68.1	68.2	48.7	33.1	23.6	15.9	11.3
2.6	16.7	10.3	12.1	7.4	5.8	3.5	2.6		31.7	21.2	23.2	15.4	11.5	7.6	5.4	3.6	57.5	40.2	41.7	29.1	20.5	14.2	9.8	6.8	92.0	65.9	65.4	46.7	31.3	22.3	14.9	10.6
2.7	16.4	10.1	11.8	7.2	5.6	3.4	2.4		31.0	20.7	22.5	15.0	11.0	7.3	5.1	3.4	56.0	39.1	40.2	28.1	19.5	13.5	9.2	6.4	88.9	63.6	62.7	44.8	29.6	21.1	14.0	9.9
2.8	16.0	9.9	11.4	7.0	5.3	3.2	2.3		30.3	20.2	21.8	14.5	10.5	7.0	4.8	3.2	54.4	38.0	38.8	27.1	18.5	12.9	8.7	6.0	85.9	61.4	60.1	42.9	28.0	19.9	13.1	9.3
2.9	15.7	9.6	11.1	6.8	5.1	3.1	2.1		29.6	19.7	21.2	14.1	10.1	6.7	4.6	3.0	52.9	36.9	37.4	26.1	17.6	12.2	8.2	5.6	82.9	59.3	57.6	41.1	26.5	18.9	12.3	8.7
3.0	15.3	9.4	10.8	6.6	4.9	2.9			28.9	19.2	20.5	13.6	9.6	6.4	4.3	2.8	51.3	35.8	36.1	25.1	16.8	11.6	7.7	5.3	80.0	57.2	55.2	39.4	25.1	17.9	11.5	8.2
3.1	14.9	9.2	10.4	6.4	4.6	2.8			28.2	18.8	19.9	13.2	9.2	6.1	4.1	2.6	49.8	34.8	34.8	24.2	16.0	11.1	7.2	5.0	77.2	55.2	52.9	37.7	23.8	16.9	10.9	7.7
3.2	14.6	8.9	10.1	6.2	4.4	2.6			27.5	18.3	19.3	12.8	8.8	5.8	3.8	2.5	48.3	33.7	33.5	23.3	15.2	10.5	6.8	4.7	74.4	53.2	50.6	36.1	22.6	16.1	10.2	7.3
3.3	14.2	8.7	9.8	5.9	4.2	2.5			26.7	17.8	18.6	12.4	8.4	5.5	3.6	2.3	46.8	32.7	32.2	22.5	14.5	10.0	6.4	4.4	71.7	51.3	48.5	34.6	21.4	15.2	9.6	6.8
3.4	13.8	8.5	9.5	5.7	4.0	2.4			26.0	17.3	18.0	11.9	8.0	5.3	3.4	2.2	45.4	31.7	31.1	21.6	13.8	9.6	6.1	4.2	69.1	49.4	46.5	33.2	20.3	14.5	9.1	6.5
3.5	13.5	8.2	9.2	5.5	3.8	2.2			25.4	16.8	17.4	11.5	7.6	5.0	3.2	2.1	44.0	30.7	29.9	20.8	13.1	9.1	5.7	4.0	66.6	47.6	44.5	31.8	19.3	13.8	8.6	6.1
3.6	13.1	8.0	8.8	5.3	3.6	2.1			24.7	16.4	16.8	11.1	7.3	4.8	3.0		42.6	29.7	28.8	20.0	12.5	8.7	5.4	3.7	64.2	45.9	42.7	30.5	18.4	13.1	8.1	5.8
3.7	12.8	7.8	8.5	5.1	3.4	2.0			24.0	15.9	16.3	10.8	7.0	4.6	2.8		41.2	28.7	27.7	19.3	11.9	8.3	5.1	3.5	61.8	44.2	40.9	29.2	17.5	12.4	7.7	5.4
3.8	12.4	7.5	8.3	5.0	3.3				23.3	15.5	15.7	10.4	6.6	4.3	2.7		39.9	27.8	26.7	18.5	11.4	7.9	4.9	3.3	59.6	42.6	39.3	28.0	16.6	11.8	7.3	5.1
3.9	12.1	7.3	8.0	4.8	3.1				22.7	15.0	15.2	10.0	6.3	4.1	2.5		38.6	26.9	25.7	17.8	10.9	7.5	4.6	3.2	57.4	41.0	37.7	26.9	15.9	11.3	6.9	4.9
4.0	11.7	7.1	7.7	4.6	2.9				22.0	14.6	14.7	9.7	6.1	3.9	2.4		37.4	26.0	24.7	17.2	10.4	7.2	4.3	3.0	55.4	39.5	36.1	25.8	15.1	10.7	6.5	4.6
4.1	11.4	6.9	7.4	4.4	2.8				21.4	14.1	14.2	9.3	5.8	3.8	2.2		36.2	25.2	23.8	16.5	9.9	6.8	4.1	2.8	53.4	38.1	34.7	24.7	14.4	10.2	6.2	4.4
4.2	11.1	6.7	7.1	4.2	2.6				20.8	13.7	13.7	9.0	5.5	3.6	2.1		35.0	24.4	22.9	15.9	9.4	6.5	3.9	2.7	51.4	36.7	33.3	23.8	13.8	9.8	5.9	4.1
4.3	10.7	6.4	6.9	4.1	2.5				20.1	13.3	13.2	8.7	5.3	3.4			33.9	23.6	22.1	15.3	9.0	6.2	3.7	2.5	49.6	35.4	32.0	22.8	13.1	9.3	5.6	3.9
4.4	10.4	6.2	6.6	3.9	2.4				19.6	12.9	12.7	8.4	5.0	3.2			32.8	22.8	21.2	14.7	8.6	5.9	3.5	2.4	47.8	34.2	30.8	21.9	12.5	8.9	5.3	3.7
4.5	10.1	6.0	6.4	3.7	2.2				19.0	12.5	12.3	8.1	4.8	3.1			31.7	22.0	20.5	14.2	8.2	5.7	3.3	2.2	46.1	32.9	29.6	21.1	12.0	8.5	5.0	3.5
4.6	9.8	5.8	6.1	3.6	2.1				18.4	12.1	11.9	7.8	4.6	2.9			30.7	21.3	19.7	13.7	7.9	5.4	3.1	2.1	44.5	31.8	28.4	20.3	11.5	8.1	4.8	3.4
4.7	9.5	5.6	5.9	3.4					17.9	11.8	11.4	7.5	4.4	2.8			29.7	20.6	19.0	13.2	7.5	5.2	3.0	2.0	43.0	30.7	27.3	19.5	11.0	7.8	4.5	3.2
4.8	9.2	5.4	5.7	3.3					17.3	11.4	11.0	7.2	4.2	2.7			28.7	19.9	18.3	12.7	7.2	4.9	2.8		41.5	29.6	26.3	18.7	10.5	7.4	4.3	3.0
4.9	8.9	5.3	5.4	3.2					16.8	11.0	10.6	6.9	4.0	2.5			27.8	19.3	17.6	12.2	6.9	4.7	2.7		40.1	28.6	25.3	18.0	10.0	7.1	4.1	2.9
5.0	8.6	5.1	5.2	3.0					16.3	10.7	10.3	6.7	3.8	2.4			26.9	18.7	17.0	11.8	6.6	4.5	2.5		38.7	27.6	24.4	17.4	9.6	6.8	3.9	2.7
5.1	8.3	4.9	5.0	2.9					15.8	10.4	9.9	6.4	3.6	2.3			26.0	18.1	16.4	11.3	6.3	4.3	2.4		37.4	26.7	23.5	16.7	9.2	6.5	3.7	2.6
5.2	8.0	4.7	4.8	2.7					15.3	10.0	9.5	6.2	3.4	2.2			25.2	17.5	15.8	10.9	6.0	4.1	2.3		36.1	25.8	22.6	16.1	8.8	6.3	3.5	2.5
5.3	7.8	4.5	4.6	2.6					14.8	9.7	9.2	6.0	3.3	2.0			24.4	16.9	15.3	10.5	5.8	3.9	2.1		34.9	24.9	21.8	15.5	8.5	6.0	3.4	2.3
5.4	7.5	4.4	4.4	2.5					14.4	9.4	8.9	5.7	3.1				23.6	16.4	14.7	10.2	5.5	3.8	2.0		33.7	24.1	21.0	15.0	8.1	5.7	3.2	2.2
5.5	7.3	4.2	4.2	2.4					13.9	9.1	8.6	5.5	2.9				22.9	15.8	14.2	9.8	5.3	3.6			32.6	23.3	20.3	14.4	7.8	5.5	3.0	2.1
5.6	7.0	4.0	4.1	2.2					13.5	8.8	8.2	5.3	2.8				22.1	15.3	13.7	9.5	5.1	3.4			31.6	22.5	19.6	13.9	7.5	5.3	2.9	2.0
5.7	6.8	3.9	3.9	2.1					13.1	8.5	7.9	5.1	2.7				21.4	14.8	13.2	9.1	4.8	3.3			30.5	21.8	18.9	13.4	7.2	5.1	2.7	
5.8	6.5	3.7	3.7	2.0					12.7	8.2	7.7	4.9	2.5				20.8	14.4	12.8	8.8	4.6	3.1			29.6	21.1	18.2	13.0	6.9	4.8	2.6	
5.9	6.3	3.6	3.5						12.3	8.0	7.4	4.7	2.4				20.1	13.9	12.3	8.5	4.4	3.0			28.6	20.4	17.6	12.5	6.6	4.6	2.5	
6.0	6.1	3.4	3.4						11.9	7.7	7.1	4.6	2.3				19.5	13.5	11.9	8.2	4.2	2.9			27.7	19.7	17.0	12.1	6.3	4.5	2.4	

• These tables should be read in conjunction with Sections A5, A6 & A8 and notes on pages C3.1 - C3.3

C. Design Tables — Timber Stud - **Charfactor 21**

Load Bearing Walls - Axial Load Capacity in kN/stud

Note: Where design requirements are for the following sizes:- 100x50 - build in this size using 90x45 height / load data; 100x38 - build in this size using 90x35 height / load data; 75x50 - build in this size using 70x45 height / load data.

Wall Height (mm)	Timber Stress Grade **F5**								Timber Stress Grade **F8**								Timber Stress Grade **F14**								Timber Stress Grade **F22**							
	Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)							
	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35
2.0	15.3	8.7	11.3	6.4	5.7	3.2	2.7		30.9	19.8	23.2	14.8	12.3	7.8	6.1	3.9	59.9	40.9	45.0	30.7	23.9	16.2	12.1	8.2	101.9	71.7	75.7	53.2	39.4	27.6	19.8	13.8
2.1	15.0	8.6	11.0	6.3	5.5	3.1	2.5		30.3	19.4	22.6	14.5	11.8	7.5	5.8	3.6	58.6	40.0	43.7	29.8	22.8	15.5	11.4	7.7	99.0	69.7	73.0	51.3	37.3	26.1	18.5	12.9
2.2	14.7	8.4	10.8	6.1	5.3	2.9	2.4		29.7	19.0	22.0	14.1	11.3	7.2	5.5	3.4	57.2	39.0	42.3	28.8	21.7	14.7	10.7	7.2	96.1	67.6	70.2	49.3	35.2	24.6	17.2	12.0
2.3	14.5	8.2	10.5	5.9	5.1	2.8	2.2		29.1	18.7	21.5	13.7	10.8	6.9	5.1	3.2	55.8	38.1	41.0	27.9	20.7	14.0	10.0	6.8	93.2	65.6	67.5	47.4	33.3	23.3	16.0	11.2
2.4	14.2	8.1	10.2	5.8	4.8	2.7	2.1		28.6	18.3	20.9	13.3	10.4	6.6	4.8	3.0	54.4	37.1	39.7	27.0	19.7	13.3	9.4	6.3	90.3	63.5	64.8	45.5	31.4	22.0	15.0	10.4
2.5	13.9	7.9	9.9	5.6	4.6	2.6			27.9	17.9	20.3	12.9	9.9	6.3	4.6	2.9	53.0	36.1	38.3	26.1	18.7	12.7	8.8	5.9	87.4	61.4	62.2	43.6	29.7	20.8	14.0	9.8
2.6	13.6	7.7	9.6	5.4	4.4	2.4			27.3	17.5	19.7	12.6	9.5	6.0	4.3	2.7	51.6	35.2	37.0	25.2	17.8	12.1	8.3	5.6	84.5	59.4	59.6	41.9	28.1	19.6	13.1	9.1
2.7	13.3	7.5	9.4	5.3	4.2	2.3			26.7	17.1	19.1	12.2	9.1	5.7	4.0	2.5	50.2	34.2	35.7	24.3	16.9	11.5	7.8	5.2	81.6	57.4	57.2	40.1	26.6	18.6	12.3	8.5
2.8	13.0	7.3	9.1	5.1	4.0	2.2			26.1	16.6	18.6	11.8	8.7	5.5	3.8	2.4	48.8	33.2	34.5	23.4	16.1	10.9	7.3	4.9	78.8	55.4	54.8	38.4	25.1	17.6	11.5	8.0
2.9	12.7	7.1	8.8	4.9	3.8	2.1			25.5	16.2	18.0	11.4	8.3	5.2	3.6	2.2	47.4	32.3	33.2	22.6	15.3	10.4	6.9	4.6	76.1	53.5	52.5	36.8	23.8	16.6	10.8	7.5
3.0	12.4	6.9	8.5	4.7	3.6				24.8	15.8	17.4	11.1	7.9	5.0	3.4	2.1	46.0	31.3	32.0	21.7	14.6	9.8	6.5	4.4	73.4	51.6	50.3	35.3	22.5	15.7	10.1	7.1
3.1	12.1	6.8	8.2	4.6	3.5				24.2	15.4	16.9	10.7	7.5	4.7	3.2		44.6	30.4	30.9	20.9	13.9	9.4	6.1	4.1	70.8	49.7	48.2	33.8	21.3	14.9	9.5	6.6
3.2	11.7	6.6	8.0	4.4	3.3				23.6	15.0	16.3	10.3	7.2	4.5	3.0		43.3	29.4	29.7	20.2	13.2	8.9	5.8	3.9	68.3	47.9	46.2	32.4	20.2	14.1	9.0	6.2
3.3	11.4	6.4	7.7	4.2	3.1				23.0	14.6	15.8	10.0	6.9	4.3	2.8		41.9	28.5	28.6	19.4	12.6	8.5	5.4	3.6	65.8	46.2	44.2	31.0	19.2	13.4	8.5	5.9
3.4	11.1	6.2	7.4	4.1	2.9				22.4	14.2	15.3	9.6	6.5	4.1	2.6		40.6	27.6	27.5	18.7	12.0	8.1	5.1	3.4	63.4	44.5	42.4	29.7	18.2	12.7	8.0	5.5
3.5	10.8	6.0	7.2	3.9	2.8				21.8	13.8	14.7	9.3	6.2	3.9	2.5		39.4	26.7	26.5	18.0	11.4	7.7	4.8	3.2	61.1	42.9	40.6	28.5	17.3	12.1	7.5	5.2
3.6	10.5	5.8	6.9	3.8	2.6				21.1	13.4	14.2	9.0	5.9	3.7	2.3		38.1	25.9	25.5	17.3	10.8	7.3	4.6	3.0	58.9	41.3	38.9	27.3	16.5	11.5	7.1	4.9
3.7	10.2	5.6	6.7	3.6	2.5				20.6	13.0	13.8	8.7	5.7	3.5	2.2		36.9	25.0	24.6	16.6	10.3	6.9	4.3	2.9	56.7	39.8	37.3	26.1	15.7	10.9	6.7	4.7
3.8	9.9	5.5	6.4	3.5	2.4				20.0	12.6	13.3	8.4	5.4	3.3	2.0		35.7	24.2	23.6	16.0	9.8	6.6	4.1	2.7	54.7	38.4	35.8	25.1	14.9	10.4	6.4	4.4
3.9	9.6	5.3	6.2	3.3	2.2				19.4	12.3	12.8	8.1	5.1	3.2			34.6	23.4	22.7	15.4	9.4	6.3	3.8	2.5	52.7	37.0	34.3	24.0	14.2	9.9	6.0	4.2
4.0	9.4	5.1	6.0	3.2	2.1				18.8	11.9	12.4	7.8	4.9	3.0			33.4	22.7	21.9	14.8	9.0	6.0	3.6	2.4	50.8	35.6	32.9	23.1	13.5	9.4	5.7	3.9
4.1	9.1	4.9	5.7	3.1					18.3	11.5	11.9	7.5	4.7	2.9			32.4	21.9	21.1	14.2	8.5	5.7	3.4	2.3	49.0	34.3	31.6	22.1	12.9	9.0	5.4	3.7
4.2	8.8	4.8	5.5	2.9					17.7	11.2	11.5	7.2	4.4	2.7			31.3	21.2	20.3	13.7	8.2	5.5	3.2	2.1	47.2	33.1	30.4	21.2	12.3	8.6	5.1	3.5
4.3	8.5	4.6	5.3	2.8					17.2	10.8	11.1	6.9	4.2	2.6			30.3	20.5	19.5	13.2	7.8	5.2	3.1	2.0	45.5	31.9	29.2	20.4	11.7	8.2	4.9	3.4
4.4	8.2	4.4	5.1	2.7					16.7	10.5	10.7	6.7	4.0	2.4			29.3	19.8	18.8	12.7	7.4	5.0	2.9		43.9	30.8	28.0	19.6	11.2	7.8	4.6	3.2
4.5	8.0	4.3	4.9	2.5					16.2	10.2	10.3	6.4	3.8	2.3			28.3	19.2	18.1	12.2	7.1	4.7	2.7		42.3	29.7	26.9	18.8	10.7	7.5	4.4	3.0
4.6	7.7	4.1	4.7	2.4					15.7	9.8	9.9	6.2	3.6	2.2			27.4	18.5	17.4	11.8	6.8	4.5	2.6		40.8	28.6	25.9	18.1	10.2	7.1	4.1	2.9
4.7	7.5	4.0	4.5	2.3					15.2	9.5	9.6	5.9	3.5	2.1			26.5	17.9	16.8	11.3	6.5	4.3	2.4		39.4	27.6	24.9	17.4	9.8	6.8	3.9	2.7
4.8	7.2	3.8	4.3	2.2					14.7	9.2	9.2	5.7	3.3				25.7	17.3	16.2	10.9	6.2	4.1	2.3		38.1	26.7	24.0	16.8	9.4	6.5	3.7	2.6
4.9	7.0	3.7	4.1	2.1					14.3	8.9	8.9	5.5	3.1				24.8	16.8	15.6	10.5	5.9	3.9	2.2		36.7	25.7	23.1	16.1	9.0	6.2	3.5	2.4
5.0	6.7	3.5	3.9						13.8	8.6	8.6	5.3	3.0				24.0	16.2	15.0	10.1	5.6	3.7	2.0		35.5	24.8	22.2	15.5	8.6	6.0	3.4	2.3
5.1	6.5	3.4	3.8						13.4	8.3	8.3	5.1	2.8				23.2	15.7	14.5	9.7	5.4	3.6			34.3	24.0	21.4	14.9	8.2	5.7	3.2	2.2
5.2	6.3	3.2	3.6						13.0	8.1	8.0	4.9	2.7				22.5	15.2	14.0	9.4	5.1	3.4			33.1	23.2	20.6	14.4	7.9	5.4	3.0	2.1
5.3	6.0	3.1	3.4						12.6	7.8	7.7	4.7	2.5				21.8	14.7	13.5	9.0	4.9	3.2			32.0	22.4	19.9	13.9	7.5	5.2	2.9	
5.4	5.8	2.9	3.3						12.2	7.5	7.4	4.5	2.4				21.1	14.2	13.0	8.7	4.7	3.1			30.9	21.6	19.1	13.4	7.2	5.0	2.7	
5.5	5.6	2.8	3.1						11.8	7.3	7.1	4.3	2.3				20.4	13.7	12.5	8.4	4.5	2.9			29.9	20.9	18.5	12.9	6.9	4.8	2.6	
5.6	5.4	2.7	3.0						11.4	7.0	6.8	4.1	2.1				19.7	13.3	12.1	8.1	4.3	2.8			28.9	20.2	17.8	12.4	6.6	4.6	2.5	
5.7	5.2	2.6	2.8						11.0	6.8	6.6	4.0	2.0				19.1	12.8	11.6	7.8	4.1	2.7			28.0	19.6	17.2	12.0	6.4	4.4	2.3	
5.8	5.0	2.4	2.7						10.7	6.6	6.3	3.8					18.5	12.4	11.2	7.5	3.9	2.5			27.1	18.9	16.6	11.5	6.1	4.2	2.2	
5.9	4.8	2.3	2.5						10.3	6.3	6.1	3.6					17.9	12.0	10.8	7.2	3.7	2.4			26.2	18.3	16.0	11.1	5.8	4.0	2.1	
6.0	4.6	2.2	2.4						10.0	6.1	5.8	3.5					17.3	11.6	10.4	7.0	3.6	2.3			25.4	17.7	15.4	10.7	5.6	3.8		

• These tables should be read in conjunction with Sections A5, A6 & A8 and notes on pages C3.1 - C3.3

C. Design Tables — Timber Stud - **Charfactor 22**

Load Bearing Walls - Axial Load Capacity in kN/stud

Note: Where design requirements are for the following sizes:- 100x50 - build in this size using 90x45 height / load data; 100x38 - build in this size using 90x35 height / load data; 75x50 - build in this size using 70x45 height / load data.

Wall Height (mm)	Timber Stress Grade **F5**								Timber Stress Grade **F8**								Timber Stress Grade **F14**								Timber Stress Grade **F22**							
	Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)								Stud size (mmxmm)							
	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35	140x45	140x35	120x45	120x35	90x45	90x35	70x45	70x35
2.0	14.2	7.9	10.5	5.7	5.2	2.8	2.4		29.4	18.5	22.0	13.8	11.5	7.2	5.7	3.5	57.8	39.1	43.3	29.2	22.8	15.3	11.5	7.7	99.0	69.3	73.4	51.3	38.0	26.4	19.0	13.1
2.1	14.0	7.7	10.2	5.6	5.0	2.7	2.2		28.8	18.2	21.4	13.5	11.1	6.9	5.3	3.3	56.5	38.2	42.0	28.3	21.8	14.6	10.8	7.2	96.2	67.3	70.7	49.4	35.9	25.0	17.7	12.2
2.2	13.7	7.6	9.9	5.4	4.8	2.6	2.1		28.3	17.8	20.9	13.1	10.6	6.6	5.0	3.1	55.2	37.3	40.7	27.5	20.7	13.9	10.1	6.7	93.4	65.3	68.0	47.5	33.9	23.6	16.5	11.4
2.3	13.4	7.4	9.7	5.3	4.6	2.5			27.7	17.4	20.3	12.8	10.2	6.3	4.7	2.9	53.8	36.4	39.4	26.6	19.7	13.2	9.5	6.3	90.5	63.3	65.4	45.6	32.1	22.3	15.4	10.6
2.4	13.2	7.2	9.4	5.1	4.4	2.3			27.1	17.1	19.8	12.4	9.7	6.0	4.5	2.7	52.5	35.4	38.1	25.7	18.8	12.6	8.9	5.9	87.7	61.3	62.8	43.8	30.3	21.1	14.3	9.9
2.5	12.9	7.1	9.2	5.0	4.2	2.2			26.6	16.7	19.2	12.0	9.3	5.8	4.2	2.6	51.1	34.5	36.8	24.8	17.9	12.0	8.3	5.6	84.9	59.3	60.3	42.0	28.6	19.9	13.4	9.3
2.6	12.6	6.9	8.9	4.8	4.0	2.1			26.0	16.3	18.6	11.7	8.9	5.5	4.0	2.4	49.7	33.6	35.6	24.0	17.0	11.4	7.8	5.2	82.1	57.3	57.8	40.3	27.1	18.8	12.5	8.7
2.7	12.3	6.7	8.6	4.7	3.8				25.4	15.9	18.1	11.3	8.5	5.3	3.7	2.3	48.4	32.6	34.3	23.1	16.1	10.8	7.4	4.9	79.3	55.4	55.4	38.6	25.6	17.8	11.7	8.1
2.8	12.0	6.5	8.4	4.5	3.6				24.8	15.5	17.5	11.0	8.1	5.0	3.5	2.1	47.0	31.7	33.1	22.3	15.4	10.3	6.9	4.6	76.6	53.5	53.1	37.0	24.2	16.8	11.0	7.6
2.9	11.8	6.4	8.1	4.3	3.4				24.2	15.2	17.0	10.6	7.7	4.8	3.3		45.7	30.8	31.9	21.5	14.6	9.8	6.5	4.3	73.9	51.6	50.9	35.5	22.9	15.9	10.3	7.1
3.0	11.5	6.2	7.8	4.2	3.3				23.6	14.8	16.5	10.3	7.4	4.5	3.1		44.3	29.9	30.8	20.7	13.9	9.3	6.1	4.1	71.3	49.8	48.7	34.0	21.7	15.1	9.7	6.7
3.1	11.2	6.0	7.6	4.0	3.1				23.0	14.4	15.9	9.9	7.0	4.3	2.9		43.0	29.0	29.6	19.9	13.2	8.8	5.8	3.8	68.8	48.0	46.7	32.5	20.6	14.3	9.1	6.3
3.2	10.9	5.9	7.3	3.9	2.9				22.4	14.0	15.4	9.6	6.7	4.1	2.7		41.7	28.1	28.5	19.2	12.6	8.4	5.4	3.6	66.3	46.3	44.7	31.2	19.5	13.5	8.6	5.9
3.3	10.6	5.7	7.1	3.7	2.8				21.8	13.6	14.9	9.3	6.4	3.9	2.6		40.4	27.2	27.5	18.4	12.0	8.0	5.1	3.4	63.9	44.6	42.8	29.8	18.5	12.8	8.1	5.6
3.4	10.3	5.5	6.8	3.6	2.6				21.2	13.2	14.4	8.9	6.1	3.7	2.4		39.1	26.3	26.4	17.8	11.4	7.6	4.8	3.2	61.6	43.0	41.0	28.6	17.6	12.2	7.6	5.3
3.5	10.0	5.3	6.6	3.4	2.5				20.6	12.9	13.9	8.6	5.8	3.5	2.3		37.9	25.5	25.5	17.1	10.8	7.2	4.5	3.0	59.4	41.4	39.3	27.4	16.7	11.6	7.2	5.0
3.6	9.7	5.2	6.4	3.3	2.4				20.1	12.5	13.4	8.3	5.5	3.4	2.1		36.7	24.7	24.5	16.4	10.3	6.9	4.3	2.8	57.2	39.9	37.7	26.2	15.9	11.0	6.8	4.7
3.7	9.4	5.0	6.1	3.2	2.2				19.5	12.1	13.0	8.0	5.3	3.2			35.5	23.9	23.6	15.8	9.8	6.5	4.0	2.7	55.1	38.4	36.1	25.2	15.1	10.5	6.4	4.4
3.8	9.2	4.8	5.9	3.0	2.1				18.9	11.8	12.5	7.7	5.0	3.0			34.4	23.1	22.7	15.2	9.4	6.2	3.8	2.5	53.1	37.0	34.7	24.1	14.4	10.0	6.1	4.2
3.9	8.9	4.7	5.7	2.9					18.4	11.4	12.1	7.4	4.8	2.9			33.3	22.3	21.8	14.6	8.9	5.9	3.6	2.4	51.2	35.7	33.3	23.1	13.7	9.5	5.7	4.0
4.0	8.6	4.5	5.5	2.8					17.8	11.1	11.7	7.2	4.5	2.7			32.2	21.6	21.0	14.1	8.5	5.7	3.4	2.2	49.3	34.4	31.9	22.2	13.0	9.0	5.4	3.7
4.1	8.4	4.3	5.2	2.6					17.3	10.7	11.2	6.9	4.3	2.6			31.1	20.9	20.2	13.5	8.1	5.4	3.2	2.1	47.5	33.1	30.6	21.3	12.4	8.6	5.2	3.5
4.2	8.1	4.2	5.0	2.5					16.8	10.4	10.8	6.6	4.1	2.5			30.1	20.2	19.5	13.0	7.7	5.1	3.0		45.8	31.9	29.4	20.5	11.9	8.2	4.9	3.3
4.3	7.8	4.0	4.8	2.4					16.3	10.1	10.4	6.4	3.9	2.3			29.1	19.5	18.7	12.5	7.4	4.9	2.9		44.2	30.8	28.2	19.6	11.3	7.8	4.6	3.2
4.4	7.6	3.9	4.6	2.3					15.8	9.7	10.1	6.2	3.7	2.2			28.2	18.9	18.0	12.1	7.1	4.7	2.7		42.6	29.7	27.1	18.9	10.8	7.5	4.4	3.0
4.5	7.3	3.7	4.4	2.2					15.3	9.4	9.7	5.9	3.5	2.1			27.3	18.3	17.4	11.6	6.7	4.4	2.5		41.1	28.6	26.1	18.1	10.3	7.1	4.2	2.8
4.6	7.1	3.6	4.2	2.1					14.8	9.1	9.3	5.7	3.4				26.4	17.7	16.7	11.2	6.4	4.2	2.4		39.7	27.6	25.1	17.4	9.9	6.8	3.9	2.7
4.7	6.8	3.4	4.1						14.4	8.8	9.0	5.5	3.2				25.5	17.1	16.1	10.7	6.1	4.0	2.3		38.3	26.6	24.1	16.8	9.4	6.5	3.7	2.6
4.8	6.6	3.3	3.9						13.9	8.5	8.7	5.3	3.0				24.7	16.5	15.5	10.3	5.9	3.8	2.1		37.0	25.7	23.2	16.1	9.0	6.2	3.6	2.4
4.9	6.4	3.2	3.7						13.5	8.3	8.4	5.1	2.9				23.9	16.0	15.0	10.0	5.6	3.7	2.0		35.7	24.8	22.3	15.5	8.6	5.9	3.4	2.3
5.0	6.1	3.0	3.5						13.1	8.0	8.0	4.9	2.7				23.1	15.4	14.4	9.6	5.3	3.5			34.5	24.0	21.5	14.9	8.2	5.7	3.2	2.2
5.1	5.9	2.9	3.4						12.7	7.7	7.7	4.7	2.6				22.4	14.9	13.9	9.2	5.1	3.3			33.3	23.1	20.7	14.4	7.9	5.4	3.0	2.1
5.2	5.7	2.8	3.2						12.3	7.5	7.5	4.5	2.4				21.6	14.4	13.4	8.9	4.9	3.2			32.2	22.4	20.0	13.8	7.6	5.2	2.9	
5.3	5.5	2.6	3.1						11.9	7.2	7.2	4.3	2.3				20.9	14.0	12.9	8.6	4.7	3.0			31.1	21.6	19.2	13.3	7.2	5.0	2.7	
5.4	5.3	2.5	2.9						11.5	7.0	6.9	4.1	2.2				20.3	13.5	12.4	8.2	4.4	2.9			30.0	20.9	18.5	12.8	6.9	4.8	2.6	
5.5	5.1	2.4	2.8						11.1	6.7	6.6	3.9	2.1				19.6	13.1	12.0	7.9	4.2	2.7			29.0	20.2	17.9	12.4	6.6	4.6	2.5	
5.6	4.9	2.3	2.6						10.8	6.5	6.4	3.8					19.0	12.6	11.6	7.6	4.0	2.6			28.1	19.5	17.2	11.9	6.4	4.4	2.3	
5.7	4.7	2.2	2.5						10.4	6.3	6.1	3.6					18.4	12.2	11.1	7.4	3.9	2.5			27.2	18.9	16.6	11.5	6.1	4.2	2.2	
5.8	4.5	2.0	2.4						10.1	6.1	5.9	3.5					17.8	11.8	10.7	7.1	3.7	2.4			26.3	18.2	16.0	11.1	5.8	4.0	2.1	
5.9	4.3		2.2						9.7	5.8	5.7	3.3					17.2	11.4	10.4	6.8	3.5	2.2			25.4	17.6	15.5	10.7	5.6	3.8		
6.0	4.1		2.1						9.4	5.6	5.5	3.2					16.7	11.1	10.0	6.6	3.4	2.1			24.6	17.1	14.9	10.3	5.4	3.7		

- These tables should be read in conjunction with Sections A5, A6 & A8 and notes on pages C3.1 - C3.3

C4. Ceiling Span Tables

Notes to Tables

Horizontal Shaft Wall ceilings

- Maximum working stress of steel taken as 80MPa for fire service
- System assumed to have 1 layer of 25mm ShaftLINER™ on top and 3 layers of 16mm FireSTOP™ underneath
- Does not apply to the inverted Horizontal Shaft Wall system
- Spans are centre to centre and analysis assumes the section to be laterally restrained
- The studs are assumed to be simply supported and the ceiling is assumed to be non trafficable and not subject to any loading from construction or maintenance personnel.

Spanning C Section ceilings

- Non trafficable ceiling
- All connections where spanning ceiling section abuts a wall should be Rondo web cleat SWC3.

Spanning D-Span™ ceilings

- Spans calculated based on self weight of plasterboard and joist members.

Dead load only (no plenum space)

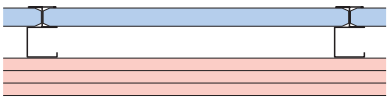
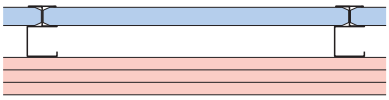
- The design pressure acting on the ceiling membrane is NIL Pa. Max deflection span/500 under design loading
- Allowance has also been made for additional incidental dead loads of 5kg/m^2.

250Pa Design pressure (no plenum space)

- The design pressure acting on the ceiling membrane is 250Pa
- Max deflection span/360 under design loading.

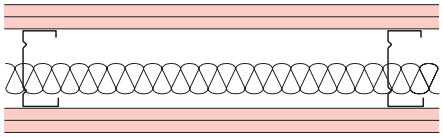
Horizontal Shaft Wall

Maximum Ceiling Spans (mm)

Layout	FRL / Section	Up to 120/120/120 Maximum Frame Centres 300mm	600mm
Maximum Pressure plus 600Pa self weight: 0.00kPa			
 System **CHS48F** illustrated	64CH55	2000	1760
	64CH90	2530	2200
	102CH55	2690	2360
	102CH90	3410	2960
Maximum Pressure plus 600Pa self weight: 0.25kPa			
 System **CHS48F** illustrated	64CH55	2000	1480
	64CH90	2530	1850
	102CH55	2690	1980
	102CH90	3410	2500

Spanning Ceilings With 150CS75 Joists at 600mm max ctrs

Maximum Ceiling Spans (mm)

Layout	System Ref	Description	Point Load at Midspan (N)	Max Span
 System **CS3232F** illustrated	CSP1616F	1x16mm FireSTOP pbd above 1x16mm FireSTOP pbd below	1400	2000
			900	3000
	CSP2613F	2x13mm FireSTOP pbd above 1x13mm FireSTOP pbd below	1400	2000
			900	2900
	CSP3216F10	2x16mm FireSTOP pbd above 1x16mm FireSTOP plus 1x10mm Std Core pbd below	1400	1900
			900	2650
	CSP5016F	2x25mm ShaftLINER pbd above 1x16mm FireSTOP pbd below	1400	1900
			900	2600
	CSP3232F	2x16mm FireSTOP pbd above 2x16mm FireSTOP pbd below	1400	1900
			900	2650
	CSP3248F	2x16mm FireSTOP pbd above 3x16mm FireSTOP pbd below	1400	1850
			900	2500

C. Design Tables

Maximum Ceiling Spans - Horizontal D-Span™

Lining (no of layers x thickness in mm)			1 x 10	1 x 13	1 x 16	13/16	2 x 13	2 x 16	3 x 16	1 x 10	1 x 13	1 x 16	13/16	2 x 13	2 x 16	3 x 16
	FRL		Up to 120/90/90 from below													
Layout	Brand	Section	450mm Maximum Frame Centres							600mm Maximum Frame Centres						

Dead Load Only (no plenum space): **0.00kPa**

System CD29F illustrated

Brand	Section														
Bluescope 61 Topspan	61DS75	3270	3070	2910	2550	2640	2470	2220	3010	2820	2670	2330	2420	2260	2020
	61DS100	3520	3320	3160	2780	2880	2700	2430	3270	3070	2910	2550	2640	2470	2220
Stramit 64 batten	64DS75	3360	3160	3000	2630	2720	2550	2280	3090	2900	2750	2400	2490	2330	2080
	64DS100	3710	3500	3330	2940	3030	2850	2560	3440	3230	3070	2690	2790	2610	2340
	64DS120	3920	3710	3530	3130	3230	3030	2730	3640	3430	3260	2870	2970	2790	2500
Stramit 96 batten	96DS75	4600	4340	4130	3630	3760	3530	3170	4220	4010	3800	3330	3450	3230	2900
	96DS100	5050	4780	4560	4040	4170	3920	3530	4790	4430	4220	3710	3840	3600	3240
	96DS120	5310	5040	4820	4290	4420	4170	3770	4960	4690	4470	3950	4080	3840	3460
Bluescope 120 Topspan	120DS70	5880	5560	5310	4700	4850	4560	4110	5470	5150	4900	4320	4460	4190	3760
	120DS90	6240	5920	5660	5040	5200	4900	4430	5840	5520	5260	4650	4800	4510	4070

Maximum Pressure (no plenum space): **0.25kPa**

System CD29F illustrated

Brand	Section														
Bluescope 61 Topspan	61DS75	2730	2660	2590	2410	2460	2360	2200	2500	2430	2370	2200	2240	2150	2000
	61DS100	2980	2900	2830	2630	2690	2590	2410	2730	2660	2590	2410	2460	2360	2200
Stramit 64 batten	64DS75	2810	2740	2670	2480	2530	2430	2260	2570	2500	2440	2260	2310	2220	2060
	64DS100	3150	3060	2990	2780	2840	2730	2540	2890	2810	2740	2540	2600	2490	2320
	64DS120	3360	3270	3190	2970	3030	2920	2720	3080	3000	2920	2720	2780	2670	2480
Stramit 96 batten	96DS75	3900	3790	3700	3440	3510	3380	3150	3570	3470	3390	3150	3210	3090	2870
	96DS100	4330	4220	4120	3840	3920	3770	3520	3980	3870	3780	3520	3590	3450	3210
	96DS120	4610	4490	4390	4100	4180	4020	3760	4240	4130	4030	3760	3830	3690	3440
Bluescope 120 Topspan	120DS70	5040	4910	4790	4470	4560	4390	4090	4630	4510	4330	4090	4170	4010	3740
	120DS90	5420	5290	5160	4820	4910	4730	4420	4990	4860	4740	4420	4510	4340	4040

• These tables should be read in conjunction with Sections A5, A6 & A8 and notes on pg C4.1 • For steel section design refer Section A1

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C5. Check List

Project details

Project name:

Project location:

	Fax	Phone	Mobile
Designer / Architect			
Builder			
Contractor			

Wall design Information to include (as appropriate):

Item	Yes	No	Comments
Physical parameters			
Type of wall required			
What material of substrate is preferred?			
What is the wall height?			
What is the maximum width?			
Is there accessibility from both sides to construct the wall?			
Presence of adjacent ceiling			
What are the wall head deflection requirements?			
Is the wall vertical and if not at what angle?			
Is the wall straight or curved and if curved what is the minimum radius?			
Presence of doors, door size and jamb details			
End of wall details required			
Presence of penetrations including power cables, cable trays, pipes (type, material and diameter required), communication and data cables, ducts, dampers, hatches and access doors,			
Presence of services in cavity/chase			
Presence of external cladding			
Presence of crossed strap or sheet bracing			
Presence of adjacent wet areas including details			
Fire parameters			
Is fire resistance required, how much and from which direction(s)?			
Are there any smoke wall requirements?			
Presence of structure within wall for which fire protection is required			
Loadings			
What, if any, is the axial load on the wall?			
What are the incident point loads perpendicular to wall?			
What is the differential pressure across wall?			
Presence of crowd loadings			
Shelf loadings including height up wall and shelf width			
Presence of external wind loadings			
Soft body impact resistance requirements			
Hard body impact resistance requirements			
Forcible entry resistance requirements			
Ballistic resistance requirements			
Seismic area type			
Acoustics			
Acoustic isolation requirements			
Impact noise resistance requirements			

Check List (cont)

Ceiling design Information to include (as appropriate):

	Yes	No	Comments
Physical Parameters			
Under floor/roof/other			
Plan area			
Span of spanning ceilings			
Pitch			
Radius of curvature			
Material of substrate preferred			
Presence of penetrations including power cables, cable trays, pipes (type, material and diameter required), communication and data cables, ducts, hatches and access doors,			
Perimeter conditions			
Maximum thickness			
Accessibility from above/below to construct			
Presence of bulkheads, ducts, light wells, etc			
Presence of adjacent wet areas including details			
Load carrying capacity of supporting structure			
Fire Parameters			
Fire resistance required and from which direction(s)			
Incipient spread of fire requirements			
Differential pressure across ceiling			
Presence of structure above ceiling for which fire protection is required			
Loadings			
Forcible entry resistance requirements			
Ballistic resistance requirements			
Presence of external wind loadings			
Seismic area type			
Acoustics			
Acoustic isolation requirements			
Impact noise resistance requirements			

Beam and column protection design Information to include (as appropriate):

Column / Beam section and height / span			
Fire resistance required			
Presence of services (GPOs)			
Presence of ceiling			
Presence of flange and web splicing plates and bolt heads / nuts			
Presence of beam/column connections			
Finish required			

Duct protection design Information to include (as appropriate):

Vertical or horizontal orientation			
Plan and sectional dimensions			
Accessibility for construction within / outside duct			
Purpose of duct			
Bracing requirements			
Fire resistance required and from which direction(s)			
Material/construction to which the duct protection is attached			
Seismic area type			

Old/New Reference Guide

Old Ref	New Ref
ACWS1	ST1010
ACWS10	ST3232F
ACWS2	ST1313
ACWS2	ST1313F
ACWS3	ST1616F
ACWS4	ST1326F
ACWS6	ST2626F
ACWS7	ST3232F
ACWS8	ST4848F
ACWS9	ST3232F
ADM10	M20.01
ADM10	M20.01CF
ADM20	M90B
ADM21	M110B
ADM22	M110B
ADM23	M150B
ADM24.	M110B
ADM25	M150B
ADM26	M90B
ADM27	M90B
ADM28	M90B
ADM4	M150C
ADM8	M10.01
ADM9	M15.01
ADP3	VS57F
ADP4	VS48F
ADP5	VS48F+S10
ADP5	VS48F+T10
ADSS1	D1616F
ADSS3	D2626F
ADSS5	D3232F
ADSS6	D6464F
ARR1	COCT10U
ARR3	C13
ARR3	COC13
ARR4	C16F
ARR4	C16F
ARR4	COC16F
ARR4	COD16F
ARR5	C32F
ARR5	COC32F
ARR5	COD32F
ASS1	S1010
ASS2	S1313
ASS3	S1616F
ASS5	S1326F
ASS7	S2020
ASS8	S2626F
ASS9	S3232F
ASSS3	SS2626F
ASSS4	SS1616F
ASSS6	SS3232F

Old Ref	New Ref
ASTS15	TS1616F
ASTS16	TS1313F
ASTS17	TS1313F10
ASTS18	TS2626F
ASTS20	TS3232F
ASW1	SH16F
ASW2	SH32F
ASW3	SH1616F
ATS1	T10
ATS15	T2626F
ATS16	T3232F
ATS2	T13
ATS2	T16F
ATS20	TR1616F10
ATS22	TR2626F
ATS23	TR3232F
ATS24	25TP1010
ATS25	TT2626F
ATS26	50TP1010
ATS27	TT1616F
ATS28	TT1616F
ATS29	TT3232F
ATS30	TT2929F
ATS4	T1010
ATS5	T1313
ATS5	T1313F
ATS6	T1616F
ATS9	TR1616F
BPS10	PSB38F
BPS11	PSBT48F
BPS12	PSBC48F
BPS30	PSB50F
BPS40	PSB3232F
BPT20	PTB13F
BPT20	PTB26F
BPT20	PTB39F
BPT20	PTB48F
CinemaZone Bronze	TR26A10
CinemaZone Gold	ST2626A
CinemaZone Gold	TF39(26)A10
CinemaZone Gold	TT2626A
CinemaZone Silver	TF26(13)A10
CPC10	PCC13F
CPC10	PCC25F
CPC20	PCC13F
CPC20	PCC25F
CPS10	PSC13F
CPS10	PSC25F
CPS10	PSC32F

Old Ref	New Ref
CPS10	PSC38F
CPS12	PSC13F
CPS12	PSC25F
CPS12	PSC32F
CPS12	PSC38F
CPS14	PSC13F
CPS14	PSC25F
CPS14	PSC32F
CPS14	PSC38F
CPS20	PSC25F10
CPS20	PSC50F
CPS20	PSC75F
CPS40	PSC1313F
CPS40	PSC2626F
CPS40	PSC3232F
CPS40	PSC3939F
CPT10	PTC26F
CPT20	PTC26F
CPT20	PTC13F
CPT20	PTC39F
CPT20	PTC48F
CS1	PCS25F
CS10	C48F
CS10	CF48F
CS11	CSP3232F
CS15	C32F
CS15	CF32F
CS15	CR32F
CS15	CS32F
CS16	CHS32F
CS17	C16F
CS17	CF16F
CS17	CR16F
CS17	CS16F
CS18	C10
CS18	C10U
CS18	C13
CS18	CF10U
CS18	CF13
CS18	CS10U
CS18	CS13
CS19	C13F
CS19	C16F
CS20	C26F
CS20	CF26F
CS20	CR26F
CS20	CS26F
CS21	C29F
CS21	CF29F
CS21	CR29F
CS21	CS29F
CS22	C48F

Old Ref	New Ref
CS22	CF48F
CS22	CS48F
CS4	CHS48F
CS5	CSP3248F
CS6	C64F
CS6	CF64F
CS6	CS64F
DM3	MF1616F
DM3	MF16F
DM3	MF2626F
DM3	MF26F
DM3	MF3232F
DM3	MF32F
DSS1	D1616F
DSS3	D2626F
DSS5	D3232F
DSS6	D6464F
EW1	FC32F
EW2	FC39F
EW2	FC48F
EWall1	EW13
EWall1	EW13F
EWall2a	EW13S13
EWall3	EWS13FS13F
EWall3b	EWS13AS13A
EWall4	EWF13FS13F
O/wall 60	OW16WF10
O/wall 90	OW32WF10
O/wall 90A	OW32WF16F
O/wall 90B	OW26WF10
O/wall 90C	OW16WF26F
O/wall 90D	OW16WF16F
O/wall 90E	OW26WF10
O/wall 90F	OW16WF26F
PWS1	25SP1010
PWS3	25SP1313A
PWT1	25TP1010
PWT2	25TP1313A
PWT4	50TP1010
PWT6	50TP1313A
SR3	VS57F
SR4	VS48F
SS1	S3232F
SS10	S1010
SS2	S3232F
SS3	S2626F
SS4	S1326F
SS5	S1616F
SS6	S32F
SS7	S1313F
SS8	S3232F
SS9	S1313

Old Ref	New Ref
SSS1	SS1313F
SSS3	SS2626F
SSS4	SS3232F
STS5	TS1616F
STS6	TS2626F
STS7	TS3232F
SW2	SH32F
SW3	SH1616F
SW4	SH16F
SW5	SH29F
SW6	SH26F
SWP1	WP20
SWP10	WP13A
SWP2(1)	WP10
SWP2(2)	WP13
SWP2(3)	WP10A
SWP4	WPB1313
SWP5	WPB2626
SWP6	WPL20
SWP7	WP2010U
SWP8	SWP1020
SWP8	WP13A
SWP9	TWP1020
SWP9	WP13A
TS1	T3232F
TS10	TBV16F
TS11	TBV10
TS12	T2626F
TS13	T3232F
TS14	T3232F
TS15	T2626F
TS16	TBV26F
TS18	TT2626F
TS19	50TP1010
TS2	T2626F
TS20	TT1616F
TS21	TT1616F
TS22	TT3232F
TS23	TT2929F
TS24	OW16WF10
TS25	OW32WF10
TS26	25TP1010
TS28	25TP1313A
TS3	T1616F
TS4	T1616F
TS5	TBV16F
TS6	T32F
TS7	T1616F
TS8	T1616F
TS9	T2626F

Quick-Find Index

Quick-Find Index (cont)

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Through TecASSIST Boral Plasterboard is demonstrating its commitment to providing excellent technical service and support to design, building and construction professionals Australia wide.

A free-call architectural support line, TecASSIST is available to provide sound advice on all matters relating to drywall plasterboard construction.

Combining years of professional experience with the latest design information and technology , the TecASSIST team has the skills to help you.

Boral Plasterboard TecASSIST phone line is open to receive calls from 8.30am to 4.30pm Monday to Friday, Melbourne time (Victorian public holidays excluded).

Fax: (03) 9645 1812 Email: tecassist@boral.com.au

State Sales Offices

ACT
7 Barrier Street Fyshwick 2609
Telephone (02) 6280 4243
Facsimile (02) 6280 5816

New South Wales
3 Thackeray Street Camellia 2142
Telephone (02) 9638 0571
Facsimile (02) 9638 5557

Northern Territory
Cnr Coonawarra Rd & Mataram Street
(PO Box 38245) Winnellie 0820
Telephone (08) 8984 4484
Facsimile (08) 8984 3778

Queensland
733 Nudgee Road Northgate 4013
Telephone (07) 3215 2244
Facsimile (07) 3215 2299

South Australia
113-117 Bedford Street Gillman 5013
Telephone (08) 8240 8888
Facsimile (08) 8341 1004

Tasmania
93 Albert Road Moonah 7009
Telephone (03) 6278 9966
Facsimile (03) 6278 9865

Victoria
676 Lorimer Street Port Melbourne 3207
Telephone (03) 9214 2138
Facsimile (03) 9646 1912

Western Australia
Unit 7A/132 Bannister Road Canning Vale 6155
Telephone (08) 9256 0908
Facsimile (08) 9455 4377

Export Department
676 Lorimer Street Port Melbourne 3207
Telephone (03) 9214 2138
Facsimile (03) 9645 2351

www.boral.com.au

Guarantee

Products manufactured and supplied by Boral Australian Gypsum Limited (BAGL) A.C.N. 004 231 976 (trading as Boral Plasterboard) are guaranteed to be of consistent quality and free from any defects.

Boral Plasterboard may limit its liability under this guarantee to, at its option, the replacement or payment of the cost of replacing OR supplying equivalent or payment of the cost of supplying equivalent OR the repair or payment of the cost of repairing products found to be defective.

Health and Safety

For information regarding the safe use of Boral Plasterboard products and accessories please refer to instructions on the product packaging or contact your local Boral Plasterboard Sales Office or TecASSIST for a current copy of the Material Safety Data Sheet.

The technical information contained in this manual was correct at the time of printing. Building systems and details are, however, subject to change. To ensure the information you are using is current, Boral recommends you review the latest building information available on the Boral website, contact TecASSIST or your nearest Boral Plasterboard Sales Office.

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