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STEEL FRAMING SYSTEMS (SFS) SPECIFICATION MANUAL

voestalpine one step ahead.

voestalpine Metsec plc www.metsec.com



CONTENTS

Commercial voestalpine Metsec plc	5-30	Continuous Walling	109-137
Introduction to voestalpine Metsec plc	5	Introducing Continuous Walling	110-111
Organisation Structure	6	Section Names Explained	112
What is SFS	8	Industry Standards and Solutions	113
Features and Benefits	9	Load Tables	114-119
Accreditations	10	Building Regulations Part B – Fire Safety	120-127
Sustainability	11	Building Regulations Part L	
Our SFS System	12-13	 Conservation of fuel and power 	128-132
SFS Solutions	14-15	Architectural Drawings	134-135
SFS vs Blockwork	16-17	Case Study	136-137
SFS Project Process Timeline	18-19	High Bay Walling	139-152
Design Specification	20	Introducina High Bay Walling	140-141
Detailed Design	21	Section Names Explained	142
BIM Design	22-23	Industry Standards and Solutions	144
Metwall Perform	24	Load Tables	145-146
SFS CPD Information	26	Buildina Regulations Part B – Fire	147
Installer Training	27	Building Regulations Part E	
NBS	29	- Resistance to the passage of Sound	148-152
Infill Walling	33-71	Other Technical Information	155-173
Introducing Infill Walling	34-35	SFS Components	156-161
Section Names Explained	36	External Finish Options	162-167
Building Regulations Part A – Structure	38	Metsec Framing Fixing Application Guide	168
Load Tables	40-45	SFS Fixing Table	169-173
Building Regulations Part B – Fire	46-54		
Buiding Regulations Part L – Conservation of Fuel and Power	55-58		
Architectural Drawinas	60-64		
Case Study	66-71		
SFS Load Bearing	73-107		
Introducina SFS Load Bearina	74-75		
Section Names Explained	76		
Industry Standards and Solutions	77		
Load Tables	78-86		
Building Regulations Part B – Fire Safety	87-93		
Building Regulations Part E - Resistance to the Passage of Sound	94-97		
Building Regulations Part L - Conservation of fuel and power	98-101		
Architectural Drawings	102-107		

COMMERCIAL





30 year wall performance warranty - MetWALL Perform®



BIM Level 2 compliant



Multiple choice of plasterboard and sheathing board with test data



Approved installer list



Minimum £5m professional indemnity insurance as standard



CCPi verification

Suitable for use

with a variety of

external finishes

Free CPD seminars



Collateral design

warranty

Verified by Independent **EPD** authority



Site inspections



Over 90 years experience

INTRODUCTION TO voestalpine METSEC PLC

voestalpine Metsec is the UK's biggest construction specialist cold roll forming company and part of the largest globally leading steel and technology group.

voestalpine Metsec has been manufacturing from it's site in Oldbury since 1931. In 1998 the company was acquired by voestalpine becoming voestalpine Metsec plc and the company went from strength to strength following inward investment in machinery and new facilities.

voestalpine Metsec's parent company voestalpine AG is a leading global steel and technology Group in its business segments with a combination of material and processing expertise, and headquartered in Linz, Austria. voestalpine AG company is divided into four divisions, each with a product portfolio that makes them a leading provider in Europe or worldwide. As an environmentally friendly international Group, and an important ecological pioneer, voestalpine are committed to the global climate goals. Working intensively to develop technologies for decarbonisation, and to reduce CO2 emissions over the long term.

The group has 500 locations in 50 countries on all 5 continents. voestalpine Metsec is part of voestalpine's metal forming division (tubes and sections), a leading global provider of high quality metal processing solutions, particularly special tubes and sections, special strip steel and complex components for the automotive and many other industries.

Here at voestalpine Metsec our core values are to provide solutions to suit a wide range of construction and manufacturing applications; with high quality, value added, technical experience and excellent customer service.



COMMERCIAL

ORGANISATION STRUCTURE

• voestalpine AG

A leading global manufacturer with steelmaking facilities and headquarters in Austria.

• voestalpine - METAL FORMING DIVISION

A leading global provider of high quality metal processing solutions, particularly steel tubes and sections, special strip steel and complex components for automotive and many other industries.

voestalpine METSEC PLC

UK's largest specialist cold roll forming company, providing products for the construction and manufacturing industries.



Our 5 Divisions include:

- 1. Custom Roll Forming From design concept to precision-fabricated metal profile.
- 2. Dry Lining Non-load bearing partitioning, wall lining and ceiling solutions.
- 3. Purlins Structural performance for roofs, walls and mezzanine floors.
- 4. Framing (Metframe & SFS) Light Gauge Steel Framing Systems (SFS) for internal and external structural construction.
- 5. Cable Management Secure cable containment and support systems.



WHAT IS SFS?

In the construction industry, SFS stands for Steel Framing System.

In its broadest interpretation, a Steel Framing System could be seen as any system of steel components (columns, beams, trusses, fixings, etc.) which can be used to create a framed structure, from hospitals to a multi-storey office building.

However, the construction industry now widely accepts SFS as being an infill system for primary structures which is used to support the building's façade systems. SFS comprises studs and tracks, which are precision-engineered from light-gauge cold-rolled steel, together with associated fixings and accessories.

This Steel Framing System is a highly efficient, versatile construction solution which can be used in a variety of loadbearing and non-loadbearing situations, including external walls on concrete/steel framed buildings, continuous walling, lightweight structures and dividing walls in high bay situations. SFS is primarily installed 'stick built' on site and is particularly well-suited to modern methods of construction which deliver significant benefits to a project in the form of time and cost efficiencies and return on investment.

SFS components are also used in factory fabricated, pre-panelised construction systems, such as our own Metframe system, where frames are assembled remotely from the construction site, complete with requisite insulation material and sheathing boards, ready for immediate installation and use on site.

FEATURES AND BENEFITS

SFS delivers benefits to all stages of the construction process, from design to installation, as well as providing the client with the prospect of realising returns on investment at the earliest opportunity.

FEATURES OF THE RANGE

- » Expanded and enhanced range of sections
- » Suitable for a wide range of sector applications, including residential, hotels, student accommodation, social housing, healthcare and education
- » Extensive cleat range
- » Section profiles for all SFS solutions
- » Fire tested solutions based on British Gypsum, Siniat and Knauf plasterboard
- » Thermal and fire performance solutions using Rockwool, Knauf and Isover insulation
- » Fire performance solutions using RCM Y Wall, Euroform Versaroc, Siniat Weather Defence, British Gypsum Glasroc X, Knauf Windliner and other market leading sheathing boards
- » Works with a wide range of external finishes, including brickwork, insulated render, ventilated rainscreens and brick slip systems timber cladding, composite panels,
- » UKCA & CE Marked
- » Full suite of BIM product data, downloadable and available for all products and accessories
- » Professional Indemnity Insurance and Collateral Warranties

BENEFITS OF THE RANGE

» Cost and weight reductions

» Thinner, more efficient through wall constructions

» 90mm stud for residential developments, increasing the internal usable floor area

» Fire performance tested and assessed at UKAS accredited test laboratories

» Through wall and floor solutions for structural, fire, acoustic and thermal performance

» Greater deflection allowances for our slotted head track up to +/-20mm

ACCREDITATIONS

UK CA	UKCA Certificate BS EN 1090 1:2009+A1:2011	UK Conformity Assessed marking is a mark that indicates conformity with the applicable requirements for products sold within Great Britain.
CE	CE Marking Certificate EN 1090-1:2009+A1:2011	CE marked products are a legal requirement for the Metframe market as of 1st July 2014
BSI Design and Construction KITEMARK ^M	Kitemark Certificate BS EN ISO 19650-2:2018 (BIM)	An international standard for managing information over the whole life cycle of a built asset using building information modelling (BIM).
	ССРІ	CCPI verification for SFS light gauge galvanised steel structural framing systems ensure data and information provided is clear, accurate, up-to-date, accessible and unambiguous.
SCI NHBC	SCI/NHBC Stage 1 System Certification for Metframe Systems	NHBC Standards require manufacturers of light steel frame systems to submit a system manual to SCI for assessment. This is a requirement for obtaining an NHBC Warrantee for the building. The NHBC/SCI approval covers buildings up to 15 storeys.
CONSIDERATE CONSTRUCTORS SCHEME	Considerate Constructors Certificate	Designed to encourage best practice beyond statutory requirements. voestalpine Metsec is awarded a rating of 'excellent' across all areas of assessment.
BOPAS Buildoffsite Property Assurance Scheme	Build off site Property Assurance Scheme (BOPAS)	BOPAS provides assurance that construction systems designed, manufactured and installed by voestalpine Metsec will conform to industry best practices in terms of durability and system integrity.
BES 6001 Mecroada Construction Products CERTIFICO	Responsible Sourcing of Construction Products BES 6001:Issue 3.1	To ensure and then prove that our products have been made with constituent materials that have been responsibly sourced.
ISO SOUL Every Maagement CERIMED	Energy Management System ISO 50001:2018	This certification demonstrates our commitment to continual effort in establishing, implementing, maintaining and improving an energy management system.
ISO 9001 Oudey Oudey Semipred	Quality Management System ISO 9001:2015	This standard demonstrates our ability to consistently provide products and services that meet customer and regulatory requirements.
EO VAOI Entronetal Metageneric CERTIFED	Environmental Management System ISO 14001:2015	This is the principal management system standard that specifies the requirements for the formulation and maintenance of an EMS. This helps to control your environmental aspects, reduce impacts and ensure legal compliance.
SC 45001 Comparison Heath and Safery Management CERTIPIED	Occupational Health & Safety Management System ISO 45001:2018	An international standard for health and safety at work developed by national and international standards committees independent of government.
PKS 59 Hearpart Management Systems CERTHED	Integrated Management Registration PAS 99:2012	Helps us achieve benefits by integrating the common requirements of all management system standards and specifications and managing these requirements effectively.
SOAEC Protect Mergenerer Cermere	Information Security Management System ISO/IEC 27001:2013	An information security standard created by the ISO, which provides a framework and guidelines for establishing, implementing and managing an information security management system (ISMS).

SUSTAINABILITY

voestalpine Metsec are fully committed to protecting the environment and we are continually looking for new ways to improve our environmental performance.

voestalpine Metsec is committed to to undertaking its activities in an efficient and financially sustainable manner in-line with environment best practice and meeting the requirements of ISO 14001:2015. This will be achieved by complying with applicable laws and regulations and by reducing environmental impacts from our operations. Environmental management through process improvements, good manufacturing, pollution control practices and employee education is a primary management objective, as well as a responsibility of every voestalpine Metsec employee. voestalpine Metsec's aim is to provide its customers with products with the best added value but with the lowest environmental impact in terms of production, use and disposal.

COUNTDOWN TO ZERO

voestalpine Metsec is part of the voestalpine Group and they are working to meet a challenge: the goal of zero carbon emissions in the Metal Forming Division by 2035. Already today, numerous projects to save energy, optimise processes, source green electricity, or even to generate our own renewable energy are underway at our locations around the world, together with efforts to motivate our suppliers to implement their own climate protection measures.

ISO 50001:2018

ISO 50001:2018 helps organisations improve its energy performance and reducing its environmental impact. The ISO 50001:2018 standard for energy management systems can help safeguard our future by making a positive difference in the here and now.

Achieving ISO 50001:2018 certification within Energy Management Standards portrays voestalpine Metsec's commitment to energy efficiency throughout the business, working towards a beneficial, secure long term energy supply and heightening employee awareness.





EPD

An Environmental Product Declaration (EPD) is required on major developments in London.

Architects, developers, building services engineers or sustainability engineers will require an EPD to ensure the energy strategy for any major projects in London, meets planning requirements at design stage.

voestalpine Metsec's publication of the EPD underlines the company's commitment to sustainability and follows swiftly on the heels of its parent company, voestalpine AG, announcing a major initiative to achieve net zero carbon emissions in its Metal Forming Division by 2035, some fifteen years ahead of the targets set by the Intergovernmental Panel on Climate Change.

Assurance of a system's environmental credentials comes from a manufacturer's Environmental Product Declaration (EPD). Compiled in accordance with BS EN 15804:2012+A2:2019 and ISO 14025:2010/ ISO 21930:2017, the EPD covers all aspects of the products' environmental credentials, from manufacture and transport to end of life. The EPD includes a life-cycle assessment and environmental impact data comprising core environmental impact indicators, use of natural resources and end of life information.

Verified by independent EPD authority, EPD Hub, the declaration provides designers, specifiers and developers with comprehensive information to include in a project's sustainability assessment.



OUR SFS SYSTEMS

INFILL WALLING

Our most economical framing method, infill walling is constructed from the floor to soffit of the primary structural frame to 'infill' the external wall zone. A base track is fixed onto the slab of the primary structural frame. Slotted head tracks are then fixed to the underside of the slab or structure to allow for deflection, and studs are then cut, aligned and fixed into position with Tek screws at regular centres to provide support for internal and external finishes.



CONTINUOUS WALLING

This system oversails the edge of the primary structure. Studs sail past slab edge to maximise floor area also meaning cladding does not need to bridge deflection joints at each floor. Support is required for the system's base track and studs are then built multiple storeys tall. These are restrained using cleats with slotted connections at each slab level. Each level of studs is capped with a track which provides support for the next base track and level of studs.



SFS LOAD BEARING

voestalpine Metsec can design and supply a complete load bearing superstructure for low to medium rise structures up to five storeys. It is stick built to ensure maximum flexibility and our technical department provides details to allow SFS sections to be assembled in-situ to provide walls, floors and roofs.





HIGH BAY WALLING

This is a fast-track, high performance system used to provide high separating walls for factory units or atriums. These can be up to 20m high and their lightweight construction and uniformly distributed loads normally mean that the system can be used within existing structures without the need to strengthen foundations or slabs.





Load Bearing Structure

Concrete Shear Walls

Cost Efficiency

SFS offers significant cost savings in every scenario we tested. The figures below show both the like for like material comparison, and an overall build cost comparison

SFS vs BLOCKWORK

We commissioned Sweett (UK) Limited in 2015 to provide an independent report to prove that SFS is as good as we say it is. We considered four comparative façade scenarios fixed to the SFS inner leaf, based on a building model of a reinforced concrete framed residential development requiring 4,000m² of cladding.

We compared all areas of the build scenarios including:

- » Project benefits (in construction)
- » Cost efficiency
- » Direct material costs
- » Associated build costs
- » Total build programme costs
- » Sustainability performance

For each of these scenarios, we compared an inner blockwork wall with SFS.

The Results

The results were clear. In comparison to an equivalent blockwork build, SFS proved to be quicker to build, to increase sustainability performance and to significantly improve cost efficiency.

Project Benefits

Precision, Practicality and Performance.

SFS steel is delivered to site on flat bed articulated vehicles (other vehicles are available on request), ready for a crane off-load directly to the loading bays on the building scaffold at each floor level. It is usually then installed from the inside of the building using a scissor lift or cherry picker platform.

SFS is Much Quicker to Build

- » In a typical week, with two teams of three installers, SFS can offer 124m² greater coverage than blockwork, with 4 teams of brick layers
- » Allows a rapid water tightness date
- » In larger scale projects, specialist input has shown it is possible to install SFS at a rate of up to 1000m² per week
- » Even with the conservative data, SFS would reduce the installation programme by three weeks

SFS Requires up to 25x Fewer Lorry **Deliveries to Site**

- » In this methodology, SFS typically required 2 lorry loads of SFS; the blockwork required up to 50
- » SFS positively affects traffic and health and safety management
- » Fewer deliveries means less environmental impact

Sustainable Performance Wastage

- » SFS can be supplied cut to length and offcuts can re-enter the resource lifecycle - rather than being discarded as waste
- » SFS has a wastage rate of 1%, as opposed to the 20% wastage rate of dense concrete blockwork. As a result it created less waste in each of the four scenarios we tested.





wall cost

Saving on total build cost



Brick Face External Wall

> Saving on through wall cost Saving on comparable elements



Insulated Render External Wall



Saving on through wall cost

Saving on comparable elements





Average saving on through

Saving against comparable elements



Timber Cladding External Wall



Savina on through wall cost

Saving on comparable elements



Rainscreen Cladding External Wall



Saving on through wall cost

Saving on comparable elements

SFS PROJECT PROCESS TIMELINE

The timeline below has been created based on the RIBA Plan of Work. For each stage we have included all the required tasks that form part of an SFS project. The timeline also shows the external teams and indicative timescales involved at each stage. Please note voestalpine Metsec will advise on project specific lead-times to meet specific requirements. For any queries please get in touch.



DESIGN SPECIFICATION

voestalpine Metsec can provide design specification support free of charge. Using our Metwall software we can produce a number of panel drawings that are job specific. They include windloadings and cladding weights, and show the principles of how we would frame out certain areas of the building concerned. This level of design does not cover the entire building however.

We can offer this level of design on any job you are tendering or have secured. Our design specification can be used to assist early estimating on projects by enabling you to get more accurate prices rather than just going out to tender with a BoQ.

For us to produce our design specification we require architect's dimensioned elevations, sections and plans, along with the site address with postcode to establish the wind loading. The panel drawings will then help to identify what stud size is required generally, what sections would be needed for jambs, cill's and lintels and all connection details. They also help to show at an early stage where areas of hot rolled steel might be required if we can't value engineer them out.

The voestalpine Metsec panels are colour coded to highlight any different section gauges which are used within a panel. The studs are then delivered to site with the same colour coding to assist with the site control of the material and to aid installation and checking of the voestalpine Metsec SFS.

What Do We Need?

Design specification drawings - information requirement:

- » Site address including postcode
- » Full plan drawings
- » Window schedule
- » Elevation drawings
- » Primary structural frame drawings
- » Section drawings

NB: For complex and/or highly competitive projects, voestalpine Metsec plc would strongly advise that full construction drawings are produced to enable the sub-contractor to produce an accurate costing of the SFS. Full construction drawings will also improve the coordination and speed of the steel framing installation by the nominated sub-contractor.

What Do We Supply?

- » Design specification drawings to a pre-agreed level of detail.
- » voestalpine Metsec Framing will provide our customers with a design specification pack within 5-10 working days of receipt of the information shown above enabling you to gain prices quickly from the approved sub-contractors.

DETAILED DESIGN

voestalpine Metsec Framing can also offer a complete detailing service, providing a full set of either CAD or Revit drawings. These drawings are to be used when you have secured a project and you require a set of complete value engineered construction level drawings offering the most economic framing solution. They ensure the voestalpine Metsec SFS is properly coordinated with other design team drawings and ensures that the full extent of the work is clearly defined.

These drawings can be used by main contractors as tender drawings to ensure that they acquire the most competitive price from voestalpine Metsec's network of approved installers. Alternatively drawings can be provided directly to installers to support them as part of their design and supply subcontract. This provides the sub-contractor with total confidence that nothing has been missed and all areas are designed and drawn enabling them to provide a lump sum/fixed cost as the full design has been completed, voestalpine Metsec construction drawings are produced at an agreed fee.

All designs produced by voestalpine Metsec plc are underwritten by £5m Professional Indemnity Insurance and client direct collateral warranties. £10 million Professional Indemnity Insurance also available.

NB: voestalpine Metsec plc will provide this warranty where requested. We would limit the number of beneficiaries for each warranty to a maximum of 3.





COMMERCIAL

What Do We Need?

In order for voestalpine Metsec to commence production of the detailed drawings we require the following information to be issued:

- » Marked up scope of works confirming
- **Metsec SFS locations**
- » Site address including postcode
- » Architects GA plans, elevations and sections
- in dwg format
- » Structural plans, elevations and sections in dwg format
- » Hot rolled steel fabrication drawings in dwg format
- » Any architect's/engineer's/fabricators revit models
- (if available)
- » Window and door schedule (if available)

Additionally a signed detailing agreement is required in order for voestalpine Metsec to start the detailing process.

Timescales

Drawing timescales are typically 8-10 weeks. This allows for 4-6 weeks for first issue of drawings (based on 3000m² façade area), 1 to 2 weeks for comments from the design team and two weeks, from receipt of the comments, to amend before issuing for construction.

Warranty Cover

BIM DESIGN

voestalpine Metsec plc is the first tier two organisation globally to be awarded the BSI Kitemark for its BIM capabilities and tier 2 designer and manufacturer complying with BIM Level 2 for Design and Construction in the UK accredited by the BSI. We aim to provide our customers with confidence in our ability to work collaboratively with others in the supply chain enhancing customer satisfaction and providing the following benefits:

- » Faster and efficient processes
- » Increased productivity
- » Reduced uncertainty right first time philosophy
- » Controlled whole-life costs and environmental data
- » Avoidance and elimination of rework costs
- » Improved safety by working collaboratively within the supply chain
- » Comply with Government requirements for centrally funded projects
- » Reduction of waste
- » Collaborative working





We have the resources to fully detail the cold rolled steel elements of your project in either 2D or 3D environments using Revit allowing the voestalpine Metsec SFS to be detailed within a design team's model.

Alternatively, voestalpine Metsec Framing sections can now be downloaded from the voestalpine Metsec website for direct incorporation into your project BIM file. The individual 3D sections are available for download as Industry Foundation Classes (.ifc files) and Revit files (.rvt) so that they can be readily imported into your BIM model, regardless of the modelling software being used. The .ifc files all contain the necessary data to assist with the production of the Construction Operations Building Information Exchange (COBie) file required by clients at the end of a project.

In addition to the above voestalpine Metsec also offer:

- » A list of approved installers that your estimating/QS teams should be approaching for best prices
- » Free site inspections
- » UKCA and CE Marked product, which is a legal requirement for the SFS market





METWALL PERFORM

MetWALL Perform, an industry changing warranty giving architects, developers and contractors reassurance when specifying through wall products on voestalpine Metsec steel frame systems.

This is an important addition to voestalpine Metsec's unique Framing range providing warranted UKAS tested wall combinations, enabling clients to select the most cost effective performance design solutions.

All test data is based on unique UKAS accredited tests and UKAS recognised scope of testing:

Fire

- » Based on testing to BS EN 1364-1:2015 for infill walling and BS EN1365-1:2012 for load bearing systems
- » Solutions for major plasterboard manufacturers, British Gypsum, Knauf and Siniat
- » Solutions using RCM Y-Wall, Euroform Versaroc, Siniat Weather Defence, British Gypsum Glasroc X, Knauf Windliner and other market leading sheathing boards
- » Solutions for both Rockwool and Knauf Rocksilk insulation.

Acoustic

- » Tested performances for wall and floors to meet building regulations part E
- » Solutions to meet Part E +5dB and Silver standard in Scotland.

Thermal

- » Solutions ranging from a U-value of 0.3 down to 0.1
- » Non-combustible insulation options.

Structural

- » High Strength, low weight steel sections designed to BS EN 1993
- » Design department run by our own employed chartered structural engineers.





SFS CPD INFORMATION

If you are looking to increase your knowledge of steel framing systems, including design and specification, the voestalpine Metsec SFS CPD seminar provides a comprehensive and engaging opportunity to do so.

Our SFS CPD seminar provides the following:

- » Introduction to steel framing systems and their applications
- » Design and detailing process including BIM
- » Wall build ups and performance data
- » Able to be organised at your office or an event at a time to suit you

voestalpine Metsec has many years of experience working with main contractors, architects, engineers and sub-contractors to efficiently design and supply SFS systems. There is no company better placed to get your SFS knowledge up to speed.

For more information on the voestalpine Metsec SFS CPD seminar, call us on +44 (0) 121 601 6000 or email **metsec.sfs@voestalpine.com**

INSTALLER TRAINING

There are several elements that contribute to a successful build; products, materials, people and design to name a few. Training and development are hailed as important foundations for a smooth-running project.

The cost implications of errors in the installation stages can jeopardise the entire delivery of a project and ensuring that all product is being installed in accordance with the design can alleviate delays in project completion. Recent research showed that the cost of errors is between £10 billion and £25 billion a year, which exceeds the average profit margin for the industry.

We underwrite and warrant our designs, however this is only valid if the installation is in accordance with our design.

Therefore to achieve quality work the installation needs to be underpinned by appropriate training.

voestalpine Metsec offers training courses to our key partners to ensure all parties that implement voestalpine Metsec SFS designs do so with a full and applied understanding of the product and its assembly.

About the Course

voestalpine Metsec runs six, one day, installer training courses during the course of a year. The course is designed for supervisory level managers to provide an overview of the SFS systems and covers a large range of topics including:

- » Application and use of voestalpine Metsec SFS
- » Typical installation details
- » Factory tour
- » Pricing and estimating
- » Ordering
- » QA checking the installation

The course takes place in our dedicated training rooms and consists of PowerPoint presentations and workshops.

For more information or to book onto a course please call us on +44 (0) 121 601 6000 or email **metsec.sfs@voestalpine.com**



NBS

NBS Source, the industry's leading cloud-based construction product information system.

Drawing on voestalpine Metsec's technical expertise, application knowledge and independent test data, the NBS Source information features key product systems based on sheathing board and internal board from the industry's leading manufacturers.

Through-wall fire testing by UKAS-approved laboratories has been used to create performance data for a variety of wall constructions using voestalpine Metsec SFS in conjunction with various combinations of plasterboard (British Gypsum, Knauf and Siniat), market leading sheathing boards and leading insulation providers.

The result is a comprehensive library of more than 300 different permutations, each with relevant fire, strength and acoustic performance data, specification information and Uniclass coding, which will enable users to write specifications for steel framing systems with the minimum of effort and in a timely fashion. NBS Source allows the specifier to select the most appropriate wall construction based on performance and application requirements. A simple click of the 'add to specification' button will then place the solution into NBS Chorus, simplifying and speeding the specification process.

Scan the QR code for NBS Source Information.



HEALTH & SAFETY

voestalpine Metsec takes health and safety very seriously and provides a range of information at different stages of a project to help our customers limit any risk using the SFS system.

At concept and developed design stages of the project a comprehensive general risk assessment can be provided to help main contractors and installers develop their build methodology.

At the technical design stages of a project additional information is provided on the project drawings which are clear and easily understood. These symbols are used to identify a hazard, mandatory process or a prohibited action. Each hazard, mandatory process or prohibited action is then listed on the project specific hazard sheet.



All of our construction details show by the use of easily read symbols the minimum PPE requirements and also what tools should be used in the process of building the particular details.





INFILL WALLING

INTRODUCING INFILL WALLING

Overview of the Infill Walling System

Infill is a fast track construction method, used in almost all building applications. It provides a secondary structure to a hot rolled steel or concrete frame. Fixed from floor to soffit, it is designed to support a wide range of internal and external finishes.

Parapets and Downstands

Parapets and downstands can readily be formed with SFS using Metsec's cantilever posts, which can be incorporated within the voestalpine Metsec framing. These posts can also be used to break up the span of wide openings and also allow the formation of ribbon windows.



Compound Sections

Where it is necessary to use sections with a higher capacity, single sections can be fixed together to form compound sections. This can be done for jamb, cill and lintel sections.

Zed Bars (Z502)

 $36 \times 52 \times 36 \times 2$ mm zed bars can be provided in 2mm material and 600mm length. Zed bars are commonly used where there is not sufficient bearing at the head or base of the SFS panel.



voestalpine Metsec Slotted Head Track

voestalpine Metsec's patented slotted head track has been developed to allow for the deflection in the primary structural frame without applying any vertical load into the studs. The studs are screw fixed to the slotted head track through pre-formed slots in the track.

Key advantages over alternative systems are:

- » Quicker and easier to install than conventional deflection brackets
- » Simpler and faster to install than traditional masonry infill
- » Fewer components on site less components to store, lose or work with
- » Fix and forget system no concerns about missing brackets
- » Visible centre line indent indicates fixing location
- » Vertical slots at 25mm centres allow for flexibility of stud positions







Metsec Slotted Head Track

Stud Section as Support Bracket Minimum 150mm long stud section fixed through jamb web with 4 no. Tek screws.

Studs

Section size and centres according to Metsec design. Top of stud is positioned 20mm short within track.

Studs Fixed to Track

With low profile Tek screws, both flanges.

Base Track

Supported by and fixed to primary frame as Metsec design.

SECTION NAMES EXPLAINED

voestalpine Metsec section references are designed to be easy to read and understand at a glance. Each section type is identified by a unique reference consisting of three numerical values seperated by a letter or a dash.

Studs Sections (lipped sections)

Example stud reference – 090M12-50

- » 090 Refers to the section depth of 90mm (numbers ending in 0 are always lipped)
- » M Refers to voestalpine Metsec SFS
- » 12 Refers to the gauge (thickness) of the section i.e. 12 is 1.2mm thick
- » 50 Refers to the width or section flange of 50mm

Track Sections (un-lipped sections)

Example stud reference – 094M16-70S

- » 094 Refers to the section depth of 94mm (numbers ending in 4 or 6 are always un-lipped)
- » M Refers to voestalpine Metsec SFS
- » 16 Refers to the gauge (thickness) of the section i.e. 16 is 1.6mm thick
- » 70 Refers to the width or section flange of 70mm
- » S If present at the end of the section reference it means the section is slotted.

Colour Coding Explained

voestalpine Metsec prints stud or joist sections and track sections with references that are designed to be easy to read and understand at a glance. voestalpine Metsec prints the voestalpine Metsec name and thickness down both flanges of the section and these are colour coded as follows:

- » BLACK = 1.2mm or 1.3mm thickness
- » RED = 1.4mm thickness
- » GREEN = 1.6mm thickness
- » ORANGE = 1.8mm thickness
- » BLUE = 2.0mm thickness

On our drawings any sections greater than 2.0mm or that are made up of multiple sections are shown in yellow so they are highlighted on the drawings.

All stud or joist sections and track sections have a string of numbers and letters printed down the back web along with our CE mark. This string of numbers identifies the order number, delivery, bundle number and individual section mark number which can be related back to your order confirmation and delivery notes. R

2



INDUSTRY STANDARDS AND SOLUTIONS

Building Regulations Part A - Structure:

The Metsec SFS infill system is designed on a project basis to support the external cladding, insulation and internal plasterboard against the external wind load. The SFS sections can be designed to wind loads provided by the project engineer/consultant or designed to wind loads calculated by our own engineers.

Metsec calculate wind loads to BS EN 1991-1-4:2005+A1:2010 plus the UK national annex incorporating the latest amendments and the use of PD6688-1-4:2015, Background Information to EN 1991-1-4 and additional guidance.

The structural design of the SFS sections utilises BS EN 1993-1-1:2022, BS EN 1993-1-3:2006 & BS EN 1993-1-5:2006+A2:2019 plus UK national annexes and additional codes where appropriate.

The design of the SFS infill walling considers, but is not limited to:

- » Structural capacity of the SFS sections
- » Deflection of the SFS sections under load
- » Connection of the SFS sections back to the primary structure
- » Effect of the cladding and fixing method to the SFS sections

Typical deflection limits for different claddings are given below:

- » H/500 for brickwork (ignoring the stiffening effect of the brickwork)
- » H/500 for thin joint masonry or stone

- » H/360 for brickwork (including the combined stiffening effect of the brickwork)
- » H/360 for Insulated Render Systems
- » H/360 for Heavy Rainscreen (Terracotta tiles, brick or stone slip)
- » H/250 for Lightweight Rainscreen
- » H/250 for Timber Cladding
- » H/250 for Composite Panels

The load tables within this section are based on:

- » Unfactored horizontal pressure.
- » Maximum external cladding weight of 0.50kN/m^2
- » Blocking and strapping at mid height for studs higher than 3.00m
- » Third span blocking and strapping required for studs higher than 6.00m
- » Studs at 600 mm centres
- » Studs fixed into 1.2mm base track.
- » 90mm, 100mm, 120mm, 150mm, 180mm studs fixed to Metsec Slotted deflection Head Track of 1.8mm thick.
- » 210mm, 240mm, 270mm, 300mm, 350mm studs fixed at head using standard 2.0mm head track with blocking and strapping detail.

For wind loads outside the tables or conditions different from above please contact Metsec for advice.





LOAD TABLES

Maximum Height – Deflection Limited to Height/250

How to Use the Load Table:

The load tables in this section allow for simple sizing of the general studs for a given wind load and known height. Where openings are required within the wall, please contact voestalpine Metsec for the design of the supporting members.

Maximum span tables are provided for all standard SFS sections for wind loads between 0.5kN/m² and 2.0kN/m². Three tables are provided for three deflection criterion, Height/250, Height/360 and Height/500.

Uniform Horizontal Pressure (kN/m²)

Section Reference	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
090M12-50	4.16	3.92	3.72	3.56	3.42	3.30	3.20	3.11	3.03	2.61	2.56	2.51	2.47	2.40	2.28	2.16
090M12-62	4.41	4.15	3.95	3.77	3.63	3.50	3.39	3.30	3.21	3.13	3.06	2.93	2.83	2.67	2.53	2.40
090M12-75	4.65	4.37	4.15	3.97	3.82	3.69	3.57	3.47	3.38	3.29	3.22	3.15	3.09	2.94	2.78	2.64
090M14-75	4.88	4.59	4.36	4.17	4.01	3.87	3.75	3.64	3.55	3.46	3.38	3.31	3.24	3.18	3.12	3.03
090M16-75	5.09	4.79	4.55	4.35	4.18	4.04	3.91	3.80	3.70	3.61	3.53	3.45	3.38	3.32	3.26	3.20
090M18-75	5.28	4.97	4.72	4.51	4.34	4.19	4.06	3.94	3.84	3.74	3.66	3.58	3.51	3.44	3.38	3.32
090M20-75	5.45	5.13	4.87	4.66	4.48	4.33	4.19	4.07	3.96	3.87	3.78	3.70	3.63	3.56	3.49	3.43
100M12-50	4.51	4.24	4.03	3.85	3.71	3.58	3.47	3.37	3.28	3.20	3.12	3.06	2.54	2.50	2.46	2.42
100M14-70	5.19	4.88	4.64	4.43	4.26	4.12	3.99	3.87	3.77	3.68	3.59	3.52	3.45	3.38	3.20	3.04
100M20-70	5.80	5.46	5.18	4.96	4.77	4.60	4.46	4.33	4.22	4.11	4.02	3.93	3.86	3.78	3.71	3.65
120M12-50	4.86	4.61	4.40	4.23	4.09	3.96	3.84	3.74	3.65	3.56	3.45	3.23	3.04	2.62	2.58	2.54
120M12-62	5.48	5.16	4.90	4.68	4.50	4.35	4.21	4.09	3.98	3.89	3.80	3.59	3.38	3.19	3.03	2.87
120M12-75	5.75	5.41	5.14	4.92	4.73	4.56	4.42	4.30	4.18	4.08	3.99	3.90	3.72	3.51	3.33	3.16
120M14-75	6.04	5.69	5.40	5.17	4.97	4.80	4.65	4.51	4.39	4.29	4.19	4.10	4.02	3.85	3.65	3.47
120M16-75	6.31	5.93	5.64	5.39	5.18	5.00	4.85	4.71	4.58	4.47	4.37	4.28	4.19	4.11	3.97	3.77
120M18-75	6.54	6.16	5.85	5.59	5.38	5.19	5.03	4.89	4.76	4.64	4.54	4.44	4.35	4.27	4.19	4.07
120M20-75	6.76	6.37	6.05	5.78	5.56	5.37	5.20	5.05	4.92	4.80	4.69	4.59	4.50	4.41	4.33	4.26
150M12-50	6.14	4.92	4.71	4.53	4.38	4.24	4.12	4.02	3.92	3.83	3.75	3.68	3.54	3.35	3.17	3.01
150M12-62	6.49	6.11	5.43	5.22	5.03	4.87	4.72	4.59	4.47	4.36	4.26	4.17	3.94	3.72	3.52	3.35
150M12-75	6.80	6.40	6.08	5.81	5.59	5.39	5.22	5.06	4.93	4.78	4.66	4.55	4.33	4.09	3.68	3.69
150M14-75	7.12	6.70	6.36	6.08	5.85	5.65	5.47	5.31	5.17	5.05	4.93	4.83	4.60	4.34	4.12	3.91
150M16-75	7.43	6.99	6.64	6.35	6.10	5.89	5.71	5.54	5.40	5.27	5.15	5.04	4.86	4.59	4.35	4.13
150M18-75	7.72	7.27	6.90	6.60	6.35	6.13	5.94	5.77	5.61	5.48	5.35	5.24	5.13	4.84	4.59	4.36
150M20-75	7.99	7.52	7.15	6.83	6.57	6.34	6.15	5.97	5.81	5.67	5.54	5.42	5.31	5.09	4.82	4.58
180M12-50	6.52	6.18	4.98	4.80	4.64	4.50	4.37	4.26	4.16	4.07	3.99	3.91	3.84	3.68	3.49	3.31
180M12-62	7.47	7.03	6.68	6.39	6.14	5.16	5.01	4.88	4.76	4.65	4.54	4.45	4.33	4.09	3.87	3.68
180M12-75	7.81	7.35	6.98	6.68	6.42	6.20	6.01	5.39	5.25	5.11	4.99	4.88	4.76	4.50	4.26	4.05
180M14-75	8.18	7.69	7.31	6.99	6.72	6.49	6.28	6.10	5.57	5.44	5.32	5.20	4.91	4.64	4.40	4.18
180M16-75	8.53	8.03	7.63	7.30	7.01	6.77	6.56	6.37	6.20	6.05	5.62	5.38	5.07	4.79	4.53	4.31
180M18-75	8.86	8.34	7.92	7.58	7.28	7.03	6.81	6.62	6.44	6.29	5.88	5.56	5.23	4.94	4.68	4.45
180M20-75	9.16	8.62	8.19	7.83	7.53	7.27	7.04	6.84	6.66	6.50	6.11	5.73	5.39	5.09	4.82	4.58
210M12-50	6.86	6.50	6.21	5.04	4.87	4.73	4.60	4.49	4.38	4.29	4.20	4.12	4.05	3.98	3.80	3.61
210M12-62	7.87	7.44	7.09	6.79	6.53	6.30	6.10	5.14	5.02	4.90	4.80	4.70	4.61	4.46	4.22	4.01
210M13-75	8.93	8.42	8.00	7.65	7.34	7.07	6.83	6.62	6.39	5.55	5.42	5.19	4.89	4.62	4.37	4.15
210M16-75	9.61	9.04	8.59	8.22	7.90	7.63	7.39	7.17	6.61	6.14	5.73	5.37	5.06	4.78	4.52	4.30
210M18-75	9.98	9.39	8.92	8.53	8.20	7.92	7.67	7.40	6.83	6.34	5.92	5.55	5.22	4.93	4.67	4.44
210M20-75	10.00	9.71	9.23	8.82	8.48	8.19	7.93	7.64	7.05	6.55	5.73	5.73	5.39	5.09	4.82	4.58

Oniform Horizontal Pressure (kiv/m ⁻)																
Section Reference	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
240M12-50	7.17	6.80	6.50	6.25	6.03	4.94	4.81	4.69	4.58	4.48	4.39	4.31	4.24	4.01	3.80	3.61
240M13-62	8.47	8.02	7.66	7.35	7.08	6.85	6.64	6.45	6.18	5.29	5.18	5.02	4.72	4.46	4.22	4.02
240M13-75	9.45	8.92	8.49	8.12	7.81	7.53	7.28	6.93	6.39	5.88	5.54	5.19	4.89	4.62	4.37	4.15
240M16-75	10.00	9.55	9.12	8.76	8.45	8.17	7.82	7.17	6.61	6.14	5.73	5.37	5.06	4.78	4.52	4.30
240M18-75	10.00	9.94	9.51	9.14	8.82	8.54	8.08	7.40	6.83	6.34	5.92	5.55	5.22	4.94	4.67	4.44
240M20-75	10.00	10.00	9.84	9.47	9.14	8.85	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
270M13-50	7.64	7.25	6.94	6.68	6.45	6.25	6.08	5.00	4.89	4.78	4.69	4.51	4.25	4.01	3.80	3.61
270M13-62	8.80	8.35	7.97	7.66	7.38	6.85	6.64	6.45	6.18	5.50	5.35	5.02	4.72	4.46	4.22	4.01
270M16-75	10.00	10.00	9.59	9.21	8.88	8.60	7.82	7.17	6.61	6.14	5.73	5.37	5.06	4.78	4.52	4.30
270M18-75	10.00	10.00	9.98	9.60	9.27	8.88	8.08	7.40	6.83	6.34	5.92	5.55	5.22	4.93	4.67	4.44
270M20-75	10.00	10.00	10.00	9.94	9.64	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
300M13-50	7.64	7.25	7.19	6.92	6.69	6.48	6.31	6.02	5.06	4.95	4.82	4.51	4.25	4.01	3.80	3.61
300M16-62	9.73	9.24	8.85	8.51	8.23	7.98	7.30	6.69	6.18	5.73	5.35	5.02	4.72	4.46	4.22	4.01
300M18-75	10.00	10.00	10.00	9.94	9.60	8.88	8.08	7.40	6.83	6.34	5.92	5.55	5.22	4.93	4.67	4.44
300M20-75	10.00	10.00	10.00	10.00	9.94	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
300M25-89	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
300M29-89	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
350M18-54	9.63	9.16	8.78	8.46	8.19	7.95	7.74	7.40	6.83	6.34	5.92	5.55	5.22	4.93	4.67	4.44
350M20-68	10.00	10.00	10.00	10.00	9.84	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
350M23-84	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
350M25-84	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
350M29-84	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58

Maximum spans in above infill walling load table based on:

1. Unfactored horizontal pressure.

2. Studs at 600mm centres.

3. Deflection limited to height/250.

Detection initiate to neight 250.
 Blocking and strapping at mid height for studs higher than 3.00m, third span blocking and strapping required for studs higher than 6.00m.
 Maximum external cladding weights of 0.50kN/m²
 Studs fixed into 1.2mm base track.
 90mm, 100mm, 120mm, 150mm & 180mm studs fixed to voestalpine Metsec 1.6mm Slotted Deflection Head Track.

8. 210mm, 240mm, 270mm, 300mm, 350mm studs fixed at head using standard 2.0mm head track with blocking and strapping detail.

Uniform Horizontal Pressure (kN/m²)

LOAD TABLES

Maximum Height – Deflection Limited to Height/360

How to Use the Load Table:

The load tables in this section allow for simple sizing of the general studs for a given wind load and known height. Where openings are required within the wall, please contact voestalpine Metsec for the design of the supporting members.

Maximum span tables are provided for all standard SFS sections for wind loads between 0.5kN/m² and 2.0kN/m². Three tables are provided for three deflection criterion, Height/250, Height/360 and Height/500.

Uniform Horizontal Pressure (kN/m²)

Section Reference	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
090M12-50	3.69	3.47	3.30	3.16	3.03	2.89	2.81	2.74	2.67	2.61	2.55	2.50	2.45	2.40	2.28	2.16
090M12-62	3.91	3.68	3.49	3.34	3.21	3.10	3.00	2.92	2.84	2.77	2.71	2.66	2.60	2.55	2.50	2.40
090M12-75	4.11	3.87	3.68	3.52	3.39	3.27	3.16	3.07	2.99	2.92	2.85	2.79	2.73	2.68	2.63	2.59
090M14-75	4.32	4.07	3.86	3.70	3.55	3.43	3.32	3.23	3.14	3.07	3.00	2.93	2.87	2.82	2.77	2.72
090M16-75	4.50	4.24	4.03	3.85	3.70	3.58	3.47	3.37	3.28	3.20	3.12	3.06	2.99	2.94	2.89	2.84
090M18-75	4.67	4.40	4.18	4.00	3.84	3.71	3.59	3.49	3.40	3.31	3.24	3.17	3.11	3.05	2.99	2.94
090M20-75	4.83	4.54	4.32	4.13	3.97	3.83	3.71	3.61	3.51	3.42	3.35	3.28	3.21	3.15	3.09	3.04
100M12-50	3.99	3.76	3.57	3.41	3.28	3.17	3.07	2.81	2.75	2.69	2.63	2.58	2.54	2.50	2.46	2.42
100M14-70	4.59	4.32	4.10	3.93	3.77	3.64	3.53	3.43	3.34	3.26	3.18	3.11	3.05	2.99	2.94	2.89
100M20-70	5.14	4.83	4.59	4.39	4.22	4.08	3.95	3.83	3.73	3.64	3.56	3.48	3.41	3.35	3.29	3.23
120M12-50	4.59	4.32	4.10	3.92	3.77	3.63	3.53	3.42	3.33	3.25	3.17	3.11	3.04	2.62	2.58	2.54
120M12-62	4.85	4.57	4.34	4.15	3.99	3.85	3.73	3.62	3.52	3.44	3.36	3.29	3.22	3.15	3.02	2.87
120M12-75	5.09	4.79	4.55	4.35	4.18	4.04	3.91	3.80	3.70	3.61	3.52	3.45	3.38	3.32	3.26	3.16
120M14-75	5.34	5.03	4.78	4.57	4.39	4.25	4.11	4.00	3.89	3.79	3.70	3.62	3.55	3.48	3.42	3.36
120M16-75	5.58	5.25	4.99	4.77	4.59	4.43	4.29	4.16	4.05	3.95	3.86	3.78	3.71	3.64	3.57	3.51
120M18-75	5.79	5.45	5.18	4.95	4.76	4.60	4.45	4.33	4.21	4.11	4.02	3.93	3.85	3.78	3.71	3.65
120M20-75	5.99	5.64	5.35	5.12	4.92	4.75	4.60	4.47	4.35	4.24	4.15	4.06	3.98	3.91	3.84	3.77
150M12-50	5.18	4.92	4.70	4.53	4.38	4.24	4.12	4.02	3.92	3.83	3.75	3.68	3.54	3.35	3.17	3.01
150M12-62	5.75	5.41	5.14	4.91	4.73	4.56	4.42	4.29	4.18	4.08	3.98	3.90	3.82	3.72	3.52	3.35
150M12-75	6.02	5.67	5.38	5.15	4.95	4.78	4.63	4.50	4.38	4.27	4.17	4.09	4.00	3.93	3.86	3.68
150M14-75	6.30	5.93	5.63	5.39	5.18	5.00	4.84	4.70	4.58	4.47	4.37	4.27	4.19	4.11	4.04	3.91
150M16-75	6.58	6.19	5.88	5.62	5.40	5.22	5.05	4.91	4.78	4.66	4.56	4.46	4.38	4.29	4.21	4.13
150M18-75	6.84	6.43	6.11	5.84	5.62	5.43	5.26	5.11	4.97	4.85	4.74	4.64	4.54	4.46	4.38	4.30
150M20-75	7.08	6.66	6.33	6.05	5.82	5.62	5.44	5.29	5.15	5.02	4.91	4.80	4.71	4.62	4.53	4.46
180M12-50	5.48	5.20	4.98	4.80	4.64	4.50	4.37	4.26	4.16	4.07	3.99	3.91	3.82	3.68	3.49	3.31
180M12-62	6.34	6.01	5.75	5.52	5.33	5.16	5.01	4.88	4.76	4.65	4.54	4.45	4.33	4.09	3.87	3.68
180M12-75	6.92	6.51	6.18	5.91	5.69	5.49	5.32	5.17	5.03	4.91	4.79	4.69	4.60	4.50	4.26	4.05
180M14-75	7.24	6.81	6.47	6.19	5.95	5.74	5.56	5.41	5.26	5.13	5.02	4.91	4.81	4.64	4.40	4.18
180M16-75	7.56	7.11	6.75	6.46	6.21	6.00	5.81	5.64	5.49	5.36	5.24	5.13	5.02	4.79	4.53	4.31
180M18-75	7.85	7.38	7.01	6.71	6.45	6.23	6.03	5.86	5.70	5.57	5.44	5.32	5.22	4.94	4.68	4.45
180M20-75	8.11	7.63	7.26	6.94	6.67	6.44	6.24	6.06	5.90	5.75	5.63	5.50	5.39	5.09	4.82	4.58
210M12-50	5.75	5.46	5.23	5.04	4.87	4.73	4.60	4.49	4.38	4.29	4.20	4.12	4.05	3.98	3.80	3.61
210M12-62	6.65	6.31	6.04	5.81	5.61	5.43	5.28	5.14	5.02	4.90	4.80	4.70	4.61	4.46	4.21	4.01
210M13-75	7.59	7.20	6.88	6.61	6.38	6.17	5.99	5.83	5.68	5.55	5.42	5.31	5.19	4.91	4.65	4.41
210M16-75	8.13	7.73	7.39	7.11	6.88	6.67	6.48	6.32	6.17	6.03	5.90	5.61	5.28	4.98	4.72	4.48
210M18-75	8.45	8.03	7.68	7.40	7.15	6.94	6.75	6.58	6.43	6.27	6.05	5.67	5.34	5.04	4.78	4.54
210M20-75	8.75	8.31	7.95	7.66	7.40	7.18	6.99	6.81	6.65	6.48	6.11	5.73	5.39	5.09	4.82	4.58

	official Pressure (kiv/iii)															
Section Reference	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
240M12-50	5.99	5.70	5.46	5.26	5.09	4.94	4.81	4.69	4.58	4.48	4.39	4.31	4.24	4.01	3.80	3.61
240M13-62	7.11	6.76	6.47	6.23	6.02	5.84	5.68	5.54	5.41	5.29	5.18	5.02	4.72	4.46	4.22	4.01
240M13-75	8.00	7.60	7.26	6.98	6.74	6.53	6.34	6.17	6.02	5.88	5.75	5.52	5.19	4.91	4.65	4.41
240M16-75	8.46	8.04	7.70	7.41	7.17	6.96	6.76	6.59	6.44	6.30	5.98	5.61	5.28	4.98	4.72	4.48
240M18-75	8.78	8.35	7.99	7.70	7.45	7.23	7.03	6.86	6.70	6.48	6.05	5.67	5.34	5.04	4.78	4.54
240M20-75	10.00	9.55	9.07	8.67	8.34	8.05	7.80	7.58	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
270M13-50	7.64	7.25	6.94	6.68	6.45	6.25	6.08	5.00	4.89	4.78	4.69	4.51	4.25	4.01	3.80	3.61
270M13-62	8.80	8.33	7.97	7.66	7.38	7.14	6.93	6.69	6.18	5.50	5.35	5.02	4.72	4.46	4.22	4.01
270M16-75	10.00	9.79	9.30	8.89	8.55	8.25	8.00	7.48	6.90	6.41	5.98	5.61	5.28	4.98	4.72	4.48
270M18-75	10.00	10.00	9.66	9.24	8.88	8.57	8.25	7.57	6.98	6.48	6.05	5.67	5.34	5.04	4.78	4.54
270M20-75	10.00	10.00	9.99	9.55	9.19	8.87	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
300M13-50	7.90	7.51	7.19	6.92	6.69	6.48	6.31	6.02	5.06	4.95	4.82	4.51	4.25	4.01	3.80	3.61
300M16-62	9.73	9.24	8.85	8.51	8.23	7.98	7.30	6.69	6.18	5.73	5.35	5.02	4.72	4.46	4.22	4.01
300M18-75	10.00	10.00	10.00	9.94	9.60	8.83	8.03	7.36	6.79	6.31	5.89	5.52	5.19	4.91	4.65	4.41
300M20-75	10.00	10.00	10.00	10.00	9.94	8.97	8.16	7.48	6.90	6.41	5.98	5.61	5.28	4.98	4.72	4.48
300M25-89	10.00	10.00	10.00	10.00	10.00	9.08	8.25	7.57	6.98	6.48	6.05	5.67	5.34	5.04	4.78	4.54
300M29-89	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
350M18-54	9.63	9.16	8.78	8.46	8.03	7.23	6.57	6.02	5.56	5.16	4.82	4.51	4.25	4.01	3.80	3.61
350M20-68	10.00	10.00	10.00	10.00	8.92	8.03	7.30	6.69	6.18	5.73	5.35	5.02	4.72	4.46	4.22	4.01
350M23-84	10.00	10.00	10.00	10.00	9.97	8.97	8.16	7.48	6.90	6.41	5.98	5.61	5.28	4.98	4.72	4.48
350M25-84	10.00	10.00	10.00	10.00	10.00	9.08	8.25	7.57	6.98	6.48	6.05	5.67	5.34	5.04	4.78	4.54
350M29-84	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58

Maximum spans in above infill walling load table based on:

1. Unfactored horizontal pressure.

Studs at 600mm centres.
 Deflection limited to height/360.

Deflection limited to height / sou.
 Blocking and strapping at mid height for studs higher than 3.00m, third span blocking and strapping required for studs higher than 6.00m.
 Maximum external cladding weights of 0.50kN/m²
 Studs fixed into 1.2mm base track.
 90mm, 100mm, 120mm, 150mm & 180mm studs fixed to voestalpine Metsec 1.6mm Slotted Deflection Head Track.
 210mm, 240mm, 270mm, 300mm, 350mm studs fixed at head using standard 2.0mm head track with blocking and strapping detail.

Uniform Horizontal Pressure (kN/m²)

LOAD TABLES

Maximum Height – Deflection Limited to Height/500

How to Use the Load Table:

The load tables in this section allow for simple sizing of the general studs for a given wind load and known height. Where openings are required within the wall, please contact voestalpine Metsec for the design of the supporting members.

Maximum span tables are provided for all standard SFS sections for wind loads between 0.5kN/m² and 2.0kN/m². Three tables are provided for three deflection criterion, Height/250, Height/360 and Height/500.

Uniform Horizontal Pressure (kN/m²)

Section Reference	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
090M12-50	3.30	3.11	2.95	2.82	2.71	2.62	2.54	2.47	2.40	2.34	2.29	2.24	2.19	2.15	2.11	2.08
090M12-62	3.50	3.30	3.13	2.99	2.88	2.78	2.69	2.62	2.55	2.48	2.43	2.38	2.33	2.28	2.24	2.20
090M12-75	3.69	3.47	3.30	3.15	3.03	2.92	2.83	2.75	2.68	2.61	2.55	2.50	2.45	2.40	2.36	2.32
090M14-75	3.87	3.64	3.46	3.31	3.18	3.07	2.98	2.89	2.81	2.74	2.68	2.63	2.57	2.52	2.48	2.44
090M16-75	4.04	3.80	3.61	3.45	3.32	3.22	3.10	3.01	2.93	2.86	2.80	2.74	2.68	2.63	2.59	2.54
090M18-75	4.19	3.94	3.74	3.58	3.44	3.32	3.22	3.13	3.04	2.97	2.90	2.84	2.78	2.73	2.68	2.64
090M20-75	4.33	4.07	3.87	3.70	3.56	3.43	3.33	3.23	3.15	3.07	3.00	2.94	2.88	2.82	2.77	2.72
100M12-50	3.58	3.37	3.20	3.06	2.94	2.84	2.75	2.67	2.60	2.54	2.48	2.43	2.38	2.33	2.29	2.25
100M14-70	4.12	3.87	3.68	3.52	3.38	3.27	3.16	3.07	2.99	2.92	2.85	2.79	2.74	2.68	2.64	2.59
100M20-70	4.60	4.33	4.11	3.93	3.78	3.65	3.54	3.45	3.35	3.26	3.19	3.12	3.06	3.00	2.95	2.90
120M12-50	4.11	3.87	3.67	3.51	3.38	3.26	3.16	3.07	2.88	2.81	2.76	2.71	2.66	2.62	2.58	2.54
120M12-62	4.35	4.09	3.89	3.72	3.57	3.45	3.34	3.25	3.17	3.08	3.01	2.95	2.89	2.84	2.78	2.74
120M12-75	4.56	4.30	4.08	3.90	3.75	3.62	3.51	3.41	3.32	3.24	3.16	3.10	3.03	2.98	2.92	2.87
120M14-75	4.80	4.51	4.29	4.10	3.94	3.81	3.69	3.58	3.49	3.40	3.32	3.25	3.19	3.13	3.07	3.02
120M16-75	5.00	4.71	4.47	4.28	4.11	3.98	3.85	3.74	3.64	3.55	3.47	3.39	3.33	3.26	3.20	3.15
120M18-75	5.19	4.89	4.65	4.44	4.27	4.12	3.99	3.88	3.78	3.68	3.60	3.52	3.45	3.39	3.33	3.27
120M20-75	5.37	5.05	4.80	4.59	4.42	4.26	4.13	4.01	3.90	3.81	3.72	3.64	3.57	3.50	3.44	3.38
150M12-50	4.89	4.60	4.37	4.18	4.01	3.88	3.75	3.65	3.55	3.46	3.39	3.31	3.25	3.19	3.13	3.01
150M12-62	5.15	4.85	4.61	4.40	4.23	4.09	3.96	3.85	3.75	3.65	3.58	3.49	3.42	3.36	3.30	3.24
150M12-75	5.40	5.08	4.83	4.61	4.44	4.28	4.15	4.03	3.92	3.83	3.74	3.66	3.59	3.52	3.46	3.40
150M14-75	5.65	5.31	5.05	4.83	4.64	4.48	4.34	4.22	4.10	4.00	3.91	3.83	3.75	3.68	3.62	3.56
150M16-75	5.89	5.54	5.27	5.04	4.84	4.68	4.53	4.40	4.28	4.18	4.08	4.00	3.92	3.84	3.77	3.71
150M18-75	6.13	5.77	5.48	5.24	5.04	4.86	4.71	4.57	4.45	4.35	4.25	4.16	4.07	4.00	3.92	3.86
150M20-75	6.34	5.97	5.67	5.42	5.21	5.03	4.88	4.74	4.61	4.50	4.40	4.30	4.22	4.14	4.07	3.99
180M12-50	5.48	5.20	4.98	4.80	4.63	4.47	4.33	4.21	4.10	4.00	3.91	3.82	3.75	3.68	3.49	3.31
180M12-62	5.93	5.58	5.30	5.07	4.87	4.71	4.56	4.43	4.31	4.21	4.11	4.02	3.94	3.87	3.80	3.68
180M12-75	6.20	5.83	5.54	5.30	5.10	4.92	4.77	4.63	4.51	4.40	4.30	4.21	4.12	4.04	3.97	3.91
180M14-75	6.49	6.10	5.80	5.55	5.33	5.15	4.99	4.84	4.72	4.60	4.50	4.40	4.31	4.23	4.16	4.09
180M16-75	6.77	6.37	6.05	5.79	5.37	5.38	5.21	5.06	4.92	4.80	4.69	4.59	4.51	4.50	4.34	4.26
180M18-75	7.03	6.62	6.29	6.01	5.78	5.58	5.41	5.25	5.11	4.99	4.87	4.77	4.67	4.59	4.50	4.43
180M20-75	7.27	6.84	6.50	6.22	5.98	5.77	5.59	5.43	5.29	5.16	5.04	4.93	4.83	4.74	4.66	4.58
210M12-50	6.37	5.46	5.23	5.04	4.87	4.73	4.60	4.49	4.38	4.29	4.20	4.12	4.05	3.98	3.80	3.61
210M12-62	6.69	6.29	5.98	5.72	5.50	5.31	5.14	4.99	4.86	4.74	4.64	4.54	4.45	4.36	4.22	4.01
210M13-75	7.13	6.71	6.38	6.10	5.86	5.66	5.48	5.33	5.19	5.06	4.94	4.84	4.74	4.65	4.37	4.15
210M16-75	7.63	7.18	6.82	6.52	6.27	6.05	5.86	5.70	5.55	5.41	5.29	5.17	5.06	4.78	4.52	4.30
210M18-75	7.92	7.45	7.08	6.77	6.51	6.29	6.09	5.91	5.76	5.62	5.49	5.37	5.22	4.93	4.67	4.44
210M20-75	8.19	7.71	7.32	7.00	6.73	6.50	6.30	6.12	5.96	5.81	5.68	5.56	5.39	5.09	4.82	4.58

Oniform Horizontal Pressure (kiv/m ⁻)																
Section Reference	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
240M12-50	7.09	6.68	6.34	6.07	5.09	4.94	4.81	4.69	4.58	4.48	4.39	4.31	4.24	4.01	3.80	3.61
240M13-62	7.63	7.18	6.82	6.52	6.27	6.05	5.68	5.54	5.41	5.29	5.18	5.02	4.72	4.46	4.22	4.01
240M13-75	7.94	7.48	7.10	6.79	6.53	6.31	6.11	5.93	5.78	5.64	5.51	5.19	4.89	4.62	4.37	4.15
240M16-75	8.46	7.96	7.56	7.24	6.96	6.72	6.51	6.32	6.15	6.00	5.73	5.37	5.06	4.78	4.52	4.30
240M18-75	8.79	8.27	7.51	7.22	7.23	6.98	6.76	6.56	6.39	6.23	5.92	5.55	5.22	4.93	4.67	4.44
240M20-75	9.09	8.56	8.13	7.77	7.47	7.21	6.99	6.79	6.61	6.45	6.11	5.73	5.39	5.09	4.82	4.58
270M13-50	7.64	7.25	6.94	6.68	6.45	6.25	6.08	5.00	4.89	4.78	4.69	4.51	4.25	4.01	3.80	3.61
270M13-62	8.38	7.88	7.49	7.16	6.89	6.65	6.44	6.26	6.09	5.50	5.35	5.02	4.72	4.46	4.22	4.01
270M16-75	9.32	8.77	8.33	7.97	7.66	7.40	7.17	6.96	6.61	6.14	5.73	5.37	5.06	4.78	4.52	4.30
270M18-75	9.68	9.11	8.65	8.28	7.96	7.68	7.44	7.23	6.83	6.34	5.91	5.55	5.22	4.93	4.67	4.44
270M20-75	10.00	9.42	8.95	8.56	8.23	7.95	7.70	7.48	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
300M13-50	7.90	7.51	7.19	6.92	6.69	6.48	6.31	6.02	5.06	4.95	4.82	4.51	4.25	4.01	3.80	3.61
300M16-62	9.73	9.18	8.72	8.34	8.02	7.74	7.30	6.69	6.18	5.73	5.35	5.02	4.72	4.46	4.22	4.01
300M18-75	10.00	9.90	9.41	9.00	8.65	8.35	8.08	7.40	6.83	6.34	5.92	5.55	5.22	4.93	4.67	4.44
300M20-75	10.00	10.00	9.73	9.31	8.95	8.64	8.33	7.64	7.05	6.55	6.11	5.55	5.39	5.09	4.82	4.58
300M25-89	10.00	10.00	10.00	10.00	9.99	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
300M29-89	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
350M18-54	9.63	9.16	8.78	8.46	8.19	7.95	7.74	7.40	6.83	6.34	5.92	5.55	5.22	4.93	4.67	4.44
350M20-68	10.00	10.00	10.00	10.00	9.84	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
350M23-84	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
350M25-84	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58
350M29-84	10.00	10.00	10.00	10.00	10.00	9.17	8.33	7.64	7.05	6.55	6.11	5.73	5.39	5.09	4.82	4.58

Maximum spans in above infill walling load table based on:

1. Unfactored horizontal pressure.

Studs at 600mm centres.
 Deflection limited to height/500.

Deflection limited to height/sou.
 Blocking and strapping at mid height for studs higher than 3.00m, third span blocking and strapping required for studs higher than 6.00m.
 Maximum external cladding weights of 0.50kN/m².
 Studs fixed into 1.2mm base track.
 90mm, 100mm, 120mm, 150mm & 180mm studs fixed to voestalpine Metsec 1.6mm Slotted Deflection Head Track.
 210mm, 240mm, 270mm, 300mm, 350mm studs fixed at head using standard 2.0mm head track with blocking and strapping detail.

Uniform Horizontal Pressure (kN/m²)

Building Regulations Part B - Fire:

The requirements for Fire protection will normally be found in the relevant annexe of the Building regulations, Part B, and often specific fire strategy reports are generated.

The fire ratings published in this document are tested and/ or assessed for use with Metsec SFS sections and cannot be used with other systems.

All performance claims by manufacturers for fire resistance must be substantiated by test or assessment reports by UKAS accredited laboratories. Installations must be in strict accordance with the report data for types of materials used, components and assembly details. Unwarranted site modifications can jeopardize performance; in particular services and these should be well coordinated and often involve fire stopping.

All fire test data in this infill walling section is to BS EN 1364-1: 2015. All test data is based on unique UKAS accredited tests and UKAS accredited scope of testing. The tests are carried out in UKAS accredited furnaces measuring 3m square.

The results of our fire tests with each type of sheathing board are displayed in two types of tables:

- » Non Boundary Walls Fire exposure from the inside of the building only where the integrity failure is rounded down to the nearest 30 minutes. The insulation failure occurs at a minimum of 15 minutes into the test. Designed to meet the requirements of Approved Document B, Volumes 1 & 2, (2019 edition incorporating 2020 and 2022 amendments), table B3, section 5b.
- » Boundary Walls Fire exposure from each side separately where the integrity and insulation failures (whichever occurs first) are rounded down to the nearest 30 minutes. Designed to meet the requirements of approved document B, table B3, section 5a.

Thicknesses of materials are displayed as the minimum thicknesses to meet the fire test requirements. Thicknesses may be increase, see below commentary on the field of direct application of fire tests.

Field of Direct Application of Fire Test Results

Changes can be made to the tested construction in accordance with BS EN 1364-1:2015 section 13. These are known changes that would not negatively affect the fire resistance of the wall. These allowed changes are listed below:

- a) decrease in height
- b) increase in the thickness of the wall
- c) increase in the thickness of component materials
- d) decrease in linear dimensions of boards but not thickness
- e) decrease in stud spacing
- f) decrease in distance of fixing centres
- g) increase in the number of horizontal joints, of the type tested, when tested with one joint not more than (500+/-150)mm from the top edge

For test specimens tested without a supporting construction, the width of an identical construction may be increased as the specimen was tested at nominally 3m wide with one vertical edge without restraint.

The height of the construction may be increase by 1m under the following conditions,

- a) minimum tested height is 3m when tested without a supporting construction
- b) the maximum deflection of the test specimen was not in excess of 100mm
- c) the expansion allowances are increased pro-rata

In all the fire results displayed on the following tables the field of direct application means that steel stud, board and insulation thicknesses can be increase above what is listed. The width of the wall can be increase and the height increased to 4m.

For heights above 4m and other changes reference is made to BS EN 15254-3:2019, Extended application of results from fire resistance testing – Non load bearing walls, Part 3: Lightweight partitions.

Extended application of results from fire resistance tests – BS EN 15254-3:2019

This standard covers lightweight partitions to a greater extent than the field of direct application.

Relevant changes (not covered by the field of direct application) can include:

- » Increase in board layers
- » Increase in board dimensions
- » Increases and decreases in steel profile shape
- » Exchange of glass wool insulation with mineral (stone) wool insulation
- » Increase of height above 4m

Heights above 4m are the most common changes, and in this case Metsec can provide a calculation in accordance with BS EN 15254-3:2019 national annex.

Fire Performance with Euroform Versaroc, Easyboard & Versapanel A2 Sheathing Boards





Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm insulation to the stud void, see table below.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code
Fire Per	formance from insi	de E = 60 MINUTE	S – TO E	3S EN 1364-1:	2015	
E1i-2V	2x12.5mm BG Wallboard	Euroform Easyboard	90mm	None	EUI-22-000382-A 24	E1-N090-B20 (R100)4
E2i-2V	2x15mm BG Soundbloc	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1165 ¹³	D075-U1-N090-B25 (A050) ³
Fire Pe	rformance from Ins	ide E = 90 MINUT	ES – TO	BS EN 1364-1	:2015	
E2i-2V	2x15mm Knauf Fire Panel	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1188 ¹³	D075-U1-N090-K23 (A050) ³
ire Per	formance from Insi	ide E = 120 MINU	TES – TO	BS EN 1364-	1:2015	
E1-2V	2x12.5mm BG Fireline	Euroform Versaroc	90mm	None	Tecnalia 091123-001-1 ²	U1-N090-B22
E1-2V	2x12.5mm BG Fireline	Euroform Versapanel A2	90mm	None	Tecnalia 091123-002-1 $^{\scriptscriptstyle 2}$	T1-N090-B22
E2i-2V	2x15mm BG Fireline	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-115713	D075-U1-N090-B23 (A050) 3

Fire Performance for Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code
Fire Perf	formance fro	om each s	ide sepa	arately EI = 6	0 MINUTES - TO	BS EN 1364-1:201	15
E1i-2V	2x12.5mm BG Wallboard	Euroform Easyboard	90mm	None	EUI-22-000382-A ²⁴	EUI-22-000382-B ²⁴	E1-N090-B20 (R100)4
Fire Perf	formance fro	om each s	ide sepa	arately EI = 9 0	0 MINUTES - TO	BS EN 1364-1:201	15
E2i-2V	2x15mm Knauf Fire Panel	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1188 ¹³	BRE P100456-119013	D075-U1-N090-K23 (A050) ³
Fire Perf	formance fro	om each s	ide sepa	arately EI = 1 2	20 MINUTES - TC	BS EN 1364-1:20)15
E2i-2V	2x12.5mm BG Fireline	Euroform Versaroc	90mm	75mm Rockwool Duoslab	Tecnalia 091123-001-1 ²³	BRE P100456-116813	D075-U1-N090-B22 (A050) ³

In the table above the sheathing boards are 12mm thick.

- 1. Test to BS EN 1365-1:2012 Insulation and Integrity Performance taken from these tests.
- Test owned by Sheathing Board Manufacturer, contact Euroform for test report.
- Test conducted with 50mm thick Isover APR in the stud cavity.
- Test conducted with 100mm thick Book wool RWA45 in the stud cavity.
- INFILL WALLING



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm insulation to the stud void, see table below.

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Fire Performance with RCM Y-Wall, Densglass & Multipurpose Sheathing Boards



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single laver of sheathing board to the outside face. Minimum of 50mm insulation to the stud

void, see table below.

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face.



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm insulation to the stud void, see table below.

Fire Performance for Non-Boundary Walls

Wall Type	e Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code
Fire Pe	rformance from insid	de E = 60 MINUT	ES - TO B	SEN 1364-1:2	2015	
E2-2Y	2x12.5mm BG Wallboard	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1166	D075-Y1-N090-B20
E2i-2Y	2x15mm BG Soundbloc	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1110 ¹³	D075-Y1-N090-B25 (A050) ³
Fire Pe	erformance from Insi	de E = 90 MINU	TES - TO I	BS EN 1364-1:	2015	
E1-2Y	2x12.5mm BG Fireline	RCM Densglass	90mm	None	EUI-19-000124-A-A ²	D1-N090-B22
E1-2Y	2x15mm BG Fireline	RCM Densglass	90mm	None	EUI-19-B-000148-A ²	D1-N090-B23
E1-2Y	2x15mm BG Fireline	RCM Multipurpose	90mm	None	EUI-19-B-000121-B ²	M1-N090-B23
E1i-2Y	2x15mm Knauf Soundshield Plus	RCM Y-Wall	90mm	None	BRE P100456-1025 ¹³	Y1-N090-K25 (A050) ³
Fire Pe	rformance from Insid	de E = 120 MINU	TES - TO	BS EN 1364-1	:2015	
E1-2Y	2x12.5mm BG Fireline	RCM Y-Wall	90mm	None	BRE P100456-1011	Y1-N090-B22

E1-2Y	2x12.5mm BG Fireline	RCM Y-Wall	90mm	None	BRE P100456-1011	Y1-N090-B22
E1-2Y	2x12.5mm Knauf Fire Panel	RCM Y-Wall	90mm	None	BRE P100456-1016	Y1-N090-K22
E1-2Y	2x12.5mm Siniat Fireboard	RCM Y-Wall	90mm	None	BRE P100456-1018	Y1-N090-S22
E1-2Y	2x15mm BG Fireline	RCM Y-Wall	90mm	None	BRE P100456-1196	Y1-N090-B23
E1-2Y	2x15mm Knauf Fire Panel	RCM Y-Wall	90mm	None	BRE P100456-1017	Y1-N090-K23
E1-2Y	2x15mm Siniat Fireboard	RCM Y-Wall	90mm	None	BRE P100456-1013	Y1-N090-S23
E2-2Y	2x12.5mm BG Fireline	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1153	D075-Y1-N090-B22
E2-2Y	, 2x12.5mm Knauf Fire Panel	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1049	D075-Y1-N090-K22

In the table above the RCM Y-Wall & Multipurpose is 12mm thick and the RCM Densglass is 12.5mm thick.

1. Test to BS EN 1365-1:2012 - Insulation and Integrity Performance taken from these tests.

2. Test owned by Sheathing Board Manufacturer, contact RCM for test report.

3. Test conducted with 50mm thick Isover APR in the stud cavity.

Fire Performance with RCM Y-Wall, Densglass & Multipurpose Sheathing Boards continued



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single laver of sheathing board to the outside face. Minimum of 50mm insulation to the stud void, see table below.

Fire Performance for Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code		
Fire Performance from each side separately EI = 60 MINUTES - TO BS EN 1364-1:2015									
E1-2Y	2x12.5mm BG Fireline	RCM Y-Wall	90mm	None	BRE P100456-1011	BRE P100456-1119	Y1-N090-B22		
E1-2Y	2x15mm BG Fireline	RCM Densglass	90mm	None	EUI-19-B-000148-A ²	EUI-19-B-000148-B ²	D1-N090-B23		
E1-2Y	2x15mm BG Fireline	RCM Multipurpose	90mm	None	EUI-19-B-000121-B ²	EUI-19-B-000124-B ²	M1-N090-B23		
E2-2Y	2x12.5mm BG Wallboard	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1166	BRE P100456-1202	D075-Y1-N090-B20		
Fire Pe	rformance fr	rom each s	side sep	arately EI = 9	0 MINUTES - TO	BS EN 1364-1:20	15		
E2i-2Y	2x15mm BG Soundbloc	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-11101	BRE P100456-11321	D075-Y1-N090-B25 (A050) ³		
Fire Per	formance fr	om each s	ide sep	arately EI = 1 2	20 MINUTES - TO	BS EN 1364-1:20	15		
E2-2Y	2x12.5mm BG Fireline	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-11534	BRE P100456-1170	D075-Y1-N090-B22		
E2-2Y	2x12.5mm Knauf Fire Panel	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1049	BRE P100456-1051	D075-Y1-N090-K22		
E2-2Y	2x15mm Knauf Fire Panel	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1017 4	BRE P100456-1048	D075-Y1-N090-K23		

In the table above the RCM Y-Wall is 12mm thick and the RCM Densglass is 12.5mm thick.

1. Test to BS EN 1365-1:2012 - Insulation and Integrity Performance taken from these tests.

2. Test owned by Sheathing Board Manufacturer, contact RCM for test report.

3. Test conducted with 50mm thick Isover APR in the stud cavity.

4. Test done without the external insulation, addition of the insulation makes the results no worse than tested.



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face.

Fire Performance with BG Glasroc X Sheathing Boards



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face.

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm insulation to the stud void, see table below.

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face.

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm insulation to the stud void, see table below.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code			
Fire Performance from inside E = 60 MINUTES - TO BS EN 1364-1:2015									
E2-2X	2x12.5mm BG Wallboard	BG Glasroc X	90mm	75mm Rockwool Duoslab	BRE P100456-1065	D075-X1-N090-B20			
Fire Pe	rformance from Insic	de E = 90 MINU	JTES - TO E	3S EN 1364-1:	2015				
E2-1X	1x15mm BG Fireline	BG Glasroc X	90mm	75mm Knauf Rocksilk	BRE P100456-1121	E075-X1-N090-B13			
Fire Performance from Inside E = 120 MINUTES - TO BS EN 1364-1:2015									
E1-2X	2x12.5mm BG Fireline	BG Glasroc X	90mm	None	BRE P100456-1067	X1-N090-B22			
E1i-2X	2x12.5mm BG Fireline	BG Glasroc X	90mm	None	BRE P100456-1094 1	X1-N090-B22 (R050) 1			

Fire Performance for Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code	
Fire Performance from each side separately EI = 60 MINUTES - TO BS EN 1364-1:2015								
E1-2X	2x12.5mm BG Fireline	BG Glasroc X	90mm	None	BRE P100456-1067	BRE P100456-1063	X1-N090-B22	
E1i-2X	2x12.5mm BG Fireline	BG Glasroc X	90mm	None	BRE P100456-10941	BRE P100456-10991	X1-N090-B22 (R050) ¹	
E2-1X	1x15mm BG Fireline	BG Glasroc X	90mm	75mm Knauf Rocksilk	BRE P100456-1121	BRE P100456-1232	E075-X1-N090-B13	
E2-2X	2x12.5mm BG Wallboard	BG Glasroc X	90mm	75mm Rockwool Duoslab	BRE P100456-1065	BRE P124545-1008	D075-X1-N090-B20	

In the table above the BG Glasroc X is 12.5mm thick.

1. Test conducted with 50mm thick Rockwool RWA45 in the stud cavity.

Fire Performance with Siniat Weather Defence Sheathing Boards





Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face

Metsec SFS External Wall with a single layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	g Minimu Stud Depth	n External Insulation	Fire Test Laboratory and Number	System Code
Fire Perf	formance from ins	side E = 60 M	INUTES - TC) BS EN 1364-1:	2015	
E1-2W	2x12.5mm Siniat Fireboard	Siniat Weather D	efence 90mn	n None	BRE P124545-1010	W1-N090-S22
E2-1W	1x15mm Siniat Fireboard	Siniat Weather D	efence 90mm	n 75mm Knauf Rocksilk	BRE P100456-1131	E075-W1-N090-S13
E2-2W	2x12.5mm BG Wallboard	Siniat Weather D	efence 90mm	n 75mm Rockwool Duoslab	BRE P100456-1071	D075-W1-N090-B20
Fire Perf	formance from In	side E = 90 M	INUTES - TO) BS EN 1364-1:	2015	
E2-2W	2x12.5mm Siniat Fireboard	Siniat Weather D	efence 90mm	75mm Rockwool Duoslab	BRE P124545-1012	D075-W1-N090-S22
Fire Perf	formance from In	side E = 120 h	1INUTES - T	O BS EN 1364-1	:2015	
E1-2W	2x12.5mm BG Fireline	Siniat Weather D	efence 90mm	n None	BRE P100456-1152	W1-N090-B22
E2-2W	2x12.5mm BG Fireline	Siniat Weather D	efence 90mn	n 75mm Knauf Rocksilk	BRE P100456-1078	E075-W1-N090-B22
Fire Perf	formance for Bour	ndary Walls				
Wall Type	Plasterboard Sheat Lining Boo	thing Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code
Fire Perf	formance from ec	ach side sepa	rately EI = 3	0 MINUTES - TO	BS EN 1364-1:20	15
E2-1W	1x15mm Siniat Siniat W	eather 90mm	75mm Knauf	BRE P100456-1131	BRE P100456-1201	E075-W1-N090-S13

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Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code	
Fire Performance from each side separately EI = 30 MINUTES - TO BS EN 1364-1:2015								
E2-1W	1x15mm Siniat Fireboard	Siniat Weather Defence	90mm	75mm Knauf Rocksilk	BRE P100456-1131	BRE P100456-1201	E075-W1-N090-S13	
Fire Performance from each side separately EI = 60 MINUTES - TO BS EN 1364-1:2015								
E1-2W	2x12.5mm Siniat Fireboard	Siniat Weather Defence	90mm	None	BRE P124545-1010	BRE P124545-1011	W1-N090-S22	
E2-2W	2x12.5mm BG Wallboard	Siniat Weather Defence	90mm	75mm Rockwool Duoslab	BRE P100456-1071	BRE P100456-1231	D075-W1-N090-B20	
Fire Per	formance fr	om each si	de sepo	arately EI = 9(MINUTES - TO	BS EN 1364-1:201	15	
E1-2W	2x12.5mm BG Fireline	Siniat Weather Defence	90mm	None	BRE P100456-1152	BRE P100456-1073	W1-N090-B22	
E2-2W	2x12.5mm Siniat Fireboard	Siniat Weather Defence	90mm	75mm Rockwool Duoslab	BRE P124545-1012	BRE P124545-1013	D075-W1-N090-S22	
Fire Performance from each side separately EI = 120 MINUTES - TO BS EN 1364-1:2015								
E2-2W	2x12.5mm BG Fireline	Siniat Weather Defence	90mm	75mm Knauf Rocksilk	BRE P100456-1078	BRE P100456-1075	E075-W1-N090-B22	

In the tables above the Siniat Weather Defence is 12.5mm thick.



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face

Fire Performance with Knauf Windliner Sheathing Boards





Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face

Metsec SFS External Wall with a single layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm insulation to the stud void, see table below.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code		
Fire Performance from inside E = 60 MINUTES - TO BS EN 1364-1:2015								
E2-1Z	1x15mm Knauf Fire Panel	Knauf Windliner	90mm	75mm Knauf Rocksilk	BRE P100456-1127	E075-Z1-N090-S13		
Fire Perf	ormance from Insid	de E = 90 MINU	ES - TO B	S EN 1364-1:	2015			
E1-2Z	2x12.5mm BG Fireline	Knauf Windliner	90mm	None	BRE P100456-1115	Z1-N090-B22		

Fire Performance with Klasse G Board (Outwear) Sheathing Boards



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboo Lining	ard	Sheathing Board	Minimur Stud Depth	m External Insulation	Fire Test Laboratory and Number	System Code		
Fire Performance from inside E = 120 MINUTES - TO BS EN 1364-1:2015									
E1-2G	2x12.5mm BG	Fireline	Klasse G Board	d 90mm	None	UKTestCert 202200530-101415A1	G1-N090-B22		
Fire Perf	ormance for	r Boundaı	ry Walls						
Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code		
Fire Performance from each side separately EI = 90 MINUTES - TO BS EN 1364-1:2015									
E1-2G	2x12.5mm BG Fireline	Klasse G Board	90mm	None	UKTestCert 202200530-101415A ¹	UKTestCert 20220722-004409A1	G1-N090-B22		

Wall Type	Plasterboo Lining	ard	Sheathing Board	Minimu Stud Depth	m External Insulation	Fire Test Laboratory and Number	System Code		
Fire Performance from inside E = 120 MINUTES - TO BS EN 1364-1:2015									
E1-2G	2x12.5mm BG	Fireline	Klasse G Board	d 90mm	n None	UKTestCert 202200530-101415A1	G1-N090-B22		
Fire Perf	ormance for	Boundar	y Walls						
Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code		
Fire Performance from each side separately EI = 90 MINUTES - TO BS EN 1364-1:2015									
E1-2G	2x12.5mm BG Fireline	Klasse G Board	90mm	None	UKTestCert 202200530-101415A1	UKTestCert 20220722-004409A1	G1-N090-B22		

Fire Performance for Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code
Fire Performance from each side separately EI = 60 MINUTES - TO BS EN 1364-1:2015							
E1-2Z	2x12.5mm BG Fireline	Knauf Windliner	90mm	None	BRE P100456-1115	BRE P100456-1109	Z1-N090-B22
E2i-2Z	2x12.5mm BG Fireline	Knauf Windliner	90mm	75mm Rockwool Duoslab	BRE P100456-1186 ¹²	BRE P100456-1113 ¹²	D075-Z1-N090-B22 (A050) ²

In the tables above the Knauf Windliner is 12.5mm thick.

1. Test to BS EN 1365-1:2012 - Insulation and Integrity Performance taken from these tests.

2. Test conducted with 50mm thick Isover APR in the stud cavity.

In the tables above the Klasse G Board is 12.5mm thick.

1. Test owned by Sheathing Board Manufacturer, contact Klasse for test report.

Fire Performance with Obex Cortex 0270FR Sheathing Boards





Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm insulation to the stud void, see table below. Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code		
Fire Performance from inside E = 90 MINUTES - TO BS EN 1364-1:2015								
E1i-2X	2x12.5mm BG Wallboard	Obex Cortex FR	90mm	None	UKTestCert 20220726-00500912	C1-N090-B20 (R075) ²		
Fire Per	rformance from insid	e E = 120 MIN	JTES - TO	BS EN 1364-1	:2015			
E2-2X	2x12.5mm BG Fireline	Obex Cortex FR	90mm	75mm Rockwool Duoslab	UKTestCert 20230105-0002091	D075-C1-N090-B22		

Fire Performance for Boundary Walls									
Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code		
Fire Perf	Formance fr	om each s	ide sepo	arately EI = 9 0	0 MINUTES - TO	BS EN 1364-1:20	15		
E2-2X	2x12.5mm BG Fireline	Obex Cortex FR	90mm	75mm Rockwool Duoslab	UKTestCert 20230105-0002091	UKTestCert 20221121-00053121	D075-C1-N090-B22		

Building Regulations Part L – Conservation of fuel and power:

The U-Values published in this section have been obtained by the combined method, which takes account of the performance of the individual elements making up the wall construction. These values are for guidance only and should be confirmed with the insulation provider or by the consultant providing the SAP calculations.

Depending on the stud depth used in the wall construction additional insulation between the studs may help reduce the external insulation thickness. A condensation risk analysis should be completed if the insulation between the studs makes up more than a third of the overall insulation performance of the wall.

Where generic materials are referenced the following thermal conductivities have been used:

- » 12mm sheathing board, λ = 0.25 W/mK
- » 12.5mm plasterboard, λ = 0.24 W/mK
- » 102mm Brickwork, $\lambda = 0.77$ W/mK
- » Isover APR 1200, λ = 0.044 W/mK

In the tables above the Obex Cortex FR is 12mm thick.

1. Test owned by Sheathing Board Manufacturer, contact Obex for test report.

2. Test conducted with 100mm thick Rockwool RWA45 in the stud cavity.

Thermal Performance Table – Brick Cladding

Thermal Performance Table – Ventilated Rainscreen Cladding



Type EC1: Two layers of plasterboard, stud, sheathing board, insulation, cavity, brickwork.



Type EC1i: Two layers of plasterboard, stud with minimum 50mm ISOVER APR 1200 insulation to the stud void, sheathing board, insulation, cavity, brickwork.

U- Value	Wall Typ	e EC1	Wall Type EC1i		
Required	Rockwool Duoslab (mm)	Knauf Rocksilk (mm)	TW55 (mm)	K15 (mm)	
0.30	90	90	65	65	
0.29	95	95	65	65	
0.28	100	100	70	70	
0.27	105	105	75	75	
0.26	110	110	80	80	
0.25	115	115	85	85	
0.24	120	120	90	90	
0.23	130	130	100	95	
0.22	135	130	105	105	
0.21	145	140	115	115	
0.20	150	145	120	120	
0.19	160	155	130	125	
0.18	170	165	140	135	
0.17	180	175	150	150	
0.16	195	190	165	160	
0.15	210	205	180	175	
0.14	225	220	195	190	
0.13	245 ¹	235	215	205	
0.12	265 ¹	2601	235	230	
0.11	290 ¹	2851	260 ¹	255 ¹	
0.10	320 ¹	310 ¹	290 ¹	280 ¹	
	1				

All U-Values are based on calculations carried out by voestalpine Metsec plc to BS EN ISO 6946:2017 and BR 443 (2019). The example values are based on published χ values for the stated insulation types; RCM Y-Wall sheathing board; 90M12-50 studs at 600mm centres; and 2x12.5mm British Gypsum Gyproc Fireline. U-Value calculations should be verified by the insulation provider.

1. Double insulation boards required, boards should be roughly equal thickness

2. Brick tie channels fixed at 450mm vertical centres with stainless steel stand off screws fixing to the studs through insulation



Type EC2: Two layers of plasterboard, stud, sheathing board, insulation, ventilated rainscreen

U- Value Required	Wall Type EC2						Wall Type EC2i					
	Rockwool Duoslab (mm)			Knauf Rocksilk (mm)			Rockwool Duoslab (mm)			Knauf Rocksilk (mm)		
	Brackets at 600mm centres	Brackets at 900mm centres	Brackets at 1200mm centres									
0.30	130	120	115	130	115	110	100	90	85	100	90	85
0.29	135	125	120	135	120	115	105	95	90	105	95	90
0.28	145	130	125	140	125	120	115	100	95	110	100	95
0.27	150	135	130	145	130	125	120	105	100	115	105	100
0.26	160	145	140	155	140	130	125	115	110	125	110	105
0.25	165	150	145	160	145	140	135	120	115	130	115	110
0.24	175	160	150	170	155	145	145	130	120	140	125	120
0.23	185	170	160	180	160	155	155	135	130	150	135	130
0.22	200	180	170	195	170	160	165	145	140	160	140	135
0.21	210	195	180	205	180	170	180	155	145	175	155	145
0.20	230	200	190	220	195	180	195	170	160	190	165	155
0.19	245 ¹	215	200	240	205	195	210	180	170	205	175	165
0.18	270 ¹	230	215	260 ¹	220	205	230	195	185	225	190	180
0.17	290 ¹	250 ¹	230	280 ¹	240	220	255 ¹	215	200	250	210	195
0.16	315 ¹	270 ¹	250 ¹	310 ¹	260 ¹	240	280 ¹	235	215	275 ¹	230	210
0.15	350 ¹	290 ¹	270 ¹	340 ¹	280 ¹	260 ¹	315 ¹	260 ¹	235	305 ¹	250	230
0.14	-	320 ¹	295 ¹	-	310 ¹	285 ¹	350 ¹	285 ¹	260 ¹	345 ¹	280 ¹	255 ¹
0.13	-	350 ¹	325 ¹	-	340 ¹	310 ¹	-	320 ¹	290 ¹	-	310 ¹	280 ¹
0.12	-	-	350 ¹	-	-	345 ¹	-	-	325 ¹	-	350 ¹	315 ¹
0.11	-	-	-	-	-	-	-	-	-	-	-	350 ¹
0.10	-	-	-	-	-	-	-	-	-	-	-	-

All U-Values are based on calculations carried out by voestalpine Metsec plc to BS EN ISO 6946:2017 and BR 443 (2019). The example values are based on published χ values for the stated insulation types; RCM Y-Wall sheathing board; 90M12-50 studs at 600mm centres; and 2x12.5mm British Gypsum Gyproc Fireline. U-Value calculations should be verified by the insulation provider.

1. Double insulation boards required, boards should be roughly equal thickness

2. Insulation assumed to be broken by rainscreen support brackets at vertical centres selected.

3. Thermal performance may be increased by increasing the vertical centres of the brackets, especially for U-values less than 0.18.

4. If vertical centres greater than 600mm then confirmation should be obtained from cladding engineer to confirm this is acceptable.



Type EC2i: Two layers of plasterboard, stud with minimum 50mm ISOVER APR 1200 insulation to the stud void, sheathing board, insulation, ventilated rainscreen

Thermal Performance Table – Timber Cladding



Type EC3:Two layers of plasterboard, stud, sheathing board, insulation, battens, timber cladding.



Type EC3i: Two layers of plasterboard, stud with minimum 50mm ISOVER APR 1200 insulation to the stud void, sheathing board, insulation, battens, timber cladding.

U- Value Required	Wall Typ	e EC3	Wall Type EC3i			
	Rockwool Duoslab (mm)	Knauf Rocksilk (mm)	Rockwool Duoslab (mm)	Knauf Rocksilk (mm)		
0.30	105	100	75	75		
0.29	110	105	75	75		
0.28	110	110	80	80		
0.27	115	115	85	85		
0.26	120	120	90	90		
0.25	125	125	100	95		
0.24	135	130	105	100		
0.23	140	135	110	105		
0.22	145	140	115	115		
0.21	155	150	125	125		
0.20	160	155	130	130		
0.19	170	165	140	135		
0.18	180	175	150	145		
0.17	190	185	160	160		
0.16	205	200	175	170		
0.15	220	215	190	185		
0.14	235	230	205	200		
0.13	255 ¹	245	225	215		
0.12	275 ¹	270 ¹	245 ¹	240		
0.11	300 ¹	290 ¹	270 ¹	260 ¹		
0.10	330 ¹	320 ¹	300 ¹	290 ¹		

All U-Values are based on calculations carried out by voestalpine Metsec plc to BS EN ISO 6946:2017 and BR 443 (2019). The example values are based on published χ values for the stated insulation types; RCM Y-Wall sheathing board; 90M12-50 studs at 600mm centres; and 2x12.5mm British Gypsum Gyproc Fireline. U-Value calculations should be verified by the insulation provider.

Double insulation boards required, boards should be roughly equal thickness
 Timber battens assumed to be fixed with stainless steels screws at 300mm vertical centres fixing through insulation
 Timber battens are to be fixed on top of the insulation and not to penetrate the insulation thickness



ARCHITECTURAL DRAWINGS

These drawings are for visualisation purposes only



ARCHITECTURAL DRAWINGS

These drawings are for visualisation purposes only

F3D-03

Concrete Frame Edge Detail



F3D-04

Concrete Frame Parapet Detail

Facing brickwork.

ARCHITECTURAL DRAWINGS

These drawings are for visualisation purposes only

F3D-06

Party Wall to Concrete Column Detail





CASE STUDY THE BANK, BIRMINGHAM

Two new residential tower blocks in the heart of Birmingham

voestalpine Metsec's SFS steel framing system has been used extensively in the construction of two major landmark residential tower blocks in the heart of Birmingham.

The Bank development features two striking high-rise structures of 22 and 31 storeys, named Left Bank 1 and Left Bank 2, situated within easy reach of the Second City's major commercial, business and leisure districts.

Designed by local architects, Glancy Nicholls for client, the Regal Property Group, the two buildings provide a mixture of luxury apartments, hotel and retail facilities. Extending to more than 100 metres, the taller of the two is Birmingham's tallest residential building.

Wates Construction were appointed to build both tower blocks. The main structures were constructed from insitu reinforced concrete columns, beams and floors, with voestalpine Metsec SFS being specified by the architects to provide infill to support the external cladding and glazing systems.

Performance, speed and economy were all instrumental factors in the decision to opt for voestalpine Metsec SFS.

From a performance perspective, the external walls of both buildings needed to be constructed from non-combustible materials. voestalpine Metsec's ability to offer through-thewall guarantees of SFS's fire performance in use with a wide variety of insulation and cladding materials provided the assurance needed for this high-profile project.





SFS has ability to withstand high wind loadings

Critical to the specification of SFS for this project was its ability to withstand the high wind loadings stipulated by the structural engineer's calculations. Scale models of the buildings and their environment were used to undertake the fluid analysis which would determine potential wind loading on the structures' façades.

As a result, 150mm SFS was specified, providing the additional strength required by the structur engineer's calculations and greater flexibility during construction of the multi-storey building

Speed and, hence, economy were achieved throughout the SFS and cladding installation process, which was undertaken by voestalpine Metsec-approved installers Isec Interior System

SFS components were delivered to site on a just-in-time schedule from voestalpine Metsec's production facilities at Oldbury, just a few miles from the site. These were then combined with insulation, cladding and glazing elements to fabricate complete panels and lifted into positi

id s d	using mast climbers. This allowed all four sides of each storey to be completed simultaneously, enabling follow-on trades to move in quickly and construction to progress smoothly.
ıg	Safety was assured throughout the installation process thanks to the fact that the majority of operations could be completed from the inside of the building.
gs. ns.	voestalpine Metsec and SFS proved to be the ideal solution for both Bank 1 and Bank 2. We provided invaluable support at the design stage and the system installation was quick and trouble-free, allowing the project to be completed on schedule and the client to start realising returns on their investment.
's es ion	In addition to giving Birmingham two stunning pieces of iconic modern architecture, The Bank provides almost 400 individual apartments, many with spectacular views across the city and all perfectly situated for local bars, restaurants and workplaces.

CASE STUDY MILBURNGATE, DURHAM

SFS provides passport for success in city centre development.

voestalpine Metsec SFS has been used in the construction of a major new city centre redevelopment project in Durham.

Situated along the banks of the River Wear in the centre of Durham City, Milburngate is a 450,000 square-feet mixeduse redevelopment of a site previously occupied by HM Passport Office and National Savings & Investments.

The development, which is due to open this year, will feature high quality restaurants, bars, a boutique cinema and contemporary offices together with a 92-bedroom Premier Inn hotel, 153 luxury built-to-rent apartments and a 600-space car park.

With views over the UNESCO World Heritage Sites of Durham city centre, Milburngate provides the city with a stunning leisure, business and residential destination as well as creating hundreds of new employment opportunities.

Milburngate is being delivered in joint venture by Durhambased property business. Arlington Real Estate and the Richardson family, who together have already successfully delivered a number of important regeneration projects across the region.

Main contractors, Tolent specified voestalpine Metsec's lightweight, cold-rolled steel framing system, SFS for the external walls together with composite flooring on the hotel and three apartment buildings. The structures range from four to nine storeys in height and are constructed using a primary hot rolled steel frame.

Perfect illustration of the versatility of SFS

The decision to opt for voestalpine Metsec SFS was taken following discussions between Tolent, the project's architects and voestalpine Metsec's technical sales team, with voestalpine Metsec undertaking design at the start of the project and guaranteeing to meet the project's planned timescale for delivery. SFS Installation was undertaken by local specialists, James Paul Services Limited.

voestalpine Metsec's design included individual spacing of studs to suit the layout for the Stofix Brickslip heavy rainscreen cladding. Special consideration also needed to be given to fire resistance; with the primary steel frame being protected by intumescent paint, a 52mm gap was maintained between SFS studs and the frame's steel columns, whilst SFS sections that were fixed directly to the frame were finished with a similar intumescent surface treatment.





voestalpine Metsec Sales Manager, Andy Brayford comments, "Milburngate is a perfect illustration of the versatility of SFS in its ability to be used with a variety of primary frame materials, in this case hot rolled steel.

With our in-house team of experts taking care of system design, the SFS elements were manufactured to the precise requirements of the project, assuring efficiency in installation and enabling the project's construction schedules to be met."

CASE STUDY AMSTERDAM VALLEY, NFTHFRI ANDS

In a departure from the more common local habit of using timber, Dutch developers have used SFS steel framing systems from UK-based voestalpine Metsec to provide infill for the varied shapes, sizes and profiles of a major new development in Amsterdam.

Rising from the flat landscape of Amsterdam's Zuidas central business district is Amsterdam Valley, a strikina 100-metre high structure which presents an eve-catching jagged facade of stone terraces, bay windows and balconies, covered in dense greenery.

More redolent of a three-peaked mountain than a building, Amsterdam Valley is an innovative and sustainable mixeduse development commissioned by EDGE Technologies and designed by architects, MVRDV.

Providing panoramic views over the iconic city of Amsterdam, the Valley's 75,000 square metres of space accommodates 200 apartments, seven storeys of office space, a three-storey underground car park with space for 375 cars and 1,850 bicycles, and a variety of retail, leisure and cultural facilities, including bars, restaurants, gym, swimming pool and museum.

The project's bold design is matched by the courage of the construction consortium (Boele & van Eesteren and G&S Bouw) in selecting Metsec's lightweight steel framing system, rather than opting for the more usual Dutch solution of timber, to provide infill throughout the building.

Appointed to design, supply and install the SFS, British specialists. MTJ Builders were involved at the early stages of the Amsterdam Valley project, working with the project's design and construction teams to develop a scheme which would accommodate the building's striking outline as well as deliver the performance and efficiency for which SFS is renowned.

Kulwinder Lall of MTJ Builders comments, "The contractors needed an infill system which would support the bracketry for the natural stone cladding panels which had pretty much been cut by the time we were consulted. SFS provided a versatile and flexible solution which would also assure rapid progress when delivered to site.

"A full-sized working mock-up of one of the Valley's cells, using SFS as infill, convinced the development team of the system's efficacy. Working with voestalpine Metsec's design team, we produced designs and 3D models of the installation before manufacture, delivery and installation."



Produced to BIM standards, the SFS design was created to precisely match the architects' setting-out information, which determined the wall and opening locations. Each floor required between eighty and one hundred SFS panel section drawings, with the entire project requiring in excess of 5.000 drawinas.

To assist with co-ordination between the 3D models and site a bespoke SFS track Revit family was created with additional offset nodes, facilitating a mainly digital collaborative environment, with some hard copy drawings produced to assist installation.

As a BIM project, the location of each specific stud needed to be exact, as other parties would be reliant on the SFS model for subsequent installation of their own products and systems. This required each stud to be dimensioned from a datum to allow the SFS installation teams to position each stud precisely in its designated location.

Compared to timber or blockwork walls, SFS provides a lightweight solution which can be adapted on site to accommodate any variances in the main steel or concrete structural frame, ensuring a seamless fit at each stud location which proved invaluable in coping with the Valley's many and varied angles.

Lall concludes, "With the untimely intervention of Coronavirus during the SFS installation phases, Amsterdam Valley posed a few challenges. Fortunately, the digital environment created by voestalpine Metsec's design team assured close co-operation between ourselves, voestalpine Metsec and the contractors. The project went as smoothly as the pandemic would allow, with SFS proving its worth and justifying the Dutch development team's courage.

Some 9,500 square metres of voestalpine Metsec SFS was supplied to Amsterdam Valley, with a mixture of 90mm, 150mm, 240mm and 270mm stud sizes used according to requirements.

"The building's design was out of the ordinary and, for the Dutch construction industry, so was the SFS solution!"


SFS LOAD BEARING

INTRODUCING SFS LOAD BEARING...

SFS load bearing is a complete load bearing system suitable for structures up to 4 storeys without the need for a primary hot rolled or reinforced concrete frame.

Overview of SFS Load Bearing System

Load bearing structures make use of the axial capacity of the voestalpine Metsec SFS, with studs designed as a series of columns to provide complete load bearing wall panels.

The system provides a complete load-bearing superstructure for low to medium rise structures with all voestalpine Metsec components supplied to site then assembled in-situ with Tek screwed connections.

This system has many advantages over traditional methods of construction. It is light-weight, fast track, durable and is suitable for confined sites. This flexibility makes load bearing structures adding additional storeys to existing structure or re-purposing internal spaces or high level inset structures where it is important to keep the loads to a minimum. It also benefits from reduced crane and transport costs, when compared to pre-panellised solutions.

Design

voestalpine Metsec's technical team can offer advice on wall and floor build-ups and have a library of test details to substantiate performance data for a range of build-ups. A design and detailing service can be provided. For this process to work effectively, the following basic architectural information should be provided by the design team:

- » Wall set-outs and build-ups
- » Structural set-out of apertures in walls
- » Floor build-up and positions where trimming-out required
- » Roof build-up and set-out and details of feature (i.e. eaves/parapets/hatches etc.)
- » Junction detail with supporting elements

Please note:

Load bearing structures require a full voestalpine Metsec design prior to commencement of work on site.

		masonry claddin
Apertures Set to suit architectural layout. Lintel and jamb design is dependent on aperture configuration. A short section of stud is used as a support bracket	Walls Metsec lipped C-section studs storey height with track sections at base and head. Set-out/extent of SFS wall to suit architectural configuration and Metsec design requirements. Size/gauge and centres of studs as design.	
for lintels and cills. An additional stud is positioned adjacent to the jamb for a brick-tie channel where masonry cladding is required.	Bracing Flat strap bracing screw fixed to wall studs. Quantities and positions as Metsec design.	Floating Shown o
to ec joists.		

External Finishes most finishes.

ced riaid insulation for E . 1 . C . ng shown.

Ceiling

Resilient bars fixed to underside of Metsec joists.

SFS load bearing walls can provide support/restraint for

> Floor ver Metsec.

Roofs

Joists laid flat or with a fall to suit project.

Access hatches/rooflights can be incorporated where required.

Bracing requirements are dependent upon roof build-up. Parapet detail shown has studs continuous from floor below.

Joists supported by and fixed to end track which is fixed to studs.

End joists are also screwed to studs.

Blocking Detail

Solid blocking of joist section cut to fit snugly between every third joist and adjacent first/last joist. Design to determine requirements.

Floors

Metsec joists depth, gauge and centres to suit spans required. Joists supported by/fixed to track, screwed to wall head.

SECTION NAMES EXPLAINED

voestalpine Metsec section references are designed to be easy to read and understand at a glance. Each section type is identified by a unique reference consisting of three numerical values seperated by a letter or a dash.

Studs Sections (lipped sections)

Example stud reference – 090M12-50

- » 090 Refers to the section depth of 90mm (numbers ending in 0 are always lipped)
- » M Refers to voestalpine Metsec SFS
- » 12 Refers to the gauge (thickness) of the section i.e. 12 is 1.2mm thick
- » 50 Refers to the width or section flange of 50mm

Track Sections (un-lipped sections)

Example stud reference - 094M16-70S

- » 094 Refers to the section depth of 94mm (numbers ending in 4 or 6 are always un-lipped)
- » M Refers to voestalpine Metsec SFS
- » 16 Refers to the gauge (thickness) of the section i.e. 16 is 1.6mm thick
- » 70 Refers to the width or section flange of 70mm
- » S If present at the end of the section reference it means the section is slotted.

Colour Coding Explained

voestalpine Metsec prints stud or joist sections and track sections with references that are designed to be easy to read and understand at a glance. voestalpine Metsec prints the Metsec name and thickness down both flanges of the section and these are colour coded as follows:

- » BLACK = 1.2mm or 1.3mm thickness
- » RED = 1.4mm thickness
- » GREEN = 1.6mm thickness
- » ORANGE = 1.8mm thickness
- » BLUE = 2.0mm thickness

On our drawings any sections greater than 2.0mm or that are made up of multiple sections are shown in yellow so they are highlighted on the drawings.

All stud or joist sections and track sections have a string of numbers and letters printed down the back web along with our CE mark. This string of numbers identifies the order number, delivery, bundle number and individual section mark number which can be related back to your order confirmation and delivery notes.

INDUSTRY STANDARDS AND SOLUTIONS

Building Regulations Part A - Structure:

Th de	e voestalpine Metsec SFS load bearing system is esigned on a project basis to provide a structural	L N
so ro	of of the building.	s n c
vo 19 ina PE ar	vestalpine Metsec calculate wind loads to BS EN 191-1-4:2005+A1:2010 plus the UK national annex corporating the latest amendments and the use of 06688-1-4:2015, Background Information to EN 1991-1-4 and additional guidance.	F f
Th 19 5:1 co	e structural design of the SFS sections utilises BS EN 193-1-1:2022, BS EN 1993-1-3:2006 & BS EN 1993-1- 2006+A2:2019 plus UK national annexes and additional odes where appropriate.	»
Th nc	e design of the SFS load bearing system considers, but is at limited to:	>>
»	Structural capacity of the SFS sections	
»	Deflection of the SFS sections under load))
»	Connection of the SFS sections	
»	Stability of the structure	F
»	Disproportionate collapse where appropriate	C
»	Effect of the cladding and fixing method to the SFS sections	F tl

Load Tables:

Maximum span tables are provided for all standard SFS sections for typical joist applications. Please refer to the notes at the bottom of the tables for important information and deflection limits.

Floor joist tables and spans are limited to the following criteria:

The maximum deflection of a single joist subject to dead and variable loads is limited to the smaller of span/350 or 15mm.

The maximum deflection of a single joist subject only to imposed load is limited to span/450.

For the uniformly distributed load case of dead plus 20% of the variable load, the natural frequency of the floor should not be less than 8Hz.

The deflection of the complete floor when subject to a 1kN point load should be limited to values established at the Virginia Polytechnic Institute and State University.

For flooring used in public or corridors please consult voestalpine Metsec as more stringent vibration criteria applies which can reduce the maximum span of the joists.

For further information additional guidance is provided in the Steel Construction Institute publication P402.

Floor Joists with Acoustic Overlay

How to Use the Load Table:

The load tables in this section allow for simple sizing of the SFS sections for a given loading. Where openings are required within the floor, please contact voestalpine Metsec for the design of the supporting members.

The values given assume that the joists are fixed into a voestalpine Metsec 2.0mm track.

Uniform Load (kN/m²) at Joist Spacing (mm)

	Dead	Live	Dead	Live	Dead	Live	Dead	Live
Section Reference	1.00	1.50	1.25	1.50	1.00	2.00	1.00	3.00
	400	600	400	600	400	600	400	600
090M12-50	2.49	2.17	2.41	2.11	2.34	2.05	2.13	1.65
090M12-62	2.64	2.31	2.56	2.23	2.48	2.17	2.26	1.84
090M12-75	2.78	2.43	2.69	2.35	2.61	2.28	2.37	2.02
090M14-75	2.92	2.55	2.83	2.47	2.74	2.40	2.49	2.18
090M16-75	3.04	2.66	2.95	2.57	2.86	2.50	2.60	2.27
090M18-75	3.16	2.76	3.06	2.67	2.97	2.59	2.70	2.36
090M20-75	3.26	2.85	3.14	2.76	3.07	2.68	2.79	2.43
100M12-50	2.70	2.35	2.61	2.28	2.54	2.22	2.30	2.01
100M14-70	3.10	2.71	3.00	2.62	2.92	2.55	2.65	2.32
100M20-70	3.44	3.03	3.29	2.93	3.26	2.85	2.96	2.59
120M12-50	3.10	2.71	3.00	2.62	2.92	2.55	2.65	1.98
120M12-62	3.28	2.86	3.16	2.77	3.08	2.69	2.80	2.20
120M12-75	3.42	3.00	3.27	2.91	3.24	2.83	2.94	2.42
120M14-75	3.55	3.16	3.40	3.06	3.40	2.97	3.09	2.70
120M16-75	3.66	3.29	3.51	3.17	3.55	3.10	3.22	2.82
120M18-75	3.77	3.40	3.61	3.26	3.68	3.22	3.35	2.92
120M20-75	3.86	3.49	3.70	3.34	3.79	3.33	3.46	3.02
150M12-50	3.60	3.22	3.44	3.11	3.46	3.03	3.15	2.30
150M12-62	3.75	3.38	3.58	3.24	3.65	3.19	3.32	2.56
150M12-75	3.88	3.50	3.71	3.35	3.81	3.34	3.48	2.82
150M14-75	4.01	3.62	3.84	3.47	3.94	3.50	3.64	3.18
150M16-75	4.14	3.74	3.96	3.58	4.07	3.65	3.80	3.32
150M18-75	4.27	3.85	4.08	3.69	4.19	3.78	3.95	3.45
150M20-75	4.38	3.96	4.19	3.79	4.30	3.88	4.09	3.57
180M12-50	4.01	3.62	3.83	3.46	3.93	3.49	3.63	2.64
180M12-62	4.16	3.76	3.98	3.60	4.09	3.67	3.82	2.94
180M12-75	4.30	3.89	4.12	3.72	4.22	3.82	3.99	3.48
180M14-75	4.45	4.02	4.26	3.85	4.37	3.95	4.18	3.65
180M16-75	4.60	4.15	4.40	3.98	4.51	4.08	4.36	3.81
180M18-75	4.73	4.27	4.53	4.09	4.64	4.19	4.49	3.96
180M20-75	4.85	4.38	4.64	4.19	4.76	4.30	4.60	4.09
210M12-50	4.39	3.97	4.20	3.80	4.31	3.90	4.11	2.98
210M12-62	4.55	4.12	4.36	3.94	4.47	4.04	4.31	3.31
210M13-75	4.78	4.32	4.57	4.13	4.69	4.24	4.54	4.01
210M16-75	5.03	4.54	4.81	4.35	4.93	4.46	4.77	4.29
210M18-75	5.17	4.67	4.95	4.47	5.08	4.59	4.91	4.44
210M20-75	5.30	4.79	5.08	4.59	5.21	4.70	5.04	4.55

official code (kiviti) at soist spacing (min)											
	Dead	Live	Dead	Live	Dead	Live	Dead	Live			
Section Reference	1.00	1.50	1.25	1.50	1.00	2.00	1.00	3.00			
	400	600	400	600	400	600	400	600			
240M12-50	4.76	4.30	4.56	4.12	4.67	4.03	4.47	2.98			
240M13-62	5.03	4.54	4.81	4.35	4.93	4.46	4.77	3.31			
240M13-75	5.18	4.68	4.96	4.48	5.09	4.60	4.92	4.15			
240M16-75	5.44	4.91	5.20	4.70	5.34	4.82	5.16	4.66			
240M18-75	5.59	5.05	5.35	4.83	5.49	4.96	5.31	4.80			
240M20-75	5.74	5.18	5.49	4.96	5.63	5.09	5.44	4.92			
270M13-50	5.22	4.71	4.99	4.49	5.12	4.03	4.47	2.98			
270M13-62	5.39	4.87	5.16	4.66	5.29	4.48	4.97	3.31			
270M16-75	5.84	5.28	5.59	5.05	5.74	5.18	5.55	4.99			
270M18-75	6.01	5.43	5.75	5.20	5.90	5.33	5.71	5.16			
270M20-75	6.17	5.57	5.90	5.33	6.05	5.47	5.85	5.29			
300M13-50	5.57	4.89	5.33	4.49	5.47	4.03	4.47	2.98			
300M16-62	6.05	5.44	5.79	4.99	5.93	4.48	4.97	3.31			
300M18-75	6.40	5.78	6.13	5.53	6.28	5.68	6.08	5.49			
300M20-75	6.57	5.93	6.28	5.68	6.45	5.82	6.23	5.63			
300M25-89	7.13	6.44	6.82	6.16	7.00	6.32	6.77	6.12			
300M29-89	7.39	6.67	7.07	6.39	7.25	6.55	7.01	6.34			
350M18-54	6.70	6.06	6.42	5.80	6.58	5.95	6.37	5.75			
350M20-68	7.10	6.42	6.80	6.14	6.97	6.30	6.75	6.09			
350M23-84	7.60	6.86	7.27	6.57	7.46	6.74	7.21	6.52			
350M25-84	7.75	7.00	7.42	6.70	7.61	6.87	7.36	6.65			
350M29-84	8.03	7.26	7.69	6.94	7.88	7.12	7.62	6.66			

Maximum spans in above joist load table based on:

- 1. Unfactored dead and live loads.
- 2. Imposed load deflection limited to span/450 for floors and span/360 for other conditions.
- 3. Dead + Imposed load deflection limited to span/350 for floors and span/200 for other conditions.
- 4. Blocking and strapping at mid span for spans < 6.0m. For spans over 6.0m blocking and strapping required at max 3.0m spacing.

5. Floor joists boarded with minimum 15mm plywood for joists at 400mm centres or 18mm plywood for joists at 600mm centres.

6. Boarding fixed to the joists at maximum 300mm centres.

7. Joists fixed into 2.0mm gauge tracks at each end.

Floor Joists without Acoustic Overlay

How to Use the Load Table:

The load tables in this section allow for simple sizing of the SFS sections for a given loading. Where openings are required within the floor, please contact voestalpine Metsec for the design of the supporting members.

The values given assume that the joists are fixed into a voestalpine Metsec 2.0mm track.

Uniform Load (kN/m²) at Joist Spacing (mm)

	Dead	Live	Dead	Live	Dead	Live	Dead	Live
Section Reference	0.50	1.50	0.75	1.50	0.50	3.00	0.75	5.00
	400	600	400	600	400	600	400	600
090M12-50	2.68	2.34	2.58	2.25	2.15	1.86	1.69	1.13
090M12-62	2.84	2.48	2.73	2.39	2.28	1.99	1.88	1.25
090M12-75	2.99	2.61	2.88	2.51	2.40	2.10	2.03	1.38
090M14-75	3.14	2.74	3.02	2.64	2.52	2.20	2.13	1.79
090M16-75	3.28	2.86	3.15	2.75	2.63	2.30	2.22	1.94
090M18-75	3.40	2.97	3.27	2.86	2.73	2.39	2.30	2.01
090M20-75	3.51	3.07	3.38	2.95	2.82	2.46	2.38	2.08
100M12-50	2.89	2.54	2.79	2.44	2.33	2.04	1.97	1.72
100M14-70	3.24	2.92	3.21	2.81	2.68	2.34	2.26	1.98
100M20-70	3.56	3.26	3.56	3.14	3.00	2.62	2.53	2.21
120M12-50	3.34	2.92	3.21	2.80	2.68	2.22	2.02	1.35
120M12-62	3.53	3.08	3.39	2.96	2.84	2.47	2.25	1.50
120M12-75	3.71	3.24	3.56	3.11	2.98	2.60	2.48	1.65
120M14-75	3.89	3.40	3.74	3.27	3.13	2.73	2.64	2.09
120M16-75	4.06	3.55	3.87	3.41	3.26	2.85	2.75	2.40
120M18-75	4.22	3.68	3.97	3.54	3.39	2.96	2.86	2.49
120M20-75	4.36	3.81	4.07	3.66	3.50	3.06	2.95	2.58
150M12-50	3.97	3.46	3.80	3.33	3.19	2.59	2.36	1.57
150M12-62	4.18	3.65	3.95	3.51	3.36	2.87	2.62	1.74
150M12-75	4.38	3.83	4.09	3.68	3.52	3.07	2.88	1.92
150M14-75	4.53	4.00	4.23	3.82	3.68	3.22	3.10	2.39
150M16-75	4.68	4.18	4.37	3.95	3.84	3.36	3.24	2.83
150M18-75	4.82	4.35	4.50	4.07	4.00	3.49	3.37	2.94
150M20-75	4.94	4.47	4.62	4.17	4.14	3.61	3.49	3.05
180M12-50	4.52	4.00	4.23	3.82	3.68	2.97	2.70	1.80
180M12-62	4.70	4.21	4.39	3.97	3.87	3.30	3.00	2.00
180M12-75	4.86	4.39	4.54	4.10	4.04	3.53	3.41	2.37
180M14-75	5.03	4.54	4.70	4.24	4.23	3.70	3.57	2.75
180M16-75	5.19	4.69	4.85	4.38	4.42	3.86	3.72	3.13
180M18-75	5.34	4.83	4.99	4.51	4.59	4.01	3.87	3.38
180M20-75	5.48	4.95	5.12	4.62	4.74	4.14	4.00	3.49
210M12-50	4.96	4.48	4.63	4.19	4.16	3.35	3.05	2.03
210M12-62	5.14	4.65	4.81	4.34	4.36	3.72	3.39	2.26
210M13-75	5.40	4.88	5.04	4.56	4.65	4.06	3.92	2.83
210M16-75	5.68	5.13	5.30	4.79	4.97	4.35	4.19	3.40
210M18-75	5.84	5.28	5.46	4.93	5.17	4.51	4.36	3.81
210M20-75	5.99	5.41	5.59	5.05	5.34	4.67	4.51	3.94

Uniform Eoda (ktyrin) at Soist Spacing (min)											
	Dead	Live	Dead	Live	Dead	Live	Dead	Live			
Section Reference	0.50	1.50	0.75	1.50	0.50	3.00	0.75	5.00			
	400	600	400	600	400	600	400	600			
240M12-50	5.38	4.86	5.02	4.54	4.63	3.35	3.05	2.03			
240M13-62	5.68	5.13	5.30	4.79	4.97	3.72	3.39	2.26			
240M13-75	5.85	5.29	5.47	4.94	5.18	4.53	4.25	2.83			
240M16-75	6.14	5.54	5.73	5.18	5.52	4.82	4.66	3.40			
240M18-75	6.31	5.70	5.90	5.33	5.73	5.01	4.83	3.97			
240M20-75	6.48	5.85	6.05	5.47	5.93	5.18	5.00	4.37			
270M13-50	5.89	5.32	5.50	4.97	5.03	3.35	3.05	2.03			
270M13-62	6.09	5.50	5.69	5.14	5.46	3.72	3.39	2.26			
270M16-75	6.60	5.96	6.16	5.57	6.08	5.31	5.10	3.40			
270M18-75	6.79	6.13	6.34	5.73	6.27	5.52	5.33	3.97			
270M20-75	6.96	6.29	6.51	5.88	6.43	5.71	5.51	4.54			
300M13-50	6.29	5.68	5.87	5.31	5.03	3.35	3.05	2.03			
300M16-62	6.83	6.17	6.38	5.76	5.58	3.72	3.39	2.26			
300M18-75	7.23	6.53	6.75	6.10	6.67	6.00	5.79	3.97			
300M20-75	7.41	6.70	6.93	6.26	6.85	6.19	5.99	4.54			
300M25-89	8.05	7.27	7.52	6.80	7.43	6.72	6.62	4.54			
300M29-89	8.34	7.54	7.79	7.04	7.70	6.96	6.82	4.54			
350M18-54	7.57	6.84	7.07	6.39	6.99	6.32	5.96	3.97			
350M20-68	8.02	7.25	7.49	6.77	7.41	6.69	6.60	4.54			
350M23-84	8.58	7.75	8.01	7.24	7.92	7.16	6.82	4.54			
350M25-84	8.75	7.91	8.18	7.39	8.08	7.30	6.82	4.54			
350M29-84	9.07	8.19	8.47	7.66	8.37	7.48	6.82	4.54			

Maximum spans in above joist load table based on:

1. Unfactored dead and live loads.

2. Imposed load deflection limited to span/450 for floors and span/360 for other conditions.

3. Dead + Imposed load deflection limited to span/350 for floors and span/200 for other conditions.

4. Blocking and strapping at mid span for spans < 6.0m. For spans over 6.0m blocking and strapping required at max 3.0m spacing.

5. Floor joists boarded with minimum 15mm plywood for joists at 400mm centres or 18mm plywood for joists at 600mm centres.

6. Boarding fixed to the joists at maximum 300mm centres.

7. Joists fixed into 2.0mm gauge tracks at each end.

Roof Joists

How to Use the Load Table:

The load tables in this section allow for simple sizing of the SFS sections for a given loading. Where openings are required within the roof, please contact voestalpine Metsec for the design of the supporting members.

The values given assume that the joists are fixed into a voestalpine Metsec 2.0mm track.

Uniform Load (kN/m²) at Joist Spacing (mm)

	Dead	Live	Dead	Live	Dead	Live	Dead	Live
Section Reference	0.70	0.60	1.20	0.60	0.70	1.50	1.20	1.50
	400	600	400	600	400	600	400	600
090M12-50	3.73	3.26	3.35	2.93	2.92	2.56	2.93	2.56
090M12-62	3.96	3.46	3.56	3.11	3.11	2.71	3.11	2.71
090M12-75	4.17	3.64	3.74	3.27	3.27	2.86	3.27	2.86
090M14-75	4.38	3.83	3.93	3.43	3.43	3.00	3.43	3.00
090M16-75	4.57	3.99	4.10	3.58	3.58	3.13	3.58	3.13
090M18-75	4.74	4.14	4.25	3.71	3.71	3.24	3.71	3.24
090M20-75	4.90	4.28	4.39	3.84	3.84	3.35	3.84	3.35
100M12-50	4.03	3.53	3.63	3.17	3.17	2.77	3.17	2.74
100M14-70	4.65	4.06	4.17	3.64	3.64	3.18	3.64	3.18
100M20-70	5.20	4.54	4.67	4.08	4.08	3.56	4.08	3.56
120M12-50	4.20	3.71	3.82	3.35	3.54	3.10	3.33	2.90
120M12-62	4.83	4.22	4.36	3.79	3.85	3.37	3.75	3.22
120M12-75	5.16	4.51	4.63	4.05	4.05	3.53	4.05	3.43
120M14-75	5.42	4.74	4.87	4.25	4.25	3.71	4.25	3.71
120M16-75	5.66	4.94	5.08	4.44	4.44	3.87	4.44	3.87
120M18-75	5.87	5.13	5.27	4.60	4.60	4.02	4.60	4.02
120M20-75	6.07	5.30	5.45	4.76	4.76	4.16	4.76	4.16
150M12-50	4.49	3.98	4.09	3.62	3.81	3.35	3.59	3.14
150M12-62	5.17	4.55	4.69	4.10	4.34	3.77	4.07	3.51
150M12-75	5.76	5.01	5.18	4.47	4.76	4.07	4.43	3.77
150M14-75	6.14	5.34	5.51	4.81	5.00	4.37	4.76	4.11
150M16-75	6.66	5.64	5.81	5.11	5.22	4.56	5.07	4.41
150M18-75	6.93	5.93	6.18	5.38	5.43	4.74	5.34	4.67
150M20-75	7.17	6.27	6.44	5.62	5.62	4.91	5.58	4.89
180M12-50	4.76	4.22	4.34	3.85	4.05	3.57	3.82	3.36
180M12-62	5.48	4.84	4.98	4.37	4.62	4.04	4.34	3.77
180M12-75	6.18	5.35	5.52	4.79	5.09	4.38	4.74	4.07
180M14-75	6.72	5.67	5.84	5.12	5.40	4.72	5.08	4.41
180M16-75	7.29	5.97	6.24	5.42	5.71	5.01	5.38	4.70
180M18-75	7.83	6.39	6.70	5.66	5.96	5.26	5.62	4.95
180M20-75	8.22	6.80	7.13	5.89	6.33	5.48	5.84	5.16
210M12-50	5.00	4.44	4.57	4.06	4.26	3.77	4.03	3.55
210M12-62	5.76	5.10	5.25	4.62	4.88	4.27	4.59	4.00
210M13-75	6.93	5.66	5.93	4.84	5.51	4.80	5.17	4.48
210M16-75	7.90	6.45	6.76	5.52	6.01	5.29	5.66	4.97
210M18-75	8.47	6.92	7.25	5.92	6.44	5.53	5.91	5.21
210M20-75	9.00	7.35	7.70	6.29	6.84	5.74	6.21	5.41

of morth Load (krynn / dr Soist Spacing (min)											
	Dead	Live	Dead	Live	Dead	Live	Dead	Live			
Section Reference	0.70	0.60	1.20	0.60	0.70	1.50	1.20	1.50			
	400	600	400	600	400	600	400	600			
240M12-50	5.22	4.65	4.78	4.25	4.46	3.95	4.22	3.73			
240M13-62	6.32	5.49	5.41	5.00	5.26	4.64	4.96	4.36			
240M13-75	7.59	6.20	6.50	5.30	5.85	5.11	5.49	4.77			
240M16-75	8.50	6.94	7.27	5.94	6.46	5.54	5.91	5.21			
240M18-75	9.10	7.43	7.79	6.36	6.92	5.78	6.29	5.45			
240M20-75	9.67	7.89	8.27	6.75	7.35	5.99	6.67	5.66			
270M13-50	5.55	4.96	5.09	4.54	4.76	4.23	4.50	4.00			
270M13-62	6.76	5.52	5.78	5.21	5.48	4.84	5.17	4.55			
270M16-75	9.22	7.53	7.89	6.44	7.01	5.82	6.37	5.48			
270M18-75	9.89	8.07	8.46	6.91	7.51	6.14	6.83	5.73			
270M20-75	10.00	8.57	8.99	7.34	7.98	6.52	7.25	5.95			
300M13-50	5.74	5.13	5.27	4.70	4.93	4.39	4.67	4.15			
300M16-62	8.06	6.58	6.90	5.78	6.13	5.40	5.74	5.10			
300M18-75	10.00	8.57	8.98	7.33	7.97	6.51	7.24	5.94			
300M20-75	10.00	9.10	9.53	7.78	8.47	6.91	7.69	6.28			
300M25-89	10.00	10.00	10.00	10.00	10.00	9.33	10.00	8.47			
300M29-89	10.00	10.00	10.00	10.00	10.00	9.86	10.00	9.27			
350M18-54	7.93	6.48	6.79	5.74	6.03	5.37	5.70	5.09			
350M20-68	10.00	8.99	9.42	7.69	8.36	6.83	7.60	6.20			
350M23-84	10.00	10.00	10.00	10.00	10.00	9.25	10.00	8.41			
350M25-84	10.00	10.00	10.00	10.00	10.00	9.71	10.00	8.82			
350M29-84	10.00	10.00	10.00	10.00	10.00	10.00	10.00	9.63			

Maximum spans in above joist load table based on:

1. Unfactored dead and live loads.

2. Imposed load deflection limited to span/450 for floors and span/360 for other conditions.

3. Dead + Imposed load deflection limited to span/350 for floors and span/200 for other conditions.

Blocking and strapping at mid span for spans < 6.0m. For spans over 6.0m blocking and strapping required at max 3.0m spacing.
Floor joists boarded with minimum 15mm plywood for joists at 400mm centres or 18mm plywood for joists at 600mm centres.

6. Boarding fixed to the joists at maximum 300mm centres.

7. Joists fixed into 2.0mm gauge tracks at each end.

Ceiling Joists

How to Use the Load Table:

The load tables in this section allow for simple sizing of the SFS sections for a given loading. Where openings are required within the ceiling, please contact voestalpine Metsec for the design of the supporting members.

The values given assume that the joists are fixed into a voestalpine Metsec 2.0mm track.

Uniform Load (kN/m²) at Joist Spacing (mm)

	Dead	Live	Dead	Live	Dead	Live	Dead	Live
Section Reference	0.25	0.25	0.50	0.25	0.25	1.50	0.50	1.50
	400	600	400	600	400	600	400	600
090M12-50	5.14	4.49	4.49	3.92	2.93	2.56	2.93	2.56
090M12-62	5.45	4.76	4.76	4.16	3.11	2.71	3.11	2.71
090M12-75	5.73	5.01	5.01	4.38	3.27	2.86	3.27	2.86
090M14-75	6.02	5.26	5.26	4.60	3.43	3.00	3.43	3.00
090M16-75	6.28	5.49	5.49	4.79	3.58	3.13	3.58	3.13
090M18-75	6.52	5.69	5.69	4.97	3.71	3.24	3.71	3.24
090M20-75	6.73	5.88	5.88	5.14	3.84	3.35	3.84	3.35
100M12-50	5.34	4.74	4.78	4.24	3.17	2.77	3.17	2.77
100M14-70	6.40	5.59	5.59	4.88	3.64	3.18	3.64	3.18
100M20-70	7.15	6.25	6.25	5.46	4.09	3.56	4.08	3.56
120M12-50	5.53	4.93	4.95	4.40	3.64	3.18	3.64	3.18
120M12-62	6.76	5.72	5.75	5.08	3.85	3.37	3.85	3.37
120M12-75	7.10	6.20	6.20	5.42	4.05	3.53	4.05	3.53
120M14-75	7.46	6.52	6.52	5.69	4.25	3.71	4.25	3.71
120M16-75	7.78	6.80	6.80	5.94	4.44	3.87	4.44	3.87
120M18-75	8.08	7.06	7.06	6.16	4.60	4.02	4.60	4.02
120M20-75	8.35	7.29	7.29	6.37	4.76	4.16	4.76	4.16
150M12-50	5.89	5.25	5.28	4.70	4.06	3.59	3.91	3.45
150M12-62	7.54	6.16	6.21	5.43	4.57	3.99	4.47	3.89
150M12-75	8.39	7.33	7.33	6.11	4.78	4.18	4.78	4.18
150M14-75	8.78	7.67	7.67	6.64	5.00	4.37	5.00	4.37
150M16-75	9.16	8.00	8.00	6.99	5.22	4.56	5.22	4.56
150M18-75	9.53	8.32	8.32	7.27	5.43	4.74	5.43	4.74
150M20-75	9.86	8.62	8.62	7.53	5.62	4.91	5.62	4.91
180M12-50	6.40	5.55	5.58	4.98	4.31	3.82	4.16	3.67
180M12-62	8.28	6.76	6.82	5.74	4.94	4.33	4.75	4.16
180M12-75	9.64	8.12	8.19	6.69	5.47	4.74	5.24	4.53
180M14-75	10.09	8.81	8.81	7.27	5.75	5.02	5.57	4.87
180M16-75	10.53	9.20	9.20	7.89	6.00	5.24	5.87	5.16
180M18-75	10.93	9.55	9.55	8.34	6.23	5.44	6.22	5.41
180M20-75	11.30	9.88	9.88	8.63	6.44	5.63	6.44	5.63
210M12-50	6.97	5.82	5.85	5.22	4.54	4.02	4.38	3.88
210M12-62	9.01	7.36	7.42	6.06	5.20	4.58	5.01	4.40
210M13-75	11.09	9.11	9.19	7.50	5.90	5.17	5.68	4.95
210M16-75	11.86	10.36	10.36	8.55	6.67	5.65	6.28	5.44
210M18-75	12.31	10.76	10.76	9.17	7.02	5.90	6.73	5.68
210M20-75	12.73	11.12	11.12	9.72	7.26	6.21	7.15	5.90

Uniform Eoda (kty/m) at Soist Spacing (mm)											
	Dead	Live	Dead	Live	Dead	Live	Dead	Live			
Section Reference	0.25	0.25	0.50	0.25	0.25	1.50	0.50	1.50			
	400	600	400	600	400	600	400	600			
240M12-50	7.52	6.14	6.20	5.45	4.74	4.21	4.58	4.06			
240M13-62	10.17	8.30	8.38	6.84	5.60	4.96	5.40	4.77			
240M13-75	12.22	9.98	10.06	8.22	6.41	5.48	6.03	5.26			
240M16-75	13.16	11.16	11.26	9.20	7.18	5.91	6.75	5.69			
240M18-75	13.66	11.94	11.94	9.85	7.69	6.28	7.23	5.94			
240M20-75	14.13	12.35	12.35	10.46	8.06	6.67	7.68	6.27			
270M13-50	8.40	6.86	6.92	5.80	5.05	4.50	4.88	4.34			
270M13-62	10.88	8.88	8.96	7.32	5.82	5.16	5.62	4.97			
270M16-75	14.49	12.12	12.23	9.98	7.79	6.36	7.33	5.98			
270M18-75	15.05	12.99	13.11	10.70	8.35	6.82	7.85	6.41			
270M20-75	15.57	13.60	13.60	11.37	8.87	7.24	8.34	6.81			
300M13-50	8.93	7.29	7.36	6.01	5.23	4.66	5.05	4.50			
300M16-62	12.97	10.59	10.68	8.72	6.81	5.74	6.40	5.54			
300M18-75	16.36	13.78	13.91	11.35	8.86	7.23	8.33	6.80			
300M20-75	16.92	14.64	14.77	12.06	9.41	7.68	8.85	7.22			
300M25-89	18.89	16.50	16.50	14.41	10.76	9.40	10.76	9.40			
300M29-89	19.80	17.30	17.30	15.11	11.29	9.86	11.29	9.86			
350M18-54	12.77	10.43	10.52	8.59	6.70	5.70	6.30	5.51			
350M20-68	17.71	14.46	14.59	11.91	9.29	7.59	8.74	7.14			
350M23-84	20.00	17.96	17.96	15.69	11.72	10.23	11.72	9.67			
350M25-84	20.00	18.44	18.44	16.11	12.03	10.51	12.03	10.15			
350M29-84	20.00	19.34	19.34	16.89	12.62	11.02	12.62	11.02			

Maximum spans in above joist load table based on:

1. Unfactored dead and live loads.

2. Imposed load deflection limited to span/450 for floors and span/360 for other conditions.

- 3. Dead + Imposed load deflection limited to span/350 for floors and span/200 for other conditions.
- 4. Blocking and strapping at mid span for spans < 6.0m. For spans over 6.0m blocking and strapping required at max 3.0m spacing.

5. Floor joists boarded with minimum 15mm plywood for joists at 400mm centres or 18mm plywood for joists at 600mm centres.

6. Boarding fixed to the joists at maximum 300mm centres.

7. Joists fixed into 2.0mm gauge tracks at each end.

I OAD TABLES

Studs

How to Use the Load Table:

The load tables in this section allow for simple sizing of the SFS sections for a given loading. Where openings are required within the wall, please contact voestalpine Metsec for the design of the supporting members.

Compressive and Buckling Resistances are provided for a number of stud heights. The project engineer should calculate the axial load on the studs and moment on the studs. With this information the studs can be checked using the interaction formula: $(N_{b,Ed}/N_{b,Rd})^{0.8} + (M_{b,Ed}/M_{b,Rd})^{0.8} \le 1.0$

The values given assume that the studs are fixed into a voestalpine Metsec base and head track and for spans 3m or above midheight blocking and strapping is used. The relationship between compressive and buckling resistances and stud height is not linear, therefore interpolation between values is not permitted.

Compressive Resistance $N_{h,Rd}(kN)$, Buckling resistance Moment $M_{h,Rd}(kNm)$ for stud height (m)

Section	1		1.5		2	2 2.5		3	3* 3.5*		4* 4.5		4.5* 5*		5.5*		6*					
Reference	N _{b,Rd}	M _{b,Ed}																				
090M12-50	52.01	2.32	40.60	1.93	29.47	1.50	21.55	1.15	24.94	1.79	19.83	1.55	16.12	1.33	13.40	1.15	11.36	1.00	9.79	0.87	8.57	0.77
090M12-62	57.48	2.71	47.02	2.46	35.51	2.16	26.32	1.83	29.89	2.36	23.86	2.20	19.37	2.02	16.01	1.83	13.47	1.65	11.52	1.49	9.99	1.34
090M12-75	60.60	2.83	51.14	2.76	39.99	2.58	30.20	2.37	33.83	2.70	27.25	2.60	22.18	2.49	18.34	2.37	15.40	2.24	13.12	2.11	11.32	1.97
090M14-75	78.31	3.57	64.49	3.45	49.02	3.20	36.43	2.93	40.94	3.37	32.68	3.23	26.50	3.09	21.88	2.93	18.38	2.76	15.69	2.59	13.57	2.42
090M16-75	97.24	4.33	78.25	4.16	58.14	3.85	42.76	3.50	48.09	4.06	38.18	3.88	30.91	3.70	25.54	3.50	21.49	3.29	18.38	3.08	15.94	2.87
090M18-75	117.24	5.16	92.33	4.91	67.37	4.53	49.23	4.10	55.30	4.79	43.78	4.57	35.44	4.35	29.32	4.10	24.72	3.85	21.21	3.60	18.46	3.35
090M20-75	138.46	6.00	106.80	5.68	76.77	5.22	55.90	4.72	62.64	5.53	49.52	5.28	40.12	5.00	33.25	4.72	28.12	4.43	24.20	4.13	21.13	3.85
100M12-50	53.68	2.61	43.80	2.16	33.11	1.66	24.68	1.26	28.68	1.99	23.08	1.71	18.88	1.47	15.73	1.26	13.35	1.09	11.51	0.95	10.07	0.84
100M14-70	80.13	4.06	68.01	3.78	53.66	3.42	40.86	3.01	45.93	3.67	37.23	3.46	30.46	3.24	25.29	3.01	23.11	2.77	18.25	2.54	15.82	2.31
100M20-70	142.57	6.76	114.55	6.13	85.37	5.47	63.29	4.74	71.25	5.92	56.93	5.54	46.41	5.15	38.62	4.74	32.75	4.33	28.23	3.96	24.69	3.61
120M12-50	55.69	3.15	47.75	2.60	38.02	1.98	28.91	1.49	34.98	2.39	28.93	2.05	24.04	1.74	20.20	1.49	17.21	1.28	14.86	1.11	12.99	0.97
120M12-62	61.35	3.63	54.62	3.27	46.21	2.82	37.31	2.34	41.85	3.13	35.36	2.88	29.71	2.61	25.08	2.34	21.36	2.09	18.39	1.86	16.00	1.65
120M12-75	64.28	3.83	58.30	3.66	50.83	3.37	42.37	3.03	46.40	3.57	39.97	3.41	34.05	3.23	28.97	3.03	24.77	2.83	21.34	2.62	18.56	2.41
120M14-75	83.85	5.01	75.12	4.71	64.18	4.30	52.33	3.82	57.85	4.58	49.06	4.35	41.33	4.09	34.92	3.82	29.74	3.53	25.59	3.24	22.24	2.97
120M16-75	105.06	6.26	92.99	5.82	77.98	5.26	62.45	4.61	69.53	5.64	58.25	5.32	48.69	4.98	40.97	4.61	34.83	4.24	29.96	3.87	26.06	3.53
120M18-75	127.60	7.38	111.66	6.81	92.07	6.12	72.70	5.34	81.32	6.59	67.52	6.21	56.15	5.79	47.14	5.34	40.07	4.90	34.50	4.47	30.06	4.06
120M20-75	149.94	8.54	129.98	7.83	105.81	7.01	82.80	6.09	92.84	7.58	76.66	7.11	63.59	6.61	53.37	6.09	45.41	5.57	39.16	5.08	34.20	4.62
150M12-50	55.87	3.97	48.46	3.28	39.24	2.50	30.24	1.87	41.23	3.02	35.47	2.59	30.25	2.20	25.83	1.87	22.20	1.60	19.26	1.38	16.87	1.21
150M12-62	63.07	4.57	57.95	4.11	51.58	3.54	44.05	2.92	48.97	3.93	43.50	3.61	38.05	3.26	33.04	2.92	28.67	2.59	24.99	2.29	21.91	2.03
150M12-75	66.04	4.84	61.61	4.60	56.32	4.22	50.02	3.77	53.51	4.48	48.59	4.26	43.41	4.03	38.34	3.77	33.68	3.50	29.58	3.22	26.06	2.95
150M14-75	86.36	6.31	79.86	5.87	71.95	5.30	62.61	4.63	67.78	5.69	60.57	5.37	53.28	5.01	46.46	4.63	40.43	4.24	35.29	3.85	30.97	3.49
150M16-75	108.58	7.91	99.67	7.26	88.70	6.48	75.96	5.58	82.94	7.01	73.21	6.57	63.69	6.09	55.08	5.58	47.69	5.07	41.51	4.58	36.38	4.13
150M18-75	131.88	9.58	120.30	8.74	105.98	7.74	89.65	6.61	98.49	8.43	86.12	7.86	74.36	7.25	64.00	6.61	55.26	5.97	48.04	5.38	42.11	4.84
150M20-75	155.47	11.17	141.09	10.16	123.28	8.95	103.33	7.60	114.00	9.78	99.00	9.10	85.06	8.36	73.00	7.60	62.96	6.86	54.74	6.17	48.02	5.54
180M12-50	55.92	4.81	48.90	3.99	40.09	3.06	31.23	2.28	44.39	3.67	39.00	3.16	33.71	2.68	28.92	2.28	24.80	1.95	21.37	1.68	18.52	1.47
180M12-62	63.13	5.53	58.25	4.98	52.22	4.29	45.05	3.53	52.84	4.76	48.40	4.37	43.66	3.95	38.91	3.53	34.46	3.13	30.46	2.77	26.98	2.45
180M12-75	66.96	5.86	63.34	5.56	59.20	5.09	54.29	4.54	57.29	5.41	53.55	5.15	49.42	4.86	45.05	4.54	40.68	4.21	36.51	3.87	32.69	3.53
180M14-75	87.66	7.64	82.26	7.09	75.88	6.39	68.23	5.57	73.46	6.87	67.84	6.48	61.74	6.04	55.50	5.57	49.50	5.09	43.99	4.62	39.11	4.18
180M16-75	110.43	9.56	103.02	8.77	94.11	7.81	83.39	6.71	90.88	8.47	83.10	7.93	74.83	7.34	66.61	6.71	58.94	6.08	52.09	5.48	46.14	4.93
180M18-75	133.81	11.53	124.17	10.51	112.44	9.27	98.35	7.86	108.41	10.12	98.32	9.42	87.81	8.65	77.62	7.86	68.33	7.08	60.20	6.34	53.23	5.68
180M20-75	157.84	13.56	145.76	12.28	130.90	10.73	113.17	9.00	126.12	11.79	113.61	10.91	100.81	9.97	88.66	9.00	77.79	8.07	68.41	7.21	60.47	6.44

*Blocking and strapping at mid span for stud height ≥ 3.0m $[(N_{b,Ed}/N_{b,Rd})^{0.8} + (M_{b,Ed}/M_{b,Rd})^{0.8}] \le 1.0$ N_{b.Ed} = Design Axial Load M_{b.Ed} = Design Bending Moment

Building Regulations Part B - Fire Safety:

The requirements for Fire protection will normally be found in the relevant annexe of the Building regulations, Part B, and often specific fire strategy reports are generated.

The fire ratings published in this document are tested and/ or assessed for use with voestalpine Metsec SFS sections and cannot be used with other systems.

All performance claims by manufacturers for fire resistance must be substantiated by test or assessment reports by UKAS accredited laboratories. Installations must be in strict accordance with the report data for types of materials used, components and assembly details. Unwarranted site modifications can jeopardize performance; in particular services and these should be well coordinated and often involve fire stopping.

All fire test data in this load bearing section is to BS EN 1365-1: 2012 (for walls) and BS EN 1365-2:2014 (for joists). All test data is based on unique UKAS accredited tests and UKAS accredited scope of testing. The tests are carried out in UKAS accredited furnaces measuring 3m square (for walls).

External Wall fire performance table:

The results of our fire tests with each type of sheathing board are displayed in two types of tables:

- » Non Boundary Walls Fire exposure from the inside of the building only where the load bearing & integrity failure is rounded down to the nearest 30 minutes. The insulation failure occurs at a minimum of 15 minutes into the test. Designed to meet the requirements of Approved Document B, Volumes 1 & 2, (2019 edition incorporating 2020 and 2022 amendments), table B3, section 5b.
- » Boundary Walls Fire exposure from each side separately where the load bearing, integrity and insulation failures (whichever occurs first) are rounded down to the nearest 30 minutes. Designed to meet the requirements of approved document B, table B3, section 5a.

Thicknesses of materials are displayed as the minimum thicknesses to meet the fire test requirements. Thicknesses may be increase, see below commentary on the field of direct application of fire tests.

Internal Wall fire performance table:

The results of our fire tests cover fire exposure from each side separately where the load bearing, integrity and insulation failures (whichever occurs first) are rounded down to the nearest 30 minutes.

Thicknesses of materials are displayed as the minimum thicknesses to meet the fire test requirements. Thicknesses may be increase, see below commentary on the field of direct application of fire tests.

86

Field of Direct Application of Fire Test Results

Changes can be made to the tested construction in accordance with BS EN 1365-1:2012 section 13. These are known changes that would not negatively affect the fire resistance of the wall. These allowed changes are listed below:

a) decrease in height

b)

C)

f)

g)

- increase in the thickness of the wall
- increase in the thickness of component materials
- d) decrease in linear dimensions of boards but not
 - thickness
- e) decrease in stud spacina
 - decrease in distance of fixing centres
 - increase in the number of horizontal joints, of the
 - type tested, when tested with one joint not more than (500+/-150)mm from the top edge
- h) decrease in the applied load

For test specimens tested without a supporting construction, the width of an identical construction may be increased as the specimen was tested at nominally 3m wide with one vertical edge without restraint.

In all the fire results displayed on the following tables the field of direct application means that steel stud, board and insulation thicknesses can be increase above what is listed. The width of the wall can be increased

For heights above 3m and other changes reference is made to SCI publication P424 - Fire resistance of Light Steel Framing

Joisted floor fire performance table:

The results of our fire tests cover fire exposure from the underside where the load bearing, integrity and insulation failures (whichever occurs first) are rounded down to the nearest 30 minutes

Fire Performance with Euroform Versaroc Sheathing Boards



Type LE1i-2V: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm mineral wool insulation to the stud void



Type LE2i-2V: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void

Type LE2i-3V: Metsec SFS External Wall with

face and single layer of sheathing board plus a minimum 75mm stone wool insulation

a triple layer of plasterboard to the inside

to the outside face. Minimum of 50mm

mineral wool insulation to the stud void.

Fire Performance for Non-Boundary Walls

Wall Type Plasterboard Lining		Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code
Fire Perf	ormance from insid	de RE = 60 MINU	TES - TO	BS EN 1365-1	:2012	
LE2i-2V	2x15mm BG Soundbloc	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1165	D075-U1-L090-B25 (A050)
Fire Perf	ormance from Insi	de RE = 90 MINU	JTES - TO	BS EN 1365-1	:2012	
LE1i-2V	2x12.5mm BG Fireline	Euroform Versaroc	90mm	None	BRE P100456-1182	U1-L090-B22 (A050)
LE2i-2V	2x15mm Knauf Fire Panel	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1188	D075-U1-L090-K23 (A050)
Fire Perf	ormance from Insi	de RE = 120 MIN	UTES - TO	O BS EN 1365-	1:2012	
LE1i-2V	2x15mm BG Fireline	Euroform Versaroc	90mm	None	BRE P100456-1156	U1-L090-B23 (A050)
LE2i-2V	2x15mm BG Fireline	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1157	D075-U1-L090-B23 (A050)
LE2i-3V	3x15mm BG Fireline	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1159	D075-U1-L090-B33 (A050)
LE2i-3V	3x15mm Knauf Fire Panel	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1189	D075-U1-L090-K33 (A050)

Fire Performance for Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code		
Fire Performance from each side separately REI = 60 MINUTES - TO BS EN 1365-1:2012									
LE1i-2V	2x12.5mm BG Fireline	Euroform Versaroc	90mm	None	BRE P100456-1182	BRE P100456-1168	U1-L090-B22 (A050)		
Fire Performance from each side separately REI = 90 MINUTES - TO BS EN 1365-1:2012									
LE2i-2V	2x15mm Knauf Fire Panel	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1188	BRE P100456-1190	D075-U1-L090-K23 (A050)		

In the tables above the sheathing boards are 12mm thick.

Fire Performance with RCM Y-Wall and RCM Densglass Sheathing Boards



Type LE1i-2Y: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Type LE1i-3Y: Metsec SFS External Wall with a triple layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	ç	Sheathing Board		Minimun Stud Depth	n External Insulation	Fire Test Laboratory and Number	System Code
Fire Per	formance from ir	nside RE	= 60		res - to	O BS EN 1365-1	:2012	
LE1i-2Y	2x12.5mm BG Fireline	e RCI	M Densg	lass	90mm	None	BRE P100456-1185	D1-L090-B22 (A050)
LE1i-2Y	2x15mm Knauf Fire Panel	R	RCM Y-Wall		90mm	None	BRE P100456-1026	Y1-L090-K23 (A050)
LE2i-2Y	2x15mm BG Soundblo	oc R	CM Y-W	all	90mm	75mm Rockwool Duoslab	BRE P100456-1110	D075-Y1-L090-B25 (A050)
LE1i-2Y	2x12.5mm BG Fireline	e R	CM Y-W	all	90mm	None	BRE P100456-1112	Y1-L090-B22 (A050)
LE2i-2Y	2x12.5mm Knauf Fire Panel	R	CM Y-W	all	90mm	75mm Rockwool Duoslab	BRE P124545-1000	D075-Y1-L090-K22 (A050)
Fire Per	formance from Ir	nside R	= 90		res - to	O BS EN 1365-1	:2012	
LE1i-2Y	2x15mm Knauf Soundshield Plus	R	CM Y-W	all	90mm	None	BRE P100456-1025	Y1-L090-K25 (A050)
LE2i-2Y	2x15mm BG Fireline		CM Y-W	all	90mm	75mm Rockwool Duoslab	BRE P100456-1106	D075-Y1-L090-B23 (A050)
LE1i-2Y	2x15mm BG Fireline	R	CM Y-W	all	90mm	None	BRE P100456-1107	Y1-L090-B23 (A050)
LE2i-2Y	2x15mm BG Fireline		CM Y-W	all	90mm	75mm Knauf Rocksilk	BRE P100456-1114	E075-Y1-L090-B23 (A050)
Fire Per	formance from Ir	nside R	= 12() MINU	JTES - 1	TO BS EN 1365-	·1:2012	
LE1i-3Y	3x15mm Knauf Fire Panel	R	CM Y-W	all	90mm	None	BRE P100456-1027	Y1-L090-K33 (A050)
LE2i-3Y	3x15mm BG Fireline	R	RCM Y-Wall 90m		90mm	75mm Rockwool Duoslab	BRE P100456-1162	D075-Y1-L090-B33 (A050)
In the table	above the RCM Y-Wall is	12mm thic	k and the	RCM Der	nsglass is 1	2.5mm thick.		
Fire Per	formance for Bou	ndary W	alls					
Wall Type	Plasterboard Shea Lining Ba	athing M ard	1inimum Stud Depth	Exte Insulo	rnal ation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code
Fire Per	formance from e	ach sid	e sepa	arately	REI = d	60 MINUTES - T	O BS EN 1365-1:2	012
LE2i-2Y	2x15mm BG Soundbloc RCM	Y-Wall	90mm	75mm R Duo	ockwool slab	BRE P100456-1110	BRE P100456-1132	D075-Y1-L090-B25 (A050)
LE2i-2Y	2x12.5mm Knauf Fire Panel RCM	Y-Wall	90mm	75mm R Duo	ockwool slab	BRE P124545-1000	BRE P100456-1051	D075-Y1-L090-K22 (A050)
LE2i-2Y	2x15mm Knauf Fire Panel RCM	Y-Wall	90mm	75mm Ri Duo	ockwool slab	BRE P100456-1026	BRE P100456-1051	D075-Y1-L090-K23 (A050)
Fire Per	formance from e	ach sid	e sepo	arately	REI = 1	120 MINUTES -	TO BS EN 1365-1:	2012
LE2i-3Y	3x15mm Knauf Fire Panel RCM	Y-Wall	90mm	75mm R Duo	ockwool slab	BRE P100456-1184	BRE P100456-1074	D075-Y1-L090-K33 (A050)
In the table	es above the RCM Y-Wall i	s 12mm thio	ck.					



Type LE2i-2Y: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void.



Type LE2i-3Y: Metsec SFS External Wall with a triple layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Fire Performance with BG Glasroc X Sheathing Board

Fire Performance with Siniat Weather Defence Sheathing Board





Type LE1i-2X: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Type LE2i-2X: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code			
Fire Performance from inside RE = 60 MINUTES - TO BS EN 1365-1:2012									
LE1i-2X	2x12.5mm BG Fireline	BG Glasroc X	90mm	None	BRE P100456-1183	X1-L090-B22 (A050)			

Fire Performance for Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code	
Fire Performance from each side separately REI = 60 MINUTES - TO BS EN 1365-1:2012								
LE2i-2X	2x12.5mm BG Fireline	BG Glasroc X	90mm	75mm Rockwool Duoslab	BRE P100456-1183	BRE P100456-1068	D075-X1-L090-B22 (A050)	





Type LE1i-2W: Metsec SFS External Wall with A double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm mineral wool insulation to the stud void

Type LE1i-3Y: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth
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Wall Type	Plasterboo Lining	ırd	Sheathing Board	Stud Depth	m External Insulation	Fire Test Laboratory and Number	System Code		
ire Performance from inside RE = 60 MINUTES - TO BS EN 1365-1:2012									
LE1i-2W	2x12.5mm BG	Fireline Sinic	at Weather De	fence 90mm	None	BRE P100456-1184	W1-L090-B22 (A050)		
Fire Perf	ire Performance for Boundary Walls								
Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code		
ire Perf	ire Performance from each side separately REI = 60 MINUTES - TO BS EN 1365-1:2012								
LE2i-2W	2x12.5mm BG S Fireline	Siniat Weather Defence	90mm ⁷⁵	omm Rockwool Duoslab	BRE P100456-1184	BRE P100456-1070	D075-W1-L090-B22 (A050)		



Fire Performance with Knauf Windliner Sheathing Board





Type LE1i-2Z: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Type LE2i-2Z: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Fire Performance for Non-Boundary Walls

Wall Type Plasterboard Lining		Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code		
Fire Performance from inside RE = 60 MINUTES - TO BS EN 1365-1:2012								
LE1i-2Z	2x12.5mm BG Fireline	Knauf Windliner	90mm	None	BRE P100456-1186	Z1-L090-B22 (A050)		

Fire Performance for Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code	
Fire Performance from each side separately REI = 60 MINUTES - TO BS EN 1365-1:2012								
LE2i-2Z	2x12.5mm BG Fireline	Knauf Windliner	90mm	75mm Rockwool Duoslab	BRE P100456-1186	BRE P100456-1113	D075-Z1-L090-B22 (A050)	

Fire Performance with Klasse G Board (Outwear) Sheathing Board



Type LE2i-2G: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Fire Performance for Non-Boundary Walls

Wall Type	e Plasterboard Lining		Sheathing Board	Minimun Stud Depth	n External Insulation	Fire Test Laboratory and Number	System Code
Fire Perf	ormance fro	om inside	RE = 60 M	INUTES - TO	O BS EN 1365-1	:2012	
LE2i-2G	2x15mm BG F	ireline	Klasse G Boa	rd 90mm	75mm Rockwool Duoslab	Effectis EUI- 23-B-000503 ¹	D075-G1-L090-B23 (A050)
Fire Perf	ormance for	r Boundar	y Walls				
Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code
Fire Perf	ormance fr	om each	side separ	ately REI =	50 MINUTES - TO	O BS EN 1365-1:2	012

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire To and N Exp
Fire Perf	ormance fro	om each s	ide sepa	arately REI = (50 M
LE2i-2G	2x15mm BG Fireline	Klasse G Board	90mm	75mm Rockwool Duoslab	Ef 23-

In the table above the Knauf Windliner is 12.5mm thick.

In the table above the Klasse G Board is 12.5mm thick.

1. Test owned by Sheathing Board Manufacturer, contact Klasse for test report.

ffectis EUI--B-000503 1

Effectis EUI-23-B-000502¹ D075-G1-L090-B23 (A050)

Building Regulations Part E -Resistance to the passage of sound:

Fire and Acoustic Performance with Plasterboard Both Sides

The requirements for Acoustic performance will normally be found in the relevant annexe of the Building regulations, Part E, and often specific acoustic strategy reports are generated.

Sound insulation performance must be substantiated or based on UKAS accredited laboratories test reports, tested to BS EN ISO 717-1:1997 and BS EN ISO 140-3:1995.

The quoted figures in this publication are laboratory tested measured as the Weighted Sound Reduction Index (Rw) measured in decibels (dB), hence all values are RwdB figures. Where the particular wall construction hasn't been tested, a calculated performance figure is provided using the INSUL 10 software.

All sound insulation data is based on laboratory evaluation of the building element in isolation and cannot reproduce your installed local conditions. It is important that flanking transmission is considered at design stage.

On site testing is measured using a different scale. It uses DnT,w Standardised Level Difference. Values on site are approximately 5 decibels lower than achieved in the laboratory. One of the primary reasons for this difference will be the downgrading due to flanking transmission. This highlights the absolute need for good design and flanking details to help minimise these reductions

Party walls under Part E are measured as DnT,w + ctr, to give you as a designer more information within this document in appropriate wall build ups to be considered we print the Rw+ctr figures in brackets after the RwdB figures.

The actual tests carried out are used to offer an order of magnitude comparison for the performance of the various systems. Sound insulation on site is a function of the partition chosen and the associated structures in which it is installed. We cannot take any responsibility for overall design and we would advise that specialist advice is sought at an early stage of design. It is essential that consideration is giving to blocking all air paths and flanking sound.

All test data and system specifications are for systems constructed with materials and components as shown. The inclusion of other components without prior approval or constructed on site contrary to these documents will invalidate test certification and system performance.

All acoustic values are based on studs at 600mm centres. If the stud centres are reduced to either 400mm or 300mm, this could impact negatively on acoustic performance.

For further information on the individual tests or to see where the test or assessment was carried out please contact Metsec



Type L2i-S: Metsec SFS Internal Wall with a double layer of acoustic plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.

Type L2i-F: Metsec SFS Internal Wall with a double layer of fire resistant plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.



Type L6i-S: Metsec SFS Internal Wall with a double layer of acoustic plasterboard to the each face, RB565 resilient bar on both faces of the SFS frame. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.

Type L6i-F: Metsec SFS Wall with a double laye resistant plasterboard each face, RB565 resili on both faces of the SF Minimum of 50mm ISC 1200 insulation to the

Internal	lyp
er of fire	Wal
to the	resi
ient bar	eac
FS frame.	onl
OVER APR	Min
stud void.	120

Wall Type	Plasterboard Lining	Overall Width	Minimum Stud Depth	Fire Test Laboratory and Number	Acoustic Performance Rw dB (Rw + Ctr)	Acoustic Test Laboratory and Number	System Code			
Fire Perf	Fire Performance from either side REI = 60 MINUTES - TO BS EN 1365-1:2012									
L2i-S	2x12.5mm BG Fireline	140mm	90mm	BRE P100456-1160	50 (43)	BTC 21691A	B25-L090-B25 (A050)			
L2i-S	2x15mm BG Soundbloc	150mm	90mm	BRE P100456-1088	54 (49)	BTC 20864A	B25-L090-B25 (A050)			
L4i-S	2x15mm BG Soundbloc	167mm	90mm	BRE P100456-1086 + BRE P100456-1087	60 (54)	BTC 21058A	BR25-L090-B25 (A050)			
L6i-S	2x15mm BG Soundbloc	214mm	120mm	BRE P100456-1089	63 (57)	BTC 21729A	BR25-L120-BR25 (A050)			
L6i-S	2x15mm Knauf Soundshield Plus	184mm	90mm	BRE P100456-1064	57 (50)	BRE P109445-1005	KR25-L090-KR25 (A050)			
Fire Perf	formance fro	m eithe	er side R	EI = 90 MINUTES	5 - TO BS EN 1365	-1:2012				
L2i-F	2x12.5mm Knauf Fire Panel	140mm	90mm	BRE P100456-1193	50(41)	Calculated ¹	K22-L090-K22 (A050)			
L2i-F	2x15mm BG Fireline	150mm	90mm	BRE P124545-1001	51(43)	Calculated ¹	B23-L090-B23 (A050)			
L6i-F	2x15mm Knauf Fire Panel	187mm	90mm	BRE P100456-1191	57 (49)	BRE P109445-1006	KR23-L090-KR23 (A050)			
L6i-F	2x15mm BG Fireline	187mm	90mm	BRE P100456-1098	60 (53)	BTC 21725A	BR23-L090-BR23 (A050)			
L6i-S	2x15mm BG Soundbloc F	187mm	90mm	BRE P100456-1163	63 (57)	BTC 21729A	BR27-L090-BR27 (A050)			
Fire Perf	formance fro	m eithe	er side R	EI = 120 MINUTE	S - TO BS EN 136	5-1:2012				
L3i-F	3x15mm BG Fireline	180mm	90mm	BRE P124545-1002	54(48)	Calculated ¹	B33-L090-B33 (A050)			
L7i-F	3x15mm BG Fireline	214mm	90mm	BRE P100456-1129	61 (54)	BRE P109445-1011	BR33-L090-BR33 (A050)			
L7i-F	3x15mm Knauf Fire Panel	214mm	90mm	BRE P100456-1192	61 (54)	BRE P109445-1007	KR33-L090-KR33 (A050)			

L3i-F	3x15mm BG Fireline	180mm	90mm	BRE P124545-1002
L7i-F	3x15mm BG Fireline	214mm	90mm	BRE P100456-1129
L7i-F	3x15mm Knauf Fire Panel	214mm	90mm	BRE P100456-1192

All laboratory acoustic tests carried out in accordance with BS EN ISO 10140-2:2010 and BS EN ISO 140-3:1995 1. Acoustic performance calculated using INSUL 10 software.



Type L3i-F: Metsec SFS Internal Wall with a triple layer of fire resistant plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.



Type L4i-S: Metsec SFS Internal Wall with a double layer of acoustic plasterboard to the each face, RB565 resilient bar on one face of the SFS frame. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.



e L7i-F: Metsec SFS Internal Il with a triple layer of fire istant plasterboard to the ch face, RB565 resiliant bar both faces of the SFS frame. nimum of 50mm ISOVER APR 00 insulation to the stud void.

Fire and Acoustic Performance for Joisted Floors



Type F1: Metsec SFS joisted floor with a double layer of plasterboard to the underside on RB565 resilient bar, with 15mm plywood and 19mm British Gypsum Plank to the top surface. Minimum of 50mm mineral wool insulation to the stud void.



Type F2: Metsec SFS joisted floor with a double layer of plasterboard to the underside on RB565 resilient bar, with 15mm plywood, 19mm British Gypsum Plank, 8mm Cloud 9 Underlay and 12mm OSB to the top surface. Minimum of 50mm mineral wool insulation to the stud void.



Type F3: Metsec SFS joisted floor with a double layer of plasterboard to the underside on RB565 resilient bar, with 15mm plywood, 19mm British Gypsum Plank, 53mm Danskin acoustic battens and 18mm V313 chipboard on the top surface. Minimum of 50mm mineral wool insulation to the stud void.



Type F6: Metsec SFS joisted floor with a triple

layer of plasterboard to the underside on

RB565 resilient bar, with 15mm plywood, 19mm British Gypsum Plank, 53mm Danskin acoustic battens and 18mm V313 chipboard

on the top surface. Minimum of 50mm

Type F4: Metsec SFS joisted floor with a triple layer of plasterboard to the underside on RB565 resilient bar, with 15mm plywood and 19mm British Gypsum Plank to the top surface. Minimum of 50mm mineral wool insulation to the stud void.



Type F7: Metsec SFS joisted floor with a double layer of plasterboard to the underside on RB565 resilient bar, with 15mm plywood, 19mm British Gypsum Plank, 70mm Cellecta Deckfon acoustic battens and 18mm V313 chipboard on the top surface. Minimum of 50mm mineral wool insulation to the stud void.



Type F10: Metsec SFS joisted floor with a triple layer of plasterboard to the underside on RB565 resilient bar, with 15mm plywood, 19mm British Gypsum Plank and Cellecta Screedboard 28 on the top surface. Minimum of 50mm mineral wool insulation to the stud void.

Type F5: Metsec SFS joisted floor with a triple layer of plasterboard to the underside on RB565 resilient bar, with 15mm plywood, 19mm British Gypsum Plank, 8mm Cloud 9 Underlay and 12mm OSB to the top surface. Minimum of 50mm mineral wool insulation to the stud void.



Type F8: Metsec SFS joisted floor with a double layer of plasterboard to the underside on RB565 resilient bar, with 15mm plywood, 19mm British Gypsum Plank and Cellecta Screedboard 28 on the top surface. Minimum of 50mm mineral wool insulation to the stud void.



Type F9: Metsec SFS joisted floor with a triple layer of plasterboard to the underside on RB565 resilient bar, with 15mm plywood, 19mm British Gypsum Plank, 70mm Cellecta Deckfon acoustic battens and 18mm V313 chipboard on the top surface. Minimum of 50mm mineral wool insulation to the stud void.

Fire and Acoustic Performance for Joisted Floors

Fire Performance from underside

Floor Type	Plasterboard Lining	Overall Width	Minimum Joist Depth	Fire Test Laboratory and Number	Acoustic Performance Rw dB (Rw + Ctr)	Laboratory Acoustic Performance $L_{n,w}(C_1)$	Acoustic Test Laboratory and Number
Fire P	erformance f	rom Ur	nderside (50 MINUTES - T	O BS EN 1365-2:2	2014	
F1	2x12.5mm Knauf Fire Panel	276mm	200mm	BRE P100456-1045	56(50)	63(-3)	BRE P109946-1001
F1	2x12.5mm Siniat Fireboard	276mm	200mm	BRE P100456-1047	57(49)	67	Calculated ¹
F1	2x12.5mm BG Fireline	276mm	200mm	BRE P100456-1105	59(51)	65(-6)	BRE 214610
F2	2x12.5mm BG Fireline	296mm	200mm	BRE P100456-1105	63(54)	55(0)	BRE 217158
F8	2x12.5mm Knauf Fire Panel	304mm	200mm	BRE P100456-1045	59(52)	55	BRE P109946-1001
F8	2x12.5mm Siniat Fireboard	304mm	200mm	BRE P100456-1047	62(57)	55	Calculated 1
F8	2x12.5mm BG Fireline	304mm	200mm	BRE P100456-1105	64(59)	55	Calculated 1
F3	2x12.5mm BG Fireline	347mm	200mm	BRE P100456-1105	62(52)	51	BRE 214610
F7	2x12.5mm Siniat Fireboard	364mm	200mm	BRE P100456-1047	59(51)	50	Calculated 1
F7	2x12.5mm BG Fireline	364mm	200mm	BRE P100456-1105	61(53)	50	Calculated ¹
F7	2x12.5mm Knauf Fire Panel	364mm	200mm	BRE P100456-1045	64(54)	50	BRE P109946-1001
Fire P	erformance f	rom Ur	nderside	90 MINUTES - T	O BS EN 1365-2:2	2014	
F4	3x12.5mm Knauf Fire Panel	289mm	200mm	BRE P100456-1046	57(51)	63(-2)	BRE P109946-1001
F4	3x12.5mm BG Fireline	289mm	200mm	BRE P100456-1055	59(51)	65(-6)	BRE 214610 ³
F5	3x12.5mm BG Fireline	309mm	200mm	BRE P100456-1055	63(54)	55(0)	BRE 217158 ²
F10	3x12.5mm Knauf Fire Panel	317mm	200mm	BRE P100456-1046	59(53)	53	BRE P109946-1001
F10	3x12.5mm BG Fireline	317mm	200mm	BRE P100456-1055	64(59)	53	Calculated 1
F6	3x12.5mm BG Fireline	360mm	200mm	BRE P100456-1055	62(52)	51	BRE 214610 ³
F9	3x12.5mm BG Fireline	377mm	200mm	BRE P100456-1055	63(55)	50	Calculated 1
F9	3x12.5mm Knauf Fire Panel	377mm	200mm	BRE P100456-1046	64(56)	50	BRE P109946-1001
Fire P	erformance f	rom Ur	nderside '	120 MINUTES -	TO BS EN 1365-2	:2014	
F4	3x15mm BG Fireline	296mm	200mm	BRE P100456-1081	59(51)	65(-6)	BRE 214610 ⁵
F5	3x15mm BG Fireline	316mm	200mm	BRE P100456-1081	63(54)	55(0)	BRE 217158 ⁴
F10	3x15mm BG Fireline	324mm	200mm	BRE P100456-1081	64(59)	53	Calculated ¹
F6	3x15mm BG Fireline	367mm	200mm	BRE P100456-1081	62(52)	51	BRE 214610 ⁵
F9	3x15mm BG Fireline	384mm	200mm	BRE P100456-1081	63(55)	50	Calculated 1

All laboratory acoustic tests carried out in accordance with BS EN ISO 140-3:1995 and BS EN ISO 140-6:1998

- 1. Acoustic performance calculated using INSUL 10 software.
- 2. Estimated performance based on laboratory test BRE 217158 with additional 12.5mm BG Fireline
- 3. Estimated performance based on laboratory test BRE 214610 with additional 12.5mm BG Fireline
- 4. Estimated performance based on laboratory test BRE 217158 with additional 15.0mm BG Fireline
- 5. Estimated performance based on laboratory test BRE 214610 with additional 15.0mm BG Fireline

Building Regulations Part L - Conservation of fuel and power:

The U-Values published in this section have been obtained by the combined method, which takes account of the performance of the individual elements making up the wall construction. These values are for guidance only and should be confirmed with the insulation provider or by the consultant providing the SAP calculations.

Depending on the stud depth used in the wall construction additional insulation between the studs may help reduce the external insulation thickness. A condensation risk analysis should be completed if the insulation between the studs makes up more than a third of the overall insulation performance of the wall.

Where generic materials are referenced the following thermal conductivities have been used:

- » 12mm sheathing board, $\lambda = 0.25$ W/mK
- » 12.5mm plasterboard, $\lambda = 0.24$ W/mK
- » 102mm Brickwork, $\lambda = 0.77$ W/mK
- » Isover APR 1200, λ = 0.044 W/mK

Thermal Performance Table – Brick Cladding



Type EC1: Two layers of plasterboard, stud, sheathing board, insulation, cavity, brickwork.

U- Value	Wall Type EC1									
Required	Rockwool Duoslab (mm)	Knauf Rocksilk (mm)								
0.30	90	90								
0.29	95	95								
0.28	100	100								
0.27	105	105								
0.26	110	110								
0.25	115	115								
0.24	120	120								
0.23	130	130								
0.22	135	130								
0.21	145	140								
0.20	150	145								
0.19	160	155								
0.18	170	165								
0.17	180	175								
0.16	195	190								
0.15	210	205								
0.14	225	220								
0.13	245 ¹	235								
0.12	265 ¹	260 ¹								
0.11	290 ¹	285 ¹								
0.10	320 ¹	310 ¹								

All U-Values are based on calculations carried out by voestalpine Metsec plc to BS EN ISO 6946:2017 and BR 443 (2019). The example values are based on published χ values for the stated insulation types; RCM Y-Wall sheathing board; 90M12-50 studs at 600mm centres; and 2x12.5mm British Gypsum Gyproc Fireline. U-Value calculations should be verified by the insulation provider.

1. Double insulation boards required, boards should be roughly equal thickness

2. Brick tie channels fixed at 450mm vertical centres with stainless steel stand off screws fixing to the studs through insulation



Type EC1i: Two layers of plasterboard, stud with minimum 50mm ISOVER APR 1200 insulation to the stud void, sheathing board, insulation, cavity, brickwork.

Wall Type EC1i											
	TW55 (mm)	K15 (mm)									
	65	65									
	65	65									
	70	70									
	75	75									
	80	80									
	85	85									
	90	90									
	100	95									
	105	105									
	115	115									
	120	120									
	130	125									
	140	135									
	150	150									
	165	160									
	180	175									
	195	190									
	215	205									
	235	230									
	260 ¹	255 ¹									
	290 ¹	280 ¹									

Thermal Performance Table – Ventilated Rainscreen Cladding

Thermal Performance Table – Timber Cladding



Type EC2: Two layers of plasterboard, stud, sheathing board, insulation, ventilated rainscreen



Type EC2i: Two layers of plasterboard, stud with minimum 50mm ISOVER APR 1200 insulation to the stud void, sheathing board, insulation, ventilated rainscreen

			Wall Typ	be EC2		Wall Type EC2i								
	Rockwo	pol Duoslal	c (mm)	Knau	ıf Rocksilk (mm)	Rockwo	pol Duosla	b (mm)	Knauf Rocksilk (mm)				
Required	Brackets at 600mm centres	Brackets at 900mm centres	Brackets at 1200mm centres											
0.30	130	120	115	130	115	110	100	90	85	100	90	85		
0.29	135	125	120	135	120	115	105	95	90	105	95	90		
0.28	145	130	125	140	125	120	115	100	95	110	100	95		
0.27	150	135	130	145	130	125	120	105	100	115	105	100		
0.26	160	145	140	155	140	130	125	115	110	125	110	105		
0.25	165	150	145	160	145	140	135	120	115	130	115	110		
0.24	175	160	150	170	155	145	145	130	120	140	125	120		
0.23	185	170	160	180	160	155	155	135	130	150	135	130		
0.22	200	180	170	195	170	160	165	145	140	160	140	135		
0.21	210	195	180	205	180	170	180	155	145	175	155	145		
0.20	230	200	190	220	195	180	195	170	160	190	165	155		
0.19	245 ¹	215	200	240	205	195	210	180	170	205	175	165		
0.18	270 ¹	230	215	260 ¹	220	205	230	195	185	225	190	180		
0.17	290 ¹	250 ¹	230	280 ¹	240	220	255 ¹	215	200	250	210	195		
0.16	315 ¹	270 ¹	250 ¹	310 ¹	260 ¹	240	280 ¹	235	215	275 ¹	230	210		
0.15	350 ¹	290 ¹	270 ¹	340 ¹	280 ¹	260 ¹	315 ¹	260 ¹	235	305 ¹	250	230		
0.14	-	320 ¹	295 ¹	-	310 ¹	285 ¹	350 ¹	285 ¹	260 ¹	345 ¹	280 ¹	255 ¹		
0.13	-	350 ¹	325 ¹	-	340 ¹	310 ¹	-	320 ¹	290 ¹	-	310 ¹	280 ¹		
0.12	-	-	350 ¹	-	-	345 ¹	-	-	325 ¹	-	350 ¹	315 ¹		
0.11	-	-	-	-	-	-	-	-	-	-	-	350 ¹		
0.10	-	-	-	-	-	-	-	-	-	-	-	-		

Type EC3:Two layers of plasterboard, stud, sheathing board, insulation, battens, timber cladding.

	U- Value Required	Wall Typ	e EC3					
_	Required	Rockwool Duoslab (mm)	Knauf Rocksilk (mm)					
	0.30	105	100					
	0.29	110	105					
	0.28	110	110					
	0.27	115	115					
	0.26	120	120					
	0.25	125	125					
	0.24	135	130					
	0.23	140	135					
	0.22	145	140					
	0.21	155	150					
	0.20	160	155					
	0.19	170	165					
	0.18	180	175					
	0.17	190	185					
	0.16	205	200					
	0.15	220	215					
	0.14	235	230					
	0.13	255 ¹	245					
	0.12	275 ¹	270 ¹					
	0.11	300 ¹	290 ¹					
	0.10	330 ¹	320 ¹					

All U-Values are based on calculations carried out by voestalpine Metsec plc to BS EN ISO 6946:2017 and BR 443 (2019). The example values are based on published x values for the stated insulation types; RCM Y-Wall sheathing board; 90M12-50 studs at 600mm centres; and 2x12.5mm British Gypsum Gyproc Fireline. U-Value calculations should be verified by the insulation provider.

1. Double insulation boards required, boards should be roughly equal thickness

2. Insulation assumed to be broken by rainscreen support brackets at vertical centres selected.

3. Thermal performance may be increased by increasing the vertical centres of the brackets, especially for U-values less than 0.18.

4. If vertical centres greater than 600mm then confirmation should be obtained from cladding engineer to confirm this is acceptable.

All U-Values are based on calculations carried out by voestalpine Metsec plc to BS EN ISO 6946:2017 and BR 443 (2019). The example values are based on published χ values for the stated insulation types; RCM Y-Wall sheathing board; 90M12-50 studs at 600mm centres; and 2x12.5mm British Gypsum Gyproc Fireline. U-Value calculations should be verified by the insulation provider.

1. Double insulation boards required, boards should be roughly equal thickness

2. Timber battens assumed to be fixed with stainless steels screws at 300mm vertical centres fixing through insulation

3. Timber battens are to be fixed on top of the insulation and not to penetrate the insulation thickness



Type EC3i: Two layers of plasterboard, stud with minimum 50mm ISOVER APR 1200 insulation to the stud void, sheathing board, insulation, battens, timber cladding.

Wall T	ype EC3i
Rockwool Duoslab (mm)	Knauf Rocksilk (mm)
75	75
75	75
80	80
85	85
90	90
100	95
105	100
110	105
115	115
125	125
130	130
140	135
150	145
160	160
175	170
190	185
205	200
225	215
245 ¹	240
270 ¹	260 ¹
300 ¹	290 ¹

These drawings are for visualisation purposes only

L3D-01 Base of SFS at Ground Floor



L3D-02 External Wall and Floor Junction

> Cavity barrier.



Facing brickwork.

These drawings are for visualisation purposes only

L3D-03 Party Wall Junction to External Wall



L3D-04

Facing brickwork.

These drawings are for visualisation purposes only

L3D-05

Roof - Standing Seam Type Roof



L3D-06

Roof - Single PLY on Steel Joists

Metsec framing.



CONTINUOUS WALLING



INTRODUCING CONTINUOUS WALLING...

Continuous walling provides an oversailing wall outside the primary structure which maximises floor space and allows the wall to move as one continuous system, minimising the need for visible joints in the façade.

Overview of Continuous Walling System

Our universal cleats can be produced either 3mm or 6mm thick and 130mm or 190mm deep. The cleats are prepunched with slots and holes to allow easy fixing to the primary structure and to the SFS studs.

The projecting cleat leg can vary from 100mm to 300mm in increments of 25mm. Slots allow the cleat to be used as a deflection cleat. Alternatively, the cleat can be fixed through the holes to act as a dead load cleat supporting the wall.

The return leg of the cleats are provided with both 9mm and 6mm holes. 9mm diameter holes allow the cleat to be fixed to concrete with 6mm concrete screw anchors, M8 resin bolts or to steel with M8 bolts. The 6mm diameter holes allow the cleat to be fixed to steel with 5.5 diameter tek screws.



Universal Cleats



A new range of cleats used to provide support to continuous wall studs, with a unique pattern of prepunched slots and holes which offer both deflection and solid fix.

Slotted Angle (SA1002)



The use of slotted angles is often advantageous where the SFS is offset from the primary structure frame by a distance which is too great for a universal cleat.

Intermediate Base/ track are fixed back to receive studs from



Head Track Base and head above and below.



Intermediate Floor



Head Track Tek screwed to all studs.

Studs

Continuous past the slab. Stud height, gauge, centres and size according to Metsec bespoke design.

Base Track Tek screwed to all studs.

Base Support

Support member required below Metsec base track. Designed and supplied by others.

SECTION NAMES EXPLAINED

Metsec section references are designed to be easy to read and understand at a glance. Each section type is identified by a unique reference consisting of three numerical values seperated by a letter or a dash.

Studs Sections (lipped sections)

Example stud reference - 090M12-50

- » 090 Refers to the section depth of 90mm (numbers ending in 0 are always lipped)
- Refers to Metsec SFS » M
- Refers to the gauge (thickness) of the section » 12 i.e. 12 is 1.2mm thick
- » 50 Refers to the width or section flange of 50mm

Track Sections (un-lipped sections)

Example stud reference - 094M16-70S

- » 094 Refers to the section depth of 94mm (numbers ending in 4 or 6 are always un-lipped)
- Refers to Metsec SFS » M
- Refers to the gauge (thickness) of the section » 16 i.e. 16 is 1.6mm thick
- Refers to the width or section flange of 70mm » 70
- If present at the end of the section reference it » S means the section is slotted.

Colour Coding Explained

Metsec prints stud or joist sections and track sections with references that are designed to be easy to read and understand at a glance. Metsec prints the Metsec name down both flanges for the thinner thicknesses of section and these are colour coded as follows:

- » BLACK = 1.2mm or 1.3mm thickness
- » RFD = 1.4mm thickness
- » GREEN = 1.6mm thickness
- » ORANGE = 1.8mm thickness
- » BLUE = 2.0mm thickness

On our drawings any sections greater than 2.0mm or that are made up of multiple sections are shown in yellow so they are highlighted on the drawings.

All stud or joist sections and track sections have a string of numbers and letters printed down the back web along with our CE mark. This string of numbers identifies the order number, delivery, bundle number and individual section mark number which can be related back to your order confirmation and delivery notes.

INDUSTRY STANDARDS AND SOLUTIONS

Building Regulations Part A - Structure:

The a p	e Metsec SFS Continuous walling system is designed on project basis to support the external cladding, insulation d internal plasterboard against the external wind load.	T
The the	e SFS sections can be designed to wind loads provided by e project engineer/consultant or designed to wind loads	>>
cal	lculated by our own engineers.	»
Me 4:2 inc PD	etsec calculate wind loads to BS EN 1991-1- 2005+A1:2010 plus the UK national annex corporating the latest amendments and the use of 6688-1-4:2015, Background Information to EN 1991-1-4	>>
an	d additional guidance.	>>
The 19 5:2 co	e structural design of the SFS sections utilises BS EN 93-1-1:2022, BS EN 1993-1-3:2006 & BS EN 1993-1- 2006+A2:2019 plus UK national annexes and additional des where appropriate.	»» »
The lim »	e design of the SFS infill walling considers, but is not ited to: Structural capacity of the SFS sections	>>
»	Deflection of the SFS sections under load	>>
»	Connection of the SFS sections back to the primary structure	>>
»	Effect of the cladding and fixing method to the SFS sections	F
-		

Typical deflection limits for different claddings are given below:

- » H/500 for brickwork (ignoring the stiffening effect of the brickwork)
- » H/500 for thin joint masonry or stone
- » H/360 for brickwork (including the combined stiffening effect of the brickwork)
- » H/360 for Insulated Render Systems
- » H/360 for Heavy Rainscreen (Terracotta tiles, brick or stone slip)
- » H/250 for Lightweight Rainscreen
- » H/250 for Timber Cladding
- » H/250 for Composite Panels

- The load tables within this section are based on: Unfactored horizontal pressure.
- Maximum external cladding weight of 0.50kN/m^2
- Blocking and strapping at mid height for studs higher than 2.50m
- Third span blocking and strapping required at 2.5m intervals for studs higher than 5.00m
- Studs at 600 mm centres
- Studs fixed into 1.2mm base track at the bottom of the wall
- 90mm studs fixed with 2 no. 5.5mm diameter tek screws through slots in Metsec cleats
- 120mm or greater studs fixed with 3 no. 5.5mm diameter tek screws through slots in Metsec cleats
- Horizontal reaction loads provided for cleat design.
- Unequal spans limited to 80% of the largest span so L1 > L2 > L1*0.8.
- For wind loads outside the tables or conditions different rom above please contact Metsec for advice.

Maximum Height – Deflection Limited to Height/250

How to Use the Load Table:

The load tables in this section allow for simple sizing of the general studs for a given wind load and known height. Where openings are required within the wall please contact voestalpine Metsec for the design of the supporting members.

Maximum span tables are provided for all standard SFS sections for wind loads between 0.5kN/m² and 2.0kN/m². Three tables are provided for three deflection criterion, Height/250, Height/360 and Height/500. For designs deeper than 210mm, please contact Metsec.

Uniform Horizontal Pressure (kN/m²)																	
Section Reference		0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
0000440 50	Span	3.80	3.60	3.40	3.30	3.20	3.00	2.90	2.80	2.75	2.70	2.60	2.50	-	-	-	-
090M12-50	Reaction	2.38	2.70	2.98	3.30	3.60	3.75	3.99	4.20	4.47	4.73	4.88	5.00	-	-	-	-
0001412 (2	Span	4.40	4.10	3.90	3.70	3.50	3.40	3.30	3.10	3.00	2.90	2.70	2.60	-	-	-	-
0901112-02	Reaction	2.75	3.08	3.41	3.70	3.94	4.25	4.54	4.65	4.88	5.08	5.06	5.20	-	-	-	-
0001410 75	Span	4.90	4.50	4.20	4.00	3.80	3.60	3.50	3.40	3.20	2.90	2.70	2.60	-	-	-	-
0901112-75	Reaction	6.06	3.38	3.68	4.00	4.28	4.50	4.81	5.10	5.20	5.08	5.06	5.20	-	-	-	-
000114 75	Span	5.00	4.80	4.60	4.40	4.20	4.00	3.70	3.40	3.20	2.90	2.70	2.60	-	-	-	-
0901*114-75	Reaction	3.13	3.60	4.03	4.40	4.73	5.00	5.09	5.10	5.20	5.08	5.06	5.20	-	-	-	-
0001416 75	Span	5.00	5.00	4.80	4.60	4.40	4.10	3.70	3.40	3.20	2.90	2.70	2.60	-	-	-	-
0901110-75	Reaction	3.13	3.75	4.20	4.60	4.95	5.13	5.09	5.10	5.20	5.08	5.06	5.20	-	-	-	-
0001410 75	Span	5.00	5.00	5.00	4.70	4.50	4.10	3.70	3.40	3.20	2.90	2.70	2.60	-	-	-	-
0901110-75	Reaction	3.13	3.75	4.38	4.70	5.06	5.13	5.09	5.10	5.20	5.08	5.06	5.20	-	-	-	-
000M20 75	Span	5.00	5.00	5.00	4.90	4.60	4.10	3.70	3.40	3.20	2.90	2.70	2.60	-	-	-	-
0701120=73	Reaction	3.13	3.75	4.38	4.90	5.18	5.13	5.09	5.10	5.20	5.08	5.06	5.20	-	-	-	-
1201412 50	Span	4.10	3.90	3.70	3.60	3.40	3.30	3.20	3.10	3.00	3.00	2.90	2.85	2.80	2.75	2.70	2.60
12014112-50	Reaction	2.56	2.93	3.24	3.60	3.83	4.13	4.40	4.65	4.96	5.25	5.44	5.70	5.95	6.19	6.41	6.50
1001410 (0	Span	5.40	5.10	4.30	4.10	3.90	3.80	3.60	3.50	3.40	3.30	3.20	3.05	3.10	3.00	2.95	2.90
1201*112-02	Reaction	3.38	3.83	3.76	4.10	4.39	4.75	4.95	5.25	5.53	5.78	6.00	6.45	6.59	6.75	7.01	7.25
120M12 75	Span	5.80	5.40	5.10	4.40	4.20	4.10	3.90	3.80	3.70	3.50	3.40	3.30	3.25	3.20	3.10	3.00
1201112-75	Reaction	3.63	4.05	4.46	4.40	4.73	5.13	5.36	5.70	6.01	6.13	6.38	6.60	6.91	7.20	7.36	7.50
120M14 75	Span	6.40	6.00	5.60	5.30	4.60	4.50	4.30	4.20	4.00	3.90	3.80	3.70	3.60	3.40	3.20	3.10
1201114-73	Reaction	4.00	4.50	4.90	5.30	5.18	5.63	5.91	6.30	6.50	6.83	7.13	7.40	7.65	7.65	7.60	7.75
120M16_75	Span	6.60	6.20	5.90	5.70	5.40	5.30	5.10	4.50	4.30	4.20	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	4.13	4.65	5.16	5.70	6.08	6.63	7.01	6.75	6.99	7.35	7.69	7.80	7.65	7.65	7.60	7.75

Maximum spans in above continuous walling load table based on:

1. Unfactored horizontal pressure

- 2. Deflection limited to height/250
- 3. Blocking and strapping at max 2.5m intervals
- 4. Studs at 600mm centres
- 5. 90mm studs fixed with 2No 5.5mm diameter tek screws through continuous walling cleats
- 6. 120mm+ studs fixed with 3No 5.5mm diameter tek screws through continuous walling cleats
- 7. Maximum external cladding weight of 0.5kN/m²

8. Unequal spans limited to 20% of the maximum span (L1 > L2) where L1 = maximum span & L2 = L1×0.8

Uniform Horizontal Pressure (kN/m ²)																	
Section Reference		0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
150M12 50	Span	5.20	4.20	4.00	3.80	3.70	3.60	3.50	3.40	3.30	3.20	3.15	3.10	3.00	2.95	2.90	2.80
1301112-30	Reaction	3.25	3.15	3.50	3.80	4.16	4.50	4.81	5.10	5.36	5.60	5.91	6.20	6.38	6.64	6.89	7.00
150M10 40	Span	5.90	5.50	5.20	4.40	4.20	4.10	3.90	3.80	3.70	3.60	3.50	3.40	3.35	3.30	3.20	3.10
13014112-02	Reaction	3.69	4.13	4.55	4.40	4.73	5.13	5.36	5.70	6.01	6.30	6.56	6.80	7.12	7.43	7.60	7.75
150110 75	Span	6.40	5.90	5.60	5.30	4.60	4.40	4.30	4.10	4.00	3.90	3.80	3.70	3.60	3.40	3.20	3.10
1501412-75	Reaction	4.00	4.43	4.90	5.30	5.18	5.50	5.91	6.15	6.50	6.83	7.13	7.40	7.65	7.65	7.60	7.75
150M14-75	Span	6.90	6.50	6.10	5.80	5.50	5.30	5.10	4.50	4.30	4.20	4.10	3.90	3.60	3.40	3.20	3.10
130111473	Reaction	4.31	4.88	5.34	5.80	6.19	6.63	7.01	6.75	6.99	7.35	7.69	7.80	7.65	7.65	7.60	7.75
150M16-75	Span	7.80	6.90	6.50	6.20	6.00	5.70	5.50	5.20	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
100111070	Reaction	4.88	5.18	5.69	6.20	6.75	7.13	7.56	7.80	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
150M18-75	Span	8.10	7.60	6.90	6.60	6.30	6.10	5.60	5.20	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	5.06	5.70	6.04	6.60	7.09	7.63	7.70	7.80	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
150M20-75	Span	8.40	7.90	7.30	7.00	6.70	6.20	5.60	5.20	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	5.25	5.93	6.39	7.00	7.54	7.75	7.70	7.80	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M12-50	Span	5.50	5.20	4.30	4.10	3.90	3.80	3.70	3.60	3.50	3.45	3.40	3.30	3.25	3.20	3.10	3.00
	Reaction	3.44	3.90	3.76	4.10	4.39	4.75	5.09	5.40	5.69	6.04	6.38	6.60	6.91	7.20	7.36	7.50
180M12-62	Span	6.30	5.90	5.60	5.30	5.10	4.30	4.20	4.10	4.00	3.90	3.80	3.70	3.60	3.40	3.20	3.10
	Reaction	3.94	4.43	4.90	5.30	5.74	5.38	5.78	6.15	6.50	6.83	7.13	7.40	7.65	7.65	7.60	7.75
180M12-75	Span	6.90	6.40	6.00	5.70	5.40	5.20	4.60	4.40	4.30	4.20	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	4.31	4.80	5.25	5.70	6.08	6.50	6.33	6.60	6.99	7.35	7.69	7.80	7.65	7.65	7.60	7.75
180M14-75	Span	8.00	6.90	6.50	6.20	5.90	5.70	5.50	5.20	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	5.00	5.18	5.69	6.20	6.64	7.13	7.56	7.80	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M16-75	Span	8.40	7.80	7.00	6.70	6.40	6.10	5.60	5.20	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	5.38	6.00	6.13	6.70	7.20	7.63	7.70	7.80	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M18-75	Span	9.10	8.50	8.00	7.60	6.50	6.20	5.60	5.20	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	5.69	6.38	7.00	7.60	7.65	7.75	7.70	7.80	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M20-75	Span	9.50	8.90	8.40	7.80	6.90	6.20	5.60	5.20	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	5.94	6.68	7.35	7.80	7.76	7.75	7.70	7.80	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
210M12-50	Span	5.80	5.50	5.30	4.30	4.20	4.00	3.90	3.80	3.70	3.60	3.55	3.50	3.40	3.30	3.20	3.10
	Reaction	3.63	4.13	4.64	4.30	4.73	5.00	5.36	5.70	6.01	6.30	6.66	7.00	7.23	7.43	7.60	7.75
210M12-62	Span	6.70	6.30	5.90	5.60	5.40	5.20	4.50	4.30	4.20	4.10	4.00	3.90	3.60	3.40	3.20	3.10
	Reaction	4.19	4.73	5.16	5.60	6.08	6.50	6.19	6.45	6.83	7.18	7.50	7.80	7.65	7.65	7.60	7.75
210M13-75	Span	8.20	7.00	6.60	6.30	6.00	5.80	5.60	5.20	4.70	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	5.06	5.25	5.98	6.30	6./5	7.25	7.70	7.80	7.64	7.70	7.69	7.80	7.65	7.65	7.60	7.75
210M16-75	Span	9.10	8.50	8.00	7.60	6.80	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	5.69	6.38	7.00	/.60	/.65	/./5	7.70	/.80	7.80	/./0	7.69	7.80	7.65	/.65	7.60	7.75
210M18-75	Span	9.60	9.00	8.50	7.80	6.90	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	6.00	6.75	7.44	7.80	/.80	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
210M20-75	Span	10.00	9.40	8.90	7.80	6.90	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	6.25	7.05	7.79	7.80	7.80	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75

Maximum spans in above continuous walling load table based on:

1. Unfactored horizontal pressure

Deflection limited to height/250

- 3. Blocking and strapping at max 2.5m intervals
- 4. Studs at 600mm centres
- 5. 90mm studs fixed with 2No 5.5mm diameter tek screws through continuous walling cleats
- 6. 120mm+ studs fixed with 3No 5.5mm diameter tek screws through continuous walling cleats
- 7. Maximum external cladding weight of 0.5kN/m²
- 8. Unequal spans limited to 20% of the maximum span (L1 > L2) where L1 = maximum span & L2 = L1×0.8

Maximum Height - Deflection Limited to Height/360

How to Use the Load Table:

The load tables in this section allow for simple sizing of the general studs for a given wind load and known height. Where openings are required within the wall please contact voestalpine Metsec for the design of the supporting members.

Maximum span tables are provided for all standard SFS sections for wind loads between 0.5kN/m² and 2.0kN/m². Three tables are provided for three deflection criterion, Height/250, Height/360 and Height/500. For designs deeper than 210mm, please contact Metsec.

Uniform Horizontal Pressure (kN/m ²)																	
Section Reference		0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
0000410 50	Span	3.80	3.60	3.40	3.30	3.20	3.00	2.90	2.80	2.75	2.70	2.60	2.50	-	-	-	-
090112-50	Reaction	2.38	2.70	2.98	3.30	3.60	3.75	3.99	4.20	4.47	4.73	4.88	5.00	-	-	-	-
0000410 (0	Span	4.10	3.80	3.70	3.50	3.40	3.20	3.10	3.05	3.00	2.90	2.70	2.60	-	-	-	-
090112-62	Reaction	2.56	2.85	3.24	3.50	3.83	4.00	4.26	4.58	4.88	5.08	5.06	5.20	-	-	-	-
000M12 75	Span	4.30	4.10	3.80	3.70	3.50	3.40	3.30	3.20	3.10	2.90	2.70	2.60	-	-	-	-
090M12-/5	Reaction	2.69	3.08	3.33	3.70	3.94	4.25	4.54	4.80	5.04	5.08	5.06	5.20	-	-	-	-
000114 75	Span	4.50	4.30	4.00	3.90	3.70	3.60	3.50	3.40	3.20	2.90	2.70	2.60	-	-	-	-
0901114-75	Reaction	2.81	3.23	3.50	3.90	4.16	4.50	4.81	5.10	5.20	5.08	5.06	5.20	-	-	-	-
00014 75	Span	4.70	4.40	4.20	4.00	3.90	3.70	3.60	3.40	3.20	2.90	2.70	2.60	-	-	-	-
090110-75	Reaction	2.94	3.30	3.68	4.00	4.39	4.63	4.95	5.10	5.20	5.08	5.06	5.20	-	-	-	-
0001418 75	Span	4.90	4.60	4.40	4.20	4.00	3.90	3.70	3.40	3.20	2.90	2.70	2.60	-	-	-	-
0901110-75	Reaction	3.06	3.45	3.85	2.65	4.50	4.88	5.09	5.10	5.20	5.08	5.06	5.20	-	-	-	-
0001420 75	Span	5.00	4.80	4.50	4.30	4.20	4.00	3.70	3.40	3.20	2.90	2.70	2.60	-	-	-	-
0901420-75	Reaction	3.13	3.60	3.94	4.30	4.73	5.00	5.09	5.10	5.20	5.08	5.06	5.20	-	-	-	-
100M10 E0	Span	4.10	3.90	3.70	3.60	3.40	3.30	3.20	3.10	3.00	3.00	2.90	2.85	2.80	2.75	2.70	2.60
12014112-50	Reaction	2.56	2.93	3.24	3.60	3.83	4.13	4.40	4.65	4.96	5.25	5.44	5.70	5.95	6.19	6.41	6.50
120M12 62	Span	5.10	4.50	4.30	4.10	3.90	3.80	3.60	3.50	3.40	3.30	3.20	3.10	3.05	3.00	2.95	2.90
1201112-02	Reaction	3.19	3.38	3.76	4.10	4.39	4.75	4.95	5.25	5.53	5.78	6.00	6.45	6.59	6.75	7.01	7.25
120M12 75	Span	5.30	5.00	4.70	4.40	4.20	4.10	3.90	3.80	3.70	3.50	3.40	3.30	3.25	3.20	3.10	3.00
1201112-73	Reaction	3.31	3.75	4.11	4.40	4.73	5.13	5.36	5.70	6.01	6.13	6.38	6.60	6.91	7.20	7.36	7.50
120M14-75	Span	5.60	5.30	5.00	4.80	4.60	4.50	4.30	4.20	4.00	3.90	3.80	3.70	3.60	3.40	3.20	3.10
1201114-73	Reaction	3.50	3.98	4.38	4.80	5.18	5.63	5.91	6.30	6.50	6.83	7.13	7.40	7.65	7.65	7.60	7.75
120M16 75	Span	5.90	5.50	5.20	5.00	4.80	4.60	4.50	4.40	4.30	4.20	4.10	3.90	3.60	3.40	3.20	3.10
12014110-75	Reaction	3.69	4.13	4.55	5.00	5.40	5.75	6.19	6.60	6.99	7.35	7.69	7.80	7.65	7.65	7.60	7.75
120M18 75	Span	6.10	5.70	5.40	5.20	5.00	4.80	4.70	4.50	4.40	4.30	4.10	3.90	3.60	3.40	3.20	3.10
1201110-75	Reaction	3.81	4.28	4.73	5.20	5.63	6.00	6.46	6.75	7.15	7.53	7.69	7.80	7.65	7.65	7.60	7.75

Maximum spans in above continuous walling load table based on:

- 1. Unfactored horizontal pressure
- 2. Deflection limited to height/360
- 3. Blocking and strapping at max 2.5m intervals
- 4. Studs at 600mm centres
- 5. 90mm studs fixed with 2No 5.5mm diameter tek screws through continuous walling cleats
- 6. 120mm+ studs fixed with 3No 5.5mm diameter tek screws through continuous walling cleats
- 7. Maximum external cladding weight of 0.5kN/m²
- 8. Unequal spans limited to 20% of the maximum span (L1 > L2) where L1 = maximum span & L2 = L1×0.8

Uniform Horizontal Pressure (kN/m ²)																	
Section Reference		0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
1501412 50	Span	5.20	4.20	4.00	3.80	3.70	3.60	3.50	3.40	3.30	3.20	3.15	3.10	3.00	2.95	2.90	2.80
1501*112-50	Reaction	3.25	3.15	3.50	3.80	4.16	4.50	4.81	5.10	5.36	5.60	5.91	6.20	6.38	6.64	6.89	7.00
150M12 62	Span	5.90	5.50	5.20	4.40	4.20	4.10	3.90	3.80	3.70	3.60	3.50	3.40	3.35	3.30	3.20	3.10
1501*112-02	Reaction	3.69	4.13	4.55	4.40	4.73	5.13	5.36	5.70	6.01	6.30	6.56	6.80	7.12	7.43	7.60	7.75
150M12 75	Span	6.30	5.90	5.60	5.30	4.60	4.40	4.30	4.10	4.00	3.90	3.80	3.70	3.60	3.40	3.20	3.10
1301112-73	Reaction	3.94	4.43	4.90	5.30	5.18	5.50	5.91	6.15	6.50	6.83	7.13	7.40	7.65	7.65	7.60	7.75
150M14-75	Span	6.60	6.20	5.90	5.70	5.40	5.20	5.10	4.50	4.30	4.20	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	4.13	4.65	5.16	5.70	6.08	6.50	7.01	6.75	6.99	7.35	7.69	7.80	7.65	7.65	7.60	7.75
150M16-75	Span	6.90	6.50	6.20	5.90	5.70	5.50	5.30	5.20	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1501-110-75	Reaction	4.31	4.88	5.43	5.90	6.41	6.88	7.29	7.80	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
150M18-75	Span	7.20	6.80	6.40	6.10	5.90	5.70	5.50	5.00	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1301110-73	Reaction	4.50	5.10	5.60	6.10	6.64	7.13	7.56	7.50	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
150M20-75	Span	7.40	7.00	6.70	6.40	6.10	5.90	5.50	5.00	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1301120-73	Reaction	4.63	5.52	5.86	6.40	6.86	7.38	7.56	7.50	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M12 50	Span	5.50	5.20	4.30	4.10	3.90	3.80	3.70	3.60	3.50	3.45	3.40	3.30	3.25	3.20	3.10	3.00
1001112-30	Reaction	3.44	3.90	3.76	4.10	4.39	4.75	5.09	5.40	5.69	6.04	6.38	6.60	6.91	7.20	7.36	7.50
180M12 62	Span	6.30	5.90	5.60	5.30	5.10	4.30	4.20	4.10	4.00	3.90	3.80	3.70	3.60	3.40	3.20	3.10
1001112-02	Reaction	3.94	4.43	4.90	5.30	5.74	5.38	5.78	6.15	6.50	6.83	7.13	7.40	7.65	7.65	7.60	7.75
180M12 75	Span	6.90	5.64	5.60	5.70	5.40	5.20	4.60	4.40	4.30	4.20	4.10	3.90	3.60	3.40	3.20	3.10
1001-112-73	Reaction	4.31	4.80	5.25	5.70	6.08	6.50	6.33	6.60	6.99	7.35	7.69	7.80	7.65	7.65	7.60	7.75
1801414 75	Span	7.60	6.90	6.50	6.20	5.90	5.70	5.50	5.20	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1001*114-75	Reaction	4.75	5.18	5.69	6.20	6.64	7.13	7.56	7.80	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M16 75	Span	8.00	7.40	7.00	6.70	6.40	6.10	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1001110-73	Reaction	5.00	5.55	6.13	6.70	7.20	7.63	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M18 75	Span	8.30	7.80	7.30	7.00	6.80	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1001-110-73	Reaction	5.19	5.85	6.39	7.00	7.65	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M20-75	Span	8.50	8.00	7.60	7.30	6.80	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1001120-73	Reaction	5.31	6.00	6.65	7.30	7.65	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
210M12-50	Span	5.80	5.50	5.30	4.30	4.20	4.00	3.90	3.80	3.70	3.60	3.55	3.50	3.40	3.30	3.20	3.10
2101112-30	Reaction	3.63	4.13	4.64	4.30	4.73	5.00	5.36	5.70	6.01	6.30	6.66	7.00	7.23	7.43	7.60	7.75
210M12 62	Span	6.70	6.30	5.90	5.60	5.40	5.20	4.50	4.30	4.20	4.10	4.00	3.90	3.60	3.40	3.20	3.10
2101112-02	Reaction	4.19	4.73	5.16	5.60	6.08	6.50	6.19	6.45	6.83	7.18	7.50	7.80	7.65	7.65	7.60	7.75
210M13-75	Span	8.10	7.00	6.60	6.30	6.00	5.80	5.60	5.20	4.70	4.40	4.10	3.90	3.60	3.40	3.20	3.10
2101113-73	Reaction	5.06	5.25	5.78	6.30	6.75	7.25	7.70	7.80	7.64	7.70	7.69	7.80	7.65	7.65	7.60	7.75
210M14 7F	Span	9.00	8.40	8.00	7.60	6.80	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
2101110-73	Reaction	5.63	6.30	7.00	7.60	7.65	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
210M19 7F	Span	9.30	8.80	8.30	7.80	6.90	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
2 101*110-75	Reaction	5.81	6.60	7.26	7.80	7.76	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
210M20 75	Span	9.60	9.10	8.60	7.80	6.90	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
2 101-120-7 3		6.00	6.83	7.53	7.80	7.76	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75

Maximum spans in above continuous walling load table based on:

1. Unfactored horizontal pressure

- Deflection limited to height/360
- 3. Blocking and strapping at max 2.5m intervals
- 4. Studs at 600mm centres
- 5. 90mm studs fixed with 2No 5.5mm diameter tek screws through continuous walling cleats
- 6. 120mm+ studs fixed with 3No 5.5mm diameter tek screws through continuous walling cleats
- 7. Maximum external cladding weight of 0.5kN/m²
- 8. Unequal spans limited to 20% of the maximum span (L1 > L2) where L1 = maximum span & L2 = L1×0.8

Maximum Height - Deflection Limited to Height/500

How to Use the Load Table:

The load tables in this section allow for simple sizing of the general studs for a given wind load and known height. Where openings are required within the wall please contact voestalpine Metsec for the design of the supporting members.

Maximum span tables are provided for all standard SFS sections for wind loads between 0.5kN/m² and 2.0kN/m². Three tables are provided for three deflection criterion, Height/250, Height/360 and Height/500. For designs deeper than 210mm, please contact Metsec.

Uniform Horizontal Pressure (kN/m ²)																	
Section Reference		0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
0001440 50	Span	3.70	3.40	3.30	3.10	3.00	2.90	2.80	2.70	2.65	2.60	2.55	2.50	-	-	-	-
090M12-50	Reaction	2.31	2.55	2.89	3.10	3.38	3.63	3.85	4.05	4.31	4.55	4.78	5.00	-	-	-	-
0001410 (0	Span	3.90	3.60	3.40	3.30	3.20	3.10	3.00	2.90	2.80	2.75	2.70	2.60	-	-	-	-
090M12-62	Reaction	2.44	2.70	2.98	3.30	3.60	3.88	4.13	4.35	4.55	4.81	5.06	5.20	-	-	-	-
0001440 75	Span	4.10	3.80	3.60	3.50	3.30	3.20	3.10	3.00	2.95	2.90	2.70	2.60	-	-	-	-
090M12-75	Reaction	2.56	2.85	3.15	3.50	3.71	4.00	4.26	4.50	4.79	5.08	5.06	5.20	-	-	-	-
0001414 75	Span	4.20	4.00	3.80	3.60	3.50	3.30	3.20	3.15	3.10	2.90	2.70	2.60	-	-	-	-
090M14-75	Reaction	2.63	3.00	3.33	3.60	3.94	4.13	4.40	4.73	5.04	5.08	5.06	5.20	-	-	-	-
0001414 75	Span	4.40	4.10	3.90	3.70	3.60	3.50	3.40	3.30	3.20	2.90	2.70	2.60	-	-	-	-
090110-75	Reaction	2.75	3.08	3.41	3.70	4.05	4.38	4.68	4.95	5.20	5.08	5.06	5.20	-	-	-	-
0001410 75	Span	4.50	4.30	4.00	3.90	3.70	3.60	3.50	3.40	3.20	2.90	2.70	2.60	-	-	-	-
0901110-75	Reaction	2.81	3.23	3.50	3.90	4.16	4.50	4.81	5.10	5.20	5.08	5.06	5.20	-	-	-	-
0000400 75	Span	4.10	3.90	3.70	3.60	3.40	3.30	3.20	3.10	3.05	3.00	2.90	2.85	2.80	2.75	2.70	2.60
0901420-75	Reaction	2.56	2.93	3.24	3.60	3.83	4.13	4.40	4.65	4.96	5.25	5.44	5.70	5.95	6.19	6.41	6.50
1001410 50	Span	4.60	4.30	4.10	3.90	3.70	3.60	3.50	3.40	3.30	3.20	3.15	3.10	3.05	3.00	2.95	2.90
12014112-50	Reaction	2.88	3.23	3.59	3.90	4.16	4.50	4.81	5.10	5.36	5.60	5.91	6.20	6.48	6.75	7.01	7.25
1001410 (0	Span	4.80	4.50	4.30	4.10	3.90	3.80	3.70	3.60	3.50	3.40	3.30	3.25	3.20	3.10	3.05	3.00
1201112-02	Reaction	3.00	3.38	3.76	4.10	4.39	4.75	5.09	5.40	5.69	5.95	6.19	6.50	6.80	6.98	3.55	7.50
1001410 75	Span	5.00	4.70	4.50	4.30	4.10	4.00	3.90	3.70	3.65	3.60	3.50	3.40	3.35	3.30	3.20	3.10
12014112-75	Reaction	3.13	3.53	3.94	4.30	4.61	5.00	5.36	5.55	5.93	6.30	6.56	6.80	7.12	7.43	7.60	7.75
1001414 75	Span	5.30	4.90	4.70	4.50	4.30	4.20	4.00	3.90	3.80	3.70	3.60	3.55	3.50	3.40	3.20	3.10
1201*114-75	Reaction	3.31	3.68	4.11	4.50	4.84	5.25	5.50	5.85	6.18	6.48	6.75	7.10	7.44	7.65	7.60	7.75
1001414 75	Span	5.50	5.10	4.90	4.70	4.50	4.30	4.20	4.10	4.00	3.90	3.80	3.70	3.60	3.40	3.20	3.10
1201110-75	Reaction	3.44	3.83	4.29	4.70	5.06	5.38	5.78	6.15	6.50	6.83	7.13	7.40	7.65	7.65	7.60	7.75
120M18 75	Span	5.60	5.30	5.00	4.80	4.60	4.50	4.30	4.20	4.10	4.00	3.90	3.80	3.60	3.40	3.20	3.10
1201110-75	Reaction	3.50	3.98	4.38	4.80	5.18	5.63	5.91	6.30	6.66	7.00	7.31	7.60	7.65	7.65	7.60	7.75

Maximum spans in above continuous walling load table based on:

- 1. Unfactored horizontal pressure
- 2. Deflection limited to height/500
- 3. Blocking and strapping at max 2.5m intervals
- 4. Studs at 600mm centres
- 5. 90mm studs fixed with 2No 5.5mm diameter tek screws through continuous walling cleats
- 6. 120mm+ studs fixed with 3No 5.5mm diameter tek screws through continuous walling cleats
- 7. Maximum external cladding weight of 0.5kN/m²
- 8. Unequal spans limited to 20% of the maximum span (L1 > L2) where L1 = maximum span & L2 = L1×0.8

Uniform Horizontal Pressure (kN/m ²)																	
Section Reference		0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
150M12-50	Span	5.10	4.20	4.00	3.80	3.70	3.60	3.50	3.40	3.30	3.20	3.15	3.10	3.00	2.95	2.90	2.80
	Reaction	3.19	3.15	3.50	3.80	4.16	4.50	4.81	5.10	5.36	5.60	5.91	6.20	6.38	6.64	6.89	7.00
150M12-62	Span	5.40	5.10	4.60	4.40	4.20	4.10	3.90	3.80	3.70	3.60	3.50	3.40	3.35	3.30	3.20	3.10
	Reaction	3.38	3.83	4.03	4.40	4.73	5.13	5.36	5.70	6.01	6.30	6.56	6.80	7.12	7.43	7.60	7.75
150M12-75	Span	5.70	5.30	5.10	4.80	4.60	4.40	4.30	4.10	4.00	3.90	3.80	3.70	3.60	3.40	3.20	3.10
	Reaction	3.56	3.98	4.46	4.80	5.18	5.50	5.91	6.15	6.50	6.83	7.13	7.40	7.65	7.65	7.60	7.75
150M14-75	Span	5.90	5.60	5.30	5.10	4.90	4.70	4.50	4.40	4.30	4.20	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	3.69	4.20	4.64	5.10	5.51	5.88	6.19	6.60	6.99	7.35	7.69	7.80	7.65	7.65	7.60	7.75
150M16-75	Span	6.20	5.80	5.50	5.30	5.10	4.90	4.80	4.60	4.50	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	3.88	4.35	4.81	5.30	5.74	6.13	6.60	6.90	7.31	7.70	7.69	7.80	7.65	7.65	7.60	7.75
150M18-75	Span	6.40	6.10	5.80	5.50	5.30	5.10	4.90	4.80	4.70	4.40	4.10	3.90	3.60	3.40	3.20	3.10
	Reaction	4.00	4.58	5.08	5.50	5.96	6.38	6.74	7.20	7.64	7.70	7.69	7.80	7.65	7.65	7.60	7.75
150M20-75	Span	6.70	6.30	6.00	5.70	5.50	5.30	5.10	5.00	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
130112073	Reaction	4.19	4.73	5.25	5.70	6.19	6.63	7.01	7.50	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M12-50	Span	5.50	5.20	4.30	4.10	3.90	3.80	3.70	3.60	3.50	3.45	3.40	3.30	3.25	3.20	3.10	3.00
1001112-30	Reaction	3.44	3.90	3.76	4.10	4.39	4.75	5.09	5.40	5.69	6.04	6.38	6.60	6.91	7.20	7.36	7.50
180M12-62	Span	6.20	5.90	5.60	5.30	5.10	4.30	4.20	4.10	4.00	3.90	3.85	3.80	3.60	3.40	3.20	3.10
1001112-02	Reaction	3.88	4.43	4.90	5.30	5.74	5.38	5.78	6.15	6.50	6.83	7.22	7.60	7.65	7.65	7.60	7.75
180M12 75	Span	6.50	6.10	5.80	5.60	5.40	5.20	4.60	4.40	4.30	4.20	4.10	3.90	3.60	3.40	3.20	3.10
1001*112-75	Reaction	4.06	4.58	5.08	5.60	6.08	6.50	6.33	6.60	6.99	7.35	7.69	7.80	7.65	7.65	7.60	7.75
180M14 75	Span	6.80	6.40	6.10	5.80	5.60	5.40	5.20	5.10	4.60	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1001-114-73	Reaction	4.25	4.80	5.34	5.80	6.30	6.75	7.15	7.65	7.48	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M16-75	Span	7.10	6.70	6.40	6.10	5.80	5.60	5.50	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1001-110-73	Reaction	4.44	5.03	5.60	6.10	6.53	7.60	7.56	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M18 75	Span	7.40	7.00	6.60	6.30	6.10	5.90	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1001-110-73	Reaction	4.63	5.25	5.78	6.30	6.86	7.38	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
180M20-75	Span	7.70	7.20	6.80	6.50	6.30	6.10	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
1001/120-73	Reaction	4.81	5.40	5.95	6.50	7.09	7.63	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
210M12 50	Span	5.80	5.50	5.30	4.30	4.20	4.00	3.90	3.80	3.70	3.60	3.55	3.50	3.40	3.30	3.20	3.10
2101112-30	Reaction	3.63	4.13	4.64	4.30	4.73	5.00	5.36	5.70	6.01	6.30	6.66	7.00	7.23	7.43	7.60	7.75
210M12 62	Span	6.70	6.30	5.90	5.60	5.40	5.20	4.50	4.30	4.20	4.10	4.00	3.90	3.60	3.40	3.20	3.10
2101112-02	Reaction	4.19	4.73	5.16	5.60	6.08	6.50	6.19	6.45	6.83	7.18	7.50	7.80	7.65	7.65	7.60	7.75
210M13 75	Span	7.50	7.00	6.60	6.30	6.00	5.80	5.60	5.20	4.70	4.40	4.10	3.90	3.60	3.40	3.20	3.10
2101-113-73	Reaction	4.69	5.25	5.78	6.30	6.75	7.25	7.70	7.80	7.64	7.70	7.69	7.80	7.65	7.65	7.60	7.75
0101414 75	Span	8.00	7.60	7.20	6.90	6.60	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
2101110-75	Reaction	5.00	5.70	6.30	6.90	7.43	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
0101410 75	Span	8.30	7.80	7.40	7.10	6.80	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
2 IUM18-/5	Reaction	5.19	5.85	6.48	7.10	7.65	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75
0100400 75	Span	8.60	8.10	7.70	7.40	6.90	6.20	5.60	5.20	4.80	4.40	4.10	3.90	3.60	3.40	3.20	3.10
2101420-75	Reaction	5.38	6.08	6.74	7.40	7.76	7.75	7.70	7.80	7.80	7.70	7.69	7.80	7.65	7.65	7.60	7.75

Maximum spans in above continuous walling load table based on:

1. Unfactored horizontal pressure

- Deflection limited to height/500
- 3. Blocking and strapping at max 2.5m intervals
- 4. Studs at 600mm centres
- 5. 90mm studs fixed with 2No 5.5mm diameter tek screws through continuous walling cleats
 - 6. 120mm+ studs fixed with 3No 5.5mm diameter tek screws through continuous walling cleats
 - 7. Maximum external cladding weight of 0.5kN/m²
 - 8. Unequal spans limited to 20% of the maximum span (L1 > L2) where L1 = maximum span & L2 = L1×0.8

Building Regulations Part B – Fire Safety:

TThe requirements for Fire protection will normally be found in the relevant annexe of the Building regulations, Part B, and often specific fire strategy reports are generated.

The fire ratings published in this document are tested and/ or assessed for use with Metsec SFS sections and cannot be used with other systems.

All performance claims by manufacturers for fire resistance must be substantiated by test or assessment reports by UKAS accredited laboratories. Installations must be in strict accordance with the report data for types of materials used, components and assembly details. Unwarranted site modifications can jeopardize performance; in particular services and these should be well coordinated and often involve fire stopping.

All fire test data in this continuous walling section is to BS EN 1365-1: 2012. All test data is based on unique UKAS accredited tests and UKAS accredited scope of testing. The tests are carried out in UKAS accredited furnaces measuring 3m square (for walls).

External Wall fire performance table:

The results of our fire tests with each type of sheathing board are displayed in two types of tables:

- » Non Boundary Walls Fire exposure from the inside of the building only where the load bearing & integrity failure is rounded down to the nearest 30 minutes. The insulation failure occurs at a minimum of 15 minutes into the test. Designed to meet the requirements of Approved Document B, Volumes 1 & 2, (2019 edition incorporating 2020 and 2022 amendments), table B3, section 5b.
- » Boundary Walls Fire exposure from each side separately where the load bearing, integrity and insulation failures (whichever occurs first) are rounded down to the nearest 30 minutes. Designed to meet the requirements of approved document B, table B3, section 5a.

Thicknesses of materials are displayed as the minimum thicknesses to meet the fire test requirements. Thicknesses may be increase, see below commentary on the field of direct application of fire tests.

Field of Direct Application of Fire Test Results

Changes can be made to the tested construction in accordance with BS EN 1365-1:2012 section 13. These are known changes that would not negatively affect the fire resistance of the wall. These allowed changes are listed below:

- decrease in height a)
- b) increase in the thickness of the wall
- C) increase in the thickness of component materials
- d) decrease in linear dimensions of boards but not thickness
- e) decrease in stud spacing
- f) decrease in distance of fixing centres
- increase in the number of horizontal joints, of the g) type tested, when tested with one joint not more than (500+/-150)mm from the top edge
- h) decrease in the applied load

For test specimens tested without a supporting construction, the width of an identical construction may be increased as the specimen was tested at nominally 3m wide with one vertical edge without restraint.

In all the fire results displayed on the following tables the field of direct application means that steel stud, board and insulation thicknesses can be increase above what is listed. The width of the wall can be increased.

For heights above 3m and other changes reference is made to SCI publication P424 - Fire resistance of Light Steel Framing



Fire Performance with Euroform Versaroc Sheathing Boards



Type LE1i-2V: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm mineral wool insulation to the stud void



Type LE2i-2V: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code						
Fire Perf	ormance from insid	de RE = 60 MINU	TES - TO	BS EN 1365-1	:2012							
LE2i-2V	2x15mm BG Soundbloc	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1165	D075-U1-L090-B25 (A050)						
Fire Perf	ire Performance from Inside RE = 90 MINUTES - TO BS EN 1365-1:2012											
LE1i-2V	2x12.5mm BG Fireline	Euroform Versaroc	90mm	None	BRE P100456-1182	U1-L090-B22 (A050)						
LE2i-2V	2x15mm Knauf Fire Panel	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1188	D075-U1-L090-K23 (A050)						
Fire Perf	ormance from Insid	de RE = 120 MIN	UTES - TO	O BS EN 1365-	1:2012							
LE1i-2V	2x15mm BG Fireline	Euroform Versaroc	90mm	None	BRE P100456-1156	U1-L090-B23 (A050)						
LE2i-2V	2x15mm BG Fireline	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1157	D075-U1-L090-B23 (A050)						
LE2i-3V	3x15mm BG Fireline	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1159	D075-U1-L090-B33 (A050)						
LE2i-3V	3x15mm Knauf Fire Panel	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1189	D075-U1-L090-K33 (A050)						

Fire Performance for Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code			
Fire Per	formance fro	om each s	ide sepa	arately REI =	60 MINUTES - TO	BS EN 1365-1:20	12			
LE1i-2V	2x12.5mm BG Fireline	Euroform Versaroc	90mm	None	BRE P100456-1182 1	BRE P100456-1168 1	U1-L090-B23 (A050)			
Fire Per	Fire Performance from each side separately REI = 90 MINUTES - TO BS EN 1365-1:2012									
LE2i-2V	2x15mm Knauf Fire Panel	Euroform Versaroc	90mm	75mm Rockwool Duoslab	BRE P100456-1188 ¹	BRE P100456-1190 1	D075-U1-L090-K23 (A050)			

In the tables above the sheathing boards are 12mm thick.

Type LE2i-3V: Metsec SFS External Wall with a triple layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void.



Fire Performance with RCM Y-Wall, Densglass & Multipurpose Sheathing Boards





Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm insulation to the stud void, see table below.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboa Lining	ırd	Sheathin Board	g Minimur Stud Depth	n External Insulation	Fire Test Laboratory and Number	System Code			
Fire Per	formance fro	om inside	RE = 60	MINUTES - T	O BS EN 1365-	1:2012				
LE1i-2Y	2x12.5mm BG F	Fireline	RCM Densg	ılass 90mm	None	BRE P100456-1185	D1-L090-B22 (A050)			
LE1i-2Y	2x15mm Kn Fire Pane	auf	RCM Y-W	all 90mm	None	BRE P100456-1026	Y1-L090-K23 (A050)			
LE2i-2Y	2x15mm BG Sou	undbloc	RCM Y-W	all 90mm	75mm Rockwool Duoslab	BRE P100456-1110	D075-Y1-L090-B25 (A050)			
LE1i-2Y	2x12.5mm BG F	Fireline	RCM Y-W	all 90mm	None	BRE P100456-1112	Y1-L090-B22 (A050)			
LE2i-2Y	2x12.5mm Kı Fire Pane	nauf I	RCM Y-W	all 90mm	75mm Rockwool Duoslab	BRE P124545-1000	D075-Y1-L090-K22 (A050)			
Fire Performance from Inside RE = 90 MINUTES - TO BS EN 1365-1:2012										
LE1i-2Y	2x15mm Kn Soundshield	auf Plus	RCM Y-W	all 90mm	None	BRE P100456-1025	Y1-L090-K25 (A050)			
LE2i-2Y	2x15mm BG Fi	ireline	RCM Y-W	all 90mm	75mm Rockwool Duoslab	BRE P100456-1106	D075-Y1-L090-B23 (A050)			
LE1i-2Y	2x15mm BG Fi	ireline	RCM Y-W	all 90mm	None	BRE P100456-1107	Y1-L090-B23 (A050)			
LE2i-2Y	2x15mm BG Fi	ireline	RCM Y-W	all 90mm	75mm Knauf Rocksilk	BRE P100456-1114	E075-Y1-L090-B23 (A050)			
Fire Per	formance fro	om Inside	RE = 12(MINUTES -	TO BS EN 1365	-1:2012				
LE1i-3Y	3x15mm Kn Fire Pane	auf !	RCM Y-W	all 90mm	None	BRE P100456-1027	Y1-L090-K33 (A050)			
LE2i-3Y	3x15mm BG Fi	ireline	RCM Y-W	all 90mm	75mm Rockwool Duoslab	BRE P100456-1162	D075-Y1-L090-B33 (A050)			
In the table	above the RCM Y-	Wall is 12mm t	hick and the	RCM Densglass is î	12.5mm thick.					
Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laborator and Number (Inside Exposed Face)	y Fire Test Laboratory e and Number (Outside Exposed Face)	System Code			
Fire Per	formance fro	om each s	ide sepa	arately REI =	60 MINUTES -	TO BS EN 1365-1:2	012			
LE2i-2Y	2x15mm BG Soundbloc	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1110	BRE P100456-1132	D075-Y1-L090-B25 (A050)			
LE2i-2Y	2x12.5mm Knauf Fire Panel	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P124545-1000	BRE P100456-1051	D075-Y1-L090-K22 (A050)			
LE2i-2Y	2x15mm Knauf Fire Panel	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1026	BRE P100456-1051	D075-Y1-L090-K23 (A050)			
Fire Per	formance fro	om each s	ide sepa	arately REI =	120 MINUTES	- TO BS EN 1365-1:	2012			
LE2i-3Y	3x15mm Knauf Fire Panel	RCM Y-Wall	90mm	75mm Rockwool Duoslab	BRE P100456-1184	BRE P100456-1074	D075-Y1-L090-K33 (A050)			
In the table	es above the RCM Y	(-Wall is 12mm	thick.							



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face.



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm insulation to the stud void, see table below.

Fire Performance with BG Glasroc X Sheathing Boards

Fire Performance with Siniat Weather Defence Sheathing Board



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face.

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm insulation to the stud

void, see table below.

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face.

Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm insulation to the stud void, see table below.

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code
Fire Perfo	rmance from insi	de RE = 60 MIN	UTES - TO B	S EN 1365-	1:2012	

LE1i-2X	2x12.5mm BG Fireline	BG Glasroc X	90mm	None	BRE P100456-1183	X1-L090-B22 (A050)

Fire Performance for Boundary Walls

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code			
Fire Perf	Fire Performance from each side separately REI = 60 MINUTES - TO BS EN 1365-1:2012									
LE2i-2X	2x12.5mm BG Fireline	BG Glasroc X	90mm	75mm Rockwool Duoslab	BRE P100456-1183	BRE P100456-1068	D075-X1-L090-B22 (A050)			



Type LE1i-2W: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face. Minimum of 50mm mineral wool insulation to the stud void

Type LE1i-3Y: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheat Boa	ning Mir rd D	nimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code					
Fire Perf	ire Performance from inside RE = 60 MINUTES - TO BS EN 1365-1:2012											
LE1i-2W	2x12.5mm BG Fireli	ine Siniat Weath	er Defence 9	0mm	None	BRE P100456-1184	W1-L090-B22 (A050)					
Fire Perf	ormance for Bc	oundary Walls										
Wall Type	Plasterboard Sh Lining I	eathing Minimu Board Depth	m External Insulation	l Fir n an	e Test Laboratory Id Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code					
Fire Performance from each side separately REI = 60 MINUTES - TO BS EN 1365-1:2012												
LE2i-2W	2x12.5mm BG Sinio Fireline D	t Weather 90mn efence	75mm Rocky Duoslab	wool BF	RE P100456-1184	BRE P100456-1070	D075-W1-L090-B22 (A050)					

Wall Type	Plasterboar Lining	rd	Sheathing Board	Minimu Stud Depth	m External Insulation	Fire Test Laboratory and Number	System Code					
Fire Perf	re Performance from inside RE = 60 MINUTES - TO BS EN 1365-1:2012											
LE1i-2W	2x12.5mm BG F	ireline Sinia	t Weather Def	fence 90mm	None	BRE P100456-1184	W1-L090-B22 (A050)					
Fire Perf	ormance for	Boundary	Walls									
Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code					
ire Performance from each side separately REI = 60 MINUTES - TO BS EN 1365-1:2012												
LE2i-2W	2x12.5mm BG S Fireline	iniat Weather Defence	90mm ⁷⁵	mm Rockwool Duoslab	BRE P100456-1184	BRE P100456-1070	D075-W1-L090-B22 (A050)					



Fire Performance with Knauf Windliner Sheathing Boards



Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board to the outside face



Metsec SFS External Wall with a single layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face

Metsec SFS External Wall with a double

to the stud void, see table below.

layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm insulation

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number	System Code					
Fire Perf	ire Performance from inside RE = 60 MINUTES - TO BS EN 1365-1:2012										
LE1i-2Z	2x12.5mm BG Fireline	Knauf Windliner	90mm	None	BRE P100456-1186	Z1-L090-B22 (A050)					

Fire Performance for Boundary Walls

Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code
Fire Perf	formance fro	om each s	ide sepa	arately REI =	60 MINUTES - TO) BS EN 1365-1:20)12
LE2i-2Z	2x12.5mm BG Fireline	Knauf Windliner	90mm	75mm Rockwool Duoslab	BRE P100456-1186	BRE P100456-1113	D075-Z1-L090-B22 (A050)

Fire Performance with Klasse G Board (Outwear) Sheathing Board



Type LE2i-2G: Metsec SFS External Wall with a double layer of plasterboard to the inside face and single layer of sheathing board plus a minimum 75mm stone wool insulation to the outside face. Minimum of 50mm mineral wool insulation to the stud void.

Fire Performance for Non-Boundary Walls

Wall Type	Plasterboo Lining	ard	Sheathing Board	Minimun Stud Depth	n External Insulation	Fire Test Laboratory and Number	System Code
Fire Perf	ormance fr	om inside	RE = 60 M	NUTES - TO	O BS EN 1365-1	:2012	
LE2i-2G	2x15mm BG F	ireline	Klasse G Board	d 90mm	75mm Rockwool Duoslab	Effectis EUI- 23-B-000503 ¹	D075-G1-L090-B23 (A050)
Fire Perf	ormance fo	r Boundaı	ry Walls				
Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code
Fire Perf	ormance fr	om each	side separc	ately REI = (50 MINUTES - TO	O BS EN 1365-1:2	012
	2v15mm BG	Klasse G	75	mm Rockwool	Effectis El II-	Effectis EL II-	D075-G1-L090-B23

Wall Type	Plasterboo Lining	ard	Sheathing Board	Minimun Stud Depth	n External Insulation	Fire Test Laboratory and Number	System Code	
Fire Performance from inside RE = 60 MINUTES - TO BS EN 1365-1:2012								
LE2i-2G	2x15mm BG F	ireline	Klasse G Board	90mm	75mm Rockwool Duoslab	Effectis EUI- 23-B-000503 ¹	D075-G1-L090-B23 (A050)	
Fire Performance for Boundary Walls								
Wall Type	Plasterboard Lining	Sheathing Board	Minimum Stud Depth	External Insulation	Fire Test Laboratory and Number (Inside Exposed Face)	Fire Test Laboratory and Number (Outside Exposed Face)	System Code	
Fire Performance from each side separately REI = 60 MINUTES - TO BS EN 1365-1:2012								
LE2i-2G	2x15mm BG Fireline	Klasse G Board	90mm ^{75r}	nm Rockwool Duoslab	Effectis EUI- 23-B-000503 ¹	Effectis EUI- 23-B-000502 ¹	D075-G1-L090-B23 (A050)	

In the table above the Knauf Windliner is 12.5mm thick.

In the table above the Klasse G Board is 12.5mm thick.

1. Test owned by Sheathing Board Manufacturer, contact Klasse for test report.

Building Regulations Part L – Conservation of fuel and power:

The U-Values published in this section have been obtained by the combined method, which takes account of the performance of the individual elements making up the wall construction. These values are for guidance only and should be confirmed with the insulation provider or by the consultant providing the SAP calculations.

Depending on the stud depth used in the wall construction additional insulation between the studs may help reduce the external insulation thickness. A condensation risk analysis should be completed if the insulation between the studs makes up more than a third of the overall insulation performance of the wall. Where generic materials are referenced the following thermal conductivities have been used:

- » 12mm sheathing board, λ = 0.25 W/mK
- » 12.5mm plasterboard, λ = 0.24 W/mK
- » 102mm Brickwork, $\lambda = 0.77$ W/mK
- » Isover APR 1200, λ = 0.044 W/mK



Thermal Performance Table – Brick Cladding

Thermal Performance Table – Ventilated Rainscreen Cladding



Type EC1: Two layers of plasterboard, stud, sheathing board, insulation, cavity, brickwork.



Type EC1i: Two layers of plasterboard, stud with minimum 50mm ISOVER APR 1200 insulation to the stud void, sheathing board, insulation, cavity, brickwork.

U- Value	Wall Typ	e EC1	Wall Type EC1i			
Required	Rockwool Duoslab (mm)	Knauf Rocksilk (mm)	TW55 (mm)	K15 (mm)		
0.30	90	90	65	65		
0.29	95	95	65	65		
0.28	100	100	70	70		
0.27	105	105	75	75		
0.26	110	110	80	80		
0.25	115	115	85	85		
0.24	120	120	90	90		
0.23	130	130	100	95		
0.22	135	130	105	105		
0.21	145	140	115	115		
0.20	150	145	120	120		
0.19	160	155	130	125		
0.18	170	165	140	135		
0.17	180	175	150	150		
0.16	195	190	165	160		
0.15	210	205	180	175		
0.14	225	220	195	190		
0.13	245 ¹	235	215	205		
0.12	265 ¹	260 1	235	230		
0.11	290 ¹	285 ¹	260 ¹	255 ¹		
0.10	320 ¹	310 ¹	290 ¹	2801		

All U-Values are based on calculations carried out by voestalpine Metsec plc to BS EN ISO 6946:2017 and BR 443 (2019). The example values are based on published χ values for the stated insulation types; RCM Y-Wall sheathing board; 90M12-50 studs at 600mm centres; and 2x12.5mm British Gypsum Gyproc Fireline. U-Value calculations should be verified by the insulation provider.

1. Double insulation boards required, boards should be roughly equal thickness

2. Brick tie channels fixed at 450mm vertical centres with stainless steel stand off screws fixing to the studs through insulation



Type EC2: Two layers of plasterboard, stud, sheathing board, insulation, ventilated rainscreen

	Wall Type EC2						Wall Type EC2i					
U- Value Required	Rockwool Duoslab (mm)			Knauf Rocksilk (mm)			Rockwool Duoslab (mm)			Knauf Rocksilk (mm)		
	Brackets at 600mm centres	Brackets at 900mm centres	Brackets at 1200mm centres									
0.30	130	120	115	130	115	110	100	90	85	100	90	85
0.29	135	125	120	135	120	115	105	95	90	105	95	90
0.28	145	130	125	140	125	120	115	100	95	110	100	95
0.27	150	135	130	145	130	125	120	105	100	115	105	100
0.26	160	145	140	155	140	130	125	115	110	125	110	105
0.25	165	150	145	160	145	140	135	120	115	130	115	110
0.24	175	160	150	170	155	145	145	130	120	140	125	120
0.23	185	170	160	180	160	155	155	135	130	150	135	130
0.22	200	180	170	195	170	160	165	145	140	160	140	135
0.21	210	195	180	205	180	170	180	155	145	175	155	145
0.20	230	200	190	220	195	180	195	170	160	190	165	155
0.19	245 ¹	215	200	240	205	195	210	180	170	205	175	165
0.18	270 ¹	230	215	260 ¹	220	205	230	195	185	225	190	180
0.17	290 ¹	250 ¹	230	280 ¹	240	220	255 ¹	215	200	250	210	195
0.16	315 ¹	270 ¹	250 ¹	310 ¹	260 ¹	240	280 ¹	235	215	275 ¹	230	210
0.15	350 ¹	290 ¹	270 ¹	340 ¹	280 ¹	260 ¹	315 ¹	260 ¹	235	305 ¹	250	230
0.14	-	320 ¹	295 ¹	-	310 ¹	285 ¹	350 ¹	285 ¹	260 ¹	345 ¹	280 ¹	255 ¹
0.13	-	350 ¹	325 ¹	-	340 ¹	310 ¹	-	320 ¹	290 ¹	-	310 ¹	280 ¹
0.12	-	-	350 ¹	-	-	345 ¹	-	-	325 ¹	-	350 ¹	315 ¹
0.11	-	-	-	-	-	-	-	-	-	-	-	350 ¹
0.10	-	-	-	-	-	-	-	-	-	-	-	-

All U-Values are based on calculations carried out by voestalpine Metsec plc to BS EN ISO 6946:2017 and BR 443 (2019). The example values are based on published χ values for the stated insulation types; RCM Y-Wall sheathing board; 90M12-50 studs at 600mm centres; and 2x12.5mm British Gypsum Gyproc Fireline. U-Value calculations should be verified by the insulation provider.

1. Double insulation boards required, boards should be roughly equal thickness

2. Insulation assumed to be broken by rainscreen support brackets at vertical centres selected.

3. Thermal performance may be increased by increasing the vertical centres of the brackets, especially for U-values less than 0.18. 4. If vertical centres greater than 600mm then confirmation should be obtained from cladding engineer to confirm this is acceptable.



Type EC2i: Two layers of plasterboard, stud with minimum 50mm ISOVER APR 1200 insulation to the stud void, sheathing board, insulation, ventilated rainscreen

Thermal Performance Table – Timber Cladding



Type EC3:Two layers of plasterboard, stud, sheathing board, insulation, battens, timber cladding.



Type EC3i: Two layers of plasterboard, stud with minimum 50mm ISOVER APR 1200 insulation to the stud void, sheathing board, insulation, battens, timber cladding.

U- Value Required	Wall Typ	e EC3	Wall Type EC3i			
	Rockwool Duoslab (mm)	Knauf Rocksilk (mm)	Rockwool Duoslab (mm)	Knauf Rocksilk (mm)		
0.30	105	100	75	75		
0.29	110	105	75	75		
0.28	110	110	80	80		
0.27	115	115	85	85		
0.26	120	120	90	90		
0.25	125	125	100	95		
0.24	135	130	105	100		
0.23	140	135	110	105		
0.22	145	140	115	115		
0.21	155	150	125	125		
0.20	160	155	130	130		
0.19	170	165	140	135		
0.18	180	175	150	145		
0.17	190	185	160	160		
0.16	205	200	175	170		
0.15	220	215	190	185		
0.14	235	230	205	200		
0.13	255 ¹	245	225	215		
0.12	275 ¹	270 ¹	245 ¹	240		
0.11	300 ¹	290 ¹	270 ¹	260 ¹		
0.10	330 ¹	320 ¹	300 ¹	290 ¹		

All U-Values are based on calculations carried out by voestalpine Metsec plc to BS EN ISO 6946:2017 and BR 443 (2019). The example values are based on published χ values for the stated insulation types; RCM Y-Wall sheathing board; 90M12-50 studs at 600mm centres; and 2x12.5mm British Gypsum Gyproc Fireline. U-Value calculations should be verified by the insulation provider.

1. Double insulation boards required, boards should be roughly equal thickness

2. Timber battens assumed to be fixed with stainless steels screws at 300mm vertical centres fixing through insulation

3. Timber battens are to be fixed on top of the insulation and not to penetrate the insulation thickness



These drawings are for visualisation purposes only



CASE STUDY INVERURIE COMMUNITY CAMPUS

A brand new sports facility for study and the community

The construction of one of Scotland's largest school and community projects has made extensive use of voestalpine Metsec's SFS lightweight steel framing system to deliver time and cost savings.

The £55 million project sees the creation of brand-new education and sports facilities in the centre of Inverurie which will provide a hub for academic study and community activities in the Aberdeenshire town.

The new Inverurie Community Campus includes stateof-the-art teaching accommodation for up to 1,600 pupils as well as extensive sports and leisure facilities for locals, including a six-lane swimming pool, hydrotherapy pool, sports hall, fitness suite, dancing studio and community café.

The project has been undertaken by Aberdeenshire Council through developers Hub North Scotland. Halliday Fraser Munro were principal designers for the project, with construction being awarded to the Robertson Group.

voestalpine Metsec-approved installers, Veitchi Interiors were successful in tendering for the continuous walling that would form the external envelopes of the academy and community buildings, which extended to three storeys in height and are finished in a combination of brickwork and cladding. Some 20,000 metres of SFS was used as infill between the hot-rolled structural steel frame.SFS has ability to withstand high wind loadings.

SFS is quick and easy to install

SFS proved to be the perfect solution for the campus buildings as Donald Turner, director at Veitchi Interiors, explains, "SFS was the ideal choice for the design and scope of this project. The ability to combine SFS with other construction methods meant that it dovetailed nicely with the hot-rolled steel frame, whilst voestalpine Metsec's technical department worked closely with the project's structural engineers, Fairhurst, to prepare the necessary designs. Further close liaison with Veitchi and the construction team meant that planning, scheduling and delivery of the SFS components to site was precise and timely.





"Installation of SFS is quick and easy. Once installed and boarded it provides immediate protection from the elements, enabling follow-on trades to start their work at a very early stage and allowing the project to progress quickly and smoothly."

Inverurie Community Campus has drawn praise from politicians, councillors and the community as a whole, winning the Development of the Year (Public buildings) at the 2021 Scottish Property Awards.







HIGH BAY WALLING

INTRODUCING HIGH BAY WALLING...

High bay walls are lightweight separating walls up to 20m high, used internally to provide high separating walls for factory units or atriums.

Overview of High Bay Walling System

High bay walls are a high performance single span internal walling system used to provide high separating walls for factory units or atriums. As they are often constructed within hot rolled steel portal frames, the amount of primary frame deflection that needs to be accommodated can be much greater than required for infill panels.. voestalpine Metsec high-bay walls can be constructed up to 20m high and because of their lightweight construction there is rarely any need to provide additional foundations underneath the wall. The high strength to weight ratio of the voestalpine Metsec studs enables these high separating walls to be constructed without any need for any hot rolled steel wind posts which would be necessary in an equivalent wall of masonry construction.

Walls can also be designed to meet project specific acoustic and fire rating requirements.

40VB11 Strap on Both Sides 1 no. Tek screw to every stud flange, 3 no. Teks to each blocking piece.

Full Height Studs

Section size and centres as Metsec design. Studs stopped short from top of angles to allow for vertical movement as required by design.

40VB11 Strap on Both Sides 1 no. Tek screw to every stud flange, 3 no. Teks to each blocking piece.



Hot Rolled Steel Roof Beam

Angle Section Restraint Members Fitted to the underside of purlins each side of partition head.

Wall Head

Blocking Stud section cut to fit snugly between studs, fitted every third bay and to end studs in partition.

Mid Height Blocking

Stud section cut to fit snugly between studs and fitted every third bay and to end studs in partition.

Jambs and Lintels

Jambs and lintels by Metsec design. Compound members (such as above) may be required.

Base Track

Studs fixed to base track with low profile tek screws both flanges.

SECTION NAMES EXPLAINED

Metsec section references are designed to be easy to read and understand at a glance. Each section type is identified by a unique reference consisting of three numerical values seperated by a letter or a dash.

Studs Sections (lipped sections)

Example stud reference – 090M12-50

- » 090 Refers to the section depth of 90mm (numbers ending in 0 are always lipped)
- » M Refers to Metsec SFS
- » 12 Refers to the gauge (thickness) of the section i.e. 12 is 1.2mm thick
- » 50 Refers to the width or section flange of 50mm

Track Sections (un-lipped sections)

Example stud reference - 094M16-70S

- » 094 Refers to the section depth of 94mm (numbers ending in 4 or 6 are always un-lipped)
- » M Refers to Metsec SFS
- » 16 Refers to the gauge (thickness) of the section i.e. 16 is 1.6mm thick
- » 70 Refers to the width or section flange of 70mm
- » S If present at the end of the section reference it means the section is slotted.

Colour Coding Explained

Metsec prints stud or joist sections and track sections with references that are designed to be easy to read and understand at a glance. voestalpine Metsec prints the Metsec name and thickness down both flanges of the section and these are colour coded as follows:

- » BLACK = 1.2mm or 1.3mm thickness
- » RED = 1.4mm thickness
- » GREEN = 1.6mm thickness
- » ORANGE = 1.8mm thickness
- » BLUE = 2.0mm thickness

On our drawings any sections greater than 2.0mm or that are made up of multiple sections are shown in yellow so they are highlighted on the drawings.

All stud or joist sections and track sections have a string of numbers and letters printed down the back web along with our CE mark. This string of numbers identifies the order number, delivery, bundle number and individual section mark number which can be related back to your order confirmation and delivery notes.




INDUSTRY STANDARDS AND SOLUTIONS

Building Regulations Part A - Structure:

The Metsec SFS High Bay Walling system is designed on a project basis to support the plasterboard against the internal wind load. The SFS sections can be designed to wind loads provided by the project engineer/consultant or designed to wind loads calculated by our own engineers.

Metsec calculate wind loads to BS EN 1991-1-4:2005+A1:2010 plus the UK national annex incorporating the latest amendments and the use of PD6688-1-4:2015, Background Information to EN 1991-1-4 and additional guidance.

The structural design of the SFS sections utilises BS EN 1993-1-1:2022, BS EN 1993-1-3:2006 & BS EN 1993-1-5:2006+A2:2019 plus UK national annexes and additional codes where appropriate.

The design of the SFS infill walling considers, but is not limited to:

- » Structural capacity of the SFS sections
- » Deflection of the SFS sections under load
- » Connection of the SFS sections back to the primary structure

The load table within this section is based on:

- » Unfactored horizontal pressure.
- » Maximum plasterboard cladding weight of 0.50kN/m^2
- » Blocking and strapping at mid height.
- » Studs are to be boarded with a minimum of one layer of 12.5mm plasterboard to both sides
- » Studs fixed into 1.2mm base track.
- » 90mm, 100mm, 120mm, 150mm, 180mm studs fixed to Metsec Slotted deflection Head Track of 1.8mm thick.
- » 210mm, 240mm, 270mm, 300mm, 350mm studs fixed at head using standard 2.0mm head track with blocking and strapping detail.

High bay walling is often built within large portal frame structures where the deflection of the primary structure is over the standard +/-20mm vertical deflection allowance. Before designing the high bay wall the deflection of the primary structure at the top of the wall should be provided so a suitable deflection head detail can be designed.

For wind loads outside the tables or conditions different from above please contact Metsec for advice.

LOAD TABLES

Maximum Height - Deflection Limited to Height/240

How to Use the Load Table:

The load tables in this section allow for simple sizing of the general studs for a given wind load and known height. Where openings are required within the wall please contact voestalpine Metsec for the design of the supporting members.

Maximum span tables are provided for all standard SFS sections for wind loads between 0.1kN/m² and 0.45kN/m². Where the wind load exceeds 0.45kN/m² then use the infill walling load tables. The table provided is based on the deflection criterion, Height/240.

Uniform Horizontal Pressure (kN/m²) at Stud Spacing (mm)

Section	0	.1	0.	15	0	.2	0.	25	0.	.3	0.3	35	0.	.4	0.4	45
Reference	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60
090M12-50	8.26	7.22	7.22	6.31	6.56	5.73	6.09	5.32	5.73	5.00	5.44	4.75	5.20	4.55	5.00	4.37
090M12-62	8.76	7.66	7.66	6.69	6.96	6.08	6.46	5.64	6.08	5.31	5.77	5.04	5.52	4.82	5.31	4.64
090M12-75	9.22	8.06	8.06	7.04	7.32	6.39	6.79	5.93	6.39	5.58	6.07	5.30	5.81	5.07	5.58	4.88
090M14-75	9.68	8.46	8.46	7.39	7.69	6.71	7.13	6.23	6.71	5.86	6.38	5.57	6.10	5.33	5.86	5.12
090M16-75	10.10	8.82	8.82	7.71	8.02	7.00	7.44	6.50	7.00	6.12	6.65	5.81	6.36	5.56	6.12	5.34
090M18-75	10.48	9.15	9.15	8.00	8.32	7.26	7.72	6.74	7.26	6.35	6.90	6.03	6.60	5.76	6.35	5.54
090M20-75	10.83	9.46	9.46	8.26	8.59	7.51	7.98	6.97	7.51	6.56	7.13	6.23	6.82	5.96	6.56	5.73
100M12-50	8.34	7.41	7.41	6.58	6.81	6.06	6.39	5.68	6.06	5.39	5.79	5.15	5.57	4.92	5.39	4.73
100M14-70	10.30	8.98	8.99	7.86	8.17	7.14	7.58	6.62	7.14	6.23	6.78	5.92	6.48	5.66	6.23	5.45
100M20-70	11.51	10.06	10.06	8.79	9.14	7.98	8.48	7.41	7.98	6.97	7.58	6.62	7.25	6.33	6.97	6.09
120M12-50	10.29	8.98	8.98	7.85	8.16	7.13	7.58	6.62	7.13	6.23	6.77	5.92	6.48	5.66	6.23	5.44
120M12-62	10.88	9.50	9.50	8.30	8.63	7.54	8.01	7.00	7.54	6.59	7.16	6.26	6.85	5.98	6.59	5.75
120M12-75	11.42	9.97	9.98	8.71	9.06	7.92	8.41	7.35	7.92	6.91	7.52	6.57	7.19	6.28	6.91	6.04
120M14-75	12.00	10.48	10.48	9.15	9.52	8.32	8.84	7.72	8.32	7.26	7.90	6.90	7.56	6.60	7.26	6.35
120M16-75	12.52	10.93	10.93	9.55	9.93	8.68	9.22	8.05	8.68	7.58	8.24	7.20	7.88	6.89	7.58	6.62
120M18-75	12.99	11.35	11.35	9.91	10.31	9.01	9.57	8.36	9.01	7.87	8.55	7.47	8.18	7.15	7.87	6.87
120M20-75	13.43	11.73	11.73	10.25	10.66	9.31	9.89	8.64	9.31	8.13	8.84	7.72	8.46	7.39	8.13	7.10
150M12-50	12.22	10.67	10.67	9.32	9.70	8.47	9.00	7.86	8.47	7.40	8.05	7.03	7.70	6.72	7.40	6.46
150M12-62	12.89	11.26	11.26	9.83	10.23	8.94	9.50	8.29	8.94	7.80	8.49	7.41	8.12	7.09	7.80	6.82
150M12-75	13.50	11.79	11.79	10.30	10.71	9.36	9.95	8.69	9.36	8.18	8.89	7.77	8.50	7.43	8.18	7.14
150M14-75	14.12	12.34	12.34	10.78	11.21	9.79	10.40	9.09	9.79	8.56	9.30	8.12	8.90	7.77	8.55	7.47
150M16-75	14.74	12.88	12.88	11.25	11.70	10.22	10.86	9.49	10.22	8.93	9.71	8.48	9.28	8.11	8.93	7.80
150M18-75	15.33	13.39	13.39	11.69	12.16	10.62	11.29	9.86	10.62	9.28	10.09	8.82	9.65	8.43	9.28	8.11
150M20-75	15.87	13.86	13.86	12.11	12.59	11.00	11.69	10.21	11.00	9.61	10.45	9.13	9.99	8.73	9.61	8.39
180M12-50	14.10	12.32	12.32	10.76	11.19	9.77	10.39	9.07	9.77	8.54	9.28	8.11	8.88	7.76	8.54	7.46
180M12-62	14.83	12.96	12.96	11.32	11.77	10.28	10.93	9.55	10.28	8.98	9.77	8.53	9.34	8.16	8.98	7.85
180M12-75	15.51	13.55	13.55	11.83	12.31	10.75	11.42	9.98	10.75	9.39	10.21	8.92	9.77	8.53	9.39	8.20
180M14-75	16.23	14.17	14.17	12.38	12.88	11.25	11.95	10.44	11.25	9.83	10.69	9.33	10.22	8.93	9.83	8.58
180M16-75	16.94	14.80	14.80	12.92	13.44	11.74	12.48	10.90	11.74	10.26	11.15	9.74	10.67	9.32	10.26	8.96

Maximum spans in above high bay walling load table based on:

1. Unfactored horizontal pressure.

2. Deflection limited to height/240.

3. Blocking and strapping at midheight.

4. Studs are boarded with a minimum of one layer of 12.5mm plasteroard to both sides.

5. Studs fixed into 1.2mm base track.

90mm, 100mm, 120mm, 150mm, 180mm studs fixed to voestalpine Metsec Slotted deflection Head Track of 1.6mm thick. 7. 210mm, 240mm, 270mm, 300mm, 350mm studs fixed at head using standard 2.0mm head track with blocking and strapping detail.

Uniform Horizontal Pressure (kN/m²) at Stud Spacing (mm)

Section	0	.1	0.	15	0.	.2	0.	25	0	.3	0.	35	0	.4	0.4	45
Reference	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60	0.40	0.60
180M18-75	17.59	15.36	15.36	13.42	13.96	12.19	12.96	11.32	12.19	10.65	11.58	10.12	11.08	9.68	10.65	9.30
180M20-75	18.00	15.89	15.89	13.88	14.43	12.61	13.40	11.70	12.61	11.01	11.98	10.46	11.45	10.01	11.01	9.62
210M12-50	15.94	13.92	13.92	12.16	12.65	11.05	11.74	10.26	11.05	9.63	10.49	9.17	10.04	8.77	9.65	8.43
210M12-62	16.73	14.61	14.61	12.76	13.27	11.60	12.32	10.76	11.60	10.13	11.02	9.62	10.54	9.20	10.13	8.85
210M13-75	17.84	15.58	15.58	13.61	14.16	12.37	13.14	11.48	12.37	10.80	11.75	10.26	11.24	9.81	10.80	9.44
210M16-75	19.07	16.66	16.66	14.56	15.14	13.22	14.05	12.28	13.22	11.55	12.56	10.97	12.01	10.49	11.55	10.09
210M18-75	19.81	17.30	17.30	15.12	15.73	13.73	14.59	12.75	13.73	12.00	13.04	11.40	12.48	10.90	12.00	10.48
210M20-75	20.00	17.90	17.90	15.63	16.26	14.20	15.09	13.18	14.20	12.41	13.49	11.78	12.90	11.27	12.41	10.84
240M12-50	17.74	15.50	15.50	13.54	14.08	12.30	13.07	11.42	12.30	10.75	11.69	10.21	11.18	9.76	10.75	9.39
240M13-62	19.07	16.66	16.66	14.56	15.14	13.22	14.05	12.27	13.22	11.55	12.56	10.97	12.01	10.49	11.55	10.09
240M13-75	19.87	17.36	17.36	15.16	15.77	13.78	14.64	12.79	13.78	12.03	13.09	11.43	12.52	10.93	12.03	10.51
240M16-75	20.00	18.49	18.49	16.15	16.80	14.67	15.59	13.62	14.67	12.82	13.94	12.18	13.33	11.65	12.82	11.20
240M18-75	20.00	19.20	19.20	16.77	17.45	15.24	16.20	14.15	15.24	13.31	14.48	12.65	13.85	12.09	13.31	11.63
240M20-75	20.00	19.86	19.86	17.35	18.04	15.76	16.75	14.63	15.76	13.77	14.97	13.08	14.32	12.51	13.77	12.03
270M13-50	20.00	17.51	17.51	15.29	15.91	13.90	14.77	12.90	13.90	12.14	13.20	11.53	12.62	11.03	12.14	10.60
270M13-62	20.00	18.30	18.30	15.99	16.63	14.53	15.44	13.48	14.53	12.69	13.80	12.05	13.20	11.53	12.69	11.08
270M16-75	20.00	20.00	20.00	17.79	18.50	16.16	17.17	15.00	16.16	14.12	15.35	13.41	14.68	12.83	14.12	12.33
270M18-75	20.00	20.00	20.00	18.48	19.22	16.79	17.84	15.58	16.79	14.66	15.94	13.93	15.25	13.32	14.66	12.81
270M20-75	20.00	20.00	20.00	19.11	19.88	17.36	18.45	16.12	17.36	15.17	16.49	14.41	15.77	13.78	15.17	13.25
300M13-50	20.00	19.09	19.09	16.68	17.35	15.15	16.10	14.07	15.15	13.24	14.39	12.57	13.77	12.03	13.24	11.56
300M16-62	20.00	20.00	20.00	18.61	19.36	16.91	17.97	15.70	16.91	14.77	16.06	14.03	15.37	13.42	14.77	12.91
300M18-75	20.00	20.00	20.00	20.00	20.00	18.25	19.39	16.94	18.25	15.94	17.33	15.14	16.58	14.48	15.94	13.93
300M20-75	20.00	20.00	20.00	20.00	20.00	18.88	20.00	17.52	18.88	16.49	17.93	15.66	17.15	14.98	16.49	14.41
300M25-89	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.56	20.00	18.41	20.00	17.49	19.14	16.72	18.41	16.08
300M29-89	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.30	20.00	18.33	20.00	17.53	19.30	16.86
350M18-54	20.00	20.00	20.00	20.00	20.00	19.41	20.00	18.02	19.41	16.96	18.44	16.11	17.63	15.40	16.07	14.81
350M20-68	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.47	20.00	18.32	19.92	17.40	19.05	16.64	17.86	16.00
350M23-84	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.03	20.00	18.20	19.95	17.50
350M25-84	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.55	20.00	18.69	20.00	17.98
350M29-84	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.60	20.00	18.85

Building Regulations Part B - Fire:

The requirements for Fire protection will normally be found in the relevant annexe of the Building regulations, Part B, and often specific fire strategy reports are generated.

The fire ratings published in this document are tested and/ or assessed for use with voestalpine Metsec SFS sections and cannot be used with other systems.

All performance claims by manufacturers for fire resistance must be substantiated by test or assessment reports by UKAS accredited laboratories. Installations must be in strict accordance with the report data for types of materials used, components and assembly details. Unwarranted site modifications can jeopardize performance; in particular services and these should be well coordinated and often involve fire stopping.

All fire test data in this high bay walling section is to BS EN 1364-1: 2015. All test data is based on unique UKAS accredited tests and UKAS accredited scope of testing. The tests are carried out in UKAS accredited furnaces measuring 3m square.

Thicknesses of materials are displayed as the minimum thicknesses to meet the fire test requirements. Thicknesses may be increase, see below commentary on the field of direct application of fire tests.

Field of Direct Application of Fire Test Results

Changes can be made to the tested construction in accordance with BS EN 1364-1:2015 section 13. These are known changes that would not negatively affect the fire resistance of the wall. These allowed changes are listed below:

- a) decrease in height
- b) increase in the thickness of the wall
- c) increase in the thickness of component materials
- d) decrease in linear dimensions of boards but not thickness
- e) decrease in stud spacing
- f) decrease in distance of fixing centres
- g) increase in the number of horizontal joints, of the type tested, when tested with one joint not more than (500+/-150)mm from the top edge

Maximum spans in above high bay walling load table based on:

- 1. Unfactored horizontal pressure.
- 2. Deflection limited to height/240.
- 3. Blocking and strapping at midheight.
- 4. Studs are boarded with a minimum of one layer of 12.5mm plasteroard to both sides.
- 5. Studs fixed into 1.2mm base track.
- 6. 90mm, 100mm, 120mm, 150mm, 180mm studs fixed to Metsec Slotted deflection Head Track of 1.6mm thick.

7. 210mm, 240mm, 270mm, 300mm, 350mm studs fixed at head using standard 2.0mm head track with blocking and strapping detail.

For test specimens tested without a supporting construction, the width of an identical construction may be increased as the specimen was tested at nominally 3m wide with one vertical edge without restraint.

The height of the construction may be increase by 1m under the following conditions,

- a) minimum tested height is 3m when tested without a supporting construction
 - the maximum deflection of the test specimen was not in excess of 100mm
 - the expansion allowances are increased pro-rata

b)

C)

In all the fire results displayed on the following tables the field of direct application means that steel stud, board and insulation thicknesses can be increase above what is listed. The width of the wall can be increase and the height increased to 4m.

For heights above 4m and other changes reference is made to BS EN 15254-3:2019, Extended application of results from fire resistance testing – Non load bearing walls, Part 3: Lightweight partitions.

Building Regulations Part E - Resistance to the passage of sound:

The requirements for Acoustic performance will normally be found in the relevant annexe of the Building regulations, Part E, and often specific acoustic strategy reports are generated.

Sound insulation performance must be substantiated or based on UKAS accredited laboratories test reports, tested to BS EN ISO 717-1:1997 and BS EN ISO 140-3:1995.

The quoted figures in this publication are laboratory tested measured as the Weighted Sound Reduction Index (Rw) measured in decibels (dB), hence all values are RwdB figures. Where the particular wall construction hasn't been tested, a calculated performance figure is provided using the INSUL 10 software.

All sound insulation data is based on laboratory evaluation of the building element in isolation and cannot reproduce your installed local conditions. It is important that flanking transmission is considered at design stage.

On site testing is measured using a different scale. It uses DnT,w Standardised Level Difference. Values on site are approximately 5 decibels lower than achieved in the laboratory. One of the primary reasons for this difference will be the downgrading due to flanking transmission. This highlights the absolute need for good design and flanking details to help minimise these reductions

Party walls under Part E are measured as DnT,w + ctr, to give you as a designer more information within this document in appropriate wall build ups to be considered we print the Rw+ctr figures in brackets after the RwdB figures.

The actual tests carried out are used to offer an order of magnitude comparison for the performance of the various systems. Sound insulation on site is a function of the partition chosen and the associated structures in which it is installed. We cannot take any responsibility for overall design and we would advise that specialist advice is sought at an early stage of design. It is essential that consideration is giving to blocking all air paths and flanking sound.

All test data and system specifications are for systems constructed with materials and components as shown. The inclusion of other components without prior approval or constructed on site contrary to these documents will invalidate test certification and system performance.

All acoustic values are based on studs at 600mm centres. If the stud centres are reduced to either 400mm or 300mm, this could impact negatively on acoustic performance.

For further information on the individual tests or to see where the test or assessment was carried out please contact Metsec.

Fire Performance for High Bay Walls



Type P1-w: Metsec SFS Internal Wall with a single layer of standard plasterboard to the each face.

Type P1i-w: Metsec SFS Internal Wall with a single layer of standard plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.



each face.

Type P1i-s: Metsec SFS Internal Wall with a single layer of acoustic plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.

Type P2-w: Metsec SFS Internal Wall with a double layer of standard plasterboard to the

Fire Performance for High Bay Walls

Wall Type	Plasterboard Lining	Overall Width	Minimum Stud Depth	Fire Test Laboratory and Number	Acoustic Performance Rw dB (Rw + Ctr)	Acoustic Test Laboratory and Number	System Code
Fire Pe	erformance fro	om eith	er side 30) MINUTES - TO	BS EN 1364-1:20	15	
P1-w	1x12.5mm BG Wallboard	115mm	90mm	BTC 22472F	36(27)	Calculated ²	B10-H090-B10
P1-w	1x12.5mm Knauf Wallboard	115mm	90mm	CFR 2309111	35(27)	Calculated ²	K10-H090-K10
P1-s	1x12.5mm BG Soundbloc	115mm	90mm	CFR 2307061	37(28)	Calculated ²	B14-H090-B14
P1-f	1x15mm Knauf Fire Panel	120mm	90mm	CFR 2308181	37(28)	Calculated ²	K13-H090-H13
P1-s	1x12.5mm Knauf Soundshield Plus	115mm	90mm	CFR 2309121	39(29)	Calculated ²	K14-H090-K14
P1i-w	1x12.5mm BG Wallboard	115mm	90mm	BTC 22474F	40(28)	Calculated ²	B10-H090-B10 (A050)
P2-w	2x12.5mm Siniat Wallboard	140mm	90mm	BTC 22479F	47(35)	Calculated ²	S20-H090-S20
P2i-w	2x12.5mm Siniat Wallboard	140mm	90mm	BTC 22479F 3	50(38)	Calculated ²	S20-H090-S20 (A050)

P1-w	1x12.5mm BG Wallboard	115mm	90mm	BTC 22472F
P1-w	1x12.5mm Knauf Wallboard	115mm	90mm	CFR 2309111
P1-s	1x12.5mm BG Soundbloc	115mm	90mm	CFR 2307061
P1-f	1x15mm Knauf Fire Panel	120mm	90mm	CFR 2308181
P1-s	1x12.5mm Knauf Soundshield Plus	115mm	90mm	CFR 2309121
P1i-w	1x12.5mm BG Wallboard	115mm	90mm	BTC 22474F
P2-w	2x12.5mm Siniat Wallboard	140mm	90mm	BTC 22479F
P2i-w	2x12.5mm Siniat Wallboard	140mm	90mm	BTC 22479F 3



Type P1-s: Metsec SFS Internal Wall with a single layer of acoustic plasterboard to the each face.



Type P1i-f: Metsec SFS Internal Wall with a single layer of fire resistant plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.



Type P2i-w: Metsec SFS Internal Wall with a double layer of standard plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void

Fire and Acoustic Performance for Joisted Floors





Type P1-f: Metsec SFS Internal Wall with a single layer of fire resistant plasterboard to the each face







Type P2-w: Metsec SFS Internal

Wall with a double layer of standard plasterboard to the

each face.

Type P2-w: Metsec SFS Internal

standard plasterboard to the

Wall with a double layer of

each face.

Type P2-s: Metsec SFS Internal Wall with a double layer of acoustic plasterboard to the

Type P2i-w: Metsec SFS Internal Wall with a double layer of standard plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void

Type P2i-s: Metsec SFS Internal Wall with a double layer of acoustic plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.

Fire Performance for High Bay Walls

Wall Type	Plasterboard Lining	Overall Width	Minimum Stud Depth	Fire Test Laboratory and Number	Acoustic Performance Rw dB (Rw + Ctr)	Acoustic Test Laboratory and Number	System Code		
Fire Pe	erformance fro	om eith	ner side 6 0	MINUTES - TO	BS EN 1364-1:20)15			
P1-f	1x15mm BG Fireline	120mm	90mm	CFR 2307071	39(29)	Calculated ²	B13-H090-B13		
P1-s	1x15mm Knauf Soundshfield Plus	120mm	90mm	BTC 2307171F	40(30)	Calculated ²	K15-H090-K15		
P2-w	2x12.5mm Knauf Wallboard	140mm	90mm	BTC 22482F	43(33)	Calculated ²	K20-H090-K20		
P2-w	2x12.5mm BG Wallboard	140mm	90mm	BTC 22475F	46(34)	Calculated ²	B20-H090-B20		
P2i-w	2x12.5mm Knauf Wallboard	140mm	90mm	BTC 22482F 3	48(37)	Calculated ²	K20-H090-K20 (A050)		
P2i-w	2x12.5mm BG Wallboard	140mm	90mm	BTC 22475F ³	50(38)	Calculated ²	B20-H090-B20 (A050)		
Fire Pe	Fire Performance from either side 90 MINUTES - TO BS EN 1364-1:2015								
	2x15mm BG								

P2-w	Wallboard	150mm	90mm	BIC 224/1F	48(37)	Calculated ²	B21-H090-B21
P2-s	2x12.5mm BG Soundbloc	140mm	90mm	BTC 22473F	46(36)	Calculated ²	B24-H090-B24
P2-s	2x15mm BG Soundbloc	150mm	90mm	BTC 22473F 4	47(37)	Calculated ²	B25-H090-B25
P2i-w	2x15mm BG Wallboard	150mm	90mm	BTC 22471F ³	51(41)	Calculated ²	B21-H090-B21 (A050)
P2i-s	2x15mm BG Soundbloc	150mm	90mm	BTC 22473F ^{3,4}	54(49)	BTC 20864A	B25-H090-B25 (A050)
P4i-s	2x15mm BG Soundbloc	167mm	90mm	BTC 22473F 3,4,5	60(54)	BTC 21058A	BR25-H090-B25 (A050)



Type P2-f: Metsec SFS Internal Wall with a double layer of fire resistant plasterboard to the each face.

Type P2i-f: Metsec SFS Internal Wall with a double layer of fire resistant plasterboard to the each face. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.



Type P6i-f: Metsec SFS Internal Wall with a double layer of fire resistant plasterboard to the each face, RB565 resiliant bar on both faces of the SFS frame. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.

Type P6i-s: Metsec SFS Internal Wall with a double layer of acoustic plasterboard to the each face, RB565 resiliant bar on both faces of the SFS frame. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.

Fire Performance for High Bay Walls

Wall Type	Plasterboard Lining	Overall Width	Minimum Stud Depth	Fire Test Laboratory and Number	Acoustic Performance Rw dB (Rw + Ctr)	Acoustic Test Laboratory and Number	System Code
Fire Pe	erformance fro	om eith	er side 1 2	20 MINUTES - T	O BS EN 1364-1:	2015	
P2-f	2x12.5mm BG Fireline	140mm	90mm	BC 22470F	47(37)	Calculated ²	B22-H090-B22
P2-s	2x15mm Knauf Soundshield Plus	150mm	90mm	BTC 22480F	46(35)	BRE P109445-1002	K25-H090-K25
P2-f	2x15mm Knauf Fire Panel	150mm	90mm	BTC 22477F 4	46(36)	BRE P109445-1015	K23-H090-K23
P2-f	2x12.5mm Knauf Fire Panel	140mm	90mm	BTC 22477F	46(37)	Calculated 2	K22-H090-K22
P2-f	2x12.5mm Siniat Fire Board	140mm	90mm	BTC 22478F	47(38)	Calculated 2	S22-H090-S22
P2i-s	2x15mm Knauf Soundshield Plus	150mm	90mm	BTC 22480F 3	49(37)	BRE P109445-1003	K25-H090-K25 (A050)
P2-s	2x12.5mm Knauf Soundshield Plus	140mm	90mm	BTC 22481F	49(39)	Calculated ²	K24-H090-K24
P6i-f	2x15mm Knauf Fire Panel	184mm	90mm	BTC 22477F 3,4,5	49(52)	BTC 21090A	KR23-H090-KR23 (A050)
P2-f	2x15mm Siniat Fire Board	150mm	90mm	BTC 22478F 4	50(41)	BTC 21087A	S23-H090-S23
P2i-f	2x12.5mm BG Fireline	140mm	90mm	BC 22470F 3	50(43)	BTC 21691A	B22-H090-B22 (A050)
P2i-f	2x15mm BG Fireline	150mm	90mm	BC 22470F 3,4	51(43)	Calculated ²	B23-H090-B23 (A050)
P2i-f	2x15mm Siniat Fire Board	150mm	90mm	BTC 22478F 3,4	51(55)	BRE P109445-1014	S23-H090-S23 (A050)
P2i-f	2x15mm Knauf Fire Panel	150mm	90mm	BTC 22477F 3,4	52(44)	BTC 21095A	K23-H090-K23 (A050)
P4i-f	2x12.5mm BG Fireline	157mm	90mm	BC 22470F 3,5	54(45)	Calculated ²	BR22-H090-B22 (A050)

	File Fullel			
P2-f	2x12.5mm Knauf Fire Panel	140mm	90mm	BTC 22477F
P2-f	2x12.5mm Siniat Fire Board	140mm	90mm	BTC 22478F
P2i-s	2x15mm Knauf Soundshield Plus	150mm	90mm	BTC 22480F 3
P2-s	2x12.5mm Knauf Soundshield Plus	140mm	90mm	BTC 22481F
P6i-f	2x15mm Knauf Fire Panel	184mm	90mm	BTC 22477F 3,4,5
P2-f	2x15mm Siniat Fire Board	150mm	90mm	BTC 22478F 4
P2i-f	2x12.5mm BG Fireline	140mm	90mm	BC 22470F 3
P2i-f	2x15mm BG Fireline	150mm	90mm	BC 22470F 3,4
P2i-f	2x15mm Siniat Fire Board	150mm	90mm	BTC 22478F 3,4
P2i-f	2x15mm Knauf Fire Panel	150mm	90mm	BTC 22477F 3,4
P4i-f	2x12.5mm BG	157mm	90mm	BC 22470F 3,5





Type P4i-f: Metsec SFS Internal Wall with a double layer of fire resistant plasterboard to the each face, RB565 resiliant bar on one face of the SFS frame. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.



Type P4i-s: Metsec SFS Internal Wall with a double layer of acoustic plasterboard to the each face, RB565 resiliant bar on one face of the SFS frame. Minimum of 50mm ISOVER APR 1200 insulation to the stud void.

Fire and Acoustic Performance for Joisted Floors

Fire Performance for High Bay Walls

Fire Performance from either side 120 MINUTES - TO BS EN 1364-1:2015

P4i-s	2x15mm Knauf Soundshield Plus	167mm	90mm	BTC 22480F 3,5	56(49)	BRE P109445-1004	KR25-H090-K25
P4i-f	2x15mm Knauf Fire Panel	167mm	90mm	BTC 22477F 3,4,5	57(49)	BRE P109445-1006	KR23-H090-K23 (A050)
P6i-s	2x15mm Knauf Soundshield Plus	184mm	90mm	BTC 22480F 3,5	57(50)	BRE P109445-1005	KR25-H090-KR25
P4i-f	2x15mm Siniat Fire Board	150mm	90mm	BTC 22478F 3,4,5	57(50)	BRE P109445-1009	SR23-H090-S23 (A050)
P6i-f	2x15mm Siniat Fire Board	167mm	90mm	BTC 22478F 3,4,5	58(50)	BRE P109445-1018	SR23-H090-SR23 (A050)
P6i-f	2x12.5mm BG Fireline	174mm	90mm	BTC 22470F 3,5	58(51)	BTC 21724A	BR22-H090-BR22 (A050)
P4i-f	2x15mm BG Fireline	167mm	90mm	BTC 22470F 3,4,5	58(52)	BTC 21059A	BR23-H090-B23 (A050)
P6i-f	2x15mm BG Fireline	184mm	90mm	BTC 22470F 3,4,5	60(53)	BTC 21725A	BR23-H090-BR23 (A050)

All laboratory acoustic tests carried out in accorance with BS EN ISO 10140-2:2010 and BS EN ISO 140-3:1995

1. Test to BS EN 1365-1:2012 - Insulation and Integrity Performance taken from these tests.

Accoustic performance calculated using INSUL 10 software.
 Test done without the internal insulation, addition of the insulation makes the results no worse than tested.
 Test done with 12.5mm boards. 15mm boards makes the result no worse, as per Direct Field of Application.

5. Test done without resiliant bar. Addition of resiliant bars makes the result no worse than tested, as per thirds party ssessment BRE P102396-1011





OTHER TECHNICAL INFORMATION



SFS COMPONENTS

voestalpine Metsec relies on high quality, purpose designed components. The design of sections draws on voestalpine Metsec Framing's extensive cold rolling knowledge to maximise the strength to weight ratios.

The section profiles are listed on the following pages:

Stud/C Section

These are simple but structurally efficient lipped C-sections used as studs in walls and joists in floors or roofs.

	Studs and Joists								
Product Code	Weight (Kg/m)	Depth (mm)	Flange (mm)	Lip (mm)	Thickness (mm)	Colour Code	Available Lengths (m)		
090M12-50	2.07	90	50	10	1.2	BLACK	1.5 to 6.0		
090M12-62	2.38	90	62	13	1.2	BLACK	1.5 to 6.0		
090M12-75	2 70	90	75	15	12	BI ACK	1.5 to 6.0		
090M14-75	313	90	75	15	1.4	RFD	1.5 to 6.0		
090M16-75	3.57	90	75	15	1.1	GREEN	1.5 to 6.0		
000M18 75	4.00	20	75	15	1.0	ORALIGE	1.5 to 0.0		
0901110-75	4.00	70	75	15	2.0	DILLE	1.5 to 0.0		
100M12 E0	0.17	100	7.J	10	2.0	BLOCK	1.5 to 0.0		
1001417-50	Z.17	100	50	10	1.2	DLACK	1.5 to 0.0		
1001414-70	3.13	100	70	10	1.4	RED	1.5 10 0.0		
1001420-70	4.42	100	70	10	2.0	BLUE	1.5 10 0.0		
1201412-50	2.30	120	50	10	1.2	BLACK	1.5 LO 7.0		
1201412-62	2.70	120	02	15	1.2	BLACK	1.5 to 7.0		
120M12-75	3.01	120	/5	15	1.2	BLACK	1.5 to 7.0		
120M14-75	3.50	120	/5	15	1.4	RED	1.5 to 7.0		
120M16-75	3.99	120	75	15	1.6	GREEN	1.5 to 7.0		
120M18-75	4.4/	120	75	15	1.8	ORANGE	1.5 to 7.0		
120M20-75	4.95	120	75	15	2.0	BLUE	1.5 to 7.0		
150M12-50	2.70	150	50	10	1.2	BLACK	1.5 to 8.0		
150M12-62	3.01	150	62	13	1.2	BLACK	1.5 to 8.0		
150M12-75	3.32	150	75	15	1.2	BLACK	1.5 to 8.0		
150M14-75	3.82	150	75	15	1.4	RED	1.5 to 8.0		
150M16-75	4.36	150	75	15	1.6	GREEN	1.5 to 8.0		
150M18-75	4.91	150	75	15	1.8	ORANGE	1.5 to 8.0		
150M20-75	5.45	150	75	15	2.0	BLUE	1.5 to 8.0		
180M12-50	3.01	180	50	10	1.2	BLACK	1.5 to 9.0		
180M12-62	3.32	180	62	13	1.2	BLACK	1.5 to 9.0		
180M12-75	3.64	180	75	15	1.2	BLACK	1.5 to 9.0		
180M14-75	4.20	180	75	15	1.4	RED	1.5 to 9.0		
180M16-75	4.80	180	75	15	1.6	GREEN	1.5 to 9.0		
180M18-75	5.40	180	75	15	1.8	ORANGE	1.5 to 9.0		
180M20-75	6.00	180	75	15	2.0	BLUE	1.5 to 9.0		
210M12-50	3.32	210	50	10	1.2	BLACK	1.5 to 10.0		
210M12-62	3.64	210	62	13	1.2	BLACK	1.5 to 10.0		
210M13-75	4.28	210	75	15	1.3	BLACK	1.5 to 10.0		
210M16-75	5 20	210	75	15	1.6	GREEN	1.5 to 10.0		
210M18-75	5.85	210	75	15	1.8	ORANGE	1.5 to 10.0		
210M20-75	6.47	210	75	15	2.0	BILIE	1.5 to 10.0		
240M12-50	3.64	240	50	10	1.0	BLACK	1.5 to 10.0		
2/0M13-62	1 28	240	62	13	1.2	BLACK	1.5 to 10.0		
240M13-75	4.20	240	75	15	1.5	BLACK	1.5 to 10.0		
240M16 75	5.62	240	75	15	1.5	GREEN	1.5 to 10.0		
2401110-75 240M18 75	5.02	240	75	15	1.0	ORALIN	1.5 to 10.0		
2401110-75	6.02	240	75	15	2.0	DILLE	1.5 to 10.0		
2401420-73	0.99	240	75	10	2.0	DLUE	1.5 to 10.0		
2701413-50	4.20	270	50	10	1.5	BLACK	1.5 LO 10.0		
2/01113-02	4.02	270	02	15	1.5	ODEEN	1.5 to 10.0		
2/01410-75	0.04	270	/5	15	1.0	GREEN	1.5 to 10.0		
2/01418-75	0.79	270	/5	15	1.0	ORANGE	1.5 to 10.0		
270M20-75	/.52	2/0	/5	15	2.0	BLUE	1.5 to 10.0		
300M13-50	4.62	300	50	10	1.3	BLACK	1.5 to 10.0		
300M16-62	6.04	300	62	13	1.6	GREEN	1.5 to 10.0		
300M18-75	7.28	300	/5	15	1.8	ORANGE	1.5 to 10.0		
300M20-75	8.09	300	/5	15	2.0	BLUE	1.5 to 10.0		
300M25-89	10.78	300	89	18	2.5	-	1.5 to 10.0		
300M29-89	12.51	300	89	18	2.9	-	1.5 to 10.0		
350M18-54	7.28	350	54	11	1.8	ORANGE	1.5 to 10.0		
350M20-68	8.63	350	68	14	2.0	BLUE	1.5 to 10.0		
350M23-84	10.72	350	84	18	2.3	-	1.5 to 10.0		
350M25-84	11.65	350	84	18	2.5	-	1.5 to 10.0		
350M30-84	13.97	350	84	18	3.0	-	1.5 to 10.0		



Slotted Head Track

These are un-lipped sections that are slightly wider than the lipped C-sections to allow for simple connections incorporating deflection at the head of a wall.

Base Track/Channels

These are un-lipped sections that are slightly wider than the lipped C-sections to allow for simple connections at the base of wall and at the ends of floors or roofs.

Tracks									
Product Code	Weight (Kg/m)	Depth (mm)	Flange (mm)	Lip (mm)	Thickness (mm)	Colour Code	Available Lengths (m)		
094M12-40	1.76	94	40	0	1.2	BLACK	3, 4 or 6		
094M12-70	2.37	94	70	0	1.2	BLACK	3, 4 or 6		
094M14-70	2.78	94	70	0	1.4	RED	3, 4 or 6		
094M16-70S	3.17	94	70	0	1.6	-	3		
094M20-70	3.94	94	70	0	2.0	BLUE	3, 4 or 6		
104M12-40	1.86	104	40	0	1.2	BLACK	3, 4 or 6		
104M16-70S	3.31	104	70	0	1.6	-	3		
104M20-65	3.94	104	65	0	2.0	BLUE	3, 4 or 6		
124M12-40	2.06	124	40	0	1.2	BLACK	3, 4 or 6		
124M12-70	2.67	124	70	0	1.2	BLACK	3, 4 or 6		
124M14-70	3.12	124	70	0	1.4	RED	3, 4 or 6		
124M16-70S	3.56	124	70	0	1.6	-	3		
124M20-70	4.45	124	70	0	2.0	BLUE	3.4 or 6		
154M12-40	2.38	154	40	0	1.2	BLACK	3.4 or 6		
154M12-70	2.98	154	70	0	1.2	BLACK	3. 4 or 6		
154M14-70	3.49	154	70	0	1.4	RED	3.4 or 6		
154M16-70S	3.98	154	70	0	16	-	3		
154M20-70	4 97	154	70	0	2.0	BILIE	3 4 or 6		
184M12-40	2.67	184	40	0	1.0	BLACK	3,4 or 6		
184M12-70	3 37	184	70	Õ	1.2	BLACK	3,4 or 6		
184M14-70	3.82	184	70	Ő	1.4	RED	3,4 or 6		
184M16-70S	4 35	184	70	Õ	1.1	-	3		
184M20-70	5.44	184	70	0	2.0	BLUE	3 4 or 6		
214M12-40	2.98	214	40	0	1.2	BLACK	3,4 or 6		
214M12-70	3.63	214	70	0	1.2	BLACK	3,4 or 6		
214M1A-70	J.05 / 10	214	70	0	1.2	RED	3,4 or 6		
214M16-70	/ 70	214	70	0	1.4	GREEN	3,4 or 6		
214M18-70	5 30	214	70	0	1.0	ORANGE	3,4 or 6		
214M20-70	5.08	214	70	0	2.0	BLUE	3,4 or 6		
214M12-40	3.70	214	10	0	1.0	BLACK	3,4 or 6		
2441112 40 244M13-70	1.28	244	70	0	1.2	BLACK	3,4 or 6		
244M16 70	-1.20 5.10	244	70	0	1.5	GREEN	3,4 or 6		
2441110-70 244M18 70	5.85	244	70	0	1.0	ORALIN	3,4010 3,40r6		
2441110-70	5.05	244	70	0	2.0	BILLE	3,4 or 6		
274M12 40	3 43	244	10	0	1.0	BLOCK	3,4010		
2741112 -40	1.00	274	70	0	1.2	BLACK	3,4010 7.4 or 6		
2741113-70	4.0Z	274	70	0	1.5	CDEEN	3,4010 7.4 or (
27414110-70	5.01	274	70	0	1.0	ORANGE	3,40r0		
2741110-70	0.52	274	70	0	1.0	DILLE	3,4010 7.4 or (
2/41420-70	/.01	2/4	/0	0	2.0	BLUE	3,4010		
JU4I*I IJ-4U	4.20	304	40	0	1.3	CDEEN	3,4010 7,4016		
3041110-/U	0.03	304	/0	0	1.0	GREEN	3,4 or o		
JU4M10-/U	0./9	304	/0	0	1.0	ORANGE	5,4 or o		
504M20-70	/.50	504	/0	0	2.0	BLUE	3, 4 or 6		
354M16-45	6.03	354	45	0	1.6	GREEN	3, 4 or 6		
354M18-60	/.28	354	60	0	1.8	ORANGE	3, 4 or 6		
354M20-75	8.66	354	/5	0	2.0	BLUE	3, 4 or 6		
356M25-75	10.79	356	/5	0	2.5	-	3, 4 or 6		
356M29-75	12.49	356	75	0	2.9	-	3.4 or 6		



Bracing Straps These are used as bracing members or screed stops when screw fixed to the face of walls.

	Bracing Straps									
Product Code	Weight (kg)	Depth (mm)	Thickness (mm)	Available Lengths (metre)						
40VB11	0.35	40	1.1	4.0						
90VB12	0.85	90	1.2	4.0						

1

Angles

These are used for various arrangements to provide additional or temporary support.



		Angles		
Product Code	Weight (kg)	Depth (mm)	Thickness (mm)	Available Lengths (metre)
45 x 45 x 2	1.38	45	2.0	3.0
100 x 100 x 2	3.11	100	2.0	3.0

Universal Cleats

A new range of cleats used to provide support to continuous wall studs, with a unique pattern of pre-punched slots and holes which offer both deflection or solid fix.



Universal Cleats

Product Code	Weight (kg)	Depth (mm)	Fixed Leg (mm)	Adjustable Leg (mm)	Thickness (mm)
UX 1303×100	0.68	130	100	100	3.0
UX 1303x125	0.77	130	100	125	3.0
UX 1303x150	0.85	130	100	150	3.0
UX 1303x175	0.94	130	100	175	3.0
UX 1303×200	1.02	130	100	200	3.0
UX 1303x225	1.11	130	100	225	3.0
UX 1303x250	1.19	130	100	250	3.0
UX 1303x275	1.28	130	100	275	3.0
UX 1303x300	1.36	130	100	300	3.0
UX 1306x100	1.36	130	100	100	6.0
UX 1306x125	1.54	130	100	125	6.0
UX 1306x150	1.69	130	100	150	6.0
UX 1306x175	1.87	130	100	175	6.0
UX 1306x200	2.05	130	100	200	6.0
UX 1306x225	2.22	130	100	225	6.0
UX 1306x250	2.38	130	100	250	6.0
UX 1306x275	2.55	130	100	275	6.0
UX 1306x300	2.73	130	100	300	6.0
UX 1903x100	1.00	190	100	100	3.0
UX 1903x125	1.13	190	100	125	3.0
UX 1903x150	1.24	190	100	150	3.0
UX 1903x175	1.37	190	100	175	3.0
UX 1903x200	1.50	190	100	200	3.0
UX 1903x225	1.62	190	100	225	3.0
UX 1903x250	1.74	190	100	250	3.0
UX 1903x275	1.86	190	100	275	3.0
UX 1903x300	1.99	190	100	300	3.0
UX 1906x100	1.99	190	100	100	6.0
UX 1906x125	2.25	190	100	125	6.0
UX 1906x150	2.48	190	100	150	6.0
UX 1906x175	2.73	190	100	175	6.0
UX 1906x200	2.99	190	100	200	6.0
UX 1906x225	3.25	190	100	225	6.0
UX 1906x250	3.47	190	100	250	6.0
UX 1906x275	3.73	190	100	275	6.0
UX 1906x300	3.99	190	100	300	6.0



Cill Plate

These are used to provide support for windows where required.



Cill Plate

		•		
Product Code	Weight (kg)	Width (mm)	Adjustable Leg (mm)	Thickness (mm)
CPL 1903x100	0.50	190	100	3.0
CPL 1903x125	0.63	190	125	3.0
CPL 1903x150	0.75	190	150	3.0
CPL 1903x175	0.87	190	175	3.0
CPL 1903x200	1.00	190	200	3.0
CPL 1903x225	1.12	190	225	3.0
CPL 1903x250	1.24	190	250	3.0
CPL 1903x275	1.36	190	275	3.0
CPL 1903x300	1.50	190	300	3.0
CPL 1906x100	0.99	190	100	6.0
CPL 1906x125	1.25	190	125	6.0
CPL 1906x150	1.50	190	150	6.0
CPL 1906x175	1.74	190	175	6.0
CPL 1906x200	2.00	190	200	6.0
CPL 1906x225	2.24	190	225	6.0
CPL 1906x250	2.49	190	250	6.0
CPL 1906x275	2.73	190	275	6.0
CPL 1906x300	2.99	190	300	6.0

Window Connector

These are used to connect lintel/cill members to jamb studs around openings.

Window Connector

Product Code	Weight (kg)	Depth (mm)	Flange (mm)	Thickness (mm)
WC090	0.36	90	62	1.2
WC100	0.38	100	50	1.2
WC120	0.41	120	62	1.2
WC150	0.45	150	62	1.2
WC180	0.50	180	62	1.2
WC210	0.55	210	62	1.2
WC240	0.64	240	62	1.3
WC270	0.69	270	62	1.3
WC300	0.90	300	62	1.6
WC350	1.30	350	68	2.0

Window Angles

These are used to strengthen the connections around openings where there are higher loads.

Window Angles

		in in a chi y angles		
Product Code	Weight (kg)	Depth (mm)	Legs (mm)	Thickness (mm)
WA090	0.14	90	45	2.0
WA100	0.16	100	45	2.0
WA120	0.18	120	45	2.0
WA150	0.23	150	45	2.0
WA180	0.27	180	45	2.0
WA210	0.32	210	45	2.0
WA240	0.36	240	45	2.0
WA270	0.41	270	45	2.0
WA300	0.46	300	45	2.0
WA350	0.53	350	45	2.0

Cantilever Post

These are utilised on parapets, freestanding walls and downstands, along with providing support above and below wall openings where required.

Cantilever Post

Product Code	Weight (kg)	Post Length (mm)	Post Dimensions (mm)	Post Thickness (mm)	Base Plate Dimensions (mm)
CP 804030 x 250	3.70	250	80 × 40	3.0	160 x 150
CP 804030 × 500	5.18	500	80 × 40	3.0	160 x 150
CP 804030 x 750	6.67	750	80 × 40	3.0	160 x 150
CP 804030 x 1000	8.15	1000	80 × 40	3.0	160 x 150



Other Accessories

Zed bars - These are used to provide head and base support to walls where required. High load cleats - These are used to provide additional support for jamb studs where required. Slotted angle - These are used to provide support to continuous wall studs where the offset from the primary frame is too great for a universal cleat.

Other Accessories

Product Code	Weight (kg)	Length (mm)	Dimensions (mm)	Thickness (mm)
Z 502	1.24	600	36 x 52 x 36	2.0
HL 903	0.37	90	100 x 60	3.0
HS 903	0.37	90	100 x 60	3.0
SA 1002	3.45	1000	100 x 100	2.0











EXTERNAL FINISH OPTIONS

These drawings are for visualisation purposes only

All our SFS systems are able to be used with a wide range of external finishes. Each finish can function with all key sector applications including residential developments, hotels, student accommodation, social housing, healthcare and education.

Brickwork





Insulated Render

between sheathing board and insulation.

EXTERNAL FINISH OPTIONS

These drawings are for visualisation purposes only

Composite Panels

Ventilated Rainscreen



EXTERNAL FINISH OPTIONS

These drawings are for visualisation purposes only

Corium



Gebrick



voestalpine Metsec Framing Fixing Application Guide

Notes on the Fixing Guide:

- » Only the fixings specified below or similar recommended should be used with voestalpine Metsec Framing
- » For similar recommended fixings please contact Metsec
- » Fixing codes have been supplied by the fixing manufacturer and in the event of any fixing not performing as required the fixings manufacturer should be contacted before Metsec

Listings of fixings are in alphabetical order only.

A selection of pictures have been provided courtesy of Hilti (Gt. Britain) Limited. DeWalt and Ejot and represent their range of fixings only.

» Fixings given below are a guide to the range of fixings often used with voestalpine Metsec Framing. Project specific fixings may be used in addition to those given below and these will be shown on the voestalpine Metsec project specific details

» Unless specified or noted all Pan Head, Low Profile or Countersunk screws have a P2 Phillips recess and all Hex Head Screws have a AF 8mm head

SFS fixing table

Table 1 – General Framing Fixings



- 3. Please see approved Data Sheet and Installer Guide for this application available from Metsec/Hilti.
- The Hilti X-U nail has no maximum base steel thickness
- 5. Stainless Steel Version R-PH-55025-LG-A2
- 6. SC40-II Gas Powered Nailer 7. Loading ranges vary heavily based on substrate thickness

• DEWALT: DWF402002 5.5x19 • Ejott. JT2-NH3 5.5 • Evolution: TSPH5.5-19-3 • Fixfost: DF5-CF 5.5x22 • Rowit: R-PH-55025-LG or R-PH-55025-LG-A2 ^(II) • Spit: CFC26 ^(II) • VIT: DWITEch CSLSF 5.5x19 Poncoke Tek PH2 (13601180) • VIT: DWITEch CSLSF 5.5x21 • VIT: DWITEch CSLSF 5.5x25 • Foldition: TSPH5.5-25-3 • Fixfost: DF5-CF 5.5x25 • Foldition: TSPH5.5-25-3 • Fixfost: DF5-CF 5.5x25 • Rowit: R-PH-55025-LG or R-PH-55025-LG-A2 ^(II) • Spit: CFC26 ^(III) • VIT: DWITEch CSLSF 5.5x25 Poncoke Tek PH2 (13601230) • Wurth: SCR-DBIT-PANHD-AW25-(A3K)-5.5X25 • or ZEBRA PIAS (PANHEAD PIAS AW 5.5 X 25) • OTEBMA.FI: DWF4020005 5.5X25 • Fixfost: DF3 5.5x25 • Rowit: C-SCB025 • Sympotix: N/A • DEWALT: DWF4020005 5.5X25 or ZEBRA PIAS (PIAS W-214 5.5 X 25) • Sympotix: N/A • DEWALT: DWF4020016 5.5X38 • Evolution: TSHW5.5-25-3 • Fixfost: DF3 5.5x25 • Fixfost: DF12 CF 5.5x38 • DEWALT: DWF4020016 5.5X38 • Evolution: TSHW5.5-38-5 • Fixfost: DF12 CF 5.5x38 </th <th>Fixing Manufacturers</th>	Fixing Manufacturers
• DEWALT: DWF4020002 5.5x19• Ejot: LSCF 5.5x25• Evolution: TSPH5.5-25-3• Fixfost: DF5-CF.5.5x22• Hitt: S-MD032W 5.5x25• Rowl: R-PH-55025-LG or R-PH-55025-LG-A2 (*)• Spit: CFC26''• VJT: DrillFech CSL5F 5.5x25 Pancake Tek PH2(T35001230)• Wurth: SCR-DBIT-PANHD-AW25-(A3K)-5.5x25• or ZEBRA PIAS (PANHEAD PIAS AW 5.5 X 25)• Sympofix: N/A• DEWALT: DWF4020005 5.5x25• Rowl: C-55025• Evolution: TSHWW5.5-25-3• Fixfast: DF3 5.5x25• Rowl: OC-55025• Sympofix: N/A• DEWALT: DWF4020016 5.5x38• UT: DrillTech CSL5 5.5x25 (13600010)• Wurth: SCR-DBIT-WS8-(A3K)-5.5X25 or• ZEBRA PIAS (PIAS W:214 5.5 X 25)• Sympofix: N/A• DEWALT: DWF4020016 5.5x38• Ejot: HSCF 5.5x38• Fixfast: DF12-CF 5.5x38• Hitti: S-MD052W 5.5x40• Rowl: R-PH-55038-HG• Spit: CFL32• VJT: DrillTech CSLS F 5.5x38 Pancake Tek• H22 1301600)• Wurth: N/A• Sympofix: N/A• DEWALT: DWF4020013 5.5X38• Fixfost: DF12-CS 5.5x38• Fixfost: DF12-CS 5.5x38• Rowl: CN-55038• Spit: CFL32• VJT: DrillTech CSL* 5.5x40• Rowl: CN-55038• Sympofix: N/A• DEWALT: DDF3010000 16x7.66mm or• DEV3002003 23x7.66mm• Ejot: N/A• Fixfost: N/A• Hitt: SU A P6 or X-U 16 MX• Rowl: R-KSC-6/17 (*)• Spite SC9-15 to SC9-70 or SBR9-19(*)• Wurth: HN 101 19	 DEWALT: DWF4020002 5.5x19 Ejot: JT2-NH3 5.5 Evolution: TSPH5.5-19-3 Fixfast: DF5-CF 5.5x22 Hilti: S-MD03ZW 5.5x25 Rawi: R-PH-55025-LG or R-PH-55025-LG-A2 ⁽⁵⁾ Spit: CFC26⁽⁷⁾ VJT: DrillTech CSLSF 5.5x19 Pancake Tek PH2 (13601180) Wurth: SCR-DBIT-PANHD-AW25-(A3K)-5.5X19 or ZEBRA PIAS (PANHEAD PIAS AW 5.5 X 19) Sympafix: N/A
• DEWALT: DWF4020005 5.5X25 • Ejot: LS 5.5x25 • Evolution: TSHWW5.5-25-3 • Fixfast: DF3 5.5x25 • Row: OC-55025 • Spit: TC25 • VJI: DrillTech CSLS 5.5x25 (13600010) • Wurth: SCR-DBIT-WS8-(A3K)-5.5X25 or ZEBRA PIAS (PIAS W-214 5.5 X 25) • Sympafix: N/A • DEWALT: DWF4020016 5.5X38 • Ejot: HSCF 5.5x38 • Fixfast: DF12-CF 5.5x38 • Fixfast: DF12-CF 5.5x38 • Hilti: S-MD052W 5.5x40 • Row: R-PH-5038-HG • Spit: CFL32 • VJI: DrillTech CSLSF 5.5x38 Pancake Tek PH2 13601600) • Wurth: N/A • Sympafix: N/A • DEWALT: DWF4020013 5.5X38 • Ejot: HS 5.5x38 • Sympafix: N/A • DEWALT: DWF4020013 5.5X38 • VJI: DrillTech CSH* 5.5x38 • Wurth: SCR-DBITL-WS8-(A3K)-5.5X38 or ZEBRA PIAS (PIAS DBIT	 DEWALT: DWF4020002 5.5x19 Ejot: LSCF 5.5x25 Evolution: TSPH5.5-25-3 Fixfast: DF5-CF 5.5x22 Hilti: S-MD03ZW 5.5x25 Rawi: R-PH-55025-LG or R-PH-55025-LG-A2 ^(S) Spit: CFC26⁽⁷⁾ VJT: DrillTech CSLSF 5.5x25 Pancake Tek PH2 (13601230) Wurth: SCR-DBIT-PANHD-AW25-(A3K)-5.5X25 or ZEBRA PIAS (PANHEAD PIAS AW 5.5 X 25) Sympafix: N/A
 DEWALT: DWF4020016 5.5X38 Ejot: HSCF 5.5x38 Evolution: TSLP5.5-38-5 Fixfast: DF12-CF 5.5x38 Hilti: S-MD052W 5.5x40 Rawl: R-PH-55038-HG Spit: CFL32 WJr: DrillTech CSLSF 5.5x38 Pancake Tek PH2 13601600) Wurth: N/A Sympafix: N/A DEWALT: DWF4020013 5.5X38 Ejot: HS 5.5x38 Evolution: TSHW5.5-38-5 Fixfast: DF12 5.5x38 Hilti: S-MD05Z 5.5x40 Raw: CN-55038 Spit: TL38 VJT: DrillTech CSLF 5.5x38 Hek Tek (13600180) Wurth: SCR-DBITL-WS8-(A3K)-5.5X38 or ZEBRA PIAS (PIAS DBITL 5.5 x 38) Sympafix: N/A DEWALT: DDF3010000 16x7.66mm or DDF3000200 32x7.66mm Ejot: N/A Evolution: N/A Fixfast: N/A DEWALT: DDF3010000 16x7.66mm or DDF3000200 32x7.66mm Ejot: N/A Evolution: N/A Fixfast: N/A Wurth: SC9-15 to SC9-70 or SBR9-19 ⁽⁴⁾ VJT: SC9-15 to SC9-70 or SBR9-19⁽⁴⁾ Wurth: HN 101 19mm or UMA 221/10 16/19mm⁽⁷⁾ Sympafix: C3 or C5, C45 and C70 Nails 	 DEWALT: DWF4020005 5.5X25 Ejot: LS 5.5x25 Evolution: TSHWW5.5-25-3 Fixfast: DF3 5.5x25 Hilti: S-MD032 5.5x25 Rawi: CC-55025 Spit: TC25 VJT: DrillTech CSLS 5.5x25 (13600010) Wurth: SCR-DBIT-WS8-(A3K)-5.5X25 or ZEBRA PIAS (PIAS W-214 5.5 X 25) Sympafix: N/A
 DEWALT: DWF4020013 5.5X38 Ejot: HS 5.5x38 Evolution: TSHW5.5-38-5 Fixfast: DF12 5.5x38 Hilti: S-MD05Z 5.5x40 Rawi: ON-55038 Spit: TL38 VJT: DrillTech CSH" 5.5x38 Hek Tek (13600180) Wurth: SCR-DBITL-WS8-(A3K)-5.5X38 or ZEBRA PIAS (PIAS DBITL 5.5 x 38) Sympafix: N/A DEWALT: DDF3010000 16x7.66mm or DDF300200 32x7.66mm Ejot: N/A Evolution: N/A Evolution: N/A Hilti: X-U 16 P8 or X-U 16 MX Rawi: R-KSC-6/17 ⁽⁶⁾ Spit: SC9-15 to SC9-70 or SBR9-19⁽⁴⁾ VJT: SC9-15 to SC9-70 or SBR9-19⁽⁴⁾ Wurth: HN 101 19mm or UMA 221/10 16/19mm⁽⁷⁾ Sympafix: C3 or C5, C45 and C70 Nails 	 DEWALT: DWF4020016 5.5X38 Ejot: HSCF 5.5x38 Evolution: TSLP5.5-38-5 Fixfast: DF12-CF 5.5x38 Hilti: S-MD05ZW 5.5x40 Rawi: R-PH-55038-HG Spit: CFL32 VJT: DrillTech CSLSF 5.5x38 Pancake Tek PH2 13601600) Wurth: N/A Sympafix: N/A
 DEWALT: DDF3010000 16x7.66mm or DDF3000200 32x7.66mm Ejot: N/A Evolution: N/A Fixfast: N/A Hilti: X-U 16 P8 or X-U 16 MX Rawi: R-KSC-6/17 ⁽⁶⁾ Spit: SC9-15 to SC9-70 or SBR9-19⁽⁴⁾ VJT: SC9-15 to SC9-70 or SBR9-19⁽⁴⁾ Wurth: HN 101 19mm or UMA 221/10 16/19mm⁽⁷⁾ Sympafix: C3 or C5, C45 and C70 Nails 	 DEWALT: DWF4020013 5.5X38 Ejot: HS 5.5x38 Evolution: TSHW5.5-38-5 Fixfast: DF12 5.5x38 Hilti: S-MD05Z 5.5x40 Rawi: ON-55038 Spit: TL38 VJT: DrillTech CSH" 5.5x38 Hek Tek (13600180) Wurth: SCR-DBITL-WS8-(A3K)-5.5X38 or ZEBRA PIAS (PIAS DBITL 5.5 X 38) Sympafix: N/A
	 DEWALT: DDF3010000 16x7.66mm or DDF3000200 32x7.66mm Ejot: N/A Evolution: N/A Fixfast: N/A Hilti: X-U 16 P8 or X-U 16 MX Rawi: R-KSC-6/17⁽⁶⁾ Spit: SC9-15 to SC9-70 or SBR9-19⁽⁴⁾ VUT: SC9-15 to SC9-70 or SBR9-19⁽⁴⁾ Wurth: HN 101 19mm or UMA 221/10 16/19mm⁽⁷⁾ Sympafix: C3 or C5, C45 and C70 Nails

4. The use of Powder Actuated Nail Fixings must be approved by voestalpine Metsec for each individual project due to the large range in fixing load capacities

Table 2 – Fixings to Concrete

Application	Description	Pictures	Fixing Manufacturers
Fixing 1.2-3.0mm Steel to Concrete	Concrete Screw Anchor Hex Head	()========	 DEWALT: TBC Ejot: JC2-KB / JC2-FR 6x45 Evolution: TBC Fixfast: TBC Hilti: HUS3-H 6x40 or HUS 6x45 Rawl: R-LX-06X050-HF-ZF or R-LX-06X040-P-ZP (4) Spit: Tapcon HFL 6x50/15 VJT: VJT BSZ-SU 6x50 Wurth: W-BS/S (WS13-5-6X40) Sympafix: SB2-PLUS 5(6)x10/50 to 14(16)x20/80
Fixing 3.0-15.0mm Steel to Concrete	Concrete Screw Anchor Hex Head		 DEWALT: TBC Ejot: JC2-KB / JC2-FR 6x60 Evolution: TBC Fixfast: TBC Hilti: HUS3-H 6x60 or HUS4-H 8x75 Rawl: R-LX-06X050-HF-ZF Spit: Tapcon HFL 6x80/15 VJT: VJT BSZ-SU 6x60 Wurth: W-BS/S (WS13-5-25-6X60) Sympafix: SB2-PLUS 5(6)x10/50 to 14(16)x20/80
Fixing 1.2-15.0mm Steel to Concrete ⁽³⁾	Large Diameter Concrete Screw Anchor Hex Head		 DEWALT: Range of Blue-Tip 2 Screw-Bolts 6x30 to 16x200 Ejot: JC2-KB / JC2-FR 6x60 Evolution: N/A Fixfast: FBS II 8x70 Hilti: HUS3-H 6x60 or HUS4-H 8x75 Rawl: Range of R-LX-HF 8x60 to R-LX-HF 14x160 Spit: Range of Tapcon Xtrem HFL 8x50 to M14x150/75-35 VJT: VJT BSZ-SU 8x60 to 14x150 or FBS II 8x55 to 14x150 Wurth: W-BS/S - 6-14mm Diameter Sympafix: SB2-PLUS 5(6)x10/50 to 14(16)x20/80
	Stud Anchors		 DEWALT: Range of PTB-Pro M6 x 40 to M20x145 Ejot: N/A Evolution: N/A Fixfast: FAZ II 8/10 to FAZ I 24/60 Hilti: N/A Rawl: R-XPT M8x50 to R-XPT M20x300 Spit: SEE SPIT FIX 3 M8x55 - M20X170 and SPIT Z XTREM VJT: FAZ II 8/10 to FAZ I 24/60 Wurth: Fixanchor W-FA M6x40 - M20x240 Sympofix: Through-Bolts Galvanized TB1-PLUS 10/2x60 to 12/5x90
	Chemical/Adhesive Anchors		 DEWALT: Range of SC-Pro Spinning Adhesive Capsules M8 to M16 Ejot: N/A Evolution: N/A Fixfast: Vinylester Resin Cartridge FIS-V-360-S with RGM8-RGM16 Hilti: HVU2 M8 to M30 with HAS-U 5.8 M8 to M24 or HVU2 M8 to M30 with HUS4 Screw Anchor Rawl: R-CAS M8 to R-CAS M30 with R-STUDS or R-KER-II Hybrid Resin with Threaded Rods Spit: N/A VJT: V420+ v3 & CAS 5 Resin Studs or RM Capsule & RG-M8 to RG-M30 Studs Wurth: Please Contact Wurth Sympafix: M50-PLUS, X+150-PLUS, C100 PLUS or GC-PLUS Chemical Glass Capsules with Anchors

1. Screw anchors listed are the shortest that can be used in the range. Longer fixing may be specified by voestalpine Metsec Design

2. Please see approved Data Sheet and Installer Guide for this application available from Metsec/Hilti. Powder Actuated Nail Fixings have a minimum edge distance of 80mm to the edge of the concrete. The use of Powder Actuated Nail Fixings must be approved by voestalpine Metsec for each individual project due to the large range in fixing load capacities
Large anchors are designed on a project by project basis and the different makes cannot be substituted for each other. All head types vary.
R-LX-06X040-P-ZP has a Pan Head.

Table 3 – Fixing Insulation to Steel



Notes:

- 1. Application shown is for fixing 50mm insulation. For other insulation thicknesses please consult the fixing manufacturers' product range and select the appropriate length of fixing.
- 2. Hilti and ITW products do not contain the large washers however the fixings shown will work with the SBV 90 washer from Ejot or SP-70-D4 from Fixfast.

3. Plastic washers R-KC-060 60mm. Additional KWL-090PP 90mm plate for mineral wool.

4. R-MKC-A2-070 and R-RSW-85-SS are 70mm and 85mm A2 stainless steel retaining washers.

Table 4 – Fixing Brick Tie Channels to Steel



Notes:

1. Application shown is for fixing 50mm insulation. For other insulation thicknesses please consult the fixing manufacturers' product range and select the appropriate length of fixing.

Fixing Manufacturers
 DEWALT: N/A Ejot: SBV 6.5/90 Washer with JT2-NH3 5.5/6.3 or with TKE 4.8 Evolution: ECW60 with ASIS80 Fixfast: SF-P-70-F or SF-P-70-D with SF-RS-4.8-SSA4 4.8x80 Hilt: No Information Provided Rawi: R-KC-60 + KWL-090PP (3) + R-WX-48T080-A4 or R-MKC-A2-070 or R-RSW-85-SS⁽⁴⁾ Spit: N/A VJT: DrillTech P5-80 (01900870) + DrillTech CSLSR 4.8 T25 50-240mm Wurth: N/A Sympafix: N/A
 DEWALT: N/A Ejot: SBV 6.5/90 Washer with JT3-3 5.5/6.3 Evolution: SSSPR70 with A4IS80 Fixfast: SF-P-70-F or SF-P-70-D with DF3-SS-HT 5.5x85 Hilti: No Information Provided Rawi: R-KC-60 + KWL-90PP (3) + OCS-55070 or R-MKC-A2-070 or R-RSW-85-SS⁽⁴⁾ Spit: N/A VJT: DrillTech SSW7-85 (13601105) + SSLSC 6.3/5.5 60-265mm Wurth: N/A Sympafix: N/A
 DEWALT: N/A Ejot: SBV SBV 6.5/90 Washer with JT3-6 5.5/6.3 Evolution: SSSPR70 with BMWD5.5-85-5 Fixfast: SF-P-70-F or SF-P-70-D with DF12-SS-HT 5.5x95 Hilti: No Information Provided Rawi: R-KC-60 + KWL-90PP (3) + OCS-55070 or R-MKC-A2-070 or R-RSW-85-SS⁽⁴⁾ Spit: N/A VJT: DrillTech SSW7-85 (13601105) + SSLSC 6.3/5.5 60-265mm Wurth: N/A Sympafix: N/A

Fixing Manufacturers

 DEWALT: N/A Ejot: JT3-D-6-H 5.5/6.3 S16 Evolution: BMTSBWHT 5.5-80-3 Fixfast: DF3-SS-HT 5.5x85 Hilti: S-CD 53 S 5.5 48-58mm Rawl: R-OCR-55/63090A19 Spit: N/A VJT: DrillTech SSLSC 6.3/5.5 60-265mm Wurth: SCR-DBIT-SANDW-WSH19-(RUS)-5.5X92 (SANDW WSH19 5.5x99) Sympafix: N/A
 DEWALT: N/A Ejot; JT3-D-6-H 5.5/6.3 S16 Evolution: BMTSBWHT 5.5-105-5 Fixfast: DF12-SS-HT 5.5x95 Hilti: S-CD 53 S 5.5 58-68mm Rawl: R-ONR-55/63101A19 Spit: N/A VJT: DrillTech SSLSC 6.3/5.5 60-265mm Wurth: SCR-DBITL-SANDW-WSH19-(RUS)-5.5X92/99 (SANDW WSH19 5.5x92/99) Sympafix: N/A

Table 5 - Fixing Sheathing Boards and Timber to Steel

These types of fixings are suitable for the following types of sheathing boards:

Cement Particle Board, Cement Fibre Board, Magnesium Oxide Board, Calcium Silicate Board, PLY Board, Oriented Strand Board, Chipboard and Timber.

Application (1)	Description	Pictures	Fixing Manufacturers
Fixing to 1.2-3.0mm Steel. Board thickness 6.0mm to 19mm	4.8mm Diameter Wafer/CSK Ribbed Head Wing Tipped Screw		 DEWALT: DWF4020006 4.2x38 (1.2-3.5mm) or DWF4020007 4.8x45 (1.2-3.5mm)) Ejot: WDLS 5.5x50 Evolution: TSTF 4.8-38-3 Fixfast: DF3-W 4.8x38 Hilti: S-WD 13C 4.8x38 Rawl: R-CWT-48038-LG or R-CWTS-48038-LG ⁽⁴⁾ Spit: N/A VJT: DrillTech CSLSW 4.8x38 CSK Self-Tapping Wing Tip (13600970) Wurth: SCR-DBIT-WING-CS-CUTHD-AW25-(A3K)-4.8X38 or ZEBRA PIAS (WING CS AW25 4.8X38)⁽⁵⁾ Sympafix: SD-DBL-BP-FN3.5x25⁽⁶⁾
Fixing to 1.2-3.0mm Steel. Board thickness 13mm to 29mm	5.5mm Diameter Wafer/CSK Ribbed Head Wing Tipped Screw		 Evolution: TSTF-5.5-50-3 Fixfast: DF3-W 5.5x50 Hilti: S-WD 13C 5.5x50 Rawl: R-CWT-55050-LG Spit: N/A VJT: DrillTech CSLSW 5.5x60 CSK Self-Tapping Wing Tip (13600990) Wurth: SCR-DBIT-WING-CS-CUTHD-AW25-(A3K)-5.5X45 or ZEBRA PIAS (WING CS AW25 5.5X45)⁽⁶⁾ Sympofix: SD-DBL-BP-FN3.5x45⁽⁶⁾
Fixing to 1.2-3.0mm Steel. Board thickness 25mm to 60mm	5.5mm Diameter Wafer/CSK Ribbed Head Wing Tipped Screw		 DEWALT: N/A Ejot: WDLS 5.5x85 Evolution: TSTF 5.5-85-3 Fixfost: DF3-W 5.5x80 Hilti: S-WD 13C 5.5x85 Rawl: R-CWT-55085-LG Spit: N/A VJT: DrillTech CSLSW 5.5x85 CSK Self-Tapping Wing Tip (13601000) Wurth: SCR-DBIT-WING-CS-CUTHD-AW25-(RSI)-5.5X90 or ZEBRA PIASTA (WING CS AW25 RSI 5.5x90) Sympafix: SD-DBL-BP-FN3.5x25⁽⁴⁾
Fixing to 1.2-3.0mm Steel. Board thickness 65mm to 100mm	5.5mm Diameter Wafer/CSK Ribbed Head Wing Tipped Screw		 DEWALT: N/A Ejot: WDLS 5.5x127 Evolution: TSTF 5.5-120-3 Fixfast: DF3-W 5.5x120 Hilti: S-WD 13C 5.5x100 (up to 80mm only) Rawl: R-CWT-55100-LG or R-CWT-55120-LG Spit: N/A VJT: DrillTech CSLSW 5.5x105 CSK Self-Tapping Wing Tip (13601010) Wurth: SCR-DBIT-WING-CS-CUTHD-AW30-(LFR)- 6.3X100 or ZEBRA PIAS (WING CS AW30 LFR 6.3x100)⁽⁶⁾ Sympofix: SD-DBL-BP-FN3.5x45⁽⁶⁾
Fixing to 3.0-6.0mm Steel. Board thickness 10.0mm to 24mm	5.5mm Diameter Wafer/CSK Ribbed Head Wing Tipped Screw		 DEWALT: N/A Ejot: WDHS 5.5x65 Evolution: TSTF 5.5-65-5 Fixfast: DF12-W 5.5x50 Hilti: S-WD 15C 5.5x65 Rawl: R-CWT-55065-HG Spit: N/A VJT: DrillTech CSHSW 5.5x60 CSK Self-Tapping Wing Tip (13601020) Wurth: SCR-DBIT-WING-CS-CUTHD-AW25-(RSI)-5.5X90 or ZEBRA PIASTA (WING CS AW25 RSI 5.5x90)⁽⁷⁾ Sympafix: N/A

Notes:

1. Applications shown are for regularly selected boarding/timber thicknesses. For other thicknesses please consult the fixing manufacturers' product range and select the appropriate length of fixing

P3 Phillips recess drive bit required in 5.5 diameter screws in the Ejot and ITW product range
 Up to 82mm only.
 Stainless steel version: R-CWTS-48038-LG
 Recommended minimum steel thickness of 1.8mm

6. Recommended minimum steel thickness of 2.0mm

7. Recommended minimum steel thickness 2.0mm and recommended max steel thickness to be drilled through 5mm

Table 6 – Fixing Plasterboard to Steel

Application (1)	Description	Pictures	Fixing Manufacturers
Fixing to 1.2mm Steel. Single board up to 15mm thick	3.5mm Diameter Bugle/Wafer/CSK Ribbed Head Screw		 DEWALT: DWF4000250 3.5x25 Ejot: WDLS 5.5x50 Evolution: DWSDZ25 Fixfast: N/A Hiiti: S-DD01B or S-DD01Z 3.5x25 Rawi: N/A Spit: N/A VJT: Drywall Screw Self-Tapping Bugle Head BZP 32mm (13100020) Wurth: SCR-DRYWL-DTIP-H2-(PHR)-3.5X25/20 Sympafix: SD-DBL-BP-FN3.5x25⁽⁶⁾
Fixing to 1.2mm Steel. Double boards up to 30mm combined thickness	3.5mm Diameter Bugle/Wafer/CSK Ribbed Head Screw		 DEWALT: DWF4000420 3.5x42 Ejot: WDLS 5.5x85 Evolution: DWSDZ42 Fixfast: N/A Hilti: S-DD01B or S-DD01Z 3.5x45 Rawl: N/A Spit: N/A VJT: Drywall Screw Self-Tapping Bugle Head BZP 42mm (1310040) Wurth: SCR-DRYWL-DTIP-H2-(PHR)-3.5X45/30 Sympafix: SD-DBL-BP-FN3.5x45⁽⁶⁾
Fixing to 1.2-2.0mm Steel. Single board up to 15mm thick	3.5mm Diameter Bugle/Wafer/CSK Ribbed Head Screw		 DEWALT: DWF4000250 3.5x25 Ejot: WDLS 5.5x50 Evolution: DWSDZ25 Fixfast: N/A Hilti: S-DD01B or S-DD01Z 3.5x25 Rawi: N/A Spit: N/A VJT: DrillTech CSLSW 4.8x38 CSK Self-Tapping Wing-Tip Screw (13600970) Wurth: SCR-DRYWL-DTIP-H2-(PHR)-3.5X25/20 Sympafix: SD-DBL-BP-FN3.5x25^(a)
Fixing to 1.2-2.0mm Steel. Double boards up to 30mm combined thickness	3.5mm Diameter Bugle/Wafer/CSK Ribbed Head Screw		 DEWALT: DWF4000450 3.5x45 Ejot: WDLS 5.5x85 Evolution: DWSDZ42 Fixfast: N/A Hilti: S-DD01B or S-DD01Z 3.5x45 Rawi: N/A Spit: N/A VJT: DrillTech CSLSW 4.8x50 CSK Self-Tapping Wing-Tip Screw (13600980) Wurth: SCR-DRYWL-DTIP-H2-(PHR)-3.5X45/30 Sympafix: SD-DBL-BP-FN3.5x45⁽⁶⁾
Fixing to 2.0-6.0mm Steel. Single board up to 15mm thick	4.8mm Diameter Wafer/CSK Ribbed Head Wing Tipped Screw		 DEWALT: N/A Ejot: WDHS 5.5x50 Evolution: TSTF 4.8-38-3 Fixfast: N/A Hilt: S-WD 13C 5.5x65 Rawl: R-CWT-48038-LG Spit: N/A VJT: DrillTech CSLSW 4.8x38 CSK Self-Tapping Wing-Tip Screw (13600970) Wurth: SCR-DBIT-WING-CS-CUTHD-AW25-(A3K) -4.8X38 or ZEBRA PIAS (WING CS AW25 4.8X38)^[3] Sympafix: N/A
Fixing to 2.0-6.0mm Steel, Double boards up to 30mm combined thickness	5.5mm Diameter Wafer/CSK Ribbed Head Wing Tipped Screw		 DEWALT: N/A Ejot: WDHS 5.5x85 Evolution: TSTF 5.5-65-5 Fixfast: N/A Hilti: S-WD 13C 5.5x85 Rawl: R-CWT-55085-HG Spit: N/A VJT: DrillTech CSLSW 5.5x85 CSK Self-Tapping Wing-Tip Screw (13601000) Wurth: SCR-DBIT-WING-CS-CUTHD-AW25-(RSI)-5,5X90 or ZEBRA PIASTA (WING CS AW25 RSI 5,5x90)⁽⁴⁾ Sympafix: N/A

Notes:

1. Applications shown are for regularly selected boarding thicknesses. For other thicknesses please consult the fixing manufacturers' product range and select the appropriate length of fixing

- 2. ITW & Ejot require wing tipped screws of 4.8 & 5.5 diameters for lower thicknesses of steel as no plasterboard screws available.
- 3. Recommended max steel thickness to be drilled through 4mm.

4. Recommended minimum steel thickness 2.0mm/ recommended max steel thickness to be drilled through 5mm.

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