METSEC
METFRAME

ATKIN
TRADE SPECIALISTS LTD

INTRODUCTION TO METFRAME

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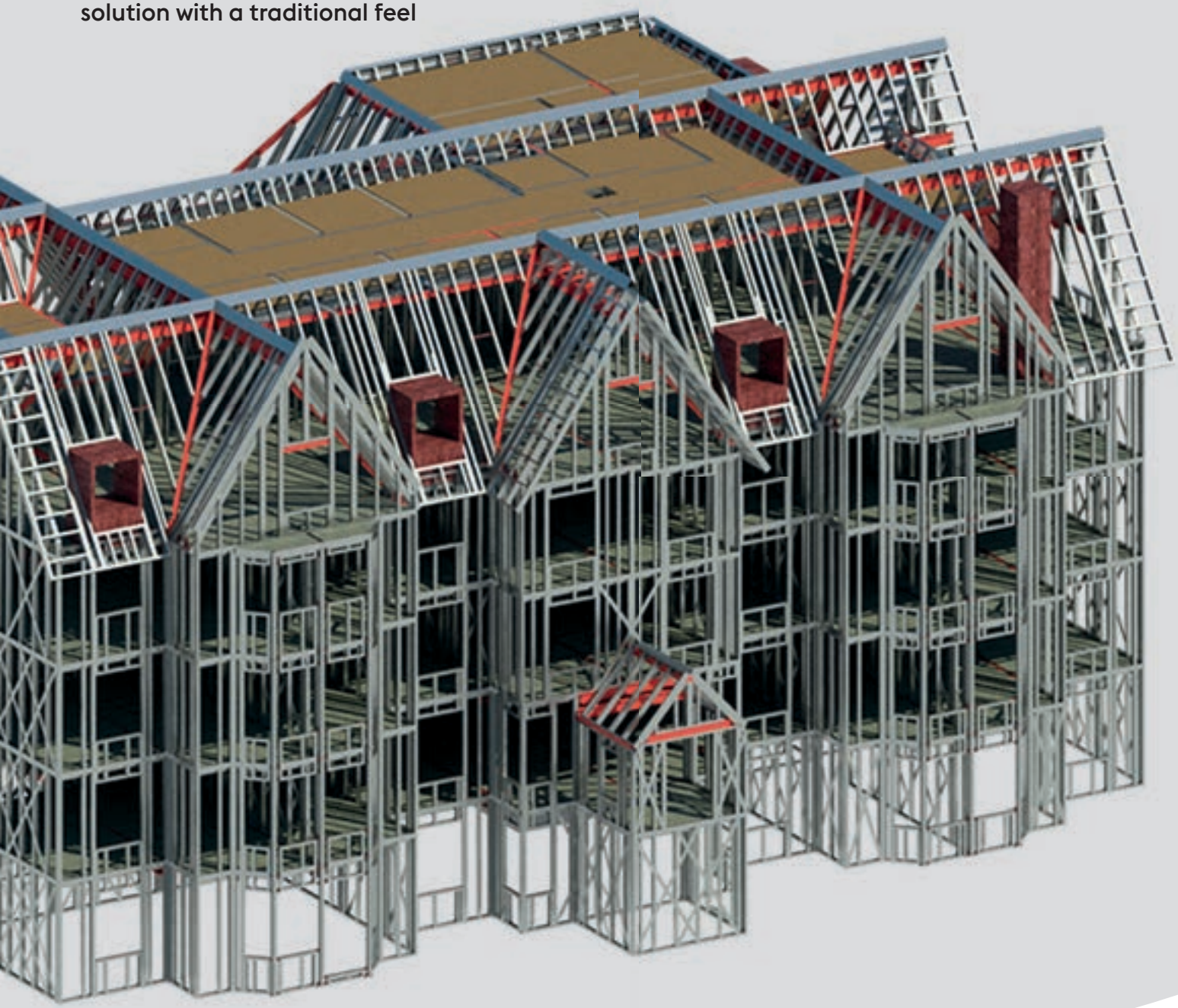
A modern off-site pre-panelised framing solution with a traditional feel



voestalpine Metsec plc
www.metsec.com

voestalpine
ONE STEP AHEAD.

TRUST

- Design Warranty
- Typically 30% faster build time compared to traditional methods
- Floors constructed in 2-3 weeks
- BIM level 2 compliant
- Zero waste
- High thermal, fire and acoustic performance
- Complex structures are easily incorporated
- Independent and accredited Edge Protection system
- Suitable for use with a variety of external finishes
- NHBC/SCI approval for up to 15 storeys
- Manufactured in a controlled factory environment
- FORS Silver accredited for HGV Metsec deliveries
- Tested with 3 major plasterboard manufacturers and 4 sheathing boards
- UKAS tested certification for fire and acoustics

#trustmetsec

CONTENTS

Please contact us for the full version of this guide, Metframe Specification Manual.

INTRODUCTION TO METFRAME

Overview

voestalpine Metsec know the importance of both continual development and innovation, allowing solutions which mirror today's demanding environment. With a heritage spanning back over thirty years, Metframe has a proven record of success in providing solutions in different demanding building applications. Formed in panels fabricated off-site, the ability for Metframe to bring factory achievable tolerances to a site-based environment is a benefit that has been embraced across the industry.

Providing support and assistance throughout each step of the process, our highly skilled in-house Metframe team allows for a smooth transition from project conception through to structural completion. We support our in-house expert knowledge with external independent accreditation backed up with rigorous industry leading testing data for both acoustics and fire to satisfy regulatory requirements.

METFRAME KEY BENEFITS

- Off-site manufacturing to achieve factory level tolerances on-site
- UKAS accredited and solutions for:
  - Fire resistance available up to 2 hours tested to BS EN 1364-1:2015 for non-loadbearing elements (walls), BS EN 1365-1:2012 for loadbearing elements (walls) and BS EN 1365-2:2014 for loadbearing elements (floors and walls)
  - Acoustic solutions up to Rw64dB
  - Huge catalogue of industry leading data
  - Excellent thermal performance
- Speed of installation leading to quicker return on investment and lower prelims
- Ability to construct in tight spaces
- Independent accreditation for building solutions up to 15 storeys in height. NHBC/SCI approved
- voestalpine Metsec has the BSI Kitemark for BIM Level 2 for design and BIM objects
- voestalpine Metsec is part the voestalpine group, a globally leading technology group offering high-quality products and system solutions. voestalpine is the largest section-rolling group in the world. voestalpine total sales are in excess of 13.6 billion euros annually.

For a complete list of Metframe benefits, please see page 11.

CHANGING THE INDUSTRY

The need for the industry to embrace a more modern method of construction for projects is critical. Reduced construction time with cost savings while maintaining a safe and high-quality product is key. The ability to bring a factory quality product to site is one that Metframe offers effectively. From residential developments through to care homes, the drive to bring in quicker returns of capital investment is one of the major reasons for clients using Metframe.

As well as offering high quality products that are built within strict tolerances, the efficient building method provides shorter construction times allowing projects to be handed over quicker. Just one of the many reasons our clients have been choosing Metframe for over 30 years.

- On-site reduced construction times form only one part of the overall cost savings when utilising Metframe. Due to the slim form nature of the Metframe systems structural zones the ability to reduce the overall building heights can often be utilised by clients to generate further savings.

- With zero waste; reduced quantities for external finishes, internal dry lining, service runs, stairs and lifts, the overall project savings for multiple follow on packages are significant.

Tight sites provide no barrier to construction when using Metframe. With projects often fitted between existing structures on tight inner-city sites, the Metframe system can be managed to work within confined spaces.

Coordination of delivery sizes to match restrictive access into sites can be planned and managed within the office environment to avoid issues later arising on-site. Boundary conditions from adjacent buildings driving the external wall fire performance can all be designed into the overall supplied product. Backed up by the extensive fire performance data that comes as standard with the Metframe system.

METFRAME MARKET LEADING SOLUTIONS

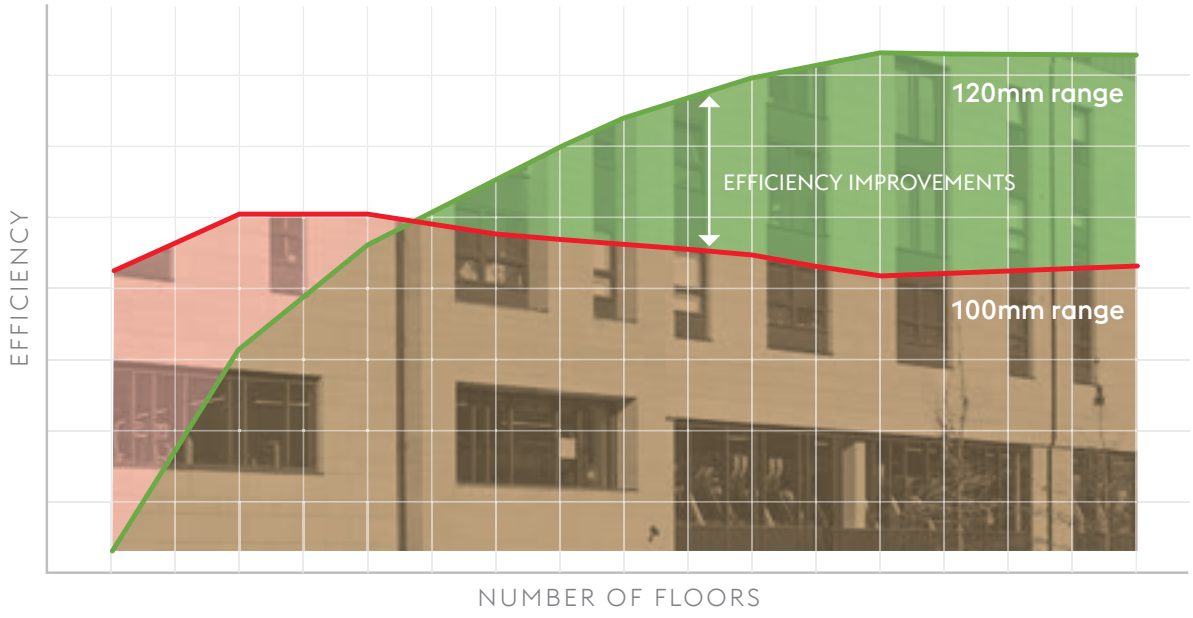
DRIVING EFFICIENCY

As buildings continue to evolve Metframe is always looking at ways to offer the most cost-efficient solutions to the industry. Historically the 100mm wide stud section has been utilised to provide Metframe with a successful track record of delivering projects spanning decades.

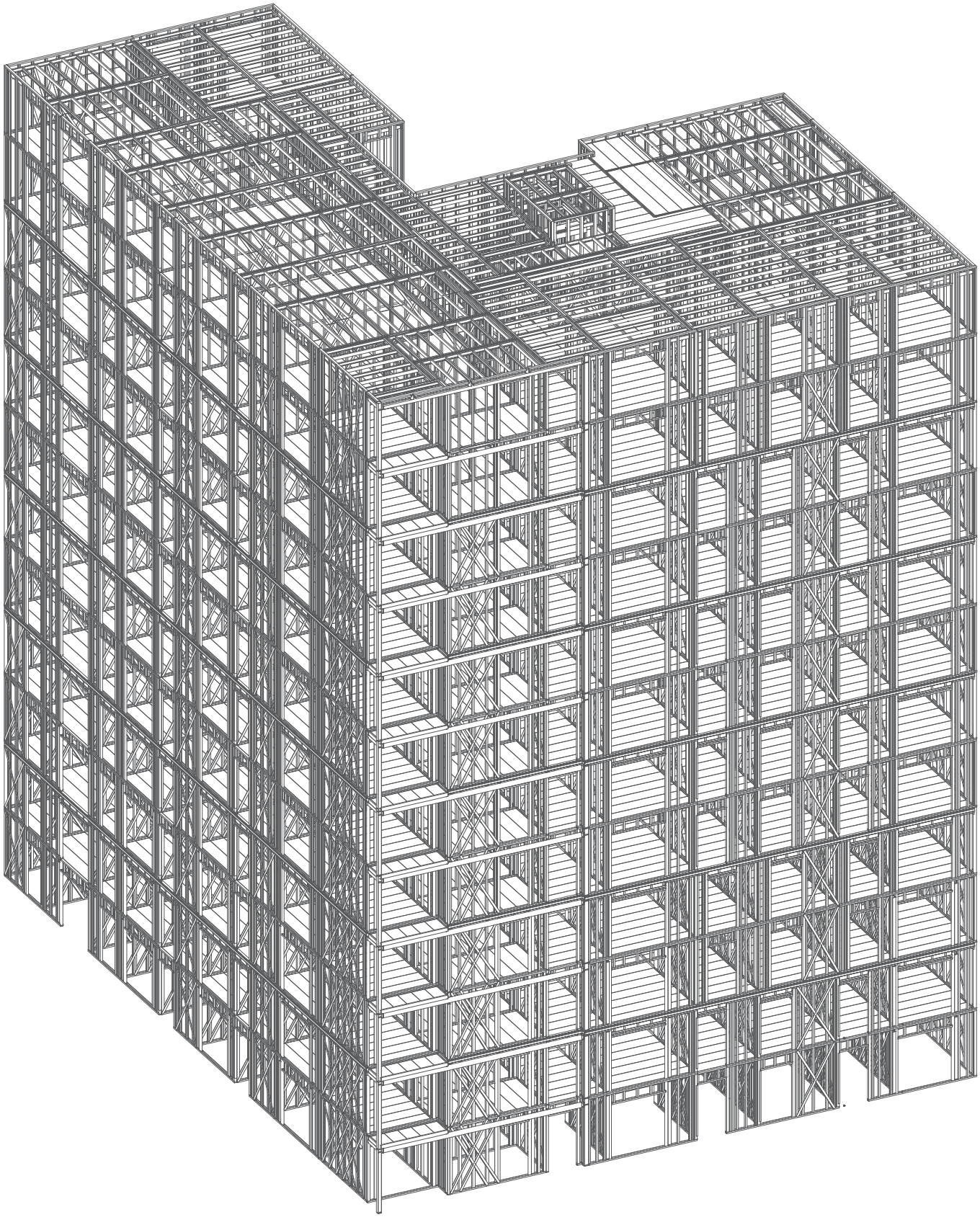
As buildings become taller and higher loads from elements such as screed, it is important that we are able to offer the most cost efficient solutions.

Increasing the structural wall zones to 120mm to complement the 100mm range allows efficiencies to be achieved above and beyond the current levels.

As the building height increases the 120mm stud section becomes more efficient which assists with driving improved cost efficiencies for the overall structural solution.



Comparison of 100mm and 120mm stud sections against number of floors



KEY BENEFITS

The list of Metframe's benefits is a long one, the system offers a number of clear commercial and technical advantages to our customers.

SPEED

- Pre-fabricated off-site construction gives a fast build program, typically 30% faster build time compared to traditional methods
- Early Dry Envelope can be achieved
- Accredited Edge Protection system tailored to suit each individual project
- Floor typically constructed in 2-3 weeks, based on 1000m^2 floor areas
- Stairs and lift shafts installed as the building progresses floor by floor
- Faster completion dates can lead to earlier occupancy leading to overall project savings against more traditional build methods.

TECHNICAL KNOWLEDGE AND SUPPORT – BIM LEVEL 2

- In-house 3D design
- In-house engineers with decades of experience in light gauge steel framing
- Using the most up to date detailing software that links directly in with our modern on-site manufacturing facility
- The ability to translate from theoretical models to physical structures is easy
- A huge catalogue of tested data that encompasses all the major board manufacturers for both fire and acoustic performances, internal and external
- Metframe offers not only a cost benefit but also provides safe, industry leading solutions
- Collaborative working environment
- Hot rolled steel integrated into the 3D model.

ENVIRONMENTAL

- Engineered solution to exact building requirements results in zero waste for the main structure
- High thermal and acoustic performance solutions
- Lightweight construction
- ISO 14001 – Environmental management system
- BES6001 – Responsible sourcing of products – very good standard
- OHAS18001 – Occupational Health & Safety management system
- FORS – Silver Accredited for HGV Metsec deliveries
- Less time on-site and small build teams means lower environmental impact on the site and surrounding areas.

FLEXIBILITY

- Different types and complexity of structures are easily incorporated within the Metframe system
- Our system caters for:
  - Balconies
  - Lift shafts
  - Brickwork support
  - Stair cases
  - Walkways
- Independent and accredited edge protection system
- Plasterboard packs and bathroom pods can be coordinated during the build phase
- Window support can be designed
- Suitable for use with a variety of external finishes
- New Metsec range offers savings in cost and weight.

QUALITY

- Precision steel design with a high degree of tolerance and dimensional accuracy means no shrinkage
- Metsec has some of the most up to date fire and acoustic data for any LGS frame available
- Our fire performance data is tested or assessed at the UK's leading Test Centre – The BRE – over 250 combinations
- Technical accuracy leading to factory tight tolerance in an on-site built environment
- We have a BSI Kitemark for BIM Level 2
- We are CE Marked up to EXC 4
- We have NHBC/SCI approval up to 15 storeys
- Our structural engineers are able to assist with design
- We work with specialist installation partners
- Manufactured in a controlled factory environment.

THE CONCEPT

THE METHOD

CPD

voestalpine Metsec plc offer CPD's and seminars to help increase your understanding of the Metframe system including its benefits and limitations. Please contact us for more details.

INITIAL CONSULTATION

Initial Design feasibility can be carried out by our in-house experienced engineers with cost and program provided by one or all of our experienced installation partners.

DESIGN WORK

Metsec's in-house design team will create a BIM compliant model. Metsec were the first manufacturer in the UK to obtain BIM Level 2 accreditation for model and BIM objects. The advantages of BIM in this collaboration stage means tighter tolerances with less unforeseen errors on-site.

OFF-SITE MANUFACTURE

Sections are manufactured to bespoke lengths at Metsec straight from the 3D model ensuring accuracy. The panels are then assembled by a Metsec approved installer in their production facilities.

External wall panels can be pre clad with UKAS accredited tested combinations of sheathing boards, and insulation. This enables a weather tight envelope to be achieved quickly, and also ensuring you hit the regulatory requirements for fire, thermal and acoustics.

DELIVERY TO SITE

Panels are scheduled to be delivered in the required erection sequence ensuring efficiency in the build process.

ERECTION OF PANELS

Panels are then craned into position, where they are fixed down and bolted together by Metsec approved installation partners. Further panels are quickly fixed into position.

Wall panels incorporate cross bracing in order to provide stability to the structure reducing the need for hot rolled steel or concrete.

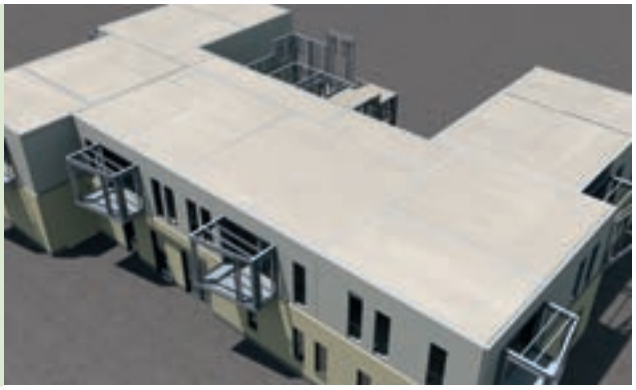
INSTALLATION OF STAIRS, LIFT SHAFTS, PLASTERBOARD AND BATHROOM PODS

An integral part of the Metframe system is the installation of stairs and lift shafts as each floor is constructed. This reduces the need for external scaffold for access to upper levels, reducing cost, providing convenience and speed to the erection process.

Fast and efficient erection is also helped by the ability to crane in bathroom pods and plasterboards packs for follow on trades, speeding up overall build programme.

METAL DECKING INSTALLED AND CONCRETE POUR

Composite metal decking is installed and fitted onto to the Z ledger incorporated within walls panel. Rebar and crack control mesh is installed to meet the buildings specific fire and robustness requirements. (Lightweight steel joisted floors can be utilised as an alternative to concrete.) Concrete is poured into place to form a floor offering high fire and acoustic performance. The concrete floor enable's this modern method of construction to still achieve a traditional feel once inhabited.



SUBSEQUENT FLOORS ERECTED AND FINISHED BUILDING

This process is repeated and subsequent floors are typically constructed at a rate of 2-3 weeks. Certain follow on trades can start as soon as work progresses to the floor above. The structural roof solution is installed which with the flexibility of the Metframe system, allows this to be formed flat or pitched to suit the aesthetics of your building. These can be formed in concrete, lightweight steel roof cassettes, steel purlins or timber trusses.

THE FINISHED PROJECT

You are then ready to hand over to your client, on time and on budget, often with advantages of early occupancy for cash flow management. The pre-panelised approach means that these can built in tight areas.

SECTOR FOCUS
RESIDENTIAL

Taking stock

The residential market is a key part of our portfolio of work. It is a sector that our experience and knowledge put us streets ahead. From private accommodation through to working with housing associations, the right path for residential projects commences with Metframe.

With residential blocks often having complex architectural driven features like cantilever balconies, walkways and roof designs, lines the ability to cope with often complex structures is one we are well placed to deal with due to our vast in-house technical knowledge and experience.

With early engagement cost efficient solutions can be created that are all achievable within the Metframe system allowing design teams to investigate multiple avenues and possibilities when it comes to their structures. We understand speed to completion can be key allowing earlier handover of projects creating faster returns on investments. Our fast track modern method of construction approach means that issues traditionally overcome on-site are now resolved within an office environment providing a far more straightforward route to completion. Metframe means factory level performance can be translated onto the site environment bringing a modern approach to a traditional industry.

- UKAS accredited solutions for:
  - Fire resistance available up to 2 hours tested to BS EN 1364-1:2015 for non-loadbearing elements (walls), BS EN 1365-1:2012 for loadbearing elements (walls) and BS EN 1365-2:2014 for loadbearing elements (floors and walls)
  - Party Wall acoustic solutions to up to 45 DnTw+Ctr designed to satisfy on-site requirements. Sound insulation testing of metal framed floors in accordance with BS EN ISO 10140-1:2010+A2:2014, BS EN ISO 10140-2:2010 and BS EN ISO 10140-3:2010+A1:2015. Sound insulation testing of metal framed partitions in accordance with BS EN ISO 10140-1:2010+A2:2014 and BS EN ISO 10140-2:2010
  - Industry leading acoustic and fire test data available
  - Extensive fire and acoustic testing by UKAS accredited laboratories encompassing all 3 major plasterboard manufacturers and 4 sheathing boards.

Metframe gives more of a solid traditional build feel over other types of off-site construction which is often a key selling point in the residential market.

SECTOR FOCUS
STUDENT ACCOMMODATION

Educating the industry

Metframe has a rich heritage in student accommodation.

With the ever-increasing demand for high-quality first-class student accommodation. Metsec has provided hundreds of solutions to both private and university owned accommodation across the country. With many degrees of building types completed from small townhouse blocks through to structures housing hundreds of students, the ability to cope with the modern student demands is one we understand well.

With deadlines for handover critical due to the academic year the ability to offer a streamlined route to market via the Metframe system is one that the industry recognises.

With tens of thousands of students now residing in Metframe buildings across the country the right way is the Metframe way.

- UKAS accredited solutions for:
  - Fire resistance available up to 2 hours tested to BS EN 1364-1:2015 for non-loadbearing elements (walls), BS EN 1365-1:2012 for loadbearing elements (walls) and BS EN 1365-2:2014 for loadbearing elements (floors and walls)
  - Party Wall acoustic solutions to up to 43 DnTw+Ctr designed to satisfy on-site requirements. Sound insulation testing of metal framed floors in accordance with BS EN ISO 10140-1:2010+A2:2014, BS EN ISO 10140-2:2010 and BS EN ISO 10140-3:2010+A1:2015. Sound insulation testing of metal framed partitions in accordance with BS EN ISO 10140-1:2010+A2:2014 and BS EN ISO 10140-2:2010
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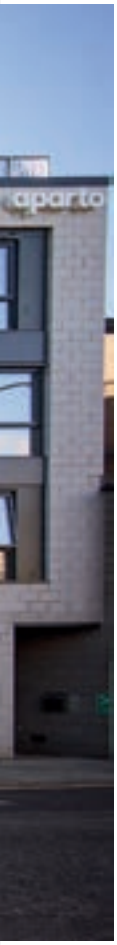

SECTOR FOCUS
HOTELS

Rest assured

With the growth in the hotel sector Metframe is recognised at the forefront of construction methodology.

Although hotel rooms are often very standard, individuality of each overall project very much stands out. The variations of hotel design even within the same hotel chain can be immense. With no issues accommodating large hotel developments through to roof top extensions on very tight inner-city sites, Metframe provides the key to fast track the construction process through to completion. With the experience that comes naturally with Metframe, complexities are resolved smoothly utilising our decades of experience in providing solutions within the hotel sector.

- UKAS accredited solutions for:
  - Fire resistance available up to 2 hours tested to BS EN 1364-1:2015 for non-loadbearing elements (walls), BS EN 1365-1:2012 for loadbearing elements (walls) and BS EN 1365-2:2014 for loadbearing elements (floors and walls)
  - Party Wall acoustic solutions to up to 43 DnTw+Ctr designed to satisfy on-site requirements. Sound insulation testing of metal framed floors in accordance with BS EN ISO 10140-1:2010+A2:2014, BS EN ISO 10140-2:2010 and BS EN ISO 10140-3:2010+A1:2015. Sound insulation testing of metal framed partitions in accordance with BS EN ISO 10140-1:2010+A2:2014 and BS EN ISO 10140-2:2010
  - Industry leading acoustic and fire test data available
  - Extensive fire and acoustic testing by UKAS accredited laboratories encompassing all 3 major plasterboard manufacturers and 4 sheathing boards.
- Speed of installation leading to quicker return on investment
- Ability to construct in tight spaces
- Independent accreditation for building solutions up to 15 storeys in height.


Premier Inn

SECTOR FOCUS
CARE HOMES

Maturing markets

The ability to deal with a variety of project types is one that comes with maturity. Utilising the Metframe system for the care home sector is one that assures you are in safe hands.

The speed of the system on-site to achieve earlier completion dates when compared to traditional structures plays a key part of this important sector to Metframe. Faster returns of investment via earlier occupancy forms only one part of the overall cost efficiencies generated through choosing Metframe. As well as offering high quality accommodation, other architecturally driven aspects have to be managed within the structure. With larger open spaces allowing residents to congregate and combined with complex roofs, we are able to manage and adjust our solutions to accommodate with ease.

As a central part of the design team we understand fully the need to work collaboratively. Using our specialist in-house knowledge which is backed up by our independent BIM Level 2 accreditation, allows information flow to be housed and managed efficiently. Combine this with our industry leading acoustic and fire data backed up by our NHBC certification means that end clients can be satisfied that the best route to completion starts with Metframe.

STANDARDISATION THROUGH DIFFERENTIATION

What differentiates us?

voestalpine Metsec have an enviable reputation for their market leading support driven by its people. Provided from decades of in-house technical knowledge built over the last thirty years.

Investment in people nurtured from high calibre graduates, and from our industry leading apprentice program ensures that the knowledge is retained, developed and passed on for the benefit of all of our customers. This manifests itself in establishing award winning in-house software solutions with top tier software houses creating bespoke solutions. This allows us to seamlessly translate 3D models to physical structures on-site.

Utilising Metframe's individually tailored route to market we are able to offer the most cost-efficient solutions for each stage of the project process by allowing specific areas of expertise to engage at key points. Rather than offer a single standardised approach, Metframe and our key strategic partners are able to offer their knowledge and expertise at each relevant stage from the initial design conception stage through to project completion.

voestalpine Metsec were the first tier two company to achieve the highly respected BSI kitemark for BIM Level 2 which means on a project there is a far easier integration of Metframe within the design team. The movement of the industry to implement a consistent approach to project management is a requirement that Metsec and Metframe is already well placed to accommodate.

DIFFERENTIATION THROUGH STANDARDISATION

We understand that being different within the industry is not always about providing alternative solutions, it is being able to provide a consistent high-level approach which is far more standardised. Every building we undertake is unique but standardisation of approaches and details at a higher level allows bespoke buildings to be designed and erected in a more efficient route providing ongoing cost savings both on and off-site.

- From the initial conceptual stage, your design team members have access to our concise details library online that provides trusted solutions for a large amount of different building details
- Covering elements from simple member connections through to complex balcony supports
- Early engagement via a managed standardised approach provides solutions that create efficiencies
- Large ongoing investment program to bring the most up to date fire and acoustic data direct to the customer allows us to provide market leading independently accredited data direct to the industry without compromising choice
- Well established nationwide support network backed up by our in-house technical team
- Individual project solutions can be discussed directly. Trusted and tested solutions can drive cost efficiencies whilst balanced against the specific client's requirements.

COMPETITIVE THROUGH CHOICE

As a market leading solution, we understand that there should always be choice within the market place. Customers have the ability to seek out the best solutions in terms of products, price, reliability and expertise.

With our historic operational track record partnered with our in-house technical knowledge, we understand that expanding customer choice increases the level of competitive, cost efficient solutions that can be offered when using Metframe.

Recognising that existing commercial arrangements between third parties should never be compromised due to deficiencies within manufacturers testing information.

At Metsec we test with all the leading manufacturers of board.

voestalpine Metsec have invested heavily to obtain extensive testing data for fire, thermal and acoustics that echoes our market leading position.

- Integrating the three major board manufacturers for internal wall linings
- Two different insulations and four different board types for external wall sheathing boards

This information provides customers with a vast amount of different project combinations. Providing high performing acoustic and thermal results combined with fire solutions of up to 120 minutes when using Metframe, affords the necessary choice that the industry demands.

THE SOUND APPROACH

With acoustics, the message is crystal clear, high levels of occupant comfort drives product choice. With solutions ranging from our high performing party walls, through to a standard internal apartment wall, conformance to the building regulations is easily achievable for a variety of building types.

- Tested combinations allowing you the flexibility to choose the right solution for you
- Metframe has been UKAS tested with all three major plasterboard manufacturers. Providing choice to the customer combines tested solutions balanced with overall cost efficiency that the industry continues to embrace.
- Acoustic solutions
  - Party Wall acoustic solutions to up to 43 DnTw+Ctr designed to satisfy on-site requirements. Sound insulation testing of metal framed floors in accordance with BS EN ISO 10140-1:2010+A2:2014, BS EN ISO 10140-2:2010 and BS EN ISO 10140-3:2010+A1:2015. Sound insulation testing of metal framed partitions in accordance with BS EN ISO 10140-1:2010+A2:2014 and BS EN ISO 10140-2:2010

SAFETY IN NUMBERS

Since Metframe's inception over thirty years ago we have understood the need for us to work closely with a number of key strategic partners, to deliver our product and projects in the most cost-efficient way. The partnership between Atkin Trade Specialists Ltd and voestalpine Metsec plc forms a single reliable solution, supported by the independent fire and acoustic testing carried out at UKAS accredited test centres, the BRE and The Building Test Centre, we sit at the centre of the development process. This support streamlines both the design and construction stages.

ATKIN
TRADE SPECIALISTS LTD

METSEC
METFRAME

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KM 662690
PAS 1192-2:2013

bsi. BIM Objects KITEMARK
KM 681317

The Building Test Centre
Fire Acoustics Structures

NHBC

SCI
Steel Knowledge

Tekla Structures

TAKING IT TO THE NEXT LEVEL

Our NHBC building certification verified through the SCI allowing us to take Metframe structures up to 15 storeys.

This has pushed the boundaries of what is possible with off-site construction. Utilising the Metframe system opens up new and exciting possibilities.

With an established heritage measured in decades across hundreds of different completed projects, the market size for Metframe continues to expand.

With a drive from the industry for greater levels of off-site capabilities Metframe is perfectly placed to continue to lead the industry as it pushes upwards.

SUSTAINABILITY

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

If you are designing your building to BREEAM the following information should prove useful:

- Metframe Metal Partition Systems when clad with plasterboard are A rated to BRE Guide 2007
- Metframe metal systems are manufactured in accordance with Environmental Management system ISO 14001:2004
- Metframe metal systems are manufactured in accordance with Responsible sourcing of construction products BES 6001- Very Good
- Metframe metal systems are manufactured to Quality Management System ISO 9001:2008
- Metframe metal systems are manufactured in accordance with Occupational Health and Safety management System BS OHSAS 18001:2007
- Metframe partitions with plasterboard are A rated to the BRE Green Guide 2007
- Environmental Impact of Steel Production and Processing and recycled contents are available on request.

CE

METFRAME CPD INFORMATION

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

Our Metframe CPD seminar provides the following:

- Introduction to Metframe and its applications
- Key benefits of the Metframe system
- Construction sequence
- Design and detailing process including BIM
- Wall build ups and performance data

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

For more information on the Metsec Metframe CPD seminar, please get in touch.

METFRAME
BIM DESIGN

voestalpine Metsec plc is the first tier two organisation globally to be awarded the BSI Kitemark for its BIM capabilities. Our design and manufacturing complies with BIM Level 2 for Design and Construction in the UK which is accredited by the BSI.

We are confident in our ability to work collaboratively with others in the supply chain 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 structural solution elements of your project in environments using Tekla allowing the Metsec Metframe to be detailed and imported in a design team's model.

Alternatively, Metsec Metframe sections can now be downloaded from the 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 Metsec also offer:

- A list of approved installers that your estimating/QS teams should be approaching for best prices
- Free site inspections
- A CE Marked product, which is a legal requirement for the Metframe market as of July 14th 2014

bsi.
BIM Design and Construction
KITEMARK™
KM 662690
PAS 1192-2-2013

METFRAME
3D DETAILS

Underlining our commitment to making the design process as efficient and collaborative as possible, we have created a new facility on our website which allows the design, construction and installation team to more easily understand and incorporate popular, standard construction details.

Interactive three dimensional models have been created and organised into two distinct areas, each aimed at specific disciplines within the construction team. The models provide a clear understanding of how Metframe is incorporated into the most common building structures and provides clear, easy to understand details.

Users are able to filter the details according to their particular area of interest by making selections from a number of predefined criteria or are free to browse the details independently.

Thumbnail versions of the details provide a quick and easy visual key which then allow the detail to be opened. Once opened the 3D details can be rotated and blown up to allow the user to fully understand the interaction between Metframe and other elements of the structure.

The details also features a Revit download button where users can request Revit files which can be incorporated directly into their own design files, providing useful additional information and enhancing BIM compliance.

Metframe stairwell

Metframe window detail

CASE STUDY
CATS COLLEGE, CANTERBURY

CATS College uses Metframe to complete project ahead of tight schedule. Founded nearly 65 years ago, CATS College is an innovative independent education provider with four campuses across the UK and USA, and provides residential education to students studying GCSEs, A Levels and International Baccalaureates.

With the continued success of CATS College and its growing number of students, the Canterbury campus identified the need to expand its accommodation facilities as well as its social and catering spaces.

A new student accommodation block was commissioned to offer 87 en-suite rooms, a café, common room and flexible social areas for the students. The project had a tight timeline to ensure a handover date to coincide with the academic year, and needed to be completed within just 14 weeks, so speed of build was paramount.

Another key consideration of the project was the design. With CATS College's prestigious locations and buildings, it was important that the features of the new building complemented the existing architecture and blended in.

Atkin Trade Specialists was awarded the framing element of the contract, and used voestalpine Metsec plc's Metframe solution to overcome the complex structural design challenges as well as achieve the tight timescales. Metframe is a pre-panelised system which is used to provide the load bearing structure for low to medium rise structures. The system uses stud, track and zed ledger sections which are bolted together off site to form panels providing the benefit of speed of build, with Metframe structures regularly taking under two weeks per floor to construct. Each structure is bespoke to allow flexible architectural design as well as to complement the surrounding buildings on campus. The building design incorporated several traditional features such as large bay windows with castellation, feature stone-work and mansard roofs, inspired by the existing architecture of the adjacent buildings.

The complex mansard roof configuration had multiple valleys and hips that needed to be incorporated into the design and the flexibility of the Metframe solution meant that the roof for the project could be formed using steel. It's a competitive solution; rather than needing to commission a second company to design and form a roof, Metsec could supply one package, including a steel roofing solution, which added value and provided significant time savings to the project.

Inside, the building was designed to be future-proofed. Hot rolled steel beams were used in the place of some internal Metframe walls. This meant those internal walls used non load-bearing studwork providing flexibility for future adaptation.

The detailing process involved in the design began with the import of the architectural CAD modelling into a bespoke 3D environment. This determined all setting-out and allowed structural components to be fully modelled in this environment. In turn, this enabled Metsec to precisely manufacture all of its components according to the agreed design. Manufactured at its UK facilities to the design specified lengths, even the holes in the product are punched that are required for both off-site panel assembly and on-site final build. Main contractor Jenner selected the Metframe solution for its ability to be prefabricated off-site enabling the on-site installation to be completed by only five personnel in just 13 weeks, a week ahead of schedule.

The CATS College project demonstrates a broad range of environmentally friendly material and processes. The cold rolled steel used in Metframe offers an excellent strength to weight ratio meaning that not only did the project require less steel overall, but the lightweight structure required shallower foundations to be installed, providing material, time and cost savings. In addition, the structural components are manufactured to the precise length required reducing site waste.

James Gallear, of Atkin Trade Specialists, says: "This project not only meets the client's current design requirements, but it exceeds them by providing a future-proof solution.

"The modern design provides flexible additional space for the college, coupled with the architectural reflection of existing buildings on campus meaning that it blends in with the style of the surroundings buildings."

Ryan Simmonds, Sales Director of Framing at Metsec, adds: "This project challenges the common perception of the type of building which is suitable for off-site construction. With special design elements such as the mansard roof at CATS College, installers will often disregard the off-site option, but our project with Atkin Trade shows that off-site can not only be an efficient and cost-effective solution, it can also provide solutions to complex architectural designs."

THE MODERN DESIGN PROVIDES FLEXIBLE ADDITIONAL SPACE FOR THE COLLEGE, COUPLED WITH THE ARCHITECTURAL REFLECTION OF EXISTING BUILDINGS ON CAMPUS MEANING THAT IT BLENDS IN WITH THE STYLE OF THE SURROUNDINGS BUILDINGS.

NOTES

NOTES

» FRAMING

» PURLINS

» DRY LINING

» CABLE MANAGEMENT

» CUSTOM ROLL FORMING

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In the interests of a policy of continuous research and development, voestalpine Metsec plc reserve the right to change the specifications in this publication without prior notice.

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