

VALUE ENGINEERED
DESIGN
MANUFACTURE
BUILD
UNRIVALLED EXPERTISE

TIMBER SYSTEMS SOLUTIONS





THE MARKET IS IMPROVING. DEMAND IS INCREASING.

Your drivers may include:

- Managing cost
- Meeting performance standards
- Taking advantage of the upturn to accelerate build programmes
- Meeting high quality standards to deliver on time, safety and to budget

Our team of design, manufacture and construction experts can provide you with expert guidance to reduce construction costs, contribute to buildability, design out waste and value engineer your project.

MANAGING COST

With the necessary focus on cost reduction and programme certainty, we know the importance of our role in providing our customers with value engineering, manufacturing capacity, build services, great products and exceptional service.



COST BENCHMARKING

Our timber frame solutions compared to brick and block provide a range of cost savings.

- **Reduced site prelim costs**
- **Savings in labour with increased speed of build**
- **Lower crane and scaffolding costs with less time on site**
- **Reduced material disposal costs**
- **Reduced carpentry costs as windows and door frames can be factory fitted**
- **Reduced labour and materials costs for insulation and dry lining**

An accelerated build with reduced costs provides a quicker return on capital outlay. Add these financial benefits to the cost equation and a Stewart Milne Timber Systems solution is without question the lower risk and the most cost effective way to control and reduce build costs of any project.

When you're assessing project costs, the following should be taken into account. When you build with timber frame, we can contribute to cost savings and programme certainty in each of these areas.

- **Cost of material wastage – environmental and landfill costs**
- **Cost certainty with fixed price**
- **Call-off options with short lead times allows effective cash management**
- **Prelim costs**
- **Less weather delays**

PRODUCT SOLUTIONS

Our range of products offer a competitive solution over other methods of construction.

Our systems offer higher levels of prefabrication and faster build of the main super structure, reducing the site management required to supervise and co-ordinate follow-on materials fitted on site.

This enables the focus on site to remain on quality and health and safety. Our range of solutions build in assured performance.

Our product options reduce on site costs and on site assembly which improves the commercial viability of developments and projects.

Our solution offers:

- **Competitive open and pre-insulated panel options**
- **Faster and more predicable to build**
- **More reliable to build, with less supervision**
- **Less prone to unforeseen cost overruns**

Additional benefits of our Sigma® II Build System:

- **Higher levels of thermal and air tightness**
- **Less prone to workmanship and weather delays**

SPEED OF BUILD

Our range of wall, floor and roof systems reduce site prelim costs, improve timescales and enable faster completion of projects, thus improving the cash cycle.



BUILD DURATIONS

Typical construction durations for other methods of construction would be:

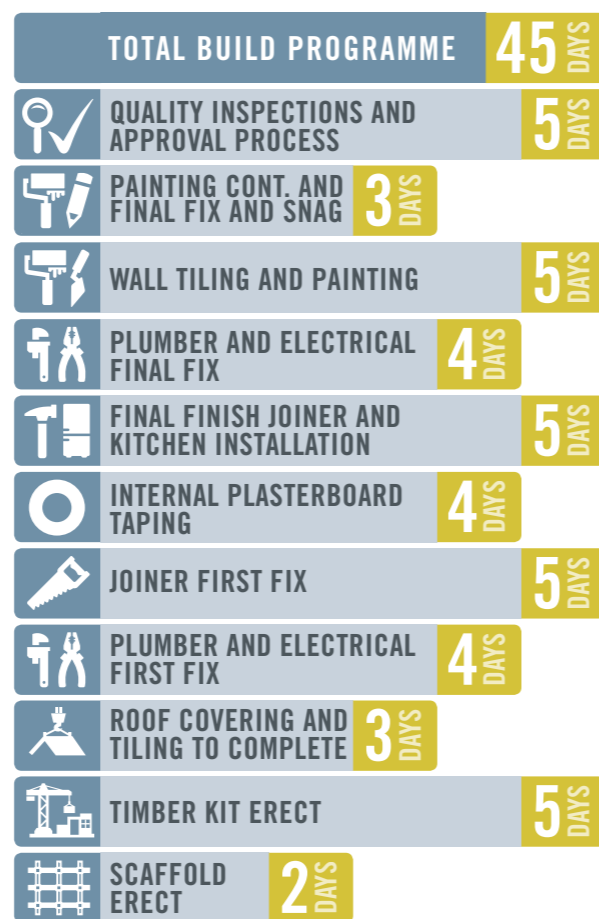
- Masonry – 18 weeks
- Sigma® OP solutions – 12 weeks (9 weeks from foundations)
- Sigma II Build System – 7 weeks from foundations

Our systems enable improvement of cash utilisation, from receipt of revenue to payment of suppliers.

EXAMPLE BUILD PROGRAMME BENEFIT OPEN PANEL -V- MASONRY

In simple terms, on a project of 10 blocks of terraced homes, you could save £25,000* or 5 weeks in construction time over masonry construction. You also benefit from simplifying the build, reducing risk and improving your ability to achieve assured fabric performance.

*Based on typical construction prelim of £5,000 per week.



MEETING PERFORMANCE STANDARDS

One of the most effective ways to maximize energy efficiency and control build costs is to adopt a fabric first approach. Incorporating energy efficiency into the build envelope reduces dependency on technology ‘bolt-ons’, thus keeping costs down. Our design lab can provide guidance, calculations, certification and building warranty advice, helping you to achieve your required standards.

U-VALUES

Current building regulations set targets for carbon dioxide (CO2) emissions, allowing building designers to input a range of U-Values for walls, floors and roofs, air-tightness, thermal bridging etc, and then key building services performance like boiler efficiency and heating controls, to achieve the overall reduction in CO2 emissions required. The primary factor in any buildings thermal performance is the U-Value of the walls, floors and roof. U-Values are a measure of the heat-loss through an element, with the lower the U-value, the better the insulation and in turn thermal performance of the building. We have a range of open and closed external wall panel option, with U-Values ranging from 0.44 W/m2K to 0.10 W/m2K, as well as various floor (0.14 W/m2K to 0.09 W/m2K) and roof (0.15 W/m2K to 0.08 W/m2K) options, ensuring we can provide a timber frame solution to suit any projects specific requirements.

AIR-TIGHTNESS

Air-tightness is an integral part of any buildings fabric thermal performance, as it considers the amount of un-controlled ventilation through gaps in the construction. Our range of open and closed wall panel solutions can be specified to achieve any level of performance down to 1.5. Where air-tightness above 3 is specified, the primary air-tight layer can be the internal plasterboard, utilising good practice to seal all service penetrations,

and sealing all external doors and windows to the timber frame. On projects with an air-tightness of 3 or below, the primary air-tight layer should be behind dedicated service zones on the walls and roof ceilings, allowing the majority of services to be installed without puncturing the air-tight layer. This approach also ensures the long term performance of the air-tight building, where renovation works and future service installations will not breach the primary air-tight layer.

THERMAL COMFORT

The adoption of a high performance fabric solution cannot be undertaken in isolation, without considering ventilation and solar gain within the building's design. Where low levels of air-tightness are specified, the ventilation strategy for the building should be considered, which can be either a mechanical or passive solution. As a guide, any building with an air-tightness below 5 should have a form of mechanical ventilation within the design. In terms of solar gain, this needs to be considered at concept design stage for a project, taking into account orientation, glazing specification and solar shading from roof overhangs, Brise Soleil and the like. We have experienced design personnel who can provide advice on areas for consideration and offer appropriate solutions.

STRUCTURE

The structural design of all buildings are controlled through current building regulations and British Standards / Euro-codes. Timber frame is suitable for all types of buildings up to 7 stories high, and provides a level of structural robustness in line with current building regulations and British / European standards, including the requirement to design against progressive collapse. Floors can be designed to suit any specific loading criteria for non-domestic buildings (communal areas, plant-rooms and the like), as well as designed to limited deflection to provide stiffer floors beyond the requirements of building regulations.

ACOUSTICS

Timber frame solutions for separating walls and floors can be designed to achieve, and indeed exceed, all current and future requirements for acoustic performance. There are a number of solutions available within Robust Details for England and Wales, and within the technical standards for Scotland. Acoustics within non-domestic buildings (student accommodation / hotels end the like) can also be achieved in timber frame through the use of plasterboard and insulation applications. We have a team of experienced personnel who can provide advice and solutions for any acoustic requirement within housing, apartments or non-domestic buildings.

YOUR PROJECT

You may usually engage with us when you have agreed your design, set out your construction plan, evaluated your requirements and are about to commence the tender process. The perfect time to get in touch is right at the start.

From inception and evaluation of your project, we can advise and guide you on:

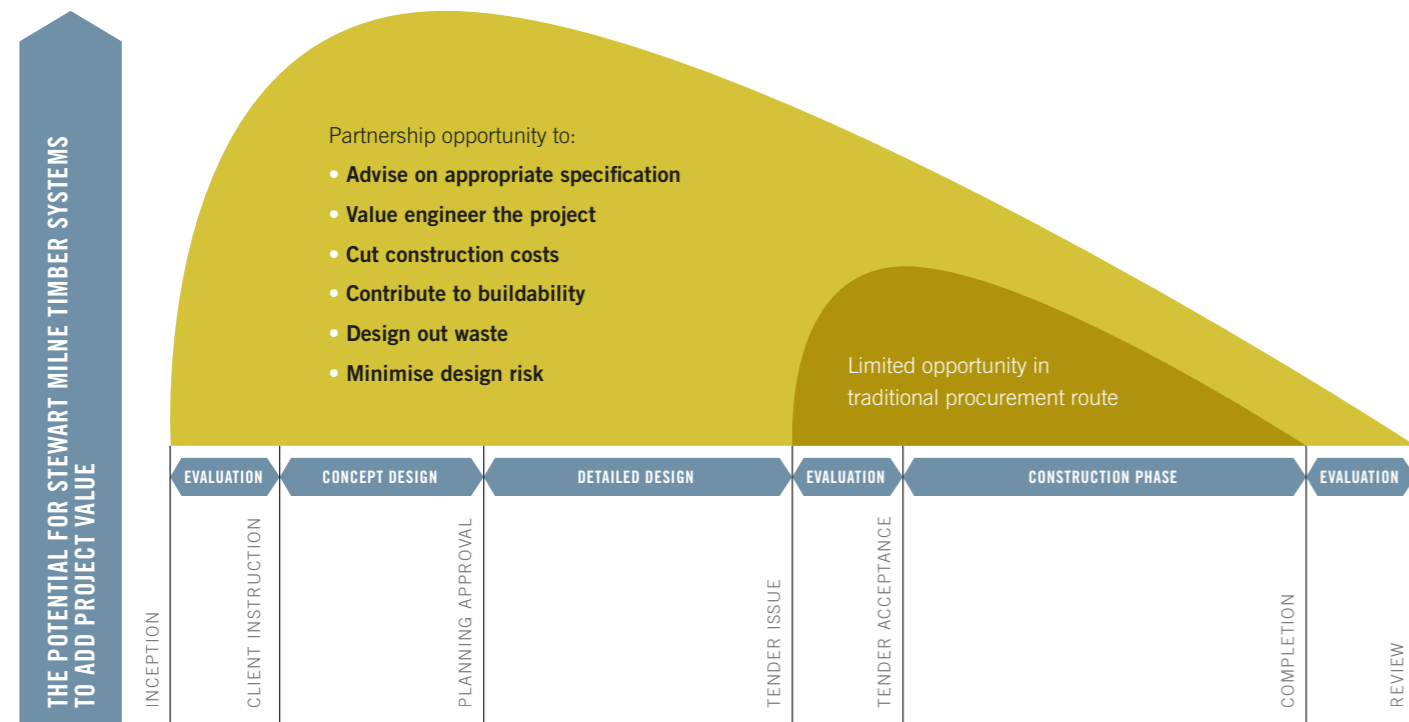
- Designing out waste
- Minimising design risk
- Reducing construction costs
- Contributing to buildability
- Advising on more suitable specification to meet performance standards cost effectively

Talking to us at the early stages of your project enables us to maximize our input and provide you with the very best guidance, designed to reduce cost, meet regulatory requirements efficiently and deliver your project effectively, on time and on budget.



DESIGN

Starting at concept stage our experienced design and engineering teams provide real value to you through technical guidance, value engineering and up front design information.



As genuine partners, we work with you at every stage: concept design information and guidance, full timber system design manufacture, delivery and erection.

Led by a single point of contact, you have a dedicated team of experts working to deliver your project on time, on budget and to the highest quality standards.

We have a design lab with unrivalled expertise, knowledge and experience.

We have our own structural engineers and offer a fast and efficient process with an up front design service.

Our design co-ordination team work alongside your project team to design out cost and improve value engineering.

TECHNICAL AND DESIGN

We provide:

- In-depth value engineering for every aspect of your project
- Solutions to achieving a wide range of performance standards
- Innovative approach to detailing and obtaining quick approvals
- Specification of materials with chain of custody certification
- Experienced project management to meet project requirements
- Designed to minimise load bearing walls and foundation



MANUFACTURE

Our two manufacturing facilities in Witney and Aberdeen offer UK wide coverage and significant capacity for up to 10,000 units per year. Our fully automated facilities produce high quality walls, floors and roofs to meet your specific standards or specification.



MANUFACTURING CAPACITY

Across our two factories, we have capacity to manufacture 10,000 units per annum and the ability to flex our manpower upwards to accommodate larger projects and shorter lead times. Alongside our integrated supply chain we can comfortably meet customer requirements across the UK and beyond.

The wall, floor and roof panels are typically designed to suit 3.6m x 2.4m sizes for ease of transportation, but can be made up to 9m x 3m. There is no restriction in the height, shape or configuration of panels; with each individually designed and made to suit the specific needs of your building. All our products comply with required standards.

We can design, manufacture and supply to your specification:

- Wall panels – open or pre insulated
- Pre-fitted windows and doors
- Large open floor cassettes or loose joints
- Roof panels, pre assembled dormers or trussed roof
- Doorsets and staircases

FLOOR CASSETTES

Our floor lines are manufactured in panels up to 9.6 meters long. The floor can accommodate either final or temporary floor finishes and are designed to accept over laid screeds as your design requires. We can also manufacture safety devices for use over stair-wells during the construction phase.

ROOF PANELS

Should your building incorporate a habitable attic space we can manufacture roof panels that can be quickly installed on site with sarking and roofing membranes as required.

All panels are pre-fitted with lifting straps to allow safe and easy off-load on site and can be erected without the need for a scaffold if desired.



CONSTRUCTION MANAGEMENT

Our experienced construction and project management teams work with you to erect the build system, efficiently and with minimum waste, ready for follow on trades to complete the project.



ONSITE BENEFITS

- Ease of service installation with service voids and engineered floor joists
- Edge protection system to prevent falls during erection
- Removes block work from the critical path
- Reduced reliance on trade skills and site supervision
- Faster watertight structure allowing follow-on trades earlier access
- Fully trained kit erect team

BUILD SERVICE

The service we offer includes:

- Erection method statements
- CDM and risk assessments, including fire safety guidance
- Crane lifting and access plans
- Fixing schedules

- Handover and sign off checklists
- Repair and maintenance guidelines

Our projects each have a dedicated Contracts Manager and Site Supervisor, so you always have a dedicated point-of-contact.

ERECT TEAMS

All our erect teams are accredited to relevant HSE and CITB standards. They are trained and inducted before becoming an approved installer. Names are recorded on our competency register and training matrix, as part of our ISO QA procedures, which are regularly audited to ensure compliance.

HEALTH AND SAFETY

We are committed to improving the standard of health and safety in the construction industry for the benefit of all. Innovative build processes, design and product development is improving industry standards and delivering best practice.



Timber frame has significant health and safety benefits:

- **Reduced material handling on site**
- **Reduced traffic management risk**
- **Reduced risk of falls from height due to safety decking**
- **Reduced volume of material wastage**
- **Reduced levels of material damages**

Working in conjunction with the timber frame industry trade body we are actively involved in the development of health and safety standards, competence levels and code of practice for all areas of timber frame industry from design and manufacture to erection.

A health and safety management system based upon OHSAS 18001 has been implemented. This ensures that continual improvement is attained and health and safety is an integral part of the business process with equal status and importance.

ENSURING SAFETY

As part of our ongoing commitment to deliver excellence in health and safety, we utilise our Edge Protection System to prevent falls.

Fitted to floor cassettes prior to crane erect, the system eliminates falls and ensures safe working at height during installation. Not only is it safer but the cost of supplying, installing and removing fall arrest systems is reduced.



MORE INFORMATION

We have several guides that may assist you.

- **Design Guide to Separating Distances**
- **STA 16 steps to Fire Safety Code of Practice**
- **Fall Prevention System**

Just ask for a copy or visit our website and download one.

INNOVATION

We offer a flexible range of wall, floor and roof solutions with insulation systems that can be tailored to your specific needs and preferred performance standards. Our solutions fit a wide range of buildings – housing, student accommodation, offices, hotels and more.

Each project is value engineered, in a balanced approach, considering performance, speed, deliverability and cost.

A conventional 89mm or 140mm open panel framework with structural sheathing, site fitted insulation and vapour control layer can easily meet, current and future building regulations, related to fabric energy efficiency performance, in a reliable and cost effective way.

Our Sigma® build systems present a range of performance solutions that helps designers to select the most appropriate wall build up for the project.

QUALITY ASSURED

All our products comply with latest Building Regulations, BS and EN standards and NHBC technical requirements. Our range

of Sigma® OP open panel wall systems have been through robust due diligence and can be supported with technical back up. All products are designed for a minimum 60 year design life.

OPEN WALL SOLUTIONS –

SIGMA® OP1 AND SIGMA® OP3

We offer several external wall options to suit every projects need, with a range of complimentary internal wall, party wall, floor and roof solutions to match. All systems comply with latest building regulations and are NHBC compliant.

In addition, our Sigma® OP panel systems can be enhanced to offer a category B and C UKTFA approved solution to improve fire safety during construction.

PRE INSULATED SOLUTIONS –

SIGMA® OP2 AND SIGMA® OP4

This option supplies the external wall panels with the insulation fixed into position in the factory, reducing waste and time to fit this on site. The insulation system is robust and resilient to weather during transportation, lifting and erection stages.

BUILD SYSTEM –

SIGMA® II BUILD SYSTEM

Closed panel solutions offer a higher level of prefabrication, reducing process, time and waste on site and offering higher levels of performance. Our award winning, BBA certified Sigma® II Build System provides a range of external wall U-values from 0.25 – 0.10, and very low levels of air tightness and thermal bridging.

ROOFS

We offer a variety of roof solutions, to suit the varying needs of individual projects, roof shapes and performance requirements. Our conventional trussed roof system utilises gable panels and verge ladder frames.

These come prefabricated, complete with all structural fixings and bracing requirements. We also offer a horizontal ceiling cassette system, ideal for fast builds.

FLOORS

In addition to loose joist floors, we also offer a range of floor cassette solutions, in open, closed and insulated formats. Solutions include pre-fitted insulation, edge wrapped cassettes and pre-formed service holes, which ensure the building fabric performs and is easy to build.

DOORS AND STAIRS

Our range of doors and stairs offer cost-effective and flexible design solutions have been introduced to offer customers two distinct benefits – firstly a one stop shop that will ease procurement, meet tight timescales, exacting standards and improve on site health and safety, and secondly offers a range of products that combine master craftsmanship with the very latest CNC technology.

A BIT ABOUT US

Stewart Milne Timber Systems is the UK's leading provider of precision engineered timber system solutions. Part of The Stewart Milne Group, we have unrivalled expertise spanning 40 years.



Stewart Milne, Chairman and CEO
Stewart Milne Group

Originally established in 1975, with just 6 employees, today the Stewart Milne Group employs over 900. The Stewart Milne Group concentrates on building residential homes, providing timber system solutions for both residential and commercial projects.

At Stewart Milne Timber Systems our aim is to provide quality build systems that meet the expectations of our clients in terms of design, manufacture, innovation and cost. We are one of the largest and most recognised brands in our industry, serving clients across the UK.

We offer our clients a diverse portfolio of products ranging from timber frame constructions to sustainable advanced build solutions. We have the capacity to produce over 10,000 units per annum.

Our services cover concept design information and technical guidance, full design service, manufacture, delivery and construction on site. We offer alternative solutions to meet varying regulatory

requirements (such as acoustic and thermal performance), specifications and finishes (windows, doors, cladding etc) and we offer tailored solutions for different sectors. We can also act as a single supply source for joinery, windows, plasterboard and insulation. In short, we:

- **Manufacture high quality products**
- **Provide expert design support guidance**
- **Maximise value and minimise cost through our experience and innovative approach**
- **Meet or exceed building regulations and health and safety requirements**
- **Build within budget**
- **Deliver on time**

Ours is a bespoke service. We advise, design, manufacture, supply and erect to suit your project needs.

OUR EXPERTS

We are proud to employ some of the most experienced and knowledgeable people in the industry. Their vast knowledge of design, manufacture, construction and project management ensure that you have the very best advice and guidance, at your fingertips.



STEWART DALGARNO, DIRECTOR OF PRODUCT DEVELOPMENT

Stewart was the project director of the ground breaking and award winning prototype Sigma® Level 5, near zero carbon Home, the first in the UK. His current role sees Stewart focusing on the development of the group's award winning Sigma® II Build System and the advancement of the group's off-site manufacturing and on-site assembly strategies.

Most recently Stewart was instrumental in bringing together and leading the triple award winning AIMC4 consortium.

He is a member of the HBF sustainability group, member of Construction Scotland Industry Leadership Group, and a steering group member of the DCLG/ZCH design versus as built performance project. More recently Stewart was a participant on the reconvened Sullivan Expert Panel in Scotland. He has a master's degree in project management.



JOHN SMITH, HEAD OF TECHNICAL

John is Head of Technical within Stewart Milne Timber Systems. He has over 20 years' experience in the timber frame industry, all within Stewart Milne, and is a member of the industry association Technical Committee. John has worked on some of the largest timber frame projects in the UK, and was instrumental in the development of the innovative Sigma® II closed panel build system.



DAVID NIMMO, TECHNICAL DIRECTOR

David has an Honours Degree in Building Engineering and Management. His focus is in timber frame technology, working with clients to value engineer designs across the UK.



DOUGLAS McCUSKER, OPERATIONS DIRECTOR

Dougie has over 20 years' experience in the UK construction sector. A graduate of Napier University, he worked for many years for one of the country's largest main contractors, delivering a wide and varied range of large scale construction projects across the UK.



SIMON HORN, TECHNICAL MANAGER

Simon has extensive experience achieved working within architectural private practice; national house builder architects department and specialist timber frame manufacturing companies. His construction knowledge and skills position him well for providing Stewart Milne Timber Systems with innovative solutions in an ever changing marketplace.



FRANK STRACHAN, TECHNICAL MANAGER

Frank began his career in civil and structural engineering before joining Stewart Milne Timber Systems. His role in leading the design and technical teams involves engaging with clients to value engineer projects, manage our design lab and deliver robust design guidance. Frank was key in the setup of our design lab in Witney where he worked for 5 years.

PRODUCT CERTIFICATION

Our new and innovative products are being used by clients to deliver a more sustainable, energy efficient way of building, safe in the knowledge of having a fully certified and approved system. Our Sigma® II Build System is both BBA certificated and BOPAS accredited.

Our products are compliant with building regulations and NHBC technical standards, recognised by insurers and lenders. In addition, we have full BBA product certification for our Sigma® II Build System, offering a range of closed panel solutions.

We have well established quality assurance, health and safety and environmental performance accreditation to ISO standards. These are audited annually and form an integral part of our continuous improvement process.

We are founder members and a leading advocate of STA (Structural Timber Association). We actively lead and participate in many working parties, where an industry wide approach is required. We are STA Q-Mark Plus approved and comply

with their Site Safe scheme and health and safety code of practise.

Through our product development we are investigating, shaping and influencing future standards compliance, ensuring we inform our customers of future changes, impacts and potential solutions.

Our standards include:

- **BS EN ISO 14001 Environmental Management Systems**
- **BS EN ISO 9001:2000 Quality Management Systems**
- **BS EN 18001 Health and Safety**
- **STA Site Safe scheme**
- **STA Quality Scheme**
- **Chain of Custody**



CHAIN OF CUSTODY

We work closely with our suppliers to ensure that the timber based raw materials used in our products come from legal, managed and sustainable sources.

Our principal suppliers of timber, engineered wood products and wood based panels are registered under the internationally recognised PEFC (Programme for the Endorsement of Forest Certification Schemes) and FSC (Forest Stewardship Council) chain of custody schemes.



BBA PRODUCT CERTIFICATION:

We are members of Buildoffsite, promoting the benefits of offsite construction. A combination of growing demand, quality and a reducing skills base has created a challenge that we believe offsite construction can resolve.

- **Extensive testing programme completed, including fire, thermal and structural**
- **Build system certification, suite of wall, floor and roof construction details and product sheets**
- **Site and factory inspected annually**

RD ACOUSTIC FLANKING ACCREDITATION

- **Acoustic field testing successful**
- **Stage 1 candidate assessment passed**

NHBC WARRANTY

- **Multiple schemes successful and warranty issued to developer**
- **Several site inspections completed**
- **NHBC accepted**

BLP DURABILITY AND MAINTENANCE

- **60 year assessment completed**
- **High durability and virtually maintenance free**



LLOYDS BUILD OFFSITE, PROPERTY ASSURANCE SCHEME (MORTGAGE AND VALUATION)

BOPAS is a jointly developed scheme through the Royal Institution of Chartered Surveyors (RICS), Lloyds Register, Buildoffsite and Building Life Plans (BLP) in consultation with CML.

- **Properties registered on Lloyds database, assist valuation and mortgage applications, beyond typical new build warranty periods**
- **RICS and Council of Mortgage Lenders backed**
- **Funded and supported by Santander, Lloyds, RBS and Nationwide**
- **Lloyds Banking Group, mortgage letter of comfort available**



STEWART MILNE TIMBER SYSTEMS

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