

RESILIENT ACOUSTIC STUD

Increase your net
internal area with
our revolutionary
acoustic stud



Recent Sinat Resilient Acoustic Stud project: **Greater Scotland Yard, London SW1**

PRODUCT OVERVIEW

A simple, but game-changing innovation for partitions

Resilient Acoustic Stud is a game changing innovation for party wall and external corridor partitions.

It is a simple steel C-stud with an inbuilt acoustic material which prevents airborne and impact sound from passing through dividing walls.

It can deliver the acoustic requirements of Part E, with the added benefits of:

- A simpler design
- A significantly thinner partition footprint
- A partition frame which is proven by the BRE to be up to 50% quicker to build
- Uses c.50% less metal material

PRODUCT OVERVIEW

A new option for acoustic partitions

If you need to specify a party wall, until now your options will have been a:

- twin frame partition
- traditional single frame with additional components, such as a resilient bar

Available in two widths, our new Resilient Acoustic Stud – a simple metal frame innovation – can replace all of these with a simpler design. Throughout this document, we will show you the benefits this can bring your next hotel, student accommodation, apartment, care home or change of use project.

Table 1 Sectors suitable for RAS

	RAS 70	RAS 90
Suitable for sectors	Hotels Student accommodation Care homes Change of use	Apartments Hotels Student accommodation Change of use
Regulations	Approved Document E (Rooms for Residential Purposes)	Approved Document E (Dwelling houses and flats)
Designed to meet	43 $D_{nT,w} + C_{tr}$	45 $D_{nT,w} + C_{tr}$
Partition width	130mm	150mm



DESIGN BENEFITS

A smaller footprint equals greater sales revenue for clients

Value in every square metre

Getting the best out of every square metre is more pertinent today than it ever has been.

Average house prices per sq m range from £5,115 per sq m in Greater London to £1,319 per sq m in the North of England, according to the Halifax House Price Per Square Metre Survey.*

10 London boroughs are the top 10 most expensive locations per sq m in the country, and include Hackney, Tower Hamlets and Lambeth.

Table 2

Regional house prices per sq m

Region	2012–2017 % change	2017 Price per m ² (£)
Greater London	57%	£5,115
South East	41%	£3,110
East Anglia	35%	£2,074
East Midlands	29%	£1,647
West Midlands	29%	£1,800
Yorks & Humberside	21%	£1,546
North West	24%	£1,580
South West	24%	£2,184
Wales	19%	£1,365
North	15%	£1,319
Scotland	12%	£1,529

Table 3

Top 10 most expensive locations per sq m

Town/ Borough	Price per m ² (£)
Kensington & Chelsea	11,192
Westminster	9,425
Camden	9,373
Hammersmith & Fulham	8,188
Islington	7,846
Wandsworth	7,038
Hackney	6,942
Tower Hamlets	6,688
Southwark	6,639
Lambeth	6,565

Source: Halifax 2017. *The average price per square metre is calculated by dividing the average house price by the average square metres per property (excluding external space).

How RAS increases gross internal areas

RAS increases net internal areas and has a demonstrable impact on development value. Take the following example.

Figure 1 is a floorplan of a 34-storey apartment block in Southwark. Most floors have eight apartments and 12 party walls which need to achieve 45 D_{nT,w} + C_{tr} ...according to Approved Document E.

Switching from a typical twin frame partition (200mm) to a RAS partition (150mm) has increased the gross internal area by almost 4 sq m. With average residential prices in Southwark at £6,639 per sq m, the additional revenue equates to £26,556 per floor and over £900,000 over 34 floors.

Additional £900,000 revenue over 34 floors

Figure 1 Floorplan of a typical apartment block

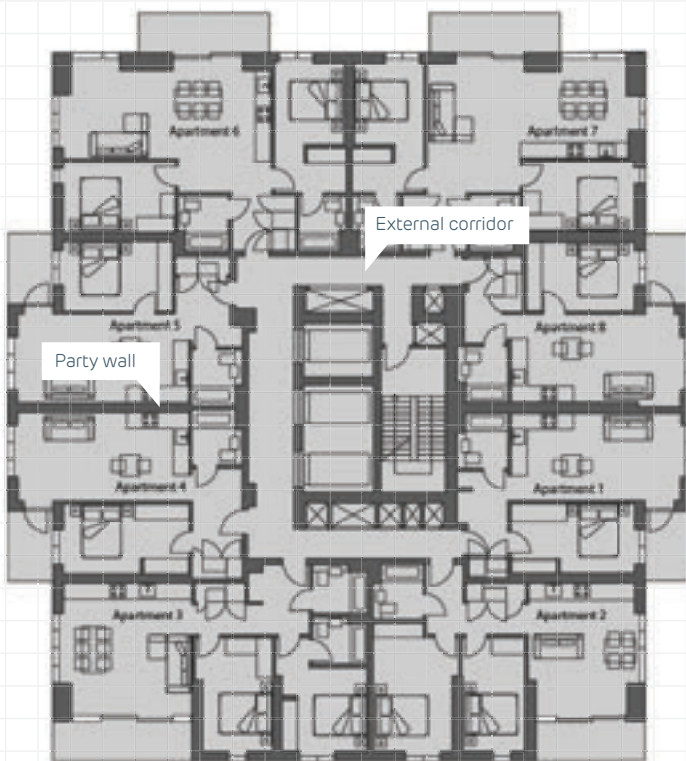
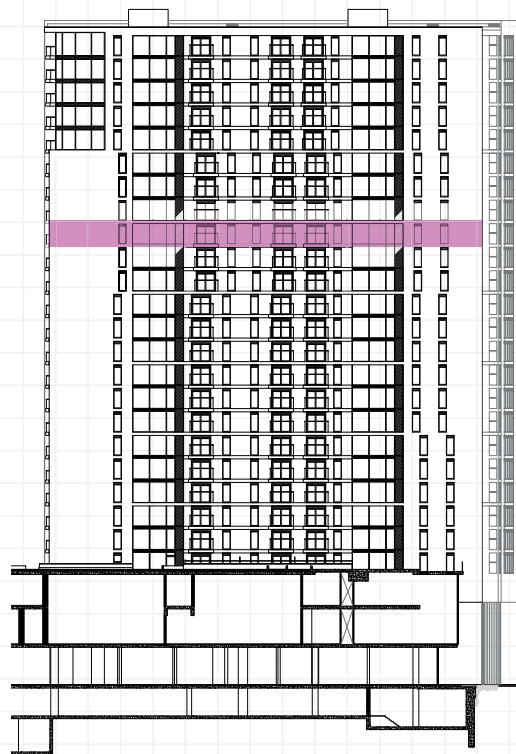


Figure 2 Cross section of a typical apartment block



DESIGN BENEFITS

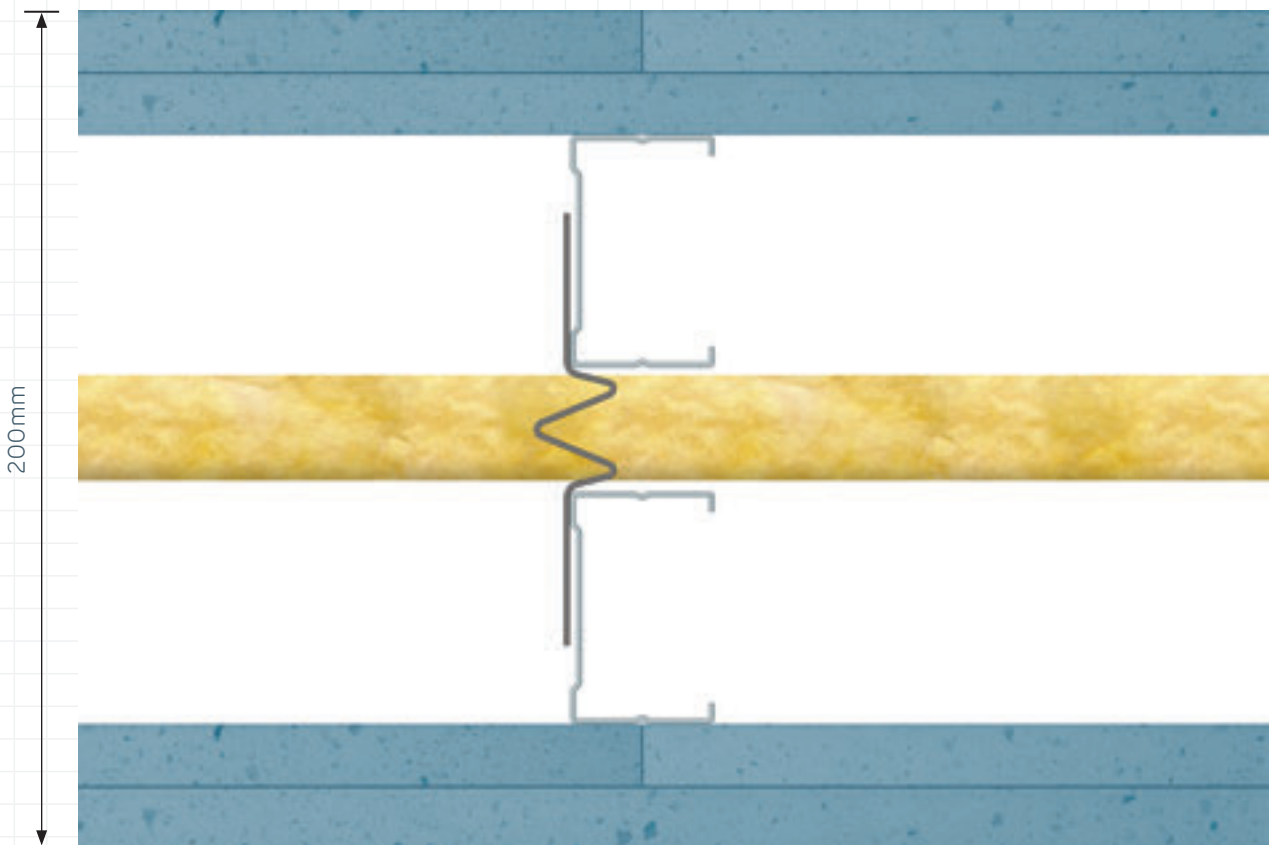
A much simpler design to meet $45 D_{nT,w} + C_{tr}$ with RAS90

Typical party wall or corridor wall partition

Party wall and external corridor partitions are typically constructed using a twin metal frame, linked by an acoustic brace. The combination of the acoustic brace, wider cavity and mineral wool helps to prevent the transmission of sound from one side of a partition to another. These components measure 200mm and will contain twice as much metal as a RAS partition.

Figure 3

A typical party wall partition for apartments to achieve $45 D_{nT,w} + C_{tr}$



Figures 3 & 4 show partitions @ 1:2 scale

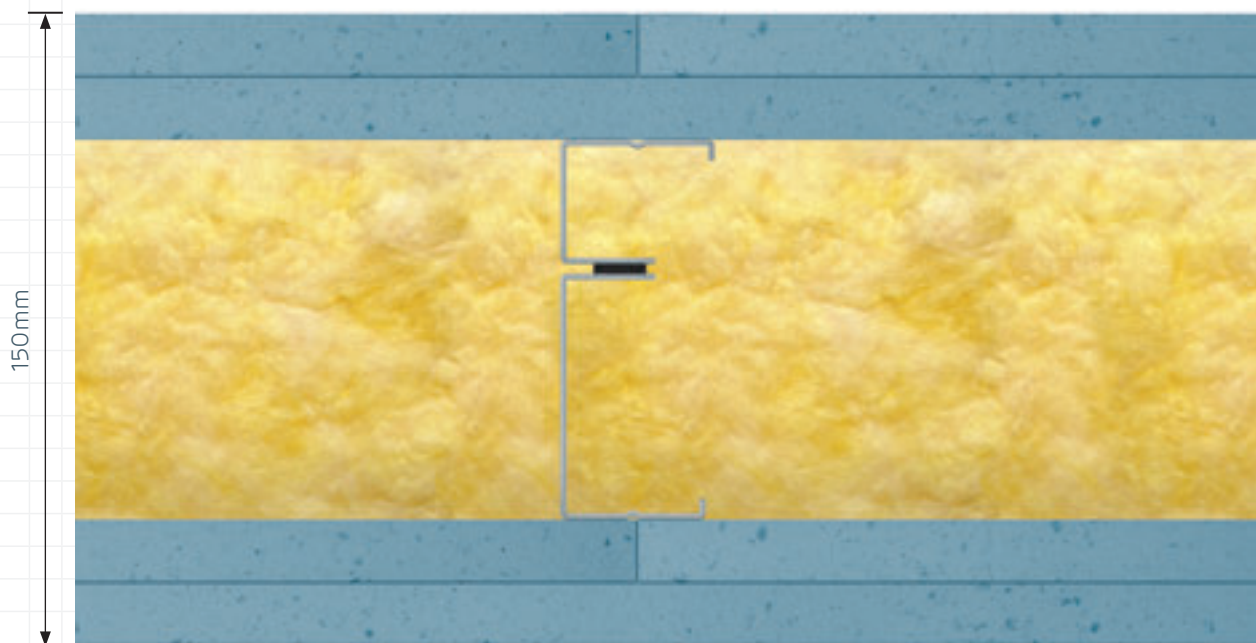
RAS party wall partition

In contrast, RAS has an inbuilt visco-elastic acoustic material which prevents airborne and impact sound from passing through separating walls. No cavities or acoustic brace is required. The benefits are:

- The footprint is reduced by 25% to 150mm
- The volume of metal per linear metre is reduced by 50% (representing c.15% less weight)

Figure 4

A RAS 90 party wall partition for apartments to achieve $45 D_{nTW} + C_{tr}$



DESIGN BENEFITS WITH RAS 70

A much simpler design to meet $43 D_{nT,w} + C_{tr}$

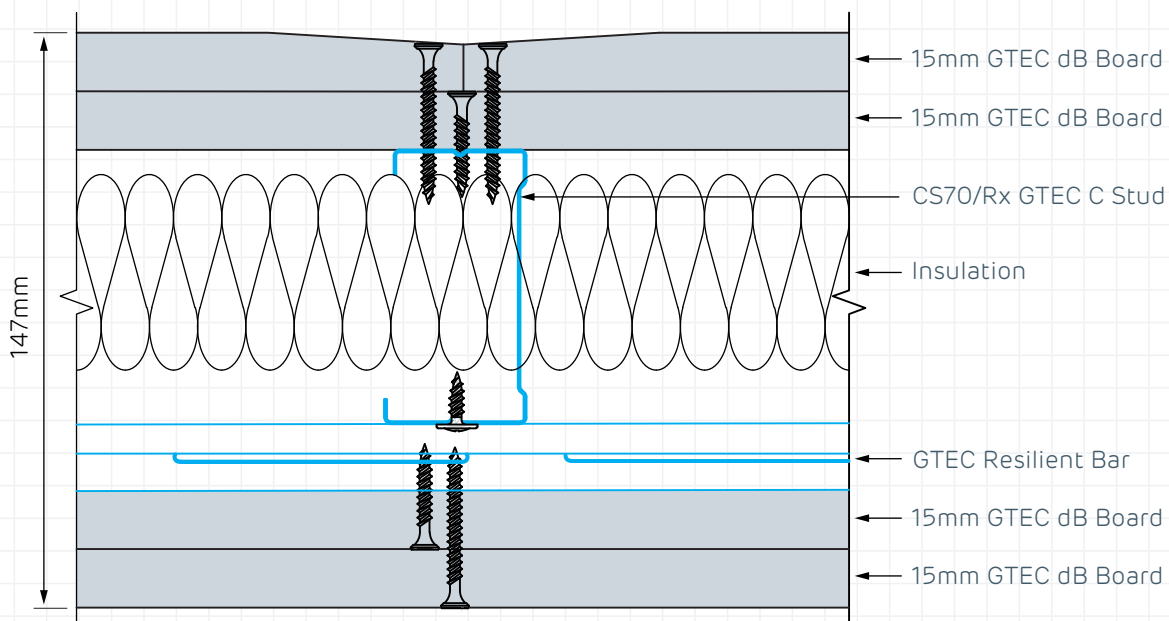
A typical party wall or corridor wall partition

For hotels, student accommodation and change of use, specifiers need to meet Part E with Rooms for Residential Purposes. Achieving $43 D_{nT,w} + C_{tr}$ on site is typically done with:

- A single frame with added components, including a resilient bar

Figure 5 shows the resilient bar system. The resilient bars are needed to provide an acoustic break between separating walls and need additional care to install. If breached during the fit-out stage, the partition will no longer meet Part E acoustic requirements, which poses a significant risk.

Figure 5 A typical party wall partition to achieve $43 D_{nT,w} + C_{tr}$



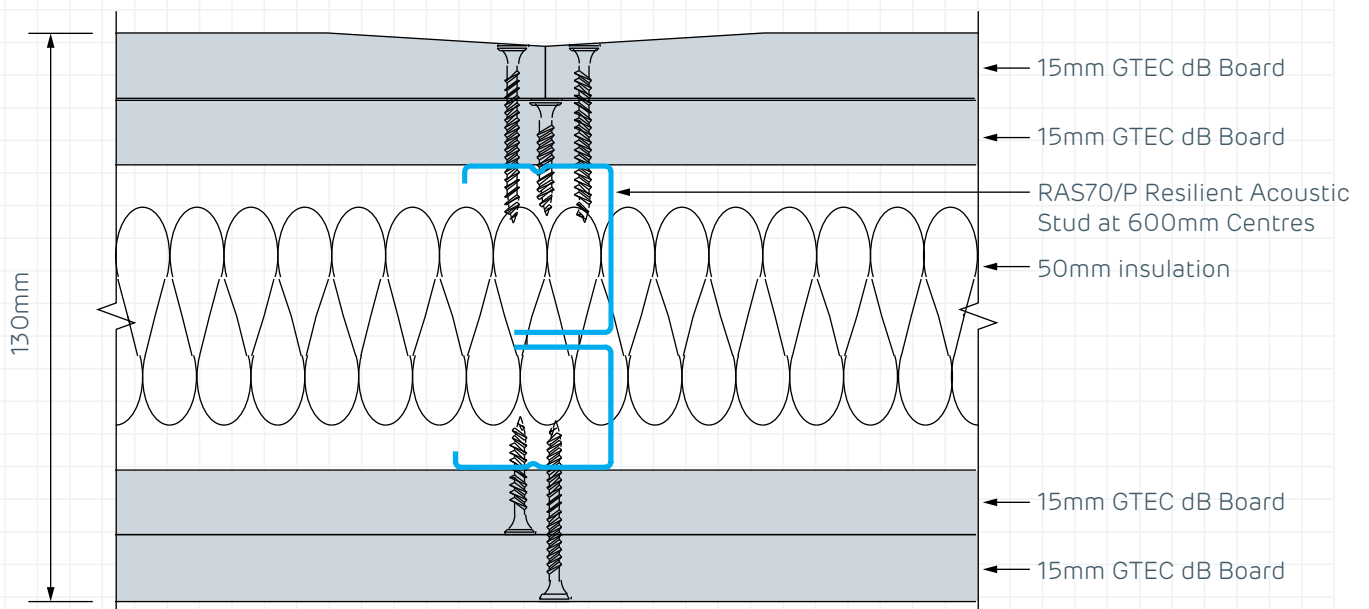


A new, RAS version

In contrast, the RAS 70 partition is a simple C-stud design. The benefits are:

- A 17mm slimmer footprint
- No resilient bars means no risk of breach during fit-out and acoustic performance failure

Figure 6 A RAS 70 partition to achieve 43 $D_{nT,w} + C_{tr}$



DESIGN BENEFITS

An additional 1 sq m per room for Galliard Homes

Former Great Scotland Yard is undergoing a major transformation from the old headquarters of the Metropolitan Police to a 92,000 sq ft five star hotel.

Galliard Homes chose RAS70 for the party wall and external corridor partitions for three reasons:

- It could meet acoustic requirements $43 D_{nT,w} + C_{tr}$
- It increased the net internal area of each room by 1 sq m
- With a tight deadline, it helped reduce the installation time by 30%

“At Great Scotland Yard, the number of sufficiently sized rooms that we can create is constrained by the hotel’s central London site...making the most of the internal floor space we have, therefore, has been vital.”

Lesley Lawson, Design Director, Galliard Homes



Recent Siniat Resilient Acoustic Stud project: **Greater Scotland Yard, London SW1**

Sector: Hotel

Project value: £50m

Architect: EPR Architects

Contractor: Galliard Homes

Sub-contractor: PIB Contractors



DESIGN BENEFITS

A fully tested and warranted system

RAS has been subject to extensive testing to the following standards:

- Acoustic: ISO 10140-2
- Fire resistance: BS EN 1364-1
- Duty rating: BS 5234-2

Our products and components are rigorously tested together to ensure compatibility and system performance, enabling us to guarantee the technical performance of our systems.

We can offer a System Lifetime Warranty for RAS, subject to terms and conditions*.



* Please see www.siniat.co.uk/knowledge-centre/documentation/documentationandpolicies

"We no longer have to mark the boards to see where the resilient bars are located behind the partition, and it's an easy solution for M&E as sockets etc can be placed anywhere."

Steve Perkins, Dryliner, Manorcra Interior Systems



Reduced risk

The resilient bars in traditional acoustic partitions can be susceptible to damage from follow-on trades, ultimately reducing the partitions' acoustic performance.

RAS completely eliminates this risk. Follow-on trades can install fixtures (eg. Shelving) without compromising the partition performance.

TECHNICAL CHARACTERISTICS

Product in detail

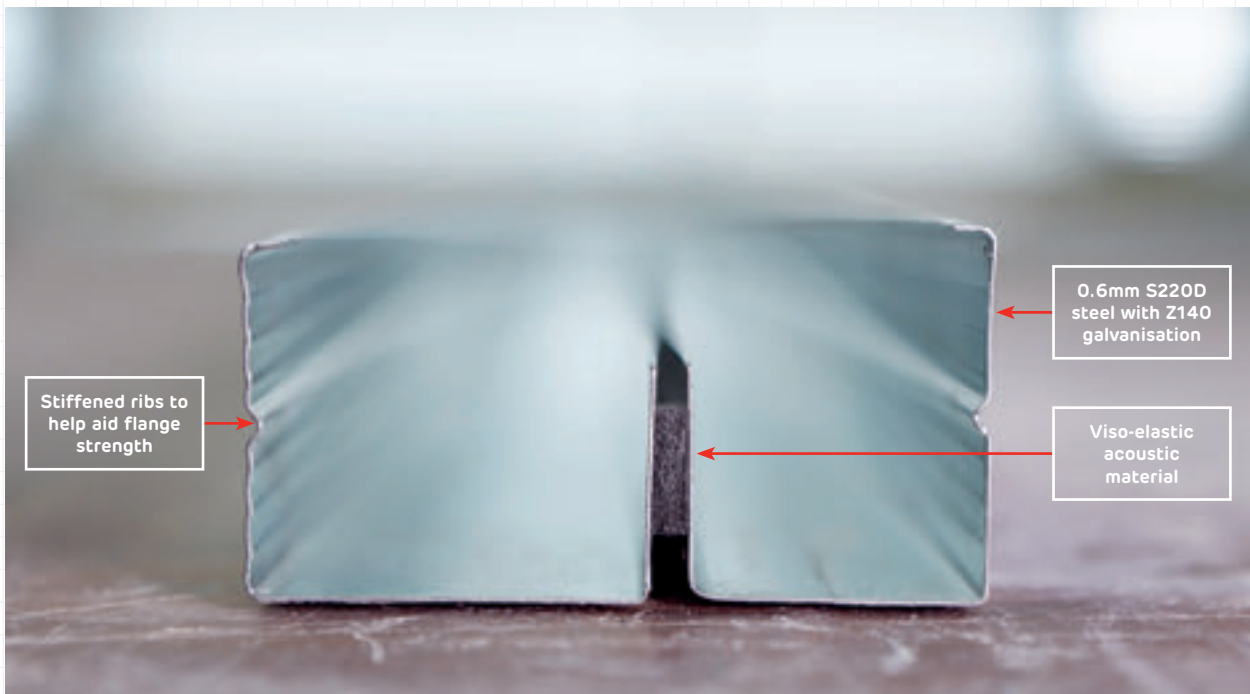


Table 4

Technical characteristics

Type	Description	Value	Units
Dimensions	Overall web	70 or 90	mm
	Flange 1	34	mm
	Flange 2	36	mm
	Tolerances in accordance with EN 14195		
Material	Acoustic tape	12x3	mm
	Hot dip coated, cold-rolled steel stud	S220D+Z140	EN 10346
Reaction to Fire	Acoustic tape	PE foam	
Strength	Stud	A1	Euroclass
Strength	Stud – Tensile strength (acc. EN 10346)	300	MPa
	Tape – Tensile strength	1.33	N/mm

HOW IT WORKS

The sound insulation of any partition is governed by three factors:

- The air gap between the two surfaces of a partition
- The mass of the two surface boards
- The amount of connection between the two faces

Whilst a traditional metal C-Stud provides the structural and impact strength for a partition, it actively transmits airborne and impact sounds from one face of a partition to another.

In contrast, RAS has a resilient, shear-resistant material sandwiched between two metal profiles. The resilient insert is made of visco-elastic material and provides acoustic and thermal break properties.

Figure 7

A traditional C-stud actively transmits airborne and impact sounds

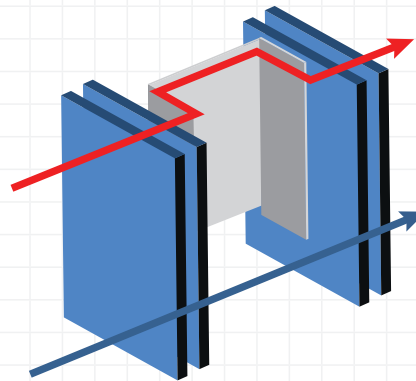
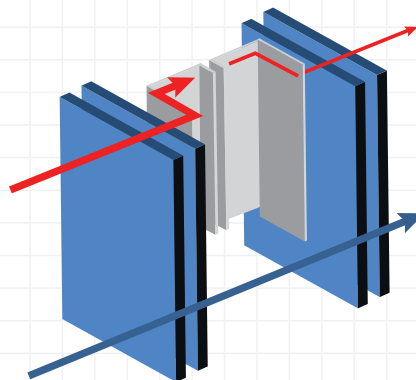


Figure 8

RAS decouples both faces of the partition to improve acoustic performance



■ Airborne transmission
■ Stud transmission



“RAS reduces the connection between the two sides of the partition within the stud itself.”

Cyrille Demanet, Acoustic System Manager,
Etex Building Performance – Research & Development

PARTITION SYSTEM PERFORMANCE RAS 70

Resilient Acoustic Stud is designed for:

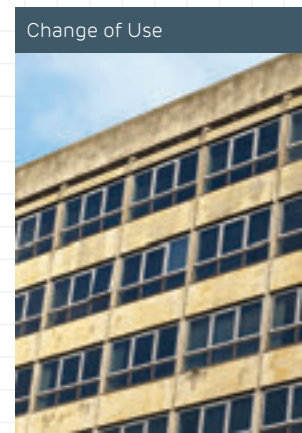
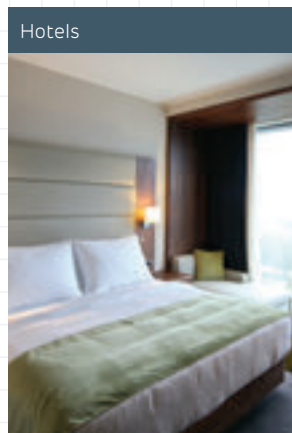
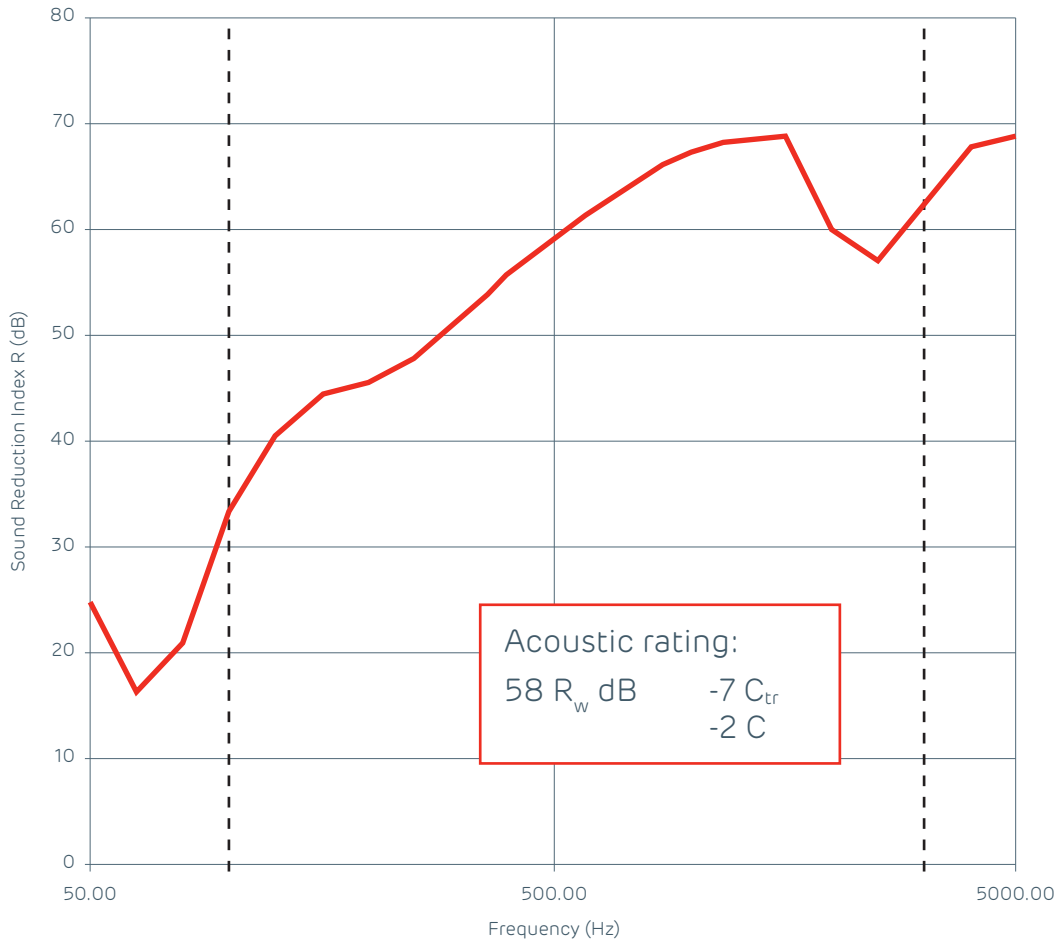


Table 5

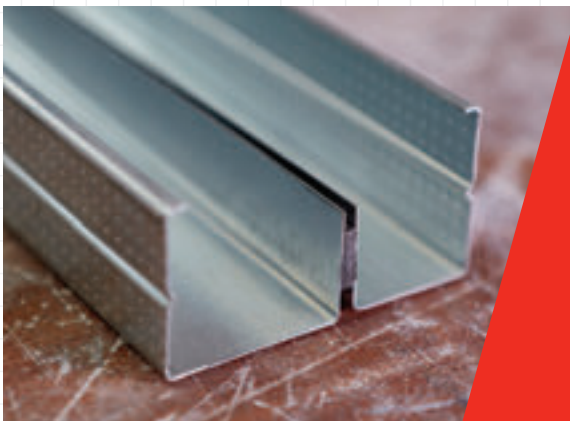
To achieve 43 $D_{nT,w} + C_{tr}$

SYSTEM	SYSTEM	LININGS	STUD @600MM CENTRES	INSULATION (MIN 10KG/M ³)	FIRE EN1364-1: 2015	ACOUSTIC $R_w(CTR)$ dB	ACOUSTIC $R_w + CTR$ dB	HEIGHT (M)	OVERALL THICKNESS (MM)	DUTY RATING
	QSP 432	2x15mm Siniat dB Board	RAS 70/P	50mm glass wool	EI 90 mins	58 (-7)	51	3.9	130	Severe
	QUP 432	2x15mm Siniat Universal Board	RAS 70/P	50mm glass wool	EI 120 mins	58 (-7)	51	3.9	130	Severe
	QUP 436	1x15mm Siniat Universal Board, 1x15mm Siniat dB Board	RAS 70/P	50mm glass wool	EI 120 mins	58 (-7)	51	3.9	130	Severe
	QMP 432	2x15mm Siniat Megadeco Board	RAS 70/P	50mm glass wool	EI 120 mins	58 (-7)	51	3.9	130	Severe
	QMP 436	1x15mm Siniat Megadeco Board, 1x 15mm Siniat dB Board	RAS 70/P	50mm glass wool	EI 120 mins	58 (-7)	51	3.9	130	Severe

Figure 9 Laboratory testing of System QSP432 at Salford University



NB: Site performance is highly dependent on good quality workmanship and can also be affected by supporting or adjoining constructions, room size, and absorption. Where these combined effects are no more than 8dB, the RAS system will achieve the separating wall performances stated.



“When tested, Siniat’s new “Resilient Acoustic Stud” (RAS) met all onsite testing requirements, performing exactly as specified by the manufacturer. This new innovative product looks to lead the way in the battle against noise transmission.”

Jamie Robinson, Acoustic Engineer, Peak Acoustics Ltd

PARTITION SYSTEM PERFORMANCE RAS 90

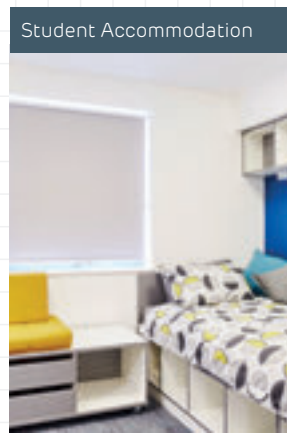
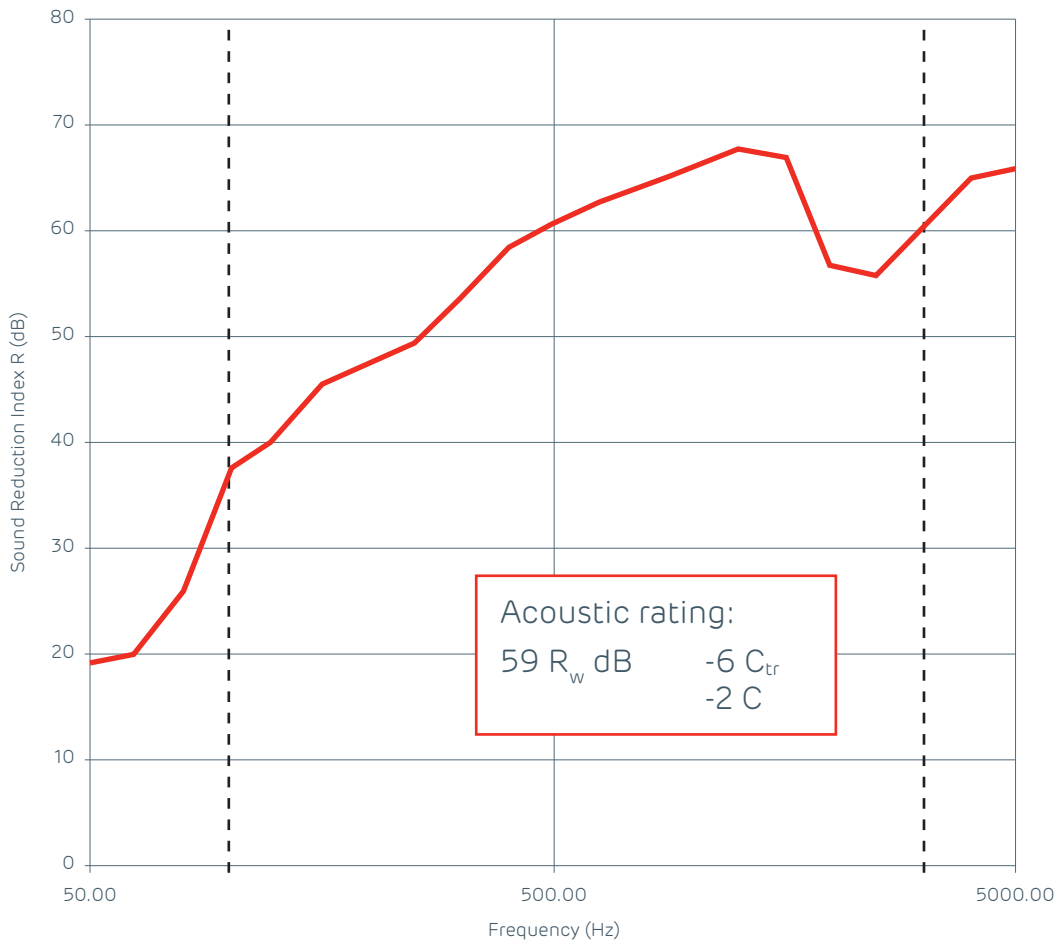


Table 6 To achieve 45 $D_{nT,w} + C_{tr}$

SYSTEM	SYSTEM	LININGS	STUD @600MM CENTRES	INSULATION (10KG/M ³)	FIRE EN1364-1: 2015	ACOUSTIC R _w (CTR) dB	ACOUSTIC R _w +CTR dB	HEIGHT (M)	DUTY
	QSP 452	2x15mm Siniat dB Board	RAS 90/P	100mm glass wool	90 mins	59 (-6)	53	4.2m	Severe
	QUP 452	2x15mm Siniat Universal Board	RAS 90/P	100mm glass wool	120 mins	59 (-6)	53	4.2m	Severe
	QUP 456	1x15mm Siniat Universal Board, x15mm Siniat dB Board	RAS 90/P	100mm glass wool	120 mins	59 (-6)	53	4.2m	Severe
	QMP 452	2x15mm Siniat Megadeco Board	RAS 90/P	100mm glass wool	120 mins	59 (-6)	53	4.2m	Severe
	QMP 456	1x15mm Siniat Megadeco Board, 1x 15mm Siniat dB Board	RAS 90/P	100mm glass wool	120 mins	59 (-6)	53	4.2m	Severe

Figure 10 Laboratory testing of System QSP452 at Salford University



NB:Site performance is highly dependent on good quality workmanship and can also be affected by supporting or adjoining constructions, room size, and absorption. Where these combined effects are no more than 8dB, the RAS system will achieve the separating wall performances stated.

A construction worker in a white hard hat and high-visibility vest is working on a metal frame structure. He is using a power drill to secure a component. The structure consists of vertical and horizontal metal beams. In the background, another worker in a white hard hat and high-visibility vest is visible, working on a similar structure. The scene is set in a construction site with various materials and equipment visible.

INSTALLATION BENEFITS

“RAS is a great, practical innovation. It has fewer components than the system we’d usually use – making RAS simpler to install with less product on site.”

Steve Perkins, Dryliner, Manorcraft Interior Systems

INSTALLATION BENEFITS

Less material to install means a 50% faster frame installation

Building Research Establishment (BRE) Study

The metal frame installation on a RAS partition is 50% quicker to install than a twin frame partition, according to a time and motion study by the Building Research Establishment.

The BRE assessed the speed of installation between different types of partition on a live multi-residential refurbishment site. With 50% less metal material to install, the amount of time spent building the metal frame partition halved.

A detailed breakdown of the tasks are shown in Table 7.

Table 7

Labour time based on 21.6m² partition
(6 linear metre wall run)

	Twin frame partition (200mm)	RAS partition (150mm)	% difference
Measuring & cutting	20 mins	10 mins	-20%
Floor tracks	10.8 mins	5.4 mins	-11%
Studs	56.16 mins	28.08 mins	-55%
Head track	14.4 mins	7.2 mins	-14%
Total frame	101.36 mins	50.68 mins	-50%

BRE Study: Trinity House Refurbishment Project, Hounslow

INSTALLATION GUIDE

Siniat Resilient Acoustic Stud partitions are installed in much the same way as standard studs

Stage 1

Install GTEC U-Track to floor and soffit with appropriate fixings at 600mm centres.

Stage 2

Cut Siniat Resilient Acoustic Studs to length (15mm shorter than floor to soffit height) using snips or saws – no unusual tools or specialist tools are required.

Stage 3

Resilient Acoustic Studs may be used as starter studs, at abutments and at junctions. Fix to structure at 600mm centres on both sides of resilient insert.

Stage 4

Friction-fit Resilient Acoustic Studs into the floor and soffit tracks, arrange studs to suit board arrangement.

Studs may be spliced by boxing only (see Figure. 14).

Stage 5

Fit boards with Siniat Performance Drywall Screws at 600mm centres to inner layer and 300mm centres to outer layer. Do not use screws longer than 35mm for the inner layer and 45mm for the outer layer.

Stage 6

Vertical board joints to be staggered between layers and opposing sides.

Stage 7

Horizontal boards joints should be reinforced with GTEC FS50/Rx Flat Strap between board layers.

Stage 8

Door jambs to be formed in accordance with standard Siniat details using standard GTEC C Studs and U-Tracks.

Stage 9

Seal perimeter of partition with GTEC Intumescent Acoustic Sealant.

Stage 10

Finish partition with skim plaster (Universal and dB board only) or tape and joint (all boards). Use Megadeco board and Deco Joint Filler and Deco Joint Cement to eliminate need for sealing prior to decoration.

Typical Construction Details

Figure 11 Horizontal joint reinforcement

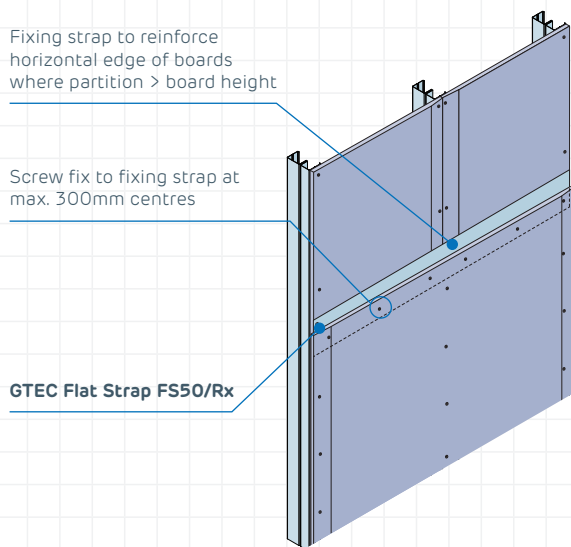


Figure 12 Corner detail: double layer

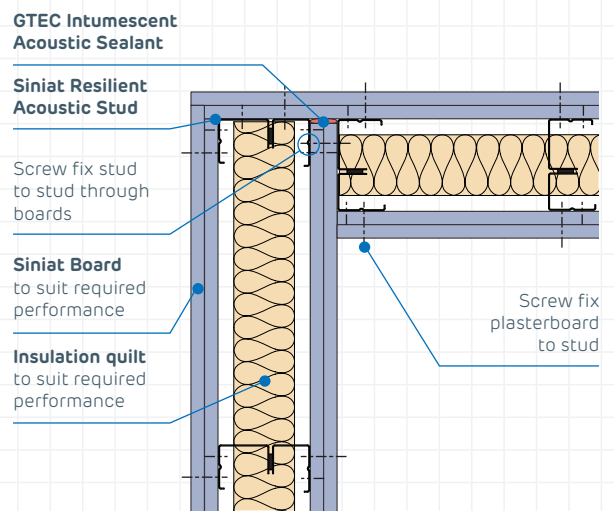


Figure 13 Acoustic T-Junction

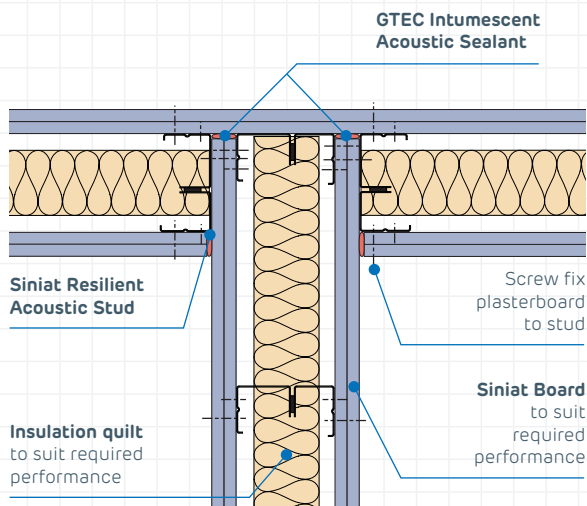


Figure 14 Stud splice

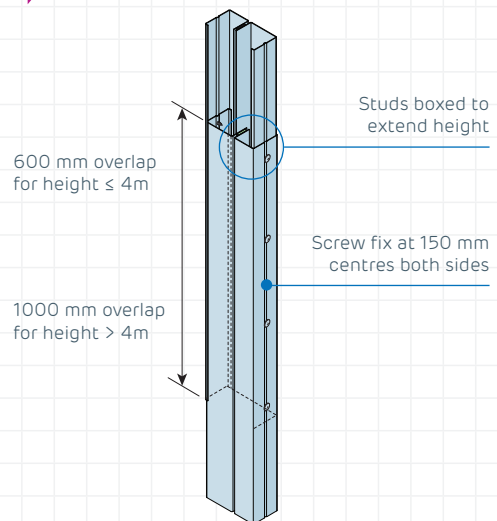


Figure 15 Fixing double layer

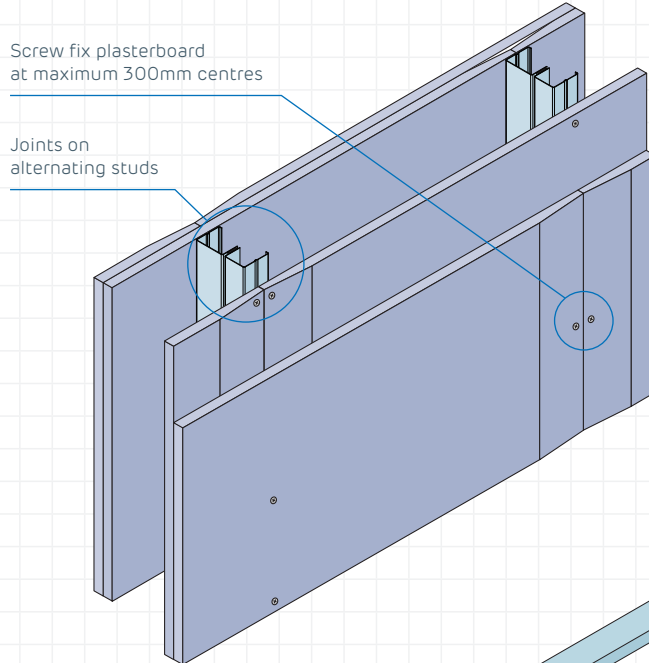


Figure 16 Door frame installation

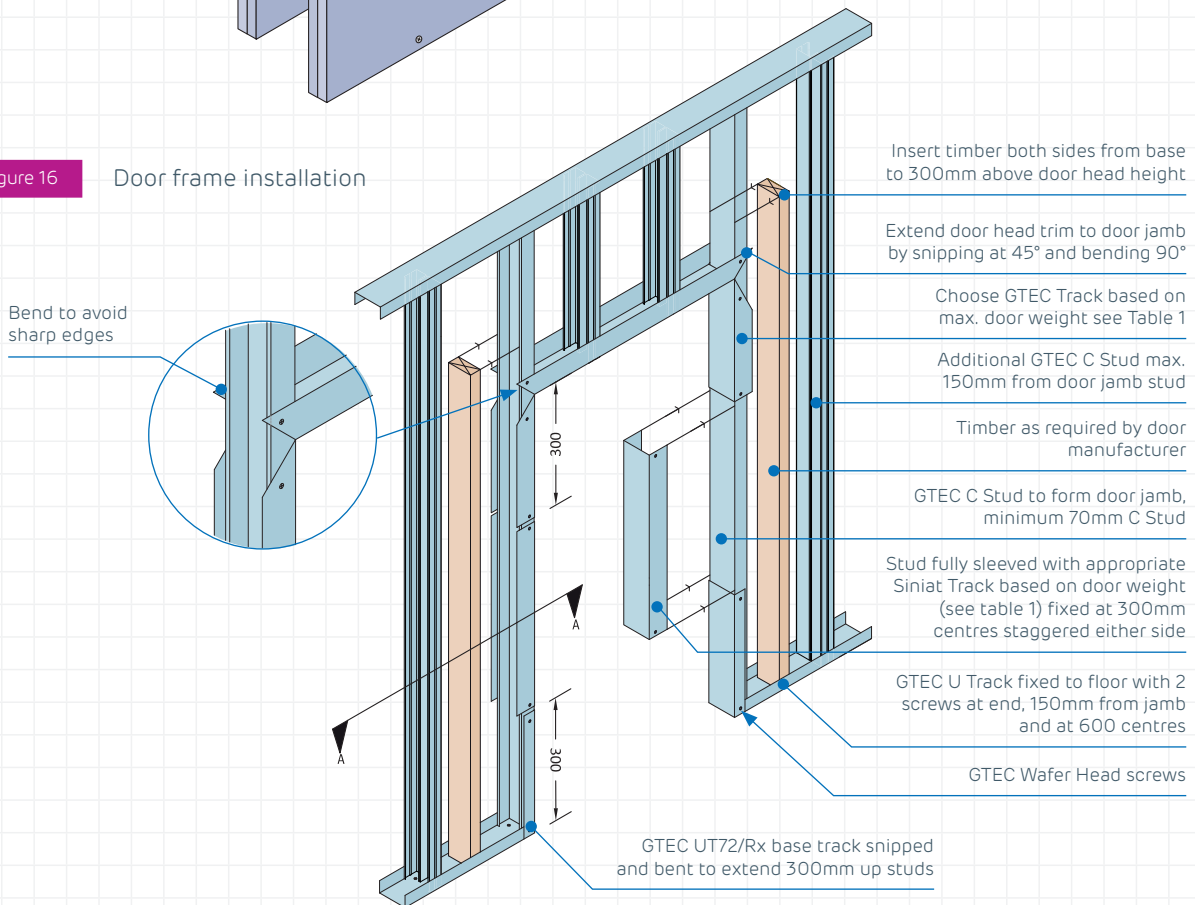
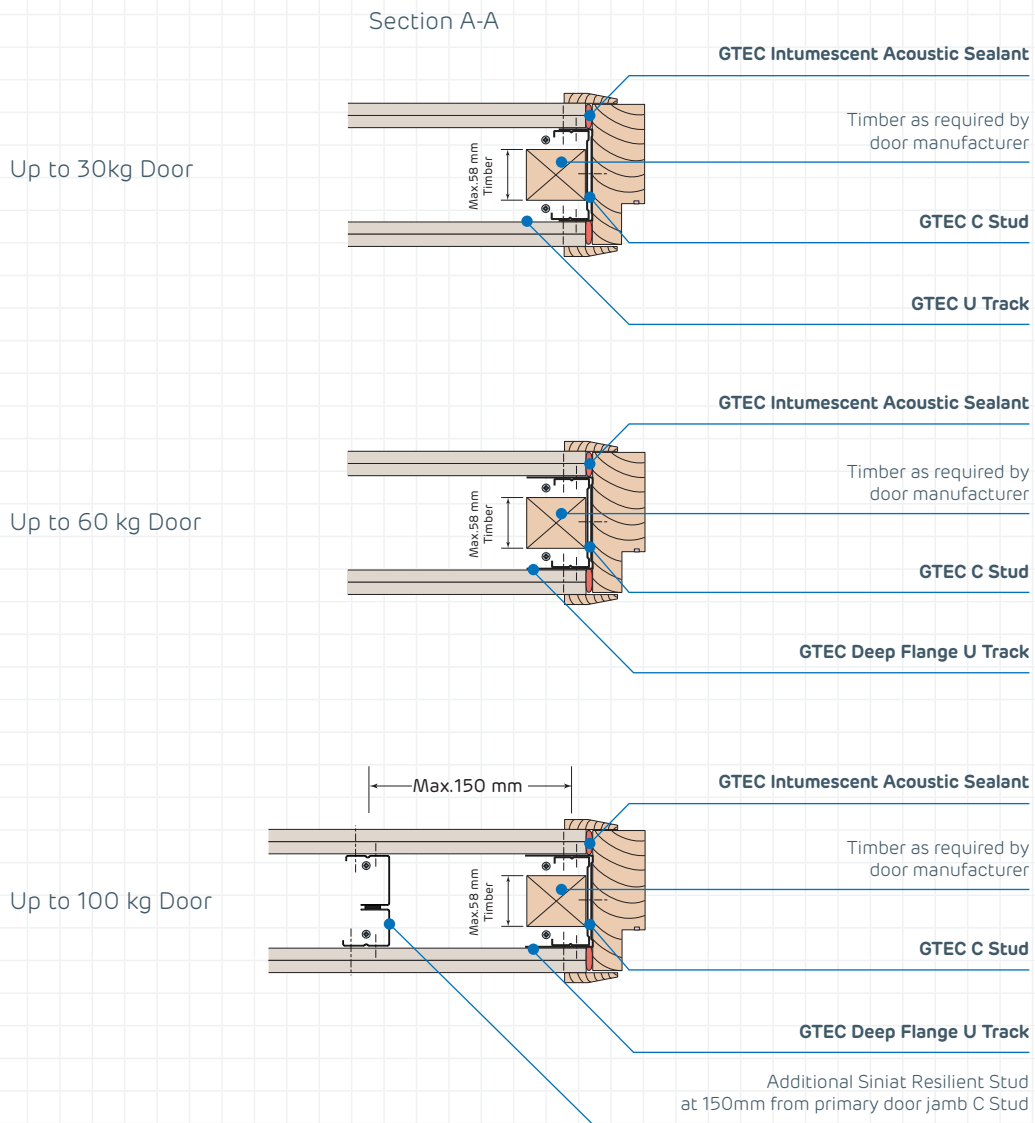


Table 8

Max. Door Weight	Gauge (mm)
up to 30kg	GTEC U Track (UT)
up to 60kg	GTEC Deep Flange U track (UDT)
up to 100kg	GTEC Deep Flange U Track (UDT) + Stud at 150mm

Figure 17 Door frames: 30-100kg



MANUAL HANDLING

Personal Protection



Hands

Gloves should be worn when handling metal sections and components to avoid risk of lacerations.



Eyes

When cutting strapping or metal sections, wear eye safety protection compliant with BS EN 166:2002 2A5.



Skin

When handling sections, wear overalls and suitable clothing.



Respiratory

If fume or dust is produced, ventilate the area of storage or work. When welding, flame cutting or grinding, wear approved respiratory equipment.

Handling and storage

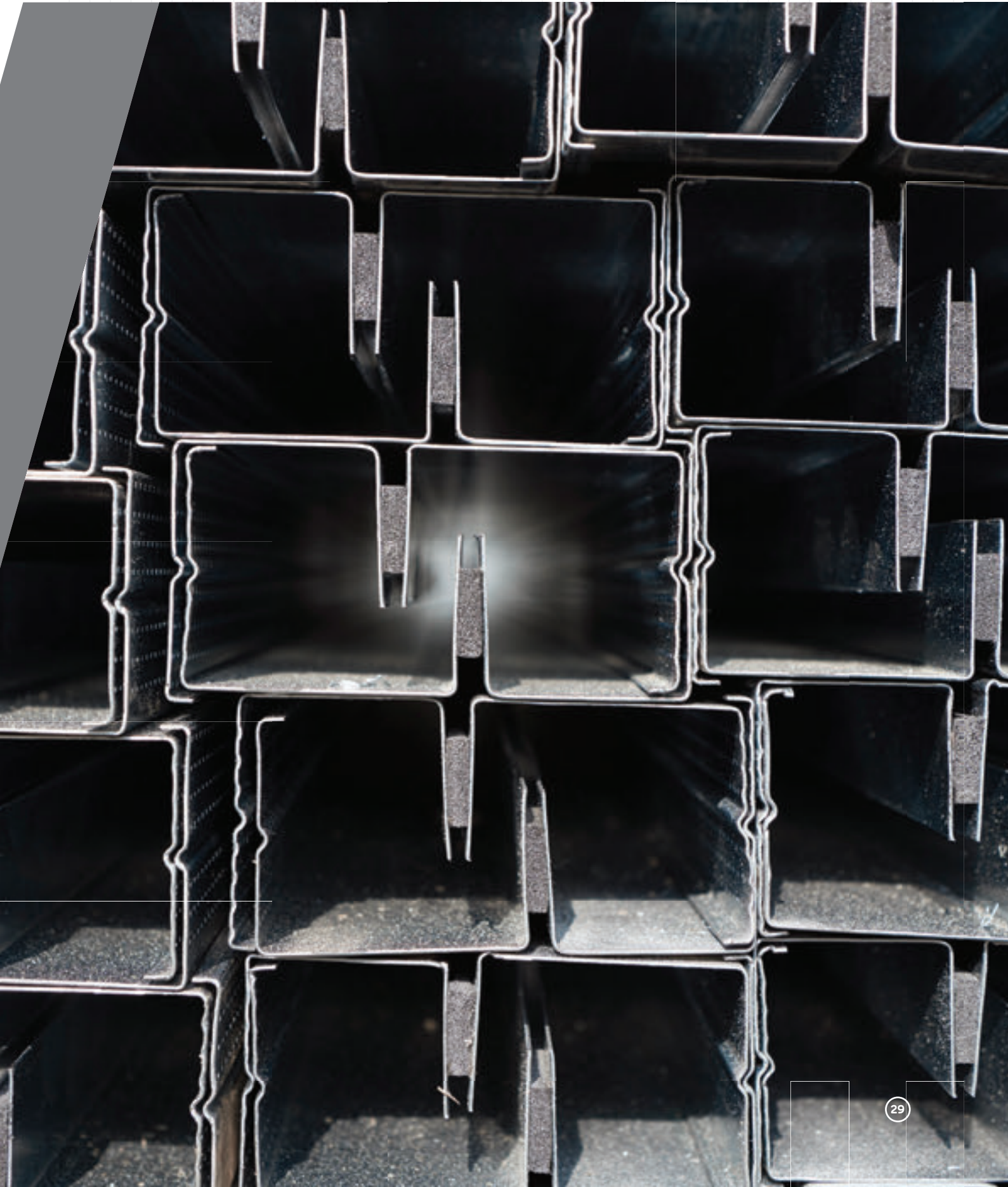
Sections are supplied in bundles with small packs strapped together to form larger packs suitable for forklift truck off-loading. Packs should be stacked in a safe and stable manner. Pack strapping should not be used for lifting. Coils and metal sections may spring apart when strapping is released.

When manually handling steel sections or component packs, use suitable manual handling techniques to limit risk, according to the Manual Handling

Operations Regulations 1992. Mechanical handling aids may be used to reduce the risk of injury.

Eye protection should be worn when using hand tools.

Exposure to weather should not exceed 3 months.



ORDERING DETAILS

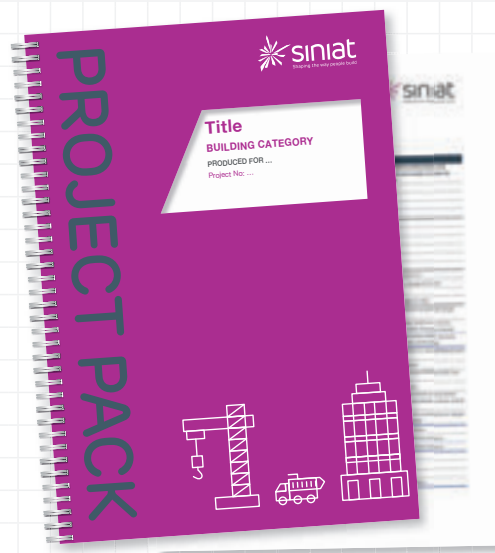
Table 9

Tech Ref	Gauge (mm)	Width (mm)	Length (m)	Siniat code	Packs per pallet	Weight (kg per linear metre)	Lengths per pack
RAS70							
RAS70/P	0.6	70	2.7	142844	56	1	4
RAS70/P	0.6	70	3.0	142857	56	1	4
RAS70/P	0.6	70	3.6	142862	56	1	4
RAS90							
RAS90/P	0.6	90	2.7	143433	56	1.03	4
RAS90/P	0.6	90	3.0	143441	56	1.03	4
RAS90/P	0.6	90	3.6	143444	56	1.03	4

TECHNICAL SUPPORT

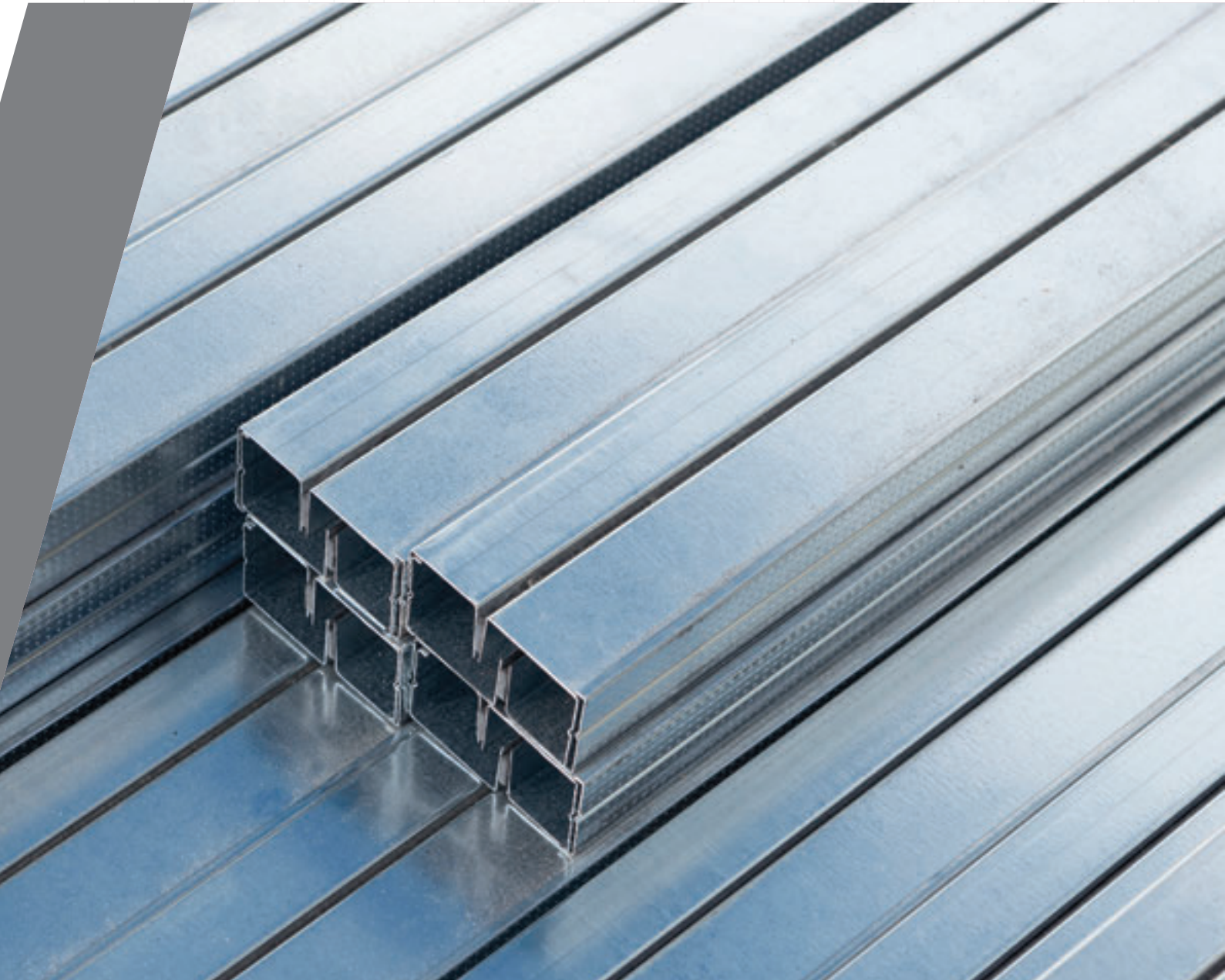
Bespoke detailing

If you would like us to do the detail for you, our Technical Support team are Resilient Acoustic Stud Experts and are happy to help. We have a full suite of BIM Objects to help designers and contractors comply with Level 2. Including dedicated Resilient Acoustic Stud systems – with a substantial amount of information provided for you – to help incorporate RAS into your next BIM project.



📞 0800 145 6033

@ technical.services@siniat.co.uk



TELEPHONE SUPPORT

97% of calls are answered
in less than 15 seconds




TOOLBOX TALKS AND SITE VISITS

Our technicians can visit
sites and provide hands-
on, practical advice

To see how Resilient
Acoustic Stud can benefit
your next project, call our
Technical Services team
on **0800 145 6033**.

GB Orderline

For placing orders, delivery enquiries,
local stockists etc.

 **0800 373636**

 **01275 379037**

 **orderline@siniat.co.uk**

Technical Services

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