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TECHNICAL MANUAL Medium-Rise



Version 1 www.remagin.world





Introduction

This technical manual presents a collection of representative details for light gauge steel construction in typical medium rise multi occupancy buildings. The details included are intended to serve as general guidelines and indicative examples for designing and constructing with the Remagin Medium-Rise System.

It is important to note that these details are representative in nature and are Remagin's recommended approach to common typical interfaces.

The performance of any construction detail can be influenced by a variety of factors including site conditions, material variations, and specific project requirements. Therefore, while these details provide a useful reference point, they should be adapted and verified by the project Principal Design team to ensure they meet the unique demands of each project.

By using this manual, users acknowledge that the provided details are typical and indicative, and it is their responsibility to conduct the necessary evaluations and modifications to suit their specific project needs.

The systems and their various interfaces shown in this Manual are:

- SWR-015 Typical Single Stud Loadbearing Separating Wall
- IW-001 Typical Single Stud Internal Loadbearing Wall
- EW-001 Typical Single Stud External Loadbearing Wall
- SigDeck100 Composite Floor System

These systems are representative of a typical ≤REI6O structure and are generally suitable for buildings up to 6–7 storeys in height, subject to confirmation by the Principal Design team.

Summaries of each system's individual components and performance is included within the Appendix.





Diagram shows generic construction details. Final construction details may vary for individual projects with input from an appropriate designer and verification by a specialist third party to determine project-specific performance expectations.



Page 5 of 25







Diagram shows generic construction details. Final construction details may vary for individual projects with input from an appropriate designer and verification by a specialist third party to determine project-specific performance expectations.



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Page 10 of 25



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Diagram shows generic construction details. Final construction details may vary for individual projects with input from an appropriate designer and verification by a specialist third party to determine project-specific performance expectations.



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Page 15 of 25

Diagram shows generic construction details. Final construction details may vary for individual projects with input from an appropriate designer and verification by a specialist third party to determine project-specific performance expectations.



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Page 18 of 25



Appendix A System Substantiation Sheets





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SYSTEM SUBSTAN	ΤΙΑΤ	ION SHEET							
7	•	\bigwedge	\checkmark		LAYEF	S			
			\bigwedge		A				
-	-		\bigwedge		В				
237mm	138mm				C1 & C2 D				
				SYSTEM PERFORMANCE					
		Fire Resistance (EN 13	865-1:2012)	REI 60 (I→O) & REI 120 (O→I)					
		Sound Insulation (R	"(C _{tr}) dB)	48(-7) dB (Estimated, +/-3dB) - excl. facad	le finishes				
		Thermal Performanc	e (W/m²K)	0.21 (excl. facade fixings or external claddin	ig/bracketry)				
				FIRE INFORMATION					
		Test Referen	ce	22757A (I→O) & EUI-23-000593 (O	i→I)				
		Test Lab & Da	ite	Warringtonfire (Tisselt) 07/04/2023 & Efectis (Be	elfast) 01/12/2023				
		Tested Load (kN,	/stud)	18 & 20					
		Θ _{ref} (°C)		@60 minutes: <220					
				SYSTEM LAYERS					
		Layer A		[min.] 100mm Mineral Wool (~120kg	g/m³)				
		Layer B		1 x 12.5mm Siniat Weather Defence I					
		Layer C1		100x53x1.2mm C Stud (100SN12) at 600	5				
		Layer C2 Layer D		100mm Mineral Wool (~22kg/m 2 x 12.5mm Siniat Fire Board	")				
				FIXINGS & ACCESSORIES					
		Plasterboard Fix	kings	25mm & 42mm Self-Drilling Screws at 300mm of	c/c (both layers)				
		Sheathing Board	2005 A.S. 20	25mm Wet Area Self-Drilling Screws at 20					
		Horizontal Board	Joints	No additional joint reinforcement req	quired				
W-001				•	R	EV. DAT			
XTERNAL WALL SYSTE	EM			🟮 remagin		DATE SCALE	23/02/2024 NTS	DRAWN	RW CW
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arformance data & system specifications are for systems cou	nstructed witi	h materials & components as shown	. The inclusion or si	ubstitution of any other manufacturers materials or components invalidates bot quacy or completeness. Recipients must satisfy themselves as to its suitability a	th test data and system pe	rformance. The in	formation is provided in good f		REVISIO

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SigDeck100 – Technical Datasheet

Description

SigDeck is a unique composite floor system from Remagin. The S450 crushed end trapezoidal deck is 100mm deep and available in 0.8mm, 0.9mm, 1.1mm, and 1.4mm gauges.



SigDeck has an outstanding unpropped capacity for up to 5.5m spans and uses 180mm deep concrete, which provides excellent flexibility during construction for other trades below the floors. SigDeck can be designed for up to 2-hour fire resistance with varying load types and spans.

Slab Depth (mm)	Volume of Concrete	weight of Concre		Weight of Decking and reinforcement
	(m³/m²)	Wet (kN/m²)	Dry (kN/m²)	(kN/m²)
180 (excl ponding) 180	0.127	3.23	3.1	0.185-0.239
(max span incl ponding)	0.142	3.63	3.49	0.185-0.239

Profile Properties

Nominal Gauge (mm)	Design Gauge (mm)	Steel Grade (N/mm²)	Profile Weight kN/m ² (kg/m ²)	Height of neutral axis (mm)	Area of Steel (mm²/m)	Moment of Inertia (cm⁴/m)
0.8	0.76	450	0.112 (11.42)	53.9	1418	266
0.9	0.86	450	0.127 (12.95)	54.8	1604	281
1.1	1.06	450	0.156 (15.92)	54.9	1977	347
1.4	1.36	450	0.20 (20.42)	55.05	2537	445



CEILING*

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Decking Type	Construction stage slab depth at mid span (deflection mm)								
	3.5m	4m	4.5m	5m					
180SIG10008	180.5 (0.5)	188 (8)	N/A	N/A					
180SIG10009	18O (O)	187 (7)	199 (19)	N/A					
180SIG10011	180 (0)	183 (3)	189 (9)	203 (23)(4.9m)					
180SIG10014	180 (0)	180 (O)	186 (6)	197 (17)					

SigDeck100 Loading Tables (Eurocode)

180mm depth – Single unpropped span – S450 – Normal Weight Concrete

Resistance	**Min mesh &	Total unfactored applied load (kN/m²) Max permissible span (m)							
	Reinforcement	0.8mm gauge		0.9mm gauge		1.1mm gauge		1.4mm gauge	
		3.5	5.0	3.5	5.0	3.5	5.0	3.5	5.0
60	A142+H12	4.2	4.2	4.6	4.6	5.0	5.0	5.0	5.0
90	A142+H12	4.2	4.2	4.6	4.6	5.0	4.6	5.0	4.6
	A142+H16	4.2	4.2	4.6	4.6	5.0	5.0	5.0	5.0
120*	A142+H12	3.9	3.5	4.1	3.5	3.8	3.5	3.8	3.5
	A142+H16	4.2	4.2	4.6	4.6	5.0	4.8	5.0	4.8

*Minimum 12.5mm Type F (EN520) plasterboard ceiling required to achieve 120 minutes fire resistance in combination with the floor. Any penetrations through the ceiling must be appropriately treated. **Project specific design is required.





Slab Type	Ceiling Board Density (kg/m²)	R _w (C; C _{tr}) dB	L _{n, w} dB	STC				
180SIGDECK100	1 x 9.8	61 (-3; -9)	53	62				
180SIGDECK100	2 x 12.6	62 (-2; -7)	49	62				

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remagin

Get in Touch

Newton Aycliffe

Leeds Office

Heighington Lane Aycliffe Industrial Park Newton Aycliffe County Durham DL5 6QG Unit 1 Crossland Park Cross Green Way Leeds LS9 0SE

Cahir Office

Cahir Business Park, Unit A Cahir Co. Tipperary E21 TF89 Ireland

+44 (0)1756 701522

+44 (0)1325 303030

+353 (0)52 7441424

