



Tailor made FRP solutions
for an array of industries
since 2004

STAIRCARE SC-R™



STAIRCARE FRP
COMPOSITE DESIGN & FABRICATION



FRP Composites, Fabrication Service, Profile & Grating Sales

Working together
to fabricate custom made-
FRP structures
for your specific application.

FRP Platforms, Decking, Cross Overs and Roof Top Walkways

Staircare SC-R™ FRP grating, stair treads, structural shapes and handrails combine to an FRP system that provides safe and versatile access. Made from FRP composite material they provide the ultimate in corrosion resistance. During the manufacturing process silicon carbide is incorporated to form an inseparable gritted surface on decking and stair treads to offer maximum slip protection. Our structures are designed and built to comply with Australian and International standards.

Staircare SC-R platforms range from delicate penguin nesting stands, pipeline cross overs, access platforms, heavy duty pump station decking, to roof top walkway and air-conditioning support stands. Our design, manufacture and supply service can include engineering sign off, design and as build drawings.

Typical standards that Staircare SC-R structures conform with, but not exclusive too:

AS 1657-2018; fixed platforms, walkways, stairways and ladders – Design, Construction and Installation.

AS 4586-2013; Slip Resistance Classification of New Pedestrian Surface Materials.

AS 1428.1-2009; Design for Access and Mobility.

AS 2156-2001; Walking Tracks - Infrastructure Design



Low maintenance, corrosion resistant, FRP profiles, Grates and Fabrication Services

SC-R structures are made from FRP with a suitable resin system and UV protection designed to meet individual site requirements for the most demanding environments.

- **Low installation** costs, easy to assemble
- **No welding** or need for hot works permits
- **Light weight**, high strength to weight, and no need for heavy lifting equipment
- **High impact** tolerance, does not deform
- **Exceptional chemical** and corrosion resistance
- **No electrical** and thermal conductivity for use in electrical substations and the power industry in general
- **UV resistant** with fire retardant
- **Custom colours** and finishes
- **Low maintenance**, no repainting, easily cleaned with water pressure for a long service life



Product Supply Only

Staircare SC-R, Supply FRP products including:

- FRP grates
- FRP top cover grates
- FRP structural shapes including angles, square and round tube, C shape, I and H shapes
- FRP handrails including base saddles
- FRP stair treads with solid nose
- FRP Anti-slip Plates and Strips

FRP fabrication

Staircare SC-R complete structures: either build to your specification or we offer our design and fabrication service:

- FRP work platforms or instrumentation stands, non-conductive, non-magnetic and no thermal conductivity with exceptional chemical and corrosion resistance
- FRP staircase including all substructures, stringers, stair treads and handrails
- FRP walk ways, access platforms and decking
- FRP handrails, ready-made panels
- FRP crossovers for railway or pipelines
- FRP air conditioning roof top walkways, work platforms and structural A/C unit supports
- FRP custom made ladders





SC-R standard range of FRP profiles, grating and top cover grating used for fabrication

SC-R I-Beam

Dimensions (mm) A X B X T1X T2	WEIGHT (Kg/m)
50 x 102 x 6.4 x 6.4	2.40
76 x 152 x 9.5 x 9.5	5.32
102 x 203 x 12.7 x 12.7	9.50
127 x 254 x 9.5 x 9.5	9.00
152 x 305 x 12.7 x 12.7	14.30



SC-R H-Beam

Dimensions (mm) X B X T1X T2	A	WEIGHT (Kg/m)
76 x 76 x 6.4 x 6.4		2.67
102 x 102 x 6.4 x 6.4		3.59
152 x 152 x 9.5 x 9.5		8.10
203 x 203 x 12.7 x 12.7		14.36
254 x 254 x 12.7 x 12.7		18.04
305 x 305 x 12.7 x 12.7		21.50



SC-R Rectangular Hollow Section (RHS)

Dimensions (mm) A X B X T1X T2	WEIGHT (Kg/m)
80 x 30 x 4.0 x 4.0	1.60
102 x 51 x 6.4 x 6.4	3.45
140 x 30 x 5.0 x 5.0	3.20



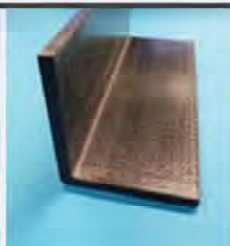
SC-R Square Hollow Section (SHS)

Dimensions (mm) A X B X T1X T2	WEIGHT (Kg/m)
44 X 44 X 3.2 X 3.2	2.67
50 X 50 X 5.0 X 5.0	3.59
50 x 50 x 6.4 x 6.4	8.10
76 X 76 X 6.4 X 6.4	14.36
101 X 101 X 6.4 X 6.4	18.04
152 X 152 X 9.5 X 9.5	21.50



SC-R -Angle

Dimensions (mm) A X B X T1X T2	WEIGHT (Kg/m)
50 x 50 x 6.4 x 6.4	1.14
76 x 76 x 6.4 x 6.4	1.77
76 x 76 x 9.5 x 9.5	2.57
101 x 101 x 9.5 x 9.5	3.48
101 x 101 x 12.7 x 12.7	4.57
152 x 152 x 12.7 x 12.7	7.01
100 x 50 x 6.4 x 6.4	1.80
180 x 80 x 8.0 x 8.0	3.89



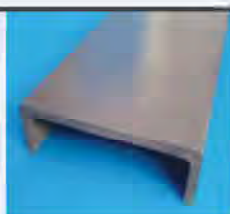
SC-R -Flat Bar

Dimensions (mm) W x T	WEIGHT (Kg/m)
64 x 4.8	0.60
102 x 6.4	1.30



SC-R - C Channel

Dimensions (mm) A X B X T1X T2	WEIGHT (Kg/m)
102 x 44 x 6.4 x 6.4	2.10
120 x 50 x 5.0 x 5.0	2.00
152 x 42 x 9.5 x 9.5	3.95
203 x 56 x 9.5 x 9.5	5.34
254 x 70 x 12.7 x 12.7	8.90
292 x 70 x 12.7 x 12.7	9.60
76 x 38 x 6.4 x 6.4	1.70



SC-R -Round Tube

Dimensions (mm) D x T	WEIGHT (Kg/m)
Round Tube	
32 x 6.0	0.96
50 x 5.0	1.34
101 x 6.4	3.64
Corrugated Tube	
50 x 6.35	1.75



Typical Coupon Properties – FRP Structural Profiles

Mechanical Properties

Tensile Strength	240MPa
Tensile Modulus	21GPa
Compressive Strength	240MPa
Flexural Strength	240MPa
Modulus of Elasticity	21GPa

Physical Properties

Barcol Hardness	46
24 hour water absorption	0.45%
Thermal Conductivity	0.57W/mk
Thermal Expansion	12×10^{-6} cm/cm/°C

Electrical Properties

ARC Resistance	120 seconds
Dielectric Strength	1.37KV/mm
Dielectric Constant	5 @ 60hz
Insulation Resistance	$5 \times 10^6 \Omega$

The above values are based on ASTM coupon and Full Section Testing. Please contact us for full list of coupon properties test results.

SC-R Structural Frame Examples



SC-R Moulded Grating & Top Cover Grating

SC-R moulded grating provide excellent corrosion resistance as well as bi-directional strength. They are light weight with high load strength and offer low maintenance, long service life. The below grating together with SC-R structural shapes can combine into resilient, safe and versatile access structures.

SC-R 38 x 38 square mesh

Aperture 31 x 31mm,
for standard 25 or 38mm thick



SC-R 38 X 38 SQUARE MESH

Panel Thickness	Bar Thickness (Top/Bottom)	Open Rate	Standard Panel Size	Wt./Sq.M
13	5.8/5.0	87%	1220x3660, 1220x2440	6.00Kgs
25	6.5/5.0	68%	1220x3660, 1220x2440	12.30Kgs
38	7.0/5.0	68%	1220x3660, 1220x2440	19.50Kgs
50H	9.5/7.5	56%	1000x 990, 1230x3666	42.00Kgs

SC-R mini mesh

Aperture 12 x 12mm,
for standard 30 or 38mm thick



SC-R 20 X 20 MINI MESH

Panel Thickness	Bar Thickness (Top/Bottom)	Open Rate	Standard Panel Size	Wt./Sq.M
14	6.5/5.0	42%	1247X4047	10.30Kgs
30	6.5/5.0	42%	1007x3007, 1247x4047	18.03Kgs
38	7.0/5.0	42%	1007x3007, 1247x4047	23.20kgs

SC-R micro mesh

Aperture 8 x8mm,
for standard 30 or 38mm thick



SC-R 13 X 13 MICRO MESH

Panel Thickness	Bar Thickness (Top/Bottom)	Open Rate	Standard Panel Size	Wt./Sq.M
25	6.5/4.5/5.0	30%	1007 x 3007, 1247 x 4047	17.8kgs
30	6.5/4.5/5.0	30%	1007 x 3007, 1247 x 4047	19.1kgs
38	6.5/4.5/5.0	30%	1007 x 3007, 1247 x 4047	23.8kgs

SC-R top cover

Grating 38 x 38 square mesh with
bonded 3 or 5mm thick solid top cover



SC-R SOLID TOP COVER GRATING

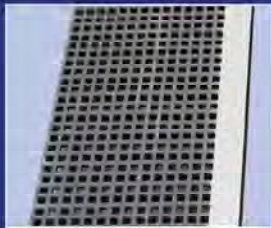
Panel Thickness	Bar Thickness (Top/Bottom)
28	38 x38 sq mesh, 25mm thick +3mm solid plate
30	38 x38 sq mesh, 25mm thick +5mm solid plate
41	38 x38 sq mesh, 38mm thick +3mm solid plate
43	38 x38 sq mesh, 38mm thick +5mm solid plate
55	55 x55 sq mesh, 50mm thick +5mm solid plate

SC-R solid top cover grating are usually made to measure. Please contact Staircare with your requirements.

The items above represent a selection of the most popular grates. A number of other sizes are readily available or special sizes can be made to order.

SC-R Stair Tread and Landing- Platform Performance Information

Australian Standard for stair and landings require a design uniform distributed load of 4Kpa (400kg/m²) and point load of 1.8 kPa (180kg) Deflection L/250. Recommendation for pedestrian comfort is maximum 5mm deflection



SC-R 20 X 20 / 40 X 40 Mini Mesh Stair Tread With Solid Nose, Silicon Carbide Anti-Slip Grit and UV Protection

Max. recommended Span mm	Tread width mm	going mm	thickness mm	tread support mm	aperture mm	open rate %
900	995	287	38	50 x 6.4	12 x 12	42
Load and Deflection at Max. Recommended Span of 900 mm						
Uniform load kPa (deflection in mm)			Concentrated point load kg			
span	2.5 kPa	4.0 kPa	span	200 kg	400 kg	
900	1.45	2.4	900	2.42	4.84	



SC-R
Silicon Carbide
Anti-Slip Grit and UV Protection

Max. recommended Span mm	Tread width mm	going mm	thickness mm	tread support mm	aperture mm	open rate %
900	995	287	38	50 x 6.4	8 x 8	30

Load and Deflection at Max. Recommended Span of 900 mm

Uniform load kPa (deflection in mm)			Concentrated point load kg		
span	2.5 kPa	4.0 kPa	span	200 kg	400 kg
900	1.40	2.36	900	2.28	4.80



SC-R 38 x 38 Square Mesh Stair Tread with-
Heavy Duty Silicon Carbide
Anti-Slip Grit and UV Protection

Max. recommended Span mm	Tread width mm	going mm	thickness mm	tread support mm	aperture mm	open rate %
900	995	272	38	50 x 6.4	31 x 31	68

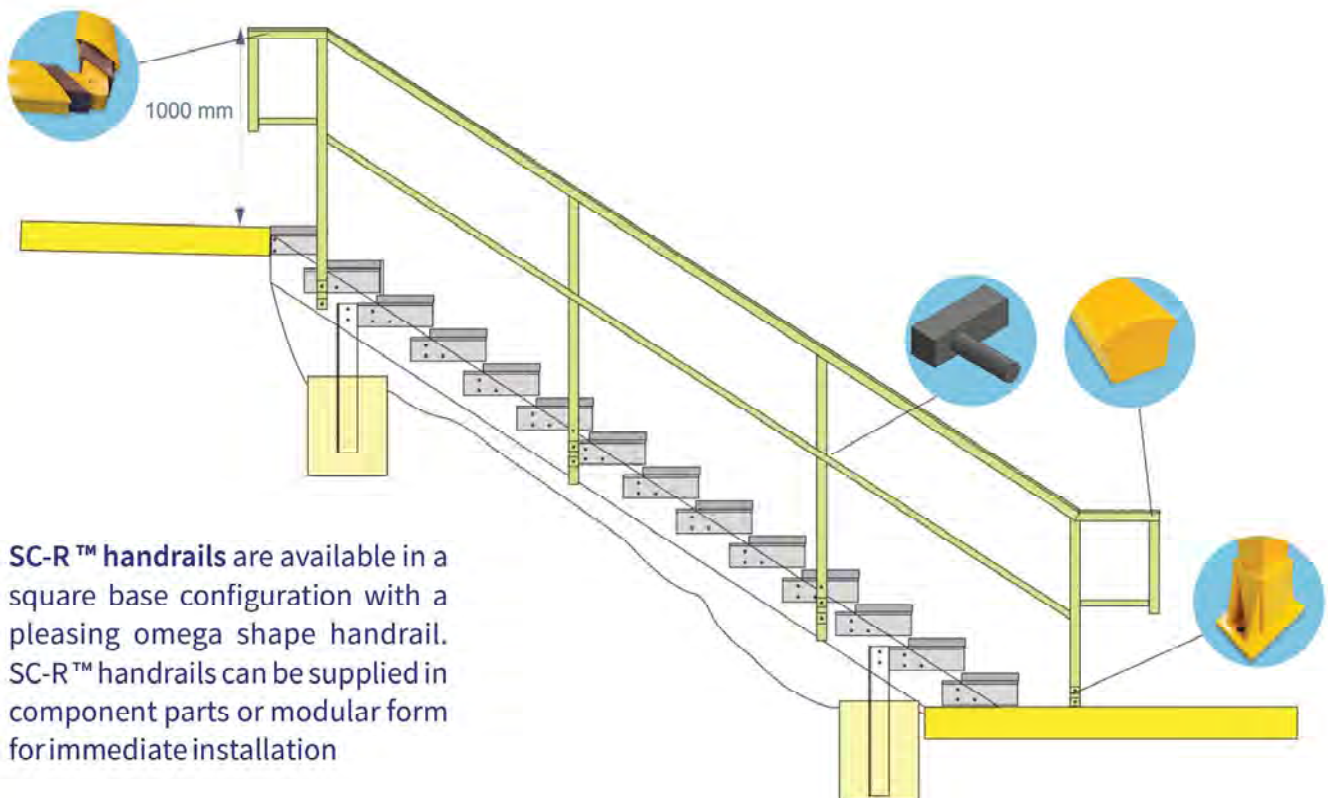
Load and Deflection at Max. Recommended Span of 900 mm

Uniform load kPa (deflection in mm)			Concentrated point load kg		
span	2.5 kPa	4.0 kPa	span	200 kg	400 kg
900	1.71	2.58	900	2.60	6.18

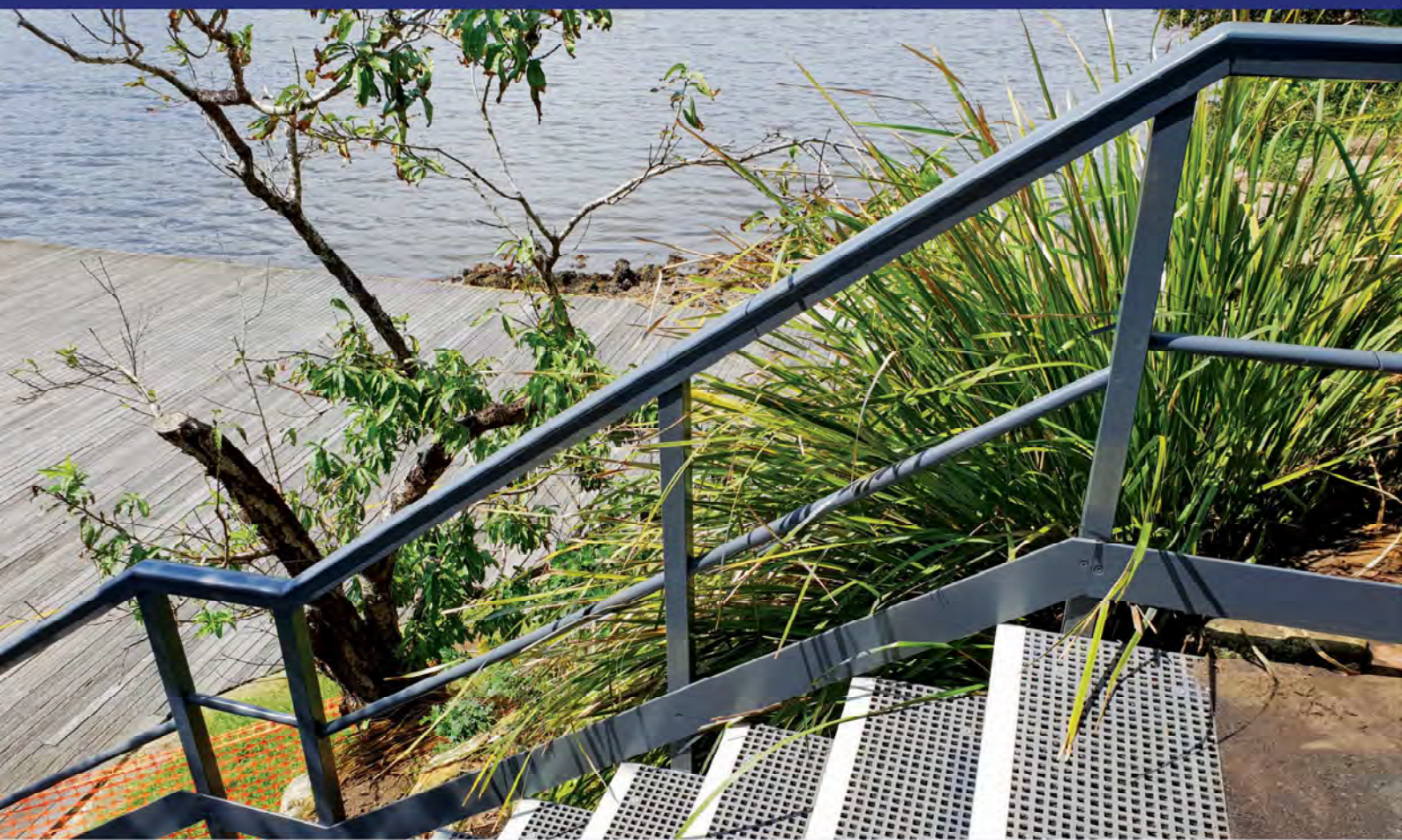
FRP Handrail and Guardrails

Staircare FRP handrail SC-R™ offer strength, durability, versatility and ease of installation with many advantages over traditional materials. It is a lightweight modular system with multiple use.

Staircare FRP Handrail SC-R™ have been tested to AS1657-2018. The load testing confirmed the suitability of SC-R™ as handrail or guardrail systems. Guardrails would be in combination with SC-R™ kick plates.

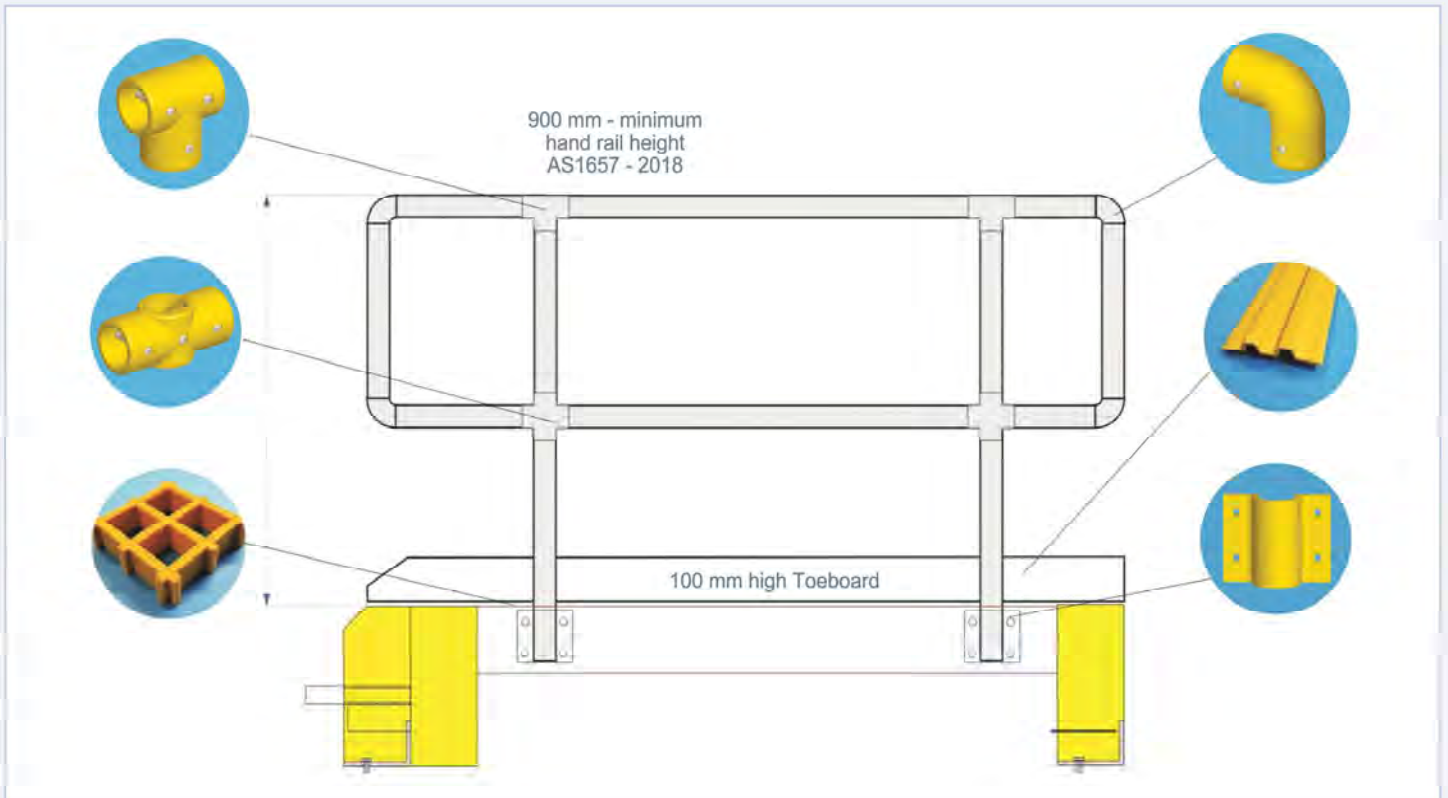


SC-R™ handrails are available in a square base configuration with a pleating omega shape handrail. SC-R™ handrails can be supplied in component parts or modular form for immediate installation





FRP Guardrails SC-R™



SC-R guardrailing: Staircare offers a round ribbed tube configuration with solid FRP connectors and SC-R kickboard that results in a robust, strong guardrail system well suited for platforms and fall from heights protection.

FRP Handrail and Guardrails SC-R™ Benefits

SC-R™ FRP handrails and guardrails require basic installation skills, there is no need for specialist trades such as welding or hot works permits. Hand and guardrails are non-conductive, lightweight, do not create toxic fumes and can be installed in wet areas.

Staircare SC-R™ handrail, stair tread, grating and structural shapes combine to a FRP system that provides safe and versatile access. Made from FRP composite materials they provide the ultimate in corrosion resistance for aggressive environments.

SC-R™ hand and guardrails are made from FRP with a suitable resin system and UV protection designed to meet individual site requirements.

- 1 — Low installation cost, easy to assemble, no welding or need for hot works permits
- 2 — Lightweight, high strength to weight, no need for heavy lifting equipment
- 3 — AS 1657-2018 compliant
- 4 — Corrosion and chemical resistant
- 5 — No thermal and electric conductivity
- 6 — UV resistant with fire retardant
- 7 — Low maintenance, no re painting, easily cleaned with water pressure for a long service life

SC-R Handrail



SC-R Omega Hand rail & end cap



SC-R Omega Hand rail top mitre joint



SC-R Omega Hand rail top mitre joint



SC-R Omega Hand rail top mitre joint



SC-R Omega Hand rail straight joint



SC-R Omega Hand rail mid rail joint



SC-R Omega Hand rail square base plate saddle

SC-R Guardrail



SC-R Hand rail, round tube Jway corner



SC-R Hand rail, round tube Jway T



SC-R Hand rail, round tube 4way corner



SC-R Hand rail, round tube 90 elbow



SC-R Hand rail, round tube base saddle



SC-R Hand rail, round tube fourway cross



SC-R Micro Mesh



SC-R Mini Mesh



SC-R 38 square Mesh



SC-R flat bar / kickboard



SC-R corrugated kickboard



SC-R solid Top Cover Grating

■ Staircare SC-R Assembly Methods

The most common SC-R structural FRP shape connections are made with mechanical fasteners in combination with good quality adhesives.

Cutting

SC-R grating and structural FRP shapes can be cut to size using a power-saw with a diamond coated or a masonry carbide tipped blade. Angle grinders work well for short cuts.

Always wear personal protective equipment (PPE) when cutting FRP materials; including eye protection, dust protection masks and gloves. Check requirements with State OH&S legislation.



Sealing of cut FRP sections

Staircare uses appropriate resins to seal all cut and drilled FRP sections.

Mechanical Fasteners

Nut and bolts. This is the most common method to join SC-R structural FRP shapes. Staircare uses stainless steel nuts, bolts and washers. However, galvanised fixings can be used depending on the environment.



Screw fixings

Self-tapping stainless steel screws work well when high strength bond is not required or in combination with adhesives.

Rivets

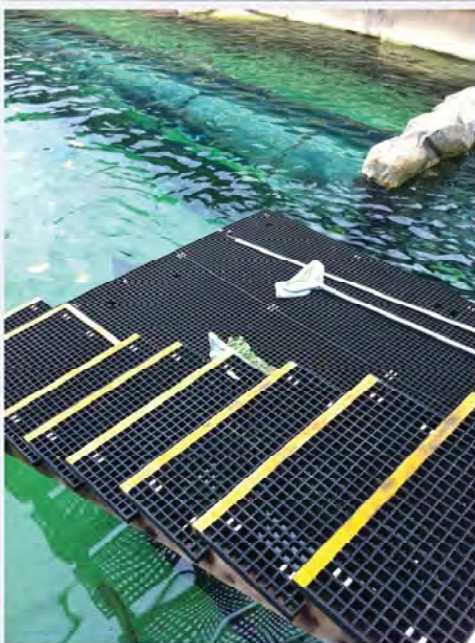
Riveted connections are mainly used for joining SC-R handrail systems. Staircare uses stainless steel rivets. However, aluminium can be an alternative.

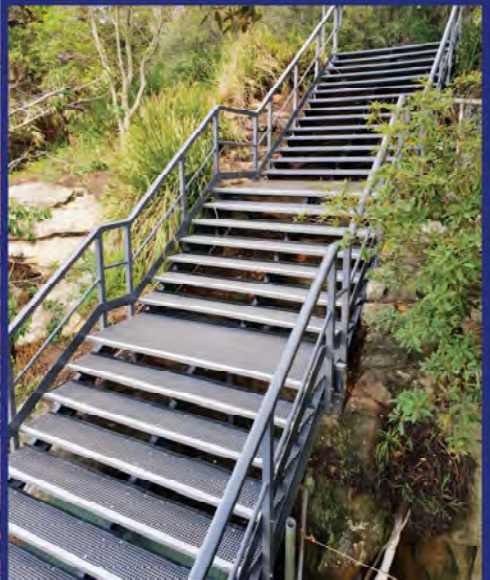


Adhesives

Adhesives in combination with mechanical fasteners offer exceptional bonds. Use adhesives that are readily available and formulated specifically for FRP and follow manufactures recommendations. FRP surfaces need to be properly should be prepared and degreased to achieve best results.

Staircare SC-R Made to Measure-
FRP Fabrication





Staircare SC-R Made to Measure FRP Fabrication

Staircare's FRP structure design and fabrication processes are operated in close consultation with our clients to ensure satisfaction throughout all stages of initial concept to final completion. These structures are made to comply with relevant Australian standards and our products have been tested both in-house and by external professionals. By doing so, we are able to have complete confidence and assurance in the products we provide. At Staircare, we are constantly refining, upgrading and improving our existing products to ensure we are providing a high quality service.

Robust structures can also be delivered to locations complete or in manageable components for assembly on site, depending on your needs.



Staircare™ engineering capabilities are as below

- 1 — Feasibility study and conceptual design
- 2 — Site visit and measurements
- 3 — Detailed 3D design and drafting
- 4 — Detailed calculation according to the Eurocomp and ANSI\ACMA and Australian standards
- 5 — Third-party check and inspection
- 6 — Mechanical and physical tests and FEA simulations.
- 7 — FRP custom made design
- 8 — 3D Modelling



www.staircare-frp.com.au

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