



TECHNICAL MANUAL

TRAXION Mineral-fibre Technology Decking

- 1. Introduction**
- 2. Physical Properties**
- 3. Installation**
- 4. Cleaning & Maintenance**

1.1 About This Manual:

This manual has been developed to effectively assist fabricators and contractors to work with TRAXION. Due to the uncontrollable conditions onsite and different methods of job scope, as well as the variable skills and judgment of installers and the quality of equipment, tools, etc, the suggestions and recommendations contained in this manual are provided without warranty. The information and recommendations herein are believed to be correct at time of publishing.

BLUECHIP reserves the right to revise the contents of this manual without prior notice. Any construction or use of the product must be in accordance with all local zoning and/or building codes and in accordance with the current NCC at the time of use. Except as contained in a written warranty certificate, the supplier does not provide any other warranty, either express or implied, and shall not be liable for any damages, including consequential damages.

1.2 Company Background:

Founded in 2003 by five brothers, BLUECHIP has grown every year since to become one of Australia's leading suppliers of architectural building envelopes. BLUECHIP's product range covers the complete system from the structure out including all types of cladding materials, composite decking, sub-framing, insulation, waterproofing and fixings.

With offices in Sydney, Melbourne and Perth, BLUECHIP has supplied more than 3,000,000m² of materials to Australian projects since 2003. Our commitment to innovation and ongoing investment in R&D ensures BLUECHIP will continue to lead the market with BCA/NCC compliant facade solutions in the years ahead.

For architects and consultants, BLUECHIP's wide range of different materials and 'complete-system' approach enables the creation of inspiring high-performance facades. For builders and contractors, BLUECHIP's large local stock, well established supply chains and genuine appreciation for our clients means you can trust us to deliver as promised every time.

1.3 Company Details:

Company: Blue Chip Group Pty Ltd
ABN: 98 162 282 064
Head Office: 16 Ashby Close, Forrestfield WA 6058
Phone: 1300 945 123
Email: sales@bluechipgroup.net.au



1.4 Product Description:

Mineral-Fibre Composite Decking

TRAXION mineral-fibre decking is a giant leap forward in wood-alternative decking. Made in USA, it has the industry's best strength-to-weight ratio, is incredibly stable and doesn't absorb moisture. The durable polymer cap stock won't stain, or fade and it provides the highest level slip resistance when tested to Australian standards. The patented technology creates a fibre-like structure inside the material, like wood, giving it unmatched strength and the lightweight boards are easy-to-handle on the job site. Quite simply, TRAXION is the best decking material on the market today.

Excellent Slip Resistance

TRAXION mineral-fibre decking achieves the highest possible slip rating of P5 when tested to the latest Australian standard AS 4586 meaning it is compliant for use in all applications.

Maintenance Free

TRAXION mineral-fibre decking contains no cellulose, has no open porosity structure, and is not degraded by common mould enzymes so simply wipe clean at your leisure.

Industry Leading Warranty

TRAXION mineral-fibre decking comes with the industry's leading warranty offering a 25-year Structural and a 25-year Stain & Fade guarantee backed up by the manufacturer in USA.

Extreme Strength

TRAXION mineral-fibre decking has virtually indestructible strength due to its parallel-oriented internal fibre structure that is a remarkable replication of wood's internal structure. Internal testing has subjected TRAXION to being driven over with a 5 tonne forklift (450mm span), a Toyota Hilux (450mm span) and pounded with a sledge-hammer to no effect structurally.

High Strength to Weight Ratio

Kilo-for-kilo, TRAXION mineral-fibre decking delivers unprecedented strength and much less density compared to virtually all other composite construction materials

Low Thermal Expansion

TRAXION mineral-fibre decking has a far lower rate of thermal expansion than other composites. This dimensional stability is a huge advantage in maintaining performance and appearance. In fact, the thermal expansion coefficient of TRAXION is less than 0.001mm/m/°C.

No Moisture Absorption

Unlike almost all other composites, TRAXION mineral-fibre decking absorbs virtually no moisture; 24hr immersion testing shows maximum moisture absorption values of less than 0.4%.

Resistance to Everything

TRAXION mineral-fibre decking is resistant to almost everything including UV radiation, chalking, rot, leaching, cracking, denting, scratching, splintering and insect attack.

1.5 More Information:

<https://www.bluechipgroup.net.au/timber-decking-perth/mineral-fibre-composite-decking.html>



2.1 Technical Data:

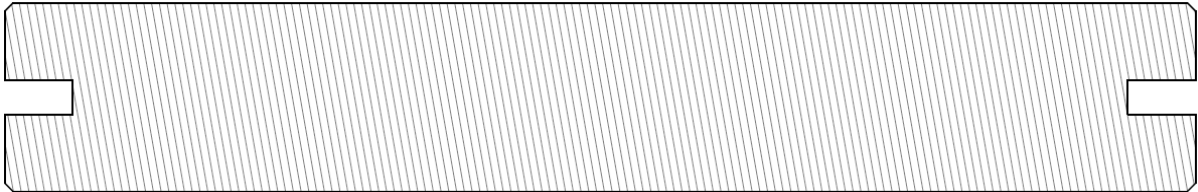
ITEM	TEST STANDARD	UNIT	RESULT
Material Density	Actual	Kg/m ³	772
Deck Weight per M2	Actual	Kg/m ²	16.45
Deck Weight per LM	Actual	Kg/metre	2.38
Allowable Decking Span	On centre	mm	450
Commercial Decking Span	On centre	mm	400
Slip Resistance	AS 4586	-	P5
Coefficient of Friction			
▪ Dry	ASTM F 1679	-	0.73
▪ Wet	ASTM F 1679	-	0.68
Moisture Absorption	ASTM D 1037	24hr Submerged	<0.4%
Thermal Movement Coefficient	ASTM D 696	mm/m/°C	<0.001
Flexural Modulus MOE			
▪ Brand New Material	ASTM D 6109	MPa	2,466
▪ After Accelerated Ageing	ASTM D 6109	MPa	2,145
Flexural Strength MOR			
▪ Brand New Material	ASTM D 6109	MPa	34.00
▪ After Accelerated Ageing	ASTM D 6109	MPa	33.46
Impact Resistance			
▪ Brand New Material	-	J/m	1,224.3
▪ After Accelerated Ageing	-	J/m	1,188.8
Concentrated Load (Ultimate)			
▪ Decking at 50°C	Actual	kN	4.78
▪ Decking at 20°C	Actual	kN	6.44
▪ Decking at -35°C	Actual	kN	9.04
Deflection at 0.89kN Load			
▪ Decking at 50°C	Actual	-	6.83
▪ Decking at 20°C	Actual	-	4.59
▪ Decking at -35°C	Actual	-	2.62
After 100Nm Impact at 50°C			
▪ Static Load to 1.78kN	Actual	-	No Break
▪ Deflection at 0.89kN	Actual	-	4.41
Material Hardness	-	kN	3.1
Fastener Withdrawal Strength			
▪ Decking Screws	ASTM D 1761	N	1,712
▪ Secret Fix System	ASTM D 1761	N	1,037
Lateral Fastener Strength			
▪ Decking Screws	ASTM D 1761	N	3,263
▪ Secret Fix System	ASTM D 1761	N	2,701
Accelerated Ageing			
▪ UV Exposure	ASTM G 155-13	Xenon Arc	4,000h
▪ Wet, Freeze, Thaw, Dry	Actual	Cycles	5
Fungus Resistance (Brown & White Rot)	AWPA E7-93	-	Pass
Termite Resistance (Formosan Subterranean)	AWPA E7-93	-	Pass



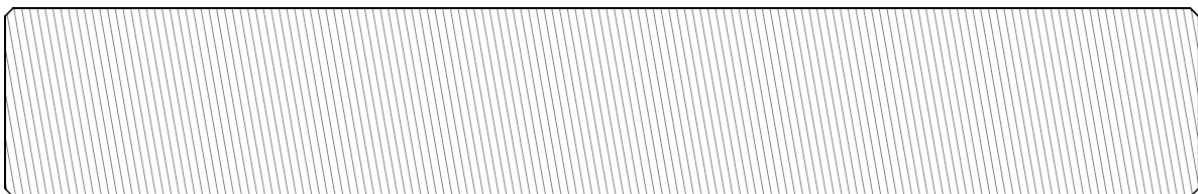
2.2 Decking Profiles:

TRAXION Mineral-fibre Decking is available in both a Secret Fix profile and a Pencil Round profile for use as edge boards, fascia boards, stair treads, screening and bench seats.

TX14022 – TRAXION 140 x 22mm Secret Fix Decking Profile:



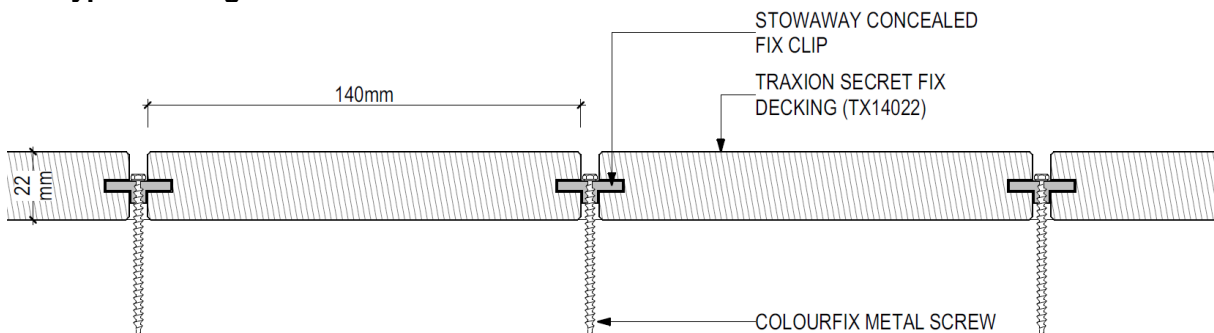
TP14022 – TRAXION 140 x 22mm Pencil Round Profile:



2.3 Sizes & Dimensions:

ITEM	TEST STANDARD	UNIT	RESULT
Lengths	Actual	Metres	5.8m
Board Width	Actual	mm	140mm
Board Thickness	Actual	mm	22mm
Coverage (5mm Spacing)			
▪ Lineal metres per m2	Actual	m/m2	6.9
▪ 5.8m Boards per m2	Actual	5.8m Boards	1.19
▪ M2 per 5.8m Board	Actual	m2	0.84

3.1 Typical Fixing Detail:



TRAXION installation details are available in PDF and CAD on request. The TRAXION installation details are provided for conceptual purposes only. These are not the only methods that can be used to attach TRAXION, nor can they be used generically without consideration for each individual application. Good design engineering may preclude the choice of details used.



3.2 Sub-framing Requirements:

Sub-framing System:

The sub-framing system to be installed in a manner to ensure all applied loadings to the decking is transferred back to the ground. Size and spacing of sub-frame members shall be determined according to applied loads and deflection limitations. Joist spacings shall be installed at maximum 450mm centres or as required to adequately support the decking system.

Acceptable Sub-framing materials are:

- TRAXION mineral-fibre sleeper system for direct fix to concrete or paving
- Suitably treated structural grade timber to suit the project location & requirements
- Suitably treated steel sub-framing system to suit the project location & requirements
- Aluminium sub-framing system

3.3 Installation Instructions:

Face Fixing With Screws:

We recommend using PRO PLUG colour-matched plugs & screws. Alternatively use 50 x 10g stainless steel square-drive screws. Always pre-drill and countersink prior to driving screws. Screws should be a minimum 20mm from the end or edge of the board and driven flush with the decking surface. Do not over-tighten. Use two fasteners per deck board at each joist. For butt joints, add additional blocking to the joist to adequately support both board ends.

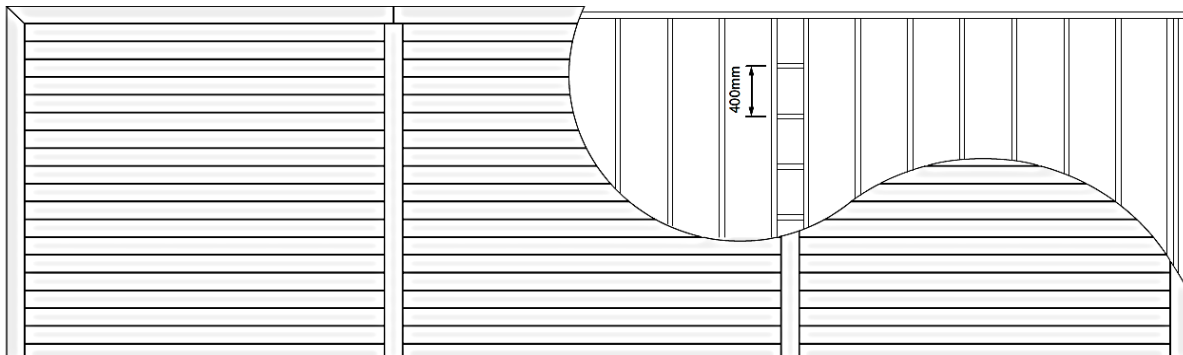
Spacing for Ventilation:

Strictly speaking, TRAXION does not require ventilation and can be in contact with ground or water without minimising its long-term performance. However best practice for other materials such as a timber sub-frame is to ensure proper ventilation and drainage to ensure longevity.

Expansion, Contraction & Breaker Boards (See below):

The expansion and contraction rates of TRAXION Mineral-fibre decking are by far the best in the wood-look decking industry and are far less than all other WPC or PVC type wood-look decking products. That said best practice installation methods are always recommended so we still encourage the use of Breaker boards on any deck longer than 6 metres. If butt joining is preferred, blocking of joists and locking screws are still required to avoid creep. Breaker boards are run across the deck at 90 degrees to the ends of the long boards so that the maximum gap possible is 5 mm. Additional joists/support is required in the substructure wherever a breaker board is being used. The breaker boards can be Face Fixed directly into the joists as above using PRO PLUG colour-matched plugs & screws.

Illustration of Breaker Boards & Required Framing:





End-to-End Spacing Between Boards:

As above while not strictly required for TRAXION, best practice is still to allow minimum of 3mm gap between board ends, between adjacent boards (if face fixing) and between and other structure or solid objects as per below table. Additional blocking to either side of the joist is recommended for support of butt joints.

Gapping requirements

	Installation temperature	
	Above 0° C	Below 0° C
Side-to-Side	3mm	5mm
End-to-End	2mm	3mm
End-to-Side	2mm	3mm
Abutting Solid Objects	3mm	6mm



End Tag

Note: Always follow best workmanship practices. Including, and not limited to, square cutting both board ends prior to installation.

Edge Board Installation - Horizontal Picture Frame Option:

Cut the solid 140 x 22mm Pencil Round edge-boards to length, mitre as required for corners and then fasten the outside edge to the rim joist with PRO PLUG colour-matched plugs & screws. Although not critical, it is recommended to overhang the edge-board 22mm past the sub-frame to allow for running decking vertically down the sides of the deck as fascia boards if required.

Edge Board Installation – Vertical Fascia Type Option:

An alternative to using an edge-board is to use the same 140 x 22mm Pencil Round profile but as a fascia board on the side of the decking as opposed to the horizontal picture frame option. Cut the solid 140 x 22mm Pencil Round edge-boards to length, mitre as required for corners and then fasten to the rim joist with PRO PLUG colour-matched plugs & screws. Overhang the boards 22mm above the top of the rim joist to allow for the thickness of the decking.

Decking Installation:

Install one secret-fixing clip at each joist location along the length of each decking board. For installations where deck boards are butted end-to-end at the joist, we recommend adding a 200mm blocking to either side of the joist and using a secret-fixing clip at the end of each board (4 clips per butt joint). Be sure to gap the boards as previously described. Repeat the process for each board until the final board is cut to size to fit between the edge-board or building and fastened through the non-grooved edge with PRO PLUG colour-matched plugs & screws as described above.

IMPORTANT: Do not overdrive screws into the STOWAWAY clips. Screws should be flush with the top off the clip and screw gun torque should be adjusted to low. Overdriving the fasteners into the STOWAWAY clips may result in structural failure and will not be covered by warranty.

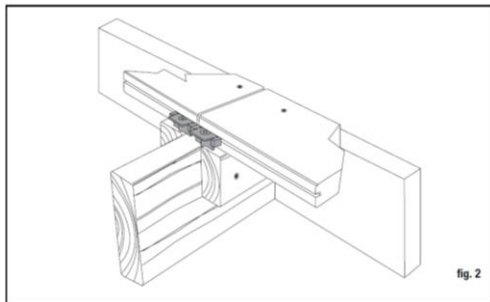
See next page for pictures to illustrate the above



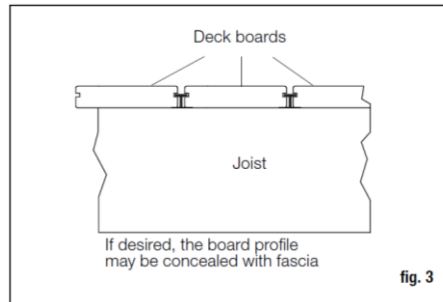
Locking Screws (Very Important):

To keep the decking boards from 'creeping' over time, we recommend 1 x locking screw per decking board in the centre of the board's length using a 50x7g screw fastened diagonally through the side of the decking board. Pre-drill in the slot of the deck board at 45° with a 3mm drill bit and drive screw into the slot so it's flush with the bottom of the groove. This will allow the STOWAWAY secret-fixing clip into the slot over the screw and centred over the joist.

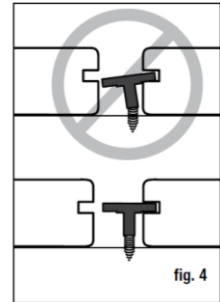
Illustration of Various Details Referenced Above:



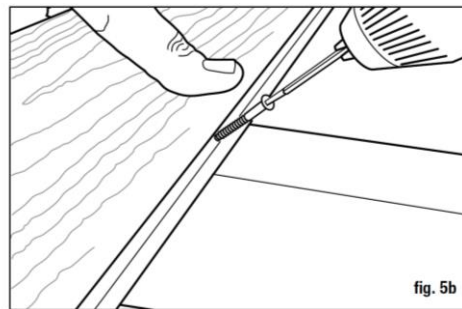
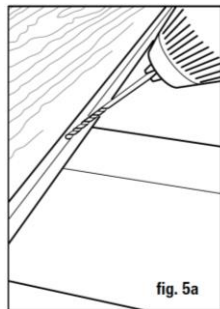
Final board against building.



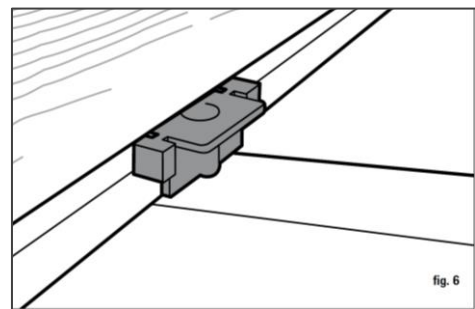
End-view of boards.



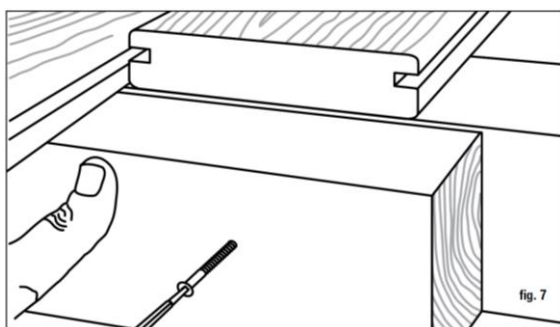
Clips to be level.



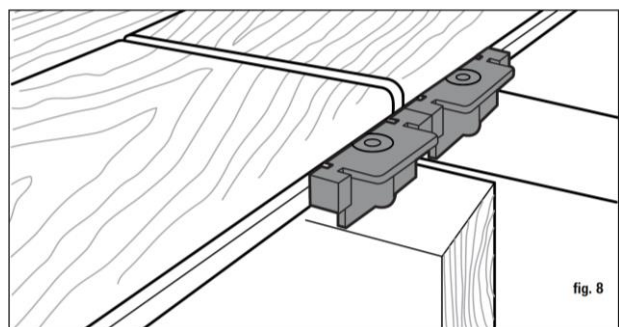
Pre-drill and insert diagonal locking screw in each board.



STOWAWAY clip at each joist.



Additional blocking to be installed at all butt joints with a clip at the end of both boards.



Finish Variation:

As with all products there may be some finish and colour variation between different batches of TRAXION decking and as such it is always recommended to order all the materials required for any project in one order. Each TRAXION board has a unique appearance and should be arranged according to the end user's preference. Also, the direction of installation may slightly alter the appearance so the tags on the board ends should be used to install all the boards in one direction. Alternatively install the boards in random different directions for more variation.



3.4 General Installation Guidelines:

- Tools needed and/or recommended are; Safety Glasses, Pencil or Pen, Tape Measure, Utility Knife, Jigsaw, Carpenter Square, Power Screw Gun or Drill with Torque Setting, Soft Mallet, Power Saw, Fine Tooth Blade (40-teeth minimum, sharp carbide-tipped wood or finish/trim blades) Large File or Medium Grit Sandpaper, Chalk Line, Spacing Tools, Fastener Specific Tools.
- Upcut boards with clean/smooth fine-tooth saw blade
- Cut boards with leading edge of saw blade cutting into the exposed face. Use a sharp utility knife or jigsaw to finish cuts where circular saw cannot complete cuts.
- Use jigsaw to cut openings for any protrusions.
- If deemed necessary, use a large file or medium-grit sandpaper to clean cut edges.
- Use utility knife to cut any protruding fibres or strands.
- In the rare event that a fibre or strand protrudes from the board DO NOT pull it.
- Set power drive such that screws are NOT overdriven.

3.5 Storage & Handling:

- TRAXION decking boards should be stored covered, flat and off the ground.
- Standard 5800mm long packs of TRAXION require a minimum of eight gluts (supports) under the pack for proper storage.

4.1 Cleaning & Maintenance:

Low Maintenance:

TRAXION decking is virtually maintenance free, needing only periodic cleaning to keep it looking great. Like any surface in your home, TRAXION looks best when the surface is kept clean.

General Cleaning Recommendations:

Periodic washing with soap / detergent and water will help remove surface dirt. This will also help prevent the build-up of pollen, debris and spores that can cause and accelerate mould / mildew growth. A pressure washer should not be used to “blast” mould / mildew or soils from the decking surface however, a fan tipped nozzle can be used to lightly wet or rinse the decking surface. There are many decking wash and exterior cleaning products available at retail stores. It is important to make sure you use a cleaner specifically intended for your application. After selecting a product, be certain to read, understand and follow all instructions supplied by the manufacturer. Some cleaning products and inhibitors may be more effective than others, depending on the environmental conditions your decking is subjected to. Additionally, it is always a good idea to test the cleaner in a small area prior to applying it to the entire decking.

Basic Cleaning Agents:

Decking cleaners usually contain sodium per carbonate and a detergent, which is effective on normal dirt and grime and bleaches out mould and mildew stains. Oxalic acid cleaners are effective on rust stains from metal furniture. Commercial degreasers contain propylene glycol, sodium hydroxide, and various detergents for removing grease and oil stains. Spot removers or thinners can be used sparingly on particularly stubborn grease or oil stains but should be washed off quickly with water as they will attack the grain pattern. These normally include petroleum distillates, xylene, methanol, acetone, or other organic solvents. As with any chemical product, it is always a good idea to test the cleaner in a small area prior to applying it to the entire decking area to ensure it does not damage the surface and achieves the desired result.



Mould & Mildew:

Mould and mildew can be a nuisance on any exterior building surface, regardless of the material. If conditions are right, they will spawn on wood, plastic, concrete, metal and other surfaces. Mould formation is most prevalent in wet, shaded areas. Spores from the natural environment are carried by the wind and commonly land on decking surfaces. It is important to note that the appearance of mould/mildew is a function of nature, not necessarily a deficiency with the decking material. Mould may form on any surface where moisture is prevalent, where there is heavy shading, or where pollen and debris can collect. To eliminate mould, use conventional decking washers or cleaners that contain sodium percarbonate and detergent. These cleaners can be found at most home centres. As with decking washers, there are several mould inhibitor products available from paint stores, hardware stores, online outlets and home centres to help prevent long term mould/mildew growth. For any product selected, be certain to read, understand and follow all instructions supplied by the manufacturer. Depending on the environmental factors affecting your decking some preventative cleaning products may be more effective than others. It may be necessary to try more than one product. For ongoing preventative maintenance, follow the manufacturer's recommendation.

Staining:

TRAXION resists accidental staining better than most other products. Many stains can be removed with a household hose. It is recommended that any use of a pressure-cleaner or high-pressure hose be done with great care and with a wide-nozzle spray. Too much direct pressure can and will damage the surface. Where water alone is not successful, the use of mild household detergent or degreaser may be required. Use with a soft brush and wash off with water immediately. Do not allow stains to bake on under direct sunlight. If you use a barbeque grill on your decking, keep a splatter guard underneath it as grills are a major source of grease stains and burns. To prevent water pooling on the deck surface and staining it, make sure the decking boards have gaps between them and that the gaps have not become clogged with debris.

Scratches:

As with all decking materials, the surface of TRAXION can become scratched or gouged. Its deep surface undulations are designed to add to its grip factor but also to aid in scratches not being as noticeable as they may be with other products. Normal wear and weathering will, over time, reduce the visual aspect of scratches. TRAXION's surface is an advanced Polyethylene and with an emphasis on being cautious, scratching can be 'healed' with the gentle use of a heat gun. Please be aware it is a very fine line between getting the right heat to mould-out scratches and burning the surface. The supplier takes no responsibility for damages caused by attempting repairs in this way. As with any product, if a board is irreparable, replace it with a new board.

Other Important Information:

As with any exposed exterior surface TRAXION needs cleaning and maintenance to look its best and accordingly it is ultimately the client's responsibility to clean and maintain the product as required to maintain the desired performance and appearance. TRAXION is not suitable for structural use. It should not be used for primary load bearing members such as posts, beams, joists or stringers. The same common sense precautions should be taken when handling as with wood or other building materials. Dust masks and eye protection are recommended to avoid possible irritation from sawdust and chips. Gloves will help to protect the hands. Always follow all safety precautions and instructions when using any cleaning or other chemical products. Any construction or use of the product must be carried out by a qualified installer in accordance with good commercial practice and any relevant codes or standards. The consumer assumes all risks and liability associated with the construction or use of this product. The consumer or contractor should take all necessary steps to ensure the safety of everyone involved in the project, including, but not limited to, wearing the appropriate safety equipment.