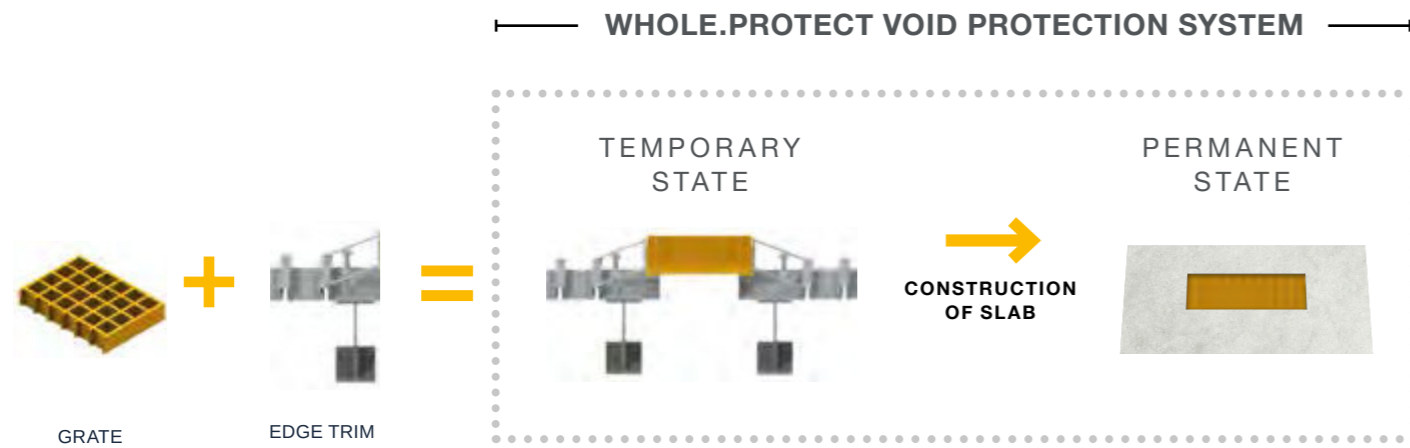
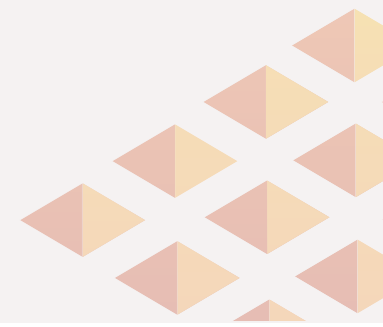


### 3. TECHNICAL DATA & STRUCTURAL CALCULATIONS

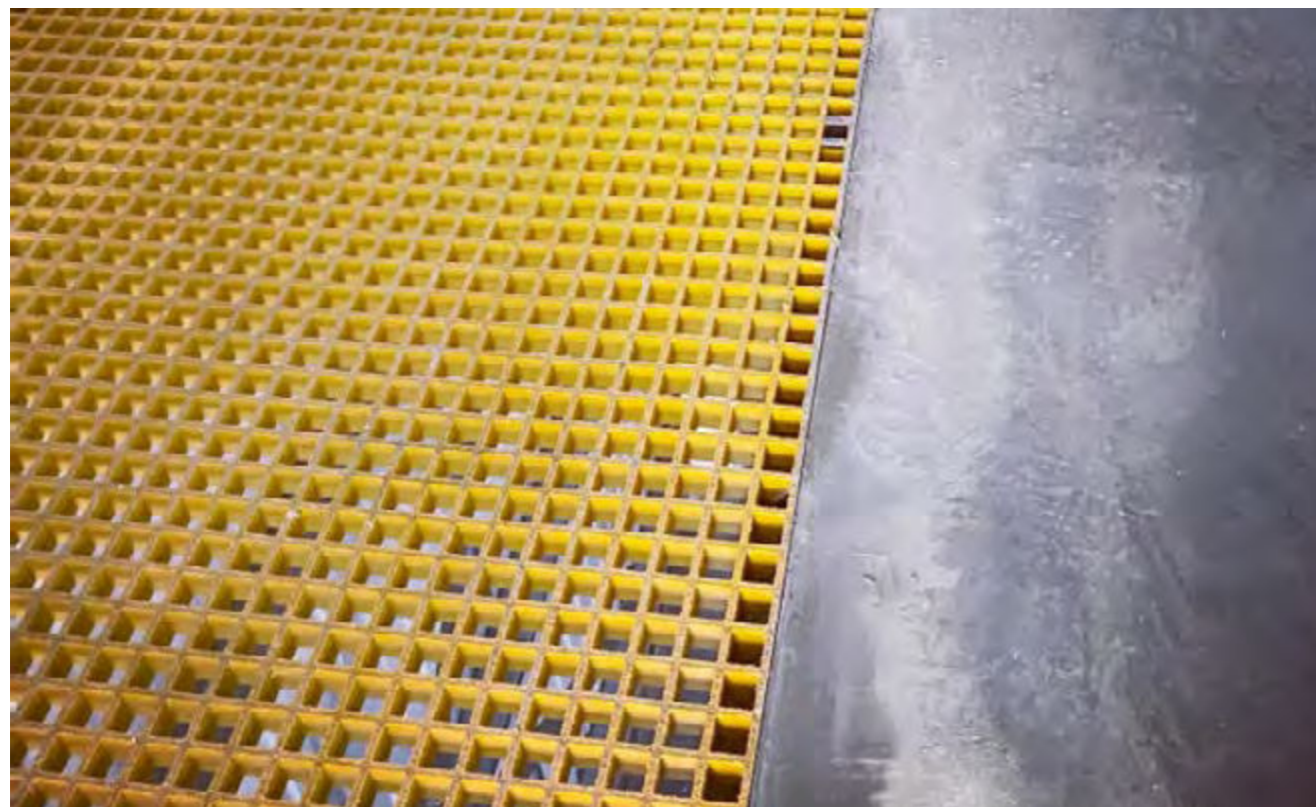


#### PERMANENT STATE

#### WHOLE.PROTECT SYSTEM - AFTER CONCRETE

After the concrete slab is cast, the supporting ledge created by the edge shutter permanently supports the GRP grating.


*Please note - The design of the concrete slab and supporting structure is to be undertaken by a third party.*




#### LOAD CAPACITIES - PERMANENT STATE

! Loading calculations have been conducted by an independent third party.

##### UNIFORMED LOAD CAPACITY (KG/M<sup>2</sup>)

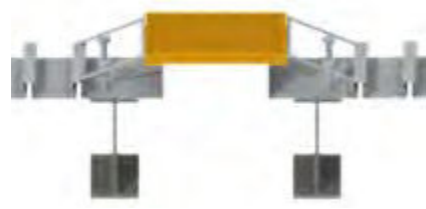
Product Name	Type	Mesh Size	Grating Depth	300mm Span	450mm Span	600mm Span	750mm Span	900mm Span	1000mm Span	1200mm Span
 wHOLE.Protect Standard	WP04SD	38mm x 38mm	38mm	23,132	6,790	2,825	1,404	859	605	390
 wHOLE.Protect Micro	WP11MC	19mm x 19mm	38mm	24,643	7,130	2,966	1,475	902	636	410
 wHOLE.Protect Solid	WP04ST	Solid top (38mm <sup>2</sup> mesh core)	41mm	23,132	6,790	2,825	1,404	859	605	390
 wHOLE.Protect Maxi	WP05MX	50mm x 50mm	50mm	48,800	15,485	6,800	3,425	2,100	1,510	850

##### CONCENTRATE LOAD CAPACITY (KG)

Product Name	Type	Mesh Size	Grating Depth	300mm Span	450mm Span	600mm Span	750mm Span	900mm Span	1000mm Span	1200mm Span
 wHOLE.Protect Standard	WP04SD	38mm x 38mm	38mm	1,455	1,020	725	521	430	317	275
 wHOLE.Protect Micro	WP11MC	19mm x 19mm	38mm	1,530	1,070	762	547	455	333	290
 wHOLE.Protect Solid	WP04ST	Solid top (38mm <sup>2</sup> mesh core)	41mm	1,455	1,020	725	521	430	317	275
 wHOLE.Protect Maxi	WP05MX	50mm x 50mm	50mm	3,400	1,862	1,180	803	568	460	324

**Please note:**

- These figures are based on a deflection length of 0.75% of the span (BS Standard). For example, 734kg on a 300mm span will deflect at 2.4mm - (300/125).
- The load tables above show maximum clear spans for various loading example/requirements in accordance with BS 4592-2006. For pedestrian traffic, the deflection of a floor panel under the design load shall not exceed 10mm or 1/200 of the span - whichever is the lesser. The difference in level between a loaded and a neighbouring un-loaded panel shall not exceed 4mm.
- These figures cannot be guaranteed as they were taken in a test environment and cannot factor in other operational conditions.




## TEMPORARY STATE wHOLE.PROTECT WITH EDGE TRIM

The wHOLE.**Protect** system in its temporary state has undergone independent structural engineer testing\* by Parallax Structures to ensure suitability for pre- slab construction.

### LOAD CAPACITIES - TEMPORARY STATE


#### UNIFORM LOAD CAPACITY (KG/M<sup>2</sup>)

Product Name	Type	Mesh Size	Grating Depth	1200mm Span
 wHOLE.Protect Standard	WP04SD	38mm x 38mm	38mm	152.96



The uniform distributed load capacity of wHOLE.**Protect** prior to concrete is 1.5kN/m<sup>2</sup> with a maximum single span of 1200mm. It can be safely used as a working platform comparable to the composite metal deck in its temporary state.

#### CONCENTRATE LOAD CAPACITY (KG)

Product Name	Type	Mesh Size	Grating Depth	1200mm Span
 wHOLE.Protect Standard	WP04SD	38mm x 38mm	38mm	91.77

The maximum concentrated load that can be applied to the wHOLE.**Protect** system directly above the point of support on the edge trim is 0.9kN.

\* Please note: these figures cannot be guaranteed as they were taken in a test environment and cannot factor in other operational conditions.

### WHOLE.PROTECT EDGE TRIM SELECTOR

Edge trim depth	Galv. steel edge trim thickness (mm)		
	1.2	1.6	2.0
Maximum cantilever (mm)			
130	100	x	195
150	50	100	185
200	50	100	160
250	50	x	135
300	x	50	100
350	x	x	50

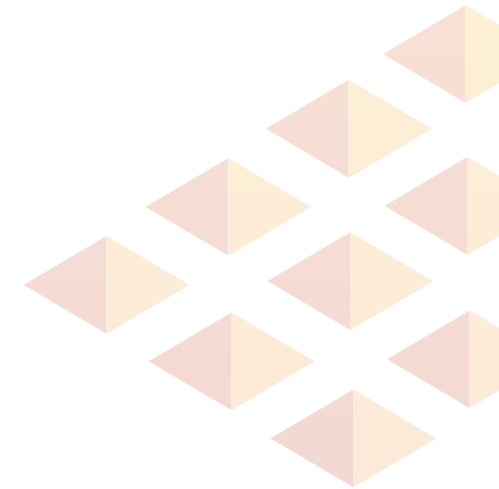
x - Not recommended

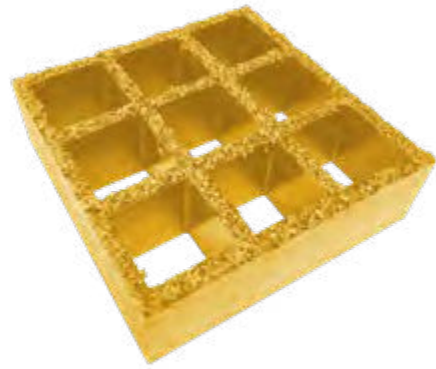
#### EDGE TRIM CONSTRAINTS:

- Minimum basic yield strength, 280 N/mm<sup>2</sup>.
- An absolute minimum 1.2mm material thickness to be used.
- The edge trim and restraint straps must be fixed to the composite deck or primary steel structure in accordance with TATA requirements.
- In the event that the edge trim becomes damaged during construction, the GRP grating should NOT be loaded and the damaged edge trim section is to be replaced prior to further loading of the GRP grating.
- Edge trim is to be restrained at 600mm centres along its length in accordance with TATA ComFlor requirements.
- Edge trims to have a minimum 50mm bearing beyond the deck recess to receive the GRP grating and the trim is to be fixed to the top of the steel members in the same manner as the decking and restrained by the restraint straps @ 600 c/c. The design of these fixings is outside the scope of these calculations.
- The analysis and calculations assume continuity of the edge trim where fixed to the beams and the edge trim is designed based on the maximum moments for plastic failure.
- Consider 1m width of edge trim with load distributed evenly along length via GRP grid. Grating to have 55mm bearing with load applied centrally through bearing of GRP.

#### SPANNING CAPABILITIES

- GRP grating has a maximum span of 1200mm on the short span before supports are required. We can accommodate almost any length with adaptations. Please speak with us to discuss your requirements.





## ORIGINAL STATE wHOLE.PROTECT GRATE ONLY

The wHOLE.**Protect** Void Protection System uses high performance GRP (glass reinforced plastic) grating panels.



### SLIP RESISTANT GRP GRIT TOP GRATING:

wHOLE.**Protect** products are made as a single mould of cross-threaded GRP (glass reinforced plastic) with a grit coating making it super strong, durable and slip resistant.

Standard GRP Grit Top	
Dry Reading	69
Wet Reading	65

Measured using the Pendulum test method (WF rubber slider)



### The UK Slip Resistance Group guide to slip resistance of a floor for able bodied pedestrians:

Four S Pendulum Value	Potential for Slip
Above 65	Extremely Low
35 to 65	Low
25 to 35	Moderate
25 and Below	High

\*To ensure that the above slip resistance levels are maintained, the panels should be kept clean.

## PRODUCT INFORMATION TABLE

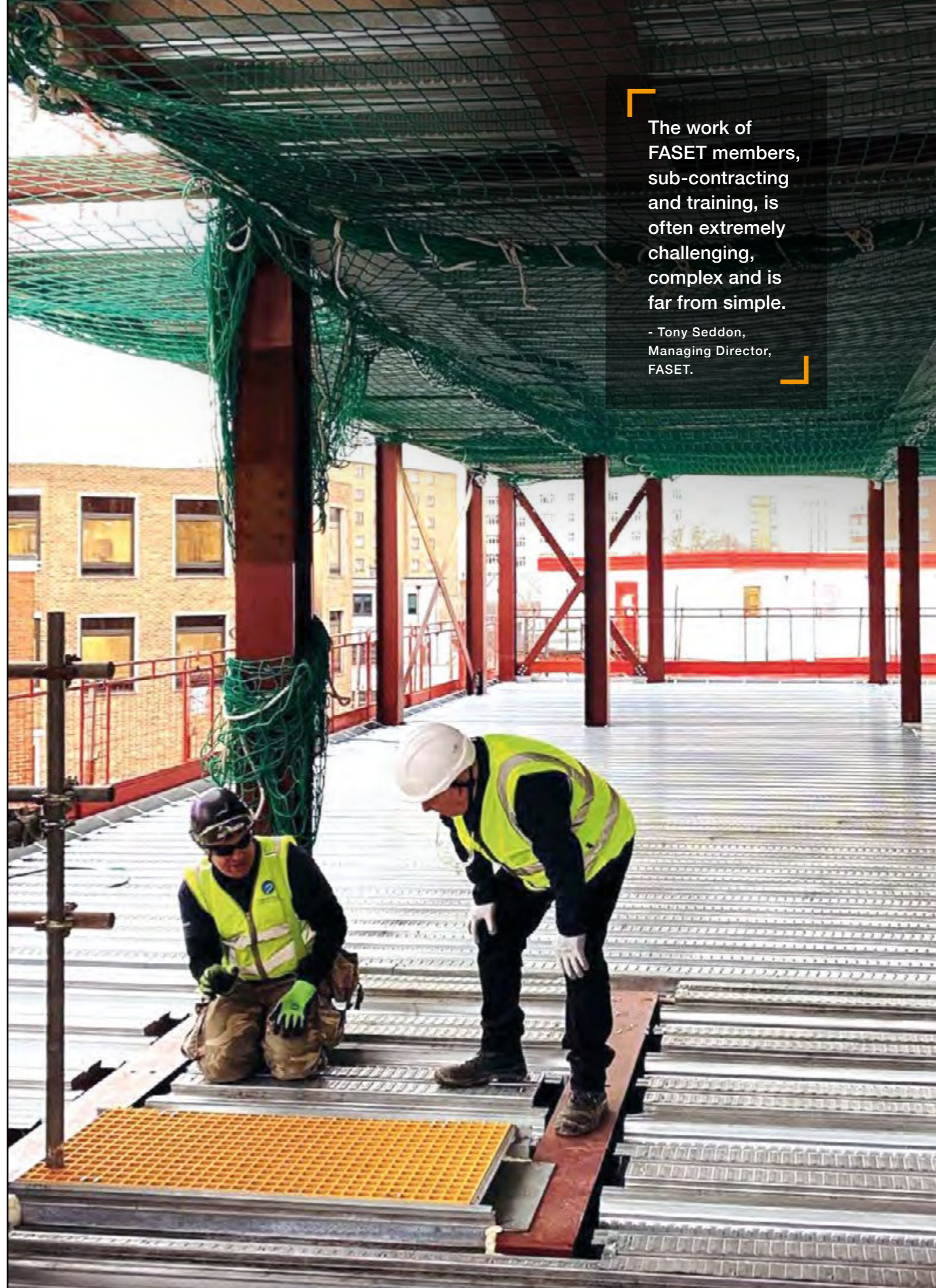
Description:	High performance composite grating system
Top finish:	Standard GRP Mesh Grit Top
Slip Resistance Values	Dry Reading - 69 Wet Reading - 65
Stock colours:	Yellow (any RAL or BS colour subject to extended lead time)
Thickness:	38mm, 41mm (38mm + 3mm), 50mm
Maximum panel sizes, dependent on grating type:	3660mm x 1220mm 3010mm x 996mm 1985mm x 996mm
Mesh patterns:	Grid 19mm <sup>2</sup> , 38mm <sup>2</sup> , 50mm <sup>2</sup>
Chemical resistance:	Made from Iso resin as standard. Different chemical resistance available, please refer to the list below.
Tolerances (including cut):	+/- 7mm width, length and diagonal
Depth tolerances:	+/- 1.5mm
Service temperatures:	-50 to 105°C
Design life:	25+ years (subject to traffic analysis)
General use:	Standard pedestrian traffic
Standards: Fire:	Tested to BS 476: Part 7: 1997 Class 2

### CHEMICAL RESISTANCES TABLE

Chemical	Iso concentration (%)	Temperature F/°C
Acetic Acid	50	125/52
Ammonium Hydroxide	100	160/71
Ammonium Chloride	All	170/77
Ammonium Bicarbonate	15	125/52
Ammonium Sulfate	All	170/77
Benzene	All	N/R
Benzoic Acid	SAT	150/66
Borax	SAT	170/77
Calcium Carbonate	All	170/77
Calcium Nitrate	All	180/82
Carbon Tetrachloride	1000	N/R
Chlorine Water	SAT	80/27
Citric Acid	All	170/77
Copper Chloride	All	170/77
Copper Cyanide	All	170/77
Copper Nitrate	All	170/77
Ferric Chloride	All	170/77
Ferrous Chloride	All	170/77
Formaldehyde	50	75/24
Gasoline	100	80/27
Glucose	100	170/77
Glycerin	100	150/66
Lithium Chloride	SAT	150/66
Magnesium Chloride	All	170/66
Magnesium Nitrate	All	140/60
Magnesium Sulfate	All	170/77
Mercuric Chloride	100	150/66
Mercurous Chloride	All	140/50
Nickel Chloride	All	170/77
Nickel Sulfate	All	170/77
Nitric Acid	20	70/21
Oxalic Acid	All	75/24
Potassium Chloride	All	170/77
Potassium Dichromate	All	170/77
Potassium Nitrate	All	170/77
Potassium Sulfate	All	170/77
Propylene Glycol	All	170/77
Sodium Cyanide	All	170/77
Sodium Nitrate	All	170/77
Sodium Chloride	All	160/71
Vinegar	100	170/77
Zinc Nitrate	All	170/77

**ALL = All concentrations**  
**N/R = Not Recommended**  
**SAT = Saturated Solution**

The corrosion resistance data listed above is for general information only. Resin manufacturers have provided test data which indicates that the specific resin can withstand the corrosion conditions listed above. wHOLE.Protect believes the data to be true and accurate but no guarantee is expressed or implied as to specific performance. Testing for specific environments is recommended. Our responsibility for claims arising from breach of warranty, negligence or otherwise is limited to the purchase price of the material sold by wHOLE.Protect.



The work of FASET members, sub-contracting and training, is often extremely challenging, complex and is far from simple.

- Tony Seddon,  
 Managing Director,  
 FASET.