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Compliance Certificate

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Date: 22/05/2019
To: Trex Company, Inc.
Attn: Mr. Chris Scoville
Re: Trex® Transcend® Decking – Span Table Charts per AS/NZS 1170.0:2002 and AS/NZS 1170.1:2002

Dear Sir,

SOTO Engineers certify that TREX COMPANY, Inc. deck board product: *Trex® Transcend® Decking* presented in this certificate is in compliance with Ultimate Limit State design requirements of the relevant sections and clauses of the following Australian Standards:

- *AS/NZS 1170.0:2002 – Structural design actions – Part 0: General principles*
- *AS/NZS 1170.1:2002 – Structural design actions – Part 1: Permanent, imposed and other actions*

This document provides ultimate load/span and deflection/span tables for *Trex® Transcend® Decking* product and the calculations are based on test data document of the referred product provided by the client:

- *I3429.01-119-19 R0 – ICC-ES AC174 Compliance Evaluation on Transcend, Enhance, Select and Contour Deck Boards*

The reference document produced by SOTO that forms the basis of design on which the Compliance Certification is based is contained in the following controlled document:

- *18227-CAL-001 - TREX – Span Table Chart for Deck Boards*

If you have any queries please do not hesitate in contacting the undersigned.

Yours faithfully,

Rodrigo Barros, Structural Engineer
BE(Civil), MIEAust
Engineers Australia No. 3974847

Frank Soto, Principal Engineer
BE(Mech), FIEAust
Engineers Australia No. 333251

Next pages show the referred tables on this certificate.

Table 1 – Trex® Transcend® Decking (140 mm x 24 mm) Span Table

Imposed Actions	Combinations of Actions Utilized	Joist/support Centres [5]				
		225 mm	300 mm	400 mm	450 mm	600 mm
Ultimate Distributed Load Q (kN/m²) [1]	$1.2\ SW + 1.5\ Q * k_t$	218	123	69	54	-
Ultimate Concentrated Load Q (kN) [2]	$1.5\ Q * k_t$	4.6	3.4	2.6	2.3	-

Table 2 – Trex® Transcend® Decking (140 mm x 33 mm) Span Table

Imposed Actions	Combinations of Actions Utilized	Joist/support Centres [5]				
		225 mm	300 mm	400 mm	450 mm	600 mm
Ultimate Distributed Load Q (kN/m²) [1]	$1.2\ SW + 1.5\ Q * k_t$	-	246	138	109	61
Ultimate Concentrated Load Q (kN) [2]	$1.5\ Q * k_t$	-	6.9	5.2	4.6	3.5

Table 3 – Trex® Transcend® Decking (140 mm x 24 mm) Deflection Table for Residential construction [6]

Imposed Actions	Short-term factor (ψ_s)	Long-term factor (ψ_ℓ)	Joist/support Centres [5]							
			Short-term				Long-term			
			225 mm	300 mm	400 mm	450 mm	225 mm	300 mm	400 mm	450 mm
Uniformly Distributed Action (2 kN/m²) [3, 7]	0.7	0.4	0.01	0.03	0.10	0.17	0.01	0.02	0.06	0.09
Concentrated Action (1.8 kN) [4, 8]	1.0	0.4	0.69	1.64	3.88	5.53	0.28	0.66	1.55	2.21

Table 4 – Trex® Transcend® Decking (140 mm x 24 mm) Deflection Table for Commercial construction [6]

Imposed Actions	Short-term factor (ψ_s)	Long-term factor (ψ_ℓ)	Joist/support Centres [5]							
			Short-term				Long-term			
			225 mm	300 mm	400 mm	450 mm	225 mm	300 mm	400 mm	450 mm
Uniformly Distributed Action (4 kN/m²) [3, 7]	1.0	0.6	0.03	0.09	0.30	0.47	0.02	0.06	0.18	0.28
Concentrated Action (1.8 kN) [4, 8]	1.0	0.6	0.69	1.64	3.88	5.53	0.41	0.98	2.33	3.32

Table 5 – Trex® Transcend® Decking (140 mm x 33 mm) Deflection Table for Residential construction [6]

Imposed Actions	Short-term factor (ψ_s)	Long-term factor (ψ_ℓ)	Joist/support Centres [5]							
			Short-term				Long-term			
			300 mm	400 mm	450 mm	600 mm	300 mm	400 mm	450 mm	600 mm
Uniformly Distributed Action (2 kN/m²) [3, 7]	0.7	0.4	0.01	0.04	0.06	0.20	0.01	0.02	0.04	0.11
Concentrated Action (1.8 kN) [4, 8]	1.0	0.4	0.62	1.48	2.10	4.98	0.25	0.59	0.84	1.99

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Table 6 – Trex® Transcend® Decking (140 mm x 33 mm) Deflection Table for Commercial construction [6]

Imposed Actions	Short-term factor (ψ_s)	Long-term factor (ψ_ℓ)	Joist/support Centres [5]							
			Short-term				Long-term			
			300 mm	400 mm	450 mm	600 mm	300 mm	400 mm	450 mm	600 mm
Uniformly Distributed Action (4 kN/m²) [3, 7]	1.0	0.6	0.04	0.11	0.18	0.57	0.02	0.07	0.11	0.34
Concentrated Action (1.8 kN) [4, 8]	1.0	0.6	0.62	1.48	2.10	4.98	0.37	0.89	1.26	2.99

NOTES:

[1] Uniformly distributed load on a continuous beam with two equal spans.

[2] Two equal concentrated loads symmetrically placed on a continuous beam with two equal spans.

[3] Uniformly distributed load in one span on a continuous beam with two equal spans.

[4] Central concentrated load placed on one span on a continuous beam with two equal spans.

[5] Distance between support centres.

[6] Acceptable deflections are subjected to the purpose of the products usage and the acceptance of the maximum deflection is at the discretion of the users of the products as long as the ultimate loads are in compliance with the span tables.

[7] Combination of Actions for Serviceability Limit States - Uniformly Distributed Actions (Short-term and Long-term, respectively): $q = SW + \psi_s Q$ and $q = SW + \psi_\ell Q$

[8] Combination of Actions for Serviceability Limit States - Concentrated Actions (Short-term and Long-term, respectively): $P = \psi_s Q$ and $P = \psi_\ell Q$

[9] Coefficient used to allow for variability of structural units from test data: $k_t = 1.10$

[10] Trex® Decking must be supported using a minimum of 35mm bearing length.

[11] This table is intended for use in ambient condition temperatures.