

DECLARATION OF CONFORMITY

Declaration #: 011020

Declaration Date: 1/10/20

Item #: 70756, 70758, 70764, 70759, 70765, 70760, 70766.

Product Name: Universal Guardrail

Manufacturer: Tie Down Engineering

Test Description: Guardrail Fall Protection Test on Downhill 2/12 Sloped Surface

Tie Down Engineering declares that the product(s) listed above is in conformity with the requirements of the following performance standards.

OSHA - 1926. Subpart M

Level 1 ✓	Level 2	Level 3
Tie Down Engineering Lab	Tie Down Engineering Lab Within the Scope of	Independent 3rd Party Lab accredited to
OSHA 1926 Subpart M.	ISO Standard 17025:2005	ISO Standard 17025:2005

This Certificate is a guarantee that the above standard(s) was met by the requirements of such standard. Testing was performed under normal operation mode.

The results of testing apply only to the particular sample tested and to the specific test carried out. This Certificate is only issued for products which have passed the testing requirements of listed standard(s).

Turner, Travis
Engineering

E1722

OVERVIEW:

The Universal Guardrail System has previously tested satisfactory for withstanding horizontal and vertical loads per OSHA standard 1926 Subpart M. The previous tests were conducted on flat ground. This test aims to determine whether the system can withstand the same loads when installed on a downward sloped surface, such as a roof, with a 2/12 pitch (2" rise for every 12" run, or approximately 10 degrees).



TEST:

A test was conducted that consisted of one 10-foot Universal Guardrail sections (70758) with two 5-foot Universal Guardrail sections (70760) placed perpendicular to the two 5-foot sections at each end. The perpendicular sections act as outriggers in accordance with the installation instructions. The entire guardrail system was placed on downward 2/12 sloped platforms to similar installation on a sloped rooftop. A 200lb horizontal and vertical load was then placed incrementally upon the top and bottom rails at the mid-span location.



RESULTS:

Testing has shown that the Universal Guardrail System can withstand the horizontal and vertical loads on both top and mid-rail tubes as prescribed in OSHA 1926 Subpart M, when installed on a 2/12 downward sloped surface. The test loads were applied to the 10ft guardrail section, which is concerned a worst-case compared to the 7.5ft and 5ft guardrail sections that have a shorter span and therefore less deflection at the mid-span location where load was applied. Therefore, it can be assumed the shorter 7.5ft and 5ft guardrail sections can also withstand the test loads as prescribed by the OSHA standard.

Product #	Test #	Test Administrator				Date	
10 ft Guardrail	2/12 downward slope	Instrumentation				1/10/2020	
Load Cell Model#		Instrumentation					
Model #	Serial #	Model #				Serial #	
0	0	0				0	
Load Direction	Location	Target Load (lbf)	Applied Load (lbf)	Deflection (in)	Rail Height (in)	Load Photo Reference	Deflection Photo Reference
Downward	Top Rail Mid-Span	0	0	0	47.5		
		100	106	0	47.5	L9	D9
		50	46	0	47.5	L10	D10
		80					
		110	124	0	47	L11	D11
		140					
		170	168	0	46.5	L12	D12
		200	218	0	46.5	L13	D13
Downward	Middle Rail Mid-Span	0	0	0	47.5	L14	D14
		75	88	0	47.5	L15	D15
		37.5	42	0	47.5	L16	D16
		60					
		82.5	86	0	47.5	L17	D17
		105	118	0	47.5	L18	D18
		127.5	132	0	47.5	L19	D19
		150	190	0	47.5	L20	D20
Outward	Top Rail Mid-Span	0	0	0	49.5		
		100	100	1	49.5		
		50	52	4	49	L1	D1
		80	80	6	49	L2	D2
		110	112	8.5	49.5	L3	D3
		140	148	11	49.5	L4	D4
		170	180	13	49.5	L5	D5
		200	212	15	49.5		
Outward	Middle Rail Mid-Span	0	0	0	49		
		75	84		49		
		37.5					
		60					
		82.5					
		105	110		49	L6	D6
		127.5	138		49.5	L7	D7
		150	172		49.5	L8	D8

All testing done in compliance with ASTM E935-00e1 and OSHA 1926.502(b) standards.