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Modified ASTM F 1951-14 Surface Testing Report

Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment
Additional High Performance Testing on a 5% Ramp
(after Passing the Standard 7.1% Ramp) to Indicate General Surface Usability under ADA Access Guidelines

SUMMARY OF RESULTS

Beneficial Designs, Inc. received a surfacing sample from **Brock International, LLC** classified as Artificial turf with the brand name **PowerBase**. This sample of PowerBase **met** the maneuverability performance requirements of modified ASTM F 1951-14 on a 5% ramp.

Report prepared by: Peter Axelson, Testing Supervisor — 28 September 2015 Date

TEST SPECIMEN

Manufacturer	**Brock International, LLC**
Name	**PowerBase**
Type	Artificial turf
Source	Butler, PA
Mfr's lot no.	Not Applicable
Date of manufacture	2015
Thickness	1.0 in.

TEST DATE

25 August 2015

TESTING CONDITIONS

Surface temperature	88 deg F
Atmospheric temperature	75 deg F
Relative humidity	15 %

INSTALLATION, LEVELING & COMPACTION

The Brock PowerBase panel system was fitted over the laboratory test floor. A 1 inch synthetic turf with polyethylene and nylon fibers was installed over the PowerBase system. The turf was then filled and conditioned with 3 pounds of 12/20 mesh Envirofill™ acrylic coated sand to produce a compacted "infill" depth of 12 mm.

TEST WHEELCHAIR & RIDER

Manufacturer	Sunrise Medical/Quickie
ID no.	none
Model	Quickie II
Weight	31.5 lb.

Weight of test wheelchair rider	176 lb.
Front-to-rear weight distribution of wheelchair-rider system	39% - 61 %

WHEELCHAIR WORK MEASUREMENT METHOD RESULTS

Straight Propulsion on PowerBase

	Work per meter (N*m)	Trial Time (sec)
Trial 1	46.1	6.6
Trial 2	47.5	6.8
Trial 3	47.5	6.8
Trial 4	47.2	7.2
Trial 5	47.1	6.5

Average work per meter (n=3) 47.3 N*m

Turning on PowerBase

	Work per meter (N*m)	Trial Time (sec)
Trial 1	38.0	1.6
Trial 2	36.1	1.5
Trial 3	35.1	1.6
Trial 4	33.7	1.6
Trial 5	34.6	1.6

Average work per meter (n=3) 35.3 N*m

Straight Propulsion on 5.0% Ramp*

	Work per meter (N*m)	Trial Time (sec)
Trial 1	63.8	7.2
Trial 2	67.3	7.0
Trial 3	65.1	8.0
Trial 4	63.6	7.9
Trial 5	65.2	7.9

Average work per meter (n=3) 64.7 N*m

Turning on 5.0% Ramp*

	Work per meter (N*m)	Trial Time (sec)
Trial 1	45.9	6.8
Trial 2	43.6	6.9
Trial 3	39.0	6.8
Trial 4	44.4	6.7
Trial 5	39.7	7.3

Average work per meter (n=3) 42.6 N*m

* Hard smooth surface with grade of 5.0+/-0.2% (1:20)

Straight Propulsion Work Ratio 0.731

Turning Work Ratio 0.829

Work ratio = Avg work on surface/Avg work on 5% ramp. If both the straight propulsion and turning work ratios are less than 1.00, the surface system meets the performance requirements of a modified ASTM F 1951-14 on a 5% ramp

As tested on 30 June 2015, this sample of PowerBase as installed met the ASTM F 1951-14 maneuverability performance requirements, as indicated in the ASTM F 1951-14 Surface Testing Report. The modified ASTM F 1951-14 testing on a 5% ramp done on 25 August 2015 shows this sample of PowerBase as installed exceeds ASTM F 1951-14 requirements, indicating suitability for general surfacing purposes. This high performance testing indicates that this surface as installed for testing required less work than rolling up a 5% slope. A surface that is 5% or less in slope is allowed for any distance per the ADA Accessibility Guidelines.