



TESTING SERVICES, INC.
 817 SHOWALTER AVE. • P.O. BOX 2041
 DALTON, GEORGIA 30722-2041
 PHONE: (706) 226-1400 • FAX: (706) 226-6118



TEST REPORT

CLIENT:	SafetyFirst Playground Surfacing, LLC	REPORT NUMBER:	51879
	31095 Baugh Street NW	LAB TEST NUMBER:	2321-8079
	Princeton, MN 55371	DATE:	May 18, 2011
		PAGE:	1 of 2

TEST MATERIAL:

Material Identification	Depth	Avg. Moisture Content
Nature's Plus Engineered Wood Fiber	9.0" Compacted	18-20%

INTRODUCTION:

Testing Services Inc was instructed by the client, to perform ADA wheelchair accessibility for the above Engineered Wood Fiber being used under and around playground equipment.

TEST METHOD:

ASTM F1951-09: *Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment*

REQUIREMENT:

A surface in place shall have average work per foot (work per meter) values for straight propulsion and for turning *less* than the average work per foot (work per meter) values for straight propulsion and for turning, respectively, on a hard, smooth, surface with a grade of 1:14 (7.1 %).

PROCEDURE:

Test Surface Preparation: Tests were conducted on 5/13/11 indoors at TSi Laboratories in an environment of 80°F and 52% R.H. The Nature's Plus Engineered Wood Fiber was installed in a wooden box (44"W x 117"L). The material was installed in increments of 2" and compacted using a water-filled lawn roller until it reached a compacted depth of 9.0". The material was dampened to reach an average moisture content between 18-20 percent per the client's instructions.

Wheelchair/Operator: The wheelchair used in these tests was manufactured by *Invcare*, Model Action Xtra, serial Number 98J84142. This wheelchair is totally adjustable, a necessity for these tests. The pneumatic tires were inflated to 60 psi on the rear and 32 psi on the front. The weight of the wheelchair was 24.25 pounds and the operator's weight was 165 pounds for a total of 189 pounds. The operator's distribution was adjusted to 60% on the rear wheels and 40 % on the front.

Torque Measuring System: A certified *Dillon Electronic Force Gauge*, Model BFG 500N, S/N 98-2277-07 was used as an interface between a *Dell* Laptop and a certified *Dillon Smart Torque Wrench*, S/N 97-0085-01. Software, also from Dillon, logged the load vs. time and integrated the area under the resulting curves. The adapters and accessories needed to attach the instrumentation were fabricated locally. This total package added 10 pounds to the total weight bringing the total to 199 pounds.



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TEST RESULTS:

Straight Line Propulsion

Baseline Straight (Average Work/ft-Force)	Nature's Plus Engineered Wood Fiber at compacted depth of 9.0" (Average Work/ft-Force)
15.35 lbs	15.31 lbs

Turning Propulsion

Baseline Turning (Average Work/ft-Force)	Nature's Plus Engineered Wood Fiber at compacted depth of 9.0" (Average Work/ft-Force)
10.53 lbs	9.67 lbs

CONCLUSION:

The above Nature's Plus Engineered Wood Fiber *meets/exceeds* both the straight line and turning propulsion requirements set forth in this test method and therefore, passes the standard.

Approved By:

 Erle Miles, Jr VP
 Testing Services Inc