



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:	LTR Products, LLC	REPORT NUMBER:	35100-01
	625 Liberty Street	LAB TEST NUMBER:	1761-7239
	Pittsburg, PA 15222	DATE:	October 2, 2006

TEST MATERIAL:

Identification
Playground Rubber Mulch

INTRODUCTION:

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

TEST METHOD:

ASTM F1951-99: *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 9/26-28, 2006 indoors at TSi Laboratories in an environment of 72°F and 60% R.H. The rubber mulch was installed in a wooden box (44"W x 117"L x 6" Thick). The system, prior to testing, was slightly compacted using a water-filled lawn roller to simulate foot traffic.

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 *Dillion 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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Attachment to Report # 35100-01

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 Pittsburgh, PA 15222
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TEST RESULTS:

Straight Line Propulsion

Baseline Straight (Average Work/ft-Force)	Playground Rubber Mulch Straight (Average Work/ft-Force)
14.46 lbs	13.36 lbs

Turning Propulsion

Baseline Straight (Average Work/ft-Force)	Playground Rubber Mulch Straight (Average Work/ft-Force)
10.69 lbs	9.49 lbs

CONCLUSION:

The above test material *meets/exceeds* both the straight line and turning propulsion requirements set forth in this test method and therefore, passes the standard.

Approved By:

Digitally signed by Erle Miles,
 Jr. VP
 DN: cn=Erle Miles, Jr. VP,
 o=Testing Services Inc., c=US
 Date: 2009.10.26 11:24:18
 +0400

Erle Miles, Jr VP
Testing Services Inc