



**TESTING SERVICES, INC.**  
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## TEST REPORT

**CLIENT:** ForeverLawn , Inc.  
8775 N. Orlando Ave.  
Maitland FL 32751

**TEST REPORT: 28219**

**LAB NUMBER:** 1548-9965

**DATE:** September 15, 2004

**INTRODUCTION:** Mr. Ty Allen, representing the client , submitted a playground system consisting of 2" of loose rubber mulch covered with synthetic turf and in-filled with approximately 3 lbs/ft<sup>2</sup> of crumb rubber. He requested TSi test this material for surface accessibility.

**TEST METHOD:** ASTM F 1951-99, *Standard Specification for Determination of Accessibility of Surface 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:** **Loose Fill Surface Preparation:** Tests were conducted on 9/15/04 indoors at 72F and 60% R.H. The loose rubber mulch was fluffed into a wooden box in layers one inch thick. After each 1" increment, the mulch was walked in all directions for approximately 15 –minutes before adding another layer. The same procedure continued for a total of two layers (2"). The synthetic turf, which had been in-filled with crumb rubber by the client, was installed over the mulch and rolled several times with a water- filled drum roller.

**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. His weight 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 *Micron Laptop* and a certified *Dillion Smart Torque Wrench*, S/N 97-0085-01. Software, also from Dillon, logged the load vs. time and integrated the area under the resulting curve. 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.

**TEST RESULTS:** See the accompanying data sheet recap and graph printouts.

**CONCLUSION:** The sample system described above **met all of the requirements of this standard.**

Testing Services Inc

Erle Miles, President

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