DETROIT TESTING LABORATORY, INC.
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TEST REPORT

ROBERTSON INDUSTRIES
4145 W. Mercury Way
Chandler, AZ 85226

DTL REPORT NO **7028006-1**
REPORT DATE **5/8/07**
RECEIVE DATE **3/27/07**

ATTN: Mr. Richard Hawley

SAMPLE DESCRIPTION

Robertson Industries submitted one 5 foot X 5 foot X 1.5in thick sample of unitary rubber material identified as TotTurf. Testing was performed on 5/7/07.

WORK REQUESTED/TEST SPECIFICATIONS

1. Wheelchair work measurement method – straight propulsion with no material on a flat surface with a grade of 7.1%.
2. Wheelchair work measurement method – straight propulsion with material and no grade.
3. Wheelchair work measurement method – turning 90° with no material on a flat surface with a grade of 7.1%.
4. Wheelchair work measurement method – turning 90° with material and no grade.

REFERENCE DOCUMENTS

ASTM F1951-99 - Determination of Accessibility of Surface Systems Under and Around Playground Equipment

CONCLUSION

The average work force over one foot, in pound force-inch values measured lower when propelling the wheelchair the 1.5in.TotTurf material than when propelling the wheelchair over a flat surface with a grade of 7.1%. The material met the requirements of ASTM F1951-99.

TEST RESULTS

Wheelchair Measurement Test

Procedure:

The sample material was prepared by Robertson Industries in a 5 foot X 5 foot wooden frame at a depth of 1.5 inches. The sample was cut by DTL enabling appropriate test arrangement. The sample was tested by propelling the wheelchair with four (4) even pushes across the material 6.56 feet within eight (8) seconds. This process was repeated five (5) times for each test (straight and 90° turn propulsions).

Results

The table below shows the results for each trial. Per ASTM F1951-99, the work force averages were determined averaging the three median trials, discarding the highest and lowest values.

Run #	No Material work per foot in pound force-inch	With Material work per foot in pound force-inch
Straight Run 1	109.28	39.13
Straight Run 2	118.53	39.45
Straight Run 3	109.10	31.94
Straight Run 4	109.06	34.74
Straight Run 5	109.52	31.17
Average	***109.30***	***35.27***
Turn Run 1	118.34	41.51
Turn Run 2	111.81	39.65
Turn Run 3	109.51	44.37
Turn Run 4	110.68	41.10
Turn Run 5	114.21	44.48
Average	***112.23***	***42.33***

Remarks:

The wheelchair rider weight was 172lbs., which combined with the wheelchair for a total of 207lbs.

REQUIREMENTS
The average work per foot in pound force-inch values for straight propulsion and for turning with material should be less than the average work per foot values for straight and turning on flat surface with a grade of 7.1% .

TEST EQUIPMENT

Detroit Testing Laboratory, Inc.'s calibration system meets the requirements of ISO 17025:1999.

DTL ID	Description	Manufacturer	Model	Calib. Due
09357	Signal Conditioner	Daytronics	3370	7/07
09715	Reaction Torque Sensor	Lebow	2110220500	7/07
09696	Digital Protractor	Mitutoyo	Pro 360	4/08
	Wheelchair	Quickie	Q2	NCR
	Wheelchair Fixture	DTL	-	NCR

SAMPLE DISPOSITION
The sample material will be retained for fifteen (15) days, then disposed of at the discretion of DTL unless otherwise requested.

Reported by:

DETROIT TESTING LABORATORY, INC.

David Splane
Certification Programs Coordinator

Keith G. Shelton
Certification Program Manager

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