

DTL REPORT NUMBER
090980027



Since 1903

DETROIT TESTING LABORATORY, INC.

PREPARED FOR
ROBERTSON INDUSTRIES
4145 WEST MERCURY WAY
CHANDLER, AZ 85226

ATTENTION
STEVE SCATURRO

REPORT DATE
NOVEMBER 18, 2009

DTL

Detroit Testing Laboratory, Inc.
27485 George Merrelli Drive
Warren, Michigan 48092 USA
Phone: 586.754.9000
Fax: 586.754.9045
www.dtl-inc.com

Detroit Testing Laboratory, Inc. letters, reports and data are for the exclusive use of our customers to whom they are addressed and shall not be reproduced, except in full, without the written approval of the Laboratory. Our letters and reports apply only to those samples tested, and are not necessarily indicative of the qualities of apparent identical or similar products. Samples not destroyed in testing are retained for a maximum of thirty (30) days. The use of the name Detroit Testing Laboratory, Inc. or its Seal or Insignia, are not permitted to be used by the customer on their communications, brochures, advertising, reports or other forms of media, without prior written approval. Reported test parameters are generally specified as set points of testing equipment. All documentation and data utilized in the generation of this report are available upon request.



REPORTED / APPROVED BY:

DETROIT TESTING LABORATORY, INC.

A handwritten signature in blue ink, appearing to read 'David Splane', is written above the text identifying the reporter.

Reported by: David Splane, Project Coordinator
CERTIFICATION TEST PROGRAMS

A handwritten signature in black ink, appearing to read 'Timothy Fouchia', is written above the text identifying the approver.

Approved by: Timothy Fouchia, Test Technician II
CERTIFICATION TEST PROGRAMS



PURPOSE

The purpose of this test report is to present the test results obtained during the performance of a test program. This report includes a brief description of the samples presented for test, a list of the documents presented as test instructions, and a summary of the testing performed and the results obtained. Applicable requirements and conclusions are based on the criteria provided by our client, or as specified in the reference document(s).

WORK REQUESTED / REFERENCE DOCUMENT(s)

ASTM F1951-09b, Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

TEST SEQUENCE

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.

Testing was performed on 11/18/2009.

SAMPLE DESCRIPTION

Robertson Industries submitted an adequate amount of 3.5in thick poured in place samples, 1.75in artificial turf, and synthetic infill to cover a 4ft. X 10ft. area.



TESTING PERFORMED

ACCESSIBILITY OF SURFACE SYSTEMS

Procedure

Sample material, was installed by DTL per Robertson Industries instructions:

Preparing the synthetic turf sample:

1. Place the 3.5" cushion layer material end to end within your base to form a 4' x 10' sample.
2. Unroll the turf material and leave it flat for at least 6 hours in the room it will be tested to allow it to adjust to the temperature and humidity.
3. Cover the cushion material with the turf and stretch it tight to remove wrinkles and and leave the ends overhanging the border.
4. Using a broom (or your hands), broom the fibers in a direction that will help stand the blades up to allow the infill to settle to the bottom better.
5. Starting from the center and working your way to the edges, evenly spread the infill over the turf and broom into the fibers. DO THIS IN SEVERAL STEPS. Put a little on and broom, then repeat until there is approximately 3/8" – 1/2" of infill over the entire surface.
6. If possible, pull the ends snug to remove any additional looseness and attach the ends of the turf to the border with staples tape.

Requirements

The average work force over one 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 a flat surface with a grade of 7.1%.

Conclusion

The average work force over one foot, in pound force-inch values, measured lower when propelling the wheelchair over the 5.25 in. poured in place / in-filled turf system , than when propelling the wheelchair over a flat surface with a grade of 7.1%. The material met the requirements of ASTM F1951-09b.



SAMPLE DISPOSITION

The test sample will be retained by DTL for fifteen days, then disposed of at the discretion of DTL unless otherwise requested by Robertson Industries.

TEST EQUIPMENT

Detroit Testing Laboratory, Inc.'s calibration system meets the requirements of ISO 17025:2005.

DTL ID	Description	Manufacturer	Model	Calibration Due
09357	Signal Conditioner	Daytronics	3370	06/10
09715	Reaction Torque Sensor	Lebow	2110220500	06/10
09696	Digital Protractor	Mitutoyo	Pro 360	07/10
N/A	Wheelchair	Quickie	Q2	NCR
N/A	Accessibility Fixture	DTL	N/A	NCR
N/A	Hand Tamper	Olympia	10" X 10"	NCR
02259	Weight Indicator	GSE	620	8/10

NCR – No Calibration Required

APPENDICES: Appendix A: Photographs
Appendix B: Test Data

Sample material installed in DTL accessibility test fixture.





The table below shows the results for each trial. Per ASTM F1951-09b, 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	123.99	111.41
Straight Run 2	124.28	109.91
Straight Run 3	127.43	101.40
Straight Run 4	128.49	104.09
Straight Run 5	126.84	94.52
Average	126.18	105.13
Turn Run 1	193.06	126.59
Turn Run 2	185.00	120.69
Turn Run 3	187.1	133.97
Turn Run 4	191.87	120.91
Turn Run 5	195.12	119.89
Average	190.67	122.73

Remarks:

The wheelchair rider weight was 176lbs., which combined with the wheelchair for a total of 223.7lbs.