



TESTING SERVICES, INC.
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TEST REPORT

CLIENT:	Robertson Industries	REPORT NUMBER:	48511
	4401 E. Baseline Road Suite 105	LAB TEST NUMBER:	2178-3227
	Phoenix, AZ 85042	DATE:	June 25, 2010
		PAGE:	1 of 2

Product Description: 4.5" TT Classic

Tested Dimension: 18" x 18" X 4.5"

Sub Base: Concrete

Impact Location: Center of Test Material

Date of Receipt: May 10, 2010

Testing Period: June 22--24, 2010

Authorization: Steve Scaturro

Test Procedure: The submitted sample was evaluated for Shock Absorbing Properties in Accordance with the procedures outlined in ASTM F 1292-09; Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment

Missile: Hemispherical (Triaxial Accelerometer): Total Drop Assembly Weight (46g) 10 lbs

Test Equipment: Triax 2000 Surface Impactor
 Date of Last Calibration: 3/24/2010 by Alpha Automation

Sample Pre-Condition: 50±10 RH, 7sF±5F for a minimum of 24 hrs prior to testing

Sample Conditioning: 8 hrs @ each reference temperatures prior to testing

Temperature: Maximum Drop Height That Gives a Gmax of 200 or Less and A HIC of 1000 or less

Ambient, 72°F (23°C)	11'
Hot, 120°F (49°C)	11'
Cold, 25°F (-6°C)	11'

Critical Fall Height (CFH):	11'
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Reference Gmax Curves Included

Prepared and signed by:

 Erle Miles, Jr. VP
 Testing Services Inc.



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AMBIENT Sample Condition: Dry Temperature: 70°F (23°C)	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	25.4	6	10'	10.03	114	728
	2	25.4	4	10'	10.03	117	747
	3	25.4	7	10'	10.03	118	758
	Average			Drops 2, 3		118	753
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	26.6	6	11'	11.00	132	918
	2	26.6	6	11'	11.00	136	972
	3	26.6	3	11'	11.00	136	954
	Average			Drops 2, 3		136	963
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	27.7	9	12'	11.92	141	1059
2	27.7	10	12'	11.92	143	1061	
3	27.7	8	12'	11.92	145	1097	
Average			Drops 2, 3		144	1079	

HOT Sample Condition: Dry Temperature: 120°F (49°C)	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	25.4	4	10'	10.03	121	787
	2	25.4	4	10'	10.03	119	772
	3	25.5	1	10'	10.11	123	802
	Average			Drops 2, 3		121	787
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	26.5	7	11'	10.91	134	942
	2	26.5	8	11'	10.91	137	968
	3	26.5	5	11'	10.91	138	997
	Average			Drops 2, 3		138	983
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	27.8	3	12'	12.01	144	1102
2	27.7	8	12'	11.92	144	1081	
3	27.7	6	12'	11.92	147	1153	
Average			Drops 2, 3		146	1117	

COLD Sample Condition: Dry Temperature: 25°F (-6°C)	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	25.3	5	10'	9.95	119	831
	2	25.3	2	10'	9.95	122	853
	3	25.2	5	10'	9.87	121	826
	Average			Drops 2, 3		122	840
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	26.5	7	11'	10.91	123	894
	2	26.6	3	11'	11.00	132	1002
	3	26.7	4	11'	11.08	130	946
	Average			Drops 2, 3		131	974
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	27.7	8	12'	11.92	138	1081
2	27.7	3	12'	11.92	149	1193	
3	27.7	2	12'	11.92	145	1143	
Average			Drops 2, 3		147	1168	