



TESTING SERVICES, INC.
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TEST REPORT

CLIENT:	Robertson Industries	REPORT NUMBER:	47834
	4401 E. Baseline Road Suite 105	LAB TEST NUMBER:	2143-2020
	Phoenix, AZ 85042	DATE:	April 23, 2010
		PAGE:	1 of 2

Product Description: 3.0" TT Classic

Tested Dimension: 18" x 18" X 3"

Sub Base: Concrete

Impact Location: Center of Test Material

Date of Receipt: March 15, 2010

Testing Period: 3/30/2010-4/2/2010

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) 7'

Hot, 120°F (49°C) 7'

Cold, 25°F (-6°C) 7'

Critical Fall Height (CFH):	7'
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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	19.8	1	6'	6.09	131	718
	2	19.8	3	6'	6.09	137	765
	3	19.8	2	6'	6.09	135	759
	Average			Drops 2, 3		136	762
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	21.3	1	7'	7.05	145	905
	2	21.3	3	7'	7.05	154	990
	3	21.3	4	7'	7.05	150	957
	Average			Drops 2, 3		152	974
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	22.7	1	8'	8.01	164	1115
2	22.8	4	8'	8.08	173	1228	
3	22.8	5	8'	8.08	173	1222	
Average			Drops 2, 3		173	1225	

HOT Sample Condition: Dry Temperature: 120°F (49°C)	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	19.8	3	6'	6.09	130	728
	2	19.8	5	6'	6.09	131	744
	3	19.8	2	6'	6.09	133	762
	Average			Drops 2, 3		132	753
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	21.3	2	7'	7.05	150	965
	2	21.3	3	7'	7.05	150	960
	3	21.3	1	7'	7.05	150	971
	Average			Drops 2, 3		150	966
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	22.7	2	8'	8.01	165	1187
2	22.8	0	8'	8.08	171	1241	
3	22.8	1	8'	8.08	171	1251	
Average			Drops 2, 3		171	1246	

COLD Sample Condition: Dry Temperature: 25°F (-6°C)	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	19.8	1	6'	6.09	121	640
	2	19.8	3	6'	6.09	128	701
	3	19.8	1	6'	6.09	129	708
	Average			Drops 2, 3		129	705
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	21.3	3	7'	7.05	142	868
	2	21.3	3	7'	7.05	145	890
	3	21.3	1	7'	7.05	147	910
	Average			Drops 2, 3		146	900
	Drop #	Velocity ft/sec	Angle	Drop Ht/Actual	Drop Ht/Theoretical	Gmax	HIC
	1	22.8	4	8'	8.08	156	1048
2	22.8	2	8'	8.08	164	1129	
3	22.8	9	8'	8.08	161	1080	
Average			Drops 2, 3		163	1105	