PA: 1-800-346-8524 / KY: 1-800-296-9227

To whom this may concern:

It is thought by some in the playground community that loose fill surfaces such as engineered wood fiber should remain loose so that one could stick an object through the surface with ease to measure the thickness of the surface and to be sure the surface is "loose" enough to provide safety in the case of falls to the surface. This has led to the practice of roto-tilling the surface or digging it up periodically in order to achieve this loose state. The following addresses why it is not recommended to till up your surface so that the playground owner is able to meet safety needs as well as accessibility laws.

There are two characteristics of a public playground surface – flexible enough to absorb a fall and firm and stable enough to be accessible for a person with a disability to traverse across. These two characteristics can be tested on a playground surfacing in order to be certain that the surface is performing as it should. The two test methods are mentioned in the CPSC guideline booklet - ASTM F1292 and ASTM F1951.

First, ASTM F1292 is the standard test method for impact attenuation of a playground surface. This test method uses a head form that contains an accelerometer that measures the 'G' force that the surfacing absorbs upon impact and the time it takes the object hitting the surface to come to a halt. This is known as Head Injury Criteria. Whether the surface being tested in a lab setting contained in a box over a concrete floor or out in the field, the loose fill surface is in a compacted state when tested. The picture to the right shows a hydraulic compactor used to compact loose fill surfaces before testing them with the impact tester. By compacting the surface before testing gives the consumer a more 'true to life' measurement of the surface when it is installed out in the field.

This is how engineered wood fiber is tested since after being installed on a playground and exposed to rain and foot traffic will compact to form a firm and stable surface for those that need to traverse across it with a wheelchair or walker safely, but is still very flexible when impact tested. Results from lab tests as well as actual testing in the field show Engineered Wood Fiber to have very good impact attenuating qualities even after being installed and maintained for several years in a compacted state. See example of testing results on next page. As you will see from the results, normal topping off of the playground surface with no tilling results in test data well below the limits of the impact testing. No tilling or loosing of the surface is allowed when performing the impact test per ASTM F1292.

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ASTM F-1292 STANDARD FIELD TEST REPORT

Title: 10" WOODCARPET® over gravel
Location: Shank Park, Hershey, PA
Original installation was November 6, 1987

Tester: HIZ
Logger: JM

Passing Test: PEAK G < 200, HIC < 1000

Report date: 5/21/2004

Material Desc.	Depth	Readings #	PEAK G	HIC	FT/SEC	Date	Time	Drop Height	Temperature	Notes:
WOODCARPET® 10"		1	71	316	28.4	5/21/2004	13:30	12'	72° F	East Side of Straight Slide
		2	67	221	28.3			12'	72° F	
		3	67	255	28.2			12'	72° F	
WOODCARPET® 10"			PEAK G	HIC	FT/SEC	Date	Time	Height	Temp	
		1	77	325	28.4	5/21/2004	13:45	12'	72° F	East Side of Straight Slide
		2	73	277	28.3			12'	72° F	
		3	76	288	28.3			12'	72° F	
WOODCARPET® 10"			PEAK G	HIC	FT/SEC	Date	Time	Height	Temp	
		1	80	316	28.1	5/21/2004	14:00	12'	72° F	West side of Straight Slide
		2	82	294	28.3			12'	72° F	
		3	77	240	28.2			12'	72° F	
WOODCARPET® 8"			PEAK G	HIC	FT/SEC	Date	Time	Height	Temp	
		1	93	360	28.2	5/21/2004	14:10	12'	72° F	Exit of spiral slide
		2	86	359	28.1			12'	72° F	
		3	87	323	28.3			12'	72° F	
WOODCARPET® 10"			PEAK G	HIC	FT/SEC	Date	Time	Height	Temp	
		1	57	190	28.3	5/21/2004	14:25	12'	72° F	Swings northwest side
		2	64	299	28.3			12'	72° F	
		3	64	318	28.3			12'	72° F	

(Passing criteria: Peak G= 200 / HIC – 1000)

The second ASTM test method is ASTM F1951. This is the test method for testing a surface used on a playground for firmness and stability. This is done in a lab setting but can be performed in the field too. It uses an apparatus called a Smart Wheel. This device measures the force it takes to traverse across a playground surface. The more firm and stable a surface is, the easier it will be for the wheelchair user to traverse across the surfacing.

When engineered wood fiber is installed and allowed to compact and knit together over time without disturbing it, will form a stable bed of wood fibers just below the surface to allow a wheel chair to traverse across it. This stable bed may not be easy to break through with a blunt object but still maintains a flexible surface to absorb impact as the test results above have shown.

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The quickest way to measure the thickness of your Woodcarpet® Surface is to use a long spike of sorts, one that has a point on the end to penetrate the surface. Simply push down on the probe until you reach the drainage layer below the surfacing, mark the top of the surface with your thumb and pull back up. Measure from the tip of the probe to your thumb to get the thickness measurement then top off if necessary with fresh Woodcarpet® .

If the surfacing is old and was installed without a drainage system, it may be difficult to know where the bottom of the surface is and how far to press the probe down. If that is the case, the best way to measure would be to dig a small hole about 6" round to actually see where the soil is and where the surface starts. Once you reach bottom, simply place a straight edge across the surface and stick a tape measure down to the bottom of the hole to get a measurement.

By not busting up the surface and maintaining the thickness of the surface as needed with fresh Woodcarpet® along with raking level, you will maintain a play surface that is both accessible and safe to meet the needs of children with all abilities.

If you need test results showing that your Zeager surface meets the necessary criteria to be both safe and accessible please contact your Zeager representative for help.

Jeff Mrakovich

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