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play and recreation surfaces **EVERPLAY INSTALLATION INC.**

Certification of Playground Surfaces vs. Site Testing

Almost everything has to be certified these days, but what does it really mean to the purchaser, specifier, owner/operator and user of the playground. There are a number of questions that should be raised prior to the acceptance of a certification and reliance upon it to provide you with peace of mind or assurance that the surface will continue to attenuate impact.

Currently the ASTM F1292 standard outlines the test procedure and minimum performance criteria for the attenuation of impact for playground surfaces. Forces greater than 200 Gmax or 1000 HIC have been demonstrated to have the potential of a life threatening injury. In the performance statement of the standard it is clear that should the force generated as a result of the test be greater than the 200 Gmax or 1000 HIC, the system shall be replaced. The test consists of the dropping of an instrumented headform from the height specified by the owner/operator of the playground to the surface below. Only with the site test method is the owner/operator, specifier and user assured that the surface produces forces at or lower than the performance requirements of the standard.

Certification of a surface product, manufacturer or installer will not provide direct assurance that the specific surface that has been installed, will meet the standard at the fall heights specified by the owner/operator at the time of installation or on a maintained surface at any time in the future. In addition it does not mean that the surface maintained to the requirements of the supplier will continue to perform to the requirements of the F1292 standard. This could be communicated in a number of ways. Either as a specific exclusion from the warranty or by not listing it in what is specifically included in the warranty. The reasons for a supplier or manufacturer excluding a statement for future performance can be many, however failure to state a future expected performance places the owner at risk that at some time after installation and within the warranty period of the product it will have to be upgraded, maintained or replaced at what could be a considerable cost to the owner.

At the present time the formal F1292 testing of a playground surface at site is expensive, costing approximately $1,000 to $1,500 plus travel and accommodation costs for the technician. Removal of the surface (synthetics allow for this more easily than loose fill materials) and sending it to a laboratory for formal testing could range from $500 to $1,000 depending upon whether the tests are performed at the temperature at the time of removal of the samples or at the 3 temperatures the standard requires of the laboratory procedure (30^{o}F, 70^{o}F and 120^{o}F). These costs are often prohibitive on a regular basis and generally are only performed after an injury and the performance for the surface is questioned.

There currently is an instrument that has demonstrated a high correlation to accurately predict the performance of a surface's Gmax and HIC values when properly used in accordance with the test procedure provided by the manufacturer. The data for the correlation was established through battery of tests comparing the device to those currently being used in laboratories testing to F1292 against known samples and from consistent drop heights. Briefly described, the instrument consists of a triaxial accelerometer placed in a hemispherical CEN (European standardization body) headform attached to a handheld computer. This device is free fall and

can be easily transported, however for accurate use it must be mechanically supported at the playground site to ensure that 3 drops can be performed at the same location and from the same fall height. Should this device provide Gmax or HIC figures that approach the performance requirements of the ASTM F1292 standard, the system should be reviewed as to its suitability as a playground surface and replaced or modified or formal F1292 test should be performed. Where the surfacing system is a loose fill material applying scarce dollars to the upgrading or maintenance of the surface rather than formal testing may be the best use of the money. In the case of a synthetic, the only choice for a surface that does not meet ASTM F1292 is for the replacement and this could involve considerable cost and may justify the performance of a formal F1292 test prior to a replacement.

Certification of the material or company providing or installing the surface can only assure the owner/operator of a particular playground that the this might be one of many installed sites that might be tested, but does not provide for a performance measure of the specific site. The owner/operator should satisfy themselves as the sampling rate of the certification process and if this would be sufficient to assure them of the performance of their playground surface. Certification will not provide any assurance to the owner/operator as the expected performance of a maintained surface over time or more specifically during the warranty period. As a result the owner/operator is on their own.

Using the portable triaxial CEN Headform as a tool for the testing of surfaces at the time of installation and throughout the life of the maintained surface will provide the owner/operator an indication of the performance of the surface at a significantly lower cost and in a timely manner.

Failure to maintain a playground surface to the performance requirements of the ASTM F1292 can lead to an injury that is life threatening. Since this standard is in place it is incumbent upon the owner/operator of the play surface to maintain the surface to the performance requirements or face significant consequences. Not performing regular inspections or tests due to cost or inconvenience will not relieve the owner/operator of responsibility. This inspection is part of the due diligence that is expected and with regard to the total playspace, that it also be inspected and conform to the relevant playground standard (ASTM F1487 for USA and CSA Z614 for Canada)

Playground inspectors are continually being trained and the owner/operator of a playground should engage a person able to demonstrate competence to inspect the entire playground including the structure and the surface on a regular basis.