A LOOK AT THE PLAYGROUND CONSTRUCTION INDUSTRY • SPRING 2002

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- Setting The Standard For Playground Construction -

This article is an edited version of a report by Rolf Huber, from Canadian Playground Advisory Inc.. You may read the entire article at www.everplay.com . The NPCA would like to extend a thanks to Canadian Playground Advisory Inc., and Everplay for their permission to reprint this article.

PLAYGROUND SURFACING, INJURY SEVERITY & LIABILITY

Over the past 25 years a significant volume of material has been produced with regard to playground injuries and injury reducing playground surfacing. The publication of various standards in Canada, the United States and other countries has added to the awareness of professionals in all aspects of playground design an heightened awareness of risk by those engaged in the installation and operation of playground facilities.

Numerous studies have indicated that 60-70% of all playground injuries requiring medical attention are as a result of a fall to the surface under the playground equipment or an intermediate platform. Nearly half of these injuries are head injuries.

The issue of risk management, liability and the risk exposure of the designer, manufacturer, contractor, owner or operator of any play space has become a significant problem. Understanding the criteria and standards that have been established and the potential for injury will assist in determining what, if any, risk is involved. It is important to understand three important aspects of the problem: liability and negligence, formal tests and test procedures for the evaluation of playground surfacing, and the ability to perform tests of installed surfaces and the availability of experts to provide evidence and testimony.

Negligence and Liability

Since negligence is a common law concept dependent upon legal precedent however modified by legislation, it is important to make assessments of legal liability and business risk in conjunction with an expert within the legal profession. These professionals will be able to provide guidance as to the specific liability for negligence and occupiers liability that could attach to:



- an employee who may be a direct or proximate cause of an injury;
- the contractor(s) and manufacturer(s) involved in the playground;
- the designer and /or specifier of the playground;
- the supervisor, manager, owner and/or operator of the playground;
- members of the board operating the playground; and
- any unit of government or agency that has sponsored or funded of the construction of the playground.

In 1856 Baron Alderson stated what has become the most commonly accepted definition of negligence as:" the omission to do something which a reasonable man, guided upon those considerations that ordinarily regulate the conduct of human affairs, would do, or something which a prudent or reasonable man would not do."1 The level of care that is to be provided is also based upon the determination as whether the owner/operator of the playground is an inviter or an occupier. An invitee should be protected from danger about which the owner knows or at least about which the prudent owner should know.2 The occupier is liable to a licensee in respect of a concealed trap or danger notwithstanding the negligence of the licensee, who, if he had exercised great care, could have detected the danger in time to avoid it, but whose lack of care was induced, in part at least. by the continuing sense of false security created by the trap.3 In addition the degree of care that must be provided to the user by particular individual parties will be determined by the skill or knowledge of the individuals relative to the involvement of those individuals.

It is obvious that the exposure to liability is very real. The volume of documentation with regard to playground safety and the standards that have been developed have provided the knowledge required to prevent most serious injuries and liability in the playground and to properly manage risk. As indicated above this has the effect of significantly increasing the required standard of card and thereby the exposure of all persons involved in the provision of the playground.

Formal Tests and Procedures for Playground Surfacing

To understand the degree of protection that is being provided through the installation of an appropriate surface, it is important to understand that the test procedures and pass/fail criteria have been time tested and developed through the input of professionals throughout the world. At present the standard quoted in North America is the ASTM F-1292, which states:

"6.1 When tested according to the Test Method F355 Procedure C, using the average of the last 2 of 3 drops, no value shall exceed 200 g-max at temperatures of 30, 72 or 120 degrees F (-1, 23 and 49 degrees C, respectively), at the height specified by the purchaser.

6.2 If the surface system, while in use, is tested according to Test Method F355 Procedure C, using an average of the last 2 of 3 drops, at each of three test sites which exceed 200-g's when tested within a temperature range of 30 to 120 degrees F (-1 to 49 degrees C) as determined by section 12, at the height specified by the purchaser, the surface should be replaced."4

The other often quoted criteria is that when the same test is utilized the head injury criteria (HIC) is to be less than or equal to 1,000. The concept of the G-max being under 200 has been commonly quoted since the late 70's while the HIC is relatively new to North America. In any event there are two measures that have become accepted by standard and common usage.

Three types of head injury can occur as a result of an impact. The first is the deformation of the skull, when skull fracture and concussion can occur. The second is when the relative motion of the brain and the skull is different causing concussion and the third is rotation of the head with respect to the neck and torso producing stretching and damage to any one or all of the neck ligaments, cervical cord and brain stem.

It is important to note that the threshold level of 200 G-max and a HIC of less than 1,000 are on the border of being a danger to life and definitely must raise questions of potentially causing concussion and serious brain damage. Installation of a surface that provides test data at, or close to, the threshold should be avoided and a surface with a G-max of an under 160 should be seriously considered. This will allow for changes that occur during the life of the surface and its exposure to the outside environment.

Since an injury will occur while the surface is in service, the potential for a reduction in resilience over time must be taken into consideration at the time of surface selection. Therefore the combination of a maintenance manual and the installation of a surface that will always be more resilient than the threshold is essential.

Failure of the surface at any time during its life will raise the exposure for liability to all persons involved in the surface selection, installation and operation. The designer, specifier, owner and manufacturer and installer are all exposed.

The extent to which negligence and therefore liability exposure can be established will be in part dependent upon the ability of the plaintiff to find experts that are able to provide evidence with regard to the danger that is present within a site. With the passage of time since the field has come to the forefront of the industry and the volume of information that has been generated in the field of playground injuries and related subjects there are a significant number of experts available within industry and academia.

Conclusions

For more than 15 years there has been active discussion and the development of tests and standards within the area of accidents in playgrounds. This volume of information and the ability to test for performance has raised the risk of, and significance of, liability for negligence for designers, specifiers, manufacturers, installers and operators.

All of the studies of playground injuries indicate that the majority of the injuries are as of a result of an impact with the underlying surface or intermediate platform below play structures. The issuance by the IBC of the above mentioned AM 93-02 indicates that the risk of exposure to liability and the potential for litigation is very real, especially when one considers the costs that can be associated with any head injury.

It is the responsibility of everyone involved in the construction of playgrounds to provide the maximum amount of care, as they are able for today and into the future. Failure to do so will inevitably result in injury and financial loss.

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