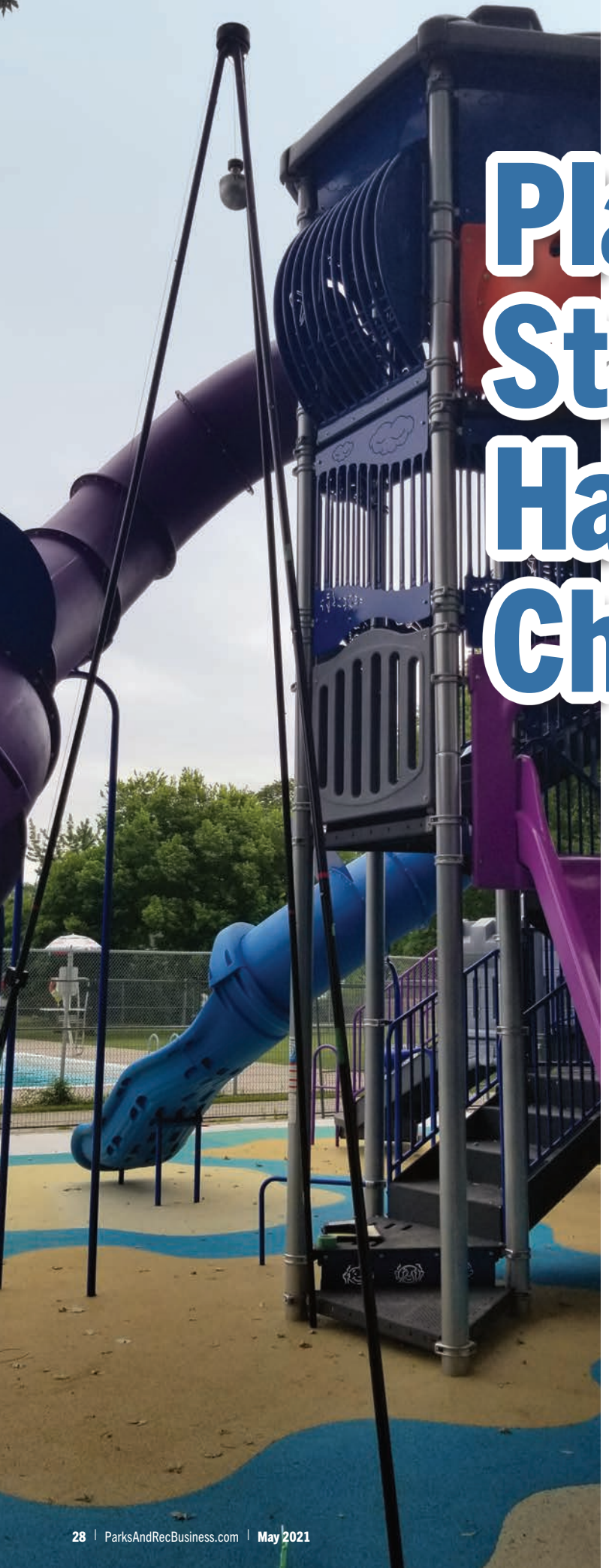


Playground Standards Have Changed

Are you up-to-date?

BY ROLF HUBER

Are your playgrounds keeping up with the changes in ASTM Standards in 2021? People who have been coping with COVID-19 might not be aware that ASTM F1487 is about to publish a revision that will require written verification that installed structures and surfacing meet not only a manufacturer's requirements but also the requirements of ASTM F1292. It is also required that maintenance be compliant with F1487 and F1292. It goes without saying that compliance with the ADA and CPSC Handbook is necessary where applicable.

In short, there is a greater awareness and focus on risk assessment. Risk requires a discussion of severity of injury and the likelihood of a hazardous event taking place. Although section 1.6.1 applies to structures not contemplated in F1487, the concept of risk assessment is becoming more mainstream as a result. The potential for falling from higher and higher structures that will bring a higher frequency and severity of injury must be considered in purchasing decisions.

Falls, and impact with a surface, will continue to dominate injury statistics, so one must be aware there have been significant changes for surfacing standards. The standard defines "playground equipment" as equipment and struc-

PHOTO: ADAM HUBER, CANADIAN PLAYGROUND ADVISORY INC.

tures, including components and constructional elements with, or on which, children can play outdoors and indoors, either individually or in groups, according to their own rules or reasons for playing which can change from time to time. This definition clearly puts children playing with reasonably foreseeable use in the driver's seat when it comes to determining where they will climb to and therefore need protection from.

ASTM F1292 has gone back to being a laboratory test only, while the field-impact test has moved to ASTM F3313. This is not a big change, but ASTM F3313 requires the Designer/Owner/Operator (D/O/O) to set the "drop height" for testing surfacing prior to purchase. Failure to have a documented statement either confirming the "fall height" from F1487 or some higher height based on how children behave will be problematic when an injury occurs. To help the D/O/O select better performing surfaces, there now is ASTM F3351, Standard Test Method for Playground Surface Impact Testing in Laboratory at Specified Test Height. This standard is a three-temperature test like ASTM F1292, providing values for maximum acceleration (g) and Head Injury Criteria (HIC), but at a height selected by the person requesting the test.

A MAJOR ADVANCE

ASTM F3351 should become the D/O/O's favorite standard over the coming years. It is a major advance on ASTM F1292 and it is important to understand the differences.

ASTM F1292 was first published in 1992 as a laboratory test to help prospective owners evaluate surfacing prior to purchase. Over the years, section 4.2 has been adopted by IPEMA as part of its modified Surfacing Certification. Many a D/O/O has relied and continues to rely on this standard for purchasing documents. Let's be clear: ASTM F1292 determines the failure of the surface system, and installing a surface to meet ASTM F1292 is tempting failure not far into the future, and that means failure

PLAYGROUND SAFETY QUIZ

Test your knowledge or share this quiz at your department to remind everyone about safety when the playgrounds reopen:

1 You should always read the signs and labels at the playground before using it.

A.) True B.) False

Answer: A.) True

Playgrounds are designed for different age groups and the proper age range for the playground should be posted on a sign or a sticker on the equipment. Do not use a playground if it is designed for an older age group than your children, since a younger child could become overly challenged or the equipment could be too high. These situations may lead to an injury.

2 What items should not be worn on a playground?

A.) Clothes with drawstrings B.) Bike helmets
C.) Flip flops D.) All of the above

Answer: D.) All of the above

Clothing with drawstrings, lanyards, necklaces and similar items should be removed because they can become entangled.

Bike helmets should never be worn on a playground because they make a child's head larger, which makes it more likely that they could become stuck in a playground opening and be trapped by their neck.

Flip flops are a trip-and-fall hazard when children are climbing and jumping.

3 A child is fine to play on the playground with bare feet.

Answer: False

Children should wear shoes or sneakers (but not flip flops) to ensure proper grip on the equipment, as well as to prevent injuries such as burns, splinters or lacerations.

4 What is not an acceptable playground surface?

A.) Hard-packed earth or grass B.) Blacktop
C.) Concrete D.) All of the above
Answer: D.) All of the above

Playgrounds may have a variety of surfacing types, but avoid those without the proper surfacing materials.

Playground Safety Quiz continued on p.32

to F1292, F1487, the ADA, and the CPSC Handbook. ASTM F1487-21's requirement for maintenance of surfacing is also in jeopardy.

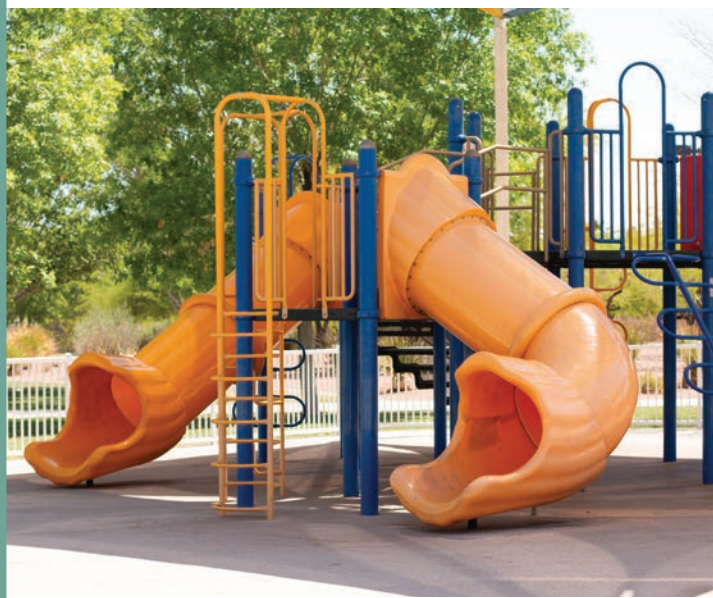
HOW TO USE THIS INFORMATION

The ASTM F3351 has two main users. It offers the manufacturer of superior performing surface systems a way to demonstrate how well their systems perform at the heights that the new towers and net structures are built to.

More importantly, the D/O/O can use it to:

- Assess the risk of injury severity
- Understand the heights to which children will climb
- Write a better specification for the installed surface
- Provide the information needed for field testing to ASTM F3313
- Develop and write a performance-based warranty
- Ensure functional longevity for the surface in future years.

Let's examine how a D/O/O may use this to advantage. The D/O/O must examine the severity of injury the organization or agency is prepared to accept as a result of a fall at a playground. The automotive industry has for more than 25 years provided risk of head-injury curves, ranging from a simple concussion to death, and the pass/fail of ASTM F1292 is an 18-percent risk of a life-threatening head injury and a 10-percent risk of skull fracture. These risk curves allow the D/O/O to select the severity of injury and the risk of its occurrence, and then select values for g and HIC that have outcomes below that risk.



Playground Safety Quiz continued

5 To maximize focus while kids are playing on a playground, one should:

A.) Stay off the cell phone
B.) Remove headphones
C.) Keep your eyes moving
D.) All of the above

Answer: D.) All of the above

Proper supervision is one of the keys to reducing playground injuries. Always remember to enter important emergency numbers into your phone.

—Information provided by Joann Robertson, CPSI, CSP, CPSCU, ARM, who works at Playground Medic of Hawthorne, N.Y., as a certified playground inspector and certified safety professional.

In selecting play structures, the D/O/O can first determine the "fall height" according to the ASTM F1487 and the manufacturer. The second step is to look at a detailed model of the structures and ask the question, "Can children climb higher than the fall height?" If the answer is yes, then the height for F3351 and the drop height for F3313 field test of the installed surface must be set.

A D/O/O will now have the information for specification submittals that the prospective surfacing supplier will be required to change from F1292 certificates to F3351 results. The specification will likely say "submit a test report to ASTM F3351 indicating that at the 'specified height,' the g value shall not exceed 'G' and HIC shall not exceed 'HIC.'" With height determined from the paragraphs above and the g and HIC values from two paragraphs above.

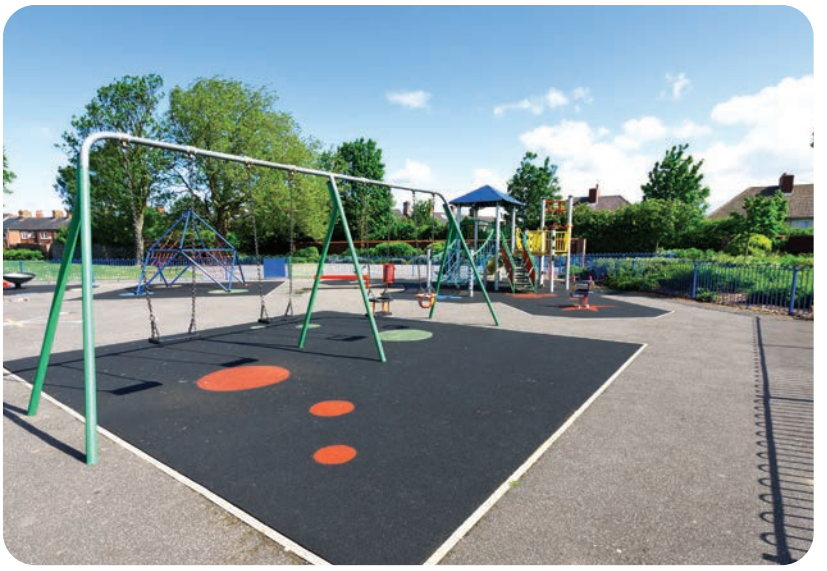
Lastly, the D/O/O will be able to use the data from the F3351 test to develop a warranty stipulating the same drop height for the field testing during the entire warranty period. The D/O/O has the option of raising the g and HIC values toward 200 g and 1,000 HIC over the warranty period, and the requirements of ASTM F1487, the ADA and the CPSC Handbook will still be met, because although they are approaching failing values, they are still at a drop height higher than the fall height of the F1487 and therefore still compliant.

ADDITIONAL CHANGES

Following these steps helps a D/O/O gain functional longevity based on standards and testing.

ASTM is not the only place where change has been happening. There have also been changes on the international level in adopting the test device as it is in the ASTM F355 with the new ISO TS24667 Standard.

For the United States, credence is given to the device that rose out of ASTM F1292-99, and has become the preeminent test device. This device has become wireless with support devices to perform all the formal requirements for compliance testing. There is also a new hand-drop device that meets the materials, size, and mass of F355 that allows an owner/operator to perform single-drop testing to keep track of the performance of the surfacing assets. Using the single drop, an owner/operator can check the entire playground-surfacing inventory at least once each year and select those surfaces that require greater scrutiny.



As children return to playgrounds in 2021, let's make it a future that brings new horizons, challenges, and dreams. Should injuries occur—and they will—let's reduce that severity to a level that brings children back to the playground without scars. **PRB**

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