

## Relative Merits of Surfacing for Playgrounds

The surface under and around a play structure is defined in the CSA Z614-M90 document as "Protective Surface" and must extend a minimum 6' beyond all stationary structures. The performance of the "protective surface" is defined in 2 standards developed at ASTM (American Society for Testing and Materials) for the measure of impact attenuation (ASTM F1292) and Standard Specification for Accessibility of Surfaces Under and Around Playground Equipment (ASTM PS-83). These standards set out the performance characteristics, test procedures, and site test procedures for the surfaces once installed.

The ASTM F1292 standard sets the minimum standards for impact attenuation ( $G_{max} < 200$  and  $HIC < 1,000$ ) from the height specified by the first owner/operator of the play surface. It must be remembered that impacts greater than those of the pass fail criteria could result in a life threatening injury. In addition all playground surfaces must continue to be maintained over time to the pass fail criteria of the ASTM F1292. As a result the performance demanded by the first owner operator should be lower at the time of installation. For the EVERPLAY poured in place surface this is a  $G_{max}$  less than 161 and HIC less than 950.

For a playground surface to be accessible it must pass the requirements of the ASTM PS-83. Sand or pea gravel along with most loose fill materials will not meet these requirements. The only surfaces that have been specifically tested according to this procedure and have passed are both engineered wood systems, Woodcarpet and Fibar. Most synthetics following the requirements set out by the Building Codes for slopes should allow for accessibility, however the actual certification can only be done through PS-83.

Generally rubberized surfaces are seen as the optimal solution for wheelchair traffic, however these surfaces must also meet the performance requirements of the ASTM F1292 over the life of the surface. Should the rubberized surface fail to perform it must be replaced at considerable expense. Therefore it is important that the warranty for the surface require that the surface not only be durable, but continue to perform as per ASTM F1292.

Rubberized surfacing is available in the Poured in Place or Mat format. Generally rubberized surfacing does not pass the ASTM F1292 at heights greater than 8'. Some poured in place systems such as EVERPLAY can be installed to meet the ASTM F1292 to heights of 11'. Assurances of performance can only be determined through testing of the surface installed at site.

Whether a mat or poured in place surface is installed should not be a consideration with regard to the providing an accessible surface. Seams in the EVERPLAY mat should not pose a problem, provided the mats are installed according to the written instructions provided by EVERPLAY. The advantage of the mats is that they do not require any

## ***play and recreation surfaces***

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special skill to install and therefore can be installed in limited quantities, whereas poured systems require special skill and crews. The use of the EVERPLAY Mats allows for maintenance free surfacing that meets the Standards to be installed in areas where specific requirements for high traffic actually place the need for a surface (ends of slides, transfer stations, etc.).

There are limitations with regard to temperature for the installation of synthetic surfaces. Generally standard chemistry requires that the surfaces not be installed below 5<sup>0</sup> C, whereas EVERPLAY has developed technology over the past 16 years that allows for the installation of the EVERPLAY mats or Poured in Place to temperatures as low as -5<sup>0</sup> C during the 24 hour period of the installation. As a result the winter months typically do not allow for the installation of the rubberized surface.

The wearability of the EVERPLAY surface is superior to all other options available for the playground and the high traffic areas specifically. EVERPLAY has been installed since 1986 and has demonstrated that it continues to meet the intent of the original installation. The standard warranty is 3 years and this includes that the maintained surface will continue to meet the requirements of the applicable standard at the end of the warranty period. Both styles of EVERPLAY are resistant to vandalism. Should damage occur the repair is easy to effect. For the mats, the playground owner can replace the mat directly, while for the poured in place EVERPLAY can provide the raw materials and instructions to complete a repair or personnel to perform the repair.

The standard colours for the EVERPLAY area red or black. This is utilizing the black recycled rubber and either a clear binder or a binder pigment red with ferrous oxide. Be aware that a green pigmented binder will contain either chromium oxide or copper that are toxic heavy metals. For Green, EVERPLAY supplies an organic UV stable lacquer at additional cost. This lacquer can also be supplied for blue, beige, pink and purple.

The EVERPLAY surface can be installed at anytime in the life of the playground provided the stable base is provided. Where sand has previously been installed there will be the cost of the removal of the sand and installation of the appropriate base. Where the EVERPLAY Mats are initially installed for specific areas of the playground and it is found that the area should be extended, this can easily be done. Discussion with EVERPLAY will allow the owner of the playground to extend the area as the need requires. Extending any poured in place area by small amounts can be costly.

Since the EVERPLAY mats and poured in place surfaces are water permeable they will allow for the passage of water at each and every point on the playground. Generally there will not be a need for special drainage provided the sub-base has a percolation rate of 60 liters per square meter per hour..

The installation of EVERPLAY can enhance the use of a playground for all users. It will also extend the number of months and types of weather in which the playground can be used. There is a significant cost associated with this type of surface in relation to traditional loose fill materials. The owner of the playground must understand the

## ***play and recreation surfaces***

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balance of initial capital cost and the long term cost associated with the cost of maintenance.

EVERPLAY have been installed in more than 500 playgrounds over the past 13 years and has the proven ability to provide value to the owner of the play space. Through consultation with EVERPLAY the owner of the play space will be able to provide the best surface for the application. For further information contact your play structure manufacturer or EVERPLAY.