



SAFETY DIRECTOR BULLETIN



ARTIFICIAL TURF FIELDS BEST PRACTICES

Municipalities and School Districts around the State have installed artificial turf fields to provide continual practice and gameplay for recreational sports activities. Artificial turf fields are an expensive asset that may cost over \$1 million to install with additional costs associated with maintenance and replacement. Proper maintenance is important to get the full life out of the field and to provide a safe playing surface for the participants.

The average useful life of a turf field ranges from 10 to 25 years depending upon the quality of materials, wear and tear caused by the level of use, weather factors, and maintenance activities. Many manufacturers provide a 10-year warranty against defects.

It is important to read the warranty documents and the field maintenance manual to fully understand the maintenance requirements. It is equally important to document the date, type of maintenance performed, equipment used, and personnel involved.

This documentation will be vital should you need to invoke the warranty provision against the manufacturer or must defend against a claim related to an injury. In either case, you will have to demonstrate that you were not negligent and followed all requirements.

The following are recommended best practices to maintain a safe playing surface for athletes and to extend the life of your field. Consult your field maintenance manual to confirm the frequency of these tasks:

Grooming – involves using equipment designed specifically to remove debris, level the infill, and raise the surface fibers. This can be done in-house or through contracting with a professional vendor. When performed in-house we recommend working with the manufacturer to select grooming equipment designed specifically for that surface. You may also consider including in your field installation bid specifications that the manufacturer provides a groomer and training for the staff responsible for operating the equipment.

Replacement of Infill Materials - you should maintain a supply of extra infill material to continually replace and level the playing surface and maintain the proper depth throughout the surface of the field.

Sanitation and Disinfection – the surface should be regularly inspected and when necessary, cleaned and disinfected for the health of the athletes. Contaminants like blood, phlegm, bird, or other animal droppings need to be removed for the safety of the participants. Consult the field maintenance manual for the proper chemicals and methods to treat these conditions.

Fencing and Signage – it is recommended that the fields be fenced in to prevent vandals operating motor vehicles from destroying the surface. Additionally, signs should be posted stating that dogs or other animals are not permitted on the playing surface.

GMAX Testing – GMAX testing measures the impact forces a field places on an athlete (i.e. a better rating would keep an athlete safer than a poor rating). It is recommended to perform this test at least annually depending upon the use of the field.

ASTM F355 Standard Test Method for Impact Attenuation of Playing Surface Systems and Materials Procedure A and ASTM F1936 Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field are test methods used to measure the impact attenuation properties of synthetic turf playing systems.

The test procedure involves dropping a 20-pound missile three times at each location from a consistent height of 24 inches. The test is typically performed at 10 locations. The locations are based on the primary sport and the tester's discretion. The first drop conditions/compacts the loose infill. This value is recorded but not included in the location average. The second and third drops are recorded and averaged for the location average. The location averages are used to determine the field average.

A lower GMAX rating indicates better shock absorption, while a higher rating means less shock absorption and potentially a harder surface. It's a crucial safety assessment for athletic fields, as higher GMAX values correlate with a greater risk of concussions and other injuries. Synthetic turf fields ideally should have GMAX values between 90 and 115, mimicking the performance of natural grass. GMAX values exceeding 200 are generally considered unsafe.

GMAX testing helps ensure that athletic fields provide a safe playing surface, minimizing the risk of head injuries. GMAX results can also highlight areas where maintenance is needed, such as compacted infill or hard spots. Lastly, regular GMAX testing can help identify issues early, preventing further degradation and extending the life of the turf.

Remedies for poor ratings include simple solutions such as grooming the field and adding new crumb rubber to the surface or more complex solutions like replacing the field. Employees should be trained to properly and safely operate the field grooming equipment from the manufacturer or supplier. Preventative maintenance activities such as regular field grooming, adding crumb rubber when needed, and regular GMAX testing can also ensure the field warranty remains in place. Preventative maintenance activities should always be documented.