



Your Guide to Bleacher Safety

Here we are, at the start of another school year!

School supplies have been purchased, classrooms have been cleaned, lockers have been organized – everyone is ready to go!

Or are you? Have you looked at your school bleachers lately? When were they installed or last repaired? Are they cracked, peeling, falling down?

Bleacher safety may not be #1 on the list of priorities, but given that over 20,000 people are hurt annually in accidents involving bleachers or grandstands, it should be! A large percentage of these injuries are the result of a person falling through, or from, bleachers to the ground below – and many of these injuries involve children.

In 1999, in response to tragedies involving two small children who were fatally injured after falling from bleachers, the Consumer Product Safety Commission (CPSC) developed guidelines for bleacher safety.

Although bleachers generally fall into one of four categories – permanent, portable, telescopic and temporary – most schools typically use permanent, portable or telescopic.

Guardrails

Guardrails missing from the backs of bleachers, or open sides on bleachers can cause injury from falls. Gaps in the guardrail, between the footboard and seat, or at the bottom of the guardrail that are large enough for a person to pass through can also cause injury.

A bleacher should have a guardrail along the back, and surrounding the open ends, where the drop is more than 30 inches to the ground below.

The guardrail should be at least 42 inches high, and all openings should be small enough that a 4-inch sphere cannot pass through.

Mesh, chain-link or vertical picket guardrails are a great way to meet these safety guidelines.

Retrofitting Existing Bleachers

Falls can also occur when there are missing or inadequate handrails, aisles or non-skid surfaces. Many older bleachers do not have these key safety features, although they are imperative to ensure safety.

The CPSC's preferred guardrails are vertical guardrails (Figure 1), with spacing between bars no greater than 4 inches.



(Figure 1)



(Figure 2)

If bleachers have existing railings, it is possible to install chain link fencing on the railings. If chain link fencing is used the CPSC recommends using chain link that has 1.25" (or less) mesh (Figure 2) which will discourage children from climbing the chain link fence.

Using rigid materials, such as aluminum extrusions or grating material, is recommended to close any openings between seating components.

There is not one particular solution for retrofitting existing bleachers, due to the differences in the construction and placement of the bleachers. If you are considering retrofitting your existing bleachers, the current condition and structure of your bleachers, as well as the environment itself, will determine the materials and methods needed for the retrofit.

It is imperative to ensure that the methods or materials used do not introduce the possibility of new hazards. Make certain that the weight of any additional components does not compromise the stability of the bleacher structure. It is possible that you may need additional support structure, or that ground anchoring may be necessary.

Retrofitting Existing Bleachers Continued...

Guardrails that are retrofitted need to be designed in such a way as to accommodate the weight and stress of people sitting and leaning on them.

Any retrofit solution must meet the dead load*, live load*, and wind load* requirements of your governing building code.

Whether you choose to retrofit your bleachers, or order replacement bleachers, it is advised to check local requirements for such things as aisles and guardrails, ADA, or other conditions. Building codes vary by year written and by the group who issues them – International Building Code (IBC), Uniform Building Code (UBC), Standard Building Code (SBC), National Fire Protection Association (NFPA), etc. – so be sure to check with your local building codes.

The CPSC also recommends that you consult with your local building official to determine whether a permit is required to make any retrofit alterations.

Inspection

Bleachers should be carefully inspected at least once a quarter to identify any damage to the structure or disrepair that could result in injury or death. Any problems identified should be corrected immediately! Any inspection or maintenance should be completed by a trained individual, and any action taken should be documented. In addition to the quarterly inspections, the CPSC recommends that a licensed professional engineer or person qualified to provide bleacher products and services should inspect the bleachers at least once every two years, at which time a written certification should be issued that the bleachers are fit for use. Any incidents (or injuries) should be documented and that documentation should be retained to help identify possible dangers that should be remedied.

It is crucial to follow the CPSC's guidelines to ensure the highest safety. It is imperative that you deal with an individual who is knowledgeable and equipped to answer any questions, as well as provide bleacher seating that meets all of the CPSC's guidelines.

No one's safety is worth taking a risk by leaving outdated bleachers in place!

Glossary

Dead Load - the self-weight of components put on the structure, along with the structure itself, (also known as a permanent load).

Live Load - includes all the forces that are variable within the object's normal operation cycle, (also known as a probalistic load).

Wind Load – the force wind places on structures by blowing against its surface.

Reference:

U.S. Consumer Product Safety Commission. Publication Number 330.