

Outdoor Bleachers



School Planning Section
Safe and Healthy Schools Support Division

<http://www.schoolclearinghouse.org>

OUTDOOR BLEACHERS

Plans for permanent bleachers purchased and installed for use on athletic/play fields at K-12 schools must be reviewed by the School Planning Section, Safe and Healthy Schools Division, of the North Carolina Department of Public Instruction per General Statute 115C-521. "Permanent Bleachers," for purposes of this article, shall be defined as any bleachers consisting of more than five rows of seats. Any configuration of five rows or less will be considered as "Portable Bleachers" and do not need to be submitted to School Planning for review.

Bleachers may be purchased by local school boards as a part of a regular new school, addition or renovation project, or a stand-alone bleacher project, designed by a North Carolina licensed architect and/or engineer and submitted to School Planning for review in the normal process. In either scenario, School Planning is required to review the plans for permanent outdoor bleachers.

Structural designs for pre-engineered structures or systems used for school projects, such as grandstands or bleacher, are often incomplete when bid documents are completed, although general layouts and other information necessary to conduct architectural reviews are included. Conditional certificates of review that allow mobilization and site preparation to begin prior to completion of final structural designs can be issued following review of bid documents.

Project reviews are completed and certificates of review issued upon certification to School Planning that foundations and other structural systems have been designed by or reviewed and approved by North Carolina registered structural engineers for the projects. General Statute 133-1 requires that project architects and engineers be in the employ of owners and prohibits project designers being employed by or having financial interest in manufacturers or suppliers of pre-engineered structures.

Additionally, designers are reminded of General Statute 133-2 which states: "It shall be unlawful for any architect, engineer, designer or draftsman, employed on county, state, or city works, to employ or allow any manufacturer, his representatives or agents, to write, plan, draw, or make specifications for such works or any part thereof."

CODES AND DESIGN STANDARDS

Bleachers shall be designed in accordance with the latest edition of the North Carolina Building Code (NCBC). Note that the NCBC references ICC 300 (ICC Standard on Bleachers, Folding and Telescopic Seating, and Grandstand). Be aware that the NCBC takes precedence over ICC 300. Particularly note that exit requirements shall be as required for Assembly occupancy in the NCBC (51 occupants require 2 exits, etc.) where ICC 300 would only require 1. Each exit shall be accessible which would require a ramp.

NCDPI, SCHOOL PLANNING RECOMMENDATIONS

- Bleachers containing more than 5 rows shall be anchored to a continuous structural footing. In addition, a leveled 4" minimum thickness concrete slab shall extend under the full footprint of the bleachers. The concrete shall be minimum $f_c' = 3000$ psi compressive strength and reinforced with minimum 6x6w 2.9 x w2.9 welded wire fabric. The slab control joints and bleacher anchorage details shall be shown on the construction document and/or shop drawing.
- Bleachers containing five rows or less shall sit on leveled "mud sills" at the support frame; a continuous concrete slab within the footprint of the bleachers is not required.
- Provide lateral bracing in the support frames in both directions.
- Where aluminum and steel are fastened together, provide neoprene pads to prevent contact and avoid the possibility of corrosion due to dissimilar metals reaction.
- Early in the design process, coordinate with the local building inspector in securing approval of the bleacher construction.
- Repair damaged hot-dipped galvanized coating with galvanized repair paint in accordance with ASTM A780 and manufacturer's written instructions.
- Any field modifications to the bleachers shall be carried out under the supervision of the engineer of record.
- Building code compliant guards at the ends and backs of bleachers; and aisle-centered handrails shall be included as part of the project.
- Except for concrete footings, piers, slabs, etc., an all-metal construction is recommended; no wood.
- Where bleachers are raised on a platform requiring a ramp for handicapped accessibility, the ramps must occur at both ends. (One end having steps only is prohibited.) It is recommended that steps and ramps be provided at both ends; though, a ramp alone of proper exit width could serve as meeting the building code.
- The NCBC 2902.6.4 requires that there be sufficient rest rooms located within 400 feet of the bleachers.
- Provide handicap accessible routes from adjacent school buildings and parking lots.
- Press boxes that are part of the bleacher/grandstand project (whether within the bleacher/grand stand construction or located elsewhere) shall meet specific requirements of the NCBC for handicap accessibility.

SUBMITTAL REQUIREMENTS

Minimum drawings for bleacher/grandstand projects for School Planning review are as follows:

- Site plan showing relationship to playfields, drives, walks, parking areas, other buildings and site improvements and handicapped accessibility.
- Plan showing seating layout, aisles, ramps, steps, railings, guards, handicapped seating cutouts, dimensions and relationships to adjacent site features and improvements
- Cross section through bleacher/stadium construction, showing all elements such as seat/foot boards, railings/guards, foundations, concrete slab under footprint, and other features needed to fully describe the project. Include dimensions such as riser height, row spacing, heights above grade, railing/guard heights, etc.
- Provide enlarged details of conditions as needed to describe project fully for construction documents for bidding purposes
- Bleacher/grandstand shop drawings produced by the successful bidder shall be submitted to DPI, School Planning for review as a final step in securing a “Certificate of Review” and completion of the review process