



ANSI E1.21-2013
Entertainment Technology —
Temporary Structures Used for Technical
Production of Outdoor Entertainment
Events

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This standard was originally published when the Entertainment Services and
Technology Association was operating under the name of PLASA North America.
ESTA has reverted to its original name, and this document has been rebranded with the
current corporate name and logo. No changes have been made to the contents of the
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The ESTA Technical Standards Program

The ESTA Technical Standards Program was created to serve the ESTA membership and the entertainment industry in technical standards related matters. The goal of the Program is to take a leading role regarding technology within the entertainment industry by creating recommended practices and standards, monitoring standards issues around the world on behalf of our members, and improving communications and safety within the industry. ESTA works closely with the technical standards efforts of other organizations within our industry, including USITT and VPLT, as well as representing the interests of ESTA members to ANSI, UL, and the NFPA. The Technical Standards Program is accredited by the American National Standards Institute.

The Technical Standards Council (TSC) was established to oversee and coordinate the Technical Standards Program. Made up of individuals experienced in standards-making work from throughout our industry, the Council approves all projects undertaken and assigns them to the appropriate working group. The Technical Standards Council employs a Technical Standards Manager to coordinate the work of the Council and its working groups as well as maintain a "Standards Watch" on behalf of members. Working groups include: Control Protocols, Electrical Power, Event Safety, Floors, Fog and Smoke, Followspot Position, Photometrics, Rigging, and Stage Lifts.

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The Rigging Working Group, which authored this Standard, consists of a cross section of entertainment industry professionals representing a diversity of interests. ESTA is committed to developing consensus-based standards and recommended practices in an open setting.

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Interest category codes:

CP = custom-market producer DE = designer
DR = dealer rental company G = general interest
MP = mass-market producer U = user

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FOREWORD

(This foreword contains no mandatory requirements.)

It has been assumed in the drafting of this standard that the execution of its design provisions are entrusted to appropriately qualified and experienced people, and that the fabrication and use is carried out by qualified and suitably experienced people and organizations.

This standard presents a coordinated set of rules that may serve as a guide to government and other regulatory bodies and municipal authorities responsible for the guarding and inspection of the equipment falling within its scope. The suggestions leading to accident prevention are given both as mandatory and advisory provisions; compliance with both types may be required by employers of their employees.

Safety codes and standards are intended to enhance public safety. Revisions result from committee consideration of factors such as technology advances, new data, and changing environmental and industry needs. Revisions do not imply that previous editions were inadequate.

Compliance with this Standard does not of itself confer immunity from legal obligations.

This document uses annex notes to provide additional reference information about certain specific section requirements, concepts, or intent. Subject matter with a corresponding annex note reference is identified by the asterisk (*) symbol, and the associated reference text is found in Appendix A, Commentary, identified with the referring text section number – e.g. an annex note to section 3.2 will be identified in Appendix A, Commentary as A.3.2. The annex notes are informational only, and do not add or subtract from the mandatory requirements of this standard.

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1* SCOPE

The temporary structures within the scope of this document shall be limited to those dedicated to the technical production of outdoor entertainment events. General public access temporary structures such as food vendor tents, portable toilets, and other portable temporary structures for directly serving the audience or attendees at outdoor entertainment events are not included in the scope of this standard. Custom temporary structures supporting performance platforms are included in the scope of this document. This document does not include pre-engineered, manufactured, modular staging systems used as a performance platform independent of other temporary structure.

This document establishes a minimum level of design and performance parameters for the design, manufacturing, use and maintenance of temporary ground supported structures used in the production of outdoor entertainment events. The purpose of this guidance is to ensure the structural reliability and safety of these structures and does not address fire safety and safe egress issues.

2* DEFINITIONS

2.1 allowable load: The maximum load that can be safely supported by a component or temporary structure.

2.2 base plate: The component or part of the temporary structure that spreads load to the supporting substrate

2.3 buckling: Lateral displacement of a compression member from the original centerline under axial load, usually sudden.

2.4 competent person: A person who is capable of identifying existing and predictable hazards in the workplace and who is authorized to take prompt corrective measures to eliminate them.

2.5 dead load: The self-weight of the temporary structure.

2.6 effective wind area: The surface area exposed to wind.

2.7 live load: The variable gravity load or weight supported by the temporary structure

2.8 lock-off: Means of supporting the allowable load of a temporary structure in a fixed position, independent of the lifting device(s).

2.9 manufacturer: Person or company who fabricates components for the temporary outdoor structure.

2.10 MPH: Miles per hour.

2.11 payload: The equipment load or weight supported by the temporary structure.

2.12 ponding: Accumulation of water that does not drain off a surface.

2.13 qualified person: A person who, by possession of a recognized degree or certificate of professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve problems relating to the subject matter and work.

2.14 repetitive use: Components of temporary structure assembled and dismantled on multiple occasions.

2.15 shall: Indicates that the rule is mandatory and must be followed.