



Standard Practice for Static Load Testing of Truss Assemblies¹

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1. Scope

1.1 This practice is intended as a guide for use in the testing of truss assemblies fabricated from all types of construction materials. While the practice may be used for the testing of a variety of assemblies, it is primarily intended to be used in the testing of those trusses designed to be spaced at 1.2 m centers or greater. It can be used, but it is not normally intended, for the testing of wood residential trussed rafters. Either proof tests or tests to destruction may be run.

1.2 *Limitations*—It is not intended that this practice be used for routine quality control testing.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Section 7.

2. Referenced Documents

2.1 *ASTM Standards:*²

E196 Practice for Gravity Load Testing of Floors and Low Slope Roofs

E575 Practice for Reporting Data from Structural Tests of Building Constructions, Elements, Connections, and Assemblies

E631 Terminology of Building Constructions

3. Terminology

3.1 *Definitions*—For definitions of terms in this practice, see Terminology **E631**.

¹ This practice is under the jurisdiction of ASTM Committee **E06** on Performance of Buildings and is the direct responsibility of Subcommittee **E06.11** on Horizontal and Vertical Structures/Structural Performance of Completed Structures.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *truss, n*—a coplanar system of structural elements joined together at their ends usually to construct a series of triangles that form a stable beam-like framework.

3.2.2 *static load, n*—a load or series of loads that are supported by or are applied to a structure so gradually that forces caused by change in momentum of the load and structural elements can be neglected and all parts of the system at any instant are essentially in equilibrium.

4. Summary of Practice

4.1 This practice outlines the procedures to be followed in the static load testing of major load carrying truss assemblies. While the procedure tells what to do, it does not tell the testing agency how to do it. This leaves the selection of the test fixture and loading medium to the discretion of the testing agency. Materials selection, sampling, conditioning, fabrication, test procedures, and report requirements are covered.

4.2 Two types of tests may be conducted using this practice:

4.2.1 *Proof Tests*—A proof test is frequently made to provide assurance that the truss will support a stated load or to determine the deformations and structural response under a specified loading.

4.2.2 *Test to Failure*—In testing to failure, more detailed information is generally desired such as ultimate load carrying capacity, total load-deflection history, yield point, connection performance, factor of safety, etc.

4.2.3 If desired, either type of test may be extended to include a determination of the magnitude and distribution of the stresses in the members and connections in order to permit a more comprehensive analysis of the truss performance.

5. Significance and Use

5.1 This practice provides a guide to any individual, group, agency, or code body on the methods of test for truss assemblies fabricated from all types of construction materials. Sample size is generally kept to a minimum to reduce costs. The methods may be used to apply proof loads to an assembly or to test it to failure. Information obtained includes strength and stiffness data, and if assemblies are tested to their ultimate load carrying capacity, the failure method or mechanism can be observed.