



Designation: F3380 – 19

Standard Practice for Structural Compliance of Very Light Aeroplanes¹

This standard is issued under the fixed designation F3380; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers simplified methods for satisfying structural requirements of very light aeroplanes. The material was developed through open consensus of international experts in general aviation. This information was created by focusing on Level 1 Normal Category aeroplanes which have a single engine, a maximum take-off mass of not more than 750 kg (1654 lbm), a stalling speed in the landing configuration of not more than 83 km/h (45 knots) Calibrated Airspeed (CAS), an unpressurized fuselage, and are non-aerobatic. The content may be more broadly applicable; it is the responsibility of the applicant to substantiate broader applicability as a specific means of compliance. The topics covered within this practice are: Parts of Structure Critical to Safety, Material Strength Properties and Design Values, Design Properties, and Special Factors.

1.2 An applicant intending to propose this information as Means of Compliance for a design approval must seek guidance from their respective oversight authority (for example, published guidance from applicable Civil Aviation Authorities (CAAs)) concerning the acceptable use and application thereof. For information on which oversight authorities have accepted this practice (in whole or in part) as an acceptable Means of Compliance to their regulatory requirements (hereinafter “the Rules”), refer to the ASTM Committee F44 web page (www.astm.org/COMMITTEE/F44.htm).

1.3 *Units*—The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered 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*

¹ This practice is under the jurisdiction of ASTM Committee F44 on General Aviation Aircraft and is the direct responsibility of Subcommittee F44.30 on Structures.

Current edition approved Aug. 1, 2019. Published September 2019. DOI: 10.1520/F3380-19.

priate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

F3114 Specification for Structures

F3115 Specification for Structural Durability for Small Airplanes

F3060 Terminology for Aircraft

2.2 *Other Documents:*

ANC-18 Design of Wood Aircraft Structures³

CMH-17 Composite Materials Handbook⁴

EASA CM-S-006 Certification Memorandum - Certification, Type Design Definition, Material and Process Qualification for Composite Light Aircraft⁵

EASA CS-VLA/Amendment 1 Certification Specifications for Very Light Aeroplanes⁵

3. Terminology

3.1 *Definitions:*

3.1.1 *A and B Values*—See CMH-17.

3.2 See Terminology F3060 for additional definitions and abbreviations.

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 Issued June 1944 by the Army-Navy-Civil Committee on Aircraft Design Criteria (USA). Available from Smithsonian Library, <https://library.si.edu/digital-library/book/designofwoodairc00fore>.

⁴ Available from SAE International (SAE), 400 Commonwealth Dr., Warrendale, PA 15096, <http://www.sae.org>.

⁵ Available from European Union Aviation Safety Agency (EASA), Konrad-Adenauer-Ufer 3, D-50668 Cologne, Germany, <https://www.easa.europa.eu>.