



ICBO Evaluation Service, Inc.

A subsidiary corporation of the International Conference of Building Officials

5360 WORKMAN MILL ROAD

• WHITTIER, CALIFORNIA 90601-2299

• (310) 699-0543
FAX (310) 695-4694

ACCEPTANCE CRITERIA FOR TEST METHOD TO DETERMINE BENDING YIELD MOMENT OF NAILS

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PREFACE

Evaluation reports issued by the ICBO Evaluation Service, Inc. (ICBO ES), are based upon performance features of the *Uniform Building Code*[™], *ICBO Uniform Mechanical Code*[™] and related codes. Section 104.2.8 of the Uniform Building Code is the primary charging section upon which evaluation reports are issued. Section 104.2.8 reads as follows:

The provisions of this code are not intended to prevent the use of any material, alternate design or method of construction not specifically prescribed by this code, provided any alternate has been approved and its use authorized by the building official.

The building official may approve any such alternate, provided the building official finds that the proposed design is satisfactory and complies with the provisions of this code and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in suitability, strength, effectiveness, fire resistance, durability, safety and sanitation.

The building official shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding its use. The details of any action granting approval of an alternate shall be recorded and entered in the files of the code enforcement agency.

The attached acceptance criteria for the general code sections noted have been issued to provide all interested parties with guidelines on implementing performance features of the codes. The attached acceptance criteria were developed and adopted following public hearings conducted by the Evaluation Committee. These criteria may be revised from time to time as the need dictates.

ICBO ES may consider alternate criteria, provided the proponent submits valid data demonstrating that the alternate criteria are at least equivalent to the attached criteria and otherwise meet the applicable performance requirements of the codes. Notwithstanding that a material, type or method of construction, or equipment, meets the attached acceptance criteria, or it can be demonstrated that valid alternate criteria are equivalent and otherwise meet the applicable performance requirements of the codes, if the material, product, system or equipment is such that either unusual care with its installation or use must be exercised for satisfactory performance, or malfunctioning is apt to cause unreasonable property damage or personal injury or sickness relative to the benefits to be achieved by the use thereof, ICBO ES retains the right to refuse to issue or renew an evaluation report.

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1. INTRODUCTION

1.1 Scope:

These criteria establish a test method for determining the bending yield strength, F_{yb} , of smooth and deformed shank nails. The F_{yb} is used to compute lateral design values of nails in wood-to-wood and wood-to-metal connections according to Section 2340 of the Uniform Building Code.

1.2 Purpose:

This test method, described in ASTM F 1575, provides procedures for determining the static bending yield moment, M_y , of smooth and deformed shank nails.

2. DEFINITIONS

2.1 Testing Laboratory: An independent testing laboratory, recognized by ICBO ES or NES, having the personnel, expertise, equipment and facilities for testing in accordance with this criteria.

2.2 Other definitions are described in Section 2340 of the Uniform Building Code and ASTM F 1575.

3. EQUIPMENT

Equipment is described in Section 6, ASTM F 1575.

4. SAMPLING

Tests for smooth shank nails shall be done on either the finished nail or a specimen of drawn wire stock. Tests for deformed shank nails shall be done on the finished nail. Test specimens shall be randomly selected by the testing laboratory to represent the parent population of fasteners in accordance with the objectives of the test program. At least 15 replicates shall be tested.

5. PROCEDURES

Procedures for measuring specimens and testing are described in Sections 8 and 9 of ASTM F 1575.

6. RESULTS

Bending yield moment is determined according to Section 10 of ASTM F 1575.

7. TEST REPORTS

Test reports shall conform to the ICBO ES Acceptance Criteria for Test Reports (AC85). The reports shall certify that the test assembly preparation, test sample selection and test procedures comply with these criteria. The following must be included:

7.1 Calculation of bending yield strength for each nail according to the Annex of ASTM F 1575.

7.2 Average calculated bending yield strength.

7.3 Other requirements as described in Section 11 of ASTM F 1575.

8. REFERENCES

8.1 American Forest and Paper Association (1991). *AFPA—National Design Specification for Wood Construction*. Washington, D.C.

8.2 Loferski, J. R. and T. E. McLain (1991). Static and impact flexural properties of common wire nails. *ASTM Journal of Testing and Evaluation*. Volume 19, No. 4, pp. 297-304.

8.3 American Society for Testing and Materials (1995). *ASTM—Standard Test Method for Determining Bending Yield Moment of Nails (F 1575)*. West Conshohocken, Pennsylvania.

8.4 International Conference of Building Officials (1994). *Uniform Building Code*. Whittier, California.