ICBO Evaluation Service, Inc.
A subsidiary corporation of the International Conference of Building Officials

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ACCEPTANCE CRITERIA FOR PREFABRICATED FIREBOXES

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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, Uniform Mechanical Code, Uniform Plumbing Code and related codes. Section 105 of the Uniform Building Code is the primary charging section upon which evaluation reports are issued. Section 105 reads as follows:

> The provisions of this code are not intended to prevent the use of any material 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 he 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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I. INTRODUCTION

The purpose of these criteria is to establish requirements for ICBO Evaluation Service, Inc. (ICBO ES), recognition of prefabricated fireboxes for installation in masonry fireplaces complying with Chapter 37 of the Uniform Building Code. Sufficient evidence must be submitted to substantiate any claims concerning end use and durability.

Data submitted by a proponent is support of his product are considered proprietary and do not become a part of the published report without his permission. The proponent has the opportunity to review and comment on the report prior to publication. Product description, installation instructions, fire and life safety information and identification are considered necessary in a published report.

Any reference to the term "code" is to the Uniform Building Code edition enforced by the ICBO ES.

The required tests must be conducted by a recognized testing agency having the necessary personnel, experience, equipment and facilities.

A qualified representative of the testing agency shall witness the production, fabrication and installation of the test specimen. The test report must be in sufficient detail to identify specimen properties that might affect performance. The testing agency must verify and report dimensions, weight and other relevant physical properties of the major components and the manner of installation, including a description of fastening elements. Photographs shall be included in the report.

As an alternate, test may be conducted at the proponent's facility, provided the test fixtures and equipment are properly calibrated by an approved agency, and provided sample preparation and tests are observed by an approved independent party, who must also issue the test report.

II. BASIC PRODUCT INFORMATION REQUIRED

A complete description of the product is necessary with specifications based on the code or national standards, where feasible. The following illustrates the type of information necessary:

A. General information, as applicable, on materials used in the manufacturing process (such as size, density, mix design, etc.) and during installation that are necessary for recognition by the ICBO ES.

B. General information, as applicable, regarding the manufacturing process (such as mixing, forming, extracting, firing, curing, coloring, glazing or finishing).

C. General information, as applicable, describing the connection and seal between the new firebox and a typical existing masonry fireplace and chimney.

D. A manual detailing internal quality control procedures used during production.

III. REQUIRED TESTS

A. **Performance Tests:** Prefabricated fireboxes are to be installed in a code-complying masonry fireplace. The entire assembly shall be enclosed in a plywood structure built in accordance with UL Standard No. 907, dated March 6, 1989. Radiant, brand and flash fire tests must be conducted in accordance with the UL Standard No. 907 with the following exceptions:

1. Radiant and brand fire tests must be conducted for a minimum of 12 hours.
2. The basis of acceptance for temperature rise on combustible materials in radiant, brand and flash fire tests with the fireboxes will be by comparison of temperatures attained on the test enclosure described in the referenced standard. Controlling temperatures must be established by conducting radiant and brand fire tests (followed by a flash fire test) in the masonry fireplace without the fireboxes for a 12-hour period. The amount of solid fuel for each of the control tests without the fireboxes shall not exceed the load required for tests with the fireboxes. The same tests will then be conducted with the fireboxes installed. Maximum temperature rise on adjoining combustibles, 1 inch or more from the masonry fireplace and chimney when tested with the fireboxes, cannot exceed those generated in the control tests without the fireboxes.

   At the completion of the tests, prefabricated fireboxes shall not crack, spill or disintegrate. Hairline cracks not extending through the thickness of the material are, however, considered acceptable.

B. **Compressive Strength:** Compressive strength test shall be conducted in accordance with ASTM Method C 109-86. Mix design specified by the manufacturer is to be used in casting the specimen molds. A minimum of five specimen cubes each are to be prepared so compressive strengths can be determined after 28 days of curing. The 28-day compressive strength must be a minimum of 1,500 psi.