



ICBO Evaluation Service, Inc.

A subsidiary corporation of the International Conference of Building Officials

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ACCEPTANCE CRITERIA FOR PLASTIC PANELS FOR WALLS OF WATER CLOSET COMPARTMENTS AND SHOWERS

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(AC 83)

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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1. INTRODUCTION

The purpose of this document is to specify the conditions under which plastic panels can be recognized in an ICBO Evaluation Service, Inc. (ICBO ES) evaluation report as wall panels in water closet compartments and showers, as noted in Section 510 (b) of the code. Basis of recognition is Section 105 of the code. The wall panels must be applied over or attached to wall sheathing complying with the code.

2. BASIC INFORMATION

The following information is necessary:

2.1 General information on material and manufacturing process.

2.2 For adhesives used, independent test data showing compliance as a Type I, Class 2 adhesive in accordance with ICBO ES Acceptance Criteria for Sandwich Panel Adhesives, dated July, 1974, revised 1986.

2.3 Thickness, size, fastening method, joint treatments and any special precautions required for installation.

2.4 Installation instructions, method of packaging and field identification.

2.5 Method of field cutting, trimming, forming and treatment of cut edges and ends, if any.

3. TESTING AND REPORTING

3.1 Tests:

All tests must be conducted by an ICBO ES recognized testing agency. A qualified representative of the agency must witness production, select samples, witness preparation of or prepare specimens, conduct the tests and prepare the test reports.

Alternately, testing may be conducted at the proponent's facility under the following conditions:

3.1.1 Only those tests not requiring aging or cycling may be conducted.

3.1.2 A qualified representative of the testing agency or a qualified independent consultant specifically recognized by the ICBO ES, certifies that sampling, preparation of test specimens, calibration of instruments and testing were witnessed and comply with accepted procedures. The representative must prepare and sign the test reports. The test facility is subject to ICBO ES staff inspection and approval prior to testing.

3.2 Test Reports:

Test reports must comply with ICBO ES Acceptance Criteria for Test Reports.

4. REQUIRED TESTING AND DATA

4.1 Approved Plastic Materials Tests:

The product must be subjected to the following tests to show compliance as an approved plastic material, as required in Section 417 of the code:

4.1.1 Self-ignition Temperature Test: Test method is ASTM D 1929-68 (1975).

Condition of acceptance is that the product must have a self-ignition temperature of 650°F. or greater.

4.1.2 Smoke-density Rating Test: See Section 4.2

4.1.3 Plastic Classification Test: Test method is ASTM D 635-74.

Condition of acceptance is that the product must be classified as CC1 or CC2, in accordance with Section 417 of the code.

4.2 Interior Finish Tests:

The product must be subjected to the following tests to comply with Chapter 42 of the code:

4.2.1 Surface-burning Characteristics Test: Test method is U.B.C. Standard No. 42-1.

Condition of acceptance is that the product has a flame-spread index of not more than 200 and a smoke-density rating no greater than 450.

4.2.2 Room Temperature Test: Test method is to subject the product that is adhesively attached to a substrate, to a room temperature of 300°F. for 25 minutes.

Condition of acceptance is that the product must not readily become detached.

4.3 Impact Tests:

Test method is NEMA Standard No. 8-19-1964. This requires three 9-inch-wide by 12-inch-long specimens individually clamped to hold them flat against a rigid substrate such as ³/₄-inch-thick plywood on a level floor. A 1¹/₂-inch-diameter 8-ounce steel ball is dropped once on each specimen from a height of 36 inches, perpendicular to the surface.

Condition of acceptance is that there should be no surface fracture after the ball is dropped.

4.4 Chemical Resistance Test:

Test method is ASTM D 2299-68 (1982) with the following chemicals:

- a. Ammonium hydroxide, 10 percent
- b. Hydrochloric acid, 10 percent
- c. Citric acid
- d. Heavy-duty detergent
- e. Ethyl alcohol, 50 percent
- f. Hydrogen peroxide, 3 percent and 28 percent
- g. Methyl alcohol
- h. Mineral oil (white)
- i. Olive oil, edible grade
- j. Phenol solution, 5 percent
- k. Soap solution, 1 percent
- l. Sodium chloride solution, 10 percent
- m. Urine
- n. Iodine
- o. Polish remover
- p. Potassium permanganate
- q. Acetone

Exposed surfaces must be examined to determine extent of surface change. Cracking, softening, delamination, spalling, etc. must be reported. Results will be evaluated on a case-by-case basis.

4.5 Water Percolation Test:

A 2-inch-diameter tube is mounted on the surface of the product and sealed. Tube is filled with distilled water to a height of 48 inches. The water column is maintained at 75°F. ± 5°F. and 50 percent ± 5 percent relative humidity for a period of 48 hours. The drop in water level is to be reported in hundredths of an inch.

Condition of acceptance is that at the end of 48 hours, there can be no more than 0.5 inch drop in column height.

4.6 Accelerated Aging Test:

Five specimens, each 6-inch by 6-inch in size, will be tested in accordance with ASTM D 756-78(1983) Procedure G for a period of 10 cycles. On completion of the aging procedure, comparative bond tests with the five control specimens are conducted in accordance with ASTM C 297. If the product is adhesively attached to the substrate, the specimens should include the sub-

strate. Five specimens are necessary for each substrate for which recognition is sought.

Condition of acceptance is that there be no cracking, checking, crazing, erosion or other characteristics that might affect performance as a wall panel for use in water closet compartments and showers, in each specimen when viewed under minimum 5X magnification. Additionally, the average bond strength of aged specimens adhesively attached to the substrate will be at least 90 percent of the control specimens.

4.7 Water-vapor Transmission Test:

Test method is ASTM E 96-80, desiccant method.

Condition of acceptance is that the water-vapor transmission rate of the product must be not more than 4 gms./sq. meter/24 hours.

4.8 Fungus Resistance Test:

Test method is MIL-STD-810B.

Condition of acceptance is that at the completion of test mold growth be confined to the inoculated area with no significant growth within, when examined under 5X magnification. Additionally, there should be no delamination.

4.9 Abrasion Test: Taber Abraser Model 503 by Taber Instrument Corporation with two sets of Nema wheels or equivalent and 180 grit aluminum oxide finishing sandpaper are to be used in this test. The abraser is set up with 500 gram plugs in place. The wheels are fastened in position. Vacuum source is connected.

The specimens are square with rounded corners or circular, with a minimum dimension of 4¹/₂ inches, and have a ¹/₄-inch-diameter hole in the center. Three specimens are conditioned for 48 hours prior to testing at 73.4°F. ± 3.6°F. and 50 percent ± 5 percent relative humidity. The sandpaper is conditioned in an oven for 24 hours prior to testing at 82°F. and stored in a desiccator.

Specimens are cleaned with a 50:50 mixture of VM & P naphtha and SD-3A ethyl alcohol and allowed to dry. Sandpaper is applied to the abrader wheel using a double-faced tape. Specimens are weighed to the nearest 0.01 gram and original weight recorded. Each specimen is then subjected to 25 cycles, cleaned again with the solution, allowed to dry and reweighed. Percent weight loss is calculated for each specimen.

Condition of acceptance is that at the completion of the 25 cycles the average percent of weight loss of the three specimens must be not more than 0.045 percent.