



ICBO Evaluation Service, Inc.

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ACCEPTANCE CRITERIA FOR SANDWICH PANELS OF NATURAL STONE BACKED WITH REINFORCED EPOXY RESIN

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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,TM 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. GENERAL

This acceptance criteria sets forth the basis of recognizing in ICBO ES evaluation reports, sandwich panels of natural stone backed with reinforced epoxy resin. Connections to wall framing shall be accomplished with steel clips that engage the stone through the reinforced epoxy backing to provide a degree of mechanical attachment for the panel.

Panels are limited to walls of nonfire-rated Type V construction. Total panel thickness shall be $\frac{3}{8}$ inch, maximum.

II. TESTS

A. Temperature cycling—tests shall comply with Section IV F of the Acceptance Criteria for Plastic Siding except as follows:

1. Tests shall involve 30 cycles and 10 specimens, each including a standard clip embedded in the stone and epoxy. Ten additional samples shall be prepared and used as control samples for comparison with cycled specimens.

2. Five samples shall be examined after 15 cycles under 5X magnification to determine if there are any signs of cracking, crazing or delamination. The ultimate “pull-out” strength of the connection clips shall then be determined. The same observations and tests shall be done on the remaining five samples after 30 cycles of testing.

3. Pull-out values of the clip from the cycled samples shall be compared with pull-out values from the 10 control samples to determine the affect of temperature variations on the connection. The specific sample size and method of testing the clips must be mutually agreed on before commencement of tests.

B. Structural Performance—Pressure tests shall be performed in accordance with ASTM E 330 in the positive and negative modes, using three panels for each mode. The test specimens must be representative of the system on which recognition is requested. The most critical conditions of fabrication and installation should be incorporated into the test specimens.

III. SUPPLEMENTARY INFORMATION

A. Complete specification for the epoxy is necessary including temperature performance and heat-distortion temperature.

B. Standard details on connections and supports are necessary.

C. The list of stones on which the sandwich panel is to be recognized must be specified and information provided on compatibility of the epoxy.

D. Justifying details or a statement will be necessary specifying that connections and panel joints will allow for relative movements as required by Section 2312 (h) 2 D of the 1988 Uniform Building Code.