



Issue Date:	7-14-2020
Code/Section:	2018 IBC Section 104.11, 1702.1, 1703, 1706, 1707, 1709
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A. Purpose:

This document is intended to assist customers and staff in determining if a separate application for an *alternative material, design, or method of construction* is required. Additionally, it describes what shall be provided as part of that application.

B. Scenarios:

There are two scenarios that can be followed when an *alternative material, design, or method of construction* is proposed by an applicant for a building permit:

1. A *research report* in compliance with the currently adopted edition of the model building codes based on either ICC-ES Acceptance Criteria or IAPMO-UES Evaluation Criteria is provided to the plan reviewer and is referenced on the construction documents.
 - 1.1. The plan reviewer shall review the *research report* to verify it is appropriate in scope for the proposed use and conditions of the project and that the report itself would not take an inappropriate amount of time to review.
 - 1.1.1. If the plan reviewer determines the *research report* is appropriate, then the *research report* is treated as a referenced standard by the plan reviewer and scenario 2 is not followed.
 - 1.1.2. If the plan reviewer determines the *research report* is not appropriate for the proposed use and conditions of the project, scenario 2 shall be followed.
 - 1.1.3. If the plan reviewer determines it will take an inappropriate amount of time to review the *research report*, then scenario 2 shall be followed.

2. The Alternative Material, Design, or Method Application is submitted via the [Shape PHX Customer Portal](#) by selecting the “Apply for Code Modification” button, then the type “Alternative Materials”. Once submitted, a review process begins, and a final decision is assigned to the *building official*.
 - 2.1. The *building official* shall require the applicant to provide a *research report* or at the *building official*’s discretion a *compliance report*.
 - 2.1.1. Sufficient required documentation and testing shall accompany the application per 2018 IBC Section 104.11, 1702, 1703, 1706, 1707, and 1709.
 - 2.1.2. The *building official* may require the applicant to provide *committee criteria*, testing, testing procedures, or any other substantiating information from an *approved agency* or an *approved source*.
 - 2.1.3. If no currently *approved* testing or evaluation standard exists for the *alternative material, design, or method of construction*, the applicant shall request a

conference to determine an acceptable standard or procedure for testing and evaluation.

C. Definitions:

The following definitions apply to the selected words and terms that are italicized in this document.

Alternative material, design, or method of construction: A proposed material, design, or method of construction that is not specifically prescribed in the Phoenix Building Construction Code (PBCC); or where the use of a standard is proposed that is not specifically referenced by the PBCC for that use; or where the PBCC requires the submittal of substantiating technical or test data and the product is not listed as meeting the prescribed test.

Approved (IBC definition): Acceptable to the *building official*

Approved agency (IBC definition): An established and recognized agency that is regularly engaged in conducting tests, furnishing inspections services or furnishing product certification where such agency has been *approved* by the *building official*. (Example: material testing labs)

Approved source (IBC definition): An independent person, firm, or corporation, *approved* by the *building official*, who is competent and experienced in the application of engineering principles to materials, methods, or systems analyses. (Example: ICC-ES, IAPMO-UES)

Building official (Altered IBC definition): The officer or other designated authority charged with the administration and enforcement of the Phoenix Building Construction Code, or a duly authorized representative.

Compliance report: A report, created by an *approved agency* or an *approved source*, providing a concise conclusion determining compliance with the PBCC based on the evaluation of investigations or testing data performed to establish the quality and manner of use of materials or assemblies in accordance with *approved* engineering analysis, *approved* rules, or *approved* standards.

Research report: A report based on a *committee criteria*, published by an *approved source*, providing a concise conclusion based on the evaluation of submitted testing data and includes, but is not limited to; a determination of compliance with a specific edition of the model codes, design requirements, detailing requirements, identification, allowable uses, description of materials, description of installation, description of evidence submitted for evaluation, and conditions of use. (Example: Evaluation reports)

Committee criteria: A document created by an *approved source* that states the requirements under which a product is to be evaluated in order to demonstrate code compliance. (Examples: ICC-ES Acceptance Criteria, IAPMO-UES Evaluation Criteria).

D. Accreditation and Competency

1. Approved Agency Requirements

1.1. *Approved agencies* shall comply with 2018 IBC Section 1703.1.

- 1.2. The *building official* may require submission of information to determine if the agency is an *approved agency*.
2. Approved Source Requirements
 - 2.1. *Approved sources* shall be accredited by either the International Accreditation Service (IAS), or the ANSI National Accreditation Board (ANAB) as meeting ISO/IEC 17065 to perform the type of evaluation being performed in the *research report* or *compliance report*. Certifications that verify this shall be provided.
 - 2.2. *Approved sources* shall submit whatever data is deemed necessary for the *building official* to accept them as an *approved source*. This will likely include methods used for conducting evaluations.
3. Compliance Report Requirements
 - 3.1. Where *compliance reports* are created by an *approved agency*, and not an *approved source*, the report shall be signed and sealed by an Arizona registered design professional who is responsible for the report's content and is affirming competency in the topic of the report.
 - 3.2. *Compliance reports* by *approved agencies* that contain test data must contain an analysis of the test data by the design professional of the *approved agency*.
 - 3.3. Test data submitted as part of a *compliance report* shall come from a laboratory accredited by either the American Association for Laboratory Accreditation (A2LA), IAS, or ANAB in accordance with ISO/IEC 17025 to perform that type of test. Certifications that verify this shall be provided.
4. Research Report Requirements
 - 4.1. *Research reports* do not need to be referred to as research reports by their creators.
 - 4.2. *Research reports* shall be created based on compliance with a *committee criteria*, except where the requirements for evaluation are completely prescribed in the PBCC.
 - 4.3. The scope of the *research report* shall not exceed the scope outlined in the respective *committee criteria*.
5. *Committee criteria* Requirements
 - 5.1. *Committee criteria* do not need to be referred to as committee criteria.
 - 5.2. *Committee criteria* creation shall utilize an independent committee of at least 5 members that are employed by authorities having jurisdiction for building code enforcement. This committee shall have the final authority for allowing the criteria to be used to create *research reports*.
 - 5.3. *Committee criteria* creation shall utilize a process that solicits public comments on draft versions.
 - 5.4. *Committee criteria* shall utilize a public hearing process that allows interested parties to attend the meetings on the approval of the draft criteria.

E. Relevant Guidance and Policy Statements:

Many referenced standards have sections very similar to IBC Section 104.11 (e.g. AISI S100 A1.2, ACI 318 1.10, AISC A1, TMS 402 1.3, and NDS 1.1.1.5). These sections are following the same intent of IBC Section 104.11 and do not override IBC Section 104.11 per IBC Section

102.4.2.

Alternative material, design, or method of construction cannot override or waive provisions of the code that are specifically prescribed. The mechanism for that is a code modification.

Alternative materials, designs, or methods of construction are based on the information provided. Based on incorrectly provided information or where it is determined that conditions of approval are not met, the *building official* is authorized to suspend or revoke approvals.

F. City Processing:

The alternative application will be logged in and reviewed following the procedures of TRT# 00284C, the Alternative Material, Design, or Method Procedures.

G. Rationale and Reference:

The PBCC allows any type of construction so long as it can be proven to meet the intent of the code and equivalency to its provisions. This is necessary to prevent the code from being too long by addressing every possibility of construction and to allow innovation in construction.

Some *research reports* do not include certain items in their scopes and so may not be sufficient for all potential product uses. Rarely, *research reports* raise concerns that they contain incorrect or incomplete information. For consistency amongst City staff, when a suspect report is encountered it shall be evaluated by the *building official*.

Research reports with extensive and complex documentation have the option to require a separate application for the recovery of costs associated with longer reviews than normal.

2018 IBC Sections 1703.4, 1707, and 1709.1 all identify reports from *approved agencies*, but do not give these reports a name other than authenticated or certified. The name, *compliance report*, was chosen due to differentiate them from research reports which are associated with *approved sources*.

2018 IBC Sections 1406.4-1406.5, 1408.4-1408.5, 2407.1.1, 2409.1 second option, and 2606.5-2606.6 are examples in the code where a specific referenced standard is not referenced in the PBCC for that use and would be treated as alternatives.

Ensuring that *research reports* come from sources that can be trusted is an important component of allowing alternatives to the building code, as they do not frequently need a separate application to the building official. The topic of determining this trust is hard to find good objective guidance on. The best source for this topic found comes from the Structural Engineers Association of California (SEAOC) October 2013 paper titled "An Evaluation of Current Practices Related to the Development and Implementation of Acceptance Criteria and Product Evaluation Reports." Many of the requirements of *committee criteria*, *approved sources*, and *research reports* are taken from this document along with due consideration to the requirements of other authorities having jurisdiction.

Based on the knowledge of the *committee criteria* process used by ICC-ES and IAPMO-UES those organization are specifically identified as being *approved sources* for *committee criteria*. If other organizations meet this criteria, then this document should be edited to include them.