Welcome to the 2018 Annual Conference Educational Sessions

Session: Approving and Selecting Building Products with Confidence - What To Look for in Evaluation Reports
Approving and Selecting Building Products with Confidence - What To Look for in Evaluation Reports

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Look for the Marks of Conformity!

Agenda

• The importance of verifying compliance of building products with applicable codes and standards
• The process for developing evaluation reports and building product listings to show compliance with codes and standards
• The difference between ICC-ES evaluation reports and building product listings
• ICC-ES tool that helps building code officials, designers and builders find code compliant products
• ICC-ES program updates
• Open discussion / Q & A
Introduction to ICC-ES

The building codes cannot realistically include every possible product used in construction.
Introduction to ICC-ES

- The building codes would be unmanageable in size!
- Maintaining such a code would be impractical.
Many new and innovative building products enter the construction marketplace every year. They cannot possibly be incorporated into the codes.
Introduction to ICC-ES

If these products are not in the code, then...

...how are they approved?
ICC

- Introduction to ICC Evaluation Service
  - Establishment of ICC as part of the three legacy building code organizations, including ICBO, SBCCI and BOCA. This merger also established ICC Evaluation Service (ICC-ES) in 2003.
- Code publisher and building code official membership
- Along with IAS, SKGA and GC, ICC-ES is a subsidiary of the ICC non-profit parent organization
About ICC Evaluation Service (ICC-ES)

- ISO 17065 accredited assessment body most widely recognized and accepted by building code officials
- Nonprofit, limited liability company
- Evaluation Service for innovative building products and code referenced building products
- Provides evidence of code compliance in accordance with Section 104.11 and code referenced standards
- Not every building product is referenced in the IBC, therefore there needs to be a mechanism for product evaluation to prove compliance with code requirements
About ICC-ES

- Created as an extension of building code official’s staff, and governed by a Board comprised of building code officials
- Serves as valuable resource to building departments across the United States
- Provides building departments and industry with technical support for its services
- An organization with a dedicated staff of:
  - Licensed design professionals
  - Product evaluation specialists
Alternative Materials, Design and Methods of Construction

IBC Section 104.11

Contains provisions which allows for products not specifically covered in the code, provided that the products are in compliance with the intent & purpose of the code.
Section 104.11 Alternative materials, design and methods of construction and equipment

The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved.
Section 104.11

104.11.1 Research reports.

Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.

104.11.2 Tests.

Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the building official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the building official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the building official for the period required for retention of public records.
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IBC Section 104.11.1

Research reports.

- Provide supporting data.
- Must come from approved sources.
Who Has Responsibility?

Q: Who has the authority and responsibility to review and approve building materials, design or method of construction?

A: THE BUILDING CODE OFFICIAL
Code Compliance

- Importance of verifying compliance of building products with applicable codes and standards.
  - Streamlines review process for building code officials and design professionals
  - Provides independently assessed performance data
  - Levels playing field and allows for product innovation
  - Saves time and money
Continuous Compliance Process

- Review of Product Against Criteria
- Periodic Review of Submitted Information for Product Changes
- Periodic Inspection and Audit
How is Compliance Verified?

• ICC-ES has hundreds of Acceptance Criteria (AC) that have been historically developed based on ESR applications from manufacturers.

• Approved AC are periodically reviewed to latest code requirements (IBC, IRC, etc.) and renewed.

• Manufacturers and other interested parties can propose revisions and contribute to AC development process.

• Once AC has been approved, manufacturers can apply for ESRs.
Manufacturing Quality Control

• Ensures product is manufactured in accordance with specifications consistent with the product tested and used on project site.

• Qualifying inspections by ICC-ES or ISO 17020 accredited inspection agencies (MRA) to verify manufacturing quality programs prior to issuance of ESR

• Periodic follow-up inspections for the life of ESR (annually or more frequently)

• Acceptance Criteria for Quality Documentation (AC10)
Why Acceptance Criteria (AC)?

• ICC-ES ACs provide independent, third-party validation that products meet the minimum performance requirements of the IBC.
• ICC-ES develops ACs which serve as baselines against which innovative products can be objectively measured.
• AC may also be developed when codes are not clear in a particular area or on specific issues related to a product; when industry raises concerns regarding ESR requirements; or when a new AC is deemed necessary by the report applicant, ICC-ES staff, or the ICC-ES Evaluation Committee.
Acceptance Criteria Hearing

- In person testimony given by interested parties and proponents to Evaluation Service Committee and ICC-ES staff

- ES Committee consists of 9 – 12 building code officials from throughout the U.S.

- ES Committee serves on a voluntary basis for a year. In person AC hearings are broadcast through ICC-ES website.
Alternative AC Development Process

- AC revisions are posted on ICC-ES website for review.

- Nonstructural revisions, do not involve life safety and are already addressed in nationally recognized standards or generally accepted industry standards, or minor / noncontroversial.

- AC can also be approved by the ES Committee based on submission of electronic testimony through the ICC-ES webpage.

- If AC is not approved, then it may move to the primary AC process and then heard through in-person testimony
Acceptance Criteria

• Open process. ICC-ES seeks public input.

• Postings held for 30 days on-line for submittal of comments by interested parties.

• Building code officials, designers and manufacturers have opportunity to participate and share their technical expertise, experience and perspective.
Acceptance Criteria

- Industry groups attend ICC-ES AC hearings and provide input
- Opportunity to get involved and provide technical input on seismic, wind, fire resistance and other areas of expertise
- Recently developed AC for innovative products
Evaluation Reports

- Internal technical staff review – test reports and manufacturing quality documents
- Examples of innovative product ESRs:
  - Concrete and masonry anchors
  - Fasteners
  - Reinforcing fibers
  - Cross-laminated timber panels
  - Joist hangers and cold-formed steel connectors
  - Metal deck, joists and framing
  - Diaphragm and shear wall systems
  - Suspended ceiling systems
What’s in an ICC-ES Evaluation Report

ICC-ES Evaluation Reports from ICC Evaluation Service® are the most preferred resource used by code officials to verify that new and innovative building products comply with code requirements. The ICC-ES Evaluation Reports provide information about what code requirements or acceptance criteria were used to evaluate the product, how the product should be installed to meet the requirements, how to identify the product, and much more. ICC-ES Evaluation Reports are divided into eleven major areas.

1. **CSI Division Number**—ICC-ES Evaluation Reports, and the building products represented in them, are organized according to the Construction Specifications Institute’s (CSI) Masterformat system.

2. **Report Holder**—The name and address of the company or organization that has applied for the ICC-ES Evaluation Report.

3. **Evaluation Subject**—The specific product(s) covered by the report.

4. **Evaluation Scope**—The code(s) that were used to evaluate the product.

5. **Properties Evaluated**—A brief description of the properties the product was evaluated against such as fire resistance and wind resistance. This section also shows if the product can be used for structural purposes.

6. **Uses**—Identifies the scope of the ICC-ES Evaluation Report and relates the product evaluated to code provisions.

7. **Description**—Provides a general description of the product and its features, such as length, thickness, etc.

8. **Installation**—Identifies general and often specific requirements to help the inspector ensure the product is installed properly according to the code requirements or acceptance criteria.

9. **Conditions of Use**—Statement that the product, as described in the ICC-ES Evaluation Report, complies with or is a suitable alternative to the requirements of the applicable code and a list of conditions under which the report is issued.

10. **Evidence Submitted**—Data (i.e. test reports, calculations, installation instructions) that was used in evaluating the product.

11. **Identification**—Information that can be used to identify the product, including the manufacturer’s name, product code, ICC-ES Evaluation Report number, etc.
ESRs and listings are valid for a specific duration. Check the scope of the report!

New ESRs are renewed one year after issuance. After first year, one- or two-year renewal options exist.

Manufacturers must re-apply for product listings annually.

An ESR or listing can undergo revisions at any time (Editorial, Technical).
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**Test Labs**

- **ISO 17025**, General requirements for the competence of testing and calibration laboratories
- IAS accreditation for ICC-ES AC and reference test standards
- Requires ongoing assessment of test lab for proficiency, quality control, calibrations, etc.
- ICC-ES AC85 Acceptance Criteria for Test Reports
  - Test labs and independent product sampling
Why not directly accept a test report?

ICC-ES Evaluation Report Generation Process:
- Acceptance Criteria (AC) established through public hearings with industry experts & building officials’ Committee approval
- AC contains minimum testing, Quality Assessment & Quality Control requirements
- Laboratory performs tests per the requirements of the AC
- Test reports, calculations & QA/QC documents are submitted to Accredited Product Certification Agency ICC-ES
- ICC-ES checks data for compliance to AC & Codes
- ICC-ES issues Evaluation Report
- ICC-ES performs audit

Test Laboratory Report Generation Process:
- Laboratory performs test
- Laboratory issues report
- NoICC-ES

- ICC-ES requires data from accredited or approved test labs.
- ICC-ES requires data based on a test standard or AC.
- ICC-ES ascertains continuous compliance through inspections.
- ICC-ES reviews data so you don’t have to.
Building Product Listings

• Different than ICC-ES Evaluation Reports
• Listings are intended for products referenced in the code
• Listings provide independent, third party evidence of compliance with code requirements in consensus standards (e.g. ASTM, ANSI, ACI, AISI, AISC, UL, NFPA).
**ESR vs. ESL**

**Evaluation Report (ESR)**
- Proof of compliance to codes and acceptance criteria
- Safety
- Inspections
- Complex and innovative products
- Evaluation time varies according to complexity of the product

**Listing (ESL)**
- Proof of compliance to codes and standards referenced in codes
- Safety
- Inspections
- Traditional products
- Quick evaluation
It’s all Part of a Process!
Initial contact and estimation of capabilities and cost

- Manufacturer submits application along with supporting documentation
- Products tested at accredited testing lab
- Initial inspection of manufacturing process
- Successful evaluation and an ICC-ES evaluation report issued

Continuous Compliance Process:
Inspections to verify products are manufactured according to report or listing, and annual file review
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Evaluation reports and listings can be accessed for free at:

- www.icc-es.org
- www.icc-es.org/listing
- www.icc-es.org/pmg
- www.icc-es.org/ep
- Or, through e-Codes
Other ICC-ES Programs

- ICC-ES PMG Program – Plumbing, Mechanical and Gas products evaluated by ICC-ES. Separate evaluation reports are issued for these products.
The ICC-ES Mark of Conformity

- The ICC-ES Mark of Conformity means that products have undergone a rigorous evaluation.

- Look for the ICC-ES Marks of Conformity on building construction products and packaging before approving for installation.
Why obtain an ICC-ES Report?

- Evidence that product complies with code or code referenced standards
- Proof that new or innovative products can be used in construction projects
- ICC codes are used in all 50 states and internationally
- ICC-ES and ICC back code compliance of the evaluated product
- Reflect use of unique, easily identifiable listing marks
Updates

- EPA recognition of ICC-ES as a third party certifier under the Formaldehyde Emission Standards for Composite Wood Products Rule.


- LADBS recognition of ICC-ES reports as proof of compliance to seismic requirements of the California and City of Los Angeles building codes. ICC-ES now issuing Evaluation Report Supplements to the LABC and LARC.
Updates

✓ ICC-ES received California Air Resources Board Approval to Conduct Third Party Certification Services for Composite Wood Products (CARB Approval)

✓ Cooperation with Twining, Inc. for Testing and Certification of Supplementary and Alternative Cementitious Materials to help contribute to reduction of CO₂ Emissions Enhancing Sustainability

✓ Continued cooperation with Innovation Research Labs for one-stop testing, listing and product evaluation service for Building, Energy and PMG product manufacturers
Closing Comments

• Visit the ICC-ES website and sign up for the mailing list. Stay informed of ES updates.
• Require ESRs from product manufacturers as part of enforcement in your jurisdiction
• Provide feedback to ICC-ES as part of the AC process or when questions arise regarding ESRs or AC.
• Questions?
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ICC-ES Contacts

www.icc-es.org or link from
www.icccsafe.org

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