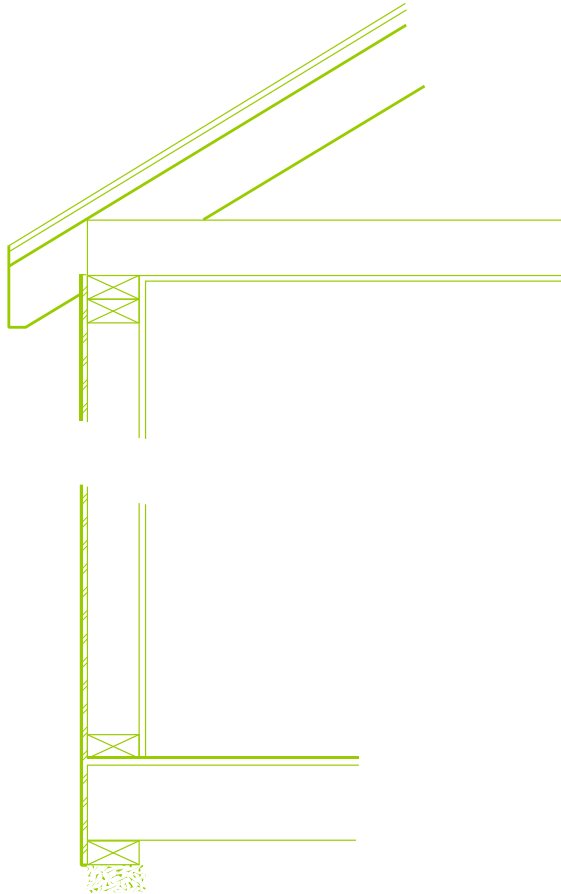


## Approving or Selecting Building Products with Confidence



# Introduction



The components/products used in building construction must comply with the code,

# Introduction



- Products can range between traditional and innovative; simple to complex.



# Introduction



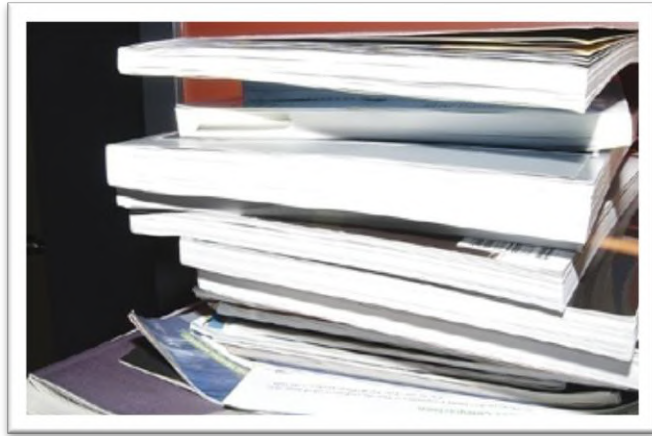
- This clay roof tile is addressed by ASTM C1167.

# Introduction



The code cannot realistically include every possible component/product used in building construction.

# Introduction



- The code would be of unmanageable size!
- And maintaining such a code would be impractical.

# Introduction

Many new and innovative products enter the construction marketplace. They cannot possibly be incorporated into the code.



# Introduction



If these components/products/systems are not in the code, then...

**...how are they approved?**



# Examples of Innovative Products

## Photovoltaic systems

- Rooftop mounted photovoltaic (PV) system
  - Needs to demonstrate the ability to resist code-prescribed loads such as wind, seismic and snow, to ensure life safety and reliable functioning.



# Examples of Innovative Products

## Photovoltaic systems

- Building integrated photovoltaic (BIPV)
  - Must demonstrate the ability to function as a code-compliant building component as well as an alternative energy-producing system.



# 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.

# Research Reports



IBC Section 104.11.1

## **Research reports.**

- Provide supporting data.
- Must come from approved sources.

# Who Has the Responsibility?

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

**A:** THE BUILDING OFFICIAL



# ACME Manufacturing, Inc.



## **Example:**

ACME Manufacturing produces a new and exciting spray foam insulation with an enhanced fire-rated performance.

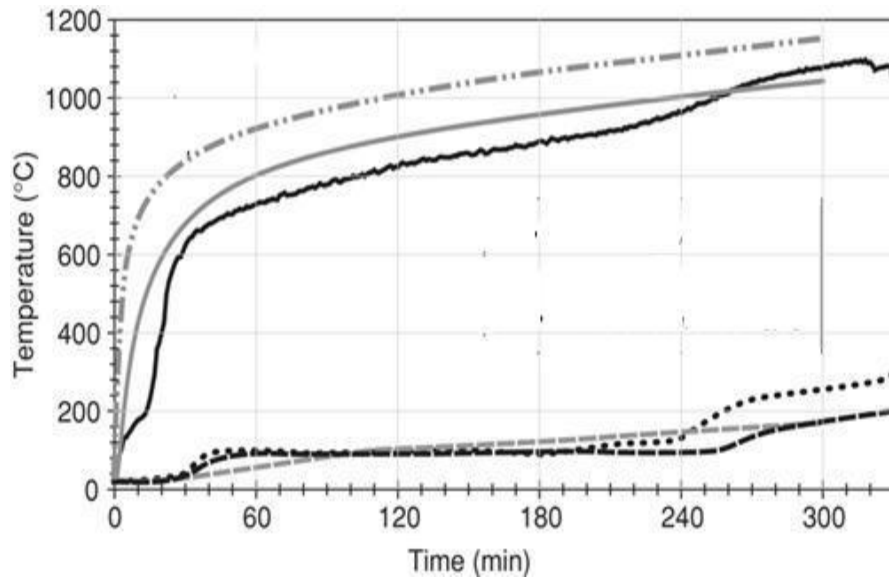
# ACME Manufacturing, Inc.

ACME's "spray foam insulation"

- It enhances air quality!
- It's easy to apply!
- It's safe!
- It's energy efficient!
- It's economical!

**However...**

# The Problem



Mr. Acme submits all the data to the building official.

The building official has to go through all the data to approve or disapprove the product.

# The Solution



Building Official:

“If you only had an ICC-ES Evaluation Report for your spray foam insulation.”

# About ICC Evaluation Service, LLC®



- ICC-ES® is a subsidiary of the International Code Council (ICC), developers of the International Codes.
- ICC-ES has direct access to ICC resources.
- ICC-ES is ISO 17065 certified as a certification body.
- Creates evaluation reports/listings that demonstrate compliance with applicable codes, standards and green rating systems.
- History dates back more than eighty years.



# About ICC Evaluation Service, LLC®




What is ICC-ES®?

- Created as an extension of the code official's staff, and is governed by a Board comprised of code officials
- Serves as an invaluable resource to building departments across the United States
- ICC-ES provides building departments and industry with full technical support for its services.
- An organization with a dedicated staff of:
  - Professionally licensed engineers and licensed architects
  - Product evaluation specialists

Whose only job is to evaluate building products

# Research Reports



Most Widely Accepted and Trusted

ICC-ES Evaluation Report

ESR-4802

Issued March 1, 2011

This report is subject to re-examination in one year.

[www.icc-es.org](http://www.icc-es.org) | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

DIVISION: 07-THERMAL AND MOISTURE PROTECTION

Section: 07410-Metal Roof and Wall Panels

REPORT HOLDER:

ACME CUSTOM-BILT PANELS  
52380 FLOWER STREET  
CHICO, MONTANA 43820  
(808) 664-1512  
[www.custombiltpanels.com](http://www.custombiltpanels.com)

EVALUATION SUBJECT:

CUSTOM-BILT STANDING SEAM METAL ROOF PANELS: CB-150

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 International Building Code® (IBC)
- 2009 International Residential Code® (IRC)

Properties evaluated:

- Weather resistance
- Fire classification
- Wind uplift resistance

2.0 USES

Custom-Bilt Standing Seam Metal Roof Panels are steel panels complying with IBC Section 1507.4 and IRC Section R905.10. The panels are recognized for use as Class A roof coverings when installed in accordance with this report.

3.0 DESCRIPTION

3.1 Roofing Panels:

Custom-Bilt standing seam roof panels are fabricated in steel and are available in the CB-150 and SL-1750 profiles. The panels are roll-formed at the jobsite to provide the standing seams between panels. See Figures 1 and 3 for panel profiles.

The standing seam roof panels are roll-formed from minimum No. 24 gage [0.024 inch thick (0.61 mm)] cold-formed sheet steel. The steel conforms to ASTM A 792, with an aluminum-zinc alloy coating designation of AZ50.

3.2 Decking:

Solid or closely fitted decking must be minimum <sup>15</sup>/<sub>32</sub>-inch-thick (11.9 mm) wood structural panel or lumber

sheathing, complying with IBC Section 2304.7.2 or IRC Section R803, as applicable.

4.0 INSTALLATION

4.1 General:

Installation of the Custom-Bilt Standing Seam Roof Panels must be in accordance with this report, Section 1507.4 of the IBC or Section R905.10 of the IRC, and the manufacturer's published Installation Instructions. The manufacturer's Installation Instructions must be available at the Job Site at all times during Installation.

The roof panels must be installed on solid or closely fitted decking, as specified in Section 3.2. Accessories such as gutters, drip angles, fascias, ridge caps, window or gable trim, valley and hip flashings, etc., are fabricated to suit each job condition. Details must be submitted to the code official for each Installation.

4.2 Roof Panel Installation:

CB-150: The CB-150 roof panels are installed on roofs having a minimum slope of 2:12 (17 percent). The roof panels are installed over the optional underlayment and secured to the sheathing with the panel clip. The clips are located at each panel rib side lap spaced 6 inches (152 mm) from all ends and at a maximum of 4 feet (1.22 mm) on center along the length of the rib, and fastened with a minimum of two No. 10 by 1-inch pan head corrosion-resistant screws. The panel ribs are mechanically seamed twice, each pass at 90 degrees, resulting in a double locking fold.

4.3 Fire Classification:

The steel panels are considered Class A roof coverings in accordance with the exception to IBC Section 1505.2 and IRC Section R902.1.

4.4 Wind Uplift Resistance:


The systems described in Section 3.0 and Installed in accordance with Sections 4.1 and 4.2 have an allowable wind uplift resistance of 45 pounds per square foot (2.15 kPa).

5.0 CONDITIONS OF USE

The standing seam metal roof panels described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report, the applicable code, and the manufacturer's published Installation Instructions. If there is a conflict between

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.



Page 1 of 2

## Research Reports: ICC-ES® Evaluation Reports®

# What Information is on an ICC-ES® Evaluation Report®?



- 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) Master format system.
- 2 Report Holder** - The name and address of the company or organization that has applied for the 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.

**DIVISION: 07-THERMAL AND MOISTURE PROTECTION**  
**Section: 07410-Metal Roof and Wall Panels**

**REPORT HOLDER:**

**ACME CUSTOM-BILT PANELS**  
52380 FLOWER STREET  
CHICO, MONTANA 43820  
(808) 664-1512  
[www.custombiltpanels.com](http://www.custombiltpanels.com)

**EVALUATION SUBJECT:**

**CUSTOM-BILT STANDING SEAM METAL ROOF  
PANELS: CB-150**

**1.0 EVALUATION SCOPE**

**Compliance with the following codes:**

- 2009 *International Building Code*® (IBC)
- 2009 *International Residential Code*® (IRC)

**Properties evaluated:**

- Weather resistance
- Fire classification
- Wind uplift resistance

# What Information is on an ICC-ES® Evaluation Report®?

- 6 Uses** - Identifies the product's uses and the applicable code provisions.
- 7 Description** - Provides a general description of the product and its features, such as length, thickness, etc.
- 8 Installation** - Identifies requirements to help the inspector ensure the product is installed properly according to the code requirements or acceptance criteria.

## 2.0 USES

Custom-Bilt Standing Seam Metal Roof Panels are steel panels complying with IBC Section 1507.4 and IRC Section R905.10. The panels are recognized for use as Class A roof coverings when installed in accordance with this report.

## 3.0 DESCRIPTION

### 3.1 Roofing Panels:

Custom-Bilt standing seam roof panels are fabricated in steel and are available in the CB-150 and SL-1750 profiles. The panels are roll-formed at the jobsite to provide the standing seams between panels. See Figures 1 and 3 for panel profiles.

## 4.0 INSTALLATION

### 4.1 General:

Installation of the Custom-Bilt Standing Seam Roof Panels must be in accordance with this report, Section 1507.4 of the IBC or Section R905.10 of the IRC, and the manufacturer's published Installation Instructions. The manufacturer's installation Instructions must be available at the Job site at all times during Installation.

# What Information is in an ICC-ES® Evaluation Report®?

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

**10 Evidence Submitted** - Data (i.e., standards, calculations, installation instructions, quality documentation) that was used in evaluating the product.

**11 Identification** - Information that can be used to identify the product, including the manufacturer's name, product name, Evaluation Report number, etc.

## 5.0 CONDITIONS OF USE

The standing seam metal roof panels described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

**5.1** Installation must comply with this report, the applicable code, and the manufacturer's published installation instructions. If there is a conflict between

## 6.0 EVIDENCE SUBMITTED:

Data in accordance with the ICC-ES Acceptance Criteria for Metal Roof Coverings (AC166), dated October 2007.

## 7.0 IDENTIFICATION

Each standing seam metal roof panel is identified with a label with a label bearing the product name, the material type and gage, the Acme Custom-Built Panels name and address, and the evaluation report number (ESR-4802).



# Listings



Most Widely Accepted and Trusted

## ICC-ES Listing

ESL-1234

Effective Date: February 1, 2013

This listing is subject to renewal in one year.

[www.icc-es.org](http://www.icc-es.org) | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

CSI: DIVISION: 04 00 00 - MASONRY  
Section: 04 22 00 - Concrete Unit Masonry

### Product Listing:

This ICC-ES product listing is based on testing samples taken from the market or supplier's stock, or a combination of both, to evaluate the product based on the standard(s) noted in this listing. The listing program also involves factory inspections, and assessment and surveillance of the listee's quality system.

Product: Concrete Masonry Units

Listee: XYZ Block and Brick  
111 S. Main Street  
Millinocket, ME 11111

### Additional Listee:

A2 Masonry  
211 East Ave.  
Astoria, OR 22222

Evaluation: The product, when applied in accordance with the manufacturer's instructions, conforms to the following standard(s):

ASTM C90-08 Specification for Loadbearing Concrete Masonry Units

Findings: The standard is referenced in compliance with the following sections in the applicable code editions:

2012 and 2009 *International Building Code*® (IBC)  
Applicable Section: 2103.1

2012 and 2009 *International Residential Code*® (IRC)  
Applicable Section: Table R301.2(1)

Identification: The XYZ Block and Brick concrete masonry units are identified with the manufacturer's name address and telephone number, the model name, and the listing number (ESL-1234).

Installation: The XYZ Block and Brick concrete masonry units must be installed in accordance with the XYZ Block and Brick instructions and the applicable code sections.



## Listings: ICC-ES Building Products Listings



# ESR v. Listing

## 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

- ✓ Proof of compliance to codes and standards referenced in codes
- ✓ Safety
- ✓ Inspections
- ✓ Traditional products
- ✓ Quick evaluation

# What is the value of an ICC-ES Evaluation Report or Listing?



An ICC-ES Evaluation Report and Listing recognizes a specific building product to:

- Provide code officials and specifiers the assurance of consistency, fairness and technical accuracy.
- Provide an independent finding of how the product meets performance and prescriptive provisions in the code.

# Basis for evaluation

## Code provisions

- Where code provisions are applicable, the code is the basis for evaluation.

## Acceptance Criteria

- Where the code does not address the product or system, or is not clear about the requirements, specific acceptance criteria are developed as the basis for evaluation.

# How Is Compliance Evaluated?



## Technical Review

- Examine product test reports (which are prepared by accredited testing agencies), data, analysis and calculations based on code requirements.
- Resolve questions with applicant.
- Create the report.
- Internal review process for technical accuracy and consistency.
- Appropriate inspections and review of quality control procedures.



# Inspections and Testing Requirements



| Inspection Agencies:   | Test Laboratories:   |
|--|--|
| <p>Must be accredited to ISO/IEC Standard 17020, <u>General Criteria for the Operation of Various Types of Bodies Performing Inspection</u>, for the specific disciplines they are inspecting.</p> | <p>Must be accredited to ISO/IEC Standard 17025, <u>General Requirements for the Competence of Testing and Calibration Laboratories</u>, for the specific tests they will be conducting.</p> |
| <p><i>*Accreditation must be by International Accreditation Service (IAS) or an accreditation body that is a partner in a Mutual Recognition Arrangement (MRA).</i></p>                            |  |

# Why create Acceptance Criteria (ACs)?

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

# How Are ICC-ES® ACs Developed?

- ICC-ES® staff works with the report applicant to draft appropriate AC.
- Proposed ACs are posted on the ICC-ES® website for 30 days prior to the Evaluation Committee hearing where they will be considered, to allow comments from interested parties.
- In a few circumstances ACs are balloted to the Evaluation Committee

# How Are ICC-ES® ACs Developed?

- The ICC-ES® Evaluation Committee, composed of building officials, has an open and unbiased process that includes holding public hearings, reviewing comments, and voting on proposed acceptance criteria.
- Approved criteria are posted on the ICC-ES® website for use by parties interested in an ICC-ES® Evaluation Report®
- Products that have been successfully evaluated against ACs receive an ICC-ES Evaluation Report, which provides the code official and specifier the assurance of technical accuracy, code compliance consistency, and fairness.

# The Final Report

- ICC-ES Evaluation Reports represent an independent finding of how the report subject meets performance and prescriptive provisions in the code
- The unbiased evaluation process is a way for industries to develop solutions and create a level playing field between manufacturers

# The Final Report



The end result is an evaluation report and listing that provides the code officials and specifiers (engineers, architects) with:

- Technical accuracy
- Code compliance
- Consistency
- Fairness

# ICC-ES Mark of Conformity



- Products that have gone through a successful evaluation can place the applicable mark of conformity on the product or product packaging.
- The mark allows code officials and specifiers to see that the product has gone through the thorough ICC-ES evaluation process.





# ICC-ES Evaluation Report and Listing Maintenance



- Reports and listings are valid for a specific period of time.
- New reports are renewed one year after issuance. After the first year, the option is for a one- or two-year renewal.
- Manufacturers must re-apply for listings after each year of issuance.
- A report or listing can undergo revisions at any time. If a report or listing has been revised, this will be indicated at the bottom of the first page of the document.

# Building Official's Preference

A 2010 survey conducted by a third-party showed that a majority of code officials prefer ICC-ES Evaluation Reports to determine code compliance.



# Building Official's Preference



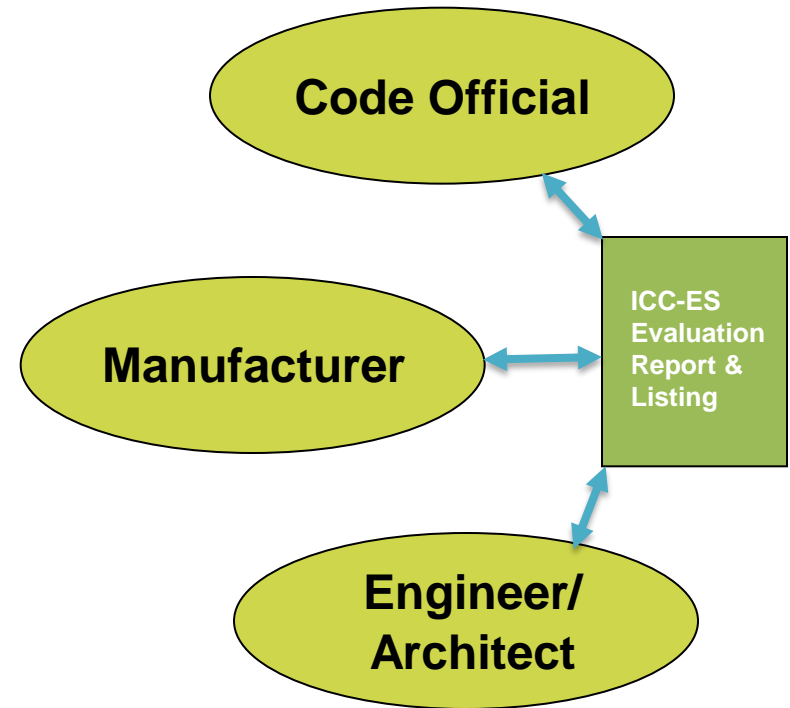
Here's what a code officials had to say about ICC-ES®.

*“Whenever someone proposes a product or material that we are not familiar with, we always ask them to provide a copy of their ICC-ES Report. Often, we find that they do indeed have an ICC-ES Report, they were just not aware of it. On other occasions, we simply do not approve a product or material until they provide us with a valid ICC-ES Report.”*

**Bruce L. Wilson, Chief Building Official  
Cheyenne, WY**

# Benefits of an ICC-ES Evaluation Report and Listing

- The benefits of having an evaluation report or listing are different depending on whether you are a code official, engineer/architect or manufacturer



# Benefits of ICC-ES Evaluation Reports or Listings to **Code Officials**



- ICC-ES provides full technical support for its evaluation services to building departments.
- Code officials can have confidence that products and systems comply with codes and standards.
- Code officials know that they are getting information from a trusted source that they have relied on for more than eighty years.
- The work of ICC-ES saves time.

# How Does an ICC-ES Evaluation Report or Listing Save Time?



ICC-ES Evaluation Reports and Listings give the building official complete information.

- No need to spend time evaluating products
- No need to look through multiple resources
- No time spent doing research

The result – a more effective and efficient approval process

# Benefits of ICC-ES Evaluation Reports and Listings to Engineers/Architects



- Reports and listings help streamline the design and building approval process.
- Reports and listings provide confidence that products and systems comply with codes and standards nationwide .
- ICC-ES is a trusted source.
- Reports make it possible to include innovative products in the design.



# Benefits of ICC-ES Evaluation Reports and Listings to Manufacturers



- Streamlines the process to get a product or system used in construction projects.
- Reaching the construction industry through ICC's reputation and wide distribution channels.
- Competitive advantage through nationwide acceptance and embedment of ICC-ES Evaluation Reports and Listings in electronic versions of the *International Codes*.

# Benefits of ICC-ES Evaluation Reports and Listings to **the Public**



- ICC-ES promotes building safety by showing a product's compliance to the building codes.
- The public has open access to the ICC-ES Evaluation Reports and Listings through the ICC-ES website. They can select building products that have been evaluated for their home or property.

# ICC-ES PMG and Environmental Programs



- Listings and reports generated through our ICC-ES PMG and Environmental Programs are created through a similar process.
- Our staff of dedicated engineers evaluate the products and create listings and reports showing compliance to codes, standards and green rating systems that are applicable to each product.

# What Is the ICC-ES® PMG™ Listing Program?



The ICC-ES® PMG™ Listing Program is an evaluation service that assists code officials and industry professionals in determining whether plumbing, mechanical and fuel gas products comply with applicable standards and codes.

# ICC-ES® PMG™ Listing Program



What to look for in a PMG Listing:

1. Listee identification (manufacturer name)
2. Product description
3. List of Codes to which the product was evaluated
4. List of Standards to which the product was evaluated
5. Installation
6. Conditions of Listings
7. Mark of conformity



# ICC-ES Environmental Program



- Program in which manufacturers apply to have building, plumbing, mechanical, or fuel gas products evaluated by ICC-ES® for third-party verification of sustainable attributes.
- Products receiving a successful evaluation under this program are issued an ICC-ES VAR Environmental Report.

# ICC-ES VAR Environmental Report



## Items listed in an ICC-ES VAR Environmental Report

1. CSI Division Number that includes the CSI Master format system and the CSI GreenFormat, which identifies and organizes sustainable attributes.
2. Report Holder
3. Evaluation Subject
4. Evaluation Scope identifying the green codes and green rating systems used to evaluate the report.
5. Properties Evaluated
6. Uses
7. Description
8. Conditions of Use
9. Basis of Evaluation
10. Identification





# The ICC-ES® Marks Of Conformity



Once a product is issued a report or listing, it will be allowed to use the applicable mark of conformity.



- The Mark(s) may be located on the product or packaging.



- Products must reference the evaluation report or listing number on the product or packaging to verify code compliance and applicability.



- Look for the marks of conformity.

# Available Tools to Check for Code Conformity



Building officials, architects, specifiers, contractors, and anyone else interested in viewing an ICC-ES report or listing can access the reports or listings for free at:

- [www.icc-es.org](http://www.icc-es.org)
- [www.icc-es.org/listing](http://www.icc-es.org/listing)
- [www.icc-es.org/pmg](http://www.icc-es.org/pmg)
- [www.icc-es.org/ep](http://www.icc-es.org/ep)

# Available Tools to Check for Code Conformity



## Building Department Service

- Available to building jurisdictions.
- Allows code officials to save time by requesting an independent technical review of innovative products for project-specific use.
- Findings are provided to the building jurisdictions typically within two weeks of ICC-ES's receiving the necessary information.

# Thank You for Attending!



**If you have any questions about  
ICC Evaluation Service, please  
contact:**

**Michael Temesvary, P.E.**

**Director of Sales**

**ICC Evaluation Service, LLC**

**Los Angeles Business/Regional Office**

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**Website: [www.icc-es.org](http://www.icc-es.org)**

