

A BUILDING OFFICIAL'S REFERENCE GUIDE

# AHJ HANDBOOK

Understanding testing and certification  
for the building and construction industry



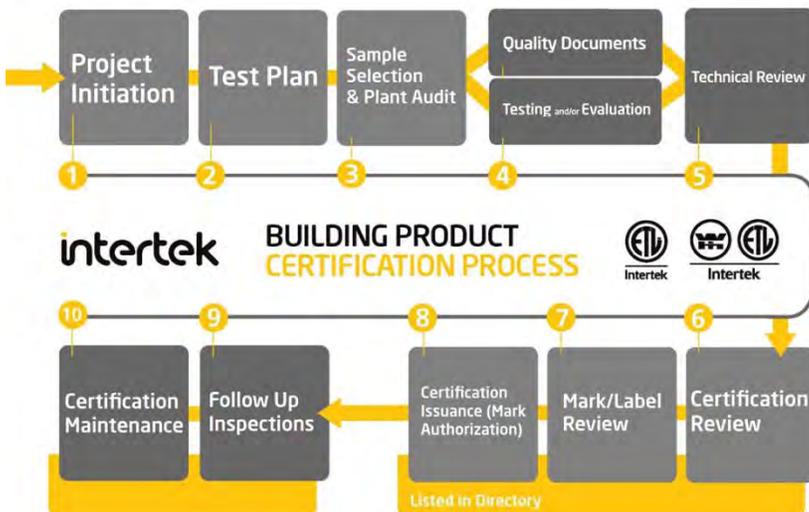
## DIRECTORIES OF LISTED PRODUCTS

- Intertek ETL - [bit.ly/ETLdlp](http://bit.ly/ETLdlp)
- WH - [bit.ly/WHdlp](http://bit.ly/WHdlp)
- UL - [bit.ly/ULdlp](http://bit.ly/ULdlp)
- ICC-ES - [bit.ly/ICCESdlp](http://bit.ly/ICCESdlp)
- IAPMO - [bit.ly/IAPMODlp](http://bit.ly/IAPMODlp)
- CSA - [bit.ly/CSAdlp](http://bit.ly/CSAdlp)

## FIELD SERVICES

- Intertek
- Web: [Intertek.com/field-labeling](http://Intertek.com/field-labeling)
- Field Labeling: 888.385.6275
- Directory Help: 888.347.5478

## BUILDING PRODUCT CERTIFICATION PROCESS



## ACCREDITING BODIES

- ANSI – [ANSI.org](http://ANSI.org) 
- A2LA – [A2LA.org](http://A2LA.org) 
- CALA – [CALA.ca](http://CALA.ca) 
- IAS – [IASonline.org](http://IASonline.org) 
- NVLAP – [NIST.gov](http://NIST.gov) 
- OSHA – [OSHA.gov](http://OSHA.gov) 
- SCC – [SCC.ca](http://SCC.ca) 

## COMMON INDUSTRY CERTIFICATION MARKS



The above is a sample of popular certification marks used within the building products market. The various organizations represented each have different scopes of accreditation and play different roles in the testing and certification process.

## Introduction to Intertek's AHJ Handbook

Dear Authority Having Jurisdiction,

As an Authority Having Jurisdiction (AHJ), we understand that your top priority is keeping people and property safe. Of course, this is no easy task and one that likely has led you to put in numerous hours, go above and beyond your normal job tasks, and has probably kept you up at night. At Intertek, we appreciate your role in keeping people and property safe as that is our role, too. When two entities work towards the same common goal, a natural partnership is formed.

As your partner in safety, we appreciate the large task at hand trying to understand products, systems, codes, standards, and the various industry players so that is why we are providing this *AHJ Handbook* to you. In the handbook you will find resources you can reference that will help you perform your every day job, as well as information that will give you a better understanding of the code process, the various industry certification marks, the certification process, and more. As your partner, we want to keep the lines of communication open so if you need more information, have a question, or feel something needs updating, please do not hesitate to reach out, we are here to help.

As building codes and industry standards continue to evolve, so will all of our roles in the effort to minimize risk. We hope you find this handbook helpful and enabling and we look forward to continuing to partner with you in our collective quest to make the world a safer place.

Your Partner in Safety,



**Michael Beaton**

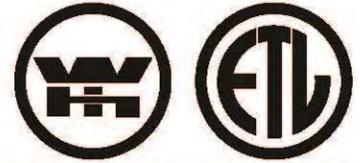
Vice President - Certification Services  
Building & Construction  
Intertek

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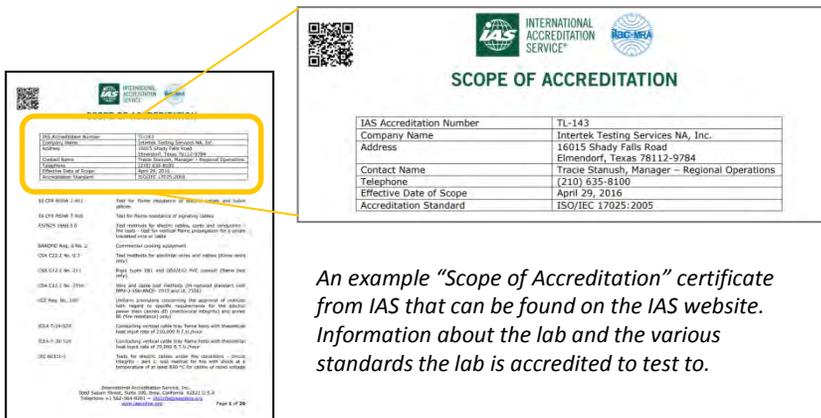
# **CODES, STANDARDS, & ACCREDITATIONS**

## WHAT IS ACCREDITATION?

Accreditation is the means by which certification agencies can demonstrate their competence and independence, and ISO Standard 17065 is recognized internationally as the standard by which certification agencies are assessed.

In the US and Canada, the major assessors, ANSI, IAS, and A2LA, use ISO 17065 as the basis of their accreditations. Regulatory agencies are also adopting the standard into law: In Ohio and Pennsylvania, the building codes specifically call out ISO 17065, while in other states, local jurisdictions are creating policies that mandate accreditation.

*Accreditation provides assurance that the agency certifying the products meets minimum acceptable norms and creates an even playing field. A certification from an accredited certification body should be equally accepted as any other, provided the scope of accreditation covers the product in question.*



*An example "Scope of Accreditation" certificate from IAS that can be found on the IAS website. Information about the lab and the various standards the lab is accredited to test to.*

## QUICK LOOK: ACCREDITATION

### Standards of Practice

- ISO/IEC 17025 – Testing Laboratories
- ISO/IEC 17020 – Inspection Agencies
- ISO/IEC 17065 – Certification Agencies
- NRTL – OSHA regulated laboratories

### Accrediting Bodies (US & Canada):

- ANSI – [ANSI.org](http://ANSI.org)
- A2LA – [A2LA.org](http://A2LA.org)
- CALA – [CALA.ca](http://CALA.ca)
- IAS – [IASonline.org](http://IASonline.org)
- NVLAP – [NIST.gov/nvlap](http://NIST.gov/nvlap)
- OSHA – [OSHA.gov](http://OSHA.gov)
- SCC – [SCC.ca](http://SCC.ca)



*The scope of accreditation of any certification body can easily be checked on the accreditation body's website by clicking the above links.*

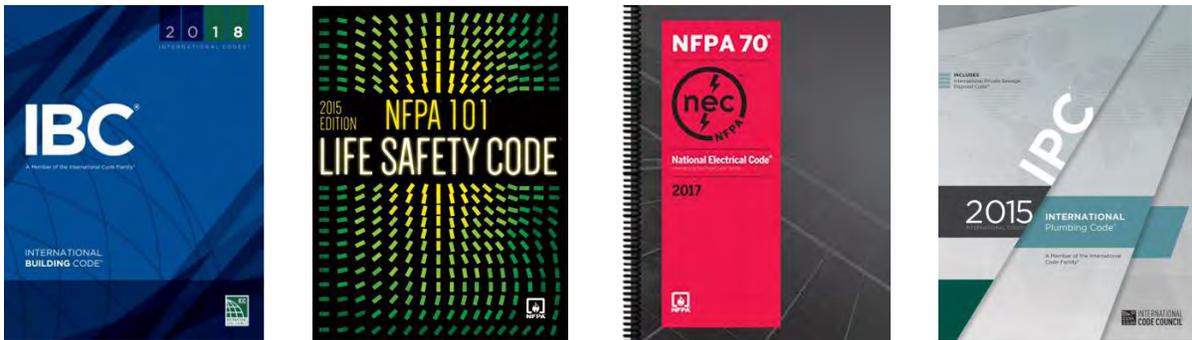
## NRTL PROGRAM

An example of a specific certification program in the US is the OSHA Nationally Recognized Testing Laboratory Program or NRTL program. The program applies to products regulated by OSHA, which includes things like electrical equipment, fire doors, fire detection and extinguishing equipment, LPG utilization equipment and equipment to be used in hazardous locations.

An applicant to OSHA must demonstrate that they have the capability to perform the required test, that they have procedures for producing findings and reports, that they operate a product certification body and that they are independent. OSHA will audit the lab annually to verify that it maintains the quality of its operations and continues to meet the requirements for recognition.

## MODEL CODES

In the United States, the predominant building code being enforced is the International Building Code (IBC) or some amended version of that code. The International Codes, a family of 15 coordinated codes including building, residential, mechanical, and plumbing codes, are published by the International Code Council (ICC). These codes are developed in a public forum and are approved by the voting membership of ICC, the “Class A” members. These approved building codes, in most cases, then become law through legislative action at the state level where the state will adopt either the model code or an amended version of the model code that addresses the state needs. In some states, authority to further amend the code is ceded to individual jurisdictions.



*Model building codes are developed and maintained by a standards organization and are independent of the jurisdiction responsible for enacting the building code. Local governments typically choose to adopt a model building code as their own saving them the expense and trouble of developing their own codes.*

## APPROVAL AUTHORITY

Through the process of legislative action to adopt a building code, the authority to enforce building regulations is assigned to the building official. The building official, often referred to as the “Authority Having Jurisdiction” or “AHJ,” must approve products and systems to be used in building construction in their jurisdiction.

*The authority to enforce building regulations is assigned to the building official.*

There are approximately 4,500 jurisdictions in the US, which means for a company wishing to sell its products nationally, it must gain approval in all 4,500 different jurisdictions. The task can be made easier for manufacturers who utilize an independent agency to provide them a listing or research report for their product or system to show building officials evidence of regulatory compliance.

## QUICK LOOK: SDOs

The below Standard Development Organizations (SDOs) are the main drivers utilized in the built environment the US and Canada. Many of the US and Canadian standards have been harmonized over the years, although there are distinct differences in many of them.

### US & Canadian Built Environment SDOs:

- ANSI – [ANSI.org](http://ANSI.org)
- ASHRAE – [ASHRAE.org](http://ASHRAE.org)
- ASTM – [ASTM.org](http://ASTM.org)
- CSA Group – [CSAgroup.org](http://CSAgroup.org)
- ICC-ES – [ICC-ES.org](http://ICC-ES.org)
- FM Global – [FMGlobal.com](http://FMGlobal.com)
- NFPA – [NFPA.org](http://NFPA.org)
- SEI – [SEInet.org](http://SEInet.org)
- UL – [UL.com](http://UL.com)
- ULC – [Canada.UL.com](http://Canada.UL.com)



*In addition to the above, there are also industry-specific standard groups like AAMA (fenestration) and SPRI (roofing) amongst others. Likewise, there may be area specific standards such as Miami-Dade out of Florida or TAS out of Texas.*

## STANDARDS DEFINED

According to the International Standards Organization (ISO), standards are “documents that provide requirements, specifications, guidelines, or characteristics that can be used consistently to ensure that materials, products, processes, and services are fit for their purpose.”

## STANDARD DEVELOPMENT ORGANIZATIONS

There are numerous standards that come from a variety of different organizations. The organizations can be focused on producing types of standards (for example, electrical or fire) or they can be industry focused. See the side bar *Quick Look: SDOs* for a listing of the various SDOs who make standards common in the built environment.

## STANDARD DRIVERS

The drivers for new or updated standards come from a variety of sources. These can include:

- Building code changes
- Governmental (federal, state, or local) regulations
- New products or materials development
- Regular review/maintenance of existing standards
- Safety concerns

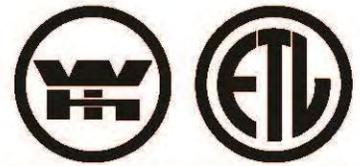
## STANDARD CREATION

The creation of standards can be a long and daunting process and is done through the cooperation of numerous industry members. The technical committee members often include team members from the individual SDO, manufacturers, testing and certification organizations, AHJs, and other relevant industry stakeholders.

Technical committee team members will gather to assess a particular standard and explore any necessary updates or changes to the standard based off of any of the drivers mentioned above. The committee then deliberates until a consensus is met. Upon agreement, the committee then sets a timeframe for the standard to be implemented. Local jurisdictions then adopt the standards as they see fit.



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**TESTING**

**Safety, differentiation, and verification** are the three types of testing of building materials. From compliance with requirements and standards to verifying manufacturers claims of performance, the all-important process of testing depends on the requirements from federal regulations, building codes, insurance companies, builders and architects, and from distribution channels.

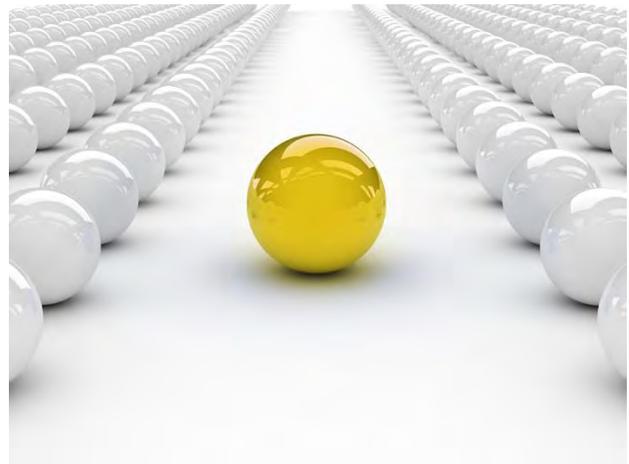
## SAFETY

Safety testing assures products are compliant with applicable requirements and product safety standards, including ANSI/UL, ASTM, CSA, EN, IEC, ISO, and NFPA. Safety testing is most closely associated with certification.



## DIFFERENTIATION

Differentiation testing is typically performance-based and used by non-regulatory users to distinguish the properties of products in the marketplace. Testing performance criteria allows for a more comprehensive understanding of the products and compares manufacturer standards versus industry standards.



## VERIFICATION

Verification testing is generally consumer facing and is meant to verify manufacturer claims of performance, usually in areas not related to code or regulatory requirements, such as color fade, durability, and resistance to mold.



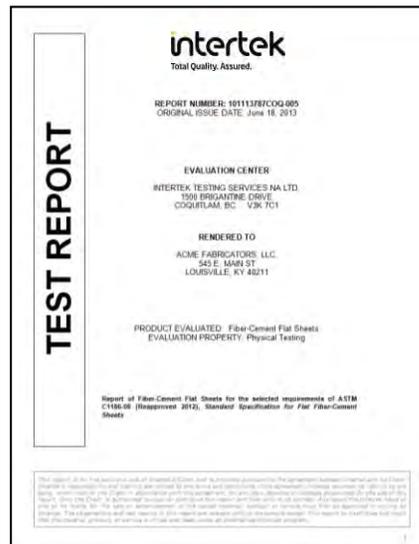
## TEST REPORTS DEFINED

For many products regulated by the building codes, the manufacturer is required to provide data that demonstrates compliance with a standard. To do so, the code only requires that the manufacturer show a test report from an “approved agency.” These test reports represent the results of the test on the product as it was on the day of testing and unlike certified products, there are no controls that ensure the product seen at the job site will perform consistently with the product that was tested. When test reports are presented to code officials as evidence of code compliance, it is left to the code official to determine to their satisfaction that the product or system being installed is the same as was tested.

*When test reports are presented to code officials as evidence of code compliance, it is left to the code official to determine to their satisfaction that the product or system being installed is the same as was tested.*

Testing can be used by the sponsor of the test as a measure of a specific product or it can be used as a precursor to certification.

Typically, products that are being tested for certification will be sampled from materials that are representative of normal manufacture. If not, then the test report can only be used to represent the product that was tested.



*Test reports can come in a variety of formats and contain different types of information. What is most important is that it contains the information that the AHJ requires for approval.*

## QUICK GLANCE: TEST REPORTS

Test reports are just that – a report of testing. Sometimes it will report a pass/fail finding (did the product meet a minimum performance level) or it may report specific performance values. Those are dictated by the test standard that is being followed.

In all cases, the test report should tell you clearly what was tested and the test method followed. The more specific the information, the more readily the information can be related to products installed in the field.

Issuing agency should be accredited under ISO Standard 17065 (formerly ISO Guide65)

## ACCEPTANCE OF TEST REPORTS

When is a test report sufficient for product acceptance? It depends on who the test report is directed to. An example is an ASTM E84 (surface burning characteristics) test. Except for foam plastic insulation, the building codes have requirements for testing to ASTM E84 but not that they be certified. So it is acceptable in that case to provide to the AHJ a test report showing that the product has met the applicable requirements. However it remains for the manufacturer to show to the AHJ that the product that is being installed is the same as was tested.

The idea of safety testing relates to demonstrating compliance to an established normative standard. Typically there is a minimum requirement established by the regulating body. Safety testing is most closely associated with certification.



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# CERTIFICATION

## INTRODUCTION

*The below is a short introduction to certification. For more information on certification including the basis in code for test reports, listings, research reports, and the qualifications for agencies that issue them, please see the White Paper in the appendix entitled “Bringing Clarity to Listings & Code Evaluations.”*

Manufacturers in the US understand that to have their products or systems accepted for use in building construction, they must be approved by the building official. While not mandated by the building codes, a system of accreditation plays a key role in qualifying testing laboratories, inspection agencies, certification agencies and code evaluation agencies. These agencies support manufacturers by providing valid technical data on which the building official can make a decision for approval.

*“Because of the accreditation process, AHJs should feel confident that a product bearing the marks from any of the accredited certification agencies has been appropriately vetted and properly meets the intended standard(s).”*

Certification means different things for different stakeholders. For manufacturers, it can be seen as a “necessary evil” and a hurdle they must get through before going to market. For code officials, it is an indication that the product at hand meets the minimum requirements necessary for market use. For distributors and retailers, it is an indication of quality and assurance that the products they are making available minimize the risk of safety hazards to their consumers. For end users, on the other hand, certification is somewhat of a mystery and rarely understood as anything more than small labels on the packages they buy. With such a broad spectrum of understanding of what certification is, it is little wonder that there is misinformation and confusion about the process as a whole.



*The above is a sample of popular certification marks used within the building products market. The various organizations represented each have different scopes of accreditation and play different roles in the testing and certification process.*

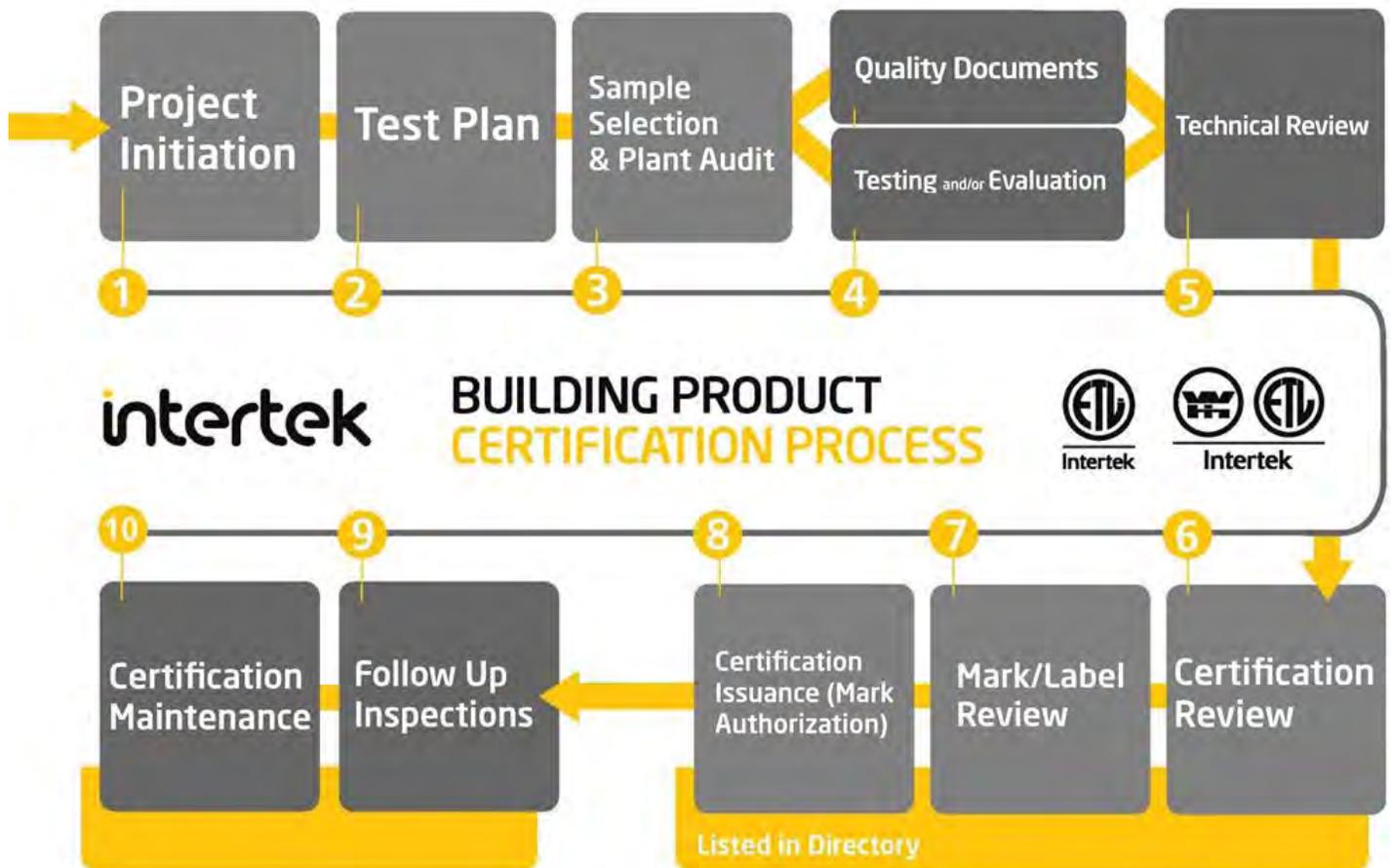
There are only a handful of certification agencies in North America with the marks (Warnock Hersey, ETL, UL, FM, ICC-ES, IAPMO, and CSA) dominating the market. In addition to certification, some certification bodies provide testing, some publish standards, and some do both, regardless of their total scope of work, all of them are held to the same rigorous accreditation process. Because of the accreditation process, AHJs should feel confident that a product bearing the marks from any of the accredited certification agencies has been appropriately vetted and properly meets the intended standard(s).

The following pages provide further insight into the testing and certification process.

## WHAT IS CERTIFICATION?

By definition, certification of products is a means of providing assurance that they comply with specified requirements in standards and other normative documents.

In a very simplified diagram, we are showing how the test/evaluation and quality documents are transferred from the testing agency to the certification group for evaluation and from that a certification is issued. The testing, evaluation and certification decisions are all done by separate entities, generally within the same organization but not necessarily.



The above is a representation of the process that a building product goes through at Intertek to achieve certification. While this is typical for many products, there are always slight nuisances from product to product and from one organization to the next. For the complete diagram with additional information, see the Appendix.

The evaluation that results in the certification encompasses a review of the testing, establishing a connection between what is being manufactured and what was tested, inspection of the manufacturing facilities and generation of the listing report and certification. These certification programs have an element of product surveillance where the products being manufactured are verified to conform to the stated standards.

## LISTED & LABELED

Throughout the International Codes, various terms are used to depict product requirements:

- Listed by an Approved Agency
- Tested and found suitable for a specified purpose
- Under a program with periodic inspection of the manufacturing
- Labeled with the mark or label of the certification agency

These requirements apply to the terms “Listed,” “Label,” “Labeled,” “Manufacturer’s Designation,” “Mark,” “Certified,” “Listed and Labeled,” and “Certified and Labeled,” all of which are used in the International Codes.

A listing is evidence that a product complies with a standard or standards. It comprises of documents, generally found on the certifying agency’s website, that describes the product and the conditions under which the product or system is listed. The listing provides assurance that products labeled with the agency’s certification mark comply with the named standard(s). The listing is based on testing, evaluation, and a program of regular, unannounced inspections of the manufacturing plant(s).

## BUILDING PRODUCT CERTIFICATION MARKS

The below marks are a representation of common certification used on building products. While this is not a complete list, it represents the vast majority of certification marks used. NOTE: there are different variations of the marks below and a more comprehensive representation of each organization’s marks can be found on their website.



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Marks:  
Warnock Hersey & ETL

[Intertek.com](http://Intertek.com)



**UL**

Marks:  
UL

[UL.com](http://UL.com)



**FM Global**

Marks:  
FM Approved

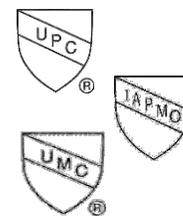
[FMGlobal.com](http://FMGlobal.com)



**ICC-ES**

Marks:  
ICC-ES

[ICC-ES.org](http://ICC-ES.org)



**IAPMO**

Marks:  
Variety of marks

[IAPMO.org](http://IAPMO.org)



**Canadian Standards Association (CSA)**

Marks: CSA

[CSAGroup.org](http://CSAGroup.org)

Certification requirements come from multiple drivers, and each of them may push a different set of requirements and may require a different level of certification. Building codes provide requirements for minimum performance, while architects using the product may expect better than code performance. Additionally, building codes may require testing but not certification although competitive requirements within an industry may mandate that the products be listed under a certification program.

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## PRODUCT LABELING

A building official presented with a listing or with a product bearing the mark of the listing agency still needs to connect the listing with the code requirements. In many cases, the code will have requirements for the product or installation requirements that go beyond what the listing covers.



The below is information that Intertek typically includes on listed building products. This information may vary from one certification to another, and this should only be used as an example or reference.

Labeling for proper identification of listed products shall include the following:

- 1) Company Name
- 2) Product Name
- 3) Certification Mark (with applicable country identifiers)
- 4) Certification Number
- 5) Words "Certified To" and applicable test standards
- 6) Product rating and/or classification as specified in listing report (when applicable)



Each certification agency has a website where you can find current listings and code evaluation reports. There is no standard classification system but each one has means to search by company name, product name and/or listing identification or category. Listings should be read thoroughly because each will have specific conditions under which the product has been certified.

Deviation from what is specified in the listing invalidates the listing and you should contact the listing agency when this happens. Quite often an alternative can be considered but it is important to have the approval of the certification agency to ensure compliance.

## DIRECTORIES OF LISTED PRODUCTS

Intertek ETL - [bit.ly/ETLdlp](http://bit.ly/ETLdlp)

WH - [bit.ly/WHdlp](http://bit.ly/WHdlp)

UL - [bit.ly/Uldlp](http://bit.ly/Uldlp)

ICC-ES - [bit.ly/ICCESdlp](http://bit.ly/ICCESdlp)

IAPMO - [bit.ly/IAPMOdlp](http://bit.ly/IAPMOdlp)

CSA - [bit.ly/CSAdlp](http://bit.ly/CSAdlp)

The below is Intertek's Directory of Building Products and represents how a certification agency's product directory would look and function like. Typically product directories provide a number of ways for the user to find the product of interest.



[BPDLP.intertek.com](http://BPDLP.intertek.com)

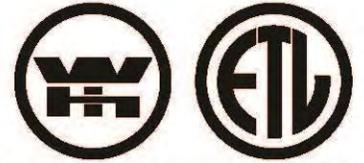
Ability to search and view research reports

Search ability via key words

Can find a listing through the company name, category listing, CSI code, or the standard.



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# RESEARCH REPORTS

## WHAT ARE RESEARCH REPORTS?

A research report outlines how a product or system complies with the code and it addresses all necessary code requirements, not only those properties the code might require for a listing. It considers types of construction permitted, use in fire-resistance-rated construction, specific installation requirements necessary to meet the code and to be consistent with how the product or system was tested, and it will also include limitations of use.

A research report is a statement of finding from a qualified source that the product has been tested and/or evaluated in accordance with code requirements, and in the opinion of the code evaluation agency, the product, when installed as described in the report, will comply with the code. The code official can use that statement of finding as supporting data in making a decision to approve the product or system.

## BEYOND ICC-ES

For the last few decades, the ICC-ES Evaluation Report has been the accepted report for manufacturers wanting to show equivalence to code requirements for their alternative product or system. Recently, though, the addition of other accredited, competent, and independent product certification agencies are driving the industry forward giving manufacturers more cost-effective and timelier solutions.

With more organizations stepping up to provide code evaluation services, manufacturers are then given more choices. More choices mean more competition, and that leads to better, more cost-effective services, which allows for more manufacturers to seek certification for their products - a choice they may not have made in the past. The addition of more certified products in the market ultimately leads to more options for consumers to make the right choice for their buildings.



*By utilizing an accredited product certification agency, like Intertek, to provide the testing, inspection, and evaluation, the process of bringing an innovative building product to the market is streamlined. The new approach can eliminate redundancy and significantly reduce the timeline for product approval.*

To learn more about the changes to the research report market, see the appendix and White Paper entitled *The Evolving Code Evaluation Process*.

## REPORT REQUIREMENTS

- Issuing agency should be accredited under ISO Standard 17065 (formerly ISO Guide65)
- Report should clearly identify that it is based on code requirements or, in the case of an alternative product or system, a normative standard such as an acceptance criteria approved by the ICC-ES Evaluation Committee
- Report should document that the product is listed for the standards specifically required by the code
- Document that the products are under a regular surveillance inspection program, providing assurance that the product at the job site is the same as that used in the qualifying tests
- Identify the enforceable conditions and limitations needed to install the product in the field
- Identify the labeling required for field identification

## RESEARCH REPORTS DEFINED

Research Reports are defined in the code as supporting data to assist in the approval of materials or assemblies not provided for in the code [IBC Sections 104.11.1 and 1703.4.2]. Research Reports must be provided by “approved sources,” which are defined as an independent person, firm, or corporation, approved by the building official, who is competent in the application of engineering principles to materials, methods or systems analyses [IBC Section 202].

As an AHJ, you have the ultimate authority to accept or reject products based off of your assessment of risk and comfort level. With recent entries of new agencies into the research report market, like Intertek, there is no doubt of at least a little apprehension and discomfort the first time you review a report. While this is expected, as long as the agency is accredited, you should feel confident in the engineering and science behind that report.

Like any service offered, there are certain limitations and capacities that code evaluation service providers have. Because the evaluation process involves engineering intensive tasks and takes time, providers can review and evaluate products only so fast. With more service providers offering code evaluation services, there becomes more industry capacity and ultimately results in more innovative products moving through the system faster.

Below are three things that benefit the industry—AHJs, end users, and manufacturers—with multiple research report providers:

## SERVICE INNOVATION & COMPETITIVE PRICING

Code evaluation agencies have capability and experience in different subject areas (building envelope, seismic, etc.) allowing the agency to provide better processes, more efficient services, or even lower pricing. The industry as a whole often benefits from these gains as manufacturers can bring products to market more efficiently and can pass along the savings to their customers.



## MORE QUALIFIED PRODUCTS

From market need to product distribution to time-to-market manufacturers take many things into consideration when developing new products. Previously, the time-to-market process was bottlenecked because there was only one code evaluation service provider a manufacturer could turn to. This bottleneck was not just a roadblock, it discouraged innovation. Multiple service providers have helped remove this bottleneck, allowing manufacturers to continue their innovation and efforts to bring code compliant products to market. More innovative code compliant products directly results in more safe products in the market.

## SYSTEM OF CHECKS & BALANCES

Code evaluation agencies serve one ultimate customer: the Authority Having Jurisdiction. Research reports have to provide the expected level of information and be from an agency in whom the AHJ can have confidence, otherwise it will not be accepted.





# BENEFITS OF BUILDING PRODUCT CERTIFICATION

1

## Regulatory Requirement

Building code, local jurisdiction, or industry requirements may specify an obligation, by the manufacturer, to certify a particular product or system. It is often required of those products whose assembly cannot be validated in the field.

2

## Product Modification

Manufacturers maintain a connection with the certification agency throughout a product's lifespan and quality control standards may require only certain components to be re-tested in the event of a change to the product.

3

## Product Differentiation

Certified products, when compared side-by-side with similar products or systems, are differentiated based on quality, acceptance, and perception.

4

## Product Quality Verification

The certifying body plays an active role in the monitoring of a product or systems quality program ranging from verification of materials to in-process and final product quality testing, thus mitigating the risk of product disparity.

5

## AHJ Assistance

Certification marks indicate a known independent third party certification body has tested to appropriate standards and ensures the validity of a product throughout its lifespan streamlining the process of AHJ acceptance.

6

## Standards Update Notices

Our team of experts reviews updates to standards and notifies manufacturers of the necessity to retest or other changes that may be required to maintain compliance.

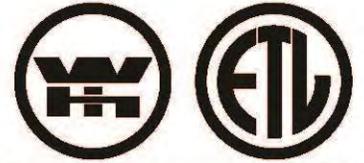
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## Product Import/Export

In many countries, compliance is a requirement for all imports and exports and certification is a means to ensure smooth customs clearance.



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**INTERTEK  
QUALIFIED  
PERSONNEL**

# INTERTEK QUALIFIED PERSONNEL (IQP)

Intertek's Qualified Personnel (IQP) Program works with industry associations and organizations to independently qualify personnel to ensure that their inspections or installations meet the most stringent industry requirements. Personnel qualified through Intertek are held to a higher standard making them part of an elite group of installers and inspectors.

[www.intertek.com/IQP](http://www.intertek.com/IQP)

*IQPs are subjected to regular audits and required continued education to ensure program members are elite members of their industry.*



**Intertek**

*The above IQP mark is provided to personnel who have gone through an IQP program. It is a symbol of competence, commitment, and quality.*

## **FIRE & EGRESS DOOR INSPECTOR PROGRAM**

Intertek has partnered with the Door and Hardware Institute (DHI) to ensure the highest level of training and education is received. Upon the successful completion of DHI's Fire and Egress Door Assembly Inspection (FDAI) Program, an inspector is then eligible to take additional steps and become certified through Intertek.

IQPs are third-party certified to perform annual re-inspections to ensure that fire and/or egress door assemblies remain compliant with NFPA 80 and NFPA 101.

## **FIRESTOP INSPECTOR PROGRAM**

Firestop inspectors in the IQP Program are qualified to perform inspections on firestops per the ASTM E2174 and E2393 standards as well as emerging regional and jurisdictional requirements, including those defined by OSHPD in California.

Participants are required to be recertified through the International Firestop Council training program every three years. Intertek and the IFC will work with the IQPs in order to help them with the recertification process.

## **QUALIFIED HARDWARE INSTALLER PROGRAM**

Through a partnership with ASSA ABLOY, Intertek's Qualified Personnel (IQP) Hardware Installer Program allows door technicians to properly prepare certain Warnock Hersey fire rated doors in the field for the installation of specific ASSA ABLOY locks and accessories without voiding the door's fire resistance rating while remaining compliant with NFPA 80.

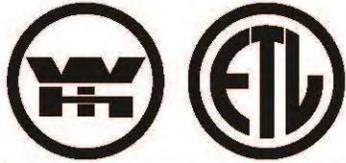
IQP ASSA ABLOY Hardware Installers apply a program specific serialized label to the door after the ASSA ABLOY hardware has been installed. This label provides instant verification to AHJs and Fire Door Inspectors that the installation has been completed by an IQP.

## **RACEWAY INSTALLER PROGRAM**

IQP Raceway Installers allow its participants to drill fire rated doors in the field to be retrofitted with enhanced features, such as electrified locking hardware, access control, etc., without voiding the fire rating and ensuring the door remains NFPA 80 compliant. The IQP is then able to apply an associated label to the door that is specific to the program.



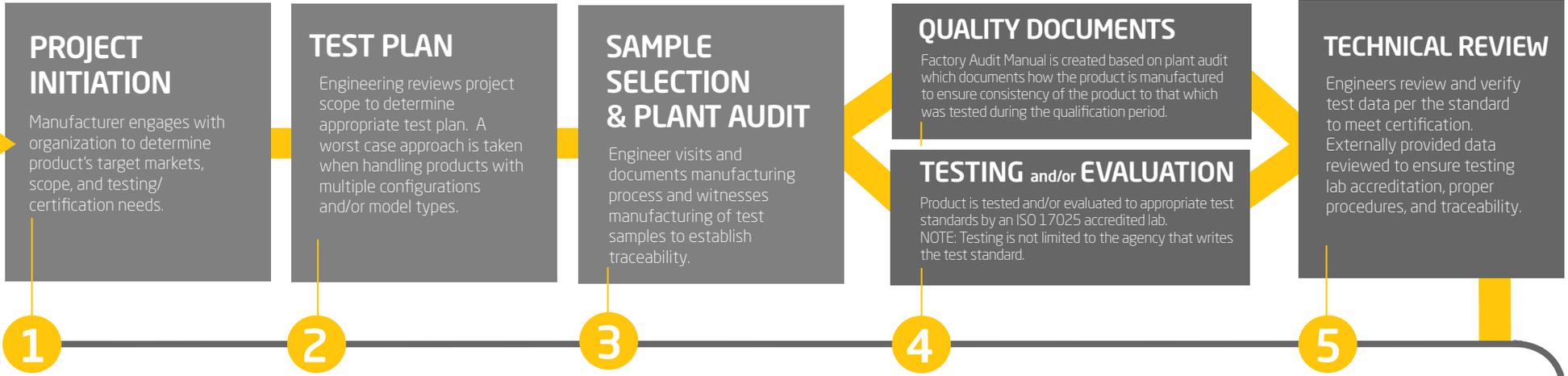
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# APPENDIX



# BUILDING PRODUCT CERTIFICATION PROCESS



Data Submitted to Certification Team through required firewall



**LISTED IN DIRECTORY**

FOR MORE INFORMATION



800.967.5352



icenter@intertek.com



intertek.com/building/certification

# BUILDING & CONSTRUCTION FIELD LABELING

## YOUR SOLUTION FOR RISK REDUCTION

With extensive expertise and a long history in the industry, we have the necessary experience and tools to provide you with unparalleled levels of service. We are the solution you need to mitigate potential risks and ensure you have knowledgeable representation in the unlikely event an issue should arise.



### RISK REDUCTION

If something should go wrong, how will certified fire door machiners deal with liability in court? The expectation should never be that a product will fail to do its job; however, it is crucial to always be prepared. Bad PR and/or lost jobs could ruin a machiner's reputation with contractors and others, not to mention the impact on the manufacturer. Representation in these situations is of the utmost importance and machiners need to be confident that they are being represented by knowledgeable staff. If you have to go to court, who do you want standing behind you? At the end of the day, fire doors are life safety building elements, protecting both life and property. Taking a risk on a lesser known, inexperienced, and ill equipped agency is not only risking future business, but also could be risking life and property.



### EXPERTISE

If a field issue arises on a job, how will the certified fire door machiner handle it? A field issue affecting hundreds of doors or frames could lead to increased costs should replacement be necessary, delays in the expected timeframe for building completion, strained relationships with contractors and purchasers, and a negative impact on the machiner's reputation, which could affect future opportunities and result in reduced revenue. Intertek offers years of experience and is tied into industry committees, including NFPA, UL STP10, SDI, BHMA, etc. In addition, our service offerings include a testing arm with access to furnaces from coast to coast and hands-on experience with testing resulting in a deeper knowledge about the behavior of door assemblies.



### SERVICE

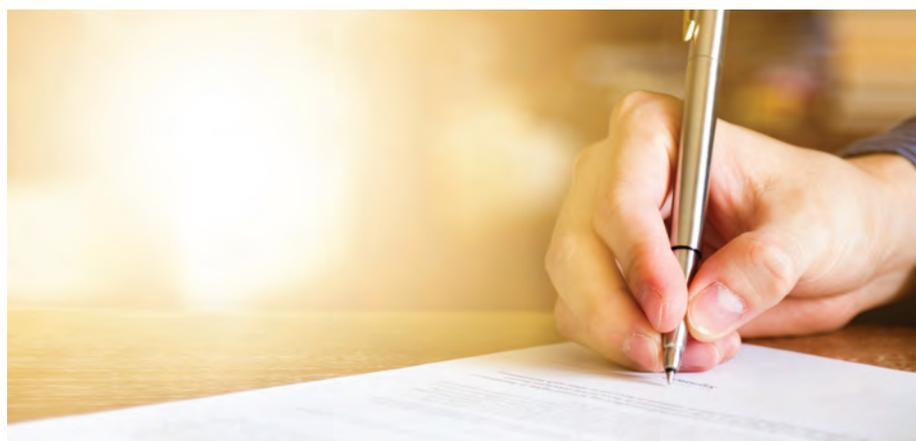
Our network of fire labs and dedicated staff with diverse expertise, including big engineering, field labeling, and certification, are available to ensure issues are handled and resolved promptly. We pride ourselves on our commitment to industry awareness and education based on committee and standard involvement. Development of our Intertek Qualified Personnel (IQP) programs, specifically our Fire Door Inspector program, Raceway Installer program, and Hardware Installer program, hold inspectors and installers to a higher standard.



# BUILDING & CONSTRUCTION CODE COMPLIANCE RESEARCH REPORTS

## FREQUENTLY ASKED QUESTIONS

**The Code Compliance Research Report (CCRR) by Intertek provides you a more streamlined solution to get your innovative building product to market faster than ever before.**



### What is a Code Compliance Research Report?

A CCRR is a technical report prepared by Intertek summarizing our review of a manufacturer's data demonstrating code compliance of their product or system. CCRRs address compliance with the code and not just a single code-referenced standard.

### What are the requirements for a Research Report?

- Issued by an agency accredited under ISO/IEC 17065
- Identify that it is based on code requirements or, in the case of an alternative product or system, a normative standard such as an acceptance criteria approved by the ICC-ES Evaluation Committee
- Document that the product has been tested and shown to comply with the standards specifically required by the code
- Document that the products are under a regular surveillance inspection program, providing assurance that the product at the job site is the same as that used in the qualifying tests
- Identify the enforceable conditions and limitations needed to install the product in the field

- Identify the labeling required for field identification

### How does Intertek issue a Research Report?

To issue a CCRR, manufacturers submit data for their product or system to Intertek for review against the requirements of a normative standard such as an Acceptance Criteria or the Model Building Codes. The review includes review of the manufacturing and quality systems for the product. If the review supports compliance with the respective requirements, then the CCRR issued.

### What goes into a CCRR?

- Testing from laboratories accredited to ISO/IEC 17025
- Inspections (surveillance) from an inspection body accredited to ISO/IEC 17020
- Review of data by experienced engineers and architects who are separate from the testing staff
- Requirements that are based on code or an established normative standard such as an acceptance criteria approved by the ICC-ES Evaluation Committee
- An industry-standard report format

- Issued under the supervision of a licensed engineer

### Is Intertek accredited to perform Code Evaluation Services?

Intertek's CCRR program is fully accredited under ISO/IEC Standard 17065, Conformity assessment - Requirements for bodies certifying products, processes, and services, by International Accreditation Service (IAS), an International Code Council (ICC) Subsidiary. Our programs are compliant to Section 1703 of the International Building Code.

### When is a CCRR needed?

CCRRs are helpful for code officials to make a decision on approving products and systems when the product or system is an alternative under the code (typically, Section 104.11 of the IBC and IRC, though other codes have similar language). CCRRs also help where the product or system is governed by multiple requirements as it pulls the relevant code information into one document. CCRRs will identify the critical elements of the construction needed to meet the requirements of the code.

### Is it only ICC-ES that can issue evaluation reports and code reports?

No. According to International Building Code (IBC) Section 1703, an approved agency must be objective, competent, and independent from the contactor responsible for the work being inspected. This provision means qualified companies, like Intertek, can evaluate products after the criteria are developed and there is a common understanding of how the product is to be evaluated.

### What are the advantages of using Intertek?

- For specific product areas, Intertek can provide certification customers with a single source solution to product testing, performance evaluation, certification, and code evaluation
- Intertek's Code Evaluation Program is a much more streamlined process and was designed so the Code Compliance Research Report (CCRR) by Intertek is issued at the conclusion of testing and certification
- The typical back-end review is eliminated
- Intertek fees for the CCRR, which reflect the efficiencies of the Intertek system, result in cost savings for Intertek clients (in one example, payback for the transition fees will be realized in 18 months, with 50% savings thereafter)

### What is the pricing of a CCRR?

The pricing of a Research Report will be determined on a number of factors, but Intertek's pricing was designed to reflect our efficient and streamlined process. Therefore, our pricing will provide our clients significant savings over the historical pricing they are accustomed to seeing.

### Where can I get a copy of acceptance criteria written by Intertek?

Intertek will not issue acceptance criteria and will use ICC-ES Acceptance Criteria whenever available. The Code Compliance Research Reports by Intertek are based on code, normative standards, and acceptance criteria, in that order of importance.

### Where can I see my CCRR online once it is complete?

CCRRs will be located within the Client's Listing

Report, which can be found on our Directory of Building Products located at <https://bpdirectory.intertek>.

### Is it possible to convert my existing ESR into a CCRR? How long will this take to complete? What is needed to make this happen?

Clients that have an existing ESR can convert to a CCRR in only a few steps. If the product is already certified by Intertek, the process is even simpler.

#### New Clients

An Account Manager will work with the Client to identify the information needed for the the CCRR. Typically, a complete set of data, as was submitted for the ESR, must be provided for our files. If Intertek was the testing agency or the client had their product evaluated through an Intertek Fast-Track process, the data is already in our system. The data will be reviewed by Intertek Engineering Services staff for compliance with the relevant code, standards and acceptance criteria. A draft report will be prepared for the Client's review. When the test data is complete, the inspection program is in place, the Engineering Services Group has completed its review of the files, and the Client has agreed to the report content, the CCRR will be posted to the Intertek web site.

#### Currently Certified Clients

If the data already resides at Intertek, the process could be completed quickly. The CCRR will be ready for posting at the same time as the Listing is established.

### What if my product does not fall under existing Acceptance Criteria?

If the product and its intended application are not defined by the code, a standard or an existing Acceptance Criteria, we recommend that the Client apply to ICC-ES to develop a new Acceptance Criteria. Intertek can help with this process to create a new or revise an existing Acceptance Criteria for the Client's product.

### How long does it take to complete a new CCRR after testing is complete?

Typically, the CCRR will be ready for posting when the Intertek Listing Report is completed. This is accomplished because the requirements for code compliance are established at the beginning of the project and the Client will have reviewed the draft CCRR before the completion

of testing. The evaluation process happens in parallel with the testing and listing work and the review of test results will coincide with preparation of the Intertek Listing Report.

### How are revisions addressed?

Revisions to a CCRR will result from four cases:

1. Requests from the Client
2. Inspection variances
3. Changes to codes, standards, or Acceptance Criteria resulting in mandatory revisions
4. Regular updates to reflect newer editions of code, standards, or Acceptance Criteria when there have been no technical changes in the requirements.

Cases (1), (2) and (3) require a project to be initiated, with testing, inspection and code evaluation as necessary for the applicable revision. Case (4) is done automatically by Intertek.

### What if I already have a product listed with Intertek? How does this affect me if I also want a CCRR?

Products that are currently listed with Intertek have a good start to attaining a CCRR. The requirements for the CCRR will be identified at the beginning of the project. Any required data that is not already in Intertek's files must be submitted for review. All testing must be from laboratories that are accredited under ISO/IEC 17025.

CODE  
COMPLIANCE



Intertek

#### FOR MORE INFORMATION

 1.800.WORLDBLAB

 [icenter@intertek.com](mailto:icenter@intertek.com)

 [intertek.com/ccrr](https://intertek.com/ccrr)

# Informational Bulletin



## The Changing Dynamic of Certification & Field Labeling

While most may not give it much thought; doors, frames, and their hardware are critical components of safety within a building. Your customers want to be assured that in the event of a fire; the building's opening protectives will meet the minimum requirements established by building codes and keep occupants safe from harm.

When entering into the process of certifying and labeling their opening protectives, there are a number of questions that manufacturers should ask themselves: Are my products being tested and certified to the latest standards? Will I be able to enter the desired markets? What happens if an opening protective needs modifications once in the field?

Working with an accredited third party certification agency can help to answer these questions and guide you through the process of bringing opening protectives to the market. With a growing number of entities on the scene, however, it is important to establish what to expect from a certifying body, and what distinguishes one from another.

### Certification

When having fire doors and frames certified, it is crucial that your certifying body test and evaluate them to the latest applicable standards. Given that certification to the latest standards is required to enter into certain markets, failure to do so can make it harder to have the products approved by the Authority Having Jurisdiction (AHJ).

As a manufacturer, you do not want to face a situation where an AHJ rules that your fire door assemblies do not comply with regulatory requirements. In such a case, assemblies cannot be accepted until all non-compliance issues have been addressed, resulting in more time and money spent. Having the most up to date certification and proper labeling on the opening protective components reduces the chance of risk and liability on the back end for the client.

To avoid these types of situations, it is important to work with a certifying body that is actively involved in the industry through participating in standard development, conducting testing, and updating and training clients on the latest regulations.

### Field Labeling

Field labeling may become necessary for a variety of reasons, such as field modifications, doors leaving the factory without labels, incorrect labeling, or labeling that has been painted over or removed. When field labeling services are required, both AHJs and you as a manufacturer need to be assured that the body conducting the field labeling service has an in depth knowledge of the doors and frames that they are labeling.

It is critical that the field inspector have access to the supporting documentation for the doors and frames that they are labeling to correctly identify and address field modifications and properly re-label the opening protective.

Manufacturers work with their certification bodies to ensure that all of their opening protectives have been correctly labeled by an accredited third party prior to being installed, which will help to avoid the risk and liability on the back end that comes with mislabeled products. However, when products are found at the jobsite that are not correctly labeled, the certification agency has the knowledge to re-label these doors when it is appropriate.

### Why Intertek?

Ensuring your products are tested, certified, and labeled according to regulatory requirements is vital to the success of your business.

Working with Intertek aligns you with a partner with the history, expertise and industry involvement to meet all of your needs for certifying and labeling your fire doors and frames. Intertek's Warnock Hersey (WH-ETL) Mark is one of the most widely recognized and accepted certification marks in the industry. Partnering with Intertek brings you a team that can certify doors in their entirety and critically apply engineering judgements based on an extensive knowledge of testing in a quick and efficient manner.

In its nearly sixty years in the fire testing industry, Intertek has developed a network of over 1,000 participants in its machiner program.

Intertek experts are also active participants in developing the standards to which fire doors are tested and certified, and they have actively reached out to those in the industry by conducting training sessions on testing, certification, and field inspection. In addition, Intertek's Standards Update Notice (SUN) Program keeps clients apprised of the latest regulatory changes.

If field labeling is required, Intertek experts provide the wherewithal to identify the modification needed, and provide insight into what will be required to make that modification, such as engineering analysis or additional testing. When an Intertek engineer conducts field labeling on a fire door, they are relying on an inherent knowledge of that door, and an in depth understanding of every aspect of fire doors. Intertek's Field Evaluation Process provides a broad review of all openings within a building, saving time and additional expense for clients.

Intertek is with you throughout every step of the certification process from project initiation, through product listing, to follow up inspections and certification maintenance to provide you the confidence that your opening protectives are, and will continue to be compliant with regulatory and safety requirements.

## About The Author

### Justin Hendricks | Team Leader - Evaluation Services Group

*Justin Hendricks is the Team Leader of the Evaluation Services group at our lab in Middleton, WI. He has extensive experience in fire resistance testing and code compliance, primarily in regard to openings related building products both to North American and European test standards. Additional areas of expertise include manufacturing facility auditing and inspections, quality control program development, all facets of third party product certification programs, product evaluations (engineering analysis), and business development through internal and external means.*



Building **Better Together.**

The addition of PSI and the MT Group to the Intertek family gives customers the industry's most comprehensive suite of services in the building and construction industry. As a partner fully involved in the construction process - from the development of codes to building design, construction, maintenance, and decommissioning - Intertek's unique industry perspective gives customer insight that no other firm can provide.

Intertek's customers take advantage of its expansive global footprint, extensive portfolio of services, and vast breadth of industry expertise. These elements work together helping customers to gain access to domestic and global markets, ensure projects are completed to specifications, and risk is mitigated throughout all aspects of the built environment.



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# The Evolving Code Evaluation Process

*Revised and updated August 2016*



## **Michael Beaton, P.E.**

Vice President, Certification Services | Building & Construction | Intertek

The following paper provides an overview of the code evaluation process as it relates to the approval of alternative materials used within the built environment and discusses the options available to manufacturers of building products and to code officials.



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## Forward

This revised edition of our White Paper, *The Evolving Code Evaluation Process*, reflects the changes that have occurred since its original issue in June 2013 and second release in November 2014. The growing acceptance by Authorities Having Jurisdiction (AHJs) of code evaluations (i.e. research reports) from a number of accredited product certification agencies has given manufacturers multiple choices for their service provider, while maintaining a consistent benchmark for product evaluation. The evolution of this service and acceptance of alternative reports by AHJs, ultimately serves our shared goal of public safety in the built environment.

For those readers who have previously downloaded this paper, you will notice changes to the content, most of which was done to help clarify a point made or to reflect a change in the industry. For those readers who had not previously downloaded the paper, you will gain some insights into the code evaluation industry and how it has evolved since its inception. Finally, for those of us who are involved with code evaluations, this has been an exciting time to see the industry evolve.

The benefits to industry are obvious in increased customer focus, reduced time to complete certifications, and lower costs; and the benefit to AHJs cannot be overlooked. While there is still some resistance to accepting reports from the different code evaluations providers outside of ICC-ES, a significant and growing number of jurisdictions are using accreditation as a reasonable measure of competence.

Sincerely,

A handwritten signature in black ink that reads "Michael Beaton". The signature is written in a cursive style with a large initial "M".

Michael Beaton, P.E.

Vice President – Certification Services

Building & Construction

Intertek



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## Introduction

Manufacturers of building products are continuously developing and introducing new materials to the market. These materials need to be evaluated to the requirements of building codes by appropriate third-party entities, a process that helps code officials approve use of the products in their jurisdictions.

Manufacturers are now turning to product certification agencies, like Intertek, to provide code evaluation services. These services include technical evaluations of, and technical reports on, new and innovative building products, components, methods, and materials.

---

*More frequently, manufacturers are turning to product certification agencies, like Intertek, to provide code evaluation services*

---

This paper will provide an overview of the code evaluation process as it relates to the approval of alternative materials used within the built environment and discusses options now available to manufacturers of building products, and to code officials charged with approving products for use in their jurisdictions.

## Background to Building Codes & the Process for Code Evaluation

International Building Code (IBC) Section 104 directs the code official to enforce the provisions of the code. In the case of alternative materials, designs, and methods of construction, Section 104.11 specifically states that “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 the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.” Section 104.11.1 specifies that “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.” IBC Section 1703 provides further clarification that an approved agency must be objective, competent, and independent from the contactor responsible for the work being inspected.

Since the 1960s, several organizations, including ICBO, SBCCI, BOCA and their successor, the International Code Council (ICC), have, through subsidiary organizations, offered evaluation services for the express purpose of easing the burden on the code official. The primary role of these organizations was to provide a mechanism for manufacturers of alternative materials and systems to establish equivalence to code requirements and to convey that information to the code official in a manner that would facilitate product approval. For a fee, ICC-ES will develop a guideline (known as an ‘Acceptance Criteria’) that describes the means by which the manufacturer can demonstrate compliance of their product or system. The Acceptance Criteria have historically been developed in an open process that seeks input from industry, the engineering community, code officials, and other interested parties. The Acceptance Criteria are often collections of code requirements together with specialized test methods developed and funded by industry in combination with input from testing labs, inspection agencies, and manufacturers. The final decision on acceptability is made by a committee of code officials (i.e. the ICC-ES Evaluation Committee), who are appointed by ICC-ES. Some Acceptance Criteria are so well accepted that they have been adopted into code or have been converted into nationally-recognized standards. Other criteria are driven by industry and managed by the not-for-profit ICC-ES on behalf of the industry. Once approved by the committee, the Acceptance Criteria then provide a normative standard on which a code evaluation can be based.

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*Once the criteria are developed and there is a common understanding of how the product is to be evaluated, the evaluation can be done by competent, independent, accredited agencies.*

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ICC-ES has historically played a vital and leadership role with respect to the approval of alternative materials and in particular the process of developing Acceptance Criteria. However, once the acceptance criteria are developed and there is a common understanding of how the product is to be evaluated, it is generally accepted that the product evaluation can then be done by other competent, independent, accredited agencies.

### **The Use of and Need for Evaluation Reports, and the Designation of Products as Alternatives**

The product approval decision is the responsibility of the code official, who can determine the information to be submitted to establish code compliance. When the product or system is well defined in the code, a manufacturer's self-certification may be acceptable, although the code official may also ask to see evidence of third-party certification to the standards referenced in the code. When the code requirements are not well defined or the product or system is an alternative under the code, the code official may ask that the data justifying code compliance be submitted for their review; however, if the manufacturer has a Research Report, and if the code official is confident in the competence of the agency responsible for producing that report, they will often accept the Research Report in lieu of substantiating data. Manufacturers may also choose to get a Research Report as a way of showing due diligence or to ease the path for product approval, even when the requirements in the code are well defined. In addition, some industry groups voluntarily seek Research Reports as a way of ensuring a level playing field.

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*Manufacturers may choose to get a Research Report as a way of showing due diligence or to ease the path for product approval.*

---

In theory, a product or system will be considered an alternative until provisions for the product or system are adopted into code. In practice, however, many products become



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mainstream long before that happens [examples include water-resistive barriers (AC38/ASTM E2556), fiber-cement roofing (AC07), and spray-applied polyurethane foam (AC377)]. The requirements for these products, while documented in an Acceptance Criteria, are well established and are stable. The testing and inspection agencies certifying the products for code requirements are generally well-versed in the testing and code applications of the products.

### A New Paradigm

Whereas the code evaluation process for alternative building materials has traditionally involved front-end testing and inspection from certification organizations like Intertek and back-end product evaluation from ICC-ES, the market now looks to a single agency to provide all three functions. This paradigm shift can offer many benefits to constituents.

When the testing, inspection, and certification functions are coordinated, constituents may experience a more streamlined, but no less rigorous, process. Test programs can be geared toward effectively meeting the desired outcome, and if the test program is successful, the subsequent evaluation can proceed more efficiently. A process conducted

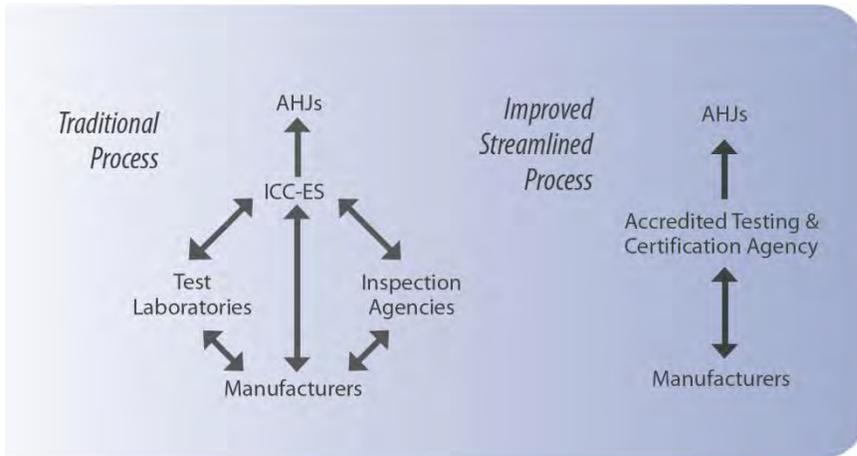
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*When the testing, inspection, and certification functions are coordinated, constituents may experience a more streamlined, but no less rigorous, process.*

---

under an accredited program will ensure that independence between the testing and inspection functions, and the certification decision, is maintained. A certification decision based on direct knowledge of how the product performed is not a conflict of interest and, in fact, enhances the quality of the decision. For the manufacturer, this process can remove anywhere from six months to two years of time when compared to systems where the agency relies only on third-party test and inspection reports. This approach eliminates redundancy and significantly reduces the timeline required for product approval.

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## Traditional vs Streamlined Process

The new approach to the code evaluation process eliminates redundancy and significantly reduces the timeline for product approval. When the process is conducted under an accredited program, independence is ensured between the testing and inspection functions, and the certification decision, is maintained.

This streamlined process can remove anywhere from six months to two years of time from the overall traditional process.

Ultimately, certification agencies providing research reports should rely on well-established and stable guidelines and base their findings on consistent interpretations of the code. Agencies should be accredited for a code evaluation program under ISO/IEC Standard 17065 and demonstrate expertise in the areas in which they are working. Agencies should be active participants in code and standards development and at acceptance criteria hearings. Research reports should be written in such a way that the basis for the research report is transparent to the report user – in other words, the research report should be based on code, standards, and acceptance criteria, in that order of importance. Finally, since many agencies also conduct testing and inspection activities, there must be separation between the testing and inspection activities and the evaluation activity; accreditation will ensure that the proper firewalls are maintained.

## Role for Certification Agencies

In today’s fast-paced market for building materials, a manufacturer’s ability to demonstrate that their products are code-compliant is critical in order to gain approval for use in the thousands of jurisdictions across the nation, and can deliver marketing and sales advantages; the speed and accuracy with which the process of verifying code compliance



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is completed can only benefit a manufacturer in terms of financial performance and competitive advantage.

Accredited third (external) party safety and performance testing organizations are well-known for helping to take the guess-work out of the all-important process of testing. Several of these organizations now also possess the specialized expertise in evaluation of alternative products, enabling their preparation of technical reports which lead to product approval and better enforcement of building regulations.

### Conclusion

Product certification agencies are now providing manufacturers with competent, independent and efficient solutions to demonstrate code compliance of building products, a role that has historically been provided by the code agencies themselves. In doing so, it is critical that these agencies be comparably accredited under ISO/IEC Standard 17065 and that they are actively engaged in the development of code, standards, and acceptance criteria. To maintain a level playing field for evaluation agencies and manufacturers, the acceptance criteria used by all evaluation agencies should be the same for any given subject. Providers of code evaluations must continue to meet code official and industry expectations but to do so does not require that code evaluations come from one source; there are now other credible sources for code evaluations in the marketplace.

Competent product certification agencies are now conducting code evaluations for many products within the building products arena. This gives manufacturers a choice of service providers with an opportunity to streamline logistics, eliminate redundancy, and significantly reduce the length of the evaluation process for many products, often at lower cost, enabling all constituents to benefit from the effects of competition in this segment.



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### Contact Us

If you would like to connect with an expert to answer your questions, or inquire about a potential project, contact Intertek at 1.800.WORLD.LAB or [icenter@intertek.com](mailto:icenter@intertek.com).

Additionally, you can find out more information on our code evaluation services by visiting [www.intertek.com/CCRR](http://www.intertek.com/CCRR).

### About Intertek

Intertek is more than a testing and certification laboratory – we are a partner, helping our clients to meet the necessary requirements for any regulatory environment or global market. Throughout our network of accredited laboratories, Intertek offers a variety of building products services – including safety, sustainability, energy efficiency, fire resistance, flammability, materials testing, failure analysis, performance testing, and code evaluation services. Intertek issues two of the industry’s most trusted symbols, the Warnock Hersey and ETL Marks, both of which demonstrate evidence of compliance to code officials and fire marshals.

With the recent acquisitions of Architectural Testing, Inc. (ATI) in 2013 and both the Professional Service Industries, Inc. (PSI) and the Materials Testing (MT) Group in 2015, we have grown to become one of the world’s largest solutions providers to the building and construction product’s industry. With a total network of more than 1,000 laboratories and offices and over 42,000 people in more than 100 countries, Intertek has the platform to provide its customers access to virtually any domestic and international market.

For more information about Intertek Building Products, visit [www.intertek.com/building](http://www.intertek.com/building).

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## Bringing Clarity to Listings & Code Evaluations

*A Guide to Understanding Accreditation, Certification,  
and the Authority of the Approval Process*



### **Michael Beaton, P.E.**

Vice President, Certification Services | Building Products | Intertek

This paper discusses the basis in code for test reports, listings, and research reports, and explains the qualifications for agencies that issue them within the United States. The information in this paper applies to the approval of products and systems and not to designed construction.



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## Introduction

In our every day lives, it is easy to take for granted the safety inherent to the built environment around us. Rarely do we wonder about, or even consider, the structural or fire safety of the buildings we occupy. For some, we are unaware of the situation, and for others, we put enough trust into the designers, products, builders, and approvers of our buildings that the building's safety never crosses our minds. For those close to the process—the designers, product manufacturers, builders, and approvers—this helps feed an element of pride that comes with their role in keeping buildings safe. Building codes and the standards that support them are a driving force behind the products and construction processes used to make the buildings we live in, however, the approval process is not always clearly understood.

This paper sets out to help clarify these connections and gives a better understanding of the role that approved agencies play throughout the process.

## Model Codes

In the United States, the predominant building code being enforced is the International Building Code (IBC) or some amended version of that code. The International Codes, a family of 15 coordinated codes including building, residential, mechanical, and plumbing codes, are published by the International Code Council (ICC). These codes are developed in a public forum and are approved by the voting membership of ICC, the “Class A” members. These approved building codes, in most cases, then become law through legislative action at the state level where the state will adopt either the model code or an amended version of the model code that addresses the state needs. In some states, authority to further amend the code is ceded to individual jurisdictions. This paper focuses on requirements in the ICC Model Codes.

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Through the process of legislative action to adopt a building code, the authority to enforce building regulations is assigned to the building official. The building official, often referred to as the “Authority Having Jurisdiction” or “AHJ,” must approve products and systems to be used in building construction in their jurisdiction. There are approximately 4,500 jurisdictions in the US, which means for a company wishing to sell its products nationally, it must gain approval in all 4,500 different jurisdictions. The task can be made easier for manufacturers who utilize an independent agency to provide them a *listing* or *research report* for their product or system to show building officials evidence of regulatory compliance.

## Approving Products, Materials, & Systems

As previously noted, it is the building official that has the ultimate responsibility for product approval. To provide code officials with the information they need to make a decision for approval, manufacturers partner with independent testing and certification agencies. These agencies typically have highly specialized laboratories that allow them to perform a variety of tests on products that range from wall assemblies to doors to cladding products.

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It is critical to note that no single agency is given authority to test and evaluate products and code officials are not obligated to accept testing or certifications from any one agency. In fact, the International Codes are deliberately generic when identifying requirements for testing and certification agencies, and use terms such as “approved agency” or “approved source” thus leaving it to the local code official to determine acceptable qualifications.

### *Approved*

Under IBC Section 104, *Duties and Powers of Building Official*, Section 104.1 authorizes and directs the building official to enforce the provisions of the adopted building code. In



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effect, this charges them with approving the products, materials, and systems used in building construction and to ensure they comply with the code(s) enforced in that jurisdiction.

“Approved” is a term defined in the code as meaning “approved by the building official.” Test reports and listings submitted to the building official must be from an “approved agency,” which is defined as an established and recognized agency that is regularly engaged in conducting tests or furnishing inspection services, where such agency has been approved by the building official (see IBC Section 1702.1). Additionally, IBC Section 1703.1 provides further definition and says that the approved agency shall provide all information as necessary for the building official to determine that the agency meets the applicable requirements specified in Sections 1703.1.1 through 1703.1.3, as to independence, equipment and personnel.

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*The IBC’s lack of requiring an approved agency gives the manufacturer the option to choose the agency best for them.*

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While the IBC requires an “approved” agency as part of the compliance process, the lack of defining only one, or any sort of preferred agency, gives the product manufacturer the

option choose the agency that works best for them, assuming that agency’s reports and listings will be accepted by the local building official.

### ***Accreditation***

While the code places the authority to approve the testing or inspection agency on the local code official, in practice code officials generally accept data from accredited testing and certification bodies without personally investigating their qualifications. This is because of the trust that code officials put into the rigorous accreditation process and the testing processes and reporting of the accredited agencies.



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An international system is in place for accrediting testing, inspection and certification bodies. The standards employed in this system are:

ISO/IEC 17025 – testing laboratories

ISO/IEC 17020 – inspection agencies

ISO/IEC 17065 – certification agencies

These laboratories and agencies who have gained these accreditations have done so through one of a number of accreditation bodies. In the US, there are several bodies such as International Accreditation Service (IAS), American Association for Laboratory Accreditation (A2LA), and National Voluntary Laboratory Accreditation Program (NVLAP). Outside of the US, there are many accreditation bodies including the Standards Council of Canada (SCC) and the China National Accreditation Service (CNAS). These Accreditation Bodies participate in agreements, called “Mutual Recognition Agreements,” which operate under the management of international organizations such as the International Laboratory Accreditation Cooperation (ILAC), Asia-Pacific Laboratory Accreditation Cooperation (APLAC) and International Accreditation Forum (IAF), where they self-police their activities according to international standard, ISO/IEC 17011.

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Through this accreditation scheme a framework is created whereby participating agencies can be considered to be competent provided the scope of accreditation covers the work in question. For example, a test report from an accredited laboratory in Canada can be accepted with the same level of confidence as one from an accredited laboratory in the US. Similarly, a certification (listing or code evaluation) from one accredited certification body can be accepted with the same level of confidence as one from an accredited certification body in the US, provided the scope of accreditation covers the work involved.



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The ISO standards are designed to ensure autonomy and independence of decision making between the testing, inspection and certification functions. For example, a manufacturer may contract with an organization to conduct all elements of the testing, inspection, certification, and code evaluation process. With the chosen organization, each of these functions must be performed independently under the appropriate accreditation scheme, and the personnel reviewing the work or making the decision of approval must be independent for each function. Accreditation provides assurance there are sufficient checks and balances within the system to ensure the results of the tests, inspections, or evaluations are consistent with the standards and there is no improper influence on

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decision making. Examples of this multilevel process are common within the industry. Underwriters Laboratories, CSA International, and APA – the Engineered Wood Association offer the multiple functions of standards writing, testing, and product certification; Intertek provides testing, inspection, certification and code evaluation

services; ICC Evaluation Service and IAPMO Uniform Evaluation Service are both standards writing (acceptance criteria) bodies and product certification agencies. Accreditation and the oversight that accreditation provides is what allows these agencies to provide multiple levels of service and eliminates risk of any conflicts of interest.

### *Test Reports*

For many products regulated by the building codes, the manufacturer is required to provide data that demonstrates compliance with a standard. To do so, the code only requires that the manufacturer show a test report from an “approved agency,” as previously defined. These test reports represent the results of the test on the product as it was on the day of testing and unlike certified products (see below in *Listed and Labeled*), there are no controls that ensure the product seen at the job site will perform consistently



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with the product that was tested. When test reports are presented to code officials as evidence of code compliance, it is left to the code official to determine to their satisfaction that the product or system being installed is the same as was tested.

### *Listed and Labeled*

Throughout the International Codes, various terms are used to depict the requirements for a product

- 1) to be on a list of an Approved Agency;
- 2) to have been tested and found suitable for a specified purpose;
- 3) to be under a program with periodic inspection of the manufacturing; and
- 4) to be labeled with the mark or label of the certification agency.

These requirements apply to the terms “Listed,” “Label,” “Labeled,” “Manufacturer’s Designation,” “Mark,” “Certified,” “Listed and Labeled,” and “Certified and Labeled,” all of which are used in the International Codes. For the purposes of this paper we will use “listing” as being representative of all these terms.

A listing is evidence that a product complies with a standard or standards. It comprises of documents, generally found on the certifying agency’s website, that describes the product and the conditions under which the product or system is listed. The listing provides assurance that products labeled with the agency’s certification mark comply with the named standard(s). The listing is based on testing, evaluation, and a program of regular, unannounced inspections of the manufacturing plant(s).

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A building official presented with a listing or with a product bearing the mark of the listing agency still needs to connect the listing with the code requirements. In many cases, the code will have requirements for the product or installation requirements that go beyond



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what the listing covers. For example, many roofing products are required to be listed for ASTM E108, but the code calls out other requirements for product usage, such as physical properties, wind resistance and impact resistance that are not required to be listed properties. In this example, evidence of listing is not sufficient to establish compliance with code so the manufacturer must provide further documentation to the building official for acceptance. In other cases, such as a factory-built fireplace, evidence of listing to the standard, UL 127 in this example, is sufficient to establish code compliance as the standard addresses all of the code requirements.

### *Research Reports*

Research Reports are defined in the code as supporting data to assist in the approval of materials or assemblies not provided for in the code [IBC Sections 104.11.1 and 1703.4.2]. Research Reports must be provided by “approved sources,” which are defined as an independent person, firm, or corporation, approved by the building official, who is competent in the application of engineering principles to materials, methods or systems analyses [IBC Section 202].

Code officials rely on supporting data from approved sources all the time. These sources include reports from licensed engineers and industry experts. Another source for research reports comes from accredited code evaluation agencies. Increasingly, manufacturers are looking to code evaluation agencies for independent, third-party evaluations of their products and systems for compliance with building code requirements. Using one of these agencies shows due diligence on the part of the manufacturer and helps the manufacturer show compliance without having to provide all the supporting data in every jurisdiction. Additionally, if a manufacturer utilizes alternative materials in their product or assembly, a research report gives code officials a means to consider performance that is not prescribed in the code.

A research report outlines how a product or system complies with the code and it addresses all necessary code requirements, not only those properties the code might



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require for a listing. It will consider the types of construction permitted, use in fire-resistance-rated construction, specific installation requirements necessary to meet the code and to be consistent with how the product or system was tested, and it will also include limitations of use.

A research report is not an approval as only the code official can approve products, but it is a statement of finding from a qualified source that the product has been tested and/or evaluated in accordance with code requirements, and in the opinion of the code evaluation agency, the product, when installed as described in the report, will comply with the code. The code official can use that statement of finding as supporting data in making a decision to approve the product or system.

How can a code official determine who is an acceptable source for research reports? As with Approved Agencies, Approved Sources (i.e., code evaluation agencies) can be accredited under ISO/IEC Standard 17065. The International Accreditation Service, a subsidiary of the International Code Council, and ANSI International are two bodies that accredit code evaluation services. Accreditation ensures that the code evaluation agency has qualifications, procedures and a quality system to ensure the integrity of the research reports.

### **Alternative Materials & Systems**

Because building codes are updated on three year cycles, they lag behind innovation and changes in products and product standards. To allow for product innovation, the building codes have a section related to *Alternative Materials, Design and Methods of Construction and Equipment*, Section 104.11. That section states the following:

*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,*



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*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, 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.*

How does a manufacturer apply the alternative materials section of code when seeking approval for an innovative, i.e., alternative, product or system for use in building construction? First, a manufacturer may provide to the local building official any relevant data to demonstrate compliance by specifically addressing the six items to which they must show equivalence: quality, strength, effectiveness, fire resistance, durability and safety. However, in many cases, jurisdictions do not have the expertise with innovative materials or have the guidance to determine what is equivalent. To address that need, several code evaluation agencies develop what are known as Acceptance Criteria. The ACs are developed in public hearings with input from interested parties and are specifically directed to products and systems that are not specified in the codes or are not well defined in the codes. These publicly available ACs are, in effect, normative standards that can be used to evaluate a product or system.

When reviewing a research report for an alternative material or system, it is imperative that the report identify the basis on which a determination of equivalence to code is made. When the report is based on an Acceptance Criteria developed through a public hearing process, there is some assurance that an impartial panel of code-knowledgeable experts has reviewed the requirements and has considered the public input. Some code evaluation agencies develop their own internal acceptance criteria, and while this may not be without merit, the building official will have to take additional steps to validate the approach used in determining equivalence.

## Conclusion

Manufacturers in the US understand that to have their products or systems accepted for use in building construction, they must be approved by the building official. While not mandated by the building codes, a system of accreditation plays a key role in qualifying testing laboratories, inspection agencies, certification agencies and code evaluation agencies. These agencies support manufacturers by providing valid technical data on which the building official can make a decision for approval. Innovative products not addressed in the codes must be evaluated under the alternative material provisions of the codes, which require the manufacturer to demonstrate equivalence what the code prescribes as to quality, strength, effectiveness, fire resistance, durability and safety. Several systems exist to develop normative standards to establish equivalency, which can then be used as the basis of a code evaluation. Code evaluations, in the form of Research Reports, help code officials to identify relevant code requirements and to provide an independent review of a manufacturer's data against those requirements. Research reports provides the building official with valid technical information from an Approved Source from which to approve use of the product in their jurisdiction.

## Acronyms and Standards Referenced in this Document

IBC – International Building Code, published by the International Code Council  
ISO/IEC 17025, General requirements for the competence of testing & calibration laboratories  
ISO/IEC 17020, Conformity assessment – Requirements for the operation of various types of bodies performing inspection  
ISO/IEC 17065, Conformity assessment – Requirements for bodies certifying products, processes and services  
IAS, International Accreditation Service, [link](#)  
American Association for Laboratory Accreditation (A2LA), [link](#)  
National Voluntary Laboratory Accreditation Program (NVLAP), [link](#)  
Standards Council of Canada (SCC), [link](#)  
China National Accreditation Service (CNAS), [link](#)  
International Laboratory Accreditation Cooperation (ILAC), [link](#)  
Asia-Pacific Laboratory Accreditation Cooperation (APLAC), [link](#)  
International Accreditation Forum (IAF), [link](#)



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Intertek is more than a testing and certification laboratory – we are a partner, helping our clients to meet the necessary requirements for any regulatory environment or global market. Throughout our network of accredited laboratories, Intertek offers a variety of building products services – including safety, sustainability, energy efficiency, fire resistance, flammability, materials testing, failure analysis, performance testing, and code evaluation services. Intertek issues two of the industry’s most trusted symbols, the Warnock Hersey and ETL Marks, both which demonstrate evidence of a product’s compliance to code officials and fire marshals.

In December 2013, Intertek acquired Architectural Testing, Inc. (ATI) to become one of the world’s largest solutions providers to the building and construction product’s industry. With a total network of more than 1,000 laboratories and offices and over 38,000 people in more than 100 countries, Intertek has the platform to provide its customers access to virtually any domestic and international market.

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