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The Evolving Code Evaluation Process

Revised and updated August 2016



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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.

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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.

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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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

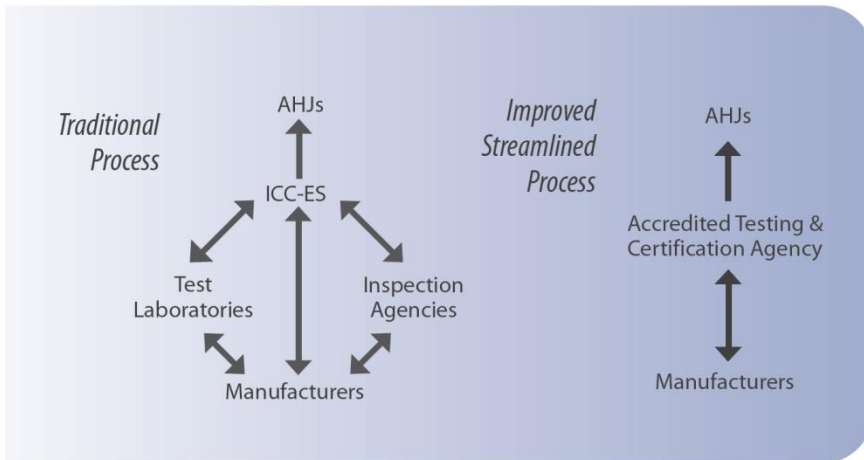
Whereas the code evaluation process for alternative building materials has traditionally involved front-end testing and inspection from certification organizations like Intertek and back-end product evaluation from ICC-ES, the market now looks to a single agency to provide all three functions. This paradigm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

Additionally, you can find out more information on our code evaluation services by visiting 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.

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