



Designation: E1825 – 21

Standard Guide for Evaluation of Building Exterior Enclosure Materials, Products, and Systems¹

This standard is issued under the fixed designation E1825; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This guide covers guidance to design professionals in the evaluation of materials, products, or systems with which they are not familiar and to help determine that the selected materials, products, or systems are suitable for use on or as a part of a building's exterior enclosure.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

E631 *Terminology of Building Constructions* [ASTM E1825-21](https://www.astm.org/catalog/standards/sist/6c2caf29-9)

2.2 *ASTM Adjunct:*³

Adjunct to Appendix X1 of E1825, Standard Guide for Evaluation of Building Exterior Enclosure Materials, Products, and Systems

3. Terminology

3.1 *Definitions*—For definitions of general terms related to building construction used in this guide, refer to Terminology E631.

¹ This guide is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.55 on Performance of Building Enclosures.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from ASTM International Headquarters. Order Adjunct No. ADJE182517-E-PDF. Original adjunct produced in 2017.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *building enclosure, n*—the portion of a building that provides a continuous environmental separation between interior space and the exterior environment, both above and below grade.

4. Significance and Use

4.1 This guide may be used by design professionals and others in the building construction industry to provide factual support for professional judgment of materials, products, or systems during the design development of new and remedial building exterior enclosure construction.

4.2 This guide is intended to provide guidance to the user of this standard in the evaluation and qualification of materials, products, or systems with which they do not have substantial, long-term experience or that are intended to be employed in a new or different manner. The standard may be used to investigate and assess the probable performance of such materials, products, or systems in relation to the proposed use on or as part of a building exterior enclosure.

4.3 The procedures outlined in Section 5 will help guide the user in making informed selections based on the materials, products, or systems performance history on constructed projects and provide information on limitations of use, the manufacturer's performance history, and current status. The use of this guide will reduce, but not eliminate, the risk of in-service performance problems with materials, products, or systems.

4.4 The procedures listed in this guide are intended for use in selecting materials, products, or systems that are critical to the safety, function, or serviceability of a building, or where they constitute substantial components of the work. The recommendations in this guide are not applicable to all materials, products, or systems that can be incorporated in buildings. The user must exercise appropriate judgment and care regarding the need when applying the various procedures included in this guide, including the use of the form included in Appendix X1, with regard to particular materials, products, or systems, and specific buildings. Materials, products, or systems that will be used for a noncritical or incidental use usually do not require an exhaustive evaluation. Materials, products, or systems with which the user has first-hand experience do not generally require an exhaustive evaluation

since many of the evaluation tasks listed herein should have been performed previously.

4.5 **Appendix X1** is provided for the user of this guide as a tool in organizing their thoughts and approach to application of the guide. It may also provide useful documentation to the user for both the building under current consideration and as a future reference for other buildings. Other forms of documentation may be developed by contract agreements or requirements of authorities having jurisdiction.

NOTE 1—Often components of a building’s exterior enclosure construction are tested in the laboratory to help assure adequate performance. Laboratory evaluation of materials, products, or systems is not described in this guide.

5. Investigation

5.1 Technical information from sellers, manufacturers, or distributors.

5.1.1 Obtain a list of projects where the materials, products, or systems for each project were used, including:

5.1.1.1 Representative information for an identical or similar installation, which is reflective to a reasonable extent, of the intended application.

5.1.1.2 Dates of installation;

5.1.1.3 Name of project, address, owner, contact persons, type of use, phone number;

5.1.1.4 Name of contractor, subcontractor, contact persons, address, phone number; and

5.1.1.5 Name of engineer or architect, contact persons, address, phone number.

5.1.2 Obtain pertinent research reports, test data, and certifications for the materials, products, or systems from inception to help evaluate current characteristics, changes, and their uses over time.

5.1.3 Obtain physical samples of the materials, products, or systems being evaluated for use. In some cases, it may be advisable to evaluate samples that have been exposed to similar in-service weather conditions.

5.1.4 Ask the manufacturers for a listing of specific changes in the materials, products, or systems over time including improvements, changes in physical and chemical components, geometry, production methods, and quality control.

5.1.5 Obtain specifications, tech sheets, safety recommendations, installation instructions, compatibility tests, approval of public authorities, and certification or validation reports by industry associations, and compliance with ASTM and industry standards.

5.1.6 Obtain the manufacturer’s written response as to suitability of the products for their intended uses after supplying the manufacturer(s) with anticipated use conditions for the materials, products, or systems including the project description, specifications, and drawings.

5.1.7 Documentation of the materials, products, or systems evaluation is encouraged by this guide. However, documentation and the use of the form of **Appendix X1** is a decision left to the judgment and needs of the user.

5.1.8 Evaluate the production capacity and quality control measures of the manufacturer. If necessary, visit production, curing, storage, and shipping facilities.

5.1.9 Obtain specific technical background and test results for factual confirmation and quantification where the manufacturer’s literature contains general characterizations such as breathable, ultraviolet (UV) resistant, waterproof, corrosion-resistant, fire-resistant, and similar claims.

5.2 Past performance.

5.2.1 Contact owners, designers, contractors, and maintenance organizations with first-hand experience regarding the materials, products, or systems to assess performance history. Note the effect of different uses and climates on performance and durability.

5.2.2 Visit completed installations to observe the materials, products, or systems in place, being careful to assure they are used in a manner similar to the contemplated use. Visit new and old installations to evaluate the effects of aging and in-service exposure. Where possible, visit installations reflecting applications and exposure conditions similar to the contemplated use.

5.2.3 Review maintenance requirements for the material, product, or system. Compare them to probable maintenance procedures to be expected for the proposed application. Consider these issues:

5.2.3.1 Available funds and resources for maintenance;

5.2.3.2 Owners’ history of maintenance performance;

5.2.3.3 Availability of qualified maintenance personnel trained in required procedures and methods; and

5.2.3.4 Accessibility for maintenance.

5.2.4 Verify availability and capability of mechanics with specific and successful experience in installing and servicing the materials, products, or systems.

5.2.5 Investigate problems uncovered during this evaluation to attempt to isolate design, workmanship, and manufacturing factors contributing to the problem.

5.3 Manufacturer’s performance.

5.3.1 Review and evaluate warranty documents and evaluate the warrantor’s willingness to act on warranted provisions.

5.3.2 Verify the level of post construction technical support that may be expected. Determine if help is likely to be available promptly and from technically knowledgeable personnel should the need arise during or after construction.

5.4 Literature survey.

5.4.1 Review published information about the materials, products, or systems, or similar generic products and their limitations. Record specific examples of buildings where these or similar materials, products, or systems have been used successfully.

5.4.2 Check with local and national code organizations and code enforcing agencies for changes, approvals, and limitations of use for the materials, products, or systems.

5.4.3 Examine technical references and performance data to consider weaknesses and limitations and to assist in determining a length of performance record.

5.4.4 Examine publications of the regulatory and approval agencies for the country of origin and for nondomestic materials, products, or systems that do not have domestic approvals and test reports.

5.5 Summary of selection judgment.

5.5.1 Make a judgment of the desirability of incorporating the materials, products, or systems into the project. Considerations to include, among others, are first cost; anticipated service life; required maintenance; and consequence of inadequate performance, such as the ease or difficulty of repair or replacement should the materials, products, or systems prove to be deficient.

5.5.2 Inform the owner of the building for which the materials, products, or systems are intended about the state of knowledge of the materials, products, or systems; the risks involved in their use for the subject building; and the advan-

tages and disadvantages associated with their use including specific information discovered during the evaluation process.

5.6 **Appendix X1** is intended to provide a tool for the user of the standard in organizing his or her thoughts and approach to applying the guide. It can also be used to document the results of his or her findings for the building under consideration, and for future reference on other buildings.

6. Keywords

6.1 evaluation; building exterior enclosure; materials; products; systems

APPENDIX

(Nonmandatory Information)

X1. EVALUATION FORM FOR BUILDING EXTERIOR ENCLOSURE MATERIALS, PRODUCTS, AND SYSTEMS

X1.1 Report Form (see Fig. X1.1 and Fig. X1.2)

X1.1.1 The following report form provides a suggested procedure of following the recommendations for evaluation of building exterior enclosure materials, products, and systems as indicated in this guide. This form is intended as an aid for documenting an evaluation. The evaluator may desire to retain this form for future reference.

X1.1.2 If the information in this form is referenced in the future for a different use or application of the same material,

product, or system, a follow-up evaluation is recommended to ensure that the original information is current and appropriate to the new application.

NOTE X1.1—An adjunct to **Appendix X1** is available.³ This adjunct is a writable PDF file that aids in the use of Guide E1825. The document has a built-in ability to refer to the applicable portion of the standard when the user hovers over the “box” for information input. For each “box” in which this is applicable, there is also a specific number for the portion of the standard that is referenced. When there is no number, there is not a specific portion of the standard referenced.

[ASTM E1825-21](https://standards.iteh.ai/catalog/standards/sist/6c2caf29-94e8-4b7e-ae37-48bad2daf251/astm-e1825-21)

<https://standards.iteh.ai/catalog/standards/sist/6c2caf29-94e8-4b7e-ae37-48bad2daf251/astm-e1825-21>

NOTE 1—Numbers indicated in parenthesis (X.X) refer to specific sections of this guide.

NOTE 2—Wherever form does not provide sufficient room for recording required information, record the required information on an attachment and provide reference at the appropriate location.

NOTE 3—It is recommended that a separate form be used for each information source contacted.

NOTE 4—If information sufficient for evaluation cannot be found, that fact should also be recorded.

Evaluation Form for Building Exterior Enclosure Materials, Products, and Systems

PROJECT INFORMATION

Name:
 Location:
 Owner ID Number:
 Owner:
 Owner Contact:

EVALUATOR INFORMATION

Firm:
 Individual:
 Date of Evaluation:
 Project Number/Identification:

MATERIAL, PRODUCT, OR SYSTEM BEING CONSIDERED
 (indicate which is being considered)

Specification or CSI/MasterFormat Reference Number:
 Product:
 System:
 Material:

INFORMATION SOURCE
 (indicate sources of information)

MANUFACTURER

Name:
 Address:
 Individual:
 Title /Function:
 Telephone /Fax /E-mail:

TECHNICAL PUBLICATION

Title:
 Date:
 Publisher /Author:

TRADE ORGANIZATION

Name:
 Address:
 Individual:
 Title:

INSTALLING CONTRACTOR

Name:
 Address:
 Individual:
 Title:

DESIGN PROFESSIONAL

Firm Name:
 Address:
 Individual:

BUILDING OWNER

Name:
 Address:
 Individual:
 Title:

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[ASTM E1825-21](#)

<https://standards.itih.ai/catalog/standards/sist/6c2caf29-94e8-4b7e-ae37-48bad2daf251/astm-e1825-21>

FIG. X1.1 Evaluation Form for Building Exterior Enclosure Materials, Products, and Systems