



Designation: **E2270—05 E2270 – 13**

# Standard Practice for Periodic Inspection of Building Facades for Unsafe Conditions<sup>1</sup>

This standard is issued under the fixed designation E2270; 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 reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This standard practice ~~describes~~covers methods and procedures for inspection, evaluation, and reporting for periodic inspection of building facades for unsafe conditions. In the context of this ~~standard~~practice, unsafe conditions are hazards caused by or resulting from loss of facade material.

1.2 This standard practice does not purport to address the nature of deterioration of various building facade materials nor the performance of their assemblies. It is the responsibility of the owner to retain a qualified professional who can demonstrate expertise in the evaluation of various facade materials and their assemblies.

1.3 Investigative techniques discussed may be intrusive, disruptive, or destructive. It is the responsibility of the qualified professional to anticipate, advise on the nature of procedures, and to plan for implementing repair as necessary.

1.4 It is the responsibility of the specifying authority to establish the usage of this standard practice and to supplement this ~~standard~~practice with additional requirements suitable to its local jurisdiction. It is also the responsibility of the specifying authority to determine compliance with local licensing regulations and customary practices.

1.5 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.6 *This standard may involve hazardous materials, operations, and equipment. 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 and health practices and determine the applicability of regulatory limitations prior to use. Awareness of safety and familiarity with safe procedures are particularly important for above-ground operations on facades and destructive investigative procedures, which typically are associated with the work described.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

**E631 Terminology of Building Constructions**

## 3. Terminology

3.1 Refer to Terminology **E631**.

3.2 *Definitions:*

3.2.1 *categories of facade conditions:*

3.2.1.1 ordinary maintenance—a condition identified at the time of inspection that is not characterized as an “unsafe condition” or “requires repair/stabilization,” but requires maintenance.

3.2.1.2 requires repair/stabilization—a condition identified at the time of inspection that shall be repaired or stabilized in order to prevent progression into an “unsafe condition” prior to the next scheduled inspection.

NOTE 1—The immediacy of actions to address conditions requiring repair other than unsafe conditions is highly variable and should be determined by the owner. Such determination may require more detailed investigation than addressed herein to assess the urgency of such action.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee **E06** on Performance of Buildings and is the direct responsibility of Subcommittee **E06.55** on ~~Exterior Building~~ **Wall Systems Performance of Building Enclosures**.

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<sup>2</sup> 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.

3.2.1.3 unsafe condition—a condition identified at the time of inspection of a component or system that presents an imminent threat of harm, injury, damage, or loss to persons or property.

3.2.2 facade—all areas on the exterior of the building, except for horizontal roof areas. The facade includes all exterior walls, windows, balconies, cornices, parapets, and appurtenances. The facade also includes walls supported at roof level, such as penthouse walls, chimneys, and so forth.

3.2.3 facade age—number of years since the original Certificate of Occupancy for building was issued, or since entire facade replacement.

3.2.4 facade inspection category—category assigned to building facade based on the facade material, construction, age, and inspection level/extent required, as outlined in [Annex A1](#) of this document.

3.2.5 facade inspection report—a detailed documentation of qualified professional’s findings, observations, discussions, conclusions, and recommendations about the subject building facades.

3.2.6 levels of facade inspections:

3.2.6.1 detailed inspection—visual observation from less than 6 ft (1.8 m) and tactile evaluation of facade components, including probing and non-destructive testing to observe concealed conditions of wall construction.

3.2.6.2 general inspection—visual observation of facade components from distances equal to or greater than 6 ft (1.8 m) with or without magnification or remote optical devices.

3.2.7 maintenance personnel—personnel who have been involved in maintenance of the subject building facades.

3.2.8 non-destructive testing (NDT)—a test that causes no significant structural damage to building components.

3.2.9 owner—the owner, agent, manager, or person in charge, of possession, operation, or management of the building, or any combination thereof.

3.2.10 probe—disassembly/removal of selective portions of a facade to observe concealed conditions of wall construction.

3.2.11 public access area—any sidewalk, street, alley, park, plaza, playground, schoolyard or other area that is open and accessible to the public, regardless of whether it is publicly or privately owned.

3.2.12 qualified inspector—a qualified professional or a person working under the direct supervision of a qualified professional.

3.2.13 qualified professional—an architect or civil/structural engineer duly licensed. The qualified professional must be knowledgeable of the design, construction, and inspection of building facades, stability, and deterioration mechanisms relating to the specific materials and assemblies particular to the facade being inspected.

3.2.4 qualified inspector—a qualified professional or a person working under the direct supervision of a qualified professional.

3.2.5 maintenance personnel—personnel who have been involved in maintenance of the subject building facades.

3.2.6 owner—the owner, agent, manager, or person in charge, of possession, operation, or management of the building, or any combination thereof.

3.2.14 specifying authority—party requiring inspection of a building facade.

NOTE 2—The specifying authority may be a governmental body.

3.2.8 levels of facade inspections:

3.2.8.1 general inspection—visual observation of facade components from distances equal to or greater than 6 ft (1.8 m) with or without magnification or remote optical devices.

3.2.8.2 detailed inspection—visual observation from less than 6 ft (1.8 m) and tactile evaluation of facade components, including probing and non-destructive testing to observe concealed conditions of wall construction.

3.2.9 probe—disassembly/removal of selective portions of a facade to observe concealed conditions of wall construction.

3.2.10 non-destructive testing (NDT)—a test that causes no significant structural damage to building components.

3.2.11 facade age—number of years since the original Certificate of Occupancy for building was issued, or since entire facade replacement.

3.2.15 watertight integrity—the means a facade employs to prevent water intrusion to areas or materials where water intrusion is not intended.

3.2.13 categories of facade conditions:

3.2.13.1 unsafe condition—a condition identified at the time of inspection of a component or system that presents an imminent threat of harm, injury, damage, or loss to persons or property.

3.2.13.2 requires repair/stabilization—a condition identified at the time of inspection that shall be repaired or stabilized in order to prevent progression into an “unsafe condition” prior to the next scheduled inspection.

NOTE 2—The immediacy of actions to address conditions requiring repair other than unsafe conditions is highly variable and should be determined by the owner. Such determination may require more detailed investigation than addressed herein to assess the urgency of such action.

3.2.13.3 *ordinary maintenance*—a condition identified at the time of inspection that is not characterized as an “unsafe condition” or “requires repair/stabilization,” but requires maintenance.

3.2.14 *facade inspection report*—a detailed documentation of qualified professional’s findings, observations, discussions, conclusions, and recommendations about the subject building facades.

3.2.15 *facade inspection category*—category assigned to building facade based on the facade material, construction, age, and inspection level/extent required, as outlined in Annex A1 of this document.

**4. Significance and Use**

4.1 *Intent*—This standard practice is intended to establish the minimum requirements for conducting periodic inspections of building facades to identify unsafe conditions that could cause harm to persons and property. It addresses the required content of the facade inspection to convey to the specifying authority the condition of the facade and allow comparisons of facade conditions at other times. Facade Inspection reports conducted and prepared as outlined in this standard practice will provide specifying authorities the information necessary to mitigate the threat of harm, injury, damage, or loss to persons or property from unsafe conditions on subject facades.

4.2 *Need for Periodic Facade Inspections*—Due to age, lack of maintenance, design or construction errors, or a combination of these factors, building facades deteriorate. Based on the knowledge gained about the performance of building facades through investigation and research, governing authorities, owners, and qualified professionals are becoming more aware of potential unsafe conditions on building facades that if unaddressed, can jeopardize public safety and surrounding properties.

4.3 *Facade Service History*—Facades require periodic maintenance and repairs to extend their useful life and to minimize and/or correct problems. As a part of any facade inspection, facade service history shall be reviewed because: (1) it may indicate patterns of leakage or other performance problems leading to concealed damage and an unsafe condition; (2) it may show a poorly conceived or improperly implemented maintenance or repair procedure that can contribute and aggravate unsafe conditions; and (3) it is necessary to distinguish between original construction and subsequent repairs or modifications during the inspection process and help identify the source of potential problems.

4.4 *Who Shall Perform the Inspection*—Facade inspection shall be performed by a qualified inspector familiar with the available service history and the available design documents relevant to the building facade. The qualified inspector shall be capable of assessing both the watertight integrity and exterior conditions of the building facade to evaluate and identify potential unsafe conditions. The qualified professional who seals and signs the report shall also oversee all work of the qualified inspector and the inspection process.

4.5 *Facades Requiring Inspection*—Those facades as determined by the specifying Authority that pose a potential threat of harm, injury, damage or loss to persons or property.

4.6 Frequency, extent, and the required level of facade inspections are dependent on facade age, material, and construction.

4.7 Observed facade deficiencies shall be categorized and documented in Facade Inspection Report as “unsafe condition,” “requires repair/stabilization,” or “ordinary maintenance.”

4.8 *Limitations*—Due to the construction techniques and physical properties of the many materials used in facade construction, and the inherent limitations on detecting concealed facade distress based on limited observation and probes, conducting a facade inspection does not assure that all unsafe conditions will be identified.

**FACADE INSPECTION PROCEDURE**

**5. Overview**

5.1 The following sequence of activities is intended to lead to an accumulation of information in a rational and efficient manner, so that each step enhances and supplements the information gathered in the preceding step. Each activity is discussed in sections below:

	Section
Review of Project Documents	6
Preparation of Inspection Drawings	7
Determination of Service History	8
Assessment of Watertight Integrity	9
Facade Inspection	10
Reporting Procedures for Unsafe Conditions	11
Standard Reporting Procedures	12
Maintenance of Reports	13
Frequency, Extent, and the Required Level of Periodic Inspection of Building Facades for Unsafe Conditions	Annex A1
Detailed Assessment of Water Tightness Integrity of Exterior Facades	Appendix X1