NFPA® 791

Recommended Practice and Procedures for Unlabeled Electrical Equipment Evaluation

R2024 Edition

NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization

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NFPA® 791

Recommended Practice and Procedures for

Unlabeled Electrical Equipment Evaluation

R2024 Edition

This edition of NFPA 791, *Recommended Practice and Procedures for Unlabeled Electrical Equipment Evaluation,* was processed and recommended as a reconfirmation by the Technical Committee on Electrical Equipment Evaluation and the Correlating Committee on National Electrical Code®. It was issued by the Standards Council on April 13, 2022, with an effective date of May 3, 2022, and reconfirms the 2021 edition.

This edition of NFPA 791 was approved as an American National Standard on May 3, 2022.

Origin and Development of NFPA 791 (Reconfirmation of 2021 Edition)

The Technical Committee on Electrical Equipment Evaluation was organized in 2008 by NFPA in recognition of the need for requirements for the qualifications and competency of third parties performing field evaluations on electrical products and assemblies and to guide the process for field evaluations.

One means to demonstrate conformance of products to an applicable product safety standard is through certification. Historically, certification was accomplished through a laboratory investigation of a prototype or initial sample to determine compliance with the standard, with a system of ongoing follow-up inspections conducted to continue certification. The result was a "Certification," "Listing," "Recognition," or "Classification" of the product defined by various standards, including *NFPA 70®*, *National Electrical Code®*. These processes were formalized in several international standards, including ISO/IEC Guide 65, *General Requirements for Bodies Operating Product Certification Systems*, and ISO/IEC Standard 17020, *General Criteria for the Operation of Various Types of Bodies Performing Inspection*.

As the marketplace evolved, more and more products needed to be evaluated differently from the above system because they were already installed at the installation site. Another condition that did not fit the normal process and required some other process of evaluation was that some products needed to be evaluated but were not produced in quantities that fit the traditional certification model economically. The alternative process to meet the needs for evaluation of unique, modified, or other equipment beyond the manufacturing process became known as a "field evaluation." The process used for field evaluations, by the nature of the work, is a blend of ISO/IEC Guide 65 and ISO/IEC Standard 17020.

In 2008, a task group identified the need to create two documents covering the performance of field evaluations of electrical equipment and used the following document as the basis for development: *Recommended Competency Guidelines for Third Party Field Evaluation Bodies*, which was developed by the American Council for Electrical Safety (ACES), a division of the American Council of Independent Laboratories (ACIL) (first edition, November 17, 2005). The ACES document provided guidelines regarding the competency of firms that perform field evaluations. NFPA 791 and its companion document, NFPA 790, *Standard for Competency of Third-Party Evaluation Bodies*, provide their users with the ability to qualify who can complete field evaluations and how field evaluations specifically for electrical products are to be completed.

No changes were made to the 2014 edition of NFPA 791 other than updating the reference of *NFPA 70®*, *National Electrical Code®*, from the 2011 edition to the 2014 edition.

There were only a few changes in the 2018 edition of NFPA 791. The edition date for *NFPA 70®*, *National Electrical Code®*, was updated in Chapter 2, and the reaffirmed date for ASQ Z1.4, *Sampling Procedures and Tables for Inspection by Attributes*, in Annex C was included. Edits were made to 1.1.1 and 1.2.4 to correctly refer to applicable nationally recognized standard(s) and to clarify the purpose of the document. Edits were made in Sections 5.8 and 5.11 relative to overcurrent protection and marking for fuses and replacement elements.

The 2021 edition was updated to clarify that nationally recognized standards are those specific to the equipment under evaluation and that certification efforts by third parties are referred to as programs. Also, the terms *product* and *units or assemblies* were replaced with *equipment* throughout the recommended practice to assist the AHJ when making approval decisions.

In Chapter 3, the definition of *critical components* was revised to clarify that electrical components or assemblies are also used in control circuits and that safe performance is not only desired in a system or circuit but also in the equipment itself. Energy storage equipment was added to the definition of *electrical equipment* to be recognized as equipment that can be field evaluated.

Revisions in Chapter 4 included a new recommendation to provide installation, operation, and maintenance manuals for evaluations. The terms *evaluator* and *evaluating body* were determined to be insufficiently specific and were replaced with *field evaluation body (FEB)*.

Other revisions in Chapter 4 included: a review of the service history and construction changes to used equipment to determine their impact on the compliance of equipment; a recommendation that the FEB select nationally recognized standards for use in evaluating the subject equipment; a recommendation that all applicable safety standards should be applied to field evaluations; and the removal of communication in writing from the recommendation that the electrical AHJ should be notified when an evaluation is initiated and about to commence.

Other revisions in the 2021 edition included: the section in Chapter 5 on components was revised to clarify the recommendation to component suitability only; the Equipment Identification and Nameplate section in Chapter 7 was updated to remove redundant text and clarify recommendations; and the reference to *NFPA 70* was updated to the 2020 edition.

For the R2024 edition, after receiving no Public Input, the Technical Committee on Electrical Equipment Evaluation and the National Electrical Code® Correlating Committee have respectively voted to recommend reconfirmation of NFPA 791 in accordance with Section 3.3.1.2(c) of the *Regulations Governing the Development of NFPA Standards*.

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NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

Committee Scope: This Committee shall have primary responsibility for documents on minimizing the risk of electricity as a source of electric shock and as a potential ignition source of fires and explosions. It shall also be responsible for text to minimize the propagation of fire and explosions due to electrical installations.

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Committee Scope: This committee shall have primary responsibility for documents covering the performance of field evaluations of electrical equipment. This committee shall also have primary responsibility for documents on the competency of companies and individuals within those companies conducting field evaluations. This committee shall have primary jurisdiction, but shall report to the Association through the National Electrical Code Correlating Committee.

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

A reference in brackets [ ] following a section or paragraph indicates material that has been extracted from another NFPA document. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text should be sent to the technical committee responsible for the source document.

Information on referenced and extracted publications can be found in Chapter 2 and Annex C.

Chapter 1 Administration

1.1 Scope.

1.1.1 This document covers recommended procedures for evaluating unlabeled electrical equipment in conjunction with nationally recognized standard(s) applicable to the subject equipment and any requirements of the authority having jurisdiction (AHJ).

1.1.2 This document does not cover procedures for the evaluation of third-party certification programs that result in listed and labeled equipment.

1.2 Purpose.

1.2.1 The purpose of this document is to inform AHJs about recommended evaluation procedures for unlabeled electrical equipment and to aid in determining acceptability of evaluation results reported by recognized third-party field evaluation bodies (FEBs).

1.2.2 The purpose of this document is to recommend procedures for third-party FEBs to perform evaluations of unlabeled electrical equipment in a consistent and reliable manner, thereby facilitating acceptance of the results.

1.2.3 The purpose of an evaluation conducted in accordance with this document is to assist regulating authorities who make approval decisions related to equipment and their installation.

1.2.4 It is not the purpose of this document to be used as the sole reference to complete the field evaluation of equipment and to be referenced as the standard applied in the field evaluation report.

1.3 Application.

1.3.1 New or used electrical equipment not listed or labeled as a complete unit or assembly is considered to be unevaluated by a third party and will be subject to an evaluation as required by the AHJ.

1.3.2 Equipment undergoing evaluation process does not acquire product certification or listing, nor should evaluation of any equipment imply a determination of conformance of similar existing or any subsequently produced or altered equipment.

1.3.3 Only the specific equipment undergoing this process should be considered eligible to bear the FEB label and have an FEB statement of conformity. *(Refer to Annex B for the procedures for multiple units of the same equipment.)*

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this recommended practice and should be considered part of the recommendations of this document.

2.2 NFPA Publications. (Reserved)

2.3 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Recommendations Sections.

NFPA 70®, National Electrical Code®, 2020 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter apply to the terms used in this recommended practice. Where terms are not defined in this chapter or within another chapter, they should be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, is the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3.2.4* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.5 Recommended Practice. A document that is similar in content and structure to a code or standard but that contains only nonmandatory provisions using the word "should" to indicate recommendations in the body of the text.

3.2.6 Should. Indicates a recommendation or that which is advised but not required.

3.3 General Definitions.

3.3.1 Clearance Distance. Shortest distance through air between two conductive parts.

3.3.2 Creepage Distance. Shortest distance along the surface of the insulating material between two conductive parts.

3.3.3* Critical Component(s). Electrical components or assemblies used in a power control or safety circuit whose proper operation is essential to the safe performance of the equipment or an electrical system or circuit.

3.3.4* Electrical Equipment. Any device, appliance, or machine that generates, conducts, stores, or utilizes electrical energy.

3.3.5* Emergency Stop (EStop). An emergency operation intended to switch off the supply of the electrical energy to all or part of the equipment.

3.3.6 Equipment. A general term, including fittings, devices, appliances, luminaires, apparatus, machinery, and the like used as a part of, or in connection with, an electrical installation. [**70:**100]

3.3.7* Field Evaluation. The process used to determine conformance with requirements for one-of-a-kind, limited production, used, or modified equipment that is not listed or field labeled under a certification program.

3.3.8 Field Evaluation Body (FEB). An organization, or part of an organization, that performs field evaluations of electrical or other equipment.

3.3.9 Identified (as applied to equipment). Recognizable as suitable for the specific purpose, function, use, environment, application, and so forth, where described in a particular *Code* requirement. [**70:**100]

3.3.10 Nationally Recognized Testing Laboratory (NRTL). A laboratory that performs testing per nationally recognized standards and certifies products as stipulated in the *Code of Federal Regulations* and is recognized by the United States Occupational Safety and Health Administration (Fed OSHA).

Chapter 4 Pre-Site Preparation

4.1 Pre-Site Information.

4.1.1 General. The following information should be provided for all evaluations:

(1) Layout drawings showing all equipment with designators that match the schematic and actual marks on, or adjacent to, the equipment
(2) Electrical schematic drawings for all power, control, and safety circuits
(3) A bill of material that includes certification details for all critical components
(4) Limitations or conditions of acceptability for critical components
(5) Installation, operation, and maintenance manuals for the equipment to be installed

4.1.2 The information in Section 4.1.1 should be requested by the FEB prior to or upon arrival on site.

4.2 Used Equipment. Evaluating used equipment should include additional consideration and preparation. Normal wear, intentional modification, and abnormal events that can cause mechanical and electrical changes and affect conformity should be considered.

4.2.1 Before the evaluation, a review of service history and construction changes should be performed to determine their impact on the compliance of the equipment.

4.2.2 Common issues that should be considered can include the following:

(1) *Damaged Components.* Inspection of mechanical components, such as enclosures, conduit, and fittings, and electrical devices should be completed to identify any visible damage or deformity that could render equipment noncompliant or require replacement. Those items known to be damaged should be reviewed with the FEB in advance when possible.
(2) *Suitability for Use.* An assessment of the environment surrounding equipment should be completed to observe changes that have occurred over time. Changes to building construction, moving the equipment, and installing other equipment close by should be reviewed for any effect on compliance in the changed environment. Enclosure ratings, devices that penetrate enclosures, and the environment surrounding the equipment should be reviewed in advance when possible.
(3) *Availability of Drawings.* Availability of technical drawings or schematics should be ensured in advance when possible. Because a lack of technical drawings or schematics can increase the complexity of or hinder an evaluation, accurate drawings should be produced.
(4)* *Availability of Manufacturer or Technical Support.* Availability of the manufacturer's technical information or technical support should be ensured in advance where possible.

4.3 Standard(s). The FEB should select nationally recognized standards applicable to the subject equipment under evaluation based on the equipment's design and application.

4.3.1 General. Where no single standard applies to the equipment, applicable portions of related standards for subassemblies and supplementary standards should be applied.

4.3.2* Primary Standard. The primary standard to be used should be a nationally recognized safety standard written and maintained by a standards development organization that issues safety standards.

4.4 Jurisdictional Notification. The FEB should notify the electrical AHJ when an evaluation is initiated and about to commence.

Chapter 5 Construction Inspection

5.1 General. This chapter provides typical construction requirements that should be considered in the evaluation.

5.1.1 The actual requirements to be used for the construction inspection should come from the applicable primary product safety standard and electrical installation codes.

5.1.2 Some common elements of construction requirements should include but are not limited to those identified in Sections 5.2 through 5.13.

5.2 Electrical Code Considerations. Ensuring that the product can be installed in accordance with the electrical code should include but is not limited to the verification of the following:

(1) Presence of complete equipment nameplate(s)
(2) Equipment construction provides for a code-compliant installation
(3) Installation instructions include sufficient detail (showing raceway entry points, supply conductor wiring methods, supply conductor types, field wiring torque values, and installer supplied overcurrent protection)
(4) Adequate wire bending space for all field wiring terminals

5.3 Construction of Enclosures. Enclosure inspections should include but not be limited to the following:

(1) Suitable use of metallic and nonmetallic construction materials
(2) Enclosure-type rating (e.g., 1, 3R, 4X) suitable for the intended application or installation environment
(3) Methods of corrosion protection for internal and external parts
(4) Methods of fastening doors and covers
(5) Hinged doors open at least 90 degrees
(6) Bonding methods of dead metal parts likely to become energized
(7) Accessibility of live parts

5.4 Disconnecting Means. The means to disconnect equipment should be reviewed for suitability and compliance with installation codes.

5.5 Main Overcurrent Protection Device (OCPD). Main overcurrent protection supplied by the manufacturer or field installed should be verified as suitable for the loads involved, voltage, and interrupting rating.

5.6 Field Terminations. Field wiring terminals should be identified.

5.7 Components. The verification of equipment components should include, but not be limited to, the following:

(1) Accuracy of and correlation between component identification in drawings, the bill of material, and marking within equipment
(2) Critical components listed or recognized and labeled by a nationally recognized testing laboratory (NRTL)
(3) Critical components used in accordance with their listing or the "conditions of acceptability" defined by an NRTL
(4) Suitability of mounting methods
(5) Suitability of components to perform as intended considering the critical/safety function of the device, mechanical and electrical loads, and other factors affecting the immediate environment or performance of the component

5.8 Overcurrent Protection. Overcurrent inspections should consider suitability of applications that include but are not limited to the following:

(1) Overcurrent protection of conductors per the conductor ampacity
(2) Power supply overcurrent protection
(3) Transformer overcurrent protection for power and control
(4) Motor overcurrent protection, including short circuit, ground fault, and overload protection, provided and properly rated
(5) Maintenance receptacle overcurrent protection
(6) Heater load overcurrent protection
(7) Plug strips and portable power taps overcurrent protection
(8) Overcurrent protection for control circuits and control circuit devices

5.9 Maintenance Receptacles and Lighting. Maintenance receptacles and lighting should be inspected for the following:

(1) Separate circuit(s) identified
(2) Class A ground-fault circuit interrupter (GFCI) protection as applicable

5.10 Wiring. Wiring should be inspected for the following:

(1) Correct color code or other identification used
(2) Insulation types rated for the application and intended environment
(3) Conductor temperature ratings adequate
(4) Ampacity for load served and overcurrent protection provided
(5) Flame rating of VW-1 or equivalent on insulation
(6) Correct use of flexible cords
(7) Correct use and physical protection of flexible cables
(8) Separation of low voltage, Class 2 or Class 3 conductors from power conductors

5.11 Markings. Markings should be inspected for the following:

(1) Access warnings for shock hazard
(2) Multiple source warnings
(3) Environmental restrictions such as "Indoor Use Only"
(4) Field wiring type such as "Copper Conductors Only"
(5) Component designations that match the layout and schematic drawings
(6) Control device functional identification
(7) Equipment grounding terminal marking

(8) Fuse replacement markings or chart
(9) Replacement elements and ratings for overload relays provided with changeable elements

5.12 Grounding. Grounding/bonding provisions should be inspected for the following:

(1) Provision for terminating the supply equipment grounding conductor
(2) One conductor per terminal for all equipment grounding conductors in ground fault paths
(3) Equipment grounding conductors identified by color coding (green or green with one or more yellow stripes) or by other suitable markings
(4) All conductive enclosure doors and panels correctly bonded

5.13 Distances Between Exposed Energized Parts. Distances between exposed energized parts should be inspected for adequate creepage distance and clearance distance for the voltage involved.

Chapter 6 Electrical Testing

6.1 Application. The electrical testing program should follow the applicable standards as closely as practical, considering the limits of a nonlaboratory setting and the need for the equipment to perform all required functions after the test. The following typical tests and measurements on complete units or subassemblies should be completed as specified in the applicable standard:

(1) Insulation resistance test on power circuit with all sensitive electronic components such as line filters and Rf filters disconnected
(2) Ground continuity of bonded parts to supply equipment grounding conductor termination point
(3) Measurement of the input voltage while under maximum design load
(4) Measurement of the input full load current while at the maximum design load normal operation
(5) Temperature rise testing of terminals and heat producing devices (transformers, power supplies, coils, heaters) and components that could be affected by an elevated ambient caused by other heat producing components
(6) Safety interlock circuit function testing
(7) Emergency stop

6.2 Electrical Tests. The following electrical tests should be completed as required by the applicable product standard where identified as production or routine tests:

(1) Leakage current on cord-and-plug-connected equipment
(2) Dielectric withstand (hipot) on power circuits
(3) Other production tests

Chapter 7 Reporting and Documentation

7.1 Report. Each evaluation should result in a complete report detailing the results of the evaluation and a statement of conformity made from the results.

7.2 Discrepancies and Nonconformities.

7.2.1 Discrepancies and nonconformities that have to be resolved in order to comply with requirements should be promptly brought to the client's attention.

7.2.2 Where successful correction of nonconformance occurs, the report should include detail of the corrective action.

7.2.3 Discrepancies and nonconformities brought to the client's attention, per Section 7.2, should be brought to the AHJ's attention.

7.2.4 A copy of the report, per Section 7.1, should also be provided to the AHJ.

7.3 Engineering Report Documentation. The title page should include the following items:

(1) The identification of the company performing the evaluation
(2) A general description of the equipment that was evaluated
(3) The identity and location of the site where the evaluated equipment is or will be installed
(4) The identity and location of the AHJ where the evaluated equipment is or will be installed
(5) A report date
(6) The project number or identifier
(7) The identity of the person preparing the report, typically the evaluator

7.4 Summary. The report contents should include a summary containing the following information:

(1) The individual who initiated the project and company affiliation
(2) The location of the preliminary inspection
(3) The location of the final inspection and testing if different from the preliminary site location
(4) Name(s) of the evaluator(s)
(5) The date(s) of the preliminary inspection
(6) The date of the final inspection, testing, evaluation, and application of the label
(7) A summary statement of the findings
(8) The name of the AHJ responsible for the final approval

7.5* Conditions of Acceptability. A statement or series of statements establishing specific conditions of acceptability to be adhered to in order to maintain the label as valid should be included.

7.6 Standards.

7.6.1 The complete citations of the primary and any contributing support standards used to complete the evaluation should be included.

7.6.2 The citation should be complete so that any subsequent audit can clearly identify the exact edition and revision of the standard(s) used.

7.7 Equipment Identification and Nameplate. The equipment nameplate information should be documented for each manufactured piece of equipment that was evaluated, as follows:

(1) Designation of equipment
(2) Manufacturer
(3) Model identification
(4) Serial number
(5) Electrical ratings
(6) Mechanical ratings as applicable
(7) FEB label serial number

7.8 Evaluation Procedures.

7.8.1 The detailed procedures used to inspect, test, and evaluate the product should be documented.

7.8.2 The evaluation procedures should be separated into the major category areas as detailed in Chapters 6 and 7 with sufficient explanation for clear understanding to all parties involved, including the client, the AHJ, and the end user.

7.9 Evaluation. The evaluation section should include the following:

(1) A brief product description of the equipment function and its intended operation
(2) Construction evaluation results found acceptable
(3) Electrical testing results found acceptable
(4) Discrepancies for each item found nonconforming, including a description of the nonconformance, an explanation of the hazards, the standards citation, the remedial action to resolve the nonconformance, and the final resolution
(5) Test instrumentation calibration information

7.10 Appendices or Attachments. The following details should be included as appendices or attachments to the report:

(1) Reference drawings used for the evaluation
(2) Data sheet(s) documenting the test results from each of the electrical tests
(3) The bill of material (critical components list)
(4) Photographs of the discrepancies found, the resolution, and the overall equipment
(5) Field notes, checklists, or other supporting data that would benefit the client

Chapter 8 FEB Label

8.1 Label Application. After all identified issues have been fully resolved, all electrical testing has been satisfactorily completed, and the evaluation has determined that the equipment meets the applicable requirements of the standard(s), a label should be affixed to the equipment.

8.2 Label Contents.

8.2.1 The label should contain the registration mark of the evaluation company.

8.2.2 The label should have some means of unique identification or serialization.

8.2.3 The label should have a means to identify if the equipment has more than one major assembly and therefore has more than one serialized label applied.

8.2.4 The label should clearly differentiate the field evaluation from the "listing" or "recognition" of components.

8.3 Label Location.

8.3.1 The evaluation label should be in the area of the equipment nameplate.

8.3.2 Consideration should be given if expected environmental or operating conditions could cause deterioration of the label.

8.4 Label Control.

8.4.1 The label should be applied exclusively by the FEB.

8.4.2 The label should not be handled by anyone other than the FEB.

8.4.3 In no case should a label be applied to a product that has not been evaluated by the FEB. *(See Annex B for information on how multiple units can be handled.)*

8.4.4 The evaluator should enter the label serial number(s) into the field data work sheets.

8.4.5 The label information should be recorded in the report and into a label control system set up by the FEB.

Annex A Explanatory Material

Annex A is not a part of the recommendations of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.3.2.1 Approved. The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ). The phrase "authority having jurisdiction," or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A.3.2.4 Listed. The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

A.3.3.3 Critical Component(s). Electrical components or assemblies include, but are not limited to, the following:

(1) All electrical components acting as a protective device to interrupt current in an abnormal condition, such as circuit breakers, circuit protectors, fuses, and overload or thermal relays, or to control the equipment, electrical system, or circuit in such a way as to eliminate an abnormal condition

(2) All components and wiring for the emergency stop system, including power supply, emergency stop contactor, or interrupting device and pushbuttons
(3) All hardware or firmware components and wiring for safety interlock circuits
(4) All devices in an area that is classified as a Hazardous Location with the appropriate rating for the area, such as Class I, Division 1 or Class I, Division 2, unless listed as intrinsically safe
(5) Those components that upon evaluation present a risk of fire or shock in their use or application

Note that it is possible and understood that like components can exist on equipment where one is required to be approved (listed) since it is used in a safety circuit or other device as described in the preceding list, and the other is not used in such a circuit. In these cases, like components are treated differently.

A.3.3.4 Electrical Equipment. The term *electrical equipment* is used in this document to clearly indicate that the coverage for a field evaluation is inclusive of equipment that generates, stores, distributes, or utilizes electrical energy.

A.3.3.5 Emergency Stop (EStop). In this document, the term *emergency stop* includes but is not limited to the following industry recognized terms, all of which can be configured as Category 0, Category 1, and/or Category 2 stop functions:

(1) Emergency Power Off (EPO)
(2) Emergency Machine Off (EMO)

Numerous variations of devices perform the emergency/safety function of disconnecting electrical energy to all or part of equipment using electromechanical or solid state components. There are various types of control actuator switches used that range in scope from pushbutton maintained contact latching function, momentary contact action for control sequence interlock, specialized interface with life safety monitoring equipment, and computerized logic control programs.

A.3.3.7 Field Evaluation. The field evaluation process is an alternative to the typical requirements for a manufacturer's quality assurance program and the laboratory follow-up program corroborating the listings. If the manufacturer chooses to apply labels, the manufacturer should be directed to complete an application for the equipment with a requisite follow-up program established.

A.4.2.2(4) Availability of the original equipment manufacturer's data simplifies the evaluation process. At times the manufacturer can supply information needed to determine conformance. Without the original manufacturer's support, extra time and testing could be necessary to complete an evaluation.

A.4.3.2 The primary standards are generally adopted by the American National Standards Institute.

A.7.5 For example, the equipment should be suitable for an indoor dry location only, or the equipment is stated by note as being suitable only for installation in a hazardous location.

Annex B Multiple Units of Same Equipment

This annex is not a part of the recommendations of this NFPA document but is included for informational purposes only.

B.1 Introduction. There are cases where multiple units of the same equipment are evaluated. In that case, at least one unit will be completely evaluated according to this procedure and be labeled.

B.1.1 The following procedures are not intended for use for "lot" inspection or evaluations. The remaining units can be assessed in one of the methods provided in B.1.1.1 through B.1.1.3.

B.1.1.1 Each additional unit is to be inspected, tested, and evaluated by the FEB as needed to ensure that each unit is built the same as the "accepted" prototype unit. This process will result in an issuance of an evaluation label on each subsequent unit, and the FEB becomes in essence the manufacturer's quality assurance inspectors.

B.1.1.2 With prior AHJ approval, the process involves evaluating the first unit according to this recommended practice, then inspecting a representative sampling of additional units to determine with a reasonable degree of assurance that all the remaining units are constructed the same as the "accepted" sample(s).

B.1.1.3 With prior AHJ approval, the prototype is evaluated, and the manufacturer declares that all the remaining units are constructed to the same standard as the "accepted prototype." The evaluation company labels only the prototype and does not extend label coverage to any other units. With the labeled unit and the declaration from the manufacturer, the AHJ completes the approval of the installation.

Annex C Informational References

C.1 Referenced Publications. The documents or portions thereof listed in this annex are referenced within the informational sections of this recommended practice and are not part of the recommendations of this document unless also listed in Chapter 2 for other reasons.

C.1.1 NFPA Publications. (Reserved)

C.1.2 Other Publications. (Reserved)

C.2 Informational References. The following documents or portions thereof are listed here as informational resources only. They are not a part of the recommendations of this document.

C.2.1 ASQ Publications. American Society for Quality, P.O. Box 3005, Milwaukee, WI 53201-3005.

ASQ Z1.4, *Sampling Procedures and Tables for Inspection by Attributes*, 2003, reaffirmed 2018.

C.3 References for Extracts in Informational Sections. (Reserved)