



# CERTIFICATION PROGRAM

## Certified Electrical Safety Technician (CEST)

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### Candidate Handbook

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#### Version 9/14/21

This Certified Electrical Safety Technician (CEST) Candidate Handbook contains important program information, along with the following documents:

- Eligibility Requirements
- Updated 2021 Examination Content Outline and Weighted Criteria (Blueprint)
- Recertification Requirements Table

Please carefully review this handbook and retain it for future reference.



## CERTIFIED ELECTRICAL SAFETY TECHNICIAN (CEST)



### Certified Electrical Safety Technician (CEST) Program Summary

**Program Overview** - The NFPA Certified Electrical Safety Technician (CEST) is an electrical safety credential for skilled workers who are exposed to electrical hazards in the course of their job duties. Prime candidates are HVAC technicians, solar and wind generator installer/maintainers, facilities management and maintenance personnel, who work on or around dangerous electrical equipment. Electricians and Electrical Testing Technicians are also eligible, but may wish to look into NFPA's Certified Electrical Safety Worker (CESW) certification, as it is more technically rigorous and demonstrated a higher level of proficiency.

Based on NFPA 70E, *Standard for Electrical Safety in the Workplace*, CEST highlights an individual's knowledge of, and ability to apply the information found in, NFPA 70E.

**Program Application & Duration** - The CEST application form can be found online at [www.nfpa.org/CEST](http://www.nfpa.org/CEST). You have 12 months after you are accepted as an applicant to take and pass the exam. The 12 month timer starts on the day your application is accepted by the NFPA Certification Department.

**Program Fees** - \$350 USD for the initial exam. \$150 USD to recertify at the end of each three (3) year certification period. The most up to date fee schedule may be found on the applicable forms at [www.nfpa.org/CEST](http://www.nfpa.org/CEST).

**Payment** – Payment must be received before any exam is taken. NFPA accepts credit cards via the online application process as well as checks via mail. Please ensure all checks are made payable to “NFPA” and are sent to the mailing address listed below.

**Exam** - The CEST exam is a computer-based three hour open-book examination, containing 110 multiple-choice questions. It is designed to evaluate the candidate's knowledge of fire and life safety principles and code application skills. The exam is only available in English. You may only bring a printed 2021 edition of *NFPA 70E®*, *Standard for Electrical Safety in the Workplace* into the testing area during the exam. No photocopied or other duplicated or electronic versions of this document is permitted in the testing area during the exam.

**Exam Results** -The computer-based exam allows candidates to receive their results immediately upon completion.

**Retesting** – If you fail your exam, you are permitted to retest two additional times (*completing a retest application and paying a retest fee each time*) within 12 months from the day your original CEST application was accepted. If you fail the examination three times within this period, you must wait until the 12 month testing period expires before you will be allowed to restart the registration process. The retest application is found in the CEST candidate handbook as well as online at [www.nfpa.org/CEST](http://www.nfpa.org/CEST). The cost to retest is \$175 USD.

**Recertification** – Once you become CEST certified, you must recertify every three years. The recertification form is available in the CEST candidate handbook as well as online at [www.nfpa.org/CEST](http://www.nfpa.org/CEST). You must earn 10 continuing education points within the three year recertification period. See the Recertification Requirements Chart in this book for details. The fee for recertification is \$150 USD.

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**CANDIDATE HANDBOOK - CERTIFIED ELECTRICAL SAFETY TECHNICIAN  
(CEST)**

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## **NFPA's MISSION**

Founded in 1896, NFPA is a global, nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards.

## **MISSION OF NFPA CERTIFICATION PROGRAMS**

The overall mission of NFPA's Certification Program is to enhance human and organizational performance as related to the use and application of NFPA codes and standards.

## **CERTIFIED ELECTRICAL SAFETY TECHNICIAN (CEST) PROGRAM**

The NFPA Certified Electrical Safety Technician (CEST) was created in 2017 after discussions with managers of electrical safety programs, facility management professionals, and others in the electrical safety industry indicated a strong desire to have a credential that will help reduce risk to personnel who are exposed to electrical hazards through the course of their work. CEST was then developed in consultation with professionals from a wide variety of applicable and related industries where CEST can truly help enhance electrical safety in the workplace.

Completion of the credential highlights an individual's knowledge of and ability to apply the principles found in NFPA 70E, *Standard for Electrical Safety in the Workplace*.

## **IMPORTANT NOTE REGARDING DESIGNATION AS A QUALIFIED PERSON**

Per NFPA 70E Section 110.2(A)(1), designation as a Qualified Person involves factors such as training on equipment and work methods that can be specific to a work site, job function, or employer. Therefore, earning the CEST credential alone *does not* make the certificant a Qualified Person. It is the responsibility of an employer or governmental agency having jurisdiction to outline the specific requirements necessary to become a Qualified Person for any given job or site. Employers and others may include this certification as *one part* of the requirements to become a Qualified Person.

## **PROGRAM GOALS:**

- Recognize and provide evidence of competence in workplace electrical safety
- Ensure proficiency in the use of NFPA codes and standards
- Enhance professionalism
- Ensure a uniform, fair process for certification that is accessible to everyone who is eligible
- Facilitate success for those seeking certification
- Promote professional development through continuous learning

## **FEATURES & BENEFITS**

CEST credential holders receive the following benefits:

- A nationally recognized certification
- Recognition as an expert by your colleagues
- Greater confidence in your abilities
- Improved job performance
- Career advancement opportunities

Certificate holders also receive an NFPA certificate that further highlights their accomplishment.

## **ELIGIBILITY**

A candidate for the CEST certification must have attained a high school diploma or equivalent must have received at least 6 hours of training on NFPA 70E, *Standard for Electrical Safety in the Workplace* in the past 2 years.

This training can come from online courses or classroom instruction, and while NFPA offers programs on NFPA 70E, documented training from any reputable training source is acceptable, including company internal training. Training on other electrical safety topics such as National Electrical Code or OSHA, while beneficial, *do not count* toward CEST eligibility. Training for CEST *must* be on NFPA 70E.

## **APPLICATIONS & FORMS**

The CEST application can be found online at [www.nfpa.org/CEST](http://www.nfpa.org/CEST).

## **APPLICATION ELIGIBILITY AUDIT**

When you fill out your application, you must provide the source of your 6 hours of NFPA 70E training. All applications will be subject to a random audit process.

Failure or inability to provide evidence of training will render your application void and you will forfeit your application fee. Acceptable documentation can be any of the following: course completion certificates, certificates of educational achievement, company training records, a signed affidavit from a recognized trainer, etc.

## **APPLICATION ACCEPTANCE**

An application is accepted only when both of the following requirements are met:

- The completed application is received by NFPA
- The examination fee is processed by NFPA
- If you are selected for the random documentation audit, you must provide your documentation of proof of the required six or more hours of NFPA 70E training.

Following the receipt of your CEST application form, training documentation (if audited), and examination fee, the NFPA will send you an authorization letter with instructions on how to schedule your computer based exam. A list of test centers may be found at <https://proscheduler.prometric.com/scheduling/searchAvailability>

## **PROGRAM FEES**

\$350 USD for the initial exam. \$150 USD to recertify at the end of each three (3) year certification period. The most up to date fee schedule may be found on the applicable forms at [www.nfpa.org/CEST](http://www.nfpa.org/CEST).

## **NON-DISCRIMINATION**

NFPA evaluates all CEST candidates without regard to race, color, religion, sex, sexual orientation, national origin, ancestry, age or disability.

## **SPECIAL ACCOMMODATIONS**

NFPA provides special accommodations in accordance with the Americans with Disabilities Act of 1991 (ADA). If a disability prevents you from taking the examination under standard conditions, you may request special accommodations. Written requests explaining the nature of the disability (i.e., the diagnosis), the type of accommodation you feel is appropriate, and any supporting documentation of the diagnosis from a qualified healthcare professional must accompany the registration application. NFPA reserves the right to request reasonable documentation from healthcare or other professionals to support requests for special accommodations.

## **STEPS TO CERTIFICATION**

- Submit your application with the appropriate examination fee to the NFPA certification department (see application form for details).
- If selected for an eligibility audit, submit training documentation. You may not schedule an exam until you have passed the audit check.
- Examination - You will have to sit for a computer-based examination within 12 months of entering the CEST program.
- If you fail your exam, you are permitted to retest two (2) additional times (*completing a retest application and paying a retest fee each time*) within twelve (12) months from the day your original CEST application was accepted. If you fail the examination three (3) times within this period, you must wait until the twelve (12) month testing period expires before you will be allowed to restart the registration process. The retest application is found in the CEST candidate handbook as well as online at [www.nfpa.org/CEST](http://www.nfpa.org/CEST).

## REFERENCE MATERIAL

The exam is based on the 2021 edition of *NFPA 70E, Standard for Electrical Safety in the Workplace*. It is the candidate's responsibility to obtain this reference source for study purposes and to have present during the examination. It is the only reference source allowed in the examination room. If you would like to purchase this NFPA document please go to the NFPA website at [www.nfpa.org/catalog](http://www.nfpa.org/catalog).

## EXAM PREPARATION

Regardless of how long you have been on the job, you should still prepare for the CEST exam. Candidates should have a strong working knowledge of the principles and practices contained in *NFPA 70E, Standard for Electrical Safety in the Workplace*. NFPA offers online learning modules on a wide variety of NFPA 70E topics that can be used to satisfy both eligibility and exam preparation, but you do not have to get your training from NFPA. More information on NFPA training solutions can be found at [www.nfpa.org/training](http://www.nfpa.org/training). Participation in these training options is not a prerequisite of the certification and does not guarantee success on the exam.

**REVIEW REFERENCE MATERIALS** - It is not necessary to memorize the reference material, but it is important to know the general format of NFPA 70E. NFPA 70E is laid out with definitions and safety-related work practices in chapter 1. Chapter 2 covers safety-related maintenance requirements, and chapter 3 covers special equipment. The informative annexes consist of supplemental information and guidance on the practical application of the standard.

Sample Question – You are working on a 10 kV alternating current system with exposed, fixed conductors. How far is the Limited Approach Boundary from those conductors?

- (A) 3 ft 6 in. (1.0 m)
- (B) 5 ft 0 in. (1.5 m)
- (C) 10 ft 0 in. (3.0 m)
- (D) 10 ft 8 in. (3.3 m)

Analyze the Question - This is a shock risk assessment question.

Find the right reference – *Section 130.4 contains approach boundaries. This section includes Table 130.4(D)(a), which provides distances for the limited and restricted approach boundaries for alternating current systems by voltage.*

These tips will help you find specific information quickly during the examination.

## EXAM FORMAT

The CEST exam is a three-hour, open-book examination, containing 110 multiple-choice questions. 100 of the questions will be scored and 10 are being evaluated for potential future use as scored questions. You will not know which are scored or not, so answer all to the best of your ability. The examination is only available in English. It is designed to evaluate the candidate's knowledge and application of the principles and practices detailed by NFPA 70E.

The examination is available in a computer-based format at test centers throughout the world. Upon approval of the CEST program application and receipt of the test fee, the candidate will receive their authorization letter with instructions on how to schedule the computer-based examination. A list of computer-based test centers is available on the test administrator's website at <https://proscheduler.prometric.com/scheduling/searchAvailability>.

## EXAM RULES AND PROCEDURES

The following suggestions, regulations, and procedures pertain to every candidate taking the examination:

- You must present a valid photo ID at the test center.
- Smart phones, pagers, smart watches, and any other personal electronic device are strictly prohibited in the test center. You will be provided a secure locker to store them in while you take the exam.
- Personal calculators are NOT permitted at the test center. A scientific calculator is available on-screen.
- You will not be permitted to continue the test beyond the established three-hour time limit.
- You should bring only the approved, published and copyrighted NFPA document identified in this handbook into the exam room. Photocopies of the NFPA document, additional pages with notations, and other test taking aids are not permitted. All materials taken into the exam room are subject to review by the test center proctor.
- You may highlight, tab, and make notations within your NFPA documents prior to entering the exam room. Only commercial permanent adhesive type tabs are allowed. Post-it type notes and flags or other types of easily moveable tabs are **not** permitted. You may **not** write on, mark in, or tab the pages of your NFPA document during the examination.
- Electronic versions of the NFPA document are not permitted to be used at the test site.
- If you wish to leave the room during the test, you must secure the proctor's permission. You will not be allowed to make up lost time.
- Visitors are not permitted at the test center.
- Smoking is not permitted in the testing area.
- Candidates may provide comments on exam items. All comments will be reviewed by NFPA certification staff. Candidates will not receive responses to their comments. Comments may be entered directly on the computer screen.

## FAILURE TO APPEAR FOR EXAM

No application fees will be refunded if you fail to appear on your registered examination date. See Rescheduling and Cancellation Policy below.

**RESCHEDULING AND CANCELLATION POLICY** If you wish to change your exam date or time, you may do so through the Prometric scheduling portal at <https://proscheduler.prometric.com/?prg=NFPA2&path=confirm> or by contacting Prometric's contact centers listed on <https://www.prometric.com/nfpacert>.

There is no charge for reschedule or cancellation of an appointment if the change is made 30 or more days prior to your appointment date. Between 29 and 5 calendar days prior to your appointment date, you may cancel or reschedule your appointment, but you will be required to pay a \$50 fee (to Prometric). 4 or fewer days prior to your appointment date, you may not reschedule. If you cancel your appointment during this period or fail to appear for your appointment, you will be considered a no-show, and will need to submit a retest application with NFPA and pay applicable fees prior to scheduling a new appointment.

## **EXAM SECURITY**

Failure to follow candidate instructions regarding examination security will result in your application being voided and forfeiture of your application fee. Conduct that results in violation of examination security or disrupts the administration of the examination could result in cancellation of your examination and dismissal from the testing center. In addition, your examination will be considered void and will not be scored.

Examples of misconduct include, but are not limited to, the following: writing on anything other than scratch paper (provided by the test center on request and returned at the completion of the exam), looking at another candidate's examination, or talking with other candidates anytime during the entire examination period. You are particularly cautioned not to do so after you have completed the examination, as other candidates in the area might be taking a break and still have not completed the examination. You may not photograph or copy any portion of the examination for any reason. No examination information may leave the test room under any circumstances. This includes memorizing questions for distribution to any other person. No unauthorized persons will be admitted into the testing area. It is very important for you to note all examination content is strictly confidential. You may only communicate about the test, or questions on the test, using the appropriate forms provided within the examination delivery system.

At no other time, before, during or after the examination, may you communicate orally, electronically or in writing with any person or entity about the content of the examination or individual examination questions.

The NFPA shall have the right to revoke or invalidate any examination score with or without a finding of fault or misconduct if data forensic analysis or other credible evidence establishes a reasonable possibility that a score is not valid or the integrity or security of the examination was compromised.

## **COPYRIGHT**

Exam questions are copyrighted by the NFPA. All rights reserved. Reproduction, distribution or display in any form or by any means, electronic, mechanical or otherwise, is strictly prohibited.

## **RESULTS**

The computer-based examination allows candidates to receive their results immediately upon completion. The exam results are reported as pass or fail. Your actual exam score or percentage will not be provided. You will also receive a diagnostic report that provides an infographic indicating how you performed on each content area so that you may see which topics you will need to study to prepare for a retest. See the CEST Exam Weighted Criteria Table in the Appendix section of this handbook for a listing of the CEST exam domains (content areas).

We do not reveal the number of correct questions that must be answered (known as a cut score). Your actual number (%) exam score will never be reported to you for either a passing score or a failed score.

## **RETEST**

If you fail your exam, you are permitted to retest two additional times (*completing a retest application and paying a retest fee each time*) within 12 months from the day your original CEST application was accepted. If you fail the examination three times within this period, you must wait until the 12 month testing period expires before you will be allowed to restart the registration process. The retest application is found in the CEST candidate handbook as well as online at [www.nfpa.org/CEST](http://www.nfpa.org/CEST). The cost to retest is \$175 USD.

## **CONFIDENTIALITY**

The identity and information concerning all candidates is confidential. Information regarding exam results are only communicated in writing/email from the NFPA certification department directly to the candidate. Exam results are never provided over the phone.

**USE OF YOUR CEST CREDENTIAL**

Once granted the CEST credential, the certified may refer to themselves as a CEST credential holder as long as the certified has an active certification status. The certified is authorized to use the CEST designation after their name on business cards, personal letterhead, resumes, websites and in their email signature.

**RECERTIFICATION**

Once a candidate has been certified, to remain active, they must recertify every three years. In order to maintain currency and relevancy with fire and life safety challenges, CEST certification holders are required to demonstrate their continuing participation in professional development activities. NFPA awards points towards recertification for various activities. Ten points of professional development activities related to fire and life safety must be earned and submitted during the recertification cycle. Certification holders must complete the Summary of Recertification Points Form, and submit it to NFPA for processing. It is important that you begin accumulating the required points as soon as possible. If college courses are declared for training hours, the same course cannot be taken twice within the 3-year period, and the candidate must convert credit hours to actual hours spent in the classroom.

**Recertification Audit**

Certification holders will be subject to a random audit of their CEST recertification documentation for a period of up to six months after their recertification date. Accordingly, certification holders are expected to retain recertification documentation in their possession for six months beyond their recertification date. Recertification points forms are available at [www.nfpa.org/CEST](http://www.nfpa.org/CEST). Back up documentation is not required when submitting the Summary of Recertification Points Form.

**RECERTIFICATION REQUIREMENTS CHART**

In order to maintain currency and relevance in electrical safety in the workplace, certificate holders are required to submit a minimum of ten points of documented professional development for recertification. The ten points must be submitted during the three year recertification cycle and must be related to electrical safety in the workplace.

PROFESSIONAL DEVELOPMENT CATEGORY	POINT ALLOTMENT	MINIMUM POINTS	MAXIMUM POINTS	REQUIRED DOCUMENTATION
Participation in NFPA 70E training (conference seminar, online course, or instructor-led class)	1 point per contact hour 1 CEU = 10 contact hours	7*	10	Copy of Certificate of attendance, letter from presenter, course completion certificate, or description of training with letter from supervisor
Membership in a related professional association	1 point per association membership per year	0	3	Copy of membership showing active status for the three year term

\* For each recertification cycle, at least one point must come from a course on the changes from the previous edition of NFPA 70E to the current edition (a new edition is published every three years, so each time you are due for recertification, there will be a new edition from your exam or last recertification).

Note: *NFPA reserves the right to alter any recertification requirements as deemed necessary*

NFPA offers numerous NFPA 70E related training options. For more information, go to [www.nfpa.org/training](http://www.nfpa.org/training), or call NFPA toll free at 1-800-344-3555.

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### **DOCUMENTATION**

Reasonable proof of attendance/participation in the described categories will be accepted. Reasonable includes copies of agendas, rosters, or other descriptive program materials which have been signed and dated by the presenter/sponsor indicating the certificate holder's attendance. The certificate holder is required to sign the descriptive materials as an attestation of their attendance.

### **RENEWAL**

If NFPA does not receive the necessary recertification materials within the three year period, the certification holder will no longer be considered a Certified Electrical Safety Technician (CEST), and will no longer be entitled to use the CEST credential in professional communications. To regain certification, the candidate must successfully complete the entire CEST certification program (subject to the applicable application fees).

### **CONTACT INFORMATION**

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**APPENDIX**

- CEST Exam Content Blueprint and Weighted Criteria Table\_\_\_\_\_12

# CEST Exam Content Outline and Weighting / Program Blueprint

The following table indicates the percentage (%) of exam content (exam items) for the four (4) major domain areas and the components of those domain areas:

- |  |            |
|--|------------|
| <b>I. Electrical Safety Programs</b>   | <b>15%</b> |
| A. Scope and Purpose   |            |
| i. Identify principles and components of an electrical safety program  |            |
| ii. Understand risk assessment procedures  |            |
| iii. Understand the hierarchy of risk control methods  |            |
| B. Training Requirements   |            |
| i. Define requirements to be qualified to work on electrical equipment or perform tasks                                      |            |
| ii. Compare and contrast permissions and restrictions of Qualified vs. Unqualified persons                                   |            |
| iii. Recognize other training requirements   |            |
| C. Employee Responsibilities   |            |
| i. Know worker's responsibilities regarding employer's electrical safety program   |            |
| <br>   |            |
| <b>II. Electrical Safety-Related Work Practices</b>  | <b>45%</b> |
| A. Definitions   |            |
| i. Define electrical safety-related terminology  |            |
| ii. Distinguish correct vs. incorrect definitions  |            |
| B. General   |            |
| i. Understand the application of safety-related work practices and procedures  |            |
| ii. Understand general requirements  |            |
| C. Emergency procedures for assisting victims of electrical incidents  |            |
| i. Identify methods of release from contact  |            |
| ii. Understand emergency response requirements   |            |
| D. Job Safety Planning and Job Briefing  |            |
| i. Understand the requirements of Job Safety Planning  |            |
| ii. Identify the elements of a Job Briefing  |            |
| E. Electrically Safe Work Conditions   |            |
| i. Identify the steps to establish and verify an electrically safe work condition  |            |
| ii. Understand the proper sequence of steps  |            |
| iii. Identify the components and elements of the LOTO program and procedures   |            |
| iv. Explain LOTO device requirements   |            |
| v. Understand LOTO training requirements   |            |
| vi. Understand Simple LOTO procedures  |            |
| vii. Recognize elements of control   |            |
| viii. Identify correct methodology for de-energization according to employer program   |            |
| ix. Understand the purpose and use of a single-line diagram  |            |
| x. Explain how to identify all possible sources of electric supply and their disconnecting means                             |            |
| xi. Understand how to properly interrupt the load current(s) and open the disconnecting device(s) for all electrical sources |            |

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- xii. Identify the steps to verify the absence of voltage
- F Test Instruments and Equipment
  - i. Understand rating requirements
  - ii. Verify the operation of the test instruments and accessories
  - iii. Select test instruments and equipment appropriate for the environment
  - iv. Perform necessary inspections of the test instruments and equipment
- G Other Electrical Safety Equipment
  - i. Understand requirements for GFCI equipment
  - ii. Verify functionality of GFCI protection devices in the field
  - iii. Understand the requirements for reenergizing circuits after operation of overcurrent protective devices (OCPD)
- H Other Protective Measures
  - i. Understand the proper use of other protective equipment (e.g. insulated tools, barriers, etc.)
  - ii. Understand the proper implementation of Alerting techniques

**III. Electrical Hazard Risk Assessments**

**30%**

- A. Electrical hazards
  - i. Identify the hazards associated with energized electrical conductors and circuit parts
  - iii. Understand the relationship between electrical hazards and potential injuries
- B. Shock risk assessment
  - i. Identify components of a shock risk assessment
  - iv. Identify the nominal voltage of exposed energized electrical conductors and circuit parts
  - iii. Explain how to identify the approach boundaries for shock protection
  - iv. Describe the limited approach boundary and its use
  - v. Describe the restricted approach boundary and its use
  - vi. Understand limitations for Unqualified Persons within the limited/restricted approach boundaries
- C. Arc Flash Risk Assessment
  - i. Describe incident energy
  - ii. Know the effects of clearing time, short circuit current, and worker distance on incident energy
  - iii. Interpret hazard information conveyed on equipment labels
  - iv. Describe the arc flash boundary
  - v. Explain how to apply the arc flash boundary
  - vi. Explain hazard/risk category classifications
  - vii. Recognize table limiting parameters
- D. PPE for electrical hazards
  - i. Understand the various methods of determining appropriate PPE
  - ii. Select appropriate PPE when an incident energy analysis is performed and PPE requirements are not provided
  - iii. Identify the operator-level requirements for the care and maintenance of PPE
  - iv. Understand ratings and limitations of electrical PPE

**IV. Work Involving Electrical Hazards**

**10%**

- A. Energized work requirements and Justification
  - i. Identify voltage threshold and caveats
  - ii. Understand justification for not establishing an electrically-safe work condition

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- B. Energized electrical work permit requirements
  - i. Identify the permit elements
  - ii. Understand reasons for exemptions to the permit

CERTIFIED ELECTRICAL SAFETY TECHNICIAN (CEST)



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