

Understanding “Point of Work” in NFPA 70E and How Test Point GracePESDs[®] Ensure Compliance and Safety

INTRODUCTION

In the upcoming NFPA 70E 2024 Edition, the inclusion of the phrase “at each point of work” and the relationship to absence of voltage testing has prompted questions regarding the use of Permanent Electrical Safety Devices (PESD[®]) as well as Absence of Voltage Testers (AVT) for establishing an electrically safe work condition. Qualified electrical workers are trained and intuitively know where to perform an absence of voltage test with portable test instruments within a given panel, but best practices need to be established to ensure that PESDs[®], AVTs are also installed and terminated in the correct place within an electrical panel. More specifically, providing assurance that test point PESDs[®], such as the ChekVolt[®], remain compliant and relevant with the updated standard. By addressing the confusion and highlighting the importance of test point PESDs[®], we aim to ensure customers can confidently utilize these devices in Lockout/Tagout (LOTO) procedures for reducing risk while establishing an electrically safe work condition.



UNDERSTANDING THE SIGNIFICANCE OF “POINT OF WORK” IN ELECTRICAL SAFETY

The concept of “point of work” is crucial for workplace safety, referring to the specific location where tasks are performed, and workers interact with tools, systems, or materials. This intersection between the worker and the work environment holds significance for safety, performance, and training.

The visibility of each and every isolation point for electrical energy is a fundamental electrical safety principle. Both PESDs® and AVTs have a proven track record of reducing risks; partly because they are engineered into electrical panels and inherently provide visibility of electrical energy. Initially, voltage presence indicators provided visible indications of an electrical isolators’ status. The introduction of AVTs and high impedance protected test points has made absence of voltage testing a less risky way to establish an electrical work condition. In addition, the NFPA 70E 2024 Edition also recognizes test points as a valid “Additional Safety-by-Design Methods” (NFPA 70E O.2.4.(13)).

While AVTs require no contact using a portable test instrument, test points utilize high impedance protection to work hand-in-hand with a qualified electrical worker’s most valuable tool. High impedance protected test points refer to specialized components or features incorporated into electrical systems or devices, typically found externally mounted onto electrical enclosures or panels. These devices are designed to provide a safe and reliable means of conducting voltage readings or absence of voltage testing without the risk of accidental contact with live electrical components.



The high impedance protection ensures that the test point has a high resistance to electrical current flow, minimizing the potential for electric shock or short circuits during testing procedures. This protective measure helps to safeguard personnel and equipment while performing critical electrical testing and maintenance activities.

NFPA 70E REVISIONS: CONTINUITY OF GRACE PESDS® REMAINS INTACT

Understanding the significance of “point of work” is the heartbeat of electrical safety. Incorporating visible PESDs®, such as voltage presence indicators and, absence of voltage test points reduces risks during LOTO procedures. The endorsement of impedance protected test points by the NFPA 70E committee validates their role in facilitating safe and accurate absence of voltage testing.

New products have provided an additional method for absence of voltage testing **although they do not replace nor negate previous methods using UL 61010 devices.** An exception was added to the 2018 Edition of NFPA 70E to account for these devices, known as Absence of Voltage Testers (AVTs). **However, compliance using UL 61010 PESDs® remains valid, and no exception is required.**



“Section [120.6] Item (7) does not prohibit the use of the proposed devices to extend test points when used with portable test instruments, and therefore no exception is needed.” -NFPA 70E Technical Committee (Source: Public Input No. 367-NFPA 70E-2021, Committee EEW-AAA)

Through the revision cycles of NFPA 70E (2021 & 2024 editions), the 70E committee has affirmed the compliance of UL 61010 PESDs installed on electrical enclosures. These test points empower workers to conduct absence of voltage tests, aligning with NFPA 70E 120.6(7) guidelines. In the NFPA 70E 2024 edition, “point of work” is only mentioned twice, emphasizing the importance of establishing and maintaining an electrically safe work condition.



NFPA 70E 130.9(C)2 instructs personnel to visually identify de-energized, isolated, and grounded conductors during work on overhead lines. Additionally, NFPA 70E 120.6(7) reinforces the test-before-touch principle, highlighting the use of portable voltmeters to ensure work is only performed on de-energized conductors—this same principle, by context, also applies to PESDs® and AVTs.

The inclusion of test point PESDs® as part of the “point of work” concept demonstrates a commitment to advancing electrical safety. By implementing these test points, organizations provide a safer environment for workers, enabling accurate and confident absence of voltage testing. The recognition and acceptance of test points by the 70E committee underline their effectiveness and compliance with safety standards.



When recognizing the significance of the “point of work” concept, it is essential to ensure that PESDs® are designed and installed in precise, yet practical, locations within the panel or electrical system. This alignment with the “point of work” concept contributes to a safer working environment and reinforces the principles of electrical safety. By adhering to these guidelines, we can promote effective electrical safety practices and prioritize the well-being of workers.

PROPER PLACEMENT OF GRACEPESDS®

Placement of PESDs®, such as voltage presence indicators, high impedance protected test points, is pivotal for maximizing their effectiveness in electrical safety. Their precise positioning on electrical panels directly relates to the concept of the “point of work” and impacts their ability to mitigate risks.

In absence of a formal “point of work” definition by OSHA, one OSHA letter of interpretation instructs the user that “point of work” should be as close as possible to where the LOTO devices are installed: “...locking and tagging out the circuit at the point of work (i.e., the panel to be worked on)”¹. In this context, OSHA also points out that if for some reason, locking and tagging a “panel” does not fully de-energize the panel, additional measures, such as disconnecting upstream feeders, may be necessary. However, it is safe to conclude that electrical panels can be considered the “point of work”. This highlights the criticality of designing in PESDs® and AVTs in the right locations that facilitate access and safer testing, ensuring reliable verification of voltage status within the panel.

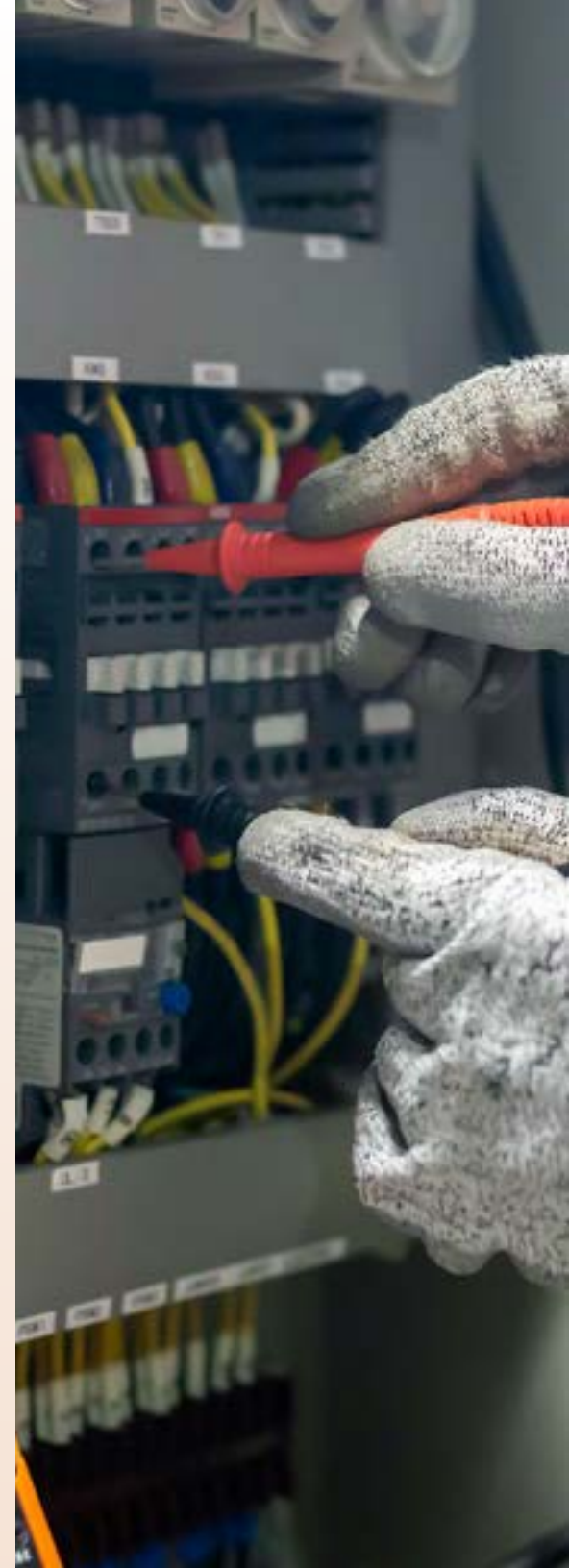


PESDs® serve as an additional layer of protection, effectively confirming and communicating voltage conditions, enabling informed decision-making for workers engaged in electrical system maintenance. Proper placement aligns with the “point of work” concept, ensuring that electrical safety devices are strategically positioned to support maintenance activities and minimize the risks associated with electrical hazards. Following manufacturer instructions during installation is vital to guarantee proper functioning and accurate results.

CONCLUSION

The recent revisions to NFPA 70E have underscored the effectiveness of test point PESDs® for absence of voltage testing. These devices--recognized as safety by design methods--exemplified by the ChekVolt®, play a vital role in ensuring electrical safety by providing a safe and efficient method for verifying the absence of voltage. Their permanent installation on electrical enclosures aligns with the “at each point of work” principle emphasized in the NFPA 70E 2024 Edition.

By adhering to the revised NFPA 70E requirements and utilizing test point PESDs®, qualified electricians can maintain compliance while promoting a safer work environment. The proper installation and utilization of these devices enable workers to test each phase conductor or circuit part precisely at the point of work, minimizing the risks associated with electrical hazards.



Staying informed about the latest developments in electrical safety, including the revisions to NFPA 70E, and embracing the benefits of PESDs® are essential steps towards creating a safer work environment. By incorporating these compliant and effective solutions, organizations can proactively address electrical safety concerns and protect their workforce from potential hazards.

Source:

1. Occupational Safety and Health Administration (2006). Clarification about 29 CFR 1910.333 and 29 CFR 1910.147 as they relate to work inside an electrical panel and on related equipment. <https://www.osha.gov/laws-regs/standardinterpretations/2006-07-28>

