

NFPA® 70E STANDARD & FREQUENTLY ASKED QUESTIONS

NFPA® 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE - National Fire Protection Association (NFPA®) 70E, Standard for Electrical Safety in the Workplace, 2015 Edition addresses electrical safety related work practices, safety-related maintenance requirements and other administrative controls for activities such as inspection, operation, repair or demolition of electric conductors, electric equipment, signaling and communications conductors and equipment, and raceways. It also includes safe work practices for employees performing other work activities that can expose them to electrical hazards such as installation of conductors and equipment or installations used by the electrical utility that are not an integral part of a generating plant, substation or control center.

Notable changes to the 2015 Edition include the elimination of Hazard/Risk Category O; hazard/risk categories are now referred to as "PPE Category", deletion of the term "Prohibited Approach Boundary" and new tables used to determine the need for and selection of appropriate arc-rated (AR) PPE.

A hard hat, hearing protection, safety glasses or goggles, heavy duty work glove and leather footwear are required for all PPE categories. An arc-rated flash suit hood or arc-rated wrap around face shield is required for PPE category 1; an arc-rated balaclava must be worn with the arc-rated wrap around face shield for PPE category 2 activities. An arc-rated flash suit hood is mandatory for PPE categories 3 and 4. NFPA 70E continues to allow non-melting flammable (non-arc-rated) materials to be used as undergarments; however, garments that are not arc-rated cannot be used to increase the arc rating of a garment or a clothing system. Annex H "Guidance on Selection of Protective Clothing and other PPE" still exists and provides a table defining the simplified two-category system of choosing appropriate PPE.

WHO IS COVERED? Employees during activities such as installation, operation, maintenance and demolition of exposed energized electrical conductors or circuit parts. Research shows that approximately 10% of the employees in any operation work as electricians, maintenance or other categories of work covered by this standard.

DOES OSHA ENFORCE NFPA® 70E? OSHA believes that the NFPA 70E standard offers useful guidance for employers and employees attempting to control electrical hazards, but OSHA has not conducted a rulemaking and therefore does not "enforce" NFPA 70E. OSHA does use consensus standards, such as NFPA 70E as evidence of hazard recognition in evaluating General Duty Clause violations.

WHAT IS ATPV; E_{BT}? The standard requires that arc-rated garments have a minimum Arc Thermal Performance Value (ATPV) based on the hazard/risk analysis for the task being performed. The ATPV is expressed in calories per square centimeter and represents the protection from electric arcs provided by the garment. If the ATPV cannot be calculated because the fabric breaks open, the energy causing the break open is expressed as the Breakopen Threshold Energy (E_{BT}).

WHERE DO I FIND THE ARC RATINGS? Arc ratings are included on Bulwark garment labels and in the Bulwark Catalog and Wholesale Product Guide. This information is also available on line at www.bulwark.com.

MY CUSTOMER HAS DONE THEIR CALCULATIONS AND SOME TASKS REQUIRE A HIGHER LEVEL OF PROTECTION THAN IS AVAILABLE FROM SINGLE LAYER GARMENTS. WHAT DO I OFFER THEM?

The total system arc rating of layered ensembles must be determined by a multilayer arc test on the combination of all layers assembled as they would be worn, rather than adding the arc ratings of the individual layers. Arc ratings of individual layers cannot simply be added together. Any garment worn as the outer layer, including rainwear, must be FR. Electrical switching clothing (flash suits) is available for those needing HRC 3 (25 minimum ATPV) or HRC 4 (40 minimum ATPV). Many insulated outerwear garments also have ATPVs greater than 25. These can be used for specific applications where higher arc ratings are needed. Keep in mind that hearing, head, face and neck protection are also required for these higher exposure levels.

THERE ARE SOME REALLY COMPLEX CALCULATIONS IN 70E. DO I HAVE TO BECOME AN ELECTRICAL ENGINEER TO UNDERSTAND THE STANDARD? Arc-rated clothing and PPE must be worn either based on the calculated incident energy determined for the specific task or by referencing tables found in NFPA 70E. When opting to use the tables, refer to Table 130.7(C)(15)(A)(a) to first determine if arc flash PPE is required. If arc flash PPE is required, then consult Table 130.7(C)(15)(A)(b) [for ac equipment] or Table 130.7(C)(15)(B) [for dc equipment] to determine the appropriate arc flash PPE category.

CAN'T THOSE COVERED BY THIS STANDARD JUST WEAR HEAVYWEIGHT NON-MELTING FLAMMABLE GARMENTS SUCH AS DENIM JEANS? Probably not. Employees must wear FR clothing wherever there is a possible exposure to an electric arc flash above the threshold incident-energy level for a second-degree burn (1.2 cal/cm²).

CAN WORKERS CONTINUE TO WEAR FLAMMABLE T-SHIRTS UNDER THEIR ARC-RATED GARMENTS? Layering of non-melting flammable garments is permitted to be worn under FR garments for added protection. Garments that are not arc-rated cannot be used to increase the total arc rating of a clothing system.

WHERE CAN I GET A COPY?

NFPA® 70 is available from NFPA®
1 Batterymarch Park
PO Box 9101
Quincy, MA 02269-9101
Phone: 1-800-344-3555
or look online at: <http://catalog.nfpa.org>



NFPA® 70E PROTECTIVE APPAREL

Solutions for safety directors,
maintenance electricians, electrical
contractors, linemen, managers,
supervisors and owners who work
directly with 480 V or greater
electrical equipment.

NFPA® 70E COMPLIANT



Bulwark®, a brand of  VF Imagewear, Inc.

15385



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SEW2LB



EXCEL FR[®] WORK SHIRT

- Two-piece, lined collar
- One-piece, lined cuff with button closure
- Hemmed front with button closure
- Sleeve vent

Flame-resistant, 7 oz. (235 g/m²) 100% Cotton
Arc Rating: ATPV 7.7 calories/cm²
 Country of Origin: Imported

SEW2 LONG SLEEVE (Reg) S-XL, (OS) 2XL-3XL
 COLOR: LB, NV



EXCEL FR[®] COMFORTOUCH[™] WORK SHIRT

Flame-resistant, 7 oz. (235 g/m²) 88% Cotton/12% Nylon
Arc Rating: ATPV 8.6 calories/cm²
 Country of Origin: Imported

SLW2 LONG SLEEVE (Reg) S-XL, (OS) 2XL-3XL
 COLOR: LB, NV



SMU2NV



COOLTOUCH[™] 2 DRESS UNIFORM SHIRT

- Gusset side seam for ease of movement
- Banded, topstitched collar
- Two chest pockets with button flaps & sewn-in pencil stall
- Topstitched cuff with adjustable button closure
- Placket front with button closure
- Tailored sleeve placket, straight back yoke

Light Blue: Flame-resistant, 7 oz. (235 g/m²) 48% Modacrylic / 37% Lyocell / 15% Aramid
Navy: Flame-resistant, 7 oz. (235 g/m²) 45% Modacrylic / 35% Lyocell / 20% Aramid
Light Blue Arc Rating: ATPV 8.4 calories/cm²
Navy Arc Rating: ATPV 10 calories/cm²
 Country of Origin: Imported

SMU2 (Reg) S-XL, (OS) 2XL-3XL
 COLOR: LB, NV



KEL2LB



EXCEL FR[®] LAB COAT

- Two-piece, lined collar
- One-piece, lined cuff with button closure
- Hemmed front with button closure
- Sleeve vent

Excel FR[®] Flame-resistant, 7 oz. (235 g/m²) 100% Cotton
Arc Rating: ATPV 7.7 calories/cm²
 Country of Origin: Imported

KEL2 (Reg) S-XL, (OS) 2XL-3XL
 COLOR: LB



PLW2NV

9 OZ. EXCEL FR[®] COMFORTOUCH[™] WORK PANT



- Interlined waistband with button closure
- Two slack style front pockets
- Two set-in hip pockets, left hip pocket with button closure

Flame-resistant, 9 oz. (305 g/m²) Twill, 88% Cotton/12% Nylon
Arc Rating: ATPV 11 calories/cm²
 Country of Origin: Imported

PLW2 Men's (Reg) 28-42, (OS) 44-50 (All Even Sizes)

COLOR: NV



PMU2NV

7 OZ. COOLTOUCH[™] 2 CARGO POCKET WORK PANT



- Waistband with hook-and-bar closure
- Two utility pockets
- Left cargo pocket has two snap closures
- Right utility pocket is open
- Two slack-style front pockets
- Two set-in hip pockets, left hip pocket with button closure

Flame-resistant, 7 oz. (235 g/m²) 45% Modacrylic/35% Lyocell/20% Aramid
Arc Rating: ATPV 10 calories/cm²
 Country of Origin: Imported

PMU2 Men's (Reg) 28-42, (OS) 44-52 (All Even Sizes)

COLOR: NV



CEC22NV

9 OZ. COOLTOUCH[™] 2 CONTRACTOR COVERALL

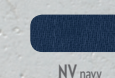


- Two-way, concealed Nomex[®] taped, brass break-away zipper
- One-piece, topstitched, lay flat collar
- Hemmed sleeves
- Concealed snap at top of zipper at neck
- Two set-in front pockets, one chest pocket, two patch hip pockets
- Side vent

Flame-resistant, 9 oz. (305 g/m²) 100% Cotton
Arc Rating: ATPV 11 calories/cm²
 Country of Origin: Imported

CEC2 Men's (Reg) 38-52 (All Even Sizes)

COLOR: NV



ADD 30% TO RENTAL RATES FOR OS GARMENTS.

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NFPA[®] 70E PROTECTIVE APPAREL

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