

70E FREQUENTLY ASKED QUESTIONS

» **Who is covered?** Employees during activities such as 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 online 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 using Table 130(C)(9) to determine the hazard/risk category (HRC). HRC is specified based on specific job tasks. These range from HRC 0 that allows non-melting flammable materials up to HRC 4 that requires an arc rated FR shirt and pants or FR coverall, and arc flash suit with a minimum system arc rating of 40. Annex H provides a simplified approach to select appropriate arc rated clothing and PPE based on whether the task requires “everyday work clothing” or “electrical switching clothing”.

» **Can't those covered by this standard just wear heavyweight non-melting flammable garments such as denim jeans?** Probably not. Non-melting flammable garments are only allowed for HRC 0 exposures. 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. However, if Table 130.7(C)(9) is used to determine the HRC category, only FR layers within the layered system are used to determine system arc rating.

» **Where can I get a copy?**
NFPA 70E 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



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LT. BLUE NAVY

» **BUTTON-FRONT WORK SHIRT**

Two-piece lined collar • One-piece lined cuff w/button closures • Hemmed front w/button closure • Sleeve vent

FABRIC: Excel FR® Flame-resistant, 7 oz. 100% Cotton

CARE: Home and Industrial wash

PROTECTION: Arc Rating ATPV 7.7 calories/cm²

HRC1	STYLE	COLOR	SIZE	SIZE LN
	SEW2LB	LT. BLUE	S-3XL	M-2XL
	SEW2NV	NAVY	S-3XL	M-2XL

FABRIC: Excel FR® ComfortTouch®, Flame-resistant, 7 oz. 88% cotton/12% nylon

CARE: Home and Industrial wash

PROTECTION: Arc Rating ATPV 8.6 calories/cm²

HRC2	STYLE	COLOR	SIZE	SIZE LN
	SLW2LB	LT. BLUE	S-3XL	M-3XL
	SLW2NV	NAVY	S-3XL	M-3XL

» **COOL TOUCH®2 DRESS UNIFORM SHIRT**

Gusset side seam for ease of movement • Banded topstitched collar • Two chest pockets with button flaps and sewn in pencil stall • Placket front with button closure • Tailored sleeve placket • Topstitched cuff • Straight back yoke

FABRIC: Flame-resistant, 7 oz. 48% Modacrylic/37% Lyocell/15% Para-Aramid

CARE: Home and Industrial wash

PROTECTION: Arc Rating ATPV 8.4 calories/cm²

HRC2	STYLE	COLOR	SIZE	SIZE LN
	SMU2LB	LT. BLUE	S-3XL	M-2XL

FABRIC: Flame-resistant, 7 oz. 45% Modacrylic/35% Lyocell/15% Para-Aramid/5% Para-Aramid

CARE: Home and Industrial wash

PROTECTION: Arc Rating ATPV 10.1 calories/cm²

HRC2	STYLE	COLOR	SIZE	SIZE LN
	SMU2NV	NAVY	S-3XL	M-2XL

» **LAB COAT**

Button front closure • Lapel collar • Hemmed sleeve ends • Side vent openings

FABRIC: Excel-FR® Flame-resistant, 7 oz. 100% Cotton

CARE: Home and Industrial wash

PROTECTION: Arc Rating ATPV 7.7 calories/cm²

HRC1	STYLE	COLOR	SIZE
	KEL2LB	LT. BLUE	S-2XL

» **WORK PANT**

Innerlined waistband with button closure • Two slack style front pockets • Two set in hip pockets • left hip pocket with button closure

FABRIC: Excel-FR® Flame-resistant, 9 oz. Twill, 100% Cotton

CARE: Home and Industrial wash

PROTECTION: Arc Rating ATPV 11.2 calories/cm²

HRC2	STYLE	COLOR	SIZE
	PEW2NV	NAVY	28-50

» **COOL TOUCH®2 WORK PANT**

Innerlined waistband with button closure • Two slack style front pockets • Two set in hip pockets • Left hip pocket with button closure • Left leg cargo pocket and right leg cell phone pocket

FABRIC: Flame-resistant, 7 oz. 45% Modacrylic/35% Lyocell/15% Polyamide Imide/5% Para-Aramid

CARE: Home and Industrial wash

PROTECTION: Arc Rating ATPV 10.1 calories/cm²

HRC2	STYLE	COLOR	SIZE
	PMU2NV	NAVY	28-50

» **CONTRACTOR OVERALL**

Two-way concealed Nomex® taped brass breakaway zipper • concealed snap at top of zipper and at neck • One-piece topstitched lay-flat collar • Hemmed sleeves • Two set in front pockets • One chest pocket • Two patch hip pockets • Side vent openings

FABRIC: Excel-FR® Flame-resistant, 9 oz. 100% Cotton

CARE: Home and Industrial wash

PROTECTION: Arc Rating ATPV 11.2 calories/cm²

HRC2	STYLE	COLOR	SIZE	SIZE LN
	CEC2NV	NAVY	38-64	42-58

