



TECHNICAL DATA

GARMENT REQUIREMENTS NFPA 1971, 2018 EDITION

Note: New or Revised requirements are indicated by an * and the revision text is bolded

ITEM	PERFORMANCE REQUIREMENT
TPP (thermal protective performance)	Minimum 35
Tear Resistance	Shell – 100N (22 lbs.) Thermal – 22N (5 lbs.) Moisture barrier – 22N (5 lbs.)
Zippers	Crosswise breaking strength of chain and of separating unit; holding strength of stop, retainers and separating units; operating force and slider lock strength requirements as per A-A-55634A, <i>Commercial Item Description, Zippers (Fasteners, Slide, Interlocking)</i>
Fastener Tape	Breaking strength, shear strength, and peel strength requirements as per A-A 55126B, <i>Commercial Item Description, Fastener Tapes, Hook and Loop, Synthetic.</i>
Seam Breaking Strength	Major A = 667N (150 lbs.) Major B = 334N (75 lbs.) Minor = 180N (40 lbs.) Knit wristlet seams = 181N (41 lbs)
Heat and Thermal Shrinkage, excluding hook & pile fasteners when body contact not possible	Test is at 500°F for 5 minutes with no melting, separation, or ignition; Hardware to remain functional; Maximum shrinkage 10% in any direction; Moisture barrier seams shall not drip or ignite; Outer shell shall not char; Hardware to remain functional and not ignite
Thread	Thread Melting Test at 500F for 5 minutes
Flame Test on all Textiles, excepting elastic, hook and pile fasteners, zippers, and seam seal materials when body contact is possible and labels on garment interior	12 second direct flame exposure – item must self extinguish within 2 seconds. Maximum char length of 1”; afterflame of no more than 2 seconds and no melting or dripping; Harnesses, escape and ladder belts must meet requirement when they penetrate outer shell, are incorporated into closure system, or attached to garment
Metal Hardware	20 hr. test; no corrosion of base metal & must remain functional
Labels	Legibility after 5 wash/dry cycles; Must use brand names on labels (no generic fibers)
*Outer Shell Water Absorption	15% or less (formerly 30% or less)
Water Penetration Resistance	Barrier layer minimum resistance of 25 psi
*Liquid Penetration Resistance	Barrier & seams tested against 6 common liquids for 1 hr: AAAF, battery acid, hydraulic fluid, fuel, Swimming pool chlorine, antifreeze fluid
Viral Penetration Resistance	Barrier and seams; 1 hr against Phi-X-174 Bacteriophage



TECHNICAL DATA

*Whole Garment Liquid Penetration Test	3 complete garments for each closure; Tested as received; 10 min. test ; Proximity tests one garment for each closure if design is same as structural. 1 of 3 specimens allowed to exhibit maximum leakage of 3.1 in² on absorptive garment (formerly 20 minute test, no leakage whatsoever)
Conductive, Compressive, Heat Resistance	Shoulders tested at 2psi; knees at 9 psi; 25 seconds until 2 nd degree burn. Reported as pass/fail
Light Degradation Resistance	Barrier layer only tested; no surface water after exposure
DRD Fabrics, Seams, Splices	Minimum 1,573 lbs
DRD Function Test	Deployment time, mannequin distance drag, SCBA not ride up on mannequin
ADDITIONAL PERFORMANCE REQUIREMENTS FOR STRUCTURAL GARMENTS	
Outer Shell Break Strength	140 lbs. structural; no requirement for proximity
Cleaning Shrinkage	Maximum 5%
THL (Total Heat Loss)	205 W/M ² for structural; no THL requirement on proximity gear
Transmitted and Stored Thermal Energy Test	Enhancements sewn to coat sleeves tested for stored energy; minimum time to second degree burn 130 seconds; Proximity does not require stored energy testing
Garment Trim	Coefficient of retro-reflectivity minimum 100 cd/lux and fluorescent red, yellow-green or orange-red; Proximity specifically prohibits trim
ADDITIONAL PERFORMANCE REQUIREMENTS FOR PROXIMITY GARMENTS	
Radiant Protective Performance	Intersect time of not less than 20 seconds
Wet Flex	No requirement in structural; Proximity shells must show no sign of cracking or delamination to fabric face
*Adhesion After Wet Flex	No requirement in structural; Proximity shells must show no sign of separation of coating, cannot have laminated from base fabric or show removal of surface coating
Flex at Low Temperatures	No requirement in structural; Proximity shells must show no sign of breaking, shattering or cracking of coating, laminate or fabric
Resistance to High Temperature Blocking	No requirement in structural; Proximity shells must show no sign of blocking
OPTIONAL PERFORMANCE REQUIREMENTS FOR PROTECTION FROM LIQUID AND PARTICULATE CONTAMINANTS	
The entire protective ensemble shall be tested for overall particulate inward leakage and show no visual particulate inward leakage.	