



TECHNICAL DATA

FOOTWEAR REQUIREMENTS NFPA 1971, 2018 EDITION

ITEM	PERFORMANCE REQUIREMENT
Performance Requirements Specified in ASTM F 2413, 2011 edition	ASTM F2413 Performance Requirements are used for impact, compression, and puncture resistance with exception that flex resistance to cracking is evaluated at 1,000,000 cycles
Thread Melting	No melting below 260°C (500°F)
Abrasion Resistance	Soles and heels tested and the relative volume loss shall not be greater than 250 mm ³ (.015 in ³)
Conductive Heat Resistance (Test 2)	Temperature of insole surface in contact with feet not to exceed 44°C (111°F)
Cut Resistance	Footwear uppers – distance of blade travel <20 mm (.8 in.)
Electrical Insulation	No current leakage in excess of 3.0 mA
Eyelet & Stud Post Attachment	Detachment strength of 294 N (66 lbf)
Flame Resistance	Whole boot flame test; requirement is maximum afterflame of 5.0 seconds; shall not melt or drip; and shall not exhibit any burn-through.
Heat and Thermal Resistance	No melting, separating, or ignition. No water penetration and all components must remain functional.
Label Durability	Legibility test after abrasion & heat
Ladder Shank Bend Resistance	Ladder shanks or whole sole equivalents shall not deflect more than 6 mm (1/4 in)
Liquid Penetration	Upper material composite and seams; 1 hour duration; no penetration
Corrosion Resistance	All metal show no more than light surface corrosion; ferrous metals no corrosion of base metal, hardware to remain functional
Puncture Resistance	Footwear uppers shall not puncture under applied force of 60 N (13 lbf)
Viral Penetration	Footwear upper material composites and seams; no penetration for 1 hour
Slip Resistance	Footwear shall have a coefficient of friction of 0.40 or greater
PERFORMANCE REQUIREMENTS APPLICABLE TO STRUCTURAL FOOTWEAR ONLY	
Radiant Heat Resistance (Thermal insulation – structural only)	Temperature of upper surface in contact with skin not to exceed 44°C (111°F)
Conductive Heat (Thermal insulation – structural only)	Second degree burn time minimum 10 seconds, time to pain minimum 6 seconds
PERFORMANCE REQUIREMENTS APPLICABLE TO PROXIMITY FOOTWEAR ONLY	
Radiant Heat (Proximity only)	Temperature of upper lining surface in contact with skin not to exceed 44°C (111°F)
Conductive Heat Thermal Insulation – proximity only)	Temperature of upper lining surface in contact with skin not to reach 44°C (111°F) in ten minutes or less