

U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Common Conversion Factors

Learning objective: The student shall be able to calculate common conversions from the United States System of Measurement to the International System of Units (SI).

While the United States holds on to its traditional system of measurements, the rest of the world--and especially the scientific community--uses the International System of Units (SI) for dimensions.



Fire personnel should have the ability to convert the most common measures used in fire protection technology and research. There also are numerous conversion tools available on the World Wide Web for those with computer skills.

Here are a few of the more common conversions used in fire services:

Property	To Convert From	To	Multiply By
Length	Foot (ft)	Meter(m)	0.3048
	Meter	Foot	3.281
Mass	Pound (lb)	Kilogram (kg)	0.4536
	Kilogram	Pound	2.205
Energy, work	British Thermal Unit (Btu)	Joule (J)	1054.8
	Joule	British Thermal Unit	0.000948
Heat Release Rate	British Thermal Unit per Minute (Btu/min)	Watt (W) Joule/Second (J/s)	17.573
	Watt Joule/Second	British Thermal Unit per Minute	0.05688
Heat flux	British Thermal Unit per square foot per second (Btu/ft ² /second)	Watts per square meter (W/m ²)	11356
	Watts per square meter	British Thermal Unit per square foot per second	0.000088
Pressure	Pounds (lbs)	Newtons (N)	4.448
	Newtons	Pounds	0.2248089
Volume	Gallons (gal)	Liters (l)	3.7583
	Liters	Gallons	0.26418

The National Fire Protection Association (NFPA) Fire Protection Handbook also has an extensive conversion table in its annex.