

Appendices

Appendix A

| ENGINEERING CONVERSION FACTORS* | | | |
|---|------------------------------------|--|---|
| Quantity | From Imperial Units | Multiply By | To Metric Units** |
| Mass | lb kip (1000 lb) ton (short) | 0.453 592 0.453 592 0.907 184 | kg metric ton (1000 kg) metric ton |
| Mass/unit length | plf | 1.488 16 | kg/m |
| Mass/unit area | psf lb/sy | 4.882 43 0.542 492 | kg/m ² kg/m ² |
| Mass density | pcf | 16.018 5 | kg/m ³ |
| Force | lb kip | 4.448 22 4.448 22 | N kN |
| Force/unit length | plf klf | 14.593 9 14.593 9 | N/m kN/m |
| Pressure, stress, modulus of elasticity | psf ksf psi ksi | 47.880 3 47.880 3 6.894 76 6.894 76 | Pa kPa kPa MPa |
| Bending moment, torque | ft-lb ft-kip | 1.355 82 1.355 82 | N • m kN • m |
| Volume/unit area | gal/sy | 4.527 19 | L/m ² |

*Approximate conversions to SI units.

**To convert from metric units to imperial units, multiply by the reciprocal of the conversion factor.

Appendix B

| SI* (MODERN METRIC) CONVERSION FACTORS | | | | | |
|--|-------------------------------|---------------------------------|--------------------------------|-------------------|--|
| APPROXIMATE CONVERSIONS TO SI UNITS | | | | | |
| Symbol | When You Know | Multiply By | To Find | Symbol | |
| LENGTH | | | | | |
| in | inches | 25.4 | millimeters | mm | |
| ft | feet | 0.305 | meters | m | |
| yd | yards | 0.914 | meters | m | |
| mi | miles | 1.61 | kilometers | km | |
| AREA | | | | | |
| in ² | square inches | 645.2 | square millimeters | mm ² | |
| ft ² | square feet | 0.093 | square meters | m ² | |
| yd ² | square yards | 0.836 | square meters | m ² | |
| ac | acres | 0.405 | hectares | ha | |
| mi ² | square miles | 2.59 | square kilometers | km ² | |
| VOLUME | | | | | |
| fl oz | fluid ounces | 29.57 | milliliters | mL | |
| gal | gallon | 3.785 | liters | L | |
| ft ³ | cubic feet | 0.028 | cubic meters | m ³ | |
| yd ³ | cubic yards | 0.765 | cubic meters | m ³ | |
| NOTE: Volumes greater than 1000 L shall be shown in m ³ . | | | | | |
| MASS | | | | | |
| oz | ounces | 28.35 | grams | g | |
| lb | pounds | 0.454 | kilograms | kg | |
| T | short tons (2000 lb) | 0.907 | megagrams (or "metric ton") | Mg (or "t") | |
| TEMPERATURE (exact) | | | | | |
| °F | Fahrenheit temperature | 5 (F – 32)/9 or (F – 32)/1.8 | Celcius temperature | °C | |
| ILLUMINATION | | | | | |
| fc | foot-candles | 10.76 | lux | lx | |
| fl | foot-Lamberts | 3.426 | candela/m ² | cd/m ² | |
| FORCE and PRESSURE or STRESS | | | | | |
| lbf | poundforce | 4.45 | newtons | N | |
| lbf/in ² | poundforce per square inch | 6.89 | kilopascals | kPa | |

*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with section 4 of ASTM E 380.

Appendix B (cont.)

| SI* (MODERN METRIC) CONVERSION FACTORS | | | | |
|---|------------------------|-------------|----------------------------|---------------------|
| APPROXIMATE CONVERSIONS FROM SI UNITS | | | | |
| Symbol | When You Know | Multiply By | To Find | Symbol |
| LENGTH | | | | |
| mm | millimeters | 0.039 | inches | in |
| m | meters | 3.28 | feet | ft |
| m | meters | 1.09 | yards | yd |
| km | kilometers | 0.621 | miles | mi |
| AREA | | | | |
| mm ² | square millimeters | 0.0016 | square inches | in ² |
| m ² | square meters | 10.764 | square feet | ft ² |
| m ² | square meters | 1.195 | square yards | yd ² |
| ha | hectares | 2.47 | acres | ac |
| km ² | square kilometers | 0.386 | square miles | mi ² |
| VOLUME | | | | |
| mL | milliliters | 0.034 | fluid ounces | fl oz |
| L | liters | 0.264 | gallon | gal |
| m ³ | cubic meters | 35.71 | cubic feet | ft ³ |
| m ³ | cubic meters | 1.307 | cubic yards | yd ³ |
| MASS | | | | |
| g | grams | 0.035 | ounces | oz |
| kg | kilograms | 2.202 | pounds | lb |
| Mg | megagrams | 1.103 | short tons (2000 lb) | T |
| (or "t") | (or "metric ton") | | | |
| TEMPERATURE (exact) | | | | |
| °C | Celcius | 1.8C + 32 | Fahrenheit temperature | °F |
| ILLUMINATON | | | | |
| lx | lux | 0.0929 | foot-candles | fc |
| cd/m ² | candela/m ² | 0.2919 | foot-Lamberts | fl |
| FORCE and PRESSURE or STRESS | | | | |
| N | newtons | 0.225 | poundforce | lbf |
| kPa | kilopascals | 0.145 | poundforce per square inch | lbf/in ² |

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