

SECTION 01 42 23 - UNITS OF MEASUREMENT

1.01 GENERAL: This Section covers the requirements for unit measurements in the Contract. This Contract requires metric units of measurements. The metric units used are the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960.

1.02 ^{A17}REFERENCES:^{A17}

- A. **American Society for Testing and Materials (ASTM) International Publications:**
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| E 621-94(99) | Use of Metric (SI) Units in Building Design and Construction (Committee E-6 Supplement to E380). |
| SI 10-02 | American National Standard for Use of the International System of Units (SI): The Modern Metric System. |

1.03 USE OF MEASUREMENTS IN CONTRACTOR'S DOCUMENTS:

- A. ^{A16}**Usage:** Measurements in Contractor's Documents and other submittals, shall be in SI units, except when a different system of units is specifically approved by the Employer's Representative. The Contractor shall be responsible for all associated labor and Materials when authorized to substitute the SI system of units with another and for the final assembly and performance of the specified work, products, or both. The Contractor shall submit the required drawings and calculations in the same units used in the Contract Documents to describe the product or requirement, unless otherwise instructed or approved by the Employer's Representative. The Contractor shall use ASTM SI 10 and ASTM E 621 as the basis for establishing metric measurements required for use in submittals. ^{A16}
- B. The Contractor shall make use of a decimal point (.) to separate the whole number from the decimal fraction of numbers composed of a whole number and a decimal fraction, and the Contractor shall make use of a comma (,) to separate the thousands, millions, et al in whole numbers, for example, 1,254,823.68.
- C. All elevations shall be referred to PLD.

1.04 MEASUREMENTS IN EMPLOYER DOCUMENTS:

- A. **Use of Measurements in Employer Documents:** Measurements in the Employer documents are either in SI or English inch-pound (I-P) units, or as otherwise indicated. When only SI or I-P measurements are specified for a product, the product shall be procured in the specified units (SI or I-P), unless otherwise authorized by the Employer's Representative. The Contractor shall be responsible for all associated labor and Goods when authorized to substitute one system of units for another and for the final assembly and performance of the specified work, products, or both.
1. **Hard Metric:** A hard metric measurement is indicated by an SI value with no expressed correlation to an I-P value. Hard metric measurements are often used for field data such as distance from one point to another or distance above the

floor. Products are considered to be hard metric when they are manufactured to metric dimensions or have an industry-recognized metric designation.

2. **Soft Metric:**

- a. A soft metric measurement is indicated by an SI value which is a mathematical conversion of the I-P value shown in parentheses, e.g., 38.1 mm (1-1/2 inches). Soft metric measurements are used for measurements pertaining to products, test values, and other situations where the I-P units are the standard for manufacture, verification, or other controlling factor. The I-P value shall govern while the metric measurement is provided for information.
- b. A soft metric measurement is also indicated for products that are manufactured in industry designated metric dimensions, but are required by law to allow substitute I-P products. These measurements are indicated by a manufacturing hard metric product dimension followed by the substitute I-P equivalent value in parentheses, e.g., 190 x 190 x 390 mm (7-5/8 x 7-5/8 x 15-5/8 inches).

3. **Neutral:** A neutral measurement is indicated by an identifier which has no expressed relation to either an SI or an I-P value, e.g., American Wire Gage (AWG), which indicates thickness but, in itself, is neither SI nor I-P.

- B. **Coordination:** Discrepancies such as mismatches or product unavailability arising from use of both metric and non-metric measurements and discrepancies between the measurements within Employer documents shall be brought to the attention of the Employer's Representative for resolution.

END OF SECTION