Several standards are available as references for measured lengths of testing samples, but do not include a method for determining a length for storing or shipping:

- CI 1500-02, *International Standard: Test Methods for Fiber Rope*

These standards refer to measuring length under a low load or reference tension when measuring rope length for test calculations. However, CI-1500 states that “Because of the soft, flexible nature of fiber rope, reproducible measurements of diameter, circumference, and length cannot be made on the untensioned rope.”

The following is a list of the common difficulties of rope length determination in the field:

- Availability of a flat surface to lay the rope straight for measuring
- The ability to tension the rope
- The material is flexible and soft, which may cause variation
- No standardized method for measuring rope length
- Using an inadequate and/or inconsistent type of measuring device
- The availability of a measuring device
- The position of the measuring device at the starting and ending points of the rope
- The method by which the measuring device is used
- The rope’s length may change as it is used

### The Difference in Measuring Length on Tensioned and Untensioned Rope

The greatest difference can be seen in the length of the measured rope when comparing it at a tensioned and untensioned state. Tests have shown an approximate 2% difference in length is found with 12-strand AmSteel®-Blue when tension is used during measurement compared to an untensioned rope. Greater variability was seen with untensioned measurements, with as much as 2% of the same rope’s length but when tensioned that difference dropped to 0.5%. The amount of variation seen between tensioned and untensioned ropes will also be affected by the material and construction of each rope.

### Necessary Rope Measuring Procedures:

- Supply constant, even tension (no more than 10 lb is needed) to all diameter ropes.
- Tension can be added simply by winding the rope in an S shape around two horizontal or vertical bars that will create the needed tension.
- A controlled tensioning system can also be used as described in the Technical Bulletin *Rope Measurement Recommendations*.
- When no tensioning device is available, laying the rope to the complete required length on a flat surface, and tensioning it with hand force while measuring the full length will reduce the variability and difference in length.