## Steel tubes for Structural purposes – (Indian Standard) IS 1161 : 2014

**Summary of Structural Steel Tubes:**

Structural steel tubes are hollow cylindrical pipes used to **provide strength and stability in various applications**, such as the construction of buildings / skyscrapers, bridges, infrastructure, and machinery. Steel tubes are particularly valued for their **high strength-to-weight ratio,** which allows for lighter, cost-effective designs while maintaining structural integrity. Steel tubes also play a key role in underground construction, offering a stable foundation for large structures.

To ensure their durability and performance, these pipes to undergo **rigorous testing, including tensile test, yield strength, elongation, and ductility tests**. A flattening test is also conducted for larger dia pipes to assess their ability to withstand pressure without failure. Additionally, these steel pipes are treated with protective coatings to prevent corrosion and enhance their longevity in various seasonal environments.

Taking the importance of the subject ahead, **Bureau of Indian Standards (BIS)** has formulated an Indian Standard "**Steel Tubes for Structural Purposes**" as per **IS 1161: 2014**. This **IS outlines the dimensional, chemical and mechanical requirements for plain carbon steel tubes used in structural applications**, including specifications for their joining and assembly.

Using the **non-standard steel tubes in structural applications can lead to several potential hazrads / complications** that may affect the safety, performance, and longevity of the machineries / infrastructure which may be attributed to Structural Integrity Issues, Poor Dimensional Accuracy, Corrosion and Durability Concerns, Increased Maintenance Costs, Compatibility Issues with Other Materials, Increased Construction Time and Costs.

**DPIIT's** (Department for Promotion of Industry and Internal Trade) **Steel Tubes (Quality Control) Order**, 2020 **mandates compliance and compulsory use of Standard Mark under a license from the Bureau of Indian Standards** to ensure the Steel Tubes, Tubulars and Other Wrought Steel Fittings are safe to put into use.

In summary, using non-standard steel tubes can lead to serious safety, structural, financial, and legal issues. **Adhering to Indian standard IS 1161: 2014 is crucial to ensure the reliability, durability, and performance of the steel tubing in construction and other allied applications**.