

SCOPE

- I 1.1 This practice covers the design criteria for structural steel.
- I 1.2 **An asterisk (*)** indicates that additional information from the Owner's Engineer, or approval by the Owner's Engineer is required.

SUMMARY OF ADDITIONAL REQUIREMENTS

- I 2.1 **Table 1** lists the practices and specifications which shall be used with this practice.

TABLE 1

PRACTICES	
IP 18-7-1	Welding Procedures
IP 19-1-1	Paint and Protective Coatings
SPECIFICATIONS	
AISC Specifications	
Specification for Structural Steel Buildings - Allowable Stress Design and Plastic Design	
Load and Resistance Factor Design Specification for Structural Steel Buildings	

- I 2.2 **Local codes and standards** may be substituted for the ones referenced herein provided the following provisions are met:
 - a. The resultant design meets the safety and serviceability criteria attained through this practice.
 - * b. Substitution is accepted by the authorities where the facility is to be located and by the Owner's Engineer.

DESIGN

- R * 3.1 The plastic design method may not be used in the design of **structures subject to sustained vibration or stress reversal** caused by operating equipment unless approved by the Owner's Engineer.
- R 3.2 For **structural elements subject to prolonged exposure to heat above 200°F (93°C)**, allowable design stress shall be reduced in proportion to reductions in yield strength of the steel at the design temperature. The modulus of elasticity shall also be reduced to account for the effect of elevated temperature.
- R 3.3 Special materials, coating protection or increased material thickness shall be used where structural elements are subject to severe corrosion or wear. Corrosion protection shall be in accordance with **IP 19-1-1** except that galvanizing is acceptable for both Category I and II exposures.
- R 3.4 **Bolts** shall be designed on the basis that the threads will be included in the shear plane. That is, type N bolts per **AISC** for bearing connections.

FABRICATION

- R * 4.1 **For structural members with full penetration, corner or T-joints between plates thicker than 3/4 in. (18 mm)**, procedures to minimize the risk of lamellar tearing shall be provided for approval by the Owner's Engineer.
- R ↗ 4.2 Fabrication requiring **welding of structural steel** shall be in accordance with **IP 18-7-1**.

DESIGN DRAWINGS

- I 5.1 Specifications for the material of construction of all structural elements shall be indicated on the design drawings.
- I 5.2 All "slip-critical" joints shall be clearly identified on the design and erection drawings.

IP 4-1-2		Structural Steel Design	
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Revision Memo

9/68	Original Issue of Basic Practice				
1/70	Revision 1				
1/72	Revision 2				
6/76	Revision 3				
6/81	Revision 4				
1/85	Revision 5				
12/90	Revision 6				
6/96	Revision 0 - Original Issue of International Practice				
3/98	Revision 1 Editorial revision to rationalize this practice with the referenced standards and other IPs. Significant changes include: Par. 4.2 reference to welding code deleted. Par. 4.3 deleted.				
	<table><tr><td>Old Par.</td><td>New Par.</td></tr><tr><td>2.3</td><td>2.2</td></tr></table>	Old Par.	New Par.	2.3	2.2
Old Par.	New Par.				
2.3	2.2				

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