

## SECTION 971 STRUCTURAL STEEL MATERIAL

### 971.1 REQUIREMENTS

The ASTM Specifications designated shall govern the materials furnished.

Principal load carrying structural steel members shall meet the longitudinal charpy V-notch toughness test, applicable to Group 2 minimum service temperature from -1EF (-18EC) to -30EF (-34EC), in accordance with the following listing:

For AASHTO M270/ASTM A709 grade 36 steel, up to 4" inclusive, 15 ft. lb. @ 40EF (grade 250 steel up to 100 mm inclusive, 20 NGn @ 4EC).

For AASHTO M270/ASTM A709 grade 50W steel, up to 4" inclusive - mechanically fastened and up to 2" inclusive, welded. 15 ft. lb. @ 40EF. (grade 345W steel up to 100 mm inclusive - mechanically fastened and up to 50 mm inclusive, welded. 20 NGn @ 4EC).

For AASHTO M270/ASTM A709 grade 50W steel (over 2" to 4" inclusive, welded), 20 ft. lb. @ 40EF (grade 345W steel over 50 mm to 100 mm inclusive, welded, 27 NGn @ 4EC).

For AASHTO M270/ASTM A709 grade 50 steel (up to 4" inclusive, mechanically fastened and up to 2" inclusive, welded), 15 ft. lb. @ 40EF (grade 345 steel up to 100 mm inclusive - mechanically fastened and up to 50 mm inclusive, welded. 27 NGn @ 4EC).

For AASHTO M270/ASTM A709 grade 100 steel/up to 4" inclusive, mechanically fastened and up to 2-1/2", inclusive, welded) - 25 ft. lb. @ 0EF/grade 690 steel up to 100 mm inclusive - mechanically fastened and up to 65 mm inclusive, welded. 34 NGn @ -18EC).

For AASHTO M270/ASTM A709 grade 100 steel (over 2-1/2" to 4" inclusive, welded) - 35 ft. lb. @ 0EF (over 2" to 4" inclusive, welded), 20 ft. lb. @ 40EF (grade 690 steel over 65 mm to 100 mm inclusive, welded, 47 NGn @ -18EC).

For AASHTO M270/ASTM A709 grade 100W steel (up to 4" inclusive, mechanically fastened and up to 2-1/2" inclusive, mechanically fastened and up to 2-1/2" inclusive, welded) - 25 ft. lb. @ 0EF (grade 690W steel up to 100 mm inclusive, mechanically fastened and up to 65 mm inclusive, mechanically fastened and up to 65 mm inclusive, welded. 34 NGn @ -18EC).

For AASHTO M270/ASTM A709 grade 100W steel (over 2-1/2" to 4" inclusive, welded) - 35 ft. lb. @ 0EF (grade 690W steel over 65 mm to 100 mm inclusive, welded, 47 NGn @ -18EC).

Sampling and testing procedures shall be in accordance with ASTM A 673 utilizing (H) frequency testing for grade 36, 50 and 50W (250, 345 and 345W) steels and utilizing (P) frequency testing for grade 100 and 100W (690 and 690W) steels.

For grade 50 and 50W (345 and 345W) steels, if the yield point of the material exceeds 65 ksi (450 MPa), the temperature for the CVN value for acceptability shall be reduced by 15E F (-9E C). for each increment of 10 ksi (70 MPa) above 65 ksi (450 MPa).