

# Field Operations

## Material Information for Rating Bridges

CONCRETE STRUCTURES			
CONCRETE STRENGTHS		REINFORCING STRENGTHS	
Reinforced Concrete	Prestressed Concrete	Reinforced Concrete	Prestressed Concrete
Prior to 1959 $f_c = 2500$ psi **	$f_{ci} = 4000$ psi ##	Prior to 1954 $f_y = 33,000$ psi **	Prior to 1970 SR250 ##
After 1959 $f_c = 3000$ psi **	$f_c = 5000$ psi ##	After 1954 $f_y = 40,000$ psi **	After 1970 SR270 ##

\*\* From the AASHTO Manual for Condition Evaluation of Bridges; 1994 edition.

## Based on historical records.

REINFORCING SIZES				
REINFORCED CONCRETE		PRESTRESSED CONCRETE **		
Bar Designation	Area of Bar, in <sup>2</sup>	Strand Strength	Strand Size	Area of Strand, in <sup>2</sup>
#4	0.196	SR250	1/4"	0.036
#5	0.307		5/16"	0.058
#6	0.442		3/8"	0.080
#7	0.601		7/16"	0.108
#8	0.785		1/2"	0.144
#9	1.000	SR270	3/8"	0.085
#10	1.266		7/16"	0.115
#11	1.563		1/2"	0.153

\*\* From ASTM, vol. 01.04 (Steel-Structural, Reinforcing, Pressure Vessel, Railway), section A416.

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### STEEL STRUCTURES

Prior to 1905 -  $f_y = 26,000$  psi \*\*

Between 1905 and 1936 -  $f_y = 30,000$ psi  
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Between 1936 and 1963 -  $f_y = 33,000$ psi  
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After 1963 -  $f_y = 36,000$  psi \*\*

\*\* From the AASHTO Manual for Condition Evaluation of Bridges; 1994 edition.