

CHAPTER 3 MATERIALS

3-1 General

All materials and workmanship shall be in accordance with the current NCDOT Standard Specifications and the Special Provisions.

3-2 Structural Concrete

- Class AA Concrete shall be specified for all concrete used in bridge superstructures, bridge substructures at Corrosive Sites, and approach slabs.
- Class A Concrete shall be specified for all other bridge substructures, retaining walls, Reinforced Concrete Box Culverts (RCBC) and miscellaneous structures.
- Drilled Pier Concrete shall be specified for all drilled piers.
- Class B Concrete shall be specified for all slope protection and concrete rip rap.
- Class S Concrete shall be specified for underwater footing seals.

The feasibility of using lightweight concrete shall be investigated for deck rehabilitation projects.

3-3 Reinforcing Steel

Deformed steel bar reinforcement shall conform to the requirements of AASHTO M31 for Grade 60 (AASHTO M31M for Grade 420). The allowable stresses shall be as specified in the AASHTO Standard Specifications.

3-4 Structural Steel

Structural steel, unless otherwise directed, shall conform to AASHTO M270 Grade 36 (250), 50 (345), ~~or 50W (345W)~~, or HPS 70W (HPS 485W).

3-5 Treated Timber

Treated timber is to be given the following treatment and surface finish:

**Retention of Chromated Copper Arsenate (CCA)
and Surface Finish Requirements**

	<u>lbs/ft³ (kg/m³)</u> *	Surface Finish
Bulkhead Boards	<u>0.6 (9.6)</u>	S1S1E
Slopeboards, Cornerpieces and Dead Men	<u>0.6 (9.6)</u>	Rough
Crown Strips	<u>0.6 (9.6)</u>	Detail
Joists	<u>0.6 (9.6)</u>	S1E
Joist Cleats	<u>0.6 (9.6)</u>	S2S
Flooring	<u>0.6 (9.6)</u>	S1S1E
Bracing**	<u>0.6 (9.6)</u>	Rough
Nailers	<u>0.6 (9.6)</u>	S1S
Pile Caps**	<u>0.6 (9.6)</u>	S1S
Sheet Piling	<u>0.6 (9.6)</u>	S4S
Wales and Header in Fender System	<u>2.5 (40.0)</u>	S4S
Piles		
Fresh water or land	<u>0.8 (12.8)</u>	Clean-pealed
Salt water	<u>2.5 (40.0)</u>	Clean-pealed

* Material specified above to retain 0.6 lbs/ft³ (9.6 kg/m³) of CCA preservative shall retain 2.5 lbs/ft³ (40.0 kg/m³) if it is to be utilized in salt water.

** When no other 0.6 lbs/ft³ (9.6 kg/m³) treatment is required, treat bent caps and bracings same as piles.