

Addenda to the Specification for Unbonded Single Strand Tendons, 2nd Edition

Addendum #2 March 2007

[Update your specification by changing the items identified]

Specification

2.3.2.1 Minimum Thickness

Minimum thickness of sheathing used in all environments and all applications other than ground supported post-tensioned slabs for residential and light commercial construction shall be 0.050 in. [1.25 mm] for polyethylene or polypropylene with a minimum density of 0.0341 lb/in³ [0.941 grams/cm³], or equivalent if other materials are used.

Minimum thickness of sheathing used in ground supported post-tensioned slabs for residential and light commercial construction shall be 0.040 in. [1.02 mm] for polyethylene or polypropylene with a minimum density of 0.034 lb/in³ [0.941 grams/cm³], or equivalent if other materials are used.

Commentary

C2.3.2.1 Minimum Thickness

~~*Due to the manufacturing process slight variations in the wall thickness may occur locally around the sheath perimeter. Due to the manufacturing process, slight variations in sheathing thickness may occur around the perimeter. Local reduction in sheathing thickness of up to 10% are acceptable provided an average of 4 equidistant readings along the circumference equals or exceeds the required thickness.*~~

Equivalency can be determined by testing, subject to the approval of the Engineer; which demonstrates that all requirements of Section 2.3 are satisfied by the alternate material.

Tendons using 0.025 in. sheathing were utilized for many years in all types of construction projects. After reviewing the role that sheathing plays in providing corrosion protection, sheathing thickness was increased to 0.040 in. in the mid 1990's. When this Specification was republished in 2000, the sheathing thickness for tendons used in all applications except ground supported residential and light commercial construction was increased to 0.050 in. to provide an assumed increase in the level of durability and protection (even though the durability of 0.040 in. thick sheathing appeared satisfactory). Ground supported slabs used in residential and light commercial construction are typically not subjected to severe environments, and the probability of a tendon failure due to damaged sheathing is considered low. In addition, such a failure would not pose the same life/safety concerns as the failure of tendons used in elevated structures. For these reasons, a thickness of 0.040 in. is deemed acceptable for tendons used in ground supported residential and light commercial construction.

Specification

2.4.4 Performance Criteria

P-T coating shall satisfy the requirements listed in Table I.

All P-T coating types shall be tested every five years or whenever any change is made to their chemical composition.

3.5.1.1 Cutting of Tendon Tails

Tendon tails shall not be cut until acceptance or approval of measured elongation has been given and then shall be done as soon as possible. ~~The strand length protruding beyond the wedges after cutting of the tendon tail shall be between 0.5 in. [15 mm] and 0.75 in. [20 mm].~~ The strand length protruding beyond the wedges after cutting of the tendon tail shall not be less than ½ in. [13 mm]. Minimum concrete cover to the tendon tail from the exterior edge of the concrete shall be ¾ in. [20 mm] for non-aggressive environments and 1 in. [25 mm] from the exterior edge of concrete to the encapsulating device for aggressive environments.

Commentary

C2.4.4 Performance Criteria

The corrosion tests in Table I are based on a coating thickness of 0.005 in. [0.125 mm]. The quantities of P-T coating specified in Section 2.4.3 provide a minimum coating over the crests of the strand of approximately 0.015 in. [0.40 mm].

Testing is required at five-year intervals even if no chemical changes have been made to the composition of the P-T coating since the previous test.

~~*It is recommended that all P-T coating types be tested every five years, even if no chemical changes have been made to their composition during that period.*~~

C3.5.1.1 Cutting of Tendon Tails

In aggressive environments, it is recommended that the cutting of the tendon tails be performed within one working day after approval of elongations by the Engineer. The elongation report should be submitted on the same day as the stressing operation is completed and the elongation report should be approved or rejected within 96 hours after stressing. Encapsulation caps should be installed within one working day after cutting off tendon tails. The length of tendon tails should be compatible with the requirements of the encapsulation cap manufacturer to ensure a watertight connection of the encapsulation cap.