

# Specification for Unbonded Single-Strand Tendons and Commentary

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*This specification provides specific performance criteria for materials for unbonded single strand tendons and detailed recommendations for fabrication and installation of unbonded single strand tendons. Specifications are presented for tendons in non-aggressive environments and for tendons in aggressive environments. The more restrictive material, fabrication, and construction requirements for tendons used in aggressive environments are essential to the long-term durability of tendons used in such circumstances.*

*Notes to Specifier: This specification is incorporated by reference in the project specifications using the wording in P4 of the preface and including the information from the mandatory, optional, and submittal checklists following the specification.*

*ACI Specification 423.6-01 and Commentary 423.6R-01 are presented in a side-by-side column format, with specification text placed in the left-hand column and the corresponding commentary text aligned in the right column. Commentary section numbers are preceded by the letter "R." The Commentary is not a part of this specification.*

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Reference to the Commentary shall not be made in contract documents. If items found in this document are desired by the Architect/Engineer to be a part of the contract documents, they shall be restated in mandatory language for incorporation by the Architect/Engineer.

**Keywords:** anchorage; construction joint; contractor; coupler; deicer; post-tensioning; prestress; prestressing steel; sheathing; specification; strand; unbonded tendon.

## CONTENTS

**Preface, p. 423.6/423.6R-2**

**Part 1—General, p.423.6/423.6R-3**

- 1.1—Scope
- 1.2—Definitions
- 1.3—Referenced standards
- 1.4—System description
- 1.5—Submittals
  - 1.5.1—Prestressing steel
  - 1.5.2—Anchorages and couplers
  - 1.5.3—Sheathing
  - 1.5.4—Post-tensioning coating
  - 1.5.5—Fabrication plant
  - 1.5.6—Stressing jack calibration
  - 1.5.7—Stressing records
- 1.6—Fabrication
  - 1.6.1—General
  - 1.6.2—Handling, storage, and shipping
    - 1.6.2.1—Handling
    - 1.6.2.2—Storage before shipping
    - 1.6.2.3—Shipping
- 1.7—Delivery, handling, and storage

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- 1.7.1—Delivery
- 1.7.2—Handling and storage

## **Part 2—Products, p. 423.6/423.6R-11**

- 2.1—Prestressing steel
  - 2.1.1—General
  - 2.1.2—Acceptance criteria for surface condition
  - 2.1.3—Compliance requirements
- 2.2—Anchorage and couplers
  - 2.2.1—Anchorage
    - 2.2.1.1—Static tests
    - 2.2.1.2—Fatigue tests
    - 2.2.1.3—Bearing stresses
  - 2.2.2—Castings
  - 2.2.3—Wedge-type anchorages
  - 2.2.4—Couplers
  - 2.2.5—Compliance requirements
  - 2.2.6—Anchorage and couplers in aggressive environments
- 2.3—Sheathing
  - 2.3.1—General properties
  - 2.3.2—Minimum thickness and diameter
  - 2.3.3—Manufacturing processes
  - 2.3.4—Sheathing coverage
  - 2.3.5—Aggressive environments
- 2.4—Post-tensioning coating
  - 2.4.1—General properties
  - 2.4.2—Type of coating
  - 2.4.3—Minimum quantity
  - 2.4.4—Performance criteria

## **Part 3—Execution, p. 423.6/423.6R-22**

- 3.1—General
- 3.2—Tendon installation
  - 3.2.1—General
  - 3.2.2—Stressing-end anchorages
  - 3.2.3—Intermediate anchorages
  - 3.2.4—Fixed-end anchorages
    - 3.2.4.1—Wedge-type anchorages
  - 3.2.5—Sheathing inspection and repair
- 3.3—Concrete placement

- 3.3.1—General
- 3.3.2—Placement
- 3.3.3—Protection of tendons
- 3.3.4—Sheathing repair
- 3.4—Tendon stressing
  - 3.4.1—General
  - 3.4.2—Jack calibration
  - 3.4.3—Elongation measurement
- 3.5—Tendon finishing
  - 3.5.1—General
  - 3.5.2—Aggressive environments
  - 3.5.3—Stressing pockets

**Forward to checklists, p.423.6/423.6R-28**

**Mandatory checklist, p. 423.6/423.6R-28**

**Optional checklist, p. 423.6/423.6R-28**

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**P5. Units** — The values stated in inch-pound units are to be regarded as the standard. The values in SI units given in parentheses are for information only.

# PART 1 — GENERAL

## SPECIFICATION

### 1.1 — Scope

This specification provides specific performance criteria for materials for unbonded single strand tendons and detailed recommendations for fabrication and installation of unbonded single strand tendons. Specifications are presented for tendons in non-aggressive environments and for tendons in aggressive environments.

The more restrictive material, fabrication, and construction requirements for tendons used in aggressive environments are essential to the long-term durability of tendons used in such circumstances.

## COMMENTARY

### R1.1 — Scope

The intent of this document is to provide detailed specifications for all common structural uses of unbonded post-tensioning tendons. It is not intended to apply to tendons used in ground-supported post-tensioned slabs for light residential construction. There are certain special structures or applications that either because of their service requirements or structural behavior might impose additional requirements on the post-tensioning system that exceed the minimum requirements of this specification. In such cases, a special specification should be developed.

Structures exposed to aggressive environments include all structures subjected to direct or indirect applications of deicing chemicals, seawater, brackish water, or spray from these sources; structures in the immediate vicinity of sea-coasts exposed to salt-laden air; and structures where anchorage areas are in direct contact with soil. Stressing pockets that are not maintained in a normally dry condition after construction should also be considered exposed to an aggressive environment. Nearly all enclosed buildings (office buildings, apartment buildings, warehouses, manufacturing facilities) are considered to be non-aggressive environments. The engineer should decide if the structure, or a part of the structure, is exposed to an aggressive environment. Attention should be paid to such areas as the location of stressing-end and intermediate anchors, construction joints, locations of planters, balconies and swimming pools.

The durability of prestressed structures in aggressive environments requires the use of consistently higher quality concrete, and superior construction practices than required in non-aggressive environments.

This specification is not intended to apply to nonstructural applications, which might include topping slabs, waterproofing slabs on fill, and post-tensioning used only for control of cracking or deflection. For nonflexural or membrane type structures primarily under tensile forces, the provisions, where appropriate, are intended to apply.

This specification should be considered a minimum standard and, due to experience or project considerations, may be made more restrictive by the engineer.