



Florida Department of Transportation

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GOVERNOR

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Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

September 21, 2022

Khoa Nguyen
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section: **960**
Proposed Specification: **9600201 Post – Tensioning Components.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Teddy Theryo from the Structures Design Office to update requirements for testing of post-tensioning anchorages and addressing the presence of water and moisture within ducts for tendons with flexible filler.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to daniel.strickland@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at (850) 414-4130.

Sincerely,

Signature on file

Daniel Strickland, P.E.
State Specifications Engineer

DS/ra

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

POST-TENSIONING COMPONENTS

(REV ~~97-2011~~-22)

SUBARTICLE 960-2.1 is deleted and the following substituted:

960-2.1 Anchorage Assembly:

1. Construct anchorages from ferrous metal.
2. Anchorages shall develop at least ~~95~~⁹⁶% of PT steel actual ultimate strength when tested in an unbonded state, without exceeding anticipated anchor set.
3. Average concrete bearing stress shall be in compliance with AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications.
4. Test anchorages with typical local zone reinforcement shown in system drawings.
5. Test anchorages in accordance with AASHTO LRFD Bridge Construction Specifications, or the European Assessment Document Post-Tensioning Kits for Prestressing of Structures (EAD 160004-00-0301, September 2016 Edition) with the exception that the design concrete strength used in the testing will be 6,500 psi. For anchorages that will be used for tendons with flexible filler, test anchorages in accordance with EAD 160004-00-0301 Section C.3 Resistance to Fatigue.
6. Anchorages with grout or flexible filler outlets shall be suitable for inspection from either top or front of anchorage. Anchorages may be fabricated to facilitate both inspection locations or may be two separate anchorages of the same type, each providing singular inspection entry locations.
7. Geometry of grout and flexible filler outlets must facilitate access for borescope inspection directly behind wedge plate using a straight 3/8 inch diameter drill bit.
8. Ferrous metal components of an anchorage that are to be embedded in concrete shall be galvanized in accordance with Section 962. Other anchorage assembly components, including wedges, wedge plates, and local zone reinforcement need not be galvanized.
9. All anchorages shall have a permanent vented anchorage cap bolted to the anchorage.

SUBARTICLE 960-2.2.2.1 is deleted and the following substituted:

960-2.2.2.1 Anchorage Caps:

1. Provide permanent anchorage caps made of stainless steel, nylon, polyester, or Acrylonitrile Butadiene Styrene (ABS).
2. The anchorage cap must encapsulate the entire wedge plate and be fastened directly to the anchorage bearing plate. Fastening the anchorage cap to the wedge plate is not permitted.
3. Seal Anchorage cap with “O”-ring seals or precision fitted flat gaskets placed against the bearing plate.
34. Place a vent holes of 3/8 inch minimum diameter at the top and bottom of the cap. The holes must be suitable for filler venting, draining water, and inspection of the content inside the anchorage cap from the top, bottom or front of the anchorage cap as appropriate (e.g. anchorage caps not accessible from the front after filler injection must have a vent at the top of the cap). Anchorage caps may be fabricated with top/bottom holes on

both the front face and outside perimeter the cap to facilitate ~~both~~ venting, draining and inspection locations.

5. Install the anchorage cap such that the top and bottom holes form a vertical axis oriented 90 degrees from horizontal.

46. Anchorage caps shall have a minimum pressure rating of 150 psi.

57. Stainless steel bolts shall be used to attach cap to anchorage.

68. Certified test reports documenting steel chemical analysis shall be submitted when stainless steel anchorage caps are used.

POST-TENSIONING COMPONENTS
(REV 9-20-22)

SUBARTICLE 960-2.1 is deleted and the following substituted:

960-2.1 Anchorage Assembly:

1. Construct anchorages from ferrous metal.
2. Anchorages shall develop at least 95% of PT steel actual ultimate strength when tested in an unbonded state, without exceeding anticipated anchor set.
3. Average concrete bearing stress shall be in compliance with AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications.
4. Test anchorages with typical local zone reinforcement shown in system drawings.
5. Test anchorages in accordance with AASHTO LRFD Bridge Construction Specifications, or the European Assessment Document Post-Tensioning Kits for Prestressing of Structures (EAD 160004-00-0301, September 2016 Edition) with the exception that the design concrete strength used in the testing will be 6,500 psi. For anchorages that will be used for tendons with flexible filler, test anchorages in accordance with EAD 160004-00-0301 Section C.3 Resistance to Fatigue.
6. Anchorages with grout or flexible filler outlets shall be suitable for inspection from either top or front of anchorage. Anchorages may be fabricated to facilitate both inspection locations or may be two separate anchorages of the same type, each providing singular inspection entry locations.
7. Geometry of grout and flexible filler outlets must facilitate access for borescope inspection directly behind wedge plate using a straight 3/8 inch diameter drill bit.
8. Ferrous metal components of an anchorage that are to be embedded in concrete shall be galvanized in accordance with Section 962. Other anchorage assembly components, including wedges, wedge plates, and local zone reinforcement need not be galvanized.
9. All anchorages shall have a permanent vented anchorage cap bolted to the anchorage.

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1. Provide permanent anchorage caps made of stainless steel, nylon, polyester, or Acrylonitrile Butadiene Styrene (ABS).
2. The anchorage cap must encapsulate the entire wedge plate and be fastened directly to the anchorage bearing plate. Fastening the anchorage cap to the wedge plate is not permitted.
3. Seal Anchorage cap with "O"-ring seals or precision fitted flat gaskets placed against the bearing plate.
4. Provide holes of 3/8 inch minimum diameter at the top and bottom of the cap. The holes must be suitable for filler venting, draining water, and inspection of the content inside the anchorage cap from the top, bottom or front of the anchorage cap as appropriate (e.g. anchorage caps not accessible from the front after filler injection must have a

vent at the top of the cap). Anchorage caps may be fabricated with top/bottom holes on both the front face and outside perimeter the cap to facilitate venting, draining and inspection.

5. Install the anchorage cap such that the top and bottom holes form a vertical axis oriented 90 degrees from horizontal.

6. Anchorage caps shall have a minimum pressure rating of 150 psi.

7. Stainless steel bolts shall be used to attach cap to anchorage.

8. Certified test reports documenting steel chemical analysis shall be submitted when stainless steel anchorage caps are used.