Section 8.2
Volume II

INCIDENTAL PRECAST CONCRETE PRODUCTS

8.2.1 PURPOSE

The procedure provides guidance for the development and implementation of the Quality Control (QC) Programs for the manufacture, storage, and transportation of the incidental precast concrete products (Products) for Florida Department of Transportation (Department) projects. The Products may include, but are not limited to sound barriers, retaining wall systems, temporary traffic barriers, light pole foundations, sign foundations, pull and junction boxes, and prestressed concrete poles.

8.2.2 AUTHORITY

334.044(10)(a) and 334.048(3) Florida Statutes

8.2.3 REFERENCES

Code of Federal Regulations (CFR), Federal-Aid Policy Guide (FAPG), Subchapter G – Engineering and Traffic Operations, Part 637 – Construction Inspection and Approval, Subpart B – Quality Assurance Procedures for Construction Sections

Standard Plans for Road and Bridge Construction Topic No. 625-010-003, Florida Department of Transportation (FDOT)

American Society for Testing and Materials (ASTM) Standard Test Methods and Specifications

American Association of State Highway and Transportation Officials (AASHTO), Part I Specifications, and Part II Tests

Florida Department of Transportation Specifications for Road and Bridge Construction

Approved Product List (APL), Florida Department of Transportation

Materials Acceptance and Certification system (MAC) QC Program Maintenance User Manual

8.2.4 SCOPE

This procedure is used by the Incidental Precast Concrete Products Plants (Plants). These requirements and activities pertain to the inspections, measurements, and necessary tests to substantiate materials and Products in conformity with the ***Specifications*** and ***Contract Documents***. The Plant's

QC Plan is designed to provide guidelines that are used to produce Products in conformance to the ***Specifications*** and project ***Plans***.

8.2.5 GENERAL INFORMATION

The Plants are responsible for production, inspection, storage, and shipment of the Products. The delivered Products to the project site shall meet the requirements of the ***Specifications***, ***Plans***, and other ***Contract Documents***.

8.2.6 PLANT QUALIFICATION PROCESS

8.2.6.1 General

Prepare the Plant's proposed QC Plan in accordance with ***FDOT Specifications Section 105***. Submit the proposed QC Plan to the District Materials and Research Office (DMRO) for the District in which the Plant is located. For out-of-state Plants, submit the proposed QC Plan to the nearest DMRO. Upon the Plant's submittal of a QC Plan, the DMRO will review the proposed QC Plan and make arrangements for the Plant qualification review in accordance with ***Section 8.2.6.3***.

8.2.6.2 Review of the Plant's Proposed QC Plan

In the QC Plan, include the work experience, qualifications, and responsibilities of the Plant's production and QC personnel. Identify the on-site production manager, Plant general manager, QC inspectors/technicians, and QC manager. Identify the key quality attributes in the QC Plan. Identify the responsibilities for monitoring key quality attributes and QC data. Include the applicable information required in ***FDOT Specifications Sections 105, 400, 450, 521, 534, 548, 641, 700, 715***, the ***Standard Plans*** and other ***Contract Documents***. Include a management statement of dedication to quality. Include any product-specific, cosmetic repairs in the QC Plan submittal, if applicable. All defects shall be repaired in accordance with ***FDOT Specifications Section 450*** except product-specific, cosmetic repair methods included as part of the QC Plan. Repair definitions and parameters are provided in ***FDOT Specifications Section 450***.

Complete the Incidental Precast Concrete Producer QC Plan Checklist (***Appendix B08***) and submit it along with the QC Plan, in a separate file. The checklist can be found on the State Materials Office (SMO) website:

https://www.fdot.gov/materials/quality/programs/qualitycontrol/checklists/index.shtm

When requested by the Department inspectors, Precast/Prestressed Concrete Institute (PCI) or National Precast Concrete Association (NPCA) certified Plants are required to produce the two most recent PCI or NPCA inspection reports, and the responses/corrections taken by the producer, if applicable.

Ensure that the Plant's QC Plan includes the method of compliance with Buy America provisions including:

A. Methods for tracking the placement of all quantities of non-domestic steel and iron.
B. Methods and locations for segregating non-domestic and domestic steel and iron stockpiles.
C. Methods for identifying and cataloging finished products containing non-domestic steel and iron.
D. An example delivery ticket with Buy America compliance statement and dollar amount of non-domestic steel and iron used in the finished products for each delivery.

8.2.6.3 Plant Qualification Review

The Department will perform the qualification reviews of the Plants. A qualification review includes an in-depth inspection by the Department of a Plant that submits its first QC Plan and Plants that have not produced for the Department projects for more than a year.

8.2.6.4 Maintenance of Plant QC Plan and Qualification

Upon the Department's satisfactory review of the proposed QC Plan, in compliance with ***Materials Manual Volume I, Section 5.6***, and a satisfactory Plant qualification review, the DMRO will accept the proposed QC Plan and include the Plant on the Department's ***Production Facility Listing***. Immediately notify the DMRO in writing of any changes to the QC Plan. In case of change(s), revise the QC Plan annually in the form of addenda or complete revision of the entire document. Submit the revised QC Plan or its addenda to the DMRO annually. Any revisions to an accepted QC Plan shall be submitted and accepted by the DMRO prior to the implementation of the changes.

Plants that are currently on the Department's ***Production Facility Listing*** will be subject to the Plant qualification review or routine verification inspection at any time. At a minimum, monthly verification inspections will be performed by DMRO personnel. The Plants with an acceptable QC Plan, a satisfactory Department qualification review, and continued satisfactory verification inspections are qualified Plants.

Finished Product storage areas shall provide adequate space for Department verification inspection that allows reasonable room for inspection of all surfaces. Products shall not be stored too close to adjacent Products, the ground, or in overgrown areas where inspection is not possible.

If the Plant has not produced for Department projects for three consecutive months, the verification inspection frequency will be reduced to once every three months until the Plant produces for Department projects again. The frequency will revert back to once per month immediately after the Plant reinitiates production. The QC manager is responsible to inform the DMRO when the Plant resumes production for Department projects.

8.2.6.5 Maintenance of MAC Company and Production Facility Profile

During the Plant Qualification process, a Production Facility Profile (and a Company Profile if it does not yet exist) will be created in MAC. A Plant representative is responsible for acquiring the necessary Profile Manager roles within the system and maintaining contact information for the Profile Manager and Contact Person.

The Plant representative is responsible for uploading a copy of the Plant's QC Stamp to the Documents tab of the MAC Production Facility Profile.

8.2.6.6 Photographs and Videos

Allow Department representatives to take photographs of disputed infractions occurring within the manufacture of products designated for Department use. Photographs and videos will be taken for documentation and timely resolution of possible concerns observed and disputed by the facility during Department Plant inspections.

In the event that Department inspectors observe a product or action that they feel is in violation of a ***Specifications***, ***Materials Manual*** or QC Plan requirement and before a picture is taken, the Department representative must attempt to notify the Plant's QC personnel of the existence of any infractions. No photograph or video will be taken if the infraction is immediately resolved to comply with the ***Specification*** in question.

If Plant personnel cannot be contacted or cannot respond in a timely manner that would otherwise result in a loss of photographic evidence, then a photograph or video may be taken of the specific infraction. The Plant's QC personnel may dispute the existence of the infraction, in such case the Department representative may photograph the questionable infraction. The Plant will be allowed to review and comment on all photographs, videos, and documentation within 48 hours of their receipt by hand delivery or email.

The Department will coordinate with the Plant in advance to make arrangements for photographs and videos that will be taken for educational and/or technical publications.

8.2.7 FUNCTION AND RESPONSIBILITIES OF INCIDENTAL PRECAST CONCRETE PLANTS

8.2.7.1 General

The Plants are responsible for the quality of the finished Structures. Provide facilities and qualified QC personnel to perform specified tests and maintain an acceptable quality control program in compliance with the requirements specified herein and the ***Specifications***.

8.2.7.2 Quality Control Manager

The QC manager is responsible to ensure that the quality of the products at each Plant meets the quality requirements of the ***Specifications*** and other ***Contract Documents***. The responsibilities of the QC manager include, but are not limited to the following:

A. Maintains the QC approval stamp and applies it to acceptable Products or designates a technician who is working under the direct supervision of the QC manager to apply the Plant approval stamp. The Plant approval stamp mark shall be legible and applied to each Product before its shipment to the project site. The QC stamp shall include the Department's assigned Incidental Precast Concrete (IPC) plant number.

B. Be present at all times during the production of the Products that will be shipped to Department projects. During the temporary absence of the QC manager, a delegate meeting the same qualification requirements and identified in the QC Plan, may perform the QC manager duties.

C. Performs and/or supervises the QC testing and inspection.

D. Ensures that the Plant has a sufficient number of QC technician(s)/inspector(s) to maintain adequate inspection and testing during the production of Products for Department projects. In lieu of a permanent staff, the Plant may retain the services of an engineering consulting firm or qualified laboratory meeting the requirements of ***FDOT Specifications Section 105***.

E. Ensures that testing equipment is properly maintained in accordance with the applicable test methods and ***Specifications***. Makes readily available, the current certification on testing equipment that is requiring calibration.

F. Visually inspects or ensures that a qualified QC technician inspects each Product before shipping to the project site.

G. Ensures that all materials used to manufacture Products are from a Department approved source.

H. Maintains a daily production log of the manufactured Products.

I. Ensures that all Products are properly stored and marked indelibly with Plant name, assigned plant number, Department project, date of

manufacture, and any additional information required by the ***Specifications*** and ***Contract Documents***.

J. Maintains the QC files of material certifications, test data, and inspection results.

K. Arranges monthly meetings with the Department's verification inspector and representatives of the Plant's QC and production personnel when the Plant is producing for Department projects, or according to the reduced frequency schedules to discuss any deficiencies and QC issues. Provides minutes from these meetings to the DMRO.

When the Plant's assigned QC manager discontinues his/her work without advanced notice, the Plant is required to notify the DMRO within two-working days and employ reasonable efforts to seek a replacement. During such efforts to seek a replacement, the Plant engineer, technician, or other knowledgeable person designated in the Plant's QC Plan may perform the duties of the QC manager for a period established by the District Materials and Research Engineer (DMRE). This is based on efforts employed by the Plant to seek a qualified replacement and/or by training another person leading up to the next available Department accredited training/certification programs.

8.2.7.3 Quality Control Technicians/Inspectors

The QC inspector may perform any or all of the inspections, sampling, or testing as directed by the QC manager and may stamp the Plant's approved structures, when directed by the QC manager. QC inspectors who perform sampling and testing of plastic concrete shall meet the requirements ***of FDOT Specifications Section 105***.

8.2.7.3.1 Level I Quality Control Inspector

Level I QC inspectors perform routine inspection and testing of incidental precast concrete products, including but not limited to: materials, pre-pour forms, reinforcing steel/fiber placement, concrete placement, curing, and post-placement inspections of finished products. The QC inspectors must demonstrate sufficient knowledge of the Plant's QC functions to perform their job responsibilities as defined in the QC Plan, including but not limited to shop drawings, ***Specifications***, ***Standard Plans***, and test methods.

8.2.7.3.2 Level II Quality Control Inspector

In addition to the responsibilities of level I QC inspectors, level II QC inspectors may be involved in the design and verification of concrete mixes, and may evaluate the plant's repair methods and their implementation. Level II inspectors must demonstrate understanding of all aspects of the plant's QC functions as defined in the QC Plan, including but not limited to the shop drawings, ***Specifications***, ***Standard Plans***, and test methods.

8.2.7.4 Quality Control of Certified Materials

8.2.7.4.1 General

Ensure that all materials used to manufacture Products are from Department approved sources and comply with requirements as specified herein.

8.2.7.4.2 Reinforcing Steel, Welded Wire Reinforcement and Prestressing Steel

The QC inspectors must obtain steel manufacturers' certifications for all, reinforcing steel, welded wire reinforcement (WWR), and prestressing steel that are used for the manufacture of Products. These certifications shall indicate compliance with the appropriate ***ASTM*** or ***AASHTO*** standards for wire, wire reinforcement, and for steel bars. The Department verification inspectors will obtain samples of reinforcing steel, WWR and prestressing steel from at least one LOT every six months. Reinforcing steel and welded wire reinforcement shall meet the requirements ***of FDOT Specifications Section 415***. Prestressing steel shall meet the requirements ***of FDOT Specifications Section 450***.

8.2.7.4.2.1 Source of Supply-Steel

Plants, prior to the use of non-domestic steel or iron materials on a project, must follow the following process:

A. Describe in the QC Plan the method of compliance with the Buy America provisions according to ***Section 8.2.6.2***.

B. After obtaining approval of the QC Plan, and at the beginning of each project, provide a notarized certification on the Producer's letterhead to the Engineer stating that the incidental precast concrete products will be manufactured in accordance with the requirements set forth in the ***Contract Documents***, the plant's accepted QC Plan, and ***Section 6*** (Source of Supply–Steel) of the ***FDOT Standard Specifications***.

C. Implement an accountable system that tracks the monetary value of non-domestic steel or iron used in each product.

D. In the event of Contract modifications in which the use of non-domestic steel or iron is increased, obtain prior authorization from the Engineer.

E. Each delivery ticket must include the dollar amount of non-domestic steel or iron incorporated in the delivered incidental precast products, as well as a compliance statement with Buy America provisions.

F. The stockpile of non-domestic steel or iron shall be identified and segregated from the domestic steel or iron.

G. The stockpile of product which has non-domestic steel or iron shall be identified and segregated from products containing domestic steel or iron.

The DMRO will be responsible for performing audits to verify the Producer's compliance with the Buy America provisions.

8.2.7.4.3 Fiber Reinforced Polymer (FRP) Reinforcing Bar and Prestressing Strand

FRP reinforcing bars and prestressing strand are obtained from producers on the Department's ***Fiber Reinforced Polymer Production Facility Listing***. The QC inspector must obtain the FRP manufacturers' Certificate of Analysis (COA) and notarized Material Certification for each LOT of FRP reinforcing bars and prestressing strand that are used for the manufacture of Products. Each Material Certification shall indicate compliance with ***FDOT Specifications Section 932*** and ***933,*** as appropriate, for FRP bars and prestressing strand. The Department verification inspectors will obtain samples of FRP reinforcing bars and prestressing strand for testing in accordance with ***FDOT Specifications Section 932*** and ***933***, as appropriate.

8.2.7.4.4 Patching Materials

All patching compounds shall comply with the applicable ***Specifications*** and ***Contract Documents***. Pre-mixed packaged compounds may be used, when listed on the current APL. Patch material shall be mixed, applied, and cured in accordance with the manufacturer's recommendations. All defects shall be repaired in accordance with ***FDOT Specifications Section 450*** and any product-specific, cosmetic repairs, as approved by DMRO and included in the Plant's QC Plan.

8.2.7.5 Calibration of Equipment

Calibration and verification of stressing jacks shall be in accordance with the ***FDOT Specifications Section 450***.

Check or calibrate all QC testing equipment such as the compressive strength testing machines, portable weighing scales, air meters, density buckets, and temperature recording devices for compliance with the applicable ASTM Test Methods and Specifications, and ***Materials Manual Volume I, Section 9.2***.

8.2.7.6 Quality Control of Product Manufacturing

The following are QC inspections and testing, related to operations prior to, during, and after concrete placement.

8.2.7.6.1 Concrete

Unless otherwise shown in the ***Plans*** or required by the ***Specifications***, the concrete produced for the manufacture of Products shall comply with the requirements specified in ***FDOT Specifications Section 346***. When the ***Specifications*** or drawings reference a class of concrete (Example: Class IV),

the concrete shall meet all of the requirements for ***FDOT Specifications Section 346*** and ***Materials Manual Volume II, Section 9.2***. In accordance with ***FDOT Specifications Section 346***, each day's concrete production is comprised of one or more LOTs. As an exception, bumper guards shall comply with the requirements specified in ***FDOT Specifications Section 347***.

8.2.7.6.2 Reinforcing Bar and Prestressing Strand Storage

All reinforcing bar shall be stored according to ***FDOT Specifications Section 415***. Prestressing strand shall be stored in accordance with ***FDOT Specifications Section 450***. FRP reinforcement shall also be stored in accordance with the manufacturer's instructions.

8.2.7.6.3 Concrete Forms

Provide concrete forms made of wood, metal, or other materials meeting the requirements of this Section and ***FDOT Specifications Section 400***.

Forms used in the manufacture of Products shall be sufficiently rigid and accurate to maintain the Product's designed dimensions and avoid irregularities in the Product surface. Forms not meeting governing document requirements shall be repaired or removed from service.

Ensure that the condition of all forms are of a quality to produce acceptable Products within the dimensional tolerances. The QC inspector must check cleanliness of the forms prior to each use. Check the form dimensions prior to its first use and at least annually for dimensional conformance.

8.2.7.6.3.1 Aluminum Concrete Forms

The Plant shall take the following actions when using aluminum forms for the first time:

A. In the QC Plan include information regarding the application of the protective barrier to minimize the natural reactivity between aluminum and fresh concrete. Also, include the name of the form release agent that will be used.

B. Prior its first use, perform the field demonstration of the proposed aluminum forms by casting a full-scale mockup of the precast concrete product. Demonstrate that the use of aluminum form will not cause any adverse effect in the quality of the concrete products.

C. Ensure that after stripping of the forms, the product does not show any sign of bug hole, stain, spall, surface void, and streak in concrete.

D. Ensure that the forms do not show any sign of concrete buildup and sticking on their surfaces and panel edges.

8.2.7.6.4 Reinforcing Bar and Prestressing Strand Placement

Reinforcing bar and prestressing steel placement shall meet the requirements of ***FDOT Specifications Sections 415*** and ***450, respectively***. Adhere to the additional manufacturer's instructions when placing FRP prestresssing strand. Prior to concrete placement, check the fabrication, positioning, and minimum cover requirements of steel reinforcement and prestressing steel on all manufactured Products. QC personnel must verify that the steel reinforcement meets the ***Specification*** requirements. Check the minimum steel area requirements for Products according to the applicable ***Specifications***, ***Standard Plans***, ***AASHTO*** requirements, ***ASTM*** requirements, or approved drawings.

8.2.7.6.5 Non-metallic Rebar-Fasteners

8.2.7.6.5.1 General

As an alternative to wire ties, non-metallic rebar fasteners may be used to fasten two reinforcing steel or non-metallic bars of the same or different sizes placed at 90 degrees to each other. The sizes of reinforcing bars vary from #3 to #6 bars. The use of non-metallic rebar fasteners, utilizing a four-point connection, is limited to the fastening of reinforcing bars of precast concrete drainage structures and incidental precast concrete products where no weight other than the weight of concrete is loaded onto the reinforcement.

8.2.7.6.5.2 Properties

The non-metallic rebar fasteners must be able to withstand the stresses due to fastening of steel bars, the handling of the reinforcing steel cages, and concrete placement operations without permanent deformation, slippage or breakage within a working temperature range of 20°F to 150°F. The fasteners shall not exceed the maximum allowable water absorption criteria of 0.5% at 7 days, tested in accordance with ***ASTM D570***.

8.2.7.6.5.3 Approval Process

1. Plants or manufacturers of the fasteners will send a request to demonstrate their use to the appropriate DMRO.
2. Once the request is approved by the DMRO, cast a mock-up of the product intended to be fabricated with the fasteners in lieu of wire ties.
3. Place and position the reinforcement per plan.
4. Use the non-metallic rebar fasteners to fasten the bars at their intersections to ensure no movement of the bars occurs during the placement of concrete. Record the locations of the bars within the element

and the intersections of those bars to be able to verify if any movement of the bars has occurred after casting the concrete.

5. Place the concrete in the form, providing the greatest free fall possible given the producers equipment and placement methods. Consolidate, finish, and cure the concrete.
6. Allow time for at least 80% of the design strength to develop. Cast and test cylinders to verify strength has been met.
7. Demonstrate that the bars have not moved from their original location prior to the concrete placement by saw cutting the element and verifying that the rebar intersections are still held in place by the fasteners, and the concrete cover is not compromised.
8. If the bars have not separated or pulled away from the non-metallic rebar fasteners and the bars are still at their original location, then the fasteners are considered to have served their intended purpose and the fasteners will be approved for use.

Plants must also include guidelines in their QC Plan regarding the protection and use of the fasteners. It is expected that the manufacturers of the non-metallic rebar fasteners provide potential users with sufficient information on the design and installation requirements of their fasteners to ensure proper performance. The guidelines shall also include processes to ensure that the fasteners are held securely enough so that they do not displace or deflect the reinforcing steel or interfere with smooth flow of concrete during placement and consolidation.

Plants using the non-metallic rebar fasteners must obtain manufacturer's statement of compliance with each shipment.

8.2.7.6.6 Concrete Placement Operation

The placement method shall assure dense and consistent material meeting performance requirements and meet the requirements of ***FDOT Specifications Section 400***. Include placement methods as part of the QC Plan.

8.2.7.6.7 Concrete Curing

Cure Products in accordance with the applicable curing methods in ***FDOT Specifications Sections 400 or 450, respectively***. Include curing methods as part of the QC Plan.

8.2.8 QC TESTING AND INSPECTION OF STRUCTURES

8.2.8.1 General

Perform QC inspections and tests at frequencies specified herein along with ***FDOT Specifications Section 346***.

Ensure that the Structures attain the required stripping (form removal) strength prior to stripping and handling.

Do not ship precast concrete structures to the project site prior to attainment of the required acceptance strength. The Producer is permitted to verify the shipping strength before 28 days by testing compressive strength cylinders that are cured under the conditions similar to the product or by testing temperature match cured cylinders.

For the purposes of stripping and shipping strength attainment, the strength test is the average compressive strength of two test cylinders, tested at the same age.

8.2.8.2 Acceptance of Structures

Each LOT of Products is accepted when:

A. The test results and inspections meet the requirements as specified herein and in the applicable ***Specifications***.

B. The Plant has completed all patching and repair work.

C. The QC manager or his/her designated inspector/technician has stamped the Products.

D. The list of the Products is included with each shipment to the project site.

8.2.8.3 Appearance and Inspection of Final Finished Structures

The QC manager or his/her designated QC inspector performs final inspections of all finished Products, before the application of the QC approval stamp, to ensure that the Products are free from deficiencies, and meet the specified dimensional tolerances. Products may be repaired if necessitated by occasional imperfections in the manufacture or damage during handling, and will be considered acceptable if the repairs are sound and properly finished to conform to the dimensional tolerances of the ***Specifications***. If applicable, submit any proposed cosmetic repairs for Department review and approval. Use the repair material from the Department's ***APL*** unless otherwise allowed by the ***Specifications***. Include all Department approved material and methods as part of the Plant's QC Plan. Dimensional tolerances shall comply with the applicable ***Specifications*** and ***Standard Plans***.

The QC inspectors must perform visual inspection of all finished Products, measure the dimensions of at least 20% of the randomly selected units in each LOT, and maintain a record of the inspections, including the deficiencies. Cosmetic deficiencies may be repaired in accordance with the repair methods included as part of the QC Plan. All other repairs shall be completed in accordance with ***FDOT Specifications Section 450***. The repair of major damage to a Product requires engineering evaluation meeting the requirements of ***FDOT Specifications Section 450***. The Plant must

determine the cause of the repetitive nonconformance and develop a corrective action plan. Submit the revised QC Plan to address the type of deficiencies and corrective action taken to prevent or minimize the deficiencies.

8.2.8.4 Repair of Precast Concrete Structures

The Plant's QC manager must examine and determine the magnitude of the deficiency. The QC manager may authorize the immediate repair of cosmetic and minor deficiencies in accordance with ***FDOT Specifications Section 450***, and any product-specific, cosmetic repair methods included as part of the QC Plan. Perform the repair work under the observation of the QC manager or under the observation of personnel working under his/her direct supervision. The Plant's QC personnel must document the type of deficiency and the repair method. Major repairs shall be processed in accordance with ***FDOT Specifications Section 450***.

8.2.8.5 Handling and Storage

Products shall be handled and stored to prevent damage. The QC inspectors must inspect the Product handling operations and appropriate practices that will prevent damage. The QC inspectors must monitor Products in storage to ensure that they are stored in the correct stack and are not being damaged by point loading or stacking. Describe the method of storing Products in the QC Plan. Rejected Products shall not be stored in the same area with the acceptable Products. Rejected Products shall be culled and marked as rejected.

8.2.8.6 Stamping

The Plant's QC manager or his/her designee must affix the Plant's QC stamp to each Product, indicating that the manufactured Product meets the requirements of the ***Specifications***, ***Contract Documents*** and Plant's QC Plan. The QC stamp shall include the Department assigned Incidental Precast Concrete (IPC) number. The stamp configuration shall be included in the QC Plan. The QC stamp shall be clearly applied using waterproof paint or indelible ink.

In the QC Plan include a statement that the Plant's QC stamp will be applied only on the products that are manufactured for Department projects or any other projects that require Department verification inspection.

8.2.8.7 Shipment

Ensure that at the beginning of each project, the Plant provides a notarized statement to the project administrator (PA) from a responsible company representative certifying that the Plant will manufacture the products in accordance with the requirements set forth in the ***Contract Documents*** and

Plant's approved QC Plan. The QC manager's stamp on each product indicates certification that the product was fabricated in conformance with the ***Producer's QC Plan***, ***Specifications*** and ***Contract Documents***. Ensure that each shipment of precast concrete products to the project site is accompanied with a signed or stamped delivery ticket providing the description and the list of the products.

Each delivery ticket shall include the list of products being shipped, be on the Plant's letterhead and include as a minimum the following information:

A. Project identification number
B. Date shipped
C. Cast date
D. Type of Products
E. Quantity of Products
F. Serial number
G. Buy America compliance statement and dollar amount of non-domestic steel and iron used in the finished products for each delivery.

The QC manager or QC personnel working under the direct supervision of the QC manager shall stamp each Product prior to its shipment to the project site. The Plant shall address the shipping policy as part of the QC Plan.

8.2.8.8 Documentation

The QC manager shall maintain documentation files in each Plant. Maintain these documents for a period of not less than three years after the last delivery of the Products to the project site. The QC documentation shall include the following items, as a minimum:

A. Copy of the approved QC Plan and addenda.
B. Approved shop drawings (if applicable).
C. Applicable ***ASTM*** and ***AASHTO*** Standards.
D. Applicable ***Specifications*** and ***Standards Plans***.
E. QC personnel training and qualification records.
F. Materials certification records for reinforcing steel, welded wire reinforcement, prestressing steel or any other materials that are used in the manufacturing of the Products.
G. Concrete mix designs.
H. Equipment calibration/verifications, including stressing jacks, concrete compression testing machine, laboratory scales and plastic concrete test equipment.

I. Identification number and type of Products.

J. Applicable test data.

K. Disposition of all manufactured Products.

L. Record of the delivery tickets of each shipment of the products to the job site.

M. Inspections of forms, reinforcement, concrete placement, vibration, finishing and curing (Pre-pour inspection).

N. Inspection of structures after concrete placement (Post-pour inspection).

O. Record of all structural deficiencies found as a result of QC inspection and testing or verification inspection and testing and the corrective action taken. A copy of the deficiency reports shall also be maintained in the Plant's permanent file.

P. Record of minutes from monthly meetings with Verification inspector and representatives from the Plant's QC and Production personnel.

8.2.9 TRAINING

8.2.9.1 General

The Plant's QC personnel who are involved in the inspection and testing of incidental precast concrete structures shall have the required qualifications as specified in ***FDOT Specifications Section 105***.

The SMO maintains the list of the accredited precast prestressed concrete courses. The list can be found at this link:

http://www.fdot.gov/materials/administration/resources/training/structural/index.shtm

8.2.10 FORMS

None needed.