

FLORIDA DEPARTMENT OF TRANSPORTATION
State Materials Office

**Structural Concrete
Standardized Sample
Number Lot Number
System Instructions**

July 2017

I. Sample Number / Lot Number System and Report

There is a statewide concrete sample and lot numbering system for use on all projects with structural concrete has been required to be used on all contracts. Instructions for the numbering system and an example reports are included in this document.

Specifications Section 346 defines a lot by mix design. Structural concrete samples and lots are tracked by each mix design.

The use of the concrete sample and lot numbering system and the report will provide Construction and Materials personnel with the ability to track the status of concrete sampling and testing and assist in identifying Materials Certification issues. The report, entitled Concrete Sample Number - Lot Number Report is embedded in the Materials Acceptance and Certification system (MAC) and can be used on any project, whether or not the standardized numbering system has been used on the project. The report will be most helpful on projects that utilize the numbering system, but can still provide valuable tracking information on projects where an alternate system has been used.

If you have any questions regarding the numbering system or the report, please contact in the Concrete Materials Engineer at the State Materials Office at (352) 955-6666 or the Laboratory Manager – Structural Materials in the State Materials Office at (352) 955-6667

II. Standardized Numbering System Usage Notes

- A. Project Specific Alternate Numbering Systems – The standardized numbering system will work for the majority of projects, both small and large. In rare cases, such as extremely large or complex projects where there are multiple on-going placements of the same mix design, the system may not work. For these projects, the project personnel may develop a project specific alternate system. Project personnel must contact the appropriate District Materials and Research Office Materials Certification personnel to obtain approval for a project specific alternate numbering system before concrete placement begins. For full-Federal Oversight projects, contact the State Materials Office Certification Specialist. Do not use an alternative numbering system without prior approval from the appropriate Materials Office.
- B. District Specific Alternate Numbering Systems – Some District Materials Offices may choose to revise the standardized numbering system to address district specific items. Alterations for district specific items are permitted as long as the alternate system is clearly defined and implemented before concrete placement begins and is used throughout the project. Alternate district numbering systems must take into account the grouping and sorting criteria on the Concrete Sample Number / Lot Number report.
- C. Mix Design Adjustments – Adjustments to mix design numbers already assigned in MAC will be coordinated between the District Materials Office and the State Materials Office. For example, a mix design originally submitted with a mix design number of 02-0999 may get adjusted for slip form operations. A new mix design number of 02-0999SF would be assigned to the adjusted mix design. Project personnel will number samples and lots separately under each mix design number since both mix designs numbers may be used at the same time.

III. Structural Concrete Sample / Lot Number Instructions

Sample Login

In MAC structural concrete sample levels are PC, QC, IV, VT, QR or VR. The sample login is generated based on the sample level. The sample information needed is based on sampling per source/material type versus LOT based system. Required input is structural concrete production facility and mix design, FDOT Sample Number and quantity represented.

Follow format and numbering sequences as described below:

A. QC samples:

1. Start the sample number **for each mix design** with sample number 0001 and Lot number 1. Do not drop any of the zeros as this will cause report sorting issues if QC and VT do not have the same number of zeros.
2. Continue with sequential sample and lot numbers as long as the same mix design is used.
3. Restart with sample number 0001 and lot number 1 when a new mix design number is introduced on the project.
4. If you go back to a mix design number previously used on the project, pick up the sample number where you left off. Do not start over with 0001 because there will be duplicated sample numbers on the same mix design.
5. You may repeat sample numbers across different mix designs. For example, if you are using more than one Class IV concrete mix design numbers, you will have a sample numbered CC400001Q under each mix design. But, you should not have CC400001Q more than once under a particular mix design.
6. For a higher strength mix design used in lieu of a lower strength mix design, number the samples according to the mix design. There are a couple of ways you might see this on a project:
 - a. If the same load of Class IV is used as both Class IV and in lieu of a Class II (Bridge Deck), track and number one sample for the mix design as Class IV beginning with CC40001Q. Show the sample quantity represented as the entire amount delivered. Make a note in the comments section of the project submittal form that part of the load was used as Class II (Bridge Deck), including the approximate quantity that was used for Class IV and the approximate quantity that was used for Class II (Bridge Deck).
 - b. If an entire load of Class IV mix design is used on a project in lieu of a Class II (Bridge Deck), track and number the sample for the mix design as Class IV beginning with CC40001Q. Show the sample quantity

represented as the entire amount delivered. Make a note in the comments section of the project submittal form that the load was used as Class II (Bridge Deck).

7. Show the quantity represented as the amount of cubic yards the QC sample represents, for example, 18 CY.

B. Verification samples:

1. Match the Verification sample number to the corresponding QC sample number. For example if the QC sample number is CC30003Q, the Verification sample number would be CC30003V. Remember to include all leading zeros so that QC and VT samples are sorted correctly on the Sample Number / Lot Number report.
2. Identify the Lot number as all the QC lots the Verification sample corresponds to. For example, if the Verification sample corresponds to QC lots 9, 10, 11, and 12, the Verification lot number is 9-12. The lot numbers should be consecutive. Refer to the MAC structural concrete tutorials for specific instructions for identifying the lot number field for VT samples in MAC.

C. Resolution samples – Resolution samples have their own sample level in MAC. Because the sample number will represent the Q cylinders, or the VT cylinders, use the same number as would be used for the representative Q or VT sample with an R at the end.

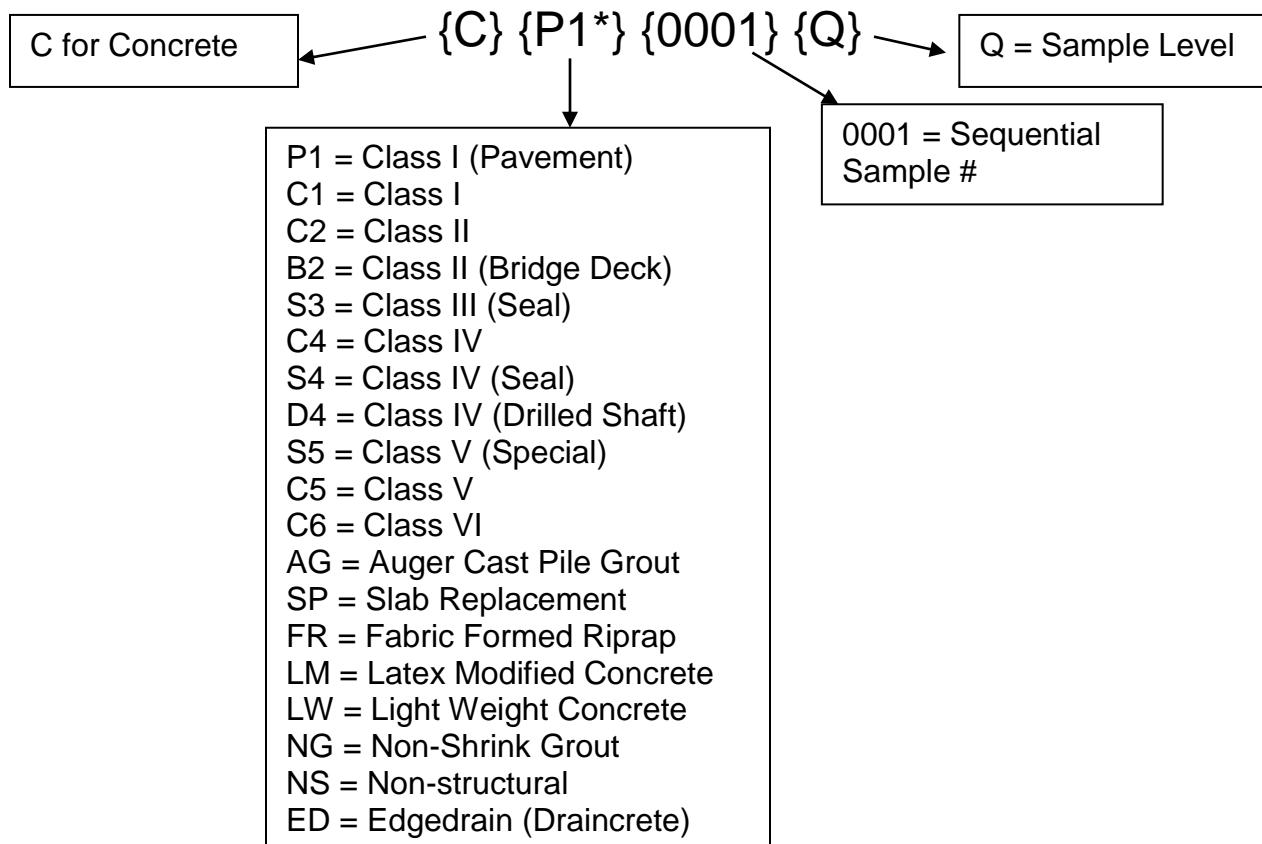
1. If the resolution sample represented the Q cylinder from CC30001Q, the resolution sample number would be CC30001QR.
2. If the resolution sample represented the VT cylinder from CD40007V, the resolution sample number would be CD40007VR.

D. Independent Verification samples:

1. Project personnel should be prepared to take an independent verification sample at any time. Reasons for the use of Independent verification may be questions or issues concerning the quality of the mix, such as slump or compressive strength.
2. Match the IV sample number to the corresponding QC sample number, when available. Should no QC sample number be available, the IV sample number shall be based on the QC lot number. For example, if you take the IV sample in conjunction with QC sample CS30002Q, the IV sample would be CS30002IV. If you take the IV sample in conjunction with the QC lot number 3, the IV sample would be CS30003IV.

3. Identify the Lot number as the QC lot the IV sample corresponds to. For example, if the IV sample corresponds to QC lot 5, the lot number would be 5.
 4. Show the quantity represented as the amount of cubic yards the QC sample represents, for example, 50 CY.
- E. Prestressed Samples –The practice for numbering prestressed samples shall be the same as in section IV except that the samples shall start with a P for prestressed. If you have questions about how prestressed samples are logged into MAC, contact the appropriate District Materials Office prestressed QC Program Coordinator.
- F. Multiple Projects on the Same Contract – QC and VT personnel should consult with the District Materials Office Project Certification personnel and agree on one of the following methods before concrete placement begins. One method must be used throughout the life of the contract.
 1. Number samples and lots for each project separately
 2. Number samples and lots on the lead Financial Project Id only
- G. Multiple Plants with the Same Mix Design on one Project – QC and VT personnel consult with the District Materials Office Project Certification personnel and should agree on one of the following methods before concrete placement begins. One method must be used throughout the life of the contract.
 1. Number samples and lots and track concrete placement for the mix design, regardless of plant number.
 2. The preferred method is to number samples and lots and track concrete placement per plant. If this is the method used, revise the sample numbers for the first plant so that the first character is a "1", for example, instead of CS30001Q, use 1S30001Q. The sample number for the second plant would be 2S30001Q. Each additional plant would be represented by the next letter or number. Use only one of these systems throughout the life of the contract so that the report will sort each plant's series of samples together. An example of this system is included on page 12.

IV. Sample Number Format Example = CP10001Q



*Number the samples according to mix design. If a higher strength mix design is used in lieu of a lower strength mix design, number the samples the mix design number, regardless of the application.

V. Sample Numbering Examples

- CC60004Q = 4th QC sample of a Class VI mix
- CB20010V = Verification sample corresponding to 10th QC sample CB20010Q of a Class II (Bridge Deck) mix design

VI. Sample Numbering Sequences – Major Classes of Concrete

CLASS OR TYPE OF CONCRETE	NUMBERING SEQUENCE
CLASS I (PAVEMENT)	CP10001Q THRU CP19999Q
CLASS I	CC10001Q THRU CC19999Q
CLASS II	CC20001Q THRU CC29999Q
CLASS II (BRIDGE DECK)	CB20001Q THRU CB29999Q
CLASS III	CC30001Q THRU CC39999Q
CLASS III (SEAL)	CS30001Q THRU CS39999Q
CLASS IV	CC40001Q THRU CC49999Q
CLASS IV (DRILLED SHAFT)	CD40001Q THRU CD49999Q
CLASS V (SPECIAL)	CS50001Q THRU CS59999Q
CLASS V	CC50001Q THRU CC59999Q
CLASS VI	CC60001Q THRU CC69999Q
NOTE: Samples from Prestressed – Class of Concrete shall begin with the alpha character “P”.	

VII. Sample Numbering Sequences – Miscellaneous Concrete Items

NOTE: Not all the applications below require a mix design number at login. For those materials, there will be a flag indicating an issue in MAC. The table below shows suggestions for numbering these materials as a standard for tracking.

CLASS OR TYPE OF CONCRETE	NUMBERING SEQUENCE
AUGER CAST PILE GROUT	CAG0001 THRU CAG9999
CONCRETE SLAB REPLACEMENT	CSP0001 THRU CSP9999
FABRIC FORMED RIPRAP	CFR0001 THRU CFR9999
LATEX MODIFIED PC CONCRETE	CLM0001 THRU CLM9999
LIGHT WEIGHT CONCRETE	CLW0001 THRU CLW9999
NON-SHRINK GROUT	CNG0001 THRU CNG9999
NON-STRUCTURAL	CNS0001 THRU CNS9999
EDGEDRAIN (DRAINCRETE)	CED0001 THRU CED9999

VIII. Concrete Sample No. – Lot No. Report

- A. Run the Concrete Sample No. - Lot No. Report to track samples and material status for structural concrete material ids.
- B. It is recommended to run the report prior to each placement or as deemed appropriate. If you have maintained spreadsheets in the past to track concrete use, you should be able to substitute this report for the tracking system spreadsheets. Generate it as often as needed to ensure the concrete placement is up to date. Some examples of how often you might want to run it are:
 - 1. Monthly on smaller projects
 - 2. Weekly on larger, more complex projects
 - 3. As requested by Materials Office Certification personnel to verify concrete tracking issues or concerns such as missing or duplicate sample numbers
- C. The report will show if:
 - 1. QC Samples are verified/not verified by design mix number
 - 2. Verification samples are not tested
 - 3. Sample/sample numbers are not entered in MAC
 - 4. If all lots are accounted for and finalized
 - 5. Duplicate sample numbers under the same design mix number

IX. Concrete Sample No. – Lot No. Report Example

Concrete Sample Number – Lot Number Report								
FDOT State Materials Office, 5007 N.E. 39th Avenue, Gainesville, FL 32609 (352) 955-6600								
Lot #	FDOT Sample #	Level	Production Facility ID	Sample ID	Date Sample Taken	Sample Status	Comparison Status	Quantity Represented
Mix Design: 01-0546-01		Category: Class II (3400 PSI) / Conventional						
Financial Project ID: 41304425201								
Material ID: 346								
6	CC20006Q	QC	01-412	1700053654	1/25/2017	Finalized	Compares	3 Cubic Yard(s)
7	CC20007Q	QC	01-412	1700066966	2/27/2017	Finalized	Compares	8 Cubic Yard(s)
6-8	CC20007V	VT	01-412	1700066828	2/27/2017	Finalized	Compares	8 Cubic Yard(s)
Mix Design: 01-0546-01SF		Category: Class II (3400 PSI) / Slip Form						
Financial Project ID: 41304425201								
Material ID: 346								
1-4	CC20001V	VT	01-412	1700080417	3/29/2017	Pending Finalization		40 Cubic Yard(s)
1	CC40001Q	QC	01-412	1700080596	3/29/2017	Pending Finalization		40 Cubic Yard(s)
Mix Design: 01-0547-01		Category: Class II Bridge Deck (4500 PSI) / Conventional						
Financial Project ID: 41304425201								
Material ID: 346								
10	CC200010Q	QC	01-412	1700066872	2/24/2017	Finalized	Compares	50 Cubic Yard(s)
11	CC200011Q	QC	01-412	1700066873	2/24/2017	Finalized	Compares	40 Cubic Yard(s)
12	CC200012Q	QC	01-412	1700066878	2/24/2017	Finalized	Compares	20 Cubic Yard(s)
13	CC200013Q	QC	01-412	1700075636	3/21/2017	Finalized	Compares	50 Cubic Yard(s)
14	CC200014Q	QC	01-412	1700075637	3/21/2017	Finalized	Compares	50 Cubic Yard(s)
1	CC20001Q	QC	01-412	1700047139	1/13/2017	Finalized	Compares	34 Cubic Yard(s)
2	CC20002Q	QC	01-412	1700052136	1/20/2017	Finalized	Compares	50 Cubic Yard(s)
3	CC20003Q	QC	01-412	1700052143	1/20/2017	Finalized	Compares	50 Cubic Yard(s)
4	CC20004Q	QC	01-412	1700052147	1/20/2017	Finalized	Compares	50 Cubic Yard(s)
14	CC20004V	VT	01-412	1700050292	1/20/2017	Finalized	Compares	50 Cubic Yard(s)
5	CC20005Q	QC	01-412	1700052152	1/20/2017	Finalized	Compares	50 Cubic Yard(s)
5-8	CC20005V	VT	01-412	1700050293	1/20/2017	Finalized	Compares	50 Cubic Yard(s)
6	CC20006Q	QC	01-412	1700053997	1/27/2017	Finalized	Compares	40 Cubic Yard(s)
7	CC20007Q	QC	01-412	1700063517	2/16/2017	Finalized	Compares	40 Cubic Yard(s)

X. Concrete Sample No. - Lot No. Report Example for Three Plants / One Mix Design Number

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Concrete Sample Number – Lot Number Report								
FDOT State Materials Office, 5007 N.E. 39th Avenue, Gainesville, FL 32609 (352) 955-6600								

XI. Sample Number / Lot Number Standardized System Frequently Asked Questions

- Q1. Do I have to use the standardized numbering system?
- A1. In most cases, yes, you must use the standardized numbering system. The exceptions are district specific altered numbering systems and project specific altered numbering systems.
- Q2. What are those?
- A2. A district specific altered numbering system is a system developed by the District Materials and Research Office (usually the District Materials Certification personnel) to help track samples according to specific use issues for that district, like slump loss assignments. The District Materials Office develops the variations from the standardized numbering system ahead of time and notifies the project personnel of what alterations to make to the standardized numbering system. A project specific altered numbering system is a system developed by the project personnel (QC and Verification working together) in conjunction with the appropriate Materials Office Certifications personnel to help track samples. This system requires pre-approval by the appropriate Materials Office Certifications personnel before concrete placement begins.
- Q3. On my project under a mix design, there are four QC samples and a VT sample, but they are not in order. Why isn't the report sorting the numbers correctly?
- A3. There are a number of reasons why the report isn't sorting correctly, but the most common one is that either QC or VT or both varied the sample numbers from the standardized numbering system. If both sets of samples don't have the same number of leading zeros, the sample with the least amount of zeros will get sorted first, no matter what the sample level is. The report groups by Mix Design Number, then project number (in case you generate the report for more than one project at a time) then material id. It sorts each group by FDOT Sample Number. If the standardized system is not adhered to, the sort will show variations by not sorting the samples in the expected order.
- Q4. Is it okay to have duplicate sample numbers? I have two "CC20001Q" sample numbers on my project.
- A4. It is okay to have the same FDOT sample numbers if they are in more than one mix design, but not under the same mix design.

- Q5. I didn't use the standardized numbering system on my project at the beginning of the project. Can I still use the Concrete Sample No. – Lot No. report?
- A5. Yes, you can. The report shows you useful information on the number of samples taken and possibly missing samples if your numbering system is sequential. Even if you are on a project not using the standardized number system, you may find the Concrete Sample Number – Lot Number report helpful in tracking the status of the concrete on your project.
- Q6. I have my own concrete numbering system and I like it. Why do I have to use the standardized numbering system? Why can't I just use my own system?
- A6. District Materials, District Construction and project personnel have requested that the State Materials Office develop a standardized numbering system for concrete samples a number of reasons. By using a standardized numbering system, reports summarizing concrete samples are easier to group and sort. When reviewing data from MAC, having a standardized system ensures that the data is sorted and grouped in a systematic manner and makes the data review easier. Many numbering systems do not take into account that samples must be tracked by mix design number, for example, numbering systems where all Class IV concrete is numbered sequentially, A40001, A40002, etc. This type of tracking system makes it difficult to determine if the frequency requirements have been met.
- Q7. So I have to follow the standardized numbering system to make other people's jobs easier?
- A7. Using a standardized system in conjunction with the Concrete Sample Number – Lot Number will make everyone's job easier. The QC manager can use it to track the status of QC samples and see in a glance if all the QC samples been entered, what the last sample number on this mix design was, if the Verification personnel have completed their data entry, and if there is a corresponding field sample for every lab sample. Verification personnel can use the report to ensure that all QC samples have corresponding Verification samples. The use of the standardized numbering system and the Concrete Sample Number- Lot Number report eliminates the need for individual spreadsheets to track project concrete sample data.

- Q8. I ran the Concrete Sample Number – Lot number report and found a mistake in my numbering. What do I do?
- A8. If the sample has been finalized, you may need to contact the District MAC Application Coordinator to have the sample returned for sample data corrections so the sample number can be revised. The person responsible for finalizing the sample should be checking the sample number (see the Structural Concrete Sample Guide list in the MAC training site) before the sample is finalized to ensure the data is correct. If it is not correct, the PA return the sample for data corrects and a Data Reviewer in the company that created the sample can revise the FDOT Sample Number before the sample is finalized. Samples that have been finalized and included in comparison packages will need the comparison packages deleted before the samples can be returned for data correction.
- Q9. The contractor has proposed to use a Class IV mix design in lieu of a Class II Bridge Deck. He will be using the same Class IV mix design for Class IV applications. How do I number the samples under the Class II Bridge Deck? Are they different from the samples where the contractor was placing the concrete as Class IV?
- A9. No, you don't use different sample numbers. Samples should be numbered and tracked according to the mix design. Make a note in the comments section of the project submittal form regarding that the sample was also used for a lower strength mix (and the approximate quantities for each).