**NOTICE**

This is a standard special provision that revises or modifies CDOT’s *Standard Specifications for Road and Bridge Construction*. It has gone through a formal review and approval process and has been issued by CDOT’s Project Development Branch with formal instructions regarding its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by the Standards and Specifications Unit of the Project Development Branch. The instructions for use on CDOT construction projects appear below.

Other agencies that use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

**Instructions for use on CDOT construction projects:**

Use this standard special provision on all projects with Portland Cement Concrete Pavement.

Sections 105 and 106 of the Standard Specifications are hereby revised for this project as follows:

Delete subsection 105.06 (g) and replace it with the following:

1. *Sand Equivalence*. The sand equivalence (SE) as determined by CP 37 will be considered acceptable when the running average of three consecutive tests is greater than 80 percent and no individual test result is less than 75 percent. When the running average of three consecutive SE tests falls below 80 percent or an individual SE test result falls below 75 percent, paving operations shall be suspended. The Contractor shall submit a written plan to correct the low SE test results to the Engineer for approval. The Contractor shall not continue paving operations until the Engineer approves the plan in writing and three SE test results from random samples in the stockpile are above 80 percent.

Delete subsection 106.06 (a) 1. D. and replace it with the following:

D. F-test and t-test Charts. If flexural strength criteria is indicated, then the results of F-test and t-test analysis between the Department’s verification tests of flexural strength and the Contractor’s process control tests of flexural strength shall be shown on charts. The F-test and t-test shall be calculated in accordance with standard statistical procedures using all verification tests and process control tests completed to date. Only results from cast beams shall be used in the F & t analysis, flexural strengths from splitting tensile correlations shall not be included in the F & t analysis. When a verification test is completed, the F- test and t-test calculations shall be redone. The area of material represented by the last test result shall correspond to the F-test and t-test. A warning value of 5 percent and an alert value of 1 percent shall be shown on each chart. The chart shall be submitted to the Engineer electronically daily, as results become available.

Delete subsections 106.06 (a) 6. and 106.06 (a) 7. and replace them with the following:

* 1. Testing Equipment. All of the testing equipment used to conduct process control testing shall conform to the standards specified in the test procedures and be in good working order. If flexural strength criteria is indicated, then the Contractor shall provide the following equipment and supplies which will not be paid for separately but shall be included in the work:
     1. A separate, temperature controlled facility of at least 300 square feet usable space. This facility shall be used exclusively for the molding, storage and testing of concrete test specimens as required. This facility shall be provided in addition to other facilities required in Section 620. The storage facility shall have sufficient water storage capacity for curing all required test specimens. The storage facility shall provide separate storage tanks for each type of required testing. Each storage tank shall have a continuously recording thermometer and sufficient blank charts for the project. Temperatures of each storage tank shall be recorded for the duration of the project.
     2. A machine for testing flexural, compressive and splitting tensile strength of concrete specimens. The machine shall have an opening size capable of housing the flexural strength apparatus, splitting tensile apparatus and compression heads. The machine shall have a square or rectangular bottom platen at least 2 inches thick. The machine shall have a minimum capacity of 300,000 lbs. The machine shall have a digital monitor capable of displaying load rate and total load. The following or an approved equal may be used:
        1. Forney model number FHS-300 with a Co-Pilot digital monitor.
        2. Humboldt model number HCM-3000 with an iD Digital Indicator.
        3. Gilson model number MC-400 with Pro Controller.
        4. Test Mark Industries CM-3000 with i720 Digital Indicator.

Both the Contractor and the Engineer will use this machine for testing concrete specimens. The machine shall meet the requirements of AASHTO T 97 and T 22. After the machine has been certified and accepted by the Engineer it shall not be moved until all portland cement concrete paving and flexural strength acceptance tests have been completed. A weekly check of the planeness of all bearing surfaces on the flexural strength apparatus shall be made and recorded in the Contractor’s PC notebook for each week that flexural strength testing occurs.

Swapping flexural strength apparatus, splitting tensile strength apparatus and compressive strength head will not require recertification of the test machine.

* + 1. Beam molds for molding all test specimens required. Beam molds shall have a cross section of approximately 6 inches by 6 inches. All beam molds shall be checked by the Contractor prior to being placed in service and monthly. The checks of each beam mold shall be recorded in the Contractor’s PC notebook. This shall include all testing described in subsection 106.06.
  1. Reporting and Record Keeping. The Contractor shall report the results of the tests to the Engineer electronically at least once per day.

The Contractor shall assemble a process control (PC) notebook and update it daily. This notebook shall contain all worksheets, test results forms, test results charts and quality level charts for each of the elements listed in Table 106-2 or 106-3. The Contractor shall submit examples of worksheets, test result forms and test results charts in accordance with CP 12B as part of the Contractor’s Process Control Plan (PCP). The Contractor shall submit the PC notebook electronically to the Engineer for review once a month on the date agreed to at the Pre-construction Conference.

A list of recognized deficiencies will be returned to the Contractor within two work days after submittal. Deficiencies may include, but are not limited to, the failure to submit the notebook on time or an absence of the required reports. For any month in which deficiencies are identified, the PC notebook will be submitted for review two weeks after the PC notebook is returned. Upon the second recognized deficiency the Engineer will notify the Contractor, and the pay estimate shall be withheld until the Contractor submits, in writing, a report detailing the cause for the recognized deficiency. The report shall include how the Contractor plans to resolve the deficiencies. Additional recognized deficiencies will result in a delay of the pay estimate until the Contractor has identified and resolved the deficiency along with revising and resubmitting his PCP to address these issues. Once the Engineer has reviewed and approved the revised PCP the estimate may be paid. Upon submittal of the PC notebook for the semi-final estimate, the PC notebook shall become the property of the Department. The Contractor shall make provisions such that the Engineer can inspect process control work in progress, including PC notebook, sampling, testing, plants, and the Contractor’s testing facilities at any time.