



December 22, 2021

MEMORANDUM: Type IL Cement Mix Design Acceptance and Trial Batching

Background:

The concrete industry is working to reduce their carbon footprint. Cement manufacturers have a large carbon footprint and are working to reduce the emissions. As a result, the cement industry is changing over to Portland Limestone Cements (Type IL) to assist with this initiative. In general, for each 1% of Limestone blended into the cement, approximately 1% of emissions is reduced.

Material Documentation Requirements (regardless of when project is LET):

- Manufacturer's Certification of Compliance (Standard Spec 501.2.1.2)
- Ensure manufacturer and cement type is on the "Portland Cement Manufacturers – Certified Suppliers" approved products list.
- Region sample of cement source submitted to BTS for testing.
- New random numbers and lots for any Type IL cement placement.

Concrete Mix Design Requirements:

(Select the option that applies to the bid item for the project. *Review all options prior to selecting.*)

A. Contract under 2022 Specification Requirements:

- Class I
 - Mix designs under a 2022 contract using Type IL cement are to perform a full mix design submittal as required in 2022 Standard Specification 710.4 & 715.2, including pertinent ASP-6. This includes trial batching and the start of new lots in construction for sampling/testing.
- Class II
 - Mix designs under a 2022 contract using Type IL cement are to conform to Standard Specification 501 & 710.4. Trial batching is not required for these mix designs. New random numbers and lots are required for Type IL cement use.

B. Contract NOT under 2022 Specification Requirements AND concrete construction has NOT started:

- Class I
 - Mix designs for contracts under 2021 or older specifications that have not started concrete construction and using Type IL cement are to perform a full mix design submittal as required in Standard Specification 710.4 & 715.2. This includes trial batching and the start of new lots in construction for sampling/testing.
- Class II
 - Mix designs for contracts under 2021 or older specifications that have not started concrete construction and using Type IL cement are to conform to Standard Specification 501 & 710.4. Trial batching is not required for these mix designs. New random numbers and lots are required for Type IL cement use.

C. Contract NOT under 2022 Specification Requirements AND concrete construction HAS started:

- Class I
 - If the concrete for the bid item is currently being placed AND the Type IL cement is under the limits of Standard Specification 501.2.1:

-Type IL portland-limestone cement; ASTM C595, except maximum limestone content is 10 percent with no individual test result exceeding 12.0 percent.

Trial batching is not required. A no cost change order is not required. New random numbers and start of new Lot/sublots are required to denote when the change of cement occurred. This situation follows the same process as if a project specific mix change is needed during a pour due to unforeseen circumstances, Standard Specification 710.4(5).

- If the concrete bid item is currently being poured AND the Type IL cement EXCEEDS the limits of Standard Specification 501.2.1. Notify Region Materials. Region Materials will provide project with process to follow.

- Class II

- If the concrete for the bid item is currently being placed AND Type IL cement is under the limits of Standard Specification 501.2.1:

Trial batching is not required. A no cost change order is not required. New random numbers and start of new Lot/sublots are required to denote when the change of cement occurred. This situation follows the same process as if a project specific mix change is needed during a pour due to unforeseen circumstances, Standard Specification 710.4(5).

- If the concrete bid item is currently being poured AND the Type IL cement EXCEEDS the limits of Standard Specification 501.2.1. Notify Region Materials. Region Materials will provide project with process to follow.