

1 **Section 6-02, Concrete Structures**

2 **January 3, 2017**

3 **6-02.3(2) Proportioning Materials**

4 In the sixth paragraph, the reference to “Section 9-01.2(4)” is revised to read “9-01.2(1)B”.

5
6 **6-02.3(2)A Contractor Mix Design**

7 The following new sentence is inserted after the first sentence of the third paragraph:

8

9 The mix design submittal shall also include test results no older than one year showing
10 that the Aggregates do not contain Deleterious Substances in accordance with Section
11 9-03.

12

13 **6-02.3(2)A1 Contractor Mix Design for Concrete Class 4000D**

14 The following new sentence is inserted after the second sentence of the last paragraph:

15

16 Mix designs using shrinkage reducing admixture shall state the specific quantity
17 required.

18

19 The following new sentence is inserted before the last sentence of the last paragraph:

20

21 Testing samples of mixes using shrinkage reducing admixture shall use the admixture
22 amount specified in the mix design submittal.

23

24 **6-02.3(2)B Commercial Concrete**

25 The last sentence of the first paragraph is revised to read:

26

27 Commercial concrete does not require mix design or source approvals for cement,
28 aggregate, and other admixtures.

29

30 **6-02.3(6)A1 Hot Weather Protection**

31 This section is revised to read:

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33 The Contractor shall provide concrete within the specified temperature limits. Cooling of
34 the coarse aggregate piles by sprinkling with water is permitted provided the moisture
35 content is monitored and the mixing water is adjusted for the free water in the
36 aggregate. Shading or cooling aggregate piles (sprinkling of fine aggregate piles with
37 water is not allowed). If sprinkling of the coarse aggregates is to be used, the piles
38 moisture content shall be monitored and the mixing water adjusted for the free water in
39 the aggregate. In addition, when removing the coarse aggregate, it shall be removed
40 from at least 1 foot above the bottom of the pile. Refrigerating mixing water; or replacing
41 all or part of the mixing water with crushed ice, provided the ice is completely melted by
42 placing time.

43

44 If air temperature exceeds 90°F, the Contractor shall use water spray or other accepted
45 methods to cool all concrete-contact surfaces to less than 90°F. These surfaces include
46 forms, reinforcing steel, steel beam flanges, and any others that touch the mix.

47

48 **6-02.3(6)A2 Cold Weather Protection**

49 This section is revised to read:

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1 Concrete shall be maintained at or above a temperature of 40°F during the first seven
2 days of the Cold Weather Protection Period and at or above a temperature of 35°F
3 during the remainder of the Cold Weather Protection Period. Cold weather protection
4 requirements do not apply to concrete placed below the ground line.

5
6 Prior to placing concrete in cold weather, the Contractor shall submit a Type 2 Working
7 Drawing with a written procedure for cold weather concreting. The procedure shall detail
8 how the Contractor will adequately cure the concrete and prevent the concrete
9 temperature from falling below the minimum temperature. Extra protection shall be
10 provided for areas especially vulnerable to freezing (such as exposed top surfaces,
11 corners and edges, thin sections, and concrete placed into steel forms). Concrete
12 placement will only be allowed if the Contractor's cold weather protection plan has been
13 accepted by the Engineer.

14
15 Prior to concrete placement, the Contractor shall review the 7-day temperature
16 predictions for the job site from the Western Region Headquarters of the National
17 Weather Service (www.wrh.noaa.gov). When temperatures below 35°F are predicted,
18 the Contractor shall:

- 19
20 1. Install temperature data loggers in each concrete pour. One data logger shall
21 be installed for every 100 yards of concrete placed. Data loggers shall be
22 installed at locations directed by the Engineer, and shall be placed 1.5 inches
23 from the face of concrete.
- 24
25 2. Immediately after concrete placement, temperature data loggers shall be
26 installed on the concrete surface at locations directed by the Engineer. One
27 data logger shall be installed for every 100 yards of concrete placed.

28
29 The data loggers shall be operated continuously during the Cold Weather Protection
30 Period. Temperatures shall be measured, recorded and stored a minimum of every 30
31 minutes. Temperature data shall be submitted to the Engineer as a Type 1 Working
32 Drawing within three days following the end of the Cold Weather Protection Period.

33
34 If the concrete temperature falls below 40°F during the first seven days of the Cold
35 Weather Protection Period, no curing time is awarded for that day and the Cold Weather
36 Protection Period is extended for one additional day. If the concrete temperature falls
37 below 35°F during Cold Weather Protection Period, the concrete may be rejected by the
38 Engineer.

39 40 **6-02.3(17)K Concrete Forms on Steel Spans**

41 In the last paragraph, "ASTM A325" is revised to read "ASTM F3125 Grade A325".

42 43 **6-02.3(17)N Removal of Falsework and Forms**

44 The fifth paragraph is deleted.

45 46 **6-02.3(25)J Horizontal Alignment**

47 The first paragraph (up until the colon) is revised to read:

48
49 The Contractor shall check and record the horizontal alignment (sweep) of each girder
50 at the following times:

51
52 The second and third paragraphs are revised to read:

1
2 Horizontal alignment of the top and bottom flanges shall be checked and recorded.
3 Alternatively, the Contractor may check and record the horizontal alignment of the web
4 near mid-height of the girder. Each check shall be made by measuring the maximum
5 offset at mid-span relative to a chord that starts and stops at the girder ends. The
6 Contractor shall check and record the alignment at a time when the girder is not
7 influenced by temporary differences in surface temperature. Records for the initial check
8 (item 1 above) shall be included in the Contractor's prestressed concrete certificate of
9 compliance. Records for all other checks shall be submitted as a Type 1 Working
10 Drawing.

11
12 Immediately after the girder is removed from the casting bed, the alignment shall not be
13 offset more than $\frac{1}{8}$ inch for each 10 feet of girder length. Any girder that exceeds an
14 offset of $\frac{1}{8}$ inch for each 10 feet of girder length shall be corrected at the job site to the
15 $\frac{1}{8}$ inch maximum offset per 10 feet of girder length before concrete is placed into the
16 diaphragms.

17
18 **6-02.3(25)O Girder to Girder Connections**

19 The first sentence of item number 2 in the second paragraph is revised to read:

20
21 Intermediate diaphragms shall be placed and weld ties shall be welded in accordance
22 with Section 6-03.3(25).

23
24 **6-02.3(26)D2 Test Block Dimensions**

25 The first sentence is revised to read:

26
27 The dimensions of the test block perpendicular to the tendon in each direction shall be
28 the smaller of twice the minimum edge distance or the minimum spacing specified by
29 the special anchorage device manufacturer, with the stipulation that the concrete cover
30 over any confining reinforcing steel or supplementary skin reinforcement shall be
31 appropriate for the project-specific application and circumstances.

32
33 **6-02.3(26)E2 Ducts for External Exposed Installation**

34 In the first paragraph, "ASTM D3350" is revised to read "ASTM D3035".

35
36 In the fourth paragraph, "ASTM D3505" is revised to read "ASTM D3035".

37
38 **6-02.3(26)G Tensioning**

39 Item number 1 of the second paragraph is revised to read:

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41 1. All concrete has reached a compressive strength of at least 4,000 psi or the
42 strength specified in the Plans. When tensioning takes place prior to 28-day
43 compressive strength testing on concrete sampled in accordance with Section 6-
44 02.3(25)H, compressive strength shall be verified on field cured cylinders in
45 accordance with the FOP for AASHTO T23.

46
47 **6-02.3(27)A Use of Self-Consolidating Concrete for Precast Units**

48 Item number 2 of the first paragraph is revised to read:

49
50 2. Precast reinforced concrete three-sided structures, box culverts and split box
51 culverts in accordance with Section 7-02.3(6).