

SUPERSEDED BY EB 15-031 EFFECTIVE 9/28/15		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 11-006								
Title: REVISIONS TO STANDARD SPECIFICATION – SECTION 502, 555 and 711-07											
Target Audience: <table border="0"> <tr> <td>☒ Manufacturers (18)</td> <td>☐ Surveyors (33)</td> </tr> <tr> <td>☒ Local Govt. (31)</td> <td>☒ Consultants (34)</td> </tr> <tr> <td>☒ Agencies (32)</td> <td>☒ Contractors (39)</td> </tr> <tr> <td></td> <td>☐ _____ ()</td> </tr> </table>		☒ Manufacturers (18)	☐ Surveyors (33)	☒ Local Govt. (31)	☒ Consultants (34)	☒ Agencies (32)	☒ Contractors (39)		☐ _____ ()	Approved: <i>Anthony J. Torre</i> 05-25-2011 Anthony Torre, P.E. Date Acting Deputy Chief Engineer, Research	
☒ Manufacturers (18)	☐ Surveyors (33)										
☒ Local Govt. (31)	☒ Consultants (34)										
☒ Agencies (32)	☒ Contractors (39)										
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ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective with projects submitted for the letting of January 12, 2012.
- No issuances are superseded.

PURPOSE: To transmit revised sections of §502 *Portland Cement Concrete Pavement* and §555 *Structural Concrete* specifications and issue a new §711-07 *Form Insulating Materials for Winter Concreting* specification, and to delete the Approved List for §711-07 **Form Insulating Materials for Winter Concreting**.

TECHNICAL INFORMATION:

- Revisions to Section §502 of the Standard Specifications include the following:
 1. References to §711-07 changed to correspond to new §711-07 title.
- Revisions to Section §555 of the Standard Specifications include the following:
 1. References to §711-07 changed to correspond to new §711-07 title.
 2. Revisions to Table 555-3 Insulation Requirements for Concrete Walls, Piers and Abutments Above Ground. Insulation requirements changed from thickness of Commercial blanket or bat insulation to thermal resistivity (R value).
 3. Deletion of references to the Department's Approved List for Insulating Materials for Winter Concreting §711-07.
- Revisions to Section §711-07 of the Standard Specifications include the following:
 1. Change of title from "Form Insulating Materials for Winter Concreting" to "Form Insulating Materials for Cold Weather Concreting".
 2. Discontinued use of an Approved List for this item.
 3. Basis of Acceptance will be changed to manufacturer's certification.

The NYSDOT Approved List for §711-07 **Form Insulating Materials for Winter Concreting** will be deleted.

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IMPLEMENTATION:

Main Office Design Quality Assurance Bureau will insert the revisions to the Standard Specifications into contract proposals beginning with projects submitted for the letting of January 12, 2012.

TRANSMITTED MATERIALS:

Revised Sections §502, §555 and §711-07 of the Standard Specifications. Both US Customary and Metric versions are attached.

BACKGROUND:

The items affected by these revisions under §502, §555 and §711-07 typically remain the property of the Contractor. Therefore, the testing and approval processes to ensure durability are significantly reduced.

CONTACT: Questions regarding these revisions can be directed to Patrick Galarza of the Materials Bureau at (518) 457-4599 or pgalarza@dot.state.ny.us.

Make the following changes to the Standard Specifications of May 1, 2008:

Page 299, Section 502 – PORTLAND CEMENT CONCRETE PAVEMENT, 502-2 MATERIALS AND EQUIPMENT, Delete: "Form Insulating Materials for Winter Concreting 711-07", and **Replace** it with "Form Insulating Materials for Cold Weather Concreting 711-07".

Page 338, Section 555 – STRUCTURAL CONCRETE, 555-2 MATERIALS, Section 555-2.01 General, Delete: "Form Insulating Materials for Winter Concreting 711-07", and **Replace** it with "Form Insulating Materials for Cold Weather Concreting 711-07".

Page 347, Delete Section 555 – STRUCTURAL CONCRETE, 555-3.08 Curing – C. Provisions for Curing in Cold Weather, and **Replace** it with the following:

" C. Provisions for Curing in Cold Weather. If the ambient air temperature falls, or is expected to fall below 45°F, the requirements of Table 555-2 shall apply.

TABLE 555-2 COLD WEATHER CURING REQUIREMENTS	
Ambient Temperature (AT) at time of concrete placement and as anticipated during curing duration	Curing requirements
32°F < AT < 45°F for less than 24 consecutive hours	Contractor proposed/Engineer approved method for maintaining temperatures used
32°F < AT < 45°F for more than 24 consecutive hours	Heated enclosure required
AT < 32°F	Heated enclosure required

Prior to use, all proposed methods must meet the approval of the Engineer. If the curing temperature falls below 32°F at any time during the curing period, the concrete will be rejected.

To provide assurance of the curing temperatures, the Contractor shall supply thermometers meeting the requirements of §555.3.08A. Temperature measurements will be taken by the Engineer and a record will be maintained for the curing period. As a minimum, thermometers shall be placed adjacent to forms at the bottom, middle, and top of a placement. Additional thermometers may be placed in areas where extreme cold or heat, from external sources, can be expected.

If the existing method employed by the Contractor to maintain the curing temperature fails, the Contractor shall modify the existing method immediately to reestablish an acceptable curing temperature.

The length of the curing period will be extended until the required number of curing days are accumulated.

- 1. General.** When approval is granted in writing by the Engineer for cold-weather concreting, the curing temperature shall be maintained between 45°F and 85°F for the curing durations stated by provision of external heat or utilization of heat of hydration retained by insulated forms. Only when temperatures are maintained between 45°F and 85°F will the time be considered acceptable curing hours.
- 2. Provision of External Heat.** If the Contractor is required, or elects, to maintain curing temperatures by this method, the Contractor shall furnish sufficient canvas and framework, or other type of housing, to enclose and protect the structure. The enclosure and heat source(s) shall be established in such a way that the air surrounding the fresh concrete, on all sides, be kept at a temperature between 45°F and 85°F for the specified curing period. At the end of the curing period, the heat shall be gradually reduced at a rate not to exceed 1 degree F per hour until the temperature within the enclosure equals the temperature

outside the enclosure. Materials and equipment necessary to erect the enclosure and provide external heat shall be present on the job site and approved by the Engineer before any concrete is placed.

External heat shall be provided by means of stoves, salamanders, heated hoses, steam equipment, warmed curing water, or other equipment supplied by, operated by the Contractor. Heating appliances shall not be placed in such a manner as to endanger formwork, centering, or expose any area of concrete to drying out or damage due to excessive temperatures. Sufficient equipment shall be supplied to continuously maintain the specified temperature with a reasonable degree of uniformity in all parts of the enclosure. The enclosures shall be properly vented to prevent surface disintegration of fresh concrete due to an accumulation of carbon dioxide gas. All exposed concrete surfaces within the heated area shall be protected from drying by one of the following methods:

- Use of live steam.
- Continuous wet burlap or wet burlap used with curing covers.
- Curing compounds used with curing covers.

TABLE 555-3 INSULATION REQUIREMENTS FOR CONCRETE WALLS, PIERS AND ABUTMENTS ABOVE GROUND				
Wall Thickness (Inches)	Minimum ambient air temperatures (°F) allowable for concrete placed at 50°F (Thermal Resistance Values (R): hr·ft ² ·F/Btu)			
	R = 2	R = 4	R = 6	R = 8
Portland Cement Content: 400 lb/cy				
6	47	44	40	36
12	43	35	26	17
18	39	25	11	-2
24	34	16	-2	-20
36	25	-1	-27	-53
48	18	-10	-38	*
60	18	-10	-38	*
Portland Cement Content: 500 lb/cy				
6	47	43	38	33
12	42	31	20	9
18	36	19	2	-15
24	30	7	-16	-39
36	18	-15	-46	-79
48	10	-25	-60	*
60	10	-25	*	*
Portland Cement Content: 600 lb/cy				
6	46	41	35	29
12	40	28	14	0
18	33	13	-7	-29
24	26	-1	-28	-55
36	12	-27	-66	*
48	4	-40	*	*
60	4	-40	*	*
Portland Cement Content: 700 lb/cy				
6	45	39	32	25
12	38	24	8	-8
18	30	7	-16	-42
24	22	-9	-41	-74
36	5	-40	-85	*

48	-4	-54	*	*
60	-4	-54	*	*
Portland Cement Content: 800 lb/cy				
6	45	38	30	22
12	37	20	2	-16
18	28	1	-26	-55
24	18	-18	-54	-91
36	-2	-54	*	*
48	-11	-68	*	*
60	-11	-68	*	*

* < - 60 °F

When using concrete containing pozzolans, do not consider the pozzolons as part of the cement content. Use values given for a Portland cement content that are equal to or less than the actual cement content of the mix, due to a lower heat of hydration when using pozzolans.

- 3. Heat Retention by Insulated Forms.** Insulated forms may be used to maintain acceptable curing temperatures in accordance with the provisions of Table 555-2, when ambient temperatures will not drop below 32°F. If the Contractor elects to maintain curing temperatures by this method, sufficient insulation shall be furnished to protect and maintain the temperature between the insulation and formwork within the range of 45°F to 85°F for the specified curing period. Discontinuance of protection shall be accomplished in such a manner that the drop in temperature of any portion of the concrete shall be gradual. The surface temperature of concrete sections more than 2 feet in thickness shall not drop faster than 18°F in a 24-hour period. The surface temperature of concrete sections less than 2 feet in thickness shall not drop faster than 36°F in a 24 hour period.
- Forms may be removed without restriction, providing the temperature difference between the air and the surface of the concrete is not more than 30°F. If possible, forms shall be removed about the middle of the day to take advantage of the generally higher afternoon temperatures.
- Form insulating material shall be installed on the forms in such a manner so as to achieve the full benefit of its insulating properties and at the same time provide against the infiltration of wind and water. All portions of steel forms shall be covered by insulating material so that no steel is exposed to the air. Any tears or damaged areas in the insulating material shall be repaired. Special attention shall be given to ensure that all corners and angles are properly insulated and protected against wind damage.
- Where tie rods extend through the form insulating material, a plywood washer ($\frac{3}{4}$ x 6 x 6 inches approx.) shall be placed over the tie rod and secured against the insulating material.
- After placement of the concrete, the exposed concrete surfaces shall be covered with insulating blankets, except for areas where protruding reinforcing bars make the use of blankets impracticable. These areas may be covered with hay or other acceptable insulating material. Tarpaulins shall be used to protect the insulating material.
- Insulating material shall be insulating blankets, solid foam, or sprayed foam meeting the requirements of §711-07, Form Insulating Materials for Cold Weather Concreting. The appropriate R value of material shall be used to insulate the concrete according to Table 555-3.
- Multiple layers of insulation may be used to attain the desired level of insulation (R value), to maintain the required curing temperatures. Extra care shall be taken in insulating edges and corners where additional layers or overlaps are required.

TABLE 555-4 MINIMUM TIME FOR FORM REMOVAL/FORMING/LOADING LIMITATIONS -SUBSTRUCTURES ⁽¹⁾			
SUBSTRUCTURE ELEMENT	STRIPPING ⁽²⁾	FORMING NEXT PLACEMENT	LOADING
All Footings	2 days	2 days	4 days before next placement
Abutment stems, backwalls	2 days if less than 10 feet (avg.). Add 1 day for each additional 5 feet to 5 days, maximum.	2 days	5 days before placing backwall on stem. 7 days before backfilling, 14 days before placing superstructure loads. ⁽³⁾
Pier Columns, Pier Plinths	2 days if less than 10 feet high (avg.). Add 1 day for each additional 5 feet.	4 days – columns 2 days if forming pedestal	Columns – 7 days before placing cap beam. Plinth- 2 days before pedestal placement. 21 days before placing superstructure loads. ⁽³⁾
Pier cap beams	8 days (bottom) 3 days (sides)	2 days	5 days before pedestal placement. 21 days before placing superstructure loads. ⁽³⁾
All pedestals	2 days	—	7 days (class A) 3 days (class F) ⁽⁴⁾
Wingwalls or Retaining walls	Same as abutment stems.	—	14 days before backfilling ⁽³⁾
Arch centers Centering under beams	8 days	—	14 day ⁽³⁾

Notes:

1 The minimum times for loading in this table are NOT applicable when using concrete that contains fly ash or ground, granulated blast furnace slag that is placed and/or cured when ambient temperatures are 60°F or less. The provisions in Note 3 are required for casting, curing, and testing of compressive strength cylinders for concrete that contains fly ash or ground, granulated blast furnace slag that is placed and/or cured when the ambient temperature is 60°F or less. The compressive strength results will be the basis of determining when loading can occur.

2 All concrete shall be cured for a minimum of seven curing days. A "Day" is a curing day as defined in Subsection 555-3.08A. Concrete surfaces being cured using forms, covers, or blankets from which the covers are removed for any purpose prior to the full cure period shall be sprayed with an approved clear (fugitive dye) curing compound within ten minutes of cover removal.

3 When early loading is requested, the minimum time requirements for loading may be reduced (or extended) based on test cylinder compressive strength results. The DCES will establish requirements for early loading upon request. The Contractor shall notify the Engineer, in writing, at least 10 days prior to placement, that early loading is being requested, so that arrangements for test cylinders can be made. Test cylinders shall be prepared in accordance with Materials Method 9.2 – Field Inspection of Portland Cement Concrete. Two test cylinders shall be prepared for each anticipated testing period. These cylinders shall be cured in the same manner as the substructure element which they represent. After the first compression test, the Engineer shall determine subsequent testing periods based on the results of the first test. No more than three tests for each substructure element shall be allowed.

4 Minimum time for loading pedestals shall not compromise minimum loading times specified for other placements. "

Make the following changes to the Standard Specifications of May 1, 2008.

Page 872, Delete Section 711-07 FORM INSULATING MATERIALS FOR WINTER CONCRETING, in its entirety and **Replace** it with the following:

"711-07 FORM INSULATING MATERIALS FOR COLD WEATHER CONCRETING

SCOPE. This specification covers the material requirements for form insulating materials used for cold weather concreting operations.

GENERAL. Insulating materials shall be:

- Impervious to moisture penetration and absorption
- Uniform in thickness
- Durable
- Easy to apply
- Capable of maintaining consistent concrete temperature
- Be in good condition with no ragged or open edges, cracks or holes

MATERIAL REQUIREMENTS.

Insulation Blankets: Shall be clearly labeled with the manufacturer's name and the material's thermal resistivity (R value).

Foam Boards: Boards must be made of Expanded Polystyrene and shall be clearly labeled with the manufacturer's name and the material's thermal resistivity (R value).

Sprayed Foam: This product must meet the requirements of ASTM C1029.

BASIS OF ACCEPTANCE. The Contractor shall provide a material certification from the manufacturer that the insulating material meets the requirements of this specification and that the product R value is the same as labeled on the product. "

Make the following changes to the Standard Specifications of May 4, 2006.

Page 295, Section 502 – PORTLAND CEMENT CONCRETE PAVEMENT, 502-2 MATERIALS AND EQUIPMENT, **Delete**: “Form Insulating Materials for Winter Concreting”, and **Replace** it with “Form Insulating Materials for Cold Weather Concreting”.

Page 334, Section 555 – STRUCTURAL CONCRETE, 555-2 MATERIALS, Section 555-2.01 General, **Delete**: “Form Insulating Materials for Winter Concreting”, and **Replace** it with “Form Insulating Materials for Cold Weather Concreting”.

Page 343, **Delete** Section 555 – STRUCTURAL CONCRETE, 555-3.08 Curing – C. Provisions for Curing in Cold Weather, and **Replace** it with the following:

“C. Provisions for Curing in Cold Weather. If the ambient air temperature falls, or is expected to fall below 7°C, the requirements of Table 555-2 shall apply.

TABLE 555-2 COLD WEATHER CURING REQUIREMENTS	
Ambient Temperature (AT) at time of concrete placement and as anticipated during curing duration	Curing requirements
0°C < AT < 7°C for less than 24 consecutive hours	Contractor proposed/Engineer approved method for maintaining temperatures used
0°C < AT < 7°C for more than 24 consecutive hours	Heated enclosure required
AT < 0°C	Heated enclosure required

Prior to use, all proposed methods must meet the approval of the Engineer. If the curing temperature falls below 0°C at any time during the curing period, the concrete will be rejected.

To provide assurance of the curing temperatures, the Contractor shall supply thermometers meeting the requirements of §555.3.08A. Temperature measurements will be taken by the Engineer and a record will be maintained for the curing period. As a minimum, thermometers shall be placed adjacent to forms at the bottom, middle, and top of a placement. Additional thermometers may be placed in areas where extreme cold or heat, from external sources, can be expected.

If the existing method employed by the Contractor to maintain the curing temperature fails, the Contractor shall modify the existing method immediately to reestablish an acceptable curing temperature.

The length of the curing period will be extended until the required number of curing days are accumulated.

- 1. General.** When approval is granted in writing by the Engineer for cold-weather concreting, the curing temperature shall be maintained between 7°C and 30°C for the curing durations stated by provision of external heat or utilization of heat of hydration retained by insulated forms. Only when temperatures are maintained between 7°C and 30°C will the time be considered acceptable curing hours.
- 2. Provision of External Heat.** If the Contractor is required, or elects, to maintain curing temperatures by this method, the Contractor shall furnish sufficient canvas and framework, or other type of housing, to enclose and protect the structure. The enclosure and heat source(s) shall be established in such a way that the air surrounding the fresh concrete, on all sides, be kept at a

temperature between 7°C and 30°C for the specified curing period. At the end of the curing period, the heat shall be gradually reduced at a rate not to exceed 0.5 degree C per hour until the temperature within the enclosure equals the temperature outside the enclosure. Materials and equipment necessary to erect the enclosure and provide external heat shall be present on the job site and approved by the Engineer before any concrete is placed.

External heat shall be provided by means of stoves, salamanders, heated hoses, steam equipment, warmed curing water, or other equipment supplied by, operated by the Contractor. Heating appliances shall not be placed in such a manner as to endanger formwork, centering, or expose any area of concrete to drying out or damage due to excessive temperatures. Sufficient equipment shall be supplied to continuously maintain the specified temperature with a reasonable degree of uniformity in all parts of the enclosure. The enclosures shall be properly vented to prevent surface disintegration of fresh concrete due to an accumulation of carbon dioxide gas. All exposed concrete surfaces within the heated area shall be protected from drying by one of the following methods:

- Use of live steam.
- Continuous wet burlap or wet burlap used with curing covers.
- Curing compounds used with curing covers.

TABLE 555-3 INSULATION REQUIREMENTS FOR CONCRETE WALLS, PIERS AND ABUTMENTS ABOVE GROUND				
Wall Thickness (meters)	Minimum ambient air temperatures (°C) allowable for concrete placed at 10°C (Thermal Resistance Values (R): m ² ·K/W)			
	R = 0.35	R = 0.70	R = 1.06	R = 1.41
Portland Cement Content: 237 kg/m ³				
0.15	8	7	4	2
0.30	6	2	-3	-8
0.46	4	-4	-12	-19
0.61	1	-8	-19	-29
0.91	-4	-18	-31	-47
1.2	-8	-23	-39	*
1.5	-8	-23	-39	*
Portland Cement Content: 296 kg/m ³				
0.15	8	6	3	1
0.30	6	-1	-7	-13
0.46	2	-7	-17	-26
0.61	-1	-14	-27	-39
0.91	-8	-26	-43	-62
1.2	-12	-32	-51	*
1.5	-12	-32	*	*
Portland Cement Content: 356 kg/m ³				
0.15	8	5	2	-2
0.30	4	-2	-10	-18
0.46	1	-11	-22	-34
0.61	-3	-18	-33	-48
0.91	-11	-31	-54	*
1.2	-16	-40	*	*
1.5	-16	-40	*	*
Portland Cement Content: 415 kg/m ³				
0.15	7	4	0	-4
0.30	3	-4	-13	-22
0.46	-1	-14	-27	-41

0.61	-6	-23	-41	-59
0.91	-15	-40	-65	*
1.2	-20	-48	*	*
1.5	-20	-48	*	*
Portland Cement Content: 475 kg/m ³				
0.15	7	3	-1	-6
0.30	3	-7	-17	-27
0.46	-2	-17	-32	-48
0.61	-8	-28	-48	-68
0.91	-19	-48	*	*
1.2	-24	-56	*	*
1.5	-24	-56	*	*
* < - 51 °C				
When using concrete containing pozzolans, do not consider the pozzolons as part of the cement content. Use values given for a Portland cement content that are equal to or less than the actual cement content of the mix, due to a lower heat of hydration when using pozzolans.				

- 3. Heat Retention by Insulated Forms.** Insulated forms may be used to maintain acceptable curing temperatures in accordance with the provisions of Table 555-2, when ambient temperatures will not drop below 0°C. If the Contractor elects to maintain curing temperatures by this method, sufficient insulation shall be furnished to protect and maintain the temperature between the insulation and formwork within the range of 7°C to 30°C for the specified curing period. Discontinuance of protection shall be accomplished in such a manner that the drop in temperature of any portion of the concrete shall be gradual. The surface temperature of concrete sections more than 600 mm in thickness shall not drop faster than 10°C in a 24-hour period. The surface temperature of concrete sections less than 600 mm in thickness shall not drop faster than 20°C in a 24 hour period. Forms may be removed without restriction, providing the temperature difference between the air and the surface of the concrete is not more than 15°C. If possible, forms shall be removed about the middle of the day to take advantage of the generally higher afternoon temperatures. Form insulating material shall be installed on the forms in such a manner so as to achieve the full benefit of its insulating properties and at the same time provide against the infiltration of wind and water. All portions of steel forms shall be covered by insulating material so that no steel is exposed to the air. Any tears or damaged areas in the insulating material shall be repaired. Special attention shall be given to ensure that all corners and angles are properly insulated and protected against wind damage.
- Where tie rods extend through the form insulating material, a plywood washer (20 mm X 150 mm X 150 mm approx.) shall be placed over the tie rod and secured against the insulating material. After placement of the concrete, the exposed concrete surfaces shall be covered with insulating blankets, except for areas where protruding reinforcing bars make the use of blankets impracticable. These areas may be covered with hay or other acceptable insulating material. Tarpaulins shall be used to protect the insulating material.
- Insulating material shall be insulating blankets, solid foam, or sprayed foam meeting the requirements of §711-07, Form Insulating Materials for Cold Weather Concreting. The appropriate R value of material shall be used to insulate the concrete according to Table 555-3. Multiple layers of insulation may be used to attain the desired level of insulation (R value), to maintain the required curing temperatures. Extra care shall be taken in insulating edges and corners where additional layers or overlaps are required.

TABLE 555-4 MINIMUM TIME FOR FORM REMOVAL/FORMING/LOADING LIMITATIONS -SUBSTRUCTURES ⁽¹⁾			
SUBSTRUCTURE ELEMENT	STRIPPING ⁽²⁾	FORMING NEXT PLACEMENT	LOADING
All Footings	2 days	2 days	4 days before next placement
Abutment stems, backwalls	2 days if less than 3.0 m (avg.). Add 1 day for each additional 1.5 m to 5 days, maximum.	2 days	5 days before placing backwall on stem. 7 days before backfilling, 14 days before placing superstructure loads. ⁽³⁾
Pier Columns, Pier Plinths	2 days if less than 3.0 m high (avg.). Add 1 day for each additional 1.5 m.	4 days - columns 2 days if forming pedestal	Columns - 7 days before placing cap beam. Plinth- 2 days before pedestal placement. 21 days before placing superstructure loads. ⁽³⁾
Pier cap beams	8 days (bottom) 3 days (sides)	2 days	5 days before pedestal placement. 21 days before placing superstructure loads. ⁽³⁾
All pedestals	2 days	—	7 days (class A) 3 days (class F) ⁽⁴⁾
Wingwalls or Retaining walls	Same as abutment stems.	—	14 days before backfilling ⁽³⁾
Arch centers Centering under beams	8 days	—	14 day ⁽³⁾

NOTES:

1 The minimum times for loading in this table are NOT applicable when using concrete that contains fly ash or ground, granulated blast furnace slag that is placed and/or cured when ambient temperatures are 16°C or less. The provisions in Note 3 are required for casting, curing, and testing of compressive strength cylinders for concrete that contains fly ash or ground, granulated blast furnace slag that is placed and/or cured when the ambient temperature is 16°C or less. The compressive strength results will be the basis of determining when loading can occur.

2 All concrete shall be cured for a minimum of seven curing days. A "Day" is a curing day as defined in Subsection 555-3.08A. Concrete surfaces being cured using forms, covers, or blankets from which the covers are removed for any purpose prior to the full cure period shall be sprayed with an approved clear (fugitive dye) curing compound within ten minutes of cover removal.

3 When early loading is requested, the minimum time requirements for loading may be reduced (or extended) based on test cylinder compressive strength results. The DCES will establish requirements for early loading upon request. The Contractor shall notify the Engineer, in writing, at least 10 days prior to placement, that early loading is being requested, so that arrangements for test cylinders can be made. Test cylinders shall be prepared in accordance with Materials Method 9.2 - Field Inspection of Portland Cement Concrete. Two test cylinders shall be prepared for each anticipated testing period. These cylinders shall be cured in the same manner as the substructure element which they represent. After the first compression test, the Engineer shall determine subsequent testing periods based on the results of the first test. No more than three tests for each substructure element shall be allowed.

4 Minimum time for loading pedestals shall not compromise minimum loading times specified for other placements. "

Make the following changes to the Standard Specifications of May 4, 2006.

Page 831, Delete Section 711-07 FORM INSULATING MATERIALS FOR WINTER CONCRETING, in its entirety and **Replace** it with the following:

"711-07 FORM INSULATING MATERIALS FOR WINTER CONCRETING

SCOPE. This specification covers the material requirements for form insulating materials used for cold weather concreting operations.

GENERAL. Insulating materials shall be:

- Impervious to moisture penetration and absorption.
- Uniform in thickness
- Durable
- Easy to apply
- Capable of maintaining consistent concrete temperature
- Be in good condition with no ragged or open edges, cracks or holes

MATERIAL REQUIREMENTS.

Insulation Blankets: Shall be clearly labeled with the manufacturer's name and the material's thermal resistivity (R value).

Foam Boards: Boards must be made of Expanded Polystyrene and shall be clearly labeled with the manufacturer's name and the material's thermal resistivity (R value).

Sprayed Foam: This product must meet the requirements of ASTM C1029.

BASIS OF ACCEPTANCE. The Contractor shall provide a material certification from the manufacturer that the insulating material meets the requirements of this specification and that the product R value is the same as labeled on the product."