Iowa Department of Transportation

MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

September 8, 2005

Members Present:	John Adam	Statewide Operations Bureau
	Tom Reis, Chair	Specifications Section
	Daniel Harness, Secretary	Specifications Section
	Bruce Kuehl	District 6-Dist. Const. Engineer
	Gary Novey	Office of Bridges & Structures
	John Smythe	Office of Construction
	Roger Bierbaum	Office of Contracts
	Larry Jesse	Office of Local Systems
	Jim Berger	Office of Materials
	Troy Jerman	Office of Traffic & Safety
	Doug McDonald	District 1 - Marshalltown RCE Office
Members Not Present:	Keith Norris	District 2-Dist. Mat. Engineer
	Mike Kennerly	Office of Design
Advisory Members Present:	Lisa Rold	FHWA
	Joel Fantz	Palo Alto County
Advisory Members Not Present:	Jim Rost	Office of Location & Environment
	Larry Stevens	SUDAS
Others Present:	Mark Bortle	Office of Construction
	Kevin Jones	Office of Materials
	Chris Poole	Office of Design
	Dan Sprengeler	Office of Traffic & Safety

Tom Reis, Specifications Engineer, opened the meeting. The following items were discussed in accordance with the September 2, 2005 agenda, with addition of Items 7 and 8:

1. Article 2407.12, Precast Prestressed Units (Tolerances).

The Office of Materials requested a change to Article 2407.12 that is intended to eliminate potential confusion concerning the length requirements for precast prestressed units.

2. Article 2525.07, Method of Measurement and Basis of Payment (Traffic Signalization).

The Office of Contracts requested changes to Article 2525.07 that will clarify how the removal of existing traffic signals is to be measured and paid.

3. Section 2528, Traffic Control.

The Office of Construction requested several changes to Section 2528 that will ensure the specifications match recent changes to the MUTCD.

4. Article 2528.10, Flaggers (Traffic Control).

The Office of Construction requested changes to Article 2528.10 that will clarify nighttime flagging requirements and how they are to be paid.

5. Article 4101.01, General Requirements (Portland Cement).

The Office of Materials requested several changes to Article 4101.01 that will introduce a limit on the alkali content as an equivalent to sodium oxide and will also allow the use of Type I cement in pavements and structures on Interstate and Primary projects.

6. Article 4117, Cement Requirements Class V Aggregate for Concrete).

The Office of Materials requested several changes to Article 4117.05 that will expand the types of cements that can be used with Class V aggregates.

7. Fuel Adjustment.

The Office of Contracts requested the Committee discuss the issue of allowing contractors to opt out of fuel adjustments.

8. Specifications Rewrite.

The Specifications Section informed the Committee that two divisions of the Specifications have been converted to the imperative mood.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 1**
Submittal Date: August 25, 2005	**Proposed Effective Date:** April, 2006	
Article No.: 2407.12, B **Title:** Precast Prestressed Units (Tolerances)	**Other:**	

Specification Committee Action:

Deferred:	**Not Approved:**	**Approved Date:** 9/8/05	**Effective Date:** 4/18/06

Specification Committee Approved Text:

2407.12, B, **Precast Prestressed Units.**

Replace the first entry in the table.

Length:	±1/4" per 25' or ±1" max. for beams 100' or longer (±6 mm per 8 m or ±25 mm max. for beams 30 m or longer)

Comments: There was some concern expressed by committee members that the intent of the text wasn't clear. The Office of Contracts suggested "±1/4" per 25' or ±1" max. for beams 100' or longer." The committee agreed to this language.

Specification Section Recommended Text:

2407.12, B, **Precast Prestressed Units.**

Replace the first entry in the table.

Length:	±1/4" per 25' or ±1" ~~max.~~ (±6 mm per 8 m or ±25 mm ~~max.~~)

Comments:

Member's Requested Change (Redline/Strikeout):

Length:	±1/4" per 25' or ±1" ~~max.~~ (±6 mm per 8 m or ±25 mm ~~max.~~)

Reason for Revision:

Remove confusion. Producers could read the current specifications as having a maximum of 1 inch on all beams.

County or City Input Needed (X one)			**Yes**	**No** X	
Comments:					
Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: Requested by the District Materials Engineers.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Roger Bierbaum	**Office:** Contracts	**Item 2**
Submittal Date: July 25, 2005	**Proposed Effective Date:** April 2006 GS	
Article No.: 2525.07 **Title:** Method of Measurement and Basis of Payment (Traffic Signalization)	**Other:**	

Specification Committee Action:

Deferred:	**Not Approved:**	**Approved Date:** 9/8/05	**Effective Date:** 4/18/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The Office of Construction asked if ever there would be a situation when underground wire, cable, and conduit would not be left in place. The Office of Contracts stated that it would be noted in the plans that it would be included in the Removal of Traffic Signalization. The Office of Construction also asked if a new bid item would be created. The Office of Contracts noted that a bid item already exists. District 6 Construction asked what to do in the interim. The Office of Contacts noted they would examine plan notes more carefully to verify that it is clear what is included in traffic signalization. They also noted that if an item is included for removal, they will examine it closely to see what is included.

Specification Section Recommended Text:

2525.07 Method of Measurement and Basis of Payment.

Replace the second and third sentences of the first paragraph:

Payment will be made at the lump sum contract ~~unit~~ price ~~for traffic signalization. The Contractor will be paid the contract lump sum price~~ for Traffic Signalization.

Replace the second paragraph:

~~No direct payment will be made for any incidental materials or work required to complete the traffic signal installation unless specifically provided for in the contract documents. Any other incidental work or materials for which no basis of payment is specifically provided will be considered incidental to the cost of the traffic signal system.~~

Removal of the existing traffic signal installation will be paid for at the lump sum price for Removal of Traffic Signalization. The lump sum price for Removal of Traffic Signalization will be full payment for the removal of all traffic signal poles, signal pole footings, overhead wires, handholes, and controllers. Removal of underground wire, cable, and conduit will not be required.

Comments:

Member's Requested Change (Redline/Strikeout):

2525.07 METHOD OF MEASUREMENT AND BASIS OF PAYMENT.
Plan quantities are for estimating purposes only, and these quantities will not be paid for separately. Payment will be made at the lump sum contract unit price ~~for traffic signalization. The Contractor will be paid the contract lump sum price~~ for Traffic Signalization.

~~No direct payment will be made for any incidental materials or work required to complete the traffic signal installation unless specifically provided for in the contract documents. Any other incidental work or materials for which no basis of payment is specifically provided will be considered incidental to the cost of the traffic signal system.~~

Also add the following at the end of 2525.07:

Removal of the existing traffic signal installation will be paid for with the lump sum price for "Removal of Traffic Signalization". The lump sum price for Removal of Traffic Signalization will be full payment for the removal of all traffic signal poles, signal pole footings, overhead wires, handholes and controllers. Removal of underground wire, cable, and conduit will not be required.

Reason for Revision:

There was disagreement on a project being bid if the removal of the existing traffic signal was incidental or to be paid for as extra work. The designer claimed ***anything*** needed to make the new signal work was incidental, even the removal of the existing signal which interfered with the new signal. However Article 1104.06 clearly states the removal of any existing structure will be paid for as extra work unless specific payment is listed in the contract. Therefore a bid item should be used when removal of the existing traffic signal is required.

Two sentences in the first two paragraphs are also being removed. The last two sentences in the first paragraph are duplicates. The second paragraph should be removed. It is too broad by making "any other work or materials incidental". A recent plan made removal and replacement of a sidewalk incidental, because it had to be removed and replaced to install the traffic signal.

County or City Input Needed (X one)	**Yes**	**No** X
Comments: Change is being requested because cities aren't interpreting this article the same		

Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments: Change was based on industry complaints					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe	**Office:** Construction	**Item 3**
Submittal Date: September 1, 2005	**Proposed Effective Date:** April 18, 2006	
Article No.: 2528.01 **Title:** Description **Article No.:** 2528.10 **Title:** Flaggers **Article No.:** 2528.11 **Title:** Limitations	**Other:**	

Specification Committee Action:

Deferred: X	**Not Approved:**	**Approved Date:**	**Effective Date:**

Specification Committee Approved Text:

Comments: The Office of Construction wants the specifications to be current with the new MUTCD. They would like the Specifications to reference the new MUTCD requirements. They also want to remove general specifications for workers. They feel this is a contractor issue – contractors should have a safety program for employees, and that is how high visibility apparel should be handled. They feel the DOT shouldn't be the enforcer of worker apparel.

The Office of Traffic and Safety asked if high visibility apparel would be required at night. The Office of Construction noted that in the new MUTCD, this is a "should" condition, but that currently the DOT requires it. Traffic and Safety is concerned with interruption of traffic flow if workers near open lanes of traffic are not wearing high visibility apparel and drivers can't see them. They also expressed concern with eliminating the SLOW/SLOW sign if high visibility apparel isn't required. District 6 Construction noted the same concern. The Office of Construction explained that they took a poll of other states and found that most make high visibility apparel at night a "shall" condition. They also noted there may be more guidance in the Highway bill.

The Office of Construction suggested withdrawing changes for now, reviewing further, and submitting for either the October or November meeting. The Committee agreed.

Specification Section Recommended Text:

2528.01 Description.

Delete the third sentence of the eighth paragraph:

> Gender specific signs, such as FLAGMAN and MEN WORKING, will not be allowed. The signs shall either be neutral gender, as FLAGGER, or equivalent symbol signs. ~~Control of traffic through work areas with flaggers shall also conform with the Iowa Flagger's Handbook, available from the Engineer.~~

2528.10 Flaggers.

Replace the fourth and fifth paragraphs:

~~Except in an emergency, flaggers shall use signs as specified in the current edition of the MUTCD, Part VI, except the signs shall be as least 24 inches (600 mm) wide. The sign shall be mounted on a staff with a clear distance of 6 feet (1.8 m) above the road surface.~~

~~To be visible to traffic while flagging, the flagger shall wear a soft cap or a hard hat and a vest, shirt, or jacket. The colors of these articles of dress shall be orange or strong yellow-green, or fluorescent versions of these colors. Combinations of these colors are acceptable.~~

Flagger operations, flagger equipment, and flagger apparel shall conform to the Iowa DOT Flagger's Handbook.

2528.11 Limitations.

Replace the fourth and fifth paragraphs:

~~During daylight hours, workers exposed to traffic in or adjacent to traffic lanes, should wear a vest, shirt, or jacket equal to that required for flaggers according to Article 2528.10.~~

~~At night, workers shall wear clothing that is similar in color to that required for flaggers and is retroreflective to be highly visible to drivers. The retroreflective clothing shall be designed to identify clearly the wearer as a person and shall be visible through the full ranges of body actions.~~

Worker apparel shall conform to Part VI of the MUTCD.

Comments: Coordination will be needed for the release of the Flagger Manual with the GS.

Member's Requested Change: (DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)

2528.01 DESCRIPTION, delete the last sentence of paragraph 8

Gender specific signs, such as FLAGMAN and MEN WORKING, will not be allowed. The signs shall either be neutral gender, as FLAGGER, or equivalent symbol signs. ~~Control of traffic through work areas with flaggers shall also conform with the Iowa Flagger's Handbook, available from the Engineer.~~

2528.10 FLAGGERS, delete paragraphs 4 and 5 and add a new paragraph 4
The flaggers shall be trained about safe flagging operations that comply with Iowa DOT Flaggers Handbook, Part VI of the MUTCD, and the Standard Specifications prior to flagging operations. Training of flaggers shall include the following:

1. Issue and review the current Iowa DOT Flaggers Handbook,
2. Presentation of the current Iowa Professional Flagging Video,
3. Issue flagger training card, which shall include the following:

- Employee name,
- Date of training,
- Name of Instructor,
- Expiration date of December 31 of the year following the training date.

The flaggers shall carry their flagger training card at all times and show it upon request.

4. Contractor shall maintain a list of the flaggers trained and the date of the training.

Training shall not be required for short time, emergency, or relief assignment of employees to flagging operations. Payment will not be made in accordance with Article 2528.12, A, 7.

~~Except in an emergency, flaggers shall use signs as specified in the current edition of the MUTCD, Part VI, except the signs shall be as least 24 inches (600 mm) wide. The sign shall be mounted on a staff with a clear distance of 6 feet (1.8 m) above the road surface.~~

~~To be visible to traffic while flagging, the flagger shall wear a soft cap or a hard hat and a vest, shirt, or jacket. The colors of these articles of dress shall be orange or strong yellow-green, or fluorescent versions of these colors. Combinations of these colors are acceptable.~~

Flagger operations, flagger equipment, and flagger apparel shall conform to the Iowa Flagger's Handbook.

2528.11 LIMITATIONS, delete paragraphs 4 and 5 and add a new paragraph 4

~~During daylight hours, workers exposed to traffic in or adjacent to traffic lanes, should wear a vest, shirt, or jacket equal to that required for flaggers according to Article 2528.10.~~

~~At night, workers shall wear clothing that is similar in color to that required for flaggers and is retroreflective to be highly visible to drivers. The retroreflective clothing shall be designed to identify clearly the wearer as a person and shall be visible through the full ranges of body actions.~~

Worker apparel should conform to requirements of the current edition of the MUTCD, Part VI.

Reason for Revision: The 2003 MUTCD which will be adopted for the Department by the Administrative Rules Committee on November 16, 2005 includes revised requirements for flagger and worker apparel. These proposed changes are being made to keep our specifications current. The January 2002 edition of the Flagger's Handbook will also be revised.

County or City Input Needed (X one)			**Yes**	**No** X	
Comments:					
Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes**	**No** X	**Industry Concurrence:**	**Yes**	**No** X
Comments:					

Flagger's Handbook
Page 3
Flagger Clothing and Equipment

Clothing
In addition to being dressed neatly, flaggers need to be dressed for safety. In particular, flaggers are required to be easily visible to traffic. Flagger's shall ~~Always~~ wear the following required items, even when serving as a replacement for a short period (see Figure 1):

• an ANSI 107-2004 Class 2 vest, shirt, or jacket in yellow green~~,~~ or orange~~, or fluorescent versions of these colors (combinations of these colors are acceptable)~~ and

• a soft cap in yellow green~~,~~ or orange~~, or fluorescent versions of these colors~~ meeting ANSI 107-2004 headwear requirements; combinations of these colors are acceptable. (A hard hat in the same colors is an acceptable alternative to the soft cap and may be required by OSHA or your employer in certain circumstances.)

Equipment
Flaggers shall be equipped with the standard combination STOP/SLOW ~~or SLOW/SLOW~~ staff-mounted sign (see Figure 1). Retroreflective sheeting shall comply with applicable specifications.

Optional but useful equipment and supplies include the following:
• a handheld radio for communications,
• adverse weather gear,
• pad and pencil, and
• air horn or whistle.

Flagger's Handbook
Page 4

Note: A red flag is permitted **only** in the following situations:

• stopping traffic in combination with the STOP/SLOW sign (see page 8), or

• in emergencies where standard signs are not available (see pages 18–21 for information about emergency flagging).

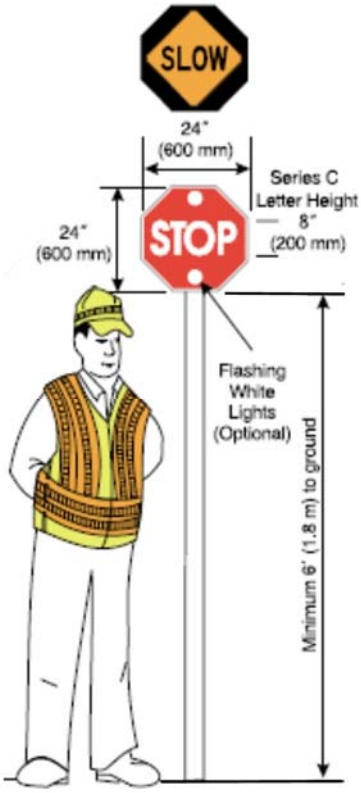

Figure 1
Clothing and equipment for daytime flagging operations

(New image)

Flagger's Handbook
Page 15
Night Operations

When controlling traffic at night, take extra care to be visible, to guide traffic through the area, and to protect yourself from injury.

Night clothing
When flagging at night, Flagger's shall wear the following required items (see Figure 10):

- an ANSI 107-2004 Class 2 retroreflectorized vest, shirt, or jacket and ANSI 107-2004 Class E retroreflectorized pants in yellow green~~,~~ or orange~~, or fluorescent versions of these colors (combinations of these colors are acceptable)~~, and

- a retroreflectorized soft cap in yellow green~~,~~or orange~~, or fluorescent versions of these colors~~ meeting ANSI 107-2004 headwear requirements; combinations of these colors are acceptable. A retroreflectorized hard hat in the same colors is an acceptable alternative to the soft cap and may be required by OSHA or your employer in certain circumstances.

Consider wearing highly visible retroreflectorized gloves.

Note: Retroreflectorized materials in clothing and signs shall be yellow green, orange, white, silver, or fluorescent versions of these colors and shall be visible from a minimum distance of 1,000 feet (330 m).

The retroreflective clothing shall be designed to clearly identify the wearer as a person.

Flagger's Handbook
Page 16

Night equipment
At night, flaggers shall be equipped with the following (see Figure 10):

- retroreflectorized signs and other devices (retroreflective sheeting shall comply with applicable specifications),

- flashlight with nose cone, lantern, or other lighted signal that will display a red warning light, and

- a lighted flagging station (see Figure 11).

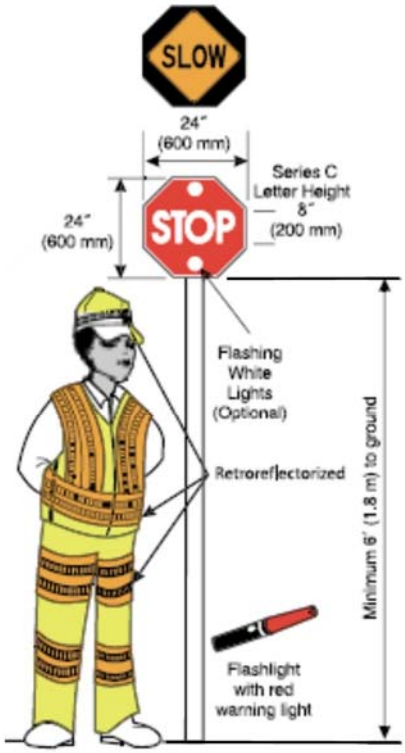

Figure 10
Clothing and equipment for nighttime flagging operations

(New image)

2003 MUTCD

Section 6D.03 Worker Safety Considerations

Guidance:

The following are the key elements of worker safety and TTC management that should be considered to improve worker safety:

B. Worker Safety Apparel—all workers exposed to the risks of moving roadway traffic or construction equipment should wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Safety Apparel" (see Section 1A.11), or equivalent revisions, and labeled as ANSI 107-1999 standard performance for Class 1, 2, or 3 risk exposure. A competent person designated by the employer to be responsible for the worker safety plan within the activity area of the job site should make the selection of the appropriate class of garment.

Section 6E.02 High-Visibility Safety Apparel Standard:

For daytime and nighttime activity, flaggers shall wear safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel" (see Section 1A.11) and labeled as meeting the ANSI 107-1999 standard performance for Class 2 risk exposure. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined in the standard. The retroreflective material shall be either orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 300 m (1,000 ft). The retroreflective safety apparel shall be designed to clearly identify the wearer as a person.

Guidance:

For nighttime activity, safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel" (see Section 1A.11) and labeled as meeting the ANSI 107-1999 standard performance for Class 3 risk exposure should be considered for flagger wear (instead of the Class 2 safety apparel in the Standard above). When uniformed law enforcement officers are used, high-visibility safety apparel as described in this Section should be worn by the law enforcement officer.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe	**Office:** Construction	**Item 4**
Submittal Date: July 29, 2005	**Proposed Effective Date:** April 18, 2006	
Article No.: 2528.10 **Title:** Flaggers	**Other:**	

Specification Committee Action:			
Deferred:	**Not Approved:**	**Approved Date:** 9/8/05	**Effective Date:** 4/18/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: See Reason for Revision.

Specification Section Recommended Text:

2528.10, Flaggers.

Add as the fifth paragraph:

When nighttime flagging is required, auxiliary lighting shall be provided to illuminate the flagging stations according to the current Iowa DOT Flaggers Handbook. This lighting shall be set up in such a manner to minimize glare to motorists. The cost of furnishing nighttime flagging stations shall be included in the lump sum price bid for Traffic Control.

Comments:

Member's Requested Change: **(DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)**

Add a new Paragraph 5:

When nighttime flagging is used, auxiliary lighting shall be provided to illuminate the flagging stations per the current Iowa DOT Flaggers Handbook. This lighting shall be supplied by the contractor at no additional cost to the Contracting Agency, and set up in such a manner to minimize glare to motorists.

Reason for Revision: To specifically include nighttime flagger station lighting requirements in the specifications including payment language. The Flaggers Handbook includes nighttime flagger station requirements, but does not include payment language.

County or City Input Needed (X one)	**Yes**	**No** X
Comments:		

Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes**	**No** X	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 5**
Submittal Date: September 1, 2005	**Proposed Effective Date:** April 2006	
Article No.: 4101.01 **Title:** General Requirements (Portland Cement)	**Other:**	

Specification Committee Action:

Deferred:	**Not Approved:**	**Approved Date:** 9/8/05	**Effective Date:** 4/18/06

Specification Committee Approved Text: Article 4101.01, C, 1 and Article 4101.01, C, 2 see Specification Section Recommended Text.

4101.01, B, ASTM C 595 Cements.

Replace Article 4101.01, B, 4:

4. The Portland cement used to produce the blended cement shall meet the requirements of Article 4101.01 paragraph A, except the alkali content expressed as total equivalent sodium oxide shall not be more than 0.75%. ~~Blending cements produced with Type I clinker or Type I cement shall contain 20% ground granulated blast furnace slag or at least 20% Class F fly ash. All other blended cements shall be produced with Type II clinker.~~

Comments: The Office of Materials asked how soon these changes can be applied. The Office of Contracts stated they could be handled with a proposal note. The proposal note will be implemented with the November letting.

Specification Section Recommended Text:

4101.01, B, ASTM C 595 Cements.

Delete second an third sentences of Article 4101.01, B, 4:

4. The Portland cement used to produce the blended cement shall meet the requirements of Article 4101.01 paragraph A, except the alkali content expressed as total equivalent sodium oxide shall not be more than 0.75%. ~~Blending cements produced with Type I clinker or Type I cement shall contain 20% ground granulated blast furnace slag or at least 20% Class F fly ash. All other blended cements shall be produced with Type II clinker.~~

4101.01, C, Cement Type Usage.

Delete Article 4101.01, C, 1.

~~**1.** Type II cement shall be used in Interstate and Primary pavements, except for quantities less than 3600 square yards (3000 m^2) furnished as transit mix concrete.~~

Replace the first sentence of Article 4101.01, C, 2.

2. Type I or Type II cement may be used for ~~all other applications~~ pavements, structures, and other applications. Type III cement may be used in precast and prestressed concrete only.

Comments:

Member's Requested Change (Redline/Strikeout):

4101.01 GENERAL REQUIREMENTS.

A. ASTM C 150 Cements.
Unless otherwise specified, Portland cement shall meet the requirements of ASTM C 150.

The alkali content expressed as total equivalent sodium oxide shall not be more than 0.60% for all cements.

B. ASTM C 595 Cements
Unless otherwise specified, blended hydraulic cement shall meet requirements of ASTM C 595 and the following requirements:

1. The pozzolan constituent of Type IP cement shall not be more than 25 weight (mass) percent of the Portland-pozzolan cement.

2. The slag constituent of Type IS cement shall not be more than 35 weight (mass) percent of the Portland blast-furnace slag cement.

3. Type IP or I(PM) cement shall not contain Class C fly ash.

4. The Portland cement used to produce the blended cement shall meet the requirements of Article 4101.01 paragraph A, except the alkali content expressed as total equivalent sodium oxide shall not be more than 0.75%. ~~Blending cements produced with Type I clinker or Type I cement shall contain 20% ground granulated blast furnace slag or at least 20% Class F fly ash. All other blended cements shall be produced with Type II clinker.~~

C. Cement Type Usage
Unless otherwise specified, cement type and usage in various pavements, structures, and other elements shall be as follows:

~~**1.** Type II cement shall be used in Interstate and Primary pavements, except for quantities less than 3600 square yards (3000 m^2) furnished as transit mix concrete.~~

~~2~~ 1. Type I or Type II cement may be used for ~~all other applications~~ pavements, structures and other applications. Type III cement may be used in precast and prestressed concrete only.

~~3~~ 2. Type IP, Type I(PM), Type IS, or Type I(SM) cement may be furnished at the Contractor's option when Type I or Type II cement is specified. The limitations of Articles 2301.04, 2403.03, or 2412.02 shall apply.

~~4~~ 3. The unit volume of Type IP, Type I(PM), Type IS, or Type I(SM) cement in the concrete shall be that specified for Type I or Type II cement, unless otherwise specified.

Cement which contains 5.0% or more of lumps retained on a No. 20 (850 µm) sieve will be rejected. Cement which contains less than 1.0% of lumps may be used without adjustment in the batch. For each 1.0% or fraction thereof from 1.0% to 5.0% of lumps found by test, batch weights (mass) of cement used in either concrete pavement or structural concrete shall be increased by 2.0% of the original value.

Air entrainment of the concrete is to be accomplished by the addition, at the time of mixing, of an approved air entraining admixture specified in Section 4103. Air entraining cement shall not be used.

Reason for Revision:

Ettringite infilling of air voids is a concern for durability of aged concrete, particularly for pavement with marginal air void system. Ettringite is a reaction product of tricalcium aluminates (C_3A) and sulfur trixides (SO_3). To reduce the impact of the infilling, two specification changes for cement were made in 1994: (i) the use Type II cements ($C_3A < 8\%$) in interstate and primary pavements and (ii) the limitation of $SO_3 <$ 3.0% in cements. However, a recent evaluation of 1992 and 1997 cores (MLR-98-06) indicates that these two requirements do not completely eliminate the infilling in air voids. The evaluation also indicates that other specification changes made in 1994, the limits on vibration and increase in air content, have the biggest impact on pavement durability. As a result, the two requirements on cement usage may no longer be needed. The limitation of cement with $SO_3 < 3.0\%$ had been removed in 2004. We are proposing to further change our specification to allow use of Type I cements in interstate and primary pavements.

In addition, we don't expect this proposed change to have great impact because blended cements are currently widely used in paving. Use of ggbfs reduces the infilling either by diluting the aluminate (C_3A) or lowering permeability.

County or City Input Needed (X one)			**Yes**	**No** X	
Comments: Counties and cities are expected to have no problem with this change.					
Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 6**
Submittal Date: August 25, 2005	**Proposed Effective Date:** April 2006	
Article No.: 4117.05 **Title:** Cement Requirements (Class V Aggregate for Concrete)	**Other:**	

Specification Committee Action:

Deferred:	**Not Approved:**	**Approved Date:** 9/8/05	**Effective Date:** 4/18/06

Specification Committee Approved Text: See Specifications Section Recommended Text.

Comments: Office of Materials provided a handout. They noted that they are working to approve a type 3I aggregate source from Weeping Water quarry in Nebraska.

Specification Section Recommended Text:

Section 4117. Class V Aggregate for Concrete.

Add new article:

4117.05 Cement Requirements.
When Class V aggregate is used, the following cement types and substitutions shall be required for Interstate and Primary paving projects:

Cement Type	Min. Required Substitution	Max. Allowable Substitution
Type I, Type II	20% Class F Fly Ash	25% Class F Fly Ash
Type I, Type II	25% GGBFS	35% GGBFS
Type I(SM), IP	--------	20% Class C Fly ash

Comments:

Member's Requested Change (Redline/Strikeout):

Section 4117. Class V Aggregate for Concrete.

4117.01 DESCRIPTION.
Class V aggregate shall consist of a mixture of fine and coarse particles of feldspathic rocks.

4117.02 GRADATION.
Class V aggregate shall meet requirements for Gradation No. 7 of the Aggregate Gradation Table referenced in Section 4109.

In all other respects except gradation, the portion of Class V aggregate passing the No. 4 sieve shall meet requirements for fine aggregate for concrete, Sections 4110 and 4111, and the portion retained on the No. 4 (4.75 mm) sieve shall meet requirements of Section 4115, except the abrasion loss shall not exceed 40%.

4117.03 FINE LIMESTONE.
Class V aggregate meeting the requirements of this section shall be used for concrete only in combination with limestone in proportions specified for the class of concrete required. Such limestone shall be produced from sources which are acceptable as coarse aggregate for concrete and may be a byproduct of the crusher. The limestone shall meet requirements for Gradation Number 8 of the Aggregate Gradation Table referenced in Section 4109. The Engineer may reject material containing objectionable amounts of clay, shale, or other objectionable material.

4117.04 OTHER COARSE AGGREGATE.
When Class V aggregate is used in combination with other coarse aggregate, Section 4115 shall apply in lieu of this section.

4117.05 CEMENT REQUIREMENTS.
When Class V aggregate is used, the following cement types and substitutions shall be required for Interstate and Primary paving projects:

Cement Type	Minimum Required Substitution	Maximum Allowable Substitution
Type I, Type II	20% Class F Fly Ash	25% Class F Fly Ash
Type I, Type II	25% GGBFS	35% GGBFS
Type I(SM), IP		20% Class C Fly ash

Reason for Revision: Due to the need to mitigate some aggregate deterioration problems, certain cement combinations are required when Class V aggregate is used. Nebraska DOR and Pottawattamie county currently require Type IP cement. Class V gravel hasn't been used in Iowa since the 1970's, due to map cracking problems when used. Iowa required 4110 sand from the sources as most of the reactive material is on the +#4 screens. Class V gravel has been used in recent QMC projects and the DOT has asked the contractor to use Type IP cement. The last project Type IP was not available and we had to extra work order in another cement type, since it was not in the specifications. This spec change will place the cement requirements in the specifications.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

Fuel Adjustment **Item 7**

The Office of Construction requested the Committee discuss the issue of allowing contractors to opt out of fuel adjustments. The FHWA noted that only two states allow contractors to opt out of fuel adjustments. They are investigating how this is being allowed. Their stand is not to allow contractors to opt out. The Office of Construction suggested the possibility of a Public Interest Finding. The FHWA was open to that idea. The Office of Contracts is still open to the idea of allowing contractors to opt out.

The Office of Construction stated that they will notify the AGC that 1) it has been verified that two states are allowing contractors to opt out, but the FHWA is currently reviewing this, and 2) the Iowa DOT, for now, will not allow it. If the AGC wants to pursue this matter further, it will require a Public Interest Finding (PIF) and the AGC will need to provide an economic basis upon which to base the PIF.

Specifications Rewrite **Item 8**

The Specifications Section informed the Committee that Divisions 21 and 22 have been converted to the imperative mode. Part of Division 23 has also been converted. These are available for review on the LAN in the Highway\Specifications\Exchange folder. Actual content of the material hasn't been changed so far, but some material has been reorganized to fit into the AASHTO five part format. Comments and questions are welcome.