Form 000021wd
4-96

IOWA DEPARTMENT OF TRANSPORTATION

To Office Bridges and Structures Date Sept. 1, 2009

Attention All Employees Ref No. 521.1

From Gary Novey

Office Bridges and Structures

Subject MM No. 211 (Office guidelines for mass concrete and temperature and shrinkage reinforcing)

Questions have been raised about the office's policy in regard to mass concrete and when should concrete casting include monitoring of concrete placement and curing temperatures. In addition, at what thickness should reinforcement be provided for temperature and shrinkage along the sides of concrete footings? AASHTO LRFD 5.10.8 requires temperature and shrinkage reinforcing be provided when the footing thickness is greater than 3 ft.

However, based on the Iowa's experience with larger reinforced concrete members, the designers shall use the following guidelines:

1. Concrete footings that are greater than 5 ft in depth should be considered mass concrete (See MM No. 192) and guidelines for controlling and monitoring of the concrete mix temperatures should be included in the plans or specifications.

2. Concrete members other than footings shall be considered mass concrete when the least thickness of the section is greater than 4.0 ft and guidelines for controlling and monitoring of the concrete mix temperatures should be included in the plans or specifications. Typically these requirements are used on larger projects such as border bridges or the Iowa River Bridge on Highway 20.

3. Concrete footings greater than 5 ft in depth shall also include side reinforcing for temperature and shrinkage steel per AASHTO LRFD 5.10.8.

4. All other concrete members with the exception of concrete footings with a thickness of 5 ft or less shall meet AASHTO LRFD 5.10.8 for temperature and shrinkage steel.

This policy should be followed on new projects where the design work has not been started. If you have any questions check with me.

GAN/dgb/bj