

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

subject: New Bridge Design Standard
Practice

m e m o r a n d u m

date: July 6, 2005

to: Arthur W. Gruhn
Bureau Chief
Bureau of Engineering and
Highway Operations

from: Julie F. Georges
Principal Eng. Bridge Design
Bureau of Engineering and
Highway Operations

Attached is a proposed new Bridge Design Standard Practice which addresses the following concern:

Paraffin Coated Joints - Random Parapet cracking associated with shrinkage has been noticed as a result of eliminating paraffin coated joints.

Proposed new practice:

Reintroduce paraffin coated joints in bridge parapets to control the location of the shrinkage cracks.

The three standard concrete bridge parapets (sidewalk, 32" F Shape, and 42" F Shape) were analyzed for a TL-3 Railing Test Level in accordance with the requirements of the AASHTO LRFD Bridge Design Specification at various crash locations.

The new Bridge Plates are attached.

APPROVED BY:



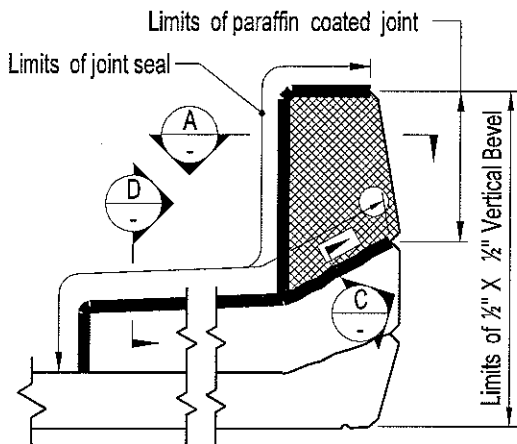
Arthur W. Gruhn, Bureau Chief

DATE: 7-11-05

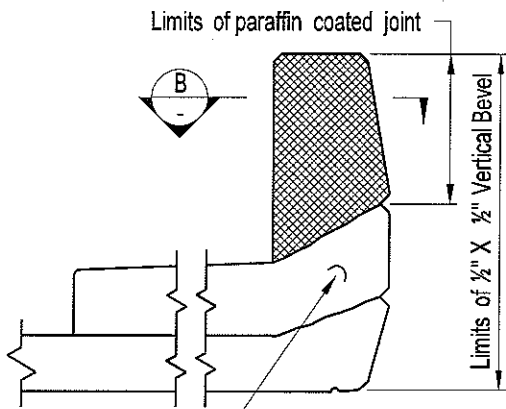
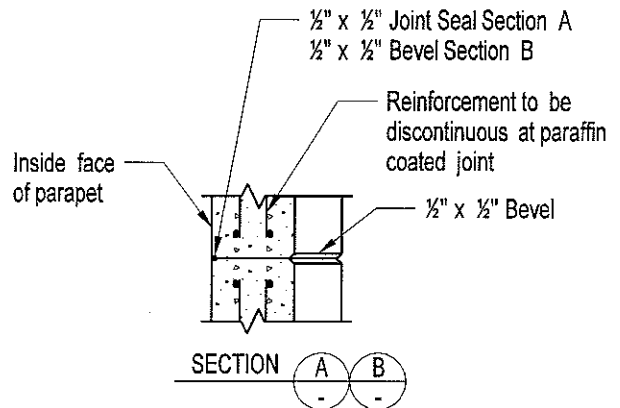
cc: Joseph E. Chilstrom-Federal Highway Administration

Julie F. Georges
bcc: Arthur W. Gruhn-Richard Jankovich
Michael W. Lonergan
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FROM THE DESK OF JULIE F. GEORGES			
NAME	F.Y.I.	PLS DO	PLS SEE ME
JUL 19 2005			
G. ABRAMOWICZ			
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B. REED			

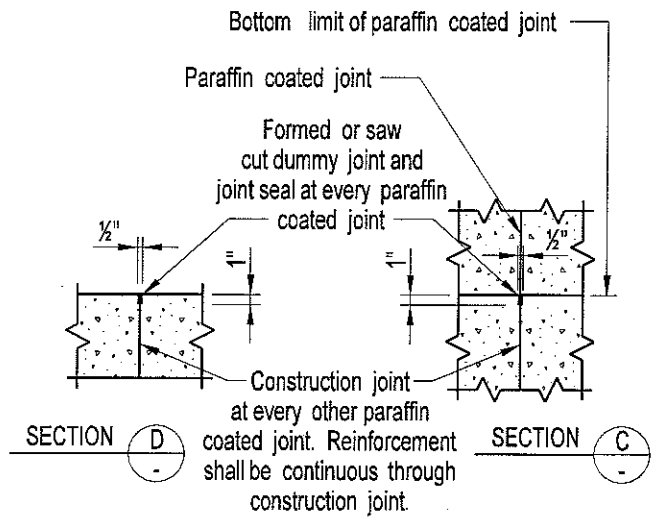



NEGATIVE MOMENT REGIONS



Concrete to be continuous in this area

POSITIVE MOMENT REGIONS



 Paraffin Coated Joint Area

DESIGN INFORMATION

For design information, see Plate 6.2.9

**CONNECTICUT
BRIDGE DESIGN
MANUAL**

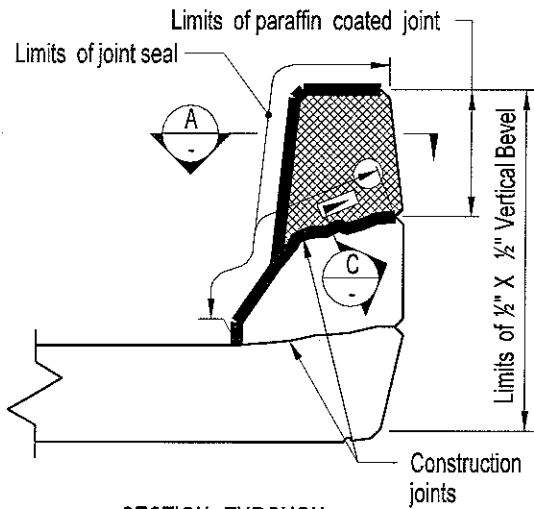
**PARAFFIN COATED JOINTS
IN SIDEWALK PARAPETS**

Issue Date:

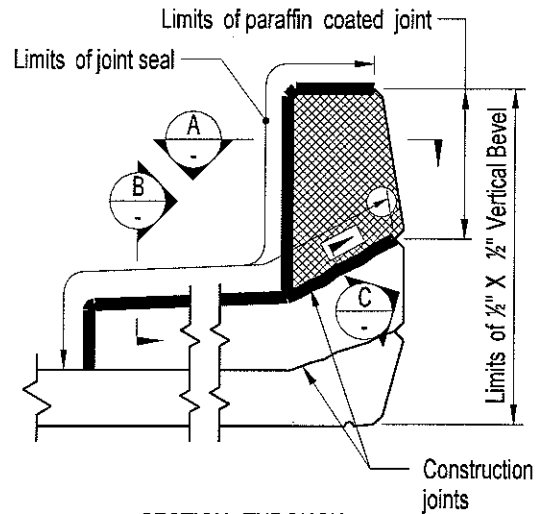
Revision Date:

Plate Number:

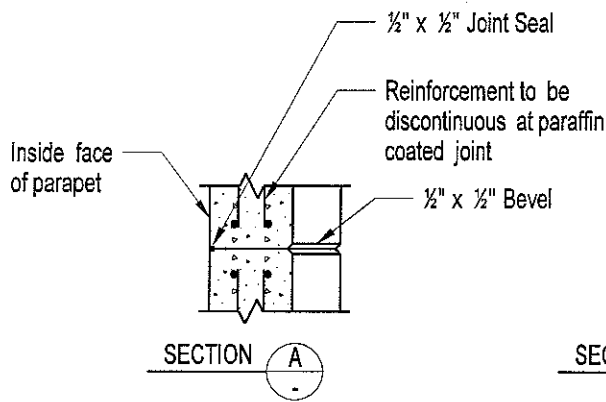
6.2.10



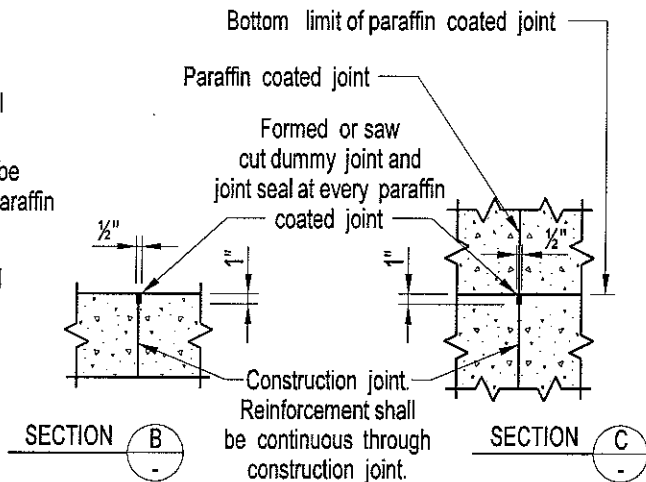
SECTION THROUGH
STANDARD PARAPET



SECTION THROUGH
SIDEWALK PARAPET




SECTION A



SECTION B

SECTION C

 Paraffin Coated Joint Area

DESIGN INFORMATION

Construction joints and paraffin coated joints shall be placed in the standard parapet, sidewalk and sidewalk parapet coinciding with the transverse deck construction joints. The placement of railing posts, fence posts and additional paraffin coated joints shall take into consideration the location of the transverse deck construction joints.

**CONNECTICUT
BRIDGE DESIGN
MANUAL**

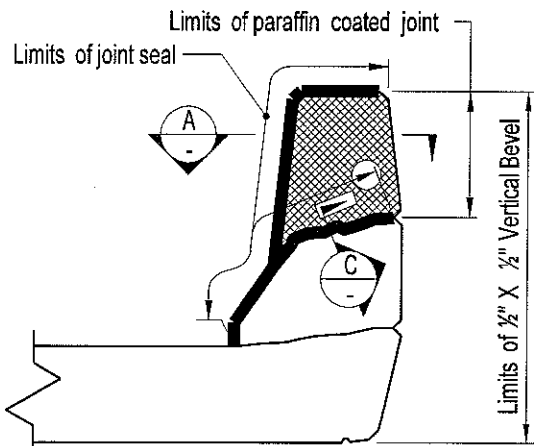
**JOINTS IN PARAPETS AT TRANSVERSE
DECK CONSTRUCTION JOINTS**

Issue Date:

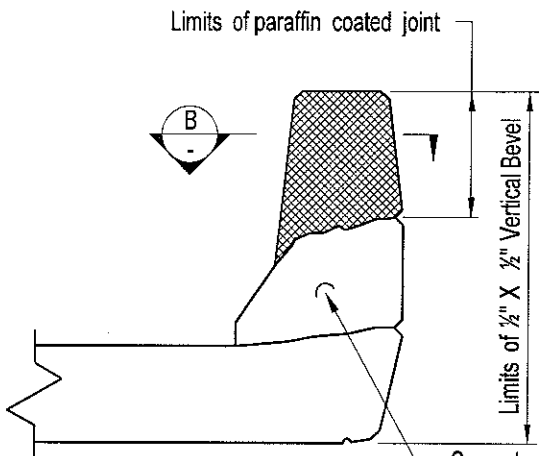
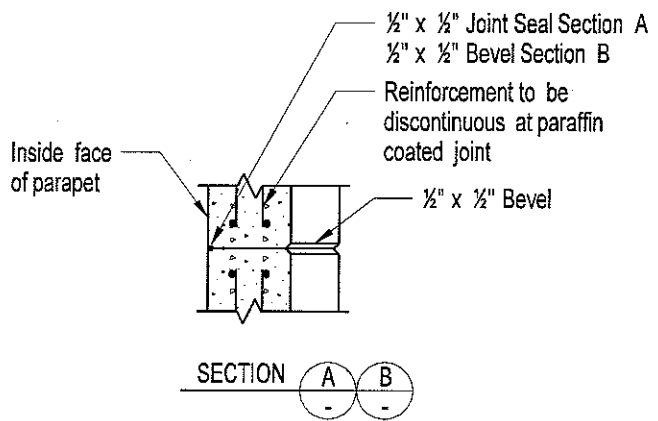
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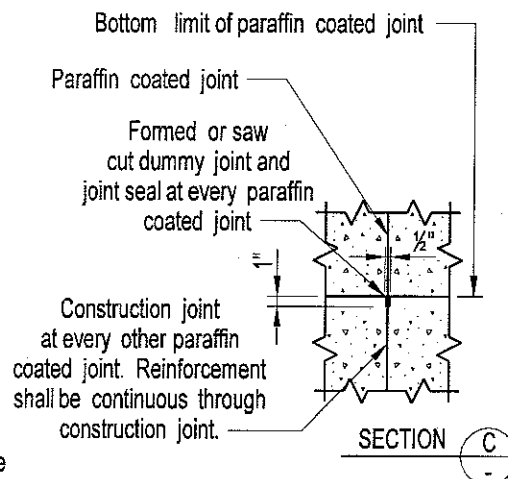
6.2.11



NEGATIVE MOMENT REGIONS



POSITIVE MOMENT REGIONS



Concrete to be continuous in this area

 Paraffin Coated Joint Area

DESIGN INFORMATION

All parapets supported by decks or butted prestressed deck units shall have paraffin coated joints. The paraffin coated joint spacing shall be shown on the plans. The paraffin coated joint spacing shall be based on the total parapet length, location of deck joints, location of transverse deck construction joints, railing and fence post spacing. The paraffin coated joint spacing shall be as follows:

In positive moment regions: 8'-0" <= joint spacing >= 20'-0"
In negative moment regions: 8'-0" <= joint spacing >= 10'-0"

For parapets that support a railing or fence, the joint spacing shall be a multiple of the railing or fence post spacing and the joints shall be located in the middle of the railing or fence panel. Preferably, the number of joints should be minimized so as to expedite the parapet construction. Paraffin coated joints are not required in U-Type wingwalls and parapet walls.

**CONNECTICUT
BRIDGE DESIGN
MANUAL**

**PARAFFIN COATED JOINTS
IN STANDARD PARAPETS**

Issue Date:

Revision Date:

Plate Number:

6.2.9