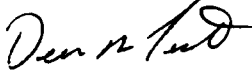


# Kansas Department of Transportation

Bureau of Construction and Maintenance  
Topeka, Kansas

MEMO TO: E. Dean Carlson, Secretary of Transportation  
Warren L. Sick, Assistant Secretary and State  
Transportation Engineer  
Division Directors  
Bureau Chiefs  
District Engineers  
Field Construction Administrators  
Kansas Contractors Association  
Kansas Asphalt Pavers Association  
American Concrete Paving Association  
Heavy Constructors Association of the Greater Kansas City Area

FROM: Dean M. Testa, P.E.   
Chief of Construction and Maintenance

DATE: September 14, 2000

RE: Amended Metric Policy

Please find the attached Amendment to the Metric Policy dated September 14, 2000, and a copy of "Structural Steel Fastener Call-out". The only metric issue being addressed in the attached policy is in the area of fasteners (bolts and nuts).

Many of the various non-structural and galvanized fasteners we require are not available. Additionally, small quantities of metric fasteners remain unavailable. At this time it seems suppliers are unwilling to stock the various size metric fasteners. While our plans will call-out metric fasteners for small quantities and non-structural members, USC (inch-pound) may be substituted in accordance with the "Structural Steel Fastener Call-out." We are in the process of having a revised Special Provision 90M-65-R9 approved to incorporate the action noted in the policy. When 90M-65-R9 is approved, it may be added to existing contracts. Please note this substitution only applies to metric galvanized fasteners and small quantities of fasteners, but makes no change when connections in structural members are required.

Amended Metric Policy Memo

Page 2

September 14, 2000

There will be no change on structural members for new designs. KDOT Design will call-out SI metric and we expect these fasteners to be used. Design will standardize on M20 or M24 for structural members using either painted (black bolts and nuts) or Type III (weathering steel bolts and nuts).

Something that may occur on your projects, but that is not a part of the policy, is the availability of Type III bolts but no nuts. If this occurs on your project, a black nut may be used and then painted the color of the weathering steel. When using this combination, place the head of the weathering steel bolts on the outside of the girder. We only expect the shortage to be temporary.

DMT:kjk

Attachments

September 14, 2000

# KANSAS DEPARTMENT OF TRANSPORTATION

## AMENDMENT TO THE METRIC POLICY USE OF METRIC BOLTS AND NUTS

It has come to our attention that some metric bolts & nuts are unobtainable in the United States. Much of the problem has to do with galvanized fasteners, in that the manufacturer can't economically make the small quantities we often require nor is it feasible to keep a large inventory of the various sizes we require. Therefore, in the interest of safety (not wanting to mix SI and USC [inch-pound] nuts and bolts), the following modifications to the metric policy will be made. We will continue to use SI Metric bolts and nuts for all structural connections and clarify the requirement on miscellaneous sizes and small quantities required for a project.

### Required SI Metric bolts and nuts:

- New Designs
  - Bridge Splices (girders & cross-frames)
- Standardize on M20 and M24 fasteners (revise M22 to M24 standard)
- Plain (uncoated), Type III (weathering) (no galvanized fasteners)
- ASTM A 325M high strength bolts
- Call-out -- ASTM A 325M M24 high strength fasteners  
ASTM A 325M M20 high strength fasteners  
[Specification] [Diameter x Pitch]

### Optional USC or SI Metric bolts:

- Maintenance of existing structures (USC call out)
- Miscellaneous items (small quantities)
- Any fastener other than M20 or M24
- ASTM A 307 or Anchor Bolts (non-structural application)
- Call-out -- ASTM A 325M 22x2.5 mm bolt (galvanized)
  - Type II anchor bolt 36x4 mm (anchor bolt)
  - ASTM A 307 20x2.5 mm bolt (non-structural)
  - ASTM A 325M 16x2 mm bolt (not 20 or 24)[Specification] [Diameter x Pitch]

### Example:

Expansion device -- Galvanized 20x2.5 mm bolts for diaper  
-- Galvanized 24x3 mm bolts anchor rod  
-- Galvanized 24x3 mm stub bolt

Girder Splice -- Painted M24 HS fastener  
-- Type III M20 HS fastener

*Special Note: All galvanized bolts and nuts will be specified in SI metric units; however, an USC equivalent may be used. Note there are a wide variety of galvanized bolts and nuts required by the industry. No manufacturer produces metric galvanized nuts in the small quantities we require.*

**TABLE 702.3 - Structural Steel Fastener Call-Out**

Bolt Size	Required SI Metric		Bolt Size mm x mm	Optional SI Metric Call-Out		Bolt Size Inches	Equivalent USC	
	A325M	A490 M		A325M	A490M		A325	A490
			<b>12x1.75</b>		n/a	<b>1/2</b>		n/a
	n/a	n/a	<b>16x2</b>		n/a	<b>5/8</b>		n/a
<b>M20</b>		n/a	<b>20x2.5</b>		n/a	<b>3/4</b>		n/a
	n/a	n/a	<b>22x2.5</b>			<b>7/8</b>		
<b>M24</b>			<b>24x3</b>			<b>1</b>		
	n/a	n/a	<b>27x3</b>		n/a	<b>1-1/8</b>		n/a
	n/a	n/a	<b>30x3.5</b>		n/a	<b>1-1/4</b>		n/a
	n/a	n/a	<b>36x4</b>		n/a	<b>1-3/8</b>		n/a
			<b>38x4</b>		n/a	<b>1-1/2</b>		n/a