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### 5.8.5 Reinforcement protection

#### 5.8.5.1 General

##### 5.8.5.1.1 Policy overview

Unless otherwise specified, steel reinforcement shall be uncoated and meet the Standard Specifications and Materials IMs [IDOT SS 4151.03; CMB IM 451].

All components of H24 and J24 standard bridges use only uncoated (black) reinforcement because those bridges will be used only by counties for bridges on roads not treated with deicing chemicals.

For the Primary Highway System, reinforcement in all railings, superstructure components, and substructure components exposed to deicing chemicals shall be protected unless otherwise noted. The typical method of protection is epoxy coating, however, stainless steel dowels are specified for approach slab to abutment connections in some cases, and alternate methods of protection may be specified on a case-by-case basis.

Epoxy coated reinforcement [IDOT SS 4151.03, C; CMB IM451.03B] is required specifically for the following:

- Standard bridges H40, H44, J40, J44, and RS40 (with exceptions for some substructure components)
- Railings [BDM 5.2.4.1.2, 5.4.1.4.2, 5.5.2.4.2, 5.6.2.4.2, BSB SS 1017-1018, 1018A-1018D, 1019A-1019B, 1020A-1020F, 1028A]
- Bridge decks [BDM 5.2.1.1, 5.2.4.1.1.2, 5.2.4.1.2]
- Prestressed concrete deck panels [BDM 5.2.4.3, 5.2.4.3.2]
- CCS superstructures (except pile spirals) [BDM 5.6.1.4.2]
- PPCB superstructures including shear steel and haunch reinforcement that extends into the deck (except pile spirals) [BDM 5.4.1.4.2, 5.3.2.1]
- CWPG superstructures (except pile spirals) [BDM 5.5.1.4.2]
- Integral abutments (except pile spirals) [BDM 6.5.4.1.2]
- Stub abutments [BDM 6.5.4.2.2]
- Wings, abutment wing extensions, abutment diaphragm wing extensions, and wing extensions [6.5.4.3.2]
- Pier caps under expansion joints [BDM 6.6.4.1.1.2]
- Pier columns under expansion joints or within 25 feet of the edge of the traveled roadway [BDM 6.6.4.1.2.2]
- Reinforced approach sidewalk slabs [BSB SS 1029E-1029F]
- Bridge lighting pole bases [BSB SS 1030A]
- Box culvert slabs, corbels, and wall reinforcement that extends into the slab when the roadway is on the slab [BDM 8.2.3.3, 8.2.4.5.1]

Epoxy coated reinforcement may be used for the following:

- Standard bridges H30, H30SI, and J30 (with exceptions for some substructure components)

Stainless steel dowels or bars [CMB IM 452] are required for the following:

- Barrier rail to bridge deck/wing connections for interstate and primary bridges
- Barrier rail to bridge deck/wing connections for bridges on paved roads exposed to deicing chemicals over the Interstate and Primary Highway System
- Stub abutment to approach slab connection [BDM 6.5.1.1.2]
- Integral abutment to approach slab connection for CCS interstate and primary bridges [BDM 5.6.1.1.1, 5.6.1.4.2]
- Culvert to approach slab connection when the roadway is on the culvert slab [BDM 8.2.4.5.1, E634/M634 in BDM 13.7.2]
- Approach sidewalk to bridge abutment connection [BSB SS 1029E, 1029F]
- Exposed reinforcement during staged construction [BDM 5.2.4.1.2]

Stainless steel reinforcement bar weights for quantities shall be calculated based on uncoated/epoxy-coated steel reinforcement weights since the difference in weight is minimal.

Galvanized steel reinforcement [IDOT SS 4151.03, B; CMB IM 451.02] currently is not specified for any bridge components but may be specified on the plans with approval of the Chief Structural Engineer.

#### **5.8.5.1.2 Design information**

Reserved.

#### **5.8.5.1.3 Definitions**

**Black reinforcement** refers to uncoated or otherwise unprotected steel reinforcement.

**Primary Highway System:** "Primary roads" or "primary road system" means those roads and streets both inside and outside the boundaries of municipalities which are under department (defined as state department of transportation) jurisdiction [Iowa Code 306.3.6].

#### **5.8.5.1.4 Abbreviations and notation**

**CMB IM,** Construction and Materials Bureau Instructional Memorandum

#### **5.8.5.1.5 References**

Reserved.