



AASHTO LRFD *Movable* Highway Bridge Design Specifications

2nd Edition
2007



American Association of State
Highway and Transportation
Officials

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INSTRUCTIONS AND INFORMATION

General

AASHTO has issued proposed interim revisions to *AASHTO LRFD Movable Bridge Design Specifications*, Second Edition (2007). This packet contains the revised pages. They are not designed to replace the corresponding pages in the book but rather to be kept with the book for fast reference.

Affected Articles

Underlined text indicates revisions that were approved in 2010 by the AASHTO Highways Subcommittee on Bridges and Structures. ~~Strikethrough text~~ indicates any deletions that were likewise approved by the Subcommittee. A list of affected articles is included below.

All interim pages are printed on blue paper to make the changes stand out when inserted in the second edition binder. They also have a page header displaying the section number affected and the interim publication year. Please note that these pages may also contain nontechnical (e.g. editorial) changes made by AASHTO publications staff; any changes of this type will not be marked in any way so as not to distract the reader from the technical changes.

Although not applicable to this especially short interim, please note that in response to user concerns, page breaks are now being added within sections between noncontiguous articles. This change makes it an option to insert the changes closer to the affected articles.

Table i—2010 Changed Article

SECTION 8: ELECTRICAL DESIGN

8.6.1.5

SECTION 8: ELECTRICAL DESIGN

8.6.1.5—Variable Frequency Speed Control

Revise the following Article as follows:

~~In general,~~ Volts-hertz type variable frequency drives ~~should~~ shall not be used for movable bridge drives.

C8.6.1.5

Replace the existing commentary with the following:

Volts-hertz type variable frequency speed control has seen limited success for speed control of movable bridges.

While these drives are compatible with squirrel cage induction motors, inverter duty motors should be considered for their ability to withstand the higher harmonic voltages that may be produced.

Volts-hertz type variable frequency drives have historically lacked the ability for precise control of torque at low speed. Control of torque under overhauling loads and stall conditions, such as seating, has sometimes been unsuccessful.

The exclusion of variable frequency drives in this Article is for volts-hertz type only. Flux vector variable frequency drives are acceptable as outlined in Article 8.6.1.6.

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Table i—2011 Changed Article

SECTION 1: GENERAL PROVISIONS

C.1.3.3

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Add the following commentary to Article 1.3.3:

C1.3.3

The operating system is applicable to mechanical machinery design.

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Table i—2012 Changed Articles

SECTION 6: MECHANICAL DESIGN

6.6.3.2

6.8.1.5.1

SECTION 6: MECHANICAL DESIGN

6.6.3.2—Endurance Limit

Equation 6.6.3.2-3 should be modified as follows:

- For $D > 0.3$ in., $C_D = \cancel{(D/7.6)} \underline{(3.342D)}^{-0.113}$

6.8.1.5.1—Locking Devices

Add the following commentary to Article 6.8.1.5.1:

C6.8.1.5.1

The following interim guidance may be applied to the structural design of lock bars that are of uniform cross section and free of stress raisers:

- Design for Strength I or II, or both; Service II; and Fatigue I or II limit states per the requirements of the *AASHTO LRFD Bridge Design Specifications*;
- Utilize twice the normal vehicular dynamic load allowance (IM) as per the requirements of the *AASHTO LRFD Bridge Design Specifications* Article 3.6.2 for nondeck joint components and consider the full stress range (stress reversal) caused by passage of the design truck from one side of the center lock to the other for fatigue design;
- The receiver components or guideways for the lock bars shall be designed based on these Specifications. Additional research is anticipated in the future for the span lock bar and receiver components, investigating revisions to the factors of safety and load factors.

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Please note: starting with this ballot year, the subcommittee has asked that their interims be dated the calendar year *after* the ballot year for consistency, even though some smaller interims, like this one, may be released in the same calendar year.

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Table i—2012 Changed Articles

SECTION 6: MECHANICAL DESIGN

6.6.3.2	6.7.5.2.2	6.7.7.2.4	6.8.3.3.6
6.7.4.2	6.7.5.2.3	6.7.10.1	6.8.3.4.2
6.7.5.1	6.7.5.2.4	6.8.3.3.4	

SECTION 6: MECHANICAL DESIGN

6.6.3.2—Endurance Limit

Equation 6.6.3.2-4 should be modified as follows:

$$C_s = a (\sigma_{ut})^b$$
$$C_s = a \left(\frac{\sigma_{ut}}{1000} \right)^b$$