Teaching Aids for Structural Steel Design Courses

Instructor Notes

(August 2024, Revision 2)

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Revision History

Rev 2 (August 2024: Updated to 2022 *Specification* and 16th Ed. *Steel Construction Manual*)
Rev 1 (January 2019: Updated to 2016 *Specification* and 15th Ed. *Steel Construction Manual*)

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OVERVIEW

Slide sets have been prepared on a variety of topics covered in courses either wholly devoted to, or including material on, Steel Design. It is expected that individual instructors will incorporate materials as needed to complement existing classes, develop a course in conjunction with a textbook, or introduce basic material in courses that could address topics in steel design. These aids are meant to supplement the AISC Steel Construction Manual.

Material has been intentionally separated into smaller packets of information, rather than developed as course notes for an entire semester of steel design. This is intended to provide a versatile format, and require some thought by the instructor on the need for specific information in their courses.

LIST OF TOPICS:

Slide sets on the following topics have been prepared:

- Compression Members
- Beams (Flexure and Shear)
- Combined Forces
- Tension Members

ACCESSING INFORMATION:

For each topic, information can be accessed through the Overview.ppsx presentation or the main file directories.

Overview.ppsx:

In each topic directory you will see an overview presentation. By clicking on topics you will be brought directly to the slide in the appropriate sub-file. This is an excellent method to view all material provided on a topic. If you wish to revise this file, the .ppt file is provided in the Main Files Folder. It will need to be placed in the subject directory (location of the .ppsx file) for links to work correctly.

Main File Directory:

All Files are provided in the Main Files Directory within each subject directory. The starting point is the TEMPLATE slide set. This is generally a very short series of slides providing an overview of the topic. These slides are intended to show a flow of major sections often covered. Icons are used to indicate information to be included for each topic from other sources, both developed as part of this project, and other AISC materials.

For topics typically covered in a steel design course, material is divided into two sections.

First are the THEORY slide sets. These provide basic background information with related visuals that are thought to be descriptive of concepts encountered.

Next are MANUAL slide sets. These include actual code provisions per the AISC 15th Edition

Manual. Information is geared towards LRFD design, though notation for ASD design is typically included in parenthesis. It is expected that when new versions of the code are developed, these slides are the only ones that would require updating.

At the end of topics in the TEMPLATE slide sets instructors are directed to ADVANCED slide sets. These typically are divided once again into THEORY and SPEC slide sets. These are topics
that are not always a component of an introductory Steel Design course, but are felt to be covered in enough Steel related courses to be recommended for consideration by instructors.

Throughout, instructors are directed to existing AISC design aids and reference materials on each topic. The material will therefore serve as a guideline for instruction of specific topics as well as an organizing framework for managing the teaching aids developed by AISC.

Sample AISC Tables:

In the Main Directory is a folder which contains sample pages of relevant AISC Manual Design Tables.

NOTES PAGES:

Instructors may find it useful to print slide sets as handouts pages (6 per page) to use as lecture
notes. This can be useful in visualizing material that could be placed on each board during a lecture, highlighting material to be projected from the slide set, etc.

COMMENTS:

It is noted that the developer did not expect instructors to patch together an entire course in Steel Design from these slide sets. Rather, it was expected that instructors would determine their own needs and appropriate materials accordingly. For instance, specification design slides may be useful to have projected in the classroom while the instructor works problems on another section of board. Individuals may feel that their notes/lectures need support in a particular area, such as theory or specification, or on a specific advanced topic. They would likely supplement these slides with photos, text and other information to personalize the presentations. While some slides were developed to clearly define a point, instructors may decide that it is more effective to use only the general concepts, preferring to sketch the figure on the board, post to a course web page for further clarification, or use only a single slide as a point of clarification. To that end, slides were left in raw forms. Figures and text are able to be manipulated by each instructor to fit their needs. However, based on computer compatibilities, this may cause some problems with formatting and fonts. Therefore, PDF slide presentations are also available.

If any slides are not appearing correctly as a projected image, please check that your resolution is compatible with the projector that you are using. In addition, problems where a portion of the screen image is not projected may be corrected by toggling through the CRT/LCD options, or by making sure that you are logged onto your computer prior to turning on the LCD projector.

ICONS:

Three icons are used within the slide sets, with the following indications

Add from FILES prepared as part of this project
(Entire slide sets, or selected slides as indicated)

Add OTHER MATERIAL prepared as part of this project
(Typically handouts and sample AISC Tables)

Add OTHER RESOURCES
(Other AISC Teaching Aids or related web resources)

Note that a full list of AISC materials is found at: aisc.org/teachingaids.
This link also has information on more general topics, such as loads and load distribution, construction issues, steel production and case studies which are not covered herein.