

W. M. HUITT CO. TRAINING COURSE - MODULE I

INDUSTRIAL PIPE SYSTEM DESIGN AND ENGINEERING TRAINING

4-Day Course Schedule

Course Description: This course will provide the novice or experienced Pipe Designer and CAD Operator with the broad, but specific information they need to perform their job more efficiently and effectively. It will provide plant maintenance personnel with a better understanding of regulatory compliance, system ratings, re-testing modified or repaired piping etc. Mechanical, Process, and Utility Engineers will get the information they need to better understand pipe specifications, the piping design process, and its various elements in their interrelationship with piping.

Who Should Attend: This course is useful to the CAD operator with very little experience in piping design to the experienced piping designer who needs to gain more knowledge with Code application and specification development. This course benefits plant maintenance personnel who work with pipelines. It is also of benefit to mechanical, process, and utility engineers who need to gain more detailed knowledge with the various aspects of piping component selection and piping system design.

Abstract of the Daily Course Agenda

There are four primary segments to this course.

The first segment, Day 1, provides the designer, maintenance personnel, and engineer with the basis for understanding industry requirements for Code compliance, Material Standards (ASTM), Manufacturing Standards (ASTM, ASME, MSS), and Government Regulations. It provides a brief history of where industry Standards come from, how they are developed, what their relationship is with the Code of Federal Regulations, and how they affect the specifications and design requirements of a project or an installed system.

The second segment, Day 2, builds on the previous Day 1 discussions to show how industry Codes and Standards are integrated into project specifications. The attendee will learn what specifications and guidelines are required for a project, what information is required in those documents, and how to develop them. We will discuss component ratings, component selection, material selection, corrosion allowance, and valve selection. Also included will be a discussion on quality self assurance of pipe and components on an international basis.

The third segment, Day 3, pulls together the information learned in segments one and two for discussions on design. Some of the topics covered in this session will be pipe routing, pipe bending, valve type selection, slope, steam traps, lined pipe, location of process and utility pipe in a pipe rack, bending, welding, supports, piping flexibility, and other topics.

The fourth segment, Day 4, will discuss installation, cleaning, testing, and validation. If there are any real-time issues brought to the class by attendees we will discuss them on this day.

Daily Course Agenda

Each morning session will begin at 8:00am

There will be a 15 minute break at approximately 10:00am

There will be a one hour lunch break at approximately 12:00 noon

Each afternoon session will begin at 1:00pm.

There will be a 15 minute break at approximately 3:00pm

The afternoon session will end at approximately 5:00pm

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Day 1

8:00am Start of class

- I. A history and the evolution of Industry Standards
- II. The difference between a Code and a Standard
- III. Why do we comply with Codes and Standards
- IV. Deciding which Code you need to comply with on your project

~10:00am Mid-morning break

- V. MSS Standards
 - a. When to apply them
- VI. API Standards
 - a. API publications carry prefixes such as RP, Spec, Bull, TR, Std, and Publ
 - b. What do they mean?
 - c. Do any of the above API publications require compliance in design and/or construction?

~12:00 to 1:00pm lunch break

- VII. AWWA and CGA
- VIII. ASTM Standards
 - a. How is the selection of piping material made?
 - b. What is the difference between a Product Specification and a General Requirements Specification?
- IX. Valve Standards
 - a. What industry standards apply to valves?
 - b. How to determine which standards are applicable to a project.
- X. Guidelines
 - a. CSI
 - b. ISPE
 - c. API

~3:00pm Mid-afternoon break

- XI. ASME Standards
- XII. Code of Federal Regulations (CFR)
 - a. What do government regulations have to do with piping design & construction?
- XIII. Component pressure ratings
 - a. Flanges: assessing the required pressure rating
 - b. Cast fittings threaded: pressure ratings and their application
 - c. Forged fittings socket-weld and Threaded: pressure ratings and their application

~5:00pm End of Day 1

Day 2

8:00am Start of class

- I. Specifications Necessary for a Project.
- II. Development of Specifications.

~10:00am Mid-morning break

- III. (cont.) Development of Specifications.
- IV. Selecting Material, Component Type, Component Ratings, Corrosion Allowance, and Valves.

~12:00 to 1:00pm lunch break

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- V. (cont.) Selecting Material, Component Type, Component Ratings, Corrosion Allowance, and Valves.
- VI. Quality Self Assurance for International Commodities.

~3:00pm Mid-afternoon break

- VII. Fabrication of metallic pipe

~5:00pm End of Day 2

Day 3

8:00am Start of class

- I. Piping Design.
 - a. Pipe routing.
 - b. Locating process and utility pipelines in a pipe rack.
 - c. Piping flexibility.
 - d. Pipe supports

~10:00am Mid-morning break

- II. (cont.) Piping Design.
 - a. Bending pipe.
 - b. Welding pipe.
 - c. Valve type selection.

~12:00 to 1:00pm lunch break

- III. (cont.) Piping Design.
 - a. Slope in pipelines.
 - b. Steam trap selection and location.

~3:00pm Mid-afternoon break

- IV. (cont.) Piping Design.
 - a. Lined pipe issues.
 - b. Piping flexibility.
 - c. Pipe supports.

~5:00pm End of Day 3

Day 4

8:00am Start of class

- I. Pipe Installation.

~10:00am Mid-morning break

- II. Pipeline Cleaning.

~12:00 to 1:00pm lunch break

- III. Pipeline Testing

~3:00pm Mid-afternoon break

- IV. Pipeline Validation

~5:00pm End of Course

*It will be beneficial to have with you in class the latest versions of ASME B31.3 – Process Piping (2008 for \$350.00US) and ASME B16.5 – Pipe Flanges and Flanged Fittings (2009 for \$195.00US). Upon request, the Standards can be provided and the cost added to the course fee.