

ASME B31.3 - Process Piping Design, Construction & Mechanical Integrity (ASME B31.3 & API 570)

Training Date: 18th – 22nd March 2012

Training Time: 0730 – 1430 hours

Training Venue: Swiss-BelHotel Doha, Qatar

Training Fee: USD3,500 per participant

Introduction

This course provides the participants with a complete and up-to-date overview of process piping design. It covers piping fundamentals, material selection, component selection and the design, flexibility analysis, support design, fabrication, examination and testing requirements of ASME - B31.3 "Process Piping".

It covers Code requirements from design through start-up of new piping systems, as well as standards for inspection and repair of piping systems that have been in service, as provided in API 570, Piping Inspection Code

This workshop provides a foundation of knowledge necessary for those responsible for assuring the mechanical integrity of existing piping systems, as well as those responsible for designing and constructing new piping systems.

Learning Objectives

You will leave the course with a clear understanding of how piping systems can fail and what the Code requires the designer, manufacturer, fabricator, supplier, erector, examiner, inspector and owner to do to prevent such failures. A cursory review of "API 570 Piping Inspection Code" will introduce you to the requirements for inspection, repair, alteration and re-rating of existing piping systems.

Who Should Attend?

The course provides a foundation of knowledge for those designers, engineers and managers responsible for the design and construction of new piping systems, as well as those responsible for assuring the mechanical integrity of existing systems.

Workshop Contents

The course provides comprehensive coverage of the ASME B31.3, Process Piping Code requirements. General topics in the workshop include Code organization and intent, pressure design, design for sustained loads including support design, flexibility analysis, equipment loads, flanges, supports and restraints, materials, fabrication, examination, testing, and, for existing piping systems, mechanical integrity. Applications of these concepts, including simple hand analysis methods and computer based analysis methods, will be demonstrated. Inspection and maintenance (mechanical integrity) of existing piping systems will be covered, as provided in API 570, Piping Inspection Code.

Each session will be conducted in a lecture/discussion/problem solving format designed to provide intensive instruction and guidance on understanding Code requirements.

Participants should bring calculators for working sample problems. Participants may wish to bring a copy of ASME B31.3 if they have a copy available.

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Course Program

Module 1: Introduction

- History of Piping and Vessel Codes, Piping Development Process, Scope of B31.3, General Definitions, Piping System Codes & Standards, Organization of the Code, Fluid Service Definitions
- Piping Fundamentals - Pipe Data, Dimensions, Common Materials, Joints, etc

Module 2: Pipe and Selection & Design of Piping Components & Valves

- Piping System Failure, Bases for Selection, Listed Vs Unlisted Components, Fluid Service Requirements, Pipe, Fittings, Branch Connections, Flanges, Gaskets, Bolting.
- Piping Design Conditions, Allowable Stress, Joint Efficiency Factors, Design of Standard
- Piping Components – pipe & fittings, fabricated branch connections etc.
- Valve Selection – Code Requirements (ball, gate, globe, butterfly, check, plug)
- Piping Material Specifications

Module 3: Flexibility Analysis of Piping Systems

- Introduction to Flexibility Analysis, Flexibility Analysis Example
- Required Analysis, Allowable Stress Range, Displacement Stress Range,
- Sustained Load Stress, Occasional Load Stresses, Increasing Flexibility,
- Pipe Supports, Support Location, Support Spacing & Elements
- Stress Intensification, Thermal Expansion, Spring Hangers, Displacement Load Analysis.
- Reactions, Fabricated & Rotating Equipments, Cold Spring.
- Performing Detailed Analysis, Solving Problems, Sample Computer Flexibility Analysis

Module 4: Limitations on Piping and Components

Fluid Service Categories, Severe Cyclic Conditions

Module 5: Materials

- Strength of Material, Bases for Design Stresses, B31.3 Material Requirements, Listed and Unlisted Materials, Temperature Limits, Toughness Requirements, Deterioration in service.
- Material Classification Systems and Specifications, Materials Selection, Material Certificates

Module 6: Fabrication, Assembly, and Erection

Welder Qualification, Welding Processes, Weld Preparation, Typical Welds, Preheating and Heat Treatment, Owner Added requirements and Installation.

Module 7: Inspection, Examination, and Testing

Introduction, Inspection Versus Examination, Personnel, Requirements, Examination, Testing

Module 8: Piping for Category M Fluid Service

- Code Requirements, Design, Fabrication, Examination & Testing, Typical Owner Added Requirements.
- Design Conditions, Pressure Design of Metallic, Piping Components, Flexibility and Support of Metallic Piping, Pressure Relieving, Systems, Metallic Piping Materials

Module 9: High Pressure Piping

- Scope and Definition, Materials, Modified Base Code Requirements for High
- Pressure Piping, Flexibility and Fatigue Analysis of High Pressure Piping

Module 10. Supplemental Owner/User Requirements

API 570 Piping Inspection Code, What to Inspect, Types of Inspection, Repair, Alteration and Re-rating of In- Service Piping

Module 11. Nonmetallic Piping Systems

Design, Fabrication, Installation for Thermoplastics, Reinforced Thermosetting resins, Borosilicate glass , Piping lined with Non metals etc.

About the Course Instructor

Md. Kamal Uddin Ahmed ***Piping / Pipeline Design & Engineering*** ***Specialist***

Mr. Md. Kamal, B.E.(Mech) is a Senior Piping & Pipeline Engineer with 16 years of extensive international experience.

His expertise includes Piping Systems Detailed Engineering, Pipe Stress Analysis, Pipe Hydraulics, Process Plant Layout, Pipeline Design & Construction, Pipe Supports, Piping Systems Erection & testing, HVAC Plant Design, Plumbing & Fire Water Piping Systems.

Throughout his career, he has been providing this expertise for both new and operating process / power plants & facility construction industry using codes/standards, software analysis and field experience in arriving at safe, economical piping designs and solutions to piping problems.

He has offered Project Management, Design / Analysis, Construction / Testing / Inspection services in India & Kingdom Of Saudi Arabia involving many onshore & offshore projects.

He is an expert in Process, & Power Piping as per ASME & API standards including ASME B1.1, B31.3, B31.4, B31.8, & API 570.

He has designed & presented piping design seminars to piping engineers & designers across India, Qatar & Saudi Arabia.

He has trained more than 1500 mechanical, chemical, & petroleum engineers in Piping Engineering, Pipeline Design, HVAC & Plumbing Systems from different countries including India, Qatar, Saudi Arabia, Jordan, Turkey, Sudan, Ghana, Nigeria, Maldives, United Kingdom, & Thailand.

He is a dynamic speaker & master trainer providing knowledge transfer effectively with interactive style that connects with the audience.

About CfPE Technology Solutions

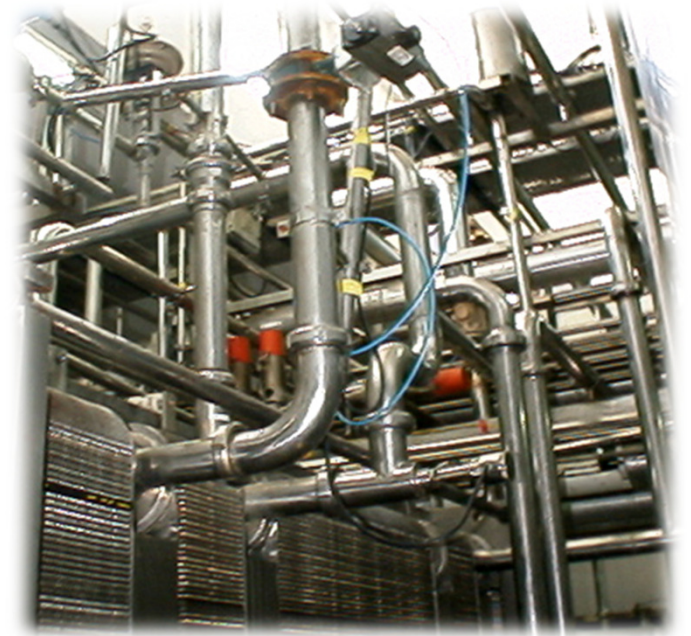
The Center for Professional Enhancement Technology Solutions (known as CfPE Technology Solutions) is incorporated in July 2001 and began as a training and consulting company for power plant, oil & gas and petrochemical sectors in Malaysia.

With a small team of experienced and dedicated engineers and multi skilled technical staff we have come a long way.

From those humble beginnings, we have successfully grown and today we have achieved reorganization as a premier in organizing short training in Malaysia.

CfPE Technology Solutions aims to make a difference. The need for leading-edge training has intensified and is advancing beyond all expectation; it is the basis upon which performance can be measured in an increasingly competitive marketplace.

CfPE Technology Solutions's mission is to assist and enable world-class companies to increase productivity and performance through their most vital assets - the workforce.



Registration Form

Please Send Your Registration To:

Tel:	006.013.208.2143	Fax:	006.09.617.8443	E-mail	info@cfpets.com
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Course Details

Course Name:	ASME B31.3 - Process Piping Design, Construction & Mechanical Integrity	Course Date:	18 – 22 March 2012
Venue:	Swiss-BelHotel Doha, Doha, Qatar	Fee:	USD3,500.00

Company Information

Organization	
Address	

HR / Training Manager

Invoice to be sent to

Name :		
Tel no.:		
Fax no.:		
E-mail :		

Participant Information

	Participant # 1	Participant # 2	Participant # 3
Full Name :			
Job Title :			
Department :			
Telephone No. :			
Mobile No. :			
Fax No. :			
E-mail Address :			

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Lot 1196, Jalan Mawar 8, Taman Permint Jaya, 21080 Chendering, Kuala Terengganu, Terengganu, MALAYSIA.
Tel.: 006.013.208.2143 Fax: 006.09.617.8443 Website: www.cfpets.com Email: info@cfpets.com