Pipe Rack and Industrial Access Steel Design Course

28 June – 2 July 2027
Addis Ababa

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Training Center

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Ref: 567_223785 **Date:** 28 June – 2 July 2027 **Location:** Addis Ababa **Fees:** 6000 Euro

Overview

Pipe Rack and Industrial Access Steel Design Course is a one-week advanced course for structural, civil, piping, plant, fabrication, and review teams who leave with an Industrial Steel Structure Design Basis. Participants connect pipe rack layouts, load paths, stability systems, pipe-support interfaces, access platforms, ladders, connections, fabrication, and erection. The course turns multidisciplinary inputs into traceable steel design coordination decisions. Agile Leaders Training Center presents pipe rack and industrial access steel design through practical engineering artifacts.

Who Should Attend

- Teams responsible for pipe rack, shelter, pipe-support, platform, and ladder structural systems
- Functions defining piping loads, equipment reactions, thermal effects, and operational cases
- Personnel coordinating steel members, bracing, connections, bases, and foundations
- Groups preparing fabrication details, erection sequences, and constructability reviews
- Reviewers checking structural design inputs, interfaces, assumptions, and deliverables

The course assumes participants can interpret structural drawings and basic steel calculations, and it leaves out project-specific analysis, final design, piping stress analysis, approvals, and professional certification.

Departments and Industries

The course supports departments and industries responsible for industrial steel systems, plant projects, technical assurance, and field delivery.

- Structural engineering, civil engineering, piping, and plant layout
- Petrochemical, chemical processing, power, and utilities
- Manufacturing, minerals processing, logistics, and industrial facilities
- Fabrication, detailing, construction, and erection supervision
- Engineering consultancy, project management, procurement, and quality assurance

Learning Objectives

By the end of this course, participants will be able to:

- Analyze pipe rack layouts, load cases, and transfer paths
- Evaluate transverse, longitudinal, and local stability systems
- Compare member, bracing, connection, and base-interface concepts
- Apply pipe-support, thermal, equipment, platform, and ladder coordination checks
- Build fabrication, erection, constructability, and quality review controls
- Prioritize decisions in an Industrial Steel Structure Design Basis

Course Agenda

Day 1: Systems, Layouts, and Design Inputs

- Pipe Rack, Shelter, Support, and Access System Classification
- Structural Grid, Bay, Elevation, and Expansion Layout Map
- Piping, Cable Tray, Equipment, and Access Interface Register
- Design Responsibility and Multidisciplinary Input Matrix
- Industrial Steel Structure Design-Criteria Brief

Day 2: Loads, Transfer, and Stability

- Gravity, Piping, Equipment, Environmental, and Maintenance Load Schedule
- Thermal, Friction, Anchor, Guide, and Operational Effect Map
- Load Combination and Governing-Case Decision Table
- Transverse Frame and Longitudinal Bracing Load-Path Diagram
- Overall, Member, and Local Stability Review Checklist

Day 3: Members, Bracing, and Supports

- Beam, Column, Strut, and Brace Behavior Screen
- Member Sizing and Utilization Review Sheet
- Pipe Shoe, Guide, Anchor, and Support Interface Matrix
- Equipment Shelter Framing and Serviceability Check Map
- Expansion Joint and Structural Break Coordination Plan

Day 4: Connections, Access, and Delivery

- Bolted and Welded Connection Design-Intent Schedule
- Base Plate, Anchor, Pedestal, and Foundation Interface Register
- Platform, Grating, Stair, Handrail, and Ladder Coordination Checklist
- Fabrication Detail and Shop-Drawing Review Workflow
- Erection Sequence, Tolerance, Access, and Quality Control Plan

Day 5: Industrial Steel Design Basis Practice

- Exercise: Define the Structural Layout and Interface Register
- Exercise: Build the Load Schedule and Stability Diagram
- Exercise: Screen Members, Bracing, Supports, and Connections
- Exercise: Resolve Access, Fabrication, and Erection Constraints
- Capstone Exercise: Industrial Steel Structure Design Basis

Practical Exercises

The course uses suggested activities to connect design inputs, structural behavior, multidisciplinary interfaces, and delivery controls.

- Suggested activity: map rack bays, elevations, supported systems, equipment shelters, access routes, structural breaks, and discipline responsibilities for an industrial case.
- Suggested activity: organize gravity, piping, equipment, thermal, environmental, and maintenance actions into a load schedule and load-path diagram.
- Suggested activity: compare framing, bracing, member, support, connection, and base concepts against stability, serviceability, access, and constructability criteria.
- Suggested activity: integrate assumptions, interfaces, checks, details, erection constraints, quality controls, and open decisions in an Industrial Steel Structure Design Basis.

FAQs

Who suits the pipe rack and industrial access steel design course and what does it assume?

It suits structural, civil, piping, plant, fabrication, construction, and review teams responsible for industrial steel systems, and assumes they can interpret structural drawings and basic steel calculations.

How does pipe rack steel design differ from a general structural steel design course?

Pipe rack steel design centers on piping reactions, thermal effects, equipment and cable interfaces, longitudinal and transverse stability, access structures, fabrication, and erection constraints that are specific to industrial facilities.

How are loads coordinated for structural steel pipe racks?

Loads are coordinated through a responsibility matrix, load schedule, operating-case register, support map, combination table, and load-path diagram that connect piping, equipment, electrical, structural, and maintenance inputs.

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Why are expansion and thermal effects important in pipe rack design?

Expansion and thermal effects influence anchors, guides, friction forces, structural breaks, longitudinal bracing, member demand, connections, and the distribution of reactions between the piping and structural systems.

What belongs in an Industrial Steel Structure Design Basis?

The design basis records system layouts, criteria, loads, combinations, load paths, stability systems, member and connection concepts, interfaces, access provisions, fabrication and erection controls, assumptions, checks, and open decisions.

Conclusion

Participants take back an Industrial Steel Structure Design Basis linking layouts, loads, stability, supports, access, connections, and delivery controls. It changes fragmented discipline inputs into a traceable basis for pipe rack and industrial access decisions. The design basis supports coordinated engineering without replacing project-specific analysis, final design, piping stress analysis, approvals, or professional certification.