



Piping Design, Construction and Mechanical Integrity (ASME B31.3 and API 570)

DURATION

5 days

CONTACT HOURS

30

LEVEL

Intermediate

FEE PER DELEGATE

R15,000

Process piping from design through construction to the integrity of the line once it is running.

Piping is designed under one code, built under another set of documents and then inspected under a third, and most of the expensive problems live in the handovers between them. This week follows a line the whole way. It starts with ASME B31.3: fluid service categories, allowable stress, wall thickness, flexibility and supports. It moves into fabrication, examination and testing as they are actually carried out and signed off. It finishes on in service integrity, where API 570 takes over, so a participant leaves understanding not only how a line is designed but what the designer owes the inspector who will be measuring it in ten years.

Available as classroom, live online, in house.

Who it is for

Piping, mechanical and project engineers, construction and commissioning engineers, QA and QC inspectors, and the plant engineers who inherit the line afterwards.

What you will be able to do

- Classify fluid service, and understand what each category changes.
- Calculate wall thickness and check a line against allowable stress.
- Assess flexibility, and recognise a support arrangement that will cause trouble.
- Specify examination and testing to the level the code requires.
- Hand over a line with the baseline data in service inspection will need.

The outline

DAY 1

Code and service

Scope of ASME B31.3 and the other B31 codes · Normal, category D, category M and high pressure fluid service · Design conditions, allowable stress and factors

DAY 2

Sizing and stress

Wall thickness for internal pressure · External pressure and collapse · Flexibility analysis, and when it is required · Supports, anchors and expansion

DAY 3

Materials and components

Material selection for the service · Valves, flanges, gaskets and bolting · Branch connections and reinforcement

DAY 4

Fabrication and examination

Welding requirements and procedure control · Examination extent by fluid service · Pressure testing, and the alternatives when it cannot be done · Documentation at mechanical completion

DAY 5

Into service

Baseline thickness readings and corrosion monitoring locations · Where API 570 takes over · The handover data an inspector will wish you had recorded

What you leave with

- Wall thickness and flexibility calculations on a real line.
- An examination and test plan to code.
- A defined handover data set, so the first inspection does not start blind.

Published dates

DATES	WHERE	FEE
23 to 27 November 2026	Durban, South Africa	R15,000
30 November 2026 to 4 December 2026	Cairo, Egypt	US\$1,500
7 to 11 December 2026	Port Louis, Mauritius	US\$1,500
14 to 18 December 2026	Gaborone, Botswana	R15,000

Fees are per delegate and cover all course materials and meals arranged by the delegate. Registration fees are not included.

Register or ask a question

globalaxistraining.co.za/courses/piping-design-construction-and-mechanical-integrity-asme-b31-3-and-api
info@globalaxistraining.co.za
+27 72 337 9234

250 Beyers Naude Drive, Rustenburg, North West, 2999, South Africa

This copy was produced on 30 October 2026.