



**MATRIX
QUANTUM**
SDN BHD



10 CEP



BOILER INSPECTION (TECHNICAL EDGE)

Who Should Attend:

**Plant Manager, Mill Manager,
Maintenance Manager, Steam Boiler
Engineer Grade 1&2, Steam Boiler
Operator Grade 1&2, Safety & Health
Officer, Plant Supervisor.**



2 & 3 SEP 2027(2 Days)



**No. 11B, Jalan Puchong
Permai 2, Taman
Puchong Permai, 47100
Puchong, Selangor.**

Course Fees

- Ex Student Matrix Price:
RM 1,944 (Inclusive 8%
SST / Per Pax)
- New Participant Price:
RM 2,268 (Inclusive 8%
SST / Per Pax)

Speaker:
**Mohd Fauzi bin
Mat Rasid**



www.matrixhse.com



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MATRIX QUANTUM SDN. BHD. 202201044306 (1490003-X)

Lot 180, Jalan 1A, Kampung Baru Subang,
40150 Shah Alam, Selangor Darul Ehsan.

Tel: 03-58926806 Email: matrixquantum88@gmail.com

TRAINING SCHEDULE & OUTLINE

Course Tittle	Boiler Inspection "Technical Edge"
Training Provider	Matrix Quantum Sdn Bhd
Duration	2 Days
Date	TBA
Time	09.00am – 5.00pm
Speaker	Mohd Fauzi bin Mat Rasid – Boiler Engineer Grade (JKKP 2025/JS01/1590)

Course Overview

Elevate your technical competency and ensure seamless statutory compliance. This intensive program moves beyond basic operation, providing a "Technical Edge" in boiler health assessment, regulatory navigation, and failure prevention.

Training Outcomes:

Upon completion of this training, participants will be equipped to immediately implement best practices and:

- 1) Interpret the statutory requirements of the Factories and Machinery Act (FMA) 1967 and the latest OSHA 1994 (Amendment 2022) regarding boiler safety.
- 2) Identify the specific roles and legal responsibilities of Competent Persons (Boilerman and Steam Engineers) during the inspection lifecycle.
- 3) Apply international design codes such as ASME Section I and BS EN 12952/12953 to verify boiler structural integrity.
- 4) Execute a comprehensive pre-inspection preparation plan, including cooling, isolation (LOTO), and confined space safety protocols.
- 5) Determine the most effective Non-Destructive Testing (NDT) methods for detecting subsurface cracks, wall thinning, and weld defects.
- 6) Assess the physical condition of internal boiler components through systematic visual inspection (VT) techniques.
- 7) Manage the documentation and technical requirements for the registration and commissioning of new boiler units.
- 8) Supervise a statutory Hydrostatic Pressure Test while adhering to precise safety and stabilization parameters.
- 9) Prepare the steam plant for a successful Certificate of Fitness (CF) renewal visit by a DOSH Inspector.
- 10) Verify the functionality of critical safety automation, including Low Water Fuel Cut-Off (LWFCO) and high-pressure alarms.



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TRAINING SCHEDULE

	TIME	DESCRIPTION	REMARK
DAY 1	8.30-8.45	REGISTRATION DAY 1	
	8.45-9.00	INTRODUCTION AND ICE BREAKING	
	9.00-10.30	MODULE 1	
	10.30-11.00	TEA BREAK	
	11.00-12.30	MODULE 2	
	12.30-14.00	LUNCH AND ZOHOR PRAYER BREAK	
	14.00-15.30	MODULE 3	
	15.30-15.45	TEA BREAK	
	15.45-17.15	MODULE 4	
	17.15	ADJOURN DAY 1	
DAY 2	8.30-8.45	REGISTRATION DAY 2	
	8.45-9.00	RECAP OF PREVIOUS DAY LESSONS	
	9.00-10.30	MODULE 5	
	10.30-11.00	TEA BREAK	
	11.00-12.30	MODULE 5	
	12.30-14.00	LUNCH AND ZOHOR PRAYER BREAK	
	14.00-15.30	MODULE 6	
	15.30-15.45	TEA BREAK	
	15.45-17.15	MODULE 6	
	17.15	END OF COURSE	



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MODULE OUTLINE DETAILS

1. MODULE 1 – CODES, STANDARD FOR BOILER INSPECTION

A. Regulatory Framework:

Deep dive into the latest OSHA 1994 (Amendment 2022).

B. Overview of International Design Codes:

Understanding the application of ASME BPVC Section I and BS EN 12952/12953 in the inspection context.

C. Jurisdictional Requirements:

Navigating the roles and statutory responsibilities of the "Competent Person" and "Authorized Examiner."

2. MODULE 2 – INSPECTION, METHODOLOGY & PREPARATION

A. Pre-Inspection Protocols:

Effective strategies for cooling down, isolation (LOTO), and internal cleaning (Fireside & Waterside)

B. Visual Assessment (VT): Systematic techniques for identifying structural anomalies in drums, tubes, and headers.

C. Advanced NDT Techniques:

Utilizing Ultrasonic Thickness (UT), Magnetic Particle (MPI), and Dye Penetrant Testing (PT) for flaw detection.

D. Confined Space Safety:

Essential safety measures and permit requirements for internal boiler entry.

3. MODULE 3 – NEW BOILER INSPECTION

A. Design & Document Verification:

Reviewing design calculations, material certificates, and manufacturer's data reports

B. Installation Verification:

Inspecting auxiliary equipment, mounting, and piping alignment prior to commissioning.

C. Initial Certification:

Navigating the workflow for the first-time issuance of the Certificate of Fitness (CF).

D. Hydrostatic Pressure Testing:

Executing the statutory pressure test including stabilization and hold times.



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4. MODULE 4 – CF RENEWAL INSPECTION (PERIODIC INSPECTION)

A. Statutory Cycle Management:

Preparing for the mandatory 15-month periodic inspection to ensure uninterrupted operation.

B. Test Procedure:

Executing safety valve floating, accumulation tests, and high-pressure cut-off verification.

C. Automation & Controls: Functional testing of Low Water Fuel Cut-Off (LWFCO) and water level control systems.

D. Logbook & Compliance: Best practices for maintaining statutory records to facilitate a smooth DOSH renewal visit.

5. MODULE 5 – SPECIAL INSPECTION & MAJOR REPAIR

A. Major Repair (PMT) Protocols: Managing inspections following welding, tube replacements, or structural repairs.

B. Relocation & Modification: Mandatory inspection requirements for boiler relocation, conversion, or capacity modifications.

6. MODULE 6 – COMMON BOILER DEFECTS & ROOT CAUSE

A. Corrosion & Scaling Mechanisms:

Analyzing oxygen pitting, caustic embrittlement, and the impact of poor water treatment.

B. Mechanical Integrity Issues:

Identifying signs of overheating, thermal fatigue, bulging, and creep rupture in tubes.

C. Preventative Strategies:

Implementing proactive monitoring and maintenance to mitigate critical asset degradation.