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, METHODOLGY & 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.