ASSETSCHOOLS

Precision Maintenance School

For over 25 years, Asset Schools has been sharing the knowledge of subject matter experts to help maintenance and reliability teams build competency and develop capability.

From deep, technical skills training to strategic asset management concepts, we've got you covered with public, onsite, or online courses. Courses are interactive and founded in extensive case history. Participants gain practical insights and tools that can be immediately applied to their work.

The recognition of our courses for Continuing Professional Development (CPD) participation ensures that the time invested in Asset Schools contributes to career advancement, ongoing professional growth, and development.

Course Snapshot

This intensive four-day interactive workshop is intended to prepare plant technicians, engineers and managers to take dead aim at Precision Maintenance (Fasteners, Lubrication, Alignment and Balance) in the plant and significantly improve the operational reliability of plant equipment and the plant processes they serve.

The course also equips them with instructions to properly design, justify and implement a Precision Maintenance initiative.

9 CORE MODULES

- The Business Case For Precision Maintenance Management
- Taking A Microscope Look At Precision Maintenance Fundamentals – An Introduction
- The Physics Of Machine Failure
- Modern, Machine Condition Monitoring – A Must For Precision Maintenance Management
- Reliability Engineering Methods For Precision Maintenance Management
- Fasteners
- Lubrication
- Alignment
- Balance

Course Outline

Public	30 hrs over 4 days
Onsite	30 hrs over 4 days

The Business Case For Precision Maintenance Management

- Macro and microeconomic benefits for your organization
- Your journey to world-class, proactive maintenance

Taking A Microscope Look At Precision Maintenance Fundamentals – An Introduction

- Fastening to reduce mechanical vibration
- Lubrication to cushion the effects of mechanical vibration
- Alignment to reduce mechanical vibration
- Balance to reduce mechanical vibration
- How managing Precision Maintenance to reduce vibration and improve lubrication extends machine life
- Electrical applications of Precision Maintenance management

The Physics Of Machine Failure

- Failure mechanisms connect failure modes to failure causes
- Right design and operation to manage stress-strength interference
- Understanding mechanical failure modes and mechanisms
- Understanding electrical failure modes and mechanisms

Modern, Machine Condition Monitoring – A Must For Precision Maintenance Management

- Proactive versus predictive condition monitoring and condition-based maintenance
- Vibration analysis fundamentals
- Lubricant analysis fundamentals
- Thermographic analysis fundamentals
- Ultrasonic acoustic emissions fundamentals
- Motor evaluation fundamentals
- Non-destructive testing techniques
- The “eyeometer” – visual and sensory inspections should create your foundation
- Designing a machine condition monitoring program
- The P-F interval for determining how and how often to monitor machine health
- How condition monitoring drives down maintenance costs
- How condition monitoring drives down maintenance inventories

Reliability Engineering Methods For Precision Maintenance Management

- The basics of reliability engineering
- How to manage risk over the life cycle of equipment assets

Fasteners

- Bolting theory – how fasteners really work to hold machines to together
- The difference between tension and torque
- How much tension? – Hooke’s Law
- How friction and lubrication influence torque and tension
- Proper bolting sequence
- Bolt basics – grades, standards and strength
- Wrong and right choices for washers
- Torque wrenches – 101

Lubrication

- Lubrication basics – the many roles of a lubricant
- Lubrication basics – the anatomy of a lubricant – it’s a bundle of performance properties
- How a lubricant protects the machine under full film, mixed film and boundary contact conditions
- Extending machine life with contamination control
- Machine set-up for lubrication maintainability
- Grease – not too much, not too little, but just right and just at the right time!
- Precision greasing with ultrasonic tools

PRECISION MAINTENANCE SCHOOL

Alignment

- The consequences of angular and offset misalignment
- How misalignment influences bearing life
- How misalignment influences coupling life
- How to detect misalignment with vibration analysis
- Laser alignment
- Managing pipe strain with alignment

Balance

- The basics of balancing
- Causes of imbalance
- How imbalance induced relative centrifugal force (RCF) robs your machines of life
- Balancing standards – ISO and API
- Single plane field balancing

Build Competency & Develop Capability

Learning Objectives

- How Precision Maintenance management drives bottom line performance
- Precision Maintenance management at work and the physics mechanical and electrical machine failure
- Practical machine condition monitoring applications – with a special focus on proactive condition-based maintenance
- How to leverage reliability engineering practices to improve Precision Maintenance management
- How to practically apply Fastener, Lubrication, Alignment and Balance practices in the plant to drive reliability
- How to manage the planning, scheduling and work management to assure effective Precision Maintenance management
- How to cost justify your Precision Maintenance management initiative – and sell it to management
- Best practices for assessing your strengths, weaknesses, opportunities and threats in Precision Maintenance management so you can take a targeted approach at addressing your weaknesses
- Recap – summary of Precision Maintenance management best practices

Who Should Attend

The course is perfect for managers and engineers who don't require in-depth technical expertise on any specific aspect of maintenance and reliability, specialist technicians who require a greater understanding about how their specialty serves the grander vision and for people who are new to reliability and require broad immersion.

- Mechanical maintenance technicians, craftspeople and artisans
- Electrical maintenance technicians and craftspeople and artisans
- Reliability technicians
- Condition monitoring technicians
- Maintenance planning and scheduling specialists and managers
- Mechanical and electrical supervisors and foremen

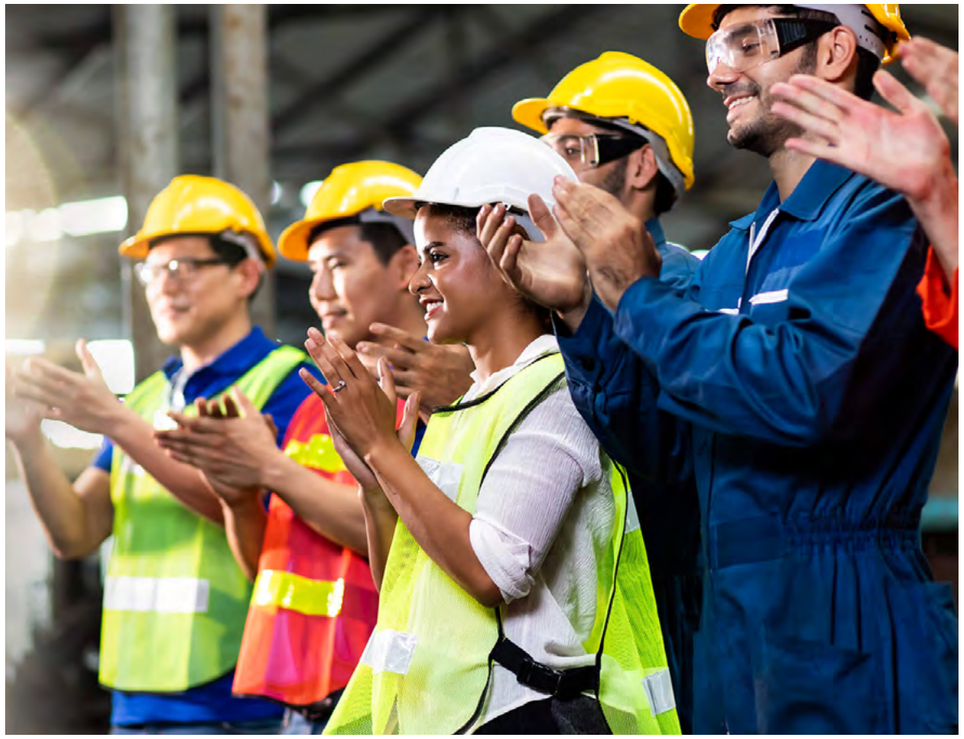
PRECISION MAINTENANCE SCHOOL

Who Should Attend (cont.)

- Reliability and maintenance engineers
- Reliability and maintenance managers
- Others with an interest in improving plant and process reliability

Takeaways

In addition to the course and a complete course book, you'll leave with a copy of Sigma Reliability's proprietary Precision Maintenance management SWOT analysis tool and an extensive library of documents, calculators, applicable standard and other resources so you don't have to reinvent the wheel in your journey toward excellence and managing Precision Maintenance in your plant and organisation.



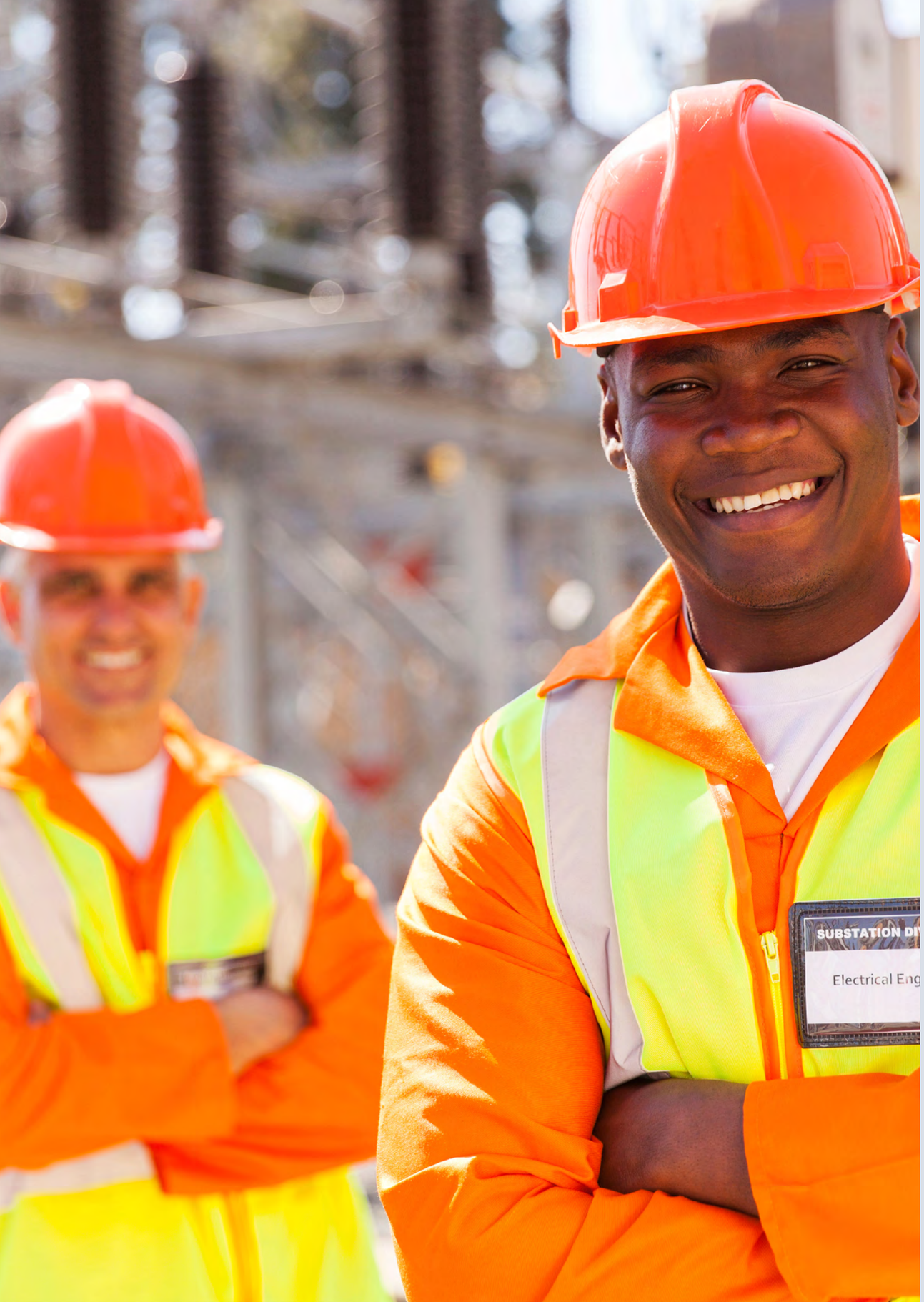
Your Instructor

Drew Troyer
Principal Director, Bootleg Advisors

Drew has more than 30 years of experience and thought leadership in the fields of sustainable manufacturing, physical asset management, energy management, reliability engineering and industrial land conservation and management. His deep Asset Management knowledge enables companies in the mining & resource, process, and manufacturing industries to operate more sustainable, dependable, profitable, and safe industrial sites, plants, and factories.

Drew is a world-renowned thought leader, and prolific author, with more than 350 published books, chapters, and articles, and a popular keynote speaker at conferences and symposia around the world. He is a Certified Reliability Engineer (CRE) and a Certified Energy Manager (CEM). He hold two master's degrees, one in business administration from Oklahoma City University, and a second in environmental sustainability from Harvard University.

PRECISION MAINTENANCE SCHOOL



Private Training

Whether you have 15 or 1500 people to train, we can tailor onsite training that works for you. Benefits include:

Customisation

Training can be tailored to meet the specific needs of your organisation. Content, examples, and case studies can be customised to align with your industry, culture, and strategic objectives.

Relevance

Onsite training can focus on topics that are directly applicable to your organisation's operations and industry. This ensures that the training content is highly relevant to the employees' day-to-day work.

Cost & convenience

Onsite training is always more cost-effective compared to public training, especially when a large number of employees requires training. Your company can save costs associated with travel, accommodation, and registration fees.

Confidentiality

Onsite training allows for open discussions and sharing of sensitive or confidential information. Employees can freely discuss their challenges, experiences, and specific issues related to their work.

Productivity & engagement

Onsite training provides an opportunity for employees to participate in training sessions together, fostering teambuilding and collaboration. By sharing a learning experience, employees can strengthen relationships.

Long-term impact

Onsite training has a lasting impact on culture and performance. Since the training is specifically designed to address the organisation's needs, it can contribute to long-term changes in behaviour, processes, and practices.

Training Courses

Asset Management School
2 Days, 8 Modules | Public, Onsite

Understand why specific processes, systems and reports are necessary to inform asset management decision making.

Lubrication Awareness
4 Hours, 13 Modules | Public, Onsite, Online

An overview of how lubricants work and many elements that are important to an effective lubrication program.

Lubrication Fundamentals
1 Day, 11 Modules | Public, Onsite

The fundamentals of machinery lubrication necessary for a foundational understanding of lubrication enabled reliability.

Lubrication School Level 1
2.5 Days, 20 Modules | Public, Onsite, Online

The fundamentals of machinery lubrication necessary for a foundational understanding of lubrication enabled reliability.

Lubrication School Level 2
2.5 Days, 15 Modules | Public, Onsite, Online

Advanced machinery lubrication topics including lubricant selection, troubleshooting lubrication problems, metrics, PMs and more.

MRO Inventory Management School
2 Days, 7 Modules | Public, Onsite

Best practices and strategies for effective MRO inventory management, and the principles of spare parts optimisation.

Planners' School Level 1
2 Days, 8 Modules | Public, Onsite, Online

An introductory level, suitable for planning practitioners who are starting out or for those wanting to brush up on the basics.

Planners' School Level 2
2 Days, 8 Modules | Public, Onsite

The next body of training building on Planners' 1 introductory concepts looking at how work delivery can be optimised with existing teams, systems, and approach to work management.

Precision Maintenance School
4 Days, 9 Modules | Public, Onsite

Take dead aim at Precision Maintenance (Fasteners, Lubrication, Alignment and Balance) to significantly improve operational reliability of plant equipment and the plant processes.

Reliable Assets School
2 Days, 8 Modules | Public, Onsite

The total approach to ensuring assets deliver their required level of reliability and performance throughout their operational life.

Shutdown School
2 Days, 8 Modules | Public, Onsite

Understand the work associated with the delivery of shutdowns and turnarounds

Sustainable Assets School
4 Days, 10 Modules | Public, Onsite

Decarbonisation and Energy Management for Maintenance & Reliability Teams.

Switch On: Safety Leadership
2 Days, 8 Modules | Public, Onsite

Helping Maintenance and Reliability leaders and teams develop their commitment to safety so they can then create a stronger safety culture.

Vibration Analysis Level 1
3.5 Days, 6 Modules | Public, Onsite

'Entry', or 'Junior Level' Mobius Institute™ Category I course is intended for personnel who are new or have 6 months vibration monitoring and analysis experience.

Vibration Analysis Level 2
4.5 Days, 11 Modules | Public, Onsite

The 'Intermediate Level' Category 2 course is ideal for those who are interested in condition monitoring to ensure the reliability of their machinery.

Vibration Analysis Level 3
5.5 Days, 9 Modules | Public, Onsite

The Advanced Category 3 is for a candidate who is committed to reliability through condition monitoring, and who has at least two years vibration analysis experience.

Learning Pathways

Asset Schools training courses can be completed individually at any time, but have you considered planning a Learning Pathway?

Precision Maintenance School

Asset Management School

Sustainable Assets School

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Most popular for Maintenance and Reliability Leaders, Superintendents and Managers.

Client Testimonials

Asset Management School was absolutely fantastic! Not just the content, but also the networking evening, the whole experience. Despite 23 years as a maintenance engineer and planner, I learnt so much to take back to apply in my business.

Salman Rashed
Assets Maintenance Planner
Waikato Regional Council

Asset Schools give peace of mind that the investment in our Maintenance and Reliability professionals will provide a great return to both them and the business.

Gwyn Garland
Senior Manager,
Asset Health Newmont

The training provided by Asset Schools was exceptional, offering a highly educational experience that enabled us to learn a wealth of new knowledge and skills.

Ali Sahin
Senior Engineer, Reliability
Rio Tinto

Asset Management School is a great investment for experienced Maintenance Practitioners who want to fine tune their skills, or for new entrants to use it as a sound starting base to the industry.

Roh Perera
Underground Planning Supervisor
Macmahon

Contact Us

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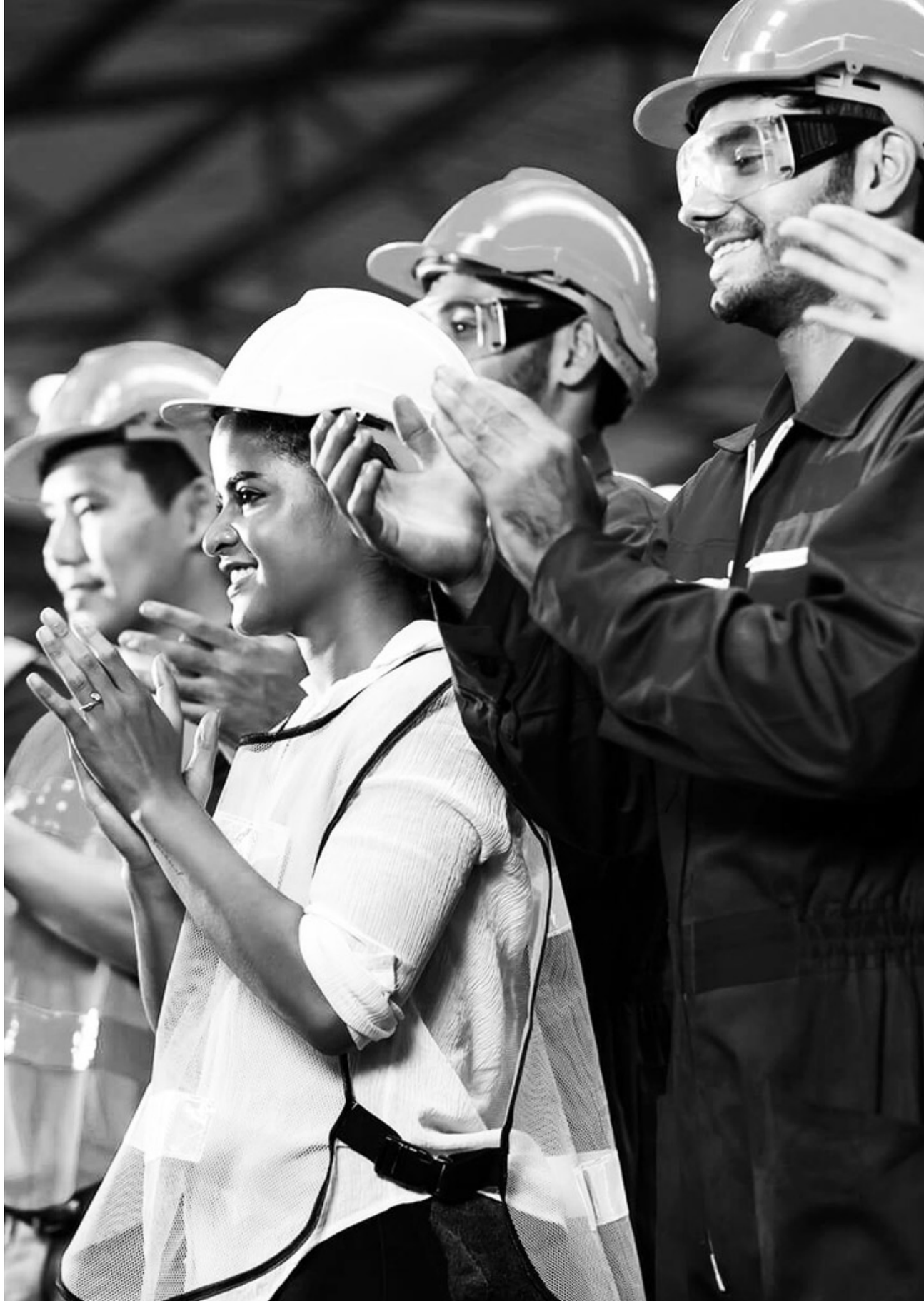

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World Class Training

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