

**COURSE OVERVIEW FE0062-3D**  
**Certified Composite Wrapping for the Repair of Steel Pipework in**  
**Accordance with ASME/ANSI B31.3**

*Design Calculation, Material Selection, Application & Execution*

**Course Title**

Certified Composite Wrapping for the Repair of Steel Pipework in Accordance with ASME/ANSI B31.3: *Design Calculation, Material Selection, Application & Execution*

**Course Reference**

FE0062-3D

**Course Duration/Credits**

Three days/1.8 CEUs/18 PDHs

**Course Date/Venue**



Option(s)	Date	Venue
1	April 16-18, 2024	Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
2	April 23-25, 2024	
3	April 30-May 02, 2024	
4	May 07-09, 2024	
5	May 14-16, 2024	
6	May 21-23, 2024	
7	May 28-30, 2024	

**Course Description**



***This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.***



This course is designed to provide participants with a detailed and up-to-date overview of Certified Composite Wrapping for the Repair of Steel Pipework in Accordance with ASME/ANSI B31.3: Design Calculation, Material Selection, Application & Execution. It covers the importance and applications of composite wrapping in industrial settings; the ASME/ANSI B31.3 standards relevant to composite wrapping; the materials used in composite wrapping including the properties and selection criteria; the corrosion and damage mechanisms including safety practices and environmental considerations in the application of composite wraps; and the detailed procedures for calculating the required thickness and properties of composite wraps.



Further, the course will also discuss the selection of appropriate materials based on operating conditions, corrosion factors and mechanical requirements; the techniques for adhesive selection and surface preparation; ensuring the quality of composite materials and adhesives used in wrapping; the impact of environmental conditions on material performance and selection; the detailed steps for surface preparation including cleaning and priming; and the best practices for applying composite materials



to ensure optimal bonding and integrity.

During this interactive course, participants will learn the curing process and techniques; the inspection and testing of composite wraps; identifying and resolving common problems encountered during the wrapping process; the strategies for monitoring maintenance and life expansion of wrapped pipework; the advanced materials and technologies in composite wrapping; and ensuring compliance with ASME/ANSI B31.3 and other relevant standards throughout the wrapping process.

### Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on the design calculation, material selection, application and execution of composite wrapping for the repair of steel pipework in accordance with ASME/ANSI B31.3
- Discuss the importance and applications of composite wrapping in industrial settings
- Review ASME/ANSI B31.3 standards relevant to composite wrapping
- Enumerate the materials used in composite wrapping including the properties and selection criteria
- Recognize corrosion and damage mechanisms including safety practices and environmental considerations in the application of composite wraps
- Carryout design calculations for composite wrapping as well as the detailed procedures for calculating the required thickness and properties of composite wraps
- Select appropriate materials based on operating conditions, corrosion factors and mechanical requirements
- Implement techniques for adhesive selection and surface preparation and ensure the quality of composite materials and adhesives used in wrapping
- Recognize the impact of environmental conditions on material performance and selection
- Carryout detailed steps for surface preparation including cleaning and priming
- Employ best practices for applying composite materials to ensure optimal bonding and integrity
- Explain curing process and techniques as well as perform inspection and testing of composite wraps
- Identify and resolve common problems encountered during the wrapping process
- Apply strategies for monitoring maintenance and life expansion of wrapped pipework
- Discuss advanced materials and technologies in composite wrapping and ensure compliance with ASME/ANSI B31.3 and other relevant standards throughout the wrapping process

### Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Howard Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials, sample video clips of the instructor’s actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.

### Who Should Attend

This course provides an overview of all significant aspects and considerations on the design calculation, material selection, application and execution of composite wrapping for the repair of steel pipework in accordance with ASME/ANSI B31.3 for engineers, inspection and maintenance personnel, project managers, contractors and other technical staff seeking to enhance their knowledge and skills in composite wrapping techniques for steel pipework repairs.

**Course Certificate(s)**

(1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Certificates are valid for 5 years.

**Recertification is FOC for a Lifetime.**

**Sample of Certificates**

The following are samples of the certificates that will be awarded to course participants:-



- (2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

\* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \*



**Haward Technology Middle East**  
Continuing Professional Development (HTME-CPD)

**CEUs**

## CEU Official Transcript of Records

**TOR Issuance Date:** 14-Nov-22  
**HTME No.** 74852  
**Participant Name:** Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
FE0062-3D	Certified Composite Wrapping for the Repair of Steel Pipework in Accordance with ASME/ANSI B31.3: <i>Design Calculation, Material Selection, Application &amp; Execution</i>	November 12-14, 2022	18	1.8

**Total No. of CEU's Earned as of TOR Issuance Date** **1.8**

**TRUE COPY**



Jaryl Castillo  
Academic Director

Haward Technology has been approved as an Accredited Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2018 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2018 Standard.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking Continuing Education Units (CEUs) in accordance with the rules & regulations of the International Association for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology is accredited by



P.O. Box 26070, Abu Dhabi, United Arab Emirates | Tel.: +971 2 3091 714 | E-mail: info@haward.org | Website: www.haward.org

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**Certificate Accreditations**

Certificates are accredited by the following international accreditation organizations: -


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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology’s courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **1.8 CEUs** (Continuing Education Units) or **18 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant’s involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant’s CEU and PDH Transcript of Records upon request.

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

**Accommodation**

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

### Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



**Mr. Jim Davies, CSWIP, IIW, is a Senior Inspection Engineer with over 40 years of extensive experience within the Power, Petrochemical, Refinery, Oil & Gas and Aviation industries. His expertise includes major Repair of Steel Pipework, Composite Wrapping, Stainless Steel, Carbon Steel, Pipeline Projects, Pressure Testing of Piping Systems, Tank Internal & External Piping, Pressure Vessels, Fabrication & Welding, Fabrication & Installation, Pipelines & Fabrication, Cutting & Welding Equipment, Welding Procedures, Welding Qualification Testing, Welder Training Testing Program, NDT Inspection, Thermal Corner Protection Plate (TCPP), WPS/PQR's for Welding of Nickel, Inconel, Duplex & Super Duplex Stainless Steels, Painting & Insulation, Chemflake Application, Inspection of Coatings, Hydrostatic Pressure Testing of Piping Systems, Hydrotest & Pneumatic Testing, Engineering Resources and Construction for Oil & Gas Projects, Testing of Concrete Samples, Concrete Coated Line Pipe, Wastewater Treatment Containment Tank, Commissioning of HVAC, Piping & Flanges, Gas Turbine, Radiographic Interpretation and has detailed knowledge of Codes EN 13420-API 650/API 1104, API 6A/API 17D/API 650/DNV/ANSI B31.3/ANSI B31.3/ASME V, ASME IIX-IX/DNV OS F 101/NACE/ASTM/AWS D1.1/ISO 9001/14001 18001 & ISO 13628-5 Umbilical's and NoBo, Apragaz to ensure compliance with ATEX, PED, Codes & Regulations. Further, he is also well-versed in Commissioning Systems, Pre-Commissioning & Commissioning of Large Oil & Gas Projects, Refinery Shutdowns & Turnarounds, LNG/LPG Storage Tanks, Electrical & Instrumentation Systems & Subsystems, Power Stations, Power Distribution, Earthing Connections, Mechanical Completion, Site Civil Works, Fire Protection Systems, Passive Fire Protection (PFP), Project Turnover Packages, Safety Culture, Safety Management, Confined Space, First Aid, Safety in the Workplace, Fire Fighting Awareness, Asbestos Awareness, Behavioural Based Safety, Manual Handling & Working at Height, OHSAS 18001, ISO 14001 and ISO 9001 Quality Management Systems (QMS).**

During his career life, Mr. Davies has held prime positions and has worked for international companies such as the **Construction QAQC Manager, Welding & NDT Specialist, Painting & Insulation Specialist, Client Quality & Pre-Commissioning Manager, Site Quality Manager, Client Quality and Pre-Commissioning Manager, QAQC Manager, Welding Engineer, QAQC Lead/Quality Team Leader and Senior Instructor/Trainer** from various international companies like the Statoil PROCOSYS MCCR, Project Power UK., Arcelormittal-C Shift Carbon Capture Project, Belgium Zeebrugge LNG Terminal, Petrofac/ROO Project, Chevron Gorgon Upstream JV, Saipem UK/Statoil, British Gas Hasdrubal Pipeline Project, Tunisia & BP PX2 Chemical Plant and Exxon & Total Antwerp.

Mr. Davies is a **Member of Chartered Institute of Building (Eq. MSc. Hons Degree)** and has **Diploma of NVQ Level 6 Construction Site Management (Eq. BSc. Hons Degree)**. Further, he is an **IIW Certified International Welding Inspector**, a **CSWIP Senior Inspector Welding 3.2**, a **CSWIP Radiographic Interpreter**, a **British Gas/CSWIP Senior Pipeline Inspector 1**, a **Certified ASNT Level II (RT, MT, PT, UT, RT)**, an **EFW Diploma European Welding Inspection Specialist**, a Member of North American Corrosion Engineers (**NACE**), American Society for Quality (**ASQ**) and American Welding Society (**AWS**) and has further delivered numerous trainings, courses, seminars, conferences and workshops internationally.

### Course Fee

**US\$ 5,500** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

### Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

### Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

#### **Day 1**

0730 – 0800	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0900	<b>Overview of Composite Wrapping:</b> Introduction to Composite Wrapping, its Importance of Composite Wrapping & Applications in Industrial Settings
0900 – 0930	<b>ASME/ANSI B31.3:</b> Detailed Review of ASME/ANSI B31.3 Standards Relevant to Composite Wrapping
0930 – 0945	<i>Break</i>
0945 – 1030	<b>Basic Principles of Composite Materials:</b> The Materials Used in Composite Wrapping Including their Properties & Selection Criteria
1030 – 1100	<b>Corrosion &amp; Damage Mechanisms:</b> How Corrosion & Other Forms of Damage Affect Steel Pipework & How Composite Wrapping Mitigates these Issues
1100 – 1215	<b>Safety Considerations in Composite Wrapping:</b> Safety Practices & Environmental Considerations in the Application of Composite Wraps
1215 – 1230	<i>Break</i>
1230 – 1330	<b>Design Calculations for Composite Wrapping:</b> Basic Principles & Introductory Calculations for Designing Composite Wraps
1330 – 1420	<b>Advanced Design Calculations:</b> Detailed Procedures for Calculating the Required Thickness & Properties of Composite Wraps
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

#### **Day 2**

0730 – 0830	<b>Material Selection Criteria:</b> Selecting Appropriate Materials Based on Operating Conditions, Corrosion Factors, & Mechanical Requirements
0830 – 0930	<b>Adhesive Selection &amp; Surface Preparation:</b> Techniques for Selecting the Right Adhesives & Preparing Pipe Surfaces for Wrapping
0930 – 0945	<i>Break</i>



0945 – 1030	<b>Hands-on Design Calculation Exercise:</b> Design Calculations for a Hypothetical Repair Scenario
1030 – 1100	<b>Quality Assurance &amp; Quality Control (QA/QC) for Materials:</b> Ensuring the Quality of Composite Materials & Adhesives Used in Wrapping
1100 - 1215	<b>Environmental Considerations in Material Selection:</b> The Impact of Environmental Conditions on Material Performance & Selection
1215 – 1230	Break
1230 – 1330	<b>Preparation for Wrapping:</b> Detailed Steps for Surface Preparation, Including Cleaning & Priming
1330 - 1420	<b>Application Techniques for Composite Wraps:</b> Best Practices for Applying Composite Materials to Ensure Optimal Bonding & Integrity
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3**

0730 – 0830	<b>Curing Processes &amp; Techniques:</b> Overview of Curing Processes, Including Time, Temperature, & Environmental Considerations
0830 – 0930	<b>Inspection &amp; Testing of Composite Wraps:</b> Methods for Inspecting & Testing Wraps Post-Application to Ensure they Met Design Specifications
0930 – 0945	Break
0945 – 1030	<b>Troubleshooting Common Issues:</b> Identifying & Resolving Common Problems Encountered During the Wrapping Process
1030 – 1100	<b>Case Studies:</b> Review of Real-World Applications & Case Studies of Composite Wrapping
1100 - 1215	<b>Lifecycle Management of Composite-Wrapped Systems:</b> Strategies for Monitoring, Maintenance, & Life Extension of Wrapped Pipework
1215 – 1230	Break
1230 – 1245	<b>Advanced Composite Materials:</b> Exploration of Advanced Materials & Technologies in Composite Wrapping
1245 - 1300	<b>Regulatory &amp; Standards Compliance:</b> Ensuring Compliance with ASME/ANSI B31.3 & Other Relevant Standards Throughout the Wrapping Process
1300 – 1315	<b>Course Conclusion</b>
1315 – 1415	<b>COMPETENCY EXAM</b>
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course





**Practical Sessions**

This practical and highly-interactive course includes real-life case studies and exercises:-



**Course Coordinator**

Mari Nakintu, Tel: +971 2 30 91 714, Email: [mari1@haward.org](mailto:mari1@haward.org)