Wood Protection Association

Code of Practice:

Standards of Training

Timber Treatment Installations

1st edition: June 2024

The Wood Protection Association (WPA)

The WPA is a not for profit technical and advisory organisation focussed on the development and promotion of wood protection technology to support the use of wood as a cost effective, sustainable and low environmental impact construction material.

The WPA acts as a technical advisor to British and European Standards setters on wood preservation, modified wood and the fire protection of wood. On the Regulations governing wood protection, the WPA enjoys lead body status with agencies like the Health & Safety Executive, Environment Agency, Scottish Environmental Protection Agency, the Department for Environment, Food & Rural Affairs and National Highways.

The WPA operates Benchmark quality approval schemes for preservatives, flame retardants and modified wood – providing valid independent assessment and verification. Designed to further assure products and processes are fit for purpose.

As designers look increasingly to wood as a low carbon construction material the WPA is committed to providing guidance on the best ways to ensure wood is fit for the purpose intended.

Benchmark QUALITY APPROVAL SCHEMES WPA

About this Code of Practice

The purpose of the Code is to give practical guidance on the standards of training for operators of industrial wood treatment installations. Although there is no statutory obligation to adopt this Code, there are legal obligations (**Using biocides - HSE**) to ensure industrial users of regulated biocidal products have received appropriate information, instruction and training in the use of those biocidal products.

WPA
Wood Protection Association

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Wood Protection Association

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1. Introduction

Industrial wood treatment is a well-established process in the UK and has been a key factor in promoting the wider use of wood in construction and many other end uses.

This Code of Practice (CoP) offers guidance on appropriate standards of training in safe and effective wood preservation for Great Britain (England, Scotland and Wales). For plant operators working in N. Ireland, differences in legislation exist that trainers and operators must be aware of – though the basic training and knowledge requirements are similar in all countries of the UK. Such training should include sufficient theoretical and practical education and should be supplemented by on-the-job experience.

Elements of competence other than training such as the practical skills developed by day-to-day experience are not fully covered by this CoP but they are no less important and simple adherence to formal training standards may not be an adequate defence against any charge of incompetence.

Operators of industrial wood treatment installations are specifically required to be competent in the work they undertake. It follows, therefore, that their training need be relevant only to that work.

2. Scope

This CoP is applicable to all industrial wood treatment installations, located within the UK, using pressure and vacuum processes to apply wood preservatives. It is not applicable to superficial methods of applying wood treatments such as brushing, spraying or dipping.

Due to the variability of treatment installations and treatment products, this CoP only offers general guidance and employers shall satisfy themselves that adequate and relevant information, instruction and training is provided to their employees, to discharge duties imposed by legislation in respect of their operation.

In this CoP, industrial wood treatment plant operator (plant operator) means any person who uses a product approved or authorised as a wood preservative in the UK. It is intended that this CoP should cover all aspects listed by National Occupation Standards '*Apply treatment chemicals to wood*' (https://www.ukstandards.org.uk/en/nos-finder/PROWPT2/apply-treatment-chemicals-to-wood).

A typical wood preservative pressure treatment plant. Photo courtesy of BSW Timber.

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3. Responsibilities

Safe use of wood preservative products requires adequate training as any inappropriate use may lead to injury to users and harm to the environment or the public.

Plant operators shall:

Be competent to safely and effectively operate the plant and equipment they are employed to operate.
Be competent to apply wood preservatives appropriate to the wood type and condition, dimensions, end use, use class and service life or other relevant instructions stated by the customer.
Be competent to operate relevant equipment and record results from treatment quality control systems.
Be aware of responsibilities in disposal of waste.
Have written evidence of refresher training at intervals of no more than five years. Knowledge must be kept up to date with changes in law, technology and safe working practice.

Photo courtesy of James Jones.

Employers shall:

Be responsible for ensuring that adequate training is provided for plant operators.
Ensure plant operators are competent to carry out their assigned duties and responsibilities.
Satisfy themselves that any training given takes account of the specific requirements of relevant legislation.
Provide adequate supervision and ensure that supervisors have sufficient knowledge to safely carry out their duties.
Allocate the necessary resources required to ensure the safe and effective operation of the wood treatment installation.

4. Legislation

Employers shall satisfy themselves that adequate and relevant information, instruction and training is provided to their employees to discharge duties imposed by national or local legislation as relevant.

This CoP does not cover all legislation relating to the operation of an organisation and focusses on the particular requirements of industrial wood treatment operations.

5. Using this Code of Practice

Training only needs to be relevant to work undertaken. Trainers should construct a training programme to include those elements from the following modules that apply to an individual's work activities. The content of the modules is provided as guidance and an appropriate training programme may contain additional aspects relevant to the workplace and operation.

A training programme should consist of desk-based learning as well as instruction and observation in the work place. A method for assessing the competence of operators is essential to ensure understanding of the content and the ability to carry out the required tasks and duties in a safe and effective manner.

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6. Developing a Training Programme

An effective training programme will meet the needs of the organisation, employees and other stakeholders. It is important to take into account the following factors when developing appropriate training:

6.1 Assess the training needs, goals and success criteria

- Why is the training programme required?
- What legal obligations need to be covered?
- Who is the training for?
- What will be achieved through training?
- How will success be measured?

6.2 Determine the appropriate delivery method

- Classroom and/or online and/or work-place style?
- In-house or third-party delivery?
- Competence of external and in-house trainers?
- Individual or group training?
- One-time training, self-paced and/or continuing programme?

6.3 Learner abilities and current competence

- Will the programme be suitable for all abilities and experience?
- Will language, learning difficulties and basic numeracy or literacy be adequately considered?
- How will the organisation deal with 'Grandfather rights' for experienced operators or those that are competent and join the organisation? *(Grandfather rights, or 'acquired rights' as they are also known, are granted when there is a change in legal requirement for a qualification in order to occupy a particular role)*

6.4 Develop learning objectives

- What topics need to be covered in the training?
- For each topic what are the learning objectives and outcomes?

6.5 Design and develop training materials

- Will training materials include slide presentations, videos, workbooks, practical demonstrations and samples?
- How will training content be assessed for suitability and to meet the training objectives?

6.6 Implement training

- Allocation of appropriate time for training?
- Cover for those being trained to ensure minimal disturbance?
- Are appropriate resources available to deliver the training?

6.7 Assessment and evaluation

- How will the training be assessed? Written, verbal or observation?
- What is the procedure for those that fail the assessment?
- How will trainees provide feedback and evaluation of the training?

6.8 Measure success and develop

- Have the training objectives been met?
- Will the training be re-evaluated regularly to take account of feedback and changes in requirements?
- Who is responsible for managing the training programme?

Photo courtesy of PTG Treatments.

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7. Training Modules

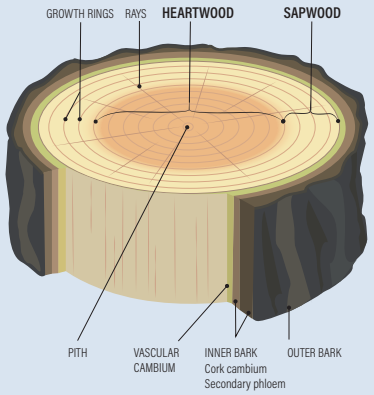
The following training modules are recommended to provide a structured training programme. These cover the basics of operating or supervising a wood treatment installation and additional learning to include why and how wood is treated.

7.1 Wood properties and enemies

LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
Structure of wood Understand the basic structure of wood and how it affects treatment.	Describe the differences between sapwood and heartwood and how this can impact on treatment. Describe how liquids are naturally transported through wood and how this can influence treatment
Moisture content Understand the concepts of water in wood and the impact on treatment.	Describe what is meant by the 'moisture content' of wood and 'fibre saturation point'. Describe common processes for drying wood and the importance of moisture content in treatment.
Biological attack Understand why wood is subject to attack by biological agents and the factors that influence it.	State that wood can be a food source or habitat for biological agents and biological attack is affected by moisture content, oxygen and temperature.
Enemies of wood Know the different types of organisms that attack wood.	Describe and differentiate the different biological agents that attack wood; sapstain and mould, decay fungi, insects (including termites) and marine borers.

7.2 Treatment of wood

LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
Natural durability Know that wood species can have different natural durability.	Describe the natural durability classes of wood as described in EN350 and state that all sapwood is classed as 'not durable'
Treatability Understand that different species of wood can be more difficult to treat than others.	Describe the concept of treatability and treatability classes as defined in EN350 and that this relates to penetration of preservative. State that pine sapwood is 'easy to treat' but spruce sapwood is 'difficult to treat' and the difference between sapwood and heartwood treatability. Explain that treatment standards are largely based on sapwood protection and identify when heartwood protection is required and how it is achieved
Use Classes Understand the concept of Use Classes and how these relate to the risk of biological attack.	Describe the British Standard Use Class system, how this relates to exposure to moisture or wetting and state examples of end uses in each Use Class
Preservative application methods Understand the different preservative application methods from superficial to vacuum pressure processes.	State the two main types of vacuum pressure application methods and describe the features of each.
Types of preservatives Understand the different preservative types.	Describe the differences between low pressure, high pressure and creosote preservatives.



Moisture meter reading.
Photo courtesy of BSW Timber.

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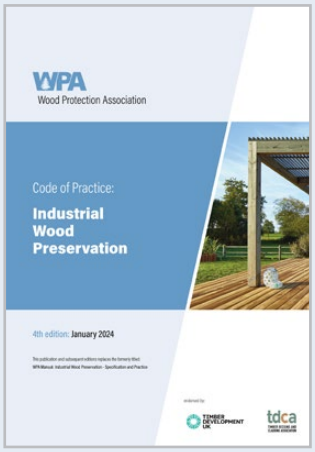
7.3 Standards & specifications

LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
British Standards Know that the main British Standard relating to the industrial preservation of wood is BS 8417 and the key elements covered.	Describe the key elements of BS 8417: • The need for treatment • Use Classes • Natural durability • Desired service life • Penetration classes • Preservative types & specification • Sampling & testing'
The WPA Code of Practice: Industrial Wood Preservation Know that the WPA publishes a Code of Practice (CoP) which reflects the key elements of BS 8417	Describe the key elements of the CoP: • Objectives and practice of industrial wood preservation • Wood preservative types • Specifying preservative treatment • Treating wood • Using treated wood • Safety, health & the environment
Penetration Classes Understand the different penetration classes from NP1 to NP7 and the importance of penetration of preservative.	Describe how the penetration of preservative relates to the Use Class of the treated wood product and why this is important.
Specifying wood treatment Understand the importance of specifying the correct treatment.	Describe why the correct treatment specification is critical to ensuring that treated wood is fit for purpose. State that the specification will include: • Use Class of the treated wood product • Species of wood • Treatment type • Penetration and retention of preservative • Desired service life State that poor specification can lead to incorrect treatment and premature failure of the treated wood product.



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7.4 Applicable legislation

LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
The Health and Safety at Work Act 1974 Be aware of the Act and know what responsibilities the employee and employer have.	Describe a summary of the duties of employees and employers in complying with the Act.
GB Biocidal Products Regulations and Control of Pesticides Regulations Know that the use of biocidal products (also called 'pesticides' in early legislation) is governed by legislation and the key requirements.	Describe the key elements of the legislation: • The regulations aim to make sure that when biocidal products are used properly, they do not harm people, animals or the wider environment • Any person that uses a pesticide in the course of their work must be given information, instruction and training in its use (COPR) • Other elements include; reading and implementing label advice, risk assessments, personal protective equipment (PPE), storage, disposal and emergencies
The Control of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended) Understand the difference between 'Hazard' and 'Risk' and the basic principles of the regulations.	Describe the terms 'Hazard' and 'Risk'. Describe the outline of the regulations: • Establish what the health hazards are • Decide how to prevent harm to health (risk assessment) • Provide control measures to reduce harm to health • Make sure they are used • Keep all control measures in good working order • Provide information, instruction and training for workers and others • Provide monitoring and health surveillance in appropriate cases • Plan for emergencies
The Industrial Emissions Directive(2010/75/EU) and applicable UK regulations Understand the key features of environmental legislation in the UK and any permitting responsibilities.	Describe the key features of environmental regulations: • Take all the appropriate, preventive measures to counter pollution • Not cause release of preservative to the environment • Avoid the production of waste • Use energy efficiently • Take all steps to prevent accidents and limit their consequences if they do happen • Avoid pollution and return the site to its former state if the regulated activities at the site should cease Describe the environmental permits applicable to the treatment operation and their own specific responsibilities.

Photo courtesy of BSW Timber

Photo courtesy of PTG Treatments.

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7.5 Health, safety & environmental aspects

LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
Legislative requirements Comply with relevant health, safety and environmental legislative requirements.	Comply with relevant workplace health, safety and environmental requirements
Hazards Recognise hazards in the workplace that have not previously been controlled and know the appropriate organisational procedures to follow.	Report uncontrolled hazards in the workplace using appropriate organisational procedures. State that operational changes can lead to new hazards arising in the workplace and the importance of reporting these
Risk assessments Understand how to create new or interpret existing risk assessments depending on responsibilities and authority.	Describe the terms 'Hazard', 'Risk' and 'Control'. Describe the terms 'Likelihood of Occurrence' and 'Consequence of Occurrence'. Describe the concept of 'hierarchy of hazard controls'. Describe the five steps of risk assessment: • Look for and identify the hazards • Decide who might be harmed and how • Control the risks • Record the findings • Review the controls
Preservative labels and material safety data sheets Understand the importance of preservative labels and material safety data sheets (MSDS) and how to extract the relevant information.	Describe the key elements of a preservative product label and MSDS. Describe why these documents are important when creating risk assessments
HAZCHEM Symbols Recognise the applicable HAZCHEM symbols and know their meaning.	State the meaning of HAZCHEM symbols that are applicable to the work area.
Environmental Protection Understand the importance of environmental protection. Understand the potential environmental risks and hazards through operating a wood treatment installation. Comply with applicable environmental procedures and legislation. Know which parts of a treatment installation are environmentally critical.	Identify the potential environmental risks and hazards in the workplace and describe the potential for environmental harm. Describe the applicable legislation and organisational procedures that relate to environmental protection. State their responsibilities relating to environmental protection and operating permits (if applicable). Identify all environmentally critical process equipment and demonstrate that this is functioning correctly.

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7.6 Operating and maintaining wood treatment plant and equipment

LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
Treatment plant key features Understand the anatomy of a treatment plant and the function of each element.	Describe the features and their purpose of a treatment plant specific to the workplace, including: • Treatment vessel and door(s) • Storage tank(s) • Mixing system • Safety features such as test cocks, catch locks and safety relief valves • Railtrack, bogies and transverse systems • Systems to secure wood • Pumps, valves and pipework • Process control system(s) • Containment structures such as bunds
Preparation of the wood for treatment Comply with the instructions and/or contract information for selection, identification, moving, stacking and loading of wood onto the treatment plant. Understand the quality of wood that is required before effective treatment can take place.	Demonstrate the following work skills when preparing wood for treatment: • Identification of wood from written instructions and marking if required • Moving wood to the treatment plant area • Storing wood in designated areas • Loading wood onto the treatment plant Describe what to check before wood can be treated: appropriate moisture content; removal of wrappers and foreign objects; avoid glued and painted wood; metal fixings; mixed species; frozen wood.
Preservative solution preparation and control Comply with instructions for the safe delivery of preservative. Know how to handle, move and store wood preservatives. Know how to mix preservative treatment solution to achieve the correct concentration. Know how to measure the concentration of preservative and/or take representative samples for laboratory analysis. Know how to ensure the quality of water is correct (e.g. softness).	Demonstrate the following work skills when working with wood preservative: • Follow procedures for receiving deliveries of wood preservative • Correct handling, movement and storage of containers • Mix preservatives safely and effectively to the correct concentration • Measure the concentration of preservative, take samples for analysis, record results and make adjustments when necessary • Follow procedures for ensuring the correct quality and quantity of water is available which may include operating a water softener or other equipment • Maintain required records

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Photo courtesy of Södra.

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(7.6 continued...)

LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
Process control & treatment cycles Know how to correctly and safely start up and close down the treatment plant. Know how to operate the plant using the specific process control systems. Understand process control displays, process diagrams, symbols, readings of tank volumes, pressure and temperature. Know how to input charge information into the process control system or prepare manual charge records. Know how to take manual readings of tank contents and pressure gauge readings and know what they mean. Be able to monitor the treatment plant and recognise malfunctions. Know the procedure for plant malfunction. Be able to interpret specifications, instructions or procedures to select the correct treatment cycle.	Demonstrate the following work skills when operating the treatment plant: • Follow start up and close down procedures. • Operate the treatment plant using process control systems • Describe the visual displays from process diagrams, message displays, tank contents and pressure gauge readings. Understanding of error messages and plant malfunction notifications and describe the procedure for dealing with abnormal conditions • Inputting and recording the necessary charge information • Selecting the appropriate treatment cycle for the wood being treated
Post treatment handling of treated wood Comply with procedures for handling and storage of freshly treated wood. Comply with procedures for handling and storage of dry treated wood.	Demonstrate the following work skills when handling treated wood: • Safe movement of freshly treated wood from the treatment plant to the designated drying area • Safe and effective stacking procedures in the drying area such as tilting to aid runoff of excess preservative and collection of drips • Checking that the wood is drip free before moving from the contained drying area and understand the legal requirements for handling freshly treated wood • Safe stacking and storage of dry treated wood and following requirements for labelling and traceability
Plant and equipment maintenance and breakdown Comply with procedures relating to routine maintenance, preventative measures and plant malfunction or breakdown.	Demonstrate the following work skills when operating and maintaining the treatment plant: • Routine maintenance of the plant in accordance with authorised working procedures • Recognise those maintenance tasks that are outwith current capabilities (skills and/or equipment) • Operate in a safe manner when carrying out maintenance tasks including appropriate use of PPE and working with risk assessments • Report malfunctions to ensure appropriate corrective action is taken • Safe use and storage of tools and equipment

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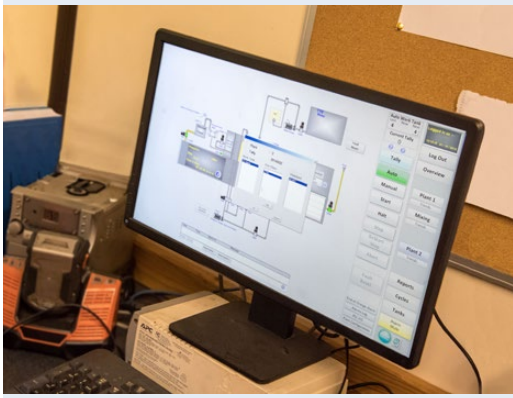

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LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
Waste disposal Comply with waste disposal procedures and recognise the different types of waste that may be generated	Describe the difference between hazardous and non-hazardous waste. Describe the different types of waste that may be generated: • Redundant preservative • Sludge and debris from storage tanks • Sawdust and other materials used to soak up spills • Redundant containers • Contaminated water • Inert waste • Waste treated and untreated wood Describe the appropriate procedures for handling and disposing of the different type of waste. Describe the waste minimisation techniques that are used to limit the quantity of waste produced.

7.7 Quality control

LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
Quality management procedures and documentation Understand the importance of quality control throughout the treatment process. Minimise the risk of incorrectly treated wood reaching the customer. Comply with quality control procedures to ensure treated wood is fit for purpose.	Describe the key areas that can affect the quality of treated wood: • Preparation of the wood • Correct treatment specification for the end use • Preservative preparation and concentration control • Treatment cycles • Records and checking • Non-conformances and corrective action • Plant & equipment maintenance including calibration Demonstrate compliance with working procedures and relevant quality schemes: • Internal quality procedures • Warranty schemes • ISO 9001 or other quality management system • Independent third-party quality schemes such as WPA Benchmark

Benchmark APPROVED TREATER WPA

Benchmark APPROVED PRODUCT WPA

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7.8 Emergency action

LEARNING OUTCOME - *the trainee will:*	ASSESSMENT CRITERIA - *the trainee can:*
Emergency plans Know how to comply with specific organisational emergency plans.	Describe the location and outline contents of organisational emergency plans and procedures. Demonstrate the action to be taken in the event of an emergency situation.
Serious injury Comply with emergency plans or procedures in the event of a serious injury.	Describe the procedures in the event of a serious injury, including but not limited to: • Raising the alarm • First aid and summoning emergency services • Responsible person(s) • Location of product information (MSDS/label) if injury relates to preservative
Fire Comply with emergency plans or procedures in the event of fire or explosion.	Describe the procedures in the event of a fire, including but not limited to: • Raising the alarm • Know when to attempt to tackle the fire and use of the correct fire extinguishers • Summoning emergency services • Responsible person(s) • Evacuation, escape routes and safe locations • Location of product information (MSDS/label) and inventory, if the fire relates to preservatives
Serious environmental incident Comply with emergency plans or procedures in the event of a serious environmental incident.	Describe what constitutes a serious environmental incident: • An uncontained release of wood preservative or other substance that has the potential to cause environmental harm. Describe the procedures in the event of a serious environmental incident, including but not limited to: • Raising the alarm • Know how and when to attempt to tackle an uncontained release of preservative to mitigate environmental harm • Techniques and equipment to contain preservative and returning to safe storage • Summoning emergency services and/or regulatory organisations and/or the local water company • Responsible person(s) • Location of product information (MSDS/label) and drainage plans

8. Sources of Information

The following are sources of information that may be useful when developing training resources:

Wood Protection Association (WPA) resources: Resource Centre | The WPA

The WPA Benchmark quality scheme for treated wood: Timber Treatment Quality Schemes | The WPA

Timber Development UK (TDUK)

Health & Safety Executive (HSE)

British Standards Institute (BSI)

Preservative manufacturers and treatment plant suppliers will provide product specific information. Details of WPA members are available at: Member Products & Services | The WPA

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Wood Protection Association

WOOD: designed by nature, protected by innovation.

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