

National Occupational Standards

Sector: Building and Construction

Occupation: Formwork and Falsework Erector

MQF Level: 3

Units:

- FFE301: Apply Occupational Health and Safety during Work Practices
- FFE302: Identify systems, equipment and components
- FFE303: Reading of drawings and calculations
- FFE304: Setting Out Formwork and Falsework Erecting and Dismantling

FFE301: Apply Occupational Health and Safety during Work Practices

This unit is about being able to use safe procedures and safe work practices. The persons carrying out this work must possess the necessary knowledge and skills to ensure that their actions do not create health and safety risks to themselves and others, identify risks and hazards associated within the working environment, tools and equipment and materials and substances used.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Carry out safe working practices to prevent hazards and to ensure the safety of oneself, workers and members of the public.
2. Carry out safe working practices when using appropriate equipment and materials to prevent damages to work areas and injuries to oneself and 3rd parties.
3. Carry out the safe erection, use and dismantling of system access platforms less than 2m high.
4. Set up safety barriers around a work environment hazard to protect colleagues and members of the public.
5. Use protective clothing and safety equipment according to specifications issued by manufacturers and know the whereabouts of first-aid equipment.
6. Use, handle and store materials hazardous to health in a safe manner.
7. Carry out a risk assessment to cover the job assigned and the working area.
8. Locate and switch-off temporary or fixed electrical switch gear, systems isolating valves as instructed in the health and safety procedures.

Required Knowledge

The Level 3 Formwork and Falsework Erector must know and explain:

1. The roles and responsibilities of themselves and others under the Health and Safety Act.
2. The health and safety risks associated with their role which includes, tools, materials and equipment used and working practices and procedures.
3. The potential hazardous material commonly found at the workplace.
4. The procedures for dealing with potential hazardous material in the place of work.
5. The health concerns associated with the workplace and safe practices when carrying out work.
6. The hazards and potential hazards at the place of work (such as electricity, slippery and uneven surfaces, dust and fumes, handling and transporting, contaminants and irritants, fire, heights, improper use of tools and equipment.)
7. The importance of being alert to the presence of hazards in the place of work.
8. The responsible persons to whom to report health and safety matters or any other occurring hazards.
9. The emergency procedures in the place of work.
10. The first aid facilities that exist within the work area.
11. The best way to make use of barricades, industrial hurdles and warning signs to make areas clearly marked out of bounds.
12. The safety procedures when using scaffold platforms (not erecting and dismantling platforms).
13. The necessary safety precautions including the use of protective clothing and equipment for a range of applications.
14. The methods used for protecting customers' property.
15. When it is required to isolate domestic water services from the main water supply.

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16. Any toxic effect from materials commonly used at construction sites.
17. The preventative and remedial actions to be taken in the case of exposure to materials hazardous to health.

Required Skills

The Level 3 Formwork and Falsework Erector should be able to:

1. Identify which health and safety procedures are relevant to the work environment.
2. Seek supervisor assistance when help is needed.
3. Ensure compliance with duties and obligations as defined by the Occupational Health and Safety Act and recent amendments.
4. Follow workplace policies and employers' instructions for the safe use and maintenance of tools and equipment.
5. Control health and safety hazards within the job responsibility.
6. Report any hazards which may present risk to relevant persons.
7. Follow correct procedures in the event of injuries to themselves or others.
8. Take remedial action where work methods are not in line with control measures noted and identified from risk assessment.
9. Adhere to work production and installation processes as agreed with the employer.
10. Apply the necessary skills to erect, use and dismantle access equipment less than 2m in height and use appropriately all access equipment provided.
11. Read, interpret and install warning signs and assist in setting up safety barriers, around working areas.
12. Equip oneself with the appropriate protective clothing and safety equipment for erecting and dismantling falsework and formwork.
13. Use and store materials hazardous to health in a safe manner.
14. Monitor the work place and maintain good housekeeping whilst keeping it free from hazards.
15. Report unfamiliar and unpredictable situations to colleagues and supervisors.
16. Practice the appropriate health and safety procedures.

FFE302: Identify systems, equipment and components

This unit is about identifying the different materials for specific applications based on their technical properties and to identify direct and indirect impacts on the environment and surrounding areas.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Distinguish between the various types of 'system formwork' and 'pipe and clamp systems' used as falsework.
2. Keep records of the quantity of materials in day to day work.
3. Follow instructions stipulated in the project environment management plan and apply to the allocated task.

Required Knowledge

The Level 3 Formwork and Falsework Erector must know and explain:

1. Relevant elements of the environmental legislation and any other relevant legislation.
2. The environmental management plan of the job.
3. The appropriate procedures to keep production records.
4. The definition of an operation or a workstation at the place of work.
5. The difference between the various types of 'system formwork' and 'pipe and clamp systems' used as falsework.
6. The appropriate procedures to preserve timber, metal and plastic formwork and fittings.
7. The proper manner cutting blades/ tools are used to trim timber, metal and plastic formwork.

Required Skills

The Level 3 Formwork and Falsework Erector should be able to:

1. Distinguish between different systems formwork data sheets as instructed by the supervisor.
2. Distinguish between the various types of 'system formwork' and 'pipe and clamp systems' used as falsework.
3. Work the assigned task as per the environment management plan.
4. Keep production records as necessary.
5. Apply stipulated instructions as per site's regulations and recycling procedures during the maintenance of any type of formwork.
6. Preserve timber, metal and plastic formwork in an appropriate manner.
7. Use the appropriate cutting blades/ tools are used to trim timber, metal and plastic formwork.

FFE303: Reading of drawings and calculations

This unit is about understanding and applying dimensions from drawings and calculating quantities in the work preparation.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Read and interpret formwork and falsework drawings.
2. Read and interpret site and building drawings regarding construction and civil engineering projects.
3. Familiarise with sections and views and as used in construction and building engineering drawings.
4. Read and interpret scales, levels and misalignment reports.
5. Familiarise with the relationship between force, pressure, area, loads and hydraulic pressure.
6. Read and interpret assembly drawings of shutters and form work.

Required Knowledge

The Level 3 Formwork and Falsework Erector must know and explain:

1. Scales, ratios and percentages.
2. Drawings annotations used for levels, gradients and bearings.
3. Mathematical parameters as used during the job (eg: BODMAS and using a scientific calculator).
4. A wide range of hand tool specifications and their use.
5. The common tolerances allowed in construction and civil engineering projects.
6. The metric units of linear measurements, areas, loads, force and pressure.

Required Skills

The Level 3 Formwork and Falsework Erector should be able to:

1. Translate scaled dimension to full size dimensions just for rough checking.
2. Translate orientation bearings and level readings.
3. Use scientific calculators, different mathematical parameters and digital measuring equipment to measure linear and angular parameters.
4. Use hand tools such as spanners, ratchets and to assemble and adjust formwork and falsework.
5. Convert between units of measurements and weights.
6. Interpret tolerance specifications.

FFE304: Setting Out Formwork and Falsework Erecting and Dismantling

This unit is about using tools and equipment to set out, erect and dismantle formwork and falsework.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Setting out of main key set out locations, datum, height levels and alignment tolerances from site drawings and design specifications.
2. Prepare work area and materials for the assembly of formwork and the erection of falsework.
3. Operate and maintain hand and power tools and equipment.
4. Assemble formwork shutters to design requirements and specified dimensions within tolerance given.
5. Sequentially erect falsework (formwork support system) according to set out, standards and data sheets.
6. Perform inspections of self and others' work, to ensure that all supports and bracings are according to design specifications.
7. Site fabricate, assemble and position formwork for beams, drop panels (hanging panels) and cantilevers.
8. Check plumbness, levels, linear and angular measurements to specified tolerances.
9. Install cast openings and insert fittings according to instructions given.
10. Organise and check scaffolding and possible hand railing requirements in accordance with specifications and standards.
11. Assist in the monitoring of supporting erected structures during concrete pouring for deflections and movements.
12. Check and observe concrete curing time requirements and obtain permit to dismantle formwork and falsework.
13. Clean work area and dispose of or recycle/ reuse materials in accordance with the project environment management plan.
14. Clean, check, maintain and store plant tools and equipment.
15. Estimate the time required and job-hours (man-hours) requirement for a particular job and project.

Required Knowledge

The Level 3 Formwork and Falsework Erector must know and explain:

1. The rigidity and stability structure requirements.
2. The routine maintenance requirements for all the power tools and equipment.
3. The various methods of calculating weights of falsework modules and formwork panels and modules.
4. The regular and common terms used in the construction industry.
5. The theoretical knowledge such as concentric columns, offset columns, cantilever beams.
6. The technology behind aligning and levelling instruments used at construction sites.
7. The stock levels required of the various formwork panels, fittings and consumables.
8. The best practice to use power tools and equipment available.

Required Skills

The Level 3 Formwork and Falsework Erector should be able to:

1. Read and interpret drawings and schedules to set out formwork and falsework.
2. Use electronic digital instruments to set out work grids and pitch circle diameters.
3. Communicate with builders, steel fixers and designers.
4. Follow plans for the erecting sequence of falsework.
5. Carry out required maintenance to hand and power tools and equipment.
6. Fabricate and assemble on site shutters.
7. Discuss technical matters with supervisors.
8. Keep detailed records of quantity of materials used in day-to-day work by project defined zones.
9. Uses lifting gear to handle formwork and falsework panels and modules in a safe manner in coordination and communication with the operator.