

National Occupational Standards

Sector: Building and Construction

Occupation: Concreter

MQF Level: 3

Units:

- CL301 - Occupational Health and Safety in the Work Place
- CL302 - Systems, Equipment and Components
- CL303 - Reading of Drawings and Calculations
- CL304 - Concrete Ordering and Casting

CL301 - Occupational Health and Safety in the Work Place

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 one self, 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 and dismantling of simple access platforms less than 2m high.
4. Use the access platforms and all scaffolds that are fit for use safely and appropriately
5. Set up safety barriers around a work environment hazard to protect colleagues and members of the public.
6. Use protective clothing and safety equipment according to specifications issued by manufacturers and know the whereabouts of first-aid equipment.
7. Use, handle and store materials hazardous to health in a safe manner.
8. Assess any risk in work area prior to commencement of work.
9. Conform to the official risk assessment covering the job assigned and the working area.
10. Locate and switch-off temporary or fixed electrical switch gear, systems isolating valves as instructed in the health and safety procedures.
11. Ensure health and safety precautions being applied on day-to-day bases by own team.

Required Knowledge

The MQF Level 3 concreter 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 importance of having an induction meeting prior to commencement of work on a new site
12. The best way to make use of barricades, industrial hurdles, and warning signs to make areas clearly marked out of bounds.
13. The safety procedures when using scaffold platforms. (not erecting and dismantling scaffold platforms).
14. The necessary safety precautions including the use of protective clothing and equipment for a range of applications.
15. The methods used for protecting own and third party property and personnel.
16. When it is required to isolate domestic water services from the main water supply and any other services as applicable
17. Any toxic effect from materials commonly used at construction sites.
18. The preventative and remedial actions to be taken in the case of exposure to materials hazardous to health.

Required Skills

The MQF Level 3 concreter must be able to:

1. Identify which health and safety procedures are relevant to the working environment.
2. Seek expert assistance when help is needed.
3. Ensure compliance with duties and obligations as defined by the Occupational Health and Safety Act , any recent amendments and any relevant regulation and legislation
4. Follow workplace policies and employers/supervisors instructions for the safe use and maintenance of tools and equipment.
5. Control health and safety hazards within the job responsibility.
6. Participate and cooperate with supervisors during the induction meeting held prior to commencement of work on a new site.
7. Report any hazards which may present risk to relevant persons.
8. Follow correct procedures in the event of injuries to themselves or others.
9. Take remedial action where work methods are not in line with control measures noted and identified from risk assessment.

10. Apply the necessary skills to erect and dismantle access equipment less than 2m in height
11. Use appropriately all access equipment provided;
12. Read, interpret and install warning signs and sets up safety barriers, around working areas.
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. Identify, inform and communicate complex information regarding unfamiliar or in case of unpredictable situations to colleagues and supervisors.
16. Advocate appropriate health and safety procedures.

CL303 - Reading of Drawings and Calculations

This unit is about understanding views, sections and general civil engineering drawings to extract measurements to calculate quantities in preparation of material orders and costings.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Select, check for accuracy and use leveling tools and equipment;
2. Read and interpret construction and civil engineering projects site and building drawing;
3. Read and interpret sections and views as used in construction and building engineering drawings;
4. Read and interpret scales, levels, misalignment reports and other measurements;
5. Recognize materials specifications;
6. Read and interpret assembly drawings of shutters and form work;
7. Identify concrete mix ratios by weight, by volume.

Required Knowledge

The MQF Level 3 concreter must know and explain:

1. Concrete industry standards;
2. Scales, ratios and percentages;
3. Drawings annotations used for levels, gradients and bearings;
4. Scientific parameters as used in digital calculators;
5. The common tolerances accepted in construction and civil engineering projects especially concrete floor finish tolerances;
6. The techniques to produce manual simplified workshop drawings;
7. The metric units of linear measurements, areas, force, pressure and fluid measurements;

Required Skills

The MQF Level 3 concreter must be able to:

1. Interpret and calculate levelling readings and measurements;
2. Calculate areas, volumes to be concreted;
3. Record measurements of routine data associated with levelling procedures;
4. Convert between units of measurements: meters; centimetres and millimetres;
5. Use scientific calculators and digital measuring instruments to measure linear and angular measurements;

6. Convert between tonnes to Kilograms and millilitres to litres;
7. Assist in the use of established factors to convert volume of material to weight (specific density).

CL303 - Reading of drawings and calculations

This unit is about understanding views, sections and general civil engineering drawings to extract measurements to calculate quantities in preparation of material orders and costings

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Select, check for accuracy and use leveling tools and equipment;
2. Read and interpret construction and civil engineering projects site and building drawing;
3. Read and interpret sections and views as used in construction and building engineering drawings;
4. Read and interpret scales, levels, misalignment reports and other measurements;
5. Recognize materials specifications;
6. Read and interpret assembly drawings of shutters and form work;
Identify concrete mix ratios by weight, by volume and by mass;

Required Knowledge

The MQF Level 3 concreter must know and explain:

1. Concrete industry standards;
2. Scales, ratios and percentages;
3. Drawings annotations used for levels, gradients and bearings;
4. Scientific parameters as used in digital calculators;
5. The common tolerances accepted in construction and civil engineering projects especially concrete floor finish tolerances;
6. The techniques to produce manual simplified workshop drawings;
7. The metric units of linear measurements, areas, force, pressure and fluid measurements.

Required Skills

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4. Convert between units of measurements: meters; centimetres and millimetres;
5. Use scientific calculators and digital measuring instruments to measure linear and angular measurements;
6. Convert between tonnes to Kilograms and millilitres to litres;
7. Assist in the use of established factors to convert volume of material to weight (specific density);

CL304 - Concrete Ordering and Casting

This unit is about using tools and equipment to pour concrete and the cross checking with design specifications required to confirm orders and concrete pouring procedures.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Clean, check, maintain and store plant, tools and equipment according to manufacturer recommendations and work place practices;
2. Dispose of unwanted materials according to project environmental policy and keep areas cleared from unwanted materials;
3. Interpret marked levels and prepare to pour concrete in horizontal layers;
4. Take necessary measures to keep the vertical drop of concrete within recommended practices and to transport concrete by chute/ wheelbarrow appropriately;
5. Check that bar chairs and spacers are positioned in accordance with drawings and specifications;
6. Use the recommended compaction or vibration equipment as stipulated in the procedures;
7. Keep measurements to adjust orders as concrete is being poured as instructed;
8. Drain and de-water construction site;
9. Use levelling devices to confirm level of poured concrete;
10. Screed concrete according to drawings and specifications;
11. Take samples of delivered concrete to check against contract specifications and associated testing standards;
12. Carry out on site concrete curing procedures including protection from damage and pollution;
13. Keep records to document the curing process as defined in the work place procedures;
14. Remove screeding lines and surface inaccuracies with the use of bull floats;
15. Monitor the concrete surface during curing for bleed water to apply manual and mechanical troweling;
16. Assemble and service moulds, and demould products of precast concrete;
17. Carry out remedial work on concrete;
18. Read and interpret concrete industry drawings and specifications;
19. Contribute to improve work activities;
20. Recognise the roles and responsibility of others;
21. Prepare control joints, finish edges and trowel concrete to specifications.

Required Knowledge

The MQF Level 3 concreter must know and explain:

1. Various procedures to calculate materials requirements;
2. Environmentally friendly waste management procedures;
3. Material storage work place practices;
4. Various properties of concrete including quality requirements affected by method and environment ambient conditions when pouring;

5. The importance of the slump test specifications;
6. How to manage effectively cold joints;
7. Various compaction techniques;
8. Types and applications of concrete materials;
9. Safety data sheets of various products;
10. Various curing techniques;
11. Concrete additives and the effect on concrete curing, finishing and performance;
12. Various methods to maintain temperature and other parameters to specifications;
13. Various quality requirements and techniques to obtain required concrete finish and strength;
14. Site Isolation and traffic control responsibilities and authorities;
15. Traffic signs appropriate for roads approaching construction sites;
16. Tools to assemble and dismantle moulds;

Required Skills

The MQF Level 3 concreter must be able to:

1. Read and interpret drawings and schedules to re-place temporary removed steel reinforcement;
2. Calculate time required to place concrete and frequency of truck supplies;
3. Recalculate required quantities at various intervals to confirm orders to supervisors;
4. Identify, confirm and communicate technical information including hazards and breakdowns;
5. Interpret technical specifications from material schedules and data sheets;
6. Interpret concrete curing procedures from standards and specifications;
7. Use plant, tools and equipment for the finishing of concrete surfaces;
8. Follow procedures to manage storm-water and other relevant weather conditions and protect placed concrete during curing;
9. Communicate with builders, steel fixers and supervisors;
10. Carry out preventive maintenance to hand tools, power tools and equipment;
11. Carry out cleaning and servicing of precast concrete molds;
12. Handle precast molds using the appropriate lifting gear;
13. Use lifting gear appropriately to assist crane operator teams.