

# CPCS renewal test factsheet



## Introduction to the CPCS renewal test

The industry-led CPCS Management Committee has determined that key safety-related knowledge must be checked on each category prior to the renewal of a CPCS Competent Operator (blue) card. The CPCS renewal test is the means by which blue cardholders will be tested on topics that reflect safety issues identified through consultation, that occur regularly on site.

For each topic identified there is a set of questions, from which a number will be included in the test and for which supporting information is provided in this factsheet. Each test will ask a total of 15 questions selected randomly to ensure all topics are covered.

The test will cover all categories within the scheme through modules. Some modules have been devised to cover a range of similar CPCS categories.

The CPCS renewal test is available on the CITB-ConstructionSkills Testing Services platform alongside the Health, safety and environment test.

The questions and answers will not be published but factsheets are available for each module to cover the topics.

## How to use this factsheet

Prior to taking the test, cardholders are advised to carefully study the factsheet, which will prepare them in deciding the correct answer or answers to each given question. Correct answers are based on legislation or good practice adopted, in the majority of cases, by the construction and allied sectors.

It is acknowledged that variations may occur depending on the nature of the operation or on how the machine is used. However the correct answer to each question is based on common practices or manufacturers' requirements for the majority of machine types within each module, and applies to this test irrespective of how a machine may be used within a particular activity or sector. It is important, therefore, that this factsheet is studied carefully.

The questions are selected randomly and will not appear in the order that topics appear in this factsheet.

If the card holder does not answer all the questions correctly, the score report issued after completing the test will indicate the topic areas in which the questions were answered incorrectly. The cardholder should, prior to retaking the test, re-study all topic areas.

## Scoring the test

To be successful in this module, cardholders need to correctly answer a minimum of 12 out of the 15 questions presented. However, because many of the questions are safety-related, in the majority of cases, a minimum number of questions per topic need to be answered correctly. Failure to do so, even if the overall minimum number of correct answers has been reached, may mean that the cardholder is unsuccessful on the test.

The top of each topic states the number of questions that will be presented for each topic and the minimum number of questions that must be answered correctly in order to pass the test.

## Concessions

To avoid duplication of questions where similar categories are held, booking concessions are provided. This means that, if several similar categories are held, only one module needs to be booked. The following chart indicates if there is a booking concession for this category.

Concessions are provided to holders of the category of Piling rig - tripod.

### Other categories held:

No concessions available

### Needs only to book:

No concessions available

**Note:** *The above concessions are an outline of what tests you may have to book; please refer to Module matcher for details of full concessions where more than one category is held.*

This factsheet has been designed to highlight only topics that have been identified through industry consultation area with safety issues or where good practice is often not complied with. The questions within the CPCS renewal test for this category also reflect this.

It is not intended as a training tool and cannot list all essential knowledge and understanding for this category. Operators must always follow manufacturers' requirements, industry good practice and be aware of their own limitations with the machine, and seek further guidance and help where needed.

Further information about the CPCS renewal test can be found at [www.cskills.org/cpcs](http://www.cskills.org/cpcs)

## Preparation for work *(Preparation)*

Topic scoring information: 2 correct answers required out of 4 questions presented to pass

- Tripod piling is, in essence, percussive piling using a tripod frame and a power-driven winch (electric or diesel) which raises and lowers a piling cutter via a wire rope and pulley system to form a borehole. Tripod piling is mainly used in smaller support-type work in confined or areas having limited space. Checks and inspections are a requirement following the assembly of all components before work takes place. For example, the winch/hoist rope needs to be checked for serviceability and ensured that the rope diameter is consistent throughout its length, not be kinked or have broken wires and should be sufficiently lubricated at the required places. Unequal rope diameter along a rope indicates damage and could mean a failure at that point.
- As piling involves ground penetration, checks for underground services need to be made before work takes place. A series of procedures should be followed, with the normal first course of action being consultation with utility and service providers – electricity, water/waste water, gas, telecommunications etc. – followed by the use of cable avoidance tools to confirm the exact locations of services. Some cable avoidance tools have limitations in detecting certain types of services, such as plastic piping, and these limitations need to be known by the avoidance tool operator. Minimum distances or conditions apply when piling near to underground services and these should be checked with the utility or service provider before work starts. A permit to pile needs to be provided before work can take place at a new site or new location on a site. This is only issued once the absence of underground services in the piling area is confirmed.
- Where the winch is to be lifted into the required position by a crane, a lift plan needs to be developed by the lift planner/appointed person – someone trained and experienced, and appointed by the employer. Amongst many factors, the lift plan needs to identify all risks, the mitigating measures to be taken, the sequence of work and who will be acting in a slinger/signaller role. If one of the piling operatives is appointed to act as load handler/slinger, they need to have been trained in the required slinging techniques. It is also important that all those involved in the lifting operation have been informed of the contents of the lift plan and what is required of them. If a problem occurs with the lift and the plan needs to be amended, such as when additional crane reach is required, only the lift planner/appointed person can amend the plan and approve the changes.
- Where piling is to take place in a busy site or area, the route the piling area may be restricted by structures or other machinery. The piling team needs to inform site management, who remain responsible for the required route being clear of hazards that might affect the equipment and team.

## Assembly and dismantling *(Procedures)*

Topic scoring information: 1 correct answer required out of 3 questions presented to pass

- When preparing and maintaining the rig for operation, there may be a need to work at height, for example when assembling the tripod. To minimise a risk of falling, work at height regulations should be taken into account and safe access for the relevant task considered. Where the rig is to be worked near to people such as other site workers then the landing area for materials or components being lifted into position should be segregated from other people, who may be oblivious to the dangers.
- If materials and rig components are being physically handled and carried by members of the piling team, manual handling requirements mean that the weight and size of each load needs to be considered to ensure that it can be safely carried without inducing short or long-term injury. One of the first considerations that the risk assessment should determine is that a mechanical method be used wherever possible, such as a crane or trolley etc. Physical handling should be a last resort. Once the rig is assembled, it needs to be checked by a competent person to ensure that the rig, supporting equipment and components are safe to use and the risk of injuries and ill health is minimised accordingly.

## Working safely and efficiently *(Working safely)*

Topic scoring information: 3 correct answers required out of 6 questions presented to pass

- Material or components connected with the piling operation may be delivered by a transport vehicle on which loads would have been restrained or secured at the point of transit. Loads can move during transit and place a strain on the securing gear. Before any load restraining or securing gear is released, the load must be checked to ensure it will not shift or move and that all persons are out of the path of any possible load movement. Severe injuries have occurred with after unexpected load shifts when securing gear has been released.
- Conditions on site need to be taken into account before, during and after work. The rig must be kept well clear of any overhead power lines. Guidance from the Health and Safety Executive advises that at least 9 metres plus the height of the frame is kept from power lines mounted on wooden poles.
- Once the rig is assembled and erected ready for work, an exclusion zone needs to be placed around the piling area in case components fall from the rig or materials are ejected from the piling area. The winch operator needs to ensure that all operatives are clear of the pile drop area before starting the winching operation, and they should repeat this check each time the winch is stopped and restarted. The winch operator or other member of the team should regularly check the integrity of moving parts such as the winching/hoist rope during the operation. The rope can deteriorate during work and break prematurely.
- Tripod piling is a common operation in confined or enclosed areas. An emergency evacuation plan needs to be established before work starts to identify safe egress routes for all the piling team. These must be regularly checked to ensure that planned evacuation routes remain clear of hazards. Diesel-operated winches should not be used within enclosed areas as exhaust fumes are a health hazard to all those in the area. Electric-driven winches should be specified in these instances.
- Tripod piling is generally suitable for working near to utility services as the operation usually produces minimal soil disturbance. As previously mentioned, the type and location of the services must be known and a permit to pile must be issued before work starts.
- The efficiency of the piling operation depends on the cutting or boring action in the soil. Where boring is taking place in stiff clays, the act of adding water in the borehole can improve the cutting or boring action. When the depth of the bore increases, the winch can have difficulty in effectively raising the cutter when using a single line pull. The raising of a cutter can be improved by utilising a pulley system that increases the number of lines between the winch and tripod. When boring takes place and is below the water line, a shell would be used that prevents excessive water entering the bore.

## Safety with concrete *(Working tasks)*

Topic scoring information: 0 correct answers required out of 2 questions presented to pass

- Wet concrete is a known alkaline which is corrosive to human tissue and can cause third degree burns if it is not removed from skin quickly enough. No skin should be exposed whilst handling wet concrete during preparation, pumping and cleaning work.
- The mix of concrete being used will vary depending on the type of piles being constructed. Concrete with a high cement content does set quicker and should be known by the team where delays in deliveries are encountered or when placing reinforcing into the pile.
- Where a concrete pump is supplying the concrete, a system of rigid and flexible pipes would have been formed to deliver the concrete to the piling area. Each pipe is connected via a coupler which has a safety pin to prevent the coupler from opening unintentionally. As the pipeline is under high pressure when concrete is being pumped, ongoing checks should be made to ensure that the safety pins are located and secure on the couplers. Missing or defective safety pins could make the pipeline burst open at the relevant coupler. If a pipeline coupler needs to be opened, it is important to eliminate pipeline pressure first.