



End-point assessment plan for Military Engineering Construction Technician apprenticeship standard

Apprenticeship standard reference number	Level of this end point assessment (EPA)	Integrated
ST0414	3	No

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Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the Military Engineering Construction Technician apprenticeship standard. It explains how EPA for this apprenticeship must operate.

Military Engineering Construction Technician is a core and options apprenticeship standard. Apprentices must be trained and assessed against the core and one option, either:

- carpenter and joiner
- bricklayer and concreter
- building and structural finisher
- plumbing and heating engineer
- plant operator and mechanic

This document provides the EPA design requirements for end-point assessment organisations (EPAOs) for this apprenticeship standard. It will also be useful for apprentices undertaking this apprenticeship, their employers and training providers.

An approved EPAO must conduct the EPA for this apprenticeship. Employers must work with the training provider to select an approved EPAO from the apprenticeship providers and assessment register (APAR).

Full time apprentices will typically spend 18 months on-programme (before the gateway) working towards this occupational standard. All apprentices will spend a minimum of 12 months on-programme. All apprentices must complete the required amount of off-the-job training specified by the apprenticeship funding rules.

Before starting EPA, an apprentice must meet the gateway requirements. For this apprenticeship they are:

- the employer must be content that the apprentice is working at or above the occupational standard
- all apprentices entering onto one of the five options are required to have successfully completed phase 1 basic military training and phase 2A combat engineering training
- The apprentice must complete training towards English and maths qualifications in line with the apprenticeship funding rules.

The EPAO must confirm that all required gateway evidence has been provided and accepted as meeting the gateway requirements. The EPAO is responsible for confirming gateway eligibility. Once this has been confirmed, the EPA period starts.

This EPA should then be completed within an EPA period lasting typically for five months.

This EPA consists of three discrete assessment methods.

The EPA must be completed within an EPA period lasting a maximum of 5 months, beginning when the apprentice has passed the EPA gateway.

It will be possible to achieve the following grades in each assessment method:

Assessment Method 1: Knowledge test

- fail
- pass
- distinction

Assessment Method 2: Interview

- fail
- pass
- distinction

Assessment Method 3: Practical assessment with questioning

- fail
- pass
- distinction

Performance in these assessment methods will determine the overall apprenticeship standard grade of:

- fail
- pass
- distinction

EPA summary table

On-programme (typically 18 months)	The apprentice must: <ul style="list-style-type: none"> complete training to develop the occupation standard's knowledge, skills and behaviours complete training towards English and maths qualifications in line with the apprenticeship funding rules
End-point Assessment Gateway	The employer must be content that the apprentice is working at or above the occupational standard. <ul style="list-style-type: none"> The apprentice must have achieved English and maths qualifications in line with the apprenticeship funding rules All apprentices entering onto one of the five options are required to have successfully completed phase 1 basic military training and phase 2A combat engineering training
End Point Assessment (which would typically take 5 months)	Assessment Method 1: Knowledge test <ul style="list-style-type: none"> fail pass distinction Assessment Method 2: Interview <ul style="list-style-type: none"> fail pass distinction Assessment Method 3: Practical assessment with questioning <ul style="list-style-type: none"> fail pass distinction Performance in these assessment methods will determine the overall apprenticeship standard grade of: <ul style="list-style-type: none"> fail pass distinction
Professional recognition	Aligns with recognition by: <ul style="list-style-type: none"> CSCS card scheme

Length of end-point assessment period

The EPA will be completed within an EPA period lasting typically five months, starting when the EPAO has confirmed that all gateway requirements have been met.

Order of end-point assessment methods

The assessment methods can be delivered in any order.

The result of one assessment method does not need to be known before starting the next.

EPA gateway

The apprentice should only enter the gateway once the employer is content that the apprentice is working at or above the occupational standard. In making this decision, the employer may take advice from the apprentice's training provider(s), but the decision must ultimately be made solely by the employer.

The EPAO determines when all other gateway requirements have been met, and the EPA period will only commence once the EPAO has confirmed this.

In addition to the employer's confirmation that the apprentice is working at or above the level in the occupational standard, the apprentice must have completed the following gateway requirements prior to beginning EPA:

- the apprentice must have achieved English and maths qualifications in line with the apprenticeship funding rules.
- all apprentices entering onto one of the five options are required to have successfully completed phase 1 basic military training and phase 2A combat engineering training.

For knowledge test:

- No specific requirements

For interview:

- No specific requirements

For practical assessment with questioning:

- No specific requirements

End-point assessment methods

The apprentice will be assessed against the KSBs assigned to the assessment methods outlined below, as shown in the mapping section of this EPA plan.

Assessment Method 1: Knowledge test

Overview

A knowledge test is a controlled assessment which consists of a series of questions in which apprentices are asked to provide a response.

The rationale for this assessment method is:

- it allows for the efficient testing of knowledge where there is a right or wrong answer
- it does not require independent assessor time, reducing cost; the knowledge test can be administered, invigilated and marked by an independent person appointed by the EPAO; alternatively, marking by computer is permissible where question type allows this
- it allows for flexibility in terms of when, where and how it is taken
- it allows larger volumes of apprentices to be assessed at one time.

Delivery

The knowledge test can be:

- computer based
- paper based

It will consist of 60 questions, of which 20 will be related to core knowledge and 40 to the specific option being undertaken.

These questions will consist of multiple-choice questions. The multiple-choice questions will have four options of which one will be correct. The questions must be varied to avoid the knowledge test becoming too predictable yet allow assessment of the relevant KSBs.

The apprentice will be given 10 days' notice from the EPAO of the knowledge test date to provide sufficient time to prepare.

Test administration

Apprentices must have a maximum of 90 minutes to complete the test.

The test is closed book which means that the apprentice cannot refer to reference books or materials.

Assessment

Tests must be marked by independent assessors or markers employed by the EPAO following a marking guide produced by the EPAO. Alternatively, marking by computer is permissible where

questions types allow this.

Correct answers must be awarded one mark. Any incorrect or missing answers must be assigned zero marks.

Assessment location

Apprentices must take the test in a suitably controlled environment that is a quiet space, free of distractions and influence, in the presence of an invigilator. The invigilator may be the independent assessor or another external person employed by the EPAO or specialised (proctor) software, if the test is to be taken on-line. The EPAO is required to have an invigilation policy that will set out how the test is to be carried out. This will include specifying the most appropriate ratio of apprentices to invigilators to best take into account the setting and security required in administering the test.

The EPAO is responsible for ensuring the security of testing they administer to ensure the test remains valid and reliable (this includes any arrangements made using online tools). The EPAO is responsible for verifying the identity of the person taking the test.

The EPAO must verify the suitability of the venue for taking the test.

Question and resources development

Questions must be written by EPAOs and must be relevant to the occupation and employer settings and assess the KSBs mapped to this assessment method. It is recommended that this be done in consultation with employers of this occupation. EPAOs should also maintain the security and confidentiality of their questions when consulting employers. EPAOs must develop a test specification and question bank of sufficient size to prevent predictability and review it regularly (and at least once a year) to ensure it, and the questions it contains, are fit for purpose.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes.

As a minimum EPAOs will produce the following material to support this method:

- a test specification
- question bank
- sample tests and mark schemes
- live tests and mark schemes
- analysis reports which show areas of weakness for completed tests and an invigilation policy

Assessment Method 2: Interview

Overview

An interview consists of an independent assessor asking an apprentice a series of questions to assess their competence against the KSBs. The independent assessor leads this process to obtain information from the apprentice to enable a structured assessment decision-making process.

The rationale for this assessment method is:

This method can be used for synoptic assessment of knowledge, skills and behaviours. This method will allow the apprentice to demonstrate some KSBs which would otherwise not be practical to assess in a safe environment. This may include fictitious scenarios involving hostile and stressful situations which cannot be replicated in a test environment. In addition:

- it allows for assessment of KSBs that do not occur on predictable or regular basis it allows for testing of responses where there are a range of potential answers that can't

be tested through the knowledge test

- it is cost effective, as whilst seeking assurance of competence across a range of KSBs, it does not require the independent assessor to directly observe all of them, thus reducing their time cost.

Delivery

The independent assessor will conduct and assess the interview.

The interview must last for 75 minutes. The independent assessor has the discretion to increase the time of the interview by up to 10% to allow the apprentice to complete their last answer.

The interview will have a minimum of nine questions. During this method, the independent assessor must only use the EPAO's question bank, however the independent assessor can also ask follow-up questions. The questions will involve the questions that will focus on analysis of given scenarios and coverage of examples that will allow the apprentice to demonstrate the relevant KSBs.

The apprentice will be asked nine standardised questions, one from each topic area. Questions will be a combination of scenario and competency-based questions, synoptic in design so that each assess more than one knowledge, skill or behaviour statement. Follow-up questions may be asked so that the assessor can satisfy themselves of the depth of the KSBs. The list of questions must be pre-selected by the independent assessor to ensure sufficient coverage of the KSBs required. The interview can be recorded for verification purposes.

The purpose of the questions will be to cover the following topics:

- project management
- site supervision
- liaise with others
- completing documentation
- dealing with first aid situations
- preparation of resources
- hostile environments
- taking a leadership role
- responding to changing circumstances.

The interview will be conducted as follows:

EPAOs must make arrangements for the interview with the apprentice's employer. Apprentices must be given at least 10 days' notice of the date and time of the interview.

Questions should be open. Additional follow up questions are allowed, to seek clarification and to make a judgement against the grading descriptors. Apprentices are expected to understand and use relevant occupational language that would be typical of a competent person in this occupation. Evidence from the interview must be assessed holistically using the grading criteria for this assessment method.

KSBs met and answers to questions, must be recorded by the independent assessor.

The independent assessor will make all grading decisions.

Venue

The interview should take place in a quiet room, free from distractions and influence. Video conferencing can also be used to conduct the interview, but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided.

The interview can take place in any of the following:

- an employer's premises
- a suitable venue selected by the EPAO, for example, a training provider's premises or another employer's premises

Question and resource development

A 'question bank' must be developed by EPAOs. The 'question bank' must be of sufficient size to prevent predictability and the EPAO must review it regularly (at least once a year) to ensure that it, and its content, are fit for purpose. The questions relating to the underpinning KSBs, must be varied yet allow assessment of the relevant KSBs. Independent assessors must use the question bank as a source for questioning and are expected to use their professional judgment to tailor those questions appropriately. Independent assessors are responsible for generating suitable questions in line with the EPAO's training and standardisation process.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits or re-takes. Independent assessors must be developed and trained by the EPAO in the conduct of interviewing and reaching consistent judgements.

EPAOs will produce the following material to support this assessment method:

- question bank
- structured specification
- outline of the assessment method's requirements
- marking materials
- guidance document for employers and apprentices on the process and timescales for the interview as well as a description of the purpose
- guidance document for independent assessors on how to carry out the assessment

Assessment Method 3: Practical assessment with questioning

Overview

A practical assessment with questions involves an independent assessor observing and questioning an apprentice undertaking a set task or a series of set tasks in a simulated environment. The simulated environment must closely relate to their natural working environment.

The independent assessor will ask questions in relation to underpinning knowledge and or skills and behaviours where an opportunity to observe them has not occurred.

The rationale for this assessment method is:

- it allows for a range of tasks to be observed that could not be achieved through an observation in the workplace

- this is a practical role, best demonstrated through completing tasks in a realistic work setting
- it makes use of existing facilities which will be familiar to the apprentice and thus allow them to perform at their best
- it allows for consistency of activities to be completed and efficiency in scheduling
- questioning allows for the testing of related underpinning knowledge and or skills and behaviours where an opportunity to observe them has not occurred
- it is a holistic assessment method

Delivery

Apprentices must be observed by an independent assessor completing tasks set by the EPAO and questioned in relation to the tasks' underpinning knowledge, skills and/or behaviours where an opportunity to observe them has not occurred.

An independent assessor may observe a variable number of apprentices at any one time depending upon the apprenticeship option being completed. These ratios are detailed in the delivery section below.

Apprentices will be assessed against the KSBs assigned to this assessment method – as shown in mapping of KSBs.

Practical assessment with questioning specifications must be of equal challenge, capable of being completed by a competent military engineering construction technician.

The EPAO must arrange for the practical assessment with questioning, in consultation with the apprentice's employer.

Practical assessments must be carried out over a maximum total assessment time of 26 hours including 2 hours for preliminary activities that is included in this assessment time.

Questioning will take place during the practical assessment. The practical assessment with questioning may be split into discrete sections held over a maximum of four working days. The length of a working day is typically considered to be 8 hours. Typically, the preliminary activities will be completed on the first day, followed by three days to complete the practical assessment. There may be breaks during the practical assessment with questioning to allow the apprentice to move from one location to another and for meal/comfort breaks. During these breaks, the clock must be stopped and then restarted to ensure that the duration of the practical assessment with questioning is not reduced.

The independent assessor has the discretion to increase the time of the practical assessment with questioning by up to 5%, to allow the apprentice to complete the final task or complete an answer to a final question.

Apprentices must be provided with both written and verbal instructions on the practical assessment including the timescales they are working to prior to the practical assessment beginning. Such instruction time is exclusive of the practical assessment with questioning assessment time.

Preliminary activities (2 hours) required of the apprentice include:

- the reading and confirmation of understanding the design or specifications that will be supplied by the assessor (provided by the EPAO)
- the selection of the relevant Personal Protective Equipment (PPE)

- the identification of the position for the structure to be built or surfaces to be applied, if applicable to that particular option
- the identification and selection all the relevant resources needed to undertake the building of the structure or the surfaces to be applied, if applicable to that particular option
- the identification and selection of the relevant tools needed
- a risk assessment of the working site and surrounding area

Upon completion of the 2-hour preliminary activities the main part of the practical assessment will start.

The practical assessment will be specific to the option chosen, the requirements for each are set out below. The EPAO will prepare different specifications for each option to reduce predictability of the test.

As this assessment takes place over multiple days, it must take place in a secure environment to ensure the security and integrity of the assessment. The assessment area must be either locked, supervised, and/or inaccessible overnight.

Option 1: Carpenter & Joiner

Carry out the following activities. The exact specifications should be detailed in drawings provided to the apprentice during the preliminary activities section:

- build a structure to include a wall, raised floor, door and window (the structure will be a minimum of 2400mm x 2400mm x 2400mm)
- include a floor supported by beams
- fit cladding and fit the window
- safe use of tools
- fit architrave and service encasement
- the site must be kept clean and tidy and all work undertaken in a safe manner to both self and fellow workers

The independent assessor may conduct and observe a maximum of 5 apprentices during this assessment method. The rationale for this ratio is that this is a long assessment. Constant observation is not required to gain assurance of competence and work outputs will also provide evidence of competence.

Option 2: Bricklayer & Concreter

Carry out the following activities. The exact specifications should be detailed in drawings provided to the apprentice during the preliminary activities section:

- build a brick pier, a cavity wall and window and lay a concrete path
- the pier will be a 1 ½ brick pier, minimum dimensions of 327mm x 327mm x 600mm
- techniques of plumbing, ranging, levelling, gauging & setting out measuring to the required sizes
- the cavity wall will be a minimum of 2240mm x 890mm
- the cavity wall will include a window and a Damp Proof Course (DPC). The window aperture

will require the fitting of a steel lintel

- the concrete pathway will be a minimum of 1500mm length x 500mm width x 150mm depth
- the formwork will be lined with Damp Proof Membrane (DPM)
- the path surface finish will need to be 3 equal sections demonstrating the ability to float, brush and trowel finish the path
- the site must be kept clean and tidy and all work undertaken in a safe manner to both self and fellow workers

The independent assessor may conduct and observe a maximum of 5 apprentices during this assessment method. The rationale for this ratio is that this is a long assessment. Constant observation is not required to gain assurance of competence and work outputs will also provide evidence of competence.

Option 3: Building & Structural Finisher

Carry out the following activities. The exact specifications should be detailed in drawings provided to the apprentice during the preliminary activities section:

- ceramic floor tiling, painting, ceramic wall tiling
- the apprentice will use a completed C&J rig. This can be a rig previously built by a C&J apprentice, should it be of the required standard (checked by the independent assessor)
- install a clean, washable, hard wearing floor with a decorative finish
- install ceramic floor tiles, sealing, grouting, applying adhesive, and utilising spacers as specified
- prepare and paint a variety of surfaces, including walls, door frames, and skirting, using different types of paint by brush and roller
- the site must be kept clean and tidy and all work undertaken in a safe manner to both self and fellow workers
- clean tools and equipment and store correctly
- install ceramic wall tiles, sealing, grouting, applying adhesive, and utilising spacers as specified, which will include 2 sacrificial shapes and the inclusion of tile trims

The independent assessor may conduct and observe a maximum of 5 apprentices during this assessment method. The rationale for this ratio is that this is a long assessment. Constant observation is not required to gain assurance of competence and work outputs will also provide evidence of competence.

Option 4: Plumbing & Heating Engineer

Carry out the following activities. The exact specifications should be detailed in drawings provided to the apprentice during the preliminary activities section:

- install and maintain a domestic plumbing and heating system
- install the following systems: cold water system, hot water system and sanitation system across two separate adjacent or nearby areas or rooms
- the hot and cold water systems must demonstrate the installation of a bath or shower, sink or

wash basin and WC and the work must include the complete replacement of all hot and cold pipework other than the supply tails entering the room

- the sanitation system will include the installation or complete replacement of a soil pipe and appropriate venting arrangements to a bathroom suite including a bath or shower, sink or hand basin and WC
- work will include the complete replacement or new installation of all soil, vent and waste pipework to its point of connection at the ground drainage system
- the task will also include the decommissioning of two systems, cold water system and sanitation system. The system will need to be taken out of service to add a new component.
- maintenance of components must also be demonstrated by the repair or replacement of the relevant items
- maintenance requiring the repair of faults relating to pipework will be required
- at all times correct safety procedures must be demonstrated along with the wearing of correct PPE and the safe handling of tools

The independent assessor may conduct and observe up to a maximum of four apprentices during this assessment method. To allow for cost effective use of resources while maintaining quality, the independent assessor must be assisted by an invigilator when more than one candidate is being assessed. The invigilator cannot play a role in assessing the apprentice. Their role is to ensure that the apprentice carries out the task unaided during the period when the independent assessor is observing or questioning. The practical assessment will be conducted in separate assessment bays. Adequate separation should be implemented during questioning. This will reflect the specific environment of the test location, including line of sight, noise levels etc. to ensure reliability and fairness are not compromised.

Option 5: Plant Operator & Mechanic

Operate and maintain plant machinery safely and legally following set requirements provided in the specification (provided during the preliminary activities section) on the following machines:

- a medium wheeled tractor (MWT), and
- a light wheeled tractor (LWT), and
- a medium crawler tractor (MCT), and
- either a medium crawler excavator (MCE) or a excavator, towed, ultra light (ETUL), and
- either an engineer construction plant (ECP) or a light dump truck (LDT)

Carry out the following activities:

- use manufacturers information to safely and correctly carry out pre- and post-start checks
- set up correctly for travelling and excavation
- excavate spoil and load dumper, finally remediating ground
- set up and carry out lifting operations correctly
- set up and carry out forklift operations
- correctly assemble an ancillary pack
- shut down and maintain vehicle correctly
- operate machines safely, wearing PPE, at all times

The independent assessor may not assess more than two apprentices at any one time.

In all of the above options, the EPAO must ensure that an apprentice cannot gain advantage from seeing what the other apprentice being assessed is doing or by hearing questioning.

During all these options, questioning allows for the testing of related underpinning knowledge and/or skills and behaviours where an opportunity to demonstrate them has not occurred.

Questioning will take place during the practical assessment. Questions will be asked during the assessment time, at an appropriate point, where it is deemed safe to do so by the independent assessor. The independent assessor can also ask questions at the end of the task, as long as this is within the overall assessment time. The questions will be used to clarify understanding and may also be used to cover any KSBs that may not have occurred during the practical assessment.

Question and resource development

The independent assessor must ask a minimum of six questions to test related underpinning knowledge and behaviours. Additional follow-up questions are allowed, to seek clarification and to make an assessment against the grading descriptors.

The EPAO must produce a bank of sample questions to assist the independent assessor, but these are for illustration only and the independent assessor should adapt their questions to the apprentice's individual circumstances.

KSBs observed, and answers to questions, must be documented by the independent assessor.

Evidence from the practical assessment with questioning must be assessed holistically using the grading criteria for this assessment method.

Independent assessors will make all grading decisions.

EPAOs must ensure that apprentices have a different practical assessment with questioning specification and set of questions in the case of re-sits or re-takes.

Venue

Practical assessment with questioning must be conducted in one of the following locations:

- an employer's premises
- a suitable venue selected by the EPAO, for example, a training provider's premises or another employer's premises

The EPAO is responsible for ensuring that the apprentice is observed under normal conditions, in a familiar environment, which is representative of normal workplace conditions for this occupation.

It is anticipated that practical assessments will be held on employers' sites and will make the necessary equipment and tools available to an EPAO free of charge. This is to ensure cost viability of the EPA.

Where practical assessments take place off-site, the EPAO is responsible for ensuring the apprentice has the appropriate tools and equipment to complete the task. The EPAO may liaise with the employer to provide these resources.

The EPAO must ensure that the venue has the necessary equipment, tools and controlled conditions to allow practical assessment with questioning to take place.

Support materials

EPAOs will produce the following material to support this assessment method:

- guidance for apprentices, employers and training providers that outlines in detail how the practical assessment with questioning will operate
- practical assessment with questioning specification bank. The practical assessment with questioning specification bank must be of sufficient size to prevent predictability and reviewed regularly (and at least once a year) to ensure they, and the specifications they contain, are fit for purpose. The specifications, including questions relating to underpinning KSBs must be varied, yet allow assessment of the relevant KSBs. The EPAO will design and provide a range of exact specifications for each option including drawings (where applicable). It is recommended that specification banks are developed in consultation with employers of this occupation. EPAOs should put measures and procedures in place to maintain the security and confidentiality of their specifications if employers are consulted. Specifications must be standardised by the EPAO
- assessment recording documentation

Reasonable adjustments

The EPAO must have in place clear and fair arrangements for making reasonable adjustments for this apprenticeship standard. This should include how an apprentice qualifies for reasonable adjustment and what reasonable adjustments will be made. The adjustments must maintain the validity, reliability and integrity of the assessment methods outlined in this assessment plan.

Weighting of assessment methods

The practical assessment with questioning must be achieved at distinction level, in combination with a distinction grade in a minimum of one other method, in order to achieve a distinction overall. The other two methods are weighted equally in their contribution to the overall EPA pass grade. Greater weight is applied to the practical assessment as this is the closest method to replicating the work the apprentices will be carrying out in their day-to-day roles.

Grading

Assessment method 1: Knowledge test

The following grade boundaries apply to the test:

KSBs	Fail	Pass	Distinction
<p>Core:</p> <p>K1 K2 K3 K4 K5 K6 K7 K8 K9 K11 K12 K13</p> <p>C&J:</p> <p>K14 K15 K16 K17 K18 K19 K20 K21 K22 K23 K24 K25 K26</p> <p>B&C:</p> <p>K27 K28 K29 K30 K31 K32 K33 K34 K35 K36 K37</p> <p>B&SF:</p> <p>K38 K39 K40 K41 K42 K43 K44 K45 K46</p> <p>H&P:</p> <p>K47 K48 K49 K50 K51 K52 K53 K54 K55 K56 K57 K58 K59 K60</p> <p>PO&M:</p> <p>K61 K62 K63 K64 K65 K66 K67 K68 K69 K70 K71 K72 K73 K74 K75</p>	<p>A score of 44 or less</p>	<p>A score of 45-53</p>	<p>A score of 54 or above</p>

Assessment method 2: Interview

KSBs	Pass	Distinction
<p>K10</p> <p>S4 S5 S7 S9 S10 S11 S12 (a,b ,c,d)</p> <p>S14 S15</p> <p>B1 B2 B3 B4 B5</p>	<p>If all pass criteria are not met this assessment method will be marked as a fail.</p> <p>Explains when they have developed protective shelters including trench construction being aware of the relevant safety aspects of working below ground (S12a)</p> <p>Explains when they have constructed bridges to cross gaps of various sizes using improvised existing materials as well as prefabricated modular bridge components (S12b)</p> <p>Explains when they have used explosives to undertake a basic demolition (S12c)</p> <p>Explains when they have constructed a water supply system from a raw source to provide water storage and delivery (S12d)</p> <p>Describe when they have been in a changing hostile environment to test tactical awareness and how they would overcome an unforeseen or unexpected development (S15, B1, B3)</p> <p>Explains the requirements to bid for resources, arrange their transport and import in line with local legislation, liaising with the required stakeholders, while avoiding wastage. Explains the preparation of resources for transport including safe unloading with signalling (S4, S7, S11)</p> <p>Explains how they have undertaken correct site supervision procedures in a military environment, following health and safety protocol (S5)</p> <p>Outlines when they have completed relevant documentation necessary to</p>	<p>In order to achieve a distinction in this assessment method, all the following criteria must be met.</p> <p>Analyses a range of tactical options available in a given situation and can provide a rationale for the option chosen (B1, S15)</p> <p>Outlines how they have demonstrated initiative by explaining when they have contributed positively beyond set procedures (B3)</p> <p>Explains complex first aid procedures by outlining the importance of triage and how casualties would be prioritised in a hostile environment (K10)</p>

	<p>comply with local building regulations (S9)</p> <p>Explains the correct first aid procedure in a given life-saving emergency scenarios. (K10, S10)</p> <p>Explains how they have demonstrated Corps values whilst working as part of a team and how they have adapted their communication styles between peers and senior officers. (S14, B5)</p> <p>Outlines a time when they have been required to take charge of a situation, what they did and what the outcome was. (B2)</p> <p>Explains the steps they routinely take to safeguard themselves and others in the workplace. (B4)</p>	
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Assessment method 3: Practical assessment with questioning

Core	
KSBs: S1 S2 S3 S6 S8 S13 S16 S17	
<p>All core pass criteria must be met for all candidates. If all pass criteria are not met this assessment method will be marked as a fail.</p> <p>Interprets provided specification to complete work to specification within the time allowed; calculates and selects correct quantities, materials, resources, equipment and tools; plans sequence of work to maximise efficiency and reduce wastage (S1, S2, S3, S8, S16)</p> <p>Moves resources safely and stores correctly throughout the task. (S6)</p> <p>Selects the appropriate PPE for the task and uses correctly throughout. (S13)</p> <p>Maintains a clean workspace throughout the task, taking the appropriate steps to protect the work and surrounding area whilst minimising damage. (S17)</p>	
Carpenter & Joiner	
KSBs: S18 S19 S20 S21 S22 S23 S24 S25 S26 S27 S28	
Pass	Distinction

<p>If all pass criteria are not met this assessment method will be marked as a fail.</p> <p>Complies with specifications and relevant legislation in relation to safe use of access equipment, safe handling of materials and the safe use and storage of materials, tools, equipment and ancillaries. To include:</p> <ul style="list-style-type: none"> - transportable cutting and shaping machines - hand tools, portable power tools and ancillary equipment - drills, planes, biscuit joiners and disc cutters - cutting tools including saws such as: circular, chop, mitre, bench, jig, reciprocating, alligator and scroll saws - wood shaping tools including a thicknesser, sander (orbital, belt, disc), router, laminate trimmer, and grinder (S19, S20, S21, S22, S23, S24) <p>Selects and cuts appropriate quality timber and measures, marks out, fixes and positions securely. Meets the following tolerances:</p> <ul style="list-style-type: none"> - frame vertical and horizontal members positioned to within 5mm - frame constructed to within 5mm - frame joints with no visible gaps exceeding 4mm - frame diagonal fitting with cut square with no visible gaps exceeding 4mm (S18) <p>Installs first fixing components according to the specification: door and window frames, door linings, floor joist coverings, straight partitions. Meets the following tolerances:</p> <ul style="list-style-type: none"> - door lining head and jambs plumb and square to within 4mm - door stop head going full width jambs fitted to within 4mm - gap between door and lining on hinge side within 4mm - gap between door and lining on latch side within 4mm - gap between door and lining on top side within 4mm (S25) 	<p>In order to achieve a distinction in this assessment method, 8 of the following 12 distinction criteria must be met.</p> <p>Frame vertical and horizontal members positioned to within 1mm</p> <p>Frame constructed to within 1mm</p> <p>Frame joints with no visible gaps exceeding 1mm</p> <p>Frame diagonal fitting with cut square with no visible gaps exceeding 1mm</p> <p>Door lining head and jambs plumb and square to within 1mm</p> <p>Door stop head going full width jambs fitted to within 1mm</p> <p>Gap between door and lining on hinge side within 2mm</p> <p>Gap between door and lining on latch side within 2mm</p> <p>Gap between door and lining on top side within 2mm</p> <p>No gaps between cladding boards exceeding 1mm</p> <p>Tolerance of flooring joints not exceeding 1mm</p> <p>Encasement fixed securely with gaps not exceeding 1mm.</p>
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<p>Installs second fixing components according to the specification including measuring, marking out, fitting, finishing, positioning: side hung doors, standard architrave mouldings, ironmongery, service encasement, wall and floor units or fitments, cladding. Meets the following tolerances:</p> <ul style="list-style-type: none"> - no gaps between cladding boards exceeding 3mm - tolerance of flooring joints not exceeding 3mm - encasement fixed securely with gaps not exceeding 3mm (S26) <p>Uses wood reinforcement and wooden shoring to strengthen the structure for effective field defence suitable for temporary occupation. (S27, S28)</p>	
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Bricklayer & Concreter

KSBs: S29 S30 S31 S32 S33 S34

Pass	Distinction
<p>If all pass criteria are not met this assessment method will be marked as a fail.</p> <p>Erect masonry structure to specification using brick, block and local material, including cavity wall structures, block work structures, solid wall structures, door and window openings and joint finishes. Meets the following tolerances:</p> <ul style="list-style-type: none"> - cavity wall overall height to within 5mm of specification - cavity wall top course brickwork level to within 6mm of specification - cavity wall top course blockwork level to within 6mm of specification - cavity wall brick on end plumb in both directions to within 5mm - cavity wall joints thickness to within 5mm - cavity wall joints perpends plumb deviation to within 5mm - cavity wall steel lintel uniform bearing to within 10mm (S29, S30) <p>Measure, mark out, lay and finish concrete to specification: slabs, bases or foundations, form slab edging, position reinforcement, form surface finish.</p>	<p>In order to achieve a distinction in this assessment method, 4 of the following 7 distinction criteria must be met.</p> <p>Cavity wall overall height to within 2mm of specification</p> <p>Cavity wall top course brickwork level to within 3mm of specification</p> <p>Cavity wall top course blockwork level to within 3mm of specification</p> <p>Cavity wall brick on end plumb in both directions to within 1mm</p> <p>Cavity wall joints thickness to within 1mm</p> <p>Cavity wall joints perpends plumb deviation to within 2mm</p> <p>Cavity wall steel lintel uniform bearing to within 5mm</p>

<p>(S31, S33)</p> <p>Measure, mark out, lay, compact, finish, position and secure non-specialist concrete to specification. (S32)</p> <p>Strengthen the structure using brick, block or concrete for effective field defence. (S34)</p>	
<p>Building & Structural Finisher</p> <p>KSBs: S35 S36 S37 S38 S39 S40 S41 S42 S43</p>	
<p>Pass</p>	<p>Distinction</p>
<p>If all pass criteria are not met this assessment method will be marked as a fail.</p> <p>Prepare new or existing background surfaces for plastering, tiling, panelling, painting and decorating as per the specification. Demonstrate measuring, marking out, washing, stripping or scraping, abrading or keying, hacking, cutting out, removing, mixing, filling, levelling or flattening, brushing down, priming.</p> <ul style="list-style-type: none"> - calculation of floor tiles to within 20 tiles - calculation of wall tiles to within 20 tiles - calculation of quantity of paint to within 20% (S40, S41, S42) <p>Mix, pour, dilute, load, lay-on, lay-off, cut and apply paint systems by brush and or roller to the given specification. (S37)</p> <p>Apply water-borne and or solvent-borne coatings to internal and or external surfaces for industrial and or non-industrial situations to given specification for linear trim or narrow runs and broad areas by brush and or roller. (S38)</p> <p>Fix tiles to vertical, horizontal and inclined surfaces to given specification on wall and floor surfaces, reveals, sills and soffits, floor drainage and outlets including fixture of appropriate accessories.</p> <ul style="list-style-type: none"> - ensures gaps between floor and wall tiles no more than 4mm throughout - ensures floor and wall tile trims are within 3mm throughout (S43) <p>Demonstrate how to erect, move, position, dismantle and store access or working platforms for carpentry, painting, decorating, tiling, plastering and trowel occupations maintenance. (S35)</p>	<p>In order to achieve a distinction in this assessment method, 4 of the following 6 distinction criteria must be met.</p> <p>Calculation of correct number of floor tiles to within 10 tiles</p> <p>Calculation of correct number of wall tiles to within 10 tiles</p> <p>Calculation of paint quantity to within 10%</p> <p>Gaps between wall and floor tiles no more than 2mm throughout</p> <p>Floor and wall tile trims within 2mm throughout</p> <p>No visible paint brush marks</p>

<p>Demonstrate building maintenance (trowel occupations) in a safe manner using ladders or crawler boards, stepladders or platform steps, proprietary towers, trestle platforms, mobile scaffold towers, proprietary staging or podiums. (S36)</p> <p>Safely store materials, equipment, and tools throughout the task. (S39)</p>	
Heating & Plumbing KSBs: S44 S45 S46 S47 S48 S49 S50 S51 S52 S53 S54 S55 S56 S57 S58 S59 S60 S61	
Pass	Distinction
<p>If all pass criteria are not met this assessment method will be marked as a fail.</p> <p>Install a sink or wash hand basin, bath or shower and WC as per given specification. Connect bath or shower, WC, sink or basin to primary ventilated stack system as per given specification.</p> <ul style="list-style-type: none"> - baths, toilets and sinks are fitted level to within a tolerance of 6mm (S45, S48) <p>Check test and commission sanitation appliances to specification and diagnose and repair any faults that arise during installation as necessary. (S46)</p> <p>Maintain, test and repair leaks on cold water components as per specification and install insulation. Install, test and repair hot water system to components as per specification. (S47, S49)</p> <p>Calculate bend allowance and carry out Butt welding on Medium Density Polyethylene (MDPE) and High Density Polyethylene (HDPE) pipe. Install copper or steel and plastic pipework and hang a radiator to specification. Erect a waste pipe frame to specification.</p> <ul style="list-style-type: none"> - chases in wall and or floor surfaces cut to within 6mm (S44, S50, S53) <p>Combine copper, plastic and low carbon steel; join copper tubes, plastic pipes and low carbon steel pipes; bend copper tube or low carbon steel pipe. Bending of pipes to within 2 degrees of the required angle.</p> <p>Cut copper tube to length as per specification (S57, S58, S60, S61)</p>	<p>In order to achieve a distinction in this assessment method, all of the distinction criteria must be met.</p> <p>Baths, toilets and sinks fitted level and to within a tolerance of 3mm.</p> <p>Bending of pipes to within 1 degree of the required angle.</p> <p>Chases in wall and or floor surfaces cut to within 3mm.</p> <p>Holes and notches in timber floor joists to within 2mm tolerance.</p>

<p>Conduct heating calculations to meet specification. Test and commission and power flush heating system, using hydraulic test equipment and repairing any faults that arise as necessary. (S51, S52, S54)</p> <p>Commission and decommission water systems as per specification. (S55)</p> <p>Lift floorboards and notch joists as per specification.</p> <ul style="list-style-type: none"> - holes and notches in timber floor joists to within 5mm tolerance (S59) <p>Select and procure materials and consumables for the task as per the specification and select, inspect and use hand tools and or equipment and power tools safely. (S56)</p>	
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Plant Operator & Mechanic

KSBs: S62 S63 S64 S65 S66 S67 S68 S69 S70 S71 S72 S73 S74 S75 S76 S77 S78 S79 S80 S81 S82

Pass	Distinction
<p>If all pass criteria are not met this assessment method will be marked as a fail.</p> <p>Interpret specifications and carry out all given tasks and drills using safe working practices, using correct PPE, checking tools and equipment as per specification, determining health and safety requirements, making appropriate and accurate entries in plant documentation. (S62, S73, S74, S75, S82)</p> <p>Identify component parts of roads and/or airfields along with construction pegs and boards. (S76)</p> <p>Carry out pre-start and post-start checks, stopping and closedown procedures, including periodic service, on all plant machinery. Operate machines and attachments performing banksman duties where necessary, carrying out activities as per given specification. Plant machines to include:</p> <ul style="list-style-type: none"> • a medium wheeled tractor (MWT), and • a light wheeled tractor (LWT), and • a medium crawler tractor (MCT), and • either a medium crawler excavator (MCE) or an excavator, towed, ultra light (ETUL), and 	<p>In order to achieve a distinction in this assessment method, 6 of the following 8 distinction criteria must be met.</p> <p>1m depth trench dug to within 100mm</p> <p>Trench dug by 10-20 tonne machine to within 0.5m</p> <p>Trench dug by 20+ tonne machine to within 1m</p> <p>Square excavation 1.5m depth to within 150mm</p> <p>Square excavation to within 1 bucket</p> <p>Placed loads to within 150mm of given position</p> <p>Shovel-dug ramp dug to within 0.5 x length of vehicle</p> <p>Ramp dug to within 0.5 x width of bucket</p>

<ul style="list-style-type: none"> • either an engineer construction plant (ECP) or light dump truck (LDT) <p>(S63, S64, S65)</p> <p>Operate plant machinery and complete activities as per given specification for:</p> <ul style="list-style-type: none"> • a medium wheeled tractor (MWT) (S63, S66, S67), and • a light wheeled tractor (LWT) (S63, S67, S68, S69, S70), and • a medium crawler tractor (MCT) (S63, S70, S71), and • either a medium crawler excavator (MCE) or an excavator, towed, ultra light (ETUL) (S63, S70, S72), and • either an engineer construction plant (ECP) or a light dump truck (LDT) (S63, S80) <p>Including meeting the following tolerances (where applicable for the plant machinery as per the specification):</p> <ul style="list-style-type: none"> - 1m depth trench dug to within 200mm - trench dug by 10-20 tonne machine to within 1m - trench dug by 20+ tonne machine to within 2m - square excavation 1.5m depth to within 300mm - square excavation to within 3 buckets - placed loads to within 300mm of given position - shovel-dug ramp to within 1.5 x length of vehicle - ramp dug to within 1.5 x width of bucket <p>Carry out fault-finding procedures on an engine, electrical system, fuel system, cooling system and hydraulic system. (S81)</p> <p>Carry out operator and servicing procedures on steel wire ropes. (S78)</p> <p>Demonstrate cleaning equipment using high-pressure water jets; refuel equipment from static and mobile sources. (S79)</p> <p>Demonstrate the demanding, receipting and returning of class C vehicles. Load and unload all</p>	
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plant machinery onto current in-use trailers. (S70, S77)

Overall EPA grading

Performance in the EPA will determine the apprenticeship grade of fail, pass, or distinction.

Independent assessors must individually grade the practical assessment with questions and interview, according to the requirements set out in this plan. A person appointed by the EPAO must grade the knowledge test, according to the requirements set out in this plan.

EPAOs must combine the individual assessment method grades to determine the overall EPA grade.

Apprentices who fail one or more assessment method will be awarded an overall EPA 'fail'.

In order to gain an overall EPA 'pass', apprentices must achieve a pass in all the assessment methods.

In order to achieve an overall EPA distinction', apprentices must achieve a distinction in the practical assessment with questions, and a distinction in at least one of the other assessment methods. Greater weight is applied to the practical assessment as this is the closest method to replicating the work the apprentices will be carrying out in their day-to-day roles.

Grades from individual assessment methods should be combined in the following way to determine the grade of the EPA as a whole:

1 - Knowledge Test	2 – Interview	3 - Practical Assessment with questioning	Overall grading
Distinction	Distinction	Distinction	Distinction
Distinction	Pass	Distinction	Distinction
Pass	Distinction	Distinction	Distinction
Distinction	Distinction	Pass	Pass
Distinction	Pass	Pass	Pass
Pass	Distinction	Pass	Pass
Pass	Pass	Pass	Pass
Any grade	Any grade	Fail	Fail

Any grade	Fail	Any grade	Fail
Fail	Any grade	Any grade	Fail

Roles and responsibilities

Role	Responsibility
Apprentice	<p>As a minimum, apprentices should:</p> <ul style="list-style-type: none"> • participate in and complete on-programme training to meet the KSBs as outlined in the occupational standard for a minimum of 12 months. • all apprentices must complete the required amount of off-the-job training specified by the apprenticeship funding rules • understand the purpose and importance of EPA • undertake the EPA including meeting all gateway requirements
Employer	<p>As a minimum, employers should:</p> <ul style="list-style-type: none"> • work with the training provider to select the EPAO • work with the training provider (where applicable) to support the apprentice in the workplace to provide the opportunities for the apprentice to develop the KSBs • arrange and support the required amount of off-the-job training specified by the apprenticeship funding rules. • decide when the apprentice is working at or above the occupational standard and so is ready for EPA • select the EPAO • ensure that all supporting evidence required at the gateway is submitted in accordance with this EPA plan • remain independent from the delivery of the EPA • confirm arrangements with the EPAO for the EPA (who, when, where) in a timely manner (including providing access to any employer specific documentations as required, for example company policies) • ensure that the EPA is scheduled with the EPAO for a date and time which allow appropriate opportunity

	<p>for the KSBs to be met</p> <ul style="list-style-type: none"> • ensure the apprentice is well prepared for the EPA • ensure the apprentice is given sufficient time away from regular duties to prepare for and complete all post-gateway elements of the EPA, and that any required supervision during this time (as stated within this EPA plan) is in place.
EPAO	<p>As a minimum, EPAOs should:</p> <ul style="list-style-type: none"> • make all necessary contractual arrangements, including agreeing the price of the EPA • understand the occupational standard • appoint administrators (and invigilators where required) to administer the EPA as appropriate • provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading • provide adequate information, advice and guidance documentation to enable apprentices, employers and training providers to prepare for the EPA • arrange for the EPA to take place, in consultation with the employer • conform to the requirements of this EPA plan and deliver its requirements in a timely manner • develop and provide appropriate assessment recording documentation to ensure a clear and auditable process is in place for providing assessment decisions and feedback to all relevant stakeholders • have no direct connection with the apprentice, their employer or training provider. In all instances including when the EPAO is the training provider (i.e. HEI) there must be no conflict of interest • have policies and procedures for internal quality assurance (IQA), and maintain records of regular and robust IQA activity and moderation for external quality assurance (EQA) purposes • conform to the requirements of the nominated external quality assurance provider (EQAP) • conform to the requirements of the apprenticeship provider and assessment register (APAR) • deliver induction training for independent assessors, and for invigilators and markers where used • undertake standardisation activity on this apprenticeship standard for all independent

	<p>assessors before they conduct an EPA for the first time, if the EPA is updated and periodically as appropriate (a minimum of annually)</p> <ul style="list-style-type: none"> • manage invigilation of apprentices in order to maintain security of the assessment in line with their malpractice policy • verify the identity of the apprentice being assessed • use language in the development and delivery of the EPA that is appropriate to the level of the occupational standard • request certification via the Apprenticeship Service upon successful achievement of the EPA • develop and produce assessment materials including specifications and marking materials (for example mark schemes, practice materials, training materials) • appoint suitably qualified and competent independent assessors • provide details of the independent assessor's name and contact details to the employer have and apply appropriately an EPA appeals process.
Independent assessor	<p>As a minimum, an independent assessor should:</p> <ul style="list-style-type: none"> • have the competence to assess the apprentice at this level and hold any required qualifications and experience in line with the requirements of the independent assessor as detailed in the IQA section of this EPA plan • understand the occupational standard and the requirements of this EPA • have, maintain and be able to evidence up to date knowledge and expertise of the subject matter • deliver the end-point assessment in line with the EPA plan • comply with the IQA requirements of the EPAO • have no direct connection or conflict of interest with the apprentice, their employer or training provider; in all instances including when the EPAO is the training provider (such as a HEI) • attend induction training • attend standardisation events when they begin working for the EPAO, before they conduct an EPA for the first time and a minimum of annually on this apprenticeship standard

	<ul style="list-style-type: none"> • assess each assessment method, as determined by the EPA plan, and without extending the EPA unnecessarily • assess against the KSBs assigned to each assessment method, as shown in the mapping of assessment methods and as determined by the EPAO, and without extending the EPA unnecessarily • make all grading decisions • record and report all assessment outcome decisions, for each apprentice, following instructions and using assessment recording documentation provided by the EPAO in a timely manner • use language in the development and delivery of the EPA that is appropriate to the level of the occupational standard
Training provider	<p>As a minimum, the training provider should:</p> <ul style="list-style-type: none"> • work with the employer to select the EPAO • work with the employer and support the apprentice during the off-the-job training to provide the opportunities to develop the knowledge, skills and behaviours as listed in the occupational standard • conduct training covering any knowledge, skill or behaviour requirement agreed as part of the Commitment Statement (often known as the Individual Learning Plan) • monitor the apprentice's progress during any training provider led on-programme learning • advise the employer, upon request, on the apprentice's readiness for EPA • remain independent from delivery of the EPA. Where the training provider is the EPA (such as a HEI) there must be procedures in place to mitigate against any conflict of interest

Marker	<p>As a minimum, the marker should:</p> <ul style="list-style-type: none"> • attend induction training • have no direct connection or conflict of interest with the apprentice, their employer or training provider in all instances including when the EPAO is the training provider (such as a HEI) • mark multiple-choice test answers accurately according to the EPAO's mark scheme and procedures
Invigilators	<p>As a minimum, invigilators should:</p> <ul style="list-style-type: none"> • attend induction training as directed by the EPAO • have no direct connection or conflict of interest with the apprentice, their employer or training provider; in all instances, including when the EPAO is the training provider (such as a HEI) • invigilate and supervise apprentices during tests and in breaks during assessment methods to prevent malpractice in accordance with the EPAO's invigilation procedures

Internal Quality Assurance (IQA)

Internal quality assurance refers to the requirements that EPA organisations must have in place to ensure consistent (reliable) and accurate (valid) assessment decisions. EPA organisations for this EPA must:

- appoint independent assessors who:
 - has experience of serving in the Royal Engineers at a minimum of the level above the apprentice
 - has at least 2 years' trade experience in the Royal Engineers in the relevant option of the apprenticeship being assessed
 - undertake CPD each year to confirm their technical knowledge of their trade
 - have or are working towards a relevant assessor qualification such as L3 Certificate in Assessing Vocational Achievement
- provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- have robust quality assurance systems and procedures that support fair, reliable and consistent assessment across the organisation and over time
- operate induction training and standardisation events for independent assessors when they begin working for the EPAO on this standard and before they deliver an updated assessment method for the first time.

Re-sits and re-takes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take at the employer's discretion. The apprentice's employer will need to agree that either a re-sit or re-take is an appropriate course of action.

A re-sit does not require further learning, whereas a re-take does.

Apprentices should have a supportive action plan to prepare for a re-sit or a re-take.

An apprentice who fails one or more assessment methods, and therefore the EPA in the first instance, will be required to re-sit or re-take the failed assessment method(s) only.

The timescales for a re-sit or re-take are agreed between the employer and EPAO. A re-sit is typically taken within three months of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training is required and is typically taken within five months of the EPA outcome notification.

All assessment methods must be taken within a five month period, otherwise the entire EPA will need to be re-sat or re-taken.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to a higher grade.

Where any assessment method has to be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of pass, unless the EPAO determines there are exceptional circumstances requiring a re-sit or re-take.

Value for money

Value for money of the EPA will be aided by using at least some of the following practice:

- using an employer's facilities for the practical assessment with questioning
- assessing multiple apprentices simultaneously in the practical assessment with questioning for some of the options
- completing knowledge test online
- using an employer's venue for the interview of evidence and knowledge test
- option of interview via video conferencing

Professional body recognition

This apprenticeship is designed to prepare successful apprentices to meet the requirements for registration for the relevant CSCS card.

Mapping of knowledge, skills and behaviours (KSBs)

Assessment method 1: Knowledge test

Knowledge
Core
K1 The importance of site safety whilst being aware of the role of other site workers and their welfare
K2 The principles of waste management, disposal and environmental control in relation to environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations, official guidance and local requirements when working in foreign countries
K3 The different techniques and methods used to move, handle and store resources in the workplace and be aware of potential hazards involved with these resources
K4 Health and safety requirements for control equipment when undertaking work on site along with accident reporting when involved with, fires, spillages, injuries
K5 Safety requirements when working at height and below ground using relevant equipment
K6 The purpose of the work programme and why deadlines should be kept to in relation to progress charts, timetables and estimated times
K7 The importance of construction site reporting procedures and how changes in circumstances will impact on the works programme timetable
K8 The organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they can be implemented
K9 Organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, unit, operative
K11 Safety and load bearing rules when constructing bridges to cross gaps of various sizes using existing materials and prefabricated sections
K12 Safety aspects and rules regarding the use of explosive and delivery of basic demolitions
K13 Environmental and health aspects needed for providing water supply to a given location including water storage
Carpenter & Joiner
K14 The techniques of setting up and using of transportable cutting and shaping machines in the workplace
K15 First fixing components in the workplace including frames (door and/or window), linings (door and/or hatch), floor joist coverings (or flat roof decking), partitions (straight)
K16 Second fixing components in the workplace including side hung doors, mouldings (standard architrave, skirting), ironmongery, service encasement, wall and floor units/fitments, cladding

K17 Measuring, marking out, fitting, finishing, positioning and securing
K18 Characteristics, quality, uses, sustainability, limitations and defects associated with timber and timber based products and components, such as hardwood, softwood, Medium Density Fibreboard (MDF) and other materials
K19 Safe work practices when using tools, resources and equipment in a manner not likely to cause injury should they trip and fall
K20 Working with tools away from the body to avoid injury
K21 What safety guards should be in place in accordance with machine instructions
K22 The correct selection of accessories for machines and the work being undertaken
K23 Identifying the correct maintenance requirements for accessories and how to report defects
K24 The characteristics, quality, uses, sustainability, limitations and defects associated with resources such as timber, timber boarding, manufactured sheet material, plastics, doors, mouldings, ironmongery, metals, frames, linings, wall and floor units/fitments, adhesives, sealants, fixings, associated ancillary items, hand and/or power tools and equipment
K25 Safe working practices and procedures and how to report problems when working on site undertaking numerous procedures
K26 The specific hazards associated with carpentry and joinery resources and methods of work
Bricklayer & Concreter
K27 Techniques for setting out and erecting masonry structures in the workplace
K28 Techniques for placing and finishing non-specialist concrete in the workplace
K29 Characteristics, quality, uses, sustainability, limitations and defects associated with resources in relation to concreting, fabric reinforcing, timber, plywood, proprietary slab edgings, fixings, bricks, blocks, mortars, frames, insulation, damp-proof barriers, lintels, fixings, ties, hand and powered tools and equipment.
K30 The correct use of bricklaying and concreting resources and how problems associated with these specific resources are managed and reported
K31 Potential hazards associated with bricklaying and concreting resources and methods of work
K32 Specific health and safety practices that include any specific procedures, problem solving and the establishment of the authority needed to rectify them covering all aspects of the trade
K33 Examples of the above aspects transporting, laying, compacting, curing and protecting concrete with tamped, floated, brushed and towelled finishes, placing fabric reinforcement, concrete mix ratios (volume and gauge boxes), placing concrete into formwork and shuttering, forming slab edging, using hand tools and ancillary equipment and setting out and erecting structures
K34 Tools and equipment maintenance when setting out and erecting masonry structures
K35 Non-specialist concrete and be able to describe how to calculate quantity, length, area and wastage

K36 Field defence construction and the requirements for reinforcing and strengthening fortifications in a hostile environment
K37 Engineering principles to repair existing masonry structures to render them safe and prevent further collapse
Building & Structural Finisher
K38 Access/working platforms in the workplace including for use in building maintenance (carpentry), building maintenance (painting & decorating), building maintenance (tiling), building maintenance (plastering), building maintenance (trowel occupations), building maintenance (roofing), building maintenance (glazing)
K39 The characteristics, quality, uses, limitations and defects associated with the following resources ladders/crawler boards, stepladders/platform steps, trestles, proprietary staging/podiums, proprietary towers, mobile scaffolding towers, protections equipment and notices, tools and ancillary equipment, water-borne and solvent-borne coatings
K40 Further characteristics, quality, uses, limitations and defects: primers, intermediate coatings (undercoats) and finishes (single pack coatings), single-product systems (e.g. emulsions, varnishes), solvent/thinners, knotting, proprietary sealers, brushes, rollers
K41 Final characteristics, quality, uses, limitations and defects: protective sheeting and masking, cleaning agents, stripping materials and equipment, fillers and bonding agents, primers, surface treatment materials and waterproofing agents, sand, cement, lime and plaster renders, mesh, trims and fixings, wall and floor tiles, grout, adhesives, accessories, hand and/or powered tools and associated equipment
K42 Specific safe working practices and procedures to include: erecting and dismantling access equipment, preparing and painting surfaces, plastering, tiling to all types and angles of walls, glazing windows and/or doors, roofing structures, applying cement and lime renders, using tools and resources
K43 Further specific safe working practices and procedures to include: using waterproof membranes, fixing proprietary mesh and trims, applying movement joints, removing existing tiles and preparing background, forming reveals, sills and soffits (door and window openings), forming internal and external angles, fixing channels/form drainage, outlets
K44 The requirements for completing and maintaining records of actions taken to be included as part of the site hand over procedures
K45 The requirements for maintaining tools and equipment used when erecting and dismantling access/working platforms, applying paint systems using rollers and associated tools and equipment, preparing background surfaces for plastering, panelling or painting/decorating tiling wall and floor surfaces, glazing windows and doors and roofing structures
K46 Health and safety requirements for structures built for temporary occupation in a military environment
Heating & Plumbing
K47 Heat calculations, task requirements and resource requirements for tasks
K48 Causes and prevention of corrosion in plumbing systems

K49 Plumbing materials, their properties and the effects of heating on them along with the principles of heat in plumbing systems
K50 Marking out techniques and allowances for bend calculations
K51 Copper tube/plastic pipe, measuring, cutting, bending and joint techniques along with steel pipe threading and joining techniques
K52 Pipework insulation and protection systems along with the identification of pipe freezing techniques
K53 Preparation of floors
K54 Water systems and hydraulic testing and equipment
K55 Soundness testing and commissioning checks for water systems along with flushing water systems
K56 Requirements for decommissioning of water systems
K57 Electrical resistance calculations
K58 Requirements of rainwater and associated guttering
K59 Test and commissioning of guttering systems, above and below ground drainage systems and the hazards when working with them along with the maintenance
K60 Water treatment systems and the storage of wastewater
Plant Operator & Mechanic
K61 Extracting task requirements from a briefing, plan for a plant task, inside and out by day and night and interpret engineer drawings, sketches and specifications
K62 All current and applicable legislation, regulations, standards and instructions relevant to the operation of different Plant vehicles individual expected to operate
K63 Harbour area drills/tasks
K64 The capabilities and working principles of systems and controls of the Medium Wheeled Tractor (MWT), Light Wheeled Tractor (LWT), Medium Crawler Tractor (MCT) Medium Crawler Excavator (MCE) and Excavator Towed Ultra Light (ETUL)
K65 The purpose and application of ancillaries for the Medium Wheeled Tractor (MWT), Light Wheeled Tractor (LWT), Medium Crawler Tractor (MCT), Medium Crawler Excavator (MCE) and Excavator Towed Ultra Light (ETUL)
K66 The various techniques of transporting the Medium Wheeled Tractor (MWT)
K67 The purpose of route denial for all Plant the individual is expected to use
K68 The purpose of various bucket configurations for the Medium Crawler Excavator (MCE) and the process for self recovery
K69 The procedures/processes for crossing equipment bridges
K70 The basic principles of compaction
K71 The repair, accident and breakdown procedures along with the process for refuelling equipment

K72 The purpose of inspecting Steel Wire Rope (SWR)
K73 The legal requirements of plant on the public highway
K74 The working systems and controls of roller(s) and the cab and controls for the Light Dump Truck (LDT) and the Medium Dump Truck (MDT)
K75 Understand the basic fault identification on the engine, the electrical system, the fuel system, the cooling system and the hydraulic system of the plant being used

Assessment method 2: Interview

Knowledge (Core)
K10 Complex first aid procedures in an emergency
Skills (Core)
S4 Undertake basic project management process to include the bidding for necessary resources across long logistic chains, whilst avoiding wastage and all to be completed within the required time frame
S5 Undertake site supervision to ensure completion of task in a military (often hostile) environment, maintaining health and safety and a safe working environment
S7 Liaise with fellow workers, allied forces and outside agencies to meet local import/legislative requirements required when working in a foreign country
S9 Complete relevant documentation necessary to comply with local building regulations
S10 Demonstrate complex first aid procedures likely to save life in a given situation
S11 Oversee the preparation of resources safely for transport by land, sea or air and safely unload resources with the use of signalling
S12 Undertake core military combat engineering skills including: <ul style="list-style-type: none"> a. develop protective shelters including trench construction being aware of the relevant safety aspects of working below ground b. construct bridges to cross gaps of various sizes using improvised existing materials as well as prefabricated modular bridge components c. use explosives to undertake basic demolitions d. be able to construct a water supply system from a raw source (such as a river) utilising engineering skills to provide water storage and delivery
S14 Communicate effectively to the rest of the team and with management
S15 Be adaptable to environment being worked in

Behaviours (Core)
B1 An alert and tactical awareness prior to, during and after any construction project in a hostile environment and be able to adapt to a changing environment
B2 The willingness to take charge of a situation should it be required
B3 The initiative to adapt, develop and overcome any situation that may arise during a task whilst maintaining a military approach
B4 A responsible attitude towards own and others' safety in the workplace
B5 A strong Team spirit and Corps values

Assessment method 3: Practical Assessment with questioning

Skills (Core)
S1 Carry out work to military standards, as laid down by the on-site military design team. All works must be of quality, within budget
S2 Interpret information provided in drawings, specifications, schedules, method of statements, risk assessments, Manufacturers' information and industry regulations governing construction
S3 Calculate quantity in relation to tools, resources, time, area and wastage associated with the work being undertaken
S6 Move, manage and store resources in the workplace in a safe manner
S8 Plan the sequence of work, using appropriate resources, in accordance with organisational procedures to ensure work is completed safely and efficiently
S13 Use personal protective equipment relevant to the task and the tactical situation
S16 Select resources necessary to undertake a task which will include materials, components and fixings, tools, equipment and accessories
S17 Protect the work and its surrounding area whilst minimising damage and maintain a clean work space
Skills (Carpenter & Joiner)
S18 Prepare timber and timber structures to be included in engineering projects. This will include the ability to measure, mark out, fit, fix, position and secure fittings
S19 Set up and use transportable cutting and shaping machines in the workplace
S20 Demonstrate compliance with given information and relevant legislation in relation to the safe use of access equipment, safe handling of materials, safe use and storage of materials, tools, equipment and ancillaries
S21 Use, maintain and store materials, hand tools, portable power tools and ancillary equipment in a safe manner

S22 Set up and use safely drills, planes, biscuit joiners and disc cutters
S23 Set up and use safely cutting tools including saws such as: circular, chop, mitre, bench, jig, reciprocating, alligator and scroll saws
S24 Set up and use wood shaping tools including a thicknesser, sander (orbital, belt, disc), router, laminate trimmer, and grinder to given working instructions
S25 Install first fixing components according to instructions in the workplace including frames (door and window), door linings, floor joist coverings, partitions (straight)
S26 Install second fixing components in the workplace including measuring, marking out, fitting, finishing, positioning, securing side hung doors, mouldings (standard architrave), ironmongery, service encasement, wall and floor units/fitments, and cladding
S27 Construct field defences (i.e. trench work and sangers) using necessary wood reinforcing to strengthen the structure in the form of frameworks and shuttering
S28 Manufacture wooden shoring in unstable buildings to render buildings safe for temporary occupation
Skills (Bricklayer & Concreter)
S29 Erect masonry structures in the workplace in brick and block and/or local materials for the cavity wall structures, block work structures, solid wall structures, door and window openings and joint finishes
S30 Set out regular shaped structures to given working instructions in brick, block and local material
S31 Lay concrete to given working instructions for concrete slabs/bases/foundations (footing, oversites or paths), form slab edging and position reinforcement
S32 When placing and finishing non-specialist concrete demonstrate measuring, marking out, laying, compacting, finishing, positioning and securing
S33 Finish concrete to the given working instructions for concrete slabs/bases (footing, oversites or paths), form slab edging, position reinforcement and form surface finish (tamped, floated, brushed and trowelled
S34 When field defences are required (i.e. trench work and sangers) construct the necessary brickwork to be undertaken to strengthen the structure using brick, block, local materials or concrete
Skills (Building & Structural Finisher)
S35 Demonstrate skills when erecting, moving, positioning, dismantle and store access/working platforms in the workplace for building maintenance (carpentry), building maintenance (painting & decorating), building maintenance (tiling), building maintenance (plastering)
S36 Further skills to demonstrate: building maintenance (trowel occupations) in a safe and efficient manner using ladders/crawler boards, stepladders/platform steps, proprietary towers, trestle platforms, mobile scaffold towers, proprietary staging/podiums
S37 Demonstrate work skills when mixing, pouring, diluting, loading, laying-on, laying-off, cutting and applying paint systems by brush and/or roller

S38 Apply water-borne and/or solvent-borne coatings to internal and/or external surfaces for industrial and/or non-industrial situations, to given working instructions, for linear/trim/narrow runs and broad areas by brush and/or roller
S39 Safely store the materials, tools and equipment used when applying paint systems by brush and/or roller and when preparing background surfaces for plastering, tiling, panelling or painting/decorating and when tiling wall and floor surfaces
S40 Prepare background surfaces for plastering, tiling, panelling or painting and decorating in the workplace
S41 Demonstrate measuring, marking out, washing, stripping/scraping, abrading/keying, hacking, cutting out, removing, mixing, filling, levelling/flattening, brushing down, priming when preparing background surfaces for plastering, tiling, panelling or painting/decorating
S42 Prepare new or existing background surfaces for plastering and/or tiling and/or panelling and/or painting/decorating to given working instructions for previously plastered, tiled, panelled or painted/decorated surfaces, brick, block, concrete, render or plaster, manufactured board, wood, metal
S43 Fix tiles to vertical, horizontal and inclined surfaces to given working instructions on wall and floor surfaces, reveals, sills and soffits (door and/or windows), floor drainage and outlets, fixture of appropriate accessories
Skills (Heating & Plumbing)
S44 Erect a waste pipe frame
S45 Install a sink or wash hand basin, bath or shower, and WC as per given specification. Connect bath or shower, WC, and sink or basin to primary ventilated stack system as per given specification.
S46 Check test and commission sanitation appliances, diagnose and repair faults on sanitation appliances, gravity shower unit and pumped shower unit
S47 Maintenance of cold-water components and the repair of leaks on cold water systems and test cold water pipework along with soundness testing on cold water systems and install insulation
S48 Install an electric shower
S49 Install hot water system to components, storage cylinder, immersion heater and connect Y-plan and S-plan heating controls also test hot water pipework systems, carry out soundness testing and restore faulty hot water systems
S50 Install copper, steel and plastic pipework and hang a radiator
S51 Test and commission, power flush and restore faulty heating system
S52 Conduct heating calculations
S53 Calculate bend allowance and carry out Butt welding on Medium Density Polyethylene (MDPE) and High Density Polyethylene (HDPE) pipe.
S54 Use hydraulic test equipment

S55 Commission and decommission water systems
S56 Procure materials and consumables for the task and select, inspect and use hand tools/equipment and power tools safely
S57 Cut copper tube to length
S58 Bend copper tube or Low Carbon Steel pipe 90', double/double set, crank set, half crank, two angled set and bending in two plains
S59 Lift floorboards and notch joists
S60 Join copper tubes, plastic pipes and low carbon steel pipe
S61 Combine copper, plastic and Low Carbon Steel frame
Skills (Plant Operator & Mechanic)
S62 Interpret working drawings, comply with task standards advise on plant tasks, carry out all tasks using safe working practices and applicable safety equipment and carry out harbour area drills/tasks
S63 Operate the current in-use machinery: <ul style="list-style-type: none"> • a Medium Wheeled Tractor (MWT), and • a Light Wheeled Tractor (LWT), and • a Medium Crawler Tractor (MCT), and • either a Medium Crawler Excavator (MCE) or an Excavator, Towed, Ultra Light (ETUL), and • either an Engineer Construction Plant (ECP) or Light Dump Truck (LDT)
S64 Carry out pre-start and post start checks, stopping and closedown procedures on vehicles to be operated by Military Engineering Construction Technician Plant Operator Mechanic along with periodic service and lubrication of all points of the ancillaries also carry out wheel changing procedures
S65 Operate travel controls, forks and bucket smoothly and safely and carry out banksman/operator duties on relevant vehicles to be operated by Military Engineering Construction Technician Plant Operator Mechanic
S66 Level an area, form a stockpile, construct a raised platform, load dump trucks, lift transport and lower loads, using lifting eyes using the Medium Wheeled Tractor.
S67 Prepare Medium Wheeled Tractor and Light Wheeled Tractor for road travel
S68 Operate the backactor of Light Wheeled Tractor in various roles and excavate various configurations of trench and various configurations of field defences
S69 Using the Light Wheeled Tractor level an area, form a stockpile, excavate below ground level (front end) and load dump trucks
S70 Load/unload the following onto current in-use trailers: <ul style="list-style-type: none"> • a Light Wheeled Tractor (LWT), and • a Medium Crawler Tractor (MCT), and • either a Medium Crawler Excavator (MCE) or an Excavator, Towed, Ultra Light (ETUL)

S71 Excavate below ground level, level an area, form a ditch by angle dozing, form a downhill/uphill cut. form a stockpile using a Medium Crawler Tractor and carry out winching/ripper operations
S72 Form a stockpile, excavate an anti-vehicle ditch, excavate below ground level, load dump trucks and bank batter slopes using Medium Crawler Excavator or Excavator towed ultra-light and set it up for lifting duties
S73 Use Personal Protective Equipment (PPE) for a plant task
S74 Make entries in plant documentation
S75 Check tools and equipment using Complete Equipment Schedule
S76 Identify the component parts of roads and airfields along with construction pegs and boards
S77 Carry out the process for demanding, receipting and returning C class vehicles
S78 Carry out operator servicing and maintenance on Steel Wire Ropes (SWR)
S79 Clean equipment using high pressure water jets and refuel equipment from static and mobile sources
S80 Manoeuvre the Light Dump Truck or Engineer Construction Plant on a construction site
S81 Carry out basic fault identification on the engine, the electrical system, the fuel system, the cooling system and the hydraulic system
S82 Determine Health & Safety requirements for plant tools, materials and storage and use common and current in-use tools and compressed air/hydraulic tools