Engineering Construction Erector/Rigger L3 Assessment Plan

Contents

1. Summary of Assessment

This Apprenticeship Standard covers two roles:

The Engineering Construction Erector.

Engineering Construction Rigger.

Both are vital Engineering Construction roles, working within strictly defined processes and procedures to precise standards. This often involves working on major infrastructure projects in various Industrial sectors such as the power generation sector, which may use a range of different fuels including coal, gas, nuclear, wind and other renewable fuel sources; oil and gas refining; nuclear waste reprocessing; the processing and production of chemicals; pharmaceuticals; human and animal food; cosmetics; petrochemicals; sewerage, steel mill, the exploration and exploitation of oil and gas and the erection and dismantling/decommissioning of steel structures and engineering construction plant of varying sizes and complexity. Riggers and Erectors often work in hazardous environments which can include working at height, over water and in confined spaces. Riggers and Erectors must be able to work autonomously and as part of a team ensuring compliance with health, safety and environmental processes and procedures, this can involve working with other Engineering Construction occupations such as Maintenance Technicians, Platers, Pipefitters and Welders.

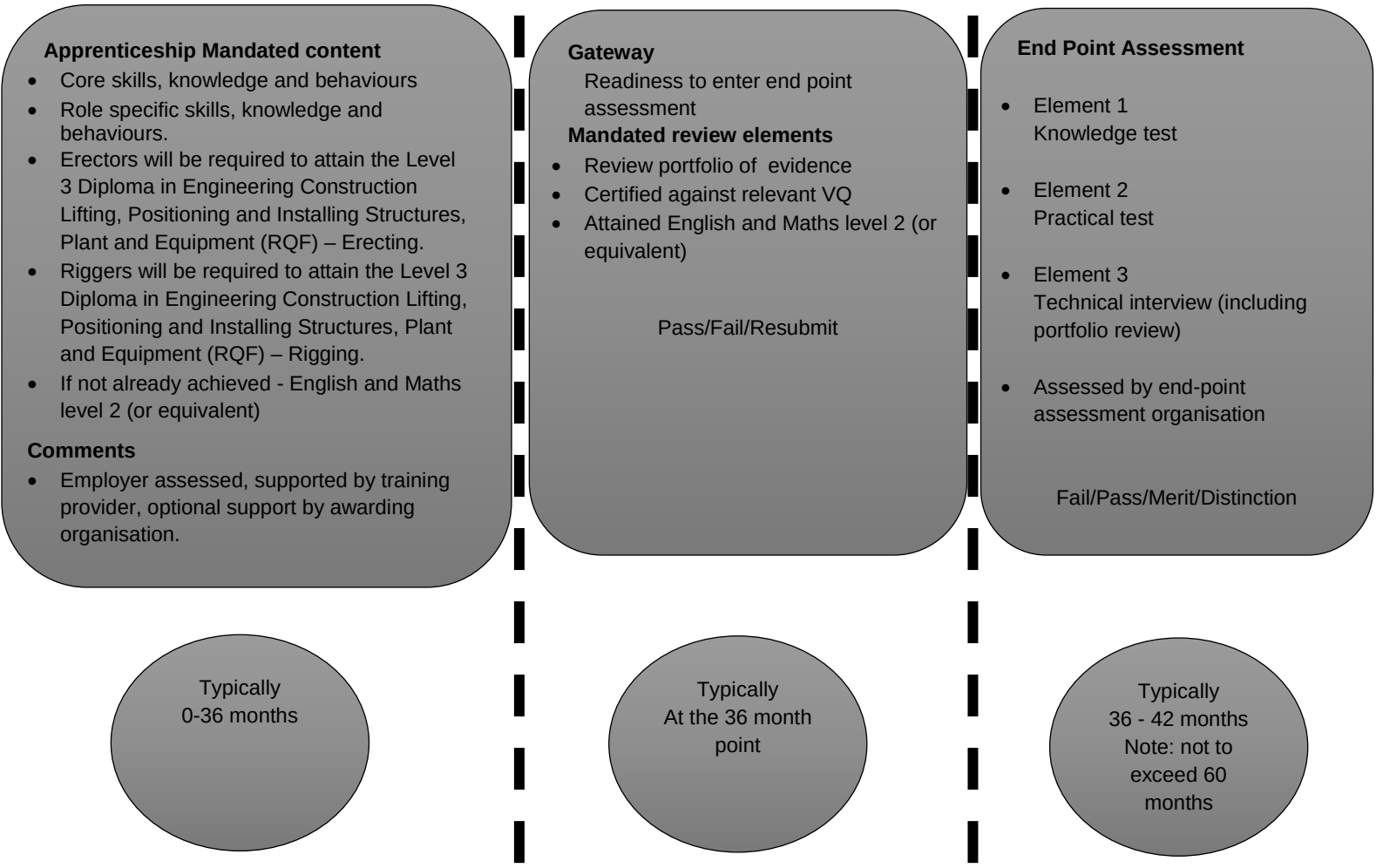
The **Engineering Construction Erector** role encompasses the installation and dismantling of the capital plant steel infrastructure which makes up engineering and construction projects; these operations are by nature complex and non-repetitive and often necessitate working on sites which are under development and where new steel structures are being erected. The construction is achieved through the use of static and mobile moving and lifting equipment and accessories and as the assembly of the structure progresses, can involve the use of additional specialist access equipment. Erectors will use powered as well as non-powered hand tools to assemble the structure, this can also include the fixing of metal decking, safety netting and edge rails to facilitate safe working.

The **Engineering Construction Rigger** role encompasses the lifting, moving and positioning of loads of various types, weights and sizes during engineering construction projects, with Riggers often being required to work in dynamic live plant environments. It involves, but is not limited to the detailed planning and control of all the elements required to successfully and safely execute and complete the lifting, moving and positioning operation. Riggers are responsible for safely moving complex loads using static and mobile moving and lifting equipment and accessories. The moving and lifting equipment is diverse and can include specialist equipment such as skids and rollers as well as numerous types of winches, hoists and cranes of various sizes and design.

This Apprenticeship is designed to operate as the professional standard for people working as either Engineering Construction Riggers or Engineering Construction Erectors. The apprenticeship is a core and options apprenticeship which brings together common core skills, knowledge and behaviours (KSBs) shared between Engineering Construction Riggers and Erectors but also identifies role specific KSBs.

Successful achievement of this Apprentice Standard enables the Apprentice to take the next steps in their career as it demonstrates that the Apprentices are able to competently work in their chosen occupation within an Engineering Construction environment.

Assessment overview



Once the Apprentice has successfully satisfied all the requirements of the final gateway review they will proceed to the end point assessment (EPA). The EPA will measure the knowledge; skills and behaviours detailed in the Engineering Construction Erector/Rigger Apprentice Standard (both core and selected role specific) and will usually occur in the final 6 months of their Apprentice programme between the 36 – 42 month point.

The EPA consists of 3 individual elements; successful completion of all 3 elements will ensure the Apprentice has attained the necessary knowledge, skills and behaviours to be deemed occupationally competent in the role of Engineering Construction Rigger or Erector.

2. EPA elements

- Knowledge Test – Multiple choice question paper (may be online).
- Practical assessment – A core and role specific skills practical exercise.
- Technical interview – An interview panel comprising of 2 assessors from the end-point assessment organisation. The panel will be chaired by one of the assessors from the End Point Assessment Organisation (EPAO). Note: two assessors, one of whom will be the chair will help ensure all interviews are fair, objective and any disputes are easier to settle.

3. Assessment Overview

Assessment Method	Area Assessed	Assessed by	Grading	Weighting
Knowledge test (may be online)	• Occupational core and role specific knowledge as specified in the Erector/Rigger standard	End-Point Assessment Organisation	• Fail • Pass • Merit • Distinction	35%
Practical assessment	• Application of core and role specific occupational knowledge • Application of core and role specific practical skills • Demonstration of behaviours	End-Point Assessment Organisation	• Fail • Pass • Merit • Distinction	55%
Technical interview	• Occupational core and role specific knowledge • Evidence of application of core and role specific skills • Evidence of application of behaviours	End-Point Assessment Organisation	• Fail • Pass • Merit • Distinction	10%

4. On-programme Assessment – pre-gateway delivery requirements

Mandated requirements

The on-programme assessment will include the following elements which **must be** completed before final gate way in order to enter EPA:

Dependent upon elective pathway a Level 3 Vocational diploma, either:

- Erectors will be required to attain the Level 3 Diploma in Engineering Construction Lifting, Positioning and Installing Structures, Plant and Equipment (RQF) – Erecting.
  Or

- Riggers will be required to attain the Level 3 Diploma in Engineering Construction Lifting, Positioning and Installing Structures, Plant and Equipment (RQF) – Rigging.
  And
- If not already held, English and Maths at Level 2 (or equivalent).

5. Assessment Gateway

Once the Apprentice has made significant progress in terms of developing the core and role specific knowledge, skills and behaviours specified in the standard then they are ready to enter the final gateway review. The Apprentice must then satisfy all requirements of the Final gateway review before entering EPA:

- Erectors will be required to attain the Level 3 Diploma in Engineering Construction Lifting, Positioning and Installing Structures, Plant and Equipment (RQF) – Erecting.
  Or
- Riggers will be required to attain the Level 3 Diploma in Engineering Construction Lifting, Positioning and Installing Structures, Plant and Equipment (RQF) – Rigging.
  And
- If not already achieved - English and Maths level 2 (or equivalent).

Qualifying statements

The judgement on whether the Apprentice progresses onto the EPA will be made by the employer who will be supported by the training provider with optional support from the awarding organisations for the Vocational Qualification.
The employer must satisfy themselves that the Apprentice:

- Has developed and demonstrated the core and role specific knowledge, skills and behaviours as specified in the Erector/Rigger standard.
- Can successfully demonstrate their ability to work safely and competently as an Engineering Construction Rigger or Erector.

The Apprentice will progress to EPA once they can demonstrate they have satisfied the on-programme requirements and are deemed ready to be presented for EPA. It is down to the discretion of the employer how many times the Apprentice may be presented for gateway review as they will be privy to the circumstances and capabilities of the individual.

6. End-point – Assessment

The EPA assesses the Apprentice's ability to apply the knowledge, skills and behaviours learnt in order to competently perform either the Engineering Construction Erector or Rigger role. The skills, knowledge, and behaviours required for each role are detailed in the Erector/Rigger Apprentice standard. It is envisaged the EPA process will be undertaken over a 2 day period, the elements can be delivered in any order as long as element 3 (technical interview) is delivered last. Successful achievement of the EPA will lead to final certification of the Apprenticeship and demonstrate that the Apprentice is fully competent in their chosen

occupational job role of either Engineering Construction Rigger or Erector. The EPA utilises the following elements as assessment tools. Note: See Annex 1 for full breakdown of assessment methods during EPA elements to assess role skill, knowledge and behaviours as specified in the Apprentice standard.

Element 1 – Knowledge test

The purpose of this test is to ensure the Apprentice can demonstrate they have acquired the underpinning knowledge to enable them to perform their job role. To ensure objectivity, the knowledge test will be based on a stem and options approach (multi choice) and delivered in a strictly controlled environment by an assessor from the selected end-point assessment organisation. For this element the Apprentice will be awarded a mark out of a 100, this mark will carry a weighting of 35% towards the final score.

The question paper will be in multi choice format and consist of 50 questions, 36 will be core-related and 14 option-related knowledge questions. Each question will present the candidate with 4 potential response answers from which they must select the correct one. The paper can be delivered online and will be randomly drawn from a data bank consisting of at least 200 questions for each occupation covering the full range of knowledge requirements in the Engineering Construction Erector/Rigger standard. The time permitted for the Apprentice to answer the questions is 90 minutes. The questions will be developed by an end point assessment organisation selected from the Register of End Point Assessment Organisations (RoEPAO). EPAOs must develop question banks of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure they are fit for purpose.

Content - The knowledge test shall be delivered in an environment that can guarantee examination conditions are applied and will allow the Apprentices to demonstrate their understanding of the core and role specific knowledge requirements as specified in the Engineering Construction Erector/Rigger apprentice standard.

Element 2 - Practical assessment

The primary purpose of this element is to ensure the Apprentice can competently demonstrate the skills required to perform their job role; however this element will also measure the underpinning knowledge and, to a certain extent, behaviours required to perform their job role. The practical observed assessment developed by the end point assessment organisation will be delivered in a strictly controlled environment by an assessor from the selected end-point assessment organisation. The practical assessment will take 8 hours per candidate (+/- 10% at the discretion of the independent assessor). The exact duration will be similar to the time expected for a competent Erector or Rigger to complete a similar task.

Content

The assessment shall be developed against 3 specifications of comparable complexity, one of which can be selected for the test. The chosen assessment will allow the Apprentice to demonstrate the skills as well as underpinning knowledge and behavioural requirements. EPAOs must develop practical specification banks of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure they are fit for purpose.

How the assessment will work

The assessment will be administered in a strictly controlled test environment and be invigilated by an assessor from the end-point assessment organisation. The test will take the form of a moving loads or erecting task dependant on the Apprentice's elected pathway. The Apprentice must work to tolerances and specifications stated in an engineering specification to complete a given erecting or rigging task. During the assessment the assessor can question the Apprentice to ascertain the breadth and depth of their underpinning knowledge.

For erectors, the EPA organisation will determine the exact nature of the structure used for the assessment but it must involve the use of steel assemblies of multiple shapes and different sizes, including but not limited to:

- Steel beams
- Columns
- Bracings
- Rafters
- Cold rolled steel work

For riggers, the EPA organisation will determine the exact nature of the loads used for the assessment but the assessment should involve the use of irregular shaped unevenly weighted loads such as:

- Pipe spools
- Steelwork
- Motors
- Pumps
- Valves
- Pipe bundles

Refer to annex 2 for an example guidance on the practical assessment.

Element 3 – Technical interview

The technical interview takes place after successful completion of the knowledge and practical tests. The technical interview will evidence the demonstration of the behaviours stated in the standard. This element will review the Apprentices evidence compiled from the work place and recorded in the template evidence report.

Content

The technical interview will allow the Apprentices to evidence where they have demonstrated the core and role specific knowledge and skills as specified in the Erector/Rigger standard for their given job role however the focus will be on the behavioural requirements. Full details on the aspects of the standard assessed during this element can be found at Annex 1.

How the technical interview will work

The technical interview will be administered in accordance with the end-point assessment organisation's processes and will be delivered by an independent assessor from the EPAO. In total the panel should consist of at least two independent assessors from the EPA organisation. Whilst meeting the general assessor criteria, at least one of the assessors should be occupationally competent to a minimum of level 3

in Rigging or Erecting or a related engineering discipline or be able to provide evidence of occupationally relevant experience. The presence of a representative from the employer or the Apprentice's training organisation is not permitted.

The technical interview is designed to enable the Apprentice to demonstrate how they have combined their skills, technical knowledge and behaviours in order to carry out their occupational role effectively and safely. The Apprentice should expect to discuss evidence of their work as recorded in the evidence report (described in the following paragraph) compiled from job related tasks so the panel can ascertain the Apprentice's role in completing the work and what, if any barriers they overcame etc. It is a rigorous interview and should assess the Apprentice's readiness to work as an Engineering Construction Erector or Rigger.

Post-gateway and in advance of the interview the Apprentice will receive information about how the technical interview will work and a template evidence report that they will be asked to complete and submit to the end-point assessment organisation in advance of the interview. The Apprentice will be given 2 months to complete the template evidence report. In this evidence report it is expected that the Apprentice will identify and expand on examples of evidence of application of the skills, technical knowledge and behaviours (drawn from at least 3 examples of completed Erecting or Rigging tasks) as applicable in the workplace taking into account the content of the Engineering Construction Erector/Rigger standard.

A copy of this evidence report is retained by the interview panel as evidence that the Apprentice understands the required standards of workplace performance and behaviours.

The technical interview is designed to allow the Apprentice to present evidence of their own competence in order to demonstrate their core and role related skills, knowledge and behaviours by discussing the evidence and showing how it relates in context to the requirements of the Standard i.e. how it relates to carrying out their occupational role effectively. The discussion based approach is important as it enables consideration of how the Apprentice has performed, and also their analytical reasoning and decision-making abilities. The technical interview will be 90 minutes (+/- 10mins at the discretion of the independent assessor) and will consist of a technical discussion and behavioural questions which will be recorded by the assessors. The technical interview may be conducted face to face or, if this is not possible remotely using Skype or a comparable technology. Note: whichever remote technology is used the interview must be conducted using video. The records will be filled out during the interview and then retained by the panel.

EPAOs must develop question banks of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure they are fit for purpose.

To ensure this assessment is consistent, the panel will be given the following panel templates developed by the end-point assessment organisation:

1. An evidence record drawn from the on programme workplace portfolio developed by the Apprentice. The evidence record must include photographic evidence of the last 3 erecting or rigging tasks completed in addition to any courses attended. The independent assessor will use this record as a basis for selecting the questions for the interview, drawn from the bank developed by the EPAO.
2. Marking guide for the interview.
3. A blank template to record the questions asked during the interview and the responses received.

General guidance for all EPA elements

A candidate must pass all three elements in order to achieve their Engineering Construction Erector/Rigger Apprenticeship. All EPAs must be carried out by an End-Point Assessment Organisation registered on the Education and Skills Funding Agency's Register of End-Point Assessment Organisations (RoEPAO) in a suitable assessment centre environment. It is incumbent on the end-point assessment organisation to ensure, where possible, Apprentices requiring EPA are aggregated to ensure economies of scale are realised, so providing best value for money and accessibility for all employers regardless of size. All of the EPA elements will be administered in accordance with the end-point assessment organisation's processes to ensure the assessments:

- Are objective – the same scores can be consistently awarded by different people administering the assessment.
- Are valid - the assessment measures what it is meant to measure due to its content and the method of assessment.
- Are reliable – the assessments can be administered by different assessors in different locations without losing any consistency either in learner experience or marking criteria.
- Allow for differentiation between candidates' performance to enable accurate individual grades to be established.

It is recommended that the EPA cohort sizes be capped at a minimum of 3 to a maximum of 6; this will ensure the individually assessed elements are manageable allowing the correct assessor to delegate ratio. End-point assessment organisations are required to develop an appropriate assessment model which is valid, reliable and objective. The end-point assessment organisations will also develop appropriate marking schemes which enable effective grading and determine the difference in levels between fail, pass, merit or distinction using the guidance provided at figure 1 (assessment criteria, grades and weighting) . Whilst not mandated, working closely with employers during the development of assessment models is encouraged.

7. End-point – final judgement

The elements of the EPA can be delivered in any order as long as the technical interview is delivered last. Apprentices who fail one or more assessment methods will be offered the opportunity to take a re-sit/re-take. Re-sits/re-takes must not be offered to apprentices wishing to move from pass to merit. A re-sit does not require further learning, whereas a re-take does. The apprentice's employer will need to agree that a re-sit/re-take is an appropriate course of action. Apprentices should have a supportive action plan to prepare for the re-sit/re-take. The apprentice will only have to res-sit/re-take the specific assessment method that was failed. If the res-sit/re-take is not successfully completed within 6 months of the original EPA, the entire EPA will have to be taken again. Re-sits and re-takes are restricted to a "pass" mark only unless in exceptional circumstances, which can be considered at the discretion of the EPA organisation. The final decision on the grade awarded to the Apprentice is made by the end-point assessment organisation. The decision will be based on the outcome of all 3 elements of the EPA. On completion of the last element of the EPA – the technical interview, the panel Chair (from the end-point assessment organisation) together with the other panel assessor will award the Apprentice with an overall grade using the grading descriptors provided.

8. Independence

Objectivity and independence are crucial when using any assessment instruments. To ensure the EPA is fair, objective and independent to any of the training and assessments delivered on-programme, the EPA will be administered and assessed by assessors from end-point assessment organisations that are registered on the Education and Skills Funding Agency Register of End Point Assessment Organisations (RoEPAO). The end-point assessment organisation must, regardless of the type, size, location or nature of the Apprentice's employer, ensure the EPA is valid, reliable, and objective and allows for differentiation between candidates performance when grading.

9. End-point – Summary of roles and responsibilities

Assessor	Role
Employer	• Ensure the Apprentice is ready for EPA through dialogue with the Apprentice, their line manager and the training provider. • Ensure the Apprentice can attend the EPA and is prepared for the technical interview in terms of collating any required evidence. • Provides support and guidance to the Apprentice before, during and if required after the EPA. • Liaise with the end-point assessment organisation in terms of Apprentice feedback and recovery plans if required.
Training Provider	• Ensure the Apprentice is ready for EPA through dialogue with the Apprentice and their line manager/mentor. • Helps ensure the Apprentice is prepared for the professional technical interview in terms of collating any required evidence. • Provides support and guidance to the Apprentice before and, if required, after the EPA.
End-Point Assessment Organisation	• Works with employers to ensure the EPA is available, accessible and cost effective. • Are registered on the RoEPAO and meet the employer requirements • Develops the tools required for each element of the EPA. • It is recommended that the EPAO works with the employer user group to ensure the assessments tools for each of the 3 elements of the EPA are: reliable, valid, objective and allow for differentiation between candidates' performance. • Administer and grade the EPA. • Administer an EPA complaints, appeals and feedback for referrals procedure. • Provide independent assessors to make up the panel and nominated chair. The chair does not have to have any additional qualifications but must be nominated at the start of the EPA and remain throughout.

10. Quality Assurance

Quality Assurance Internal

To ensure internal quality assurance requirements are met, end-point assessment organisations must satisfy the following requirements:

1. Demonstrate the capability to identify, quality assure and use assessors that meet the requirements.

2. Develop compensatory assessment for learners with special requirements to allow reasonable adjustments to be made to assess the knowledge, skills and competence of the apprentice through alternative assessment techniques. Whilst, these will remove barriers to participation, they must be designed to ensure judgements are not compromised regarding health and safety and legal requirements.
3. Develop the knowledge and practical assessments required to meet the needs of the role. End-point assessment organisations must consult with representative technical experts when developing the assessments and the tools necessary to deliver these assessments. End-point assessment organisations must ensure that there is consistency and comparability in terms of the breadth and depth of each knowledge assessment, to ensure assessments are reliable, robust and valid and ensure competency accord across the industry.
4. Develop the documentation required for the technical interview.
5. Provide evidence of an internal quality management system and quality control procedures, including moderation of at least 20% of EPA assessor's decisions.
6. Develop an assessment strategy and range of assessment tools that permit valid, reliable and objective assessment and allow for the differentiation between candidates' performance to enable accurate grading of Apprentices.
7. Provide systematic training for independent assessors on the content and delivery of all 3 elements of the EPA, applying the grading and how to report and communicate the final grading decisions.
8. Develop and manage an EPA complaints, appeals and feedback for referrals procedure.
9. Provide opportunity for all independent assessors to attend at least two standardisation events each year to ensure consistent application of the assessment guidance.
10. Ensure end-point assessment organisation staff are trained in assessment and moderation processes and undertake regular continuing professional development.
11. Commit to resource, as a minimum, an annual standardisation meeting for assessors including but not limited to sector experts.

The End-Point Assessment Organisation must maintain a register of independent assessors for the End-point assessment and commit to ensuring that the independent assessors are competent to undertake the role they provide in the End-point assessment. The assessors must receive training to ensure they assess the Apprentices against the requirements of the Apprentice Standard in a consistent manner. The following requirements are made as a basis for the selection of suitable independent assessors:

- Be independent from the Apprentice they are assessing i.e. not their trainer, assessor or line manager.
- Have played no direct part in the Apprentice's on-programme training and assessment.
- Have relevant experience in teaching/training/interviewing; assessor qualifications are desirable but as a minimum the assessors will have demonstrable experience of undertaking assessments.
- Have good interpersonal and effective communication skills.
- Have a thorough technical knowledge of what constitutes effective performance and good working practices in the occupational context.
- Are occupationally-competent to a minimum of level 3 in Engineering Construction Rigging or Erecting (dependent upon the Apprentice under assessment chosen job role) or a related engineering discipline or be able to provide evidence of occupationally relevant experience.

Quality Assurance – External

External quality assurance for this apprenticeship standard will be managed by the Engineering Construction Industry Training Board (ECITB).

11. End-point – Grading

Definitions used in apprentice grading statements in fig 1:

Apprentice standard – this is the 2 page Engineering Construction Erector/Rigger Apprentice Standard which articulates the high order occupational skills, knowledge and behaviours required in an occupationally competent pipefitter and which must be demonstrated during EPA.

Specified – in the context of the grading descriptors, this term refers to working to specified levels of tolerance/dimensional accuracy as laid down in engineering specifications the Apprentices will be working against.

Fig 1

Fig 1: Assessment Grading Statements			
Knowledge assessment. 50 question paper. Delegates awarded a percentile mark.	**Distinction - 85% and above**		
	Merit 70% - 84%		
	Pass 60% - 69%		
	Fail Less Than 60%		
Practical Observation			
Fail - Fails to satisfy the specified elements of the Engineering Construction Erector/Rigger standard.	**Pass - The Apprentice satisfies the content of the Apprentice standard.**	**Merit - builds upon the requirements of the pass criteria and in addition:**	**Distinction - builds upon the requirements of the pass and merit criteria and in addition:**
Fails to meet the pass criteria.	1. Satisfies the health and safety requirements during the planning, execution and recovery of any allocated tasks. (S1, S21)	*Achieves pass criteria and all of the following:*	*Achieves pass and merit criteria and at least 3 of the following:*

	2. Understands the specification. Determines, selects and uses correct and serviceable tools, equipment, accessories and appropriate techniques to prepare for, and execute given tasks in accordance with stated tolerances and to stated specifications. (S2, S6, S7, S8, S11, S13,S14) 3. Move/lifts the load/structure over the selected/approved route, positioning and releasing safely in its intended destination utilising all tools and equipment in a safe manner. Disconnects load. (S5, S9, S10, S12, S15, S17, S18) 4. Completes all checks and records damage to load or equipment as required on completion of the task. (S19, S20, S22) 5. Works within team to complete allocated task, signalling and communicating effectively during the execution of the given task. (S3, S4, S16)	1. Identifies areas for improvement in health and safety, explaining why. 2. Able to identify issues and resolve them as and when they occur. 3. Offers suggestions for continuous improvement of working practices and techniques when prompted. 4. Ensures all damaged items are reported and/or segregated as appropriate.	1. Provide suggestions for improvement in health and safety practices. 2. Identifies issues and resolves them before they occur. 3. Proactively seeks to improve methods and means of executing given tasks. 4. Proffers constructive feedback and viable sugestions to help prevent future damage.

	Must achieve 1-5 and 6-9 if following the rigger option: 6. Applies correct techniques and methods to dismantle engineering construction assemblies for movement. (S23) 7. Selects and safely uses the correct tools and equipment to install/remove loads. (S24) 8. Moves/transfers loads through diverse routes, differing orientations and elevations using different attachment points and equipment accessories. (S26) 9. Dismantles loads in approved sequence supporting load where necessary. (S25) *Must achieve 1-5 and 10-12 if following the erector option:* 10. All erection, disassembly and removals of steel structures or sections completed in the correct sequence, using the correct hand/mechanical tools and methods. (S27, S28)	5. Works unsupervised and is able to assist others without prompting.	5. Proactively seeks more responsibility, will allocate tasks and lead the team. Already shows potential for progression.

	11. Moves/transfers steel sections/elements using various orientations, multiple attachment points and equipment/accessories. (S29) 12. Correctly identify, orientate, install, position and secure the components and construction elements completing all necessary connections and check that the installation is complete in accordance with the specification. (S30)		
Technical Interview			
Fail - Fails to satisfy the specified elements of the Engineering Construction Erector/Rigger standard.	**Pass - The Apprentice satisfies the content of the Apprentice standard.**	**Merit - builds upon the requirements of the pass criteria and in addition:**	**Distinction - builds upon the requirements of the pass and merit criteria and in addition:**
Fails to meet the pass criteria.	1. Recognises the importance of, and can explain the reasons why health, safety, environmental and Erecting/Rigging related rules, legislation and regulations are vital. (K1, K5, K7, S1, B7, B8)	*Achieves pass criteria and all of the following:* 1. Can explain instances where they have raised concerns and can describe their subsequent actions.	*Achieves pass and merit criteria and at least 3 of the following:* 1. Able to show instances where they have been able to proffer or implement improvements to

			work place safety and explain why these improvements have been successful.
	2. Can evidence where engineering first principles and techniques required for their chosen role have been practically applied in the work place to successfully complete allocated tasks. (K6)	2. Can explain the engineering first principles and techniques. Can explain the roles and responsibilities of allied trades and explains where the work of these trades will impact upon their tasks.	2. Can explain the technical specialisms of allied trades and explain where the work of these trades will impact upon their tasks and what steps need to be taken to ensure de-confliction.
	3. Aware of the importance of own work and, able to solve problems within their own area of responsibility, when questioned can articulate where their work contributes to the objectives of their employer. (B2, B4)	3. Able to articulate where their work contributes to the overall commercial aims and objectives of the customer.	3. Recognises the overall impact of them not working to the standard. Can demonstrate where they have used critical reasoning to solve problems in their own area of responsibility.
	4. Able to explain the importance of conforming to the work place behaviours articulated in the standard. Fully aware of the implications of deviating from these behaviours. Reports and escalates problems that cannot be solved to the relevant person. (K7, B3, B6, B9)	4. Provides evidence of instances where they may have been exposed to unsafe/undesirable behaviours and how they dealt with these occurrences.	4. Recognises the impact of non-conformance on workplace behaviours and organisational culture.

	5. Fully understands the content of engineering specifications used in their work based activities and how they are applied. (K6, S2, S30) 6. Can explain the importance of productive team working. (B1, B5, B8)	5. Can explain why engineering specifications are required and how they are applied to work based activities. 6. Can explain and demonstrate where they have acted as an effective team member.	5. Able evidence where they have offered suggestions regarding how the specified engineering specifications could have been modified to improve the work process and quality of the end product. 6. Can explain how they can personally contribute to the productivity and dynamics of the team.

12. Implementation

Affordability - The employer group have developed the content of the EPA to ensure the balance between accessibility, affordability and validity is maintained and SMEs are not disadvantaged. Due to the seasonal nature of the Engineering Construction Industry is it is imperative that the EPAs are planned and delivered in a coordinated manner increasing the importance of collaboration and communication between all parties involved in the EPA process. The content of the EPA is deemed to be comprehensive and offer the best approach to measuring the Apprentice against the standard.

13. Professional Body recognition (if applicable)

The employer group has deemed there is no suitable professional body suitable for either the role of Engineering Construction Rigger or Erector.

14. Consistency

It is recommended that the end-point assessment organisation(s) works with the employer group to ensure the individual elements of EPA assess the core and role specific knowledge; skills and behaviours in the standard to ensure the specified high level knowledge, skills and behaviours in the standard are accurately measured and assessed during the EPA process.

15. Volumes

Initially it is anticipated there will be in the region of 75-100 starts per annum which will likely rise year on year.

16. Annexes:

1. Knowledge, Skills and Behaviours measured during EPA elements.
2. Guidance for practical assessment (example).

Annex 1: Knowledge, Skill and Behaviours Measured During EPA Elements.

Multiple assessment methods indicate a holistic approach is used.

Key	Assessment Method
KT	Knowledge Test
PA	Practical Assessment
TI	Technical Interview

Core Role Knowledge	Assessment Method		
How to work safely, maintain personal site safety responsibilities, work place relevant health, safety and environmental legislation, safe working practises and procedures and how to respond to and provide solutions to problems and emergencies, (K1)	KT	PA	TI
When to seek assistance from others without causing undue disruption to normal work activities, (K2)	KT		
Applicable lifting/equipment regulations, and codes of practice including company/client and local site/project requirements, (K3)	KT		
The importance and benefits of recognised Industry safety passport schemes, (K4)	KT		
Lifting/moving operation roles, responsibilities and reporting chains, (K5)	KT		TI
Engineering practices and principles including the reading/interpretation of engineering drawings and specifications, (K6)	KT		TI
Hazards and risks that can arise from the moving, lifting and positioning of loads/structures (K7)	KT		TI

Risk assessments, method statements, lift plans and permit to work systems, (K8)	KT		
Application and purpose of static and mobile cranage, (K9)	KT		
Specialist equipment required to access and execute Rigging and Erecting activities, (K10)	KT		
How to correctly select and safely use hand tools, mechanical tools, moving and lifting equipment and accessories, (K11)	KT		
Lifting, moving and handling equipment methods and techniques, (K12)	KT		
Methods and techniques used to determine the weight and characteristics of the load/structure, (K13)	KT		
Slinging, lifting, communication and signalling methods and techniques, (K14)	KT		
Route and lift planning methods and techniques, (K15)	KT		
The types of equipment and accessories used for moving, lifting, positioning and erecting loads/structures and their care, control procedures and inspection, (K16)	KT		
Methods of providing temporary support of the load/structure during installation/dismantling operations. (K17)	KT		
Methods of moving/transferring loads/construction elements through complex routes/processes using various orientations, multiple attachment points and equipment/accessories. (K18)	KT		
Rigger Specific Knowledge			
The recognised techniques for moving/transferring loads through complex routes using differing orientations, numerous attachment points and equipment/accessories. (K19)	KT		
The tools and equipment required for the installation/removal of loads. (K20)	KT		

Erector Specific Knowledge			
Methods of moving/transferring steel sections/construction elements through complex processes using various orientations, multiple attachment points and equipment/accessories, (K21)	KT		
Methods and techniques used for the erection and dismantling of capital plant steel structures, (K22)	KT		
The hand/mechanical tools and equipment used for the erecting/dismantling of capital plant steel structures. (K23)	KT		
Core Role Skills	Assessment Method		
Check for, and identify potential hazards in the workplace and comply with appropriate health, safety, risk and quality requirements, (S1)		PA	TI
Read, extract, interpret and apply engineering drawing, specification and lift plan information, (S2)		PA	TI
Work with others involved or affected by the specified task, and contribute to effective working relationships to ensure work objectives are achieved, (S3)		PA	
Communicate by keeping those both directly and indirectly involved in the task informed about work plans or activities which may affect them, (S4)		PA	
Establish the weight and characteristics of the load/structure to be moved, (S5)		PA	
Apply mathematical techniques and formula related to calculating sling angles, rated forces and the weight/centre of gravity of the load/structure, (S6)		PA	
Determine resource and technical requirements to achieve objectives, and contribute to the organisation of work activities, (S7)		PA	

Determine from given information the most appropriate method to move the load/structure and select the appropriate tools, lifting/moving equipment and accessories to enable this, (S8)		PA	
Safely use tools, equipment and accessories to complete their allotted task, (S9)		PA	
Determine from given information the most suitable route for moving the load/structure whilst minimising the risk to people, property and the environment, (S10)		PA	
Ensure that the lifting and moving equipment and accessories are serviceable and appropriate for lifting/moving the load/structure safely, (S11)		PA	
Ensure that the load is secured and protected before operations start, (S12)		PA	
Position the moving and lifting equipment so that the weight of the load/structure is evenly distributed, (S13)		PA	
Use approved methods and the appropriate moving and lifting equipment/accessories to ensure the load/structure is secure and the potential for slippage has been mitigated, (S14)		PA	
Move/lift the load/structure over the selected approved route, (S15)		PA	
Signal/communicate effectively with all parties concerned with the lifting/erecting operation when directing/monitoring load/structure manoeuvres, (S16)		PA	
Move/lift, position and release the load/structure safely in its intended destination, (S17)		PA	
Safely disconnect load/structure, conduct post use checks on moving and lifting equipment and accessories, (S18)		PA	
Confirm assemblies and components are free from damage or defects, (S19)		PA	
Record any damage to load/structure or moving and lifting equipment and accessories, report and segregate defective items, (S20)		PA	

Work safely at height, (S21)		PA	
Inform the appropriate people when the load/structure lifting/moving operation is complete. (S22)		PA	
Rigger Specific Skills	Assessment Method		
Apply approved techniques and methods to dismantle engineering construction assemblies for movement, (S23)		PA	
Use the correct tools and equipment in a safe manner to install/remove loads, (S24)		PA	
Dismantle loads in the approved sequence and, where necessary support load components before removal of securing devices, (S25)		PA	
Move/transfer a variety of diverse loads, through complex routes and elevations using differing orientations, numerous attachment points and equipment/accessories. (S26)		PA	
Erector Specific Skills			
Use recognised methods to dismantle/remove steel structures and/or sections in the correct sequence and, where necessary, support components before removal of securing devices, (S27)		PA	
Correctly select and safely use hand/mechanical tools and equipment for the erecting and dismantling of capital plant steel structures, (S28)		PA	
Move/transfer steel sections/construction elements, through complex processes using various orientations, multiple attachment points and equipment/accessories, (S29)		PA	
Correctly identify, orientate, install, position and secure the components and construction elements completing all necessary connections and check that the installation is complete in accordance with the specification. (S30)		PA	
Core Role Behavioural Requirements	Assessment Method		

Work with others to effectively and efficiently complete the allocated tasks, (B1)			TI
Through critical reasoning, resolve problems within their area of responsibility, (B2)			TI
Report and escalate problems that cannot be solved to the relevant person, (B3)			TI
Take responsibility both as an individual and team member for the quality of the work, (B4)			TI
Support their own learning and development and that of others through activities such as mentoring and sharing of expertise and knowledge, (B5)			TI
Act ethically, displaying maturity, honesty, integrity and responsibility, (B6)			TI
Be conscious of working safely in accordance with health, safety and environmental legislation, applicable regulations and company-specific requirements, (B7)			TI
Promote a healthy working environment by taking collective responsibility to establish and maintain a safe, clean and tidy work area/site, (B8)			TI
Moral courage to question unsafe behaviours and incorrect work practises and procedures. (B9)			TI

Annex 2: Guidance for Practical Assessment

Note: The following guidance is provided to help ensure assessments are consistent and sufficiently complex to challenge the Apprentice yet designed to provide a realistic time bound assessment. This guidance document is not meant to be a definitive list of resources or procedural steps and should only be used as the basis for developing an assessment; full knowledge, skill and behavioral requirements can be found at Annex 3 of this assessment plan.

General Guidance

The assessment area should be adequately resourced, be well lit and present a realistic and safe test environment for the practical assessment to be delivered. If conditions allow, the assessment area may be outdoors. During the assessment all health, safety and environmental requirements along with lifting regulations and Approved Codes of Practice (ACOPs) must be adhered to.

The assessment must be suitably complex to challenge the Apprentice but designed to provide a realistic time bound assessment that accurately measures the required skills, knowledge and behaviors that relate to Erectors/Riggers as per Annex 3. The load/structures must be slung and then moved/lifted, and positioned in the correct position as per the lift plan.

The Rigging operation must be undertaken in a restricted access area.

Both Erecting/Rigging activities must utilise a complex load path which incorporates multiple orientations and elevations in accordance with the specification. The assessment should also utilise multiple attachment points ensuring the application of correct techniques and resources and in a safe manner. All tools, equipment and accessories supplied for the assessment should be fully serviceable and correctly identified/labelled.

The assessment scope does not include any unloading or loading of transport vehicles. For safety reasons the team must consist of a minimum of 3 Erectors/Riggers dependent upon pathways being assessed. Correct and fully serviceable PPE must be used at all times when in the assessment area.

Erecting Specific Guidance

The EPA organisation will determine the exact nature of the structure used for the assessment but it must involve the use of steel assemblies of multiple shapes and different sizes, including but not limited to:

- Steel beams
- Columns
- Bracings
- Rafters
- Cold rolled steel work

The steel assemblies must be lifted, positioned and assembled using correct techniques and resources in a safe manner. All tools, equipment and accessories supplied for the assessment should be fully serviceable and correctly identified/labelled.

Erecting High Level Procedural Steps:

1. Read and interpret the requirements of all specifications, risk assessments and method statements for erection of structure.

2. Ensure lifting area is adequately segregated and correct signage displayed.
3. Select the correct tools, equipment and accessories for given task.
4. Perform pre-use checks on tools, equipment and accessories and ensure they are fully serviceable.
5. Ensure steel work is adequately packed; defect free and in correct order for installation.
6. Ensure lifting equipment is correctly positioned as per lift plan and all test certifications provided and correct.
7. Identify the load weight, characteristics and slinging requirements.
8. Correctly attach the structure elements to the lifting equipment.
9. Erect and connect the steel elements of the structure to specification and in sequence.
10. Check line and level of the erected structure.
11. Restore surface finish as and where required.
12. Read and interpret the requirements of all specifications, risk assessments and method statements for dismantling the structure.
13. Sling/attach the structure elements to be dismantled.
14. Dismantle the structure in the correct sequence.
15. Ensure structure is laid out and packed ready for loading back onto the transport.
16. Ensure all equipment, appliances, accessories and resources are correctly stored or disposed of as appropriate.
17. Reinstate the work area.

Rigging Specific

The EPA organisation will determine the exact nature of the loads used for the assessment but the assessment should involve the use of irregular shaped unevenly weighted loads such as:

- Pipe spools
- Steelwork
- Motors
- Pumps
- Valves
- Pipe bundles

Rigging High Level Procedural steps:

1. Read and interpret the requirements of all specifications, risk assessments and method statements for the movement of the loads/s.
2. Ensure lifting/moving area is adequately segregated and correct signage displayed.
3. Select the correct tools, equipment and accessories for given task.
4. Perform pre-use checks on tools, equipment and accessories and ensure they are fully serviceable.
5. Ensure lifting equipment is correctly positioned as per lift plan and all test certifications provided and correct.
6. Ensure all attachment points are clearly identified as per the lifting plan.
7. Identify the load weight, characteristics and slinging requirements.
8. Correctly attach the load/s to the lifting equipment.
9. Lift/move the load through route which is sufficiently complex to challenge the Apprentice.
10. Place in final destination.
11. Check the load for defects and damage.
12. Read and interpret the requirements of all specifications, risk assessments and method statements for dismantling the load.
13. Sling/attach the load/s to be dismantled.
14. Dismantle the load.

15. Ensure all equipment, appliances, accessories and resources are correctly stored or disposed of as appropriate. Reinstate the work area.