End-point Assessment Plan
ST0607 - Level 3 Metal Fabricator

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The End-point Assessment (EPA) Overview:

The responsibility for developing and delivering the EPA rests with the end-point Assessment Organisation (EPAO) that are approved to offer their services to employers for the Metal Fabricator apprenticeship standard. Only EPAOs that appear on the Education & Skills Funding Agency's register of End-point assessment organisations can be used. EPAOs must appoint appropriately qualified and experienced assessors to conduct the EPA as defined in this plan.

The EPA will be completed after a minimum of 12 months training has taken place and at a time that accommodates work scheduling and cost effective planning of resources, the End-point assessment must commence within 3 months from confirmation that the apprentice has met the gateway requirements.

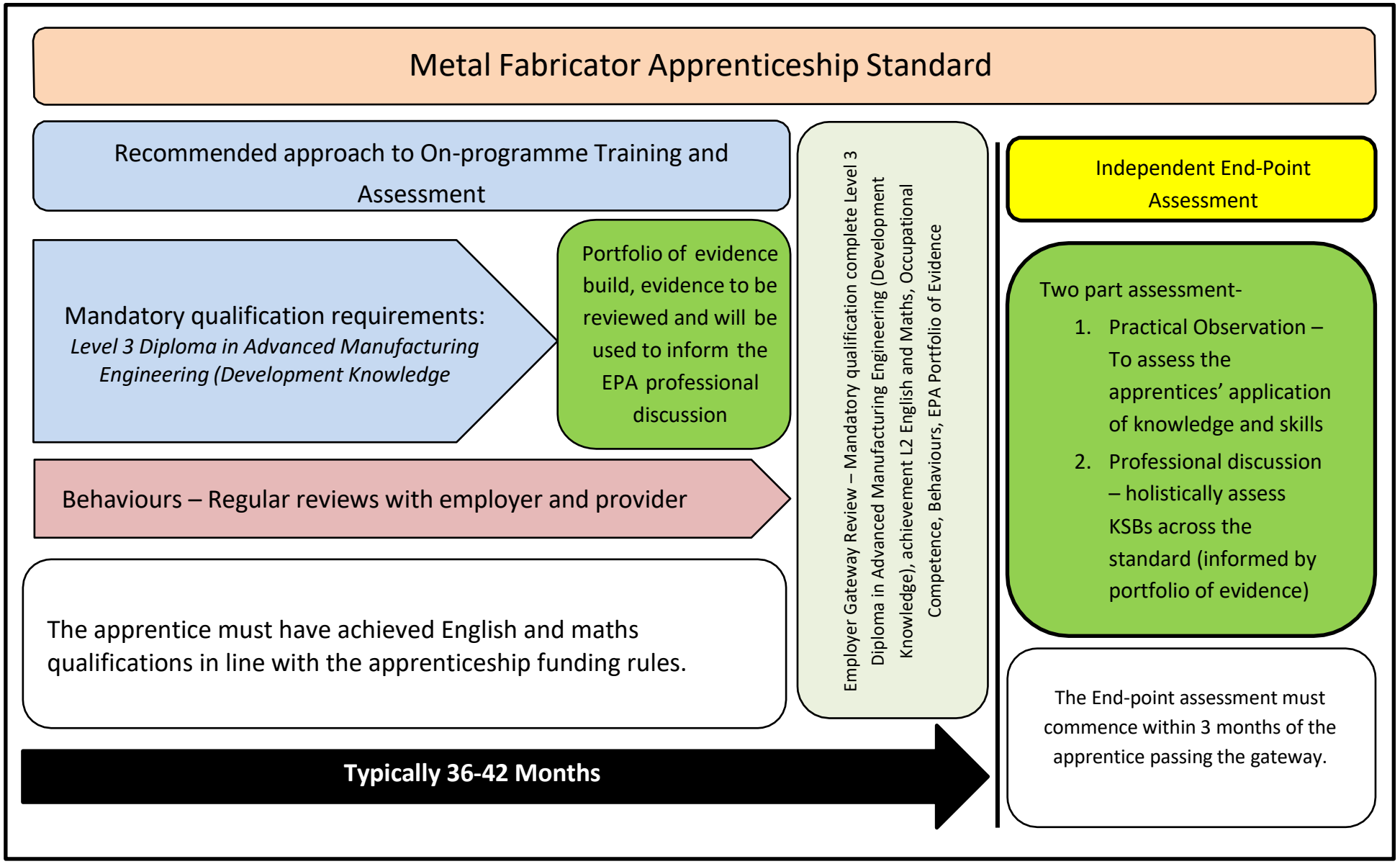
The EPA consists of 2 assessment methods:-

- Practical observation – to assess the apprentice's application of skills within the apprentice's place of work or in a suitable environment away from the workplace (e.g. In a centre approved by the EPAO)
- Professional discussion – to holistically assess KSBs across the standard and will be informed by portfolio of evidence

The EPA satisfies the requirements for the Metal Fabricator standard. The practical observation will be carried out by an independent assessor, approved by the EPAO and will take place within the apprentice's workplace where possible. Where the apprentice's workplace is not used, the EPAO is responsible for ensuring the alternative environment is representative of the apprentice's workplace and can facilitate the EPA to assess the application of the apprentice's skills in line with the job role requirements. The portfolio of evidence will be reviewed by an independent assessor, approved by the EPAO and will be used to inform the professional discussion. The professional discussion may be a panel consisting of 2 members; an employer representative (if requested to do so by the EPAO) and the independent assessor (acting as Chair) appointed by the EPAO, who will make the final decision based on this process. The employer representative must be occupationally competent and will provide technical support, advice and guidance such as confirming company policies, procedures, processes, providing context on technical information or on emerging technologies. Any information provided by the employer technical expert must only be at the request of the end-point assessor who has the final say over the assessment and grade awarded. The employer technical expert must not provide evidence on behalf of the apprentice. The performance of the apprentice within the EPA will determine the apprenticeship grade of fail, pass, or distinction.

The final apprenticeship EPA decision will be made by the EPAO; successful achievement of the EPA will lead to formal certification of the apprenticeship and demonstrate that the apprentice is a competent Metal Fabricator.

Diagrammatic representation of the assessment requirements:



On-programme Assessment

The employer and training provider will use the mandatory Level 3 Diploma in Advanced Manufacturing Engineering (Development Knowledge) within the Metal Fabricator Standard to develop a training plan to ensure that the apprentice receives the appropriate level of knowledge and skills to advance to and successfully complete the Independent End-point Assessment.

Employer Gateway Review for Progression to Independent End-point Assessment

Readiness for End-point Assessment (EPA)

Before going forward for the EPA, the employer must be satisfied that the apprentice has:

- Satisfactorily completed training covering the skills, knowledge and behaviours as described in the standard
- Achieved the Mandatory qualification – Level 3 Diploma in Advanced Manufacturing Engineering (Development Knowledge)
- The apprentice must have achieved English and maths qualifications in line with the apprenticeship funding rules.
- Sufficient evidence in the form of a portfolio of evidence to allow the apprentice to consistently demonstrate knowledge, skills and behaviours as described in the standard. Guidance on what should be included in the portfolio of evidence can be found within the professional discussion section

Who decides if the apprentice is ready for EPA?

Once the apprentice has successfully completed appropriate on programme training and assessment, the pre-requisite gateway requirements for EPA have been met and that they can be evidenced to an EPA organisation, the judgement on whether the apprentice is deemed occupationally competent and ready for the EPA will be made by their employer. The employer will take this decision on the basis of the knowledge, skills and behaviours attained by the apprentice and taking into consideration the apprentices' work experience, the views from the training provider where applicable and the apprentice, to inform this decision.

When satisfied that the apprentice is ready for EPA, the employer will directly (or via their lead provider) inform their selected EPAO for the EPA requirements to be planned and carried out.

End-point Assessment

End-point assessment must be undertaken by an Independent End-point Assessment Organisation that is on the Education & Skills Funding Agency's Register of End-point Assessment Organisations.

Successful achievement of the End-point assessment will lead to final certification of the apprenticeship and demonstrate that the apprentice is a fully competent Metal Fabricator.

The assessment methods can be completed in any particular order, allowing EPAOs flexibility in scheduling and cost-effective allocation of resources.

Assessment method 1 - Practical observation:

The purpose to the Practical Observation is to assess the knowledge, skills and behaviours in a practical way that closely relates to the apprentices daily duties and responsibilities. The Practical Observation will be carried out in the workplace; or at an approved EPAO centre; simulation is allowed in exceptional circumstances (for example, where for cost, workplace availability, or health and safety reasons it is not appropriate to use the apprentice's workplace). The practical observation will be carried out by an independent assessor, approved by the EPAO, observations must be conducted in a realistic work situation under normal conditions. During the process the apprentice will be expected to demonstrate to the assessor the application of the core knowledge, skills and behaviours of the specific job as outlined in Annex 1. Apprentices will be observed and will be assessed against the KSBs as identified within the standard. Typically this will include adherence to standardised work, use of equipment, tooling etc. This will be covered with two tasks that captures the combination of skills, ie; shaping to specifications (drawing); manual and machine profiling/shaping techniques; mechanical and thermal jointing techniques; hot/cold manipulation of metal. The EPA organisations will then have a bank of tasks which capture the features above and which the Internal Quality Assurance should have verified in advance.

The Practical Observation will span 6 hours (+ 10% as the assessor's discretion) to provide appropriate coverage of the KSBs assigned to the observation. At the end of the observation the independent assessor will ask a minimum of 10 open questions to assess the related underpinning

knowledge and assess the skills that did not naturally occur during the observation. They may ask follow up questions where clarification is required. Questioning must be completed within the total time allowed for the observation.

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

Apprentices must be provided with both written and verbal instructions on the tasks they must complete including timescales prior to the start of the observation. Observations must be carried out over an assessment time period of 6 hours (+10% at the assessors discretion). There may be breaks during the observation to allow the apprentice to move from one location to another.

This assessment method must include direct observation of:

- Working safely, efficiently and effectively at all times ensuring that all appropriate legislation, regulation and environmental compliance has been adhered to in-line with company policies, procedures and practice
- Identification and use of appropriate documentation e.g. job instructions, drawings, quality control documentation
- Fabrication activities in-line with the correct processes, procedures and equipment
- Cutting and forming of metal for the production of fabricated parts
- Assembly of metal products to required specification and quality requirements
- Joining of materials using approved welding procedures and quality requirements (where appropriate)

Independent assessors may observe up to a maximum of 3 apprentices at any one time, to allow for cost effective use of resources while maintaining quality and rigour.

The EPAO will be required to supply an observation specification sheet for the job role being assessed and a scorecard which will be used by the independent assessor to identify and record the elements of the Standard and grade for the practical observation and give examples of open question types. EPAOs must develop a bank of observation tasks, each including questions relating to underpinning KSBs and ensuring sufficient variation; observation tasks and the respective questions must be reviewed at least annually to ensure that they are fit-for-purpose and reduce predictability. The practical observation will be graded either Pass or fail, to achieve a pass for the practical observation the apprentice must achieve all of the pass criteria that is laid out in the grading matrix which can be can be found in Annex 2.

Assessment Method 2 - Professional discussion:

On completion of the professional discussion the apprentice will be awarded a grade of Pass, Distinction or Fail.

The purpose of the professional discussion is to enable the apprentice to showcase to the independent assessor how they have carried out the role of a Metal Fabricator, integrating the knowledge, skills and behaviours expected and for the review panel to be assured the apprentice has achieved the requirements of the Standard. To help ensure that the professional discussion is practicable and cost effective, it can be carried out at the employer's site, an assessment centre approved by the EPAO or via video link appropriate, if a video link is used then appropriate measures must be in place to prevent misrepresentation and ensure the EPAO is satisfied that the responses given are those of the candidate e.g. use of a 360 degree camera to allow the assessor to look around the round the room during the interview.

Portfolio of evidence requirements:

The portfolio of evidence will be submitted to the apprentice's employer for review during the employer gateway review. Once the portfolio has been reviewed and accepted as being fit for purpose by the employer, then it will be submitted to the EPAO Assessor who must have at least 14 days to review the portfolio prior to the professional discussion. The portfolio submitted will contain evidence setting out examples of work they have undertaken. The portfolio of evidence will be used to inform the professional discussion through which the apprentice will demonstrate competence of the broad range of knowledge, skills and behaviours set out in the standard. The Employer will be required to confirm that the portfolio of evidence provides an accurate representation of work carried out by the apprentice and is not embellished. The portfolio will not be assessed as part of the EPA but will be used to determine the questions for use during the graded professional discussion, so that the assessor can probe further into the apprentice's depth of understanding.

The portfolio of evidence will be reviewed by an independent assessor, approved by the EPAO.

The portfolio of evidence should include Samples of work carried out by the apprentice – Demonstration of work carried out over a period of time and must include evidence of work carried out within the last three months of the on programme period, and will include a minimum of 2 and no more than 3 activities carried out by the apprentice that demonstrates the knowledge, skills and behaviours of the standard. Where practicable this should include photographs, images, diagrams, together with on the job observations and witness evidence/testimony. This should also include situations that have been difficult or challenging, outlining how these have been overcome e.g. equipment breakdown which has resulted in a change in working practice while still adhering to company procedures. Any employer contributions must focus on direct observation of evidence (e.g. reviews/witness statements) of competence rather than opinions. The portfolio cannot include any methods of

self-assessment or self-appraisal. It is expected that each piece of evidence will provide evidence for multiple KSBs and this evidence should be mapped to the KSBs assigned to the professional discussion.

The professional discussion will consist of:

A professional discussion – using criteria set out in the assessment plan, the independent end-point assessor must ask the apprentice a minimum of 10 open questions based on the KSBs assigned to this assessment component. Prior to the professional discussion, the Independent Assessor must have reviewed the apprentice's Portfolio and prepared 10 questions on a template developed by the EPAO; follow up questions are allowed to seek clarification. The professional discussion must be completed during a 40-minute period (+2 minutes at the assessor's discretion). Questions must seek to assess KSBs and can be informed by information within the portfolio of evidence, assessing performance against the pass and distinction criteria and enable the review panel to explore areas they consider warrants further investigation in order to assure themselves that the apprentice has the competence to work as Metal Fabricator. The apprentice will have access to and may refer to their portfolio of evidence during the professional discussion if required. The EPAO will be required to produce sample questions or a question template as a guide for independent assessors.

The purpose of the professional discussion is to:

- Demonstrate the apprentice can apply the broad range of knowledge, skills and behaviours in the Standard, as indicated in Annex 1
- Clarify any questions the independent assessor has from their review of the portfolio of evidence submitted
- Explore aspects of the apprentice's work, including how it was carried out, in more detail
- Enable the review panel to draw a conclusion on the holistic EPA and the final grade to be awarded on the aggregated achievement of the individual assessments using the grading criteria in Annex 2

The independent assessor must be qualified to a minimum of level 3 within the metal fabrication discipline and have up to date knowledge and understanding of the Engineering sector and be qualified in assessment practice. During the allocation of independent assessors, the EPAO will decide if the independent assessor has the relevant skill set within the metal fabrication discipline being assessed.

The independent assessor will review the portfolio of evidence and decide how the professional discussion will be conducted and relevant key questions to ask the apprentice to confirm the broad range of knowledge, skills and behaviours have been achieved. At the end of the professional discussion, the independent assessor (acting as Chair) will make the final judgement on Distinction, Pass, or Fail for this assessment method.

The professional discussion will be graded fail, pass or distinction. To achieve a pass for the professional discussion the apprentice must achieve all of the pass criteria that is laid out in the grading matrix which can be can be found in Annex 2; to achieve a distinction the apprentices must achieve all of the pass criteria and the distinction criteria that is laid out in the grading matrix which can be can be found in Annex 2.

EPA – Summary of roles and responsibilities

	Role responsibilities
Employer	• Selects EPAO (may be advised by training provider) • Ensures all EPA gateway requirements have been met, signs off to this effect and triggers EPA to the EPAO • Confirms arrangements with EPAO for the EPA (who, when, where) • Ensures apprentice is aware of the EPA, is prepared and ready, and ensures attendance • Selects an appropriately qualified employee or suitable representative to attend the discussion (if requested by the EPAO) to ensure accuracy and veracity of the apprentice's statements and to clarify any issues where requested by the independent assessor
Independent Assessment Organisation	• Consult with representative employers to write and provide all required material and resources required for the EPA while ensuring that measures are in place to ensure the security and confidentially of the questions and assessment materials (e.g. questions and instruction script, professional discussion guidance, assessment recording documentation) • On receipt of 'trigger' from employer, contact the employer and arrange dates, times and locations for the required EPA • Ensure all required material is present at the EPA venue • Provide appropriate and qualified staff to enable completion of all aspects of the EPA • Confirms result of EPA to apprentice and employer • Arranges for certification with the training provider • Maintain robust internal quality assurance (IQA) procedures and moderation • Conform to the requirements of the nominated external quality assurance body

Failure, Re-sit & Re- take information

Apprentices who fail one or more EPA method will be offered the opportunity to take a re-sit or retake. Re-sits or re-takes must not be offered to apprentices wishing to move from pass to distinction. 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 or re-take is an appropriate course of action. Apprentices should have a supportive action plan to prepare for the re-sit or re-take.

The timescales for a resit or retake of the entire EPA is agreed between the employer and EPAO. A resit is typically taken within 2 months of the EPA outcome notification. The timescale for a retake is dependent on how much re-training is required and is typically taken within 6 months of the EPA outcome notification.

The maximum grade awarded to a re-sit or re-take for the practical observation will be graded pass or fail and a re-sit or re-take of the professional discussion will be graded pass, fail, distinction and combined to determine the EPA grade.

EPAOs must ensure that apprentices are observed doing different activities within the practical observation when taking a re-sit or re-take.

If the apprentice is unsuccessful, their employer will decide when the apprentice should re-apply for the EPA once additional training has taken place.

For the practical observation, if only one of the two tasks resulted in a fail, then only the failed task needs to be re-sat or retaken.

End-point assessment grading

Independent assessors must individually grade each assessment method according to the requirements set out in this plan, see Annex 2. Restrictions on grading apply where apprentices re-sit or re-take an assessment method – see re-sit or re-take section above.

An independent assessor must combine the grades of the two assessment methods to determine the EPA grade. To achieve an EPA pass, apprentices must achieve a minimum of a pass in both assessment methods. Due to the importance of the Professional discussion, to achieve an EPA distinction, apprentices must achieve a distinction in the professional discussion (with a pass in the practical observation assessment method). See grading combinations in the Grading Criteria table below. Where more than one independent end-point assessor is involved, the assessor responsible for the assessment method completed last will be responsible for combining the grades.

A fail in one or more of the assessment methods will result in a fail in the EPA. Evidence from the portfolio of evidence will be used to inform the professional discussion but will not be assessed.

Grading Criteria

The apprenticeship will be graded Fail, Pass, or Distinction. The final grade will be determined by collective performance in the two assessments within the End-point assessment.

The EPAO will combine the grades from the practical observation test and professional discussion to determine the overall apprenticeship grade in line with the grading criteria below.

EPA method	Assessment Grade	Assessment Grade	Assessment Grade	Assessment Grade
Practical observation	Pass	Fail	Pass	Pass
Professional discussion	Fail	Any*	Pass	Distinction
Apprenticeship Grade Awarded	**Fail**	**Fail**	**Pass**	**Distinction**

*** 'Any' = Pass, or Distinction**

Independence

The EPAO will coordinate the entire EPA process completely and independently of the employer and any training providers. The independent assessor appointed to carry out the EPA will not be from the apprentice's employer or related to the apprentice in any other way.

Regional arrangements will ensure that all apprentices are within reasonable travelling distance of the venue for the professional discussion. Where practicable the professional discussion will be arranged at the employers or their providers' premises, or via video link as appropriate to minimise additional expenditure, travel and time away from the work place.

Internal Quality assurance

The EPAO for the Metal Fabricator EPA will be responsible for the internal quality assurance and will have suitable and appropriate quality assurance processes in place so that all aspects of the EPA are carried out in a consistent and fair manner for all Apprentices. The minimum requirements for IQA will include:

- Communication processes for apprentices, employers, providers, and external bodies in relation to the EPA
- Third parties - the management of third parties, including independent review panel members, examiners, assessors
- Information about fees, clarity of invoicing
- Setting and delivering panel assessment - need for confidentiality, reasonable adjustments and special consideration
- Grading and issuing results - grading and moderation, results determination and issuing
- Standardisation/moderation meetings to support and develop independent assessors; monitor and improve the quality of assessment practice; and remove / minimise process inconsistencies. The frequency and timing of internal standardisation and moderation activity is decided by the EPAO but must be undertaken at least once a year.

The EPAO will set the assessment against the grading criteria for the practical observation, and professional discussion.

Independent Assessors selected must meet the following requirements:

- Be independent of the apprentice, their employer and training provider(s) i.e. there must be no conflict of interest.
- Hold or be working towards an assessor qualification e.g. A1 and have had training from their EPAO in terms of good assessment practice, operating the assessment tools and grading.
- Must have recent experience working in the metal fabrication sector (within 3 years) and have completed a minimum of 3-days continuing professional development (CPD) relevant to the metal fabrication sector within the last year; they do not necessarily still need to be employed in a metal fabrication company.
- Must undertake recognised training in the assessing of engineering based knowledge, skills and behaviours using observation and professional discussion assessment methodologies, for grading against occupational competence.
    - Independent Assessors selected to carry out the practical skill observation will receive guidance and training from the EPAO with regards to observation techniques
    - Independent Assessors selected as Panel Interviewers will receive guidance and training from the EPAO with regards to

professional discussion techniques

- Undertake a minimum of 1-days' EPAO standardisation training per year.

All EPAOs must be on the Education & Skills Funding Agency's Register of End-Point Assessment Organisations.

End-point Assessment Organisation must:

- Provide end-point assessment guidance, where required and appropriate, to apprentices, employers and training providers in relation to the requirements of the practical observation, professional discussion, portfolio of evidence and grading of the end-point components
- Provide immediate guidance where end-point assessments need to be halted due to unforeseen circumstances e.g. system emergency, apprentice illness, so it is clear that an apprentice's grade will not be capped at a pass if they have to re-take or re-sit the End-point assessment
- Ensure independent assessors make consistent and reliable assessment and grade judgements through moderation activity involving observations and examination of assessment records on a risk sampling basis, i.e. a minimum of 20% for experienced assessors and 100% for new assessors or where inconsistencies have been identified
- Facilitate reasonable adjustments when for learners with special requirements 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 to health and safety and legal requirements and the assessment remains valid.
- Appoint and approve independent assessors for the purposes of conducting the portfolio of evidence review and professional discussion and grading, based on a check of knowledge, experience and independence
- Provide training for independent assessors in terms of the requirements of the operation and grading of the assessment tools and grading
- Provide documentation and guidance in relation to the End-point assessment i.e. making reasonable adjustment, eligibility to enter end-point assessment and conflict of interest
- Hold annual standardisation/moderation events for independent assessors to ensure consistent application of the guidance

- Ensure EPAO moderators are trained in assessment and assurance processes and undertake regular continuing professional development
- Coordinate the independent assessors across the regions and ensure their independence.

External Quality Assurance

External quality assurance for this apprenticeship standard will be managed by the IFA.

Implementation

Affordability

It is the responsibly of the employer to negotiate a 'best price' through negotiation, including potential reductions where multiple candidates require EPA. Flexibility in the scheduling of assessments and the ability to use technology should enable EPAOs to minimise costs and deliver the EPA in the volumes required.

The following factors should ensure the EPA is affordable:

- Employers premises should be used for EPA venues where possible
- Remote assessment is permissible, reducing travel costs

The cost for End-point assessment includes the following:

- Occupational competence validation – Portfolio of evidence review
- Practical observation – Skills, knowledge and Behaviours
- Professional discussion – Skills, knowledge and Behaviours
- Apprenticeship final sign off
- Apprenticeship Certificate

Volumes: It is anticipated that there will be initially 500 starts per annum on this apprenticeship but it is expected that this number will grow substantially within the first three years of delivery, with a minimum number of 1500 starts per annum.

Annexes

Annex 1

Assessment Method by element of the Standard – Metal Fabricator

	Apprenticeship Standard competencies	Designated method of assessment	
Ref	**Skills to be assessed**	**O = Practical observation**	**D = Professional discussion (informed by portfolio of evidence)**
S1	Work safely at all times, comply with health & safety legislation, regulations and organisational requirements	**O**	**D**
S2	Comply with environmental legislation, regulations and organisational requirements	**O**	
S3	Obtain, check and use the appropriate documentation (such as job instructions, drawings, quality control documentation)	**O**	
S4	Carry out relevant planning and preparation activities before commencing work activity		**D**
S5	Undertake the work activity using the correct processes, procedures and equipment	**O**	
S6	Carry out the required checks (such as quality, compliance or testing) using the correct procedures, processes and/or equipment		**D**
S7	Deal promptly and effectively with problems within the limits of their responsibility using approved diagnostic methods and techniques and report those which cannot be resolved to the appropriate personnel		**D**
S8	Complete any required documentation using the defined recording systems at the appropriate stages of the work activity		**D**
S9	Restore the work area on completion of the activity and where applicable return any resources and consumables to the appropriate location	**O**	
S10	Identify and follow correct Metal work instructions, specifications, drawing etc.	**O**	
S11	Mark out using appropriate tools and techniques		**D**
S12	Cut and form Metal for the production or maintenance of fabricated products	**O**	
S13	Produce and assemble Metal products to required specification and quality requirements	**O**	
S14	Identify and follow correct joining instructions, specifications, drawing etc.	**O**	
S15	Carry out the relevant preparation before starting the joining fabrication activity		**D**
S16	Set up, check, adjust and use joining and related equipment		**D**

S17	Weld joints in accordance with approved welding procedures and quality requirements	**O**	

Ref	Knowledge to be assessed	O = Practical observation	D = Professional discussion (informed by portfolio of evidence))
K1	The importance of complying with statutory, quality, organisational and health and safety regulations	**O**	**D**
K2	General engineering mathematical and scientific principles, methods, techniques, graphical expressions, symbols formulae and calculations		**D**
K3	The structure, properties and characteristics of common materials		**D**
K4	The typical problems that may arise within their normal work activities/environment		**D**
K5	Approved diagnostic methods and techniques used to help solve engineering problems		**D**
K6	The importance of only using current approved processes, procedures, documentation and the potential implications if they are not adhered to	**O**	
K7	The different roles and functions in the organisation and how they interact		**D**
K8	Why it is important to continually review fabrication and general engineering processes and procedures		**D**
K9	The correct methods of moving and handling materials	**O**	
K10	Processes for preparing materials to be marked out		**D**
K11	The tools and techniques available for cutting, shaping, assembling and finishing materials.	**O**	
K12	Allowances for cutting, notching, bending, rolling and forming materials		**D**
K13	Describe pattern development processes, tooling and equipment		**D**
K14	Describe cutting and forming techniques, tooling and equipment		**D**
K15	Describe assembly and finishing processes, tooling and equipment		**D**
K16	Inspection techniques that can be applied to check shape and dimensional accuracy		**D**
K17	Factors influencing selection of forming process		**D**
K18	Principles, procedures and testing of different joining techniques (Mechanised or Manual)		**D**
K19	Equipment associated with Manual or Mechanised joining techniques including maintaining equipment in a reliable and safe condition	**O**	
K20	Consumables used in Manual or Mechanised joining	**O**	
K21	Effects of heating and cooling metals		**D**

K22	Metallurgy associated with joining		**D**
K23	Different types of Welds and joints		**D**
K24	How to interpret relevant engineering data and documentation	**O**	

	Behaviours to be assessed	**O = Practical observation**	**D = Professional discussion (informed by portfolio of evidence))**
B1	**Personal responsibility and resilience** – Comply with the health and safety guidance and procedures, be disciplined and have a responsible approach to risk, work diligently regardless of how much they are being supervised, accept responsibility for managing time and workload and stay motivated and committed when facing challenges.		**D**
B2	**Work effectively in teams** – Integrate with the team, support other people, consider implications of their own actions on other people and the business whilst working effectively to get the task completed.		**D**
B3	**Effective communication and interpersonal skills** – An open and honest communicator, communicates clearly using appropriate methods, listen well to others and have a positive and respectful attitude.		**D**
B4	**Focus on quality and problem solving** – Follow instructions and guidance, demonstrate attention to detail, follow a logical approach to problem solving and seek opportunities to improve quality, speed and efficiency.		**D**
B5	**Continuous personal development** – Reflect on skills, knowledge and behaviours and seek opportunities to develop, adapt to different situations, environments or technologies and have a positive attitude to feedback and advice.		**D**

Annex 2

Practical observation Grading Criteria Guidance for the assessment of Knowledge, Skills and Behaviours

Fail criteria – The apprentice does not meet the requirements for a pass.

Area of Standard to be assessed	Name of grade	Grade descriptor
Complying with health & safety and environmental legislation, regulations and organisational requirements K1, K6, K9, K24, S1, S2, S3, S5	Distinction	N/A
	Pass	**The Apprentice:** Explains the potential effect of not using current approved processes, procedures and documentation. Applies the appropriate processes and procedures and uses the relevant documentation. Provides Manual handling documentation. Demonstrates and identifies, assesses and controls risk within work environment e.g. completes risk assessment documentation. Demonstrates how to select and use appropriate processes, procedures, tools, equipment and materials to carry out the engineering operations e.g obtain specifications, engineering drawings. Works effectively e.g using manual and machine profiling/shaping techniques; mechanical and thermal jointing techniques; hot/cold manipulation of metal.
Documentation interpretation and use S10, S14	Distinction	N/A
	Pass	**The Apprentice:** Demonstrates the Identification and adherence to the correct work instructions as part of their work commitments and shows an understanding of any operating rules in place within the instruction.

Assembly K11, K19, K20, S12 S13, S17, S9	Distinction	N/A
	Pass	**The Apprentice:** Select the appropriate tools for the tasks, demonstrate correct use of the techniques and operate equipment appropriately when fabricating products. Uses consumables appropriately. Work efficiently to complete the tasks to specification and quality requirements. Restore the work area on completion of the activity and where applicable return any resources and consumables to the appropriate location Demonstrates the cutting and forming of metal for the production or maintenance of fabricated products.

Professional discussion Grading Criteria Guidance for the assessment of Knowledge, Skills and Behaviours

Fail criteria – The apprentice does not meet the requirements for a pass.

Area of Standard to be assessed	Name of grade	Grade descriptor
Complying with health & safety and environmental legislation, regulations and organisational requirements K1, K4, K5, K7, K8, S1, S4, S6, S7, S8, B1, B2, B3, B4, B5	Distinction	**In addition to meeting the Pass criteria the apprentice:** Challenges other people on H&S compliance and can dynamically assesses/controls risk at all times regardless of environment, proactively assesses/controls risk without the need to be prompted. Suggests ideas for improvement to company processes or procedures identifying possible solutions example to others by working in a well-organised and competent way when on their own. Proactively supports others and seeks support and advice and shares learning. Takes action to share information, openly and honestly rather than just responding to requests and checks understanding of others by asking open questions. Makes suggestions to improve instructions, escalate issues as appropriate and applies the techniques for problem solving. Demonstrates understanding and reflect upon lessons learnt after problem solving activity. Recognises needs and continually seeks learning opportunities and transfers learning, applying it to different situations.
	Pass	**The Apprentice:** Outlines the specific statutory, quality, environmental compliance procedures/systems, organisational and health and safety regulations relevant to their work activities. Giving two examples of typical problems that may arise within their normal work activities/environment e.g. incorrect materials, tooling/equipment, breakdowns, environmental concerns, H&S concerns.

		Describes two different diagnostic methods and techniques used to help solve engineering problems e.g. sensory inspection, six point, half-split, input/output, cause and effect, 5 whys, process mapping. Explains different roles and functions in the organisation and how they interact e.g. management, quality department, commercial department, material stores/supply, unions, HR/personnel, H&S department. Explains the potential impact of not reviewing and updating fabrication and general engineering processes and procedures e.g. incorrect products, poor productivity, inefficient work. Identifies, prepares, assesses and controls risk within work environment, selects and use appropriate documentation, tools, equipment and materials to carry out the metal fabrication operations. Demonstrates the required checks using the correct procedures, processes and/or equipment. Demonstrates dealing with problems that occur during their work activities within the limits of their responsibility and completing documentation accurately using the correct terminology. Restores the work area on completion of the activity, returning all tools, equipment and resources to the appropriate location. Demonstrates understanding of the importance of H&S requirements, assesses/controls risk in current environment. Works on their own when appropriate, knowing who and where to seek help from if needed, manages own time & workload, stays motivated & committed, when facing small challenges and reflects on how to do things more effectively. Demonstrates effort to integrate within a team, helps and supports when asked, considers impact of their own actions on other people or activities, contributes positively to team deliverables and provides encouragement as appropriate to keep the team on track. Communicates openly and honestly, clearly using appropriate methods paying attention to instructions and a has a positive and respectful attitude. Demonstrates understands and follows instructions/processes, ensuring attention to detail and follows a logical/right approach to problem solving. Identifies opportunities to improve, but may need prompting for ideas. Demonstrates knowledge and seeks opportunities to develop, reflecting on skills, behaviours

		adapt to different situations, environments or technologies and demonstrates a positive attitude to feedback and advice.
Follow correct metal work instructions, specifications, drawing etc. K2, K3, K10, K12, K13, K14, K15, K16, K17, K18, K21, K22, K23, S4, S11, S15, S16	Distinction	**In addition to meeting the Pass criteria the apprentice:** Demonstrates that they consistently carryout fabrication activities and identifies opportunities to improve processes or procedures, identifying potential solutions that can overcome problems that may occur. Demonstrates that they consistently carryout joining activities in a well-organised and competent way with minimum wasted effort or expense and identifies opportunities to improve processes or procedures along with potential solutions and overcomes problems that may occur. Demonstrates the use of technical language and detail to give an in-depth* explanation of the key elements of the knowledge relating to the to the metal fabrication work activities they have been involved in. In-depth* = explanation includes detail of key aspects of the work they have carried out and answers questions using relevant detail e.g. processes, equipment, materials used and the reason behind their use. Why a specific method was used within the production of a fabricated parts. In-depth* = explanation includes detail of key aspects of the work they have carried out and answers questions using relevant detail e.g. processes, equipment, materials used and the reason behind their use. Answers questions using relevant detail e.g. processes, equipment, materials used and the reason behind their use.
	Pass	**The apprentice:** Demonstrate the engineering mathematical and scientific principles, methods and techniques that are used within fabrication. Describes the structure, properties and characteristics of two common materials. Gives details of the process for preparing materials to be marked out they have used while carrying out a metal fabrication work activity. Explains the importance for making allowances for cutting, notching, bending, rolling and forming. Gives details of the pattern development process, tooling and equipment they have used while carrying out a sheet-metal work activity, Identifies the tools and techniques used for cutting and shaping metal giving details of the cutting and forming techniques. Gives details of the assembly and finishing processes, tooling end equipment they have used, inspection techniques that can be applied to check shape and dimensional accuracy e.g.

		Linear measurement, surface checks, alignment checks, straightness checks, squareness checks, taper measurement, angular measurement. Explains the factors that could influence the selection of forming process e.g. material properties, end product specification, operating conditions. Gives details of the method they have used in the production of fabricated parts. Gives details of the metallurgy associated with joining activities they have been involved, giving details of the joining procedures and methods of testing they have used during manual or mechanised joining activities. Describes different types of welds and joints and where they could be used and describes the effects of heating and cooling metals. Demonstrates having followed the correct work instructions, planned, implemented, monitored resource and relevant preparation as part of their work commitments and shows an understanding of any operating rules in place within the instruction, having cut and formed metal for the production of metal products. Provides evidence of setting up, checking, adjusting and use joining and related equipment to assemble metal products to required specification in accordance with approved welding procedures and quality requirements. Completes the relevant documentation for metal fabrication and assembly activity.

To achieve an overall pass for the apprenticeship, the apprentice must achieve a minimum of a pass in all of the knowledge, skills and behaviours grading descriptors in both the practical observation and the professional discussion.

To achieve an overall distinction for the apprenticeship, the apprentice must achieve a pass for all the grading descriptors in the practical observation assessment, plus all the pass and distinction grading criteria in the professional discussion.