

# ***Boiler Operations Accreditation Scheme***

*Handbook (Version 9.2 June 2020)*

***Combustion Engineering Association***





*CEA TG01 Boiler Operations Accreditation Scheme Handbook  
published by the Combustion Engineering Association June 2020*

*Copyright – CEA © 2020 – All rights reserved  
Any unauthorised copying in any form will constitute  
an infringement of copyright.*

*BOAS is a certification mark of the Combustion Engineering Association.  
It is a condition of use that the BOAS mark shall not be used  
without indicating that it is a certification mark.*

# Contents

	<i>page</i>
<b>Contents.....</b>	<b>0</b>
<b>Boiler Operations National Qualification .....</b>	<b>1</b>
<b>1 – BOAS Types and Categories.....</b>	<b>3</b>
<b>2 - Application Process .....</b>	<b>6</b>
<b>3 - Training Process .....</b>	<b>9</b>
<b>4 - Assessment Process .....</b>	<b>11</b>
<b>5 - Certification Process.....</b>	<b>18</b>
<b>6 – Training Providers, Trainers and Assessors .....</b>	<b>20</b>
<b><i>Appendix 1 – Candidate Application Form.....</i></b>	<b><i>24</i></b>
<b><i>Appendix 2 – Candidate Evidence Pack Guidelines.....</i></b>	<b><i>29</i></b>
<b><i>Appendix 3 – Assessment reports .....</i></b>	<b><i>38</i></b>
<b><i>Appendix 4 – Accountability flow chart.....</i></b>	<b><i>44</i></b>
<b><i>Appendix 5 – Partner Protocols.....</i></b>	<b><i>45</i></b>
<b><i>Appendix 6 – International BOAS – Accreditation for candidates in non-UK jurisdictions.....</i></b>	<b><i>52</i></b>

## Boiler Operations National Qualification

### **Introduction – important information about the scheme**

The Combustion Engineering Association (CEA) is an educational charity, originally formed to promote the science of combustion engineering and today embraces the study of efficient energy use, the exchange of new technology information, the training of industry professionals, the development and publication of standards and good practice, and the provision of services for its ever growing membership.

Since the demise of the former City and Guilds boiler operator qualification, there has been no nationally-recognised qualification for boiler operators. The Boiler Operations Accreditation Scheme (BOAS) was devised to fill this gap, in collaboration with the Health and Safety Executive, the insurance industry, manufacturers of boilers and associated equipment, and employers. To date, over 5000 boiler operators and managers have been assessed and accredited under the BOAS scheme.

Candidates for BOAS qualifications are expected already to be working as boiler Operators or boiler house Managers. In order to prepare those persons for BOAS Accreditation a number of independent and competing CEA Member organisations offer suitable pre-assessment training courses approved by the CEA. These courses are intended to supplement and confirm existing knowledge and prepare candidates for the higher level of qualification afforded by BOAS. Candidates who do not have sufficient prior experience may find the level of BOAS qualification quite onerous; suitable Training Providers offer additional training to assist employers and candidates in bridging this gap.

Whilst it is recognised that by attaining BOAS Accreditation the candidate has demonstrated a measure of professional knowledge, the qualification should be viewed only as part of the candidate's overall training and development programme. Candidates should be encouraged to develop their skills, knowledge and competencies further during their career, preferably in partnership with their employer.

BOAS has been developed based on legislation and best practices applicable within the UK. Candidates from other jurisdictions may find significant differences between the requirements for BOAS and those with which they are familiar. All elements of the assessment are carried out in English. For candidates without a sufficient grasp of the English language, and in particular of boiler related terminology, it may be difficult for them to demonstrate their knowledge to the satisfaction of a BOAS Assessor. For candidates who come from non UK jurisdictions an International version of BOAS is available.

BOAS Accreditation is valid for 5 years from the date of assessment and renewal is required before validity expires in order to ensure boiler house Operators and Managers remain up-to-date with current legislation, guidance and best practice.

Although BOAS training and Accreditation is not a legal requirement for boiler Operators or boiler operations Managers it will help employers demonstrate that they have met their legal duty in providing suitable and appropriate training and assessment. Whilst BOAS is recommended in BG01 (Guidance for Safe Operation of Steam Boilers) and BG02 (Guidance for Safe Operation of Hot Water Boilers) it is only one element used in demonstrating a boiler operator's level of knowledge and only one possible component that may help an organisation to demonstrate its corporate responsibility to provide suitable training for employees under the Health and Safety at Work Act.

The CEA owns and is responsible for the scope, syllabus and administration of the BOAS scheme and the selection of Training Providers and Assessors, and they allocate approved Assessors to specific courses, and issue and review examination papers and results. The CEA independently review all assessment results and award BOAS certificates and ID cards.

This handbook consolidates the mandatory regulations and guidelines governing the scheme, devised by the CEA's BOAS Working Group and Training Committee. It is the definitive reference for BOAS Training Providers, Trainers and Assessors in all matters relating to the operation of the scheme. It will be kept under review and amended from time to time as necessary.

The Combustion Engineering Association and its BOAS Partners (Training Providers, Trainers and Assessors) act in good faith to provide accurate and up-to-date information to BOAS candidates and undertake to assess them fairly and consistently in accordance with good educational and assessment practices and the rules of the scheme set out in this Handbook. No liability will be accepted by the CEA or any of its BOAS partners for acts or omissions by them when reviewing candidate applications and evidence, when training or assessing candidates, or when otherwise providing services to candidates under the BOAS scheme.

Candidates who provide evidence for Training Providers and Assessors to review do so freely and in the clear understanding that any comments made about company procedures by the reviewer are related to a discussion about the way the candidate operates or manages the boilers under their control and do not imply any approval or otherwise of the way the company requires the plant to be operated by its employees. However, if a clear potential breach of relevant legislation or guidance is identified during BOAS related discussions with candidates, the Assessor will inform the candidate and discuss the matter with them, recommending they address the issue on return to work.

The BOAS mark and logo, Handbook, Learning Outcomes, training syllabuses, assessment processes, accreditation procedures and all related documents are all copyright of the Combustion Engineering Association and all applications for Training Provider or Trainer status, Assessor status or any other use of the BOAS material or logo must be made to the Director of the CEA.

It is the reader's responsibility to ensure that they make reference to the latest version of relevant legislation and guidance as available from [gov.uk](http://gov.uk), [hse.gov.uk](http://hse.gov.uk), [cea.org.uk](http://cea.org.uk), [safed.co.uk](http://safed.co.uk), [igem.org.uk](http://igem.org.uk) and other relevant web sites. Please ask the CEA if specific information is required.

All matters relating to the provision and use of the BOAS material and processes are covered by English Law.

The Combustion Engineering Association  
June 2020  
[info@cea.org.uk](mailto:info@cea.org.uk)  
01740 625538

## 1 – BOAS Types and Categories

### 1.1 - Types of boiler plant

1.1.1 BOAS certification is currently available for several different types as follows:

1. **Category 1 (Cat 1 A or Cat 1 B) – Hot Water Boilers** at any pressure & temperature. Hot water boilers that are subject to examination under PSSR, normally operating at above 110°C, will be Cat 1 A, and all other commercial and industrial shell and tube hot water boilers normally >100kW input will be Cat 1 B. Managers can only apply for Cat 1 A accreditation.
2. **Category 2 (Cat 2) – Conventional Shell Type Steam Boilers.** This is historically the majority of applications for BOAS assessment.
3. **Category 3 (Cat 3) – Water Tube Steam Boilers**, including composite and other complex water tube designs.
4. **Category 4 (Cat 4) – International BOAS (IBOAS)** awarded to suitable Operator and Manager Candidates from **non-UK jurisdictions**. IBOAS is designated Cat 4 to avoid any misunderstanding with UK based BOAS qualifications. Candidates from overseas who hold similar qualifications to BOAS and who wish to work in the UK are asked to contact the Director of the CEA for further guidance.

The CEA will issue IBOAS Cat 4 certificates and ID cards to all successful IBOAS candidates and keep a separate register including the details of the plant types assessed. All details for the administration of Cat 4 are in App10.

5. **Category 5 (Cat 5) – Steam coil type generators** – steam raising plant with a steam coil and no perceptible water level.
6. **Category 7 (Cat 7) – Thermal Fluid systems** – Thermal fluid heaters and associated high temperature process heating systems.

1.1.2 Applicants will normally apply for one category only. Assessment in one category does not represent a presumption of certification in another category. Where a candidate needs to demonstrate knowledge in two or more categories, they must be able to illustrate their operational and/or managerial experience in each category, and the chosen Training Provider must be able to deliver training suitable for the whole syllabus.

Note that all Cat 3 initial assessments must be carried out on site. In cases where the Cat 3 candidate attends from outside the UK the Training Provider must notify the CEA at least two months in advance so that appropriate assessment arrangements can be made. A Cat 4 award might be more appropriate, but other categories are NOT interchangeable with Cat 4.

1.1.3 If a candidate wishes to apply for more than one category they must:

- a - select a trainer who can deliver the relevant parts of all the chosen syllabuses;
- b - provide clear evidence of operation or management of relevant plant of each type;
- c - take additional examination papers to adequately cover the additional plant types;
- d - pay the additional examination and certification fees;
- e - demonstrate to the Assessor at an extended interview that they have sufficient knowledge and experience in each plant type.

Where a candidate wishes to apply for multiple categories that include Cat 3, the oral assessment shall be site based and the candidate must take all Cat 3 examination papers and additional examinations for the other chosen categories.

1.1.4 **Changing from one plant type to another** (whether before or at renewal) requires the candidate to take current 'new category' examinations for Operator or Manager as appropriate and

pass an oral assessment. All changes of category or adding new categories require candidates to provide a complete evidence pack for the new or additional category. The Assessor cannot check the candidate's knowledge against actual plant that they work on unless details of that plant are provided.

## 1.2 – Operator or Manager

### Candidate Identification

**1.2.1** BOAS is available to candidates who operate, or manage the operation of, many different types of boiler plant. Operators of boilers will normally be involved in the day to day activities in the boiler house and be responsible for a wide range of operational and minor maintenance tasks. Managers, including shift leaders, supervisors and other more senior persons, may not regularly carry out boiler operations on a daily basis, but they will know about the legislation and practices appropriate for their installation and they should be able to operate the plant if called upon to do so.

**1.2.2** BOAS is awarded to the candidate, not their employer. Successful certification of a candidate does not imply any approval of the candidate's employer's working practices. The CEA therefore requires the identity of all candidates for both initial assessment and renewal to be checked by the Training Provider and confirmed by the Assessor. Formal identification of photo likeness will be by passport, driving licence or other photographic identity card such as a current BOAS ID card. Confirmation of the candidate's address will be by a different document to that listed above, including, for example, council tax demand, utility bill, or driving licence if not used as photo ID.

All documents must be currently valid (in the case of passports, driving licences etc.) or less than 6 months old in the case of bills. Any queries regarding identity checks must be directed to the CEA for clarification.

### Operator Accreditation (BOAS 'O')

**1.2.3** This is designed for practising boiler house operators, and candidates must have a minimum of 100 hours verified practical experience gained over six months of boiler plant operation in the appropriate category before taking the BOAS assessment. This practical experience should include elements such as working to start-up and shut-down procedures, checking water level controls and water quality, carrying out inspections and routine maintenance, and the other physical tasks required in the boiler house.

**1.2.4** Boiler operators who have less than the required experience for assessment at the end of their training course may request a deferred assessment – this must be clearly indicated on their application form, and this may apply to candidates who are waiting for boiler installations to be commissioned, for example, or who have recently started in a new role.

**1.2.5** Boiler operators who wish to apply for the Manager classification must provide the evidence they routinely work on their installation in a managerial role, and a BOAS 'M' award will therefore be more appropriate.

### Manager Accreditation (BOAS 'M')

**1.2.6** This is designed for a person who manages a boiler house and its operators (including a supervisor or shift leader). Their responsibilities may include, as appropriate:

- Duties under current legislation;
- Managing the safe and efficient operation of a boiler house;
- Drafting or approving boiler house procedures;
- Operating a Permit to Work system;
- Staff manning levels and training;
- Organising regular Statutory Examinations;
- Knowledge of environmental matters related to the installation;
- Knowing when to call for outside/additional expertise.



**1.2.7** Boiler house managers who have less than the required experience for assessment at the end of their training course may request a deferred assessment – this must be clearly indicated on their application form.

### **BOAS for professionally qualified persons.**

**1.2.8** The CEA encourages all who are interested in BOAS to apply for pre-assessment training and subsequent assessment, and applicants who do not have the specified documentation for their evidence pack should provide documentation relevant to their role for the Assessor to review and discuss with them.

**1.2.9** Occasionally prospective BOAS applicants may not be directly involved with day-to-day boiler house operations but still believe they have the necessary background and experience to qualify for a BOAS award. This might include design engineers, boiler inspectors, consultants, project managers, trainers and other professionally qualified persons who will currently be working on boiler house projects but cannot provide the necessary operational or managerial documentation normally required for the Evidence Pack. Equally, burner service engineers or other technically qualified boiler house staff can apply for BOAS as long as they can demonstrate direct involvement with the operation of the boiler plant and can pass the examinations and assessment.

For example, Project Managers constructing energy centres could provide a drawing of the proposed installation, examples of relevant construction or operational method statements, commissioning reports for boiler plant, or other documents where they can show involvement with the boiler plant. Service Engineers could provide copies of recent service and inspection reports they have issued, or copies of test and inspection procedures that they use regularly for boiler operations.

**1.2.10** Applicants need to show a personal involvement with relevant boiler plant and will be expected to apply for accreditation for the appropriate type of plant. Applicants should however remember that BOAS is accreditation for the safe operation and management of boiler plant, and the examination papers and assessor's questions will concentrate on daily and weekly operational tasks and the implementation of BG01, BG02 or other guidance as appropriate.

**1.2.11** It may occasionally be unclear under which type or category a candidate is best accredited. The CEA will assist candidates with this matter; please contact the CEA Director for further guidance.

### **Overseas candidates**

**1.2.12** BOAS has been designed based on legislation and best practices applicable within the UK. Candidates from other jurisdictions may find significant differences between the requirements for BOAS and those with which they are familiar. All elements of the pre-assessment training and assessment are carried out in English, and knowledge of UK Legislation is tested.

**1.2.13** For candidates without a sufficient grasp of the English language, and in particular of boiler related terminology or UK legislation, it may be difficult for them to fully understand the training and subsequently demonstrate their knowledge to the satisfaction of a BOAS Assessor. Such candidates, or their selected Training Provider on their behalf, should contact the CEA for advice BEFORE undertaking an assessment. An alternative approach may be to apply for International BOAS as described in App 10.

## **1.3 - The Syllabus and Learning Outcomes**

---

**1.3.1** The training syllabuses and Learning Outcomes (see separate document) have been devised by the CEA in consultation with the Health and Safety Executive, insurers, trainers and employers. They contain all those subjects in which a boiler operator or manager should have sound basic knowledge. It is expected that the Training Provider should focus particularly on aspects of health, safety and efficient operation; other matters may be covered in less depth.

Whilst current guidance for shell type boilers is contained in INDG436 and BG01/BG02, there are many legacy sites which still have boiler controls and operational systems designed around PM5 or PSG2 for instance. The Training Provider must take this into account when delivering the course but should also refer candidates to the advice contained in the current guidance with respect to these legacy sites.

**1.3.2** BOAS training must always cover the whole syllabus and Assessors will assess candidates' knowledge across the breadth of the syllabus. Under no circumstances should training be specifically tailored towards the topics arising in the question papers; the Assessor is expected to ask questions on subjects which are within the syllabus but not necessarily covered by the written examinations.

## 2 - Application Process



Applications for training and/or BOAS assessment may be made directly by individuals or by companies on behalf of their employees direct to a Training Provider using the standard form (appendix 1).

### 2.1 - Candidate Applications for BOAS Assessment

**2.1.1** Training Providers **must** obtain from candidates **prior to assessment** the following:

- a) A fully completed Application Form (Appendix 1) and two passport sized photographs to be used for the ID card. All applications for assessment must be validated and countersigned by the candidate's Manager or a representative senior authority at the candidate's employer. Photographs may be 'digital' but the candidate's name must be clearly visible on or attached to each image.
- b) Two different acceptable forms of ID, one photographic (e.g.; passport, driving licence or other Government issued photo ID) and one to verify the candidate's address (e.g.; Council Tax demand, utility bill, driving licence (if not already used as photo ID)). All forms of ID must be currently valid or dated less than 6 months old, as appropriate.
- c) An Evidence Pack with supporting documents (as shown in Appendix 2). Large quantities of company procedures are NOT required - a **maximum of 15 - 20 sheets** of relevant information should be more than adequate. The Evidence Pack must show the candidate's PERSONAL involvement with the boiler plant using relevant information and actual records on company headed paper made by and signed by the candidate in the course of their normal work, and ideally countersigned or approved by their supervisor or line manager.

Applicants not currently operating or managing boiler plants must provide evidence of their continuing personal involvement with relevant installations e.g. boiler houses being designed, under construction, during commissioning or undergoing routine inspections etc.

Applicants who manage boiler houses on behalf of clients where confidentiality is required (such as contract maintenance organisations or secure installations) should provide copies of their records with the boiler owner's details blanked out.

- d) Payment to the chosen Training Provider. The Training Provider will include in their invoice the assessment fees and CEA Administration fees.

Training Providers **MUST check** that all the above steps have been followed before BOAS training commences.

### 2.1.2 NOTES:

1. The above information should be submitted ideally 4 weeks in advance although the Training Provider may exercise discretion in this matter at their own risk.
2. The Evidence Pack and employment summary demonstrate important knowledge, skills and experiences that may not be specifically tested during the assessment. The Evidence Pack is required because:
  - a. The process of collating the information is part of the training process itself.
  - b. The information provided will enable the Training Provider to identify features of the candidate's plant which may warrant specific attention during the training process.
  - c. It provides the independent Assessor with information about the candidate's plant which will inform the assessment process.

The Evidence pack is NOT a file of company procedures, training records and original documents – it should be **NO MORE THAN 15 - 20 sheets of relevant boiler operational records attributable to the candidate**.

The Candidate or the Training Provider may scan the relevant evidence sheets and make these available to the CEA.

3. The whole assessment must be completed successfully to achieve BOAS accreditation, however there is no requirement for the training and assessment to be completed in one 'sitting', but if more than one 'sitting' is required this will probably incur additional costs.
4. A Training Provider has the right to refuse to accept candidates for training should they not comply with these requirements. An Assessor will defer a candidate who does not provide the minimum required evidence in advance of their assessment interview.
5. In the case of persons holding a qualification obtained prior to BOAS or awarded overseas, the CEA may, at its discretion, allow such candidates to be treated as BOAS candidates. However each case will be judged on its own merits as it will be necessary to establish that the non-BOAS qualification may reasonably be considered to be equal to BOAS, and to confirm that the candidate has remained in a workplace situation where they have been continuously involved with appropriate boiler plant since the original qualification.
6. In cases where a Cat 3 candidate attends from outside the UK or offshore, the Training Provider must notify the CEA at least two months in advance so that appropriate assessment arrangements can be made. One option is to extend the assessment interview to allow the Assessor more time to assess the candidate, and in the absence of a site visit the candidate should bring drawings and photographs of the boiler installation to the assessment interview to allow the assessor to fully evaluate the plant and the candidate's knowledge of it. The certificate of BOAS Accreditation will be annotated to say that an on-site assessment was not carried out in this exceptional case. If the assessment decision has to be deferred to allow information to be gathered this must not delay the assessment by more than 6 months.
7. The Training Provider will forward all supporting documentation supplied with the Application Form, including the scanned Evidence Pack and log sheets, to the CEA. This documentation is required in case of subsequent investigation or review by the CEA Certification Officer or outside audit.

## 2.2 – Fees

---

**2.2.1** The current fees for BOAS application, examination and assessment are available on the CEA web site or on application to the CEA offices or to any BOAS Training Provider. Training charges are set by the Training Providers.

**2.2.2** BOAS Assessment and CEA Administration fees depend on the accreditation being sought:

New assessments

Cat 1 or Cat 2 at Training Provider or single site

Cat 1 + Cat 2 at Training Provider or single site

Cat 3 assessment at work place (including other categories if required)

Cat 5 or Cat 7 Operator at Training Provider or single site

Fees also apply for:

Additional exams for additional categories

Exam resit with no interview

Deferral re-interview

Renewal of Assessment, per candidate, at Training Provider or single site

Renewal of Assessment, per candidate, at work place if required

Assessment fees cover the costs of administration of the assessment process and deployment of a qualified Assessor to anywhere on the GB mainland and Northern Ireland. Deployment of Assessors to locations outside of this geographic area may attract charges to cover the additional expenses involved.

CEA Administration fees in addition to the above will be applied for each certification (Operator or Manager).

**2.2.3** The fees are periodically reviewed and are subject to change.

**2.2.4** The fees stated above shall be collected on behalf of the independent Assessment and Accreditation bodies by the Training Provider in addition to their fee for the provision of a BOAS approved training course as required.

### 3 - Training Process



#### 3.1 - BOAS Pre-assessment Training

**3.1.1** The objectives of a BOAS course are to:

- Train candidates in safe and energy efficient boiler and boiler house operation;
- Raise candidates' awareness of wider safety and environmental regulatory and legal requirements;
- Prepare candidates for BOAS assessment.

**3.1.2** It must be stressed that BOAS accreditation is not a legal requirement for boiler Operators or boiler operations Managers. It is a test of a person's knowledge in relation to their current knowledge and experience at the time their assessment is completed. Although BOAS is recommended in BG01 and BG02, it is only one possible component that may help an organisation to demonstrate fulfilment of their corporate responsibility under the Health and Safety at Work Act and other Regulations to provide suitable training for employees and help them assess their employees' competence.

**3.1.3** Pre-assessment training is not mandatory for people sufficiently knowledgeable; they can apply to a Training Provider for examination and assessment without attending a training course. This option is available for all categories and grades of BOAS, and for initial assessment or renewal.

#### 3.2 – Training Courses

**3.2.1** The BOAS scheme recognises different forms of training delivery licensed by the CEA as follows:

- 1. Training Provider:** A Training Provider will normally be an organisation who shall either:
  - a. Have, or have access to, the facilities (including an operational boiler for Cat 2 and a classroom) to receive and train significant numbers of boiler operators on a regular basis;
  - OR
  - b. Deliver on-site training on sites where there is access to a live boiler and suitable classroom facilities.
- 2. Trainer:** This is an individual who may be retained by a Training Provider or be self-employed, and who can provide training either at a Training Provider's location or on a customer's site which includes an operational boiler plant and suitable classroom facilities. Trainers are separately licenced by the CEA to deliver BOAS training.

**3.2.2** Training Providers are responsible for:

1. Receiving and vetting BOAS candidate applications and fees;
2. Recording the candidate's evidence submission on the relevant form;
3. Requesting Assessors from the CEA at least 4 weeks in advance of the course;
4. Delivery of the syllabus content to match the Learning Outcomes;
5. Organisation of the assessments and invigilation of the written examinations;
6. Providing all candidate's documentation, checked as complete, including application form, evidence pack, completed examination papers etc. to the Assessor in good time to enable

the Assessor to check the documentation and mark the written examination papers within the working day and prior to the oral examination;

7. Providing the Assessor with an adequate & suitable work station to carry out the tasks referred to in item 6 above;
8. Providing the Assessor with an adequate & suitable space to carry out the oral interviews with the candidates on an individual and confidential basis.
9. Passing the completed candidate paperwork to the CEA;
10. Assisting their candidates at every stage of the BOAS process;
11. Assisting their deferred candidates in achieving BOAS accreditation;
12. Providing appropriate facilities for candidates who are being assessed and do not require training.

**3.2.3** The CEA occasionally audit Training Providers and may also require reporting of agreed KPIs at intervals throughout the year. 'Yellow cards' may be issued as a reminder to Training Providers who routinely do not follow the scheme requirements or consistently receive low KPI scores. BOAS Training Provider Licences may be revoked at any time. The CEA will make a charge to cover the time and expenses involved in carrying out any BOAS audit.

### 3.3 - Structure of Training

---

**3.3.1** The Training Provider determines the length of the course. They must allow sufficient time and facilities to deliver the whole syllabus content, invigilate the written examinations and allow the individual assessments to be completed. The Training Provider must inform the CEA in advance of the numbers of candidates and the category being sought by those candidates to enable allocation of the correct number of appropriately qualified and approved Assessors.

Training Providers must ensure that renewal candidates are renewing the correct category and grade of BOAS.

**3.3.2** Trainers must allow sufficient time at the end of each course to invigilate the exams and provide Assessors with a briefing on the candidates and the course just completed. Particularly, candidates who have had difficulty with the course material or who may require additional time in exams should be discussed, and specific exam protocols agreed for them and recorded on the Assessor's report form.

**3.3.3** Training for different categories or grades (O & M) in the same training course is strongly discouraged. Training Providers must make sufficient time available to allow the whole syllabus for each category to be covered and this may not be possible within the normal course duration.

**3.3.4** Training material for Cat 4 International candidates will be decided by the Training Provider and the customer working together to ensure that candidates are fully prepared for BOAS assessment which will be based on BG01 and BG02 and other best practice guidance but will not include any UK based legislation questions.

**3.3.5** Training Providers will inform the CEA at the start of every BOAS pre-assessment training course of the names and identities of the candidates who are attending on a form provided for that purpose.

**3.3.6** Training Providers are required to use CEA produced Mock exam papers as they are presented in the style of the official exams.

If Training Providers wish to create additional Mock exam papers they must be approved by the CEA prior to issue; unapproved exams may well inadvertently use questions that are the same as the real exams, placing other candidates elsewhere at a disadvantage.

Mock exams that are not approved shall not be used until agreement that the content is satisfactory and it will not compromise candidates attempting official assessments.

## 4 - Assessment Process



The BOAS assessment provides the opportunity for candidates to demonstrate their technical knowledge, practical experience and the approach required for the safe operation of industrial and commercial boiler plant. The whole assessment must be completed successfully to achieve BOAS accreditation, however there is no requirement for the training and assessment to be completed in one 'sitting', but if more than one sitting is required this will probably incur additional costs.

### 4.1 - Structure of Assessment

**4.1.1** The assessment normally comprises two distinct stages; written examination and oral assessment. The assessment can be carried out in alternative ways:

- Option 1 – Following the end of a training programme undertaken at an approved training centre, with the initial assessment always carried out on site for Cat 3.
- Option 2 - For experienced candidates not requiring pre-assessment training, as a stand-alone assessment undertaken at an approved training centre or at the candidate's place of work (mandatory for Cat 3).
- Option 3 - Following the end of a training programme undertaken at the candidate's place of work (all categories).
- Option 4 – on line 'virtual assessment' conducted by video link with an approved Assessor.

In all cases above, the candidate may opt to defer their assessment by agreement in advance with their Training Provider, and the CEA may defer the assessment by a short period for logistical reasons for not normally longer than 2 weeks.

Assessments carried out on the candidate's site may incur an additional charge.

Assessment of Cat 5 coil boiler operators and Cat 7 Thermal Fluid systems operators will be by multiple choice examination only at the end of the course, marked by the CEA.

**4.1.2** Assessors may give candidates an indication of their assessment result at the end of their interview, but this will always be subject to the final approval of the CEA Certification Officer.

**4.1.3** BOAS Assessors will work to the current version of the Assessment Manual published by the CEA. The current issue of the manual takes precedence over details described in Appendices to this handbook which are provided for information only.

**4.1.4** In exceptional cases where a Cat 3 candidate attends from an 'offshore' installation or outside the UK, the Training Provider must notify the CEA at least two months in advance so that appropriate assessment arrangements can be made. Assessors have the right to request additional plant and operational information in the Evidence Pack (e.g. drawings, photographs etc.) in the absence of a site visit, and may defer the assessment result until the candidate has been able to provide the necessary information and assurances to allow the award of a BOAS certificate. The certificate will be annotated to say that an 'on-site assessment' was not carried out in this exceptional circumstance.



## Written Examinations

**4.1.5** Candidates being assessed must sit examination papers during or at the end of their training course so that the Assessor may mark the papers prior to conducting the oral assessments. For Cat 3 candidates, all papers must be passed prior to on-site assessment. Experienced candidates who have not attended a pre-assessment training course are required to sit all relevant exam papers. For on line assessments the Assessor will ask the candidate selected questions by reading or showing the questions to the candidate.

**4.1.6** Examination papers consist of a mixture of questions requiring descriptive and multiple-choice answers on all aspects of boiler house operations. The candidate must record the time of starting and finishing each exam on the front of the examination paper. The examinations can be sat at the CEA office or any approved Training Provider's premises. Site based assessments will be invigilated by the Trainer under controlled conditions.

**4.1.7** The CEA will issue the Training Provider or Trainer with the current examination for the relevant categories of assessment. Examinations may be compiled from a pool of suitable questions that are changed on a regular basis, and the examinations to be used will be randomly rotated by the CEA.

**4.1.8** The Assessor is expected to ask the candidate to provide verbal answers to questions that they have not answered correctly, and the successful completion of those questions may give the Assessor sufficient evidence that they can award a pass for that examination if the initial attempt was not successful. If the Assessor is not satisfied with the oral answers they may require the candidate to re-sit that examination at a later date, and at an additional cost.

Candidates that are unable to meet the required pass mark for more than one examination will be interviewed by the Assessor but will also be required to re-sit the relevant examinations at a later date, and this will be a different version of the same exam where available. A further interview after the re-sits is at the Assessor's discretion.

**4.1.9** For Cat 5, coil boiler operators, and Cat 7, Thermal Fluid systems, operators will be assessed by multiple choice examination only. The exams will be administered and invigilated by the Training Provider and then sent to CEA where they will be marked. The CEA will inform the candidate of their result, and any required re-sits will be managed through the CEA office and the original Training Provider using a different version of the same exam where available.

## Invigilation of BOAS examinations

**4.1.10** It is essential for the credibility of the BOAS scheme that all examinations are taken under controlled conditions. Candidates are expected to be sat sufficiently far apart to prevent them easily viewing other candidates' exam papers, and all BOAS exams are 'closed book' meaning that all sources of reference material, whether paper, verbal or electronic, are prohibited during the examination.

Exam papers must be clearly annotated with the candidate's name and the start and finish times. All exam papers are to be handed back to the invigilator at the end of the allotted time. Candidates who declare a need for assistance or more time during the exams are to be examined in accordance with the rules in 4.5 below.

**4.1.11** Invigilators will normally be the course Trainer. Training Providers are required to ensure that all BOAS Examinations are invigilated correctly and robustly. Other staff from a training centre or staff from a customer site may be asked to invigilate, but they must be properly briefed by the Trainer beforehand.

Invigilators are responsible for:

- familiarising themselves with BOAS requirements relating to assessment activities that they invigilate;
- briefing candidates on the requirements and conditions that apply to the assessment activities that they invigilate;



- supervising candidates whilst they are undertaking written assessment activities such as multiple choice examinations and assignments;
- the conduct and integrity of all assessment activity that they invigilate;
- accurately observing and recording the time allotted for the assessment activity;
- ensuring that all assessment documents and candidate answer documents are collected immediately after the assessment and handed to the relevant Assessor.

## Examination Re-sits

**4.1.12** Up to 90 days after their initial assessment candidates may re-sit any papers up to a total of three times but each re-sit of each paper will entail a fee. Beyond this would require a full re-sit of all papers as a new candidate, and in this circumstance it is strongly recommended that such candidates undertake further training. **All exam re-sits must be advised to and authorised by the CEA** – a charge will apply.

**4.1.13** Where available, the examination re-sit will be a different exam paper to the one that was not passed. Trainers should have access to alternative sets of exam papers to enable re-sits to be taken as appropriate.

**4.1.14** Re-sits may not be taken on the same day as the original examination. If necessary and if time permits, a paper may be re-taken a day after the first attempt and before the Assessor carries out the interview; otherwise they must be re-taken at a later date and may require another interview to be arranged. The candidate must not be informed which questions were incorrectly answered but may be allowed private revision time away from other candidates if this facility is available.

**4.1.15** A re-sit of examination papers may require another interview at the Assessor's discretion, but the candidate will be advised of this at their assessment interview. Candidates wishing to defer resits beyond 90 days must obtain approval from the CEA prior to the expiry of this period.

**4.1.16** Re-sits can be undertaken at an approved Training Provider's premises or at a candidate's own workplace, subject to the availability of a suitable location and an invigilator for the examination. The latter option may attract an administration fee for an on-site invigilator to be provided. The Assessor will then mark the examination paper and re-interview the candidate if necessary – additional re-assessment charges will apply.

**4.1.17** In the case of Cat 3 candidates the on-site interview must normally be completed within 30 days of passing the written papers. Beyond this time the candidate will be required to re-sit both the written assessment and on site interview as a new candidate.

In the case of Cat 5 and Cat 7 candidates, exam resits will be arranged between the candidate and the Training Provider as necessary.

## Oral examination

**4.1.18** The assessment interview, which typically takes 45 minutes for a single category, is carried out on a one-to-one basis at the Training Provider's or candidate's site on the nominated assessment date, or on line arranged mutually between the candidate and the Assessor. It is led by an approved BOAS Assessor who has extensive general knowledge of safe and efficient combustion and the safe operation of boiler plant. Their primary aim is not to find faults but to be confident that they have allowed each candidate the opportunity to give a full account of their knowledge, skills and experience.

The Assessor may state that the candidate has failed to provide enough evidence to demonstrate knowledge in boiler operation and will defer completion of the assessment until the appropriate documentation is received.

**4.1.19** The assessment investigates a candidate's knowledge of legislation and best practice rather than of the actual practices adopted on the plant that they operate. In cases where an Assessor identifies unsafe or inappropriate practices during the assessment interview the candidate will be expected to show an insight into these and answer the questions in accordance with best practice.

The Assessor will request that the candidate declares how they will bring the shortfalls to the attention of their management.

**4.1.20** The interview will include a review of marked papers and the evidence pack/work experience records in order to verify the candidate's practical expertise. The Assessor may not be familiar with the candidate's plant but will base his assessment around answers to the written examination questions, especially those that do not clearly demonstrate understanding of the topic or may not have been answered in accordance with the model answer. This approach enables the Assessor to ensure that the knowledge and understanding of the candidate is the basis of the Accreditation decision rather than the candidate's written communication skills.

**4.1.21** The BOAS assessment process requires proficiency in both written and spoken English, and in particular familiarity with the English words for boiler specific terms. Lack of proficiency in English may result in candidates being deferred at the assessment regardless of their technical capabilities and knowledge. See section 4.5 below.

**4.1.22** The Assessor has the right to assess any candidate in a live boiler situation; this is likely in the instance of the largest steam plant and is mandatory for Cat 3 initial assessments, and may take 1-2 hours to complete.

**4.1.23** Model answers (Rationales) to the examination questions will be provided by the CEA based on discussion and agreement between Assessors at their regular meetings. The model answers will be controlled and reviewed from time to time as appropriate.

**4.1.24** Assessors must hand back or send all the evidence, marked exams and their completed candidate report form to the Training Provider without delay so that the Training Provider may follow up any issues on deferred candidates and forward completed assessment reports to the CEA without delay. Assessors will send course report forms direct to the CEA under separate cover.

Assessors must make every effort to return completed candidate paperwork to the Training Provider within one week of the assessment, and always within two weeks.

## **4.2 - Deferred Assessment option**

---

**4.2.1** In some circumstances it is recognised that a candidate may not wish to undertake the BOAS pre-assessment training and assessment in one sitting. Here it is the duty of the Training Provider to evaluate the circumstances to ensure this is the most appropriate course of action for the candidate and to make the appropriate recommendation to the CEA.

**4.2.2** Candidates may elect to have their Assessment deferred by discussion with their Training Provider in advance of the assessment due date.

## **4.3 - Deferred Result**

---

**4.3.1** When an Assessor is considering deferring a candidate they must inform the Training Provider why the candidate was unable to satisfy the Assessor during the interview. Training Providers are expected to assist all candidates in gaining accreditation where further training is required or examinations are to be re-taken, for example.

**4.3.2** It is recognised that a candidate may not be able to achieve BOAS Accreditation in one sitting. Where the candidate attends training and passes the written assessment but does not demonstrate to the Assessor during interview the required practical experience, the Assessor (and ONLY the Assessor) has the authority to defer completion of the assessment.

**4.3.3** When a candidate is deferred, the Assessor records on his Candidate Report Form the **reasons for deferral** and the additional actions required to award a pass. These will include one or more of the following items:

- a) Examination(s) not passed – re-sit required, specify which exams – additional charges will apply;
- b) Oral Interview not passed – re-interview required – specify timescale - additional charges will apply;
- c) Evidence of boiler operations or supervision not provided – specify which items must be supplied by the candidate and by when;
- d) Experience of boiler operations insufficient – specify how long and who validates this (Manager, Supervisor etc.);
- e) Candidate ID not proved – specify missing documents.

**4.3.4** Some of the more **common reasons for deferral** require the submission of the following information:

- a) A statement from the employer confirming that the candidate has been working regularly in the boiler house under the guidance and supervision of a competent colleague, or, in the case of a Manager, routinely supervising the work of others.
- b) Evidence that has been countersigned by a more senior employee (supervisor, manager etc.).
- c) Evidence that the candidate has undertaken standard daily and weekly safety checks on the boiler. This would typically be signed extracts from the boiler house log book, and extracts from the relevant procedures against which these checks have been conducted.
- d) If applicable, evidence of the candidate having responded to boiler alarm conditions and the actions he/she undertook (e.g. log book entries).
- e) If applicable, confirmation that the candidate has participated in the preparation of a boiler for annual inspection or maintenance.
- f) In the case of Managers, evidence of the candidate supervising the above tasks and managing other relevant parts of the safe and efficient operation of the boiler house.

**4.3.5** Assessors may also defer candidates if the site specific data (the Evidence Pack and supporting documents) is incomplete, and any deficiencies must be rectified within 6 months of original assessment in order for the BOAS Certificate to be awarded. The candidate will be advised verbally and in writing of the steps necessary to gain accreditation, and the Training Provider will write to the candidate's employer to advise them of those necessary steps, and send a copy of the letter to the CEA..

**4.3.6** The Training Provider will remind employers and candidates before the end of the 6 month period for providing the necessary information to allow a BOAS Certificate to be awarded, and if the required information is not submitted on time it will be assumed that the candidate no longer requires BOAS accreditation and their database record will be archived by the CEA.

## **4.4 – Change of Award (by category or classification)**

**4.4.1** Existing Operators wishing to upgrade to Manager at any point in time will be asked to provide suitable evidence of their capabilities, take the current Manager examination in the relevant category and attend an oral assessment. They will be required to attend a suitable training location for examination and assessment, and there will be a fee for re-certification. Assessment will be on site for new Cat 3 certifications. The Candidate Evidence Pack will need to be updated in advance of the examination and assessment process. The BOAS certificate will be renewed for successful candidates, and will expire at the 5 year anniversary of the original award.

**4.4.2** Changing from one category to another (whether before or at renewal) requires the candidate to take the relevant examinations (Operator or Manager as appropriate) in the new category and pass an

oral assessment. Additionally, all changes of category or adding new categories require the candidates to provide a complete evidence pack for the new or additional category.

#### 4.4.3 - CHANGE OF CATEGORY AT ANY TIME (whether before or at renewal)

<i>change to</i> <i>Current award</i>	<i>Cat 1</i>	<i>Cat 2</i>	<i>Cat 3</i>
<i>Cat 1</i>		<i>Take current Cat 2 examinations* and pass oral assessment</i>	<i>Take current Cat 3 examinations* and pass oral assessment at site</i>
<i>Cat 2</i>	<i>Take current Cat 1 examinations* and pass oral assessment</i>		<i>Take current Cat 3 examinations* and pass oral assessment at site</i>
<i>Cat 3</i>	<i>Take current Cat 1 examinations* and pass oral assessment</i>	<i>Take current Cat 2 examinations* and pass oral assessment</i>	

\* - including Manager paper if appropriate

Note: Assessment for more than one category will require the candidate to take and pass examination papers in all relevant categories, and to be assessed for all required categories at an extended oral interview. Lapsed awards exceeding 5 years will require a new BOAS Application.

#### 4.5 - Candidates with limited English language skills

Normally for BOAS, all elements of the assessment are carried out in English. For candidates without a sufficient grasp of the English language, and in particular of boiler related terminology, it may be difficult for them to demonstrate their knowledge to the satisfaction of a BOAS Assessor.

To facilitate the successful accreditation of candidates whose command of written and/or spoken English is not considered sufficient for the process, the following options are suggested:

**4.5.1** The Training Provider should assess the candidate's needs in advance and alert their customer and CEA if there is a requirement for translators to be present during the assessment process. These translators will need to have sufficient grasp of technical terms and boiler technology.

Note: Using another candidate or co-worker as a translator for his colleagues is not acceptable – the translator must be independent.

**4.5.2** The Assessor may allow additional time for the exams to be undertaken, up to but not longer than 30 minutes extra per exam. All concessions shall be documented. Such concessions should be announced and made available to all who need them in any one assessed group.

**4.5.3** It may be necessary for the Trainer to read out the exam questions to the group of candidates, or to explain or re-word any questions that are causing concern or confusion to individuals. This should be done with the Assessor present, and the same facility shall be allowed to all candidates in that group. The timing of the exams will therefore need to be adjusted. The trainer shall not read out examples of possible answers except in the case of multiple choice questions.

**4.5.4** The Assessor may allow additional time for the assessment interview to be undertaken, up to but generally not longer than 45 minutes extra per interview. All concessions shall be documented.

It is highly recommended that additional time is taken to thoroughly explain the whole examination and assessment process to all the candidates so that they approach the exams and assessment with a full understanding of what is expected of them.

## 4.6 - BOAS Five Year Renewal

---

**4.6.1** BOAS Accreditation is valid for 5 years from the date of the original assessment (or the date of the on-site assessment for Cat 3) regardless of the result. Renewal is required before this point if Accreditation is to be maintained. Renewed Accreditation is awarded on successful completion of the renewal examination and an oral assessment, and is valid for a further 5 years. If BOAS is renewed up to 6 months early, before the original expiry date, the new 5 year renewal period will start from the original expiry date.

**4.6.2** There is no 'grace period' in relation to BOAS Accreditation, but renewing candidates who have to wait for a short period before a suitable course is available will be allowed to continue as renewing candidates. If a BOAS award lapses for more than 3 months the renewing candidate will generally be treated as a new candidate, and all examination papers must be successfully completed in the required category (or categories) in order to regain Accreditation.

**4.6.3** There are three routes for renewing BOAS accredited Operators and Managers to follow:

- a) If the renewing candidate believes that they do not require any further training or refreshing of knowledge or legislation issues, they could attend for the written renewal examination and oral assessment. These will be arranged with a Training Provider who is running a BOAS course, such that the candidate for renewal would join that course only at the end when the examinations and assessments are taking place.
- b) The renewing candidate might wish to attend a complete BOAS course and go through the examinations and assessments as a new candidate.
- c) The renewing candidate may attend a refresher course which a Training Provider may wish to offer, followed by the renewal examinations and oral assessment.

**4.6.4** In all three cases above, the candidate will have to sit the renewal examination paper in the appropriate category followed by an oral assessment. Existing Operators who wish to upgrade to Manager Accreditation may do so at renewal by providing the required additional evidence, paying the appropriate fees, and passing the Manager renewal examination and assessment.

**4.6.5** Training Providers offer renewal courses aimed at ensuring that candidates have sufficient existing knowledge, providing an update of legislative changes over the past 5 years and reviewing key areas covered in initial training. Candidates for renewal will be expected to demonstrate to the Assessor their up-to-date knowledge of current legislation, guidance (BG01/BG02, BG03, BG04, MCPD, etc.) and best practice.

**4.6.6** All candidates seeking renewal must produce as evidence their previous BOAS Accreditation and I.D. card OR evidence of accreditation under another scheme deemed by the CEA to be an acceptable equivalent to BOAS Accreditation as well as a selection of suitable job related evidence in the same format as for initial assessment. Changing categories or adding to the accreditation scope will require evidence to be presented that relates to the new scope.

**4.6.7** Cat 3 renewals will usually be assessed at the training/examination location unless the Assessor has specific reasons to request a site visit. A site visit may be requested because of a significant change of the candidate's role since initial award, or a significant change of the installation being operated, for example.

**4.6.8** Cat 5 Coil boiler Operator renewals and Cat 7 Thermal Fluid system renewals will be carried out using the current Category multiple choice examination.

## 5 - Certification Process



The BOAS assessment process is designed to determine whether a candidate can demonstrate knowledge at the time of assessment as either a boiler Operator or as a boiler house Manager. The Training Provider submits an Assessment file for each and every candidate to the CEA for internal verification and certification. This contains the evidence collected (including the application paperwork, evidence of experience, and written and oral examination results) and gives the Assessor's recommendation for the candidate based on their interview with the candidate and the evidence collected.

The Certification Officer reviews a random selection of Assessor's report forms and Course report forms and confirms that the BOAS process has been followed and the certification decision is valid, based on the recommendation of the Assessor in his report. The Certification Officer has the opportunity to request sight of the detailed evidence upon which the Assessment report is based for a random selection of assessments or any assessments where the Certification Officer identifies concerns.

It is essential that the Training Providers provide all candidate supporting information to the CEA promptly.

### 5.1 - Certificates of Achievement

**5.1.1** Successful Operator and Manager candidates will receive a certificate of achievement confirming their BOAS Accreditation, valid for five years from the date of the original assessment interview, together with an identification card. This documentation will indicate the categories of boiler plant for which the candidate has been Accredited, and may include specific limitations.

Accreditation starts from the date of the completed assessment (on site if Cat 3), and if a candidate is deferred the date of accreditation remains the date the candidate was first assessed.

**5.1.2** It is important to note that the Accreditation is awarded to the candidate who has undergone assessment and does not imply any approval or otherwise of any activities in his employer's organisation.

**5.1.3** Successful candidates will be eligible to use the designations

- 'Certified Industrial Boiler Operator' (CertIBO) in the case of Operators; and
- 'Diploma in Boiler plant Operation Management' for Managers (DipBOM).

**5.1.4** Certificates and ID cards will lapse after 5 years and renewal is required if certification is to be extended for a further 5 years. Should the individual not wish to make an application for renewal of their BOAS Accreditation at the end of the 5 year period, their certificate and identification card must be returned to the CEA Director on expiry.

## 5.2 - Complaints and Appeals Procedure

---

**5.2.1** Candidates who feel that they have not been fairly assessed or who have another complaint about the BOAS process should contact the Combustion Engineering Association in writing for an initial review no later than 1 month after receiving their assessment results. The CEA will undertake a review of the candidate's application forms and assessment file as appropriate, and provide a report within one further month.

**5.2.2** Where a complaint is reviewed and found to be potentially valid, the CEA will discuss the complaint at one of the allocated hearing days scheduled throughout the year. The complaint will then be heard by a panel of at least three people consisting of at least two senior members of the CEA (e.g. Chairman, Certification Officer, Chair of the Training Committee) and at least one other senior independent person not directly connected with the BOAS scheme such as a Director of a CEA Member company or affiliated organisation not involved with the BOAS scheme.

The candidate may ask to be present to submit evidence, and they may be accompanied by their employer or manager. Attendance by the candidate at the hearing is not mandatory, and not attending will not influence the panel's decision.

Where a complaint is found to be invalid the CEA Director will write to the candidate to explain the reasons.

**5.2.3** The written decision of the hearing panel will be made available to the candidate within 10 working days of the hearing.

**5.2.4** A further appeal is possible to the Director of the CEA within 1 month of the decision or hearing panel report being issued. The decision of this appeal will be final.



## 6 – Training Providers, Trainers and Assessors

### 6.1 - Training Provider and Trainer Pre-requisites and Regulations

Any organisation or individual, including employees in suitable organisations, who wishes to be registered with the CEA for the provision of pre-assessment training for operators and managers of industrial and commercial boiler plant must meet the following pre-requisites:

- A. The potential Training Provider (including Trainer in the rest of this section) must be a member of the CEA (either through their employer or as an individual member) and subscribe to its values.
- B. The potential Training Provider's business must be financially sound and without bad debt to the CEA. Should the finances of the Training Provider's business deteriorate after appointment, the CEA Director must be notified immediately.
- C. The potential Training Provider may be required to attend an evaluation interview to demonstrate that they have the required knowledge, credibility and, where appropriate, facilities (i.e. suitable amenities, class room and access to live boiler plant) needed for the effective delivery and assessment of BOAS training.
- D. The potential Trainers must provide their CV for review; this should provide evidence of the Trainer's suitability, past experience and knowledge of relevant boilers. Potential Trainers may be required to attend an evaluation interview, and the CEA may require this to be conducted at the Training Provider's site during a suitable training course.
- E. The potential Training Provider's business must be recognised and well respected by the industry and CEA Council, and should ideally have been delivering industry recognised, high quality training in a related area for at least two years.

Sufficient evidence of non-BOAS training material, including any course hand-outs, must be supplied to the CEA as evidence of this high quality training. Training Provider's own materials provided to the CEA will remain confidential.

- F. The CEA will review any BOAS course materials compiled by the Training Provider before any pre-assessment training can commence. All pre-assessment training material will be treated confidentially and will be shared only with its originator.
- G. The structure of the training course and assessment including the syllabus and the examination papers is owned by the CEA. The Training Provider will be granted a licence to use this material for the duration of their appointment as a CEA Approved Training Provider provided that their CEA annual subscriptions and Training Provider licence fee have been paid. The licenced syllabus and examination papers shall be used for no other purpose than for the provision of BOAS courses. The CEA may, at any time, require the return of all BOAS materials of which it was the originator.
- H. A Training Provider licence entitles the organisation or individual to deliver BOAS pre-assessment training. The fee for a Training Provider licence is set by the CEA from time to time and is subject to review and change – please see the CEA web site for the latest information or call the CEA office.
- I. Copies of insurance documentation for Public Liability (PL) and Professional Indemnity (PI) must be provided to a level set by CEA Officers before any pre-assessment training can commence. The levels currently required are PL £5million, PI £2million. Evidence of continuing cover for the duration of the Agreement for PL and for 7 years thereafter for PI will be required.



Requests for exceptions to the above insurance requirements must be addressed to the CEA Director and be approved accordingly by the Training Committee, CEA Executive or Council.

There shall be no course of redress against the CEA by an employer of any BOAS certified Operator or Manager in the event that the employee creates a dangerous condition or causes a dangerous occurrence. Accreditation is based on how the candidate performed during the assessment process. The CEA cannot be held responsible for any non-approved acts that a candidate may carry out at any future date following BOAS training and assessment.

- J. It is at the discretion of the CEA to award the potential Training Provider or Trainer the right to provide BOAS pre-assessment training relating to any of the following categories.
  - a. Category 1 – Hot Water Boilers;
  - b. Category 2 – Conventional Shell type Steam Boilers;
  - c. Category 3 – Water Tube Boilers;
  - d. Category 5 – Coil type Steam generators;
  - e. Category 7 – Thermal Fluid Systems.
- K. The potential Training Provider (or their employing organisation) should have access to sufficient resources with the capacity to process a minimum of 30 candidates per year.
- L. The potential Training Provider must supply at least one suitably experienced employee to contribute up to a total of 4 days per year towards the development of the BOAS scheme including contributions to the revision of the syllabus, handbook and scheme governance.
- M. The CEA reserves the right to and will occasionally conduct audits on Training Providers to assess the services provided in relation to BOAS. The auditor will be independent and not be a current Training Provider. Audits are chargeable by the CEA.
- N. The CEA may require the submission of Key Performance Indicator data from each Training Provider at timescales set and agreed by the BOAS Working Group.
- O. The potential Training Provider will adopt the assessment and administration fee structure devised and published by the CEA, and will follow the requirements of the BOAS Handbook.
- P. Training Providers shall ensure that the correct version and revision of BOAS examinations are used for every assessment in line with any recommendations from the CEA for version control. Trainers shall be provided with sufficient copies of examination papers in order to facilitate re-sits when required, and where available these re-sits will be for a different version of the exam to the version that the candidate did not pass at their first attempt.
- Q. The Training Provider will provide the appointed Assessor(s) with candidate evidence packs and completed examination papers as required by the Assessor in sufficient time to enable the Assessor to commence review and marking as soon as practicable before the formal interviews, and allocate suitable and confidential space for the Assessor to carry out these tasks.
- R. Trainer registration will be granted to an individual (whether employed by a suitable organisation or self-employed) and no substitution will be allowed without the prior knowledge and written approval of the CEA. Approved Training Providers may employ individual CEA Approved BOAS Trainers to deliver specific parts of the BOAS syllabus within the limits of their approval as set out in their letter of appointment.
- S. A BOAS Training Provider licence is valid for 5 years and remains the property of the CEA. The CEA has the right to revoke the licence of any Training Provider or any of the Training Provider's Trainers at any time.
- T. The CEA logo and the BOAS Trade Mark or Certification Mark may not be used by the Training Provider in any way other than in publications and other documents directly associated with the provision of CEA approved BOAS courses. It is a condition of use that the mark shall not be used without indicating that it is a certification mark.

- U. Training Providers will be formally appointed by the CEA by the issue and acceptance of a BOAS Training Provider Agreement. Granting of Training Provider licences is at the discretion of the CEA and its decision is final.
- V. Training Providers shall use CEA issued Mock exam papers as they are presented in the style of the 'real' exams with a time limit, allow candidates to see the layout of the questions and a typical marking scheme, and ask questions that are related to the Learning Outcomes but not repeated in the real exams.

If Training Providers wish to create additional Mock exam papers they must be approved by the CEA prior to issue; unapproved exams may well inadvertently use questions that are the same as the real exams, placing other candidates elsewhere at a disadvantage. It is important to ensure that all candidates at all training centres are receiving the correct training and that any questions asked have approved rationales.

Any mock exams that are not approved shall be removed from use until agreement that the content is satisfactory and will not compromise candidates attempting official assessments.

- W. An Assessor may make an application for registration as a Trainer. Once licenced, any individual can train or assess any candidate providing they do not assess the candidates they train.

## 6.2 – Appointment of Assessors

---

Any individual, including employees in suitable organisations, who wishes to be registered with the CEA as an Assessor of Operators or Managers of industrial and commercial boiler plant must meet the following pre-requisites:

- A. Assessors will be appointed and engaged on a 'course by course' basis by CEA to oversee the assessments for the BOAS scheme.
- B. The potential Assessor must be a member of the CEA, either through their employer or as an individual member, and subscribe to its values.
- C. The potential Assessor must provide their CV for review; this should provide evidence of the candidate's suitability, past experience and knowledge of relevant boilers.
- D. The potential Assessor may be requested to attend an evaluation interview to demonstrate that they have the required knowledge and credibility to assess BOAS candidates; this interview will be undertaken a suitably experienced panel of CEA Officers and Members.
- E. It is at the discretion of the CEA to award the potential Assessor the right to assess candidates relating to any of the following categories:

Category 1 – Hot Water Boilers;  
 Category 2 – Conventional Shell and Tube Industrial Steam Boilers;  
 Category 3 – Water Tube Boilers;  
 Category 5 – Coil type steam generators  
 Category 7 – Thermal Fluid Systems.

Assessors required to assess Cat 4 (IBOAS) will already be approved to assess the relevant Category from the list above.

- F. The potential Assessor will be expected to contribute up to a total of 2 days per year towards the development of the BOAS scheme including contributing towards revising the syllabus, handbook and scheme governance, and to attend the regular Assessor CPD meetings.

- G. The CEA reserves the right to audit any Assessor in relation to BOAS, and to withdraw their approval as an Assessor.
- H. A BOAS Trainer may make an application for registration as an Assessor. Once licenced, any individual can train or assess any BOAS candidate providing they do not assess the candidates they train.
- I. Should the Assessor wish to use the BOAS logo it is a condition of use that the BOAS mark shall not be used without indicating that it is a certification mark.

## Appendix 1 – Candidate Application Form

	Candidate Registration # (CEA Office use)	<b>Application</b>  <b>Page 1 of 5</b>
---	--	--

### BOILER OPERATION ACCREDITATION SCHEME APPLICATION FORM


*Please read the accompanying notes before completing this form.*

*If you have any queries about this form or your evidence, contact your Training Provider for guidance.*

**PLEASE WRITE ANSWERS IN UNSHADED BOXES**

#### CANDIDATE'S PERSONAL DETAILS

Forename(s)		<p><b>Attach TWO Photos here.</b></p> <p><i>Please ensure that they are either glued or stapled such that the staples are not actually on the image.</i></p> <p><b>PLEASE PRINT YOUR NAME ON THE BACK OF BOTH PHOTOGRAPHS.</b></p> <p><i>Photos may be sent electronically to your Training Provider but the candidate's name must be clearly shown</i></p>
Surname		
Date of birth	D   D   M   M   Y   Y   Y   Y	
Home Address		
Postcode	A   B   1   2   3   C   D	
Telephone contact no.		
E-mail address		
Job title		
<p><i>Give a brief summary of your work with boilers.</i></p> <p><i>Describe your normal work on the boiler plant, and state any other relevant experience.</i></p> <p><i>If renewing your certificate, describe changes to the plant over the last 5 years.</i></p>		

		Candidate Registration # (CEA Office use)	<b>Application</b>  <b>Page 2 of 5</b>
Candidate Name			
<b>EMPLOYER DETAILS</b>			
Company name			
Address  Postcode			
Name of contact at employer			
Contact telephone			
Contact e-mail			

<b>BOAS APPLICATION CATEGORY</b>				
<b>CATEGORY OF PLANT APPLIED FOR</b>		<i>tick one</i>		<b>Renewal</b>
		<b>Operator</b>	<b>Manager</b>	<b>yes/no</b>
<b>Category 1 A</b>	<b>HTHW Hot Water Boilers &gt;110°C and subject to PSSR</b>			
<b>Category 1 B</b>	<b>LTHW Hot Water Boilers &lt;110°C and &gt;100kW</b>			
<b>Category 2</b>	<b>Shell-type Steam Boilers</b>			
<b>Category 3</b>	<b>Water tube Steam Boilers</b>			
<b>Category 5</b>	<b>Coil-type Steam Generators</b>			
<b>Category 7</b>	<b>Thermal Fluid Heaters</b>			
<b>Renewal – give existing cert no. and date of expiry</b>				

Data Protection Act. The CEA and BOAS Training Providers will hold your details in accordance with the GDPR and the Data Protection Act 2018. Data will be used for Training and Accreditation purposes as part of the scheme requirements. Information relating to Candidate identity and certification will be available to the public or any other parties with a legitimate interest. All documentation relating to BOAS candidates will be destroyed after the 6th year anniversary of their accreditation unless a candidate has renewed when details will be retained for a further 6 year period.

#### DECLARATION

- I understand that in making this application, should I give false or misleading information that, as a minimum, the CEA may withdraw or cancel BOAS ID cards and certificates.
- I confirm that I have the appropriate experience to be assessed immediately or upon completion of the BOAS training course.
- I consent to all personal information provided in this form to be used for the sole purpose of BOAS.

Candidate's signature		Date	
--------------------------	--	------	--

**This form must be brought to the assessment accompanied by the supporting documentation and evidence pack.**

**BOAS application - supporting documentation**

<b>Candidate Name</b>			
<b>General Safety – to be completed for all categories</b>			
<b>Is a remote alarm panel installed on or off site? If yes, state its location.</b>			
<b>Fire alarm call points at every plant room exit? (Y/N)</b>			
<b>Are e-stops for the boiler(s) located at entrances to the boiler house? (Y/N)</b>			
<b>Fuel emergency stop button location(s)</b>			
<b>First aid provision in the boiler house? (Y/N)</b>			
<b>Boiler house ventilation - natural or mechanical?</b>			
<b>Is an eyewash station or drench shower provided in the boiler house?</b>			
<b>General Boiler Details – to be completed for all categories</b>			
	<b>Boiler 1</b>	<b>Boiler 2</b>	<b>Boiler 3</b>
<b>Boiler make</b>			
<b>Pressure (bar g)</b>			
<b>Output (kg/h or kW)</b>			
<b>Date of manufacture</b>			
<b>Burner manufacturer / type</b>			
<b>Fuel(s)</b>			
<b>Burner control (e.g. on/off or modulating)</b>			

**Steam boilers only (categories 2, 3 and 5)**

<b>Candidate Name</b>			
<b>Water treatment type (e.g. softener + chemical injection, or de-alk / de-min)</b>			
<b>Function of treatment chemicals used</b>			
<b>Do you personally monitor and adjust the boiler water treatment? (Y/N). If not, who does this?</b>			
<b>Feedwater tank – Open tank or pressurised de-aerator?</b>			
<b>Normal temperature range of the feed tank or de-aerator (°C)</b>			
<b>Feed tank steam injection? (Y/N)</b>			
<b>Feed pump on/off or modulating?</b>			
<b>Blowdown vessel or pit?</b>			
<b>Blowdown Heat Recovery System installed? (Y/N)</b>			
	<b>Boiler 1</b>	<b>Boiler 2</b>	<b>Boiler 3</b>
<b>Level sensors: direct-mounted or external chambers?</b>			
<b>Type: float / electrode / other?</b>			
<b>Low levels – standard or high-integrity?</b>			
<b>High level alarm fitted? (Y/N)</b>			
<b>Bottom Blowdown - Manual or Auto?</b>			
<b>Auto TDS fitted? (Y/N)</b>			

**This form must be provided to your Training Provider in advance of the course starting, accompanied by the supporting documentation and evidence pack.**

	<b>Both Operator and Manager candidates</b>	CANDIDATE INITIALS	TP CHECK	ASSESSOR
1	APPLICATION FORM FULLY COMPLETED			
2	TWO PASSPORT SIZED PHOTOGRAPHS with name printed on reverse, or in a separate digital file			
3	PHOTOGRAPHIC EVIDENCE OF IDENTITY	<b>BRING TO ASSESSMENT</b>		
4	EVIDENCE OF HOME ADDRESS – separate document to that above	<b>BRING TO ASSESSMENT</b>		
5	PLANT DIAGRAM – hand drawn, from raw water inlet to steam (or hot water) outlet, including water treatment and condense return – must be candidate's own work to show an understanding of the plant.			
<b>Operators only - the records below must evidence the candidate carrying out his / her work – interventions and actions by the candidate to be highlighted and clearly identified. • All submitted records should ideally be countersigned/certified by the Boiler House Manager.</b>				
6	Records of functional tests of controls and limiters	<b>ANY THREE OF THESE</b>		
7	Records of water quality testing by the candidate			
8	Records of boiler house and equipment daily checks			
9	Records of procedures being followed e.g. cold start			
10	Records of response to alarms and actions taken			
11	Completed boiler house safety check			
12	Service report, commissioning record or maintenance report issued or completed by the candidate			
<b>Managers only - the records below must evidence the candidate carrying out his / her work</b>				
13	Records of functional tests / daily checks validated by the candidate	<b>ANY THREE OF THESE</b>		
14	Records of water quality testing validated by the candidate			
15	Procedures written by the candidate			
16	Records of the responses to alarm conditions validated by the candidate			
17	Boiler house safety check or audit carried out by the candidate			
18	Boiler house risk assessment examples with actions taken			
19	Evidence of compliance with relevant legislation			
<b>Operators and Managers</b>				
20	ALTERNATIVE DOCUMENTS offered as evidence			

**The evidence offered must demonstrate a minimum of 100 hours of work with the plant over a period of at least 6 months – signatures must be legible**





## **BOAS Evidence Pack Guidance for candidates**

### **Important Information – Please read before submitting your application.**

*The Boiler Operation Accreditation Scheme (BOAS) is intended to give Accreditation to persons who already have experience of boiler operation. CEA-approved BOAS courses are not intended to train persons with limited experience or those new to boiler plant. We recommend that before being assessed a candidate should have been operating boilers or managing boiler houses as part of their daily duties for a minimum period of 100 boiler operational hours over a period of at least six months, and all evidence must span at least this timescale. If you are inexperienced, the CEA-approved BOAS Training Providers will be able to offer a suitable foundation course which, in conjunction with instruction from the boiler manufacturer, will enable you to safely operate your boiler plant under the guidance of a competent and experienced colleague.*

*Should you feel that you have sufficient experience to not require training, we would still recommend that you undertake the BOAS course by way of ensuring that you are up-to-date with current legislation and recognised best working practices. Similarly, if you hold a formal boiler operating qualification which is more than five years old, the BOAS training course should be undertaken to ensure up-to-date knowledge. Without the recommended level of prior experience you are likely to find the BOAS training and assessment process excessively onerous and you are unlikely to pass the examinations and assessment at the first attempt.*

*The BOAS assessment process requires proficiency in both written and spoken English, and in particular familiarity with the English words for boiler specific terms and knowledge of UK legislation. Lack of proficiency in English may result in candidates not passing the assessment regardless of their technical capabilities and knowledge.*

***The document checklist must be used both for new applications and renewals. In the case of renewals the original certificate number and date of expiry must be stated on your application form. Renewal candidates whose qualification was gained before the BOAS qualification was awarded for either Operators or Managers should now choose the appropriate category.***

*If you do not have the recommended level of experience, it is important that you discuss this with the CEA before making an application. Please call the CEA on 01740 625538 and they will be able to suggest foundation courses available from CEA-approved Training Providers which are appropriate for your needs.*

*BOAS accreditation is personal to the candidate. The assessment is not a judgment of the candidate's particular site or the plant with which they work. It is to ensure that they are fully aware of how that site and plant should operate. However, if the Assessor uncovers an issue which is considered dangerous, unsafe, or potentially illegal the candidate should be informed, asked for their view on the matter, and give some reassurance that the matter will be raised to management level when the candidate returns to work. The CEA will write to the candidate's manager to inform them of the Assessor's findings.*

*If you are responsible for a number of sites (Boilermaker Service Engineer, Project Commissioning Engineer etc.) it is only necessary for you to complete the Evidence Pack in respect of one site (preferably the largest). Managers need to provide evidence of tasks they have personally supervised or organised. Applicants who manage boiler houses on behalf of clients where confidentiality is required (such as contract energy management and contract maintenance organisations) should provide copies of their service or maintenance records with the boiler/site owner's details blanked out.*

As part of the application AND renewal processes, the document checklist must be completed prior to attending the training course, to be made available for both the Training Provider and the independent Assessor for their review. Please provide the information that is relevant to your type of plant, the type of work you do, and the BOAS Category for which you are seeking Accreditation.

If the Assessor is not provided with sufficient documentation to demonstrate that your boiler plant is currently operated or managed in a safe manner the assessment may not be completed. You may, if you wish, bring additional material (such as company procedures that you have not provided in your evidence pack) to the assessment interview to show the Assessor.

Candidates are NOT expected to submit huge volumes of company procedures, manuals and drawings; the object of the evidence gathering exercise is for the Assessor to view a small but representative selection of the candidate's own work and gain an understanding of how they operate or manage their boilers. BOAS is awarded to the candidate, not their employer, so requires evidence of personal involvement, not reams of corporate paperwork.

**A maximum of 12 - 15 sheets of relevant evidence per candidate is required.** The Evidence Pack requires that you provide specific details of your boiler plant, as well as information on the distribution system and the process equipment as appropriate. This is required for three main reasons:

- Firstly, the exercise of gathering the information is part of the training process itself;
- Secondly, the information provided may enable the Training Provider to identify detail of your plant which warrants specific attention during the training process;
- Thirdly, it will enable the independent Assessor to understand and therefore discuss your own plant.

If you are responsible for a number of sites (Service Engineer, Commissioning Engineer, Boiler Inspector etc.) it is only necessary for you to complete the Evidence Pack in respect of one site you work on, preferably the largest.

It is recognised that not all sites may operate to the expected standards, and if any document is not available please put N/A in the tick box. You should, however, understand that by the time you are assessed you will be expected to discuss some of these with the Assessor. Training Providers will keep scanned copies of the evidence provided by each candidate for sending to the Assessor and subsequently filing with the Assessment report and exam results. All other evidence will be returned to the candidate for them to keep. All candidates, whether for Operator or Manager qualification and both for initial Accreditation and renewal, should provide copies (NOT ORIGINALS) of the relevant documents.

## **GUIDANCE FOR CANDIDATES – EVIDENCE REQUIREMENTS**

### **ALL candidates – mandatory evidence**

- **an employment summary**, on the application form or separately if necessary, a maximum of one page only, giving brief details of current and recent employers, roles, responsibilities, etc. specifically related to boiler operations;
- **a line diagram of their boiler plant**, hand drawn personally by the candidate is preferred, showing main plant items and pipework etc. from water 'in' to steam (or water) 'out' and including condensate return where relevant (example in the Handbook).

**Boiler Operators - Demonstrable Appropriate Previous Work Experience:**

Operators must provide sufficient copies of at least three of the documents or activity records listed below to demonstrate at least 6 months operational experience with their boilers and all records should be signed by the operator as being his own work:

- a. Records of functional tests of limiters & controls carried out by the Operator at all specified frequencies and in the specified manner;
- b. Records of the Operator carrying out the recommended water quality tests and routine water treatment activities, with records of making adjustments where necessary, signed by the Operator;
- c. Records of boiler house and equipment daily checks undertaken by and signed by the Operator;
- d. Written start-up procedure/shut-down procedure for boilers, with evidence of this being carried out by the Operator;
- e. Procedures for and records of the Operator responding to alarms and taking appropriate action;
- f. Completed boiler house safety check carried out by the Operator;
- g. Service report, commissioning record or maintenance report for work personally carried out on the boiler.

A comprehensive log book covering 6 months activities may well include sufficient information from the items listed above to demonstrate the candidate's experience in sufficient detail.

Cat 5, coil boiler operators, and Cat 7, Thermal Fluid systems operators, may not have all the required evidence listed above, so allowances will be made.

**Boiler House Managers - Demonstrable Appropriate Previous Work Experience:**

Managers must provide sufficient copies of at least three of the documents listed below to demonstrate at least 6 months operational experience in managing their boiler house:

- a. Records of functional tests of limiters & controls and daily boiler house and equipment checks carried out by their Operators and validated by the Manager;
- b. Records of their Operators carrying out the recommended water quality tests and routine water treatment activities, with records of making adjustments where necessary, validated by the Manager.
- c. Start-up procedure/shut-down procedure for boilers written by the Manager, with validated evidence of this being carried out by their Operators;
- d. Procedures for, and records of, their Operators responding to alarms and taking appropriate action, validated by the Manager;
- e. Completed boiler house safety check or audit carried out by the Manager;
- f. Boiler house risk assessments written by the Manager with actions taken;
- g. Evidence of compliance with environmental permits and relevant safety legislation such as PSSR or MCPD.

**ALL SIGNATURES AND INITIALS ON EVIDENCE DOCUMENTS MUST BE LEGIBLE**

**Evidence that DOES NOT MEET the requirements:**

We **do not** want, for example:

- evidence that **cannot be directly related** to the day-to-day work of the candidate;
- complete written scheme documents, operating manuals, installation records;
- detailed drawings of boiler pipework and fittings;
- copies of BG01, BG02, PSSR, PM5, Written Scheme of Examination, etc.;
- boiler makers and burner makers manuals;
- operating instructions, wiring diagrams, and other plant operating instructions;
- copies of candidates' training records and certificates.

**Process**

Training Providers will scan the relevant information and hand/send it to the Assessor for validation. The Assessor will advise if the evidence is sufficient or needs supplementing in some way. The candidate cannot be accredited for BOAS until all the evidence is complete and meets the Assessor's requirements. Candidates will take their original evidence away with them after scanning.

**Candidate identity**

BOAS certificates and ID cards are personal to the applicant and must be sent to home addresses. The CEA issue photo ID cards to successful BOAS candidates, so it is essential that the candidate's identity is proved by viewing two separate pieces of ID.

The identity of the Candidate will be checked by the Assessor. Formal identification of photo likeness will be by passport, driving licence or currently valid photographic identity card (such as a BOAS ID card).

Confirmation of the candidate's address will be by a different document to that listed above, including council tax demand or bank/utility bill (must be less than 6 months old), or driving licence if not used for photo ID.

Any queries regarding identity checks must be directed to the CEA for clarification.  
**DO NOT SEND ORIGINAL PASSPORTS AND LICENCES** in case they get mislaid.

**Candidate Photographs**

Please ensure that your photographs are glued or stapled such that the staples are not actually on the image. Digital photographs are acceptable but they must have the candidate's name showing.

**PLEASE PRINT YOUR NAME ON THE BACK OF ALL PHOTOGRAPHS.**  
The Assessor will verify the likeness of the photograph and candidate's signature.

**On site Assessment**

All candidates for Cat 3 will be assessed on site in the boiler house after they have successfully passed their examinations for their initial assessment. Renewals of Cat 3 may be taken 'off site'.

All other candidates will be assessed at the Training Provider's premises or at site where the training and examinations take place.

**Candidate evidence pack and supporting documents**

*The log sheets and records provided as evidence should be on company headed paper, **legibly signed** by the candidate and ideally counter-signed by their LINE MANAGER as being the candidate's own work; please tick to confirm that they are included with the application.*

*If you have any questions concerning evidence requirements please contact your chosen Training Provider in the first instance. Copies of electronically stored data that is printed out and countersigned by your supervisor or manager are acceptable.*

*Managers are expected to demonstrate that they are managing the installation, not necessarily doing all the tasks themselves but understanding what has to be done, have developed the necessary operational procedures for the installation, and showing they have checked the work of their staff and that it is in accordance with legal requirements, recognised best practice, and site procedures.*

*A comprehensive log book with chronological operator entries over 6 months that have been checked and countersigned by the Manager will usually contain sufficient evidence to meet the above requirements.*

*In exceptional circumstances where assessment of Cat 3 candidates from outside the UK cannot be undertaken on site, the candidate must provide additional details of their plant including detailed drawings of the pipework and main components, and photographs showing the layout of the plant and the main operational and safety items.*

*Please provide a list or sketch of the type of equipment that the boilers serve. This need not be an exhaustive list of all equipment, but should be sufficient for the Trainer and Assessor to understand what the steam or hot water is used for on your site and whether/how condensate is returned to the boiler house. If any of the listed equipment uses direct steam injection this should be mentioned.*

*Both Operator and Manager candidates must attach a sketch to show the layout of their boilers and how they connect to the various ancillaries such as the water treatment system, feed water tank, and blowdown system, and including condensate return where applicable.*

*If you have two or more boilers which are connected to provide a common steam supply to the plant, please also provide a drawing to show the layout of the manifold (header), including the positions of the steam inlets and outlets, as well as major valves and steam traps. These drawings are not expected to be precise CAD engineering drawings; it is **preferred that they be hand drawn** by the candidate which will demonstrate that they have a proper understanding of the layout of the boiler house.*

*In the case of Cat 3 candidates, due to the complexity of water tube boilers, it is preferable that a Piping and Instrumentation Diagram (PID) be provided, however please note that the Assessor will expect the candidate to demonstrate a proper knowledge of how the boiler operates.*





**CEA**

Combustion Engineering Association

Examples

**BOILER OPERATION ACCREDITATION SCHEME - CANDIDATE EVIDENCE PACK AND SUPPORTING DOCUMENTS**

Examples of the diagrams and log sheets that are required as follows – note these are NOT necessarily best practice or technically perfect but included here only as a guide:

Log Book the Weekly Evaporation Tests

1. Each boiler on-line to be tested for low water lock out by evaporation.
  2. Each boiler to be tested for a high level alarm.
- METHOD:** The isolation valve upstream of the boiler level control valve is to be closed and the boiler allowed to steam to:
- a) Low water alarm condition.
  - b) Low water lock out condition.

Day	Date	Boiler	Firing Rate	Low Level Test		High Level Test			Comments / Actions
				Low	Extra Low	High	High High	Slam Shut Valve Activation	
Monday	15/12/2012	CHP X4418	LOW	OPERATED	OPERATED	OPERATED	OPERATED	OPERATED	OPERATES CORRECTLY
Tuesday	16/12/2012	No. 1 F4421A	HIGH	OK	OK	OK	OK	OK	EXTRA LOWS OUT OF RANGE - LUBES BUT SHUT DOWN
Wednesday	17/12/2012	No. 2 F4421B	HIGH	OK	OK	OK	OK	OK	ALL ALARMS OPERATED
Thursday	18/12/2012	No. 3 F4421C	HIGH	OK	OK	OK	OK	OK	ALL ALARMS OPERATED
Friday	19/12/2012	No. 4 F4421D	HIGH	SPATIAL	SPATIAL	SPATIAL	SPATIAL	SPATIAL	SPATIAL ALARM OPERATED + RESET

	Monday	Tuesday	Wednesday	Thursday	Friday
Plant Operator	M. McQuinn, C. Foster, C. Foster, C. Foster, C. Foster				
Log Book Name	WEEKLY EVAPORATION TESTS / LOGBOOK				
Number	WEEK/EVAP/TESTS/LOG.15				
Page	Page 2 of 15				
Checked by Supervisor	Sign: D. Gent				
	Name: David Gent				
	Date: 5/1/13				



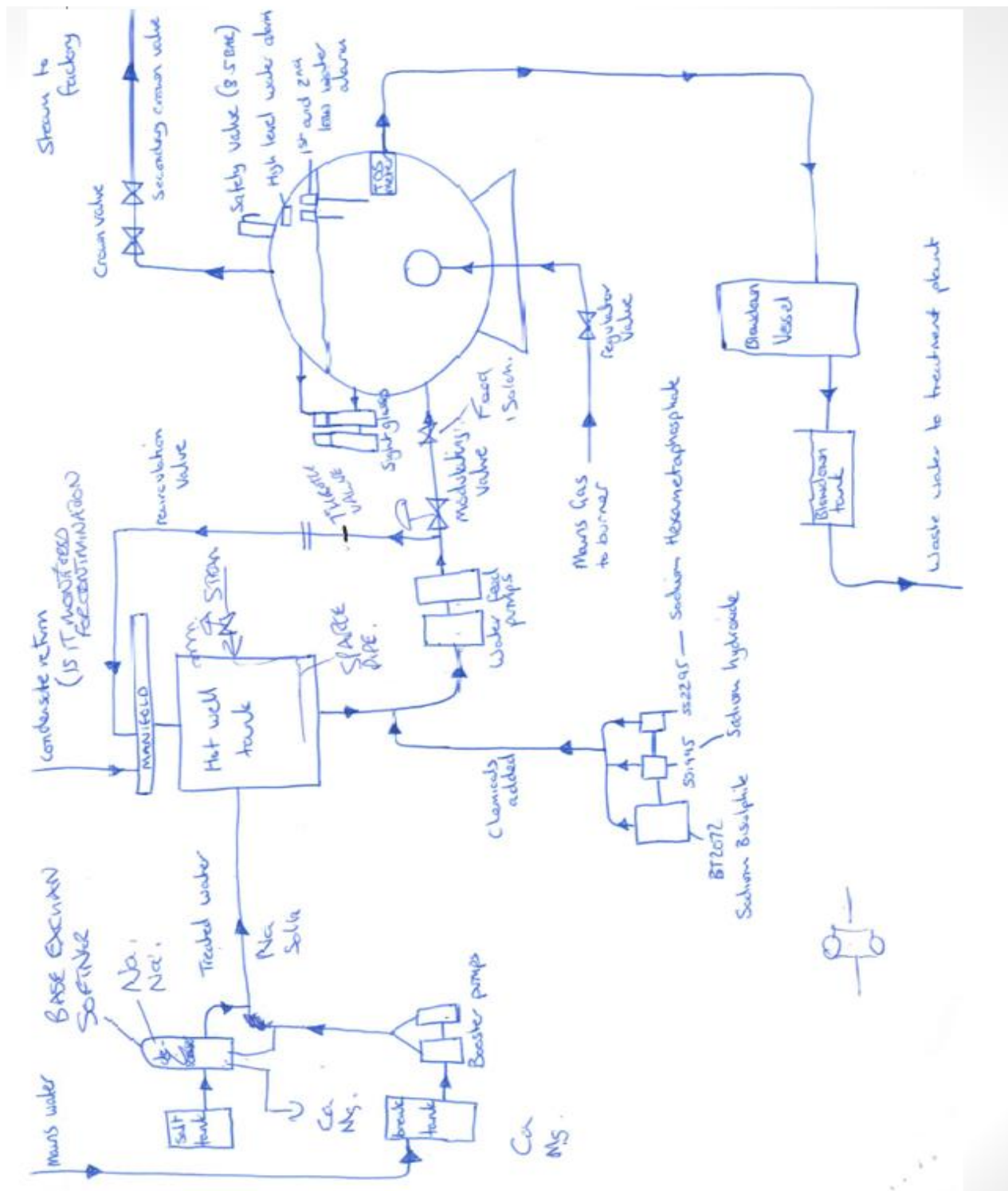
# CEA

Combustion Engineering Association

## Examples

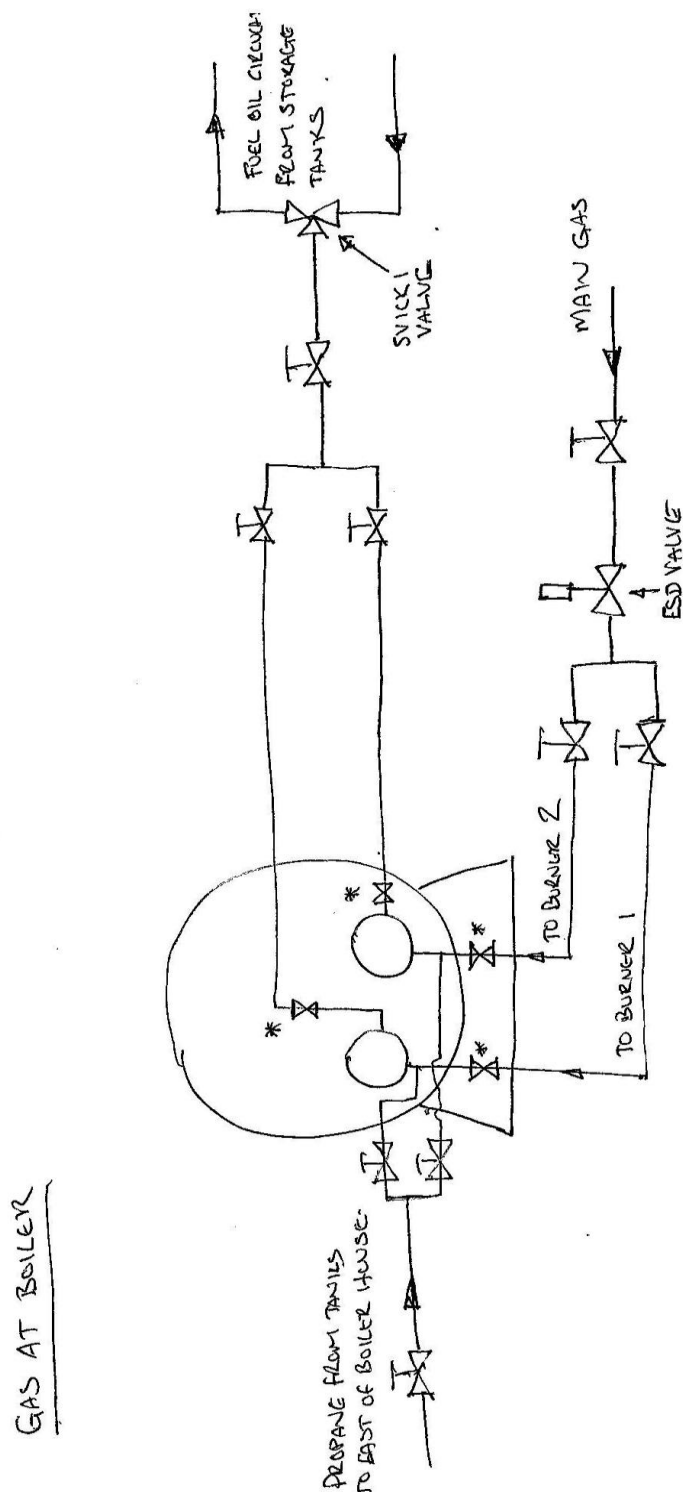
### BOILER OPERATION ACCREDITATION SCHEME - CANDIDATE EVIDENCE PACK AND SUPPORTING DOCUMENTS

Examples of the diagrams and log sheets that are required as follows – note these are NOT necessarily best practice or technically perfect but included here only as a guide:



**BOILER OPERATION ACCREDITATION SCHEME - CANDIDATE EVIDENCE PACK  
AND SUPPORTING DOCUMENTS**

Examples of the diagrams and log sheets that are required as follows – note these are NOT necessarily best practice or technically perfect but included here only as a guide:







# CEA

Combustion Engineering Association

## Examples

### BOILER OPERATION ACCREDITATION SCHEME - CANDIDATE EVIDENCE PACK AND SUPPORTING DOCUMENTS

Examples of the diagrams and log sheets that are required as follows – note these are NOT necessarily best practice or technically perfect but included here only as a guide:

#### SERVICE LOG SHEET



CALL NO	201047	106	CALL OUT	ENG NO	807358																																																																																																									
BOILER NO			ENG NAME <i>A. JACOBSON</i>																																																																																																											
BOILER TYPE			ON SITE SAFETY / HAZARDS CHECK																																																																																																											
SITE NAME			(a) Presence of Asbestos (Notify Service Manager)																																																																																																											
SITE ADDRESS			(b) Presence of Chemicals (COSHH) safe																																																																																																											
			(c) Safety Work at Height																																																																																																											
			(d) Safe access to and around boiler																																																																																																											
			(e) Adequate Ventilation																																																																																																											
			(f) Flue Conformity																																																																																																											
			(g) Water Switches																																																																																																											
			(h) PE Cell Flame Fail																																																																																																											
			(i) Mod Control																																																																																																											
			(j) Press/Temp Control																																																																																																											
			(k) Press/Temp Stat																																																																																																											
DATES	SITE HOURS	TRAVEL HOURS	MILEAGE	UTIL CODE	FAULT CODE																																																																																																									
4/6/13	5	3	164	QO																																																																																																										
5/6/13	5	3	164	QO																																																																																																										
6/5/13	2	3	164	QO																																																																																																										
<table border="1"> <tr> <td>WARRANTY RESPONSIBILITY</td> <td>WORKS</td> <td>SUPPLIER</td> <td>ENGINEERING</td> <td>CONTRACT</td> <td>SERVICE</td> <td>CUSTOMER</td> </tr> <tr> <td>CONTROL PANEL</td> <td>O/L</td> <td>FUSE AMPS</td> <td>CONTROL PANEL</td> <td>O/L</td> <td>FUSE AMPS</td> <td>BURNER</td> </tr> <tr> <td>Control C/C</td> <td></td> <td></td> <td>FW Pump Motor</td> <td></td> <td></td> <td>Fan</td> </tr> <tr> <td>Burner Motor</td> <td></td> <td></td> <td>PE Cell Microamps</td> <td>OK/NOT OK</td> <td></td> <td>Metering/Link</td> </tr> <tr> <td>FD Fan Motor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Air Nozzle/Vortex</td> </tr> <tr> <td>SETTINGS</td> <td>LOW</td> <td>MED</td> <td>HIGH</td> <td>SETTINGS</td> <td>LOW</td> <td>MED</td> </tr> <tr> <td>Cup/Atom Size</td> <td></td> <td></td> <td></td> <td>Inlet Gas Press</td> <td></td> <td></td> </tr> <tr> <td>Atom Oil Temp</td> <td></td> <td></td> <td></td> <td>Gas Gov Inlet</td> <td></td> <td></td> </tr> <tr> <td>Oil Atom/Spill Press</td> <td></td> <td></td> <td></td> <td>Gas Gov Outlet</td> <td></td> <td></td> </tr> <tr> <td>Burner Circ Press</td> <td></td> <td></td> <td></td> <td>Burner Spill Press</td> <td></td> <td></td> </tr> <tr> <td colspan="7">COMBUSTION ANALYSIS</td> </tr> <tr> <td colspan="7">O2 Exit (%)</td> </tr> <tr> <td colspan="7">CO2 Exit (%)</td> </tr> <tr> <td colspan="7">CO Exit (ppm)</td> </tr> <tr> <td colspan="7">Exhaust Gas (°C)</td> </tr> </table>						WARRANTY RESPONSIBILITY	WORKS	SUPPLIER	ENGINEERING	CONTRACT	SERVICE	CUSTOMER	CONTROL PANEL	O/L	FUSE AMPS	CONTROL PANEL	O/L	FUSE AMPS	BURNER	Control C/C			FW Pump Motor			Fan	Burner Motor			PE Cell Microamps	OK/NOT OK		Metering/Link	FD Fan Motor						Air Nozzle/Vortex	SETTINGS	LOW	MED	HIGH	SETTINGS	LOW	MED	Cup/Atom Size				Inlet Gas Press			Atom Oil Temp				Gas Gov Inlet			Oil Atom/Spill Press				Gas Gov Outlet			Burner Circ Press				Burner Spill Press			COMBUSTION ANALYSIS							O2 Exit (%)							CO2 Exit (%)							CO Exit (ppm)							Exhaust Gas (°C)						
WARRANTY RESPONSIBILITY	WORKS	SUPPLIER	ENGINEERING	CONTRACT	SERVICE	CUSTOMER																																																																																																								
CONTROL PANEL	O/L	FUSE AMPS	CONTROL PANEL	O/L	FUSE AMPS	BURNER																																																																																																								
Control C/C			FW Pump Motor			Fan																																																																																																								
Burner Motor			PE Cell Microamps	OK/NOT OK		Metering/Link																																																																																																								
FD Fan Motor						Air Nozzle/Vortex																																																																																																								
SETTINGS	LOW	MED	HIGH	SETTINGS	LOW	MED																																																																																																								
Cup/Atom Size				Inlet Gas Press																																																																																																										
Atom Oil Temp				Gas Gov Inlet																																																																																																										
Oil Atom/Spill Press				Gas Gov Outlet																																																																																																										
Burner Circ Press				Burner Spill Press																																																																																																										
COMBUSTION ANALYSIS																																																																																																														
O2 Exit (%)																																																																																																														
CO2 Exit (%)																																																																																																														
CO Exit (ppm)																																																																																																														
Exhaust Gas (°C)																																																																																																														
REPORT																																																																																																														
<i>ASSISTED WITH REBUILD OF BOILER.</i>																																																																																																														
<i>BOILER FIRED, WATER LEVELS, FLAME</i>																																																																																																														
<i>FAIL AND PRESSURE SWITCHES ETC ALL TESTED.</i>																																																																																																														
<i>SAFETY VALVE LIFTED AND BOILER PUT ON</i>																																																																																																														
<i>LINE. HIRE BOILER DE COMMISSIONED</i>																																																																																																														
<i>READY FOR TRANSPORT.</i>																																																																																																														

CLIENT NAME (Print)	<i>MA</i>	CLIENT ORD NO	
CLIENT NAME (Signature)		JOB COMPLETE	RETURN VISIT REQUIRED



## BOAS Candidate Assessment Report v9 – page 1 of 4

Candidate name									
Training Provider									
Assessment type (tick all that apply)									
Initial assessment				5 year renewal					
Previous BOAS Certificate no. for renewals									
Plant type								Operator	Manager
	Category 1A	HTHW Hot Water Boilers >110°C, PSSR							
	Category 1B	LTHW Hot Water Boilers <110°C, >100kW							
	Category 2	Shell type (Fire tube) Steam Boilers							
	Category 3	Water tube Steam Boilers							
	Category 5	Coil type steam generators							
	Category 7	Thermal Fluid Heaters							
Examination dates		Initial				Re-sit			
Revision		Version	Actual %	Post oral %	Pass	Version	Actual %	Post oral %	Pass
Paper 1 Operator					70%				70%
Paper 2 Operator					70%				70%
Paper 3 Operator					70%				70%
Paper 4 Manager					70%				70%
Paper 5 Operator Renewal					70%				70%
Paper 6 Manager Renewal					70%				70%

< 50% = re-sit; 50% - 70% - oral review of incorrect answers (oral review may lead to pass or re-sit); >70% = pass

### ASSESSOR COMMENTS ON EXAM SCORES

--

**ORAL EXAMINATION – REVIEW OF EXAM PAPER QUESTIONS - page 2 of 4**

**COMMENTS ARE ONLY REQUIRED FOR QUESTIONS THAT ARE REVIEWED IN THE ASSESSMENT**

[illegible]

Please continue on an additional sheet if necessary.

Oral examination duration	minutes
---------------------------	---------

<b>Candidate name:</b>				<b>page 3 of 4</b>
<b>COMMENTS ON EVIDENCE OFFERED BY THE CANDIDATE TO SUPPORT THE APPLICATION</b>				
<b>SUMMARY OF ASSESSMENT AND ANY MINOR DEFICIENCIES DISCUSSED</b> (continue on another sheet if required)				
Candidate's photo ID (record type of document only)				
Candidate's address (record type of document only)				
Candidate's signature verified		YES/NO	Evidence Complete	YES/NO
<b>Sign-off</b>	<b>Name</b>	<b>Date</b>	<b>Signature</b>	<b>Met/NOT met requirements</b>
<b>Initial Assessor</b>				<b>Met/NOT met</b>
<b>Deferred review Assessor</b>				<b>Met/NOT met</b>
<b>IF CANDIDATE HAS NOT MET REQUIREMENTS – PLAN FOR ACHIEVING CERTIFICATION</b>				
<b>Re-sit papers</b>	____, ____ , ____ , ____	<b>[within 90 days] by</b>		<b>date</b>
<b>Submit evidence or experience by</b>				<b>date</b>
<b>Be re-interviewed [within 6 months] by</b>				<b>date</b>
<b>Re-sit entire assessment</b>			<b>Complete a 'deferred assessment' report on page 4</b>	

**PART 4 - DEFERRED CANDIDATE INSTRUCTIONS FOR NEXT ASSESSMENT – page 4 of 4**

<b>Candidate name:</b>	
<b>DEFERRED CANDIDATE - ADDITIONAL EVIDENCE REQUIREMENTS &amp; TIMESCALE</b>	
<b>DEFERRED CANDIDATE - TOPICS TO BE COVERED IN RE-ASSESSMENT (WITH REASONS)</b>	
<b>DEFERRED CANDIDATE – ADDITIONAL INFORMATION</b>	

## BOAS Assessor's "course feedback" form v9.2 page 1 of 2

<b>Training Provider:</b>			
<b>Trainer name (1):</b>			
<b>Trainer name (2):</b>			
<b>Trainer name (3):</b>			
<b>Operators/Managers</b>		<b>Category</b>	
<b>Course dates:</b>			
<b>Course location:</b>			
<b>Assessor name:</b>			
<b>Code of exam papers used</b>		<b>No of candidates</b>	

### GUIDANCE NOTES

The boxes provided are for recording of observations. One form per course is sufficient. Assessors are not required to investigate or assess TPs or trainers. This form is to be **returned directly to the CEA** on completion of each course.

Where Candidate Performance for each paper is mentioned, the objective is to identify if there are common knowledge gaps evident in answers to questions on general or specific topic areas etc. It is feedback on the observed outcome of training rather than the training per-se. Issues with clarity and accuracy of questions should also be highlighted.

### FEEDBACK

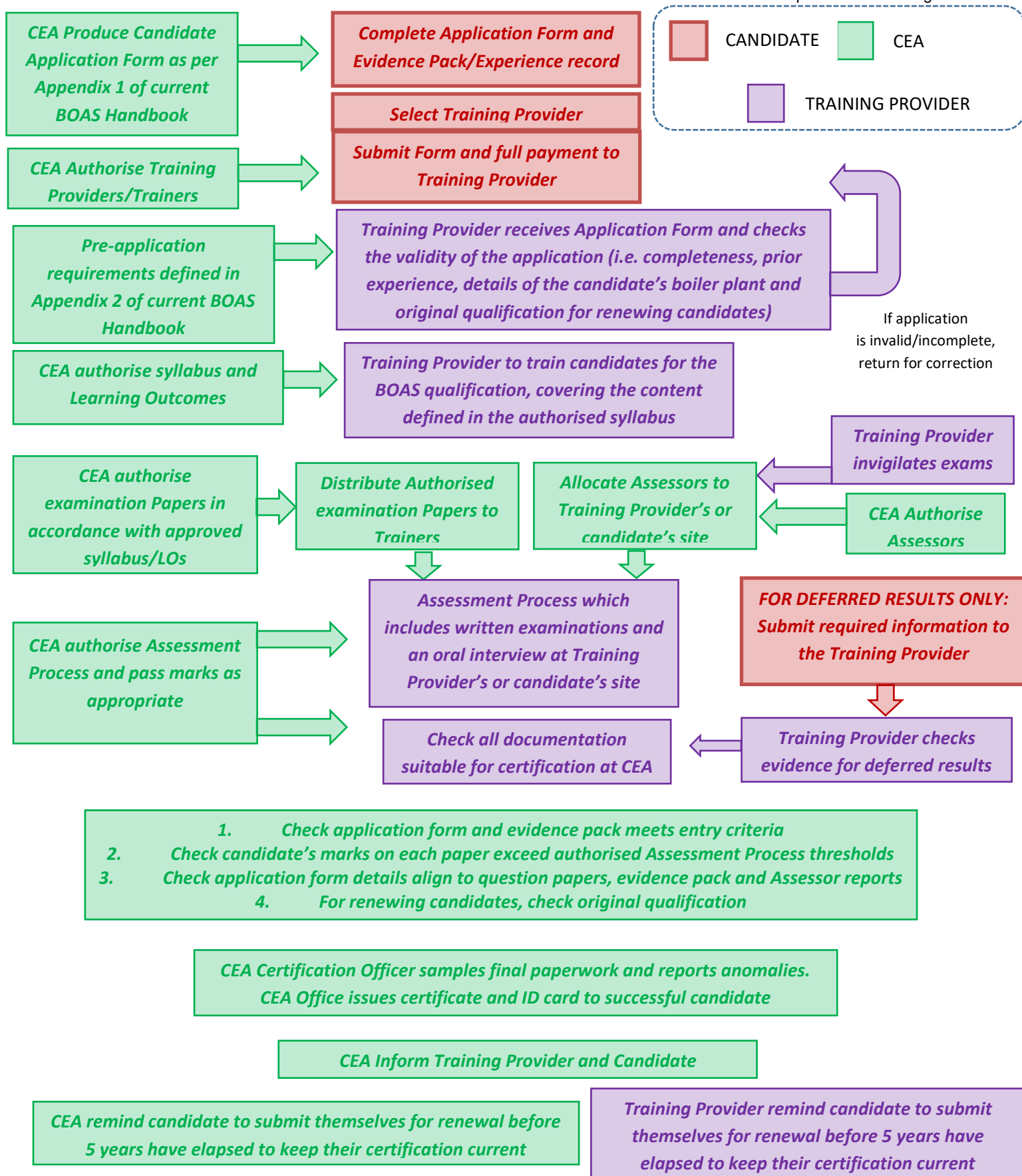
Aspect	Comments
Facilities:	
Were these such as to enable robust assessments of the candidates?	
Was there anything that might compromise the integrity of the assessment process?	

Aspect		Comments
Candidate Performance:		Page 2 of 2
Paper		
Paper		
Paper		
Paper		
Paper		
Paper		
Paper		
General Comments		



## Appendix 4 – Accountability flow chart

The BOAS training scheme comprises of four distinct stages which include the application process, training, assessment and certification. This flow chart outlines who is accountable for the different steps within each stage.



## **Appendix 5 – Partner Protocols**

The delivery of the BOAS scheme is by a partnership between the CEA, Assessors, and Training Providers/Trainers.

This Appendix defines the Protocols under which each partner operates with regards to the scheme and sets out the areas of responsibility and the processes to be followed by each of them.

### **5.1 - CEA Protocol**

#### **5.1.1 CEA Responsibilities**

The CEA owns the scheme and training syllabuses and Learning Outcomes that it creates, and all certificates and ID cards issued in relation to successful completion of the assessment procedure.

The CEA is responsible, in conjunction with its Partners, for devising appropriate Learning Outcomes and issuing these to the Training providers. The CEA is responsible, in conjunction with its Partners, for approving Examination Papers for use on relevant assessments.

The CEA is responsible for the final decision on issuing certificates. They make this decision based on the information pack submitted to the CEA Certification Officer.

The CEA is responsible for the selection, approval and ongoing monitoring and auditing of Training Providers, Trainers and Assessors.

#### **5.1.2 CEA Processes**

##### **1 Training Syllabus and Learning Outcomes**

The training syllabuses and Learning Outcomes for the scheme are defined by the CEA in consultation with its delivery partners, the scheme Assessors and the Training Providers/Trainers.

The syllabuses are based around industry recognised standards, HSE and other publications, ACoPs etc.

##### **2 Training**

The CEA will approve training materials produced by Training Providers to ensure courses are based on the content of the syllabuses and Learning Outcomes.

The CEA will interview potential Training Providers and keep records of all new Training Providers appointed and changes to scope of existing Training Providers.

The CEA will periodically audit the provision of Training Courses and the performance of Trainers and Training Providers. 'Yellow cards' may be issued as a reminder to Training Providers who routinely do not follow the scheme requirements or consistently report low KPI scores.

##### **3 Assessors**

The CEA may request to interview potential Assessors.

The CEA may periodically audit the performance of Assessors.

##### **4 Certification**

The CEA and the Certification Officer make the final decision on the certification of all candidates with respect to satisfactory completion of the BOAS assessment process.

Their decisions are based on a candidate's certification information pack which is supplied to the CEA by the Training Provider immediately following the assessment.

## **5.2 - Assessment Body's Protocol**

### **5.2.1 Assessment Body Responsibilities**

The CEA currently acts as the Assessment Body for the delivery of the scheme and to provide technical input to the operation of the scheme.

The CEA records all candidates and information related to them including their performance during the assessment process and any supporting documentation which they submit.

The CEA collates the assessment findings for each candidate for the Certification process.

The CEA interviews Assessors and makes Assessor appointments subject to the final approval of the CEA which shall not be unreasonably withheld. The CEA remunerates the Assessors in accordance with agreed and published rates.

### **5.2.2 Assessment Body Processes**

1. Receive notification from Training Providers/Trainers of courses that are arranged, the number of candidates that the course is planned to accommodate.
2. Engage an appropriate number of Assessors for examination of candidates for each course of which they correctly are notified.
3. Inform Training Providers/Trainers/Assessors of the appropriate examination papers to be used for each course.
4. Receive Assessment reports and Assessment fees from Training provider.
5. Verify content and in particular confirm that exam results have been correctly entered.
6. Submit a candidate information pack to CEA. This comprises:
  - Application form with photograph;
  - Results summary sheet – for notification of candidates.

**NOTE: Assessments will not be processed (including internal verification) by the CEA and the Certification Officer until the relevant fees for Assessment and CEA Administration have been received from the Training Provider.**

7. Provide Candidates with the Assessor's recommendation, noting that this is subject to final approval by the CEA and that Candidates are not permitted to adopt the relevant designations until they have received the necessary notification from the CEA Certification Officer.

## **5.3 - Training Provider / Trainer's Protocol**

### **5.3.1 Training Provider Requirements**

- A. Plan courses and notify the CEA well in advance of the number of candidates that are expected to undertake each course at the start of each course, using the form provided for that purpose.
- B. Collect all the required information and fees from the candidates in advance of the course starting, and record the receipt of candidate evidence and other supporting information on the form provided for that purpose.
- C. Within each course, deliver training which covers the full content of the relevant syllabus and Learning Outcomes and addresses the specific needs of the candidates.
- D. Adhere to all guidance and directions from the CEA including but not limited to the use of the set of examination papers identified for each course.

E. Submit all required information to the Assessment Body.

### 5.3.2 Training Provider Processes

1. Arrange course including identification of dates, location(s) and number of candidates.
2. To facilitate the engagement of the required number of assessors of the appropriate qualification, at least 1 month prior to the course, inform the CEA of the number of candidates and the categories and grades for which each is seeking certification. Agreed Assessor appointments that are cancelled with less than 14 days' notice shall be fully chargeable to the Training Provider.

**NOTE: Training Providers/Trainers are not permitted to select Assessors for their courses. Only assessments made by Assessors engaged by the CEA will be accepted for verification and submission for certification.**

- 3 Collect all required candidate information and fees, and promptly pass to the CEA the Assessment fees collected by the Training Provider from each candidate.
- 4 Execute training as planned. Training courses for multiple categories and mixed Operator and Manager candidates are strongly discouraged since the material is appreciably different and course lengths may become unacceptable.
- 5 Invigilate all written examinations. Training Providers are to ensure that candidates do not have the opportunity to share examination questions amongst themselves during the examinations; this particularly applies if the examinations are carried out at different times for different groups of candidates for administrative reasons, and every effort must be made to segregate candidates in these situations. Assessors are tasked with observing the examination process to ensure the integrity of the BOAS scheme.  
It may be necessary to inform the Candidate that the examination papers are not a test of English grammar or spelling: the ultimate purpose is to assess an Operator's ability to work safely with a boiler.
- 6 Submit Candidate assessment reports, application forms, evidence packs AND fees to the CEA.
7. Promptly pay the CEA invoice for their Administration and Certification fees.

### **5.4 - Assessor's Protocol**

*NOTE: Nothing stated within this Protocol may be taken in and of itself to imply any Assessors eligibility for reimbursement with respect to fulfilling a CEA requirement such as submitting to internal or external verification actions.*

#### 5.4.1 Assessor Appointment

Appointment and revocation of appointment of Assessors is at the discretion of the CEA.

Any individual who wishes to be registered with the CEA as an Assessor of BOAS candidates must:

- be approved by the CEA, and
- be or become a CEA member (either as an individual or on a corporate basis), and
- meet the requirements (A to D) set out below.

A. Provide evidence of their suitability, past experience and knowledge of boilers and steam raising plant. This must be in the form of a CV and will be reviewed by the CEA.

B. Pass an evaluation interview to demonstrate they have the required knowledge and credibility to be able to assess effectively BOAS Accreditation candidates in the appropriate BOAS Categories.

The interview panel will also assess the potential Assessor's temperamental suitability for the role and in particular their aptitude for engagement with Candidates. Successful attendance at a training course for Assessor Skills would be a distinct advantage.

If the potential Assessor cannot demonstrate at interview the **breadth and depth of knowledge** necessary to pass the interview they may present themselves for a repeat assessment within 6 months of their first interview.

C. Be willing to commit to contributing 1 day per year towards the development of the BOAS scheme including to the syllabus, handbook and its governance.

D. Be willing to accept the terms of engagement as a BOAS Assessor which include:

- i. The prohibition of Assessors from assessing candidates that they have trained (should they also be registered as a BOAS Trainer).
- ii. The prohibition of Assessors carrying out internal verification of their own work.
- iii. The possibility of unannounced assessment by the CEA or one of their appointees (including CEA officers) of the quality and consistency of their assessments.
- iv. Making themselves available for discussion with the internal verifier and/or the CEA external auditor as required.
- v. Adherence to all guidance and requirements defined by the CEA as and when provided and in particular with regards to the quality control of the qualification(s).
- vi. Committing to continue to develop their knowledge and skills relative to their Assessor role.
- vii. Maintaining confidentiality for sensitive information.
- viii. The right reserved by the CEA to revoke Assessor registration at their sole discretion.

*NOTE: The annual Assessor meeting held by the CEA provides a forum for discussion of any issues identified by Assessors. It is a useful opportunity for Assessors to check that they are up to date with guidance and other matters relating to the scheme, and attendance is highly recommended.*

#### 5.4.2 Assessor Responsibilities

A. Adhere to all assessment guidance provided by the CEA.

B. Make each and every candidate aware of the Assessor's role and responsibility in the collection and presentation of evidence within the BOAS assessment process.

C. Assess the validity, authenticity, currency and sufficiency of evidence produced by candidates to demonstrate that they have acquired the required minimum level of experience as set out in the BOAS requirements, and check the candidate's identity (photo and signature) against two separate pieces of documentation.

D. Assess candidates solely on the basis of the knowledge, understanding, skills and experience demonstrated; by the information submitted with their application, and by their performance within the written and oral examination process (including any observation of a candidates' performance in real or simulated conditions and/or conducting other forms of assessment in accordance with the requirements of the assessor).

E. Ensure health, safety and environmental protection procedures are applied during the assessment process including:

- i. familiarity with the site safety procedures at all assessment locations including procedures to summon emergency help;
- ii. familiarity with the location and operation of emergency isolation controls in the assessment area;
- iii. prevention of candidates from undertaking any assessment activity in a manner that is likely to endanger themselves or others which may include terminating the assessment.

F. Recording all questions used in the oral examination and answers given such as to provide evidence of the candidate's performance relative to the BOAS requirements. This also includes provision of a summary of each candidate's performance in the oral examination in the assessment report which will be used by the CEA and the Certification Officer in making his certification decision.

G. Making an overall assessment of each candidate's performance against the BOAS requirements checking that they have demonstrated the necessary knowledge. Note that the BOAS assessment process requires proficiency in both written and spoken English, and in particular familiarity with the English words for boiler specific terms and

knowledge of UK legislation. Lack of proficiency in English may result in candidates failing the assessment regardless of their technical capabilities and knowledge.

H. Agreeing new assessment plans with candidates and their Training Provider where further evidence or experience is required.

I. Providing a brief report on the administration of the training and examination process at the training location.

J. Assisting in the training of new assessors including confirming and countersigning the assessment decisions made by new assessors and assessors who are working towards being accepted into an assessor role.

### 5.4.3 Assessor Processes

#### A. Preparation

Prior to the assessment interview, the Assessor must review:

1. The candidate's Application Form and two separate forms of ID;
2. The supporting documents as required for the category of the application
3. Examination Papers relevant to the category and class (O or M, initial or renewal) of the candidate;

Based on this review the Assessor will identify areas of potential weakness in the candidate's knowledge and understanding. They will also identify any knowledge areas that were not fully tested in the written examinations, for example some of the correct answers given to multiple-choice questions could have resulted from a guess. Equally, in order to evaluate the candidate's complete understanding of an issue it is appropriate to ask them to explain some of their "correct" answers.

The review may identify responses from candidates that indicate that the recognised best practice is not being followed in their workplace. The existence of such discrepancies should not be assumed by the Assessor as in itself evidence of lack of knowledge on the part of the candidate. The Assessor should probe such instances to determine whether the candidate is aware of such discrepancies and understands their significance.

NOTE: Instances of such discrepancies in practice provide learning opportunities for candidates and help to promote awareness and adoption of better working practices for their organisations.

Where candidates have not been able to produce the full set of supporting information and documents for their Evidence Pack the Assessor will identify what areas of information are missing with a view to investigating their awareness of them including of what ought to be implemented at their workplace. The Assessor shall not pass the candidate if the Evidence Pack is incomplete, but report on the deficiencies and advise the Training Provider that they need to be corrected before accreditation can be given.

Overall this review provides the basis for questions to be asked during the oral examination of the candidate.

#### B. Oral Examination of candidates

The purpose of the interview to determine whether the candidate has sufficient knowledge of the subjects covered by the BOAS syllabus to enable them to operate or manage a boiler plant of the category for which they are seeking Accreditation in a manner which is:

- consistent with recommended safe practice;
- efficient;
- in accordance with sound operating practices.

It is anticipated that the interview will typically last between 30 and 60 minutes, but additional time should be made available to those candidates who are having difficulty with the examination and/or interview process. The BOAS assessment process requires proficiency in both written and spoken English, and in particular familiarity with the English words for boiler specific terms and knowledge of UK legislation. Lack of proficiency in English may result in candidates failing the assessment regardless of their technical capabilities and knowledge – the Assessor must be able to understand the responses to his questions.

1. The Assessor will conduct all interviews in a manner that will place the candidate at ease.
2. The Assessor will base the interview around the areas identified during the preparation stage but depending on how the interview develops they will not consider themselves confined to such topics.
- 3 The Assessor will present questions of sufficient complexity to appropriately test the candidate's relevant knowledge and understanding.
- 4 The Assessor will avoid intimidating, confusing or tricking the candidate. Such actions would hinder the fair and accurate assessment of the Candidate's knowledge and understanding.
- 5 The Assessor will not seek to assess and pass judgement on the site or the plant where a candidate carried out boiler operation or boiler management functions. The assessment is of the candidate and their knowledge, not the way their employer wishes to operate or manage their installations.

**NOTE:** If the Assessor identifies an issue which they consider is or may be hazardous and/or illegal they must inform the candidate. If necessary it should be emphasised to the candidate that reporting of such situations to his company management is required. The Assessor will record any such issues which will be submitted to the CEA with the Assessment report.

### C. Assessment Report for candidates

The Assessment report must include:

- the questions put to the candidate
- the responses given by the Candidate
- a summary of the key points of the interview
- the assessment of whether the Candidate has passed or not passed the Oral Examination part of the BOAS assessment (in arriving at this judgement the Assessor will consider in particular whether the candidate has demonstrated the level of knowledge and understanding required in the areas of the syllabus covered by written examination papers)
- any general comments.

- 1 The Assessor will complete each candidate's Assessment based on information in their application documents, their written examinations and the oral examination.
- 2 The Assessor will identify which elements the candidate has passed and which they have not passed.
- 3 The Assessor will determine whether the candidate has sufficient validated boiler operation experience to meet the scheme requirements.
- 4 The Assessor will determine the overall status of the candidate with regards to the assessment process and record this as:
  - PASS – Candidate passed ALL elements including the experience requirement;
  - DEFERRED DECISION – NOT YET COMPETENT - Candidate has not passed one or more of the examination elements or Candidate passed ALL examination elements BUT could not provide evidence of sufficient validated boiler operations experience in the relevant category of boiler plant.

### **NOTE: Deferral process**

If the Assessor determines that the candidate has not yet demonstrated sufficient validated experience the Assessor must defer their decision. This is should be an exceptional occurrence and only permitted where the Assessor is convinced that the Candidate can gain the necessary validated experience within a period of no more than 6 months. In such cases the Assessor must:

- i. record the reason for a DEFERRED DECISION in the report form, and
- ii agree a plan to address the shortfall in verified boiler operations experience – the requirements remain as for a candidate presenting such evidence with their application and evidence presented.
- iii send a copy of the Candidate report form to the Training Provider to inform them of the items that candidate needs to complete.

If a candidate submits validated experience records within six months, these must be reviewed by an Assessor and the Assessment Report revised, signed and re-issued.

- 5 The Assessor passes the Assessment Report to the Training Provider and they send it to the CEA for verification.



NOTE: Should the Assessor identify recommendations for a candidate for example with regards to operation of the plant they operate, the Assessor must communicate this to the candidate either:

- directly during their interactions, OR,
- via the Training Provider.

They must make it clear to the candidate that such communications form no part of the Assessment process. The Assessor should exercise caution in making recommendations with regards to any plant that they have not seen personally. No recommendations by Assessors can be considered to be under the aegis of the CEA or its partners in the operation of the BOAS scheme.

#### D Assessment Report for Training Provider/Trainer

The Assessor will provide a short Assessment of the course provided based on their interactions with the candidates, using the form provided. This should give a balanced view including both identification of good and less good practice, facilities, exam questions etc. based on the effectiveness of the training observed during oral assessments, not actual observations of the training course itself.

The assessor is responsible for observing that the arrangements made by Training Providers for candidates to take examinations will ensure the integrity of the BOAS scheme.

## **Appendix 6 – International BOAS – Accreditation for candidates in non-UK jurisdictions**

### 6.1 Introduction

BOAS has been designed based on legislation, regulations and practices applicable with in the UK and is recognised by the UK Health & Safety Executive and other UK engineering bodies as an appropriate training and accreditation scheme for safe operation and management of steam and hot water boilers (see BG01 Section 6). Candidates from other jurisdictions may find significant differences between the requirements for BOAS and those with which they are familiar, primarily due to different legislative requirements.

The CEA is, however, very keen to promote and encourage the best possible training and development of steam and hot water boiler operators and managers wherever they may be in the world, and the International BOAS (IBOAS) Accreditation is promoted as a means for those operators and managers in other countries to benefit from the high standards that BOAS aims to achieve. All BOAS partners must ensure that the scope of IBOAS is clearly specified to the customer so that they fully understand what they are getting, and then make sure that that is what is delivered to them.

In order to allow for the differences that exist in the way that engineering standards are drafted and legislation is made in other countries, IBOAS is not focussed on the specific legal requirements that are in force in any one country.

It does, however, still require the candidate to demonstrate:

- Technical knowledge and experience in operating or managing boilers;
- Documentary evidence of the boilers and other plant being operated safely by the candidate (drawings, log sheets, work instructions etc.);
- Knowledge of fuels, combustion, basic thermodynamics, water quality and all other elements in the Learning Outcomes (see App 3, 4 & 5);
- An understanding of the principles of BG01, particularly sections 7 & 8;
- Ability to answer examination questions (but see 10.3 below for rules relating to candidates for whom English is not their first language);
- Ability to discuss with an Assessor the detailed operation of their plant and answer the Assessor's specific questions.

Candidates who are successful in the IBOAS examinations and who satisfy the Assessor that they fully understand the safe and efficient operation or management of their boilers or boiler house will be eligible for the award of IBOAS Operator or IBOAS Manager as appropriate.

Note, however, that IBOAS and BOAS awarded in the UK are not interchangeable; this is primarily due to the exclusion in IBOAS of UK specific Learning Outcomes and examination questions relating to UK Health & Safety and environmental law. Future iterations of IBOAS may be delivered and awarded with specific reference to the laws applicable in one specific jurisdiction.

The BOAS training syllabuses, assessment processes and accreditation procedures are all copyright of the Combustion Engineering Association and all applications for Training Provider or Trainer status, Assessor status or any other use of the BOAS material or logo must be made to the Director of the CEA. All matters relating to the provision and use of the BOAS material and processes are covered by English Law.

## 6.2 – Processes

IBOAS will be assessed as Cat 4 and administered as closely as possible to BOAS, with the following adjustments and exceptions. All other parts of the current edition of the BOAS Handbook shall be followed in full.

### 6.2.1 Applications

Training Providers must establish the level of understanding of English amongst proposed candidates as early as possible. Some candidates may be able to provide some form of evidence of skills in English language. Translators may be required (see 10.3.1 below).

Early discussions with the candidates or their line management should establish the level of training likely to be required since it may not initially be clear that IBOAS is a high level of qualification that can be onerous for competent UK personnel, let alone candidates who have a lesser command of written or spoken English and are working to different rules and on different fuels, systems etc.

Training providers must take care to ensure that applications from overseas candidates adhere as closely as possible to the requirements of the BOAS application form. Names, addresses and other personal details must be clearly stated to avoid any later confusion. A form of local unique identifier should be obtained e.g. from residency or work permits, or from passports.

Comprehensive Evidence Packs must be strongly encouraged, since this may be a key part of the Assessor's understanding of the installation and the way it is designed to operate.

### 6.2.2 Training

Training Providers will manage their own affairs in respect of course length and other administrative details, but the whole syllabus must be covered for the relevant Category with the exception of details that directly relate to UK legislation (although the concepts of such things as boiler design/fabrication standards and regular pressure vessel inspections may well be common and are certainly valid for discussion).

Practical exercises on appropriate boiler installations must still be provided.

BG01 is the main reference document, primarily sections 7 & 8, and Training Providers may consider including this in their training material handouts. However, IBOAS remains a 'closed book' examination process.

It is highly recommended that additional time is taken during the training course to thoroughly explain the whole examination and assessment process to all the candidates so that they approach the exams and assessment with a full understanding of what is expected of them.

### 6.2.3 Examinations and marking

The examinations for IBOAS will follow the same format as for BOAS but the following additional rules apply:

- Papers will have any questions that refer directly to UK laws (PSSR, HASAW etc.) removed or changed and the papers will have additional relevant questions added to retain a similar level of challenge for the candidate. This can be done by the CEA deleting the questions and adjusting the marking schedule to suit before the papers are sent to the Trainer for the course, or by substituting unsuitable questions.
- The papers will be marked in the same way as for BOAS; the pass marks for IBOAS examinations remain as for BOAS.

<b>IBOAS Paper</b>	<b>Topic</b>	<b>Examination Format</b>	<b>Pass Mark</b>	<b>Breakdown of Marks</b>
<b>1</b>	<i>Health and Safety - Legislation and Best Practice</i>	<i>Multi-choice</i>	<i>100%</i>	<i>Min. 80% marks plus 20% awarded at the Assessor's discretion.</i>
<b>2A</b>	<i>Boiler Room Equipment and Boiler <b>Operation</b></i>	<i>Multi-choice and descriptive</i>	<i>80%</i>	<i>Min. 70% marks plus 10% awarded at the Assessor's discretion.</i>
<b>2B</b>	<i>Boiler House <b>Management</b></i>	<i>Multi-choice and descriptive</i>	<i>80%</i>	<i>Min. 70% marks plus 10% awarded at the Assessor's discretion.</i>
<b>3</b>	<i>Principles of Combustion, Heat and Heat Transfer</i>	<i>Multi-choice and descriptive</i>	<i>70%</i>	<i>Min. 50% marks on each paper and average over 70% for both papers added together</i>
<b>4</b>	<i>Boiler Efficiency and Environment</i>	<i>Multi-choice and descriptive</i>	<i>70%</i>	

- 4 papers (as appropriate) will be taken by all candidates. It is suggested that the Assessor might choose to mark all 4 papers before the Assessment in order to gain a full appreciation of the candidate's performance prior to the interview.
- Additional time may be allowed for non-English speakers to complete the papers (see 10.3 below).

### 6.2.4 Assessment

The Assessor is to closely follow the proposed examination marking scheme above, but should take extra time where necessary to properly establish the candidate's knowledge and try to raise the examination marks if appropriate and necessary.

The Assessor may use his discretion as to the length of the assessment interview, but it may be necessary to allow up to twice the usual time in some cases.

All discretionary decisions for each candidate shall be documented on the Assessor's report.

### 6.2.5 Certification

IBOAS is designated Cat 4 to avoid any misunderstanding with UK based BOAS qualifications. The CEA Certification Officer shall take into account the additional or changed requirements of this appendix when checking IBOAS accreditations for final approval, and recognise the Assessor may need to make certain allowances which will be documented in his report on each candidate.

CEA will issue IBOAS Cat 4 certificates and ID cards to all successful IBOAS candidates and keep a separate register.

## Version Control

### Main changes from v8 to v9

*Reference to BG02 added throughout where relevant*  
*Minor typos and corrections throughout*

*1.1.1 - Add Cat 7 – Thermal fluid heating systems, and make associated changes throughout*  
*1.2.9 – Add “BOAS is also available to appropriately experienced service engineers etc.”*  
*2.1.1 – electronic photo ID acceptable*

*3.3.6 and 6.1 - Mock exams to be official issue or pre-approved by Assessment Body*  
*4.5 – section added from old App 10 – candidates with limited English language skills*  
*4.6.6 – renewing candidates to provide the same evidence as for initial assessment*

*5.2 – Complaints and appeals procedure revised and updated.*

*Appendix 1 and Appendix 2 – remove need for organisation chart for all applicants*  
*Change CV to ‘employment summary relevant to boilers’*

*App 1 – revised Application forms provided*  
*App 4 – revised Assessor report form provided*

*Appendices 3, 4, 5, 9 & 12 covering Learning Outcomes and syllabus moved to a new document TG02. Other appendices re-numbered to suit*

### Main changes from v9.1 to v 9.2

*References to Assessment Body changed – now the responsibility of the CEA*  
*Minor changes to forms and text revisions as necessary throughout document.*  
*4.1.1 and elsewhere – option to carry out on line assessments*  
*‘Registration’ changed to ‘Certification’ throughout*

*Reminder that passports, Driving Licences and other personal documents must not be released or circulated in any way but should be taken by the candidate to the assessment for the Assessor to check.*

***This document is copyright © 2020 of the Combustion Engineering Association  
and unauthorised reproduction is strictly prohibited;  
the CEA will seek to recover all losses.  
All rights reserved***

***Document reference CEA TG01 version 9.2***



***Combustion Engineering Association  
NET Park, Thomas Wright Way  
Sedgefield  
Co. Durham TS21 3FD***

***Tel: 01740 625538 - Fax: 01740 625251  
Email: [info@cea.org.uk](mailto:info@cea.org.uk)***