

Scheme for Certification of Design (Building Structures)

*The Institution
of Structural
Engineers*



ice
Institution of Civil Engineers

**Scheme for Certification of Design
(Building Structures)**

**Procedures for Auditing the Activities of
Approved Bodies and Approved Certifiers**

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Amendment Record

Current Version	Approved for issue	Comments
February 2008	General release	Incorporates further minor amendments.
November 2011	General release	Incorporates further amendments and additions

1.0 Aims and Objectives of the Audit Programme

The Audit programme has been established by Structural Engineers Registration Ltd. (SER) in order to audit the manner in which, Approved Bodies and Approved Certifiers, who have been accepted as members of the scheme, undertake their duties and discharge their responsibilities. Audits will be conducted for the following purposes:

- a) To ensure that members of the scheme uphold the standards of the scheme and adhere to its requirements.
- b) To ensure that standards of performance are uniform amongst members of the scheme.
- c) To ensure that the requirements of the Building Standards (Scotland) Regulations are understood by members of the scheme and are being applied in the certification of projects.
- d) To identify areas where there are inconsistencies in interpretation in order to recognise the need for training or guidance.
- e) To identify procedures which members of the scheme find difficult to apply.
- f) To establish public confidence in the robustness of the Certification Scheme as a means of protecting public safety.
- g) To fulfil an undertaking to Scottish Ministers to provide an audited scheme.

Audits are aimed at assessing the performance, arrangements and procedures of members of the scheme (Approved Bodies and Approved Certifiers) and are not intended for the purpose of checking structural designs or specification for individual building projects.

While the audit will not go out of its way to seek design errors if a serious situation should come to light that would present a risk to public safety the auditors have a duty to have this brought to the attention of the appropriate authority. The matter should in the first instance be brought to the attention of the Approved Body who will be given an opportunity to take appropriate action. The Approved Body should keep SER advised regarding action that is being taken. If evidence of action is not forthcoming SER will consider to whom it should report the situation.

2.0 Audit Classification

SER may initiate an audit of an Approved Body or a Certifier at any time. The type of audit will depend on a number of factors however each audit will be classified under one of the following headings.

- a) **Initial Advisory Audit** - to be undertaken within a maximum of five years of an Approved Body or Approved Certifier being accepted for membership of the scheme. An important purpose of the advisory audit is to assist new certifiers to fully

meet the requirements of the scheme. SER may therefore vary the action arising from the audit described in table 3, as appropriate to the particular circumstances of the case.

- b) **Surveillance Audits** are routine audits carried out after an initial advisory audit on a timescale set by SER.
- c) **Follow up Audits** are instructed by SER to investigate the introduction of Corrective Actions arising out of non-conformances identified by an Initial Advisory or Surveillance audit and the continued performance of the certifier. Follow up audits will be carried out using the same scope, check lists and procedures as the other types of audits and, in addition, will also consider compliance with the certifier's proposed corrective actions from his previous audit(s).
- d) **Targeted Audits** are instructed following the decision of SER to investigate the discovery of, or complaints of, poor practice.

3.0 Audit Methodology

- 3.1 The audit procedures described in this document are based on the recommendations contained within BS EN ISO19011: 2002 Guidelines for quality management systems auditing.
- 3.2 Audit findings will be based on the collection and assessment of objective data as far as this is possible. Audit teams are trained to undertake the audits in a systematic manner using standard audit criteria and a standard reporting methodology. A number of key tools have been developed to assist with these tasks. These are:
 - 1. **Audit Criteria:** These are lists of items that the auditor must check in relation to each activity to be audited. Audit criteria set out the main items to be examined, describe why these are included in the audit and list the issues that auditors should focus on. Each main item has a list of sub-classifications. For each of these the actions of the auditor have been specified, some background information explaining the importance of the issue is given and a description of the evidence to be provided by the auditee provided. The audit criteria are provided in Appendices A and B.
 - 2. **Major Non-Conformances:** A failure to meet the requirements of audit criteria is called a non-conformance. SER has identified a group of major non-conformances each of which represents a serious failure to meet the requirements of the scheme. The number of major non-conformances identified by the audit process will influence any action taken by the Board arising from the audit. These have been listed in Appendices A and B..
 - 3. **Improvement Issues:** Non-conformances, other than those identified as Major non-conformances, have been classified by SER as Improvement Issues where the Approved Body or Approved Certifier must alter or improve their procedure before a further audit is undertaken. The number of Improvement Issues identified will influence the need for a follow up audit or

the timescale to the next routine audit. These have been listed in Appendices A and B.

4. Comments which are intended to assist the auditee improve some aspect of their procedure but do not constitute a significant departure from acceptable practice.
5. Audit Checklists require auditors to record information in a standard format against each of the audit sub-classifications in the audit criteria list. Auditors should use these checklists to record:
 - Whether the item was audited and/or, in the case of projects, whether the item applied;
 - Whether the item fully complied with the requirements of the audit criteria;
 - Whether any Non-conformances were identified and whether these were Major or Improvement Issues;
 - Details of any non-conformance;

4.0 Roles and Responsibilities

4.1 **The SER Board** is responsible for overseeing the general conduct of the audit process. The Board will:

- Select and appoint individuals to the auditors pool of the Scottish Registration Board (SRB);
- Make arrangements for the training of auditors;
- Agree audit programmes including the selection of Certifiers and Approved Bodies for audit;
- Consider the recommendations of the SRB in relation to the findings of an audit and decide on any action, including suspension or withdrawal of membership of the scheme that may be necessary arising out of the audit;
- Consider reports from the Chairman of the SRB regarding general issues or trends identified by the audit process that require to be addressed by technical guidance to members, or alterations to the scheme.

4.2 **The SER Administration Team** are responsible to the Board of SER for the administration of the audit process. They will:

- Prepare audit programmes for consideration by SER;
- Assign auditors from the SRB audit pool to conduct individual audits;
- Issue notification letters to Approved Bodies and Certifiers advising them of the projects and certifiers that have been selected for audit;
- Monitor the audit implementation and initiate action against Approved Bodies that have failed to arrange audits within the prescribed timescale;
- Provide advice and information to Approved Bodies and Approved Certifiers concerning the audit process;

- Provide audit teams with information held by SER necessary to conduct the audit;
- Collate auditors reports and recommendations for consideration by the SRB;
- Collate Corrective Action Responses from audited bodies and certifiers and present these for consideration by the SRB;
- Record the recommendations of the SRB and present these for consideration by the Board of SER;
- Advise Approved Bodies and Approved Certifiers of findings of SER arising from the audit;
- Administer the appeals process;
- Maintain the IT systems necessary to administer the system;
- Archive audit files.

4.3 **The Scottish Registration Board** is responsible to the Board of SER for the technical conduct of the audits. SRB will:

- Supply audit teams from a pool of auditors appointed by the Board of SER;
- Review, discuss and agree or amend audit reports, to maximise consistency of the audit process, and make recommendations regarding any corrective action arising from the audits;
- Make recommendations regarding general issues or trends identified by the audit process that require to be addressed by technical guidance to members or alterations to the scheme.

4.4 **Approved Bodies** are responsible for the administrative arrangements necessary for conducting the audit, including notifying each of their certifiers and for the presentation of suitable records and project information, as requested in the audit letter, in a suitable format to permit the audit to take place. They are also responsible for all of their internal costs and for the costs associated with the attendance of their certifiers, however there are generally no audit fees or costs payable to SER (except in the case of a second or subsequent follow up audit of an Approved Body or an Approved Certifier when a charge will be made).

Approved Bodies are required to:

- Ensure the availability of their certification coordinator/s and all Approved Certifiers who they employ and who are to be audited;
- Provide a work area within their premises suitable for the audit team to carry out the audit;
- Ensure that all information including project records, warrant plans and files necessary to carry out the audit is readily available to the audit team;
- Ensure the Health & Safety of the audit team while they are working within the premises of the Approved Body;
- Identify and implement Corrective Actions arising from non-conformances identified by the audit.

- 4.5 **Approved Certifiers** must make themselves available to the audit team at a time and place agreed between SER and the Approved Body that employs them (or employed them at the time when the project being audited was certified). It is recognised that this may not always be possible where, for example, a certifier may have changed employer. SER will endeavour, where it is reasonable to do so, to arrange audits covering projects certified during a current employment. Where this is not possible SER will encourage Approved Bodies, who are members of the scheme, to accommodate these arrangements by allowing their certifiers the necessary time to attend the offices of a previous employer. If the Certifier cannot make him/herself available then the audit will take place in their absence and the reasons recorded in the audit report and Certifiers may nominate an individual to witness the audit on their behalf. Certifiers must however realise that not being available to assist auditors may place them at a disadvantage and adversely affect the findings and outcome of the audit.
- 4.6 **Certification Coordinators** provide the principal point of contact between SER and the Approved Body. They will be contacted regarding the administrative arrangements for the audit. The Certification Coordinator, or a named substitute, must be available to witness the Audit on behalf of the Approved Body.
- 4.7 **The Audit Team Leader** will be designated by SER administration when the team for an audit is appointed.

The team leader is responsible for managing the conduct of the audit and will:

- Advise the SER administration team of the projects that have been selected for audit;
 - Confirm administrative arrangements with the certification coordinator of the Approved Body in advance of the audit;
 - Chair the opening meeting;
 - Collate data gathered by members of the audit team;
 - Prepare audit reports and explain the need for auditees to send signed audit reports to SER administration;
 - Chair the closing meeting;
 - Update audit data on the SER IT system;
 - Forward reports and recommendations to SER Administration.
- 4.8 **Auditors** are responsible for gathering information in relation to conformance with a standard set of pre-determined criteria. They are required to exercise a degree of judgement as to whether a particular non conformance falls within the Major Non-Conformance or Improvement Issue categories or may in appropriate circumstance record comments. Auditors are not responsible for checking structural designs.

5.0 Implementing the Audit

- 5.1 The general procedure for implementing the audit programme is as shown in Figure 1 below. The Board of SER will agree a rolling programme of audits to be implemented and the administrative team will set this in motion by assigning auditors who will have an opportunity to reject an appointment if they believe there to be a conflict of interest.
- 5.2 In advance of the audit the administration team will supply the audit team with the following information that will be made available electronically for download to a laptop:
 - Contact details of the approved body and certification coordinator;
 - List of certifiers to be audited and details of projects they have certified since last audit;
 - A list of certificates issued by each of the certifiers to be audited including project costs;
 - Application forms for certifier and approved body;
 - Details of previous audits including auditor reports and outcome letters.
- 5.3 The audit must be normally undertaken within a maximum of eight weeks of the Approved Body receiving notification. Failure of the Approved Body to agree a date within this timeframe should be brought to the attention of the SER Board for consideration of appropriate actions which are likely to include suspensions of the Body and its Certifiers from the scheme until an audit has been conducted.

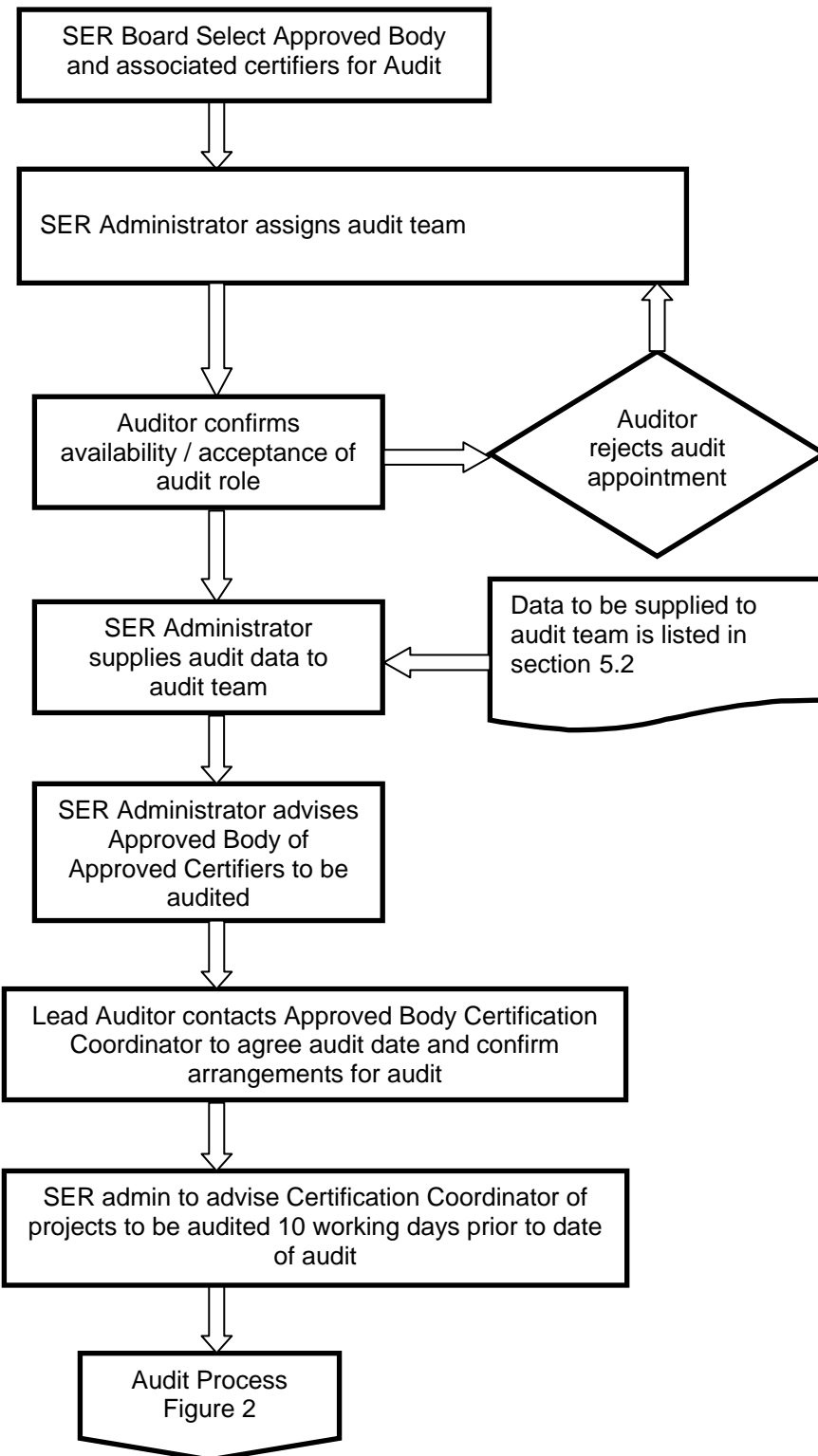


Figure 1: Procedures for Arranging Audits

6.0 Conducting the Audit

- 6.1 General: The conduct of the audit is the responsibility of the lead auditor who will chair the opening and closing meetings with the auditee and oversee the preparation of the audit report. The general procedure for conducting the audit is shown in Figure 2.

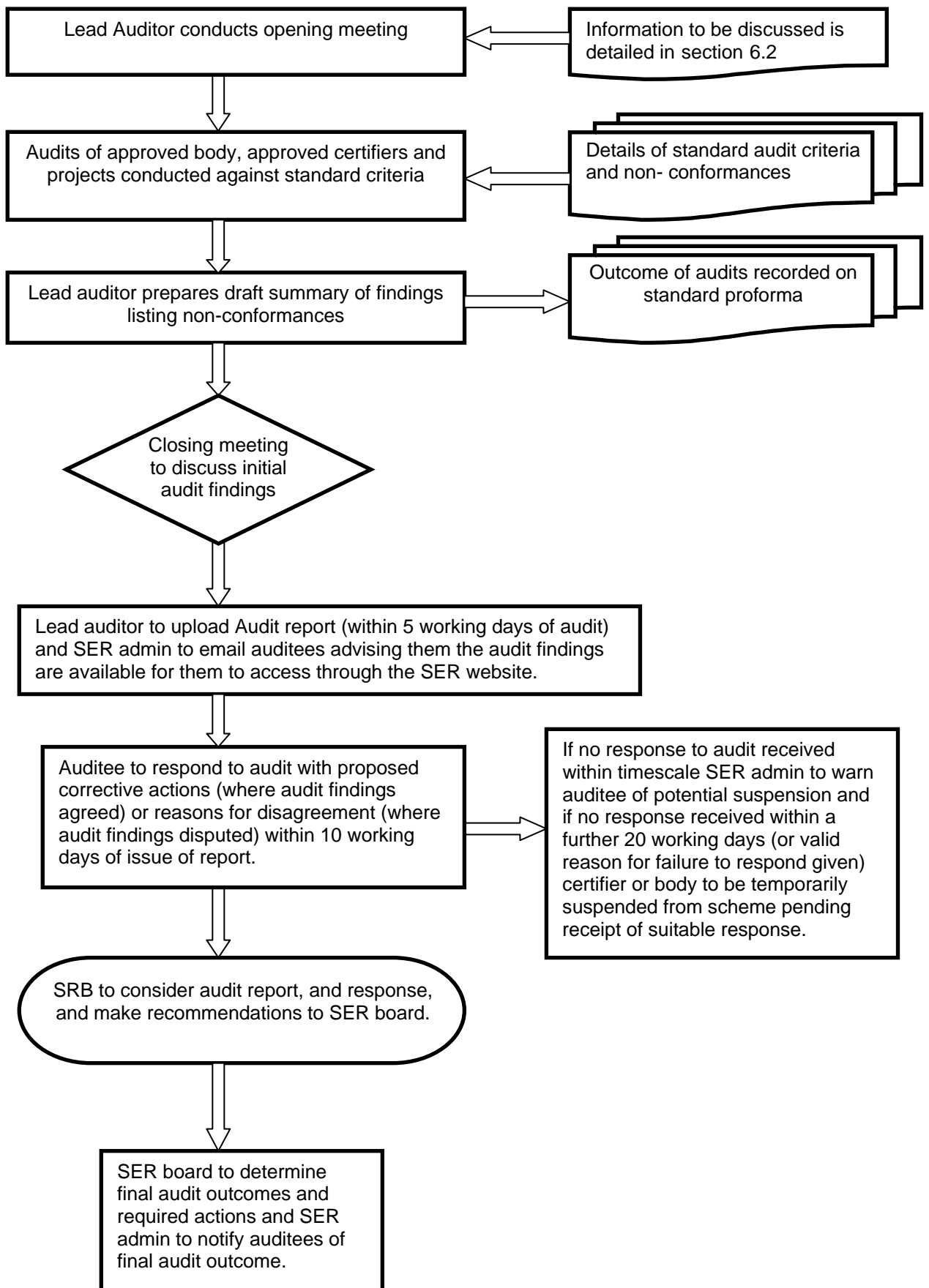


Figure 2 Procedures for Conducting the Audit

- 6.2 An opening meeting should be held with those responsible for the functions and projects to be audited. This should be used to explain the audit process and arrange access to information. In the case of small organisations, particularly sole practitioners, this may take the form of an informal discussion. Matters that should be covered during this meeting include:
- Introduction of the participants and an explanation of roles;
 - Explanation of the objectives of the audit, the scope and the criteria;
 - The method and procedures to be employed including an explanation of how performance will be measured and recorded;
 - An explanation of how non-conformances are graded and their importance to establishing the audit rating of the Body or Certifier;
 - Confirmation that the resources and facilities required by the audit team are available;
 - Confirmation of work safety and security measures relevant to the audit team;
 - Where necessary in large offices the availability, identity and roles of guides;
 - The method of reporting and the role of SRB and SER in dealing with non-conformances;
 - Information about appeals against the audit findings;
 - Arrangements for the closing meeting.
- 6.3 Collecting and verifying Information: Auditors will work through the lists of audit criteria for each of the projects selected for audit. Only information that is verifiable may be admitted as audit evidence. The auditor will work through the criteria listed in the appropriate appendix to this manual. Evidence should be presented in accordance with the guidance given. If the auditor finds a criteria that is not being satisfied he/she must check whether the matter appears on the list of major non-conformances or improvement issues. If neither then the matter is recorded as an audit comment only.
- 6.4 Certifiers should be prepared to present evidence in the form required by the audit criteria lists. Auditors will record the findings of the audit on standard record sheets. Where the availability of audit evidence indicates that the audit objectives are unlikely to be met the audit team leader should report the facts to the auditee and to the Head of Certification at SER with a recommendation for action. Such action may include the termination of the audit.
- 6.5 Closing Meeting: A closing meeting, chaired by the audit team leader, should be held to present the audit findings and conclusions in such a manner that they are understood and acknowledged by the auditee. Matters that should be covered during this meeting include:
- Any circumstances encountered during the audit that may decrease reliance on the audit findings;
 - The nature of any non-conformances found by the audit team. The auditee should be invited to agree the facts of these findings and have that agreement formally recorded where possible;

- Where non-conformances have been identified and agreed the auditee should be advised of the manner in which any action arising from the findings of the audit will be considered by SER;
- Where non-conformances have been identified but not agreed the auditee should be advised of the manner in which representations against the findings of the audit may be made to SER;
- The Lead Auditor should advise the auditees of SRB's role in reviewing the audit report, and the auditees responses, and that this, or review by the SER Board may lead to an upward or downward revision to the audit score and grading.

6.6 Additional Guidance for Audit Team:

Project Assessment	The following procedure will apply in turn to each of the projects selected for detailed assessment.
Step 1 Plan assessment	<p>The individual project assessment will commence with a review of the plans that were submitted to the local authority with the building warrant application. These warrant plans must be available (4.4).</p> <p>The auditors will identify aspects of the design that are to be audited by reference to the checklist. It is necessary to audit every relevant aspect of the design listed in the checklist where relevant to the projects audited.</p> <p>The output from this assessment will be input to the checklist (Audit Y/N column)</p>
Step 2 Evidential display	<p>For each of the items identified for audit in the checklist the auditee will be asked to display the evidence of compliance described for that item in Appendix B – Criteria for the Assessment of Projects.</p> <p>If the evidence meets the compliance standard described in the corresponding section of Appendix B then this can be recorded on the checklist. If the evidence fails to meet the standard then only one of three possible outcomes can be recorded by the auditors on the checklist:</p> <ul style="list-style-type: none"> • The evidence fails to meet the compliance standard in a way that is described in Appendix B in which case a major Non-Conformance is recorded. • The evidence fails to meet the compliance standard in a way that is described in Appendix B in which case an Improvement Issue is recorded. • When the failure to meet the standard is not described in Appendix B then the finding is recorded as a comment.

Classification and recording of findings	The auditors must now proceed to consider all of the information obtained from the project audits and decide an appropriate rating for the auditee.
Step 3 Collation of results	The auditors should add up the total number of counting non-conformances and improvement issues for all of the projects audited. Non-counting non-conformances and improvement issues will arise when these are either repeated or linked. (For guidance refer to section 10.2 of the audit scheme manual). Weighted scores are applied in accordance with section 10.1 of the audit scheme manual.
Step 4 Auditor Rating	The auditors must now decide on an initial audit rating for the auditee, this will be obtained by reference to the table to section 10.3 of the manual however the auditors may apply discretion to adjust the outcome by up to one grade. Where this is done the auditors reason must be recorded in the audit report and will be debated by the SRB who may, or may not, agree with any adjustment.
Step 5 SRB review	Once the audit report has been finalised, and the auditee has formally proposed his, or her, corrective actions the audit will be reviewed by SRB and after taking account of the audit findings, the auditee's corrective actions and any points of disagreement between the auditors and the auditee a final audit score will be recommended to SER Board.
Step 6 Outcome	The SRB recommendation will be considered by the SER board who will determine the final audit outcome and any necessary actions arising.

7.0 Selecting Projects for Audit

- 7.1 The lead auditor will select the projects to be audited from a list of projects certified since the last audit (or, in the case of a first audit, since membership of the scheme was granted) from a list supplied by the SER administrator. The selection will take account of the range and complexity of work certified and the declared experience of the certifier. Where the certifier has worked for more than one body the lead auditor should consider whether it is necessary to select projects from more than one of these bodies

7.2 The number of projects selected for audited will also be determined by the lead auditor who will take into consideration the time available to conduct the audit and also the time required by the Approved Body to assemble project information. As a guide this should be calculated in accordance with the following table:

Projects certified	Up to 5	6 to 10	11 to 20	21 to 50	More than 50
Projects selected for audit.	2	3	4	5	5 to 7

Notes: The number of projects selected should be calculated for each certifier individually and not on the basis of the total number of projects certified by the body.

Where projects with staged certificates are selected for audit these count as a single project, regardless of how many individual certificates are involved, and the audit should be conducted up to the stage of the latest certificate issued with all findings collated as a single project audit.

8.0 Classification of Non-Conformances

8.1 A failure to satisfy prescribed audit criteria is called a non-conformance. These have been classified into the following categories:

Major Non-Conformance This is a gross failure to meet or apply a particular aspect of an audit criterion and carries a medium or high risk that persistent failure to apply this criterion will result in loss of life or injury to those using buildings that have been certified this way.

Improvement Issue This is a failure to fully meet or apply a particular aspect of an audit criterion but carries a low risk that persistent failure to apply this criterion will result in loss of life or injury to those using buildings that have been certified this way.

Comment A comment will be recorded where the auditor has taken the view that the audit criteria has not been fully met however the failure is not sufficiently serious to attract one of the above classifications.

Comments do not count towards a general audit classification.

8.2 SER has identified non-conformances which attract Major or Improvement issue status and these have been listed in Appendices A and B.

9.0 Reports and Recommendations

- 9.1 The lead auditor is responsible for overseeing the preparation and submission of reports arising from the audit in a standard format. Separate reports should be submitted covering the Approved Body and each of the Approved Certifiers audited. Reports should contain the following information:
- Type of audit (Approved Body or Approved Certifier);
 - Audit classification;
 - Name and SER reference number of auditee;
 - Date of audit;
 - Composition of audit team;
 - Facilities made available to the audit team (Optional);
 - General classification of audit findings;
 - General comment on audit findings;
 - List of non-conformances agreed with auditee;
 - List of non-conformances rejected by auditee.
- 9.2 Standard checklists are available to assist the audit team to make notes of items audited and findings as the audit proceeds. The audit checklist should be completed during the course of the audit either by hand on a standard proforma or on line if the auditor prefers and web access is available. The checklist should be retained by the lead auditor for reference at the SRB meeting.
- 9.3 The audit report form must be completed on-line by the lead auditor within 5 working days of completion of the audit. The audit report may be completed in the presence of the auditee, who may add responses to the report. If the auditee is not present then he or she will need to access the report at a later date on the SER website. The information entered on the audit report form is required for submission to the SRB.

10.0 General Classification of Audit Findings

- 10.1 The audit score will be based on the sum of the weighted scores calculated from the number of non-conformances as follows:

Major non-conformance Weighted score = 3

Improvement Issue Weighted score = 1

Example: where the audit team found two major non-conformances and three improvement issues:

$$\text{Audit score} = (2 \times 3) + (3 \times 1) = 9$$

- 10.2 When counting the number of major non-conformances and/or improvement issues the same issue repeated across a number of projects counts as one non-conformance. Occasionally the situation may arise where a single omission can cause a number of “linked” non-conformances. In this situation the auditor will need to decide whether these should be counted as single or multiple occurrences. Some guidance on this may be had from considering the number of corrective actions that the auditee would have to implement to resolve the situation.
- 10.3 It is possible that the same issue may arise as a Major Non-conformance in one project and as an improvement issue in one or more other projects. In this case the issue will be counted only once but will attract the higher score.
- 10.4 The auditor rating will be classified under one of five grades A to E based on the audit score. The ratings shown in Table 3 (section 11) provide guidance for the auditors in the preparation of the audit report. They apply to both the audit of an approved body and an approved certifier each of whom must be given a separate rating. They may be adjusted by up to one grade at the discretion of the auditor depending upon the circumstances of a particular case. Matters that may influence the auditor in making a grade adjustment might include the relevance of the non-conformance to the particular project audited, the overall number of projects that were audited, evidence of improvement in the standard of certification throughout the period of activity or in the case of an Approved Body a failure to present evidence of PI insurance. The audit grade will be used by the SRB to arrive at a recommendation for action to SER.
- 10.5 The grade awarded to an Approved Body should also reflect the general competence of its Approved Certifiers. Auditors must take this into consideration by auditing the approved body under item ref. AB2C Management of Certifier Activities.
- 10.6 Whilst the initial audit score and grading will be determined at audit these will be subject to review by the SRB to ensure that the auditors are taking a consistent approach to any non conformances identified and to allow the auditee’s responses to be taken into account before making recommendations to the SER board. Where appropriate the SRB, or the SER Board, may adjust the audit score as part of the determination of the final audit outcome.

11.0 Actions Arising from the Audit

11.1 Action by an Approved Body:

- 11.1.1 At the conclusion of the audit the certification coordinator will be presented with a copy of audit findings by the lead auditor and invited to agree or reject these. It is the intention of the procedures that these findings be as far as possible an agreement of fact. This may be done in hard copy or electronically if internet access is available. The final agreed list should be signed by both the auditor and the certification coordinator on behalf of the Body though this may be done at a later date by post if necessary.

- 11.1.2 Within 10 working days of the audit report being uploaded the Approved Body shall furnish the SER administrator with details of any corrective action that the body proposes to take to avoid a reoccurrence of agreed non-conformances. These shall be brought to the attention of the SRB when it considers recommendations to SER on actions arising from the audit.
- 11.1.3 Within 10 working days of the audit report being uploaded the Approved Body shall furnish the SER administrator with details of reasons why any findings of the audit have been rejected. These shall be brought to the attention of the SRB when it considers recommendations to SER on actions arising from the audit.
- 11.1.4 The Approved Body must respond to each of the issues raised by the audit, either by proposing corrective actions to prevent a recurrence or by stating why they reject the audit findings. If the Approved Body has not responded within a further 20 working days (or a valid reason for failure to respond given) the Approved Body will be suspended from the scheme pending receipt of suitable responses (see Figure 2).

11.2 Action by an Approved Certifier

- 11.2.1 At the conclusion of the audit the certifier will be presented with a copy of audit findings by the lead auditor and invited to agree or reject these. It is the intention of the audit scheme that these should be as far as possible an agreement of fact. This may be done in hard copy or electronically if internet access is available. The final agreed list should be signed by both the auditor and the certifier though this may be done at a later date by post if necessary.
- 11.2.2 Within 10 working days of the audit report being uploaded the Certifier shall furnish the SER administrator with details of any corrective action that he/she proposes to take to avoid a reoccurrence of agreed non-conformances. These shall be brought to the attention of the SRB when it considers recommendations to SER on actions arising from the audit.
- 11.2.3 Within 10 working days of the audit report being uploaded the Certifier shall furnish the SER administrator with details of reasons why any findings of the audit have been rejected. These shall be brought to the attention of the SRB when it considers recommendations to SER on actions arising from the audit.
- 11.2.4 The Approved Certifiers must respond to each of the issues raised by the audit, either by proposing corrective actions to prevent a recurrence or by stating why they reject the audit findings. If an Approved Certifier has not responded within a further 20 working days (or a valid reason for failure to respond given) the Approved Certifier will be suspended from the scheme pending receipt of suitable responses (see Figure 2).

11.3 Action by SRB

- 11.3.1 The SRB will consider the auditors report and any information that has been supplied by the Certifier or the Approved Body. Where non-conformances have been identified but no corrective action proposed the SRB may consider recommending suspension from membership of the scheme until this is forthcoming.
- 11.3.2 The general procedure to be followed in arriving at a recommendation for action is shown in Table 3. The SRB will confirm or alter the audit rating in the light of information presented to the meeting and will make recommendations in line with Table 3 (over).

11.4 Action by the SER Board.

The SER Board is responsible for confirming or amending the recommendations of the SRB. The Head of Certification will advise Approved Bodies and Approved Certifiers of the outcome of the audit and any action that has been decided by SER Board.

When an Approved Certifier or an Approved Body is the subject of a follow up audit (within six or twelve months) SER will, where possible, assign the same lead auditor in order to maintain consistency of audit. The second auditor will then be changed in order to provide a fresh approach. Should the lead auditor not be available then SER will, where possible, reverse the above action.

When an Approved Certifier or an Approved Body is the subject of a second or further follow up audit (within six or twelve months) SER will, where possible, assign a different lead auditor to provide a fresh approach. The second auditor from the first follow up audit will be retained to maintain consistency.

Audit Score (Cert)	Audit Score (Body)	Auditee's Proposals	Audit Rating	Description of Audit Rating	SRB Recommendation
1-2	1-2	Not applicable	A	Certification carried out to a consistently high standard, with examples of best practice. The effective application of certification procedures delivers the required standard.	No action required, next audit to be routine surveillance.
3-9	3-6	SRB accepts proposed corrective actions (in case of minor disagreements auditee to be advised of issues and, where appropriate, invited to resubmit proposals). If SRB disagrees with proposals downgrade to C.	B	General conformance with the principles of the scheme but with some inconsistencies, examples of incomplete records or procedural errors.	Auditee to implement corrective action, next audit to be routine surveillance.
10-15	7-10	SRB accepts proposed corrective actions (in case of minor disagreements auditee to be advised of issues and, where appropriate, invited to resubmit proposals). If SRB disagrees with proposals downgrade to D.	C	Inconsistent application and conformance with the principles of the scheme.	Auditee to implement corrective action and a follow up audit required to monitor implementation (normally within 6 - 12 months dependant on the degree of non compliance and the volume of certification activity).
16-20	11-13	Auditee to submit proposed corrective actions based on initial audit findings.	D1	Failure to conform to the principles and requirements of the scheme.	Warning of suspension pending voluntary interview to assess auditee's understanding of scheme requirements. Thereafter auditee to submit revised proposals followed by either suspension or a follow up audit (normally within 6 months).
21-30			D2	Failure to conform to the principles and requirements of the scheme	Suspension of membership pending general review of competence and retraining to ensure auditee's understanding of the scheme requirements meets standard. Formal interview and agreed corrective actions required prior to reinstatement.
30+	14+		E	Serious concern with regard to the ability of the Certifier to understand or apply the requirements of the scheme or, in the case of a Body, to support the activities of a Certifier.	Withdrawal of membership.

Table 3: Audit Scores and Ratings

12.0 Retention of Records

12.1 Audit Records will be retained for five years or until the completion of the next surveillance audit whichever is the longer period.

13.0 Appeals

13.1 Approved Bodies and Approved Certifiers may lodge an appeal individually or in the case where a finding concerning the actions of a certifier has arisen from the procedures and/or practices imposed by his/her employing Approved Body a joint Appeal may be made.

13.2 Appeals may be lodged concerning an individual finding of an audit, concerning any action that has been imposed by the Board of SER arising from the audit or where the Board of SER has failed to respond to a representation made to them on either of the above matters within three months of receiving the representation.

13.3 Appeals may only be lodged if a representation on the matter has been made to the Board of SER. The Board may take whatever action it deems appropriate in the circumstances. Actions may include, but are not limited to:

- Confirming the outcome of the audit
- Varying the outcome of the audit
- Referring the audit report and the representations made by the auditee to the SRB for comment prior to making a decision
- Setting aside the audit and ordering a fresh audit with a new audit team

13.4 If a formal appeal is lodged by an Approved Certifier or Body this will be considered by an Appeals Panel which will be constituted and will operate under the powers and procedures described by the scheme guide.

Scheme for Certification of Design (Building Structures)

Audit Rules

Criteria for the Assessment of Approved Bodies

1 Requirements for Membership of the Scheme

Approved Bodies will have made a number of declarations, in their application, demonstrating compliance with the criteria for membership of the scheme. The accuracy of these declarations will be checked by the audit.

Key Factors

The Building (Scotland) Procedures Regulations 2004 have set out criteria which can be considered to promote good practice. These are financial probity, insurance relevant to certification, adoption of quality assurance systems with regard to checking design and ready access to appropriate standards and guidance documents. SER has incorporated these into the criteria for membership of Approved Bodies to the Scheme and added an additional requirement in relation to training of certification staff.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
AB1A	<p>Appointment of Certification Coordinator</p> <p>Auditors should seek evidence that the Certification Coordinator understands and carries out the duties described in the Scheme.</p>	<p>The certification coordinator is responsible for ensuring that the conditions under which membership of the scheme was granted are being fulfilled and maintained. The coordinator must be able to show that he/she is aware of these conditions, is able to monitor their implementation and draw any shortcomings to the attention of the Approved Body management organisation.</p> <p>Evidence may be gained through interview that the certification coordinator is aware of the criteria declared in the application for membership and has access to the systems necessary to monitor their implementation. The coordinator should be able to describe the management reporting structure which can ensure implementation.</p>	N/A	Deficiencies in the Certification Coordinator's ability to monitor and report the implementation of the scheme requirements.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
AB1B	<p>Quality and Checking Procedures</p> <p>Auditors should assess whether the checking procedures described by the Approved Body in its application are appropriate to the work being certified and are being universally applied. Where Bodies have declared auditable QA systems are in place these should be verified.</p>	<p>Proper checking of design is at the heart of the certification process. The level of checking required is dependant on a number of factors which will include the complexity of the design and the risk associated with structural failure. On small projects checking procedures may be straightforward however on larger or more complex projects the appropriate level of check will be arrived at by a more formal assessment of risk. Guidance on these matters is provided in technical Bulletin 2.</p> <p>Approved Bodies will have been required to describe the checking arrangements that they have in place when making their application. For an Approved Body certifying only small projects it will be sufficient to demonstrate that the procedure described in the application is applied. For Bodies certifying larger or more complex projects it will be necessary to demonstrate that an appropriate risk based procedure has been documented and adopted on projects.</p> <p>Where Bodies have declared auditable QA systems current independent audit certification should be presented.</p>	<p>Absence of a structured approach to checking designs.</p> <p>Failure to implement checking procedures described in application for membership of the scheme.</p> <p>Absence of certification to substantiate formal QA system described in application for membership of the scheme.</p>	<p>Deficiencies in documented checking procedures in relation to the nature of the work being certified.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
AB1C	<p>Access to Information</p> <p>Auditors should confirm that the information access is as described in the Approved Body application and that this is adequate for the type of work being certified.</p>	<p>It is a requirement of both the procedure regulations and the SER Scheme that Approved Bodies provide the certification staff with access to the necessary technical information and publications. This will include the various British and European Standards listed within the relevant guidance sections of the Scottish Building Standards Technical Handbooks and relevant publications produced by professional bodies such as the Institution of Structural Engineers.</p> <p>Evidence should take the form of a technical library containing hard copies of the relevant publications or access via a computer link to soft copies provided by a technical information subscription service or via a readily accessible arrangement to borrow documents from a Technical Library.</p>	<p>No readily available access to technical information necessary to undertake the scope of work being certified.</p>	<p>Where automatic electronic updating of standards is not available and the certification coordinator is unable to demonstrate that the currency of the documents held in hard copy is regularly checked an improvement issue will apply.</p>
AB1D	<p>Training</p> <p>Auditors should seek evidence of investment in training at the level declared by the Body in its application.</p>	<p>Approved Bodies are expected to support the CPD of all certifiers employed or engaged by the body by providing time and financial support for attendance at training courses etc. In their application for membership of the scheme Bodies are required to declare this level of investment as a percentage of its turnover.</p> <p>Evidence will comprise training records and/or receipts for relevant training courses attended by their certifiers.</p>	<p>Complete absence of a recognised Training Programme or any record of monitoring of the certifier's CPD.</p> <p>Consistent failure of the employed certifiers to meet the SER CPD standards or any one or more certifiers having had their CPD assessed as inadequate in the current year.</p>	<p>Deficiencies of investment in training at the level declared by the Body in its application.</p> <p>Any one of the employed certifiers failing to meet the SER CPD standards in the current year.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
AB1E	<p>Insurance</p> <p>Auditors are required to check that the Approved Body has PI insurance arrangements in place but are not required to comment on the adequacy of that insurance in relation to specific projects.</p>	<p>Approved Bodies are required by the terms of the scheme to maintain PI insurance at a level appropriate to the scale of work being certified. It is the responsibility of the Body to determine an appropriate level of insurance.</p> <p>Evidence will comprise a letter from the Body's insurers confirming that PI cover is maintained at a level commensurate with the work being certified.</p>	<p>No evidence of PI insurance being available at audit.</p>	<p>N/A</p>
AB1F	<p>Employment</p> <p>Auditors are required to check that Approved Bodies employ at least one Approved Certifier.</p>	<p>Approved Bodies must employ at least one Approved Certifier. The Certification Coordinator of an Approved Body must not countersign certificates for any period during which the Body does not employ at least one Approved Certifier.</p> <p>Evidence will comprise a statement demonstrating that at least one Certifier is paid by the Approved Body using the PAYE scheme with income tax and NIC deducted and is entitled to benefits such as paid annual leave.</p> <p>In cases where the certifier is also a Director in the company this will be classed as meeting the "employment" criteria.</p> <p>Subject to the above criteria an Approved Body may also employ additional Approved Certifiers on a freelance contract basis to provide certification services.</p>	<p>Absence of evidence that an Approved Certifier, when certifying projects, was employed by the Approved Body.</p>	<p>N/A</p>

2 Duties Of An Approved Body

The Approved Body is required by the Scheme to provide an environment that supports the Certifiers that it employs and must ensure that adequate resources are allocated to the certification role.

Key Factors Contractual arrangements for the provision of certification services must be made on the basis of appropriate terms and conditions which take account of the risks and liabilities associated with the certification role and provide a reasonable degree of protection to certifiers employed by the Approved Body.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
AB2A	<p>Protection of Certifiers from Financial Loss (not required for sole practitioners)</p> <p>Auditors are required to ensure that Approved Bodies have adopted a responsible approach to protecting their employed certifiers against the consequences of claims arising from certification appointments.</p>	<p>Individual design certificates must be signed by Certifiers who are not required to carry personal PI insurance. It is a requirement of the scheme that Approved Bodies must ensure that certifiers employed by them are protected against financial loss from claims arising out of design certification. SER expects that Approved Bodies make appropriate arrangements to ensure that their certifiers are suitably indemnified against any actions or claims that may arise from certificates signed by a certifier while in their employment.</p> <p>Approved Bodies should be able to provide evidence that their procedures are in line with the recommendations contained within SER Guidance Note 6.</p>	<p>Failure to make provision in appointments to prevent clients seeking to recover loss from certifiers or individual employees.</p>	<p>Failure to confirm with PI insurers that their PI indemnifies current employees in respect of claims against individuals.</p> <p>Failure to confirm to employees that the Body will indemnify them against economic loss from claims made against them both during and after employment.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
AB2B	<p>Management of Risk</p> <p>Auditors are required to check that appointments are being made on the basis of a realistic assessment of risk and that contractual terms and conditions have been introduced to manage the risk.</p>	<p>Structural design certification covers all structural elements and frequently will embrace items not normally within the scope of a consultants design appointment or components that have been designed by specialist sub-contractors.</p> <p>This can introduce liabilities that can be disproportionate to the fee received for undertaking the certification work. Approved Bodies must make a judgment of the risks associated with accepting an appointment to undertake certification on a project by project basis and should ensure that appropriate clauses controlling liability have been introduced to the contract.</p> <p>Approved Bodies should be able to provide evidence that their procedures are in line with the recommendations contained within SER Guidance Note 6.</p>	<p>No evidence that the Approved Body is actively managing contractual risks.</p>	<p>Absence of evidence that the Approved Body is taking a responsible approach to managing risk.</p>
AB2C	<p>Management of Certifier Activities</p> <p>Auditors are required to check that the Approved Body encourages the application of SER guidance and procedures by the Approved Certifiers in its employment.</p>	<p>SER has issued and will continue to issue certification guidance in the form of Guidance Notes and Technical Bulletins. Approved Bodies must ensure that their certifiers are aware of all such guidance and that company procedures are consistent with the requirements of certification practice. Approved Certifiers must be given sufficient time and information to undertake adequate examination of a design before signing a design certificate.</p> <p>Approved Bodies should be able to demonstrate the application of procedures to ensure an adequate and consistent level of performance amongst the certifiers in their employment and provide evidence that their certifiers are monitored and checked on a regular basis with regard to their certification activities.</p> <p>Evidence of compliance may comprise written corporate procedures and/or guidance to auditors, records of certifiers meetings to discuss and agree procedures for dealing with audit issues, evidence of induction of new certifiers entering the body's employment and/or records of internal audits to monitor certifier's compliance with scheme requirements.</p>	<p>Failure to take any steps to monitor and coordinate certifier's activities.</p> <p>Poor performance of certifiers with any single certifier scoring a grade D or more than 50% of the body's certifiers scoring a grade C at audit.</p>	<p>Inconsistent performance of certifiers (as determined by their audit scores) with any certifier scoring a grade C at audit.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
AB2D	<p>Management of Post Certification Design Changes</p> <p>Auditors are required to check that Approved Bodies have procedures in place to monitor the management of post certification design changes and ensure that Approved Certifiers in its employment are aware of the recommendations provided in SER Guidance Note 8.</p>	<p>The early audits carried out by SER raised significant concerns that in many cases certificates were being provided for warrant applications where the certifier had no knowledge of, or control over, the actual drawings being submitted as part of the warrant package and/or in some cases the certifiers were unaware of, and had no control over, post certification/warrant design changes which could affect the validity of the certificates on which the warrant was based.</p> <p>In response to these concerns SER published Guidance Note 8 (Management of Post Certification Design Changes) which requires Approved Bodies to have procedures in place to address these concerns and issues.</p>	<p>Failure to retain copies of relevant drawings submitted with Warrant Applications (this includes Architects drawings as well the Structural Engineers drawings) and make these available for audit.</p> <p>Failure to demonstrate adequate control of the linkage between design certificates and the drawings issued to Verifiers with Warrant Applications.</p>	<p>Failure to inform the person(s) responsible for the issue of the Warrant Application and/or issue of construction drawings that any design changes carried out subsequent to the set of drawings on which the certificate was based are not covered by the certificate and may require the submission of an Amendment to Warrant and a further design certificate.</p>
AB2E	<p>Maintenance of Records</p> <p>Bodies are required to maintain adequate records of projects where certificates have been issued for a minimum period of 5 years (or longer to fulfil their contractual or insurance obligations) and to present such records in a manner suitable for audit at such dates and times as may be arranged to allow SER to monitor and assess their activities.</p>		<p>Failure to retain and/or retrieve from archive suitable records of project activities across a range of projects.</p>	<p>Failure to retain and/or retrieve from archive suitable records of project activities for a single project</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
AB2F	<p>Use of Approved Certifier Registration Mark</p> <p>If the Approved Body uses the Approved Certifier Registration Mark auditors are required to check that it is being used in accordance with the guidelines issued by BSD.</p>	<p>The Approved Certifier Registration Mark may only be used by Scheme members in accordance with the guidelines issued by BSD. The guidelines have been published as Appendix A of SER Guidance Note 10.</p> <p>Evidence will comprise examples of the use of the Registration Mark by the Approved Body on, for example, its stationery, website, publicity material etc.</p>	<p>Multiple examples of the use of the Registration Mark outwith the guidelines issued by BSD.</p>	<p>An example of the use of the Registration Mark outwith the guidelines issued by BSD.</p>

Scheme for Certification of Design (Building Structures)

Audit Rules

Criteria for the Assessment of Projects

1 Procedures and Planning

Approved Certifiers are required, in accordance with SER guidance, to prepare a design audit plan and maintain records of decisions taken in relation to a project.

Key Factors

The design audit plan will assist the certifier to assemble all of the necessary information and conduct the design audit in an organised manner. It is essential for the certifier to properly identify the full scope of structural works covered by the design certificate. Certificates should only be signed once design has been completed to an appropriate level.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P1A	<p>Scope of Certification</p> <p>Auditors should seek evidence that the certifier has correctly identified all of the structural elements that will be covered by the design certificate(s).</p>	<p>Structure is not explicitly defined either in the Act or the Regulations and therefore must be inferred from consideration of the requirements of the Regulations.</p> <p>In the context of Standard 1.1 Structure it can be implied to mean any part of a building that is required to sustain and transmit load.</p> <p>The Approved Certifier may not limit the extent of certification by alteration or amendment of the design certificate. Certification of part of a structure is not permissible.</p> <p>Evidence of scoping the structural content of the project will be appropriate to the size and complexity of the project but for all but the most minor of projects this should take the form of a checklist retained within the project file. If the schedule to the design certificate has been used for this purpose it must record all additional items.</p>	<p>No organised approach to identifying scope of structural work appropriate to the scale of the project.</p> <p>Omission of a significant structural component from the certification process.</p>	<p>Omission of a minor structural component from the certification process (i.e. movement joints, internal non load bearing partitions, protective barriers, structural components or structural fixings).</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P1B	<p>Certification Plan</p> <p>Auditors should satisfy themselves that the certifier has gone about the certification activities in an organized manner, has identified the full range of structural elements involved in the projects and has arranged to obtain the necessary information from the design team.</p>	<p>The certifier should be able to demonstrate an organised approach to managing the certification process which should take account of the following information:</p> <ul style="list-style-type: none"> • Who is the designer and what are his/her qualifications and experience to undertake this work. • Who is responsible for checking the design and are they sufficiently experienced to undertake the check. • What level of checking is being undertaken. • The certification option being utilized. Guidance on the correct use of options is provided in Guidance Note number 3. • List the information (drawings, calculations, reports, specifications etc) to be supplied to the certifier and identify who is responsible for supplying this information. • If the application to be staged, what is the programme for submitting the stages and will certification be able to accommodate that programme. <p>Evidence of planning will be appropriate to the size and complexity of the project.</p>	N/A	<p>Absence of certification plan or plan inadequate in relation to scale of the project.</p> <p>Use of incorrect certification option for any single aspect of the project.</p> <p>Incorrect level of checking in respect of any single aspect of the project.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
<p>P1C</p>	<p>Project Records</p> <p>Auditors should establish that certifiers are maintaining a proper record of the certificates they are issuing and an auditable record of how decisions concerning compliance with the regulations are arrived at.</p>	<p>The Building (Scotland) Procedure Regulations require the certifier to maintain a record of each certificate that an Approved certifier issues and details of how compliance with regulations was established. These requirements are incorporated into the Scheme Guide. Certifiers are expected to maintain a file for each project that contains information that will include drawings (Engineers and Architects), check calculations, test results / component certification, reports and correspondence used to assist the certifier in arriving at his/her decisions and submitted for warrant.</p>	<p>Obvious lack of records repeated across a range of projects, or an almost total lack of records against any one project.</p>	<p>Insufficient or poorly presented records.</p> <p>-</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P1D	<p>Programming of Work</p> <p>Auditors should check that the certifier is only signing the design certificate once the design has been completed to an appropriate standard.</p>	<p>It is a requirement of the Act that a certificate issued by an approved Certifier of design must certify that the design of the building complies with the building regulations. This requirement has been reflected in the wording of the design certificate. This implies that certificates cannot be signed until the design has been completed. Certificates cannot be issued as a promise of future action.</p> <p>Work should be programmed and building warrant applications staged in a way that will accommodate the design process and ensure that there is sufficient time for adequate checks of the design to be undertaken before work commences on site.</p> <p>Evidence required of design programming to take account of the checking requirements and dates on the design certificates consistent with the receipt of information from the design team.</p>	Design certificates signed before design has been completed.	N/A

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P1E	<p>Use of Contractor Designed Details Option</p> <p>Auditors should check that where the certifier has used this option the correct procedure has been followed and adequate performance specifications have been included with the warrant plans.</p>	<p>The procedure has been introduced to aid the certification of some specific, identifiable and relatively minor aspects of the structural design where details cannot be finalized at the time that the warrant application is made.</p> <p>The use of the option must be restricted to that described in the Guidance issued by SER Ltd and warrant applications must be accompanied with a sufficiently detailed performance specification. The option should not be used for the certification of complete timber frame kits or steel or concrete frames.</p> <p>Evidence will comprise a copy of the schedule accompanying the design certificate and the performance specification accompanying the warrant application.</p>	<p>Failure to schedule out any aspect of the works (or in the case of a staged warrant anything pertinent to that particular stage) for which the contractor has yet to provide design and details or the design has yet to be checked by the certifier.</p> <p>Absence of performance specification on the warrant plans.</p> <p>Failure to carry out adequate enquiry and checks of contractor's design before signing Form Q.</p>	<p>Performance specification is insufficient to fully describe the requirements for the detail.</p> <p>Failure to sign and submit Form Q prior to completion of project without good reason. (this only applies if project is known to be complete).</p> <p>"Good reason" for not signing the Form Q would be if for example, despite reasonable efforts and enquiry, the certifier had been unable to obtain the necessary calculations and/or details from the supplier.</p>

2. General Design Overview and Parameters

Certification and checking are separate activities. Certification cannot be delegated to a third party while design checks can only be undertaken by an individual with the necessary experience in the particular aspect of the check.

Key Factors Generally sub-classifications listed in this section cannot be delegated and the Certifier must present evidence that they have reviewed and approved the fundamental design decisions involved.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P2A	<p>Loading Assessment</p> <p>Auditors must seek evidence that the correct loading parameters have been used for the design and that the certifier has undertaken adequate checking of the loading calculations.</p>	<p>The certifier is required to confirm that the design has accommodated appropriate dead, wind and imposed loading and that loads applied to different parts of the structure by different designers are consistent throughout.</p> <p>Appropriate methods for calculating design load are given in the guidance document accompanying the Regulations by reference to British Standards or Eurocodes. These should however be regarded as minimum loads and certifiers should satisfy themselves that there are no circumstances, such as dynamic loading for example, where these thresholds are likely to be exceeded.</p> <p>The certifier must be able to present evidence in the form of a design input statement that appropriate dead, wind and imposed loads have been applied to the design. Loads calculated in accordance with guidance provided by the Technical Handbook would suffice.</p> <p>Where more than one designer is involved evidence must be presented to demonstrate how consistency of design loading has been achieved. Check calculations should also be available in the project file.</p>	<p>Absence of suitably checked loading calculations and/or assessment.</p> <p>Incorrect loading parameters used.</p> <p>Serious inconsistencies in loading between different designers.</p>	<p>Misinterpretation of loading code requirements.</p> <p>Inadequate/insufficient calculations.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P2B	<p>Overall Stability</p> <p>Auditors must seek evidence that the Certifier has checked that the designer of the building has considered the need to ensure stability.</p>	<p>The certifier should take particular responsibility for checking the stability of the building. The general concepts necessary to ensure stability are described in the Institution of Structural Engineers Publication Stability of Buildings December 1988.</p> <p>The designer should ensure the overall building stability of timber framed structures by checking that each wall panel has adequate racking overturning and sliding resistance to lateral loads in accordance with the concepts in BS5268 Part 6 and the certifier should take particular responsibility for checking the provision of stability.</p> <p>These checks should be made at critical levels for the completed building and consideration may also be required for various construction stages when subjected to dead load, zero imposed load, and both vertical and horizontal components of the wind load.</p> <p>Stability is generally obtained from racking walls set in two orthogonal directions. Unless demonstrated otherwise walls with significant openings, for example doors, should be considered as separate discrete walls.</p> <p>The racking resistance of each wall should be calculated for each wind direction.</p> <p>Particular attention needs to be paid to alterations to existing buildings to ensure that the removal or alteration of a structural element has not reduced the stability of the building to an unacceptable degree.</p> <p>Evidence of a stability check will be appropriate to the size and complexity of the structure. On medium to large projects the certifier should present evidence that load paths transmitting lateral loading to the foundations were available.</p>	<p>No evidence of a stability check having been undertaken (includes stability check on existing structure to be altered).</p> <p>Inadequate bracing.</p> <p>Stability check calculations not or improperly checked.</p> <p>Inadequate or insufficient calculations regarding stability.</p> <p>Absence of identification of members used to provide stability of the building on the warrant plans.</p>	N/A.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P2C	<p>Disproportionate Collapse</p> <p>Auditor should seek evidence that an approach to satisfying the requirements of standard 1.2 has been agreed by the certifier.</p>	<p>Standard 1.2 requires that <u>all</u> buildings (regardless of the number of stories) are designed so that collapse arising from damage is not disproportionate to the cause.</p> <p>It is the responsibility of the certifier to ensure that a risk based methodology has been employed by the design team to identify when measures specifically intended to address this requirement should be applied to the building. A methodology based on the advice given in Section 1.2 of the BSD Technical Handbooks should be considered suitable.</p> <p>Where buildings of certain classes are specifically required to be designed to resist disproportionate collapse this should be carried out in accordance with the provisions of the British Standard appropriate for the structural materials used or Eurocode 1-7.</p> <p>The certifier must be able to present evidence that the matter has been considered, how the final design approach was arrived at and that the certifier agreed the design approach. For all but the most minor of projects this evidence should be documented in the project file.</p> <p>Where alterations are being proposed to Tenements or Terraced buildings certifiers should investigate and consider the structural configuration, and presence or absence of adequate ties, in the properties above/below/ immediately adjacent (on either side) of the property being altered.</p>	<p>Failure to undertake a risk appraisal concerning the need to take account of this aspect of the design.</p>	<p>Failure to correctly apply to the project the risk assessment methodology used.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P2D	<p>Conversions</p> <p>In projects involving Conversions the Auditor must check that an appropriate assessment of the need for strengthening the building has been made.</p>	<p>Conversions are defined as being changes in the occupation or use of the building as specified in Schedule 2 to Regulation 4. Regulation 12 requires that, in the case of standards contained in Section1: Structure, buildings subject to conversion must be "improved to as close to the full requirement of Schedule 5 as is <i>reasonably practicable</i>, and in no case be worse than before the <i>conversion</i>." "Reasonably practicable" is defined as having regard to all the circumstances including the expense involved in carrying out the building work.</p> <p>In practical terms this means that Certifiers will have to take a view on whether an existing building, which fails to meet the standards set by current codes of practice for structural design, and which is subject to conversion as defined above, can still be regarded as meeting the requirements of the Regulations or should be strengthened. This will involve a degree of subjectivity on what constitutes reasonably practicable for a particular building.</p> <p>The certifier must be able to present evidence that the matter has been considered, how the final design approach was arrived at and that the certifier approved the design approach. For all but the most minor of projects this evidence should be documented in the project file.</p>	<p>Failure to consider the requirements of Regulation 12.</p>	<p>Superficial or inadequate consideration of the need to apply the requirements of Regulation 12 to the project.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P2E	<p>Structural Movement Joints</p> <p>Auditors should check that the certifier has reviewed the provision of structural movement joints.</p>	<p>The provision of structural movement joints in large building structures is important to avoid local damage to internal finishes and cladding.</p> <p>Certifiers should check that, where necessary, these have been provided in accordance with an accepted design methodology.</p> <p>Evidence will be the detailing of structural movement joints on the building warrant plans.</p>	<p>Failure to consider the need to provide adequate structural movement joints.</p>	<p>N/A</p>

3. **Reports and Investigations** are frequently required in order to provide the designer with sufficient information to safely design the structure. The Certifier must review whether sufficient information has been gathered to support assumptions made by the design team and whether this information has been obtained from a reliable source.

Key Issues Those employed to undertake investigations must be experienced and competent to do so. The scope of any investigations commissioned must be based on a rational assessment of the information required. Any testing must be carried out by a testing organization accredited for the purpose and employing industry standard methodologies.

Refer	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P3A	<p>Ground Investigation Reports</p> <p>Where foundation works are involved the Auditor must check that an adequate ground investigation report has been obtained and that the contents of the report have been checked in accordance with adopted checking strategy.</p> <p>A ground investigation report should be carried out for all projects with the exception of small domestic extensions or in special circumstances where certifiers may use their discretion. In these situations the auditor must check that the warrant plans include a suitably worded note stating the likely soil type expected to be encountered. Designers are also expected, in these situations, to include a note in the calculations giving the reasons why a ground investigation report was not considered necessary.</p> <p>Auditors should satisfy themselves that the sampling and testing programme was appropriate to the project, sufficient to obtain a reasonable understanding of the site conditions and that the recommendations for design were consistent with the factual data.</p> <p>The Ground Investigation report should also include sufficient enquiry and/or investigation to confirm that the proposed site will not be influenced by unconsolidated mine workings.</p>	<p>The certifier need only certify the investigation in relation to the requirements for the design of the foundations however the investigation must also have taken account of the need to investigate the presence of harmful or dangerous substances or, in the case of domestic property, the presence of radon gas.</p> <p>Ground investigation evidence should comprise:</p> <ol style="list-style-type: none"> a) desk study to identify scope and extent of ground investigation including the need for any mineral investigation. b) factual report recording sampling and testing undertaken. c) An interpretive report containing recommendations for foundation design. <p>The certifier must be able to show that the competence and experience of the organization employed to undertake sampling and testing has been assessed.</p> <p>The certifier must be able to present evidence that the scope and recommendations have been independently checked, either by the certifier, or by a suitably qualified and experienced person not involved with the design of the investigation and that the certifier has studied the report and satisfied himself/herself as to its adequacy prior to certification.</p>	<p>No site investigation undertaken.</p> <p>Insufficient check of findings/recommendations.</p> <p>Failure to carry out adequate enquiry regarding mine workings.</p>	<p>Deficiencies in the scope of the ground investigation in relation to the design of the foundation.</p> <p>Deficiencies in the application of the SI report recommendations to some aspect of the foundation design solution.</p> <p>Absence of record as to why SI or Mineral Investigation was considered not to be required.</p> <p>Absence of note on warrant plans recording anticipated ground conditions.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P3B	<p>Existing Building Condition Assessment</p> <p>Where the warrant application involves alterations or a change of use to an existing building the auditor must check that a condition survey of the existing structure has been carried out and the effects of the proposed works assessed.</p>	<p>The certifier need not have visited the property personally provided he is satisfied that an assessment has been made by a suitably qualified and experienced engineer following an industry standard methodology. The certifier should establish that the existing building has been assessed to a level appropriate to the project and its intended use and that there is an adequate record (with conclusions) of this assessment.</p> <p>Suitable evidence would be a structural report on the condition of the property (guidance is provided in the IStructE report Appraisal of Existing Structures) and a file note to the effect that the certifier had reviewed and approved the contents of the report.</p>	<p>No condition assessment undertaken.</p> <p>No record of assessment having been undertaken.</p> <p>No record of assessment having been checked.</p>	<p>Deficiencies in the scope of the report or the methodology used.</p> <p>Deficiencies in the application of the report recommendations to the design of the alteration works.</p>

4 Design (Principal Structure) Design embraces a wide range of activities however the certifier should focus on the analysis of the final scheme. Detailing must be seen as an integral and important part of the design process. Acceptable design methodologies include the codes and standards listed in the Technical Handbooks accompanying the regulations.

Key Factors The Certifier is responsible for ensuring the integrity of the process used to prepare and check the final scheme design. Certification and checking are separate activities. Certification cannot be delegated to a third party while design checks may only be undertaken by an individual with the necessary experience in the particular aspect of the check.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P4A	<p>Mineral Consolidation</p> <p>When the ground investigation has revealed the presence of shallow mine workings, the collapse of which could result in surface movements that will cause settlement of the foundations the auditor must check that this has been taken account of in the design.</p>	<p>Standard 1.1 requires that the building must not be subject to deformations which would make the building unfit for its intended use, unsafe, or cause damage to other parts of the building or to fittings or installed equipment. Where ground movements are predicted that will cause such deformations then measures must be taken that will limit these movements. Normally these will take the form of a mineral consolidation scheme.</p> <p>The certifier must supply evidence that the stability of the building arising from abandoned mineral workings risk has been assessed and, where necessary, suitable consolidation measures have been introduced.</p> <p>The mineral consolidation design is normally undertaken by a specialist contractor. In these circumstances it is unlikely that the certifier will be competent to undertake the design check and must therefore rely on the experience of others. The certifier should however undertake sufficient enquiry to assure him/herself that the system being proposed is suitable to the building. The certifier should check that the contractor has taken account of the predicted ground conditions and the loading calculations produced by the designer(s) of the superstructure and that internal design checks by suitably qualified persons have been undertaken.</p> <p>Any performance specification should also make an appropriate allowance for suitable in situ testing of the ground improvement measures, and the test results should be available to, and reviewed by, the certifier before the appropriate Form Q is signed off.</p> <p>Suitable evidence will be drawings and specifications relating to the design, a file record of the enquiry into the design made by the certifier and responses received from the specialist contractor.</p>	<p>Failure to introduce mineral consolidation measures to a site where a significant settlement risk to the building has been identified.</p> <p>Failure to review contactors proposals and records prior to signing off Form Q.</p>	<p>Deficiencies in the warrant plans – failure to locate and define the extent of the grouting works and depths and thicknesses of the seams to be treated.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P4B	<p>Sub-Structure (excluding Piling)</p> <p>The auditor must check that the design of the foundations has taken account of the loading calculations and the findings of the ground investigation report.</p> <p>This sub-section should be taken to include pile caps.</p>	<p>Standard 1.1 (as amended) requires that, taking into account the nature of the ground, the building must not collapse nor be subject to deformations which would make the building unfit for its intended use, unsafe, or cause damage to other parts of the building or to fittings or installed equipment. In addition Standard 1.1 (as amended) requires that the building must be designed such that, taking into account the nature of the ground, there will be no impairment of the stability of any part of another building. Foundations must be designed to ensure that this standard will be met</p> <p>The certifier must supply evidence that, for the design of the foundations, calculations have been prepared in accordance with an accepted methodology, have been checked by a suitably experienced person and that the design output has been properly reflected in the warrant application drawings.</p>	<p>Absence of suitably checked structural calculations and/or details which correctly apply design loads and permissible ground bearing pressures.</p>	<p>Deficiencies in the building warrant plans - failure to identify foundation locations, dimensions, changes of level, material specification and typical reinforcement details.</p> <p>Plans do not properly reflect the calculations.</p> <p>Inadequate or insufficient calculations.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P4C	<p>Piling</p> <p>The auditor must check that the design of the piling has taken account of the loading calculations and the findings of the ground investigation report.</p>	<p>The piling design is often undertaken by a specialist piling contractor who will frequently use a proprietary system where the design methodology is unique to the chosen system. Guidance on the role of the building designer and on the creation of the performance specification is provided in the publication: Specification for Piling and Embedded Retaining Walls; Institution of Civil Engineers (1996).</p> <p>In these circumstances it is unlikely that the certifier will be competent to undertake the design check and must therefore rely on the experience of others. The certifier should however undertake sufficient enquiry to assure himself/herself that the contractor has taken account of the predicted ground conditions and the loading calculations produced by the designer(s) of the superstructure and that the contractor has applied internal design checks by suitable qualified persons.</p> <p>Any performance specification should also make an appropriate allowance for in situ testing of the piles, by sonic and/or load testing as appropriate, and the test results should be available to, and reviewed by, the certifier before the appropriate Form Q is signed off.</p> <p>Suitable evidence will be drawings and specifications relating to the pile design, a file record of the enquiry into the design made by the certifier and responses received from the specialist pile designer with test results available and checked before the Form Q is signed off.</p>	<p>Absence of suitably checked structural calculations and/or details taking the relevant vertical and horizontal superstructure loads onto the pile groups and demonstrating suitable capacity of the pile groups with reference to the ground conditions identified in the ground investigation report.</p> <p>Certifier has relied on inadequate certification from a specialist piling contractor without making appropriate enquiries regarding the pile design.</p>	<p>Certifier has failed to make, or record, adequate enquiry regarding the design of the piling system and/or the experience of the engineers undertaking the design.</p> <p>Deficiencies in the warrant plans – failure to identify pile size, types, locations, SWL and indicative toe and cut off levels.</p> <p>Client not advised on the requirement for site testing.</p> <p>Where contractor designed detail option has been used there are deficiencies in the performance specification.</p> <p>Inadequate or insufficient calculations regarding piling.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P4D	<p>Earth Retaining Structures</p> <p>The auditor must check that appropriate design parameters, particularly for the selection of earth pressure coefficients have been used and that both local and global failure mechanisms have been investigated.</p>	<p>Retaining structures may occur within the footprint of the building but also may be required to retain slopes generally within the boundaries of the development comprising the warrant application.</p> <p>Certification will embrace the performance of the retaining structure and also the overall stability of any slope against which the structure is located.</p> <p>Loading parameters must reflect the support conditions (propped or cantilevered) and any surcharges.</p> <p>The certifier must supply evidence that calculations have been prepared in accordance with an accepted methodology, have been checked by a suitably experienced person and that the design output has been properly reflected in the warrant application drawings.</p>	<p>Absence of suitably checked structural calculations and/or details.</p>	<p>Deficiencies in the building warrant plans – failure to identify layout, level changes, dimensions, construction and typical reinforcement details.</p> <p>Plans do not properly reflect the calculations.</p> <p>Inadequate or insufficient calculations regarding earth retaining structures.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P4E	<p>Ground Improvement</p> <p>Where ground improvement techniques are being used the auditor must check that the design has taken account of the loading calculations and the findings of the ground investigation report.</p>	<p>The ground improvement design is normally undertaken by a specialist contractor and frequently employs a proprietary system where the design methodology is unique to the chosen system.</p> <p>In these circumstances it is unlikely that the certifier will be competent to undertake the design check and must therefore rely on the experience of others. The certifier should however undertake sufficient enquiry to satisfy himself/herself that the system being proposed is suitable to the building. The certifier should check that the contractor has taken account of the predicted ground conditions and the loading calculations produced by the designer(s) of the superstructure and that internal design checks by suitable qualified persons have been undertaken.</p> <p>Any performance specification should also make an appropriate allowance for suitable in situ testing of the ground improvement measures, and the test results should be available to, and reviewed by, the certifier before the Form Q is signed off.</p> <p>Suitable evidence will be drawings and specifications relating to the design, a file record of the enquiry into the design made by the certifier and responses received from the specialist contractor.</p>	<p>Absence of suitably checked design calculations and drawings taking the relevant superstructure loads through the spread foundations onto the ground treatment and demonstrating that the allowable bearing capacity of the ground conditions identified in the SI report once treated exceeds the applied load.</p> <p>Certifier has relied on certification from a specialist contractor without making appropriate enquiries regarding the design of the ground improvement measures.</p>	<p>Deficiencies in warrant plans – failure to identify type of improvement and areas of treatment proposed, anticipated layout and diameters of stone columns, required allowable bearing capacity and details of site testing.</p> <p>Certifier has failed to make, or record, adequate enquiry regarding the design of the ground improvement system and/or the experience of the engineers undertaking the design.</p> <p>Certifier has failed to advise the client on the requirement for site testing.</p> <p>Where contractor designed detail option has been used there are deficiencies in the performance specification.</p> <p>Inadequate or insufficient calculations regarding ground improvement.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P4F	<p>Superstructure</p> <p>Auditors must seek evidence that the design of all load-bearing structural elements including structural frames, walls, floors, roofs, stairs and stair enclosures have been carried out in accordance with an acceptable methodology and that calculation have been checked by a person with the necessary knowledge and experience.</p>	<p>Calculations which have been carried out in accordance with the Codes and Standards listed in the Technical Handbooks accompanying the Regulations will be regarded as meeting the requirements of the regulations.</p> <p>Where design methodologies have been used which are not based on these then the Certifier must be satisfied that the alternative approach still meets the standard required by the regulations.</p> <p>The level of checking undertaken will depend on a wide range of factors which include the complexity of the design and the risk associated with structural failure.</p> <p>The output from structural calculations must be properly reflected in the drawings submitted to the local authority in support of the warrant application.</p> <p>Frequently detailed elements of the design will be undertaken by specialist contractors after the main general arrangement has been completed. These details can be crucial to the performance of the structure and should be subject to the same checking regime as the main structural members.</p> <p>For timber floors it is necessary for certifiers to satisfy themselves that the joist layout, including trimming to openings and secondary dwangs, is adequately shown and that the detail and extent of fixing is adequate to accommodate the loadings imposed on the structure.</p>	<p>Absence of suitably checked structural calculations and/or details.</p>	<p>Deficiencies in the building warrant plans:</p> <p>Failure to state design superimposed floor loadings, identify, locate, size and specify materials of load bearing or stability elements of structure (including bracing, shear walls etc.), floor slab span directions, layouts and structural details of stairs, timber roof truss layouts, truss shapes and stability bracing, loading to be sustained, trimming of openings, beam end bearing details and padstones etc.</p> <p>In the case of timber framed houses – failure to identify details of underbuilding, nailing schedule, panel tie-down to foundations, sole plate restraint to underbuilding, wall type and spacing, size and material specification of studs, cripple studs and lintels, location of lintels and cripple studs, platform connection to wall panels.</p> <p>In the case of loadbearing masonry walls – failure to identify leaf construction and dimensions, cavity widths, mortar designations and brick/block strength or classification.</p> <p>In the case of steel framed buildings – failure to provide layout, span directions and dimensions for floor slabs (including generic type and gauge of metal decking and temporary propping requirements if appropriate), main beams and columns, secondary beams, typical main connection details, bracing details, applied loading, layout of composite beam shear studs.</p> <p>In the case of concrete framed buildings – failure to provide framing details, main beams and columns, secondary beams, floor slabs, typical slab, beam and column reinforcement details together with typical joint details.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P4F continued		<p>For timber trussed rafter roofs the building designer is responsible for detailing all elements of bracing required in the roof, including that necessary to provide restraints to truss members required by the trussed rafter designer.</p> <p>The building designer is also responsible for detailing suitable fixings for both the trussed rafters and the wall plates to provide adequate restraint against uplift.</p> <p>It is essential that the trussed rafter designer clearly specifies on drawings the location of lateral restraints assumed in the truss design, in order that the building designer may detail a suitable bracing arrangement and support system capable of providing such restraint. Roof stability bracing to trussed rafter roofs can typically be provided by a combination of the following elements:</p> <ul style="list-style-type: none"> • Longitudinal bracing at node points • rafter diagonal bracing • tiling battens/purlins • web chevron bracing • lateral bracing at the mid point of compression members and sarking boards. <p>Certifiers must present evidence comprising structural calculations, drawings and checking by suitably experienced engineers.</p>		<p>Plans do not properly reflect the calculations.</p> <p>Absence of design calculations or test certification to justify the design of a minor element or detail.</p> <p>Inadequate or insufficient design calculations.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
<p>P4G (formerly P6A)</p>	<p>Ties Fixings and Connections</p> <p>Auditors should check that these have been detailed on the warrant plans in accordance with the design assumptions implicit within the structural calculations.</p>	<p>The performance of individual structural members is frequently dependent upon adequate tying to and support from other parts of the structure.</p> <p>The location and frequency of ties may result from calculations but are frequently specified in British Standards (Gable ties for masonry wall panels for example).</p> <p>For platform timber frame structures the tying between floor and roof diaphragms and racking panels and restraint straps to prevent uplift of racking panels are a critical requirement to facilitate the transfer of lateral loads to the racking panels.</p> <p>The certifier must make adequate enquiry that the proposed details are adequate and that the submission for warrant adequately details nail connections between elements and other ties and supports such as joist hangers and roof restraint members.</p> <p>Evidence will comprise tie and/or connection details specified or shown within the structural plans submitted to the local authority verifier.</p>	<p>Inadequate detailing of ties and/or fixings and/or connections on the warrant plans.</p> <p>Absence of suitably checked calculations (except where BS standard details apply) and/or details.</p> <p>Where contractor designed option used no performance specification provided on warrant plans.</p>	<p>Deficiencies in the warrant plans – failure to identify details of spacing and fixing of restraint ties between structural elements such as roof trusses, floors and walls.</p> <p>Where contractor designed option used the Certifier has failed to make, or record, adequate enquiry regarding the design of the ties, fixings and connections and/or the experience of the engineers undertaking the design.</p> <p>Where contractor designed option used deficiencies in the performance specification.</p> <p>Inadequate or insufficient design calculations.</p>

5. **Design (Building Envelope)** The building envelope is required to fulfil a wide range of building regulation requirements. While the envelope will frequently not contribute to the strength and stability of the building structure it will require to support its own weight, transfer wind loads into the structure and remain attached to the building under the effects of wind load.

Key Factors The Standing Committee on Structural Safety (SCOSS) has highlighted a number of potential problems arising from deficiencies in design. The strength and durability of the cladding material, support structure and crucially the fixing systems must be sufficient to withstand climatic conditions.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P5A	<p>Cladding System (including glazing)</p> <p>Auditors should check that the certifier has made adequate enquiry regarding the ability of the cladding system to satisfy the requirements of the regulations.</p>	<p>The various elements of the building system will frequently be designed by specialist contractors. Certifiers should check that any structural requirements for the building envelope have been properly defined and that the design is either covered by the appropriate British Standard and/or substantiated by engineering calculations or appropriate testing.</p> <p>The design shall take account of localised wind pressures which may apply to the building and the detailing must adequately account for differential movement between the cladding elements and the supporting structure.</p> <p>Where masonry cladding is used the design should confirm the resistance of the masonry to both vertical and horizontal loading (taking account of wind posts and bed joint reinforcement provided). How the resulting loads are transmitted to the primary structure will be considered under P5B.</p> <p>Where masonry cladding is used in association with a timber or steel inner leaf framing system this should again be designed to resist the relevant loading and be suitably fixed back to the primary structure.</p> <p>External windows, doors, patent glazing and canopies form part of the building cladding and can be subject to wind pressure, snow load and to potential human impact. These elements are therefore load-bearing and form part of the structure covered by an SER design certificate.</p> <p>Windows should be designed in accordance with BS 6262 2005 Glazing for Buildings –Part 3: Code of Practice for fire, security and wind loading and BS 6264 2005 Glazing for Buildings – Part 4: Code of Practice for safety related to human impact.</p> <p>Patent glazing and sloping glazing should be designed in accordance with BS 5516 2004 Patent Glazing and Sloping Glazing for Buildings – Part 1: Code of Practice for design and installation of sloping and vertical glazing and Part 2: Code of Practice for sloping glazing.</p>	<p>Absence of suitably checked structural calculations, or test certification, and/or details.</p>	<p>Deficiencies in the building warrant plans – failure to identify cladding specification and design loads and/or parameters.</p> <p>Plans do not adequately detail how the structural cladding system will be constructed.</p> <p>If the structural cladding system is included on a Schedule 1 then the warrant plans must define the appropriate loading for the cladding design or detail all the relevant information to enable the appropriate design loadings to be derived for each element of the cladding.</p> <p>Inadequate or insufficient design calculations.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P5A continued		<p>Certifiers should refer to SER Technical Bulletin No 6 “Certification of the Design of Glazing Systems” for further guidance on the level of enquiry and checking to be carried out in respect of glazing systems which is based on a Risk Assessment of the particular circumstances of each project.</p> <p>Where windows, doors or glazing are included in Schedule 1 as contractor designed elements the certifier must be satisfied that an adequate performance specification has been prepared for the glazing elements. This should include specification of the wind loading (including all localised increased pressures from edge conditions, funnelling etc), or sufficient information to enable the contractor to properly establish the relevant wind loads for all elements of the cladding. Snow loading and any human impact loading should also be specified as appropriate.</p> <p>Evidence (of all the above) will comprise structural calculations, drawings and checking by suitably experienced engineers.</p>		

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P5B	<p>Cladding Fixings and Supports (including purlins, sheeting rails etc.)</p> <p>Auditors should check that the certifier has made adequate enquiry regarding the strength and durability of the building envelope fixing system and that fixings have been used in accordance with the conditions of use described within the test certification.</p>	<p>In addition to the design of the glazing elements it is necessary for certifiers to satisfy themselves that the fixings between cladding elements, secondary supports and the building superstructure are adequate.</p> <p>The fixings system may comprise a chain of components which must provide adequate anchorage of the cladding system to the main structure. Failure of one link in the chain can cause failure of the entire system.</p> <p>Components must also be durable and their ability to resist the effects of corrosion must be established. (A definition of durability is provided in the Technical handbook accompanying the Building Standards). SCOSS has highlighted the need for regular inspection of fixings and Regulation 8 requires that materials should be reasonably accessible for maintenance.</p> <p>The choice of wall ties to connect masonry envelopes to timber frames is discussed in BS 5268-6.1:1996 Annex B (normative). User categories for the selection and application of timber framed wall ties and certifiers dealing with timber framed buildings should record reference to this document.</p> <p>For timber cladding it is necessary for certifiers to satisfy themselves that the detail and extent of fixings are adequate to accommodate the local wind suctions imposed on the building envelope.</p> <p>Where fixing performance requires to be considered by site testing this must be included in the performance specification and test results must be obtained, and reviewed, prior to the signature of any Forms Q relating to the cladding or fixings.</p> <p>Evidence will comprise structural calculations and/or test certification which meets the criteria described within subsection 0.8.4 of the Technical Handbook accompanying the Scottish Building Standards.</p>	<p>Inadequate detailing of fixings and ties on warrant plans.</p> <p>Absence of suitably checked calculations, or test certification, and/or details.</p> <p>Fixing calculations not taking account of all load combinations in all locations.</p> <p>Fixings specified on the basis of inadequate or inappropriate test certification.</p> <p>Fixings specified for a situation inappropriate to the conditions of the test.</p> <p>Where contractor designed option used failure to provide an adequate performance specification (including relevant wind information).</p>	<p>Deficiencies in warrant plans-failure to identify type and span direction of cladding, locate and dimension supports to cladding, wind posts and fixings, wall ties etc.</p> <p>Certifier has failed to make adequate enquiry regarding the durability of the fixings.</p> <p>Certifier has failed to check that the client has been advised of the requirement for site testing.</p> <p>Where contractor designed detail option has been used there are deficiencies in the performance specification.</p> <p>Spacing of wall ties inappropriate for inner leaf/sub frame behind.</p> <p>Detailing of wall ties and fixings fails to take account of localised wind effects and/or presence of openings in masonry panels.</p> <p>Inadequate or insufficient design calculations.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P5C	<p>Cladding Movement Joints</p> <p>Auditors should check that the certifier has reviewed the provision of movement joints in the building envelope.</p>	<p>The certifier must be satisfied that adequate provision for differential movement between the cladding elements and the supporting structure has been properly incorporated in the detailing.</p> <p>Absence of movement joints can cause localised failure of a façade. Certifiers should check that these have been provided in accordance with an accepted design methodology.</p> <p>Evidence will be the location and detailing of joints on the building warrant plans or suitable notes regarding the maximum permitted joint centres.</p>	N/A	Absence of detailing of movement joints on the warrant plans.

6 Design (Secondary Structure) Frequently items of secondary structure are designed by members of the design team other than the principal structural designer. Details may only appear on architectural drawings. These items can be structurally important and must be included in the scope of structural design certification.

Key Factors The certifier is responsible for ensuring that the designer has considered the design of secondary structure and that the design has been adequately checked.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P6A	P6A in the 2008 document has now been reclassified as P4G.			
P6B	<p>Internal Partitions</p> <p>Auditors should check that the certifier has made adequate enquiry regarding the ability of the partitions to satisfy the requirements of the regulations.</p>	<p>Lightweight and masonry partitions, though not required to support loads transmitted through the structure of the building, are required to be sufficiently robust and adequately fixed to support accidental loads from building users. Some partitions will be required to withstand the effects of wind loading arising from dominant openings.</p> <p>Evidence will comprise structural calculations and/or test certification carried out in accordance with an appropriate national or European technical standard.</p>	N/A	<p>Certifier has failed to make adequate enquiry regarding the ability of internal partitions to support accidental loading from building users or internal wind loading.</p> <p>Inadequate specification or detailing of partitions and/or head and base fixings.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
<p>P6C</p>	<p>Protective Barriers</p> <p>Auditors should check that the certifier has made adequate enquiry regarding the ability of any pedestrian or vehicle barriers within the building to withstand design loads.</p>	<p>Standards 4.4 and 4.12 require the provision of protection for pedestrians and vehicles respectively to changes in level within the building. Protection may take various forms including walls, partitions, fixed glazing handrails or parapets.</p> <p>The Guidance contained within the Technical Handbooks accompanying the Building Standards recommends that these should be designed to withstand loads calculated in accordance with BS 6399: Part 1.</p> <p>Evidence will comprise structural calculations and/or test certification carried out in accordance with an appropriate national or European technical standard.</p>	<p>Absence of performance specification (contractor designed elements only).</p> <p>Use of incorrect loadings in design or performance specification.</p> <p>Absence of suitably designed and checked calculations or test results (barriers not listed in Schedule 1) and/or details.</p> <p>Where certified on the basis of test results failure to check compatibility with other supporting elements.</p> <p>Insufficient details / performance specification.</p> <p>In the case of licensed sports grounds failure to refer to or address Guide to Safety at Sports Grounds.</p>	<p>Deficiencies in the building warrant plans / plans do not adequately detail how the barrier system is to be constructed.</p> <p>Absence of reference to BS 585 or BS6180 as appropriate.</p> <p>Where contractor designed option used the Certifier has failed to make, or record, adequate enquiry regarding the design of the barrier and/or the experience of the engineers undertaking the design.</p> <p>Where contractor designed option used deficiencies in the performance specification.</p> <p>Inadequate or insufficient design calculations.</p>

7. **Specification.** Section 11 of the Act deals with the certification of design. Sub-section (2) states "Design" includes the specification of the material to be used. Regulation 8 sets the standard against which an adequate specification of material performance may be judged.

Key Factors Materials fittings and components that are important to the structural performance of the building must be manufactured and have their performance tested in accordance with acceptable national or European standards. Testing must be carried out by suitably accredited testing organisations. Components and materials must be durable under the exposure conditions that they will encounter and when their performance depends on regular maintenance, inspection or replacement they must be sufficiently accessible for this work to be carried out.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P7A	<p>Structural Materials</p> <p>Auditors must satisfy themselves that the certifier has examined the drawings and specification to ensure that properties specified for structural materials are sufficient to deliver the performance assumed within the structural calculations.</p>	<p>Subsection 11(2) of the 2003 Act makes clear that the certification of design covers the specification of the materials to be used. This may take the form of notes on the warrant application drawings but on larger projects may be a separate document which may not be included with the application. The certifiers must satisfy themselves that design assumptions concerning the strength and durability of structural materials have been properly recorded within the specification for the project. (A definition of durability is provided in the Technical handbook accompanying the Building Standards)</p> <p>Evidence will be material specification notes on the warrant application drawings or, if these are insufficient, a separate specification document retained within the project file and confirmation that this has been reviewed by the certifier.</p>	<p>Absence of project specification (covering requirements for all major structural items) prior to certification.</p>	<p>Omission of a check of the specification from the certification process.</p>

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P7B	<p>Structural Components</p> <p>Auditors must satisfy themselves that manufactured structural components have been selected on the basis of appropriate national or European performance standards.</p>	<p>The performance of a structure will frequently be dependant on the performance of a wide range of manufactured components and assemblies, such as lintels, flooring panels etc. The selection of these items will often be on the basis of calculation of the appropriate loadings and comparison with test information presented by the manufacturer.</p> <p>It is important for certifiers to assure themselves that these tests have been carried out in accordance with standards which address the matters covered by the appropriate building regulations, that the manufacture and fitting of the items is to a controlled standard and the testing has been undertaken by an accredited test facility.</p> <p>Evidence will comprise structural calculations and/or test certification which meets the criteria described within subsection 0.8.4 (Fitness of Materials) of the Technical Handbook accompanying the Scottish Building Standards.</p>	<p>Components specified on the basis of inadequate or inappropriate test certification.</p> <p>Components specified for a situation inappropriate to the conditions of the test.</p>	<p>Structural component is incorrectly or inadequately described in the warrant plans.</p>
P7C	<p>Structural Fixings</p> <p>Auditors should check that the certifier has made adequate enquiry regarding the strength and durability of the fixing system and that fixings have been specified in accordance with the limitations on the test certification.</p>	<p>Fixings must provide adequate anchorage and be durable. (A definition of durability is provided in the Technical handbook accompanying the Building Standards) Regulation 8 requires that such components should be reasonably accessible for maintenance or inspection. Where their performance depends on site testing this must be drawn to the attention of the person responsible for submitting the completion certificate.</p> <p>Evidence will comprise structural calculations and/or test certification which meets the criteria described within subsection 0.8.4 of the Technical Handbook accompanying the Scottish Building Standards.</p>	<p>Fixings specified on the basis of inadequate or inappropriate test certification.</p> <p>Fixings specified for a situation inappropriate to the conditions of the test.</p>	<p>Structural fixing is incorrectly or inadequately described in the warrant plans.</p>

8 Structural Fire Protection Standard 2.3 sets out the standard required by the Regulations for the structural performance of the building in a fire. This is outwith the scope of the SER certification scheme. The guidance in relation to standard 1.1 given within the Technical Handbook accompanying the Scottish Building Standards states however that *“Consideration should be given to guidance in other sections of the Technical Handbook that can influence the structural design of a building.*

Key Factors Required level of fire resistance and how this is achieved. Whether an “engineered” approach to design has been adopted. Requirements for non-combustibility. Special requirements for portal framed buildings in boundary condition.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P8A	<p>Elements Of Structure (As defined by Regulation 2)</p> <p>Auditors should check that the certifiers has made adequate enquiry regarding the provisions, including fire protection, specified to ensure adequate performance of the structure in a fire.</p>	<p>Though the structural designer is best placed to understand how the structure will behave in a fire the structural engineer is frequently not involved in calculating the required level of fire resistance or specifying the fire protection to be provided. Certifiers though not required to certify that the design of the structure complies with the structural fire standard 2.3 should satisfy him/herself that there has been sufficient communication between members of the design team to deliver an adequate level and scope of fire protection to the structure.</p> <p>Evidence of communication between the structural designer and the specifier of the structural fire protection system regarding the fire resistance and protection of the structure.</p>	N/A	Certifier has failed to make adequate enquiry regarding the measures proposed to satisfy the structural fire resistance requirements of the regulations.
P8B	<p>Single Storey Steel Portal Framed Buildings</p> <p>Auditors should check that the certifier has made adequate enquiry regarding the ability of the structure to support the external wall and provide the fire separation required by the regulations.</p>	<p>Single storey buildings do not generally require fire protection however an important exception to this is the case of an external wall which must retain its stability to prevent the spread of fire to an adjacent building (referred to as a boundary condition). It is generally accepted that, in this case, rafters may be left unprotected provided the stanchion base has been designed to resist overturning moments arising from the collapse of unprotected parts of the building.</p> <p>Evidence will comprise design calculations and detailing in accordance with the Steel Construction Institute Publication: Single Storey Steel Framed Buildings in Fire Boundary Conditions.</p>	Certifier has failed to make adequate enquiry regarding the stability of the portal frame in a boundary condition and carry the necessary provisions through on to the warrant plans.	N/A

9. Requirements for Membership of the Scheme

Approved Certifiers will have made a number of declarations, in their application, demonstrating compliance with the criteria for membership of the scheme. The accuracy of these declarations will be checked by the audit.

Key Factors

An approved certifier must operate within the limits of his/her declared competence using the experience of others to undertake specific checks where necessary. He/she must approach certification in a methodical manner, operating within the guidance of the scheme and maintain records of how decisions are made. A certifier must be able to show that he/she understands the statutory responsibilities and obligations that arise from membership of the scheme and undertake Continuing Professional Development CPD relevant to the role of certification.

Reference	Sub-Classification and auditor action	Background and Evidence	Major Non-Conformances	Improvement Issues
P9A	<p>Operating within the limits of declared competence</p> <p>Auditors should check that the range of projects being certified falls broadly within the limits of knowledge and experience declared in the application.</p>	<p>Certifiers are not permitted to certify work that is outwith the declared range of their knowledge or experience as described in their application for membership of the scheme.</p> <p>Evidence must be available which will show that the projects certified fall broadly within the scope of work declared in the application or that the certifier has acquired the necessary knowledge and experience since making the application for membership of the scheme.</p> <p>For specific aspects, or components, of the project which are outwith the competence of the certifier then the advice of a specialist or expert should be relied on, in accordance with SER Guidance Note 3 "Options for Certification".</p>	<p>Project certified well outwith the scope of competence declared in the application.</p>	<p>Specific aspects, or components, of the project outwith the certifier's competence and no, or inadequate, reference to an acknowledged specialist or expert competent in the design of the elements in question.</p>

APPENDIX C

AUDIT FORMS

The following forms should be used to record the findings of the audit and can be downloaded from the SER website (only available to auditors):

- 1. Project Audit Checklist (to be completed for each project audited)**
- 2. Approved Body Audit Checklist (to be completed for each body audited)**
- 3. Approved Body Audit Report**
- 4. Approved Certifier Audit Report**