Appendix C3, *Check-list for auditors of candidate registered laboratories for other characteristics*

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2 Introduction

This document has two aims:

- to give a check-list to the auditors to be used during an audit visit
- to inform the audited laboratory of the items that will be discussed during an audit visit and of the required documentation that shall be available for examination before an audit

The audit visit by Expert group member will focus on the equipment and testing details. This part is focussed on mechanical tests listed below.

- Compressive stress (EN 826, EN ISO 29469)
- Water vapour permeability EN 12086 or EN 12572 for flat product and EN 13469 for pipe
- Water absorption (EN 1609, EN 12087) or (EN ISO 29767, EN ISO 16535)

- Dimensional stability (EN 1604)
- Creeping (EN 1606)
- Tensile strength perpendicular to faces (EN 1607)
- Bending (EN 12089)
- Shear stress (EN 12090)
- Point load (EN 12430)
- Acoustic (EN 29052-1, EN ISO 354 and EN ISO 11654)
- Air flow resistance (EN 29053)

Documentary evidence of compliance shall be retained by the laboratory for the purposes of auditing.

Specific requirements for the individual tests are described after the general requirements valid for all/any of the tests listed above.

A laboratory may become registered for one or more of the tests as appropriate.

3 Laboratory documentation required by the standard(s), available for inspection by the auditor

- Equipment manual

  This manual shall contain:

  - equipment performance specifications
  - equipment description
  - equipment design and uncertainty analysis
  - equipment performance check complete with experimental data

- Calibration and maintenance files

  Equipment maintenance and results of calibrations shall be annotated in the calibration and maintenance files.

- Measurement procedures document

  The measurement procedures document shall contain all detailed instructions that the operator requires to perform measurements within the stated uncertainty.

  See also the annex 1 of this document.

The auditor shall be informed before the visit that this documentation will be available for inspection during the audit.

4 Items to be discussed during an audit visit

4.1 Application form and requirements for a registered laboratory

The application form filled in by the audited laboratory and sent previously to the Quality Assurance Mark Secretariat will be examined by the auditor.

This application form gives, among others things, some information about the requirements for a registered laboratory indicated in Appendix. These requirements will be examined in detail hence it is important to fill in the application form as fully as possible.

The following items will be discussed:

- **Accreditation and conformity according EN ISO 17025:**
  - Accreditation by which body?
  - Accreditation to which standards?
  - Date of last audit and details of non-compliances if any?
  - …
- ***Competence of staff for testing within the Quality Assurance Mark scheme***
  - How many years of experience?
  - Comparative testing?

- Qualifications
- Evidence of training
- …

– …

4.2 Equipment and testing details

The equipment used for testing within this Quality Assurance Mark scheme shall comply with the requirements of the relevant EN standards (see Table in annex 3).

The following items will be considered:

– ***Validation according to the relevant EN standard(s) and uncertainty analyse(s)***

The equipment manual will be examined with attention:

- Equipment description
- Equipment performance check

  The procedure for the equipment performance check shall be described in detail and should include experimental data.
- Uncertainty analysis or uncertainty budget

  Detailed information shall be given of the uncertainty analysis (best measurement capability) leading to an estimate of the measurement uncertainties under different testing conditions

– ***Measurement procedures document***

This document shall contain all detailed instructions that the operator requires to perform measurements within the stated uncertainty

- Specimen preparation for testing
- Testing procedures, step-by-step
- Thickness of the specimen, if relevant
- Mass length width of the specimen, if relevant
- Test reporting
- Appropriate calibration checks and maintenance actions
- Procedure followed with samples thicker than the capability of the apparatus?
- …

– ***Instrument calibration and status on calibration***

- calibration of relevant elements of the equipment
- Calibration of devices needed to perfom the tests (see annexe 3 for some example)

- Status on calibration?
- Frequency?
- Call up procedure for re-calibrations

– ***Proficiency testing***

- Which test was performed and results?
- Records of these tests and results?
- History of calibration of equipment?
- For a specific test (the auditor can pick up one report from the archive for example), is the staff able to show all results and records?
- Details of inter-laboratory comparisons and level of agreement

– ***Witness testing***

- System for sample marking
- Preparation of the specimens for a measurement
- Identification of this specimen
- Steps for measuring this specimen
- Thickness, weight, length measurement, if relevant
- Exploitation of data
- Report
- Checking of results before reporting

Annex 1: Requirements for registered laboratories

A laboratory shall fulfil the following requirements in order to be accepted by the Quality Assurance Committee as a registered laboratory:

1. The laboratory shall be accredited against EN ISO 17025 (EA accreditation). In particular, the laboratory shall be able to demonstrate participation in inter-laboratory comparative testing for the relevant test methods.
2. The laboratory shall be notified within the frame of the CPR for insulation products for essential characteristics under system 3.
3. The laboratory shall have recent experience with test procedures (conditioning, ageing and measuring according to product specifications) according to the specific product standards.
4. The competence of staff and fitness for purpose of the equipment used for testing within the Quality Assurance Mark scheme shall comply with the requirements of relevant European standards:

   Documentary evidence of compliance shall be retained by the laboratory for the purposes of auditing.
5. Results shall be in agreement with the European levels of conformity requirements for the three tests as follows:

   Define by the uncertainty budget

NOTE 1 A laboratory may become registered for one or more of the test methods (see **Error! Bookmark not defined.**)

NOTE 2 Where a registered laboratory is contracted by a manufacturer to conduct testing for the manufacturer's own factory production control, the acceptance of that registered laboratory to conduct testing for a Certification Body for the Quality Assurance Mark scheme, will be at the discretion of the Certification Body. In such a case the certification body shall inform the Quality Assurance Committee.

Annex 2: General experience/rules for audits, additional information for candidate registered laboratories and the auditor

There is a limit to the length of time that discussions with a candidate can continue. Clear time schedules shall be agreed between parties. If no actions are taken by the candidate for more than 6 months after the audit all actions need to be repeated (audit and comparative testing).

An important element for candidates is that the EN ISO 17025 accreditation shall be in place before a laboratory can apply.

Confidentiality is taken very seriously, and e.g. detailed discussions in the expert group on the individually candidates will not be in the minutes of the expert group meetings and will not be discussed with anyone outside the group.

The individual experts are responsible for follow up on actions agreed and at expert group meetings an item on the agenda will be to report on progress of these actions. The draft minutes of expert group meetings shall reflect actions to be taken and can be used by auditors when checking updates on the individual candidates.

When a candidate laboratory believes it is ready for the audit and guidance has been given by the auditor, a mutually convenient date will be arranged for the audit to take place.In general, the required documentation shall be forwarded to the auditor before the audit. The check list for audits (scheme rules appendix C3, i.e. this document) will be made available to the applicants to help them prepare for the audits.

The basis for the auditing will be that candidate registered laboratories are accredited by an appropriate national body. That work shall not be repeated, but spot checks on technical details related to testing shall be made.

Observations will be made during the audit, and based upon the reporting of the auditor, the Expert group will make their decision. The Expert group secretariat will inform the candidate registered laboratory of the final conclusion.

All communication with the candidate will be handled by the secretariat with full information copied to the Expert group. Full confidentiality is essential here and shall be respected by all Expert group members.

The audit costs are covered by the TIAQ, as defined by the Expert Group.

The format of the audit reports will follow the check list (scheme rules appendix C3, i.e. this document).

An audit might not be needed if the candidate laboratory has been assessed in the normal accreditation process by one of the expert group auditors and this auditor can confirm that the elements of the Quality Assurance Mark rules appendix for Building products requirements was covered during the audit. This will be judged case by case by the auditor.

Annex 3: List of tests, which can be audited

Table 1: Tests and related reference standard

Characteristics	Standard	Calibration
Compression	EN 826, EN 12431 EN ISO 29469, EN ISO 29770	Load sensor Velocity Environment
Dimensional stability	EN 1604 ISO 29472	Environment Calliper or other equivalent sensor
Creeping	EN 1606 EN ISO 16534	Displacement sensor Environment Load
Tensile strength perpendicular to faces	EN 1607 ISO 29765	Load sensor Environment
Water absorption (partial immersion short term)	EN 1609 EN ISO 29767	Scale Environment
Water absorption (long term)	EN 12087 EN ISO 16535	Scale Environment
Water vapour permeability	EN 12086 ISO 12572	Environment Pressure
Bending	EN 12089 ISO 12344	Load sensor Velocity
Shear stress	EN 12090 ISO 16537	Load sensor Velocity
Point load	EN 12430 ISO 29769	Load sensor Velocity
Acoustic	EN 29052-1, EN ISO 354 and EN ISO 11654	Sound sensor
Air flow resistance	EN 29053	Equipment