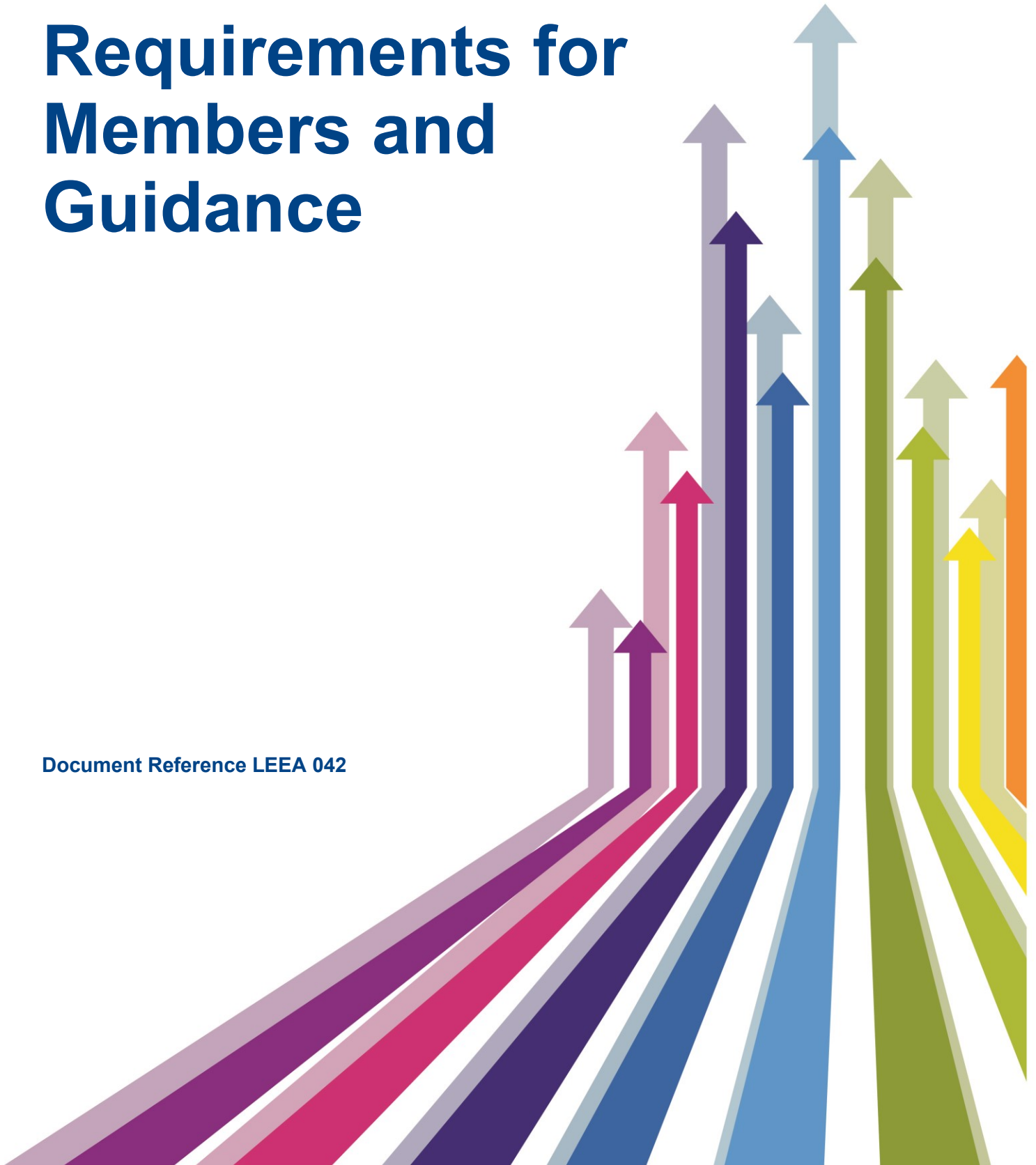


# Requirements for Members and Guidance

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## **REQUIREMENTS FOR MEMBERS AND GUIDANCE**

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**REQUIREMENTS FOR MEMBERS AND GUIDANCE**

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## 1 Introduction

This document lays down the Requirements for Members of the Lifting Equipment Engineers Association.

These Requirements are directly related to the design, manufacture, testing, supply, rental, inspection, maintenance, periodic examination and the use of lifting equipment and compliance with these requirements is a condition of LEEA membership.

Compliance against these Member Requirements will be assessed in 2 stages.

The first step is the completion of a Pre-Audit Assessment form by the prospective member which is submitted for review. If this review is successful, an offer of Provisional Membership will be made.

The second stage is the submission to an audit which will take place at the members premises and will confirm the facts presented as part of the Pre-Audit Assessment return but will concentrate on other elements of the member's scope of activity.

Some elements covered in the Pre-Audit Assessment may not be covered in the Audit and vice-versa.

Following the audit against these requirements Members will transfer to Development status until such time as all requirements relative to their scope of activity have been deemed to be compliant and existing Development Actions officially closed-out after which they will graduate to Full Membership status.

Ongoing membership will be reliant upon the submission of an annual update form to give feedback of any important changes in their organisation and by ongoing audits on a periodic basis.

The initial and subsequent ongoing audits will be conducted against document LEEA-044 "Audits of Members". The audit document draws upon requirements stated within this document coupled with the relevant standards, legislation, codes of practice applicable to the country or region in which an organisation operates.

LEEA members will be expected to apply the requirements of this document in addition to any national legislation

The scope of the audit will be based upon an assessment of the activities performed by each individual member. Elements which are not part of a member's activities will be excluded from the scope of the audit.

To gain Full Membership of the Association, members must be compliant with all applicable sections of this document relative to the products and services they provide.

Where members employees perform tasks using work equipment and lifting devices within their own business, they must undertake to comply with the relevant sections of this document, in addition to the legislative requirements, to ensure they meet the essential Health & Safety requirements within their workplace. This includes the training of their workforce in safe use and pre-use inspection of the equipment provided to them as well as regular maintenance, inspection and periodic examination.

These requirements should be read in conjunction with document LEEA-043 Rules of the Association which stipulates other rules which all members have to abide by



Dr Ross Moloney  
Chief Executive  
Lifting Equipment Engineers Association

## 2 Scope of activities

To qualify for initial membership of LEEA, organisations must have at least 12 months active history of trading in 1 or more of the following activities

Design of products or software systems related to lifting equipment

Manufacture of lifting equipment or components

Manufacture of lifting equipment from component parts (e.g. cranes assembled from “kits”, chain slings, wire rope slings, etc.)

Sales and distribution

Maintenance, repair, Modification of lifting equipment

Installation and commissioning Services

Periodic examination of lifting equipment

Lifting equipment Rentals

Testing Services

Training Services

Consultation Services

Using and inspections of lifting equipment (within your own facilities)

Any other related industries or services

## 3 Organisation, and personnel

As part of these requirements, organisations will need to demonstrate that systems are in place to:

- Identify key personnel within the senior management team
- Demonstrate who does what within the organisation
- Demonstrate how different functions or department communicate with each other, particularly in the case of technical matters
- Determine how employees are assessed to establish their levels of competence
- Ensure training needs are Identified and implemented so that employees and sub-contract workers can perform the tasks they are asked to do in a safe manner
- Retain such records to demonstrate the above.

Organisations should also be able to provide details related to:

- Appropriate insurance cover is held by the company. This may include, but be not limited to:
  - Employers Liability
  - Public Liability
  - Product Liability
  - Workers compensation
  - Professional Indemnity
- Information about the premises from which the organisation operates
- Management System Accreditations (such as ISO 9001; ISO 14001; ISO 45001; etc.)
- Membership of any relevant industry bodies, trade associations or stakeholders
- Test and inspection equipment relative to their activities

## 4 Control of Information

It is essential that appropriate information is readily available, to persons who carry out different tasks within an organisation. Such information is often contained within standards, legislation, codes of practice, LEEA guidance documents in-house procedures, etc.

Systems should be in place to establish

- The legislation and standards applicable in that country or region
- how you keep up to date with any changes to standards, legislation, or other related documents and how you apply any such changes to in-house procedures, etc.
- Certification and other product related documents received from vendors
- Certification and other related documentation created for products manufactured, assembled or sold by your organisation
- What information needs to be available and to who
- Where and how information is to be stored

The necessary information can be made available in electronic or hard copy formats

## **5 Purchasing and control of sub-contractors**

It is essential that members have robust systems in place to ensure that goods and services purchased are fit for purpose in every respect

LEEA would expect that, controls are in place to cover, purchases including, but not be limited to:

- Raw materials
- Semi-finished goods or components
- Bought in Finished goods (supplier-branded or self-branded “factored items”)
- Services
- Sub-contract labour
- Training for clients
- Training (for their own workforce)
- Inspection, maintenance and periodic examination services
- Design activities
- Planning of complex lifts

## **6 Design activities**

Disciplines to which Design can be applied include, but are not limited to the following examples:

- Mobile Cranes
- Tower Cranes
- Bridge and gantry cranes including light crane systems
- Crane supporting structures
- Powered winches and hoists
- Hand operated cranes
- Chain, wire rope and textile lifting slings
- Below the hook lifting devices
- Components and terminations for slings
- Software programmes e.g. related to inspection, maintenance, periodic examinations, etc
- Training courses for users of lifting equipment

Systems need to be in place to demonstrate

- What is being designed
- The applied standards and / or legislative requirements
- Implementation (in-house or by a sub-contract design house)
- Qualifications / competence of personnel carrying out design activities
- Design inputs (e.g. drawings, contract documents, Engineering Standards, statutory & regulatory Requirements, etc.)
- Design outputs (e.g. drawings, bills of material, instructions for use, maintenance & inspection, purchasing instructions, production & service provision, testing, etc)
- Design Verification (calculations, FEA, etc.)

- Design validation (test results)

## **7 Manufacture of lifting equipment or components**

Manufacturing facilities and the equipment within them will vary according to the products being manufactured

Regimes need to be in place to demonstrate robust systems of control including but not limited to the following elements

- Purchasing of raw materials
- Incoming inspection of raw material and supporting paperwork
- A quarantine system to prevent inadvertent use of nonconforming goods at the incoming, in-process or final inspection stages until their disposal has been decided
- Works documentation system
- Control and traceability of materials issued for manufacturing
- Manufacturing processes
- Control of special processes where product integrity may not be easily determined (e.g. welding)
- Competence, training and qualifications of person engaged in manufacturing processes
- Competence, training and qualifications of persons carrying out testing and inspection activities
- Calibration control for measuring, testing and inspection equipment
- In-process quality control
- Manufacturers load testing regimes
- Marking of goods in accordance with standards / legislation (including secondary marking where appropriate)
- Final inspection
- Packaging and transportation to protect safety and integrity of goods
- Manufacturers certificate, instruction for use, maintenance and inspection, plus any other appropriate documents to be supplied with the goods
- The ability to be able to produce a Technical File for the manufactured product

## **8 Manufacture of lifting equipment using component parts**

Distributors of lifting equipment often take individual components and assemble them into a variety of devices which can be used for lifting purposes. This practice is sometimes referred to as Value Added Distribution and is a very important part of the industry.

VAD items include the following:

- Webbing slings
- Roundslings
- Fibre rope slings
- Chain Slings (mechanically assembled or welded)
- Wire rope slings and Wire rope Assemblies (other than a sling)
- Metal Mesh Slings
- Modular crane systems or kits

Systems need to be in place to demonstrate control during the manufacture of lifting equipment including but not limited to the following elements

- Purchasing of components to be included in the equipment to be assembled
- Incoming inspection of components and their supporting paperwork
- A quarantine system to prevent inadvertent use of nonconforming goods at the incoming, in-process or final inspection stages until their disposal has been decided
- Works documentation system
- Control and traceability of materials issued for manufacture
- Processing methods and procedures

- Competence, training and qualifications of person engaged in manufacturing processes
- Competence, training and qualifications of persons carrying out testing and inspection activities
- Calibration control for measuring, testing and inspection equipment used as part of processing
- In-process quality control
- Manufacturers load testing regimes
- Marking of goods in accordance with standards / legislation (including secondary marking where appropriate)
- Final inspection
- Packaging and transportation to protect safety and integrity of goods
- Manufacturers certificate, instruction for use, maintenance and inspection, plus any other appropriate documents to be supplied with the goods
- The ability to be able to produce a Technical File for the assembled product

## 9 Sales and Distribution

Items sold by distributors (other than those manufactured by them) are classed as “bought-in-finished” or “factored items”. They are mostly purchased as supplier-branded to denote the actual manufacturer or are self-branded by the manufacturer on behalf of the distributor.

It is important that distributors have robust systems in place to cover the following elements

- Purchasing goods to meet the appropriate standard / legislation
- Incoming inspection of goods and their supporting paperwork
- A quarantine system to prevent inadvertent use of nonconforming goods at the incoming, or final inspection stages until their disposal has been decided
- Works documentation system for order picking purposes
- Competence, training and qualifications of persons carrying out any testing or inspection activities
- Final inspection prior to despatch
- Packaging and transportation to protect safety and integrity of goods
- Manufacturers certificate, instruction for use, maintenance and inspection, plus any other appropriate documents to be supplied with the goods

## 10 Maintenance and repair of lifting equipment

Organisations who offer such services must be able to demonstrate the experience, capability, competence and qualifications of the persons who perform maintenance and repair of in-service activities relevant to that class and type of lifting equipment.

Records of the work carried out shall be maintained by the organisation. These shall include but not be limited to:

- Detail of the equipment and its owner and location
- The type of work carried out (i.e. installation, service, maintenance, or repair)
- What was checked
- Results of Findings
- Any repairs carried out during that visit
- Further repairs or remedial action required and by when
- The personnel who carried out the work

## 11 Installation and commissioning Services

The requirements for the installation and commissioning of lifting equipment such as overhead travelling cranes, portal gantry cranes, light crane systems, swing jib cranes, floor mounted pedestal cranes, etc., should be carried out in accordance with the manufacturer’s instructions and against the appropriate engineering and architectural drawings or plans supplied by the design authority. However, the organisation



installing and commissioning the equipment must ensure and satisfy themselves that all essential calculations have been carried out on the building and/or its foundations, prior to commencing the installation operations.

Subsequent testing and thorough examination of that equipment when fully installed and commissioned must be carried out in accordance with the instructions of the equipment manufacturer, as well as considering any appropriate National or International standards applicable to that equipment, and legislative requirements that may be applicable to that country, region, or location.

A full report of any tests performed, as part of the installation, including the results of deflections under load, and any other relevant results must be included in a written report issued to the customer / owner.

Advice should be offered to the customer / equipment owner, that the installation / test report should be retained with the machine history file for that equipment for future reference.

These same requirements apply to installation of replacement items such as steel wire ropes installed in cranes, winches, hoists etc., for which a written report must be issued to confirm that the installation has been carried out successfully and the equipment is safe for continued use (or otherwise fit for purpose).

## **12 Periodic examination of lifting equipment**

Periodic examinations of in-service equipment are the responsibility of the duty holder (usually the employer of the person using the equipment).

The requirement for periodic thorough examination is a LEEA requirement and is also often bound up in legislation and it shall be the responsibility of the duty holder to ensure that equipment is thoroughly examined in accordance with its requirements and retaining documentation or electronic records related to the original purchase of the individual items of lifting equipment and the records of their periodic thorough examination .

LEEA works on the philosophy of highest risk based and goal setting legislation that either meets or exceeds the minimum requirements globally. This is built into our minimum requirements and LEEA member organisations who offer services for periodic through examination

Organisations who offer services for periodic thorough examination of lifting equipment must be able to demonstrate the experience, capability, competence and qualifications of the persons who perform thorough examination activities relevant to that class and type of lifting equipment, on their behalf.

The particulars and the results of the periodic examination shall be given in a detailed in a report written by a competent person and supplied in hard copy, or electronic format to the owner of the equipment. The owner of the equipment is responsible for retaining such information in line with the appropriate legislative requirements for that country or region.

## **13 Control of materials and goods**

Purchased items should be received and held in a specific designated goods inwards area. Materials and goods should be retained in this area until they have been inspected for obvious signs of damage and the accompanying delivery note and any certification, has been checked against the official purchase order.

Once accepted, materials should be stored in a manner to preserve their integrity and inherent quality.

Materials picked to fulfil an order or bill of material, should be visually inspected to detect any obvious deterioration or damage which might have taken place during the time it was placed in storage. A process must be in place to quarantine and report any nonconforming materials or goods detected.

Materials and goods picked to fulfil an order or bill of materials should be logged on the order documentation or computer system in order to ensure traceability to the works order or bill of material.

## 14 Control of customer supplied products

Such products might be components supplied by a customer for incorporation into an assembled lifting accessory but more often are lifting machine sent to a supplier for either calibration, overhaul, repair, maintenance, inspection, thorough examination, strip-down, etc.

Systems must be in place to ensure the preservation of the customer owned goods until the necessary work has been completed and the item returned to the customer.

This is especially important when items such as hand chain hoists, air hoists, and such similar items are stripped down to carry out a full inspection of the internal working parts before reassembling and testing. When such items are stripped down it is essential that all loose parts are identified and segregated from other similar machines to prevent any potential mixing of the loose items.

## 15 Equipment used for testing

Various pieces of equipment are used for applying forces to machined test pieces, heat-treated components, slings, etc. Such tests may be in support of manufacturing test regimes (including proof test loads), Thorough examination / inspection requirements, design verification purposes and for determining mechanical properties of the raw materials used to make lifting equipment and components.

Examples of such test equipment include, but are not limited to:

- Horizontal test beds
- Vertical tensile testing machines
- Testing frames (for static, dynamic extension, or compressive testing)
- Multiplication devices (often referred to as a “nodding donkey”)
- Portable tension test machines (for installed anchor bolts)
- Charpy impact test machines

Because of the high forces applied, it is essential that such equipment is always in good condition, regularly maintained and inspected to ensure their continuing fitness for purpose.

Test equipment must be in a known state of calibration and to the following limits:

Maximum of +/- 1% error at any point on the reading scale for equipment with digital read-out (error minimised due to increased resolution of the instrument read-out scale)

Maximum of +/- 2% error at any point on the reading scale for equipment with an analogue read-out (increased error is due to the resolution of the increments shown on the instrument read-out scale).

Calibrations must be carried out against recognised national or international standards and traceable to an appropriate national physics laboratory.

## 16 Control and calibration of equipment used for inspection, and measuring

These can fall into 3 classes of equipment:

- a) Equipment used to determine finite measurements
- b) Equipment used for indication purposes only
- c) Equipment used for NDE purposes (Non-Destructive Examination)

Note: Records of calibration and / or inspection for equipment used for inspection and measuring purposes shall be retained by the organisation for a period not less than 5 years.

(a) Measuring equipment used to determine finite measurements must be in a known state of calibration and be carried out against recognised national or international standards and traceable to an appropriate national physics laboratory. They shall be subject to the following error limits:

Maximum of +/- 1% error at any point on the reading scale for equipment with digital read-out (error minimised due to increased resolution of the instrument read-out scale)

Maximum of +/- 2% error at any point on the reading scale for equipment with an analogue read-out (increased error is due to the resolution of the increments shown on the instrument read-out scale).

Finite measurements can be taken using devices including, but is not limited to:

- Micrometers
- Precision Vernier callipers
- Load cells
- Tensiometers
- Extensometers
- Laser measuring devices
- Multi-meters (for electrical testing purposes)
- Pressure gauges
- Engineering steel rules
- Gauge blocks (Master standards used for calibration of micrometers and Vernier callipers)
- Bi-metal pyrometers and read-outs (for measurement of heat – e.g. in a furnace used in a forge)
- Optical pyrometers
- Hardness testing machines (Brinell, Vickers, Rockwell, etc)

The calibration interval for such equipment shall be a maximum of 12 months. However, the calibration interval for master standards used to calibrate other devices may exceed this by up to 5 years (depending upon the frequency of their use and providing that this does not conflict with other national or international standards)

(b) Equipment used for indication purposes only may also be calibrated if desired. However, it shall only be necessary to visually inspect such equipment to ensure they remain in good condition, are not damaged in any way and the measuring scales remain clear and easy to read.

Such equipment should be controlled in accordance with an in-house control system which must include a suitable unique or individual reference to the equipment concerned, the periods between inspections and the results of such examinations.

Such equipment includes but is not limited to:

- Steel measuring tapes
- Steel rules
- Vernier gauges

(c) Equipment used for NDE purposes shall be inspected, maintained and, where appropriate, calibrated in accordance with the manufacturer's instructions

Such equipment includes but is not limited to:

- MPI (Magnetic Particle Inspection)
- ECI (Eddy Current Inspection)
- UTI (Ultra-sonic Test and Inspection)
- MRT (Magnetic Rope Testing)

## **17 Rental of Lifting equipment**

Although it is ultimately the responsibility of the duty holder to ensure that the equipment is maintained and thoroughly examined while in their undertaking, the rental company has a duty of care to ensure that this is done. LEEA therefore expect the rental company to ensure that they have systems in place to ensure that the equipment has been thoroughly examined before being rented and that the customer is notified when the next thorough examination is due before it expires. The equipment can then either be recalled and replaced, examined by the customer, or examined by the rental company at the customers premises.

Organisations who supply lifting equipment on hire shall

- Thoroughly examine equipment before it is placed "on-hire" and make a report
- Provide a copy of the report (or other such evidence) to their customer
- Maintain records of equipment out on-hire to help them identify when these items are becoming due for any periodic examinations
- Inspect "off-hire" equipment before it is placed back into the hire fleet for further rental

## 18 Testing Services

Provision of testing services entails that the organisation must own or have access to equipment suitable to carry out the necessary testing

Testing may include use of test and measuring equipment as defined in sections 14 and 15 above of this document. Therefore, organisations shall ensure that equipment used to perform the required tests must be suitably certified and calibrated

## 19 Training Services

Organisations who provide training service related to the use of different types of lifting equipment will only be recognised and included within their scope of LEEA membership if they have been audited and approved against the requirements of the LEEA Accredited Training Scheme (ATS).

Auditing of training providers is not included within the scope of LEEA-044 "Audit of Members". In its place, any organisations seeking approval to the LEEA ATS will be subject to a separate audit regime specified in LEEA-039 "LEEA Accreditation Scheme Provider"

An alternative LEEA ATS logo may be used by members who have been successfully assessed and registered to the LEEA Accreditation Training Scheme and this may be used on training certificates and other marketing media but only in agreement with

Certificates issued to students for attending members training courses which are not assessed and registered under the LEEA ATS may not:

- include any reference to LEEA
- infer that the course is approved or otherwise endorsed by LEEA
- use any LEEA logo in any form or format whatsoever

Violation of any of the above would be classed as a serious breach in the members code of conduct and subject to further action being taken against the member in question.

## 20 Using Lifting equipment (within your own facilities)

Organisations who own lifting equipment for use within their premises for lifting loads must adhere to the legislative requirements for the country or region where they are located.

As a minimum, Organisations should be able to demonstrate the following

- Safe system of work
- Planning of lifting operations – Lift plan, Risk assessment and Method statement are in place
- Training – Lifting equipment should only be operated by suitably trained and authorized personnel.

Note: The standard of training for use of equipment in the workplace should be in keeping with LEEA requirements, in addition to appropriate standards and legislation.

One method of achieving "LEEA best practice" is to use a LEEA "ATS" member who, as a training provider, offer courses accredited by LEEA under the LEEA Accredited Training Scheme (ATS). Another method would be to complete the relevant LEEA diploma.

Lifting equipment such as overhead travelling cranes, powered hoists, below the hook lifting accessories, etc., should be regularly serviced and inspected to ensure they remain in good condition. In addition, all such equipment, plus any lifting equipment used in their facilities, should be thoroughly examined on a periodic basis by a competent person.

The requirement for periodic thorough examination is often bound up in legislation and it shall be the responsibility of the duty holder to ensure that equipment is thoroughly examined in accordance with its requirements and retaining documentation or electronic records related to the original purchase of the individual items of lifting equipment and the records of their periodic thorough examination .

The appointment of a person or organisation to carry out maintenance & repairs and periodic thorough examinations must take into account their ability, qualifications, experience and competence to perform these tasks. (see sections 5 and 10 above of this document)

## **21 Use of the LEEA Logos**

Members of the Association, except for Potential and Provisional Members, may use the LEEA logo or LEEA ATS logo as appropriate for the purposes of marketing, PR, etc. However, the use of the Associations logos must always be in strict accordance with the rules as defined within document LEEA-043 "Rules of the Association", i.e. in a manner and layout approved by the Association.

Use of the logo by a member shall not, in any way, mislead or otherwise misrepresent the members status or scope of work.

Any such breaches in the use of the LEEA logo will be considered as a breach of these requirements and the LEEA Code of Conduct and could lead to suspension or even cancellation of your membership.