MEICA - Specification - General

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Audience: Environment Agency

What's this document about?

This document describes the general approach to specifying MEICA assets, elements and systems which must be followed by all Environment Agency staff and suppliers. This document is supported by a suite of supporting MEICA Specifications which are listed at the end of this document.

The specifications define the minimum technical requirements for the selection, design, construction, inspection and testing of MEICA assets, elements and systems.

The purpose of the specifications is to ensure that assets, elements and systems meet the required standards of design and engineering to ensure:

- - safe and reliable operation and maintenance;
- - an acceptable level of risk associated with the equipment and systems;
- - carbon, cost and environmental impact are taken into account.

Any deviation from these specifications must be applied for, and documented, using the MEICA concession process.

Who does this apply to?

This document applies to:

- Environment Agency Staff;
- Suppliers working on Environment Agency projects.

Contact for queries and feedback

- MEICA.Directorate@environment-agency.gov.uk

Contents

Introduction

Purpose of this document

The purpose of this document is to ensure that equipment and systems supplied:

- are carbon neutral in operation and minimise carbon in construction
- comply with relevant safety standards;
- meet consistent standards of engineering in design, materials and construction;
- provide the minimum whole life cost.

Where equipment standards cannot be met you must seek advice from the supra area MEICA team.

Note: The MEICA standards are not retrospective unless otherwise stated so if the MEICA installation complies with superseded British or international standards, then you can continue to use them provided it is legal, safe and operable.

Sustainability

General

The Environment Agency has published its ambition to be a net zero carbon organisation by 2030. As a result, we must improve the sustainability around our assets and their management. In the design of new assets or the refurbishment of existing assets consideration must be made to the carbon emissions generated by a new asset and/or activity related to the design, build, operation and maintenance.

The following considerations must be made of the following when designing and installing new assets:

- Have whole life carbon emissions been assessed in order to produce an optimal whole life low carbon design?
- Have the following been considered:
- Are more sustainable materials available that will not compromise the whole life carbon footprint
- Are more carbon efficient manufacture methods available, which will reduce the associated carbon emissions (e.g. can the asset be built offsite, Design for Manufacture and Assembly (DfMA methods be used)
- Can renewable energy technologies be used as a power source.
- Has a sustainability risk assessment been carried out?

- Is the contractor PAS 2080 verified or have the standard PAS 2080 standards been consulted.

Equipment selection and design

Passive design

Passive design is the primary choice in our Asset Management Strategy; it is the principle of reducing carbon emissions and flood risk by minimising the number of assets that actively operate. Adopting passive designs allow manpower to concentrate on other front line work, particularly during floods.

Passive systems are designed to fulfil their primary function with minimum or no need for human or other intervention. They are designed to act to the highest standards and reduce health and safety and operational risk. This directly translates to the design of systems. The most passive elements are those that remain as far as possible unchanged between normal and operating conditions and maintain their integrity.

A passive design will be more reliable than an active design, reducing the risk associated with asset failure.

Further information on passive design can be found in 1418_12 Passive design guidance.

Equipment selection

Equipment and materials selection must have the lowest whole life carbon footprint, suit the purpose and type of duty defined in the specification and must take into account all possible operating conditions including possible exceedance.

All equipment supplied under the project specification must be:

- of current manufacture;
- supported by the manufacturer for the minimum design life.

Note: Obsolete equipment is not permitted.

Construction materials

Equipment and materials must be selected to resist corrosion, wear or seizure as a result of materials and substances that they might reasonably be expected to come into contact with during operational service.

UKCA Mark

Where required by the appropriate regulations, all equipment supplied must be UK Conformity Assessed (UKCA). This compliance requirement replaces the requirement for an EU declaration of conformity (CE) marking and came into force for the UK market on 1st January 2021. Products in stock before 1st January 2021, which were CE marked, are still eligible for sale in the UK market until 31st December 2021.

Similar to CE marking, UKCA conformity requires a declaration that the product meets the applicable statutory requirements. The UK government has provided guidance on the use of and requirements for UKCA compliance. The guidance can be found on the UK government website: Using the UKCA marking - GOV.UK (www.gov.uk).

Planned preventative maintenance

Details of all planned preventative maintenance (PPM) tasks required to achieve the minimum design life must be submitted as part of the design and as part of the Operation & Maintenance (O&M) manual.

These should include a schedule of tasks with:

- suggested low carbon footprint maintenance techniques
- Reliability based activities.
- recommended frequencies
- recommended number, discipline and expertise level of personnel required to undertake each task.

Major Assets

Major assets are defined in OI 376_04 Identifying flood and coastal risk management (FCRM) major assets.

Strategically Important Assets

When using MEICA specifications, suppliers must reference OI 17_17 Strategically Important Asset Assessment (FCRM) SD 02 (Fire) 03 (Resilience) 04 (Security) These documents must have been completed by the Asset Owner, and provide the Minimum Technical Requirements.

Design life

The design, workmanship and general finish must be of sound quality in accordance with good engineering practice.

Designs must be:

- robust;
- rated for the appropriate duty under prevailing operational site conditions;
- in accordance with the design life requirements identified elsewhere in the specification (except where varied for a specific application).

The design life must be defined as the expected time to the first complete replacement, given adequate maintenance.

Adequate maintenance is defined as:

- inspection, adjustment, cleaning and lubrication of the plant;
- replacement of minor parts and consumable spares;
- minor repairs.

Note: Where this or any other relevant specification refers to ‘hours’, this means ‘actual running hours’.

Minimum design life for specific MEICA equipment, systems and other assets is stated in the appropriate specification.

Ancillary equipment

The design life of any ancillary equipment required must be as detailed in the applicable Environment Agency specification.

Any components requiring regular replacement must be identified.

Deviations from specifications. (concession)

If the designer, contractor or supplier wishes to deviate from the specifications as listed in this document, it is permitted only if the alternative specification has been agreed by the Environment Agency through the concession process, as described in LIT 18692 – MEICA – Assurance - Concession process.

Regulations

The design and construction of equipment and systems must meet:

- all relevant statutory regulations;

- all environmental legislation
- all relevant Environment Agency procedures/requirements;
- all applicable editions/sections (current at the time of tender) of all British and International Standards.

Whole life costs

Whole life carbon and monetary cost assessments must be performed for the equipment. This assessment must include cost of installation (including any associated civil works), operation and maintenance.

The following must be submitted as part of any tender or design:

- whole life carbon cost
- expected service life of the components (where applicable);
- mean time between failures (MTBF);
- design life;
- replacement costs/frequencies.

Innovation

Details of any solution that incorporate innovative design features to reduce the whole life carbon costs or enhance performance, but do not comply with a specification, must be agreed in the first instance with the Environment Agency supra area MEICA team and a concession applied for.

Efficiency and performance

Equipment must be designed to maximise efficiency and minimise carbon footprint over its lifetime. Production of energy, or its consumption over the operational life of an asset is a major factor in quantifying efficiency of a solution. Consideration must be given to, power sources such as river flow or float operation, as well as service life and any regular maintenance/servicing requirements.

Disposal

Any equipment that is taken out of service must be assessed for condition.

If equipment is assessed as not having reached the end of its useful service life, it must be offered to the Supra-Area MEICA Team Leader who may wish to retain the equipment for use elsewhere, or for spares.

Where equipment is assessed as having reached the end of its useful service life, a discussion with the Supra Area MEICA Team Leader must take place prior to disposal. This will determine if there are any components or modules that can be removed and retained as strategic spares.

Equipment to be disposed of must be recycled. if recycling is not possible, it must be disposed of in an environmentally friendly manner.

Technical submissions

Drawings, technical literature and diagrams

All documentation associated with MEICA assets, elements and systems must be provided in accordance with MEICA-Specification-Documentation

Spares and consumables and special tools

A list of recommended consumables and spares to support the equipment for a minimum of five years must be provided with the technical submission.

Special tools and test equipment, including setting tools, must be provided with the equipment to enable any routine in house maintenance and operation to be carried out. A special tool is any piece of equipment that the Environment Agency Operations and Maintenance teams would not regularly carry with them or be present at an asset.

Delivery and storage

Equipment must be delivered with suitable protection against damage and ingress of moisture at all times, including any bespoke and/or fabricated supports to protect or correctly orientate items during transportation and offloading.

Equipment and the associated documentation must be clearly marked showing dry weights in Kg.

Related documents

Operational instructions

- OI1418_12 Passive design guidance

- OI 17_17 Strategically Important Assets

Associated specification documents.

- MEICA-Specification- Materials and mechanical installations
- MEICA-Specification- Painting and protection systems
- MEICA-Specification- Hydraulic and pneumatic equipment
- MEICA-Specification- Water control structures
- MEICA-Specification- Valves and penstocks
- MEICA-Specification- Gate and valve actuators
- MEICA-Specification- Lifting equipment
- MEICA-Specification- Powered weedscreens
- MEICA-Specification- Pumps
- MEICA-Specification- Kiosks and enclosures
- MEICA-Specification- Electrical installations
- MEICA-Specification- Switchboards
- MEICA-Specification- Uninterruptible power systems
- MEICA-Specification- Rechargeable batteries
- MEICA-Specification-Engine generating sets
- MEICA-Specification- Electric motors
- MEICA-Specification- Pump starters
- MEICA-Specification-Security systems (Security and Fire)
- MEICA-Specification- Instrumentation
- MEICA-Specification- Programmable logic controllers
- MEICA-Specification- Documentation
- MEICA-Specification- Electric vehicle charging points
- MEICA-Specification-Pipelines
- MEICA-Specification-Flood Gates