

Commissioning and Tuning

Aim of the Credit

To encourage and recognise commissioning, handover and tuning initiatives that ensure all building services operate to their full potential.

Credit Criteria

1	Environmental Performance Targets	This is a minimum mandatory requirement for this credit.
2	Services and Maintainability Review	1 point is available where a comprehensive services and maintainability review of the project is performed.
3	Building Commissioning	1 point is available where comprehensive pre-commissioning activities are performed for all nominated building systems.
4	Building Systems Tuning	1 point is available where a tuning process is in place that addresses all nominated building systems.
5	Independent Commissioning Agent	1 point is available for utilisation of an Independent Commissioning Agent (ICA) to advise, monitor, and verify the commissioning and tuning of the nominated building systems throughout the design, tender, construction, commissioning and tuning phases.

Compliance Requirements

The requirements of this credit are project specific and based on the complexity of building systems designed and installed.

The project team is required to have commissioning process activities completed for all nominated systems that serve the project.

1 - Environmental Performance Targets

The project team must have set and documented targets for the environmental performance of the project to demonstrate compliance with this requirement.

The most common method for demonstrating that this has occurred is through the development of a design intent report (earlier in the design phase) or an owner's project requirements (OPR) document.

This document must be prepared by the design team (and ICA project team where applicable) at the design phase stage and outline, as a minimum, the following items:

- Description of the basic functions, operations, and maintenance of the nominated systems including:

- A description of its intended operation and maintenance requirements; and
- A list of what the main components are (including controls) and the importance of their efficient use.
- The targets for the energy and water consumptions and budgets for nominated building systems.
- Description of how energy, water, and aspects of indoor environment quality are metered and monitored. This typically would include a meter diagram that illustrates how energy and water budgets could be confirmed in operation.

2 - Services and Maintainability Review

A project team can demonstrate compliance with this requirement when a comprehensive services and maintainability review is led by the head contractor or the owner's representative (or the ICA where applicable) at the design stage and prior to construction.

The services and maintainability review is to facilitate input from the design team, the facilities manager and operations staff (if known), and any relevant suppliers and subcontractors (if engaged). The review must address the following:

- Commissionability
- Controllability
- Maintainability
- Operability, including 'Fitness for Purpose'
- Safety

The services and maintainability review must be summarised in a 'Service and Maintainability Report'. This report must be agreed upon by the involved parties. Action items resulting from this review are to be incorporated in the design intent report or OPR as outlined in the 'Environmental Performance Targets' criterion. Information on the requirements of this review are outlined in relevant standards (refer to Guidance).

The 'Services and Maintainability Review' should be undertaken prior to the issue of each tender package or prior to construction. If a project team performs a maintainability review during construction, the project team must show that any changes recommended by the review have been implemented throughout the project.

3 – Building Commissioning

A project team can demonstrate compliance with this criterion by showing that the pre-commissioning and commissioning activities have been performed based on the approved standards and guidelines (refer to Guidance section). As such, to demonstrate compliance, the following must be documented:

- The contractual tender or construction documentation must list the requirements for commissioning each system. It cannot simply be stated that systems must be commissioned to the relevant standard. Instead, the documentation must list the design parameters for the system; the required commissioning activities; how each system is intended to operate; and the acceptable tolerances during commissioning.

For example, documentation must include divisions of responsibilities, pre-commissioning procedures, commissioning requirements, witnessing requirements, phased completion requirements (if needed), post occupancy checks, and any training requirements for the operator.

- A commissioning plan must have been developed. This plan must, as a minimum, include: the objectives, or basis, of the design; the scope of the plan; list the commissioning team; their responsibilities and interface matrix; the general sequence of commissioning; the proposed commissioning procedures; witnessing requirements; the commissioning program; and requirements for subcontractor commissioning manuals.

For a project to claim this criterion, the commissioning must have taken place in accordance with the requirements laid out in the contractual documentation and the commissioning plan. The commissioning report must certify that this is the case, and be signed by the designer, the head or main contractor, the commissioning manager (or ICA), and the project manager (or owner representative).

The person responsible for the commissioning of the nominated services must have specific and demonstrable knowledge of the types of systems to be commissioned. A general subcontractor is unlikely to be able to fill this role.

4 - Building Systems Tuning

Following practical completion and prior to occupation, the owner client must commit to a tuning process of all nominated systems. At a minimum, the commitment must include quarterly adjustments and measurement for the first 12 months after occupation and a 10th month review of warranties.

The scope of the tuning works will determine the relevant tuning period. The building tuning process will require the measurement of data from the monitoring of the systems and occupant feedback of building conditions. During the tuning period, the client must commit to take steps to adjust nominated building systems to account for all deficiencies.

A commitment from the building owner is required to confirm that there is a requirement for a building tuning process and responsibilities are assigned to have all nominated systems tuned after practical completion. This commitment can be included in the Commissioning Plan or provided as a letter from the building owner. The commitment must include at least the following:

- Operating and Maintenance Manuals has been developed in accordance with recognised standards (refer to Guidance).
- A building tuning manual, or a building tuning plan, has been developed in accordance with the Commissioning Plan.
- A building tuning team has been created including the facilities manager, the owner's representative and the ICA if present. The head contractor and the services design professionals will be available to address specific tuning issues where required.
- The owner has engaged all parties to tune the nominated systems. This engagement includes requirements for:

- Verification that nominated systems are performing to their design potential in full and part load conditions;
- Reviews of environmental performance against environmental targets;
- Collection of user feedback to match the occupant's needs and the system performance;
- Adjustment of all the systems to account for all deficiencies; and
- Management, communication, and assignment of responsibilities for the tuning process within the team.

5 - Independent Commissioning Agent

This is an additional point that can only be awarded if at least one of the above points has been achieved (in addition to the minimum mandatory requirement). When this point is claimed, the criteria claimed above must be performed by a qualified independent commissioning professional (separate from the design team) who is engaged directly by the building owner and reports directly to the owner (or the owner's representative).

The qualified independent commissioning professional is defined as a person who:

- Is an advocate for, and reports directly to, the project owner;
- Is independent of any consultant, contractor or sub-contractor organisation that has been involved in the installation of the nominated systems; and
- Is a registered professional engineer or qualified technician with demonstrated knowledge on nominated systems commissioning, and has previous experience with the commissioning process of at least 2 projects similar in scope.

The qualified independent commissioning professional role can be fulfilled by one or multiple persons, provided that all meet the requirements laid out above. It can also be fulfilled by a person who is part of the client's organisation, if the person is qualified to do so.

An independent commissioning agent (ICA) fulfils the roles of this criterion. A facilities manager employed by the client qualified in the commissioning of these systems also fulfils this criterion.

Opportunities for Innovation

Innovation Challenge

Supplementary or Tenancy Fitout Systems Review

The aim of this Innovation Challenge is to encourage project teams and building owners to carry out a comprehensive review of supplementary or tenancy fitout systems, in addition to all base nominated building systems as outlined above.

This review must be undertaken to ensure the design and function of such systems are properly integrated with base building systems.

The project team must contact the GBCA to detail the requirements of this Innovation Challenge.

Guidance

Standards and Guidelines Relevant to this Credit

AIRAH DA27 Building Commissioning Application Manual 2011

AIRAH DA28 Building Management and Control Systems (BMCS) 2011

CIBSE Commissioning Code M (and the ancillary codes for relevant services)

ASHRAE Commissioning Guideline 1.1-2007 (for mechanical services)

Other standards may be submitted for approval through a Credit Interpretation Request. For a standard to be recognised as equivalent best practice, this standard must:

- Have been developed by an industry organisation;
- Have demonstrated uptake by the construction industry; and
- Be specific to commissioning and include all aspects of the process, including how to determine the project performance requirements, how to plan the commissioning process, how to complete the commissioning process, and how to document it (including witnessing and collection).

Documentation Requirements

'Design Review Submission' (Optional)

Project teams are to submit information/documentation marked with an asterisk* for design review.

As Built Submission

All project teams are to submit the following documentation:

Submission Template*

- List of nominated systems to be included in the credit.*
- Environmental performance targets for the nominated systems.*
- Confirmation that the services and maintainability review has taken place.
- The person/s responsible for the services and maintainability review.
- A summary of the services and maintainability review.
- Summary of the building commissioning plan.*
- Confirmation that the building commissioning has taken place according to the plan
- Description of the building tuning commitment that has been agreed.*
- Details of the independent commissioning agent and the services they will provide to the project.

Project teams are required to provide documentation supporting credit compliance. The following documents may be used to demonstrate compliance:

- **Evidence of Targets for Environmental Performance** where the environmental performance targets are documented as outlined in the Compliance Requirements. The relevant sections must be highlighted.
- **Service and Maintainability Report** where the service and maintainability review is summarised as outlined in the Compliance Requirements. The relevant sections must be highlighted.
- **Extract(s) from the Commissioning Report** demonstrating that comprehensive pre-commissioning activities and commissioning activities has been performed as outlined in the Compliance Requirements. The relevant sections must be highlighted.
- **Building Tuning Commitment** demonstrating that there is a requirement for a building tuning process as outlined in the Compliance Requirements. The relevant sections must be highlighted.
- **CV of the Independent Commissioning Agent** detailing the qualifications and experience relevant to the project.

Please provide feedback on the technical content of this credit:

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