



Finance Technical Guideline

TG009 Commissioning and Handover

1 Purpose

This guide sets out Finance's requirements for the commissioning and handover of new government buildings. This guide should be circulated as appropriate to consultants and contractors.

2 Commissioning

2.1 Finance Requirements

All government buildings should be commissioned to meet the design intent of the systems before practical completion, and tuned between practical completion and final completion. Generally buildings are occupied at practical completion which is then followed by a defect and liability period before final completion. The design team, contractor and subcontractors are responsible for ensuring that all building systems operate to meet the design intent at practical completion and are monitored and tuned in the defects and liability period between practical completion and final completion.

Proper commissioning should reduce the number of callouts received after practical completion, and also reduce the cost of rectifying defects during the defects and liability period before final completion.

Commissioning involves ensuring that:

- Equipment and systems are installed in accordance with the client agency's project requirements;
- Equipment and systems operate to meet the design intent;
- Operation and maintenance requirements are fully documented;
- Facility manager(s) are trained to operate the building; and
- Maintenance staff are trained to maintain the building.

A commissioning report detailing the commissioning results should be submitted to the project manager at practical completion. The commissioning report will serve as a reference and benchmark document for future tuning and recommissioning of the facility.

During the defects and liability period and before final completion the building should be tuned. Building tuning identifies and corrects building system problems whilst maintaining an optimised system performance and is carried out on a continual basis.

At the end of the defects liability period and before final completion, all commissioned equipment and systems should be re-commissioned and further tuned as necessary to ensure optimum building performance is maintained.

It should be noted re-commissioning is not intended to be a repeat process of the entire commissioning process, rather it is a review and subsequent adjustment of the systems to ensure that the original performance criteria / design intent are being achieved.

The re-commissioning review together with details of any building tuning should be documented before undertaking any physical recommissioning works. This review should be included in the final commissioning report.

The commissioning reports and reviews should be tailored to the systems installed. It would not be expected that a wall mounted split system would require lengthy reports or reviews, however a large building with centralised plant and extensive air distribution systems would require detailed commissioning reports and reviews.

Finance project managers should forward all commissioning reports and reviews to Building Technical Services. (Email reports to: principal.architect@finance.wa.gov.au)

2.2 Energy and water monitoring

Throughout the defects liability period the Superintendent's Representative (or nominated sub-consultant) is responsible for monitoring the building's energy consumption and comparing this data with anticipated consumption levels.

The Superintendent's Representative should provide a report on the building's energy consumption (including comparisons with anticipated consumption levels and commentary on any discrepancies) to the Finance project manager at the end of the defects liability period. (See Energy Use Report. <https://www.wa.gov.au/sites/default/files/2019-10/Energy%20Use%20Report%20for%20Department%20of%20Finance%20Project%20s.xls>)

2.3 Sub-consultant scope

The project manager and lead consultant need to ensure that the scope for mechanical, hydraulic and electrical engineering works includes the requirement to oversee sub-contractors undertaking commissioning to the specified requirements, and monitoring energy consumption during the defects liability period.

Finance Building Technical Services can provide advice on the required commissioning and monitoring standard for individual projects, if necessary. (Email queries to: principal.architect@finance.wa.gov.au)

2.4 Programming

The most significant factor affecting commissioning is the project program. Proper commissioning requires that the program:

- allows sufficient time for the commissioning activities, and
- is enforced so that prerequisite tasks are completed on time.

If the program is not enforced and there are construction delays it is imperative that this time is not taken from the commissioning programme without prior consultation and approval with both Finance and commissioning engineers / technicians.

2.5 Independent commissioning agent

For complex buildings valued over \$10 million, an independent commissioning agent (ICA) may be appointed to manage the commissioning process. If an ICA is to be used, they should be engaged during the design phase, and provide input to both the project program and specification, especially NATSPEC worksections 0164 *Commissioning* and 0127 *Commissioning – information*. (NB: These two worksections should only be used for projects where an ICA has been engaged. For all other projects, commissioning specification is covered in 0171 *General requirements* and relevant technical worksections.)

2.6 Green Star requirements

The Green Building Council of Australia's Green Star rating tools recognise commissioning, handover and tuning initiatives that ensure all building services operate to their full potential and as designed. Up to 4 points are available in Green Star for commissioning a building. The following standards and guidelines are approved by the GBCA for use with this credit compliance requirements:

- AIRAH DA27 Building Commissioning (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)
- BSRIA soft landings framework

3 Handover

3.1 Pre-handover meeting

The pre-handover meeting should include the following attendees:

- Finance project manager
- Superintendent's representative
- Contractor
- Agency asset manager
- Agency facility manager or other representative
- Finance Maintenance representative (if applicable)
- External maintenance contractor

Pre-handover meeting agenda should include:

1. Roles and responsibilities
2. Project status and practical completion
 - a. Outstanding works, including as constructed drawings and operation manuals
 - b. Variations
 - c. Work by others
3. Defects liability period
 - a. Fault recording
 - b. Fault reporting
 - c. Actioning faults
4. Insurances and release of security
5. Building security
 - a. Arming and disarming security systems
 - b. Temporary fencing
6. Commissioning
 - a. Initial commissioning before practical completion
 - b. Tuning procedures after practical completion and before final completion
7. Handover
 - a. Keys
 - b. Access control cards

8. Energy and water monitoring
9. Other matters

3.2 As Constructed drawings and operating and maintenance manuals

The Lead Consultant is to provide As Constructed drawings to:

- Finance Building Records in dwg and pdf formats:
BuildingRecords.Mailbox@finance.wa.gov.au
- Agency representative (preferably facility and asset managers) in pdf format

The Superintendent's Representative is to provide all operating and maintenance manuals to the Finance project manager and the agency facility manager.

3.3 Training

The contractor is responsible for arranging training sessions for facility management and maintenance staff on each of the building systems before practical completion.

Training sessions should be provided on:

- Electrical services
- Mechanical services
- Hydraulic services
- Control systems and Building management systems
- Security services
- Lift services
- Fire services
- Irrigation services

Generally, all training sessions should be attended by participants of the pre-handover meeting.

Copies of all operating and maintenance manuals are to be supplied to facility management and maintenance staff.

3.4 Defects liability period

Ensure the process for managing repair and maintenance work during the defects liability period is clear.

Ensure that the Superintendent's Representative, Contractor and agency are all aware of their responsibilities during the defects period. In general -

Superintendent's Representative is required to:

- Administer the contract, including assessing any defects and faults.

Contractor is required to:

- Maintain the landscaping as per the contract requirements
- Provide a schedule of routine maintenance to be done by the agency facility manager (i.e. not part of DLP)
- Rectify any defects or faults as directed by the Superintendent's Representative

Agency is required to:

- Occupy and operate the building in accordance with the functional brief.
- Maintain the building in good repair.
- Insure and maintain security of the building.
- Observe, record and notify the Superintendent's Representative of any faults.

4 REFERENCES AND FURTHER INFORMATION

AIRAH *Commissioning Ecolibrium* April 2012 pp31-32

http://www.airah.org.au/imis15_prod/Content_Files/EcoLibrium/2012/April2012/2012_04_F02.pdf

AIRAH *New-look building commissioning Ecolibrium* April 2012 pp31-32

http://www.airah.org.au/imis15_prod/Content_Files/EcoLibrium/2012/April2012/2012_04_F03.pdf

Building Services Research and Information Association (BSRIA) *Soft landings*

<https://www.bsria.co.uk/services/design/soft-landings/>

Chartered Institution of Building Services Engineers (CIBSE) *The Soft Landings Framework Australia and New Zealand* CIBSE ANZ 1/2014

<https://www.cibse.org/networks/regions/australia-new-zealand/anz-regional-news/the-soft-landing-framework-australia-new-zealand-m>

Chartered Institution of Building Services Engineers (CIBSE) *DE9 Application of Soft Landings & Government Soft Landings in Building Services Engineering* Aug 2018

<https://www.cibse.org/knowledge/knowledge-items/detail?id=a0q0O00000EhcW2QAJ>

Chartered Institution of Building Services Engineers (CIBSE) *CIBSE Commissioning codes* <https://www.cibse.org/knowledge/cibse-publications/cibse-commissioning-codes>

National Environmental Balancing Bureau *Building Systems Commissioning Specifications* NEBB April 2014 <http://www.nebb.org/resources/specifications/>

National Environmental Balancing Bureau *Procedural Standard for Whole Building Systems Technical Commissioning* 4th edition NEBB April 2014 (now superseded by

ANSI/NEBB s110-2018 *Whole Building Technical Commissioning of New Construction* http://www.nebb.org/resources/nebb_publications/

NATSPEC TECHnote GEN 010 *Mechanical commissioning strategies* NATSPEC amended April 2012 <http://www.natspec.com.au/index.php/resources/technotes>

NATSPEC TECHnote GEN 020 *Building commissioning* NATSPEC April 2013 <http://www.natspec.com.au/index.php/resources/technotes>

5 Document Control

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Enquiries	Consult with Content Owner or principal.architect@finance.wa.gov.au

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27/09/2016	F Hogg	Initial release	All
20/03/17	C MacLean	Renamed & Format update Previously Commissioning & handover	Title
14/09/2018	K.Maher	Minor updates Update links and references Revise Version Control Protocol Revise Principal Architect	All References Document Control Document Approval
6/7/2021	A Raynes-Goldie	Revise references to BMW Revise links	All

6 Document Approval

This guideline was endorsed and approved for use on 6 July 2021 by:

Dean Wood, Principal Architect