## Revision history

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Background

The handover of a project to the client at the end of construction is a very important stage of the project procurement process and facility operation success. A well organised, efficient and effective transfer of information from project works to the University is essential.

The transfer of ownership of the project from contractor to client can have an effect on health and safety, reliability, standards of operation, maintenance and operational cost efficiencies to the University. The transfer/handover period can be a very stressful time for contractors’ staff, and building owners and occupants alike as spaces become occupied and operation of the facility starts. The commissioning and fine tuning operations during handover can impact heavily on core business of the University if not managed in a structured manner. The University capital works project management process identifies broad activities of the project handover stage.

The following sections of this document detail the requirements and actions required to be undertaken during any project handover.

The handover program shall be organised by the project manager in conjunction with the head contractor and subcontractors.

Pre-project Handover Site Meeting

Projects will require a dedicated project meeting to discuss the project handover process and to agree on requirements and outcomes. The meeting should be held no less than four weeks prior to the proposed project completion date.

A proforma agenda for the meeting would include:

- introduction and reason for the meeting
- CAD information
- plant and equipment asset detail collection
- maintenance manuals
- prescribed essential safety and health features and measures (PESHFM) maintenance during the defects liability period (DLP) - Understanding and process development
- defects management and after-hours callouts
- connection and commissioning
- systems operational training planning (includes building operations such as evacs)
- licences and certificates
- warranties and guarantees
- security systems (includes key handover process)
- space use information verification

The project manager will arrange this meeting with all stakeholders (architects, engineers, head contractor, major subcontractors and University facilities staff).

University staff members will be nominated to attend various elements of project handovers, meetings and operational training sessions.
**Requirement Overview**

A ‘certificate of practical completion’ shall not be issued and the project will not be handed over (for occupation and use) until the following five important ‘contracted’ activities have been undertaken or fulfilled:

1. **Connection and commissioning** of all systems, plant and equipment shall be complete and all testing data and reports made available (as part of the maintenance manuals to be supplied).
2. **Licences, certifications and registrations** required by Workplace Standards, the Tasmanian Building Act or any other legislation shall be provided prior to taking occupancy or accepting the project as being handed over.
3. **Defect liability period** (DLP) maintenance management processes shall be in place and confirmed by the University and the maintenance service provider.
4. **Training sessions** will have been successfully held to the satisfaction of operational managers in each field of expertise.
5. **As-constructed** or as-removed information must be supplied, at a minimum in draft prior to the project handover meeting.

The above task details and requirements are expanded in the subsequent pages and support information is offered in appendices:

- Appendix A – Maintainable Assets Description Hierarchy
- Appendix B – Data and Information Requirements from Projects
- Appendix C – Maintenance Manuals
- Appendix D – Spatial Data Collection / Verification
- Appendix E – After Hours Call Out Protocols

**1. Connection and Commissioning**

**Policy Statement**

Specific testing and commissioning requirements and programs for individual projects will be those that are agreed at a pre-commissioning meeting attended by the contractor, project management, and University staff. Connection testing and commissioning of all systems, plant and equipment shall be complete to the satisfaction of the Consulting Engineer/s and UTAS.

**Requirement**

- Provide testing and commissioning procedures at least a week in advance of the event that the University staff will witness.
- Provide relevant authorities inspections, manufacturers and consultant’s witness/acceptance test reports and commissioning data as part of the as-constructed information documentation.
- Label all equipment, switches and controls eligibly in accordance with UTAS requirements.
Specialised or Restricted Systems

Specialised and restricted systems include:

- Master keying systems
- Security surveillance systems o Door access control systems o Alarm monitoring systems
- Building management systems

Connection and commissioning of specialised and restricted systems shall be completed by joint actions of the contractor and nominated University staff members. In most cases these connections will be extensions to existing operational systems.

Existing contracts for management and operation of these systems may already exist. These contracts specify responsibility for the operation, data configuration integrity and the ongoing maintenance of the system data by the contracted company.

2. Licences, Certificates and Registrations

Policy Statement

All licences, certifications and documentation required by Workplace Standards or by any other specialised legislation such as the Tasmanian Building Act or Building Code of Australia or other certifying agency shall be provided prior to taking occupancy or accepting the project as being handed over.

Requirement

- The following are items that could have be installed or constructed during the project that fall under this category:
  o Hazardous plant and equipment
  o Registered equipment
  o Dangerous goods stores
  o Chemical stores
  o Specialised facilities e.g. PC2 / PC3 / radiation, or
  o fuel storage facilities.
- Follow all UTAS policy and procedures for procuring or constructing these items/facilities.
- Provide relevant authorities inspection reports, certificates and registrations as part of the as-constructed information documentation.
- Provide evidence of facility functionality compliant and consistent with the designed specification.
- Ensure all chemical or hazardous substance purchases are referred to the UTAS Work Health and Safety Unit.
3. **Defects Liability Period – Maintenance and Certifications**

**Policy Statement**

Maintenance does not include construction defect repairs. Defects are dealt with separately under the construction contract.

The Tasmanian Building Act and Building Regulations require UTAS (as the building owner or occupier) to certify all prescribed essential safety and health features and measures (PESHFM) maintenance and other tasks have been undertaken as defined in Form 46 and finally manage the displaying of a Form 56.

- Form 46 is the document provided by a Building Surveyor which identifies PESHFM maintenance and activities for the individual project. These requirements are drawn from the Directors Specified List – Tasmanian Building Act 2000 – Schedule 4, Features and Schedule 5, Measures.
- Form 56 is the Annual Maintenance Statement and shows confirmation from the Building Owner or Occupier that all required Form 46 specified requirements have been undertaken during the preceding year.
- The Form 56 must be renewed and re-displayed annually by UTAS on or before the 15 July each year.

**Requirement**

- UTAS will take the lead in arranging and displaying Form 56 certificates but requires the unmitigated assistance of the contractor(s) to achieve this as the Form 56 must list all new occupancy certificates for that facility that have occurred since the displaying of the previous certificate was displayed.
- All maintenance activities undertaken during the defects liability period (DLP) must be undertaken by the construction project contracted providers/installers.
- To ensure the required maintenance activities are actioned during the DLP, maintenance schedules for all essential services assets shall be in place and confirmed by the University’s facilities manager prior to a project being handed over.
- The maintenance program will be recorded in the UTAS asset management system.
- The UTAS general maintenance service provider will assist the project management team by ensuring all required maintenance and activities have been undertaken.
- Contractor’s DLP maintenance service reports must be supplied to the UTAS general maintenance service provider by either the construction contractor of the project manager as evidence of compliance.
- Maintenance activity will be monitored through the UTAS general maintenance service provider and compliance reports will be provided to the project manager. Non-compliance of maintenance tasks must be remedied by the construction/installation contractor immediately.
- A separate process for management of contract related building defects shall be organised by the project manager.
- Submit reports to the project manager certifying that all engineering infrastructure has been designed, installed and commissioned in accordance with legislated requirements and the
UTAS design requirements and that they are in full operational modes, before the installations are deemed to be practically completed.

- During the month prior to the end of the DLP, a report must be submitted to the project manager from the various engineering consultants identifying how the various engineering systems/installations/works actually performed as compared to the design criteria; achievement of environmental targets including energy and water consumptions; quality of the indoor environment; and outline any inadequacies and adjustments made.
- At the conclusion of the DLP, final inspections must be certified, including final seasonal adjustments undertaken to ensure proper operation of all systems.

4. Training Sessions - Operational and Familiarisation

Policy Statement

Successful operational, familiarisation and maintenance training sessions will have been held to the satisfaction of UTAS managers in each field of expertise prior to handing over the works for occupation or use.

Requirement

- The contractor shall submit a draft training program to the project manager for each system or specialised item of plant for approval based on the commissioning program and where possible prior to the pre project handover meeting held at least four weeks prior to the proposed handover date.
- Sample training information documentation shall be submitted with the above mentioned proposed program. Ensure adequate and appropriate training materials inclusive of as-installed drawings and operation and maintenance manuals as the basis for training.
- Final dates for training sessions shall be scheduled and agreed with the project manager and other stakeholders to ensure adequate contractor and UTAS staff availability.
- Use only qualified and competent trainers. These shall be people like the manufacturer’s representatives or others duly trained by the manufacturers who are knowledgeable about the installations/systems.
- Adequate and effective training must be arranged for early, partial or staged handovers. These early handovers must be reviewed and reinforced during final project handover training program development. This is of particular importance to building evacuation procedures and plant and equipment installations that serve more than the area of defined project works (i.e. new fire indicator panel installed as part of partial building refurbishment but services the building as a whole).

5. As-Constructed Information and Manuals

Policy Statement

As-constructed information is required by the University to allow a smooth transition from project to actual use or occupation. As-constructed information includes schedules of equipment, technical data and manufacturer’s technical literature including performance information on individual plant and equipment; original software programmes and all passwords; copies of certifications and warranties;
all test results, maintenance schedules and complete as-built drawings in CAD format; list of suppliers; list of programmed operational time periods, thermostatic settings, etc.

See Appendix B and C for a detailed list of information required.

**Requirement**

- It is recognised that it is very difficult to gather all as-constructed information prior to project handover due to the busyness of completing projects in the final stages and also the process of commissioning plant during the same period. Submit progressive as-installed drawings especially for those concealed/underground cable and piping routes shall be provided prior to backfilling of excavation or concreting of floor slab or installation of non-removable ceiling. Provide critical dimensions and access points.
- It is suggested that collection of required information is a managed process by site managers. Collecting information as tasks are complete or the equipment is installed helps avoid the rush at the end of the project.
- Appendix B shows items identified by (D). These must be provided, at a minimum in draft format prior to the final project handover meeting.
- All other listed items (if included in the project) must be provided within four weeks after the date of issue of a Certificate of Practical Completion.
- Appendix C identifies various information that must be supplied as maintenance manuals. All information shall be provided in duplicate (1 x original and 1 x copy) hard copy, bound into 3- or 4-ring folders. These folders shall contain a compact disk or disks of electronic copies of the information supplied in the folders.
- Manuals shall be sectioned and indexed. Indexing and labelling shall be to the UTAS standard.
- Manuals must not contain superfluous information such as product catalogues that 'add bulk and make it look a healthy presentation. Only useful information shall be provided such as instructions, schedules, and maintenance plans etc covering the information identified in Appendix B or C.
- For small projects, the UTAS project manager may approve an alternative to providing the information in 3-ring folders. As an example the information required for the installation of a split system air conditioner may take the form of operational instructions, schematic updates, warranties and appropriate asset detail forms. These could all be supplied on a CD.
- Update existing UTAS maintenance manuals information as required with details such as system schematics and schedules for works that have been undertaken in existing buildings.
Appendix A  Asset Description Hierarchy - Maintainable Assets

Refer to Maintainable Asset Forms document, for maintainable asset forms. Available at:

www.utas.edu.au/commercial-services-development/asset-data/asset-management
## Appendix B  Data and Information Requirements from Projects

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Items identified by ( marked [ ] ) must be provided, at a minimum in draft format, prior to the final project handover meeting. All other items ( marked o ) must be provided within four weeks after the date of issue of a Certificate of Practical Completion.

### General Items

- As-built plans including services (CAD format to UTAS layering standards – See document titled ‘CAD Standards’). These are to be a measured full set at completion of the building works
- Asset forms for fixed plant and equipment maintainable assets (See document titled ‘Maintainable Assets Description Hierarchy’ identifying asset groups, types and descriptions);
- Asbestos material assessments and removal/treatment detail forms
- Environment and hazardous material reports
- Fire engineering and performance assessment details
- Fire containment elements operational certification
- Trade waste approvals and discharge permits
- Licences, Certificates, and Registrations (specialised facilities, equipment and environmental)
  - Acoustic test results
  - Energy and Environmental design and efficiency details
    - Confirmation that penetrations through fire rated elements are correctly sealed/fire stopped
    - Surveyed information for external ‘in ground’ (or covered up) services
    - Fire door certification
  - Fire dampers, fire doors and fire shutter compliance
  - Advice of pre-stressed or post-tensioned slabs, including coring and drilling limitations
- Engineering design reports and recommendations
- Certificates of compliance for structural elements
  - Finishes schedule
  - Products schedule
  - Hardware schedule (installed) including master keying system and key allocations
- Roof fall restraint details with design and use methodology
- Cleaning or maintenance recommendations for various ‘out of the ordinary’ building elements, fabrics and finishes.
Warranties

- Plant and equipment
- Glazing and frames
- Membranes and waterproofing systems
- Metal roof and wall cladding systems
- Paint systems
- Carpets
- Suspended ceiling systems
- Access ladders and platforms
- Vehicle access control devices
- Roller shutters and operating equipment
- Landscape irrigation systems.
Appendix C  Maintenance Manuals

(to include CDs of data)

**Mechanical HVAC Information**  □  3-ring folder  □  loose leaf

- Operation manual including a full step-by-step description of how the system works and interacts with other services (photographs encouraged)
- Maintenance strategies, recommendations and service schedules
  - Commissioning test results
  - Single line diagrams (schematics) to UTAS standards
  - Stair pressurisation and zone smoke control systems
  - Smoke vents
  - Fire dampers
- Compliance and registration certificates.

**Electrical Information**  □  3-ring folder  □  loose leaf

- Operation manual including a full step-by-step description of how the system works and interacts with other services (photographs encouraged)
- Maintenance strategies, recommendations and service schedules
  - Single line wiring diagrams (schematics) to UTAS standards
- Completed circuit identification cards (for cabinets) to UTAS standards
- Emergency lighting and exit sign schematics to UTAS standards
- Installers certificate of compliance
  - Thermographic scan results of switchboards.

**Fire Services Information**  □  3-ring folder  □  loose leaf

- Operation manual including a full step-by-step description of how the system works and interacts with other services (photographs encouraged)
- Maintenance strategies, recommendations and service schedules
  - Single line wiring diagrams (schematics) to UTAS standards
  - FIP as constructed drawings (walkabouts) to UTAS standards and copies in FIP cabinet
- Installers certificate of compliance
- Compliance and registration certificates
  - Commissioning test results.
**Hydraulic Services Information**  □  3-ring folder □ loose leaf

- Operation manual including a full step-by-step description of how the system works and interacts with other services (photographs encouraged)
- Maintenance strategies, recommendations and service schedules
  - Single line installation schematics (including irrigation systems) to UTAS standards
- Compliance and registration certificates
  - Commissioning test results
  - Backflow prevention device and all valve details.

**Transportation Services Information**  □  3 ring folder □ loose leaf

- Operation manual including a full step-by-step description of how the system works and interacts with other services (photographs encouraged)
- Maintenance strategies, recommendations and service schedules
- Lift compliance and registration certificates
  - Commissioning test results.

**Comms and Data Information**  □  3 ring folder □ loose leaf

- Operation manual including a full step-by-step description of how the system works and interacts with other services (photographs encouraged)
- Maintenance strategies, recommendations and service schedules
  - Single line wiring diagrams (schematics) to UTAS standards
  - Certification of installation
  - Commissioning test results.

**Security System Information**  

□  3 ring folder □ loose leaf separate manual required

- Operation manual including a full step-by-step description of how the system works and interacts with other services (photographs encouraged)
- Maintenance strategies, recommendations and service schedules
  - Single line wiring diagrams (schematics) to UTAS standards
  - Commissioning test results.
Appendix D  Spatial Data Collection/Verification

Policy Statement

Spatial information is very important to the University for strategic planning purposes.

Space ‘type’ information is agreed at the project initiation phase by the UTAS space planner and the client.

Requirement

- Project managers will confirm the space information provided on the as-built plans to ensure that it matches which was actually built.
- Prior to project handover, the contractor/designer may be required to assist the project manager in confirming the originally agreed space allocations.
- Space ‘type’ information used on plans should match that used in the UTAS space management database.
Appendix E  After-hours Callouts Protocols

After-hours call outs will vary for each project. Two types of works are encountered.

**Type A - Restricted Site Projects**

Projects that have a defined and restricted site area and generally do not have services that are shared by existing buildings or buildings outside the site area.

**Type B - Occupied Building Projects**

Projects that are undertaken within an occupied building and generally do have infrastructure that service other buildings or areas.

**Type A** projects are normally simple to manage during after hours for repairs or attendance. The contractor provides UTAS with an after-hours contact and UTAS Security will call that contact. If the contactor is unavailable then the UTAS maintenance service provider (MSP) will attend to make safe/secure. The MSP will then report the incident to the project manager at first opportunity the next business day.

**Type B** projects are not as simple to manage. After hours, the cause of a fault is not always easy to identify in an occupied building. The fault could be caused by the building project but in most cases it is not. Trends have shown that some impact will occur to the project even though the fault may not be directly attributable to the works. The contractor still provides UTAS with an after-hours contact and if Security can clearly identify the cause of the fault, they will call that contact. If the cause is not known then the UTAS maintenance service provider (MSP) will attend to make safe/secure (first response) until the next business day. The MSP will then report the incident to the project manager and the University facilities staff at first opportunity the next business day and if required a repair strategy is developed.

The after-hours’ repairs/activity to make safe/secure will usually not be a cost to the project if only simple and short attendance was required. Materials purchase and subcontractor call-in may be a chargeable item but will be discussed and evaluated on each occasion with the project manager.