



<b>Category:</b>	Facilities Management
<b>Responsibility:</b>	Vice-President Finance & Administration
<b>Approval:</b>	Board of Trustees
<b>Approval Date:</b>	April 28, 2005
<b>Revision Date:</b>	Issued November 2004
<b>Next Review:</b>	April 2008

### INTRODUCTION

Brock University's mission statement includes the development of a campus conducive to effective learning and scholarship for the University community. The University must meet the challenges of change: growth, technological advancements, legislated changes, environmental restrictions, demographics and values. The following document has been developed to address the physical space aspect of these changing demands.

### PURPOSE

The purpose of this document is

- To establish guidelines for the methods of designing and constructing University buildings.
- To ensure appropriate reviews/approvals are obtained from all stake-holders.
- To clarify roles in the design and construction process.
- To ensure construction projects are managed to allow for a goal of successful completion.

### SCOPE

These practices include all land, parking lots, buildings and building improvements owned, purchased or leased.

All changes to the University's physical assets will be managed by Facilities Management or delegated to the unit stakeholder, where so advised in writing by the Executive Director, Facilities Management.

Research-related buildings and building improvements may be subject to additional guidelines established by the Office of Research Services in relation to Research funding agencies. If this is the case, Research and the funding agency's rules and regulations may take precedence over the University policies.

### PRACTICE

#### Responsibilities

1. The Board of Trustees has established a standing Capital Projects & Facilities Committee whose responsibility, as set out in the Bylaws, is to make recommendations on all physical accommodations.
2. The Project Manager for an individual project acts in the best interests of the University to provide leadership in connection with overall project matters and strategy. This responsibility includes:
  - reporting on all matters listed below through the Executive Director, Facilities Management to the Capital Projects & Facilities Committee or the Board of Trustees as required,
  - developing and monitoring of the project budget in conjunction with the Finance Department (see Reporting and Approvals below)
  - developing and monitoring of the project schedule
  - co-ordinating the consultant retention process
  - ensuring the project adheres to the Campus Master Plan
  - securing appropriate internal University approvals
  - co-ordinating the design process
  - assisting in the decision making processes (e.g. construction method, tenders & awards);

- reviewing plans and specifications for the project;
- controlling/directing the project to ensure work is performed on schedule and in the most safe and economical manner;
- reviewing all change orders to ensure change order procedures are followed; coordinating and communicating with all constituents, stakeholders and users via budgets, schedules and progress reports; and
- co-ordinating a smooth transition of the completed project to the user department, including communication re functionality, maintenance and warranties.

## General Considerations

3. The growth and change of the University's physical assets are due to various circumstances. Regardless of any project's particular circumstances, it is necessary to ensure the following critical components have been considered prior to commencing project planning:
  - a clearly defined 'scope of work', i.e. what type and quantity of space is required, who are the expected users of the space, and when is the space required.
  - allocation of sufficient time to assess the needs and potential solutions.
  - allocation of sufficient resources to complete the work on a timely basis.
  - minimal disruption of normal operations, and
  - health, safety, risk management and accessibility.
4. Situations may arise that require an urgent response. The methodologies used in this case must be consistent with the general considerations included herein and all University policies (e.g. purchasing). An emergency purchase is needed to "protect life and property, prevent substantial economic loss, and/or prevent the interruption of essential services".
5. Wherever possible, stake-holders should be involved in all stages of designing a solution. Solutions should examine life-cycle costing and take into consideration on-going maintenance costs. In addition, the solution should be consistent with the Campus Master Plan and the Long Range Plan of the University.

## Procedures

6. **Project Manager.** Facilities Management will act as the Project Manager for all facility changes. The Manager, Campus Planning, Design & Construction will serve as, or assign staff to serve in this role, or will evaluate and recommend an external consultant to act as project manager, where sufficient or appropriate staff do not exist/are not available in Facilities Management. In either case, the Manager, Campus Planning, Design & Construction will monitor the performance of the Project Manager to ensure that the project proceeds as planned and make regular progress reports to the Capital Projects & Facilities Committee. External consultants who are hired to act as project managers must operate in accordance with the university Conflict of Interest Policy and may not also act in the capacity of Construction Manager.
7. **Project Budget.** The project budget includes consultant fees, construction and permits costs, insurance, risk management issues (e.g. asbestos, fire protection, accessibility), interest cost, debt repayments and/or revenue streams, internal charges (for chargeable work on the project), furniture, miscellaneous costs (signage, window coverings, etc.), data and telecommunications (telephones and upgrades to the network, if required to service the project, not computers, or classroom teaching technology), and salary costs if required. User departments may have additional costs pertinent to their own needs. It is important to note that the construction budget is just one part of the overall project budget.
8. **Contingency Allowance.** A construction contingency allowance shall be held. In the case of a new building, the contingency should be a minimum of 7% (10% preferred). For a renovation project, the contingency should be a minimum of 12% (15% preferred). Smaller projects require a higher contingency allowance. See Cost Estimates and Changes During Construction below.
9. **Work Plan.** For all projects valued at over \$500,000, a Work Plan will be prepared that describes the planned activities for the duration of the project. The Work Plan will include a definition of the project, consultants required, schedule of major milestones, urgency/repercussions if completion deadline not met, construction methodology with rationale and preliminary project budget.

10. **Feasibility Study.** Where new buildings or significant changes to existing facilities are proposed, a Feasibility Study should be prepared. The Project Manager is responsible for co-ordinating the Feasibility Study which will usually include the development of an outline space program, site location opportunities and recommendation, utility servicing factors/options, operational costs, construction cost based on proposed construction start date, and other recommendations as required. Where the value of the project is expected to exceed \$500,000 or where in-house expertise is not available, external consultants should be used to prepare the Feasibility Study.
11. The Work Plan, together with the recommendations of any pertinent Feasibility Studies and input from stakeholders/users must be presented to the Capital Projects & Facilities Committee for review and recommendation to the Board of Trustees.
12. **Consultant Retention.** A Request for Proposals (RFP) process will be used to retain the prime consultant (architect and engineers) for projects valued at over \$500,000. The selection criteria will include their suitability for the project based on previous experience, time availability, past performance, references and fee proposed. Consultants will be retained where required for projects valued at less than \$500,000.
13. **The Design Process.** The design process typically includes the following stages: schematic design, design development, and construction document preparation. A user committee will be established which shall include representation from the main user groups, Risk Management and appropriate technical operations staff (such as Facilities Management and ITS). The design committee will participate in regular meetings with the Project Manager and the architect for the duration of the schematic design stage, and less frequently during the design development stage. Technical operations staff will continue to meet with the architect and engineers during the design development stage. Consideration should be given to repairing any existing building deficiencies at the same time, if possible.
14. **Cost Estimates.** Construction cost estimates should be prepared at the following stages: end of schematic design, end of design development, 50% construction documents, and 100% construction documents (prior to tender). Small projects may require fewer estimates (end of design and prior to tender). Sufficient time shall be allowed in the schedule to prepare and review the estimates. The estimates should include all elements of the work, any potential escalation costs until the start of construction, and the normal contingency allowance. Should the estimate be higher than the approved funding, the project design shall be modified to meet the budget in consultation with the stakeholders/users. Consideration should be given to increases to the budget only where cost savings or additional revenue in an appropriate payback period can be demonstrated.
15. **Reporting and Approvals.** The Project Manager will provide a project status report for each current project to the Capital Projects and Facilities Committee. Project Status Reports shall include the following information:
  - Background information
  - Construction status
  - Schedule report (current schedule and change since previous report)
  - Budget report (approved budget/actual costs/forecast costs with input from Finance Department)
  - Issues related to project (including plan to resolve issues)
  - Operational issues related to project (e.g. impact on current Facilities Management/other units and relocation of equipment/resources/personnel)

User representatives and University technical operations staff will be required to formally approve the design plans at the end of each stage.

16. **Construction Procurement Strategy.** Generally, the University will employ a 'design-bid-build' strategy for construction procurement but may elect to use 'construction management' or 'design-build' if warranted.
  - a) A *design-bid-build* strategy requires a fully completed design, and a completed set of construction documents and specifications which are tendered to general contractors. The University would then enter into a stipulated sum contract with the lowest qualified bidder. The advantage of design-bid-build is that the base bid is known prior to commencing construction. The total price at completion remains unknown however, and still has the potential to exceed the budget. This approach requires:

- Sufficient lead time for the design and document preparation stage
- University commitment not to make design changes during construction
- Consultants with the ability and time to fully complete the construction documents and specifications
- General Contractor able and committed to completing the work expeditiously and competently (Consideration should be given to pre-qualifying contractors where appropriate.)
- Appropriate budget and contingency allowance.

b) A *construction management* strategy is generally employed when the project has a very tight deadline or complexities requiring contractors to contract directly with the University. Typically construction management also includes fast-tracking of the construction which includes sequential tendering of the individual trade contracts and beginning construction prior to completion of the design. This approach requires the University to enter into contracts with each trade contractor. Advantages of construction management include the ability to start construction quickly and flexibility in making changes during construction. As construction is usually started as quickly as possible, total cost at completion is less certain than in a design-bid-build approach. This approach requires:

- Flexible budget
- Experienced Construction Manager with proven abilities to control project costs and schedule with an excellent safety record
- Accurate cost estimating
- Minimal design changes during construction

c) A *design-build* approach requires the University to prepare a comprehensive design brief describing all the requirements of the project including general design parameters, required materials and methods, operating requirements, warranties and contracted maintenance required, schedule, site and utility information, etc. The design brief is tendered to design-build teams who will design and build the project on behalf of the University for a stipulated sum. As in a design-bid-build contract, changes during construction can increase the cost of the project. This approach requires:

- The University will retain an advocate architect (and/or other consultants as required) to prepare the design brief, review the proposals, and attend site meetings to ensure the project is constructed according to the contract
- Less consideration given to design quality.

17. **Changes During Construction.** The construction contingency allowance will be used for changes during construction required as a result of unknown site conditions, co-ordination between various components of the work, or other factors related to the requirements of the construction process. The contingency allowance is not to be used for stake-holder initiated changes to the building design. Should changes of this type be requested, funding equaling the cost of the change must be provided and the project budget increased accordingly. Stakeholders should be consulted and/or made aware of significant changes that may alter the operational use of the space.

18. **Construction Practices.** Construction practices should include industry and professional standards in general use in Ontario and comply at all times with the health and safety policies of the University. In addition the following procedures should be implemented/considered where appropriate to the individual project:

- a) Standard construction contracts issued by the Canadian Construction Association should be used wherever possible to minimize risk and liability to the University.
- b) Compensation mechanisms that create incentives for the Contractor or Construction Manager to complete the project on time and on budget should be considered. The cost of the incentives needs to be balanced against the specific budget/schedule needs of the project (e.g. cost + variable percentage may encourage cost savings, bonuses for target estimate achievement, liquidated damages for late completion or cost overruns) and other risk management strategies.

- c) Performance bonds shall be provided by contractors for all contracts valued over \$500,000. Generally the bond shall be 50% performance and 50% labour and materials.
- d) Bid bonds or other acceptable security (such as a certified cheque or letter of credit) shall be submitted by bidders for all tendered contracts with an estimated value in excess of \$100,000.
- e) Consideration should be given to extending the standard construction warranty period to 18 months from the date of substantial performance in order to ensure systems perform as designed for a full season of use. This should include a formal warranty review and follow up with the Executive Director, Facilities Management or delegate.
- f) The selection of a Construction Manager should be subject to a higher level of scrutiny. Their considerable experience may be enlisted as part of the team to suggest design materials, mechanical systems and subcontractor selection process that may reduce overall errors and/or costs. Their credentials, references, safety records and control systems should be examined to ensure the level of confidence placed in them is justified.
- g) All site meetings held by the Contractor and/or Construction Manager will be recorded in the minutes. All contentious trade and health and safety issues reported must be investigated, discussed and recorded in site meeting minutes. These minutes may be crucial in substantiating future claims.
- h) Where it is unclear if the scope of work was included in the tender documents, Change Orders may be required. All Change Orders are to be prepared under the direction of, and approved by, the Project Manager/University and include all the following information:
  - approval by the consulting team of the change required (if not issued by the consulting team),
  - description of the change in work,
  - the method/amount of adjustment in the contract price, or that no adjustment is required,
  - the extension to the contract time, or that no extension is required, and
  - written agreement of the above by the contractor.

A Change Order is a change to the contract and requires a written quotation the same as an additional contract or purchase and is therefore subject to the same approval process. This process includes the need to obtain quotes (in accordance with construction contract and/or purchasing policy) and the written delegation of signing authority.

- i) Where there is a change in work, within the general scope of the contract documents, Change Directives may be required. Change Directives are normally issued to prevent work stoppage, and where final costs are not known. All Change Directives prepared/approved by the Project Manager/University include all the following information:
  - Approval by the consulting team of the change required (if not issued by the consulting team),
  - description of the change in work required of the contractor.
 Change Directives should be avoided where possible. Typically they involve immediate action that is billed on a Time & Material basis, because the actual cost cannot be determined in a short period of time.
- j) All costs back-charged to contractors due to non-performance, poor performance or negligence must be approved by the Project Manager and processed on a timely basis, consistent with the frequency of regular progress billings.
- k) Where circumstances arise that result in Contractor liens, consideration should be given to filing the amount of the lien with the courts in an attempt to avoid interest charges.

## **RELATED POLICIES**

Conflict of Interest

Purchasing

Quotation, Tender & Award

Signing Authority

Health & Safety