



Campus Planning, Design & Construction

Capital Project Management and Guidance

The Campus Planning, Design & Construction project manager is responsible for monitoring and overseeing effective quality control, budget, and schedule for all capital construction projects. The Campus Planning, Design & Construction project manager is involved with a diverse set of tasks ranging from initial programming, budgeting, and schedule development to project commissioning, final closeout, occupancy, and coordination of future maintenance needs with NJIT's Facilities Services team. The Campus Planning, Design & Construction project manager serves as the university's agent and primary representative, coordinating the project team and rendering decisions consistent with predetermined project objectives. From time to time, NJIT may engage a program management firm to act as the university's project manager agent for the university's capital construction projects. When the project management firm is involved in a capital project, the firm works extensively with the Campus Planning, Design & Construction project manager to ensure NJIT's best interests are maintained.

The first phase of the design process is the conceptual design phase. This phase is programmatic, problem-solving, and involves the creative visualization of an overall concept. The initial project program defines what is required of the project in terms of meeting user needs, space requirements, building functions, systems, and desired features. A conceptual budget should be established at the end of the conceptual design phase.

Once the conceptual design is completed, project moves into the schematic design phase. In this phase, the project begins to take shape. Programming information is incorporated at this stage and basic spatial relationships are developed. As the design team begins to explore the project through the schematic design phase, unforeseen or expanded program needs can develop. This "program creep" creates pressure on both the project budget and the schedule. If possible, the Campus Planning, Design & Construction project manager must try and avoid or appropriately respond to program creep or the expanded program will make the project size, cost or schedule unrealistic. At the end of the schematic design phase the project budget should be updated and a preliminary project schedule created.

Next, the design development documents are generated based on the approved Schematic Design. The design development documents shall illustrate and describe the refinement of the design of the project, establishing the scope, relationships, forms, size and appearance of the project by means of plans, sections and elevations, typical construction details, and equipment layouts. The design development documents shall include specifications that identify major materials and systems and establish in general their quality levels. At the end of the design development phase, a review of the project budget and schedule should be done to make sure project is still on track.

Once the design development process is completed, the construction documents are created. The construction documents delineate in detail the requirements for construction of the project. The construction documents shall include drawings and specifications that establish in detail the quality levels of materials and systems required for the project. As the construction documents progress, typically at 50% and 90% completion, project estimates are done to confirm the project budget.

Once the construction documents are 100% complete, the Campus Planning, Design & Construction project manager will work with NJIT's procurement team to solicit bids from NJIT's pre-qualified list of contractors. The program management firm, when applicable, will also work to assist the Campus Planning, Design & Construction project manager and NJIT's procurement team for the solicitation of bids. Prior to the solicitation of bids, the Senior Vice President for Real Estate Development and Capital Operations will sign the Request to Advertise form as an approval to initiate the bidding process.

If a capital project is in excess of \$2 million dollars, the Campus Planning, Design and Construction team will meet as a group to properly review, discuss and document the lessons learned from the project. This process will allow the Campus Planning, Design and Construction team to better understand the positive and negative experiences on the project. The outcomes of the lessons learned process will better prepare the Campus Planning, Design and Construction team in the planning and development of future university projects.



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Change Order Procedure

Purpose

The purpose of this procedure is to provide an overview of the change order process and the information the University requires as well as the preferred format. Change orders are used to implement and document changes to the construction contract. A change order is a document issued to the Contractor to identify required changes to the original plans, specifications, or other contract documents. Upon successful negotiation of the associated changes in project scope, cost, and schedule, the final change order with the proper signatures becomes a legal amendment to the construction contract.

Format

The University prefers that the Consultant (architect, engineer, program manager) shall use a form equivalent to the AIA document G701 change order form. The Consultant shall provide the necessary information as outlined below and describe in written form the proposed changes to the project. All forms should be computer-generated to produce a clean, legible document. The following Information to be included on the form:

- **Project Title:** List the project title as found on the contract documents established for bidding purposes.
- **Project Number:** List the request for bid number as found on the contract documents established for bidding purposes.
- **Contractor Name:** Include company name and address.
- **Change Order Number:** Consultant shall assign the change order number.
- **Date:** Include the date in which the change order was initiated.
- **Contract Date:** List the date included on the "NOTICE TO PROCEED" issued by NJIT. Consultants are emailed a copy of this notice upon issuance to the Contractor.
- **The Contract is Changed as Follows:** Reference any proposal requests included in the change order, provide a description of the work or change and provide the necessary backup supporting documentation that justifies the costs.
- **Contract Breakdown:** Include on the change order, prior to approval signatures, a breakdown of the contract reflecting the original contract sum, net changes by

previously approved change orders, the contract sum prior to the current change order, the amount the contract sum will be increased or decreased, the new contract sum, the number of days the contract time will be increased or decreased, and the date of Substantial Completion.

- **Approval Signatures:** Format the form to include signature lines for the Consultant, Contractor, and Owner.

Note: It is not necessary to use a separate change order for each change order proposal request. It is acceptable to combine as many change order requests as reasonably possible into one single change order.

Processing

The Consultant shall prepare one (1) change order complete with all applicable supporting documentation. The Consultant will sign and date the change order and forward to the Contractor.

The Contractor shall sign and date the change order and forward to NJIT's Campus Planning, Design and Construction team.

The change order with accompanying information will be reviewed by the NJIT Campus Planning, Design and Construction project manager for consideration. The project manager, if in agreement, will initial the change order and forward to the Senior Vice President for Real Estate Development and Capital Operations for review and execution.

Distribution of the change order along with the backup information will be as follows; one electronic copy retained by NJIT Campus Planning, Design and Construction, one electronic copy is returned to the Contractor, and one electronic copy is returned to the Consultant.

Reminder: Payment applications which list change order amounts on the application must have a fully executed change order on file with NJIT Campus Planning, Design and Construction before payment applications can be processed.



Campus Planning, Design & Construction

Procore Project Management Software

Campus Planning, Design & Construction utilizes the project management software, Procore, for the majority of all new capital projects. This project management software provides an integrated collaboration hub for NJIT project managers, architects, engineers, contractors, and other stakeholders throughout the project lifecycle. It provides one central location for users to access the project budget, schedule, change orders, drawings, specifications, requests for information, submittals, photos, contracts, punch lists and closeout documents.

When a capital project is approved, the project is set up in Procore utilizing the initial project budget. During the pre-construction phase, any drawings, specifications, project schedules, and estimates are uploaded into Procore. Having this documentation all in Procore allows stakeholders easy access to review and comment on the project documents as they are being developed and finalized.

Once the project has gone through the bidding process, the contractual construction costs can be added to the project budget within Procore. A baseline project schedule is generated by the contractor, and once approved by NJIT project manager, program management firm and design team, the project schedule is uploaded into Procore. Executed contracts are also uploaded into Procore as well.

During the construction phase, the majority of all project documentation is managed through Procore. All project team members, both internal and external are provided access to Procore. The contract documents, requests for information, submittals, meeting minutes, project schedule, project budget, change orders, daily logs, and photos can be accessed by the project team. Procore acts as a project repository for every detail, document, and other important data that is needed to successfully manage the project throughout its life cycle.

Once the project is nearing completion, Procore is used to manage and store the project punch list and closeout documents. These documents are critical for closing out the project and for future reference once the project is complete. Using Procore throughout the project life cycle allows for unrestricted access to critical historical project data for operations and maintenance when it's needed.



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Project Acceptance and Final Payment

1. The contract documents are written documents that define the roles, responsibilities, and scope of work required for the project. What follows is a general guide to project acceptance and final payment.
2. The contractor must give the design professional as designated in the contract documents a written notice that the project is ready for a final inspection. If no design professional is designated, the notice is submitted to the Campus Planning, Design & Construction project manager.
3. All work associated with the project will be inspected. If a design professional has been retained, the design professional and the Campus Planning, Design & Construction project manager will perform the inspection and a punch list will be generated.
4. The construction project is considered closed out once all items on the punch list have been completed and the owner has received all closeout documents including test reports, record drawings, maintenance manuals, proper training, and a certificate of occupancy from the City of Newark.
5. If applicable, the commissioning agent should submit a full commissioning report and systems manual upon project closeout.
6. Before acceptance and final payment, the contractor must furnish evidence that it has paid all debts for labor, materials, and equipment incurred and that the surety has consented to final payment, and must provide documentation of any special warranties such as subcontractor or manufacturer warranties. This documentation requirement includes executed copies of current editions of AIA standard documents as follows or substantially equivalent documents:
 - AIA G704-2000 Certificate of Substantial Completion
 - AIA G706-1994 Contractor's Affidavit of Payment of Debts and Claims
 - AIA G706A-1994 Contractor's Affidavit of Release of Liens

- AIA G707-1994 Consent of Surety to Final Payment

7. If the work is acceptable and the contract is fully performed, a certification of acceptance will be issued to the contractor.

- Before issuing a certificate of acceptance or final payment to the contractor, the Campus Planning, Design & Construction project manager will review the terms of the contract to confirm that all conditions to acceptance and final payment have been met.

8. Final payment will be the contract sum plus any approved change order additions, less approved change order deductions, less previous payments made, less any adjustments for defects in the work, and less liquidated damages, if any.

9. The Contractor must furnish one hard copy and one electronic copy of the following:

- A one-year acceptance warranty, copies of bonds, roof warranties, rodent control reports/certification, maintenance and operation manuals, and operation training, air balance report, shop drawings, catalog cut data, as-built “record” prints, etc., as called for under the various divisions of the specifications.

The design professionals will review and approve all of the above documents prior to transmission to the university.

Once all the above contractual obligations, terms and conditions have been satisfied, the design professionals and the Campus Planning, Design & Construction project manager will sign off on the final payment request and send it to NJIT’s Accounts Payable for processing.

11. Design professionals should provide to the owner one approved hard copy and an electronic copy of the material outlined above. In addition, the design professionals should furnish one approved hard copy and an electronic copy of the original set of construction documents reflecting all changes and corrections.

12. If requested by the university, the design professional should also furnish corrected as-built drawings in the form of AutoCAD electronic drawing files on a USB external flash drive.

13. Once the project reaches final acceptance, the Campus Planning, Design & Construction project manager should formally notify NJIT’s general accounting department so that the capitalization and depreciation process may begin (see Appendix B).