UNIVERSITY OF COLORADO AT BOULDER

Department of Facilities Management

Construction/Life-Safety Handbook

Revised: February 2011

UNIVERSITY OF COLORADO AT BOULDER
CONSTRUCTION/LIFE-SAFETY HANDBOOK
DEPARTMENT OF FACILITIES MANAGEMENT
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INTRODUCTION

This Handbook provides a set of guidelines and requirements for campus construction activities. It addresses coordination and review requirements from design, to permits, construction, inspections, and issuance of certificates of occupancy. It is intended to establish a uniform set of procedures that are to be followed by all project managers, engineers, reviewers, Facilities Management shops, inspectors, and outside consultants.

SECTION 1

PROCEDURES FOR INTERACTION DURING DESIGN AND CONSTRUCTION

PART 1 – CODE AND LIFE-SAFETY: DESIGN AND CONSTRUCTION OF BUILDINGS

1.1 FM Construction, FM Engineering, and FM Shops shall be involved in the review and acceptance of all construction projects, from the development of the program plan, through all the design phases, to construction, inspection, and final testing, as listed below.

1.1.1 Fire- and Life-Safety Group (FLS) shall be the Authority Having Jurisdiction (AHJ) for:

A. Exiting

B. NFPA, IBC, IMC, IPC, ADA, and NEC Codes and regulations, including those dealing with: Suppression, Fire resistance of building elements, Type of construction, Ignition prevention, Fuel control, Means of emergency egress, Hazardous materials with fire- and life-safety implications, Environmental issues with fire- and life-safety implications, Health issues with fire- and life-safety implications, Life safety, and Smoke Management Systems.

C. International Fire Code

D. Fire, safety and related issues in the following standards, codes and regulations:
IBC
IPC
IMC
ANSI
ADA

1.1.2 EH&S shall be the AHJ for environmental, health and safety issues in the following codes and regulations:

A. OSHA
EPA
IFC
NRC
ACGIH
NIH
NFPA
JCAHO
Colorado Department of Health (CDH)
CDC
NIOSH
Other applicable EHS codes

B. All work that involves hazardous materials, waste water discharge, radiation safety, safety showers, eye washes, and fume hoods shall be reviewed and approved by the AHJ for the above issues, i.e., EH&S. EH&S and FM FLS are the AHJ's for chemical inventory issues that deal with IFC.

1.1.3 FM Civil (CEG), Electrical (EEG), and Mechanical (MEG) Engineering Groups shall be the AHJ's for their respective discipline in the following regulations, codes, and issues:

A. IBC
B. IPC
C. IMC
D. NEC
E. IFC
F. Smoke Management
G. ADA

The FM Pipe Trades Shop is the AHJ for indoor plumbing issues in coordination with MEG. The FM Pipe Trades Shop is the AHJ for outdoor plumbing issues in coordination with CEG.

1.1.4 EH&S and FM shall share responsibility for review and approval of:

A. Laboratory and shop exhaust systems.
B. Other issues to be agreed upon by EH&S and FM on a case-by-case basis.

1.1.5 Fire Detection and Alarm Responsibilities and Authority.

1.1.5.1 Design-Phase Documents and Drawings

The department indicated in parentheses after each category is the authority for that issue. However, comments from both departments are encouraged.

A. Device Location (FLS)
B. Type of Device (FLS)
C. Sequence of Operations (FLS, EEG and MEG share responsibility and authority)
D. Type of System (FLS & FSG)
E. Wiring (EEG & FSG)

1.1.6 General Guidelines for Fire Detection and Alarm Responsibilities and Authority

For review, acceptance and inspection issues not specifically clarified elsewhere in this document, the following guidelines should be used.

1. Issues addressed in the National Electrical Code (NEC) will be under responsibility and authority of EEG.

2. Issues related to IBC, IFC, NFPA-72, and NFPA 13 will be under responsibility and authority of FLS.

3. Issues related to NFPA-72 and the National Fire Alarm Code will be under shared FLS and EEG responsibility. The above items and clarifications are to be used in order to determine responsibility/authority for specific issues in NFPA-72. For example, NFPA-72 sections that deal with detector type and locations are the responsibility of FLS, and sections that deal with wiring and connection details are the responsibility of EEG.

1.1.7 Structural issues and design shall be performed by Colorado registered structural engineers and reviewed by CEG. FMDC will ensure that the documents are sealed and signed by the design P.E.

1.1.8 FM Planning Division (FMPD) shall be the AHJ for:

A. Assignable space & exterior/aesthetic issues.
B. ADA except as noted in sections 1.1.1 and 1.1.3.

1.2 AHJ's shall provide written review comments to the project manager from Facilities Management, for distribution and implementation.

1.3 If FLS does not have staff-time to perform code-compliance review and approval, a second-party review consultant will be pre-assigned to the project, per agreement between FMDC and FLS, and written approval from FLS. The reviewer shall be approved by FLS.

1.4 For construction and renovation projects, FM will make every effort possible to meet current health and safety code requirements.

1.5 A code edition date will be established for each project beyond which non-critical code-related changes will not be considered, unless agreed-upon by all parties. If the project has been postponed and a new code has been adopted, the later edition will apply.

If the AHJ does not notice a design/code oversight, it does not release the design team of their responsibility for a code compliant design.

1.6 Contract documents shall not be issued for bidding without sign-off from AHJ's on stamped sets.

1.7 All changes during planning, design, and construction which affect health, safety, or building services shall be reviewed and approved by the AHJ.

1.8 Code, health and safety positions presented to others outside of either department shall be represented as the position of the University, and shall have been based on consultation with the other department, if warranted.

1.9 Differences of opinion between EH&S and FM shall be addressed between departments, and without involvement of the client.

1.10 Appeals

1.10.1 In the campus appeal process all appeals and variances, along with campus Code Officials' recommendations, are sent to the Campus Construction Appeals Board consisting of 1) the Director of Planning, Design and Construction and/or the SBP Delegate on campus unless both positions are occupied by the same person, 2) Campus Architect, 3) Director of Physical Plant, 4) Assistant Director of Engineering and 5) Assistant Director of Design and Construction. All appeals details and decisions will be sent to the Director of SBP at the conclusion of each project. If the Campus Construction Appeals Board needs clarification on code requirements, they will seek advice from SBP or its approved code review consultants.

1.10.2 When a team member has a disagreement on the interpretation of the code requirements by the BCO, he/she may appeal the decision of the BCO. It is noted that an appeal is not permitted to reduce or waive requirements of the code. Appeal procedure as discussed in the 2004 edition of the SBP's Policies and Procedures, Building Code Compliance, will be implemented as follows:

a) The campus project manager will provide a request in writing for appeals to the Campus Construction Appeals Board (CCAB). The request will be as specific as possible, indicating the code section in contention and provide reasons for the appeal and other substantiating documentation as required.

b) CCAB will review the request. The CCAB may solicit the comments from SBP or SBP approved code review agents. Fees associated with such solicited comments will be paid by the project.

c) Accepted and rejected appeals will be distributed to the BCO.

d) Appeals may only be approved by the State Buildings Programs or the approved CCAB.

1.11 The clients will be informed prior to any plans for construction or renovation that a code review will be performed to determine the scope of work involving code requirements. These requirements will be conveyed to the client prior to assigning the budget. All viable options will be offered to the client to meet the requirements. If the client cannot meet the requirements, and decides to appeal, the procedures described in 1.10 shall be followed.

Although it is discouraged, in some rare cases it may be necessary to provide the client with a cost estimate of the project prior to a full code review. This estimate shall be presented in a manner which fully apprises the client of the limitations of the preliminary estimate.

1.12 If any department, including FM, fails to review code and standards issues with the AHJ's, or fails to address them as required by AHJ's, then it is the responsibility of that department to take the necessary actions for correction of the problem.

1.13 Renovations shall implement all code requirements that directly or indirectly affect the renovation project area as explained in the introductory paragraphs of the Code Review Checklist in this document. Where feasible, the entire facility should be upgraded to comply with current codes. In addition, where required by the applicable codes for existing buildings, the entire facility shall be upgraded to comply with current codes. When a facility is nominally in violation of current codes for existing buildings and a renovation is planned but the client cannot meet the costs of compliance outside the renovated area, a program or set of alternative solutions will be suggested by the AHJ to bring the facility into compliance. Appeals can be addressed using the procedure outlined in this section.

1.14 Sprinklers shall be included for all projects which meet one or more of the following requirements unless a waiver request is made by the project team and approved by the FLS:

- The project has an anticipated dollar amount greater than $10,000.
- The project results in a change of use, occupancy or number of occupants, regardless of dollar amount.
- Fire safety systems, e.g. fire doors, fire barriers, means of egress, suppression systems or detection systems, are affected, regardless of dollar amount.

PART 2 - SUBMITTALS: MATERIALS AND SHOP DRAWINGS

2.1 Shop drawing and/or product submittals are to be distributed to the following parties for review:

A. Sprinkler, standpipe and other suppression systems to FLS and FSG.

B. Fire and smoke dampers to FLS and MEG.

C. Structural to CEG.

D. Fire stopping to FLS.

E. All other devices and equipment to FMDC. However, FLS will continue to provide technical assistance on fire and life-safety related issues (e.g., fire doors, fire resistance of construction elements and exit sign locations) upon request from FM engineers or project managers.

2.2 Fire Detection and Alarm Responsibilities and Authority

The AHJ indicated in parentheses after each category is the authority for that issue. However, comments from both departments are encouraged.

2.2.1 Construction-Phase Shop Drawings

A. Device Location (FLS)

B. Type of Device (FLS with assistance from FSG)

C. Sequence of Operations (FLS, FSG, EEG, and MEG share responsibility and authority)

D. Type of System (FLS and FSG)

E. Wiring (EEG and FSG)

PART 3 - TESTING, MAINTENANCE AND REPAIR

The department or group listed below will be responsible for managing, scheduling and reporting the tests. In all cases, FM (or Housing as applicable) will maintain and repair them.

3.1 Fire-suppression systems: FM FSG or Housing FSG

3.2 Fire-alarm systems: FM FSG or Housing FSG

3.3 Laboratory and other hazardous exhaust: FM. EH&S will assist.

3.4 Exit signs and emergency lighting: FM or Housing as applicable.

3.5 Fire extinguishers: FM or Housing as applicable.

3.6 Backflow preventers: FM or Housing as applicable

3.7 Boiler insurance inspection: Risk Management.

PART 4 - SELECTION OF CONSULTANTS AND CONTRACTORS

4.1 FLS and FSG shall be involved in selection and approval of fire-suppression and fire-detection/alarm consultants and contractors. This also applies to mechanical and electrical consultants who provide these services. EEG shall also be involved in selection and approval of electrical engineers retained for fire alarm work.

PART 5 - UCB STANDARDS

5.1 The UCB standards are complementary to these procedures. All FM personnel are expected to be familiar with them and promote their application when applicable.

PART 6 - PROJECT QUESTIONNAIRE

6.1 The Project Questionnaire form will be initiated by the Project Manager (PM) or their Project Assistants (PA). This questionnaire is intended to assist the AHJ's in conducting the necessary code reviews for all projects. AHJ's review is to ensure compliance with UBC and other applicable codes and standards for projects that do not retain the services of outside consultants.

SECTION 2
REQUIREMENTS FOR FIRE PROTECTION ENGINEERS AND DESIGNERS

PART 1 - OBJECTIVES:

1.1 To summarize guidelines that satisfy the requirements of State of Colorado Board of Registration of P.E.'s (CBR) and the University Standards.

1.2 To assure implementation of good engineering practice.

1.3 To improve the level of consistency in the design of Fire Protection (FP) systems.

PART 2 - ENGINEERING REQUIREMENTS, THE DESIGN TEAM

2.1 The design shall be performed by a Professional Engineer or a designer under the direct supervision of a Professional Engineer.

2.2 All Engineers shall be competent and have five (5) years experience in the design and installation of fire protection systems. FLS has the option to request proof of qualifications.

2.3 For new buildings and major renovation projects, it is preferable that the Engineer be a "Member" in the national organization of the Society of Fire Protection Engineers.

2.4 All Engineers may hire a sub-consultant for the design of fire protection systems. Sub-consultants are to be approved by FLS prior to hiring. The sub-consultant is the Engineer of Record for FP systems and is to be a Colorado registered P.E. FLS has the option to request proof of qualifications.

2.5 The "Record" set of documents shall be stamped by a Colorado Registered Professional Engineer.

2.6 All shop drawings shall be reviewed by the Engineer of Record and FLS. FSG will send comments to FLS for inclusion into overall FM comments. Engineer of Record will incorporate FLS/FSG comments into the overall comments to the contractor.

2.7 Refer to UCB Standards and the design-services agreement for additional Engineers' responsibilities.

2.8 The Engineer's responsibilities include designing a logical, concise fire system for bidding purposes, stamping a record set of documents, reviewing shop drawings for conformance with Contract Documents (CD's) and applicable codes, and inspecting the installed systems for conformance with the CD's. The CD's shall clearly indicate connection to existing systems, underground piping, risers (size/location), cross-mains, zoning methods, drain piping (size/location) and control valve locations. The density and design areas are to be included. The locations of branch lines and sprinklers are not required in CD's unless the Engineer recognizes otherwise.

Small projects for which the services of an outside Engineer have not been retained will be handled by the University staff.

PART 3 – ENGINEERING REQUIREMENTS, THE CONTRACTOR (SHOP DRAWINGS)

In general, projects containing/affecting 15 or fewer sprinklers will be considered small; 16-100 sprinklers will be considered medium; and more than 101 sprinklers will be considered large. However, type and complexity of the system will also affect the project requirements. The design team shall contact FLS to determine which of the following sections apply to a given project during the design phase.

This section will be modified as more pertinent information becomes available from CBR and other State agencies.

3.1 The fire-suppression system shop drawings for large new construction projects shall be stamped by a Colorado Registered P.E. or NICET level IV.

3.2 The fire-suppression system shop drawings for small new construction projects shall be signed by a NICET level III or higher or a Colorado Registered P.E.

3.3 The fire-suppression system shop drawings for major remodeling projects shall be stamped by a Colorado Registered P.E. or NICET Level IV.

3.4 The fire-suppression system shop drawings for medium remodeling projects shall be signed by a NICET level III or higher or a Colorado Registered P.E.

3.5 The fire-suppression system shop drawings for minor remodeling projects, such as moving a few sprinkler heads in a given room, are not subject to P.E. or NICET requirements. However, the requirements of NFPA-13 are to be followed. If necessary, PM should contact FLS for clarifications prior to bidding.

SECTION 3

CODE REVIEW SYSTEM/FORMAT FOR CU PROJECTS

PART 1 - CODE REVIEW OBJECTIVES:

1.1 To enhance the level of compliance with codes.

1.2 To provide clear direction for the design team throughout the design process.

1.3 To use in answering questions raised during the construction phase.

1.4 A secondary objective of the code review is to provide adequate information, on file, for future reference, e.g., during future alterations and renovations.

PART 2 - PARTIES WHO SHOULD DEVELOP THE CODE REVIEW:

2.1 Preparation of the code review shall remain the responsibility of the design team, normally led by the lead consultant.

PART 3 - TIMING OF THE CODE REVIEW:

3.1 It is recommended that a preliminary code review be submitted with the program plan or conceptual design. The code edition/version is to be identified and listed. The code review shall be updated and submitted at the schematic design (SD), design development (DD) and contract documents (CD) stages of the project.

PART 4 - EVALUATION OF THE CODE REVIEW:

4.1 Fire, life, and health and safety code issues, see items 7.1 through 7.9 below, shall be evaluated by FLS. Other code issues shall be evaluated by the designated AHJ.

PART 5 - WHERE TO PLACE THE CODE REVIEW:

5.1 The code review shall be located on the front sheet(s) of the architectural drawings. This will help facilitate filing and ease future reference.

PART 6 - CODE REVIEW GUIDELINE:

6.1 The form in Part 7 may be copied and is to be used by the design team as a checklist to identify applicable items, and as a list of headings for the code review report.

The box next to each item is to be used when using this format as a checklist. If the item does not apply, the box will be marked with “N" for "No"; otherwise, "Y" for "Yes."

6.2 The design team shall contact the University to determine which of the following sections (6.2.1 or 6.2.2) apply to a given project prior to schematic design phase.

The level of detail of the code review depends on the size of the project.

6.2.1 For small (less than $50,000 construction budget) remodeling projects, only applicable items shall be included. Items that do not apply need not be listed.

6.2.2 For all other construction projects, all items are to be included. Items that do not apply shall be listed and identified with “N/A

6.3 The code names and paragraph numbers and exceptions shall be identified for each item indicated in the code review report.

PART 7 - CODE REVIEW CHECKLIST:

See Part 6 for user instructions.

The code review should include the following sections. In each section, the applicable code paragraph numbers and exceptions should be identified and listed. Please note that all of the following items do not necessarily apply to all projects. The code review needs to address two sets of issues:

a. Code issues that affect the project area: for example, change in use/occupancy, exit doors, fire rating of partitions, and classification of interior finish.

b. Code issues outside the project area, only to the extent affected by changes in the project area. For example, if the occupant load of this floor has increased, the code review is to identify the required width of exits and verify that the existing stairs provide adequate width for the new occupant load.

7.1 The Building

[ ] 7.1.1 Building height and area
[ ] 7.1.2 Building occupancy and use groups
[ ] 7.1.3 Building location with respect to adjacent properties and roads

7.2 Building Fire Resistance

[ ] 7.2.1 Type of construction
[ ] 7.2.2 Fire resistance of structural members (include sprinklered building exceptions)
[ ] 7.2.3 Fire resistance of all exit routes including stairs, corridors, and ramps
[ ] 7.2.4 Fire resistance of vertical openings and shafts
[ ] 7.2.5 Fire resistance of special occupancy enclosures such as storage rooms and hazardous areas.
[ ] 7.2.6 Fire resistance of other building elements such as partitions, doors, and exterior wall openings.
[ ] 7.2.7 Sealing of penetrations.

7.3 Ignition Prevention

[ ] 7.3.1 Identify potential ignition sources and related code requirements
[ ] 7.3.2 Identify hazardous locations and the required classifications

7.4 Fuel Control

[ ] 7.4.1 List amount and type of combustible material, e.g., fire retardant treated wood, that may be used. (See also 7.9, Special Hazards.)
[ ] 7.4.2 Identify and list interior finish classifications in exit paths, places of assembly, and all other areas.
[ ] 7.4.3 Identify allowable types of furniture.

7.5 Means of Egress

[ ] 7.5.1 Determine and list occupant load factors and occupant loads for each floor and for each major space within a floor, e.g., assembly areas.
[ ] 7.5.2 Determine the minimum number of exits required for each floor and for each major room, e.g., assembly areas and labs, within a floor.
[ ] 7.5.3 Determine the minimum width of exits required for each floor and for each major room, e.g., assembly areas within a floor, ADA requirements.
[ ] 7.5.4 Determine the maximum allowable travel distance.
[ ] 7.5.5 Determine the maximum allowable dead-end.
[ ] 7.5.6 Determine the maximum common path of travel allowed.
[ ] 7.5.7 Determine the swing direction requirements.
[ ] 7.5.8 Determine the place of refuge requirements; number, size, and location.
[ ] 7.5.9 Determine exit signage requirements.
[ ] 7.5.10 Determine exit lighting requirements.
[ ] 7.5.11 Determine emergency power supply requirements.

7.6 Smoke Management Systems

[ ] 7.6.1 Determine smoke resistance requirements for corridors, lobbies, etc.
[ ] 7.6.2 Determine any active and/or passive smoke extract requirements.
[ ] 7.6.3 Determine locations and sequence of operations for all smoke and fire/smoke dampers and duct detectors.
[ ] 7.6.4 Determine stair pressurization requirements.
[ ] 7.6.5 Determine high-rise building requirements.
[ ] 7.6.6 Determine basement requirements.

7.7 Fire Suppression Systems

[ ] 7.7.1 Determine portable fire extinguisher requirements: type, spacing, and location.
[ ] 7.7.2 Determine automatic sprinkler system requirements: type, hazard classification, water supply, drainage, fire department connection, zone limitations, test equipment, exempt areas, and supervision.
[ ] 7.7.3 Determine standpipe system requirements: type/class, number, location, minimum pressure, supervision, and fire department connection.
[ ] 7.7.4 Determine fire department access and suppression provisions: hydrant locations, fire department access roads, and fire lanes.

7.8 Fire Detection and Alarm Systems

[ ] 7.8.1 Determine manual pull station requirements: type, spacing, and location.
[ ] 7.8.2 Determine automatic detector requirements: type, spacing, and location.
[ ] 7.8.3 Determine occupant notification and alarm requirements: type (horn, horn/strobe, speaker strobe, ...) and location. (Verify impact of interior rooms.)
[ ] 7.8.4 Determine sequence of operation of all systems, e.g., that are connected to or monitored by the building detection and alarm system. Examples include, fan shutdown, smoke management systems, and stairwell pressurization systems.

7.9 Special Hazards

[ ] 7.9.1 Limits of flammable liquids and other hazardous material (chemical/gas inventory)
[ ] 7.9.2 Hazardous material spill control
[ ] 7.9.3 Hazardous material containment
[ ] 7.9.4 Explosion protection and venting
[ ] 7.9.5 Hazardous material detection systems
[ ] 7.9.6 Hazardous labs ventilation systems, hoods and chemical and gas storage cabinets.
[ ] 7.9.7 Special suppression systems for special hazard areas.

7.10 Building Services

[ ] 7.10.1 Emergency generator.
[ ] 7.10.2 Elevators.
[ ] 7.10.3 Access to space and functions by persons with disabilities.

7.11 Plumbing

7.12 Ventilation and Exhaust

7.13 Electrical

7.14 Other Issues identified by the design team

SECTION 4

OWNER'S AND PROFESSIONAL LIABILITY ISSUES

PART 1 - RESPONSIBILITIES

1.1 The architectural and engineering design team is responsible for the preparation of code compliant construction Contract Documents (CD's) and review of shop drawings for compliance with the CD's. The team members shall be listed in the Contract Documents.

PART 2 - LIMITATIONS

The following statements apply when the Design Team consists of Architects, Engineers and other Consultants whose services are retained by the University. Typically, University employees are not Design Team members. Therefore, in order to prevent the appearance of a conflict of interest, if an employee performs a design, that employee shall not be the AHJ for his/her own design.

2.1 For SD, DD, and CD Reviews:

Review by the University is only for the limited purpose of checking for conformance with information given in the UCB Standards. The review is not for the purpose of determining the accuracy and completeness of dimensions and other details, substantiating instructions, all of which must be recognized and specified by the Architect/Engineer. The review does not relieve the Architect/Engineer of the duty to meet the requirements of the applicable building codes and national standards. The Architect/Engineer will be responsible for accurate design and precise drawings and specifications.

2.2 For Shop Drawing Reviews:

Review by the University is only for the limited purpose of checking for conformance with information given in the UCB Standards. The review is not for the purpose of determining the accuracy and completeness of dimensions and other details, substantiating instructions, or the constructions means, methods, techniques, sequences, or procedures, or coordination of the work of all trades, all of which remain the responsibility of the Contractor. The review does not relieve the Contractor of the duty to meet the requirements of the contract documents and the applicable building codes, and national standards.

SECTION 5

PLAN REVIEWS, PERMITS, AND INSPECTIONS

PART 1 - DESIGN REVIEW PROCESS

1.1 Design review for Non-Capital Construction projects shall be based on the attached Chart B4 (see Appendix B). Note: Sections 1.1.1 thru 1.4 below, and chart B4 are being revised with major changes. In the meantime please contact FM assistant Director of D&C if you have any questions or comments.

~~1.1.1 See project questionnaire in the appendix. Project manager shall keep copies of this form for timely distribution.~~

~~1.1.2 The large capital construction process flow chart should be used for all projects greater than $250,000, the small projects flow chart should be used for all projects less than $50,000, and the project manager must make a value judgment for each individual project between these two parameters. Some factors to consider for those projects which fall in between or less than $50,000 should be: 1. Does the project affect the "exterior" of the campus? 2. Does the project in any way affect "public" space (including interior public space)? 3. Does the project affect the academic/programmatic use of the space? If you can answer yes to any of these questions, then FMPD should be contacted and involved in the project. The planning phase manager can then assist the project manager in determining which steps in both flow charts would be appropriate for that project.~~

~~1.2 See chart for Capital Construction projects.~~

~~1.3 AHJ's shall be allowed minimum of two weeks for each review. All AHJ review comments shall be responded to in writing by the design team within 2-3 weeks, i.e., prior to the next submittal.~~

~~1.3.1 Upon review of the 100% documents, AHJ's may accept them even if they do not fully comply. However, AHJ's will describe what the design team needs to address prior to the last addendum.~~

~~1.3.2 The form "Authorization to Proceed with Construction" shall be kept in a central location at the FMDC. Upon final review of the 100% documents, AHJ's will go to that central location and fill their section of the form. See Form 5-1.3.2, "Accepted for Bidding." This can be done via electronic mail as well.~~

~~1.4 AHJ's reviews shall distinguish between recommendations and requirements.~~

PART 2 - PERMITS (Authorization to Proceed with Construction)

The purpose of permits is to avoid unauthorized construction, ensure that a design was developed, and achieve quality control and code compliance.

2.1 Permits are required for construction of all new buildings and renovation/alteration of existing buildings except for the following items. See IBC for additional information. Exemption from the permit requirements shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of applicable codes or any other laws or ordinances. All exterior work, are required to be reviewed by BCPC and DRB irrespective of permit requirements or exceptions. Permit exempt work includes:

2.1.1 Where permits are required by the adopted buildings code, e.g., IBC.

2.1.2 See FLS webpage: Construction, Renovations and Alterations Policies and Procedures for more information.

2.2 The permitting process shall be as indicated in Chart B5 (see Appendix B).

2.3 Permits shall be issued after design documents have been reviewed and accepted, in principle, by all AHJ's.

2.4 Inspection cards shall be considered permits and issued after the permit application(s) are approved. Inspection cards shall be located in a conspicuous location at the project site.

2.5 For small projects which have not been handled with a formal design-review process, project manager shall apply for approval from AHJ's. Project Manager shall attach drawings and narrative of project. An Authorization to Proceed with Construction, e.g., a permit, may still be required.

2.6 Permit numbers, i.e., inspection card numbers, shall incorporate the project number that is associated with each project.

PART 3 - CONSTRUCTION INSPECTION

3.1 Inspections are required for any project that modifies a configuration or changes the use of a space, adds new space, or any project with work in Division 13, 14, 15 and/or 16.

3.2 Refer to the Chart B6 (see Appendix B) for inspection process.

3.3 Contractor will contact and schedule inspection via the inspection phone line.

3.4 Construction inspection shall be performed by the following parties:

A. Sprinkler, standpipe and other suppression systems by FSG.
B. Mechanical systems including: controls and fire and smoke dampers will be inspected by MEG with assistance from FMOM for proper installation. FLS will verify consistency with submittals, and continue to provide technical assistance upon request from MEG and FMOM.
C. Electrical systems will be inspected by EEG with assistance from FMOM.

D. Roofing systems will be inspected by FMOM with assistance from the Campus Inspector (CI).
E. Plumbing systems will be inspected by FMOM with assistance from MEG.
F. Door and door hardware will be inspected by Access Services with assistance from the CI.
G. Elevator inspections are by FMOM.
H. Structural elements by the project Structural Engineer and Special Inspector under supervision of CEG.
I. In order to ensure consistency of services, inspection of all other systems and devices will continue to be by FM inspectors. However, FLS will continue to provide technical assistance on fire and life-safety related issues (e.g., fire doors, fire resistance of building elements, fire stopping, and exit signs) upon request from other FM inspectors.

3.5 Fire Detection and Alarm Responsibilities and Authority

The AHJ indicated in parentheses after each category is the authority for that issue. However, comments from both departments are encouraged.

3.5.1 Construction-Phase Inspection and Testing

A. Location (FSG, based on FLS-approved design-phase plans and shop drawings)
B. Type of device (FSG, based on FLS-approved design-phase plans and shop drawings)
C. Audibility (FSG, FLS will assist when needed)
D. Device labels/address descriptions (FSG is the authority, but it will verify with FLS when necessary)
E. Sequence of HVAC and other automatic system operations and smoke management (FMOM: FLS and MEG share responsibility and authority)
F. Panel layout (FSG)
G. Wiring (FSG)
H. Sprinkler system flow, tamper and other suppression-system related device testing (FSG, FLS will assist when needed)

3.6 Stop-Work Policy

Work can be stopped as indicated in the FM Stop Work Policy Appendix-C.

PART 4 - CERTIFICATE OF OCCUPANCY

4.1 The following provisions are per IBC with minor variations to tailor them to the Campus structure.

4.2 Certificate of Occupancy - A Certificate of Occupancy (CO) is required for all new buildings, additions, change of use/occupancy, and where the BCO determines that a certificate is required.

4.3 Use and Occupancy – unless otherwise approved by the BCO, no building, or renovated portion thereof, is to be used or occupied or have any portion or its occupancy classification changed until a CO has been issued. Issuance of a CO is not to be presumed as approval of a violation of an applicable code or standard of the Authorities Having Jurisdiction (AHJ's).

4.4 Certificate Issued – After the AHJ's or inspectors inspect the building or renovated area and give written acceptance to the BCO, the BCO when appropriate shall issue a CO which contains the following: 1) building permit number, 2) building address, 3) name and address of owner, 4) description of the certified building portion, 5) description of inspected building portion and the proposed occupancy classification, and 6) name of issuing person.

4.5 Temporary Certificate - If the AHJ's indicate that no substantial hazard will result from occupying any portion(s) of the building before the same is complete, a Temporary Certificate of Occupancy `(TCO) may be issued by the Contract Administrator for use of these building portion(s) before completion of the entire building or project.

4.6 Certificate Revocation - The BCO may, in writing, suspend or revoke a certificate of occupancy whenever it is issued in error, or on the basis of incorrect information supplied, or when the certified building portion is in violation of any provisions of applicable codes.

4.7 The BCO shall not sign the CO or TCO until all listed AHJ's have initialed the certificate. The BCO may not sign/initial in place of any AHJ.

4.8 Refer to the attached Certificate of Occupancy (C.O.) and Temporary Certificate of Occupancy (T.C.O.) checklists for procedures in obtaining a permit (see Appendix B).

APPENDIX A

-Abbreviations
-Definitions

LIST OF ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
ADA	Americans with Disabilities Act
AHJ	Authority Having Jurisdiction
ANSI	American National Standards Institute
BCO	Building Code Official
BCPC	Boulder Campus Planning Commission
CBR	Colorado Board of Registration for Professional Engineers
CD	Contract Documents
CDC	Center for Disease Control
CDH	Colorado Department of Health
CEG	Civil Engineering Group at FM Eng.
CI	Campus Inspector
D&C	Design and Construction
DD	Design Development
DRB	Design Review Board
EEG	Electrical Engineering Group at FM Eng.
EH&S	Environmental Health and Safety Department
EPA	Environmental Protection Agency
FM	Facilities Management Department
FMDC	Facilities Management Design and Construction
FMOM	FM Operations and Maintenance
FMPD	Facilities Management Planning Division
FP	Fire Protection
FLS	Fire- and Life-Safety Group at FM Eng.
FSG	Fire Systems Group
IBC	International Building Code
IMC	International Mechanical Code
IFC	International Fire Code
IPC	International Plumbing Code
JCAHO	Joint Commission for Accreditation of Health Care Organizations
MEG	Mechanical Engineering Group at FM Eng.
NEC	National Electric Code
NFPA	National Fire Protection Association
NICET	National Institute for Certification in Engineering Technology
NIH	National Institute of Health
NIOSH	National Institute of Occupant safety and Health
NRC	Nuclear Regulatory Commission
NTP	Notice to Proceed
OSHA	Occupational Safety and Health Administration
PD&C	Planning, Design and Construction
PE	Professional Engineer
PA	Project Assistant
PM	Project Manager
SD	Schematic Design
UCB	University of Colorado at Boulder

DEFINITIONS

Term	Definition
AHJ (Authority Having Jurisdiction)	The organization, department, office, or individual responsible for review and acceptance of equipment, installations and procedures.
Bid Set (Contract Documents)	All drawings and specifications used for the bidding purposes of a project which were prepared by the Architect/Engineer and have been reviewed and accepted by the appropriate University AHJ's.
Consultants	Design team members who are not employees of The University.
Contract Administrator	The contract administrator has the responsibility of overseeing the permit and inspection process. Assures that design review has been performed by all AHJ's and issues have been resolved prior to issuing permits. The contract administrator issues TCO's and CO's after AHJ's acceptance. The contract administrator verifies that structural work is completed by a licensed Colorado structural engineer.
Design Team	The design team is the individual or group of individuals who are responsible for the design, code and UCB Standards compliance, proper sizing of the building components, and technical accuracy of the construction documents. The individuals may be Architects and Engineers, or Contractors for design-build projects.
Record Set	All drawings, specifications and operation and maintenance (O&M) manuals for a project. These documents shall be based upon the bid documents and shall be modified to include all deviations from the drawings, actual locations of equipment, routing of all pipes, ducts, and feeder conduits, schedules updated to show actual equipment installed, cut-sheets and operation manuals of all equipment, and all other such information. The purpose of these drawings is to accurately show how and what was installed in the building as part of the project.

Appendix B

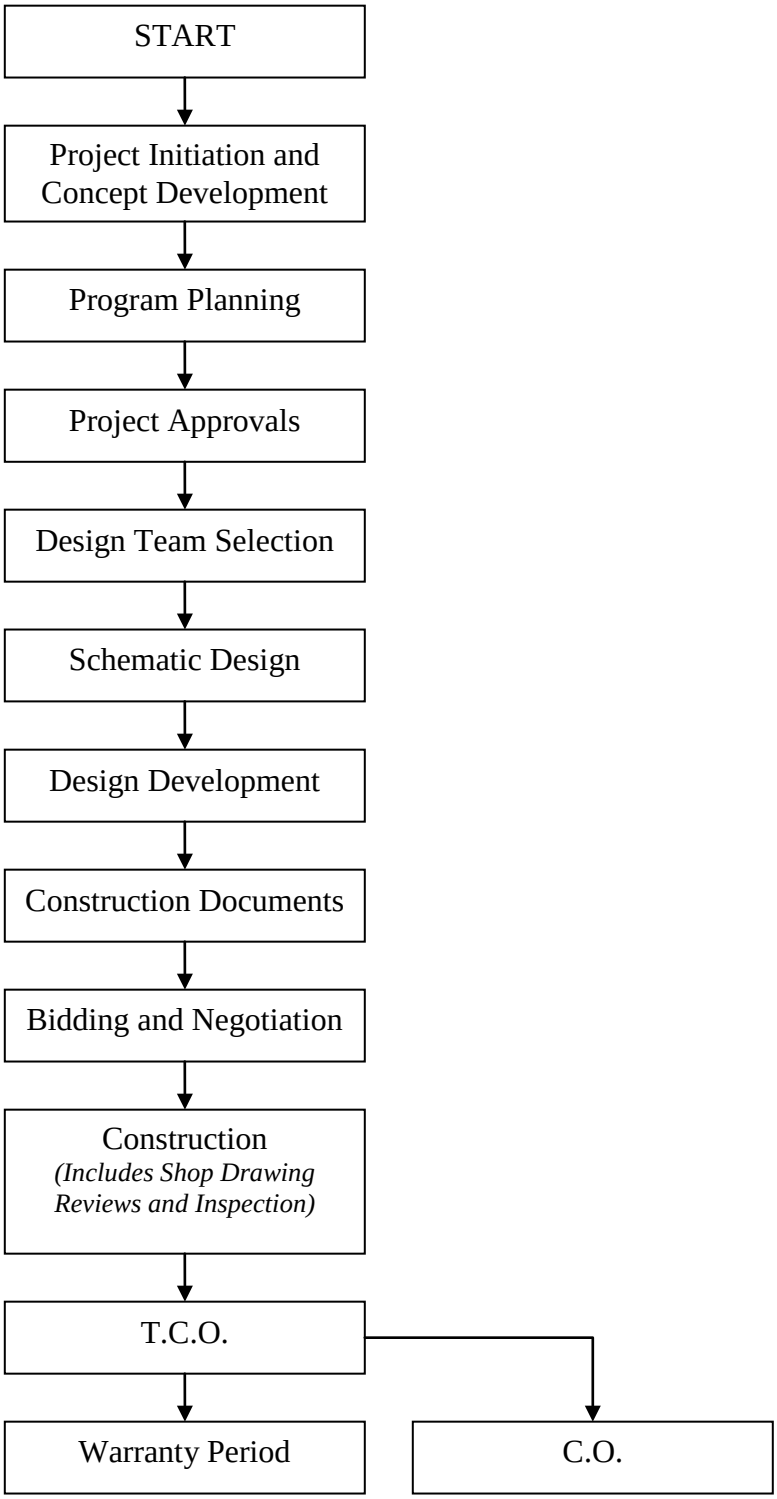
- Charts

- Simplified Planning, Design, and Construction Administration (B1)
- Engineer/AHJ & Inspector Interactions During Inspections (B2)
- Shops/engineering Interaction in Design Reviews (B3)
- General Design/Review Process for Non-Capital Construction (B4)
- General Permitting Process (B5)
- General Inspection Process (B6)
- Required Field Inspections (B7)
- Inspection Reports & Permit Card Flow Chart (B8)

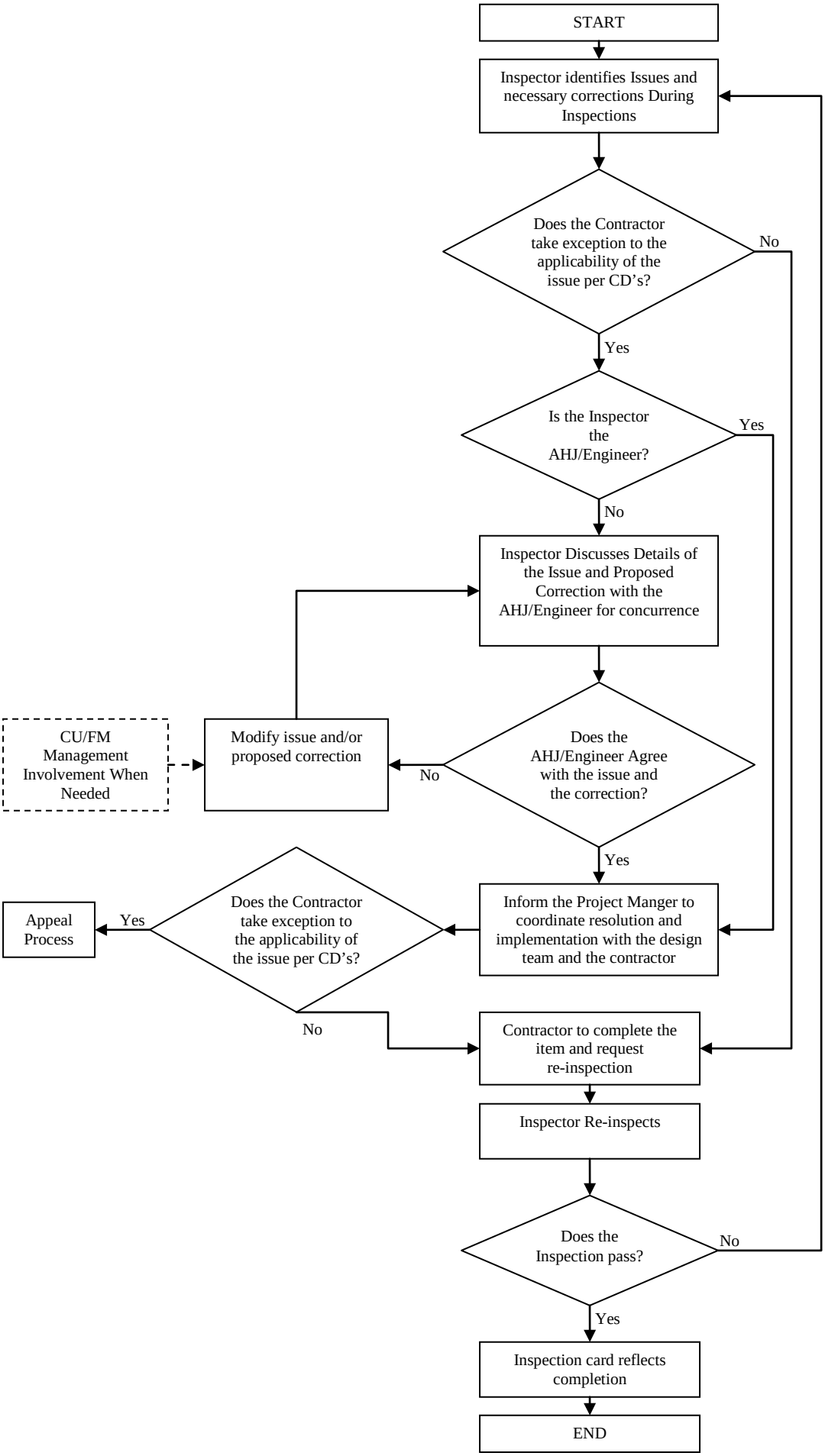
- Forms

- Facilities Management Project Questionnaire
- Authorization to Proceed with Construction Checklist
- Authorization to Proceed with Construction
- Certificate of Occupancy (CO) and Temporary Certificate of Occupancy (TCO) Checklist
- Temporary Certificate of Occupancy
- Certificate of Occupancy
- Capital Construction Project Flow Chart (under Construction and Major revision)

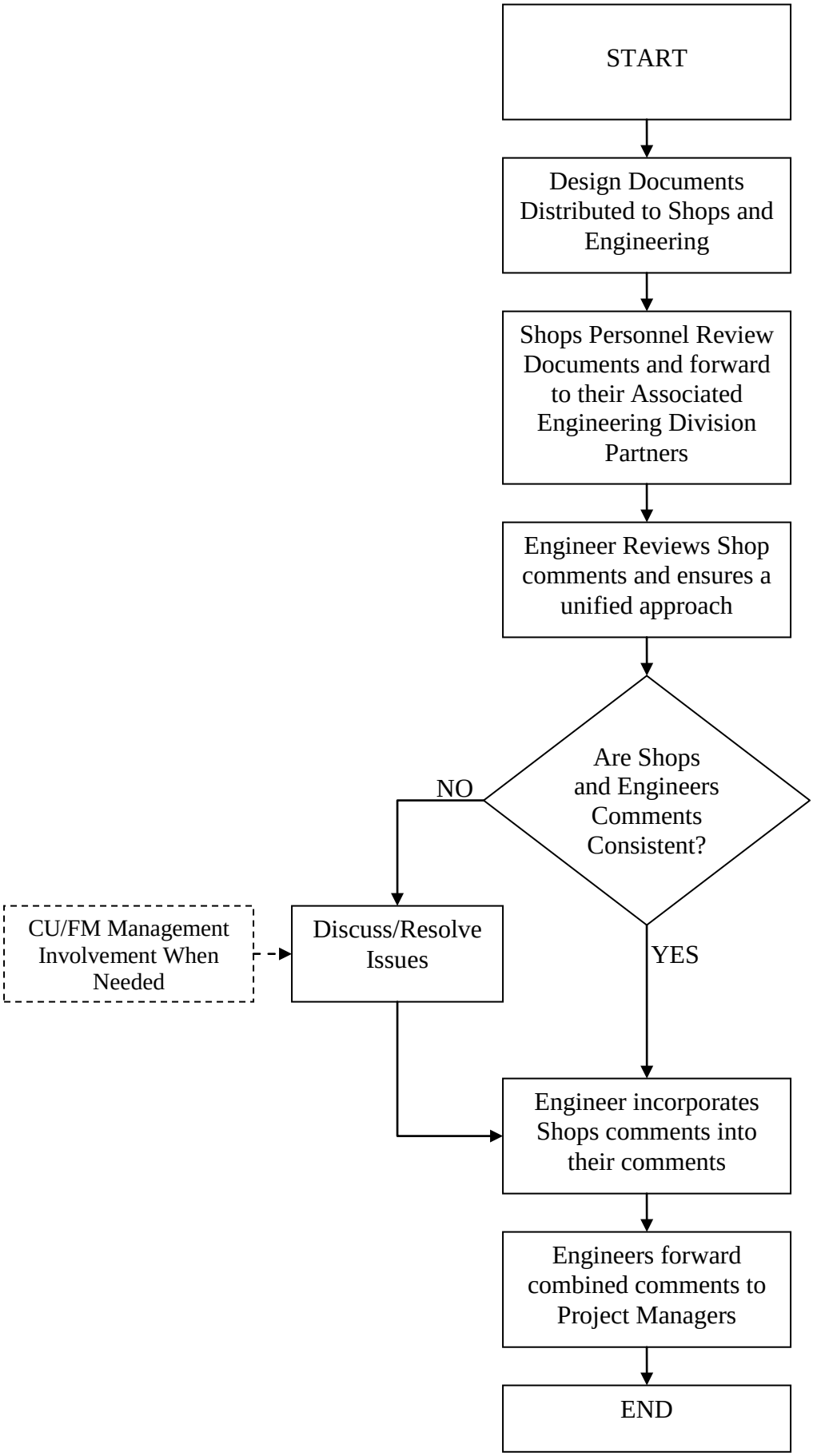
Simplified Planning, Design, and Construction Administration (B1) (Initiation, Review, Permit, Inspection, Occupancy) Flow Chart



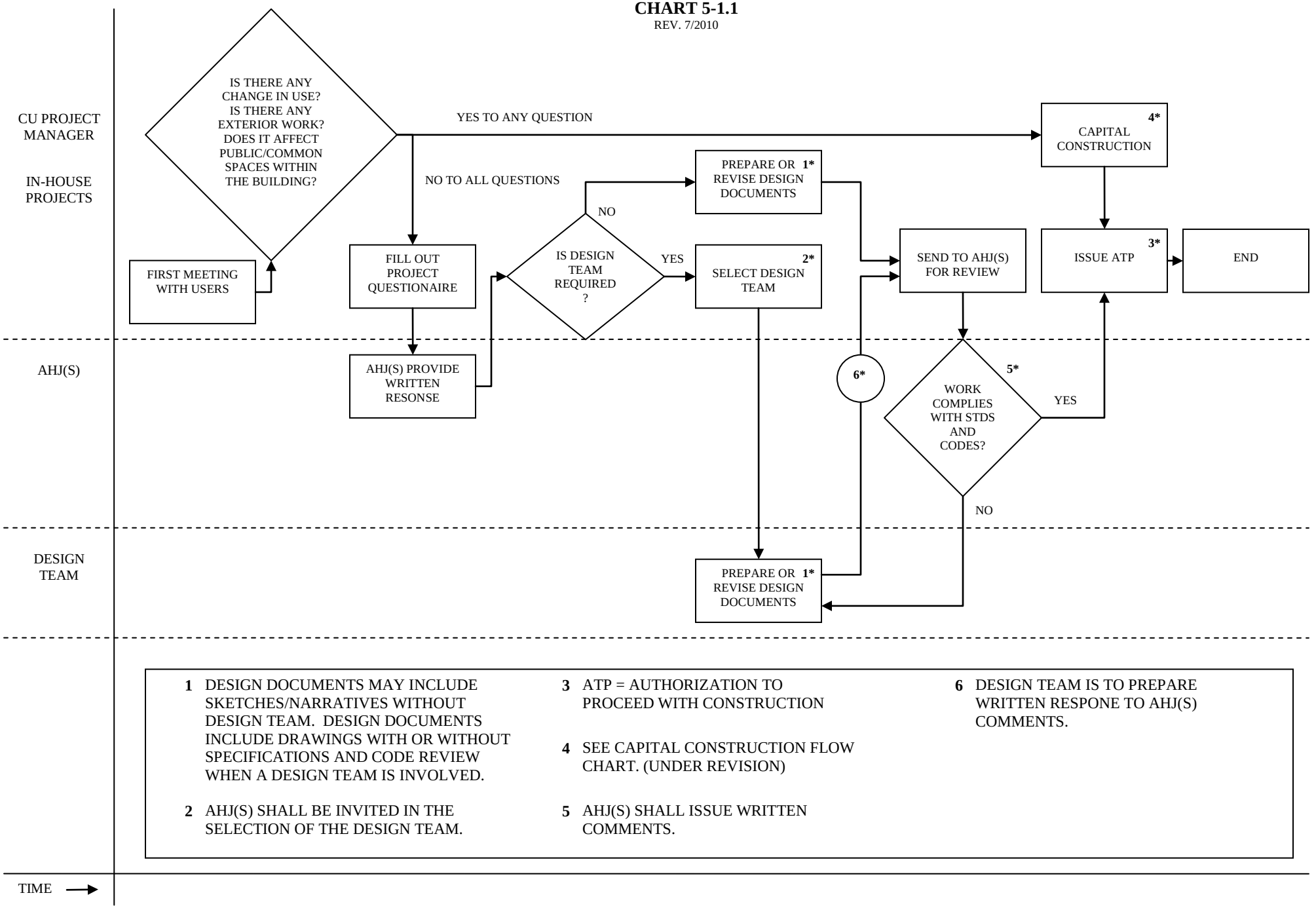
Engineer/AHJ & Inspector Interactions During Inspections (B2)



Shops/engineering Interaction in Design Reviews (B3)



General Design/Review Process for
Non-Capital Construction (B4)
CHART 5-1.1
REV. 7/2010



1 DESIGN DOCUMENTS MAY INCLUDE SKETCHES/NARRATIVES WITHOUT DESIGN TEAM. DESIGN DOCUMENTS INCLUDE DRAWINGS WITH OR WITHOUT SPECIFICATIONS AND CODE REVIEW WHEN A DESIGN TEAM IS INVOLVED.

2 AHJ(S) SHALL BE INVITED IN THE SELECTION OF THE DESIGN TEAM.

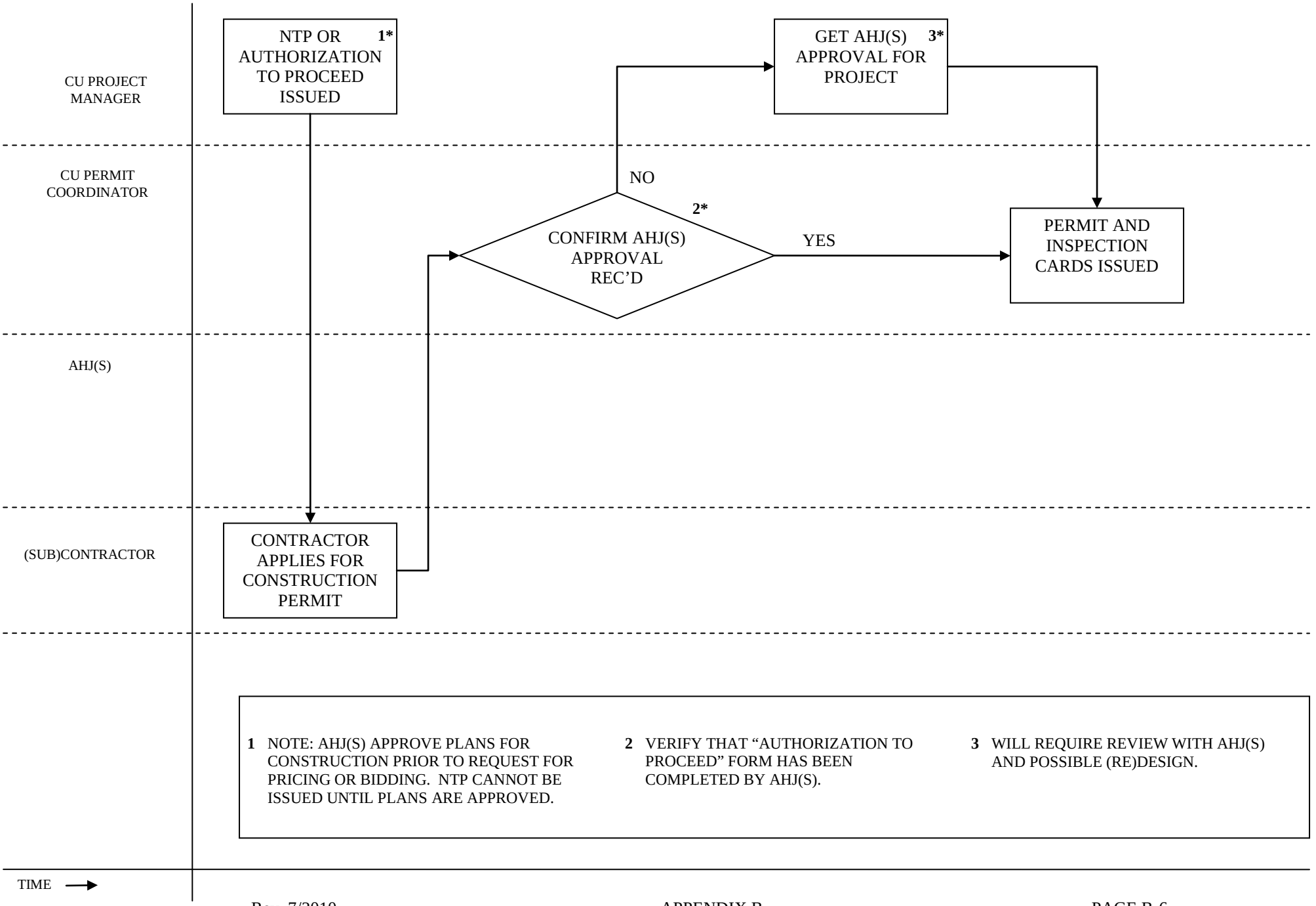
3 ATP = AUTHORIZATION TO PROCEED WITH CONSTRUCTION

4 SEE CAPITAL CONSTRUCTION FLOW CHART. (UNDER REVISION)

5 AHJ(S) SHALL ISSUE WRITTEN COMMENTS.

6 DESIGN TEAM IS TO PREPARE WRITTEN RESPONE TO AHJ(S) COMMENTS.

GENERAL PERMITTING
PROCESS (B5) CHART 5-2.1
REV. 7/2010



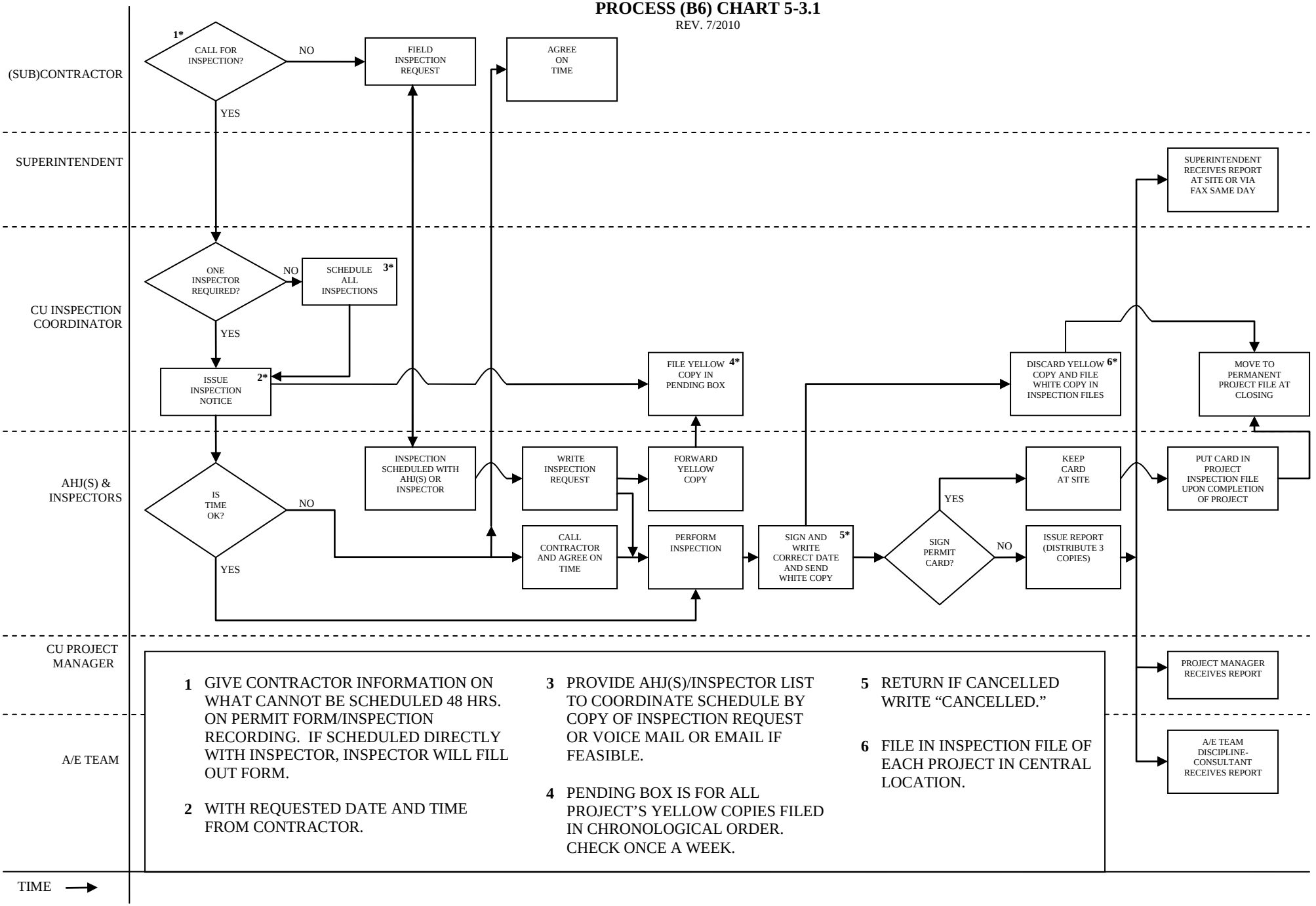
1 NOTE: AHJ(S) APPROVE PLANS FOR CONSTRUCTION PRIOR TO REQUEST FOR PRICING OR BIDDING. NTP CANNOT BE ISSUED UNTIL PLANS ARE APPROVED.

2 VERIFY THAT "AUTHORIZATION TO PROCEED" FORM HAS BEEN COMPLETED BY AHJ(S).

3 WILL REQUIRE REVIEW WITH AHJ(S) AND POSSIBLE (RE)DESIGN.

GENERAL INSPECTION PROCESS (B6) CHART 5-3.1

REV. 7/2010



1 GIVE CONTRACTOR INFORMATION ON WHAT CANNOT BE SCHEDULED 48 HRS. ON PERMIT FORM/INSPECTION RECORDING. IF SCHEDULED DIRECTLY WITH INSPECTOR, INSPECTOR WILL FILL OUT FORM.

2 WITH REQUESTED DATE AND TIME FROM CONTRACTOR.

3 PROVIDE AHJ(S)/INSPECTOR LIST TO COORDINATE SCHEDULE BY COPY OF INSPECTION REQUEST OR VOICE MAIL OR EMAIL IF FEASIBLE.

4 PENDING BOX IS FOR ALL PROJECT'S YELLOW COPIES FILED IN CHRONOLOGICAL ORDER. CHECK ONCE A WEEK.

5 RETURN IF CANCELLED WRITE "CANCELLED."

6 FILE IN INSPECTION FILE OF EACH PROJECT IN CENTRAL LOCATION.

Phase I Inspections

Footing & Foundation Inspections
See expanded view

Concrete Slab and Under-floor Inspection
See expanded view

Masonry Reinforcing And Grouting

Structural Steel & Decking

"Weather-In" and Rough-in Roofing Inspections

Rough Framing Inspection

Trades "In-Wall" Inspections
Electrical
Mechanical
Plumbing
Steam & Chilled Water
Fire Alarm

Conduct Trade "In-wall" Inspections

Pass **All** Rough "In-wall" Inspections?

Yes

No

Make Corrections and Call for Reinspection

Phase II Inspections

Insulation Inspections
Walls, Ceiling, Floor

Drywall Screw / Lath Inspection

Fire Tape Inspection

Ceiling Grid Inspection

Above Ceiling Fire Stopping Inspection

Above Ceiling Rough Utilities:
Plumbing
Mechanical
Electrical
Fire Alarm - Fire Sprinkler
Media / A.V.

Conduct Trade "Above Ceiling" Inspections

Above Ceiling Fire-Tape Inspection

Pass Above Ceiling Rough Inspections?

Yes

No

Make Corrections and Call for Reinspection

Phase III Inspections

Fire Stopping Inspection
See expanded view

Life Safety Inspection Items
Handrails, Safety Glazing, Stairs,
Fire-door hardware and operation, Smoke Seals
Exit doors: hardware and operation,
Exit light location, Exit path illumination
Exit discharge items: Stairs, Paving, Lights
Access Panels in Fire-rated Walls & Ceilings
Accessibility: Counter-top heights, Grab bars, Clearances, Signage,
Toilet partition spacing, Door swings, Area of Refuge
Fire Code Items: Fire Extinguishers, Room numbers, Exit path plaque at stairs.

Final Inspection

Pass All Inspection Items

Yes

Certificate of Occupancy (C.O.)

No

Are all Critical Code / Life-Safety Items Complete?

Yes

Temporary Certificate of Occupancy (TCO) (30 Day Limit)

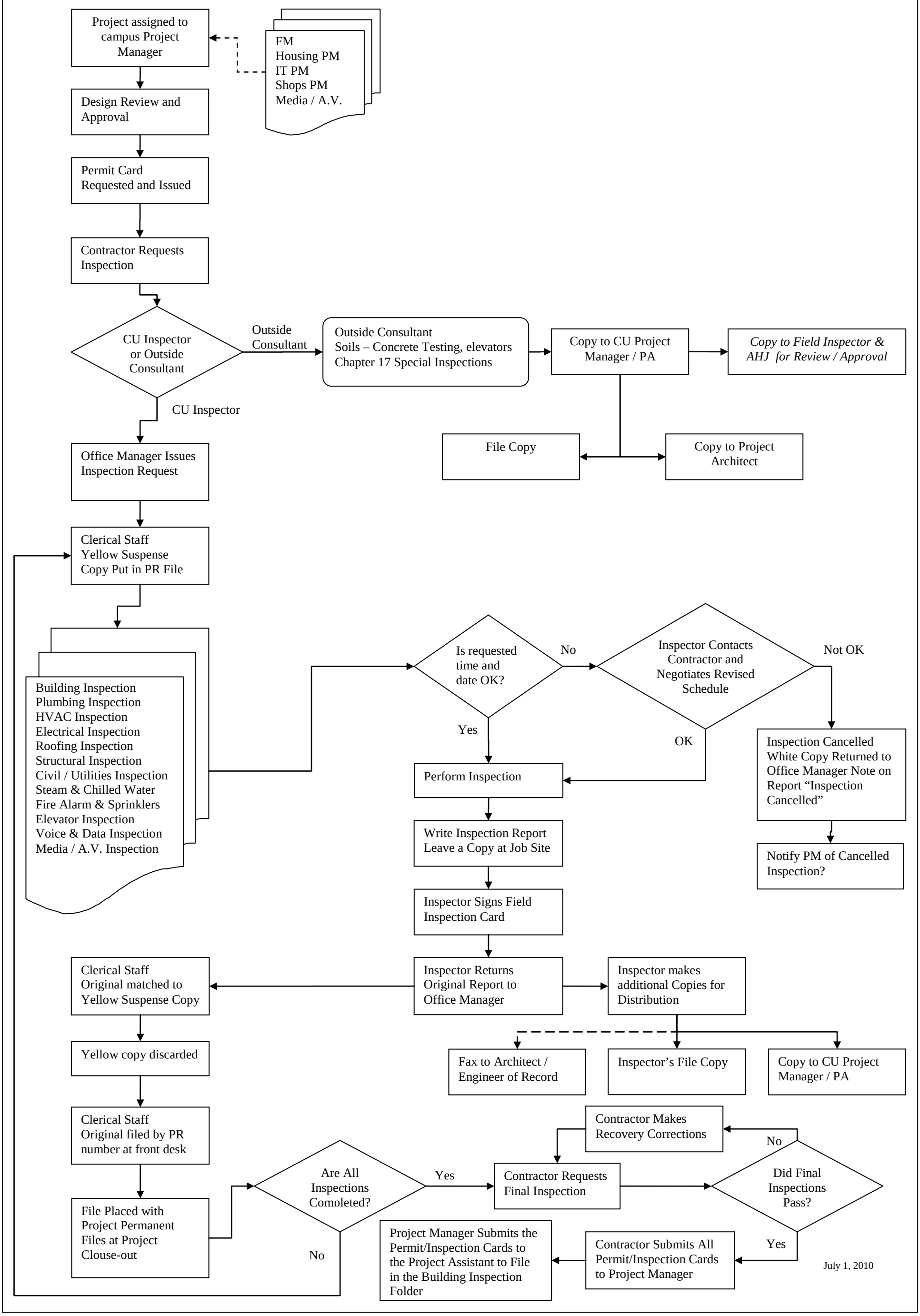
No

Make Corrections and Call for Reinspection

Complete All Work and Call for Reinspection

September 16, 2009

Inspection Reports & Permit Card Flow Chart (B8)



Facilities Management Project Questionnaire

Project Number:	**Speed Type:**	**Project Manager:**	**Date:**
Building/Room #s:		**Client:**	
Brief Description:			

- Project Client
- ADA/Planning/Campus Architect – Phil Simpson
- EH&S – Mike Yanker, Brandon Boger
- Fire Protection – Zachary Niehues
- Mechanical – Pieter van der Mersch
- Telecom – David Lindblad
- Custodial/Recycling/Solid Waste – Mary Alford
- Elevators – Terry Swindell
- Parking – Melissa Yates
- CAD – Phil Martin
- Facilities Operations – Kevin Orin
- Construction – Bill Ward
- Electrical – Joe Branchaw
- Civil/Structural – Jon Akins

Are walls being built or removed?	**If "yes", please provide a sketch.**
Area of Project:	**Anticipated project cost:**
Are outside consultants being retained?	**If "yes", which disciplines?**
Is the existing use of the area changing?	**If "yes", please explain.**
Is the number of persons in the area increasing/decreasing (indicate # of persons)?	
Are fire rated doors, partitions, dampers or other fire barriers affected?	**If "yes", please explain.**
Are there new ventilation requirements (i.e. fresh air, exhaust, fume hood)?	**If "yes", please explain.**
Are there plumbing additions or changes (i.e. grease traps, storm/sanitary sewers?	**If "yes", please explain.**
Are equipment loads being changed (added/reduced)?	**If "yes", please provide a list of volts/amps and special requirements (i.e. water, cooling) for each device.**
Is lighting being changed?	**If "yes", please explain.**
Is the project area sprinklered?	**If "no", will sprinklers be installed?**
Will voice-data jacks be added or removed?	**If "yes", how many?**
Are there smoke detectors, heat detectors, or fire alarm devices in the project area?	
Are hazardous materials to be used or stored (i.e. chemicals, radioactive, biohazards, etc.)?	**If "yes", what types?**
Proposed materials for construction:	
Does the project involve the removal or addition of any emergency generators, tanks, drums, or other vessels ≥ 55 gallons, used for petroleum products or oils of any kind?	**If "yes", please explain.**

Response comments:	
Is a Certificate of Occupancy required?	**If "yes", please explain.**
(For Fire Protection only) Is a sprinkler waiver request acceptable?	
Is an Authorization to Proceed with Construction required?	**If "yes", which permits are required?** ☐ **Building** ☐ **Electrical** ☐ **Fire Suppression** ☐ **Mechanical** ☐ **Telecommunications** ☐ **Utilities**

Responder:	**Date:**

File name and path:

Authorization to Proceed with Construction
Checklist

The following is the process for obtaining approval for the Authorization to Proceed with Construction (ATP) form by way of using the Facilities Management server. The steps are as follows:

- ☐ The 100% documents have been reviewed and approved for construction by all of the Authorities Having Jurisdiction (AHJs). The Project Manager (PM) or Project Assistant (PA) will obtain one (1) set of stamped construction documents from the Architect/Engineer, if construction documents have been used. The stamped documents will be on file in the CAD office.
- ☐ The Authorization to Proceed with Construction form will be initiated by the PA associated with the project. Blank forms are found at http://fm.colorado.edu/construction/forms.html and can be downloaded. They will fill out the appropriate information located in the top four lines of the form and will place the form on the server at X:\authorizations_to_proceed_with_construction\active_projects.
- ☐ The PA will send out an e-mail to all AHJs who are required to sign the ATP requesting them to initial and date the form. The appropriate PM will also be copied in on the e-mail. The AHJs will be given two (2) working days to complete the form. PA will send the form to the AHJs based on their response to the last 2 questions on the Project Questionnaire (PQ).
- ☐ If the AHJ is unable to sign the form because a code issue has not been resolved, they will put their reason(s) in the 'Comments' box and email it to the PA and PM. However, if they add a comment and also sign and date the form it will be assumed that they have approved the project.
- ☐ If the AHJ's area of jurisdiction does not apply to the project then the AHJ shall respond appropriately to the last two questions on the PQ and the PA will mark N/A in their box and not send the form to them. However, if the AHJ does not respond to the PQ, then the AHJ must respond on the ATP by marking N/A in their appropriate box.
- ☐ The PA will mark the appropriate box at the top of the page for the type of inspection (permit) card based on the AHJ response on the PQ. However, if the AHJ does not respond to the PQ, the AHJ is responsible for marking the type of card for their jurisdiction.
- ☐ The AHJ shall save and close the document when finished.
- ☐ On the due date, the PA will check the form to make sure that all initials and dates (or N/A) have been inserted. If the form has not been marked by the AHJ, the PA will email a reminder to that AHJ, with a 24-hour due date. If the AHJ has not responded, the PA will inform the Building Code Official (BCO). The BCO will then follow up with the AHJ. This is up to 3 delays per AHJ per year. If it goes beyond that, the assistant directors of Design & Construction and Engineering will be notified by the PA and the BCO. The assistant directors will take necessary actions.
- ☐ When all AHJs have signed, the PA will email the BCO. The BCO will sign the ATP. The BCO will email the PA that the ATP is fully signed.
- ☐ The PA will send an e-mail to the PD&C Office Manager with a link to the form so that a permit number can be inserted and the permit package can be prepared. The PD&C Office Manager will print a copy of the form for the inspection file and give the permit package to the PA. The PA will distribute the permit package to the contractor.
- ☐ The PD&C Office Manager will move the Authorization to Proceed form to the Archived Projects file located on the server at X:\authorizations_to_proceed_with_construction\archived_projects.

Access to the AHJ folder is limited to the AHJs (and back-ups), Design & Construction PAs and PMs and the PD&C Office Manager.

For Housing Projects, the Housing Administrative Assistant (HAA) will initiate the Authorization to Proceed with Construction and email it to a PD&C PA for routing. The PA will send out the form as outlined above. When completed, the PD&C Office Manager will give the HAA the permit package for distribution.

Authorization to Proceed with Construction forms put in the AHJ folder will be titled using the following format:

Project Number – Project Name – ATP (date)

Example: PR002645 – CLRE – Rm 111 – Add Receptacles – ATP (02-07-07)

~~July 19, 2005~~
~~Revised February 27, 2006~~
~~Revised February 16, 2007~~
Revised July 7, 2008

Facilities Management
University of Colorado at Boulder

Permit # _____

Authorization to Proceed with Construction

Date:		
Project Name: _____		**Project Number: _____**
Project Manager: _____	**Project Assistant: _____**	**Project Coordinator: _____**
Contractor: _____	**Architect/Engineer/Consultant: _____**	

TYPES OF PERMITS REQUIRED FOR THIS PROJECT:

☐ **Building**	☐ **Civil/Utilities Systems**	☐ **Electrical**	☐ **Elevators**
☐ **Fire Alarm**	☐ **Fire Suppression**	☐ **Mechanical**	☐ **Voice/Data Communicat.**

ADA & PLANNING Comments: _____ Phil Simpson	**Sign & Date:**
CIVIL Comments: _____ Jon Akins	**Sign & Date:**
ELECTRICAL Comments: _____ Joe Branchaw	**Sign & Date:**
ELEVATOR Comments: _____ Terry Swindell	**Sign & Date:**
FIRE AND LIFE-SAFETY Comments: _____ Zachary Niehues	**Sign & Date:**
MECHANICAL Comments: _____ ☐ Pieter van der Mersch ☐ Shannon Horn	**Sign & Date:**
PLUMBING Comments: _____ Chris Busch	**Sign & Date:**
STRUCTURAL Comments: _____ Jon Akins	**Sign & Date:**

BUILDING CODE OFFICIAL Comments: _____ Zachary Niehues	**Sign & Date:**

Certificate of Occupancy (CO) and Temporary Certificate of Occupancy (TCO) Checklist

The following is the process for obtaining approval for the Certificate of Occupancy and Temporary Certificate of Occupancy forms by way of using the Facilities Management server. The steps are as follows:

- ☐ The AHJ's will determine whether a Certificate of Occupancy (CO) or Temporary Certificate of Occupancy (TCO) shall be issued for a project.
- ☐ The appropriate CO or TCO form will be initiated by the PA associated with the project. Blank forms are found at http://fm.colorado.edu/construction/forms.html and can be downloaded. They will fill out the appropriate information on the form and will place the form on the server at X:\temporary_certificates_of_occupancy\active_projects (for TCO) or X:\certificates_of_occupancy\active_projects (for CO).
- ☐ The PA will send out an e-mail to all AHJs requesting them to initial and date the form. The appropriate PM will also be copied on the e-mail. The AHJs will be given two (2) working days to complete the form.
- ☐ If the AHJ is unable to sign the form because a code issue has not been resolved, they will let the PA and PM know, in writing, what the issues are. If the AHJ's area of jurisdiction does not apply to the project then the AHJ shall place 'N/A' in lieu of signing the form.
- ☐ The AHJ shall save and close the document when finished.
- ☐ On the due date, the PA will check the form to make sure that all initials and dates (or N/A) have been inserted. If the form has not been marked by the AHJ, the PA will email a reminder to that AHJ, with a 24-hour due date. If the AHJ has not responded, the PA will inform the Building Code Official (BCO). The BCO will then follow up with the AHJ. This is up to 3 delays per AHJ per year. If it goes beyond that, the assistant directors of Design & Construction and Engineering will be notified by the PA and the BCO. The assistant directors will take necessary actions.
- ☐ When all AHJs have signed, the PA will email the BCO. The BCO will sign the TCO or CO. The BCO will email the PA that the TCO or CO is fully signed.
- ☐ The PA will then make copies of the finished form for the project file, contractor, the inspection file and project client.
- ☐ For the CO, the PA will make a hard copy of the form, attach the signed inspection cards and give to the PD&C Office Manager. The PD&C Office Manager will file the form and cards in the inspection file.
- ☐ The PA will move the finished CO and TCO form to the Archived Projects file located on the server at X:\temporary_certificates_of_occupancy\archived_projects (for TCO) or X:\certificates_of_occupancy\archived_projects.

For Housing Projects, the Housing Administrative Assistant (HAA) will initiate the CO or TCO and email it to a PD&C PA for routing. The PA will send out the forms as outlined above.

CO and TCO forms put in the AHJ folder will be titled using the following format:

Project Number – Project Name – TCO or CO (date)

Example: PR000820 – New Law School – TCO or CO (06-15-05)

January 12, 2009

UNIVERSITY OF COLORADO AT BOULDER
DEPARTMENT OF FACILITIES MANAGEMENT

TEMPORARY CERTIFICATE OF OCCUPANCY

Project Name:____
Project Number:____

This Temporary Certificate of Occupancy is issued for the use of a portion or portions of the building, as listed below, prior to the completion of the entire building or renovation. A Certificate of Occupancy shall be issued in order for continued occupancy after this Temporary Certificate expires. This Temporary Certificate shall be posted at a conspicuous location in the building.

Building Name: ____ **Facility Code/Number: ____**

Building Address: ____

Facilities Management Project Manager: ____

Permit Number: ____ **Date of Issue: ____**

Occupying Department: ____

Area Constructed or Renovated: ____

Acceptable Building Portions(s) for Temporary Occupancy: ____

Building Occupancy: ____

Type of Construction: ____

Use: ____

Temporary Certificate Valid Until: ____

The "Certificate of Occupancy" will be issued upon the completion of the following items: ____

AHJs' Initials and Date:

Civil/Structural: _____ _____ (Jon Akins) Initials Date

Elevator: _____ _____ (Terry Swindell) Initials Date

Electrical: _____ _____ (Joe Branchaw) Initials Date

Fire & Life Safety: _____ _____ (Zachary Niehues) Initials Date

Mechanical: _____ _____ (Pieter van der Mersch) Initials Date

_____ Zachary Niehues, Building Code Official

_____ Date

cc: Project File, Building Proctor, Contractor, Inspection File

UNIVERSITY OF COLORADO AT BOULDER
DEPARTMENT OF FACILITIES MANAGEMENT

CERTIFICATE OF OCCUPANCY

Project Name: _____
Project Number: _____

This Certificate of Occupancy is issued pursuant to the requirements of the applicable Building Codes and UCB Standards that were in effect at the time that the permit referenced herein was issued by the Department of Facilities Management. This Certificate shall be kept in the Campus "Certificate of Occupancy" file at Facilities Management.

Building Name: _____ **Facility Code/Number:** _____

Building Address: _____

Permit Number: _____ **Date of Issue:** _____ **Project Manager:** _____

Occupying Department: _____

Area Constructed or Renovated: _____

Building Occupancy: _____

Type of Construction: _____

Use: _____

Comments and Special Conditions: _____

AHJs' Initials and Date:

Civil/Structural: _____ _____ (Jon Akins) Initials Date

Elevator: _____ _____ (Terry Swindell) Initials Date

Electrical: _____ _____ (Joe Branchaw) Initials Date

Fire & Life Safety: _____ _____ (Zachary Niehues) Initials Date

Mechanical: _____ _____ (Pieter van der Mersch) Initials Date

_____
Zachary Niehues, Building Code Official

_____
Date

cc: Project File, Contractor, Client, Inspection File

LIST A

Program Plan Review Distribution

(Also used for Feasibility Study, if any)

Project Team

1 Client/User Department
2 FM Planner & Campus Architect
3 Program Consultants
4 FM Project Manager

Core Reviewers

5 Construction Services Manager
6 Vice Chancellor for Department
7 Vice Chancellor for Administration
8 Financial and Business Services
9 Planning and Institutional Research
10 FM Director
11 FM Mechanical Engineer
12 FM Utilities Engineer
13 FM Electrical Engineer
14 FM Trades/Shops
15 FM Custodial
16 Environmental Health and Safety (incl. Asbestos)
17 Telecommunications
18 Police and Parking Services
19 Accessibility Committee

Optional Reviewers

20 Academic Media
21 State Historic Preservation Officer
22 City Fire Department
23 Research Park Director
24 Applicable Dean

LIST B

Schematic Design Review Distribution

Design Team

1 Client/User Department
2 Architect/Consultants
3 FM Planner & Campus Architect
4 FM Project Manager

Core Reviewers

5 Construction Services Manager
6 FM Mechanical Engineer
7 FM Utilities Engineer
8 FM Electrical Engineer
9 FM Trades/Shops
10 FM Custodial
11 FM CAD Office (for reference)
12 Environmental Health and Safety
13 Fire Protection Engineer
14 Telecommunications

Optional Reviewers

15 Vibration Consultant
16 Academic Media Services
17 State Historic Preservation Officer
18 City Fire Department
19 Research Park Director
20 Distribution Center (for loading docks)
21 Police and Parking Services
22 Accessibility Committee

LIST C

Design Development Review Distribution

Design Team

1 Client/User Department
2 Architect/Consultants
3 FM Planner & Campus Architect
4 FM Project Manager

Core Reviewers

5 Construction Services Manager
6 FM Mechanical Engineer
7 FM Utilities Engineer
8 FM Electrical Engineer
9 FM Trades Shops
10 FM Custodial
11 FM CAD Office (for reference)
12 Environmental Health and Safety
13 Fire Protection Engineer
14 Telecommunications

Optional Reviewers

15 Vibration Consultant
16 Academic Media Services
17 State Historic Preservation Officer
18 City Fire Department
19 Research Park Director
20 Distribution Center (for loading docks)
21 Police and Parking Services
22 Accessibility Committee

LIST D

Construction Document Review Distribution

Design Team

1 Client/User Department
2 Architect/Consultants
3 FM Planner & Campus Architect
4 FM Project Manager

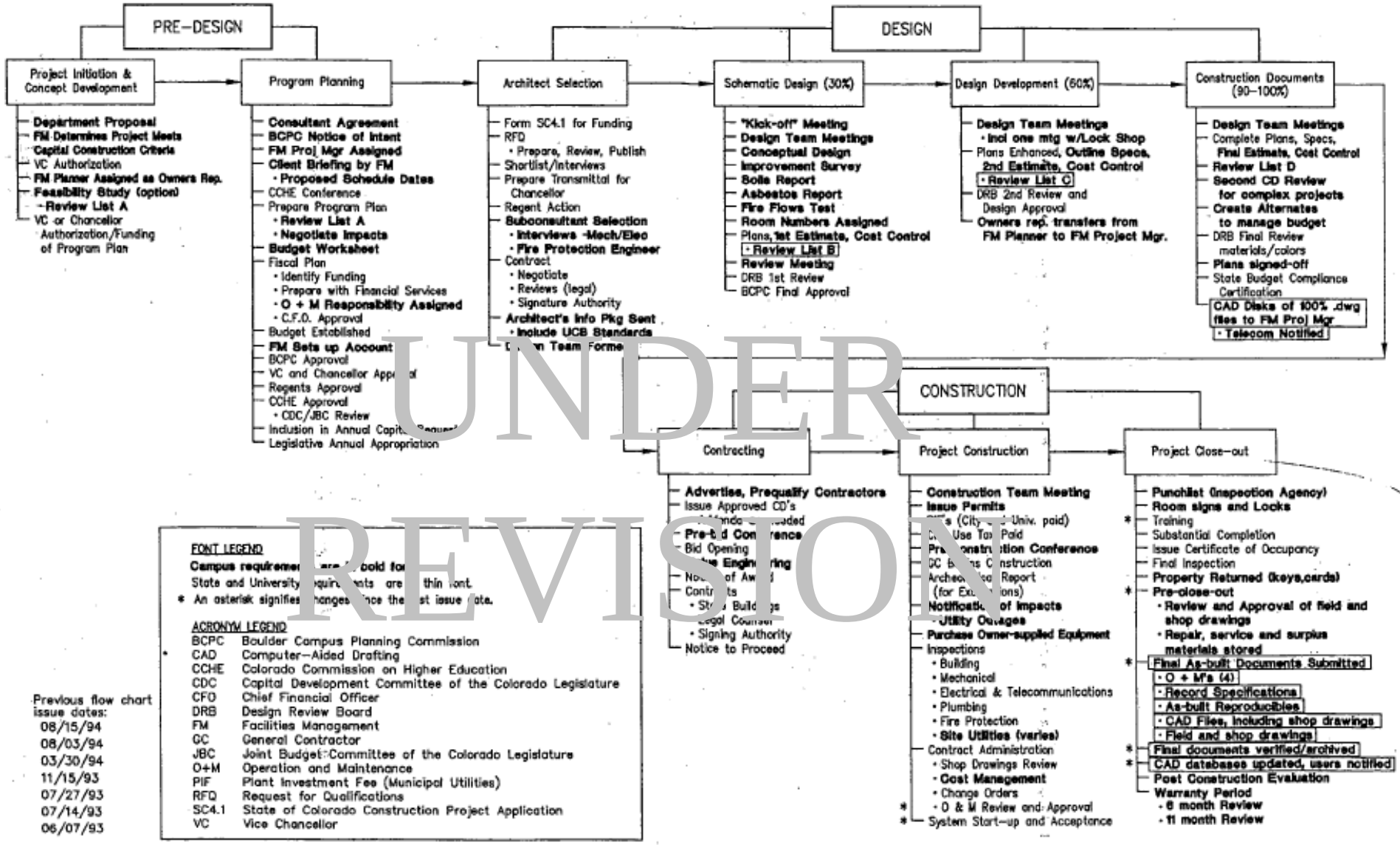
Core Reviewers

5 Construction Services Manager
6 FM Mechanical Engineer
7 FM Utilities Engineer
8 FM Electrical Engineer
9 FM Trades Shops
10 FM Custodial
11 FM CAD Office (for reference)
12 Environmental Health and Safety
13 Fire Protection Engineer

Optional Reviewers

14 Telecommunications
15 Vibration Consultant
16 Academic Media Services
17 State Historic Preservation Officer
18 Additional Facilities Management Shops
19 Additional Inspections

University of Colorado at Boulder CAPITAL CONSTRUCTION PROCESS
Prepared by the TQM Team, Department of Facilities Management
Draft Changes 11/10/94



FONT LEGEND

Campus requirements are in bold font

State and University requirements are in thin font.

* An asterisk signifies changes since the last issue date.

ACRONYM LEGEND

BCPC	Boulder Campus Planning Commission
CAD	Computer-Aided Drafting
CCHE	Colorado Commission on Higher Education
CDC	Capital Development Committee of the Colorado Legislature
CFO	Chief Financial Officer
DRB	Design Review Board
FM	Facilities Management
GC	General Contractor
JBC	Joint Budget Committee of the Colorado Legislature
O+M	Operation and Maintenance
PIF	Plant Investment Fee (Municipal Utilities)
RFQ	Request for Qualifications
SC4.1	State of Colorado Construction Project Application
VC	Vice Chancellor

Previous flow chart issue dates:
08/15/94
08/03/94
03/30/94
11/15/93
07/27/93
07/14/93
06/07/93

APPENDIX C
Stop Work Policy and Form

Stopping Construction Work at the University of Colorado at Boulder

The following procedures and guidelines are prepared by the University of Colorado at Boulder (UCB) Department of Facilities Management, Planning Design and Construction (PD&C) Division apply to all construction and construction-related activities on campus. All written stop work order authors are to use the campus Stop Work Order form, see attached. Please note that "National Standards" are standards issued by nationally recognized organizations such as NFPA, ASTM, and ANSI.

I. STOP WORK ORDER CATEGORIES

There are five broad categories of activities for which a "Stop Work Order" needs to be issued.

A. WORK WITHOUT A PERMIT

Summary
Violation Normally Identified by: Anyone
Verbal Stop Work Issued by: N/A
Written Stop Work Issued by: Director of PD&C, the Campus Building Code Official, or the Appropriate AHJ

No construction may take place on campus without a permit, i.e., an "Authorization to Proceed with Construction". All unauthorized construction activities must be stopped immediately and the group or department conducting the construction activity may be required to undo the changes at their cost. The Stop Work Order for unauthorized construction activities can be issued by the campus Director of PD&C, the campus Building Code Official, or the appropriate campus code authorities having jurisdiction (AHJ). The following web page lists examples of when it is necessary to obtain a permit to conduct small construction-related activities:
http://www.colorado.edu/facilitiesmanagement/pdc/safety/documents/Construction_Renovations_Alterations.pdf

B. WORK IMMEDIATELY DANGEROUS TO LIFE OR HEALTH

Summary
Violation Normally Identified by: The Person Doing the Work, Project Manager, any of the Campus Inspectors, AHJ's, the Building Users/Tenants and CU Supervisors for In-House Projects
Verbal Stop Work Issued or Requested by: Any of the Above
Written Stop Work Issued by: Director of PD&C, the Campus Building Code Official, the Appropriate AHJ, or the Campus Project Manager

Work that is immediately dangerous to life or health needs to be stopped immediately. This includes work performed by outside contractors as well as work performed by campus personnel.

Any person is authorized to stop his or her own work if he or she reasonably believes that continuation of the work poses a clear and imminent danger to health or safety. Additionally, the campus project manager, any of the campus inspectors, AHJ's, the building users/tenants, and supervisors may stop work when they reasonably believe that the continuation of work poses an immediate danger to life and health. At the same time, the person(s) involved need to take necessary measures to eliminate the hazardous conditions which may have been created by the activity, e.g., opening windows if gas is released indoors. Upon stopping work, the person must immediately notify his/her supervisor or the next person in the chain of authority as well as the project manager.

C. WORK INVOLVING A SIGNIFICANT RISK TO LIFE-SAFETY

Summary
Violation Normally Identified by: The Person Doing the Work, Project Manager, any of the Campus Inspectors, AHJ's, the Users/Tenants and Supervisors
Verbal Stop Work Issued by: Project Manager
Written Stop Work Issued by: Director of PD&C, the Campus Building Code Official, or the Appropriate AHJ

"Significant risk" refers to a situation that poses a potentially serious threat to the environment or the health and safety of workers and the public, but could not reasonably be expected to cause death or immediate serious physical harm to the individual performing the work or to others in the vicinity. The campus project manager, any of the campus inspectors, AHJ's, the tenants and supervisors may request a stop work order when they reasonably believe that construction work being performed creates a significant risk to life safety. In all cases, the person who has requested a stop work order needs to notify the project manager and the associated AHJ as soon as possible. When the building users/tenants believe that construction work being performed creates a significant risk to life safety, they need to contact the campus Project Manager and request that the issue be addressed as soon as possible. In the absence of the project manager, the building users/tenants will contact the Service Center and have the project manager or his/her back-up paged.

D. WORK IN VIOLATION OF CODES, NATIONAL STANDARDS, RULES AND REGULATIONS, OR PROJECT REQUIREMENTS

Summary
Violation Normally Identified by: Inspectors, Project Managers, and AHJ's
Verbal Stop Work Issued by: N/A
Written Stop Work Issued by: Director of PD&C or the Campus Building Code Official

When inspectors, project managers, AHJ's or other construction personnel notice that work is not being conducted in accordance with codes, national standards, rules, regulations, or project contract documents, they need to notify the project manager in a

timely manner and request that work be stopped listing the reasons and the supporting documentations. Any work that has been so documented may not be covered/enclosed until it passes inspection and compliance with applicable requirements is verified.

E. WORK THAT CREATE CONDITIONS THAT ARE UNACCEPTABLE TO THE BUILDING OCCUPANTS

Summary
Violation Normally Identified by: Users/Tenants
Verbal Stop Work Issued by: N/A
Written Stop Work Issued by: Director of PD&C, Assistant Director of DC, or the Project Manager

When the building users/tenants notice that work being conducted create unacceptable conditions in the building, they need to notify the project manager in a timely manner and request that work be stopped listing the reasons. The project manager will investigate and take necessary actions to address the issue. Examples include noisy construction work in or around a room during exams or in the vicinity of noise/vibration sensitive experiments.

Facilities Management
University of Colorado at Boulder

Department of Facilities Management

STOP-WORK ORDER

DATE & TIME POSTED: ……..….

PROJECT MANAGER: ……Please indicate with a check mark if this form was delivered to the PM.

CONTRACTOR: ……...Please indicate with a check mark if this form was delivered to contractor.

This "Stop-Work Order" is issued based on the authority given to the campus code official by the 2009 edition of the: (Check applicable code)

Chapter One, International Building Code (IBC): ……

Chapter One, International Fire Code (IFC): ……

Chapter One, International Fuel Gas Code (IFGC): ……

Chapter One, International Mechanical Code (IMC): ……

Chapter One, International Plumbing Code (IPC): ……

Article 90.4, 2008 National Electrical Code (NEC): ……

Other Codes and National Standards (Specify): ……

The above codes are adopted by the State of Colorado. Based on the cited code(s), the activities listed below shall immediately cease until authorized by the code official, in writing, to proceed with work.

NOTES: 1) When there is an unsafe situation or a potential emergency, IFC, IFGC, IMC and IPC allow the code official to issue a verbal stop-work order. However, any verbal stop-work order needs to be followed by a written stop-work order as soon as possible.
2) If it should become necessary to stop work for an indefinite period, the Contractor shall store materials in such manner that they will not become an obstruction or become damaged in any way; and he or she shall take every precaution to prevent damage to or deterioration of the Work, provide suitable drainage and erect temporary structures where necessary.
3) Where applicable, see General Conditions of Contract Article 48.B, Temporary Suspension of Work for additional information.

LOCATION OF WORK TO BE STOPPED:

……
……
……

NATURE OF WORK TO BE STOPPED AND CODE VIOLATION OR HAZARDOUS CONDITION:

……
……
……
……
……

APPLICABLE CODE SECTION:

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……
……
……

SUGGESTED REMEDY (WHERE APPLICABLE):

……
……
……
……
……

ISSUED BY: Name (print): ……**Title:** ……..

Email: ……..…… **Phone Number:** ……..…….

Signature: ……..…… **Date:** ……..……

cc: FM Assistant director for construction
FM assistant director for engineering,
FM PD&C director

APPENDIX D
Engineering/FM Shops Association

Campus Shops & Engineers Interactions

The FM and Housing shops work with the engineering groups listed below to ensure compliance with code and obtain engineers' approvals. The expected outcome is a unified approach by the engineers and the associated shops.

Access services: Door hardware and related code issues
Fire and Life Safety Group (FLS)

Structural Trades Shop (Carpentry): In-house projects
Coordination should be made with all engineering groups depending on the nature of in-house projects.

Control: HVAC, Control, and BAS, Refrigeration
Mechanical Engineers (ME)

Electrical Shop: Electrical Issues
Electrical Engineer (EE), FLS will be involved in fire-safety issues only.

Elevators: Elevator operations
Fire and life safety issues are coordinated with **FLS.** Control and electrical issues are coordinated with **EE**.

Fire Systems: Fire suppression and fire detection/alarm systems
FLS

Paint: Painting
Intumescent paint: **FLS** Other paint: No direct coordination, LEED, Moe T.

Pipe Trades:
ME for indoor plumbing
Civil/Structural (C/SE) for outdoor plumbing
FLS & C/SE for outdoor fire mains and fire hydrants

PM Shop:
Coordination should be made with all engineering groups depending on the nature of in-house projects.

Utilities Generation and Distribution:
EE, FLS, C/SE, and **ME** as appropriate.

Roofing: Roofing
Campus Commercial Inspector (CCI), new position

Sheet Metal: Ductwork
ME

Sign Shop: Signs
FLS and ADA Coordinator as appropriate

APPENDIX E
Administrative Modifications Procedures for Construction Projects

Administrative Modifications Procedures for Construction Projects

1) The Architect/Engineer shall submit a request for consideration of an Administrative Modifications (AM) to the UCB campus Certified Building Code Official (BCO). This request shall identify the prescriptive requirements of the code that are to be addressed by the AM and provide documentation as to how equivalency with the prescriptive requirements will be achieved.

2) The BCO will review the request and may accept or reject the request. In consideration of the request, the BCO may request additional documentation as required.

3) For approved AM's, the BCO will sign the approved AM and hand the AM to the assistant to the PD&C Director, i.e. the office manager.

4) The assistant to the PD&C Director will have the AM signed by the PD&C Director. This completes the approval process.

5) The assistant to the PD&C Director will file a copy of the AM in the Inspection Reports/ATP Folder.

6) The Project Assistant (PA) will scan a copy of the AM for electronic filing and will file the original AM in the main project file.

7) The assistant to the PD&C Director will send a copy of the AM to the BCO.

8) If the BCO rejects an Administrative Modification, the documentation will be filed in the main project file and not in the Administrative Modifications section of the Reports/ATP folder.

9) At the conclusion of the project, the assistant to the PD&C director will send a copy of the Inspection Reports/ATP folder (which will contain only Administrative Modifications) to SBP.

Sample Administrative Modification Shown Below as a Template . . . . .
(Change Shaded Areas to Match Project)

Administrative Modification
Title

PROJECT: UNIVERSITY OF COLORADO AT BOULDER
PROJECT DESCRIPTION

WORK ORDER NO.: PRXXXXXX

OTHER PROJECT ID: XXXXXX

DATE: MM/DD/YYYY

INTENT OF MODIFICATION:

The description of the intent of modification(s) to code requirements placed here.

I. CODE SECTIONS:

Code Title (including year):

- Section XXX.X – Description of code section.
- Section XXX.X – Description of code section.

Code Title (including year):

- Section XXX.X – Description of code section.

II. CODE REQUIREMENTS:

Please refer to the Code Section, listed above, for specific code requirements; and, detailed descriptions of existing conditions pertaining to these requirements, listed below.

Code Title, from above (including year):

- Section XXX.X, from above – Specific requirement from code section for project.
- Section XXX.X, from above – Specific requirement from code section for project.

Code Title, from above (including year):

- Section XXX.X, from above – Specific requirement from code section for project.

III. AS CONSTRUCTED OR PROPOSED:

Specific Element of Existing Construction: The description of the existing/proposed construction placed here.

Specific Element of Existing Construction: The description of the existing/proposed construction placed here.

IV. POINT OF NON-COMPLIANCE:

Provide the description of non-code compliant issues here.

V. ADMINISTRATIVE MODIFICATION REQUEST AND JUSTIFICATION:

Administrative Modification Request: State the reasoning and the rationale for equivalency of the AM here.

Reasons for Justification:

1. List reason here

2. List reason here

Submitted by:
Company Name

Signature and Professional Seal

_____

Individual Name
Title

cc: Name - Company
Name - Company

Owner:

University of Colorado at Boulder: _____

By: _____

Title: _____

Date: _____

Approval:

University of Colorado at Boulder: _____

By: _____

Title: _____

Date: _____

.doc Location