Fire and Life Safety Field Meetings, Inspections, and Facilities Closeout Program

Summary: This program serves as a guideline for construction project inspection procedures, State Fire Marshal (SFM) required testing for renovations and new construction, and facility closeout procedures at the University of California, Irvine (UC Irvine).

1. Program Description
This program serves as a guideline for construction project inspection procedures, State Fire Marshal (SFM) required testing for renovations and new construction, and facility closeout procedures at the University of California, Irvine (UC Irvine). By establishing these criteria, UC Irvine strives to receive the highest quality of construction workmanship on all construction projects while optimizing the performance of facility fire and life safety systems. UC Irvine's Environmental Health and Safety (EH&S) and Design and Construction Services (D&CS) work together to implement and accomplish the goals of this program.

2. Scope
This program applies to all new construction and renovations on the grounds at UC Irvine. Coordinating field inspection requests, conducting inspections, and closing out projects are the responsibilities of both the EH&S Designated Campus Fire Marshal (DCFM) and D&CS.

3. Definitions

Campus Fire Marshal (CFM) – The CFM is a campus representative who has the responsibility and authority to enforce fire and life safety requirements in all UC Irvine facilities.

Designated Campus Fire Marshal (DCFM) – At UC Irvine, the SFM has delegated the Designated Campus Fire Marshal (DCFM) and assigned representatives as the AHJ for plan review and construction inspections. The DCFM also has the responsibility and authority to enforce SFM regulations and requirements elsewhere on campus.

Fire Life Safety Systems – Comprised of building systems intended to alert or protect occupants of fire dangers and other related perils. These systems help to preserve life and property by protecting a building or facility against fire hazards. These systems include, but are not limited to, smoke control systems, fire alarm detection and notification systems, fire sprinkler systems, and building construction design to protect occupants in the event of a fire.

Inspector of Record (IOR) – A D&CS employee who is assigned to record all construction activities and observations that occur on a specific construction site. Each construction site has an assigned IOR.

National Fire Protection Association (NFPA) – A non-profit educational and technical association that educates and develops fire protection standards for protection of life and property.

Notice to Proceed (NTP) – A notice issued from D&CS to the General Contractor that a project may proceed to the construction phase.

Project Manager (PM) – A D&CS employee who is assigned to manage a D&CS construction project.

Request for Inspection (RFI) – A form that is used by the contractor and is sent to D&CS to gather additional information about the construction project.

SFM Notice of Correction, Form EN-11 – A form provided to the construction site's Inspector of Record (IOR) that notes recommendations and or corrections from the DCFM and/or observations of the work being performed by the General Contractors and Subcontractors.

Submittal – A proposed plan or specification for various parties' (EH&S, Facilities Management, D&CS) review and approval.

4. Responsibilities And Specific Program Components

Design and Construction Services (D&CS) is responsible for:

- Ensuring that all building construction follow D&CS department processes and that buildings have been properly constructed;
- Ensuring that all buildings have been inspected for building and fire life safety systems;
- Assigning project managers (PM) and inspectors of record (IOR) to each construction project on campus;
- Providing training and resources to PM's and IOR's related to construction safety and fire safety; and
- Assisting EH&S in the implementation of this program.

D&CS Project Managers (PM) are responsible for:

- Scheduling and conducting the Pre-Occupancy meetings with the Designated Campus Fire Marshal (DCFM) and other EH&S staff members as necessary;
- Reviewing inspection reports and non-conformance reports for outstanding items;
- Reviewing outstanding action items with the DCFM in order to agree upon project completion;
- Communicating to the Project IOR regarding EH&S issues on their construction project; and
- Assisting EH&S in the implementation of this program.

The D&CS Project Inspector of Record (IOR) is responsible for:

- Scheduling project inspections with the DCFM at least 48 hours beforehand;
- Communicating on a timely basis to the DCFM about the rescheduling or canceling of inspections;
- Ensuring all necessary items have been completed before the start of the inspection;
- Obtaining the DCFM approval for all required inspections;
- Verifying that there are no outstanding DCFM requests;
- Assisting the PM and DCFM during the project closeout process; and
- Assisting EH&S in the implementation of this program.
The Designated Campus Fire Marshal (DCFM) or assigned representative(s) is responsible for:

- Conducting SFM required inspections;
- Testing building construction and approving all fire and life safety systems;
- Working in conjunction with the D&CS PM's, IOR's, and Construction Contractors;
- Approving construction projects for: “Beneficial Occupancy”, “Substantial Approval” or “Fire Clearance”; and
- Implementing this program for all renovations and new construction projects on campus.

Environmental Health and Safety (EH&S) is responsible for:

- Coordinating construction safety and fire safety training to D&CS, if necessary;
- Serving as a EH&S technical resource to D&CS; and
- Coordinating and conducting inspections of existing buildings on campus.

5. Program Components

The procedures to initiate a construction project site inspection and/or test and the closeout of a project are described in the following process:

A - D&CS and General Contractor Pre-Construction Meeting

1. Before the commencement of any project, a Project Pre-Construction Meeting is held between D&CS and the General Contractor. During this meeting, the project criteria is set and scheduled. This meeting is conducted after the Notice to Proceed (NTP) is sent to the General Contractor. The General Contractor should invite the DCFM to their pre-construction meetings.

B - Construction User's Meeting

1. The DCFM shall periodically, or upon request of the Project IOR or PM, attend the project user's construction meetings to provide fire and life safety technical consultation (e.g. fire access and egress, fire main service, exiting, rated construction, building fire safety systems, through penetrations, fire stopping, and other EH&S issues). The IOR or the PM shall schedule these meetings with the DCFM on Corporate Time and they should be scheduled at least 24 hours before the meeting.

2. D&CS shall forward all project meeting minutes to the DCFM for review.

C - Pre-DCFM Inspections

1. The D&CS Project IOR will inspect the construction area to ensure it is ready for inspection or testing by the DCFM.

2. Once the Project IOR has determined that the construction is acceptable, the Project IOR will generate and email a Request for SFM Inspection (Appendix A) to the DCFM. The inspection request should be sent 48 hours prior to the requested inspection time.

3. If for some reason the DCFM cannot perform the requested inspection, the DCFM must notify the project IOR as soon as possible and reschedule the inspection.

4. For same day or next day Request for Inspections, the Project IOR must call the DCFM to schedule an inspection time.

5. The DCFM has 24 hours to respond to the Request for Inspection either by contacting the Project IOR by telephone or by email. An email confirmation will be sent back to the IOR from the DCFM to confirm the inspection request and time. The DCFM will then schedule the inspection on their Corporate Time calendar.

6. When the project IOR is scheduling the DCFM inspection, he or she must include a minimum of 30 minutes to review plans and/or the submittal at the construction site, adequate time for the physical inspection, and a minimum of 30 minutes for the DCFM to write a report.

D - DCFM Inspection

1. The DCFM will walk the job site with the Project IOR after both parties agree to the scope of the inspection.

2. Both the DCFM and the Project IOR will take notes of corrections or comments identified during the inspection.

3. If during the inspection either the DCFM or the Project IOR feel that the project site is not ready for inspection, either party may cancel the inspection. The Project IOR will reschedule the inspection following the aforementioned guidelines.

4. If during the inspection the DCFM has questions regarding the construction, he or she will only address the questions to the Project IOR, not to the General Contractor or subcontractors.

E – DCFM Report

1. The DCFM must use the SFM's Notice of Correction, EN-11 form (Appendix B) to document items for correction or completion following all site inspections and tests. The DCFM shall have 24 hours to provide the Project IOR a completed Notice of Correction EN-11 and shall include the following:
   - The DCFM will type an electronic Notice of Correction EN-11 and send it or deliver a hard copy to the Project IOR.
   - The Project IOR will then sign the Notice of Correction EN-11 and make a copy for his or her records.
   - If an authorized representative of the DCFM has performed the site inspection or test, he or she will take the original Notice of Correction EN-11 to the DCFM for his or her signature.
   - The Project IOR will use the photocopied EN-11 to follow up and complete all action items and recommendations.
   - The original Notice of Correction EN-11 will be available to be picked up by the Project IOR at the EH&S building.

2. Required inspections and tests to be performed by the DCFM include, but are not limited to:

   GENERAL
   - Review of construction site roads and fencing plan for fire department access
   - Approved plans in IOR's office – stamped by CFM

   UNDERGROUND FIRE LINES
   - Underground fire service material inspection – piping, fittings, and hardware etc.
   - Underground fire service inspection of thrust blocks, depth of bury, and trace wire
   - Underground fire service hydrostatic test – this includes the FDC
   - Underground fire service flush test

   SPRINKLER & STANDPIPE SYSTEMS
   - FDC signage and labeling
   - Fire hydrant flow and/or shutdown
• Fire pump acceptance test
• Structural steel sprayed on fire proofing inspection
• Sprinkler & standpipe material inspection – piping, welds, grooves, etc.
• Sprinkler & standpipe rough-in inspection
• Sprinkler & standpipe hanger and seismic bracing inspection
• Sprinkler & standpipe pipe clearance thru walls and floors
• Sprinkler & standpipe number, type and arrangement of heads
• Sprinkler & standpipe hydrostatic test – with all head and drops installed
• Sprinkler & standpipe flow test
• Sprinkler & standpipe drain location inspection
• Sprinkler & standpipe test of flow switch, drain, tamper and supervision
• Standpipe flow approval
• Final approval of sprinkler system from DCFM
• NFPA 13 certificate of completion

FIRE RESISTIVE ASSEMBLIES
• Framing inspection of rated walls and shafts
• Through wall penetration and fire stopping – corridors, shafts, stairways, elevators, occupancy wall, area separation walls, floors etc.
• Joint penetration – curtain walls, expansion joints, floors, walls, slip track etc.
• Roof covering
• Back to back boxes in rated walls
• Rated recess and access panels/doors
• Opening protection – area separation wall, roll down doors, corridors, walls, ceiling, exterior walls etc.

HVAC
• Fire/smoke dampers testing and inspection – angles, labels, screws, bolts, fusible links, “S” clips, access doors, duct detector location, and automatic shutdown, etc.
• Duct detector air differential pressure test

AUTOMATIC EXTINGUISHING SYSTEMS
• Automatic extinguishing systems test – i.e. FM200, kitchen hood system, fume hood, CO2, dry/wet chemical, etc.

FIRE ALARM
• Fire alarm rough-in
• Fire alarm strobe candela verification
• Fire alarm inspection and testing – test all devices & appliances, audibility/visual verification, main panel & annunciator panel test, elevator recall, flow & tamper, smoke & duct detectors, battery test, panel supervisory test, roll down/roll door, fire pump supervision, smoke evacuation test, etc.
• NFPA 72 certificate of completion
• Final approval of fire alarm system from DCFM

EXITING
• Exiting verification – widths per approved plans
• Exit sign inspection
• Emergency light inspection to public way
• Stair – rise and run, handrails, guardrails
• Evacuation, maximum occupancy and emergency signs

EMERGENCY GENERATOR
• Emergency generator acceptance test

DOORS
• Fire rated door inspection – frames, smoke gasket, label, hardware, swing, rated glass, panic hardware, door/frame clearances, etc.

MISCELLANEOUS
• Fire extinguisher location inspection – portable extinguisher verification and cabinet rating if required
• Interior finishes inspection – walls, floors, and ceilings
• Medical gas inspection – pressure test, label, and valve location
• Knox box inspection – location, number of keys (prior to occupancy)
• Comprehensive building final inspection leading to substantial completion

F - Project Closeout Inspection and Report

1. The California State Fire Marshal Fire and Life Safety Checklist (Appendix C), also known as Closeout Procedures, shall be considered complete after the following procedures have been followed, and the proper documentation has been submitted to the DCFM. This documentation consists of reports and records that must be reviewed and signed by the PM, the Project IOR, and the DCFM before final substantial completion and beneficial occupancy can be granted.

2. A pre-closeout meeting will be conducted at least two (2) weeks prior to the anticipated closeout of the building or facility. During this meeting, the PM, Project IOR, and DCFM shall review inspection documentation records, along with other pertinent information, to facilitate building or facility closeout. The following is a list of documentation and conditions to be reviewed at the pre-closeout meeting:

   • All inspection requests must be completed and signed by the DCFM;
   • All SFM forms must be completed and signed by the DCFM;
   • All detail plans for all fire penetrations and fire rated assemblies have been reviewed, approved, and signed by the DCFM;
   • Approved plans and documents have been reviewed and filed;
   • All appropriate RFI’s have been reviewed and approved by the DCFM;
   • The California State Fire Marshal Fire and Life Safety Checklist must be reviewed, completed, and signed by the DCFM;
   • Documentation of inspections and tests are completed and signed for acceptance and occupation by the DCFM;
   • The “Record of Completion” form for the fire and sprinkler system for each building (NFPA 13R or 13) is accepted and signed by the DCFM; and
   • The NFPA 72 “Inspection and Testing” form is accepted and signed by the DCFM.

6. Reporting Requirements

All project closeout records and documentation are maintained in the EH&S Building Fire Division files.
7. Training Requirements and Competency Assessment

All training conducted by the DCFM is provided informally and in the field, as determined by the DCFM.

8. Information and External References

- Title 24 California Code of Regulations (24CCR)
- California Fire Code (CFC)
- National Fire Protection Association section 72 and/or section 13R or 13 (NFPA 72 and/or 13R or 13)

9. Appendices

A – Request for Inspection Form
B – State Fire Marshal's Notice of Correction, EN-11 Form
C - California State Fire Marshal Fire and Life Safety Checklist

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