1. Program Description

This program serves as a guideline for Design & Construction Services (D&CS) & Facilities Management (FM) projects involving State Fire Marshal (SFM) required plan review and inspection/testing of renovations and new construction projects 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), D&CS and FM will work together to implement and accomplish the goals of this program.

2. Scope

This program applies to all new construction and renovations projects for UC Irvine and its properties. Coordinating plan review, field inspection requests, conducting inspections, and closing out projects are the responsibilities of EH&S Designated Campus Fire Marshal (DCFM), D&CS and FM project managers.

3. Definitions

California State Fire Marshal (CSFM) – The state authorized agency or authority having jurisdiction. Responsible for enforcing rules and regulations for the preservation for fire & life safety and property.

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. As designated by the Office of the California State Fire Marshal.

CSFM Inspection Report, Form EN-2 – A form provided to the construction site IOR that documents an activity that was performed on the construction site. This notice will not have any correction actions or recommendations. This form can state an inspection was approved when signed by the DCFM.

CSFM Fire Safety Correction Notice, 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.

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

Design & Construction Services (D&CS) – The Capital building program managers department, for managing the construction for all capital funded projects for UC Irvine.

Facilities Management (FM) – The UC Irvine department responsible for building and facility maintenance, and minor capital renovation and construction for the 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 or FM employee who is assigned to coordinate inspection, and 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 & FM Contracts Department to the Contractor that a project may proceed.

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

Request for Information (RFI) – A form that is used by the contractor and is sent to D&CS or FM project managers to gather additional information regarding the construction project.

Submitted – A proposed plan, drawing or specification for various parties’ (EH&S, D&CS, and/or FM), for review and/or approval.

4. Responsibilities

Design & Construction Services is responsible for:

- Ensuring that all project construction following department processes, and that projects have been properly implemented;
- Ensuring that all projects that affect fire and life safety systems have been inspected;
- Assigning PM’s and IOR’s 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.

Facilities Management - Project Services is responsible for:

- Ensuring that all project construction following department processes, and that projects have been properly implemented;
- Ensuring that all projects that affect fire and life safety systems have been inspected;
- Assigning PM’s and IOR’s 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.

Project Managers is responsible for:

- Scheduling and conducting the Scope / Design meetings with the DCFM and other EH&S staff members as necessary;
- Submitting via “EH&S Plan / Document Review Transmittal Form, (Appendix A)” plans and/or specifications for review. Obtaining DCFM comments, corrections and/or approval, before returning information to the contractors requesting parties;
- Conduct meetings with DCFM and other departments to review project status;
- Reviewing inspection reports and non-conformance reports for outstanding items;
- Reviewing outstanding action items and corrections with the DCFM;
- Communicating to the project IOR or the affected parties issues on their construction project;
- Assisting EH&S in the implementation of this program.

Project Inspector of Record 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 prepared before the start of the inspection;
- Obtaining the DCFM approval and/or corrections for all CSFM required inspections;
- Ensuring that all necessary paperwork is approved and all necessary signatures have been obtained;
- Verifying that there are no outstanding DCFM requests;
- Assisting the FM and DCFM during the project closeout process; and
- Assisting EH&S in the implementation of this program.
Designated Campus Fire Marshal or assigned representative(s) is responsible for:

- Conducting CSFM required inspections;
- Testing building construction and approving all fire and life safety systems;
- Working in conjunction with the DACS, FM, PM’s, IOR’s, and Construction Contractors;
- Serving as a fire and life safety technical resource to PM’s and IOR’s; and
- Implementing this program for all renovations and new construction projects on campus.

Environmental Health and Safety is responsible for:

- Coordinating construction safety and fire safety training, if necessary;
- Reviewing EH&S Plan / Document Review Transmittal Form ( Appendix A ) when requested by the PM;
- Coordinating construction safety and fire safety training, if necessary;
- Serving as an EH&S technical resource to PM’s and IOR’s; and
- Coordinating and conducting inspections of existing buildings on campus.

5. Program Components

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

1. Plan Review
   - The DCFM shall review all DACS, FM projects. The PM must submit to the DCFM the project scope and associated documents via the “EH&S Plan/ Document Review Transmittal” Form ( Appendix A ). The DCFM shall attend design meetings when requested by the PM. Once the project is approved by the DCFM the project can be sent to DACS, FM Contractors for processing.

2. General Contractor Pre-Construction Meeting
   - Before the commencement of any project, a Project Pre-Construction Meeting shall be held between managing construction department (DACS and/or FM) and the Contractor. During this meeting, the project criteria is set and reviewed. This meeting is conducted after the Notice to Proceed (NTP) is sent to the Contractor. PM may request DCFM to attend Pre-Construction meeting if needed.

3. Construction User’s Meeting
   - 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 Outlook calendar and they should be scheduled at least 24 hours before the meeting.
   - The construction managing department PM’s shall forward all project meeting minutes to the DCFM for review.

4. Pre-DCFM Inspections
   - The project IOR will inspect the construction area to ensure it is ready for inspection or testing by the DCFM.
   - Once the IOR has determined that the construction is acceptable, the IOR will schedule DCFM on Outlook calendar. The inspection request should be sent 48 hours prior to the requested inspection time.
   - If for some reason the DCFM must cancel the requested inspection, the DCFM must notify the project IOR as soon as possible and reschedule the inspection.
   - For same day or next day Request for Inspections, the Project IOR must call the DCFM to schedule an inspection time.
   - The DCFM has 24 hours to respond to the Request for Inspection by accepting the Outlook calendar request. An email confirmation will be sent back to the IOR from the DCFM to confirm the inspection request and time.
   - When the project IOR is scheduling the DCFM inspection, they must include a minimum of 30 minutes to review plans and/or the submittal at the construction site and adequate time for the physical inspection.

5. DCFM Inspection
   - The DCFM will walk the job site with the Project IOR after both parties agree to the scope of the inspection.
   - Both the DCFM and IOR will take notes of corrections or comments identified during the inspection.
   - If during the inspection either the DCFM or the IOR feel that the project site is not ready for inspection, either party may cancel the inspection and the Project IOR will reschedule the inspection.
   - If during the inspection the DCFM has questions regarding the construction, he or she will only address the questions to the Project IOR only, not to the Contractor or subcontractors.

6. DCFM Report
   - The DCFM must use the CSFM’s Notice of Correction, EN-11 form ( Appendix B ) to document items for correction following all site inspections and tests. The DCFM may also use the CSFM inspection Report, EN-2 form ( Appendix C ) if no corrective action is required from the inspection. The DCFM shall have 48 hours to provide the Project IOR a completed SFM Report and shall include the following:
     1. The DCFM will present an electronic CSFM Report and electronically send it or deliver a hard copy to the Project IOR.
     2. The Project IOR will then sign the CSFM Report and make a copy for his or her own records.
     3. If an authorized representative of the DCFM has performed the site inspection or test, he or she will take the original CSFM Report to the DCFM for his or her signature.
     4. The Project IOR will use the photocopied report to follow up and complete all action items and recommendations.
     5. The original SFM Report will be available at the EH&S building if desired.
   - 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 for fire department access
       - Approved plans in IOR’s office – stamped by CFM
     - UNDERGROUND 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 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 heads and drops installed
       - Sprinkler & standpipe flow test
       - Sprinkler & standpipe drain location inspection
       - Sprinkler & standpipe test flow switch, drain, tamper and supervision
       - Standpipe flow approval
       - Final approval of sprinkler from DCFM
       - NFPA 13 certificate of completion
     - FIRE RESISTIVE ASSEMBLIES
       - Framing inspection of rated walls and shafts
       - Through-wall penetrations and fire stopping - corridor, shafts, stairways, elevators, occupancy walls, 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
Back to back boxes in rated walls

Rated recess and success panels/doors

Opening protection - area separation walls, roll down doors, corridors, walls, ceiling, exterior walls etc.

HVAC

- Fire/Smoke dampers testing and inspection of angles, labels, screws, bolts, fusible links, and "S" clips, and access doors, duct detector location, and automatic shutdown etc.
- Duct detector air differential pressure test

AUTOMATIC EXTINGUISHING SYSTEMS

- Automatic extinguisher 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, audible/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, handrail and guardrails
- Signs – maximum occupancy, evacuation and emergency signs

EMERGENCY GENERATOR

- Emergency generator acceptance test

DOORS

- Fire rated door inspection – frames, smoke gaskets, label, hardware, swing, rated glass, panic hardware, door/frame clearances etc.

MISCELLANEOUS

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

7. Project Closeout Inspection and Report

1. The California State Fire Marshal Fire and Life Safety Checklist (Appendix D) may be used to assist in the Closeout Procedures. All SFM required documentation must be reviewed and signed by the PM, IOR, and the DCFM before Substantial Completion, Temporary Certificate of Occupancy, Certificate of Occupancy or Fire Clearance can be granted.

2. The following is a list of documentation and conditions to be reviewed prior to Financial Closeout:
   1. All DCFM inspection requests must be completed and signed by the DCFM;
   2. All SFM forms must be completed and signed by the DCFM;
   3. All detail plans for all fire penetrations and fire rated assemblies have been reviewed, approved, and signed by the DCFM;
   4. Approved plans and documents have been reviewed and filed;
   5. All appropriate RFI's have been reviewed and approved by the DCFM;
   6. The California State Fire Marshal Fire and Life Safety Checklist must be reviewed, completed, and signed by the DCFM, if applicable;
   7. Documentation of inspections and tests are completed and signed for acceptance and occupation by the DCFM;
   8. The NFPA 13 "Record of Completion" form for the Fire Sprinkler Systems is accepted and signed by the DCFM; and
   9. The NFPA 72 "System Record of Completion" form for Fire Alarm Systems is accepted and signed by the DCFM.

6. Reporting Requirements

All DCFM project records and documentation are maintained in the EH&S Building Fire Division files.

7. Information and External References

- Title 19 California code of Regulations (19CCR)
- Title 24 California Code of Regulations (24CCR)
- National Fire Protection Association (NFPA 72 and/or 13)

8. Appendices

A. EH&S Plan / Document Review Transmittal Forms D&CS, FM.
B. State Fire Marshal's Notice of Correction, EN-11 Form
C. State Fire Marshal's Notice of Correction, EN-2 Form
D. California State Fire Marshal Fire and Life Safety Checklist