Project Management & Construction Services

Standard Operating Procedures

I. Title: Fire Alarm Systems Design, Construction and Commissioning

II. Purpose : Define activities, identify stakeholders, and assign responsibilities as it relates to the installation of fire alarm devices and systems for University of Texas capital renovation projects

III. Project Team Responsibilities

Project Manager

- The Project Manager (PM) must follow the process as outlined in this document to insure that a code-compliant fire alarm system is designed, installed and commissioned per UT Austin Campus Standards.

System Designer

- Professional Service Provider (PSP), Facilities Services Shop (FSS), Facilities Services Engineer, or Contractor: Provide drawings and specifications of devices/system per codes and standards and may also provide review of installation.

Contractor

- General contractor, Electrical Contractor, and approved Fire Alarm Contractor: Provide submittals (shop drawings, product data sheets, calculations, etc.); coordinate with FSS before demolition of existing devices/system; perform demolition; provide temporary fire protection if required; sign off on rough-in prior to installation of devices and wire; provide fire watches if required by FPS; perform installation of new devices/system; provide programming of FACP; and, submit pre-testing check-off list, closeout documents, and as-built drawings prior to final testing.

Fire Safety Services

- Fire Safety Shop (FSS): Review design and installation for maintenance and compatibility with existing system operation and UT Austin Campus Standards; provides information on existing fire alarm system; disables activation devices prior to construction if contractor is not certified to work on existing Fire Alarm Control Panel (FACP); perform acceptance testing for projects that are too small to warrant contracting a Third Party Inspector for this purpose; provide final connections of new systems to campus loop; and, performs maintenance functions.

Fire Protection Services

- Fire Prevention Services (FPS): Reviews design for code compliance; review rough-in and final installation for code compliance; provide approval of temporary protection if required; and, determine if a fire watch is required. FPS is governing Authority Having Jurisdiction (AHJ) so their decisions will always take precedent.

Elevator

- Department within Utilities responsible for elevator maintenance, if the elevator is in the project scope. Provide input during design and review of shop drawings as it relates to elevator operation.

Instrumentation and Controls Shop (I&C)

- If HVAC systems are affected by project scope: provide input during design as it relates to location, control, and capacity of existing air handling units and installation of duct mounted smoke detectors, review shop drawings, and provide aid to contractor throughout construction.

IV. Actions by Phase

Design Phase

- PM requests a fire alarm system design for the renovation project. Design must be sealed by a registered Engineer if installation costs will exceed $8K.
- A Fire Alarm Contractor may provide the design for smaller renovations [such as a JOC joint scope] however designs must be approved through the approved U.T. plan review routing process.
- U.T. Shops may perform fire alarm system work with plans designed by qualified University of Texas personnel in the Fire Safety Shop.
- PM arranges kick-off meeting between design team (PSP), FPS and FSS to obtain information about the existing fire alarm system in the building or area, discuss the disabling process and identify the impact on existing devices in the area due to the construction. Decisions made in this meeting will be the basis for Design Contract requirements.
- FSS will determine if existing system is proprietary and which contractors will be allowed to perform the work. This information must be included in the Design Documents.
- PM and the Design Team staff will discuss the sequence of construction and maintenance of all, or part of, the existing system with FPS and FSS to determine if special measures (refer to Long Term Outages) will be required. This discussion

should also include any requirements for Third Party inspections and if a Third Party is required, how they should be contracted. This issue has budget implications for the project and must be thoroughly researched.

- It is expected that the existing system will be maintained in operational condition throughout construction to the extent this is possible**.**
- The PSP is to provide a layout of the proposed fire alarm devices as part of the design. The Design must be code-compliant and meet UT Austin Campus Standards.
- The PM issues review documents to all stakeholders for review and written comments which are due back to the PM within 7 calendar days (excluding FPS who has 14 calendar days for review).
- PMCS will expedite delivery of plans requiring critical review and turnaround from FPS and FSS. In the event FPS or FSS is unable to comply with the 14 calendar day turnaround, they will contact the PM and communicate when they will have comments returned for inclusion in the final plans.

Construction Document Phase

- The PSP incorporates stakeholder comments into drawings and prepares specifications and bid construction documents. Notes on drawings may suffice for JOC and shop projects in lieu of specifications.
- The PSP will include in the Submittal requirements the necessity for the contractor to submit written proof of factory certification authorizing the contractor to work in that specific manufacture's panel prior to the start of work. Conduits up to the panel may be run by a licensed Electrician however any work in a panel must be accomplished by a factory certified contractor.
- The PM issues Final Design documents to stakeholders for review and written comments due back to the PM within 7 days of receipt [excluding FPS who has a 14 calendar day turnaround] and Stakeholders shall provide "sign-off" within this same timeframe using the Document Review Comment Form found in the forms index on the PM&CS server.
- Final documents are issued to the contractor(s) with inclusion of stakeholder final review comments.

Bid Proposal Phase

- The PM schedules and conducts pre-bid/proposal conference and invites stakeholders to attend.
  - The Contractor prepares bid/proposal including fire alarm work as required to meet NFPA 72 and UT Austin Campus Standards.

Construction Phase

- The PM schedules and conducts a pre-construction conference and invites stakeholders to attend. U.T. Outage and Commissioning procedures must be reviewed during this conference.
- The Contractor must be instructed not take direction directly from any stakeholder including U.T. personnel who are not the primary Project Manager.
- The Contractor must provide submittals, including product data and shop drawings, and the certification letter authorizing him to work on the panel, as outlined in the specifications.
- The PM distributes submittals to stakeholders for review and written comment within previously stated turnaround requirements. FSS and FPS shall provide "sign-off" at this time by using the Document Review Comment form.
- The PM coordinates rough-in inspection (observation) of new fire alarm devices. FSS and FPS must be invited to attend all inspections. Written comments must be sent to the PM within 24 hours after the inspection for inclusion on the Corrective Action Log, located on the forms index of the PMCS server.
- The Contractor must correct noted deficiencies discussed during Construction Progress Meetings and/or as documented at the Substantial Completion inspection on the Corrective Action Log or on the final 'Punch List'.

Commissioning Phase

- When the Contractor has completed installation of new devices/system, the Contractor must perform a pre-test. Pre-test requirements are as follow:

    - Testing includes 100 % of the new installation and all new devices as well as 10% of all other devices on the same circuit.
    - Testing must be scheduled Monday through Friday early in the morning and prior to the start of classes. The Building Management must approve the dates and times of testing prior to initiating the pre-tests.
    - All audible and visual devices inclusive in the installation must be individually tested and a log of each device must be maintained as proof that all individual components were tested.

- Prior to Final Testing: At least 72 hours prior to scheduling the final testing, the Contractor must submit the As-Built progress drawings on a CD in Auto Cad format; the system calculations; and, all other documents required by the specifications to the PM. The PM will forward these documents to FSS to allow FSS review time prior to the final testing.
- Prior to Final Testing: FPS (Fire Protection Services) must be scheduled to perform an inspection of the installation for code compliance.
- Final Testing of devices/system is performed by FSS, the Designer, or an independent Third Party Inspection contractor with the primary Contractor present. Acceptance shall be in the form of a letter stating that the new

devices/system meet the Construction Documents and all approved Change Orders. This letter shall be included with the Substantial Completion letter. NOTE: If Designer or Independent Party is conducting the final testing, they must invite FSS to attend and observe the final testing.

Outages – Short Duration Outages

- The Contractor must submit written request for an outage of the existing fire alarm system when demolition or construction could cause the existing system to go into alarm.
- The Supplemental Work Order (SWO form) requesting a disable of the system must be submitted 24 hours before the outage is required and must be submitted on this form to FSS. A file copy of the SWO request must be placed in the construction folder for the project on the server.
- The Contractor must call FSS on the day of the outage, before 7:30 AM, to verify that detectors have been disabled. If work is canceled, the Contractor shall notify PMCS and FSS immediately to avoid placing the building or it's occupants at risk in the event of a fire occurrence. The Contractor shall call FSS again when work is completed that day so that system may be reactivated. If FSS does not receive a call, the system will reactivated at 3:30 PM of that day.
- COVERING OF EXISTING DETECTORS IS NOT ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE FIRE MARSHAL.

Outages – Long Duration Outages

- A Long Term Outage Plan must be developed and submitted to FPS for approval 14 days prior to implementation. It is optimal to have the procedure reviewed with stakeholders during the Design Phase (See Activities Section).
- When FPS approves the Long Term Outage Plan, FPS must forward written approval to the PM. The PM shall forward written approval to FSS.
- Examples of a Long Term Outage procedure may be:
  1.) Replace existing smoke detectors with heat detectors; or,
  2.) Secure the area with a full time fire watch crew during the period of time the system is down; or,
  3.) Cover existing smoke detection; or,
  4.) Abandon or disable the system through the construction period.
- The approved fire alarm contractor associated with the project will be responsible for the replacement of heat detectors and reinstallation of smoke detectors. If the heat detectors are the property of U.T., contractor shall notify FSS and return the heat detectors to them.

V. References

State of Texas, Fire Alarm Code, as adopted by State Fire Marshal
National Fire Alarm Code - National Fire Protection Association, NFPA 72; NFPA 101
NFPA 90A
Americans for Disabilities Act Guidelines (ADAG)
Texas Accessibility Standards (TAS)
ANSI, ASME 17.1 Elevator Code
University of Texas Campus Standards found in PMCS Shared folder under Campus Standards