Fire Protection/Life Safety Triggers for FP Office Review

FDAR Guidance

An FP Engineer is required to oversee all fire protection-related activities from conceptual design to final acceptance per DOE O 420.1C. ESM Chapter 16 Section IBC-GEN includes this graded approach:

- For Highest Risk (Alteration Level 2B & 3, new, addition, change of occupancy), the ES project engineer ensures FP Office review.

- **For Low and Moderate risk (Level 1 or 2A modifications) the FDAR** should consult this listing of matters that may have fire protection or life safety implications, then engage an FP Office FPE to ensure fire protection considerations and requirements are incorporated into the scope of the minor project planning and execution.

The review of small scope Alteration Level 1 or 2A projects by the FP Office is typically a review of sketches, material submittals, and proposed furniture or equipment layouts. The intent is to confirm that the replacement or upgraded material or system reconfiguration meets applicable requirements to confirm that the selected product complies fire code requirements and does not negatively other building fire protection or life safety features.

Matters with fire protection or life safety implications:

1. Site/Civil:
    a. Replacement of stairs, ramps, guardrails, handrails.
    b. Reconfiguration/modification of roadways (fire department access).
    c. Changes to sidewalks or pedestrian paths from buildings to the public way.
    d. Replacement of water utility piping, valves, PIVs, hydrants with change in type, material, configuration, etc.
    e. Installation of exterior equipment, tanks, or storage (can impact egress, fire exposures, fire department access, visibility of FP equipment, etc.).
2. Structural:
    a. Spaces with fireproofing or passive fire protection on structure (including patching in response to work).
    b. Structural support systems penetrating fire barriers.
3. Architecture:
    a. Stairs, ramps, guardrails, handrails.
    b. Raised floor installation (often customer procured) or removal.
    c. Door hardware and locking changes (e.g., laser lab door interlocks, VTRs, push bars etc.).
    d. Floor, wall, and ceiling finish applications or removals or changes in ratings (especially in laboratories, and radiological or hazardous material areas).
    e. Reconfiguration of walls and partitions (including demountable partitions.
    f. Assembly space fixed seating.
    g. Suspended or cloud ceiling installation / removal or modification.
    h. Assembly space change in seating plan or density of occupants (e.g., creating waiting areas).
    i. Furniture and equipment installation/reconfiguration (can impact sprinklers, fire alarm, egress aisles, etc.).
    j. Workstation pods and other modular room construction.

k. Plastic finishes, insulation, glazing, toilet partitions, etc.
l. Work affecting fire-rated walls, floors, doors, dampers, windows, etc.
m. Smoke partitions or smoke barriers.
n. Openings or penetrations in floors or shafts.
o. Repair/ replacement of Exterior Insulation Finishing Systems (EFIS)
p. Carpet installation or replacement must meet ASTM D 2859

4. Mechanical:
    a. Compressed gas and cryogenic liquid systems.
    b. Ducts, piping, and tubing installation or reconfiguration (especially exposed at ceiling level or below 6'-8" AFF).
    c. Air handling unit replacement (reacceptance testing of duct smoke detection and HVA shutdown or retroactive installation of new if none exist).
    d. Hazardous exhaust (types of chemicals, accumulation of combustible residues, spark resistance, Class I Div 1 or 2).
    e. Replacement of fire or smoke dampers.
5. Electrical/Communication/Controls:
    a. Automatic lighting controls (automatic turning off normal lighting in means of egress).
    b. BAS upgrades (reconfiguration of HVA shutdown tie-in point for the fire alarm system).
    c. Emergency lighting levels (including trigger to provide emergency lighting in work areas based on IEBC).
    d. Exit sign locations (including sufficient lighting levels of photoluminescent signs).
    e. Recessed boxes in and conduits through fire barriers.
    f. High-voltage or oil-filled equipment locations.
    g. Transformer rating and locations.
6. Operations and Equipment:
    a. Storing or handling of hazardous materials.
    b. Fuel-fire equipment installation.
    c. Hydraulic equipment/machinery installation.
    d. Operations/equipment with combustible powders/dusts.
    e. Industrial equipment (e.g., furnaces, spraying, machining/manufacturing, 3D printing, dipping/cleaning).
    f. Equipment location with respect to the means of egress, fire alarm devices, or fire sprinkler heads.
    g. Hazardous/classified atmospheres.
    h. Gloveboxes.
    i. High-value equipment over $1M (includes programmatic).
    j. Mission critical information technology equipment.
    k. Significant change in use or activities allowed in a space.
7. Fire Protection
    a. All and any fire protection systems or equipment modifications.