Duke Occupational & Environmental Safety Office

Operating Instruction	Author: Chris Allan	Owner: Fire & Life Safety
Subject: Interim Life Safety Measures	Approved By: Matthew Stiegel	Date Effective: 09/01/2024
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Purpose:

This document provides instructions to maintain a fire safe environment for all patients, visitors, and staff during periods when *Life Safety Code* and/or *North Carolina Fire Code* deficiencies are identified and cannot be immediately corrected. Unoccupied or new facilities are not included within the scope of this document unless those facilities become occupied (partially or fully) prior to the full commissioning of the facility.

Personnel Affected:

Occupational and Environmental Safety Office (OESO) Fire & Life Safety Division (FLS)
Facilities Planning, Design, and Construction (FPDC)
Engineering and Operations (E&O) Maintenance and Construction
Facilities Maintenance Department (FMD)
Duke University Police Department (DUPD)
Vendors performing work on automatic fire protection systems

Definitions:

Automatic Fire Protection System (AFPS) – Approved automatic devices, equipment, and systems or combination of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof.
Interim Life Safety Measure (ILSM) – Actions or activities developed, implemented, and managed when life safety deficiencies that cannot be immediately corrected exist. Usually consists of 14 administrative functions that are selected to temporarily compensate for the life safety deficiency.
Immediately corrected – corrective actions that are implemented and completed within the same business day.
Noncritical Deficiency**:** A deficiency that does not have a material effect on the ability of the AFPS or unit to function in a fire event, but correction is needed to meet NFPA requirements or for the proper inspection, testing, and maintenance of the system or unit.
Critical Deficiency**:** A deficiency that, if not corrected, can have a material effect on the ability of the AFPS or unit to function as intended in a fire event.
Impairment**:** A condition where the APFS system or unit or portion thereof is out of service, and the condition can result in the AFPS or unit not functioning in a fire event.

- Emergency Impairment**:** A condition where an AFPS or a portion thereof is out of service due to events **not** planned in advance.
- Preplanned Impairment**:** A condition where an AFPS or portion thereof is out of service due to events planned in advance. **NOTE:** FLS must be notified of preplanned impairments 5 days in advance (not including weekends or holidays).

Initial and Ongoing ILSM Assessment Procedures for Construction/Renovation Projects:

All construction/renovation projects managed through FPDC, FMD, and E&O Construction shall be reviewed with an FLS specialist. The specialist will obtain the Pre-Construction Risk Assessment (PCRA) form and review for needed ILSM (Attachment 2). The assessment will review all annotated deficiencies and apply ILSM as applicable to compensate for each. Project management is responsible for posting the ILSM documents as outlined by the FLS specialist.

Project management will ensure that all contractors and/or staff members are following the required

compensatory actions as identified by the ILSM assessment. The FLS specialist will conduct periodic rounds (no less than every 2 weeks) of the construction site to verify ILSM guidelines are being followed. These visits will be documented and shared with project management via email.

Project management will notify the FLS specialist as soon as emergency impairments occur that compromise the fire protection features present within the work area or a minimum of 5 days in advance of planned fire protection feature outages when needed to support the work.

ILSM Assessment During Required Fire Protection System Inspections:

Vendors perform AFPS inspections in conjunction with an FLS associate. When deficiencies are identified, the FLS associate, in collaboration with the vendor, will determine if the deficiency is non-critical or critical. If the deficiency is determined to be a critical deficiency the FLS Systems Supervisor and appropriate maintenance personnel will be notified by telephone and corrective actions initiated as outlined by *FLS AFPS Inspection Performance Operating Instruction.*

When E&O or FMD are made aware of deficiencies during required inspections that fall under their scope, they shall initiate an ILSM assessment by using the FLS Online Impairment Request. FLS will assess the deficiencies and provide ILSM as applicable.

Evaluation of Risk Priority will be in accordance with Attachment 1.

ILSM Assessment During Facility Inspections:

If facility inspections performed by, or in conjunction with, an FLS specialist (e.g. annual inspection by the Durham Fire Marshal's Office), have annotated safety deficiencies, those will be evaluated for ILSM at the conclusion of the inspection. Corrective action to remediate the deficiencies shall not take longer than 30 days without a written action plan approved by the fire marshal for annual inspections (City of Durham Fire Code Violation Extension Request) , or in cooperation with the appropriate maintenance departments/administrators and FLS for other facility inspections.

Other ILSM considerations

Hospital Facilities

For work within E&O supported facilities, a MOP must be completed and approved by E&O management before FLS will approve planned AFPS outages.

When ceiling tiles are removed and cannot be replaced at the end of the workday, then the sprinkler heads will be rotated, extended to within 12 inches of the deck above, and fit with an upright head so that a fire watch is not required. **Note:** When removal of the ceiling tiles exposes the interstitial space within the hospital, an ILSM shall be initiated whereby all fire-rated doors above the work area are checked at the beginning and end of the workday for proper functionality in lieu of extending sprinkler piping.

During construction projects in the hospital, fire alarm initiating devices within the work area are called in and out daily by the contractor and the site shall never be unoccupied during the workday.

All Facilities

A fire watch is not required for single, non-operational fire alarm devices. A fire watch or temporary fire alarm system would be required if an initiating, signaling, or notification appliance circuit is out of service for more than 4 hours.

A fire watch is not required for ceiling tiles being removed while workers are in the area performing above-ceiling work, nor is it required to rotate and extend sprinkler heads if ceiling tiles can be replaced at the end of the workday.

If a deficiency warrants a fire watch, it will be implemented and conducted in accordance with Fire Watch Program Instruction 1-3.

The need to provide and maintain equivalent fire alarm/fire detection systems will be evaluated using the Life Safety Risk Assessment Tool and ILSM matrix (Attachments 1 and 3) to determine if a temporary system must be installed.

Life safety deficiencies shall be reported to FLS immediately during duty hours and to DUPD during off-duty hours. DUPD will contact appropriate maintenance personnel and if the deficiency cannot be immediately corrected, the FLS Director or OESO Director shall be notified.

Attachment 1

Life Safety Risk Assessment Tool

Low Risk (4)		**Severity of the Potential for Fire Damage**				
Moderate Risk (3)		Insignificant Damage to Property, Equipment	Minor Loss of Process or Slight Damage to Property	Moderate Loss of Process or Limited Damage to Property	Critical Loss of Process or Damage to Property	Catastrophic Loss of Property
High Risk (2)						
Extremely High Risk (1)						
Likelihood of a Fire Happening	Almost Certain	4	3	2	1	1
	Will Probably Occur	4	3	2	1	1
	Possibly Occur	4	3	3	2	2
	Remote Possibility	4	4	3	3	3
	Extremely Unlikely	4	4	4	4	4

Priority (4) Low Risk Mitigation Measure	The mitigation measure must be completed no later than the next preventive/routine maintenance cycle or through the use of an action plan approved by Maintenance and Fire and Life Safety leadership.
Priority (3) Moderate Risk Mitigation Measure	The mitigation measure must be completed prior to the next inspection but shall not exceed 3 months unless a formal action plan explaining the delay is provided and approved by Maintenance and Fire and Life Safety leadership.
Priority (2) High Risk Mitigation Measure	The mitigation measure shall be scheduled as soon as feasible and shall not exceed 30 days unless a formal action plan explaining the delay is provided and approved by Maintenance and Fire and Life Safety leadership.
Priority (1) Extremely High Risk Mitigation Measure	The mitigation measure will be initiated immediately and will continue, without interruption, until completed.

Attachment 2

Pre-Construction Risk Assessment for Fire and Life Safety

Date:	☐ **E&O** ☐ **FMD** ☐ **FPDC**	
Building Name:		Building Number:
Contractor:	On-Site Contact and Phone:	
Project Name and Location:		
Project Number or Work Order Number:		

Provide a current life safety floor plan indicating the project boundaries and protected spaces in adjoining compartments (to include interstitial spaces if included in the scope of the project). All life safety system components must be clearly identified.

	Y	**N**	**N/A**
Are there occupied spaces adjacent to the project area?	☐	☐	☐
Will an equivalently rated construction barrier be provided to separate the project area from other portions of the building?	☐	☐	☐
Will means of egress be affected within the project area or adjacent spaces?	☐	☐	☐
Are alterations, removal, or impairments to any automatic fire protection systems planned?	☐	☐	☐
Are alterations, removal, or impairments to the fire alarm system planned?	☐	☐	☐
Within the project area, are any new **VERTICAL** openings or alterations to existing vertical openings (including penetrations of any size) planned? *(Examples: ceilings/tiles, chases, shafts, linen chutes, etc.)*	☐	☐	☐
Within the project area, are any new **HORIZONTAL** openings or alterations to existing horizontal openings (including penetrations of any size) planned? *(Examples: roll-down, horizontal sliding, swinging fire/smoke doors, etc.)*	☐	☐	☐
Will smoke evacuation systems remain operational?	☐	☐	☐
Any structural support components affected? *(Examples: load bearing walls, structural steel, etc.)*	☐	☐	☐

What are the normal working days/hours for this project?

If work continues on weekends or holidays, detail hours below:

Any Life Safety System Deficiencies (i.e., "yes" answers) noted above shall require the completion of an ILSM assessment.

Attach ILSM Matrix and any additional documentation to this form.

Project Manager:	**PM Phone and Email**
Fire and Life Safety Division Representative:	

Attachment 3

Interim Life Safety Measures Decision Matrix

ILSM Assessment Matrix

Project Name:
Assessment Date:
Project Begin Date:
Project End Date:
Submitted by:

	Conduct education to promote awareness of building deficiencies, construction hazards, & temporary measures implemented to maintain fire safety	Provide training when impairments to structural or compartmental fire safety features exists	Enforce housekeeping, storage & debris removal that reduce the flammable & combustible load to the lowest feasible level	Increased hazard surveillance of buildings, grounds, & equipment giving special attention to construction areas, storage, excavation, & field offices	Durham Fire Dept. Notification	FM Global Notification	Initiate Fire Watch	Post signage identifying the location of alternative exits	Inspect exits in affected area daily	Conduct 1 additional fire drill per shift per quarter in affected areas	Provide additional firefighting equipment	Provide additional training on use of firefighting equipment	Provide temporary construction partitions that are smoke-tight or non or limited-combustible materials that will not contribute to the development or spread of fire	Provide temporary fire alarm & detection system	Inspect & test temporary systems monthly	Other ILSM not addressed (specify in notes)	Risk is considered manageable with existing conditions. Communicate deficiency to appropriate maintenance personnel for repair
Immediate (same day) corrective action completed																	
Fire Alarm and Sprinkler Deficiencies																	
Fire alarm system (out-of-service >4 hours in a 24 hour period)																	
Sprinkler system (out-of-service >10 hours in a 24 hour period)																	
Fire Pump (to include PIVs, FDCs, Controllers)																	
Standpipes (to include hose cabinets)																	
Unsealed holes or other damage in rated ceilings																	
Other:																	
Means of Egress Deficiencies																	
Blocking a required exit																	
Exit routes width reduced																	
Exit routes altered																	
Other																	
Smoke or Fire Rated Door Deficiencies																	
Door does not close or latch																	
Door gaps out of compliance																	
Other																	
Structural or Compartment Fire Safety																	
Structural components altered or damaged																	
Smoke or fire compartment altered																	
HVAC smoke, fire, or smoke/fire dampers non-functional																	
Smoke evacuation system non-functional																	
Unsealed holes or other damage in rated walls or floors																	
Other																	
Other Deficiencies																	

Notes: