Duke Occupational & Environmental Safety Office

Operating Instruction	Author: Chris Allan	Owner: Fire & Life Safety
Subject: Interim Life Safety Measures Program	Approved By: Matthew Stiegel	Date Effective: 10/05/2023
	Revision Dates: 04/02/2018	

Purpose

This instruction establishes policy and procedures and assigns responsibilities and requirements; establishes a tool to assist with assessing the loss or potential loss of a life safety feature during construction, renovation, alterations, or damage that occurs to a life safety feature; establishes policy when a fire alarm will be out of service more than 4-hours or automatic sprinkler system will be out of service more than 10-hours. This operating instruction does not replace or substitute for the Construction Risk Assessment program. Violations of this policy may result in appropriate disciplinary action.

Objective.

To ensure the fire and life safety of all building occupants during periods of construction, renovations, alterations or during automatic fire protection system outages that compromise the level of life safety protection provided by the building features and design.

To ensure life safety deficiencies that are identified either during the e-SOC survey, as part of a construction/renovation project, or other survey, audit, or inspection have a written plan to mitigate the deficiency.

Provide a tool to evaluate and assign appropriate Interim Life Safety Measures (ILSM) during life safety deficiencies.

PERSONNEL AFFECTED

Facilities, Planning, Design, Construction (FPDC)

Engineering & Operations (E&O)

Facilities Maintenance Department (FMD)

OESO-Fire & Life Safety Division

Duke University Police Department (DUPD) and Duke Security (internal and contracted services)

Construction contractors, services, and other related construction trades

DEFINITIONS

Automatic Fire Protection System – 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. (NC Fire Prevention Code-2012)

Interim Life Safety Measure – 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 day.

RESPONSIBILITIES & PROCEDURES

Planning and Project Managers (FMD, E&O, FPDC)

Shall comply with the intent of this operating instruction and all other referenced codes, standards, and operating instructions

Shall complete a formal Construction Risk Assessment (CRA) of planned and awarded construction, renovation, or alteration projects. The CRA will help determine if life safety features (e.g. exits, egress paths, sprinkler systems, etc.) of the facility will be affected by the construction. Affected includes but is not limited to: blocking, sealing off, removing, impairing, or any other action that alters the originally designed life safety feature.

Shall outline, design, and document recommended alternative actions to be implemented during life safety deficiencies and deficiencies that have been referred as part of a mitigation plan. These documents shall be a permanent part of the construction planning and construction documentation.

Review the alternative actions with the OESO-Fire & Life Safety Division

Annotate OESO-Fire & Life Safety Division mandated implemented ILSMs on the Duke construction site safety board

Appropriately post ILSM alert notices and other required signage

Work Site Supervisors/Project Managers (FPDC, FMD, E&O, Contractor)

Shall comply with the intent of this operating instruction and all other referenced codes, standards, and operating instructions

Shall ensure that all mandated ILSMs are in affect during all phases of the construction until properly relieved through correcting the deficiency, release from the OESO-Fire & Life Safety Division office, and/or work assignment is completed.

Document life safety and ILSM assessments as required

Notify the OESO-Fire & Life Safety Division office of any conditions that affects the alternate actions, ILSM, or newly created life safety deficiency.

OESO-Fire & Life Safety Division

Shall assist with the development of ILSMs for any life safety deficiency that cannot be mitigated through design, or procedural change.

Reviews documentation (floor plans, architectural drawings, specifications, etc.) provided by planning and project managers, contractors or other approved sources.

Utilizing the ILSM matrix, determine the appropriate ISLMs that will be implemented for the specified period appropriate to the project phases.

Ensures ILSM alert notices and other required signage are provided, distributed, and displayed in accordance with Life Safety Plans, ILSM alert notices, or other directives. Minimum postings include:

Entrances

Facility/department supervisors

Duke University Safety Committee

Development of all training materials and information necessary, appropriate to the scale of the project, to train and educate staff members in the project area.

Brief/present the ILSM at the next scheduled Duke University Safety Committee meeting

Conduct periodic life safety assessments (at least weekly) for any active life safety system that is impaired. Periodic assessments will be utilized to measure the overall effectiveness of the project manager's adherence to this policy.

Upon notification of life safety deficiency correction, assess the area and ensure the deficiency has been fully restored to the original or approved condition and all signage relating to the deficiency is removed

Duke Police & Duke Security

When requested and during construction off-duty times, shall be responsible for the actions in 4.2 above.

GENERAL INFORMATION

If a life safety deficiency warrants a fire watch, the fire watch will be implemented and maintained in accordance with Fire Watch Program Operating Instruction 1-3

At no time will a life safety deficiency that is identified be allowed to exist without either implemented ILSMs or other coordinated corrective actions.

Life safety deficiencies that cannot be corrected within the prescribed allocated time, will require a written mitigation plan. Pre-assessed ILSMs will be evaluated and determined if they still are valid or may require modification. Evaluations of the existing ILSMs will be accomplished utilizing the ILSM matrix.

The need to provide and maintain equivalent fire alarm/fire detection systems for systems that are installed in addition to Life Safety Code minimum requirements will be evaluated using the ILSM matrix to determine if a temporary system must be installed.

Portions of an existing system that are not part of the minimum required system may be impaired on a temporary basis (e.g. heat detectors used in place of smoke detectors in active construction areas) during periods of construction or during other dust producing activities are being performed as long as the following minimum conditions are maintained:

The minimum required protection level is in full working order

A hard barrier (1-hour rated) is in place to limit the movement of smoke and fire

Combustibles are maintained at an absolute minimum

Area is not used for the storage of flammables

Smoke detectors are replaced with heat detectors during the dust producing activities

Smoke detectors are returned to service at the completion of dust producing activities

Life safety deficiencies will be reported to the OESO-Fire & Life Safety Division office immediately during duty hours and to DUPD during off-duty hours.

DUPD will attempt to correct the deficiency by contacting the appropriate maintenance organization. In the event the deficiency cannot be corrected immediately, DUPD will contact the one of the following:

OESO-Fire & Life Safety Division director (919-812-9030)

OESO-Department director (919-812-3576)

ILSM Implementation: refer to Attachment 1

ATTACHMENT 1

INTERIM LIFE SAFETY MEASURE (ILSM) IMPLEMENTATION

1. All life safety deficiencies and construction/renovation projects must be evaluated for ILSM risk utilizing Attachments 2 and 3 and an assessed risk value assigned per Attachment 4.

a. Required ILSMs will be implemented in accordance with Attachment 3.

2. If ILSM are needed, apply any or all of the 14 administrative actions as appropriate:

a. When a fire alarm system is out of service for more than 4 hours out of 24 hours or a sprinkler system is out of service more than 10 hours in a 24-hour period in an occupied building the building will be evacuated or the Durham Fire Department shall be notified and a fire watch initiated in accordance with the Fire Watch Operating Instruction 1-3.

b. When exits do not provide free and obstructed egress - signage will be posted identifying the location of alternative exits to everyone affected.

c. When the construction area is contained within an occupied building - all exits adjacent to and within the construction areas must be inspected daily by the general contractor. The Duke University project manager shall forward documentation by close-of-business each Friday to the OESO-Fire & Life Safety Division office.

d. When the fire alarm and detection system is impaired - a temporary but equivalent system shall be provided. This determination will be made by the Duke University project manager and Engineering and Operations Alarm Shop at the beginning of each construction project for all hospital projects and with the Duke University project manager and OESO-Fire & Life Safety Division office for all university projects.

- When temporary systems are put into use they shall be inspected and tested monthly and documented by the project manager. Copies will be forwarded to the OESO- Fire & Life Safety Division office upon completion.

e. Additional firefighting equipment should be considered when:

- There is a major renovation to an occupied floor (contractor provided)
- There is a fire watch implemented for an occupied building (contractor or OESO-Fire & Life Safety Division office provided)
- There is an impairment to a kitchen suppression system (OESO-Fire & Life Safety Division office will provide class-K and ABC extinguishers, as needed.)
- The OESO-Fire & Life Safety Division office will provide affected building occupants additional training when these measures are put into effect.

f. Construction areas shall be separated from an occupied building utilizing smoke-tight or non-combustible (or limited combustible) materials that will not contribute to the development or spread of fire.

g. During periods of construction and renovation requiring ILSM implementation increased surveillance is required to include the building, grounds, equipment, and especially the construction site, storage areas, excavation sites, and field offices.

- The general contractor shall perform these actions on an ongoing basis while the site is active
- Duke University project managers and OESO-Fire & Life Safety Division office shall perform these actions at least weekly.

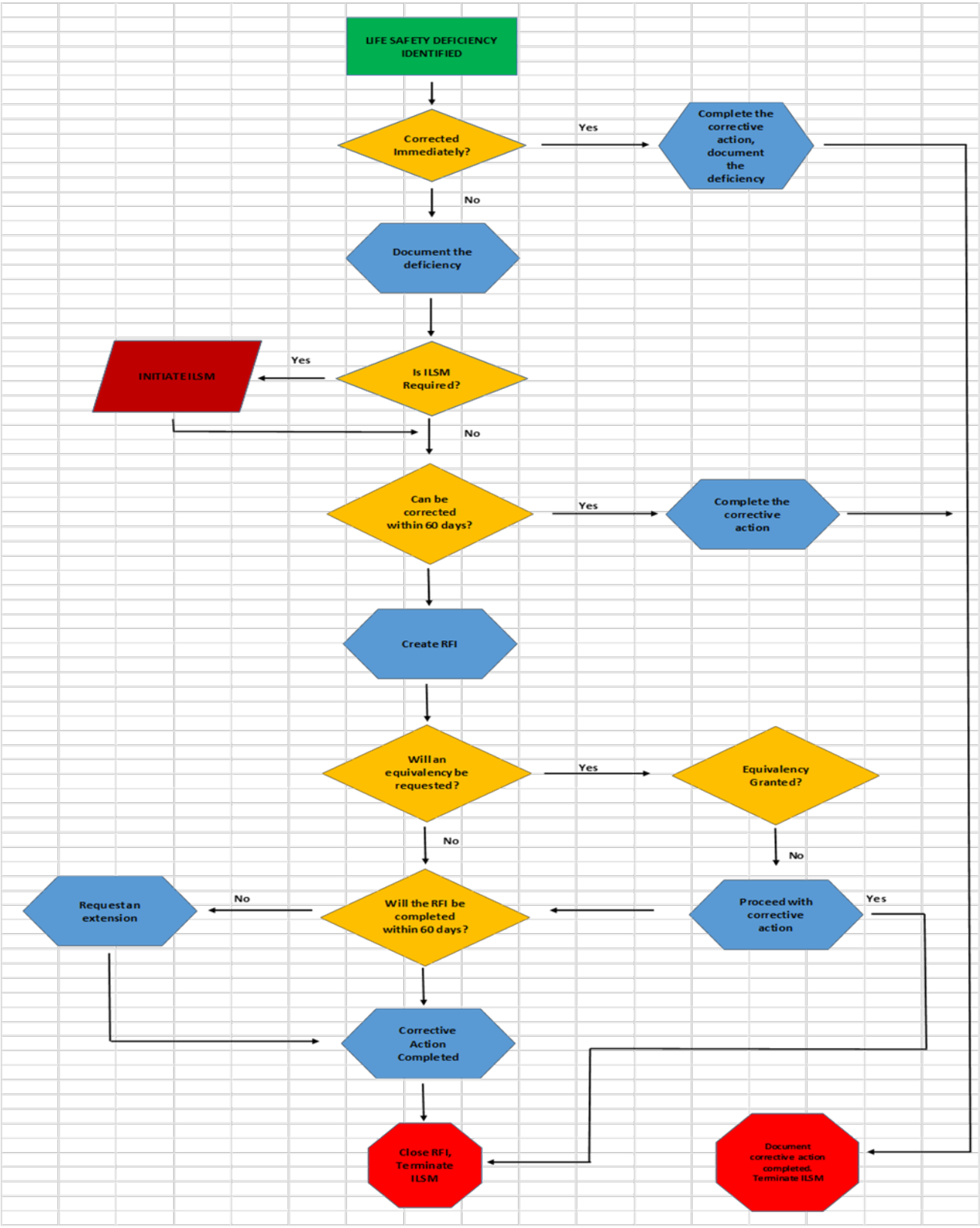
h. During periods of construction and renovation in occupied buildings the Duke University project manager and general contractor shall develop a plan prior to construction beginning that will enforce storage, housekeeping, and debris- removal practices that reduce the flammable and combustible fire load to the lowest feasible level. This plan will be reviewed by OESO-Fire & Life Safety Division office prior to construction beginning.

i. When exit configurations are altered during periods of construction or renovation that will be impacted longer than 30 days, one additional fire drill per quarter shall be conducted.

- NOTE: The additional fire drill will not utilize the fire alarm system. They will be initiated verbally.

j. The OESO-Fire & Life Safety Division office will work with Duke University project management teams from FPDC and FMD to provide education to promote awareness of building deficiencies, construction hazards, and temporary measures implemented to maintain fire safety when these hazards are not correctable within a 24-hour time period and when any administrative actions are taken for ILSM implementation.

- Upon decision that the ILSM will be implemented, OESO- Fire & Life Safety Division office will disseminate an email to hospital administrative staff, Duke University and contractor project managers, leadership within affected patient care areas and ensure notifications are posted in the immediate vicinity of the affected area.
- Upon decision that an ILSM will be implemented for a university building, OESO-Fire & Life Safety Division office will disseminate an email to the facility manager(s), Duke University and contractor project managers, and ensure notifications are posted in the entrances and affected areas of the facility.


LIFE SAFETY DEFICIENCY IDENTIFIED
Corrected Immediately?
Yes
Complete the corrective action, document the deficiency
No
Document the deficiency
Is ILSM Required?
Yes
INITIATE ILSM
No
Can be corrected within 60 days?
Yes
Complete the corrective action
Create RFI
Will an equivalency be requested?
Yes
Equivalency Granted?
No
No
Proceed with corrective action
Yes
Will the RFI be completed within 60 days?
No
Request an extension
Corrective Action Completed
Close RFI, Terminate ILSM
Document corrective action completed. Terminate ILSM

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:																	

Low Risk (4) Moderate Risk (3) High Risk (2) Extremely High Risk (1)		Severity of the Potential for Fire Damage				
		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
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.

IMPAIRMENT COORDINATION

- Fire and Life Safety Specialists will be responsible for contacting FM Global and Durham Fire Department's Fire Marshal's office on all required ILSM's involving sprinkler and fire alarm impairments

REQUIRED DOCUMENTATION:

- Additional fire drills when required
- Monthly tests of equivalent systems when utilized (contractor provided)
- Training of personnel for additional firefighting equipment
- Training of personnel for alternative exits
- Documentation of exit signage and accessibility daily (contractor provided)