Risk Assessment and Interim Life Safety Measures Policy

**Purpose**
This policy is designed to ensure that when Life Safety Features are compromised during the course of construction, renovation or alteration activities, they are done so in a manner that will reduce the potential adverse impacts on the overall Building Life Safety. This policy is a companion policy to the Infection Control Risk Assessment policy to represent a full Pre-Construction Risk Assessment.

**Audience**
This policy applies to all individuals involved with construction, renovation, repair and alteration activities at the University of Texas Medical Branch (UTMB Health). Specifically, the primary audiences of this policy are:

- All contractors performing work affecting the physical environment at UTMB Health
- Facilities Planning & Development (Construction including Contractors)
- Offices of Facility Planning and Construction (a.k.a. OFPC)
- In-house Construction group
- Maintenance personnel
- The UTMB Health Police Department
- Environmental Health and Safety Department

**Scope**
This policy applies to buildings controlled by UTMB Health. Unoccupied or new buildings are not included in the scope of this policy unless the activities occurring at those sites affect the Life Safety System of adjoining buildings (i.e. exits, paths, or other Life Safety Features). This policy will apply to partially occupied buildings prior to their final completion of construction where the building’s Life Safety System is impaired.
Definitions

**Building Life Safety System:** the combination of individual Life safety features which maintain the compliance of the building with NFPA 101 Life Safety Code.

**Life Safety Feature:** A single component of the Building Life Safety System. May include but is not limited to, exits, doors, fire alarm system and automatic sprinkler system.

**Interim Life Safety Risk Assessment:** (a.k.a ILSMRA) An evaluation of the effect any construction, renovation or alteration activities will have on the Building Life Safety System, occupants and the required measures to insure continued and equivalent protection to the building occupants during such activities.

**Interim Life Safety Measures (ILSM):** Measures implemented to ensure an equivalent level of protection is provided to the building occupants when construction, alteration, or renovation activities temporarily impair a Life Safety Feature. May also be used during the time between the identification of an impairment and the PFI (plan for improvement) project completion.

**Construction, renovation or alteration activities:** Activities inside of or around buildings which affect the Building Life Safety System. This may include small projects of one room or less to larger renovation areas of two rooms to the entire building.

**Deactivations:** The advance approval to temporarily impair a Fire Protection System or utility service to perform required work. Deactivations must be approved by Business Operations and Facilities (BOF) Maintenance and Environmental Health and Safety (EHS) before impairment of systems may occur. See BOF SOP “UTMB Fire Protection System and Utility Deactivations.”

**Hot Work Permits:** Permits requested by the project representative allowing work activities in buildings involving the use of possible ignition sources (i.e. welding, cutting, soldering etc…) Permits must be obtained before the work starts and shall be posted at the site of work. See BOF standard operating procedure “Hot Work Permitting Procedures.”
**Definitions (cont.)**

**Fire Watch:** A means used to monitor an area for excessive combustible or flammable material build-up and for early detection of fires and potential ignition sources. A person (police, contractor, EHS) may be specifically assigned to provide a fire watch by observing ongoing hot work or perform a periodic visual check of the work site, floor, or entire building during periods where a Life Safety Feature is impaired.

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**Special Definitions**

The following definitions are adapted from the National Fire Protection Association (NFPA) terms (*NFPA 101, Chapter 43, 2012 ed.*) and will determine safety/ILSM requirements in this procedure:

**Repair:** The patching, restoration, or painting of materials, elements, equipment, or fixtures for the purpose of maintaining such materials, elements, equipment, or fixtures in good or sound condition.

**Renovation:** The replacement in kind, strengthening, or upgrading of building elements, materials, equipment, or fixtures, that does not result in a reconfiguration of the building spaces within.

**Modification:** The reconfiguration of any space; the addition, relocation, or elimination of any door or window; the addition or elimination of load-bearing elements; the reconfiguration or extension of any system; or the installation of any additional equipment.

**Reconstruction:** The reconfiguration of a space that affects an exit or a corridor shared by more than one occupant space; or the reconfiguration of a space such that the rehabilitation work area is not permitted to be occupied because existing means of egress and fire protection systems, or their equivalent, are not in place or continuously maintained.

**Rehabilitation:** This is a general term to refer to the above classes of work (i.e. Repair, Renovation, Modification, Addition or Reconstruction).
Roles and Responsibilities

Environmental Health and Safety (EHS) shall:

- Process deactivation requests received and forward approvals to the UTMB Health Police
- Determine any ILSM required for approval of a deactivation and forward the requirements to the BOF Construction Manager
- Perform and document initial and follow up Risk Assessments for any construction, alteration, or renovation activities as requested
- Communicate required ILSM to project personnel before construction, alteration, or renovation activities begin
- Walk the area prior to work being performed, when appropriate and/or when requested
- Provide direction for duration and location of a required Fire Watch
- Ensure appropriate Hot Work permits are issued and located at the site of work requiring the permit.
- Audit areas with active Hot Work permits and ensure all required safety precautions are being followed
- Regularly evaluate construction sites for additional ILSM which might be required as the construction progresses.
- Audit ILSM Risk Assessment postings on an ongoing basis
Roles and Responsibilities (cont.)

UTMB Health Police Department will:
- Allow approved deactivations to occur as needed for construction activities
- Maintain a log for each deactivation of when it was used. Information to include time, date, and person requesting deactivation.
- Reject the use of inactive or un-approved deactivations.
- Provide additional patrols in areas which require a fire watch due to required ILSM or impairment of Life Safety Features for more than four hours during a 24-hour period in an occupied building.
- Monitor all Fire Protection System alarms
- Verify the source of an alarm received from a building with an open deactivation:
  - notify the Galveston Fire Department (GFD) of the status of the alarm
  - initiate a GFD response if the alarm cannot be verified by the individual responsible for the open deactivation.
- Notify GFD when an impairment of a Life Safety feature occurs for more than four hours during a 24-hour period in an occupied building

Facilities, In-house Construction and Maintenance will:
- Initiate requests for Fire Protection System deactivations
- Notify EHS of all construction work that may impair a Life Safety feature of a building
- In conjunction with EHS, perform and document a Pre-Construction Risk Assessment (PCRA) for each project or each phase of a project. This may also be termed an ILSM Risk Assessment, or ILSMRA.
- Work with EHS to provide temporary signage, acceptable route changes, and notification of ILSM to occupants.
- Ensure persons performing work implement and maintain the required ILSM procedures and inspections or suspend work until such items can be maintained.
Facilities, In-house Construction and Maintenance will:

- Respond to UTMB Health Police when contacted about fire alarm signals, fire watches, and other items as appropriate.
- Audit Contractor’s completion of daily ILSM reports
- Establish a Fire Watch during the entire time required to comply with an issued Hot Work Permit or suspend work if the Fire Watch cannot be maintained.
- Post a completed PCRA/ILSMRA at the main entrance to the construction site along with evidence of daily inspections.

UTMB Health Facilities personnel shall:

- Abide by the requirements set out in this policy and other applicable UTMB Health policies pertaining to the type of work they are engaged in.
- Notify EHS of all construction work that may impair a Life Safety feature of a building
- In conjunction with EHS, perform and document a Pre-Construction Risk Assessment (PCRA) for each project or each phase of a project. This may also be termed an ILSM Risk Assessment, or ILSMRA.

Contractors and all persons performing work covered by this policy

All persons performing the work covered by this policy shall:

- Abide by the requirements set out in this policy and other applicable UTMB Health policies pertaining to the type of work they are engaged in.
- Post the completed ILSMRA at the main point of entry to the work area or at the work area itself if the work area is small.
- Abide by restrictions and activities listed in the ILSMRA.
- Properly record daily inspections of the work area.
- Make the construction site safe and indicate as such on the inspection log before leaving the worksite for more than 24 hours.
BOF STANDARD OPERATING PROCEDURES

<table>
<thead>
<tr>
<th>Section</th>
<th>Subject</th>
<th>Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Environmental Health and Safety</td>
<td>Occupational Safety and Fire Prevention</td>
</tr>
<tr>
<td></td>
<td>Interim Life Safety Risk Assessment Policy</td>
<td></td>
</tr>
</tbody>
</table>

06/30/06-Effective 01/01/2015 -Revised
Consultant of Occupational Safety & Fire Prevention - Author

Policy

Persons performing any construction, alteration, or renovation project occurring at UTMB Health must comply with the following before and during such activities:

- Request and document an ILSMRA.
- Post the risk assessment and daily checklist at the entrance to the work site.
- Implement required ILSM
- Request and follow UTMB’s Hot Work Permit procedure as required by the project activities
- Follow UTMB’s Deactivation policy and request deactivations as required by the project activities
- Ensure all the above components, when required, are maintained and appropriately implemented

Additionally, a risk assessment for Life Safety impacts will be performed on all deficiencies identified on UTMB’s Statement Of Conditions (SOC). Appendix C may be utilized to determine compensating actions for those deficiencies that fit within the given categories in Appendix C.

Policy Components

Interim Life Safety Risk Assessment (ILSMRA)

Will be performed:
- Before construction, renovation or alteration activities which may adversely affect the Life Safety features of a building or adversely affect building occupants via noise, vibration or other environmental impacts
- Any time there is another significant compromise of one or more Life Safety protection features of a building.
- Will determine which ILSM are required for an area
- Will outline the necessary steps for the person performing work to take to comply with the requirements set during the risk assessment
- Will be posted at the work site in order to validate required ILSM are being implemented.
**Policy Components (cont.)**

**ILSM:** Applied as required by the ILSMRA and may include but are not limited to the following:

- Education of building occupants on construction activities affecting their work area

  *Note: this is usually accomplished via “Construction Area Notices”, a.k.a. CAN.*

- Daily surveillance to ensure unobstructed exits
- Daily surveillance to ensure emergency forces access
- Daily surveillance to ensure that the appropriate type and quantities of fire suppression devices are on hand
- Construction partitions (see “Temporary Construction Partitions” below)
- Requiring storage and housekeeping practices which require the prompt removal of accumulations of combustible/flammable debris and supplies
- Compliance with Hot Work Policies –
- Monthly testing of temporary fire alarm, detection and suppression systems (projects of more than 1 month duration).
  - Temporary devices (e.g. heat detectors) shall be installed in projects lasting more than a month and that impair sprinkler systems. If a sprinkler system is not impaired, then heat detectors are not required.
  - Heat detectors shall be spaced and located as conditions dictate but shall be no more than 50 feet apart and must be over any designated lay-down/storage areas.
- Fire exit drills conducted twice quarterly (projects of more than 1 month duration) – These may be “table-top” educational drills.
- Scheduling work to minimize impact to occupants.
- Any appropriate measures as identified in the ILSMRA.
### Policy Components (cont.)

**Fire Watch:**
May be required when any of the following systems have been impaired for more than four hours:
- The fire alarm system
- Automatic Sprinkler system
- Any suppression system

A Fire Watch shall survey the construction area and will:
- Follow the established surveillance schedule
- Survey every room in the affected area for:
  - Excessive build-up of combustibles (e.g. trash)
  - Potential ignition sources
- Improper work practices which may result in a fire

**Making a work site safe before leaving for more than 24 hours:**
Where a construction site is to be left unattended for more than 24 hours, the person(s) responsible for inspecting the site shall:
- Inspect the site at the end of that work shift to ensure that all ILSM are met.
- Secure the worksite from unauthorized entry
- Note on the inspection form “Made site safe”, then sign and date the form.

### Job Site Postings

The following postings shall be posted at the main entrance at each job site where they are required by this policy. They shall all be in the same area posted on resilient poster-board type material. Core-bond, foam core and other durable material is desired. The purpose of this requirement is to put all the required postings in one area. The postings, at a minimum are:

1. ILSMRA/Pre-Construction Risk Assessment
2. Hot Work permits
3. Infection Control Risk Assessments and controls
4. Construction Area Notice
5. Contact information
Temporary Construction Partitions

When Required:
Temporary construction partitions (partitions) shall be utilized:
- Whenever required by the Epidemiology department for the purposes of infection control
- Whenever there is hot work associated with a Modification or Reconstruction project.
- Whenever an ILSMRA indicates the need.

Notes: in some cases, the existing building construction may serve as a construction partition which shall be noted on the ILSMRA. Hot work may be associated with maintenance activities may not warrant a partition, such as the repair/soldering of a pipe.

All Temporary Construction Partitions:
All temporary construction partitions shall:
- Have posted at the entrance the ILSMRA associated with the work
- Have posted at the entrance the Infection Control Risk Assessment associated with the work
- Have other postings as required, all of which shall be co-located.

Short-Term/Limited Scope Rehabilitation:
Short term projects include “Repair” and “Renovation” projects (as defined in this policy) and may require partitions for infection control purposes. These may be plastic, limited combustible partitions, if approved by EHS in the ILSMRA. Where these are used, evidence of compliance with the NFPA definition must be maintained at the work site and, preferably on the partition itself (e.g. piece of box the plastic came in cut out and attached to partition). All plastic materials must be approved by UTMB Health, Environmental Health and Safety in writing (e.g. e-mail, fax or letter) prior to use.
BOF STANDARD OPERATING PROCEDURES

Section Subject Policy
Environmental Health and Safety Occupational Safety and Fire Prevention Interim Life Safety Risk Assessment Policy

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Consultant of Occupational Safety & Fire Prevention - Author

Temporary Construction Partitions (cont.)

Long Term: Where Rehabilitation projects are more extensive than Repair or Renovation activities and the need is indicated on the ILSMRA for partitions they shall be:

- At least one layer of 5/8 inch, type-X sheetrock on stamped steel studs in fully sprinkled areas and sprinklers are neither impaired directly nor by the removal of a ceiling system.
- Constructed to form a complete smoke-resistant barrier, from floor to deck between the construction area and adjacent occupied spaces.
- Have lockable entry doors of at least solid-core construction
- Where approved by EHS in the ILSMRA, limited combustible partitions in conjunction may be used above drop ceiling assemblies in order to create the smoke-resistant barrier due to utility congestion above the ceiling. In these cases, sheetrock will typically still be required below the ceiling.

Further, where either there is no sprinkler system or a fire sprinkler system is impaired by construction activities, the partition between the sprinkled and un-sprinkled area shall be:

- Assessed for requirements by EHS and recorded in the ILSMRA.
- At least two layers of 5/8 inch, type-X sheetrock affixed to stamped steel studs, creating a complete 1 hour fire barrier, from floor to deck between the Rehabilitation area and occupied spaces.

Note: some very limited duration activities (e.g. a Renovation activity lasting less than 2 weeks), a hard partition may not be appropriate. This shall be determined in conjunction with and approved by EHS, with the results documented in the ILSMRA.

- Have lockable 45-minute, fire rated doors in rated frames. In some rare cases and only as appropriate, EHS may approve the use of 20 minute/20-minute equivalent doors in partitions within the ILSMRA.
- Located, as practicable so that the nearest fire pull station/smoke detector etc. is outside the construction area and available for use.
### BOF STANDARD OPERATING PROCEDURES

<table>
<thead>
<tr>
<th>Section</th>
<th>Subject</th>
<th>Policy</th>
<th>Date</th>
<th>Consultant</th>
<th>Author</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Environmental Health and Safety</td>
<td>Occupational Safety and Fire Prevention</td>
<td>Interim Life Safety Risk Assessment Policy</td>
<td>06/30/06-Effective</td>
<td>01/01/2015 -Revised</td>
</tr>
</tbody>
</table>

Consultant of Occupational Safety & Fire Prevention - Author

Appendix C - ILSM Decision Chart; to be used only with the SOC/PFI process (i.e. not with construction activities)

<table>
<thead>
<tr>
<th>Category</th>
<th>Deficiency</th>
<th>ILSM Category</th>
<th>Action Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Major construction project</td>
<td>3</td>
<td>Complete ILSMRA form</td>
</tr>
<tr>
<td>Construction</td>
<td>Small construction projects</td>
<td>2</td>
<td>Complete ILSM form if project creates life safety issue</td>
</tr>
<tr>
<td>Damper</td>
<td>Damper without access</td>
<td>1</td>
<td>Track for future project purposes</td>
</tr>
<tr>
<td>Damper</td>
<td>Ducts without dampers</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Damper</td>
<td>Inoperable fire dampers</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Exit fire door damaged</td>
<td>2</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Exit fire door frame missing label</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Exit fire door missing label</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Exit fire door not latching</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Fire door damaged</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Fire door missing frame label</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Fire door missing label</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Fire door not latching</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Fire or smoke wall penetration</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>No vision panel in smoke barrier corridor doors</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Door</td>
<td>Non-rated vision panels</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
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</table>
Appendix C - ILSM Decision Chart (cont.)

<table>
<thead>
<tr>
<th>Egress</th>
<th>3</th>
<th>Complete ILSMRA form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egress</td>
<td>3</td>
<td>Complete ILSMRA form</td>
</tr>
<tr>
<td>Egress</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Egress</td>
<td>1</td>
<td>Remove immediately – Contact department head and tag material</td>
</tr>
<tr>
<td>Egress</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Egress</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Electrical</td>
<td>4</td>
<td>Complete ILSMRA form; conduct patient risk assessment</td>
</tr>
<tr>
<td>Fire Alarm</td>
<td>4</td>
<td>Complete ILSMRA form; notify GFD/LCFD; implement fire watch</td>
</tr>
<tr>
<td>Fire Alarm</td>
<td>3</td>
<td>Complete ILSMRA form; notify GFD/LCFD; implement fire watch</td>
</tr>
<tr>
<td>Fire Alarm</td>
<td>1</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Fire Alarm</td>
<td>2</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Fire Alarm</td>
<td>2</td>
<td>Correct by target date</td>
</tr>
<tr>
<td>Fire Alarm</td>
<td>1</td>
<td>Notify GFD/LCFD if true alarm comes in.</td>
</tr>
<tr>
<td>Sprinkler</td>
<td>1</td>
<td>Notify GFD/LCFD if true alarm comes in.</td>
</tr>
</tbody>
</table>

- Egress Blocked corridor, exit or fire department connections
- Egress Blocked emergency access area or drive
- Egress Dead-end corridor greater than 30 ft.
- Egress Storage in corridors
- Egress Too many intervening rooms in suite
- Egress Travel distance deficiency
- Egress Utilities in exit enclosure
- Electrical Inoperable generator, or life safety branch or critical branch transfer switch
- Fire Alarm Inoperable fire alarm system longer than 4 hours
- Fire Alarm Major fire alarm deficiency; impacting more than one wing or fire protection zone for >4 hours (does not include planned, documented shutdowns)
- Fire Alarm Minor fire alarm inspection deficiency
- Fire Alarm Missing initiation devices (smoke, pulls)
- Fire Alarm Missing notification devices
- Fire Alarm Single zone fire alarm shutdown; no longer that one shift at a time and supervised by competent party at the panel.
- Sprinkler Single zone sprinkler shutdown for a renovation; no longer that one shift at a time and supervised by competent party.
### BOF STANDARD OPERATING PROCEDURES

<table>
<thead>
<tr>
<th>Section Subject</th>
<th>Policy</th>
<th>Date</th>
<th>Consultant of Occupational Safety &amp; Fire Prevention - Author</th>
</tr>
</thead>
<tbody>
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<td>Environmental Health and Safety</td>
<td>Occupational Safety and Fire Prevention</td>
<td>Interim Life Safety Risk Assessment Policy</td>
<td>06/30/06-Effective 01/01/2015 -Revised</td>
</tr>
</tbody>
</table>

Appendix C - ILSM Decision Chart (cont.)

<table>
<thead>
<tr>
<th>Sprinkler Issue</th>
<th>Description</th>
<th>Category</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inoperable sprinkler system longer than 4 hours (not including planned, documented shutdowns)</td>
<td>3 Complete ILSM form; notify GFD/LCFD; implement fire watch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major sprinkler deficiency; impacting more than one wing or fire protection zone</td>
<td>3 Complete ILSM form; notify GFD/LCFD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor fire pump deficiency</td>
<td>2 Correct by target date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor sprinkler inspection deficiency</td>
<td>1 Correct by target date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missing sprinklers</td>
<td>2 Correct by target date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous area not properly protected</td>
<td>1 Correct by target date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large hole in fire-rated walls</td>
<td>1 Correct by target date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No wall above ceiling</td>
<td>1 Correct by target date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage in non-rated room</td>
<td>1 Correct by target date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical gas system deficiency</td>
<td>Not a Life Safety deficiency; conduct risk assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oversize smoke compartment</td>
<td>2 Correct by target date</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ILSM Categories**

1: Minor issue that does not affect overall life safety and is mitigated by other life safety features in place. No risk - No Action/No ILSM required.
2: Multiple minor issues. Minimal risk.
3: Moderate life safety issue that requires complete ILSM Risk Assessment. Moderate risk.
4: Serious life safety issue that requires immediate action to resolve. High risk.