

Healthcare Facilities Management

Module 1: Introduction & Compliance Student Workbook



Lesson 2 ~ Compliance 2





Alternative Equipment Maintenance (AEM)



- Strategies of an AEM must not reduce the safety of equipment
- Based on accepted standards of practice
- Equipment with activities based on OEM must have 100% completion rates
- AEM scheduled frequencies for both high-risk and non-high-risk equipment must have 100% completion based on the Hospital's AEM program frequencies
- Written AEM Program with policy justification
- Good reference!

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(TJC) Environment of Care (EOC)

EC.02.05.03 - The hospital has a reliable emergency electrical power source.

- EP 1: Facilities built or changed since 1983 have a Type 1 or Type 3 essential electrical system per NFPA 99, 2012

Power within 10 seconds for:

- EP 2: Alarm systems per "Life Safety Code" (LSC)
- EP 3: Exit route and sign illumination per LSC
- EP 4: New buildings exit route and signage on life safety branch circuit

Power within 10 seconds for:

- EP 5: Emergency power within 10 seconds to emergency communications system
- EP 6: Emergency power within 10 seconds to equipment that could cause patient harm

See next page →

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(TJC) Environment of Care (EOC)

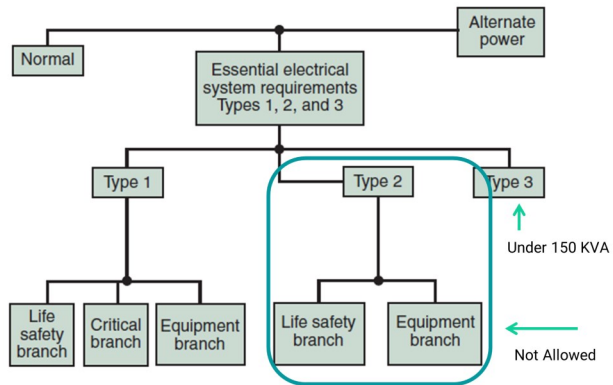
EC.02.05.03 - The hospital has a reliable emergency electrical power source.

Power within 10 seconds for:

- EP 7: Areas where loss of power could cause patient harm
- EP 11: Emergency lighting at emergency generator locations (and other e/gen requirements)
- EP 12: Emergency powered equipment is energized by design
- EP 13: Emergency power to elevators for non-ambulatory at least
- EP 14: Emergency power for essential medication dispensing equipment
- EP 15: Emergency power for essential refrigeration
- EP 16: Battery lamps and flashlights available where needed

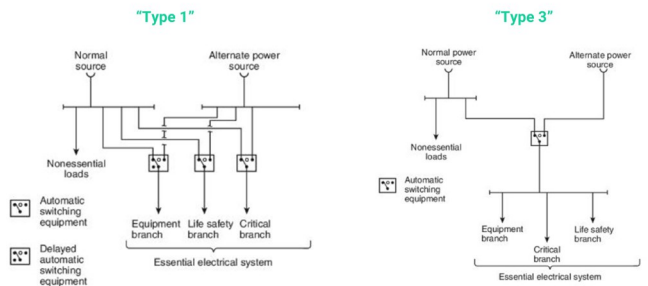
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Essential Electrical Systems



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517.29 – 31 Essential Electrical Systems for Hospitals and Other Health Care Facilities



Informational Note Figure 517.31 (a) Hospital — Minimum Requirement (greater than 150 kVA) for Transfer Switch Arrangement.

Informational Note Figure 517.31 (b) Hospital — Minimum Requirement (150 kVA or less) for Transfer Switch Arrangement.

NFPA 70, 2017

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(TJC) Environment of Care (EOC)

EC.02.05.05 - The hospital inspects, tests, and maintains utility systems.

- EP 1: During repairs and maintenance IAQ, ICRA and utility requirements are addressed.
- EP 2: Utility system components are tested prior to initial use

The hospital inspects, tests, and maintains the following:

- EP 4: High-risk utility equipment (AEM reqs also)
- EP 5: Infection control utility components (AEM reqs also)
- EP 6: Non-high-risk components on the inventory (AEM reqs also)
- EP 7: Line Isolation Monitors (LIM) are tested monthly
- EP 8: Electrical and HVAC systems meet NFPA 99-2012

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Infection Control Risk Assessment

Infection Control Risk Assessment Matrix of Precautions for Construction & Renovation

Step One:
Using the following table, identify the **Type** of Construction Project Activity (Type A-D)

TYPE A	<p>Inspection and Non-Invasive Activities. Includes, but is not limited to:</p> <ul style="list-style-type: none"> • removal of ceiling tiles for visual inspection limited to 1 tile per 50 square feet • painting (but not sanding) • wall covering, electrical trim work, minor plumbing, and activities which do not generate dust or require cutting of walls or access to ceilings other than for visual inspections.
TYPE B	<p>Small scale, short duration activities which create minimal dust Includes, but is not limited to:</p> <ul style="list-style-type: none"> • installation of telephone and computer cabling • access to chase spaces • cutting of walls or ceiling where dust migration can be controlled.
TYPE C	<p>Work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies Includes, but is not limited to:</p> <ul style="list-style-type: none"> • sanding of walls for painting or wall covering • removal of floor coverings, ceiling tiles and casework • new wall construction • minor duct work or electrical work above ceilings • major cabling activities • any activity which cannot be completed within a single work shift.
TYPE D	<p>Major demolition and construction projects Includes, but is not limited to:</p> <ul style="list-style-type: none"> • activities which require consecutive work shifts • requires heavy demolition or removal of a complete cabling system • new construction.

Step 1

Source: South Dakota Department of Health

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(TJC) Environment of Care (EOC)

EC.02.05.07 - The hospital inspects, tests, and maintains emergency power systems.

- EP 1: Monthly – 30 second test of egress/task emergency lites
- EP 2: Annually – 1.5 hour test of battery powered egress and 30 minute test of sedation area lighting
- EP 3: Monthly – Test Level 1 SEPSS
Quarterly – Test Level 2 SEPSS
- EP 4: Weekly – Inspect EPSS
- EP 5: Monthly – E/gen load test 30 minutes
- EP 6: E/gen test load requirements
- EP 7: Monthly – Test all automatic and manual transfer switches
- EP 8: Annually – E/gen fuel test to ASTM standards
- EP 9: 36 Month – E/gen test for 4 hours
- EP 10: 36 Month - E/gen test load requirements

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Generator Testing



- NFPA 70
 - Article 700.3 (C & D) & 701.3 (C & D)
- NFPA 99
 - 6.3.2, 6.4.1, 6.4.2, 6.4.4
- NFPA 101
 - 7.9.3, 7.10.9, 18.2.9, 18.2.10
- NFPA 110
 - 4.1, 5.6.5, 7.3.1, 8.1.1, 8.3.8
- NFPA 111
 - 8.4

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(TJC) Environment of Care (EOC)

EC.02.05.09 - The hospital inspects, tests, and maintains medical gas and vacuum systems.

- EP 1: Medical gas systems designations (Cat 1,2 & 3)
- EP 2: Alarm systems meet NFPA 99:2012
- EP 3: Pressure vessels meet NFPA 99:2012
- EP 4: Signage for medical gas areas
- EP 5: Signage for pressure vessel storage areas
- EP 6: "Threshold pressure" considered empty and storage.
- EP 7: Per policy – Test/inspect/maint critical components
- EP 8: Bulk oxygen secure storage
- EP 9: Emergency oxygen supply connection
- EP 10: Testing for purity, correct gas and pressure
- EP 11: Medical gas supply and zone valves labels and access

See next page →

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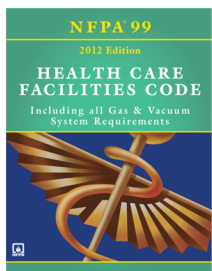
(TJC) Environment of Care (EOC)

EC.02.05.09 - The hospital inspects, tests, and maintains medical gas and vacuum systems.

- EP 12: Policy: Handling, transfer, storage, labeling, transfilling of cylinders
- EP 13: Transfilling not done in patient care room. Procedures
- EP 14: All other NFPA 99-2012 reqs for gas & vacuum systems are met

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NFPA 99 – 2012 Gas & Vacuum Systems



Topic	Category 1 Systems	Category 2 Systems	Category 3 Systems
Applicability	5.1.1	5.2.1	5.3.1
Nature of Hazards	5.1.2	5.2.2	5.3.2
Sources	5.1.3	5.2.3	5.3.6.21/5.3.7
Valves	5.1.4	5.2.4	5.3.6.19
Station Outlet/Inlets	5.1.5	5.2.5	5.3.6.18
Manufactured Assemblies	5.1.6	5.2.6	NA
Surface-Mounted Medical Gas Rails (MGR)	5.1.7	5.2.7	NA
Pressure and Vacuum Indicators	5.1.8	5.2.8	NA
Warning Systems	5.1.9	5.2.9	5.3.6.22
Distribution	5.1.10	5.2.10	5.3.7/5.3.8
Labeling and Identification	5.1.11	5.2.11	5.3.11
Performance Criteria and Testing - Gases, Medical-Surgical Vacuum, and WAGD	5.1.12	5.2.12	5.3.6.23/5.3.9
Operation and Management	5.1.14	5.2.13	5.3.13

Adobe Acrobat Document

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(TJC) Environment of Care (EOC)

EC.02.06.01 - The hospital establishes and maintains a safe, functional environment.

- EP 1: Interior spaces meet needs for safety and suitability
- EP 11: Lighting is appropriate
- EP 20: Patient areas clean and free of odors
- EP 26: Furnishings and equipment are safe and maintained

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Lighting Levels - Minimums

The screenshot shows the OSHA website page for lighting minimums. The page title is "Lighting Levels - Minimums". The content includes a search bar, navigation links, and a table of contents. The main content area is titled "Table 3-1 - MINIMUM ILLUMINATION SPECIFIED IN FOOT-CANDELS". The table lists various areas of operation and their corresponding minimum illumination levels in foot-candles.

Foot-Candle(s)	Area of Operation
1	General construction area lighting.
2	General construction areas, concrete placement, excavation and work areas, access ways, active storage areas, loading platforms, drilling, and field maintenance areas.
5	Industrial workrooms, machine, hallways, and walkways.
5	Production, office, and general underground work areas: (Illumination minimum of 10 foot-candles is required at tunnel and shaft heading during drilling, production, and mining; beams of flame approved up lighters shall be prohibited for use in the tunnel heading.)
10	General construction plant and shops (e.g., batch plants, concrete plants, maintenance and electrical equipment rooms, repair shops, storage lots and active storage areas, new halls, and indoor toilets and restrooms.)
20	Flares and machines, instruments, and offices.

Other areas. For areas or operations not covered above, refer to the American National Standard A11.1-2001, R2010, Practice for Industrial Lighting, for recommended areas of footcandle.

(TJC) Environment of Care (EOC)

EC.02.06.05 - The hospital manages its environment during demolition, renovation, or new construction to reduce risk to those in the organization.

- EP 1: New/altered/renovated construction meets relevant design criteria
- EP 2: Pre-construction risk assessment, including ICRA
- EP 3: Risk assessment is acted upon
- EP 4: CT/PET/NM structural shielding design assessment
- EP 6: CT/PET/NM radiation protection survey

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Renovation – ICRA/ILSM



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(TJC) Environment of Care (EOC)

EC.03.01.01 - Staff and licensed independent practitioners are familiar with their roles and responsibilities relative to the environment of care.

- EP 1: Staff are competent and receive continuing education
- EP 2: Staff can describe/demonstrate proper actions to take



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(TJC) Environment of Care (EOC)

EC.04.01.01 - Staff and licensed independent practitioners are familiar with their roles and responsibilities relative to the environment of care.

- EP 1: Process established to monitor, report and investigate incidents and hazards

Based on this process the hospital investigates and reports

- EP 3: Injuries
- EP 4: Work related illnesses
- EP 5: Property damage
- EP 6: Security issues
- EP 8: Hazmat incidents
- EP 9: Fire safety issues/concerns
- EP 10: Med/lab equipment issues
- EP 11: Utility system issues
- EP 15: Annual review/report

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(TJC) Environment of Care (EOC)

EC.04.01.03 - The hospital analyzes identified environment of care issues.

- EP 2: Data analysis results used to proactively identify environmental safety concerns

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(TJC) Environment of Care (EOC)

EC.04.01.05 - The hospital improves its environment of care.

- EP 1: Data analysis results used to proactively resolve environmental safety concerns



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02

Emergency Management

Elements of Performance

(TJC) Emergency Management (EM)

EM.01.01.01 - The hospital engages in planning activities prior to developing its written Emergency Operations Plan.

- EP 1: Leaders including medical staff participate in development
- EP 2: Hazard Vulnerability Analysis (HVA) conducted
- EP 3: Hospital & community response prioritized based on HVA
- EP 4: Hospital needs/risks communicated to Emergency agencies
- EP 5: HVA used by hospital as a basis for mitigation
- EP 6: HVA used to define preparations activities
- EP 7: Hospital and community Incident Command Structures (ICS) are integrated
- EP 8: Inventory on site of emergency resources and assets

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Hazard Vulnerability Analysis

HAZARD AND VULNERABILITY ASSESSMENT TOOL
 HUMAN RELATED EVENTS

EVENT	PROBABILITY	SEVERITY = (MAGNITUDE - MITIGATION)					RISK	
		HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPAREDNESS	INTERNAL RESPONSE		EXTERNAL RESPONSE
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	Preparation	Time, effectiveness, resources	Community Mutual Aid unit and supplies	Reactive threat*
SCORE	0 = High 1 = Low 2 = Moderate 3 = None	0 = High 1 = Low 2 = Moderate 3 = None	0 = High 1 = Low 2 = Moderate 3 = None	0 = High 1 = Low 2 = Moderate 3 = None	0 = High 1 = High 2 = Moderate 3 = Low or None	0 = High 1 = High 2 = Moderate 3 = Low or None	0 = High 1 = Moderate 2 = Low or None	0 - 100%
Mass Casualty Incident (Trauma)								0%
Mass Casualty Incident (Infectious/Disease)								0%
Terrorism, Biological								0%
VIP Situation								0%
Infant Abduction								0%
Hostage Situation								0%
Civil Disturbance								0%
Labor Action								0%
Forensic Admission								0%
Bomb Threat								0%
AVERAGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0%

*Threat increases with percentage.

RISK = PROBABILITY * SEVERITY
 0.00 0.00 0.00

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(TJC) Emergency Management (EM)

EM.02.01.01 - The hospital has an Emergency Operations Plan (EOP).

- EP 1: Leaders and medical staff participate in development
- EP 2: Written EOP is developed and maintained
- EP 3: EOP describes capabilities and response procedures
- EP 4: EOP describes recovery and restoration strategies
- EP 5: EOP describes initiation and termination of response and recovery
- EP 6: EOP identifies individual(s) who can activate the plan
- EP 7: EOP identifies alternative sites for care, etc.
- EP 8: In actual emergencies the hospital follows the plan

See next slide →

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(TJC) Emergency Management (EM)

EM.02.01.01 - The hospital has an Emergency Operations Plan.

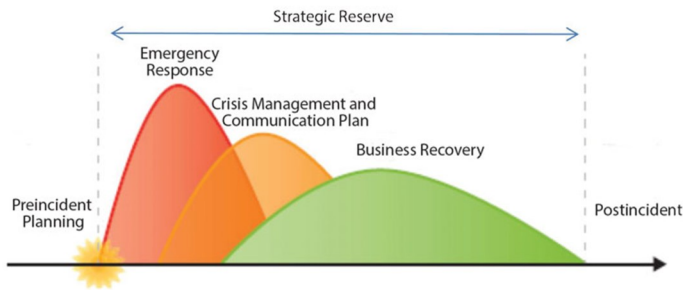
- EP 12: The EOP includes business continuity activities
- EP 13: Requirements for EOP if there are transplant center(s)
- EP 14: Procedure for 1135 waiver for alternative care site
- EP 15: EOP describes shelter arrangements for patients, staff & volunteers
- EP 16: Policies in place to support EOP

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Basic Emergency Management



Disaster & Recovery



(TJC) Emergency Management (EM)

EM.02.02.01 - As part of its Emergency Operations Plan, the hospital prepares for how it will communicate during emergencies.

The EOP describes:

- EP 1: Notification of staff that EOP initiated
- EP 2: Communication of information/instructions
- EP 3: Notification of external authorities of initiation
- EP 4: Communication during an event with external authorities
- EP 5: Communication/notification of patients/families
- EP 6: Communication with community & media
- EP 7: Communication with essential service/material suppliers
- EP 8: Communication with other healthcare organizations (HOs) in the area
- EP 9: Communication/coordination of response with other HOs

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(TJC) Emergency Management (EM)

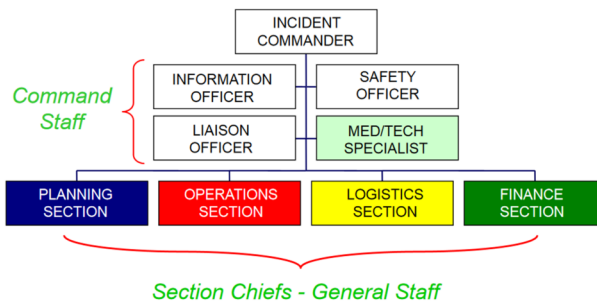
EM.02.02.01 - As part of its Emergency Operations Plan, the hospital prepares for how it will communicate during emergencies.

The EOP describes:

- EP 10: Communication/coordination of resources with other HOs
- EP 11: Process/circumstances for communicating patient status
- EP 12: Communicating patient status to third parties
- EP 13: Communication with alternative care sites
- EP 14: Backup systems/technologies for communications above
- EP 17: Implement parts of EOP that require advance preparation
- EP 20: Contact information maintained for Communication Plan (CP)
- EP 21: CP details providing condition/location to disaster agencies
- EP 22: Documentation kept of completed/attempted communications

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HICS Approach



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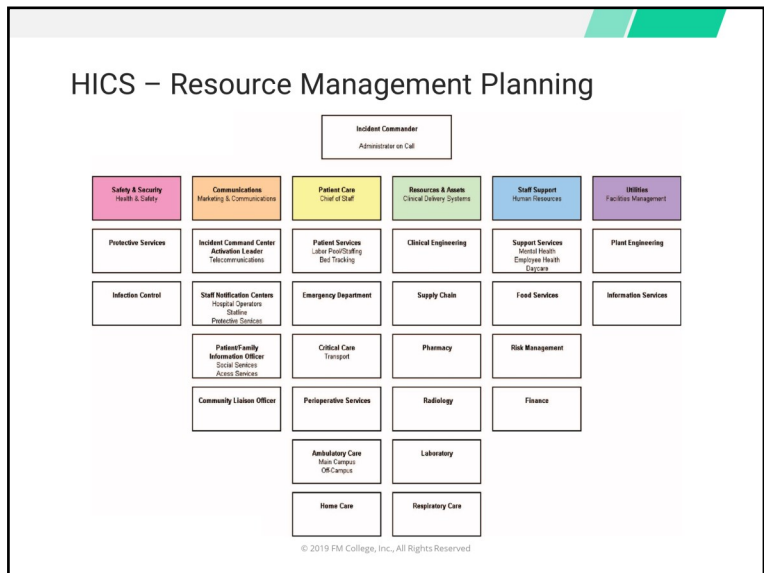
(TJC) Emergency Management (EM)

EM.02.02.03 - As part of its Emergency Operations Plan, the hospital prepares for how it will manage resources and assets during emergencies.

The EOP describes:

- EP 1: Obtaining and replenishing medication
- EP 2: Obtaining and replenishing medical supplies
- EP 3: Obtaining and replenishing non-medical supplies (food etc.)
- EP 4: Sharing of resources with other health care orgs & community
- EP 5: Sharing of resources with other health care orgs in region
- EP 6: Monitoring of resource stock levels
- EP 9: Transportation arrangements for patients/meds/supplies etc.
- EP 10: Transfer of patient info when moved to alternate sites
- EP 12: Components that require advanced preparation are implemented

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(TJC) Emergency Management (EM)

EM.02.02.05 - As part of its Emergency Operations Plan, the hospital prepares for how it will manage security and safety during an emergency.

The EOP describes:

- EP 1: Internal security/safety
- EP 2: Community security roles
- EP 3: Coordination of security with community agencies
- EP 4: Hazardous materials and waste
- EP 5: Radioactive/bio/chem isolation/decontamination
- EP 7: Access control during an emergency
- EP 8: Internal access control during an emergency
- EP 9: Vehicle access control during an emergency
- EP 10: Advance preparation implemented as needed

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Security During An Emergency



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(TJC) Emergency Management (EM)

EM.02.07.07 - As part of its Emergency Operations Plan, the hospital prepares for how it will manage staff during an emergency.

The EOP describes:

- EP 2: Roles/responsibilities for staff
- EP 3: Process for assignment to essential functions
- EP 4: ICS staff reporting structure defined
- EP 5: Management of staff support needs
- EP 6: Management of family support needs of staff
- EP 7: Staff are trained for their emergency roles

See next slide →

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(TJC) Emergency Management (EM)

EM.02.07.07 - As part of its Emergency Operations Plan, the hospital prepares for how it will manage staff during an emergency.

- EP 8: Communication with LIPs regarding their emergency roles
- EP 9: Identification of LIPs, staff and volunteers in emergency
- EP 10: Components requiring advance efforts implemented
- EP 11: On duty staff locations tracked during emergency
- EP 13: Training provided in advance of emergency
- EP 14: Use of volunteers during an emergency

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Staffing During An Emergency



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(TJC) Emergency Management (EM)

EM.02.02.09 - As part of its Emergency Operations Plan, the hospital prepares for how it will manage utilities during an emergency.

As a part of the EOP alternate means are developed for:

- EP 2: Electricity/lighting
- EP 3: Water for consumption/care
- EP 4: Water for equipment/sanitary
- EP 5: Fuel
- EP 6: Medical gas/vacuum
- EP 7: Other essential utilities (transport/hvac/sterilization etc.)
- EP 8: Advance planning implemented
- EP 9: Generator located as per NFPA 99, 101 and 110

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Re-Supply During Emergency



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(TJC) Emergency Management (EM)

EM.02.02.11 - As part of its Emergency Operations Plan, the hospital prepares for how it will manage patients during emergencies.

The EOP describes:

- EP 2: Scheduling, triage, admission, discharge etc.
- EP 3: Patient evacuation
- EP 4: Demand increase for vulnerable populations in emergency
- EP 5: Personal hygiene and sanitation
- EP 6: Mental health service patient needs
- EP 7: Mortuary services
- EP 8: Patient racking and clinical information
- EP 11: Advanced preparation implemented
- EP 12: System to track location of patients on site during an emergency

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Capacity Planning For Emergencies



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(TJC) Emergency Management (EM)

EM.03.01.01 - The hospital evaluates the effectiveness of its emergency management planning activities.

- EP 1: Annual review of HVA
- EP 2: Annual review of EOP
- EP 3: Annual review of inventory
- EP 4: Annual reviews forwarded to senior leadership

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(TJC) Emergency Management (EM)

EM.03.01.03 - The hospital evaluates the effectiveness of its Emergency Operations Plan.

- EP 1: 2x yearly - EOP activated as exercise at each site
- EP 2: 1x yearly - At sites that are receiving stations exercise includes patient influx
- EP 3: 1x yearly – Receiving station escalating drill w/o support
- EP 4: 1x yearly – Participate in community-wide exercise
- EP 5: Exercises incorporate likely scenarios
- EP 6: Individual designated during drill to monitor & evaluate
- EP 7: During exercises effectiveness of communication monitored
- EP 8: During exercises resource mobilization/allocation monitored

See next slide →

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(TJC) Emergency Management (EM)

EM.03.01.03 - The hospital evaluates the effectiveness of its Emergency Operations Plan.

During exercises the hospital monitors its management of:

- EP 9: Safety & security
- EP 10: Staff roles/responsibilities
- EP 11: Utility systems
- EP 12: Patient care activities
- EP 13: All exercises evaluated in multi-disciplinary process
- EP 14: Evaluation includes deficiencies and improvement opportunities
- EP 15: Evaluation results communicated to team & sr. leaders
- EP 16: EOP modified based on exercise evaluations
- EP 17: Subsequent exercises reflect EOP modifications

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EOP "Table Top" Drill



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EOP "Patient Influx" Drill



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EOP Community Drill



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(TJC) Emergency Management (EM)

EM.04.01.01 - If the hospital is part of a health care system that has an integrated emergency preparedness (IEP) program, and it chooses to participate in the IEP program, the hospital participates in planning, preparedness, and response activities with the system.

- EP 1: The hospital demonstrates its participation in the IEP through designation of staff and documentation of actions
- EP 2: Communication procedures implemented for the IEP
- EP 3: Hospitals policies, procedures and/or plans address its participation activities and roles in the IEP

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03

Life Safety

Elements of Performance

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(TJC) Life Safety (LS)

LS.01.01.01 - The hospital designs and manages the physical environment to comply with the *Life Safety Code* (LSC).

- EP 1: Individual(s) assigned to manage LSC and Statement of Conditions (SOC)
- EP 2: Hospital regularly schedules/performs LS assessment
- EP 3: Current/accurate LS drawings
- EP 4: 60-day timeframe met for survey related plan of improvement (SFPI)
- EP 5: Documentation of AHJ* inspections/approvals
- EP 6: Existing life safety features and new construction

* AHJ – Authority Having Jurisdiction

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Statement of Conditions TM Instructions



Statement of Conditions™ Instructions

EQUIVALENCY INSTRUCTIONS

The *Time Limited Waiver / Equivalency* job is a submitted page for organizations seeking additional time to complete a physical assessment (PC or CI) Requirement for Improvement (RFI) outside of the 60 days provided within the evidence of compliance (EC) submitted time or the Equivalency of an AHJ Life Safety Code Agency that cannot be corrected without major reconstruction.

A. Introduction

Occasionally building owners discover building features or deficiencies that are not compliant with the National Fire Protection Association (NFPA) Life Safety Code® (LSC), also known as NFPA 101-2012. The preferred course of action is immediately correct the deficiency. However, in some instances, the corrective action may pose a hardship to the organization and not directly impact patient, staff, or visitor safety. Under those conditions, the organization may submit a request for an equivalency to The Joint Commission for review.

B. Two Equivalency Types

The accredited organization may submit either a Traditional Equivalency or an FICS-based Equivalency.

1. **Traditional Equivalency:** A Traditional Equivalency is based on field certification by either the local fire marshal responsible for the safety of the building, a registered architect or Professional Engineer (PE), or a Certified Fire Protection Specialist (CFPS).
2. **Fire Safety Evaluation System (FSES) Equivalency:** The FSES Equivalency process was developed by NFPA. It objectively applies specific values to building features and allows deficiencies to be deducted from the building feature's numerical value. Once the calculations are completed, if the building score is zero or better, the building as evaluated would be considered compliant based on the FIC process and the identified deficiencies would not be considered a threat to occupants of the building. The NFPA 251A document does not specify qualifications of the submitter; however, The Joint Commission requires a thorough understanding of the Life Safety Code, NFPA 101A - 2012, either on Alternative Approaches to Life Safety, and the building(s) being evaluated.

C. Instructions for Submitting an Equivalency Request

To accurately respond to your Statement of Conditions™ (SOC) request, the Standard Interpretation Group (SIG) Engineers require you to follow the submittal process exactly. Any

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(TJC) Life Safety (LS)

LS.01.02.01 - The hospital protects occupants during periods when the *Life Safety Code* is not met or during periods of construction.

- EP 1: Written interim life safety measure (ILSM) policy
- EP 2: When LSC can't be immediately resolved appropriate actions, including ILSM are taken.
- EP 13: Training is conducted for staff/occupants regarding ILSMs implemented
- EP 14: Staff are trained to compensate for ILSMs based on policy
- EP 15: ILSM policy may specifically allow use of measures not detailed in Eps 2-14

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(TJC) Life Safety (LS)

LS.01.02.01 - The hospital protects occupants during periods when the *Life Safety Code* is not met or during periods of construction.

When the hospital identifies LSC deficiencies that can't be immediately corrected or during periods of construction:

- EP 3: Signage to alternate exits
- EP 4: Daily inspection of impacted exits
- EP 5: Temporary but equivalent fire alarm and detection systems
- EP 6: Additional fire-fighting equipment per policy
- EP 7: Smoke-tight temporary construction partitions per policy
- EP 8: Increased surveillance per policy
- EP 9: Storage/housekeeping/trash practices to reduce fire load
- EP 10: Additional training to staff on fire-fighting equip't
- EP 11: One additional drill/shift/quarter
- EP 12: Monthly – temporary systems inspected/tested

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ILSM Policy (Example)

BOF STANDARD OPERATING PROCEDURES

Section	Environmental Health and Safety	06/30/06 Effective
Subject	Occupational Safety and Fire Prevention	01/01/2012 - Revised
Policy	Interim Life Safety Risk Assessment Policy	Committee on Occupational Safety & Fire Prevention - Author

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: <ul style="list-style-type: none"> • 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. OFFPC) • 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.

Source: https://www.utmb.edu/bof/osfp/images/ILSM_POLICY.pdf

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Life Safety Occupancy Types

Health Care Occupancy



Ambulatory Health Care Occupancy



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Health Care Occupancy



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(TJC) Life Safety (LS)

LS.02.01.10 - Building and fire protection features are designed and maintained to minimize the effects of fire, smoke, and heat (Per LSC).

- EP 1: Construction height & type
- EP 2: Rehabilitation incorporates **LSC Ch. 18,19 & 43**
- EP 3: Change of use/occupancy complies
- EP 4: Additions comply
- EP 5: Buildings without automatic sprinklers comply
- EP 6: Continuous fire barriers comply
- EP 7: Fire rating of common walls comply

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(TJC) Life Safety (LS)

LS.02.01.10 - Building and fire protection features are designed and maintained to minimize the effects of fire, smoke, and heat (Per LSC).

- EP 8: Multiple occupancies in compliance
- EP 9: Fire ratings of openings/doors
- EP 10: Exit stairs, automated sprinklers, non-high-rise, 1 hr Rat'g existing buildings
- EP 11: Fire rated door hardware
- EP 12: Doors rated ¾ hr or higher free of decorations, etc.
- EP 13: Fire dampers in ducts penetrating fire walls
- EP 14: Penetrations are fire-stopped
- EP 15: All other LSC requirements met

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Chapter 43 Building Rehabilitation

43.1 General.

43.1.1 Classification of Rehabilitation Work Categories.

Rehabilitation work on existing buildings shall be classified as one of the following work categories:

- (1) Repair
- (2) Renovation
- (3) Modification
- (4) Reconstruction
- (5) Change of use or occupancy classification
- (6) Addition



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(TJC) Life Safety (LS)

LS.02.01.20 - The hospital maintains the integrity of the means of egress. (Per LSC)

- EP 1: Doors in "means of egress" locking requirements
- EP 2: Doors to patient sleeping rooms not locked except
- EP 3: Horizontal sliding doors requirements
- EP 4: Horizontal sliding doors serving less than 10 allowed
- EP 5: Walls with horiz. exits are rated 2 or more hours
- EP 6: Doors requirements for horizontal exits
- EP 7: Requirements when horiz. Exit walls terminate at 180°
- EP 8: Outside exit stairs firewall requirements
- EP 9: Handrails and guards for stairways and ramps

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(TJC) Life Safety (LS)

LS.02.01.20 - The hospital maintains the integrity of the means of egress. (Per LSC)

- EP 10: Signage – new stairs 3 + floors, existing 5 +
- EP 11: Capacity of means of egress
- EP 12: Fire exits discharge at grade level or thru approved passage
- EP 13: No interfering use of exits or refuge areas
- EP 14: Exits and path of egress clear of obstructions
- EP 15: Common closure of stairway doors when Fire system releases any door
- EP 16: 2 exits/egress paths from each floor, smoke compartment
- EP 17: Every corridor provides access to at least two exits
- EP 18: Corridors at least 8' wide in new buildings unless allowed

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(TJC) Life Safety (LS)

LS.02.01.20 - The hospital maintains the integrity of the means of egress. (Per LSC)

- EP 19: In existing buildings, exit corridors at least 48" clear
- EP 20: Existing exit doors at least 32" clear width
- EP 21: New exit doors at least 41½ " clear width
- EP 22: Exit doors free of mirrors, attachments, etc.
- EP 23: Doors to new mechanical rooms in exits no auto holds
- EP 24: Egress corridor width not obstructed by wall projections
- EP 25: New construction – no dead-end corridor longer than 30'
- EP 26: Patient sleeping rooms open directly onto exit corridor
- EP 27: Patient sleeping rooms > 1000' 2 exits also rooms > 2500'

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(TJC) Life Safety (LS)

LS.02.01.20 - The hospital maintains the integrity of the means of egress. (Per LSC)

- EP 28: Suites separated from rest of bldg. by smoke barriers
- EP 29: Suites subdivided by noncombustible partitions
- EP 30: 2 exits for patient sleeping suites larger than 1000'
- EP 31: 2 exits for suites not used for patient sleeping larger than 2500'
- EP 32: Existing buildings, patient sleeping suites < 5000'
- EP 33: New buildings, patient sleeping suites < 7500'
- EP 34: Patient care suites not used for sleeping < 10,000'
- EP 35: New buildings, patient travel distance to exit door
- EP 36: Existing buildings, patient travel distance to exit door

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(TJC) Life Safety (LS)

LS.02.01.20 - The hospital maintains the integrity of the means of egress (Per LSC).

- EP 37: Travel distances to exits measured per LSC
- EP 38: Means of egress automatically & adequately illuminated
- EP 39: Illumination in egress such that no one failed light will leave pathway dark.
- EP 40: Exit signs visible when path not apparent
- EP 41: "No Exit" signs posted where needed
- EP 42: Meet all other LSC means of egress requirements.

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(TJC) Life Safety (LS)

LS.02.01.20 - The hospital maintains the integrity of the means of egress.



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(TJC) Life Safety (LS)

LS.02.01.30 - The hospital provides and maintains building features to protect individuals from the hazards of fire and smoke (Per LSC).

- EP 1: New construction – vertical openings
- EP 2: New hazardous areas – self/auto closing doors (except)
- EP 3: Existing hazardous areas – self/auto closing doors (except)
- EP 4: Laboratories that are “severe hazard” LSC and NFPA 99
- EP 5: Req’ s residential/commercial cooking < 31 people/comp’t
- EP 6: Storage of alcohol-based hand rubs (ABHR)
- EP 7: Existing wall/ceiling Class A/B, New Class A only
- EP 8: New corridor floor finishes, auto-sprinkler, Class 2

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(TJC) Life Safety (LS)

LS.02.01.30 - The hospital provides and maintains building features to protect individuals from the hazards of fire and smoke (Per LSC).

- EP 9: Corridors separated by approved partitions (except open)
- EP 10: Existing buildings. Corridor wall partitions ½ hour
- EP 11: Corridors in sprinklered smoke compartments ceiling termination allowed
- EP 12: New buildings – corridor doors resist smoke (req’s)
- EP 13: Existing buildings – corridor doors resist smoke (req’s)
- EP 14: Smoke compartments w/o sprinklers – corridor fire windows
- EP 15: Openings in vision panels/doors corridor walls
- EP 16: Corridors to adjoining areas not used for air supply/return

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(TJC) Life Safety (LS)

LS.02.01.30 - The hospital provides and maintains building features to protect individuals from the hazards of fire and smoke (Per LSC).

- EP 17: New buildings 2+ smoke compartments/story
- EP 18: Existing buildings 2+ smoke comp'ts/ story 30+ sleeping
- EP 19: Smoke barriers / floor to floor & wall to wall
- EP 20: Doors in smoke barriers self-closing or auto, rated/req't
- EP 21: Un-sprinklered smoke comp't fixed fire window size
- EP 22: New buildings, smoke damper not req'd in wall duct
- EP 23: Smoke dampers req'd air transfer @ barrier in plenum
- EP 24: Patient sleeping areas require outside window or door
- EP 25: New buildings (7/5/16) sleeping room windowsill 36" expt.
- EP 26: Meet all other fire and smoke protection req'ts of LSC

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(TJC) Life Safety (LS)



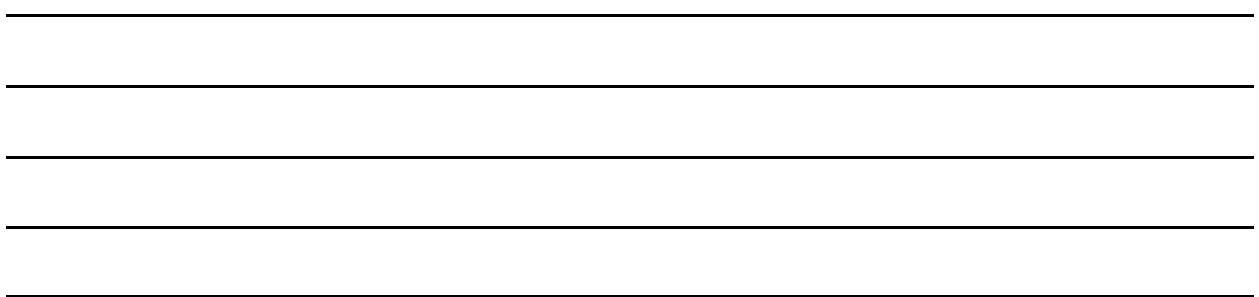
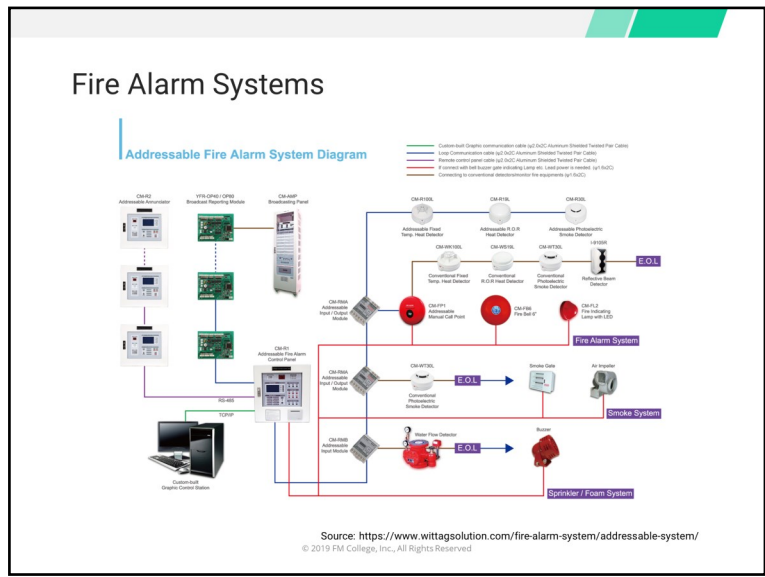
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(TJC) Life Safety (LS)

LS.02.01.34 - The hospital provides and maintains fire alarm systems (Per LSC).

- EP 1: Fire alarm system installed per NFPA 70 & 72
- EP 2: Master Fire Alarm Control Panel in protected area
- EP 3: Initiation of alarm by manual, sprinkler and add'l detectors
- EP 4: New buildings, auto notification by audible and visual means
- EP 5: Exist. buildings, auto notification by audible and visual means
- EP 6: Auto activation and alternate power supply
- EP 7: Auto transmission of alarm to monitoring service
- EP 8: Smoke detection systems as required
- EP 9: Ceiling membrane installed in manner to allow smoke detect.
- EP 10: Meet all other LSC fire alarm requirements

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(TJC) Life Safety (LS)

LS.02.01.35 - The hospital provides and maintains systems for extinguishing fires (Per LSC).

- EP 1: Fire alarm monitors auto-sprinkler system
- EP 2: Fire alarm system connected to water flow alarms
- EP 3: Pipe supports for sprinkler system in good repair
- EP 4: Sprinkler piping not used to support any other item
- EP 5: Sprinkler heads in good repair
- EP 6: 18 inches of open space below sprinkler to storage
- EP 7: At least 6 spare sprinkler heads and tools

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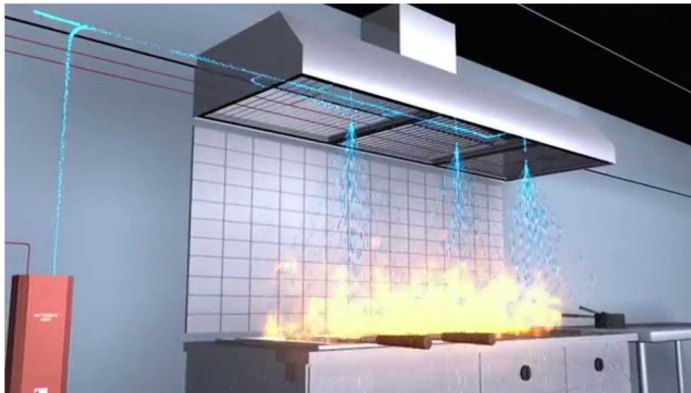
(TJC) Life Safety (LS)

LS.02.01.35 - The hospital provides and maintains systems for extinguishing fires (Per LSC).

- EP 8: Sprinklers not req'd in patient closets < 6 sq. ft.
- EP 9: New bldgs – quick response sprinklers, patient sleep rms
- EP 10: Travel distance to nearest portable extinguisher <75' (LSC and NFPA 10)
- EP 11: K-type extinguisher within 30' of grease-producing cooking (LSC and NFPA 96)
- EP 12: Exhaust hood for grease-producing cooking devices (LSC and NFPA 96)
- EP 13: Auto fire extinguishing system for grease-producing cooking devices – requirements (LSC and NFPA 96)
- EP 14: Meet all other LSC extinguishing requirements

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Kitchen Fire Systems



Source: <https://www.edison-fire.com/wp-content/uploads/2018/10/hqdefault.jpg>

(TJC) Life Safety (LS)

LS.02.01.40 - The hospital provides and maintains special features to protect individuals from the hazards of fire and smoke (Per LSC).

- EP 1: High-rise buildings have an approved automatic sprinkler system
- EP 2: Meet all other LSC extinguishing requirements

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Taiwan Hospital Fire



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(TJC) Life Safety (LS)

LS.02.01.50 - The hospital provides and maintains building services to protect individuals from the hazards of fire and smoke (Per LSC).

- EP 1: Equipment using gas complies with NFPA 54
- EP 2: HVAC equipment installed per OEM specs
- EP 3: Any heating device (other than central) no combustible material contact and auto shut-off
- EP 4: Suspended unit heater requirements
- EP 5: Direct vent fireplace req'ts – patient sleeping areas
- EP 6: Solid fuel-burning fireplaces in non-sleeping areas – req'ts
- EP 7: Elevator fire system requirements

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(TJC) Life Safety (LS)

LS.02.01.50 - The hospital provides and maintains building services to protect individuals from the hazards of fire and smoke(Per LSC).

- EP 8: Escalator/dumbwaiter/walk fire system requirements
- EP 9: Linen and waste chute door assembly requirements
- EP 10: Linen and waste chute door closing/latching req'ts
- EP 11: Linen & waste chute door assemblies same fire rating as the chute
- EP 12: Automatic sprinkler requirements for linen/waste chutes
- EP 13: Trash chute discharge areas
- EP 14: Meet all other LSC building service requirements

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(TJC) Life Safety (LS)

LS.02.01.70 - The hospital provides and maintains operating features that conform to fire and smoke prevention requirements (Per LSC).

- EP 1: Smoking prohibited where flammable/oxygen products used or stored
- EP 2: Ashtrays in permissible area – standards
- EP 3: Draperies, etc. comply with LSC
- EP 4: Un-sprinklered buildings – upholstery/mattress req'ts
- EP 5: Decorations – wall area limits
- EP 6: Soiled linen & trash bins > 32 gal. – storage req'ts
- EP 7: Smoke control systems testing per LSC and NFPA 92
- EP 8: Portable space heaters prohibited in patient areas
- EP 9: Meet all other LSC operating feature requirements

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Fire Barrier vs Smoke Barriers

Fire Barrier

- Fire resistant const. > 1 hour
- FR Rating 1 to 3 Hr
- Protective openings 75% of FR (except 3 hr is 3 hr PO)
- Fire/smoke dampers

Smoke Barrier

- Fire resistant const. > 1 hour
- FR Rating ½ hr or 1 hr
- Protective openings > 1/3 hr or solid door 1.75"
- Smoke dampers only

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THANK YOU

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