2015

Challenging Standards & Updates

George Mills, Director
Engineering Department
The Joint Commission
Performance Improvement

- Use EC.04.01.01 – EC.04.01.05 as a road map to improve the Environment of Care

- *Performance Improvement* should result in *improved performance*

- The Environment of Care Standards purpose is to improve patient safety
  - The Physical Environment can contribute to a successful patient outcome
## Dashboard

<table>
<thead>
<tr>
<th>Standard</th>
<th>Status</th>
<th>Action Plan</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC.02.06.01</td>
<td>2E, 2W</td>
<td>Patient rooms cold: Begin trap program</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
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<td>Start</td>
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</tr>
<tr>
<td>EC.02.05.01</td>
<td>OR 1, 4 &amp; 5</td>
<td>Upgrade AHU controls; update monitoring software</td>
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<td>Start</td>
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</tr>
<tr>
<td>LS.02.01.20</td>
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<tr>
<td>EC.02.03.05</td>
<td>OK</td>
<td></td>
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</tr>
<tr>
<td>LS.02.01.10</td>
<td>OK</td>
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</tr>
<tr>
<td>LS.02.01.30</td>
<td>Problematic</td>
<td>Attend Barrier Mgmt Symposium</td>
<td></td>
<td></td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>LS.02.01.35</td>
<td>3W; 4N</td>
<td>Train 3W &amp; 4N staff regarding shelved storage</td>
<td>OK</td>
<td>OK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC.02.02.01</td>
<td>OK</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>EC.02.05.09</td>
<td>OK</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>EC.02.05.07</td>
<td>OK</td>
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<td></td>
</tr>
</tbody>
</table>

See February 2015 Perspectives
Survey Process Enhancements
Improvements Pilot Tested

- Revised agenda for Life Safety surveyor
  - Evaluation starts upon arrival
  - Specified OR Survey time

- A single document list and tracking tool for both customers and surveyors

- Time allotted for primary surveyor responsibilities
Life Safety Survey Improvement Goals

- Increase thoroughness of Life Safety survey
- Promote consistency of Life Safety survey experience across surveyors
- Promote efficiency, allowing more time for building tour
- Encourage customer readiness
- Define mandatory Life Safety surveyor activities
- Establish guidelines for when Life Safety surveyor should conduct EC and EM sessions
Life Safety Survey Improvements

1. On arrival the first day of survey:
   - Request facilities representative escort to check fire alarm
   - Review eSOC (building plan & PFIs), waivers and equivalencies (History Audit Trail), ILSM P&P, fire response plan

2. Join team for Opening (*abbreviated attendance; ask to be excused*)

3. Skip team Surveyor Planning Session; conduct LS/EC focused Document Review

4. Survey ORs for pressure relationships immediately after Document Review (*provides HCO with max. time to correct*)

5. Conduct Building Tour (*increase sample size*)
Primary LSCS Survey Responsibilities

- LS.01.01.01 (SOC)
- LS.01.02.01 (ILSM)
- EC.02.03.01 (Fire Response Plan)
- EC.02.03.03 (Fire Drills)
- EC.02.03.05 (Fire Equipment Maintenance)
- EC.02.05.01 (EP 15 – Pressure Relationships)
- EC.02.05.07 (Emergency Power Testing)
- EC.02.05.09 (Piped Medical Gas Testing)
Survey Resource

To prepare for document review, the Survey Activity Guide has been updated to include “Life Safety and Environment of Care—Document List and Review Tool”

- This new resource is located on The Joint Commission website at http://www.jointcommission.org/life_safety_code_information__resources/
- This resource is also at the Joint Commission Connect™ extranet site
LS Pre-Survey Planning Tool

- Surveyor designed data recording tool
- Identifies information to gather from existing resources needed for survey
- Aids in planning on-site activity

Pre Survey Checklist

- Facility Location / Room: ____________________________  Survey Date: ________
- HCO #: __________
- BBR: ____________________________________________
- PP#: ____________________________________________
- History Audit Trail: ________________________________
- CMS Categorical Waivers: __________________________
- Previous Findings: ________________________________
- Team: __________________________________________

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LS/EC Document List & Review Tool

- Same tool for surveyor and organization
- Serves as organization prep tool and tracking tool during survey
- Identifies frequency requirements
- Relates to standard/EP
- Request reflects scope of survey
### EC Documents

The following document related to the identified Environment of Care Standards will be reviewed by the LSCS survey as time allows. If not reviewed by the LSCS survey, the documentation will be reviewed by the surveyor who performs the Environment of Care survey activity.

<table>
<thead>
<tr>
<th>STANDARDS</th>
<th></th>
<th>DOCUMENT</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EC 04.01.10</td>
<td>C</td>
<td>NO</td>
<td>NA</td>
<td>IOU</td>
</tr>
<tr>
<td></td>
<td>Environment of Care</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>EP 1</td>
<td>Leaders identify individuals identified to manage risk.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EP 2</td>
<td>Leaders identify all individuals to intervene.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EP 3</td>
<td>The hospital has written management plans.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMMENTS:**

<table>
<thead>
<tr>
<th>EC 04.01.10</th>
<th>C</th>
<th>NO</th>
<th>MA</th>
<th>IOU</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP 12</td>
<td>Environmental tours every six months in patient care areas</td>
<td>Semi-annual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EP 13</td>
<td>Environmental tours annually in non-patient care areas</td>
<td>Annual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EP 15</td>
<td>Every 12 months, hospital executives review ECM management plan</td>
<td>Annual</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMMENTS:**

<table>
<thead>
<tr>
<th>EC 04.01.10</th>
<th>C</th>
<th>NO</th>
<th>MA</th>
<th>IOU</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP 1</td>
<td>Multi-disciplinary analysis of care areas</td>
<td>Meeting Minutes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES: FOLLOW UP:**

If Primary Survey Responsibility completed and LSCS will be conducting the EC Session, review these documents.
# Building Tour Guidance

- Reflects what a tour should include
- Lists related standards/EPs
- Only guidance
- Does not reflect touring order

## Building Tour Guidance Tool

<table>
<thead>
<tr>
<th>Construction Areas</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify implementation of ILSMs at demolition, construction and renovation locations within the facility</td>
<td>LS.01.02.01 - EC.02.06.06</td>
</tr>
</tbody>
</table>

### MAIN Fire Alarm Control Panels

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>If panel is in not working in trouble without staff knowledge, it may be an immediate threat to life (ITL)</td>
</tr>
<tr>
<td>b</td>
<td>Installed in properly protected area</td>
</tr>
</tbody>
</table>

### MAIN Piped Medical Gas Panels

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Working condition of main medical gas alarm panels (i.e., trouble indications)</td>
</tr>
<tr>
<td>b</td>
<td>Continuously attended location (e.g., PBX, ED, etc.)</td>
</tr>
</tbody>
</table>

### Bulk Oxygen/Medical Gas Tank Farm or Main Medical Gas Storage Area

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Condition of equipment — status, open valves, piping, tanks flexible attached connections</td>
</tr>
<tr>
<td>b</td>
<td>Storage configuration and labeling (i.e., cylinder, precautionary room, sign, full/empty)</td>
</tr>
<tr>
<td>c</td>
<td>Outdoor storage (weather protection of outside weather for cylinders)</td>
</tr>
<tr>
<td>d</td>
<td>Proper labeling of main control and source valves</td>
</tr>
</tbody>
</table>

### OR Suite

Do this on early in the survey in order to allow the organization time to correct while on site. The review of the corrective action must include documentation that other areas supplied by the same air handler were not negatively impacted by the corrective work.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Pressure relationships; temperature/humidity levels</td>
</tr>
<tr>
<td>b</td>
<td>Surgical fire prevention activities</td>
</tr>
</tbody>
</table>

### MAIN Engineering Locations – boilers, chillers, electrical distribution hub

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Room – rated wall separation, penetrations, opening protection, fire proofing damage</td>
</tr>
<tr>
<td>b</td>
<td>Equipment problems - leaks, general maintenance issues</td>
</tr>
<tr>
<td>c</td>
<td>Minimal storage in Air Handling Control rooms (i.e., only AKU filters)</td>
</tr>
<tr>
<td>d</td>
<td>Eye wash station</td>
</tr>
<tr>
<td>e</td>
<td>Open J-boxes</td>
</tr>
</tbody>
</table>

### All Generators

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Overall condition of the generators - oil and coolant levels, clearances, check how batteries are maintained, amount of fuel on hand, cold weather protection</td>
</tr>
<tr>
<td>b</td>
<td>Battery powered emergency lighting with proper testing</td>
</tr>
<tr>
<td>c</td>
<td>Exiting from generator room</td>
</tr>
</tbody>
</table>

© Copyright, The Joint Commission
Relocatable Power Taps (RPT)

(aka Power Strips)
CMS is permitting a categorical waiver to allow for the use of power strips in existing and new health care facility patient care areas, if you are in compliance with all applicable 2012 LSC power strip requirements and with all other 2000 LSC electrical system and equipment provisions.

The organization must follow all requirements of the categorical waiver process

- This includes identifying where they are located at the unit level
Requirements

Power strips may be used in a patient care vicinity to power rack-, table-, pedestal-or cart-mounted patient care-related electrical equipment assemblies, provided all of the following conditions are met, as required by section 10.2.3.6:

- The receptacles are permanently attached to the equipment assembly.
- The sum of the ampacity of all appliances connected to the receptacles shall not exceed 75 percent of the ampacity of the flexible cord supplying the receptacles.
- The ampacity of the flexible cord is suitable in accordance with the current edition of NFPA 70, National Electric Code.
- The electrical and mechanical integrity of the assembly is regularly verified and documented through an ongoing maintenance program.
- Means are employed to ensure that additional devices or nonmedical equipment cannot be connected to the multiple outlet extension cord after leakage currents have been verified as safe.
Categorical Waiver Process

If the organization decides to use categorical waivers they must

1. Ensure full compliance with the appropriate code reference
2. Document the decision to adopt the categorical waiver
   - LS issues document in the SOC BBI Additional Comments
   - For Environment of Care items document by Minutes in discussion at the Environment of Care Committee (or equivalent)
3. Declare the decision at the beginning of any survey

See also November 2013 Perspectives
S&C 13-58-LSC

1. Openings in exit enclosures
2. Emergency generators and standby power systems
3. Doors, locking arrangements
4. Suites
5. Extinguishing requirements
6. Clean waste and patient record recycling containers
7. Medical gas alarms

Plus five previous: see S&C 12-21-LSC

1. Wheeled equipment and lifts in egress corridors
2. Fixed seating in egress
3. One alternative kitchen cooking arrangement
4. Direct vent gas fireplaces and solid fuel-burning fireplaces
5. Combustible decorations on walls, doors, and ceilings
Relative Humidity (RH)

- FGI Guidelines (2010) allows expanding the RH range from 35 – 60% to 20 – 60% RH
  - > 35 % RH is based on NFPA 99-1999, Section 5-4.1.1
  - 20 – 60% RH is based on ASHRAE 170-2008
  - See EC.02.06.05 EP 1

- CMS S&C 15-27-Hospital, CAH & ASC letter dated 2/20/2015
  - S&C 13-25-LSC & ASC permits hospitals and CAH to use a LSC categorical waiver to establish
Relative Humidity (RH)

CMS S&C 15-27-Hospital, CAH & ASC letter dated 2/20/2015 stated

- S&C 13-25-LSC & ASC permits hospitals and CAH to use a LSC categorical waiver to establish an RH level <35% in anesthetizing (i.e. OR) locations
- Before electing to use the categorical waiver hospitals and CAHs are expected to ensure the humidity levels in their ORs are compatible with manufactures instructions for use (IFUs) for supplies and equipment used in that setting
CMS Information

- Adoption of a more current Life Safety Code®
  - The proposal to adopt the 2012 Life Safety Code® is currently under internal review

- Emergency Management
  - There is an “end of year” deadline for publication that needs to be met
Score EC.02.03.01 EP 1 ...fire risk (volume)

- 12 ‘E’ cylinders (<300ft³) per smoke compartment (22,500ft²) may be open to the egress corridor in a rack or appropriate holders
- Between 300 and 3000ft³ must be stored in a room that is limited construction with doors that can be locked
- “In use” verses “in storage”
  - Properly secured to a gurney is considered “in use”
  - Properly racked is “in storage”
  - Empty are NOT considered part of the 12 in storage
Score EC.02.06.01 EP 1  Unsafe condition

- **Unsecured cylinders**
  - Laying on top a gurney mattress; leaning against the wall
  - Free standing
  - Comingling of full and empty cylinders

- **Transfilling liquid oxygen**
  - Transfer of any gases from one cylinder to another in patient care areas of health care facilities is prohibited.
  - Transfilling of liquid oxygen only in an area that is:
    - mechanically ventilated
    - sprinklered
    - ceramic or concrete flooring
    - separated with at least 1 hour construction from any patient care areas

**[Ranking From All Surveys]**

<table>
<thead>
<tr>
<th>Standard</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC.02.06.01: Built Environment</td>
<td>#1</td>
<td>#1</td>
</tr>
<tr>
<td>EC.02.05.01: Utility Systems Risks</td>
<td>#2</td>
<td>#3</td>
</tr>
<tr>
<td>LS.02.01.20: Means of Egress</td>
<td>#4</td>
<td>#4</td>
</tr>
<tr>
<td>LS.02.01.30: Protection</td>
<td>#8</td>
<td>#6</td>
</tr>
<tr>
<td>LS.02.01.10: General Bldg Req’s</td>
<td>#7</td>
<td>#7</td>
</tr>
<tr>
<td>LS.02.01.35: Extinguishment</td>
<td>#9</td>
<td>#8</td>
</tr>
<tr>
<td>EC.02.03.05: Fire Safety Systems</td>
<td>#6</td>
<td>#9</td>
</tr>
<tr>
<td>EC.02.02.01: HazMat &amp; Waste</td>
<td>#10</td>
<td>#10</td>
</tr>
</tbody>
</table>
EP 1 Interior spaces meet the needs of the patient population and are safe and suitable to the care, treatment and services provided

- The organization must provide a safe environment
  - Unsecured oxygen cylinders
    - Segregation
  - Ligature/self harm risks (i.e. BHC)

Note: Outdoor safety is scored at EC.02.01.01 EP 5
EC.02.06.01 EP 13

EP 13 The organization maintains ventilation, temperature and humidity levels suitable for the care, treatment and services provided

- **Ventilation:**
  - i.e. doors held open by air pressure; odors

- **Temperature:**
  - Hot / Cold calls

- **Humidity**
  - Primary concern is for areas >60%RH
    - Mold growth is possible

EP 20 Patient care areas are clean and free of offensive odors
#3 EC.02.05.01 EP 15  53%

Ventilation system is unable to provide appropriate pressure relationships, air-exchange rates and filtration efficiencies

- Specific areas lack
  - negative or positive pressures in relationship to adjacent areas
    - i.e. Endoscopy Processing Room should be negative to the egress corridor
  - the correct number of air changes per hour
  - Improper filtration
    - MERV = Minimum Efficiency Reporting Value
What is Ventilation?

- Ventilation is moving air from one location to another

Supply Air

- Outside air is conditioned by cooling or heating as the air moves through a series of coils
  - To save energy in some systems, the returned air is blended with outside air
- Next the air is cleaned by filters and discharged into the occupied space
- As the air moves through the building in ducts, the ducts pass through barriers (walls)
  - To protect the barrier dampers are in place
Ventilation

Exhaust System

- Removing the air from an occupied space is accomplished by the exhaust system
- Exhausted air is either removed from the building or re-conditioned and re-used
- As air is removed, it is replaced by supply air
  - This is how air exchanges occur
  - New air in, old air out
Screening

Tissue test: only to be used as a pre-screening tool to evaluate if further investigation needs to occur

- To perform the flutter test take a tissue and let it hang just off the floor near the bottom edge of a door
- If the tissue indicates incorrect air flow, stabilize the area by closing doors and windows, wait a few minutes and re-test
- If the organization presents a Testing & Balancing report the following questions should be asked
  - when was the balancing done (seasonal issues)
  - are any specific requirements (such as keeping a door closed) needed to achieve satisfactory results
Survey Process

EC.02.05.01 EP 15 will generate a CLD

- If the organization can repair the **process** that led to non-compliance the LSCS may review

- Following LSCS review, the LSCS may contact the Central Office to discuss the **possibility** of reducing the CLD to SLD, with no change to the finding

- Resolution should include the area affected by the equipment identified as non-compliant, not just the identified room/area
  - i.e. ensure zone is balanced
  - Is there an ongoing process to assess
Doors in a means of egress are not equipped with a latch or lock that requires the use of a tool or key from the egress side.

- Exception: locking based on clinical needs of the patients requiring security measures for their safety
  - Staff must be able to readily unlock such doors
- Exception 2 & 3: delayed (1) and access controlled doors allowed
The hospital maintains the integrity of the means of egress.

Anything in the egress corridor more than 30 minutes is storage.

Dead end corridors may be used for storage.
- Less than or equal to 50 sqft space.

Carts Allowed:
- Crash Carts
- Isolation Carts
- Chemo Carts
“If the corridor looks cluttered... ...it probably is”

- Educate Staff
  - What is the Risk?
    - Patient movement
    - Staff movement
    - Additional Staff responding to emergency patient care
The hospital provides and maintains building features to protect individuals from the hazards of fire and smoke.

- **EP2** Hazardous Areas
  - Primarily door issues
- **EP 11** Corridor Doors
Building and fire protection features are designed and maintained to minimize the effects of fire, smoke, and heat.

- **EP 5** Door issues
- **EP 9** Fire Barrier Penetrations

**Barrier Management**
Barrier Management Symposium

...at no cost to the attendee...
Barrier Management Symposium

Program Developers:
- Joint Commission
- Firestop Contractors International Association (FCIA)
- Underwriters Laboratories

Participating Organizations:
- American Society for Healthcare Engineering
- AWCI & Gypsum Institute
- Fire Damper Industry
- Fire Rated Glazing Industry
- National Concrete Masonry Association
EP 4: Piping for the AASS is not used to support any other item

Missing escutcheons

Ceiling tiles misplaced in rooms

Blocked access to fire extinguishers

Missing signage required in NFPA 13-1999

Quick response sprinklers mixed with other types in patient sleeping smoke compartments
## EC.02.03.05 EP 4  
**Inadequate Inventory**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DEVICE TYPE</th>
<th>VISUAL CHECK</th>
<th>FUNCTIONAL TEST</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Unit 2 West</td>
<td>All strobes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Nursing Unit 2 West</td>
<td>All horns</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Nursing Unit 2 East</td>
<td>All strobes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Nursing Unit 2 East</td>
<td>All horns</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4th Floor West</td>
<td>All strobes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4th Floor West</td>
<td>All horns</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4th Floor East</td>
<td>All strobes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4th Floor East</td>
<td>All horns</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Surgery West</td>
<td>All strobes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Surgery West</td>
<td>All horns</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Surgery East</td>
<td>All strobes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Surgery East</td>
<td>All horns</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
The hospital maintains fire safety equipment and fire safety building features.

- Features of fire protection
  - Inventory required to ensure all devices are tested
  - Documentation of testing is required
Need for Inventory

**EC.02.03.05 EP 1 – 20:**

- Each device that is required to be tested must be documented in an inventory
  - If \( x \) devices were tested last year, and \( x-1 \) were tested this year, which device was missed?
    - Each device must be on the inventory to identify which device was missed
    - Total number of devices (quantity) is not adequate
- Lack of an inventory (written, electronic or other) results in a finding at the EP
  - Findings solely for lack of inventory is **not** scored at EC.02.03.05 EP 25
EC.02.03.05

EPs 1 - 20:

- Missing documentation: score the EP as non-compliant
  - Also write a finding at EP 25 for *documentation not being readily available to the AHJ*
    - If acceptable documentation appears, finding at EP 1 – 20 might be removed during survey
    - EP 25 remains

LD.04.01.05 EP 4: Staff held accountable

- If 3 or more findings at EC.02.03.05 EP 1 – 20
EP 5: Personal Protective Equipment and the process to manage hazardous materials and waste handling and exposures
Eye Wash Station

Federal Requirements: OSHA

- Score Eye Wash issues at EC.02.02.01 EP 5
- Risk assess location / application based on OSHA recommendation to
  - reduce the risk of injury from contact with caustic and corrosive materials in areas such as
    - Power Plant
    - Lab
  - Placed so that the eyewash is within 10 seconds or 55 feet from where the corrosive chemicals is used
- Weekly flush until clear is required
- Annual inspection to ensure the system is fully functional
- Mixing valve recommended to achieve tepid
  - Risk assess potential exposure to determine if cold water only would be acceptable
Equipment Management

Medical Equipment:  EC.02.04.01, EC.02.04.03
Utility Systems:  EC.02.05.01, EC.02.05.05

APPLIES TO **HOSPITAL & CAH PROGRAMS**
EC.02.05.01

Standard EC.02.05.01
The hospital manages risks associated with its utility systems.

EC.02.05.01 EP 1
The hospital designs and installs utility systems that meet patient care and operational needs. (See also EC.02.06.05, EP 1)
EC.02.05.01 EP 2

The hospital maintains a written inventory of all operating components of utility systems or maintains a written inventory of selected operating components of utility systems based on risks for infection, occupant needs, and systems critical to patient care (including all life-support systems). The hospital evaluates new types of utility components before initial use to determine whether they should be included in the inventory. **For hospitals that use Joint Commission accreditation for deemed status purposes:** The hospital maintains a written inventory of all operating components of utility systems. (See also EC.02.05.05, EPs 1, 3-5)
Utility Systems & Operating Components

Utility Systems are those systems that support the use and function of the physical environment, such as the

- heating system
- the cooling system
- water distribution system
Utility Systems & Operating Components

Utility Systems are those systems that support the use and function of the physical environment, such as the

- heating system
- the cooling system
- water distribution system

Components on the inventory would include the equipment that is performance-related and delivers a measurable outcome.

- For example, the heating system may have the following components:
  - boiler, DA tank (de-aeration tank), feed water pumps, distribution (including circulation pumps, piping, and condensate return).

- Support parts to the components, such as belts, filters and steam traps, might not need to be individually listed, although they would likely be part of a preventive maintenance program.
  - Support parts of components such as pumps and motors might also be considered sub-components and may or may not be reflected on the inventory, depending on the maintenance strategies used.
EC.02.05.01  EP 3

The hospital identifies high-risk operating components of utility systems on the inventory for which there is a risk of serious injury or death to a patient or staff member should the component fail.

Note: High-risk utility system components include life-support equipment.
The hospital identifies the activities and associated frequencies, in writing, for inspecting, testing and maintaining all operating components of utility systems on the inventory. These activities and associated frequencies are in accordance with manufacturers’ recommendations or with strategies of an alternative equipment maintenance (AEM) program.

Note 1: The strategies of an AEM program must not reduce the safety of equipment and must be based on accepted standards of practice.

- An example of guidelines for physical plant equipment maintenance is the American Society for Healthcare Engineering (ASHE) book *Maintenance Management for Health Care Facilities*.

Note 2: For guidance on maintenance and testing activities for Essential Electric Systems (Type I), see NFPA 99, 1999 edition (Section 3-4.4).
For hospitals that use Joint Commission accreditation for deemed status purposes: The hospital’s activities and frequencies for inspecting, testing, and maintaining the following items must be in accordance with manufacturers’ recommendations:

- Equipment subject to federal or state law or Medicare Conditions of Participation in which inspecting, testing, and maintaining be in accordance with the manufacturers’ recommendations, or otherwise establishes more stringent maintenance requirements

- New operating components with insufficient maintenance history to support the use of alternative maintenance strategies
Note: Maintenance history includes any of the following documented evidence:

- Records provided by the hospital’s contractors
- Information made public by nationally recognized sources
- Records of the hospital’s experience over time
EC.02.05.01 EP 6

For hospitals that use Joint Commission accreditation for deemed status purposes: A qualified individual(s) uses written criteria to support the determination whether it is safe to permit operating components of utility systems to be maintained in an alternate manner that includes the following:

- How the equipment is used, including the seriousness and prevalence of harm during normal use
- Likely consequences of equipment failure or malfunction, including seriousness of and prevalence of harm
- Availability of alternative or back-up equipment in the event the equipment fails or malfunctions
- Incident history of identical or similar equipment
- Maintenance requirements of the equipment

For more information on defining staff qualifications, refer to Standard HR.01.02.01
EC.02.05.01 EP 7

For hospitals that use Joint Commission accreditation for deemed status purposes: The hospital identifies operating components of utility systems on its inventory that is included in an alternative equipment maintenance program.
The hospital minimizes pathogenic biological agents in cooling towers, domestic hot-and cold-water systems, and other aerosolizing water systems.
In areas designed to control airborne contaminants (such as biological agents, gases, fumes, dust), the ventilation system provides appropriate pressure relationships, air-exchange rates, and filtration efficiencies.

Note: Areas designed for control of airborne contaminants include spaces such as

- operating rooms
- special procedure rooms
- delivery rooms for patients diagnosed with or suspected of having airborne communicable diseases (for example, pulmonary or laryngeal tuberculosis)
- patients in "protective environment" rooms (for example, those receiving bone marrow transplants), laboratories, pharmacies, and sterile supply rooms
The hospital tests utility system components on the inventory before initial use and after major repairs or upgrades. The completion date of the tests is documented. (See also EC.02.05.01, EP 2)
Equipment Survey Process

Documentation is completed for High-risk, life support and non-life support devices on the inventory

- Accuracy of Inventory
  - All High-risk and Life Support equipment must be on the inventory and identified
  - Preventive maintenance frequencies must be clearly defined in writing

- Confirm work done as per scheduled activities
  - Ensure appropriate work is scheduled based on maintenance strategies
  - Evaluate equipment failure and scheduled actions
Evaluating Program Effectiveness

- The equipment management programs must have written policies & procedures

Evaluating the program:

- How is equipment evaluated to ensure no degradation of performance?
  - Consider mis-calibration of equipment
  - Consider test equipment calibration confirmation

- How are equipment-related incidents investigated?
  - Could the malfunction have been avoided?
  - Did the alternative maintenance strategy contribute to the malfunction?
  - How to sequester equipment deemed unsafe?
Evaluating Program Effectiveness: Miscellaneous Topics

- Survey should focus on High-risk equipment
  - Are appropriate operation manuals and maintenance schedules available?
- Verify the inspection, testing & maintaining activities and frequencies are documented
- Evaluate the various maintenance strategies used
  - Are they appropriate?
  - Are they effective?
  - Is the equipment reliable?
New Resource:

JCPEP

http://www.jointcommission.org/topics/the_physical_environment.aspx
High Reliability in the Physical Environment

Three Objectives

- Ensure life safety
- Ensure device stability
- Ensure continuity of the organization’s mission

System Elements

- Design
- Installation
- Equipment
- Inspection, Testing, and Maintaining
Physical Environment as a Priority

- Leadership must be aware that the clinical needs of the organization cannot be met if the physical environment fails
  - Leadership must show support to those responsible for the EC/LS programs
- Current physical environment requirements may be difficult to achieve with the current building technologies
- Facilities staff must be fully educated in operating and maintaining building systems
  - Includes code compliance and energy awareness
Leadership Challenge

- Why are Environment of Care compliance issues consistently and routinely out of compliance?
- What can be done to help hospitals come into compliance with these areas?
- How does non-compliance with these areas correlate with clinical risks?
Voice of the Customer Discussion

- **Fire Safety**
  - LS.02.01.20
  - EC.02.03.05
  - LS.02.01.35

- **Barriers**
  - LS.02.01.10
  - LS.02.01.30

- **Environment of Care**
  - EC.02.05.01
  - EC.02.06.01
  - EC.02.02.01
Voice of the Customer Discussion: Key Stakeholders

- Health Systems Corporate Liaisons
- Hospital Advisory Council
- HAC-HSCL Subgroup
- Consultants’ Forum
- Focus Groups
  - Surveyors
  - Hospital Staff
Voice of the Customer Comments

Hospital Staff Need Education

The Joint Commission should do the following:

- Create BoosterPaks on Barriers, Fire Safety, Environment of Care
- Add forms, checklists, and other tools to the Leading Practice Library
- Provide Facilities Managers with their own copies of *EC News* and *Perspectives*
- Encourage surveyors to do more teaching during the survey, to explain why compliance is important
- Reinstate the requirement for the building maintenance program
- Develop a repository for Life Safety and Environment of Care resources
- Conduct short, concise webinars on achieving standards compliance
Voice of the Customer Comments

Hospital Leaders Need to Be Engaged:

Hospitals should:

- Include Facilities Management as a module for newly hired leadership orientation
- Use performance improvement measures to monitor Environment of Care and Life Safety contracts
- Require that Senior Leaders received regular updates on Environment of Care and Life Safety Compliance Issues
- Involve facilities management staff and clinical staff in EC Tours/Rounds
- Use building equipment life cycle data to support requests for funding to replace/update old equipment
- Implement an “above the ceiling” permit policy
- Facilitate collaboration, and clarify responsibilities, between clinical staff and facilities management staff
Action Plan: JCPEP

Joint Commission Physical Environment Portal

Purpose: Provide guidance and education to reduce instances of non-compliance with the top eight EC/LS standards.

Target Audiences:
- Hospital Leaders
- Facilities Managers
- Clinicians
- Quality Coordinator/Leaders

Available on the Joint Commission website; links to the ASHE website
Action Plan

JCPEP Content:

- Provided at no cost
  - Joint Commission Home Page, TOPICS
  - www.jointcommission/JCPEP
- Limited to compliance strategies for the eight EC/LS standards that are most frequently cited as non-compliant
- Videos and pictures to illustrate compliance
- Articles, customer strategies, surveyor insights
- Fireside Chats
  - Two for each of the eight standards
  - Conducted every month
The purpose of this portal is to provide guidance and education to reduce instances of non-compliance with the top eight Environment of Care/Life Safety standards.

About this Portal

The Joint Commission has identified several Standards that have been frequently cited during survey activity over the past few years. This portal, in partnership with the American Society for Healthcare Engineering (ASHE), will provide information to reduce findings of non-compliance.

Focus of the Portal:

- Eight identified Standards
- Each Standard will be addressed over two months;
  - First month - requirements and compliance
  - Second month – Leadership, evaluating organization level compliance
- Improved patient safety with;
  - Best practices in the patient care environment
  - High Reliability practices for leadership to assess and ensure compliance

Get e-Alerts on the Physical Environment Sign up here
Mission:

To provide a single, authorized resource where information specific to frequently identified Standards and Elements of Performance (EP) of the Joint Commission can be accessed. This resource is to be free to all seeking this information. The specific Standards and associated EPs are discussed by the Joint Commission and possible solutions presented by Joint Commission Resources. The site is partnering with the American Society for Healthcare Engineering (ASHE) to provide world class examples of successful compliance from high reliability organizations.

The Physical Environment Portal:

A collaboration between The Joint Commission and The American Society for Healthcare Engineering

View Infographic

Joint Commission Resources

Web Store: Environment of Care Resources

Need Additional Information? JCR Consulting

Special Instructions

How to access JCR Web Store Content
Utility Systems EC.02.05.01

EC.02.05.01: The hospital manages risks associated with its utility systems

Standard Scoring Analysis

<table>
<thead>
<tr>
<th>Standard</th>
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<tbody>
<tr>
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An example of improved compliance for EP 1 and EP 15:

**Issue:** Protect Patients from Airborne Contaminates

Aging ventilation systems resulting in the inability to deliver desired air volume or quality, results in non-compliance identified during survey, scored at EC.02.05.01 EP 15.

**Risk:** Hospital Acquired Infections

Inability of the utility systems to operate as expected may result in air-borne contaminates negatively impacting an already compromised patient.

**Impact:** Harm to the Patients

Patients are not protected from airborne contaminates, and the organization is not considered to be a highly reliable organization.

**Mitigation:** Ensure Utilities Equipment effectively meets clinical needs

Equipment systems condition and reliability is evaluated by Facilities with Leadership, a strategic capital plan is created, and replacement equipment is scheduled and installed. Compliant at future surveys.
Is your hospital’s air ventilation system putting your patients at risk?

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EC.02.05.01 - Clinical Impact

This content includes information linking Environment of Care and Life Safety Code deficiencies and their impact on patient care and patient safety.

Standard Scoring Analysis - EC.02.05.01: The hospital manages risks associated with its utility systems

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According to the Centers for Disease Control (CDC), “There were an estimated 722,000 HAIs [Healthcare-Associated Infections] in U.S. acute care hospitals in 2011. About 75,000 hospital patients with HAIs died during their hospitalizations. More than half of all HAIs occurred outside of the intensive care unit.” [CDC Data & Statistics Web Page, 5/13/2015]

The CDC National Healthcare Safety Network (NHSN) Web Page, dated 5/13/2015 stated in the summary of the HAI Action Plan the following:

Healthcare-associated infections, or HAIs, are infections that people acquire while they are receiving treatment for another condition in a health care setting. HAIs can be acquired anywhere health care is delivered, including inpatient acute care hospitals…HAIs may be caused by any infectious agent, including bacteria, fungi, and viruses, as well as other less common types of pathogens. These infections are associated with a variety of risk factors, including:

- Use of indwelling medical devices such as bloodstream, endotracheal, and urinary catheters
- Surgical procedures
- Injections
- Contamination of the health care environment
- Transmission of communicable diseases between patients and healthcare workers
- Overuse or improper use of antibiotics

Contamination of the physical environment is fourth on the list in the CDC action plan.

Research:
Air changes per hour (ACH) is a measure of how many times the air in a defined space is replaced. Studies have shown a relationship between ACH and infectious
Utility Systems EC.02.05.01

EC.02.05.01: The hospital manages risks associated with its utility systems

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Example of Improved Compliance for EP 1 and 15

Issue: Protect Patients from Air-borne Contaminates

Risk: Hospital Acquired Infections

Impact: Harm to the Patients

Mitigation: Ensure Utilities Equipment effectively meets clinical needs

Properly designed and installed ventilation system reduces the concentration of airborne contaminants through dilution, filtration and pressurization.

Inability of the utility systems to operate as expected may result in air-borne contaminates negatively impacting an already compromised patient.

Airborne contaminates are a significant source of Healthcare-Associated Infections (HAI). HAI may adversely impact patients during their hospital stay.

Properly designed, installed and maintained ventilation systems contribute to reduction of HAI. Environmental controls will create a compliant patient care setting resulting in high reliability.

Example of Improved Compliance for EP 8

Tour: Inside an Air Handler

George Mills explains Ventilation

Tour: Discussing Pressure Differentials

The Top Five Hot Button Issues in EC: Ventilation

The Role of HVAC Systems in Preserving Patient Safety
EC.02.05.01 - The hospital manages risks associated with its utility systems.
(August/September 2015)

FOCUS ON EC.02.05.01

EC.02.05.01 - The hospital manages risks associated with its utility systems.
The following elements of performance are the most common reasons why hospitals are cited for EC.02.05.01. ASHE has provided resources to help hospitals address each of these elements of performance. Please note that additional resources will be added to this page throughout August and September 2015.

#1 - Inappropriate Room Pressurization [EP15]
#2 - Failure to Label Electric Panel [EP8]
#3 - Lack of Emergency Lighting [EP1]
#4 - Failure to Label Utilities [EP8]
#5 - Inappropriate Electrical Issues [EP1]
ROOM PRESSURIZATION

Certain rooms within a health care building should be positively or negatively pressurized with respect to surrounding areas. Positively pressurized rooms are usually designed to protect a patient, clean supplies, or equipment within the room. Negative pressure is used to contain airborne contaminants within a room. The 2014 FGI Guidelines/Standard 170-2013 provides lists of rooms that should be positively or negatively pressurized with respect to surrounding areas. The following are examples:

- Operating rooms
- Delivery rooms
- Trauma rooms
- Newborn intensive care
- Laser eye rooms
- Protective environment rooms
- Pharmacy
- Laboratory, media transfer
- Clean central medical and surgical supply rooms

A room may be pressurized so that it is positive with respect to adjacent areas for several reasons. It may be done to protect patients in operating rooms and protective environment rooms from airborne pathogens that may be present in adjacent areas. It may be done to protect sterile medical and surgical supplies in supply rooms from airborne contaminants that may be present in adjacent rooms. If these rooms are not properly pressurized, airborne contaminants from adjacent areas may be pulled into them. Increased concentrations of airborne bacteria, fungi, and viruses within these rooms may contaminate clean equipment or promote increases in nosocomial infections. Positively pressurized rooms are usually the cleanest environments in a hospital. Loss of positive pressure compromises the aseptic environment within the room.

According to the FGI Guidelines, the following are examples of rooms in hospitals and outpatient facilities that should be negatively pressurized with respect to adjacent areas:

- ER waiting rooms
- Radiology waiting rooms
- Triage
- Toilet rooms
- Airborne infection isolation (AII) rooms
- Darkrooms
- Cytology, glass washing, histology, microbiology, nuclear medicine, pathology, and sterilizing laboratories
- Autopsy rooms
- Soiled workrooms or holding rooms
- Soiled or decontamination room for central medical and surgical supply
- Soiled linen and trash chute rooms
- Janitors' closets

Rooms such as airborne infection isolation rooms are negatively pressurized with respect to adjacent areas to prevent airborne contaminants (e.g., microbial pathogens, chemicals) from drifting to other areas. Loss of negative pressure within these rooms allows unpleasant odors to migrate through the building and may promote the spread of airborne contaminants. One common use of airborne infection isolation rooms is for patients with active tuberculosis, a disease caused by the bacteria Mycobacterium.
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   Engineer

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   Engineer

Kathy Tolomeo, CHEM, CHSP
   Engineer

James Woodson, P.E., CHFM
   Engineer
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