Thoughts on How to Successfully Comply with Accrediting Organizations

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In 1984, I was a carpenter working in Minneapolis, specializing in sound recording studios. Prior to that I was an iron worker (machine operator and class B welder) for six years. Our construction company dissolved and I found an opportunity in a small college as a staff carpenter, which was managed by ServiceMaster (a third party management company). After a short time, I was offered an opportunity with ServiceMaster managing a School District in St. Paul. After six weeks of intensive training in plant operations, maintenance, environmental services, grounds, and construction, a decision was made by ServiceMaster to place me in a 160-bed hospital in central Minnesota as Director of Environmental Services instead of their Education Market. In this role, I was responsible for plant operations, maintenance, clinical engineering (HTM), environmental services, laundry, grounds, and construction.

Although I had no previous healthcare experience, I found myself immersed in the healthcare community with an incredibly supportive administration. In my office was the ServiceMaster binder system and their proprietary healthcare management program, their proprietary computer system which generated scheduled maintenance work orders, and a 1981 edition of the Life Safety Code® (NFPA 101-1981). During a staff meeting an announcement was made that the Joint Commission was due in the following year, approximately 18 months from then. After the meeting, the Administrator told me to come to his office. There he explained that the Joint Commission was a company associated with the Health Care Finance Administration (HCFA) and a successful survey was crucial. He then handed me the Joint Commission Plant Technology and Safety Management (PTSM) Standards and said this was the key to a successful survey for my department.

The PTSM Standards were written as a clear compliance guide to the various departments I was now managing. The ServiceMaster program provided a template for all aspects of our contract but needed to be customized for the hospital. For example, the template laid out the structure of the Clinical Engineering department, but my team expanded and provided support to

other regional hospitals, which was not in the templates. Construction projects were managed safely, but the Interim Life Safety Measures were too generic for our campus. Next, I found the Life Safety Code and began to read that, along with the *Guidelines for Construction and Equipment of Hospital and Medical Facilities* (1983-84).[1]

I was invited to attend a local American Society for Hospital Engineers (ASHE) Chapter meeting in Minneapolis. There I met several people who either had been or would later become ASHE Presidents and began to mentor me into the world of healthcare, sharing forms and other information. Between the support from ServiceMaster and the relationships with ASHE, I was able to develop a fully functioning and compliant program, guided by the Joint Commission PTSM Standards. During the survey, the surveyor complimented my work and program, suggesting I distribute it to others.

It was because of the Joint Commission PTSM Standards, ServiceMaster Support, and ASHE support that I was successful, and found myself fully committed to compliance. Around this time, I witnessed firsthand the impact on patient safety the codes and standards have. Reducing hospital acquired infections and improving the patient environment became a priority.

In 1990, I was promoted to a technical support position with ServiceMaster, a regional position with sixteen other experts. My area of expertise was in Joint Commission Compliance and Survey Readiness. In this role, I was brought into ServiceMaster's Chicago headquarters to develop a fully compliant management program for their healthcare clients, where all ServiceMaster's client hospital surveys were extremely successful. This was accomplished because ServiceMaster's leadership believed in supporting their customers by creating and supporting this team and included us in their management contracts. This team brought expertise to all clients in regulatory, plant operations and staffing management, which some clients would not have

[1] *Guidelines for Construction and Equipment of Hospital and Medical Facilities,* Published by the U.S. Dept. of Health and Human Services, Washington D.C. DHHS Publication (HRS-M-HF) 84-1 (1983/84 edition).

been able to afford without the contracted relationship. ServiceMaster did not hesitate to hire and promote staff that lacked healthcare experience, as they had developed a training program for all new hires and funded annual training for all managers. Like myself years before, these new hires were supported and provided with all the resources necessary for them to be successful, as well as our Technical Support Team. As part of this team, I was able to become active with the NFPA, HCFA (now CMS), ASHE, and Joint Commission.

In 1995, I was hired by the Joint Commission and worked in the Standards Interpretation Group (SIG) at the Central Office. This was the same year the Environment of Care (EC) Standards were introduced, replacing the PTSM Standards. Along with the EC Standards was the Statement of Conditions (SOC), which was a Life Safety Code audit program. Within the SOC was a provision to manage identified deficiencies referred to as the Plan for Improvement (PFI).

In 1997, I left the Joint Commission and joined the staff at ASHE as the Director of Codes and Standards. After two years ASHE downsized, and I became a consultant for two years. Next, I returned to ServiceMaster, but the day after I was hired, they were acquired by ARAMARK. I was assigned to a hospital that I had previously provided consulting services to in a Chicago suburb and managed plant operations and maintenance. Eventually ARAMARK promoted me to be the national Director of Compliance in 2004. The support network that ServiceMaster had was reduced in the acquisition, and eventually site support was compromised and became reactive support rather than proactive program support and integration.

I left ARAMARK in November 2004, and the following month I was hired by ASHE to help develop the training for the fifty new Joint Commission Life Safety Code Surveyors, which was held in the first week of January 2005. The day following the training I rejoined the Joint Commission and the SIG team.

While at the Joint Commission, we advocated for healthcare while working with CMS and their requirements. The Joint Commission standards were developed to first focus on patient safety and outcome, while other regulatory agencies seemed more focused on financial reimbursements.

CMS adopted the NFPA body of codes when they were formed in 1977 as part of Health and Human Services Act. This Act included a provision for managing Medicare and Medicaid, which is healthcare funding for the United States citizens, under the office of the Health Care Finance Administration (HCFA). HCFA changed its name to the Centers for Medicare and Medicaid Services (CMS) in July 2001.

The National Fire Protection Association (NFPA) Life Safety Code (LSC), evolved from a fire exit standard to become the Life Safety Code. It is also not a building code, so new buildings cannot be constructed using only the LSC requirements. The 2012 edition of the LSC has a Scope statement, found at "**1.1.2, Danger to Life from Fire.** The *Code* addresses those construction, protection and occupancy features minimize the danger to life from the effects of fire, including smoke, heat, and toxic gases created during a fire."[2]

CMS has several Accrediting Organizations that they have deemed equivalent when they evaluate healthcare organizations. These include Joint Commission; Det Norske Veritas Healthcare; Accreditation Commission for Health Care (ACHC); and Center for Improvement in Healthcare Quality. As part of the requirements of being an Accrediting Organization, each must follow the CMS requirements for complying with their Physical Environment section.

In the Code of Federal Regulations (CFR) are laws that must be followed. In the CFR under Title 42-Public Health is Part 482-subpart C. Within this Part is

[2] Life Safety Code®, NFPA 101-2012, Published by the National Fire Protection Association, Quincy, MA

§482.41 which are the Conditions of Participation: Physical Environment[3] requirements. Compliance is mandatory and not optional for those hospitals wanting to receive reimbursements from CMS for healthcare delivery. CMS has provided a State Operations Manual with several Appendices to define its requirements. It is here that the first requirement to follow the NFPA 101-2012, Life Safety Code is written at §482.41(b)(1)(i).

In May of 2016, CMS announced they were going to adopt the 2012 edition of the Life Safety Code, with a July 5, 2016 implementation date. To accommodate the Joint Commission publishing department, I was given 30 days to complete the re-write of the Environment of Care (EC) and the Life Safety Chapter (LS) for the Hospital and Ambulatory Care Accreditation programs. I had at my disposal the entire CMS requirements, our current EC and LS Standards and Elements of Performance (EP), and the 2012 Life Safety Code. Fortunately, I had significant exposure to this edition, which proved beneficial in re-configuring the sequencing of the standards. After I completed the EC chapter, I handed it to my team for review and audit, and I moved on to the LS chapter the second week. This was delivered to my team at the end of the week. In the third week, I worked on the Ambulatory chapters. After my team's internal review, the finished chapters were sent to the Department of Standards Development for their clean up. We ensured that the awkwardness of the code language was maintained during this process. Each EP was aligned with the CMS requirements to ensure a seamless transition. Also, I had the opportunity to create language that was more helpful to the end user in achieving compliance. The final document was sent to CMS for their approval, and we received general overall approval, with one exception. CMS required the Joint Commission to retire the Plan For Improvement process of the Statement of Conditions. In my opinion, this had a significantly negative impact on the management of the Life Safety Code.

[3] For additional information on CMS requirements in the Physical Environment go to the following CMS site: https://www.cms.gov/medicare/health-safety-standards/certification-compliance/life-safety-code-health-care-facilities-code-requirements

CMS did appreciate the Interim Life Safety Measures section in the LS Chapter and required we modify it to become part of the survey process.[4]

The key takeaway here is that the Joint Commission EC and LS chapters from 2017 – 2025 fully complied with the CMS Physical Environment requirements.

While I was at the Joint Commission, I was promoted to the Director of Engineering in 2011. Each year, we would publish a *Top Ten Findings* list from the previous year in the EC and LS Chapters. The intent was to focus on those areas that surveyors found non-compliant most often so that our accredited organizations could attend to these issues and avoid non-compliance for the benefit of the built patient care environments. I would share these findings at every conference I spoke at and included how to successfully manage corrective actions; many articles were written addressing how to comply; and eventually created a Joint Commission website linked to ASHE identifying the deficiencies and how to correct them.

Every year, the same Top Ten list was published. Unfortunately, the only changes were the order of the findings. Some years ventilation issues were at the top of the list, other years wires on sprinkler piping.

I had come to the point where I wondered if it was impossible to fully comply with these requirements. Some of these findings were identified in more than 50% of the Joint Commission Surveys each year. Were they just too hard to manage? Were the staff incapable of keeping wires off sprinkler piping? Was it impossible to manage the pressure differentials in critical spaces? Were we doomed to have contractors bust holes in our rated walls and not provide proper repair? And more importantly, how were we in the Physical

[4] The Interim Life Safety Measures (ILSM) is a Joint Commission original process where fourteen requirements are to be considered whenever a Life Safety Code deficiency is discovered, to provide alternative life safety during the identified deficiency period. A fifteenth was added to allow for situations that the original fourteen might not accommodate. During survey when a Life Safety Code deficiency is discovered, the surveyor will ask which ILSM will be implemented and add that to their finding, to create future accountability and ensure patient safety during the non-compliant condition.

Environment managing the built environment of patient care delivery, where our patients and the clinical staff that attended them were?

Finally in 2017, I left the Joint Commission to work for a company that allowed me the freedom to try different management strategies to achieve full compliance with these Top Ten findings and the remaining standards of the Joint Commission. I was looking for a lab to experiment with different thoughts and strategies. JLL offered me that opportunity.

In all my studies and trials, I became convinced that the only solution to full compliance with the expectations of the Joint Commission and requirements of CMS was through robust document management; accurate equipment inventories, associated maintenance strategies, and Zone Maintenance.

Document Management

Tracking activities to demonstrate compliance with established requirements is critical in affirming the program. The ability to self-audit is crucial in monitoring the program and its effectiveness. One of the best tools I have worked with is from Soleran. Their document management program is reliable and delivers reports that are accurate and meet the specific needs of the organization. The Soleran solutions also integrates with their other management modules and correlate the data to deliver real-time information.

Recently Soleran announced that they are releasing Soleran Oro Marketplace, where you can see the assortment of programs that all integrate with one another. For example, Rounding is an incredibly important management tool to evaluate the built environment, but also to meet and greet those people who are supported by operations. While Rounding, when a deficiency is identified, a work order is issued. Once issued, the work order is assigned and managed until completed. In future Rounding, the previously identified deficiency should be reviewed to affirm that the corrective action is

completed and the affected staff are satisfied. Soleran provides this support using several different modules, including customized dashboards.

Documenting permit use is also important to identify who might be impacting the physical environment. Managing access is the main solution to successfully managing barriers and other building features. Soleran has a mature approach to permit management, including five modules. The issues in the Top Ten around wires and other building features contacting sprinkler piping, as well as unknown penetrations can be successfully reduced with a robust Above Ceiling Permit Management program.

Allow me to provide a brief discussion of an Above Ceiling Permit Management program. First, enlist the clinical team and Environmental Services to be your eyes throughout the building, watching for anyone on a ladder working above a ceiling. You may want to consider putting a “bounty” on the person breaching the barrier and “reward” for the person reporting the incident to Facilities. For example, assume a person has been hired by a department to run cables above ceilings in a nursing unit, but failed to let Facilities know. At mid-morning a nurse is coming down the corridor and sees the person on a ladder. They do NOT engage, but at the nurse’s station call Facilities and let them know that a person is on a ladder in their unit. Once done, they continue their tasks. Meanwhile, Facilities sends Security to “round” in the unit, and on discovering the person on the ladder ask if they have a permit, as one is not evident. Affirming a permit was not issued, the contractor is told to pack up and leave the property. At the same time, they are informed that daily between 7am and 9am, permits are issued in Facilities. The next morning, it is likely the contractor is in Facilities asking about the permit. At this time, Facilities can discuss penetration training and establish that the products used are compatible with the organization’s standardized products. If not, a negotiated repair using the facility-approved product by the facility team could occur. Also, during this time enclosure management is discussed (if appropriate) and sprinkler pipe management (nothing in contact with any

sprinkler piping/system) is discussed and documented. Finally, the person who initially identified the person on the ladder is rewarded according to the organization's policy.

Equipment Management

Many healthcare organizations have a computerized maintenance management system (CMMS) to manage the inventory of their building systems and equipment. However, many of those inventories have become corrupted over the years as equipment is retired and replaced, new software updates may cause unexpected duplication of files, staff fail to accurately input data, etc. A change of vendor often results in migration of old and questionable data into their new platform, with questionable integrity of the data pool.

While with JLL, I was assigned oversight of ATG as their CEO. One of the initiatives we created while I was there was developing a team to go onsite to re-inventory all the physical plant assets and create a clean and accurate file for the client. Every facility leader I have talked with had a long-range desire to clean up their inventories but never had the resources on site to accomplish this. Some tried having the staff edit the CMMS Work Orders; others tried rounding to evaluate their inventories. Some just threw up their hands and admitted that they had no idea how accurate (or corrupted) their inventory was.

Today's CMMS can harvest and generate incredible amounts of data and reports. However, the integrity of data makes these reports suspect. When staffing issues are identified and the hours of scheduled maintenance are part of the discussion, what is the confidence factor of the data? Too many devices for the number of square feet managed or too few? Are the age and reliability of the equipment and infrastructure considered? Should equipment be replaced or reconditioned? Are redundancies considered in the risk assessment?

Has Alternative Maintenance been considered or implemented for each individual device or system component? Has the organization taken advantage of the CMS-allowed deviation from the occasional over-scheduling of the manufacturer's recommendation been applied? Using accurate data to compare reliability of the equipment against the maintenance hours logged to determine correct and sound management strategies often results in enhanced productivity.

Has Reliability-Centered Maintenance been considered or implemented? Evaluating the system rather than individual components may result in system reliability and reduced unplanned interruptions. Developing a series of failure modes that could impact reliability, based on risk and criticality, should result in effective maintenance strategies.

Ultimately, properly managed equipment and systems will result in patient care delivery without unplanned interruptions. The Equipment inventory managed by the CMMS and sound management of these assets can result in proactive outcomes based on data-driven decisions. New and evolving technologies that include machine learning models; sensors that detect out-of-range operation; maintenance scheduling based on real-time run rather than calendar activities are a few of the strategies that can be implemented, starting with a robust and accurate inventory.

Zone Maintenance

Zone Maintenance is similar to the Environmental Services Department model of deploying staff assigned to a specific patient care area and supported by Special Projects Staff. In a similar manner, the Zone Mechanic is assigned a specific area to manage and ensure full compliance with the codes and standards established by their accrediting organization (i.e. Joint Commission).

Many have considered implementing Zone Maintenance but haven’t because of a perceived lack of staff. What is not realized is that once the clinical

spaces are properly maintained general maintenance work requests are reduced, and staff coverage is modified accordingly. The biggest issue of implementation is the first time the Zone Mechanic works through their zone, correcting and repairing years of neglect. I refer to this period as Zone Repair. Once the Zone is repaired, we move into maintenance. The Zone Mechanic will begin by auditing their zone and identifying those deficiencies they can repair, and those that cannot be scheduled for additional help. This will require additional resources as deficiencies are identified.

For Zone Maintenance to be effective, each Zone Mechanic must realize they are the image of the department to our customers: the clinical team, the patient and their family, and all other building occupants. The goal of the Zone Maintenance program is to create a hazard free environment within the space and all equipment fully functional for care delivery. It is staffed by two teams, one the Zone Mechanic and the other the Support Engineering Team. Identify third-party contractors that may be available to the Zone Mechanic (i.e. painters or other trades people).

The Zone Mechanic is limited to the scheduled inspections, maintaining their Zone, completing tasks that can be accomplished within two hours, and light duty Preventive Maintenance (i.e. patient room unit heaters). The second team, the Support Engineering Team (SET) is designed to support the Zone Mechanic when work is identified that will likely exceed two hours. Also, the Support Engineering Team is responsible for all Mechanical Room Preventive Maintenance and other Facilities-based work.

Implementation issues to be Reviewed for the Zone Maintenance Program:

Zone Identification

1. Overview of the building
    a. Begin by taking a rough assessment of square footage, divided by 100,000$^{2'}$

   b. This will establish a rough estimate of Zone Mechanic coverage
2. Divide building into more specific zones, looking at opportunities to combine some spaces, and make the most effective use of resources
   a. Identify opportunities to flex into critical vs public spaces to flatten zones

Revise Organization Chart based on Zone Maintenance Staffing

Staff Identification and Training

1. Using a Skills Assessment, identify staff ability to perform general maintenance activities
2. Using a Personality Index, identify staff ability to interface with the general public, including patients and family members, clinical staff, and non-clinical staff
3. Schedule and conduct appropriate Zone Mechanic training

Operations of the Zone Maintenance Program

1. Introduce the concept of the Zone Mechanic to the clinical and non-clinical staff, including participation in Unit / Departmental Staff Huddles
2. Begin the Zone Maintenance program
3. Institute the Zone Maintenance concepts and policies, including
   a. How clinical and non-clinical staff initiate corrective work
   b. How second, third and weekend coverage occurs
   c. The schedule of inspections (8 – 9 AM)

Quality Assessment (KPI)

1. Conduct an Employee Satisfaction Survey with clinical and non-clinical staff to establish base lines
   a. Implement three levels of Quality Assessment
      i. Weekly the Zone Mechanic and Unit / Department Supervisor conduct a space walk around, documenting corrective actions identified

   ii. Monthly the Zone Mechanic, their supervisor the unit / Department Supervisor and Department Head conduct a tour, documenting corrective actions identified
   iii. Quarterly the Director of Facilities and the Nursing Director jointly tour 1/4th of the Zones for quality assessment
2. Convert findings into Dashboard

Defining the Zone Maintenance Program:

The program starts with analysis of building square footage, to develop zone boundaries. Next, identifying the appropriate staff for each zone. Finally, defining the parameters of activities for the Zone Mechanic based on services provided.

Zone sizes (approximate):
1. 85,000$^{2'}$ is the size for critical care areas
2. 100,000$^{2'}$ is the size of general care areas
3. 125,000$^{2'}$ is the size of public spaces

Critical Care Areas:
1. Operating Rooms (All Classes)
2. Caesarean Delivery Rooms
3. Rooms for patients diagnosed with or suspected of having airborne communicable diseases
   a. i.e. Airborne Infection Isolation Rooms
   b. Pulmonary or Laryngeal Tuberculosis
   c. Bronchoscopy
4. Patients in “protective environment” rooms
   a. i.e. Those receiving bone transplant rooms
5. Special procedure rooms that require a sterile field
6. Sterile supply/processing rooms and other sterile spaces
7. Laboratories (based on risk assessment)

8. Pharmacies (based on risk assessment)

Minimum inspection activities in Critical Care Areas

1. In critical care areas ensure the ventilation system provides appropriate
    a. control of Airborne Contaminants (such as biological agents, gases, fumes, dust)
    b. pressure relationships
    c. air-exchange rates
    d. filtration efficiencies
    e. temperature
    f. humidity
2. Equipment and furnishings in good repair

Patient Care and Non-Critical Care Areas

1. General Care Nursing Units
2. Clean and Soiled Utility Rooms in Acute Care Areas
3. Laboratories (Based on Risk Assessment)
4. Pharmacies (Based on Risk Assessment)
5. Diagnostic and Treatment Areas
6. Food Preparation Areas
7. Other Support Departments Based on Risk Assessment

Minimum inspection activities in Patient and Non-Critical Care Areas

1. In critical care areas the ventilation system provides appropriate
    d. pressure relationships
    e. temperature
    f. humidity
2. Equipment and furnishings in good repair

Non-Patient Care Areas, Public Space

1. Lobbies
2. Cafeteria
3. Administrative areas
4. Admissions
5. Office Space

Minimum inspection activities in Non-Patient Care Areas, Public Spaces

1. Equipment and furnishings in good repair

Details of the of the Zone Maintenance Program

The Zone Maintenance Program is designed to create an environment of care that effectively reduces the hospital acquired infections of patients and visitors while improving customer satisfaction. This will be accomplished by having a Zone Mechanic assigned to the space, providing a presence and quick response to any needs of the staff and patients in the zone.

It is important that the Zone Mechanic interface with the clinical care team and, together, create and maintain a healing environment. The buildings are divided into “Zones,” and a Zone Mechanic is assigned to a specific Zone. The primary function of this position is to conduct scheduled, planned inspection, maintenance and repair in the built environment, while responding to the needs of the zone occupants.

There are three fundamental components to the Zone Management Program.

1. Conducting a scheduled, formal inspection, maintenance, and repair program.
2. Responding to any needs of the occupants of the zone by the Zone Mechanic. Participating in daily huddles and, when appropriate, team meetings will create an opportunity to respond to staff and patient needs and also provide for sharing facilities related shutdowns or other associated events.
3. Component is managing corrective work requests identified by second or third shift staff.

Formal Inspection, Maintenance and Repair.
Each day while nursing is completing their patient rounds, the Zone Mechanic will conduct a scheduled inspection of the zone. The results of this activity will shape the remainder of the workday. The inspection topics rotate each day creating new dynamics while evaluating the built environment.

The Building Maintenance Program (ZMP) incorporates inspections into the daily work routine of the Zone Mechanic. Conducting daily scheduled inspections as part of the daily work routine provides a greater degree of building oversight and is more effective than conducting random inspections of the facility. The ZMP applies traditional maintenance strategies to the life safety features of the building. This performance-based program is designed to be an on-going process of inspection and repair. The program effectiveness is evident by the increased compliance, effectively reducing maintenance-related items failure and reduction of maintenance-related work requests.

A. Responding to any needs of the occupants, the Zone Mechanic actively integrates with the team working in the assigned zone. For example, during the daily huddle, the Zone Mechanic will participate with the rest of the team to coordinate scheduled maintenance shut downs or reschedule activities that may be disruptive to patient care delivery.

B. Corrective Maintenance.
   Occasionally deficiencies are discovered when the Zone Mechanic is not available. While the goal is to proactively identify and correct upon discovery of any deficiencies, there is a process to respond when conditions arise that need to be addressed. A communication log is posted in each zone for the team to identify issues needing attention. The first task the Zone Mechanic does on arrival is to check the log and develop a response.

   The response may be in the form of immediate attention and resolution or, when more time or resources are needed, a work order is generated.

Regardless, the originator will receive timely communication related to the status of the corrective actions.

C. Daily Routine

7am	Start in Shop stocking supplies
7:30 am	Check previous shifts *Corrective Requests* and manage
8am	Scheduled inspection
9 noon	Correct any deficiencies identified during Scheduled Inspection
Noon – 1pm	Lunch
1 – 3:30	General Maintenance in zone

D. Patient Interaction (Script)

The Zone Mechanic will greet all patients in their zone daily, if possible. The Zone Mechanic will use the following script to introduce themselves and then perform any quick fixes (i.e. light bulb change). Longer issues will be coordinated with the Facilities Supervisor and Nursing team to ensure there is not any patient care delivery interruption.

Hello, my name is _____ and I work in Facilities. If you don't mind, I would like to come in and check a few items in your room. Would this be a good time? (While scanning the room, checking lights, faucet for leak, etc.)

Have you noticed anything not working in your room? Is the temperature in the room good for you? Before I go, is there anything I could do for you? Thank you and have a good day.

Zone Mechanic exits the room.

Patient Room Maintenance Check List

When rounding in a patient room, please check the following items. Make any necessary repairs or generate a work order to ensure that all necessary repairs are made.

Name: _____ Date _____ Time _____ AM PM Room # _____

Lighting _____ •
Completed • Incomplete
Furniture _____

• Completed • Incomplete

Bedside Table _____ •
Completed • Incomplete
Over-bed Table _____ •
Completed • Incomplete
Chairs / Recliners _____ •
Completed • Incomplete
Plumbing _____ •

Completed • Incomplete

Leaks from plumbing fixtures _____ •

Completed • Incomplete

Pressure and flow rate at sink and shower _____ •

Completed • Incomplete

Proper drainage at sink, shower, and toilet _____ •

Completed • Incomplete

Condition of caulk around plumbing fixtures _____ • Completed • Incomplete

Loose toilet seats or Faucets_____ • Completed • Incomplete

TV (Picture / Sound quality) _____ • Completed • Incomplete

Function/remote (on/off, volume control, channels) __ • Completed • Incomplete

Electrical _____ • Completed • Incomplete

Switches, receptacles, cover plates _____ • Completed • Incomplete

Thermostat secured to wall _____ • Completed • Incomplete

Overall Room Condition Needing Attention **Circle the following:**

Door guards; flooring; Wall covering; bumper guards; wall condition; handrails; base cove; convector covers intact; pull cord height for nurse call in bathroom (6" from floor); other

_____ • Completed • Incomplete

PLEASE INDICATE WHAT WAS DONE TO RESOLVE ANY DEFICIENCY.

Zone Maintenance Activities

Ventilation

A**.** In critical care areas the ventilation system provides appropriate:

1. control of Airborne Contaminants (such as biological agents, gases, fumes, dust)
2. pressure relationships
3. air-exchange rates
4. filtration efficiencies
5. temperature
6. humidity

B. Areas served include the following and are screened weekly:

1. Operating rooms (all classes)
2. Special procedure rooms that require a sterile field
3. Caesarean delivery rooms
4. Rooms for patients diagnosed with or suspected of having airborne communicable diseases
   a. i.e. airborne infection isolation rooms
   b. pulmonary or laryngeal tuberculosis
   c. bronchoscopy
5. Patients in "protective environment" rooms (i.e. those receiving bone transplant rooms)
6. Laboratories (based on risk assessment)
7. Pharmacies (based on risk assessment)
8. Sterile supply/processing rooms and other sterile spaces

Note: For more information about areas designed for control of airborne contaminants, the basis for design compliance is the Guidelines for Design and Construction of Health Care Facilities, based on the edition used at the time of design (if available).

C. In non-critical care areas the ventilation system provides appropriate

1. pressure relationships
2. temperature
3. humidity

D. Areas served include the following and are screened monthly:

1. general care nursing units
2. clean and soiled utility rooms in acute care areas

3. laboratories (based on risk assessment)
4. pharmacies (based on risk assessment)
5. diagnostic and treatment areas
6. food preparation areas
7. other support departments based on risk assessment

Fire Barriers

A. Management of Fire Proofing – Vertically, Horizontally and in exposed areas.

1. Scheduled review of the conditions of fire protection on structural members and the subsequent repair of the deficiencies.
2. Fire barriers (both vertical, such as walls, and horizontal, such as floors) are examined on a routine basis.
3. Other areas include rated assemblies that are exposed to contact, such as machine and equipment rooms, storage areas with exposed structural members, basements, shell space used for storage, areas above ceilings where significant repair work has been performed.
4. The Zone Mechanic manages these assemblies. The Ceiling Permit Management Program is effective, as evidenced by a reduction of unidentified penetrations.

B. Duct Penetrations in 2-hr fire walls protected by dampers.

1. Two-hour fire barriers that have duct penetrations are required to have 1-½ hour rated dampers. These are required (NFPA 90A-2010) to be inspected at least once every six years in hospitals, and every four years in all other occupancies (including healthcare). This frequency is incorporated in the ZMP. The Zone Mechanic manages these inspections.

Fire Door Assemblies

A. Fire Doors – Positive latching.

1. The threshold of acceptance is for all doors to latch and resist the pressures of a fire trying to force a door open.
2. These assemblies shall be installed and maintained in accordance with NFPA 80–2010, and manufactures recommendations.
3. The Zone Mechanic manages these assemblies.
   a. Frequency of inspection for fire door latching: quarterly and annual.

   b. This inspection may include one full inspection by building maintenance staff the first and third quarters, general staff ensuring the door latches and noting the observation on the quarterly fire drill log during opposing quarters.

B. Fire Doors – Automatic/self closing.
   1. The threshold of acceptance is for all fire doors to close and be installed and maintained in accordance with NFPA 101-2012.
   2. The Zone Mechanic manages these assemblies.
      a. Recommended frequency of inspection for fire door closing: quarterly and annual.
      b. This inspection may include one full inspection by building maintenance staff the first and third quarters, general staff ensuring the door closes and noting the observation on the quarterly fire drill log during opposing quarters.

C. Fire Doors – Gaps and Undercuts.
   1. Because of the construction and materials that are used in door construction, it is not unusual for a door to move up to 1/8", creating a gap at the leading edge between pairs of doors.
   2. The Zone Mechanic manages these assemblies.
      a. Frequency of inspection for fire door latching: annual and quarterly.
      b. This inspection may include one full inspection by building maintenance staff one of the four quarters, general staff ensuring the door gap is < 1/8" and noting the observation on the quarterly fire drill log during opposing quarters. Routine maintenance may enable the organization to address these features of separation.
      c. Undercuts may occur as a result of damage to the door fit by impact (i.e. carts) or shrinkage.

D. Fire Doors – Applied coverings on doors.
   1. Non-rated protective plates greater than 16" should not be installed on 2-hour rated fire.
   2. This same requirement applies to coverings and decorations. This will only apply to those doors in 2 hour rated assemblies, both horizontal and vertical in nature.
   3. The Zone Mechanic manages these doors.

E. Protection of Hazardous Areas – Door Latching, and Self-closing Devices.

1. Adequate separation and containment of these areas shall be maintained.
2. The Zone Mechanic manages these areas. Inspection of the partitions and door hardware is in the ZMP.
3. Frequency of inspection for these doors latching: quarterly and annual.
    a. This inspection may include one full inspection by building maintenance staff the first and third quarters, general staff ensuring the door latches and noting the observation on the quarterly fire drill log during opposing quarters.

Smoke Barrier:

A. Management of Smoke Barriers.
    1. Penetrations in the smoke barrier will diminish a level of life safety. In all buildings, this becomes very important.
    2. The management of penetrations in smoke barriers should be included in a Ceiling Permit Management Program.
    3. The Zone Mechanic manages these assemblies.

B. Duct penetrations of smoke barriers by smoke dampers that do not meet the requirements of NFPA 101-2012 19.3.7.3.
    1. These duct penetrations are required (NFPA 90A-2010) to be inspected at least once every six years in hospitals, and every four years in all other occupancies (including healthcare).
    2. This frequency should be incorporated in the ZMP.
    3. The Zone Mechanic manages these assemblies.

C. Required smoke dampers in smoke barriers close upon activation of a local smoke detector that is located either within the duct system or corridor.
    1. These are required (NFPA 90A-2010) to be inspected at least once every six years in hospitals, and every four years in all other occupancies (including healthcare).
    2. This frequency should be incorporated in the ZMP.
    3. The Zone Mechanic manages these assemblies.

Smoke Barrier Doors

A. Smoke Barrier Doors – Self-closing Devices.

1. Adequate separation and containment of these areas shall be maintained.
2. Inspection of the partitions and door hardware should be scheduled in the ZMP.
3. The Zone Mechanic manages these assemblies.
    a. Frequency of inspection for smoke barrier door closing: annual and quarterly.
    b. This inspection may include one full inspection by building maintenance staff in one of the four quarters, general staff checking the operation of the door, and logging the observation on the quarterly fire drill log during opposing quarters.

B. Smoke Barrier Doors – Gaps and Undercuts.

1. Because of the construction and materials that are used in door construction, it is not unusual for a door to move up to 1/8" and create a gap at the leading edge between pairs of doors.
2. The Zone Mechanic manages these assemblies.
3. Frequency of inspection for smoke door gaps and undercuts: annual and quarterly.
    a. This inspection may include one full inspection by building maintenance staff in one of the four quarters, general staff ensuring the door gap is < 1/8" and noting the observation on the quarterly fire drill log during opposing quarters.
    b. Routine maintenance may enable the organization to address these features of separation.
    c. Undercuts may occur as a result of damage to the door fit by impact (i.e. carts) or shrinkage.

Smoke Barrier Doors - Applied plates and coverings

A. Non-rated protective plates (factory or field installed), unlimited in height, are allowed.

Corridor Separation

A. Corridor Separation – slab to slab/penetrations, unsprinklered.

1. Penetrations in the corridor walls will diminish a level of life safety. In an unsprinklered building, this becomes very important.

2. The corridor wall assembly is 30 minutes for existing and no rating for new construction.
3. The corridor doors are not required to comply with NFPA 80-2010 (although they must latch).
4. The management of penetrations in corridor walls in unsprinklered buildings is important in protecting patients.
5. The Zone Mechanic manages these corridor walls.

B. Corridor Separation – slab to slab/penetrations, sprinkler protected.

1. Penetrations in the corridor walls will diminish a level of life safety. In an unsprinklered building, this becomes very important.
2. The LSC allows for an exception in a fully sprinklered compartment (see NFPA 101-2012, 18.3.6.2 and 3.6.2).
3. The management of penetrations in corridor walls in unsprinklered buildings is important in protecting patients.
4. The Zone Mechanic manages these assemblies.

Corridor Doors.

A. Corridor Doors – Hardware and Installation**.**

1. The LSC requires corridor doors to be hinged (see NFPA 101-2012, 18/19.3.6).
2. The facility should determine the correct structural features. Once this is determined, the doors should be included in the Building Maintenance Program (i.e. review for hinges binding on the jamb).
3. Inspection may be incorporated in semi-annual hazard surveillance tour (annual in non-patient care areas).
4. The ZMP program should address latching, closures, fit and any other obstructions (i.e. wedges).
5. The Zone Mechanic manages these assemblies.

B. Corridor doors free of non-rated protective plates >48" above bottom of door.

1. Non-rated protective plates greater than 48" (measured from the bottom of the door edge) should not be installed on existing corridor doors.
2. The Zone Mechanic manages these assemblies.

3. Examples of managing this could include pre-established building/renovation/remodeling specifications restricting this practice.

Means of Egress (Exit Access, Exit and Exit Discharge)

A. Exit Access – Exits Free of Clutter. (NFPA 101-2012, 18/19.2.3.4)
   1. Organizations should have a management process in place to monitor and correct clutter in exit corridors.
   2. The threat to life includes obstruction of traffic by storing equipment (including beds, wheel chairs, etc.) in an approved exit, combustion loading of an exit passageway, and potential trip hazard.
   3. Organizations should be able to demonstrate a program for educating staff regarding keeping corridors uncluttered and orderly. Some organizations keep wheeled equipment to one side of the corridor, with the understanding that in an emergency situation staff clear the corridor. This is acceptable only if staff is aware of, and able to, clear the corridor promptly. Risk Assessment of this practice should occur to be able to defend this methodology.

B. Exit Access – Waiting areas open to the corridor.
   1. The waiting areas that are open to the corridor must comply with NFPA 101-2012 18/19.3.6.1 and arranged to not obstruct access to required exits.
   2. Contents in a waiting area that is open to the corridor should not interfere with the egress pathway.
   3. The Zone Mechanic evaluates these areas.
   4. Management of contents is within their position.
   5. Environmental Tours could include review of these spaces, at least twice a year.

C. Furnishings, decorations, or other objects placed so as to not obstruct access, egress, or visibility of egress.
   1. During environmental tours, staff could be monitored to ensure furnishings, decorations or other objects do not obstruct egress or the visibility of egress.
   2. The organizations should be able to produce this evaluation in written documents.

D. Exit Access – Combustible decorations are prohibited.
   1. Organizations should have policies & procedures addressing the inappropriateness of using combustible decorations throughout the building.
   2. These organizations should be able to show by performance (i.e. staff interviews and environmental tour results) that they are compliant with this policy.

E. Exit Access and Exit – Exit access doors and exit doors are free of mirrors, hangings, or draperies that might conceal, obscure or confuse the direction of exit**.**
   1. During environmental tours, staff could be monitored to ensure exit access doors and exit doors are always readily visible.
   2. The organizations should be able to produce this evaluation in written documents.

F. Exit – Doors in a means of egress are always unlocked in the direction of egress and those that serve >50 occupants are set to swing in the direction of egress
   1. These can be easily incorporated into regular door checks, along with any other routine activity that evaluates items of life safety dependent on staff monitoring, such as exit signs adequately illuminated.

G. Exit - Components of the Exit Passageway: Exit Stair Doors, Exit Passageways, and Horizontal Exits.
   1. Once an occupant enters any of these components, they should find themselves en-route to safety.
   2. These areas should be considered a priority in the Building Maintenance Program.
   3. Latching and closures must be monitored more frequently than a three year cycle, as deficiencies should not be acceptable at any time.
   4. Recommended frequency of inspection for these components of the exit passageway: quarterly.
      a. This inspection may include one full inspection by building maintenance staff in the first and third quarters, general staff

ensuring the door latches and noting the observation on the quarterly fire drill log during opposing quarters.

H. Exit Discharge – Snow and Ice
   1. Any means of egress shall be maintained free from the accumulation of snow and ice.
   2. This may be accomplished with the use of awnings, roofs, or a Maintenance Policy & Procedure identifying appropriate protocol for clearing/maintaining these areas.

I. Means of Egress Illumination and Exit Sign Illumination
   1. If egress lighting or signage is lacking, it must be corrected.
   2. The Zone Mechanic monitors the proper function of emergency egress lighting and signage lamping.
   3. The Zone Mechanic monitors failures and adjusts frequency for inspection accordingly.
   4. Initially, inspection frequency could coincide with the fire drills, and staff could identify any deficient lighting situations that are identified.

Electrical

A. Electrical distribution must be safe and maintained.
B. Open electrical junction boxes, open spaces in electrical distribution panels
C. No extension cords being used as a permanent solution
D. Relocatable Power Tap (RPT) properly used and in good condition
E. Electrical receptacles are labeled and in good repair.
   a. Document any failures of hospital grade outlets in patient rooms

Sprinkler piping not used to support anything other than the sprinkler system; Clear Space ≥ 18" Below Sprinkler Head Deflector to Top of Storage; and sprinklers in good repair.

A. Sprinkler support system is not damaged or loose.
   1. Nothing may come in contact or be supported by sprinkler system piping.
   2. This includes the sprinkler system hanging system.
   3. Sprinkler heads are not damaged.

4. They are also free from corrosion, foreign materials, and paint and have necessary escutcheon plates installed.

Clear Space ≥ 18" Below Sprinkler Head Deflector to Top of Storage.

A. Organizations have policies & procedures addressing keeping the area below sprinkler head deflectors (from the bottom of the head to an area 18" below) as clear space.
   1. Perimeter shelving may extend to the ceiling when not located directly below any sprinkler head.
   2. These organizations should be able to show by performance (i.e. staff interviews and environmental tour results) that they are compliant with this policy.
   3. The Zone Mechanic will monitor this requirement.

B. Sprinkler heads are not damaged.
   1. They are also free from corrosion, foreign materials, and paint and have necessary escutcheon plates installed.

Medical Gas piping, shut off valves properly labeled, and cylinder handling management.

A. The hospital makes **main supply valves and area shutoff** valves for piped medical gas and vacuum systems accessible and clearly identifies what the valves control.
   1. **Piping** is labeled by stencil or adhesive markers identifying the gas or vacuum system, including the name of system or chemical symbol, color code (see NFPA 99-2012: Table 5.1.11), and operating pressure if other than standard.
   2. Labels are at intervals of 20 feet or less and are in every room, at both sides of wall penetrations, and on every story traversed by riser.
   3. Piping is not painted.
   4. Shutoff valves are identified with the name or chemical symbol of the gas or vacuum system, room or area served, and caution to not use the valve except in emergency. (For full text, refer to NFPA 99-2012: 5.1.4; 5.1.11.1; 5.1.11.2; 5.1.14.3; 5.2.11; 5.3.13.3; 5.3.11)

B. Cylinder Handling Management, cylinders must be handled as described below:

1. Proper handling and transporting (for example, in carts, attached to equipment, on racks) to ensure safety
2. Physically segregating full and empty cylinders from each other in order to assist staff in selecting the proper cylinder
3. Labeling empty cylinders
4. Prohibiting transfilling in any compartment with patient care

The following are Joint Commission requirements that are not supported by NFPA 99-2012

1. Partially filled cylinders must be identified and managed by policy
2. Individual transport holders are to be only used for transport and not storage
   a. If found in the transport holder in the storage area, considered non-compliant
3. Remove all transportation wrapping, including the plastic mesh silencing wrap and discard properly

Linen and Waste Chutes.

A. The following components should be inspected as part of the ZMP.

1. The Zone Mechanic inspects these components.
2. Recommended frequency would be quarterly.
3. If latches/self-closing devices were broken, it would be expected that these would be repaired the same day.

Ø Inlet doors – latching Ø Inlet doors – automatic/self-closing devices

Ø Outlet doors – latching Ø Outlet doors – automatic/self-closing devices

B. Trash Collection Rooms with collection chutes – Storage.

1. The organization has a policy and procedure prohibiting storage in these locations.
2. With the chutes, a possible chimney effect may occur and should be limited to only appropriate combustion loading.

3. Recommended frequency of Maintenance: incorporated into Hazard Surveillance tours.

Portable space heating devices are prohibited in patient treatment and sleeping rooms

A. Organizations should have policies & procedures addressing the inappropriateness of using portable space heaters in patient treatment and sleeping rooms.
   1. These organizations should be able to show by performance (i.e. staff interviews and environmental tour results) that they are compliant with this policy.
   2. Local area smoke alarm in staff sleeping room accommodations. These are often local and not hard wired. If so the Zone Mechanic will routinely check and replace the battery.

Related grease producing devices

A. The NFPA provides specific information regarding on-going maintenance and inspection of these components. For example, NFPA 96-2011:

   11.2.4 Fusible links of the metal alloy type and automatic sprinklers of the metal alloy type shall be replaced at least semiannually except as permitted by 11.2.6 and 11.2.7.

   11.2.6* Detection devices that are bulb-type automatic sprinklers and fusible links other than the metal alloy type shall be examined and cleaned or replaced annually.

   11.2.7 Fixed temperature-sensing elements other than the fusible metal alloy type shall be permitted to remain continuously in service, provided they are inspected and cleaned or replaced if necessary in accordance with the manufacturer's instructions, every 12 months or more frequently to ensure proper operation of the system.

B. Hoods
   1. Regarding hoods, NFPA 96-2011, 11.6.2 states:
      Hoods, grease removal devices, fans, ducts, and other appurtenances shall be cleaned to remove combustible contaminants prior to surfaces becoming heavily contaminated with grease or oily sludge.

2. **The appendix to NFPA 96-2011, 11.6.2 adds:**
   Hoods, grease removal devices, fans, ducts, and other appurtenances should be cleaned to remove combustible contaminants to a minimum of 50 µm (0.002 in.).
   When to clean: A measurement system of deposition should be established to trigger a need to clean, in addition to a time reference based on equipment emissions. The method of measurement is a depth gauge comb, shown in Figure A.11.6.2, which is scraped along the duct surface. For example, a measured depth of 2000 µm (0.078 in.) indicates the need to remove the deposition risk. The system would also include point measurement in critical areas. For example, 3175µm (0.125 in.) in a fan housing requires cleaning.
   NOTE: It is up to the facility to ensure that these devices are clean and functional. The Appendix is suggested practice, and not a mandatory or code requirement.