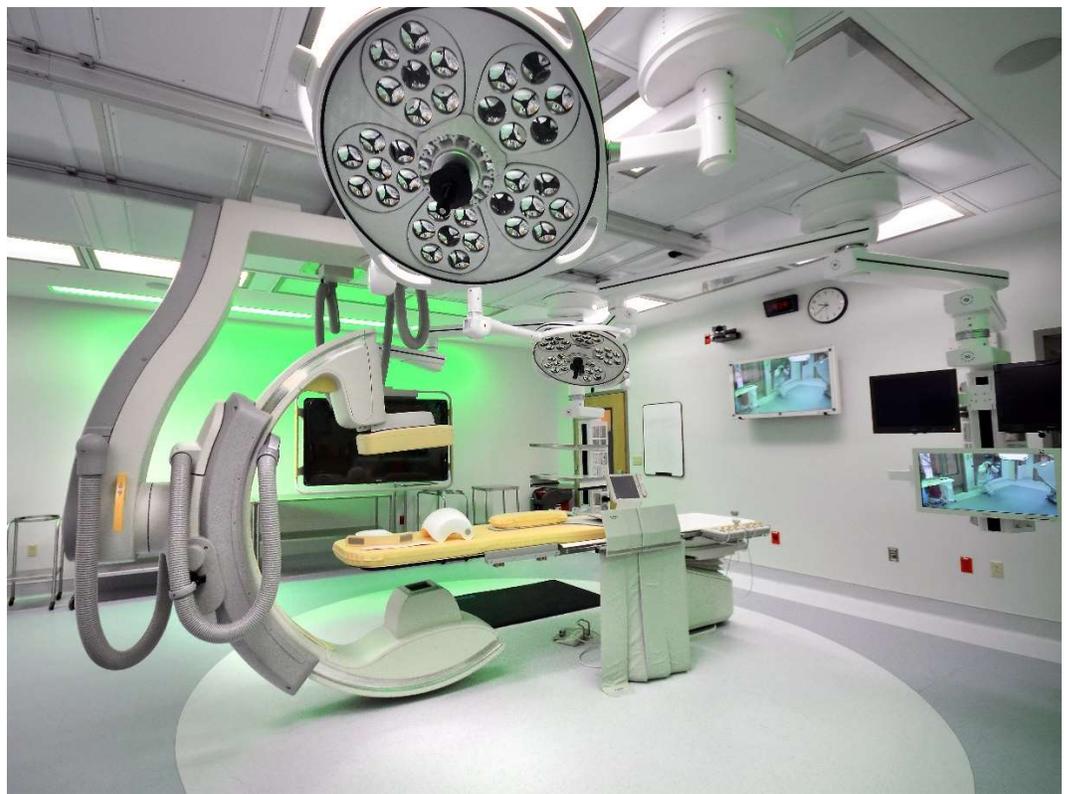




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# EXECUTIVE GUIDE



2017

## The Complexity of Healthcare Facility Compliance

Strategies for meeting the multitude of codes regulating healthcare construction.

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# Executive Guide

## THE COMPLEXITY OF HEALTHCARE FACILITY COMPLIANCE

### INTRODUCTION:

More than perhaps any other market segment, healthcare architecture, engineering and construction is regulated by a multitude of codes. One of the greatest challenges faced by healthcare facility managers, as well as the designers and contractors building these facilities, is ensuring compliance with all applicable authorities that have jurisdiction—particularly when the seemingly endless requirements overlap or contradict one another.

This guide focuses on the challenges healthcare facility professionals face in achieving code compliance across the national and regional levels, as well as the difficulty of satisfying the many organizations regulating the safe design and construction of medical buildings. This guide will help healthcare facility owners and managers develop strategies for improving compliance during future upgrades and subsequent surveys.



Photos: Salisbury by Honeywell

In the following five chapters, we will provide insight into healthcare building (or facility) compliance challenges facing medical facilities and offer solutions on how to handle code compliance issues.

## CHAPTER 1: NAVIGATING HEALTHCARE FACILITY CODE REGULATIONS

Healthcare Design and Construction is highly regulated—and for good reason. In addition to meeting the most basic levels of occupancy safety required of every structure as defined by NFPA 101 and the International Code Council, healthcare facilities must go beyond these measures to guarantee safety. Critical healthcare facilities need to ensure the safety of individuals who may be unable to move on their own, have compromised immune systems or are undergoing surgery. For example, incorrectly calculated air changes or electrical shorts in these buildings could, quite literally, mean life or death.

However, the many standards and layers of ordinances pose a distinct challenge—and one that is further complicated when regulations are contradictory. To ensure compliance with all authorities having jurisdiction, it is important to first understand the layers of codes and how they intersect.



### National Requirements

On a national basis, healthcare facilities must meet the code requirements pertaining to the requirements set by the Centers for Medicare & Medicaid Services (CMS).

CMS currently incorporates the 2012 editions of NFPA (National Fire Protection Association) 101, the Life Safety Code, and NFPA 99, the Health Care Facilities Code, as well as referencing sections of NFPA standards 70, 72, 80, 90a and 106. However, because nothing is simple in healthcare building (or facility) compliance, there are exceptions. For instance, CMS fire safety requirements include several exceptions to NFPA requirements.

Compliance with CMS is typically the foremost consideration for healthcare facilities—particularly since the organization ties Medicare and Medicaid reimbursements to healthcare systems' ability to comply with its guidelines.

Healthcare facilities found to be in deficiency of a CMS requirement during a survey face the potential of being penalized. These surveys are usually conducted by either a State Agency authorized by CMS, or from a CMS-approved accreditation organization, such as The Joint Commission.

Of course, surveyors also have their own standards. Compliance with the CMS-approved surveyors' standards will ensure compliance to CMS requirements and, in some cases, may exceed it.

## State and Local Requirements

National requirements may loom largest, but healthcare facilities must also meet specific regional and state requirements, typically the International Code Council (IBC) standards. In addition to conducting CMS surveys, some state health departments may have their own unique licensure requirements. Local fire ordinances may also have specific regulations for design conditions. With the addition of facility rules set by various insurance carriers, the layers become even more complex.

While the state agency is the authority with jurisdiction, healthcare facilities also need a local occupancy inspection. The challenge occurs when state authorities review design plans according to NFPA

You can comply without being a code expert!

requirements, while local agencies want to see IBC compliance before providing a permit. As a result, it's entirely possible to gain approval from one organization, while being fined for noncompliance by another.

Failure to comply with either state or local regulations can lead to penalties, including delays to the certificate of occupancy or penalties from the state Department of Environmental Protection, such as fines for stack emissions and water consumption.

## Voluntary Guidelines

Voluntary guidelines help organizations set goals for exceeding basic requirements and establishing a competitive edge. More healthcare construction projects are being designed to meet voluntary guidelines, such as the U.S. Green Building Council's LEED Certification. However, many healthcare organizations also adopt rigorous departmental requirements to ensure compliance with the latest standards for medical quality. These stringent guidelines might include ANSI (American National Standards Institute) standards for pharmacies, sterile processing, scope cleaning and other hospital department standards.

## Meeting the Layers of Compliance

Ensuring compliance with each of these regulatory bodies can present numerous challenges for healthcare facility owners and managers. Yet, through a balance of risk management solutions, strong judgment and knowledgeable partners, it is possible for every healthcare organization to find the best value solution for complying with all applicable codes—even when the codes seem to contradict one another, as we'll see in Chapter 2.

## CHAPTER 2: ACHIEVING COMPLIANCE WHEN THE CODES CONTRADICT

At a glance, the various codes regulating healthcare facility design and construction, as well as ongoing facility management, may seem fairly cut and dry. Since code language is meant to be straightforward and to-the-point, clarity is necessary to ensure understanding and compliance. In fact, codes typically reference standards—making standards a requirement, in the process—in order to simplify language.

However, those references to standards don't always simplify matters. Consider the recent adoption of the 2012 edition of NFPA's Life Safety Code by CMS. When CMS announced the adoption of the updated Life Safety Code, they also adopted a number of amendments to the code. These "Tentative Interim Amendments" did not go through the complete review and approval process, but are still required for healthcare facilities seeking to comply with CMS. As a result, accurately applying NFPA 101 requires additional reading beyond the well-known Life Safety Code.

This example of added confusion occurs in just one code, but healthcare facilities are regulated by a multitude of national and regional requirements. Accurately applying the appropriate code requirement is rarely a simple task, particularly when it comes to renovating or updating an existing facility—and especially when the codes contradict one another.

### Identifying the More Stringent Requirements

Code-making bodies conduct regular updates because design, construction and healthcare are all rapidly changing industries. To limit undue hardship on design, construction and operations professionals, the code writers attempt to set requirements that either regulate areas untouched by other codes or agree with other code bodies' requirements. Nonetheless, contradictions still occur.

A recent example is NFPA's new allowance for 6-inch projections into healthcare corridors. This was one of a number of changes regulating corridors. Many healthcare facility managers were thrilled to see the allowance expanding hallway projections from the traditional 4 inches to 6 inches.

However, facility managers focusing only on this new allowance are missing the bigger picture. To achieve ADA (Americans with Disabilities Act) compliance, handrails, wall-mounted devices and other structures are still limited to a 4-inch projection into corridors. While NFPA may be looking forward to a time when ADA updates its requirements, healthcare facilities today are still bound by the more stringent 4-inch projection limits.

When a clear contradiction such as this one occurs, complying with the more stringent regulations prevents any risk of citation for a deficiency. In other cases, however, the contradictions are less clear.

### Using Available Resources for Code Clarity

Some code conflicts are less obvious and may require a greater degree of interpretation from healthcare design and facility management professionals.

Consider, for example, that both NFPA and the IBC regulate the mounting height of fire alarm strobe devices on the wall. NFPA mandates that these devices be installed at a set height based on the flasher device while the IBC sets the installation height according to the center line of the strobe device. In this instance, it may be more difficult to determine which requirement is, in fact, more stringent.

Cases such as this one are a good reminder that facility managers don't need to have complete insight into the codes, as long as they have strong resources available to provide this insight.

Many device manufacturer representatives, designers, contractors and other third-party experts are dedicated to tracking and actively working to change or improve the various codes. These experts can be a valuable resource for facility managers who need a definitive answer into a specific code requirement. When talking with these third-party experts, it's important to ensure their perspective encompasses all applicable codes. It's also important to consider what additional systems may be impacted by any changes to one device or system.

### Expect Help in Making Building (or Facility) Design Decisions

To ensure compliance with contradicting codes, the safest route for healthcare facility managers is to follow the more stringent requirements. Although, when the choice is not so simple, the healthcare building designers, engineers and contractors can serve as valuable resources to answer questions about how a change may impact the building's ability to meet code compliance. These experts can prove especially valuable when interpreting more ambiguous healthcare building compliance requirements, as we'll see in the next chapter.



CT Procedure Room - Garden State Urology Center, Whippany, NJ

## CHAPTER 3: DEALING WITH CODE INTERPRETATION FROM HOSPITAL DESIGN THROUGH OPERATIONS

To achieve healthcare building (or facility) compliance with all regulatory bodies, healthcare designers, contractors, owners and facility managers often find it's necessary to strike a balance among overlapping—and occasionally contradicting—requirements.

In many instances, the intersecting codes don't overtly contradict one another but, instead, add levels of side-by-side requirements that can make for exceedingly complicated structures.

### Different Ways to Achieve a Safe Result

One example to achieve a safe result comes from the highly regulated area of fire protection. Both the NFPA and IBC set forth exceptionally specific fire protection requirements for elevators, but they do so in very different ways.

The IBC, for example, states that a multi-story building with a two-elevator core must have an elevator lobby on each floor that is separate from the rest of the building. NFPA's Life Safety Code doesn't address this specific need. Instead, it states that facilities need smoke detection at the top of the elevator shaft and throughout the building.

Similarly, the IBC requires "shaft wall" construction for ducts connecting two or more floors. For the IBC, any penetrations of a shaft wall require both fire and smoke dampers, whereas NFPA requires only fire dampers.

Which way do I go? What compliance is the priority?

Since NFPA compliance is typically the priority during the healthcare facility design process, as it is the guideline reference of note for CMS, it may seem tempting to focus on its fire protection practices. However, surveyors from different organizations will arrive with varying perspectives on this issue. While the State Department of Health's surveyors look only for smoke detection and fire dampers as evidence a facility meets NFPA's parameters for that elevator area, local fire marshals might cite the lack of an elevator lobby or smoke dampers as a deficiency when surveying according to IBC. To achieve consistent compliance satisfying all authorities with jurisdiction, it is necessary to satisfy all code requirements.

### A Holistic Way of Viewing Coinciding Requirements

In general, if there is a discrepancy in fire and smoke ratings requirements between the NFPA and IBC, hospitals should comply with all requirements. However, this can potentially lead to the inclusion of

duplicate components, such as redundant fire and smoke dampers. This can also cause confusion over the application of specific components and how they tie into the larger system of fire protection.

To simplify compliance in instances such as this one, it helps to start with a holistic approach to compliance solutions. Design professionals can help create simple solutions that meet the broadest level of code requirements.

New technology, such as building information modeling (BIM), can also help. Through BIM models, designers can review specific component details in a broad, holistic image of all building systems. Increasingly, these models are then transferred to healthcare building owners. This allows facility managers to more easily access information about how components fit into the overall fire protection plan. By regularly noting any changes in BIM models, facility managers can also better ensure that any future updates remain compliant with all relevant codes.

### Ensuring Designs to Meet Code Intent

When facility managers have questions about how to interpret the codes to find the best solution for meeting multiple requirements, their decisions are best made when they can take a broad look at how the requirements intersect. By understanding the intent of the codes, it's possible to simplify designs that maximize patient and staff safety. These simple solutions can also help ensure any new healthcare facility design or future renovation maintain compliance with the applicable codes. In the next chapter, we'll explore additional strategies for maintaining compliance through renovations.



## CHAPTER 4: ENSURING ADDITIONS, RENOVATIONS AND REPAIRS COMPLY WITH THE LATEST CODE

Long-term healthcare facility planning poses significant challenges, particularly given the rapid pace of change in the healthcare industry. While forecasting for tomorrow’s needs is difficult enough, these organizations are also challenged with ensuring any renovations or updates are made in compliance with the appropriate version of the code. When these renovations impact dated sections of older facilities, healthcare building (or facility) compliance can become especially difficult.

The codes are constantly updated to reflect the best and safest practices, so it is critical to ensure any type of change follows the correct code. These updates, however, can challenge facility managers who must ensure they not only reference the appropriate code, but also broadly view any changes accountable-for how an update may impact related systems.

### New Flexibility for Repairs and Renovations

While in the past, facility managers had to make any updates in compliance with the newest version of the code, NFPA has provided a small bit of leniency. In a new chapter on Building Rehabilitation, NFPA 101 defines updates as “major” or “minor,” providing some variation in whether facility updates must comply with new code requirements. Certain repairs or renovations to existing healthcare facilities, as defined by Chapter 43, can be performed to meet the code that was met during initial construction.



*BHP Steam Plant - Mount Nittany Medical Center, State College, PA*

Minor repairs, for example, might include touching up chipped paint on doors or replacing ceiling tiles damaged by a water leak. If the work is done with similar materials and does not reduce the level of code compliance, it is acceptable to maintain compliance with existing code requirements.

A renovation, on the other hand, includes strengthening or upgrading building elements, materials, equipment or fixtures, but does not result in a reconfiguration of the building spaces. An example of this type of renovation would be wallpapering an existing corridor wall for the first time. This work can also be done to meet existing code requirements, however, any new finishes must still meet new requirements. None of these changes can reduce the level of code compliance.

While NFPA does provide helpful examples to demonstrate the nature of repairs versus renovations, it is inevitable that additional unmentioned examples will lead to confusion. In these instances, it's important to consider the intent of the code and the action taken to ensure the appropriate level of compliance is met.

### Making Tough Choices in Meeting New Codes

Although this new chapter provides some leniency, CMS and NFPA took a tough stance in other areas and now require across-the-board updates to some critical systems. For example, many facilities right now are being challenged to find ways to perform ductwork damper testing even in inaccessible areas.

In the past, CMS and surveyors such as The Joint Commission made allowances for certain locations that were inaccessible, stating it would not be reasonable to expect facility managers to perform a damper test in those areas. However, when CMS adopted the 2012 edition of NFPA 101, it included a blanket requirement that all dampers must be accessible, tested and documented during the mandated tests performed every six years.

## Inaccessible dampers... What should I do?

Today, there are thousands of facilities across the country with multiple locations of inaccessible dampers that now have to be made accessible. As with any code change, this more stringent requirement is intended to provide an increase in safety to all building occupants. If a fire occurs and the damper does not close, smoke could be pulled through the ductwork and affect the other areas of the hospital. For this reason, the tough stance by CMS on the need for accessible and tested dampers is understandable. However, what is less clear is the actual solution for how to comply with this updated requirement.

The solution to this particular challenge will vary for each building. As a result, facility managers are best served by working closely with knowledgeable design professionals, subcontractors or other consultants

who can make recommendations that meet compliance with all applicable codes without sacrificing any of the facilities' needs.

### The Importance of Code Compliance from Outside Contractors

Code updates, however challenging, aren't as frequent as the seemingly uncomplicated repairs that can potentially lead to serious deficiencies. When subcontractors or outsourced maintenance contractors are brought in to provide a one-time solution without a broad understanding of how their actions are impacting interrelated systems, facilities risk failing code compliance.

For example, HVAC balancing contractors can inadvertently impact the pressures of environmental rooms, such as airborne infection isolation rooms, clean holding areas and corridors. If these contractors don't understand the sensitive needs of healthcare facilities and the importance of ensuring the appropriate amount of air exchanges to contain infection, they may not act with the vigilance necessary to meet the codes governing room air pressure relationships.

Healthcare facilities are far more complex than standard commercial buildings because failure of even the simplest systems can have life or death implications. As a result, it is helpful to work with professionals who have specific expertise in healthcare systems. These experts should understand that adjustments made to one system might impact other critical areas or violate one of the many codes governing the facility's operation.

### Creating a Scope of Work for Improvement

Code compliance can be particularly challenging for renovations to older areas of a hospital or medical building. Often, it can be cost-prohibitive for these facilities to bring older mechanical and electrical systems into compliance with the current code requirements. Determining the necessary scope of work often requires professional discretion along with the owner's input.

By having a broad perspective on change and considering facility planning in terms of code compliance, facility managers can make improvement decisions that will put patient safety needs first.

## CHAPTER 5: TROUBLESHOOTING CODE CHALLENGES DURING DESIGN AND CONSTRUCTION

Many healthcare facility managers expect their operations and maintenance problems to have a definitive solution. After all, in many facility engineering challenges, the answer is clear after a simple investigation. For instance, if a boiler stops performing, a problem can typically be determined by running diagnostics or visually identifying the cause. Yet, when it comes to healthcare building (or facility) compliance, the answers don't always present themselves so apparently.

Since few facilities are identical, compliance codes must be written broadly. It would be impossible for code writing bodies to address every possible situation, especially when both healthcare technology and design trends continue to change rapidly. As a result, questions are inevitable and decisions can be challenging.

When healthcare owners and facility managers use review practices and technology to ensure any changes are code compliant, they can feel more confident their renovation and upgrade decisions won't lead to penalties during their next survey.

## How Construction Reviews Can Improve Code Compliance

One area where compliance problems often occur is during the breakdown of communication between parties. In Chapter 4, we saw the challenges that can arise from various tradespeople applying isolated solutions to facility improvements. Isolation between facility engineering, design, construction and facility management can also lead to challenges.

For example, during construction, it is possible that products specified during design may be changed out in order to reduce costs. However, in the healthcare arena, even seemingly simple products may be specified to ensure compliance with one of the many codes regulating medical buildings.

Involving designers, engineers and, when possible, facility managers in the construction process can provide a sense of continuity often needed for these heavily regulated facilities. Through a construction review process, experts ingrained in healthcare codes can ensure simple swaps don't put the facility in danger of a citation during its next survey. For example, a construction review process might be necessary to ensure fire-retardant wood blocking was not swapped out by the construction team for a more combustible material that could pose a danger when used in a non-combustible building.

By taking a holistic view to construction projects and examining code compliance at every step, healthcare facilities can mitigate their risk of noncompliance.



*Family Medicine Practice - Mount Nittany Health, Reedsville, PA*

## New Solutions for Centralizing Component and Compliance Information

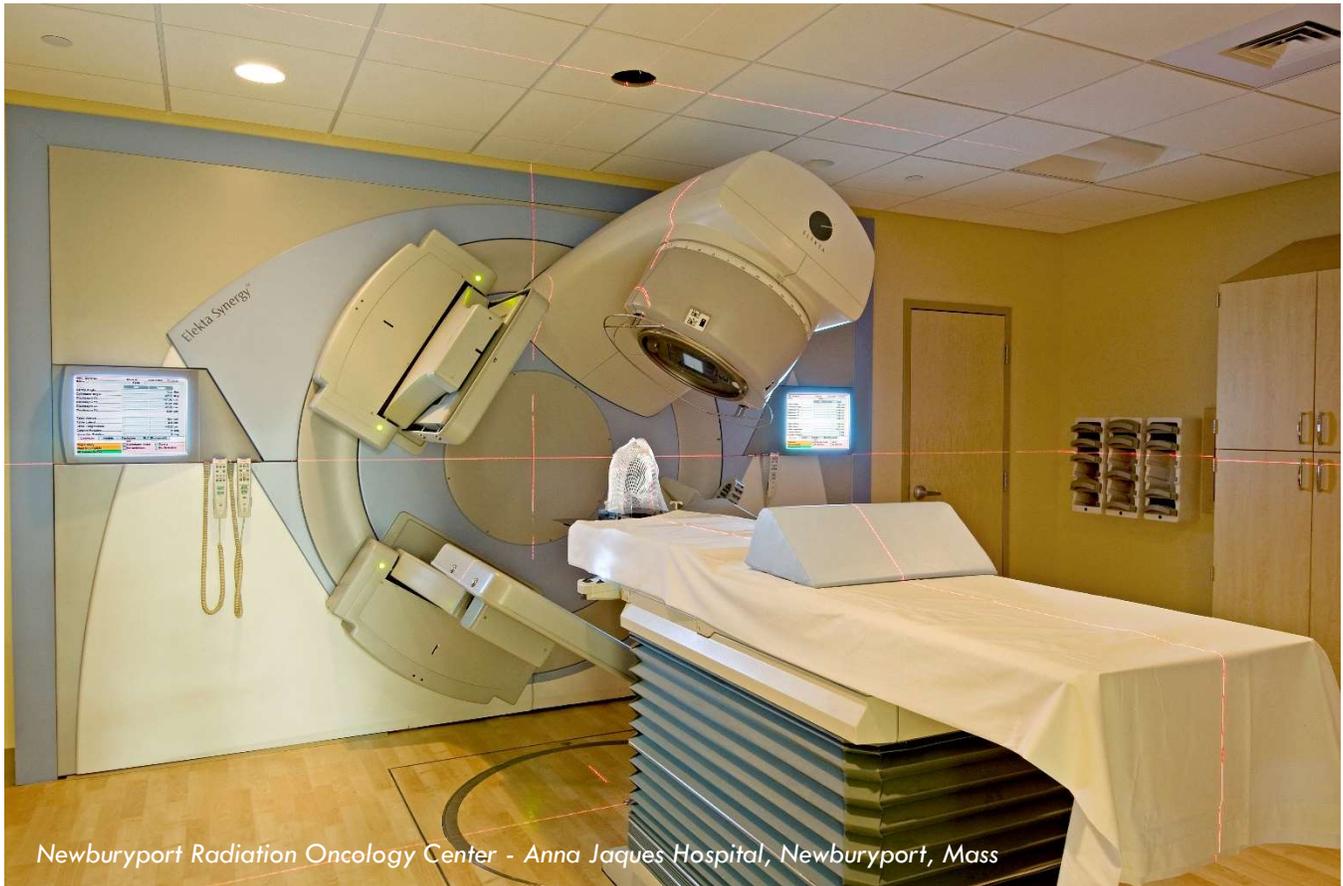
More and more design, engineering and construction firms are applying BIM technology to provide this sense of continuity, particularly for highly complex buildings such as medical facilities.

For example, utilizing BIM technology to transfer utilities information from the designers directly to the contractors responsible for installation keeps all parties on the same page in terms of compliance and performance issues. This can help to mitigate performance issues from the mechanical systems during start-up, as well as later in occupancy.

BIM models are also increasingly being used by facility engineering and facility management professionals to maintain systems in compliance with the mandatory testing and maintenance of the systems throughout their life cycle. When product knowledge is captured in one centralized location, operations professionals can better make decisions to keep future upgrades in compliance with all applicable codes.

## Meeting the High Stakes

Given the number of regulations governing healthcare construction and the great risks at stake for noncompliance, it's understandable that healthcare facility owners and managers sometimes feel overwhelmed by the charge to ensure compliance. Luckily, through appropriate risk management and applying good judgment, it's possible to find best-value solutions for complying with all applicable codes.





## CONCLUSION

While code compliance is a challenge for virtually all healthcare facilities, it can be met by forward-thinking owners and facility managers. In order to ensure the safety of vulnerable patients and avoid stiff penalties from noncompliance, it's crucial that healthcare facility professionals cultivate code knowledge and foster relationships with professionals who can serve as code-smart resources.

With this guide, we hope that facility professionals can find strategies, advice and ideas to help ensure all safety requirements are met. We've covered a lot of territory:

- We reviewed the tangled layers of codes regulating healthcare facilities at the national, local and even departmental levels (Chapter 1).
- We explored ways to ensure compliance, even when regulations seem to contradict one another (Chapter 2).
- We demonstrated the potential for simplifying overlapping requirements set by diverse codes (Chapter 3).
- We discussed how to approach facility upgrades and renovations to remain compliant with all codes (Chapter 4).
- We identified best practices for ensuring code compliance following the transfer of knowledge from design to construction to facility management (Chapter 5).

Clearly, healthcare design, construction and facility management require extensive attention to detail to account for requirements across a wide number of codes. By staying up to date on the applicable codes through regular reading and training opportunities, it is possible to gain the knowledge necessary to confidently make facility upgrades or renovation decisions.

## JPT ARCHITECTS

### A specialized architecture and engineering firm making a big impact on healthcare design

At JPT Architects, we understand your challenges because the world of healthcare is our focus. Our team of healthcare design and engineering professionals are experts in the complex regulations and codes that govern medical facilities, and are here to serve as a resource at any stage of your next project.

Our women-owned WBENC, Pennsylvania-based firm has demonstrated experience in a full range of design, engineering and construction solutions that help healthcare organizations deliver superior care. We've completed projects in 18 states, ranging from small renovations to greenfield hospital architecture, and we thrive on projects that present complex challenges. Our solutions come from the combined insight of a fully integrated team of design, engineering and construction experts, working together to create solutions that benefit healthcare organizations and their patients.

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