Considerations for Temporary Compliance Options in Health Care Environments During COVID-19

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NATIONAL FIRE PROTECTION ASSOCIATION
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WHY ARE WE DOING THIS?

The challenges related to the current COVID-19 pandemic in the United States and around the world have led to the need for temporary, alternative compliance options to support the new health care landscape. NFPA has been collecting information on common issues that health care facilities throughout the country are currently facing, as well as ways facilities have modified fire and life safety features and systems and some of the ways potential negative effects are being mitigated.

This information includes some compliance options for consideration based on feedback from authorities having jurisdiction (AHJs), officials at the state and local level, health care industry professionals, and other stakeholders. The information has been compiled based on information NFPA has received, including information that has been received from, shared with, and discussed by NFPA's Healthcare Interpretations Task Force (HITF). While each situation will have its own unique variables, NFPA is aiming to provide information on potential ways that facility managers, engineers, designers, AHJs, and others can assess the most common scenarios they are seeing against what is normally required.

Concerning the challenges with code compliance in health care occupancies during the COVID-19 pandemic, NFPA has taken the highly unusual step of compiling information that can be used by AHJs, health care providers, state health care agencies and administrators, contractors, designers, and other entities that are faced with managing a patient surge that is unprecedented in the United States.

The basic concepts and applications found in NFPA codes and standards that impact the health care environment can be a source for guidance in these challenging times. Such documents include NFPA 99, *Health Care Facilities Code*, and NFPA *101*®, *Life Safety Code*®, among many others. These codes include a range of requirements that are primarily applied through the prescriptive criteria contained in each document. However, each document also permits the use of equivalencies to determine if the level of prescribed safety can be achieved with other means or measures. These can include the use of risk-based approaches, performance-based approaches, or other concepts.

When operating under a crisis standards of care scenario like the US health care system is at this time, stressors are placed on everything, including physical space, staffing levels, available supplies, and the level of care being provided. Everyday code-based solutions simply will not work in many circumstances, and a critical need exists to compile and offer some level of guidance that can be considered by AHJs.

ADAPTING CODES TO CONDITIONS

Under normal scenarios, key elements in NFPA *101*, such as establishing goals (see NFPA *101*, Section 4.1); objectives (see NFPA *101*, Section 4.2); and acceptable compliance options (see NFPA *101*, Section 4.4), provide the foundation for the requirements developed using either the prescriptive or performance-based design approaches. These underpinnings of the code also recognize that strict application of the requirements might not work in all circumstances, thus requiring the need for the previously mentioned equivalency provisions that are governed by NFPA *101*, Section 1.4.

While critical fire and life safety provisions cannot be set aside altogether, federal, state, and local jurisdictions are taking measures to permit modifications to the usual requirements. Perhaps the most powerful provisions that are now available to health care providers are the waivers permitted by the Centers for Medicare & Medicaid Services (CMS). These waivers, allowed under Section 1135 of the Social Security Act, permit the US Department of Health and Human Services to grant certain levels of relief to health care providers under certain circumstances, including public health emergencies such as the United States is facing at present. Generally referred to as 1135 waivers, they grant health care provider organizations the ability to deliver patient health care in nontraditional environments and settings. The waivers are typically granted to a state, often with language similar to the following:

> CMS approves a waiver under Section 1135(b)(1) of the Act to allow facilities, including NFs, intermediate care facilities for individuals with intellectual and developmental disabilities (ICF/IDDs), psychiatric residential treatment facilities (PRTFs), and hospital NFs, to be fully reimbursed for services rendered to an unlicensed facility (during an emergency evacuation or due to other need to relocate residents where the placing facility continues to render services) provided that the state makes a reasonable assessment that the facility meets minimum standards, consistent with reasonable expectations in the context of the current public health emergency, to ensure the health, safety and comfort of beneficiaries and staff. The placing facility would be responsible for determining how to reimburse the unlicensed facility. This arrangement would only be effective for the duration of the Section 1135 waiver.

This waiver authority from CMS applies to multiple areas of the agency's regulatory control, including the Conditions of Participation (CoP) that address the use and enforcement of NFPA 99 and NFPA *101*. While the waiver provides permission to use these temporary alternate care (TAC) sites, facilities must

keep the safety of patients and staff in mind. As noted in the statement, health care facilities must also consider the "reasonable expectation" of health, safety and comfort in these models.

The language granted in the Section 1135 waiver is similar to the language in another provision of NFPA *101*; namely, 4.6.5, which refers to providing a "reasonable degree" of safety. That allowance in NFPA *101* can result in the use of design and construction methods that do not fully comply with the typical requirements of documents such as NFPA 99 and NFPA *101*. As noted earlier, however, these codes do permit the use of equivalent methods and other approaches to work toward the reasonable expectation of safety included in the 1135 waiver process.

State health care agencies and individual health care provider organizations can both request 1135 waivers. As of right now, all 50 states have requested some level of the 1135 waiver and are in various stages of getting approval from CMS.

CHALLENGES AND CONSIDERATIONS

The following information falls into three distinct categories. The first portion contains a table that describes examples of some of the compliance challenges that have been shared with NFPA; discusses some considerations that may be used in helping to address and evaluate these challenges; and provides references to the relevant NFPA codes or standards that will generally address certain circumstances. The numbers in blue will be referenced in Exhibit 2. This information does not offer definitive answers; rather, it is intended to provide some information to help evaluate issues by using examples. NFPA will work to update and modify this table for the duration of the public health emergency as new information is provided and as we learn more about novel solutions and measures that are being used in the field.

The second and third portions of this document relate to content from NFPA 550, *Guide to the Fire Safety Concepts Tree*, and are based on Figure 4.3 of that document. The figure shows the fundamental decision tree that can be used to achieve the fire safety objectives of a building, structure, or process. It can be applied to any configuration or scenario imaginable.

It is possible that some jurisdictions will not need to use any of these measures, and they should only be considered and applied when necessary. As soon as the pandemic begins to subside and facilities return to a normal level of care, these interim or temporary measures should be withdrawn, and facilities should be put back into their normal operational states. This means returning purpose-built hospitals back to the requirements contained in the 2012 editions of NFPA 99 and NFPA *101* (or later). Likewise, the conversion sites, such as hotels or motels, and public assembly buildings, such as convention centers, indoor or outdoor sports arenas, and fields, and other occupancies must be reverted back to meet their proper state and local requirements.

TABLE 1 Compliance Challenges at TAC Sites

NFPA Code (References in blue refer to Exhibit 2)	Compliance Challenges	Considerations
NFPA *101*	General	While considerations for TAC sites will vary, they will include a range of safety issues, such as those covered in this table. The sites will also have to account for other issues, such as their proximity to the primary or main hospitals that will be providing direct support to the facility, such as rotating staff in and out, maintaining medical equipment, resupplying clean linens, and removing contaminated dirty linens/PPE. Once a facility has been selected to become a TAC site, its setup should be based on the requirements contained in Chapter 19 of NFPA *101*. These are the provisions for existing health care occupancies and they provide a minimum level of safety for those environments. Even with that, there may be circumstances or even requirements of this chapter that cannot be met or maintained, and that is where the need for flexibility and compliance options need to be considered. For example, in a hotel TAC site conversion, there may not be a need to continue to apply certain requirements for existing hotels, if the only occupants will be those there for medical treatment and the staff members.
NFPA *101*: 19.1.6 1	Site location and building construction requirements	The state is typically responsible for assessing or selecting (or, in some cases, both) the locations and structures for temporary facilities. Regardless if patient care areas are going into large, open indoor space configurations or hotel/motel/dormitory configurations, these buildings should be protected with automatic sprinkler systems. Based on the self-preservation capabilities of the patients in a building, it must be determined if an NFPA 13, *Standard for the Installation of Sprinkler Systems*, or NFPA 13R, *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*, system is appropriate.

NFPA Code (References in blue refer to Exhibit 2)	Compliance Challenges	Considerations
NFPA *101*: 19.1.6 1	Site location and building construction requirements	You might also be asked to consider using buildings with no automatic sprinkler system protection. In this case, you must carefully weigh the reasons for using that facility. For example, it might be in extraordinarily close proximity to the main hospital serving as the base of operations to support the temporary facility. In those circumstances, consider using the other guidance to determine if the necessary level of safety can be reasonably provided. Some facilities have relocated residents of a long-term care (LTC) occupancy to a hotel/motel environment and the LTC occupancy is modified to accept COVID-19 patients/residents.
NFPA *101*:19 1	Recommissioning and reuse of abandoned health care facilities	Some states are looking at reintroducing patient care in long-term care and hospital locations that have not been utilized or licensed for many years — possibly even decades. A quick survey of such facilities can help determine their level of compliance with Chapter 19 of NFPA *101*.
NFPA *101*: 19.3.5 4, 4B, 5B	Extent of sprinkler protection	For the large, open, indoor space configuration, individual patient rooms/isolation pods will likely be constructed on-site or be configured as individual (10 ft x 10 ft) tent type enclosures lined up in rows. These enclosures will typically be provided with four walls and a ceiling. It will likely be impractical to drop sprinklers into each individual room or pod. Thus, installing smoke detection or single-station smoke alarms in each individual space should be considered. Utilizing wireless type devices can help complete such installations.
NFPA *101*: 19.1.1.3.2 5A, 5B	Self-preservation/ defend-in-place characteristics of patients	Determine, to the extent feasible, the expectations related to the self-preservation characteristics of patients. If they are under isolation or observation rather than being in the facility with acute symptoms, you might be able to use the provisions of other NFPA *101* chapters, including those for hotel/motel occupancies or residential board and care occupancies.
NFPA *101*: 19.2.3.4 3, 5B	General egress provisions	**Hospitals:** To the extent practical, work to maintain a minimum width of 8 ft for corridors, but with the recognition that it may not be possible in all cases. Also, be aware that this width is only required to be a minimum of 4 ft for existing locations. Be prepared to make adjustments to enable the movement of patient beds under emergency conditions in corridors that may be less than 8 ft in width. It is also likely that traditional occupant load factors used in the spaces might differ. Make sure that an evaluation is done regarding the number and capacity of exit access points. Consider adapting temporary construction of vestibules or anterooms in circumstances where it might be necessary to create negative pressure environments in patient care rooms when enclosures are a critically important part of the containment and isolation procedures necessary for infected patients. **Convention/Field Sites:** Utilize the concepts of NFPA *101* to maintain clear aisles and access ways. Even though there are no walls, apply the same criteria for width as in corridors. **Hotel/Motel/Dorm:** These facilities often have much narrower corridor spaces in general. Consider developing a plan that can utilize the existing beds in these facilities and rely on ambulance/EMS-type stretchers for general patient movement. These stretchers tend to take up less space when being utilized in corridors.
NFPA *101*: 11.11 2C, 4A	Tents	Make sure that local specifications mandate the use of the combustibility and flammability requirements of NFPA *101*, Section 11.11. This is applicable to both the large, open, indoor space as well as the stand-alone outdoor spaces. Some of the care models incorporate small tent structures — normally 10 ft x 10 ft or 10 ft x 16 ft — in the large convention configurations.
NFPA 72®: 17.7.3.7 *NFPA 72*: 17.7.7 NFPA *101*: 19.3.4 4B, 5B	Fire alarm/ detection systems	Ensure that the indoor space configurations, as well as the hotel/motel/dormitory configurations, all have complete and functioning building fire alarm systems, including smoke detection where appropriate. For the large, indoor space models, items such as manual fire alarm boxes, detection components, and horns and strobes can likely be readily added to the patient care spaces and areas, including the entrance and exit points and at nurses' stations. Consider adding in heat detection or smoke detection devices into areas normally identified as hazardous area storage in accordance with NFPA *101* when sprinklers and rated construction cannot be provided. The use of wireless fire alarm system components can accelerate the installation process. Video detection technology and projected beam-type detectors can supplement other existing alarm equipment in indoor space environments. The concept of a line of sight is another thing to consider, but that will depend on the layout of the space.

NFPA Code (References in blue refer to Exhibit 2)	Compliance Challenges	Considerations
NFPA *101*: 19.3.3 2C, 4A	Wall, ceiling, and floor finishes	It is possible that the reconfigured spaces will use materials and construction methods that are not normally used in traditional health care environments. Although Class B and, even, in some cases, Class C interior finishes are permitted in health care occupancies, consider utilizing Class A interior finishes for all the walls and ceilings for hard surfaces and ensure that the floor finishes are not of a highly combustible nature. Textile finishes should not be used regardless of the flame spread rating. Use NFPA 286, *Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*, to test the compliance of combustible partitions and the flame spread rating.
NFPA 99 2B, 4C, 5B	Negative pressure isolation spaces	**Hospital:** Consider two possible configurations. One involves the conversion of a patient room (single- or two-bed) to operate as an isolation space or environment. As noted previously, this model sometimes necessitates the construction of a vestibule in the corridor to house the HEPA-filtered negative air pressure equipment. Construction of the vestibule should be consistent with the other building construction elements. In buildings protected by automatic sprinklers, the vestibule should be configured to maintain sprinkler coverage. This may encroach on minimum corridor space; make sure the emergency procedures account for any partial obstruction. The second configuration involves converting an entire wing of a facility to serve as the negative air pressure environment. This might necessitate departing from some requirements and NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, as it might impact the force requirements to open egress doors. Part of the design evaluation for the second configuration can introduce challenges with air balance in other areas of the facility.
NFPA 30 2B, 2C, 4A	On-site preparation of hand sanitizer	One health care organization has devised a method for its own internal pharmacy to prepare hand sanitizer for use by staff. This introduces larger quantities of flammable liquid (e.g., isopropyl alcohol, a Class IB liquid) into pharmacy and storage spaces. The contents are typically received in 5-gallon plastic containers, which exceeds the typical allowable limit for this category of flammable liquid. Similarly, several states are using the occupants of their state correctional facilities to prepare hand sanitizer. The same awareness and mitigation measures should be put into place in both circumstances.
NFPA *101*: 19.7.5.7 2C, 4A	Size of soiled linen and trash receptacles	Adhering to the strict limits of NFPA *101*, receptacles must have a maximum 32-gallon capacity, which requires staff to access the components and empty them more frequently. Increasing the size may minimize the exposure of staff members who have to access the container area and remove the contents. Due to the extensive amount of PPE that medical staff members must use, smaller containers fill up rapidly. It should be noted that changes to these container sizes have been proposed for the 2021 edition of NFPA *101*.
NFPA *101*: 19.7 5, 5A, 5B	Operating features	Facilities in these circumstances will be operating at a higher than normal patient-to-staff ratio in the hospital environment and the TAC site environment. The TAC site environment also introduces the challenge of staff having to adjust to a completely foreign environment with few of the normal fire safety elements, such as smoke compartments, that typically allow for horizontal evacuation. Existing plans for hospitals might have to be adjusted to account for the increase in patients. Fundamental, basic plans need to be developed for the TAC sites so health care personnel have something available for emergency circumstances that require patient relocation. These plans could be supplemented using basic LMS programs and supplemental signage and wayfinding.
NFPA 92 4, 4A, 4B, 4C	Smoke control	Although this is a feature that is not normally required in health care occupancies, it should be evaluated as part of the offsetting or compliance alternative. Presuming that smoke compartment size limitations are not possible in a large indoor space, the advantage of ceiling height should be evaluated for use as an accumulation space for smoke generation. As part of the evaluation, determine if the facility has an existing smoke control system — even if it is simply a direct exhaust to atmosphere system.

NFPA Code (References in blue refer to Exhibit 2)	Compliance Challenges	Considerations
NFPA 70® NFPA 99 2A, 2B, 2C	EES and risk category	Review the requirements of Chapter 6 of NFPA 99 to determine the type of essential electrical systems (EES) necessary based on the level of medical care being provided. Review the specific criteria that might not work, such as the minimum number of receptacles for each patient bed location. Evaluate the normal design and installation elements, such as the protection of EES behind hard surface wall assemblies.
NFPA 99 NFPA 110 2A, 5B	Backup power	**Convention/Field Sites and Hotel/Motel/Dorm:** Consider what elements and systems beyond the usual fire and life safety components require backup power. These items can include patient ventilators, HEPA negative air pressure machines, and supplemental emergency lighting installed in the treatment areas and spaces. Be aware of federal criteria that might require a separately provided generator to be dedicated to the newly introduced equipment and electrical systems. This equipment can take months to procure and install. Circumstances might require the use of off-the-shelf generators and extension cords from home improvement stores.
NFPA 99 2C, 4A	Medical gas storage	**Convention/Field Sites and Hotel/Motel/Dorm:** Review the requirements of NFPA 99 for detailed requirements. It appears that most facilities are not being designed with any type of piped medical gas but will rather rely on container and cylinder units only — likely just oxygen. Determine how and where the cylinders can be safely and securely stored either inside the building or in secure exterior locations. Consider whether restrictions and limitations on the use of E cylinders should be relaxed given the large number (up to 12 to 20 E cylinders per day, per patient) that might be necessary to support patients. Some locations may utilize piped medical gas supplies. Each facility and its treatment regime will require determinations regarding the need for high-pressure oxygen, medical air, vacuum systems, or some combination of the three. This decision will be largely based on the type of patient and ventilator equipment used.
NFPA *101* *NFPA 5000*® 2C, 4A,4B, 4C	Outdoor, stand-alone facilities	Most, if not all the previously mentioned concepts would be applicable for these configurations. In lieu of utilizing a simple large tent structure, part of the site selection process should include the option of utilizing the code requirements for permanent or temporary membrane structures. These structures typically have more structural durability and capability than a tent and might be able to support the components of an automatic sprinkler system. The hanging and bracing requirements of NFPA 13 might have to be modified to lower the safety factor required to support the weight of the water-filled pipe.
NFPA 3 1	Commissioning of Systems	Newly installed systems (sprinklers, fire alarms, emergency power, and others) will still need basic documentation of their installation and functionality to satisfy the prevailing contract documents. Consider having a third-party or owner's representative sign off.
NFPA 25 *NFPA 72* NFPA 99 NFPA *101* 1	Inspection, testing, and maintenance	Many facilities are reporting that the provisions normally required for ITM cannot be reasonably met under the current circumstances. Facilities have been unable provide staff to escort ITM contractors through the facility. Many facilities are prohibiting any external vendors from entering the property. Some contract agencies are prohibiting their personnel from going into any health care environment. Facilities will need to establish fundamental ITM actions, such as ensuring that control valves for automatic sprinkler systems are always in the open position, fire alarm control units/panels aren't indicating trouble, emergency power systems are readily available, and elements such as egress paths are as free and clear as is reasonably possible.

Exhibit 1 shows the first version of Figure 4.3 as it is shown NFPA 550. The figure is supplemented with red text/highlights that connect to the relevant NFPA code or standard that would normally be applied to the particular branch shown in the rectangular box.

EXHIBIT 1 Workflow Version 1

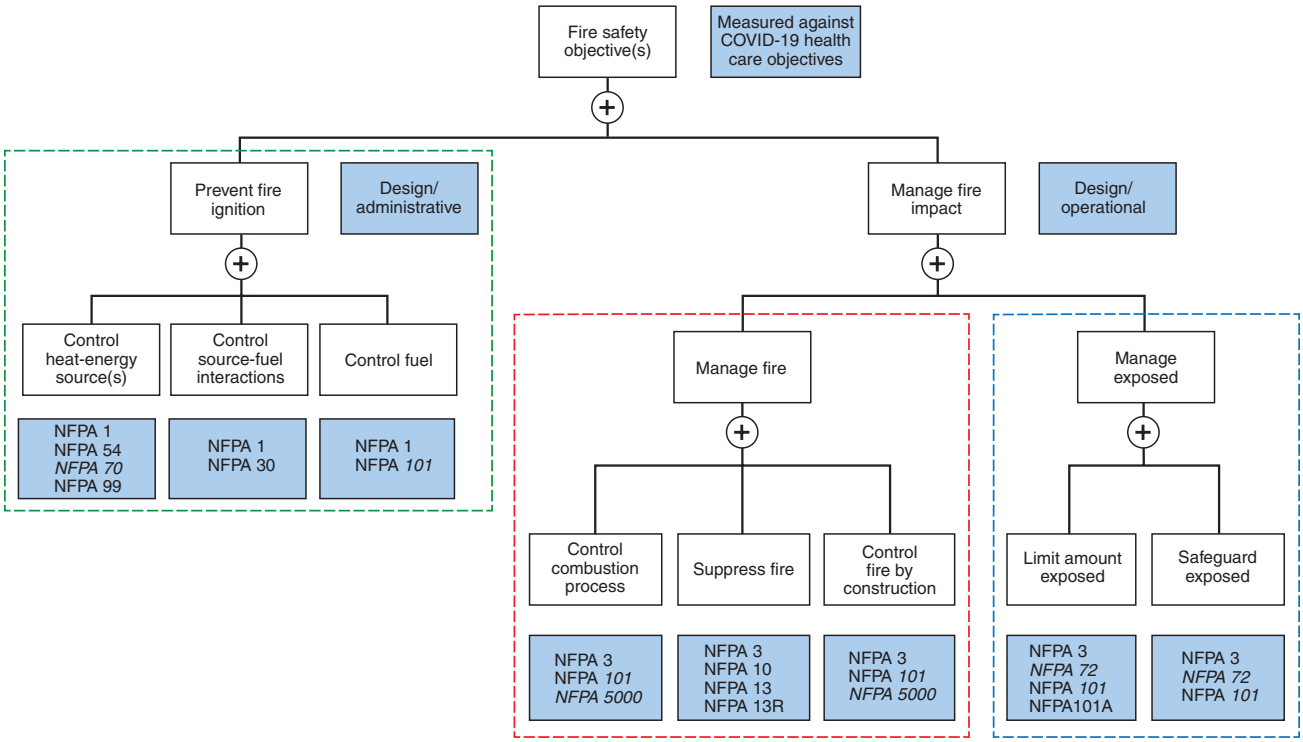
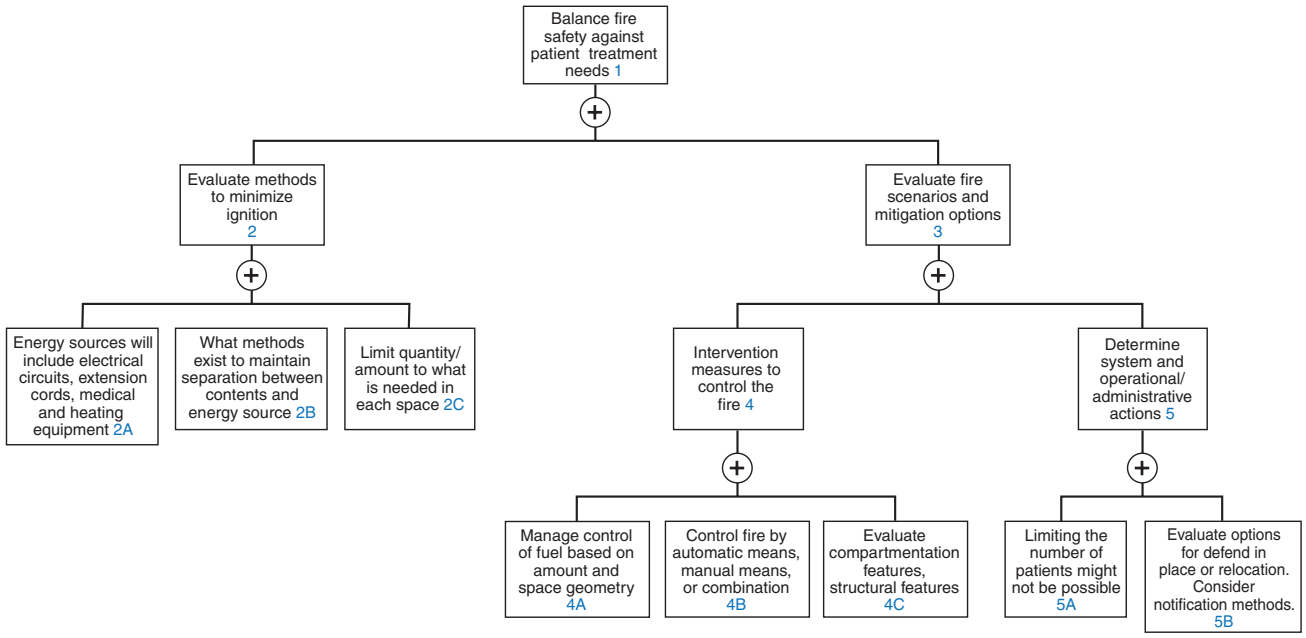


Exhibit 2 shows the second version of Figure 4.3. It utilizes the same form and formatting, but it uses slightly different language for each branch that is, in turn, connected back to the information shown in Table 1 by the blue reference numbers. This format is intended to assist with the evaluation of the mod-

EXHIBIT 2 Workflow Version 2



ifications and changes that are absolutely necessary to manage the temporary conditions that are likely to exist both in hospital environments and alternative care environments.

SUMMARY

The examples of compliance challenges and considerations for addressing those issues as described in this document can help to provide the level of fire protection and life safety intended by the prevailing codes and standards, as well as the broad guidance put forth by CMS. While they do not satisfy all of the provisions that are normally required, the intent is to make sure that these safety issues are not overlooked during the accelerated construction phase related to the current public health emergency. As noted previously, NFPA will work to update and maintain the examples and related considerations in the table as new information is put forward.

As we navigate the evolving situation with COVID-19, NFPA remains committed to delivering resources to help minimize risk and help prevent loss, injuries, and death from fire, electrical, and other hazards.

Learn More

Keep up with the latest news and information:

- NFPA 101 free online viewing: nfpa.org/101
- NFPA 99 free online viewing: nfpa.org/99
- NFPA 550 free online viewing: nfpa.org/550
- US Army Corps of Engineers (USACE): Alternate Care Sites
- Centers for Medicare & Medicaid Services (CMS): CMS COVID-19 Information
- The Center for Health Design: healthdesign.org/makingroom
- The Joint Commission: jointcommission.org/covid-19
- Assistant Secretary for Preparedness and Response: asprtracie.hhs.gov/COVID-19
- American Society for Healthcare Engineering (ASHE): ashe.org/COVID19resources
- American Health Care Association/National Center for Assisted Living: ahcancal.org/facility_operations/disaster_planning/Pages/Coronavirus.aspx
- Association of State and Territorial Health Officials: astho.org/COVID-19
- Centers for Disease Control and Prevention: cdc.gov/coronavirus/2019-ncov/healthcare-facilities/alternative-care-sites.html
- NFPA COVID-19 resources: nfpa.org/coronavirus
- Visit nfpa.org for free access to all NFPA codes and standards referenced in this document.