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# **COVID-19 Design: FGI Waivers for Consideration**

## **Pandemic State of Emergency Design for Hospitals**

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As COVID-19 cases began to rise across the United States, healthcare systems in Indiana knew they had little time to prepare their hospitals for the influx of highly infectious and medically fragile patients. Through our work with national healthcare systems with hospital locations in Indiana, MKM architecture + design had the necessary expertise to lead the process of converting patient areas as quickly and safely as possible. An assessment of necessary waivers to allow hospitals to prepare for the pandemic with the resources available follows.

**Based on what our healthcare systems know today, March 15, 2020. The suggested waivers below are in response to how our healthcare system client(s) decided to handle the current pandemic, and the suggested waivers only apply to temporary modifications of the health systems existing spaces to handle the COVID-19 pandemic. When the pandemic**

**and/or state of emergency is removed and pending if hospital is still caring for a COVID-19 patient these spaces will required to be returned back to their current state as licensed and approved previously with ISDH. The preliminary review below was only reviewed under the Chapter 2.2 General Hospital Facilities.**

### **Glossary:**

Airborne infection isolation (All) room: A room designated for persons having or suspected of having an infection that is spread through coughing or other ways of suspending droplets of pathogens (e.g., tuberculosis, varicella-zoster virus, measles) into the air.

### **Major Additions and Renovations Section: Part 2 Facilities Chapter**

Airborne infection isolation room. All room doors and doors to the anteroom, if provided, are now permitted to have either a self-closing device or an audible alarm that can be activated when the All room is in use as an

isolation room. This revision also applies to the airborne infection isolation/protective environment room.

**Encourage, however, waive this regulatory requirement during the COVID-19 Pandemic and allow the hospitals Safety Risk Assessment Teams write their own policies and procedures.**

#### **\*1.2-4 Safety Risk Assessment (SRA)**

A1.2-4 SRA. The safety risk assessment is a multidisciplinary, documented assessment process used to proactively identify hazards and risks and mitigate underlying conditions of the built environment that may contribute to adverse safety events. These adverse events include infections, falls, medication errors, immobility-related outcomes, security breaches, and musculoskeletal or other injuries. The SRA process includes evaluation of the population at risk and the nature and scope of the project; it also takes into account the models of care, operational plans, sustainable design elements, and performance improvement initiatives of the health care organization. The SRA proposes built environment solutions to mitigate identified risks and hazards.

**Waive this regulatory requirement during the COVID-19 Pandemic and allow the hospitals Safety Risk Assessment Teams write their own policies to expedite proper care.**

#### **2.1-2.3.3 Airborne Infection Isolation (All) Room**

2.1-2.3.3.1 At least one airborne infection isolation (All) room that meets the requirements in Section 2.1-2.3 (Accommodations for Care of Patients of Size) and the requirements in Section 2.1-2.4.2 (Airborne Infection Isolation Room) shall be provided in the facility.

2.1-2.3.3.2 The number of additional All rooms for patients of size shall be determined on the basis of an infection control risk assessment (ICRA).

**Waive this regulatory requirement during the COVID-19 Pandemic.**

#### **\* 2.1-2.4.2 Airborne Infection Isolation (All) Room**

A2.1-2.4.2 For additional information, refer to the Centers for Disease Control and Prevention (CDC) publication "Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings," December 2005, and "Guidelines for Environmental Infection Control in Health-Care Facilities," December 2003, both published in MMWR and available on the CDC website.

##### **2.1-2.4.2.1 General**

(1) The All room requirements contained in the Guidelines for particular areas throughout a facility shall be:

(a) Predicated on an infection control risk assessment (ICRA).

(b) Based on the needs of specific community and patient populations served by an individual health care organization. See Section 1.2-4.2.3 (Infection Control Risk Mitigation).

(c) Used for patients who require an All room but do not need a protective environment (PE) room.

(d) Permitted to be used for patients without airborne infectious diseases when not required for patients with airborne infectious diseases.

(2) Number. For specific requirements, see facility chapters.

(3) Location. All rooms shall be permitted to be located in individual patient care units or grouped as a separate isolation patient care unit.

**2.1-2.4.2.2 All room requirements.** Each airborne infection isolation room shall comply with the requirements in sections 2.1-2.2 (Patient Room) and 2.2-2.2.2 (Medical/Surgical Patient Care Unit: Patient Room) as well as the following requirements:

**Waive this regulatory requirement during the COVID-19 Pandemic. Two sections in 2.2-2.2.2 that would need reviewed by the hospital infection preventionist would be handwashing and if patient toilet is not available in a TNPU. Depending on how the TNPU fits within the existing facility could impact handsink locations but hospital should do what they can when setting up temp barriers to provide handsinks in each zone (patient room, corridor/anteroom, nurse station). Patient toilet access could be impacted depending on age of facility. So far, the scenarios we've seen the non-intensive care units had dedicated bathrooms off the patient room and the intensive care units did not have bathrooms, but they said they would have to do this bedside. If done bedside there would need to be a process and procedure of safely getting bedpan to hopper within a soiled utility room.**

(1) Capacity. Each All room shall contain only one bed.

(2) Provision shall be made for personal protective equipment (PPE) storage at the entrance to the room.

(3) Hand-washing station. Section 2.1-2.2.5.3 (Hand-washing station in the patient room—Renovation) shall not apply to All rooms.

(4) The patient toilet room shall serve only one All room.

(5) The patient toilet room shall have a bathtub or shower.

**Waive this regulatory requirement during the COVID-19 Pandemic.**

(6) A door from the All room directly to the corridor shall be permitted.

2.1-2.4.2.3 Anteroom. An anteroom is not required; however, where an anteroom is provided, it shall meet the following requirements:

(1) The anteroom shall provide space for persons to don personal protective equipment (PPE) before entering the patient room.

(2) All doors to the anteroom shall have self-closing devices or an audible alarm arrangement that can be activated when the All room is in use as an isolation room.

(3) The anteroom shall be equipped with at least the following:

- (a) Hand-washing station
- (b) Storage for unused PPE
- (c) Disposal/holding container for used PPE

**Encourage an Ante Room or designated area during pandemic to better protect staff; however, item 2 above could be difficult. Provide option to waive these regulatory requirements during the COVID-19 Pandemic and allow the hospitals Safety Risk Assessment Teams to write their own policies and procedures.**

**2.1-2.4.2.4 Architectural details and furnishings.** These requirements are in addition to those in Section 2.1-7.2 (Architectural Details, Surfaces, and Furnishings) that apply to All rooms.

(1) Architectural details

(a) All room perimeter walls, ceiling, and floor, including penetrations, shall be constructed to prevent air exfiltration.

(b) Doors

(i) All rooms shall have self-closing devices on all room exit doors. Omission of self-closing devices shall be permitted if the alarm required by Section 2.1-2.4.2.5 has an arrangement that allows activation of the audible alarm when the All room is in use as an isolation room. **Encourage; however, waive this regulatory requirement**

**during the COVID-19 Pandemic and allow the hospitals Safety Risk Assessment Teams write their own policies and procedures.**

(ii) Edge seals shall be provided along the sides and top of the doorframe for any door into the All room. **Optional Waiver. Needs reviewed based on existing facility infrastructure and modifications to obtain negative air within the room(s). If negative air is achieved allow waiver. See A2.1-2.4.2.4**

\*(iii) Use of bottom edge door sweeps to assist in maintaining negative pressure shall be permitted. **Optional Waiver. Needs reviewed based on existing facility infrastructure and modifications to obtain negative air within the room(s). If negative air is achieved allow waiver. See A2.1-2.4.2.4**

A2.1-2.4.2.4 (1)(b)(iii) Door sweeps. To support maintenance of negative pressure, the opening under the door should be the minimum required for proper door operation. However, if the All room is not sealed well and the negative pressure of the room cannot be maintained at negative 0.01 inches of water column (negative 2.5 pascals) without a door sweep, provision of a sweep is necessary.

(2) Window treatments and privacy curtains. **Waive this regulatory requirement during the COVID-19 Pandemic and allow the hospitals Safety Risk Assessment Teams write their own policies to expedite proper care. Encourage disposable privacy curtains or window treatments. If integral blinds don't exist, allow removable translucent film over windows for better cleaning.**

2.1-2.4.2.5 Pressure alarm. A visual or audible alarm that indicates if negative pressure is not maintained in the room shall be provided for the All room.

**Waive this regulatory requirement during the COVID-19 Pandemic. Some existing setups would not allow us to alarm (audible or visual), but did allow us to provide visual access the monitor located outside the space for staff to verify pressures without alarm.**

**2.1-7.2 Architectural Details, Surfaces, and Furnishings**

**Waive this regulatory requirement during the COVID-19 Pandemic along with the additional clarifications below.**

**\* 2.1-7.2.3.1 Flooring and wall bases**

**(7) Floor and wall base assemblies**

(a) The room types listed in this section shall have floor and wall base assemblies that are monolithic and have an integral cove wall base that is carried up the wall a minimum of 6 inches (150 mm) and is tightly sealed to the wall.

**(vii) Airborne infection isolation (All) room**

**Waive this regulatory requirement during the COVID-19 Pandemic for non-intensive care units. If an existing Intensive Critical Care Unit does not contain integral cove base when converting it to a TNPU in a pandemic require them to caulk the base to the floor and at the top of the wall.**

**\* 2.1-7.2.3.2 Walls and wall protection**

(c) Wall finishes in the room types listed shall be free of fissures, open joints, or crevices that may retain or permit passage of dirt particles:

**(vii) Airborne infection isolation (All) room**

**Waive this regulatory requirement during the COVID-19 Pandemic for non-intensive care units. For Intensive Critical Care Units converting to a TNPU require them to caulk and seal the wall protection.**

**2.1-8.3 Electrical Systems**

**Waive this regulatory requirement during the COVID-19. Facilities will have to be aware of circuits being overloaded and negative pressure systems being tied to the emergency power. Any light not concealed with a lens would need sealed and covered during the conversion to a negative pressure room.**

**2.1-8.4 Plumbing Systems**

**Waive this regulatory requirement during the COVID-19 Pandemic.**

**\* 2.1-8.5 Communications Systems**

**Waive this regulatory requirement during the COVID-19 Pandemic.**

**2.1-8.6 Electronic Safety and Security Systems**

**Waive this regulatory requirement during the COVID-19 Pandemic exception would be they need an interim life safety plan in place as in some of the TNPU they could**

**have a series of security anterooms at each end of a negative pressure unit.**

**2.2-2.2.4.2 Airborne infection isolation (All) room**

(1) For requirements in addition to those in this section, see Section 2.1-2.4.2 (All Room).

**(2) Number**

(a) At least one All room shall be provided in the hospital and in any other specific areas requiring an All room as identified in the Guidelines.

(b) The number of additional All rooms for individual patient care units shall be increased based on an ICRA. **Could have a hospital create a standard safety risk assessments as a part of their process and procedures so if a state of emergency arises there would be no hesitation to create negative pressure rooms during a Pandemic.**

**\* 2.2-2.2.4.5 Combination airborne infection isolation/protective environment (All/PE) room**

A2.2-2.2.4.5 This type of room is for profoundly immunosuppressed patients with prolonged neutropenia (i.e., patients undergoing allogeneic or autologous bone marrow/stem cell transplants) who require a protective environment and have an airborne infectious disease.

(1) Number. Hospitals with PE rooms shall include at least one combination All/PE room.

(2) Each combination All/PE room shall comply with the requirements in 2.2-2.2.4.4 (PE room) as well as the requirements in this section.

(3) Anteroom. Combination All/PE rooms shall be equipped with an anteroom that meets the following requirements:

\*(a) The anteroom shall provide space for persons to don personal protective equipment before entering the patient room.

(b) All doors to the anteroom shall have self-closing devices and/or an audible alarm arrangement that can be activated when the All/PE room is in use as an isolation room.

A2.2-2.2.4.5 (3)(a) The anteroom may be used for hand hygiene and for storage of personal protective equipment (PPE) (e.g., respirators, gowns, gloves) and clean equipment.

**This topic hasn't come up as apart of our conversations with hospitals and COVID-19 but needs further investigation in collaboration with the ISDH for those few isolated patients for this type of room.**

**2.2-2.2.4.6 Medical psychiatric room(s)**

**Waive this regulatory requirement during the COVID-19. Hospitals currently do not show urgency to have behavioral health risk assessments.**

#### **2.2-2.7 Pediatric Critical Care Unit**

##### **2.2-2.7.4 Airborne Infection Isolation (All) Room**

2.2-2.7.4.1 At least one All room shall be provided in the pediatric critical care unit. The number of additional All rooms shall be based on an ICRA.

2.2-2.7.4.2 Each All room shall comply with the requirements in Section 2.1-2.4.2 (All Room), except that the bathtub or shower is not required.

**This section has not been addressed by hospitals yet; however, one hospital has asked to evaluate a nursery negative pressure room. Would have similar waivers to the other patient care areas during a pandemic.**

#### **2.2-2.8.2 NICU Rooms and Areas**

2.2-2.8.4.2 Airborne infection isolation (All) room. An All room shall be provided.

(1) The room shall have provisions for observation of the infant from adjacent area(s) of the NICU.

(2) All All rooms in the NICU shall comply with the requirements of 2.1-2.4.2 (All Room) except the requirements for separate toilet, bathtub, or shower.

**This section has not been addressed by hospitals yet; however, one hospital has asked to evaluate a nursery negative pressure room. Would have similar waivers to the other patient care areas during a pandemic.**

#### **2.2-2.9 Obstetrical Unit**

2.2-2.9.4.2 Airborne infection isolation (All) room. An All room is not required for the obstetrical unit. Provisions for the care of the perinatal patient with an airborne infection shall be determined by an ICRA.

**This section has not been addressed by hospitals yet; however, one hospital has asked to evaluate a nursery negative pressure room. Would have similar waivers to the other patient care areas during a pandemic.**

#### **2.2-2.10 Nursery Unit**

2.2-2.10.4.2 Airborne infection isolation room. An airborne infection isolation room shall be provided in or near at least one level of nursery care.

(1) The room shall be enclosed and separated from the nursery unit with provisions for observation of the infant from adjacent nurseries or control area(s).

(2) All airborne infection isolation rooms shall comply with the requirements of Section 2.1-2.4.2 (All Room) except the requirements for separate toilet, bathtub, or shower.

**This section has not been addressed by hospitals yet; however, one hospital has asked to evaluate a nursery negative pressure room. Would have similar waivers to the other patient care areas during a pandemic.**

#### **\* 2.2-2.11 Pediatric and Adolescent Patient Care Unit**

##### **2.2-2.11.4.2 Airborne infection isolation room**

(1) At least one All room shall be provided in each pediatric unit. The total number of infection isolation rooms shall be determined by an ICRA.

(2) Airborne infection isolation room(s) shall comply with the requirements of Section 2.1-2.4.2 (All Room).

**This section has not been addressed by hospitals yet; however, one hospital has asked to evaluate a nursery negative pressure room. Would have similar waivers to the other patient care areas during a pandemic.**

#### **Part 3: Ventilation of Hospitals**

ASHRAE 170-2017 Table 7.1 – Requirement for 12 total air changes (AC) per hour.

**Waive this regulatory requirement during the COVID-19 Pandemic, when utilizing temporary fans to create negative pressure relationships, existing systems may fail to also meet the 12 AC requirement.**

ASHRAE 170-2017 Section 6.3.2.2. Requirement for discharge from All to terminate minimum of 10'-0" above adjacent roof. **Waive this regulatory requirement during the COVID-19 Pandemic, was discussed that, if not achieved, workers in area of discharge would need to wear appropriate PPE and area would need roped off from a significant distance. We believe that this 10' requirement was a requirement in FGI 2018; however, last year when following FGI 2001 it was not a requirement.**

**About the Author:**



***Matthew Sparling, AIA, LEED AP***

As a Principal, Matt Sparling provides valuable leadership within the firm's healthcare studio. With over fifteen years managing complex healthcare projects for large institutional clients, he has a reputation for successfully planning, designing, and executing right-sized solutions that benefits our client's goals. His ability to skillfully facilitate interdisciplinary design teams and engage diverse user groups has provided invaluable service to our clients. As the youngest managing Principal, Matt offers a unique perspective to the leadership team at MKM. While managing the firm's quality control initiatives, he has taken the skills he honed as an effective project manager and translated them become an effective corporate leader. His obsession with work efficiency and value-added activities have substantially contributed to the firm's continued growth.