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# Strategies for Safer Multifamily Housing

## Overview

This report is to be read in conjunction with other AIA reports, including [Reopening America: Strategies for Safer Offices](#) and [AIA's Re-Occupancy Assessment Tool](#), both of which expand strategies for reducing risk that apply to multifamily living communities. For more information on public health hazards, review [AIA's COVID-19 emerging research and public health data](#), dated May 2020.

By the end of April 2020, 42 states plus the District of Columbia and Puerto Rico had [implemented](#)<sup>1</sup> full or partial stay-at-home orders to slow the spread of COVID-19, sequestering more than 316 million Americans in their homes. By July, after reopening, some states once again halted<sup>2</sup> some areas of commerce to combat record levels of infection in certain metropolitan areas. Throughout this pandemic, home has become a refuge for some Americans. For others, home has become a more complicated place, particularly for the millions of Americans who live in a multifamily building. According to the National Multifamily Housing Council<sup>3</sup> there are approximately 21 million apartment units in the United States of which 6.4 million have more than 50 units in the building.

With [68% of people expected to live in urban areas by 2050, according to the United Nations](#)<sup>4</sup>, multifamily buildings will continue to be essential, especially because they are often more affordable accommodations. Early this year, renter-occupied units [comprised](#)<sup>5</sup> 29% of the total housing inventory in the United States. [Increased demand for rentals](#)<sup>6</sup> is not surprising, especially since [28% of rental households have incomes less than \\$20,000](#)<sup>7</sup>. Those challenged to afford rent and basic provisions often find accessing quality health care just as difficult. Even before the COVID-19 pandemic, [the richest 1% of Americans could expect to live more than a decade longer than the poorest 1%](#)<sup>8</sup>. Renting safe spaces within multifamily buildings is critical to the health and well-being of residents, as well as for their broader communities. This report intends to help multifamily building owners and operators protect the health, safety, and welfare of their residents as communities continue to grapple with COVID-19. It also offers guidance on how to combine new daily habits, the needs of workers, and stringent hygiene regimens with social, infrastructural, and spatial requirements that aim to keep everyone safe.

### Background

While multifamily buildings have continued to house their residents, there are a variety of risks to consider. This includes common spaces enjoyed by those in group living situations, including fitness rooms, pools, and lounges, which may remain off limits. Residential building and campus managers have altered services and amenities, and new rules covering comportment and behavior have altered nearly every aspect of residential life. Other challenges include:

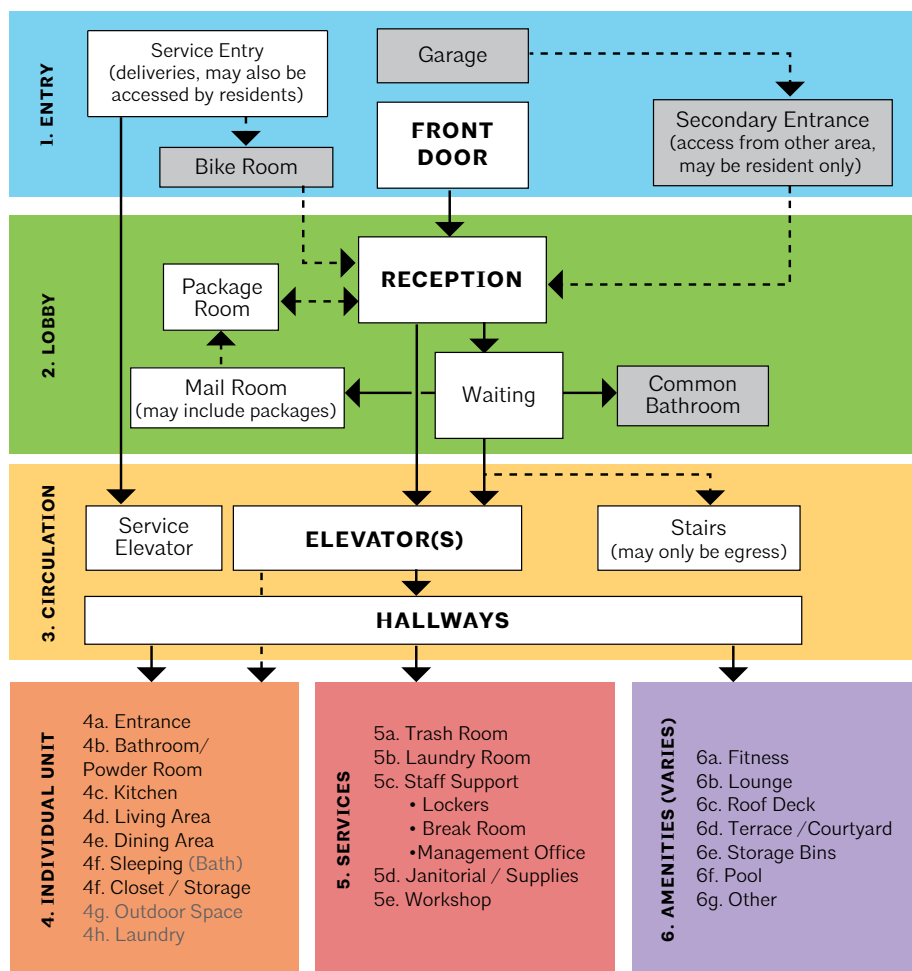
- **Living with the virus.** Unlike other building types, multifamily buildings cannot restrict individuals who may have contracted the virus. This can present challenges in multifamily buildings, especially as residents spend more time at home, even after stay-at-home orders, to protect themselves from contracting the virus.
- **Immediate changes in lifestyle.** Stay-at-home orders have made remote work and homeschooling the norm. Many multifamily housing units were not designed to accommodate these functions for an extended period of time. The ergonomics of makeshift work and study spaces, such as the dining table, living room couch, and bed, can cause secondary health impacts for eyes, wrists, and backs, among others. Additionally, multiple adults or children on phone calls or video classes can produce dueling acoustic issues in tight quarters. Further, increased deliveries of groceries and other products have created storage issues. Buildings may face other challenges due to increased use, particularly in heavily trafficked common areas.
- **Quality of life.** As restrictions continue to end and restart, [mental health degrades<sup>9</sup>](#), and [quarantine fatigue sets in<sup>10</sup>](#). For many Americans, “home” takes on a different meaning. Unending isolation and loneliness is a daunting diagnosis for many Americans, especially during a long pandemic recovery. Creating opportunities within multifamily housing facilities to safely increase social connection and interaction is critical.

### General hazards and risks

Multifamily housing building owners and operators can utilize a seven-step [Risk Management Plan for Buildings<sup>11</sup>](#) to [assess hazard impacts<sup>12</sup>](#), apply architectural and engineering strategies, and reduce the risk of virus transmission in buildings. One of the first steps of this process is to describe the building flow and user experience, beginning with arrival at the building and continuing through various functional locations within the building. In a typical multifamily residential building, there are six space types:

1. Entry
2. Lobby
3. Circulation
4. Residential dwelling unit
5. Services
6. Amenities

Example: Multifamily Residential (Hi-Rise)



Duration of exposure and proximity of individuals are key elements to analyzing the risk associated with each of the six space types. Further, emerging research and public health data for COVID-19 should also be considered and regularly monitored. Multifamily entry, circulation, service, and even lobby spaces typically have a lower risk of transmission despite the high frequency of use because occupants do not usually spend extended time in these spaces. Amenity spaces are typically utilized for longer time periods, such as for meals, games, celebrations, and other activities involving multiple residents and visitors, making these spaces higher risk for transmission. Additionally, individual residential dwelling units could be at risk of spreading COVID-19 via the **building's sanitary plumbing system**<sup>13</sup>.

### Strategies to mitigate risk

In multifamily housing buildings, the following hazards may be present:

- The primary risk of transmission is currently considered to be **close personal contact**<sup>14</sup>, which might be lower in outdoor spaces, such as an atrium or a roof deck, but heightened in high-activity spaces, such as the fitness room.
- Aerosolized transmission of virus droplets between units via HVAC systems **could occur**<sup>15</sup>, particularly if deferred maintenance or poor installation leaves systems vulnerable.
- **Fecal-oral transmission**<sup>16</sup> of COVID-19 via shared restrooms could occur.
- Surface transmission of a virus could occur via high-touch surfaces, such as entry door handles, stair and ramp handrails, mailboxes, lounge furniture, equipment in the fitness center, and machines in the laundry room.

#### **Short-term strategies for entry, lobby, and circulation spaces**

Addressing entry and lobby spaces, which include the front entrance threshold, reception area, waiting area, and public restrooms, as well as circulation spaces in multifamily buildings, is similar to addressing corollary spaces in offices. AIA's report **Reopening America: Strategies for Safer Offices**<sup>17</sup> provides mitigation options for high-traffic, high-touch spaces, including restrooms and community kitchenettes, that also apply to multifamily buildings.

One unique feature of multifamily housing is the mailroom. Risk can be most simply reduced in mailroom spaces by limiting occupants, disinfecting, and requiring use of PPE. Further, because of the increase in deliveries and e-commerce, building owners may consider expanding storage space to accommodate the increased number of packages during the pandemic, especially since online commerce continues to be a growing retail trend. In the future, "mail lounge" concepts could include more space for packages and space between mailboxes to accommodate the increasing needs of residents and to better facilitate physical distancing.

#### **Common amenities**

In many multifamily housing buildings, nonessential amenity spaces have been closed to promote physical distancing. Depending on the building, amenity spaces may include a lounge, exercise room, and outdoor spaces, such as a rooftop deck, grilling area, pool, or community garden. Amenity spaces in multifamily buildings are similar to those in senior living facilities. Strategies that can reduce risk in amenity spaces can be reviewed in AIA's report **Reopening America: Strategies for Safer Senior Living Facilities**<sup>18</sup>.

*Multi-Unit Housing in East Boston, Massachusetts. A community room with physical distancing between tables for use by those in the same household and overall reduced occupant load. Photo credit- Urban Idea Lab LLC.*



### Services

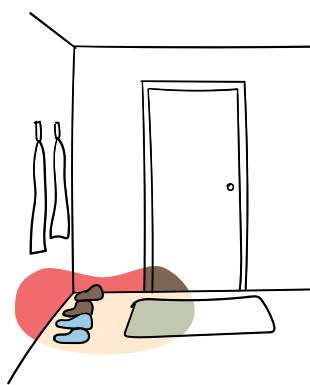
Multifamily buildings also include essential service spaces, such as the laundry, trash/recycling, and bike storage rooms. These frequently used spaces have the potential to introduce contaminated items, such as soiled clothing and discarded PPE. Strategies for these spaces may include:

- Installing touch-free door openers.
- Replacing trash, recycling bins, and other communal items with equipment that is made of easy-to-clean materials, particularly for handles that are frequently touched.
- Limiting occupants based on square footage and physical distancing guidelines.
- Performing regular cleaning.
- Disinfecting equipment such as washers, dryers, and bike pumps frequently or after each use.
- Requiring the use of masks.
- Providing hand sanitizing stations and cleaning supplies.

### Individual residential dwelling unit

Depending on the type of building, residential dwelling units can be accessed in a variety of ways, including direct access from a street in a townhouse, communal access via an enclosed corridor in a multi-story building, or access from an exterior walk. Risk increases when people and items are brought into the unit or when a COVID-19-positive individual is living in the household. Mental health including reducing quarantine fatigue and promoting general well-being, is important particularly during times when public health officials recommend more restrictive behavior than usual. Strategies may include:

- Asking residents to isolate and disinfect deliveries, shoes, and PPE before bringing them into their units.
- Reminding residents to wash their hands regularly, especially upon entering and prior to leaving their units.
- Limiting the number of visitors that residents admit into their homes and the apartment community.
- Running bathroom or room fans regularly.
- Changing air filters on a schedule recommended by ASHRAE.
- Encouraging residents to remove items from around the bathroom sink, such as a toothbrush and hairbrush, and storing them elsewhere and cleaning the kitchen and bathroom, particularly the faucets and sink, on a regular basis.
- Installing light bulbs that simulate daylight to increase serotonin and boost mental health when sunlight is limited.
- Creating temporary work or dining spaces outside where outdoor space is available and distanced from neighbors.



*Remove shoes and PPE upon entering; disinfect or temporarily store mail and packages.*



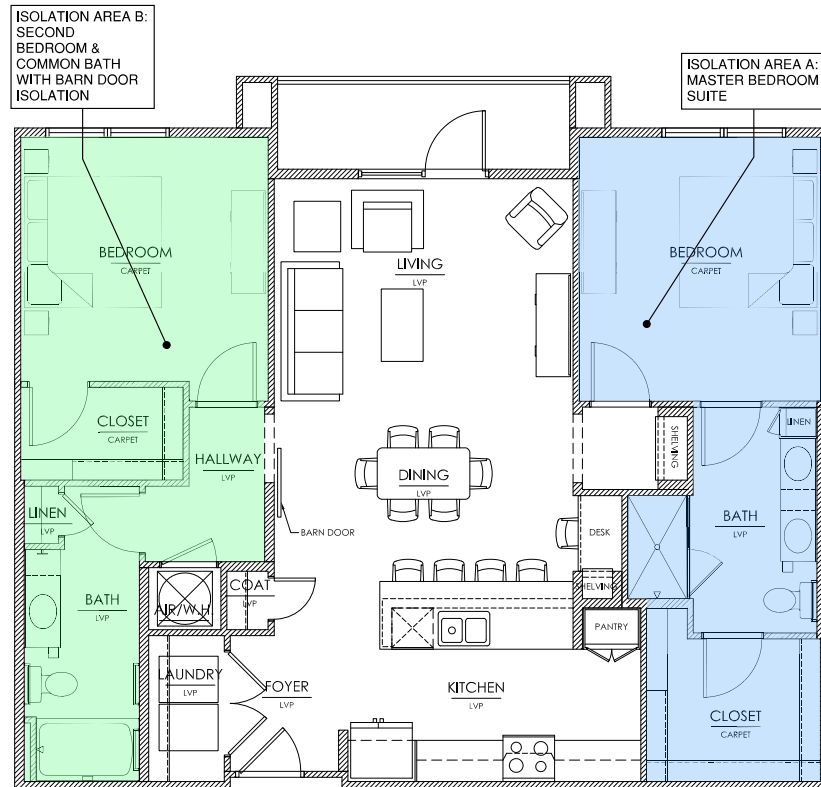
*Close toilet lids when flushing. Keep sink area clear, and run exhaust fans regularly.*

## Longer-term safety measures for multifamily buildings

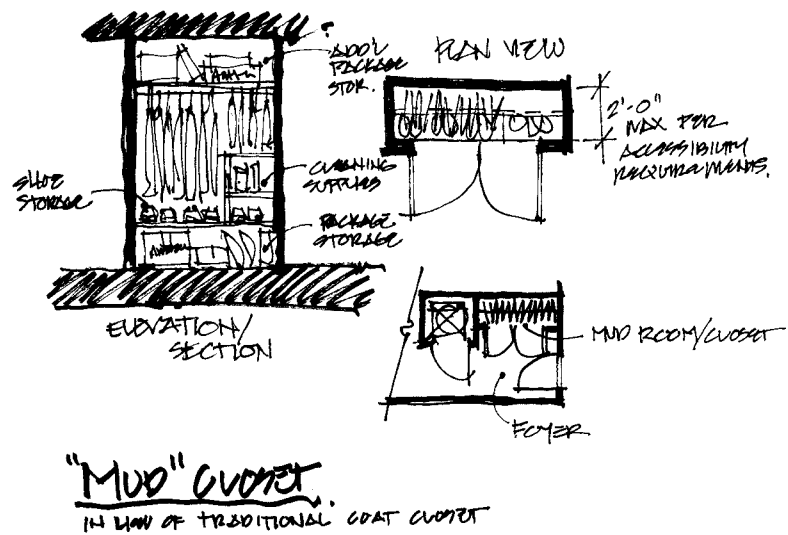
A full list of controls that can enhance the health and safety of multifamily residential facilities and other buildings can be found in AIA's [Re-occupancy Assessment Tool](#)<sup>19</sup>. While some of these strategies focus on incorporating technology in new ways, the tool also offers design ideas to transform both individual living units and highly trafficked public spaces. These modifications may require a building owner's investment in the physical property and a resident's compliance with new protocols to keep them safe. They include:

- Suite-style spaces that allow residents to self-isolate, even from those they live with.
- Spaces for disinfecting packages outside of the building entrance or unit.
- New arrangement of spaces within units and buildings to facilitate working and learning from home, and new ways to make spaces like kitchens and dining rooms multifunctional with surfaces that expand, tuck away, or otherwise transform to suit different needs throughout the day.
- More robust air circulation systems and different zone requirements for units and common areas.
- Expanded building storage areas for emergency supplies of food, PPE, or machinery as an amenity for all residents.
- Expanded residential unit storage for larger stockpiles of canned and paper goods, as well as larger refrigerators.
- Entryway mudroom areas or transitional zones with shelves for packages and shoes, hooks for coats/hats/umbrellas, storage space for cleaning supplies such as disinfectants and wipes, and a wash basin with touchless controls and soap dispenser to facilitate disinfection upon entry.
- Materials, fixtures, and finishes within units and around the larger apartment building that are durable and easy to clean.
- Ample electrical outlets both indoors and outdoors for USB and power connections, robust Wi-Fi network availability, improved cellular service to eliminate dead zones, and Bluetooth/Wi-Fi connectivity to common printer/scanner/fax stations in the building.
- Increased balcony and patio size to extend living spaces, as well as porches with screens and louvers.
- More expansive garden plots for tenant use.

*Suite-style apartment with separate bathroom/bedroom configuration enables easier isolation when illness strikes.*



*Concept for residence entry with coat, shoe, and package storage and cleaning supplies.*





*Flexible partitions and sliding doors between rooms, as shown here in this home away from home for families of children with cancer.*

*Architect: Leddy Maytum Stacy Architects*

*Photographer: Roger Swanson*



## Conclusion

The majority of living environments in America are single-family homes, but multifamily homes and environments that house many unrelated people present unique challenges from a virus mitigation and public health perspective. This report addresses some of the general considerations for congregate living, which varies based on the population and its specific needs. For example, millions of Americans experiencing homelessness **sleep**<sup>20</sup> in shelters or transitional housing on an annual basis. Nearly 20 million students are **enrolled**<sup>21</sup> in college, and prior to COVID-19, many of them lived in on-campus housing or off-campus group houses. Additionally, millions of Americans **live**<sup>22</sup> in senior living communities independently, codependently, in group situations, or alone. Millions more live in condominiums or cooperative buildings as owners or shareholders.

This report offers guidance for short-term change tactics and some clues about longer-term design strategies that aim to transform multifamily buildings into safe and healthy community hubs. Architecture cannot eliminate epidemiological threats, but it can help people cope with them and significantly reduce their individual risks of infection, thereby making the entire community safer. Multifamily owners and operators can help combat COVID-19, its resurgence, and any successor viruses with the help of architects and public health officials.

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