

Policy Briefs

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Point Access Block Building Design: Options for Building More Single-Stair Apartment Buildings in North America

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Abstract

Because of historical circumstances, building codes in the United States and Canada have stricter provisions around the number of stairways required in multifamily buildings above certain building heights than codes in other countries. Most building codes in the United States, with some exceptions, require multiple stairways and exits in multifamily buildings with four stories or more. These requirements pose a problem for smaller scale developments, particularly on small infill lots and when trying to build family-sized apartments. Within the United States, the cities of Seattle, Honolulu, and New York already have more flexible exit rules for mid-rise buildings, allowing “point access block” (sometimes referred to as “vertical shared access”) buildings of up to six stories with a single stairwell, with additional fire and life safety restrictions not otherwise required for buildings of such size. Legislation has also been introduced or passed in several states to study the issues involved.

Introduction

Residents of multifamily buildings typically think of their homes in terms of what lies within their apartments, but to an architect, circulation—the ways residents move in, around, and out of a building—comes first. Circulation can take many forms, but one element that every multistory

building must have is stairs. The number and arrangement of stairs and the hallways that lead to and from them are surprisingly important in defining the rest of the building—where windows can be placed, how rooms can be used, how big apartments can be, how much space everything consumes, how much the building costs to build, how high the rent or sales price is, and, ultimately, where people live.

In the United States and Canada, longstanding rules around means of egress—or, put simply, stairs—drive many of these considerations. Unlike building codes in most of the rest of the developed world, and even the National Fire Protection Association’s (NFPA) model building code, most adopted codes in the United States dictate that even small apartment buildings above three stories (or two stories in Canada) must have two stairs, with a minimum distance between their doorways, as exhibit 1 shows. Combined with a suite of other rules, the result is that apartment buildings are typically laid out as what architects refer to as double-loaded corridors—what people in other countries think of as hotels—with small apartments (often as many studios and one-bedrooms as the zoning code will allow) flanking a central hallway. Efficient and affordable family-sized apartments found in the rest of the world—and in shorter and older apartment buildings in the United States—have become harder to build.

Exhibit 1

Plan of a Typical Floor From a Small Building in Jersey City, New Jersey



Notes: Small buildings in New Jersey typically require two stairs per building. In this example, the second stairway (in yellow) consumes 7 percent of the space. An additional 2 percent of the space (in green) is rendered unrentable, because it must sit in the common corridor rather than inside the apartment on the right. Eliminating the second stairway would cut construction costs by an amount roughly proportional to the floor area eliminated and also offer better light to the two rooms facing the interior courtyard and a private entryway to the two-bedroom apartment on the right.

Source: Plan redrawn and analyzed by Alfred Tiwu

History

In the early hours of Sunday, September 2, 1666, a fire broke out in a bakery on Pudding Lane. The fire burned for 4 days, and by the time it was finally extinguished, it had burned through four-fifths of London (LFB Museum, n.d.). The dominant use of wood as a building material contributed to the spread of the fire, with English diarist John Evelyn (1661) calling London a “wooden, northern, and inartificial congestion of Houses.” London was quick to respond to the fire, and the next year, a parliamentary act was passed that ordered that the “outsides of all Buildings in and about the said City be henceforth made of Brick or Stone,” among other building regulations to protect London’s buildings against fire (Great Britain Record Commission, 1819). Although wood has never entirely fallen out of use in Europe, laws, customs, and economics moved European cities toward less

combustible building materials both sooner and more completely than in North America (Fantin, 2012), largely solving the problem of great urban fires by the 19th century (Hensler, 2011).

In the United States and Canada, however, wood continues to be used extensively in construction. The seemingly endless forests of North America made it an economically appealing building material, and sprawling, abundant land reduced the risk of fires spreading between buildings (Schulz, 1993)—at least until the late 18th and early 19th centuries when Americans started packing together in dense cities, which began to be consumed by massive urban conflagrations. Manhattan experienced multiple “great fires” starting in 1776, with large fires in Chicago and San Francisco following later into the 19th and early 20th centuries. The policy response in some cities was to adopt a more European attitude toward wood, but the material was so common that even in cities like New York, which went furthest to restrict its use, wood remained a common material in new construction into the 20th century (Friedman, 2010; Howe, 2013).

Therefore, a distinct approach to fire safety was developed, which continues to shape North American architecture today—the second exit. New York was, as is often the case in building technologies and regulations, a leader in requiring a second means of escaping a building, with rules requiring fire escapes beginning in 1860. The fire escape—a series of lightweight balconies connected by ladders, with access through a window above the ground floor and retractable ladder rungs at street level—spread across North America. Its advantages were that it was cheap to build and could be added to a design without altering the interior floor plan (Wermiel, 2003).

The fire escape had flaws, because window egress and ladders made it difficult for anybody without full physical faculties to use. Therefore, the narrow, flimsy, open-air balconies and ladders of the 19th century eventually evolved into America’s general requirement in the 20th century that apartment buildings with at least four stories have two staircases (known as “exits” in code parlance), often fully walled off from the rest of the floor plan and on opposite ends of the building (Wermiel, 2003).¹

The Double-Loaded Corridor Floor Plan

The requirement for a second exit led to a distinctive design in North America—the double-loaded corridor floor plan. Multifamily buildings in the United States and Canada generally center around a long, straight hallway bisecting the building along the narrower dimension, with many units arrayed on either side. In much of the world, this design is most characteristic of hotels or student dormitories (Eliason, 2023). In most of North America, it has become the only realistic way to build apartments.

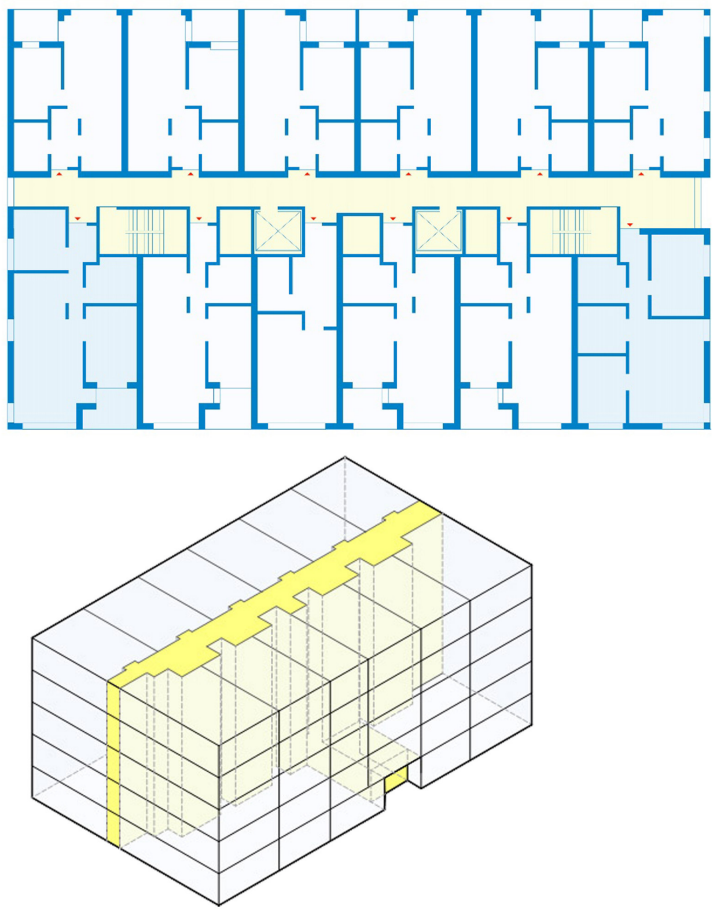
The design flows from the North American building code requirement that each unit has access to two exits—that is, staircases—along with a few related vertical circulation elements, such as elevators and trash storage. Housing developers all around the world, whether government or private, generally seek to include as much floor area as possible within apartments and minimize the space that circulation (both vertical circulation and corridors) consumes. Therefore, to ensure a

¹ 2021 International Building Code, Chapter 10, Means of Egress, <https://codes.iccsafe.org/content/IBC2021P1/chapter-10-means-of-egress>.

high enough percentage of the floor area sits within apartments, more apartments must be built on each floor, pushing architects and developers toward a double-loaded corridor design, as exhibit 2 shows. Because double-loaded corridors mean that each apartment generally has only a window on one side, designing efficient layouts for family-sized apartments becomes more difficult, contributing to developers building studio and one-bedroom apartments (Smith, 2023).

Exhibit 2

Double-Loaded Corridor Building, Viewed in Plan and Axonometrically



Source: Design by Michael Eliason, Larch Lab

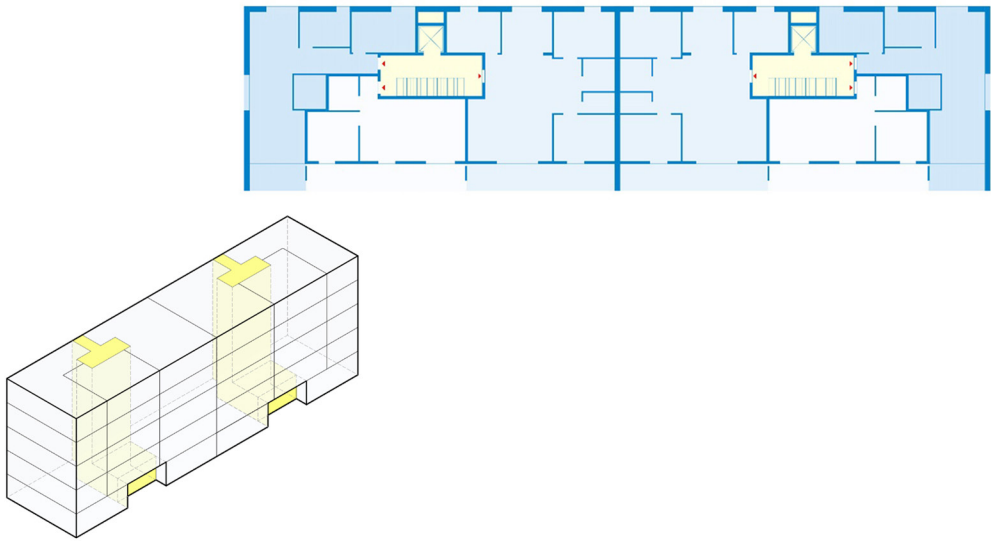
An Alternative Model: Point Access Blocks

A double-loaded corridor floor plan stands in contrast to the typical way of designing apartment buildings in the rest of the world, characterized by what architects in North America refer to as *point access blocks* (Eliason, 2021), a design with a single point of access from which every apartment is easily accessible without the need for long corridors. Point access blocks, as exhibit 3 shows, can have a variant of different designs, including lowrise typologies like the mid-century

American “garden apartment” or West Coast “dingbat,” mid-rise housing blocks found in Europe, and highrise single-stair towers more common in East Asia. In North America, because rules typically limit these types of buildings to three stories, proponents usually focus on incremental mid-rise building types rather than the more aggressive highrise versions.

Exhibit 3

Point Access Block (Two Single-Stair Conditions, Attached Together), Viewed in Plan and Axonometrically



Source: Design by Michael Eliason, Larch Lab

Point access blocks involve only a handful of apartments on each floor compared with often more than a dozen per floor in a double-loaded corridor. Requiring apartments to be served by less vertical and horizontal circulation space makes this design efficient, thereby maintaining a reasonable ratio of unrentable stair and hallway area relative to a smaller number of apartments. Without a long corridor bisecting the building, architects also have more flexibility in laying out units. Especially at mid-rise heights, this flexibility can allow for apartments with windows on multiple sides to stretch from the front of the building to the back, allowing more light and air into each room and making it easier to position the bedrooms and living area on opposite sides of the building for privacy and sound attenuation. The greater number of windows allows for more efficient family-sized layouts because windows are what make space usable for bedrooms, in lieu of shifting space to interior areas without direct sunlight, through the use of more and larger bathrooms or closets, or even the growing American trend of windowless bedrooms (Wagner, 2023).

Outside the United States and Canada, building multifamily dwellings with a single staircase is much more common. Most such buildings tend to be mid-rises, such as the freestanding *palazzine* of mid-century Italy, or the affordable, wooden walkup *apaato* or newer and more luxurious concrete *manshon* buildings with elevators in Japan. Low- and mid-rise point access blocks are the most common type globally, with building codes and regulators considering taller buildings

to be more of a risk and many requiring a second stair at a certain height, thereby eliminating some of the efficiencies of the model. That said, highrise, single-stair point access blocks can be found in many countries, particularly in Asia,² Latin America,³ Eastern Europe (Teotalida, n.d.), and increasingly Western Europe (Burkard Meyer Architects, 2023),⁴ as planners become more comfortable with height due to rising housing costs, growing demand to live in cities, and declining fire death rates with new technologies.

Americans might be most familiar with a humbler style of point access block, one of the most recent low-cost housing typologies in North America—the garden apartment. These two- and three-story complexes, typically built on the fringes of American cities (at least at the time of their construction), feature a series of connected point access blocks with a single staircase each, giving access to typically one or two apartments on either side per floor. Because the requirement for two stairs in building codes in most of America kicks in only at the fourth floor, such complexes can be built with minimal space “wasted” from a financial perspective on a second staircase and long, unrentable corridors connecting the vertical circulation to the apartments. This type of housing, which often offers two- and three-bedroom apartments alongside smaller units, used to be common in newer parts of American cities and inner suburbs in the decades after World War II (Hess, 2005). However, developers are building fewer new garden apartment complexes because, among other reasons, greenfield land within a reasonable commute of downtown is becoming less available, and tenant and condo-buyer demand shifts toward more central locations with different land economics and zoning are pushing developers to build taller and more costly housing types (Anderson, 2019).

The photo of Colonial Village in Arlington, Virginia, in exhibit 4 illustrates a typical garden-style apartment design familiar to most readers. Because the buildings in this complex are two to three stories high, they are already below the current U.S. single-stair height limit. The same basic garden-style layout can also be used for buildings above three stories, with apartments centered around single access points and interior stairwells, and the entire development that includes multiple sets of apartment clusters and entrances.

² For example, https://www.archdaily.com/619665/the-minton-dp-architects?ad_source=search&ad_medium=projects_tab.

³ For example, https://www.archdaily.com/999364/oscar-by-you-residential-building-perkins-and-will?ad_source=search&ad_medium=projects_tab.

⁴ For example, <https://www.b22.it/en/projects/cascina-merlata-housing-sociale/>.

Exhibit 4

Garden Apartments of Colonial Village in Arlington, Virginia



A photo of Colonial Village, a garden apartment complex in Arlington, Virginia. Colonial Village in Arlington, Virginia, was the first Federal Housing Administration-insured large-scale rental housing project. The 50-acre garden apartment complex was built between 1935 and 1940, had a 10,000-person waiting list for 276 units, and still provides affordable housing today. Some claimed that at the time of construction, it was “the most widely copied piece of real estate in the country” (Boodman, 1977).

Photo credit: Winerman (2011).

Policy Adoption of Point Access Blocks

A growing interest in the United States and Canada seeks to combine the advantages of the garden apartment with the density of mid-rise buildings by reforming building codes that currently restrict point access blocks with a single stairwell for each group of apartments to three stories in the United States and two stories in Canada. In 2023, Washington Governor Jay Inslee, Oregon Governor Tina Kotek, and California Governor Gavin Newsom all signed into law bills ordering studies to determine whether and how to allow taller single-stair buildings in their respective states.⁵ Bills have also been introduced in New York City and at the state level to either study or enact similar changes (California YIMBY, 2023; SPUR Digital Discourse, 2023),⁶ and the Canadian

⁵ WA SB5491, <https://legiscan.com/WA/text/SB5491/2023>; HB 3395, <https://olis.oregonlegislature.gov/liz/2023R1/Measures/Overview/HB3395>; CA AB835, <https://legiscan.com/CA/text/AB835/2023>; Senate Bill S6573, <https://www.nysenate.gov/legislation/bills/2023/S6573>.

⁶ The New York City Council, Legislation Int 0794-2022, <https://legistar.council.nyc.gov/LegislationDetail.aspx?GUID=37FE9CD9-BF36-4B6F-A20A-70FA1A52E99C&ID=5898998>.

Board for Harmonized Construction Codes has decided to develop a code change to allow taller single-exit buildings as well.⁷

Within the United States, the cities of Honolulu, New York, and Seattle already have more flexible exit rules for mid-rise buildings, allowing point access blocks of up to six stories with a single stairwell, with additional fire and life safety restrictions not otherwise required for buildings of such size. Seattle's code since 1977 has allowed for new apartment buildings up to six stories if built with 1-hour fire-resistive construction,⁸ with at most four apartments per floor, and a travel distance of no more than 125 feet from the farthest point in each apartment to the stairwell.⁹ The consolidated city and county of Honolulu (which encompasses all the island of Oahu, home to two-thirds of the state of Hawaii's population) recently adopted similar language to Seattle in its building code.¹⁰ New York City allows new buildings of up to six stories under a somewhat different set of conditions, requiring steel or concrete construction (as it generally does throughout the whole city, regardless of the number of stairs) and limiting floor area to 2,000 square feet per story (with legislation introduced in 2022 to double that size, bringing it more in line with Seattle's allowance).¹¹

Beyond local building codes in Seattle and New York City, NFPA also recommends somewhat looser standards for single-stair buildings than most adopted U.S. building codes. NFPA is a nonprofit organization that sets standards for fire protection in the United States that are often adopted into code, and one of its first model codes, published in 1927, was called the Building Exits Code (Bukowski and Kuligowski, n.d.). Today, the NFPA 101 Life Safety Code (the modern successor to the Building Exits Code) and the NFPA 5000 Building Construction and Safety Code recommend allowing up to four stories of apartments around a single stairwell, subject to a few conditions that are similar to those found in Seattle's code—for example, four units per floor at most, sprinklers throughout the building, and a 1-hour fire resistance rating for walls around the exit stair and corridors leading to it.¹²

Outside the United States and Canada, codes in other countries often go much further in allowing taller single-stair configurations in point access blocks (exhibit 5). Germany allows buildings of up to 60 meters (197 feet), or around 20 stories, to have a single stairway. Switzerland has no height limit, and single-stair towers of more than 30 stories are now being built (Burkard Meyer Architects, 2023). In Asia and Oceania, taller single-stair buildings are also common. South Korea allows them of unlimited height, mainland China allows them up to 18 stories, and Australia allows them up to 25 meters (82 feet, or roughly eight stories).¹³

⁷ CCRs 1815 and 1816, https://codes.nrc-cnrc.gc.ca/en/certifications-evaluations-standards/codes-canada/codes-development-process/code_change_requests.html.

⁸ The Second Egress: Building a Code Change, Seattle, <https://secondegress.ca/Seattle>.

⁹ UpCodes, 2018 Seattle Building Code 1006.3.3, Single Exits. <https://up.codes/viewer/seattle/ibc-2018/chapter/10/means-of-egress#1006.3.3>.

¹⁰ Hawaii State Building Code, https://codelibrary.amlegal.com/codes/honolulu/latest/honolulu/0-0-0-14009?fbclid=IwAR24kHU1ZsmjN_mXmTt1eNYWd1y3Y7fGDLJ2Jm5G5sR2ALXygJIGMMB5pXc.

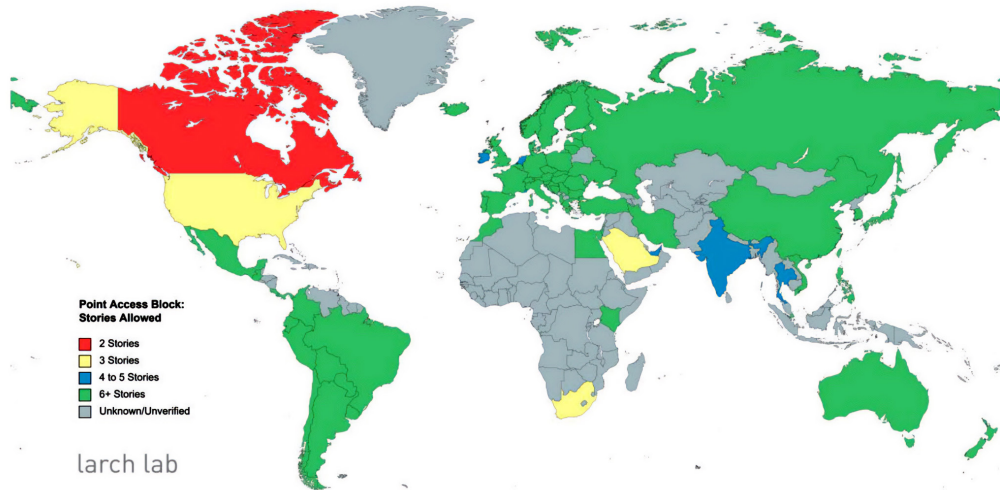
¹¹ NYC BC, 1006.3.2.

¹² NFPA 5000, 2021, 25.2.4.5; NFPA 101, 2021, 30.2.4.6.

¹³ The Second Egress: Building a Code Change, Jurisdictions, <https://secondegress.ca/Jurisdictions>.

Exhibit 5

Legality of Single-Stair Buildings by Number of Stories



Note: Excludes city-specific modifications in the United States (for example, Honolulu, New York City, and Seattle allowing up to six stories).
Source: Eliason (2021)

Although single-stair buildings are commonplace and the codes allowing them have not attracted controversy in most of the developed world outside of the United States and Canada, they have recently come under scrutiny in the United Kingdom following the loss of 72 lives after a fire in 2017 enveloped the 24-story Grenfell Tower apartment block in London. The building's single staircase was cited as one of many factors leading to the deaths, and tighter limits are now being considered for new single-stair buildings going forward, with London imposing a 30-meter (98-foot) limit for apartment buildings and some discussion of an 18-meter (59-foot) limit in the future for the United Kingdom outside of Scotland (NFCC, 2022; Spocchia, 2023).

Following the fire, several of Grenfell's features were rethought, leading to code changes that were implemented before the current reevaluation of single-stair rules. Flammable cladding, which allowed a small fire to rapidly spread across the façade of the building, was seen as the most egregious contributor to the fire and led to the swiftest reaction—not only for buildings going forward but also for existing buildings with the same cladding, which is being stripped at an enormous cost (Longley, 2020). The lack of fire sprinklers meant that no active suppression was available until the fire service arrived, and a sprinkler requirement was imposed a few years after the fire (FPA, 2020). Beyond those issues, a “stay-in-place” policy remained in effect for more than an hour after the fire began before a general evacuation order was finally ordered (Agerholm, 2018). The fire led to other changes in building regulation in the United Kingdom, including a controversial ban on mass timber construction in buildings above 18 meters (59 feet), even though the building that burned used none of the material (Rudgard, 2023).

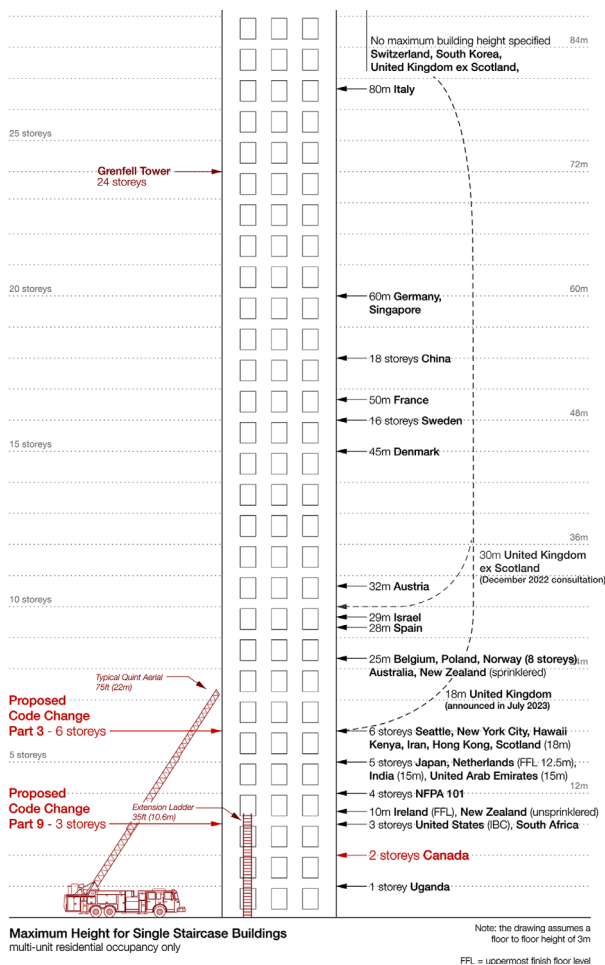
American and Canadian proponents of raising the single-stair height limit have focused on allowing mid-rise buildings, of at most a few more stories than the current two- and three-story

height limits, although the debate in the United Kingdom over single-stair skyscrapers sometimes obscures the debate in North America. As noted previously, three U.S. cities already allow multifamily buildings up to six stories with a single stairwell and, in the case of Seattle, have done so for decades without major incident or controversy.

Conrad Speckert, a Toronto-based architect who requested that the national code change to raise Canada's height limit for single-exit buildings, created the graphic in exhibit 6. It is meant to generally represent the maximum allowed height, with further details such as occupancy limits per floor and construction types omitted for simplicity's sake. It illustrates the various building height requirements in different countries where multiple stairwells are required but does not necessarily demonstrate the range of building types that can rely on a single staircase, which are more varied than a slim, freestanding highrise building.

Exhibit 6

Legality of Single-Stair Housing by Height



Source: *The Second Egress: Building a Code Change, Jurisdictions*, <https://secondegress.ca/Jurisdictions>

Challenges in Building Code Development

Determining the appropriate limits of building codes is a difficult challenge because of the serious life safety consequences of getting it wrong combined with the informational challenges involved in evaluating fire safety. Historically, building codes have been developed through trial and error, reacting—sometimes underreacting and sometimes overreacting—to major fires. Data collection is incomplete, complicating large-scale empirical approaches, and fires have become relatively rare, making small-scale data collection less useful. Engineered approaches using advanced computational modeling can offer a way out of traditional challenges, but numbers must also contend with historical traditions involved in code development.

The Triangle Shirtwaist Factory fire in Manhattan in 1911 exemplifies the challenges of legislating exits when considering the uncertainty and politics involved in major fires. A 1915 law passed in reaction to the fire that required four exits, rather than the previous three, in a commercial building like the one that burned (which was, by modern standards, not terribly tall at just 10 stories of under 10,000 square feet each), only to be bumped back down to the current two in a 1938 building code that aimed for quality over quantity in commercial building exits (Spivack, n.d.).

A lack of uniform data and information on outcomes complicates data-driven approaches to determining the safety of single-stair requirements, taking advantage of variations in different countries' rules. Although the United States does have an unusually high rate of fire death among its high-income peers around the world (Brushlinsky et al., 2022), a fact proponents often use to argue that our relatively low single-stair height limit is not keeping us safe from fires (Eliason, 2021), these top-line numbers cannot speak to the safety of specific building types in countries with many different types of housing. Finer analyses may be possible in some countries but have yet to be performed on available data to provide specific insights about the safety of taller buildings.

Our divergent tradition of building with wood further complicates the use of codes from safer countries abroad to inform codes in North America. Although modern materials and devices like gypsum board and automatic sprinklers and engineering approaches like fire-resistance ratings provide a high degree of safety to light wood frame structures, the inherent flammability of the light wood frame used in much of the United States for low- and mid-rise structures does give some pause about adopting global norms for building exits, because the dominant building materials abroad are noncombustible concrete and masonry. The National Fire Protection Association published an article in 2022 critical of the effort to adopt more European approaches to multifamily building exits, citing Europe's greater use of noncombustible materials like brick and concrete and stricter standards for compartmentalization within buildings. In the article, NFPA recommended its own four-story single-stair height limit (taller than the two- and three-story limits enacted in most of the United States and Canada) as a possible path forward (Ziavras, et al. 2022).

Urban Infill Brings New Code Challenges

Across North America, governments and the private sector are increasingly embracing infill development, often due to the shrinking supply of available land, growing demand for urban living, and new worries about the environmental consequences of sprawl. States and cities are reconsidering strict single-family zoning in some cases (Fox, 2022; Healey and Ballinger, 2021;

Jeffords, 2023; Wamsley, 2019), and multifamily permitting in the United States is at highs not seen since the 1980s.¹⁴ New growth within urban cores since then has largely occurred on commercial, industrial, or vacant land. However, with those sites becoming scarcer, cities across the continent are turning toward upzoning built-out single-family neighborhoods for small apartment buildings. Cities are now looking to bolster the so-called “missing middle”—that is, housing typologies denser than a detached single-family house but smaller than a large mid- or highrise apartment building requiring large lots (Parolek, 2020). Therefore, planners are turning to the most abundant type of land in cities that is also one of the more controversial for development—single-family lots.

Unlike large parking lots or industrial areas that have served as sites for new housing during the past few decades, single-family lots tend to be small; anywhere from 2,500 to 7,500 square feet is typical in urban settings. These small lots struggle to accommodate apartment buildings under today’s building codes. Developers typically target an efficiency ratio—that is, the ratio of rentable floor area inside of apartments to the total area of a typical upper floor—of somewhere around 85 percent. To keep this ratio relatively stable, every extra square foot of circulation area—whether a second staircase, a corridor to increase the fire separation between the staircase and dwelling units, the required distance between the two stairs, or a larger elevator—must come with an additional 5 to 10 square feet of extra space within apartments. On a small urban lot, growing the size of each floor to accommodate the second stairwell and other features of North American buildings while still maintaining a reasonable efficiency ratio under current building code constraints means eating into prized open space.

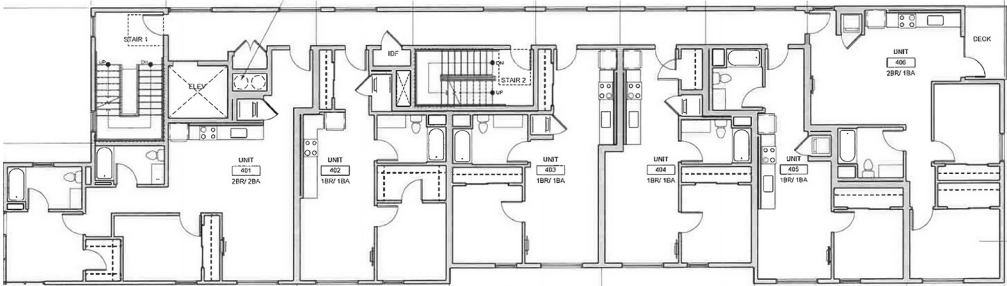
In Los Angeles, for example, new mid-rise multifamily buildings on small lots end up coming within 10 feet of their rear property line, and even with this fairly high lot coverage, they often have efficiency ratios short of 80 percent (exhibit 7). Shoehorning apartments into single-family neighborhoods will inevitably require compromising on these high multifamily lot coverages (current allowed lot coverage in single-family neighborhoods in Los Angeles tops out around 50 percent),¹⁵ but shrinking buildings while maintaining the same building code requirements for two stairs in protected shafts, in addition to elevators needed for mid-rise buildings, would drive efficiency ratios low enough to call into question the feasibility of development. This problem can be mitigated to some extent if developers buy multiple small lots next to each other to enlarge their development sites, but timing purchases is tricky, and so-called land assembly can drive up the price of land in Los Angeles by up to 40 percent (Brooks and Lutz, 2016). Winning political support for multifamily zoning in single-family neighborhoods is difficult enough for mayors, city council members, and urban planners in North America, and building code requirements for an additional staircase and some other related features—reducing the total amount of residential units that can be built on the available lot size—can make the task more difficult.

¹⁴ Building Permit Survey, <https://socds.huduser.gov/permits/>.

¹⁵ Los Angeles Department of City Planning, https://planning.lacity.org/odocument/eacdb225-a16b-4ce6-bc94-c915408c2b04/Zoning_Code_Summary.pdf.

Exhibit 7

Typical Floor Plan of a Los Angeles Multifamily Building on a Single 50'x100' Lot



Source: DFH Architects

Future Directions

Reforms and modifications to building codes in the United States can be considered in multiple ways. Building codes are written variously at the national, state, county, and local levels, and change can come from any and all of these levels. The most widespread change tends to come through the national model building codes, with states, counties, and cities often proving grounds for new rules of building that do—or do not—eventually make it into the model code, which then get promulgated back downward through cyclical adoptions by the various levels of government. The allowance of mass timber construction in the United States, for example—which is more fire-resistant than typical American light wood frame but with strength that allows it to be used for building types for which, previously, only concrete or wood would do—first came at the state level in the Pacific Northwest (Pacheco, 2018; Washington Forest Protection Association and Forterra, 2018). It was later adopted into the International Building Code (AWC, n.d.), the latest version of which is finally being adopted in jurisdictions across the United States.¹⁶

Proponents of raising the limit for single-stair buildings are, so far, focusing state legislative efforts on studying the issue. How such studies might occur is an open question because existing code provisions are quite old and were arrived at largely through trial and error and in response to major fires. Data beyond anecdotes—domestically in Honolulu, New York City, and Seattle and also abroad—are spotty, because fire services do not keep records of fire fatalities by number of exits per building. Newer, more advanced computational models of smoke spread and time to exit buildings or holistic methods like decision tree analysis could fill some gaps in data, although engineered approaches will still have to contend with more than one-and-a-half centuries of precedent for two means of egress in the United States.¹⁷

Finally, reform has a wide range of possibilities. Rules in the rest of the world run the gamut from the ultra-permissive (for example, no height limits for single-stair buildings in Switzerland or South Korea) to the very strict (Uganda requires a second staircase connecting any story above or

¹⁶ Building Code Allowances for Tall Mass Timber, <https://www.woodworks.org/resources/status-of-building-code-allowances-for-tall-mass-timber-in-the-ibc/>.

¹⁷ NFPA 550, <https://link.nfpa.org/free-access/publications/550/2022>; NFPA 92, <https://link.nfpa.org/free-access/publications/92/2021>.

below the ground floor),¹⁸ but advocates in North America have focused on liberalizing rules for mid-rise buildings of up to six stories (Gordon, 2022). Two NFPA model codes—NFPA 101 and NFPA 5000—offer a more incremental path forward, allowing for single-stair apartment buildings of up to four stories.¹⁹ More permissive rules around stairs could also be paired with stricter rules for construction type (for example, requiring more fire-resistant materials like concrete or mass timber) and compartmentalization, in addition to the current requirements for fire sprinklers (which are not typically found abroad) to mitigate the risk and bring overall standards in line with those abroad.²⁰

Conclusion

Building codes are a new area of interest for housing advocacy in recent years, which has, until now, largely focused on land use and transportation. Focusing on the ways in which buildings are constructed, and not just where and to what size, opens new avenues for shaping the building environment but also new perils if mistakes are made. Unlike other urban policy measures, building codes have a much more critical function in life safety, and reforms will have to meet a high burden of proof. A history of fires and resource availability shaped the North American way of building, and the onus will be on advocates for change to prove that their suggestions are necessary and safe.

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