

The Single-Stair Solution: A Path to More Affordable, Diverse, and Sustainable Housing

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February 2025

FIGURE 1. Milo Apartments, Denver, Colorado by SAR+ Architects



This three-story single-stair housing project—on a narrow lot zoned for height and neighboring eight-story apartment buildings—is constrained from denser development due to building code restrictions. *Photo by David Lauer Photography.*

Efforts to reform rules that limit developers have focused on easing zoning laws that restrict where housing can be built and how large buildings can be. However, a new movement is emerging. Driven by market demand for more livable, family-friendly, multifamily rental homes, the US's building codes, which regulate what is built inside the box defined by zoning regulations, are coming under scrutiny.

One particularly burdensome code is the requirement that most multifamily buildings have multiple exit stairs. This seemingly innocuous rule has far-reaching implications for the design, cost, and feasibility of housing projects. A growing movement, spearheaded by code experts, housing developers, advocates, and recently, Colorado Governor Jared Polis, is challenging this norm and championing a more flexible approach in line with global standards: single-stair buildings.

In early September 2024, the National Fire Protection Association (NFPA) hosted the two-day “Single Exit Stair Symposium,” bringing together building code officials, fire marshals, life-safety experts, architects, and housing advocates to discuss increasing the allowable height of single-staircase housing in the United States. At first glance, dedicating two full days to a single building-code topic may seem excessive, but with the nation facing a historic housing crisis, this discussion is a critical one. In growing numbers, advocates and experts are shining a spotlight on housing regulations and asking an essential question: Why is the US an outlier in how it restricts housing, while around the globe more diverse options are available?

This brief will shine light on the benefits of single-stair housing—benefits that make it a prevalent option around the world—and how single-stair options can improve the quality and quantity of housing being constructed in the US.

The Case for Single-Stair Buildings

It’s no surprise that the requirement for multiple exit stairs has become the first building code provision to face popular challenges with support from YIMBY (yes in my backyard) groups across the country and even Minnesota’s Sierra Club chapter. Single-stair housing offers a flexible, efficient, and visually appealing infill housing type that helps create walkable, livable communities around the world. If more US jurisdictions embraced international best practices and allowed mid-rise single-stair housing, it would open the door to more family-sized apartments, spur a surge in affordable, energy-efficient housing, and help address both the housing and climate crises.

Single-stair buildings offer numerous advantages:

More Homes, Lower Costs: By eliminating the need for a second stairwell, developers can create more compact buildings. This increases the number of small, urban lots where housing can be constructed, making housing more plentiful and thus affordable. Smaller buildings also mean reduced construction costs, bringing housing prices down even further.

Flexible Living Options: Clustering units around a single stair allows for more flexible floor plates that can accommodate a wider range of unit sizes and layouts, including family-sized apartments with multiple bedrooms and windows. This range addresses the growing demand for larger, more functional living spaces. Putting in a second stair generally requires developers to “double-load” corridors—having apartments on both sides of a corridor—which means each apartment typically

only has windows on one side. It's common that only the end or corner units in contemporary US buildings provide multiple exterior wall exposures. Removing the requirement for two stairs connected by a corridor allows for more diverse configurations and enables developers to design units with windows on multiple sides, making it easier to build family-sized apartments with two bedrooms or more. By contrast, in most contemporary apartment buildings, developers need to figure out what to do with all the interior areas with no sunlight, often resulting in larger bathrooms and closets, or, in more and more cases, windowless bedrooms. Additional windows also make homes feel brighter, airier, and more livable—key qualities desired by families.

Smarter, More Efficient Homes: Buildings with increased density and compact footprints have reduced energy consumption in operation and construction. Because single-stair units include more windows and access to natural light than standard apartments, single-stair buildings reduce reliance on artificial lighting, leading to lower energy consumption and reduced carbon footprints. The extra windows allow for cross-breezes to cool apartments naturally on hot days, which makes the units even more energy efficient. Additionally, small-lot density enabled by taller single-stair buildings can multiply overall density severalfold. Small lots that typically only result in construction of single-family homes, duplexes, and triplexes can use single-stair construction to efficiently build a 20-unit building that requires less energy to build per each unit of housing due to efficiencies of scale.

Neighborhoods People Love to Live in: Through infill construction on small urban lots where housing is most in demand, single-stair buildings can be integrated into the existing urban fabric more seamlessly, fostering more walkable, vibrant neighborhoods. Single-stair buildings, with their smaller footprint, can transform overlooked, challenging sites into opportunities and blend harmoniously with existing neighborhood forms. When single-stair apartment buildings come with ground-floor retail, they also activate the streetscape, allowing for the creation of small local businesses, bringing opportunity and vibrancy to the neighborhood. By contrast, large contemporary US apartment buildings commonly stretch an entire city block with only their two required exits as access points. These monolithic designs tend to isolate residents and fail to weave themselves into the fabric of the community.

Smaller-scale developments also tend to face less community opposition, as their neighborhood-friendly design makes them a more palatable solution to local housing needs. Allowing single-stair buildings more broadly could speed up lot development while reducing the need to acquire and demolish neighboring buildings.

Supporting Innovation: Opportunities for small multifamily housing could also spur innovation by empowering new entrants in the multifamily development business. This innovation can be seen on the ground in Seattle, where the unique building code has unlocked a range of small-lot housing options, from luxury condominiums to student housing to affordable housing. One of

us (Sean Jursnick) documented this in a previous policy brief, “The Seattle Special: A US City’s Unique Approach to Small Infill Lots” (Mercatus Center, December 2024).

Allowing single-stair buildings gives developers the flexibility to create more human-centered spaces with desirable open space that residents can utilize. European and Asian cities offer many examples of single-stair mid-rise buildings clustered around shared courtyards and open spaces. This design can foster meaningful connections, improve health, and enhance sustainability.

Overcoming Regulatory Hurdles

To unlock the potential of single-stair buildings, policymakers and building code officials must be willing to consider evidence-based arguments that challenge existing regulations. Building codes exist to protect public health and safety, and they evolve over time based on advances in technology. Codes do reflect the thoughtful and diligent work of professionals dedicated to minimizing risks and ensuring safety in the built environment. However, technology, materials, and design strategies have advanced significantly over time, and these advances offer new design opportunities that can ensure the safety of residents and first responders.

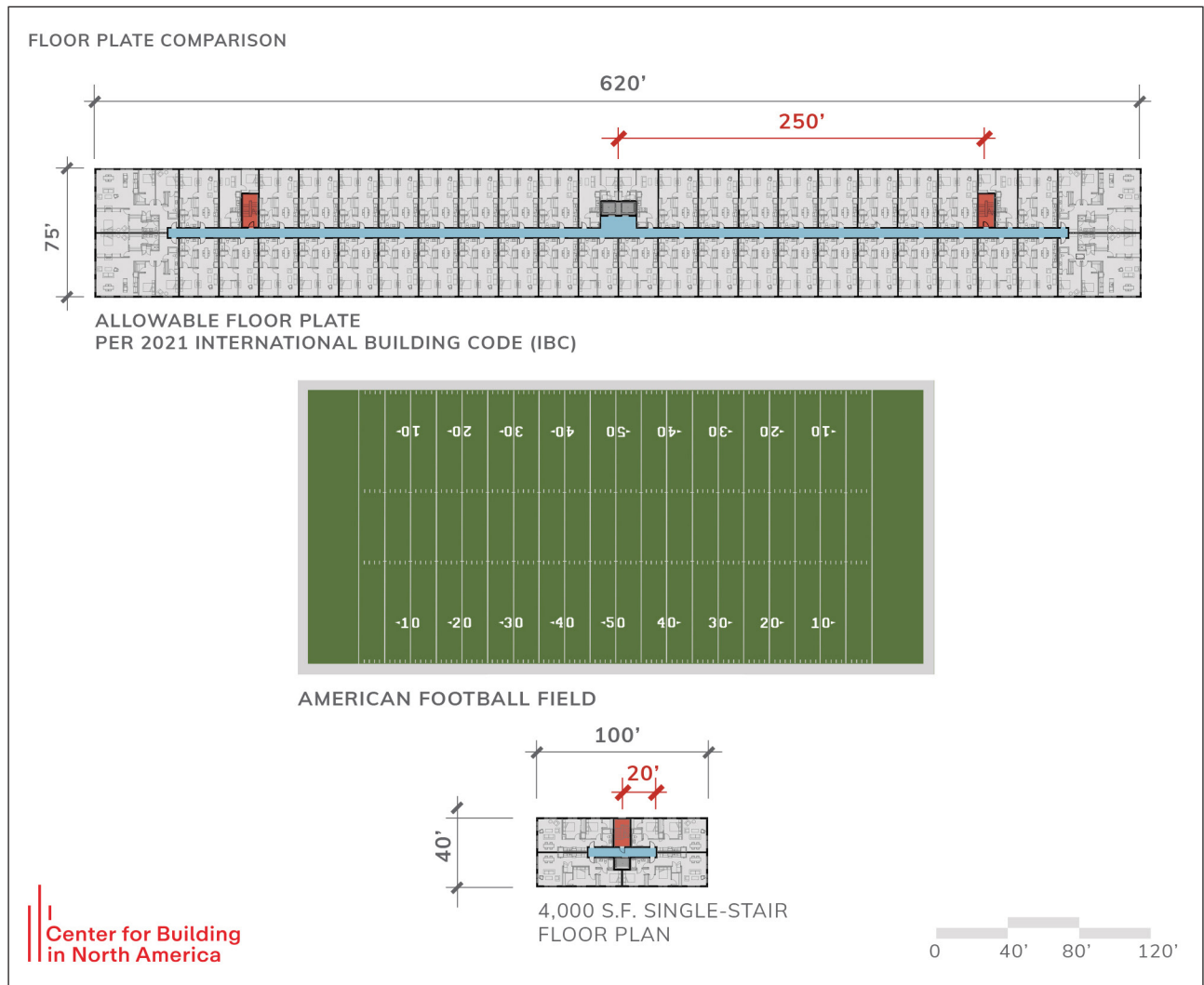
The most common national consensus code in the US, the International Building Code (IBC), limits the height of single-stair housing to three stories—a standard upheld for over a century. While it is worth acknowledging that this long-standing restriction has been rooted in genuine concern for safety, it is time to reevaluate whether this limitation is necessary and relevant to preserve safety today.

Several jurisdictions, including Seattle, New York City, Knoxville, and Honolulu, have recognized the benefits of single-stair housing and have increased the allowable height of single-stair buildings to six stories. These changes incorporate thoughtful safety provisions, such as short exit distances and limits on the number of units per floor, ensuring that residents have quick and safe egress options. These tailored solutions create compact buildings with quick, intuitive emergency exit strategies—a stark contrast with large floorplates allowed under current IBC regulations for multistair buildings, which allow more residents but feature longer corridors, dead ends, and extended exit times. The contrast between the scale of the two-stair building allowed under current consensus building code and the smaller footprint that used by single-stair buildings is dramatic, as illustrated in figure 2, which compares the two floor plates to a standard American football field.

One City’s Struggle with Small Lots

Governments and the private sector increasingly agree on the value of infill development. But densifying built-up areas is easier said than done: The economics of housing development, shaped by zoning and building codes, heavily favor massive apartment buildings built on massive lots. These parcels are scarce in dense urban areas, driving up demand and, with it, costs. As stated,

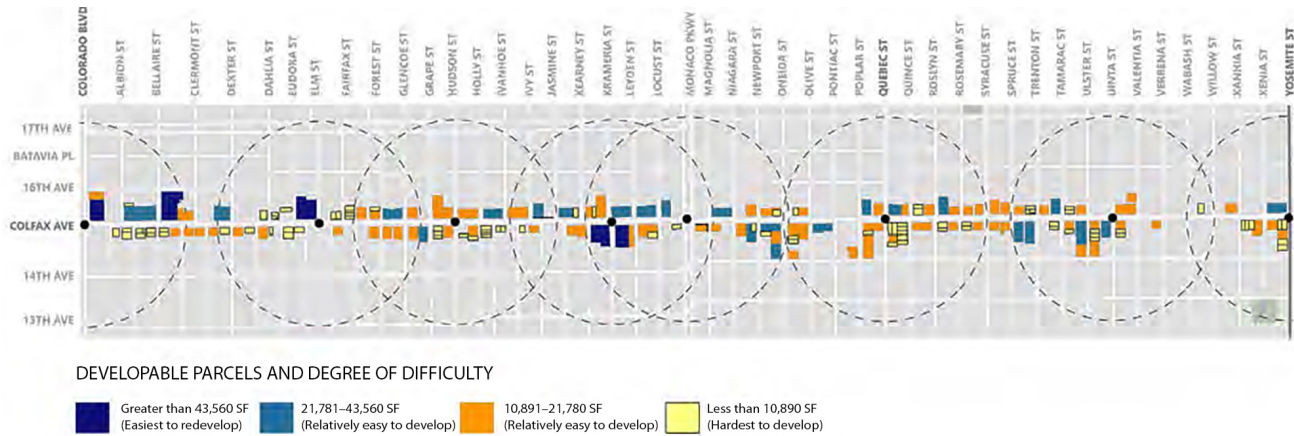
FIGURE 2. Visual comparison of a two-stair floor plate compliant with the 2021 International Building Code and the largest single-stair floor plate allowed by the 2018 Seattle Building Code



Source: Drawing by Sean Jursnick, SAR+ Architects, completed for Center for Building in North America.

the requirement of a second staircase is a key factor pushing developers towards bigger buildings on oversized lots. With a few notable exceptions, jurisdictions in the United States require that buildings four stories and up have two exit staircases that take up space that could otherwise be used for rentable livable areas. This renders mid-height buildings financially unviable in dense areas unless developers can acquire enough adjoining lots to create a larger footprint. The result? Highly desirable urban areas are littered with undeveloped or underutilized lots—spaces that could be transformed into much-needed homes that would help mitigate the housing unit shortfall.

FIGURE 3. Barriers to redevelopment—development parcels and degree of difficulty due to lot size



Source: City of Denver East Area Plan (Nov. 16, 2020), Barriers to Redevelopment, p. 227.

In 2020, the City of Denver published the East Area Plan, a visioning document outlining goals for several central Denver neighborhoods. These goals included improved access to opportunity and expanded housing diversity. The report identified the abundance of small and narrow lots along historic Colfax Avenue as a significant challenge to development in the area where growth is being encouraged to support a bus rapid transit (BRT) corridor currently under construction. The numerous small lots are shown in orange in figure 3. Despite zoning that permits building heights ranging from 5 to 12 stories, the report warned that without targeted regulatory reforms, many of these small lots will remain vacant, suppressing growth and undermining the success of the transit corridor. By including single-stair buildings in its code, Denver can address these barriers to development and enhance the built environment of Colfax Avenue. This change could activate these overlooked lots into vibrant, transit-orientated communities that both support the upcoming BRT corridor and affirmatively further the city’s vision for a more equitable and connected future.

Conclusion

When pursuing regulatory reforms to tackle the housing crisis, we must prioritize both increasing housing production and ensuring the quality of the homes we build. The movement to embrace single-stair buildings offers an opportunity to meet these goals by fostering sustainable development and delivering high-quality homes that are more deeply connected to their communities. This time-tested building typology has the power to not only complement but also enhance our housing landscape, creating homes people love in neighborhoods they are proud to call their own.

About the Authors

Peter LiFari is an affordable housing developer, CEO of a public housing authority, and a fellow at the Common Sense Institute. His work focuses on developing affordable housing, housing policy,

and land use reform. With experience in both development and policy analysis, he advocates for housing abundance and equitable community growth. This work reflects his commitment to evidence-based solutions and the democratization of land use regulations.

Sean Jursnick, AIA, is a licensed architect in Colorado with a keen interest in research and housing advocacy. Jursnick moderated a panel on the single-stair reform movement at the 2024 AIA Conference on Architecture and Design, and as an Emergent Ventures grant recipient, he organized an international single-stair design contest. Jursnick also serves as the cochair of the AIA Colorado Housing Committee and was awarded the AIA Colorado Fisher Travel Scholarship to study carbon reduction efforts in smart cities.