Unlocking Small Multifamily Housing through Building Code Reform

July 2026

BOSTON INDICATORS

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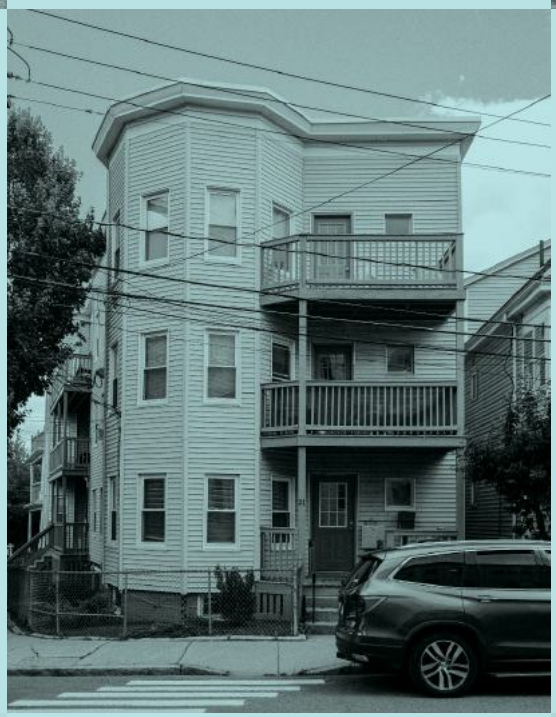

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Nominal

Nominal is an architecture and design practice dedicated to crafting delightful and connected dwellings — from the block to the bedroom. The firm is led by Sam Naylor, AIA and Cadence Bayley, AIA. Combined, they have over two decades of experience designing award-winning architecture across the country and internationally. Their previously published research on housing design includes reports on the state of housing design in the US, multifamily zoning in Massachusetts, and single-stair building code reform. The firm's work centers on affordable housing, low-carbon materials, and walkable neighborhoods, and is driven by the belief that everyone deserves a well-designed, joyful, and healthy home.

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Part 1 Why the Code Matters


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A Housing Crisis, & a Hidden Barrier

Massachusetts needs far more housing, especially in walkable, transit-served, amenity-rich neighborhoods. Our state and local land-use laws, state building codes, and other regulations fail to allow enough housing to be built overall, but they especially hinder small-scale infill development in historic neighborhoods. Development of more small multifamily housing (SMH) should be a major answer to many problems: the lack of affordable homes, family-sized homes, starter homes as well as environmental degradation caused by sprawl and a mobility crisis both for the carless and commuters stuck in traffic. Despite its potential, SMH has been regulated largely out of existence.

Massachusetts and its 351 municipalities recently began making progress on zoning reform to allow the development of SMH. Continuing this reform effort is critical, but while zoning governs what's possible, building codes—the technical rules governing everything from the gauge of a nail to the height of a building—often determine what actually gets built. Today, zoning and building codes are increasingly misaligned and without corresponding building code reform, many of the benefits of zoning reform will remain unrealized. This report makes the case for significant reform of building codes as they apply to SMH—defined here as buildings with three to 24 dwelling units—in Massachusetts and beyond.

Building codes play a critical role in protecting public welfare. They ensure safety, structural integrity, energy efficiency, and accessibility. But they have been designed primarily to regulate extremes: single family homes and low-density housing on the one hand, and high-rises and large commercial complexes on the other. Building codes are simply not calibrated to appropriately regulate the "missing middle" of housing: triple-deckers, four-plexes, six-packs, stacked duplexes, and other compact, low-rise multiplex configurations that would fit on the tight lots that are characteristic of walkable neighborhoods. Parcels in these neighborhoods are often between 2,000 and 6,000 square feet (SF), lots that were originally platted for houses and -deckers that remain too small for mid-size and large multifamily structures that make up an increasing share of new housing.

In the 18th and 19th centuries building codes emerged to address the increasing fire risk, sanitation, and other safety issues that came from a rapidly urbanizing country. Unfortunately the ills of poor building practices and overcrowding were often conflated with multifamily living in general, which many viewed as a moral failure. As a result, building regulations and then building codes became a means of stopping multifamily housing altogether through restrictive construction requirements.

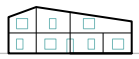
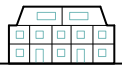
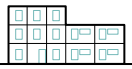
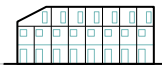
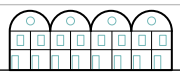
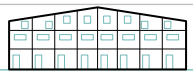
During the 20th century, a shift toward detached single family homeownership shaped the development of two distinct code systems: one for houses, with affordability as a key priority, and another for multifamily buildings. Regional code bodies eventually formed a national code setting organization in the 21st century, which continues to publish separate residential and commercial codes. While both codes rely on broad participation from industry and technical experts, the multifamily sector has historically had far less influence over code development than the single-family market. The result is that multifamily, and SMH in particular, projects have a greater regulatory burden than single family homes—one that is not calibrated appropriately to their level of inherent risk.

Today, most of the United States, including Massachusetts, relies on model codes developed by the International Code Council (ICC). Its codes are adopted in some small jurisdictions outside of the country, but its primary membership is within the US. International jurisdictions significantly modify the codes to suit their local needs, often removing much of what makes the so-called I-Codes unique.[1] The ICC publishes two codes that govern nearly all residential construction: The International Residential Code (IRC), which applies to detached one- and two-family houses and townhouses, and the International Building Code (IBC), which governs everything else, from triple-deckers to soccer stadiums. Codes based on IRC are often referred to as residential code and IBC as base or commercial code. In our report and colloquially they are often referred to as the IRC and IBC even in the locally amended format. This division of codes is largely unique to the United States.

While the IBC includes gradations based on size and construction type, the shift from IRC to IBC is incredibly consequential. Once a structure goes from two units to three, the building is subject to far more restrictive and costly regulatory requirements. The shift in requirements can include things like full building automatic sprinkler systems, additional fire-alarm systems, elevated fire resistance ratings for walls and floors, requirements for elevators and accessibility, increased energy and engineering requirements, larger minimum spatial standards, professional design and engineering requirements, and more. The shift across the two codes is more like a leap across a canyon than a series of steps up a staircase.

The shift from IRC to IBC increases construction costs by roughly 15–40%, according to research and developers, builders, and architects we surveyed. In practice, this makes many of these building types financially infeasible, even where zoning permits them. As one developer put it, “Three-deckers do not work.” Instead, builders are pushed toward either large luxury duplex homes or even-larger mid-rise multifamily projects. The sharp regulatory jump from two to three dwellings discourages incremental, small-scale development and instead incentivizes extremes. Either low-rise, low-density detached homes, which do little to address urban housing

Dwelling Unit Threshold for Codes and Regulations

Dwelling Units	Applicable Model Building Code & Divergent Small Multifamily Standard		Additional Standards
1	HUD (Mobile Homes)		
2	IRC (1, 2, TH)		
3	IBC (3+)		
3	Chicago, IL, Ohio, & Oregon (1-3)		
4	Alaska, Vermont, Tennessee, North Carolina, Minnesota (3-4)		Fannie Mae's residential financing limit is reached (≤4)
5			Commercial property tax rate kicks in for Boston (5+)
6	Washington (3-6)		Large residential trash requirements apply in Boston (6+)
7			Pad mounted transformers are typically required (6+)
8	Dallas, TX (1-8)		
9			
10			
11			Passive House may be required through the energy code (12,000 GSF)
12	Ohio Single-Stair (3-12)		
13			Two stairs required per the building code (13+)
14			
15			Article 80 Small Project Review required per Boston zoning (15+)
16	El Paso, TX (1-16)		
17			
18			
19			521CMR or state accessibility standards kick in for rental multifamily (20+)
20			
21			
22			
23			
24	Memphis, TN (3-24)		

shortages and contribute to sprawl. Or large multifamily structures, which require large, difficult-to-assemble parcels of land, and which mostly contain dwellings that, because of unique US egress rules, are ill-suited to family needs or long-term living. The result is a persistent pattern of underdevelopment where zoning capacity exists, punctuated by moments of extreme density in places spot-zoned for large projects.

This is, first of all, a nationwide issue, for all jurisdictions that use the ICC's model codes. The challenge is not unique to Massachusetts, but the Commonwealth has an opportunity to help lead these reforms, as it has with energy codes, benefiting its own residents while contributing to broader national change. While the requirements of the building code, particularly around safety and welfare, are absolutely essential, they are not without tradeoffs. This report argues that those tradeoffs should be evaluated not only in terms of safety, but also their broader impacts on affordability, livability, and housing production.

There are a number of reasons Massachusetts should therefore take the lead on building code reform for SMH. Massachusetts has a dire housing shortage. The Healey-Driscoll administration has prioritized housing production and committed to building more than 220,000 homes in 10 years, but the state is not yet on pace to accomplish that. Massachusetts not only needs more SMH, but is particularly well suited to it, given the state's thousands of walkable small-lot neighborhoods originally built around train stations and streetcar lines. These neighborhoods already contain schools, libraries, parks, sidewalks, sewers, senior centers, day-cares, shops, and restaurants. These areas can accommodate incremental increases in density, across many small parcels of land, to support a high quality of life for more people, with less car dependency, more walking, greater use of public transportation, and greater community resilience. Development in these areas also supports main street vitality.

The Healey-Driscoll administration has championed the MBTA Communities zoning law, which mandated local legalization of modest multifamily development in communities served by the MBTA. Massachusetts is also home to a growing popular movement to reform zoning to allow more infill multifamily housing. Cambridge's recent rezoning to allow four- and six-story multifamily buildings citywide is one result of that movement. But even as upzoning continues, many sites remain underbuilt not because housing is disallowed, but because it is effectively infeasible. As planning and development expert John Zeanah has observed, "Small multifamily projects—from triplexes and fourplexes up to mid-rise apartments—may win the zoning battle but lose the code war."[2]

If zoning determines what is allowed, building codes determine what is practical, and addressing the housing crisis will require engaging both. This report aims to begin that conversation.

We have concluded from our findings that our building codes should be revised to allow for SMH to be at least as practical to build as other types of housing, while maintaining important life-safety protections. In Massachusetts, the most immediate opportunity for reform is through state code adoption.

In Massachusetts, the Board of Building Regulations and Standards (BBRS), a 15-member board appointed by the Governor, adopts the state building codes, which are based on the IRC, IBC, and other ICC model codes. The board members meet monthly, and despite the large investment in time for preparation, meetings, and administration; its members are unpaid. Members range in expertise, but there is no representative of multifamily housing construction; only two builder representatives, one for one-two dwelling homes and one for commercial/industrial buildings. As a matter of practice their primary focus has been on code enforcement over proactive code change. They are supplemented by Technical Advisory Committees focused on specific subject areas, which are also volunteer-run, and lack a focus on multifamily housing. The board is not funded for deep research and staffing to support code reform. Many small cities in the region have more substantial staffing for their regulatory boards than the state BBRS has, even though it oversees codes that affect billions of dollars in real estate development, not to mention tens of thousands of people's homes every year. To reform building codes for SMH in Massachusetts, the BBRS would need significant upgrades in its mission, staff, and budget for research and code development.

One path forward would be to modify the state's commercial code incrementally. That could prove unwieldy, due to its complexity. A more feasible path forward would be to create an appendix to the residential code to address SMH in particular. Appendices are common in both model codes, and are a natural place to situate a particular set of rules for one category of building, while allowing all elements not addressed in the appendix to default to the general code.[3]

Many surveyed jurisdictions have adopted SMH code appendices, of varying scopes, specifically to right-size the requirements for this scale of building. Situating the appendix within the IRC, rather than the IBC, would allow requirements unrelated to multifamily buildings to default to the more permissive IRC. This would keep SMH within the framework of the IRC, preserving familiarity and cost savings for builders, developers, and designers. The appendix could include a sliding scale of requirements based on building risk-profile, as well as multiple compliance pathways, rather than a one-size-fits-all approach.

Lastly, the greatest opportunities for reform lie in costly code requirements whose application to SMH is poorly calibrated to the scale and risk of these buildings. These include automatic sprinkler systems, fire alarm/notification systems, dual-egress rules, elevator standards, restrictions on multistory dwellings, ground floor accessibility requirements, energy compliance standards, professional design/engineering requirements, and mixed-use and adaptive re-use requirements. Our recommendations can be categorized as such:

Build capacity and responsibility in the state Board of Building Regulations and Standards (BBRS):

- **Update its mission** to clearly set a mandate to amend the code more in ways that serve the state's housing goals, missions of partner agencies like EOHLC, and priorities of the executive and legislative branches.
- **Add resources** and full-time staff to enable it to proactively research and evaluate building code amendments that respond to our state's unique needs.
- **Add board member(s)** who can represent the interests of multifamily developers, buildings, designers, and residents.
- **Create a multifamily subcommittee** on the BBRS that would specifically focus on affordability and design of multi-unit housing, and staff it with a range of experts and stakeholders that includes representatives of the people who would be most impacted by those regulations.

Develop an appendix to the state building code specifically focused on small multifamily housing:

- **Focus the appendix on buildings of 3–24 dwelling units, and of no more than three stories.** The appendix should have optional pathways for compliance. It should also have a graduated series of requirements depending on the scale of dwellings, height, and/or area. This system is largely modeled on the appendix Memphis implemented for its own building code. The appendix would focus on right-sizing standards in various categories:
  - Egress, elevator, parking, and corridor standards
  - Automatic sprinkler system requirements, fire-rated assemblies, and alarm system requirements
  - Accessibility and site requirements
  - Electrical and energy code requirements
  - Design and engineering requirements
  - Mixed-use and adaptive re-use thresholds and requirements

Together, these changes to the BBRS could enable a state-level code appendix allowing more affordable small multifamily structures to be built. This would enable designers, developers, and builders to unlock the potential of rezoning efforts and allow more housing of diverse types to be attainable for more residents in the neighborhoods with the most opportunity.

This report provides an overview of the constraints imposed by the commercial building code compared to the residential code and outlines its implications for our built environment, and particularly SMH. The report starts with a brief history of the building code in Part 2, how the residential “split” happened, and how the contemporary model code system operates. Part 3 outlines how development patterns and construction costs are affected by the code, and breaks down the specific code requirements that would be most meaningful to reevaluate. Part 4 looks at how states and cities across the country are changing their codes in response to these concerns, and outlines the prevailing strategies for that reform. Finally, Part 5 discusses what kind of future could be built if these reforms worked at unlocking small multifamily housing.

Research methodologies included a literature review across practitioners and scholars, an extensive survey sent out to builders, developers, and architects; and interviews/peer review from building code and multifamily housing experts. The bulk of findings come directly from individuals’ personal experiences with the code in practice. While some quantitative data was found, much remains to be uncovered as to the exact cost, size, construction type, style, density, location, and design of small multifamily buildings across Greater Boston. Census surveys and other metrics often fall into the same categorical trap first demarcated by the code itself—focusing on single-family homes with one level of specificity and on multifamily writ large with a much less fine-grained detail by property size and type. There is still a need for better data on multifamily buildings as physical objects.

Focusing on the building code as an urgent area of concern first came to our attention through our research into the issue of egress rules. That work resulted in the report, *Legalizing Mid-Rise Single-Stair Housing in Massachusetts,* released in October 2024. The impact of that work has led to an executive order to right-size our codes—a step in the right direction that builds upon the work happening across New England and North America. This report is in the same context of harmonizing our codes to affordably permit, and hopefully encourage, the scale of housing our communities are asking for. Its goal is to introduce the issue to our Commonwealth, and bring together disparate conversations happening around the country about code changes that can improve the quality of our housing. Further research should focus more specifically on the code requirements and language itself, as well as on the economics of building well designed SMH.

Focusing on SMH is important for many reasons: Its scale is cheaper, safer, contextual, and offers many livability benefits in terms of design;

but the most important reason may be that it fits on the parcels of land we have today—and can help us meet our housing goals without relying solely on the extremes of sprawl or superstructures.

We hope this report is helpful for those just learning about the building code, and for those well steeped in the code who seek a single source on this specific topic of the IRB-IBC demarcation and/or the code's impact on SMH. We anticipate it will be useful for a range of housing focused practitioners, and specifically those seeking to reform barriers that block reasonable steps toward a more walkable, equitable, affordable, and beautiful built environment.

Part 2

Residential Building Code Origins & Present Structure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Heat Pump
Experts

Understanding the history of building codes provides critical context for any discussion about how they should evolve. Examining the circumstances in which they were first written, and the ways they have been revised over time, revealed several key insights for this research:

1. Building codes were developed very early on in our country's urbanization, and were critical tools to protect collective safety and welfare, especially before modern advancements in building practices.

2. The development and enforcement of codes has been equally shaped by a reaction to major events and by political powers; only recently have the concerns of multifamily housing been in play.

3. Restrictive requirements in the code often linger longer than their usefulness requires, and are very hard to remove once added. This forms a palimpsest of accumulated text that has a profound, but until recently, understudied impact on housing development and design.

4. The "residential" split in our codes is a uniquely American condition, and one which is being rethought around the country as cities grapple with methods for adding new housing to our neighborhoods.

The history of building codes is not dissimilar to other land use regulations like zoning, which emerged from rapidly urbanizing individual cities with their own concerns, and then merged into a largely homogeneous national system that has reinforced a monoculture of low-density sprawl. The earliest building codes in the U.S. can be traced to the 17th and 18th century as a means to limit fire hazards in colonial settlements. Boston may have the first recorded provision from 1630, when it outlawed building wooden chimneys and thatched roofs citywide. Other east coast settlements included specific requirements for the construction of chimneys in New York City in 1648, and in Salem, North Carolina, in 1788.[4]

Formal written codes establishing more specific requirements came in the late 19th century, mostly still reacting to easily spreadable urban fires, and defining when and how to build in wood or stone. The codes also embodied negative perceptions of density due to urban pandemics in the 1860s, which resulted in many provisions for de-densification.[5] The Boston city council formalized its pre-modern code in 1871 through regulations enshrined within the "Digest of the Statutes Relating to the Survey and Inspection of Buildings." Chicago had its first formal building code in 1894, and New York City began issuing stand-alone building codes in 1899.

These initial codes were limited in scope, but worked alongside two other geospatial regulations: fire limits, which set geographic boundaries for combustible and non-combustible types of construction, which emerged in the mid 18th century; and zoning codes, which determined land use and other rules, and began at the start of the 20th century. The scope of fire limit codes eventually was absorbed into building and zoning codes. The former incorporated material types by building type, and the latter incorporated use and form by geography. However, the intersection between these two codes had and continues to have unexpected outcomes. For example, New York City's famous 1916 zoning code left far-out neighborhoods as "undetermined" use. The building code at the time capitalized on this by creating a wood frame construction exception for those zones explicitly—which "ensured the dominance of small-scale development patterns and wood-frame construction in sensitive peripheral areas of the city with lasting impacts."[6]

In developing the early building codes, mitigating urban fire risk was the most important task at hand, but in New York City and elsewhere it was often subservient to the political goals of the moment. This is nowhere more evident than in Chicago, which, after the Great Fire of 1871, re-built its wood-framed and tinder-prone building stock without large changes to their construction type. This was mainly because the "fire-proof" political party was pitted against those representing the interest of the working class, who argued for affordability over longevity, and won.

The story of Chicago's city building code also reveals how risk moved from geographically based (in fire limits and zoning codes) toward building component–based rules. At the turn of the century, formal building codes were being developed alongside industrialization and the standardization of materials. This led to greater industry involvement in writing emerging building codes. Rules were increasingly tied to individual building components rather than geographic areas, and then were applied in the form of prototypical construction types.[7] This was in contrast to earlier more rule-of-thumb construction practices. Codes born in Chicago began or coincided with the era of regulating buildings as standalone objects of risk, rather than in relation to their geolocation in a city. It also led to product manufacturers having a greater influence on urban housing patterns, which also made building regulations harder to visualize. The emergence of the fire insurance industry furthered this disaggregation of risk by letting building owners purchase a safety net policy, which socialized their risk; but did little to incentivize better building practices.[8]

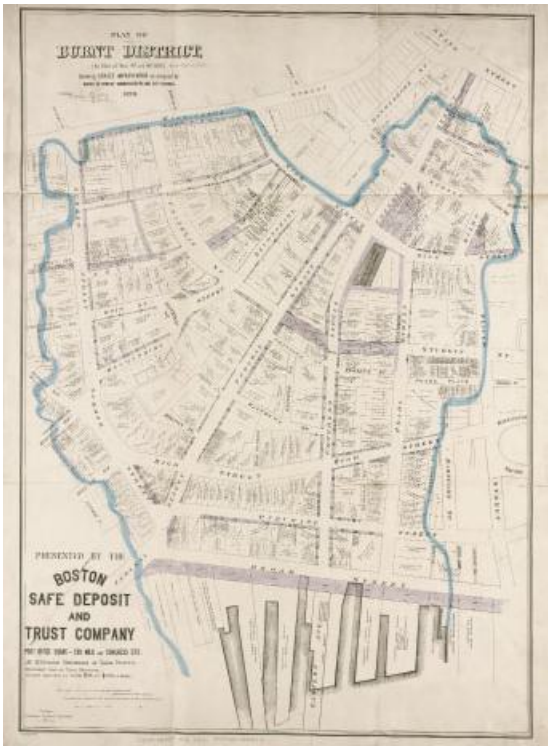
These histories are important because they reveal how 19th century priority setting brought us the codes now causing friction for our priorities in the 21st century. In addressing the increasing risk of urban fires, building codes especially targeted urban housing. Development of denser dwelling forms, like tenements, was increasing to rapidly house a growing workforce. By the 1870s, however, higher-income residents in metropolitan areas began to reframe the idea of a

multifamily building from the squalid, overcrowded tenement to the elegant apartment building, where residents in spacious, well-appointed homes enjoyed the light and air high above the noisy city street. Residences were called apartments rather than tenements, and offered larger-sized dwellings and building amenities that would have been rare in a cost comparative single-family home. New York City led the development of this “new” type of housing, and large-scale investors entered the apartment housing market.[9] With that, development of multifamily apartments increased dramatically, and by the 1890s “Tenement Housing Reform” became popular concern across many states, which resulted in Congress pursuing but ultimately not passing new laws on how to regulate the homes and tenement life.[10]

New forms of multifamily housing posed new risks for people living inside of them, and their neighbors. Many forms of fire-prone construction were common practice, including balloon framing for low-rise wood structures like triple deckers. In frequently overcrowded tenements, sanitation and health risks were also real concerns. Building codes were often the first regulatory avenue to control these risks, and did so through separating structures from each other; controlling light, ventilation, and egress; and setting the minimum standards for construction materials. Unfortunately, at the same time, the prevailing cultural attitudes viewed multifamily living as a moral “ill,” and these codes reinforced those attitudes by making multifamily buildings harder to construct.

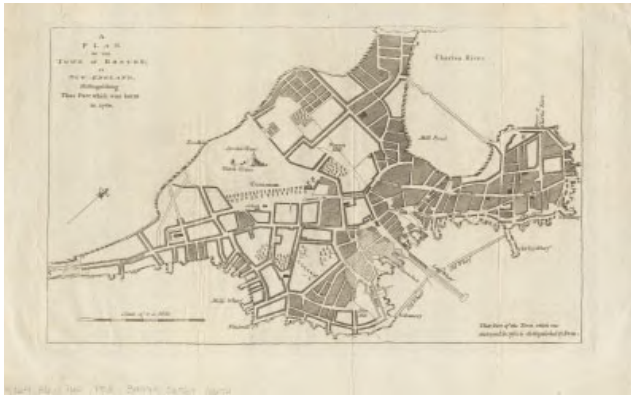
In 1897, growing anti-multifamily sentiments in Boston led to the requirement that all tenement houses be fireproof, meaning they needed masonry construction. This sparked a sharp reaction from the development community claiming the additional multifamily dwellings would be infeasible. They’d seen Philadelphia adopt burdensome fireproofing requirements based on un-adopted proposals from 1895 and 1901 New York tenement house commissions. Provisions included complete fireproof construction above four stories and wider side-yard setbacks that made building on typical 25-foot-wide parcels infeasible. The trend spread to other cities and states across the US like Chicago and Wisconsin, curbing construction of multifamily homes along the way.[11] As housing researcher Kenneth Baar puts it in the *Journal of the American Planning Association*, “By 1914, tenement house regulations had been adopted by California, Connecticut, Massachusetts, Pennsylvania, and Indiana and by 82 cities. Codes that effectively excluded apartments became common. Bratenahl, a small wealthy city next to Cleveland, Ohio, went so far as to require steel or concrete construction for all buildings over one story.”[12]

The thrust of this era was that many planners in charge of accommodating new residents to their cities viewed multifamily living as a moral and psychological danger. The real concerns over building safety generated more code requirements; these became effective foils for the former attitude under the guise of the latter prudence, and multifamily



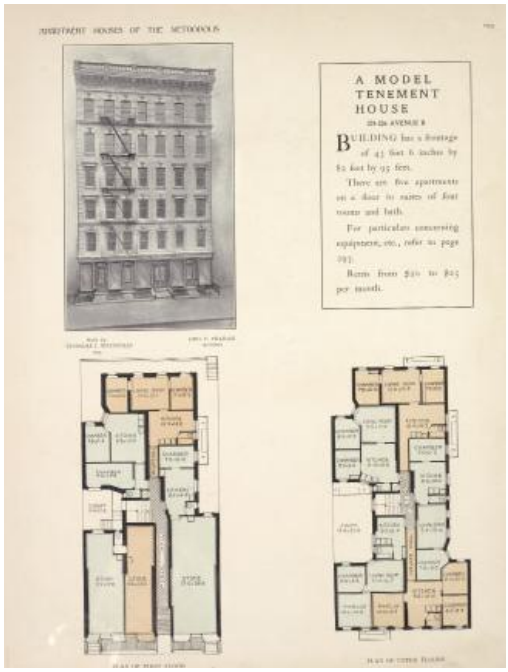
1873 map depicting the burned district in Boston, and associated street improvements to stop future fires. Boston Public Library.

The first church in Boston, 1632. The roof was thatched and the walls were made of clay. Boston Public Library.



A plan of the town of Boston, distinguishing that part which was burnt in 1760. Boston Public Library.

Guide map of Chicago from 1871, published just after the Great Chicago Fire. It superimposes the burned area over the gridded street pattern. Boston Public Library.



Model tenement house plans in New York City, 1908. The New York Public Library.

dwellings became extremely hard to build. Building codes were one of the first important platforms to inhibit multifamily development because it wasn't until 1926 that the US Supreme Court enshrined zoning as a legal mechanism for discriminating based upon use. According to Kenneth Baar, "Fire codes provided a particularly convenient tool for curbing multifamily housing construction. Because devastating fires had leveled substantial sections of cities and the content of the codes was technical, it was difficult to question their reasonability." Baar continues, "In earlier decades the rational basis for building codes had been grounded in extensive surveys and data. Now, the justifications for apartment exclusions were short and simple. Experts merely rehashed a standard list of evils assumed to be associated with multifamily dwellings without any empirical support."

These strategies are perhaps most strikingly revealed in recorded testimony from then Secretary of the National Housing Association, Lawrence Veiller, who spoke at the 1913 National Housing Association meeting that housing reformers should:

"[D]o everything possible in our laws to encourage the construction of private dwellings and even two-family dwellings, because the two-family house is the next least objectionable type, and penalize so far as we can in our statute, the multiple dwelling of any kind…. If we require multiple dwellings to be fireproof, and thus increase the cost of construction; if we require stairs to be fireproofed, even where there are only three families; if we require fire escapes and a host of other things, all dealing with fire protection, we are on safe grounds, because that can be justified as a legitimate exercise of the police power…. In our laws let most of the fire provisions relate solely to multiple dwellings, and allow our private houses and two-family houses to be built with no fire protection whatever."[13]

His and others' efforts to stop multifamily though building codes were widely successful and by 1914 had led to adoption of restrictive multifamily building codes in over 80 cities and states from coast to coast. The legacy of these attitudes, and the codes they created, persists today—through specific provisions left in our codes over a century and a half later, and in modern demarcation of the codes themselves, from IRC or "least objectionable" to IBC or "abnormal condition of urban life."[14]

One specific provision which illustrates this point is the code requirement for two staircases for all residential buildings that are either more than three stories or have more than four dwelling units on any floor. This requirement stemmed from late 19th century tenement fires in New York City, and remains in the currently adopted 2021 Massachusetts building codes. Despite more than a century of technological progress in active and passive fire protective building features and fire service capabilities, and even more code safety requirements, the two exits rule has remained steadfast. Our team has written about this topic in a 2024 Boston Indicators report, and

showed how this requirement greatly limits development and design of mid-rise housing across our state, and is out of step with virtually the entire rest of the world. Luckily, this code requirement is being re-considered in Massachusetts, as is evident from a recent executive order from Governor Maura Healey to explore allowing single-stair buildings up to six stories. This follows a growing national trend of egress code harmonization—right-sizing requirements to better balance costs and benefits and to match global standards—largely led by architects and housing advocates.

However, these modest single-stair reforms have been slow, and are an uphill battle against a code that is generally viewed by the public and domain experts as a document of high credibility. The efforts exhibit a common asymmetry: the heavy burden entailed in removing a requirement and the relative ease with which a requirement can linger for generations. This is especially true for provisions and demarcations that come from an era when we had few other tools to wield against the risk of urban fires and other safety issues.

The need for greater consistency across jurisdictions led both state consortia and the insurance industry to develop model codes. The latter formed the nation's first model building code, the National Building Code (NBC) first published in 1905, which was written by the National Board of Fire Underwriters. The former category included three main regional bodies, the International Conference of Building Officials (ICBO) in the West, which published its first code in 1927; the Southern Building Code Congress (SBCC), publishing in 1945; and the Building Officials and Code Administrators (BOCA) out of the Northeast, publishing in 1950.[15] These regional bodies became particularly important in the increasing fragmentation and growing complexity within residential parts of the building codes.

The mid-20th century post-war era was also the start of suburbanization as a tool for mass housing and in particular homeownership. Federal policies and cultural attitudes prioritized the creation of detached single-family homes, and building codes followed. The Federal Housing Administration (FHA) had a goal of creating longer-term mortgages to lower payments in contrast to rents. At the time, multifamily housing was only available as rental housing, as condominiums would not be a legal path for homeownership until the early 1960s. The American Dream, then as now, centered on detached homeownership rather than renting.

Regional model codes reduced fragmentation, but increased complexity. This was largely due to the fact that individual specific codes were now added together into a dense and comprehensive document. ICBO, the oldest of the three regional codes, responded to pressure from residential developers by producing simplified residential code pamphlets that provided practical guidance to builders.[16] This effort reflected the demand from single-family builders for simpler, more affordable residential codes.[17] In contrast, apartments were typically built as commercial investments rather than homeownership opportunities, making more complex code requirements easier to justify economically. Building codes and standards reflected the predominance of single-family homes as one category of building, while multifamily was grouped with commercial investment type buildings.

With the housing boom leading to a thriving residential construction and development sector, the contradictions between each of the three residential model codes became increasingly cumbersome to national scale residential developers by the 1960s. A 1990s report on building code adoption by the Federal Emergency Management Agency summarized

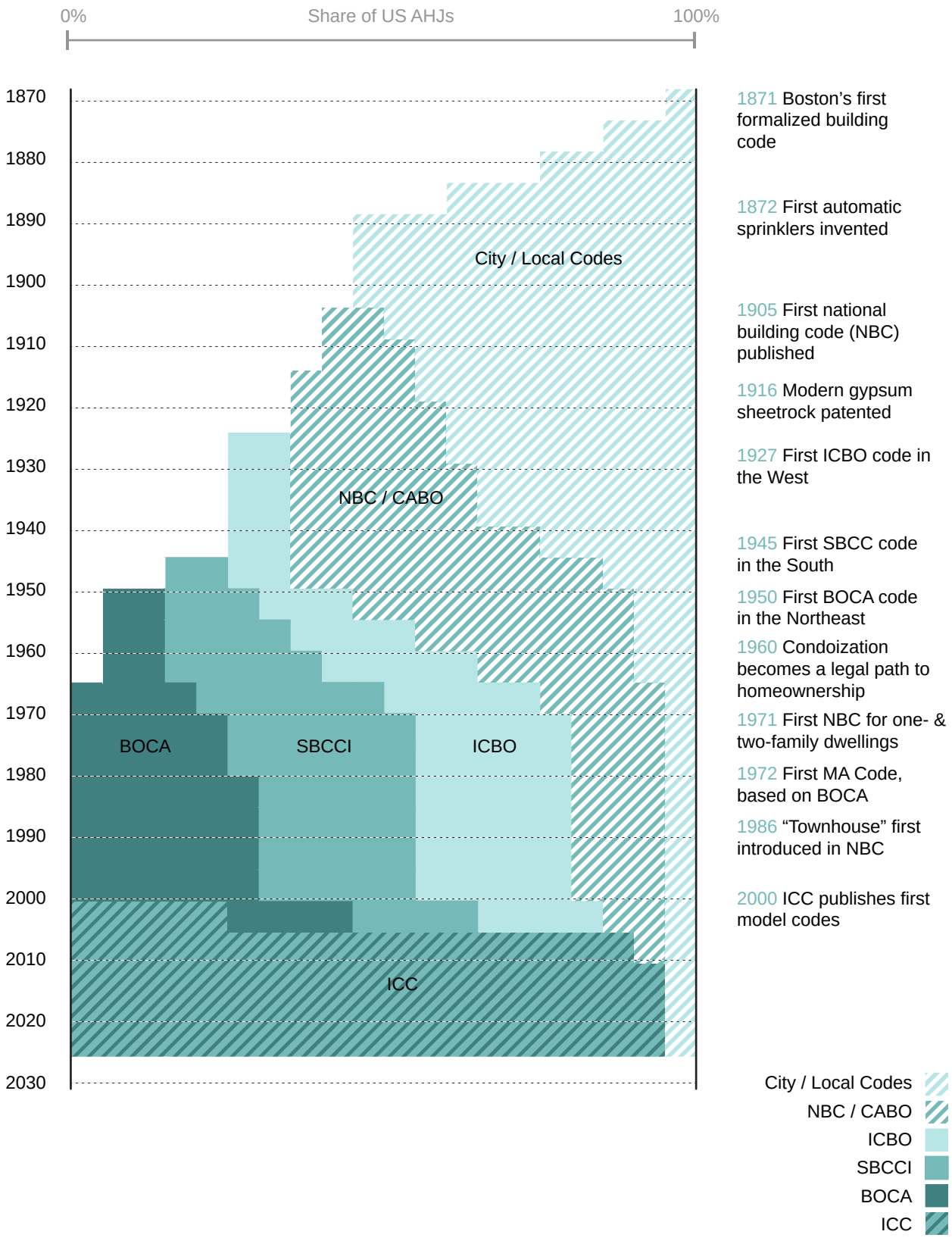
the issue, "Criticism of the cost of building codes in the 1950s and 1960s centered around the inefficiencies of having numerous codes, inconsistently applied. Builders often were required to alter their construction methods and materials from one community to the next, which meant spending more time and money."[18]

By the 1970s, the increasing complexity prompted the three regional model building code organizations (BOCA, ICBO, and SBCCI) to work with the American Insurance Association (AIA) to develop the (first) National Building Code (NBC).[19] Together, the organizations published the first unified one- and two-family dwelling code in 1971. Eventually the insurance group left the code writing business, and the new Council of American Building Officials (CABO) formed to continue publishing updates to the residential code every three years.[20] The NBC's scope for one- and two-family homes reflected the broad national demand for a unified and affordable approach to housing the public, which at the time was not considered to be desired or possible in multifamily buildings.

This code was also the start of how multifamily began to be incorporated into residential codes, through novel townhome configurations. Although the code did not mention the term *townhouse*, it did allow for homes to be directly on property lines as long as they had one-hour fire resistance. This enabled other adjacent property owners to also build against the property line with their own one-hour walls, essentially forming a method of almost-attached single-family homes separated by two one-hour fire walls. Homebuilders quickly realized that this approach could be repeated indefinitely, creating attached single-family homes separated by single two-hour fire walls, what we now recognize as townhouses. These could still be in the familiar residential building code, and still quality for FHA mortgages. The 1986 version of the NBC introduced the term *townhouse,* defined as "single family dwellings built directly on the lot line." Dwellings had to be structurally independent from each other, separated by a property line, and open on at least two sides; they also allowed the two-hour wall to be built as one wall rather than two one-hour walls. This evolution reflected growing pressure to accommodate higher residential densities while retaining the residential code framework. However, it also seems to have been the last major national code expansion of multifamily within residential codes.

Despite the uniformity of the national residential code, the challenge of regional commercial building codes persisted so that by the early 1990s efforts to create a national consolidated code resumed. The three main regional code bodies again began discussions on how to create one uniform, national model code. By the end of 1994, the three groups merged into the International Code Council, which developed its model codes, the IRC and IBC, first published in 2000.[21] The ICC codes are adopted in part by up to 20,000 Authorities Having Jurisdiction (AHJs) across the US, and including

Timeline of Model Code Adoption by Share of the US



some international localities. All US states, in some part, adopt the ICC codes.[22]

The IRC vs. IBC two- to three-family split seems to broadly reflect what has been a consistent pattern of separately developed residential codes for homeownership and multifamily codes for commercial interests. Some literature suggests that this split was initially considered to be tossed out in favor of a unified single building code. However, pushback from homebuilder groups like National Association of Homebuilders (NAHB), the group representing primarily single-family developers, contributed to scuttling that effort. The importance of these groups, especially in their ability to convince state and local governments to adopt the ICC codes, ensured a split code system that continues to this day.[23] The IRC as a separate code was important because its separation from the IBC allowed NAHB to have more guaranteed seats on technical committees, allowing it relative control over stopping or supporting measures that aligned with the goals of small residential affordability. Today NAHB has one-third of the seats on the IRC development committees, but only a couple across all IBC committees; and multifamily developers have no set seats on the IRC committees, and far less proportional seats on IBC committees.

The result over time has resulted in two codes which have served different purposes. The IRC has mostly resisted many of the provisions that have made their way into the IBC—creating codes that have very different fire safety records and price points for builders. For evidence of this one can look at the divergent requirements that cover two different categories of multifamily: Duplexes and townhomes have far less restrictive standards than triple-deckers or four-plexes in the model codes. This is because the former are in the IRC and the latter are in the IBC. This is despite the fact that townhomes could form an unlimited number of dwellings as long as property line separations exist, which theoretically might be more dangerous than three dwellings. This is also despite the fact that a large duplex could be far larger and taller than a triplex, but because of the demarcation in the two codes, they are under vastly different regulations.

Modern multifamily homes are incredibly safe, with only 1% of residential fire deaths per year occurring in them. The fire death rate for modern multifamily buildings is less than one-fourth the rate in modern single-family homes. However, both categories are vastly more safe than in previous decades.[24] The issue for SMH is that modern government-amended model codes in the US ratchet up these safety requirements at a rate disproportionate to the economies of scale gained from a one-size-fits-all code approach.[25] One study we found looked at comparable countries to the US, and compared their cost per square foot of residential construction across scales of buildings. It showed a relatively constant figure regardless of the scale of residential typologies; but in the US the costs consistently climbed for each increase in scale.[26]

For SMH the biggest impact is to types just above the IBC demarcation, which have the least amount of scale to compensate for the added cost. These would be structures with three to six dwelling units.

The asymmetry of stakeholders at the ICC's origins led to an outcome where, decades later, SMH is inextricably hard to build. An outcome that has most likely not been by design, but rather as an externality of a multifamily code development process that has been driven by various building industries, but without a SMH contingent to provide pushback on the increasing requirements for small scale housing.

The consolidation of our codes to a single organization has had numerous benefits, especially to safety standards, but it's important to understand the drawbacks. Those include a high barrier to meaningful participation in code development that has led to outcomes that are misaligned with both self-stated goals of the code and goals of Massachusetts with respect to housing.

The current code development process centralizes decisions at the ICC. The organization, a 501(c)(6), or IRS defined "Business League" and not-for-profit organization, is headquartered in Washington, DC. While its codes are de facto laws, it does not have direct governmental oversight. Instead, at the state and local levels, regulatory bodies choose to adopt certain versions of the code and amend them as they see fit.

In Massachusetts, which mandates a state-wide building code, the building codes are adopted and amended by the Board of Building Regulations and Standards (BBRS), a 15-member board under the Division of Occupancy and Licensure (DOL), whose members are appointed by the governor. Board members represent a range of industry groups and building-related subject matter experts. Board members and Technical Committee members are unpaid. The entire amendment and adoption process is volunteer run except for some shared staff support through DOL. Currently, there are two builders on the board, one for one- and two-family homes, and one for commercial and industrial buildings; but there is presently no representative from the multifamily market. Board membership is established by state statute (MGL, Part I, T. XX, C. 143, S. 93), which was recently amended to add members with expertise in building energy efficiency.

A state statute requires code updates every five years, yet the board has fallen well behind that timeline; in 2024, the effective code still referenced the 2015 model codes. Environmentalists have successfully advocated for stricter building performance and energy standards, demonstrating that meaningful code changes are possible where there is a strong advocating constituency. In contrast, the affordability and feasibility of multifamily housing has received comparatively little attention. Recent practice has also favored fewer state amendments, reflecting a general consensus that the model codes are the best tested standards and should be left unmodified unless absolutely necessary.

Subcommittees of the full board on specialized subject areas meet to debate code changes and make recommendations to the full board for approval or not. Any member of the public can submit a proposed change, but due to limited staff support, proponents bear the burden

of assembling the necessary research and evidence. As seen in practice, the subcommittees do not regularly practice evidence-based review, opting instead for conversation and debate. Decisions on new amendments are made with a bias toward precedent. The nine BBRS subcommittees cover technical areas like fire prevention and structural engineering, and building types like manufactured buildings and greenhouses/cannabis facilities; but there is no subcommittee focused on multifamily housing.

The process is similar at the ICC national level. Without an infrastructure of independent testing and scientific evaluation, the ICC relies largely on proposals from industry experts, and utilizes debate, often conducted in medium to small group meetings, to evaluate proposals.[27] The model codes are updated every three years, and code amendments can be submitted by anyone, but typically come from building industry groups who can sustain the necessarily long time it takes to ferry a proposal through the process. Proposed changes first have to go through subject area committees, whose roster of government officials and industry representatives is selected by open application and a committee that evaluates candidates. The IRC has two main development committees, one focused on the plumbing and mechanical code, and the other on the rest of the code. The IBC has four main committees focused on structures, egress, general, and fire safety topics. Code changes then, generally, if they make it through committee, are validated through a vote by the group's entire public sector membership. Voting members must "be an employee or a public official actively engaged, either full or part time, in the administration, formulation, implementation or enforcement of laws, ordinances, rules or regulations relating to the public health, safety, and welfare."[28] Yet, despite the "final" public approval being done via direct democracy of governmental agents, the number of proposals makes individual member evaluation of each one unlikely to be as robust as committee level conversations.[29]

Representation in the ICC subcommittees is important for its direct impact on code development. The makeup of code change committees prioritizes the interests of well resourced groups (like home builders) over disengaged and disaggregated constituencies (like SMH builders). The current division between the IRC and IBC was an inheritance from earlier regional codes which had similar demarcations, but today the divergence between the two has been heightened by the unequal representation during code development.[30] Of the two main IRC committees, which each have 12 members, a total of eight members are represented by the single-family-focused NAHB, or 33%. Of the four primary IBC committees, NAHB has four seats total out of 57, or 7%.[31] On the current general committee, NAHB has the same level of representation as the official Saudi Arabian Oil Company, and multifamily developers/builders (who theoretically could be represented by the National Multifamily

Housing Council (NMHC)) have no direct representation.[32] The ICC has no consistent standard for how committee composition gets decided, and appears at least to make non-public agreements with some organizations.[33] More seats on important committees are critical to code reform for SMH, but land use and building regulations have long held the industry back from growing into the national powerhouse needed to participate in code reform.

Code experts often say, “The code is written in blood,” as it responds to cases with serious injuries or loss of life. Indeed many tragic, catastrophic events resulted in building safety measures we should be thankful for today. But the code has also encapsulated society’s expectation of the built environment, with beneficial as well as exclusionary examples throughout history. In terms of the code’s impact on housing, the past has largely favored single- and two-family homes, with little regard for right-sizing standards for multifamily homes, and in particular SMH, which are not much larger, and sometimes smaller than, IRC-compliant structures.

Despite the ICCs annual revenues exceeding $110 million, and over $2.5 million in executive compensation, the organization largely relies on volunteer labor to develop the code.[34] The most impactful changes in recent years, such as the introduction of cross-laminated timber (CLT) to the allowable building types, emerged from timber industry interests, architects, and engineers, who ran their own tests and compiled their own evidence. This example shows how it is possible to make meaningful changes in the process, but only with considerable industry support. Issues such as affordability in multifamily housing construction may languish without a clear stakeholder group to champion them and invest the necessary time to participate in the process.[35] NMHC as previously mentioned might be a natural fit to lead this contingent, but it invests far less on code development than NAHB, which mostly focuses on the single-family and two-family market.

The US lacks a consortium of small multifamily builders for the same chicken-and-egg reason SMH is so rare: It was zoned to be illegal and then coded to be unaffordable to build. As a result, today there is a small, fragmented group of folks doing these projects today, typically without institutional resources for extracurriculars like code advocacy. The larger multifamily industry is also somewhat fragmented between the nonprofit and for-profit groups that invest in, develop, and build at mid-rise scales and larger. The change for harmonizing the code to better accommodate SMH at the ICC level should be possible if small multifamily developers assemble a mission-driven collective and pair with industry partners who would stand to benefit the most.

The ICC codes have made significant progress in improving building safety over older codes. Research shows that buildings built to modern standards have resulted in about one-sixth the fire deaths per population compared

to buildings built to 1970s codes.[36] Multifamily buildings in particular are extraordinarily safe, resulting in only 0.5 fire deaths per million residents, compared to 3 deaths per million for single-family homes. While the US has a high rate of fire death compared to peer wealthy countries, the majority come from older buildings built before modern codes. If we imagined our country was only built with modern buildings we would have the highest safety record on the globe.[37]

Multifamily homes built to current codes result in only 0.5 fire related deaths for every 1 million residents. Compare this with 110 deaths for every 1 million people from car travel. The emphasis on ever-increasing safety requirements has come without adequate measures to understand the costs on SMH. Those costs should be evaluated in the context of the modern buildings that are never built, forcing households into older and considerably less safe housing. This divergence of the two codes with vastly different construction costs, but relatively similar safety, is clear evidence of, as one expert puts it, "the residential codes being developed for homes for Americans to live in, while the IBC is for sprinkler contractors to make their money."

Numerous other industries and governmental regulatory groups utilize risk-tradeoff or cost-benefit analysis into their decision making, but the ICC formally does not.[38] What might first be required is for an agreed upon level of acceptable safety, or an established value of a statistical life (VSL), which could then be compared against proposed safety increases, which would need their own cost analysis. However, the current process lacks a measurable level of safety against which we could compare proposals. Although proposals must include a cost impact analysis, there is no comparable framework for evaluating the magnitude of the safety benefit.[39]

Both the IRC and IBC begin with the stated purpose: "This code is to establish the minimum requirements to provide a reasonable level of safety, health and general welfare… and for providing a reasonable level of life safety and property protection [from hazards]... and to provide a reasonable level of safety to fire fighters and emergency responders."[40] Yet, nowhere does the International Code Council define what is "reasonable" or what is "safe." As a result, the IBC, and multifamily housing in particular, has accumulated an ever-increasing number of safety requirements without a clear framework for determining whether their benefits remain proportional to their costs. One alternative would be to target a specific fire fatality rate, which would be measurable. This would allow building typologies to be measured for their fire fatality, and if they meet or exceed the standard, any increase in new requirements could be more effectively challenged. However, if a typology did not meet the standard, there would be a clearer path to additional regulation.

A notable example of cost increases not being property evaluated is evident in the unique elevator requirements in the IBC, which impose minimum size

requirements that are considerably larger than the global standard. In the initial code change proposal, from a member of the Glendale Fire Department in Arizona, the cost impact to the increase in elevator cabin size was stated simply as “None.”[41] The result of this, along with other elevator codes and standards, is that the US is tied for total installed elevators with Spain, a country with one-seventh our population, six percent of our gross domestic product, and fewer than half as many apartments. Elevators in the US are three to four times as expensive as those abroad, meaning they are far less likely to be included in smaller apartment buildings, or, if mandated to be included through state accessibility codes, they lead to the project not being financially feasible. The result is both less accessibility for those that need it, and less housing for everyone.

Our system of code development and adoption relies on the equal participation of state executives, legislators, and governing boards to right size model codes for the concerns of the moment. Two important examples in recent code amendments illustrate the ways in which adopting jurisdictions have modified model codes to improve multifamily housing affordability. The first example comes from the IRC mandate of automatic sprinklers in all new dwellings of any size, and the nearly unanimous jurisdictional pushback. The second example is from the efforts to legalize mid-rise single-stair buildings in commercial codes, despite strong resistance in 2024 ICC Committee Action Hearing #1. Both examples illustrate the ways in which the current system of building code adoption seeks to harmonize model code language with more affordable standards in creating safe, accessible, attainable, and beautiful multifamily housing.

Automatic sprinkler systems, which have been a longstanding requirement for all IBC structures, became a requirement for all buildings, including one and two-family homes, in the 2009 IRC. Jurisdictions in 46 states removed the requirement in their IRC adoption, and two states limited its impact. Only California, Maryland, and Washington, DC now require statewide installation of sprinklers in all new one and two-family home construction. Sprinkler mandates are presently the most significant divergence between the IRC model codes and their adopted formation on the ground. Importantly, this divergence has come through state regulatory disapproval and from legislative efforts by homebuilders. This shows both the power of states and advocacy groups to meaningfully gain oversight over model code adoption.

The effort to legalize mid-rise single-stair housing within the IBC has been squarely focused on calibrating our codes to better balance safety with design and development. Our research, and studies from Pew Charitable Trusts[42] and the State of Minnesota[43] reinforce the argument that these types of buildings would greatly benefit our cities, and are extraordinarily safe. In Massachusetts, growing advocacy led to two proposed bills in the State senate and house, which led to Governor Healey signing an executive order in 2025 to study the issue and direct the BBRS to make appropriate changes to our amended code. This follows a growing national trend of egress code harmonization, with nearly every other state in New England—Vermont dating back decades, and Maine, New Hampshire, and Connecticut more recently—changing or committed to changing their building codes to allow at least up to four stories to be served by a single stairway. Texas, Colorado, Tennessee, and Oregon have or will soon allow cities to permit these kinds of buildings up to five or six stories. The successes

of local reformers to legalize mid-rise single-stair have typically come from political intervention. Importantly, after initially not accepting changes to allow single-stair apartment buildings single-stair apartment buildings up to four stories, the 2027 version of the IBC will now allow this apparently only after the change was made by multiple cities and states.

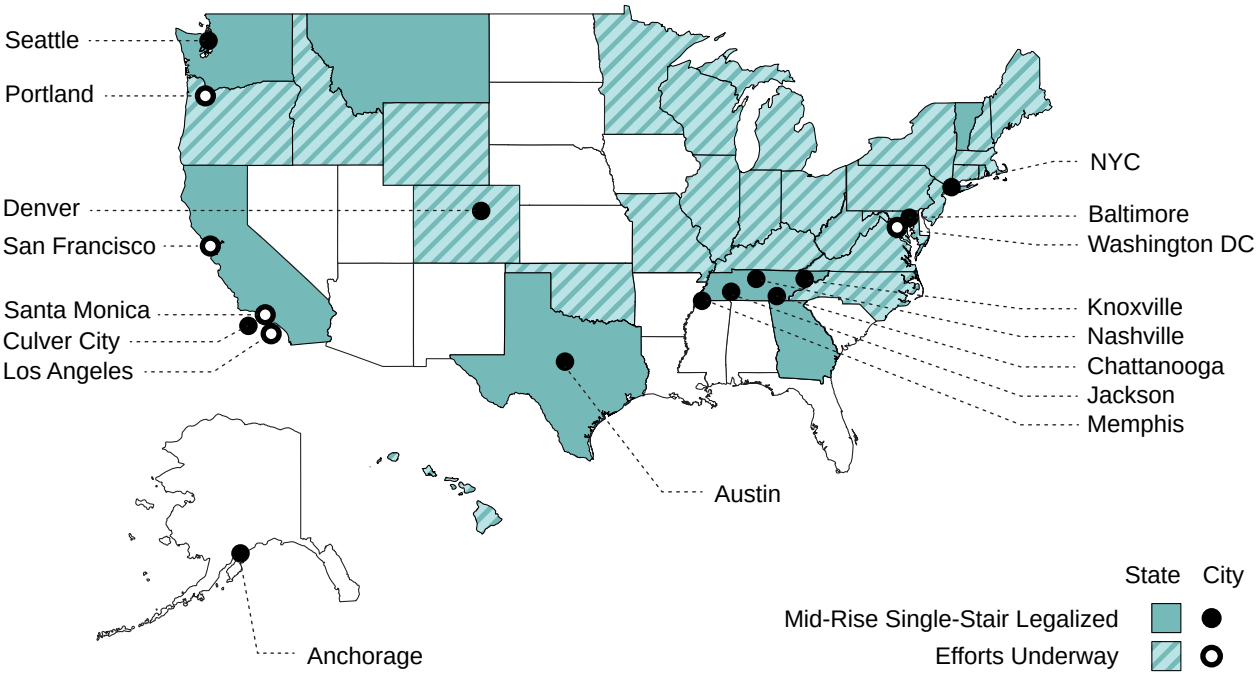
Regaining control of our codes to respond better to the priorities of our Commonwealth has never been more important for building better housing. We can see this in how control of zoning codes, which started locally and gained their legal teeth from States granting the 'police power' to municipalities, are returning to States as they pass upzoning. Building codes also started locally, in places like Boston, Chicago, and New York City, but then grew to regional bodies, and eventually a national model code. States and cities have long amended these codes, but now—in the hopes of making multifamily more affordable—are modifying these model codes at a local level to better respond to the housing crisis we find ourselves in.

The evolution of multifamily building codes over the last 150 years is difficult to reconstruct in full, but we know that it has long contained multitudes—reacting to safety and welfare concerns—as well as responding to cultural changes and larger trends in housing production. The result is two safe, but increasingly divergent codes: one regulating one- and two-family homes and townhouses, which explicitly balances affordability, and another regulating multifamily housing, where affordability receives far less concern. In the long run, change at the national ICC level will be most important to creating consistent rules across the country, but in the short term states should amend the codes in support of SMH.

Massachusetts has the third oldest housing stock in the nation, with a median building age of 58 years, with only New York and Rhode Island ranking higher.[44] From 2010 to 2020 Massachusetts produced over 190,000 new dwelling units of housing, which is about 16% of the total housing stock.[45] As a result, most Massachusetts residents live in older buildings that do not meet the current code, and were most likely developed well before the ICC model codes came into existence. Those structures are overwhelmingly more dangerous than new buildings, likely more than seven times more dangerous for any single-family structure or multifamily built pre-ICC.[46] Yet, the cost of building new structures continues to increase due to the ratchet effect of ever-increasing safety, accessibility, energy, and other building code standards. At this current pace of increasing new standards without regard to buildability we are inadvertently slowing the replacement or older, unsafe housing. Willian Justen, the 1980s Seattle Chief Building Officer who pioneered podium style construction put it this way when arguing for the change despite some safety compromises, "The economic impacts of [the] code changes have been evaluated, both long- and short-term, in working toward the goal of

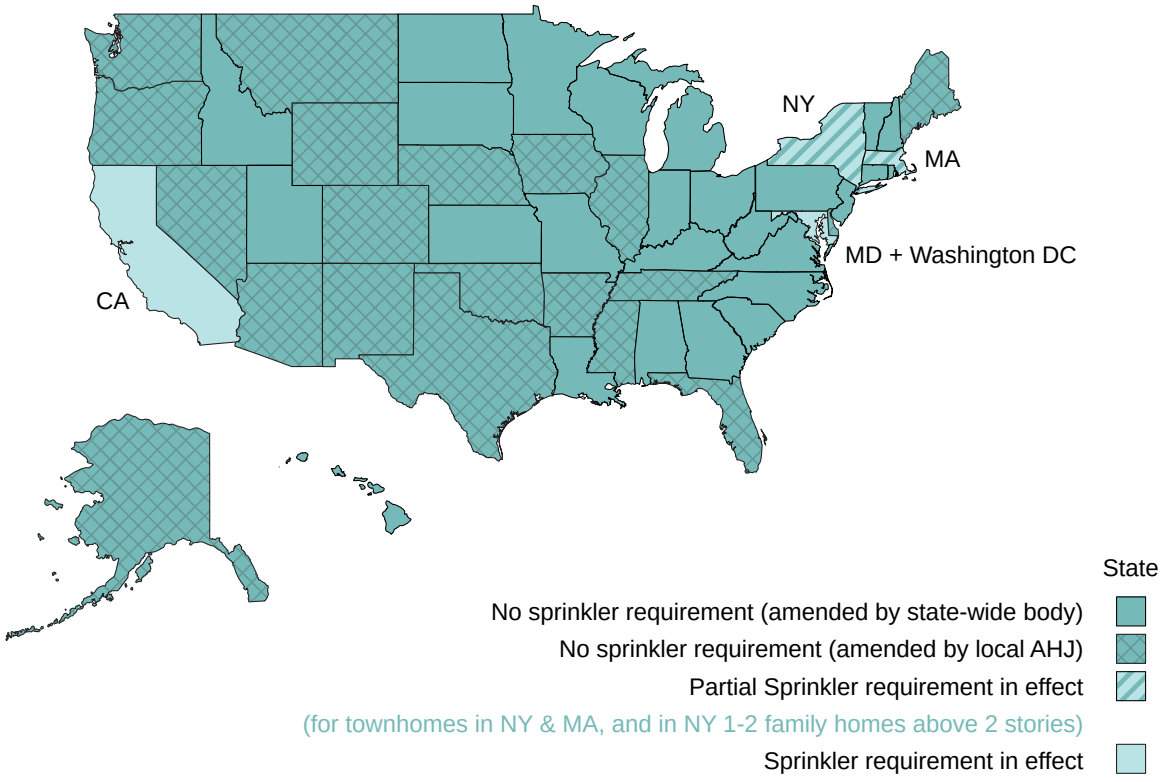
IBC Divergence Exhibited through Mid-rise Single-stair Legalizations

Source: the Center for Building in North America, Reform Tracker, 2026



IRC Divergence Exhibited through Removing the Sprinkler Mandate for Small Residential

Source: the National Association of Home Builders, 2019, in addition to online published codes



achieving a ‘reasonable’ degree of safety, but avoiding the ‘safer is better’ approach…Many of the significant issues raised in this code proposal reflect several city-wide goals. The proposal takes advantage of all the opportunities to lower construction costs and encourage the rehabilitation of existing buildings for both housing and other occupancies.”[47]

This risk-informed or risk-based method might be a better approach to code development by evaluating and balancing real life safety concerns with broader societal needs. Without that balance, we risk putting more people out in the cold, exposing more children to lead,[48] and potentially more people in the path of flames by not making the code work for the issues of our day. Today’s challenge is to deliver more compact housing in walkable, transit-served, amenity-rich neighborhoods while drawing on the full range of available life-safety strategies. Rather than applying a uniform suite of requirements, codes should calibrate safety measures to the scale and risk profile of different building types.

Small multifamily buildings are particularly well suited for New England’s small urban parcels. They fit more naturally into neighborhoods than bulking podium buildings. They should be built to high safety standards, but not necessarily to the same standards as a 300-plus-unit mid-rise with a fundamentally different risk profile. The next section examines how the current code shapes these outcomes in practice and identifies the greatest opportunities for harmonization.

Part 3

Code Impact on Development & Construction Today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Parts 1 and 2 established that the split between the IRC and IBC shapes what kinds of housing are financially feasible to build. This chapter examines how those thresholds operate in practice, shaping not only building costs, but development strategy, architectural form, construction methods, and who is able to build housing.

Generally speaking, more rentable/saleable floor area makes a project more financially attractive. This is not true, however, when the additional floor area results in the project crossing certain regulatory thresholds. In zoning, these thresholds might include a certain height, above which a special permit is required, prolonging pre-development timelines. Developers therefore only pursue the additional height when the added value outweighs the additional time, risk, and cost. Similar thresholds exist within the building code, and the design of many developments closely follows their demarcation. This report focuses on the two-to-three family split, but other major thresholds include the requirement for a second staircase for buildings with more than four dwellings per floor or more than three stories above grade, and the transition to high-rise construction above 70 feet.[49]

Successful developments seek to design just below code thresholds, and often find workarounds to push beyond the limit without triggering the additional technical requirements. Examining these workarounds helps reveal what kind of housing the code encourages in practice, rather than by design. It also highlights which forms of housing might be more readily accomplished without the need for compliance gymnastics.

One common workaround for small multifamily housing (SMH) in Greater Boston responds to the code threshold requiring a second staircase in buildings above three stories. To avoid triggering this requirement, developers often design the uppermost dwellings as multi-story units, allowing additional floor area to be added without counting as a full additional story by code. Removing the common stair and corridor from the upper level decreases “inefficient common area while increasing rentable/saleable living area. The “extra” level becomes a way to add valuable living space within the letter of the law without triggering the second stair requirement. Projects in Medford,[50] Somerville,[51] and East Boston[52] show how a fourth level fully embedded within two-story dwelling units can effectively surpass this threshold while remaining code-compliant, unlocking the additional floor area that makes the project pencil. An extreme example is ISA’s XS House project in Philadelphia,[53] where the three-story single-stair limit is stretched into six usable split levels through an elaborate use of mezzanines.

In other examples, rather than triggering the IBC, many SMH projects seek to maximize their density within the limits of the IRC, the most obvious pathway to the greatest livable area for least construction cost. The result is a set of projects that create multifamily-like density through the aggregation of duplexes, ADUs, townhomes, and smaller detached buildings within clustered site plans—dispersed density.

In Los Angeles, California, many small contractors build the double-duplex: two buildings on the same lot, each with two dwellings, and each with up to five bedrooms; all of which are rented out by the room.[54] In Providence, Rhode Island, many lots historically sized for triple-deckers are instead developed as duplexes with large basements designed to accommodate sleeping spaces, creating the possibility for future legal or informal conversion into additional units. Another expert noted that while new zoning in many places now allows missing middle housing types, we are likely to see "more attached townhomes/rowhouse typologies, and in the meantime, more code hacks that enable missing middle, such as a duplex plus ADU, or second ADU on a lot to create a four-unit cluster to remain IRC-adherent."[55]

Architectural patterns such as these can be seen in a growing number of contemporary "cottage court" developments across the country. These projects seek to maximize site density while remaining within the IRC constraint of no more than two dwelling units per building. At Finley Street Cottages in Atlanta, Georgia, by Kronberg Urbanists + Architects, a combination of ADUs, single-family houses, and duplexes builds density across three carefully choreographed parcels. The site configuration benefits from a "micro-community" feeling that utilizes a centrally shared greenspace to engender a sense of neighborhood even without direct street frontage. The architects' vision deeply emphasizes this scale and typology, stating, "One of our primary pathways to successful attainable homeownership outcomes is IRC infill housing coupled with land use reform." They go on to list the benefits of this approach in that it "leverages existing infrastructure investments to support walkable or potentially walkable neighborhoods… [It] can be delivered at a price more viable for struggling communities… [It] provides homes at a scale and look that is compatible with traditional development patterns… [It] can be built by local developers and contractors… [It] provides fee-simple ownership options… [and, it] can be more easily financed by local builders and local buyers."[56]

Similar strategies can be seen in Plural Office's MIRA development in East Austin, a 12-unit scheme composed of six duplex buildings,[57] and in The Canopy (Phase 1) by Studio Detroit and EC3 Design in Detroit, which distributes 10 dwelling units across five duplex structures on a 17,000 SF site.[58] The latter's confetti-esque site plan creates dynamic outdoor spaces and relationships between buildings. Residents share a common landscape with consolidated parking provided on an adjacent site. In both cases, density emerges not at the building scale, but at the site scale through the

careful arrangement of multiple smaller structures around shared open space, circulation, and landscape.

Even strictly single-family development is beginning to adopt more compact, clustered, and collective forms under increasing land and cost pressures. Projects such as College Hill Cottages by Cultivate,[59] Shortstack Milwaukie by WORKS Architecture,[60] and the Tempe Micro Estates by CoLab Studio[61] reimagine the small single-family house in cluster and court configurations to stay within IRC limit while departing from conventional suburban approaches. These projects take on characteristics of multifamily housing with smaller unit sizes and reduced private yards along with larger shared outdoor walkways and open spaces. These projects continue to benefit from the detached form with multiple exposures for daylight and direct outdoor access.

This collection of recent developments posits a hybrid between the benefits of single-family detached living, and that of collective housing. These approaches harken back to smaller starter home developments that still exist in many American cities. Those configurations were often made illegal over time as new restrictive zoning ordinances mandated lot minimums, setbacks, and subdivision rules.

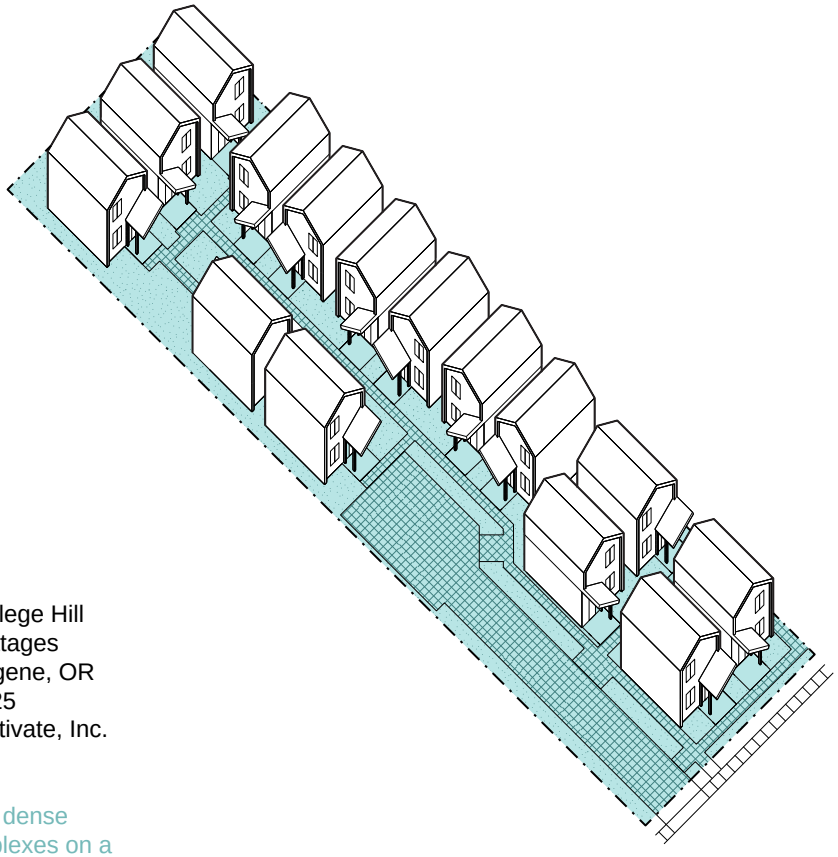
Today the “cottage court” type and its typological relatives are being retooled to uncover density possibilities in areas where zoning now allows SMH, but where the building code continues to make larger unified structures difficult to realize. While this forced dispersion can produce compelling projects, these configurations are also more land and resource intensive than a comparable multifamily building. These projects are both creative responses to new opportunities and evidence of regulatory constraint, physical diagrams of the IRC-IBC split. It raises the exciting question of what kinds of housing might emerge if evolving zoning reforms and contemporary attitudes toward urban living were paired with a building code framework capable of accommodating small multifamily housing more directly.

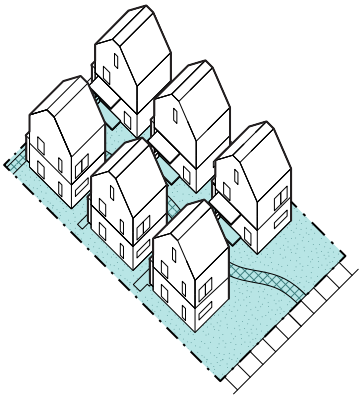
In Massachusetts, ADUs have been greatly promoted to solve our housing crisis, but they too may be casualties of this code demarcation. The addition of a new dwelling unit on a two-family property may transition its classification into multifamily codes, greatly increasing project costs.[62] This does depend on the AHJ’s discretion, and other town rules, but remains a foggy area of compliance that may increase undue burden on small projects. More context on this issue can be found in our recently released report, *ADUs Turn One: Regulatory Barriers to Production in Massachusetts and Ideas for Further Reform*.

Project Examples Utilizing Code-Hacking to Build Density while Remaining IRC-Compliant

Project	Shortstack Milwaukie
Location	Milwaukie, OR
Completed	2025
Architect(s)	WORKS Architecture
Dwellings	15

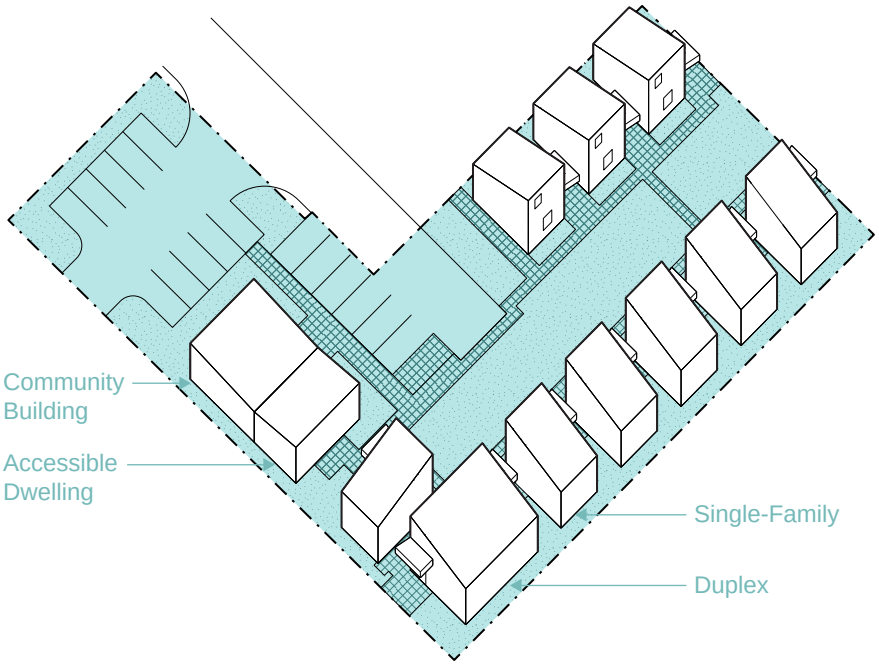
Detached single family houses on micro lots with minimal setbacks





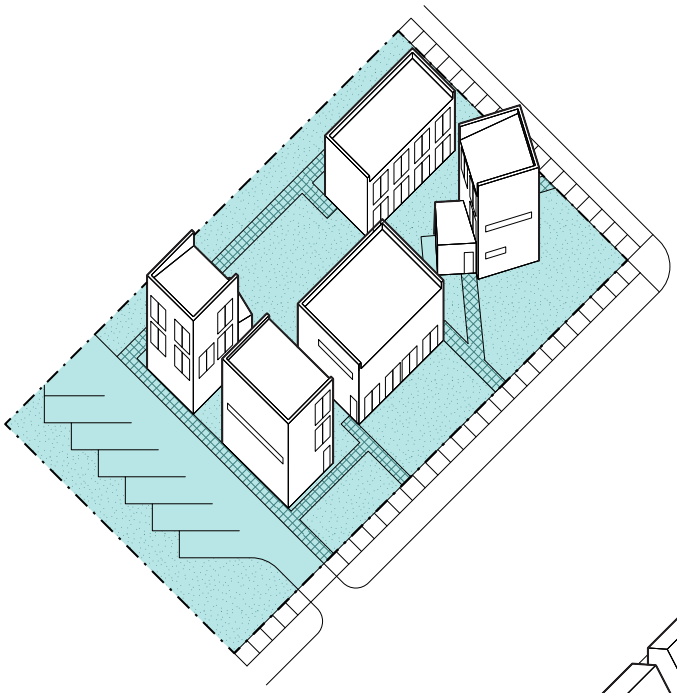
College Hill Cottages
Eugene, OR
2025
Cultivate, Inc.
6

Six dense duplexes on a deep lot



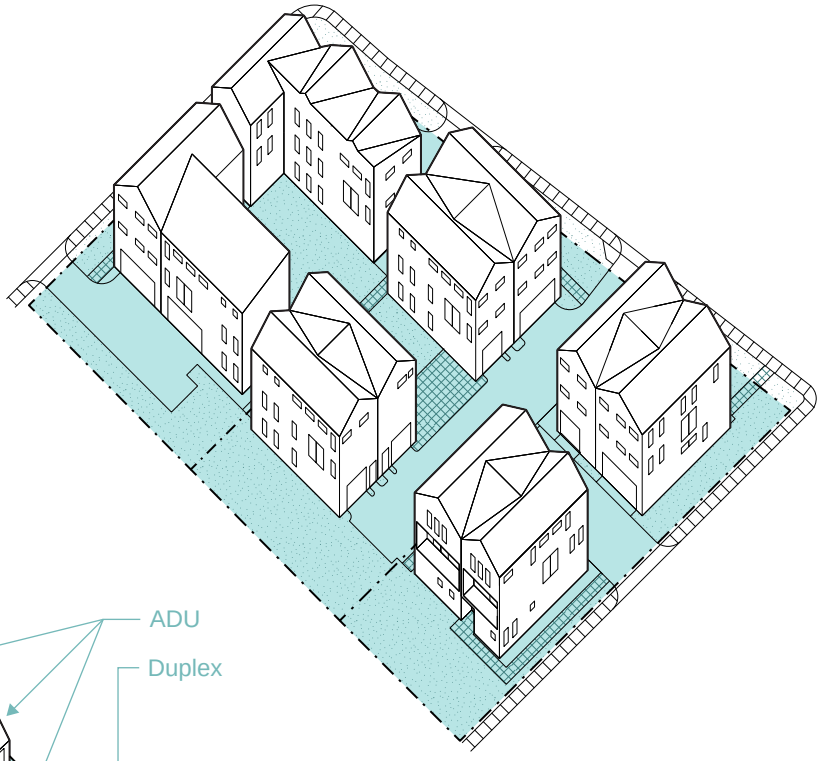
Tempe Micro Estates
Tempe, AZ
2022
coLAB Studio
13

A cottage court of single family homes with lofted second stories



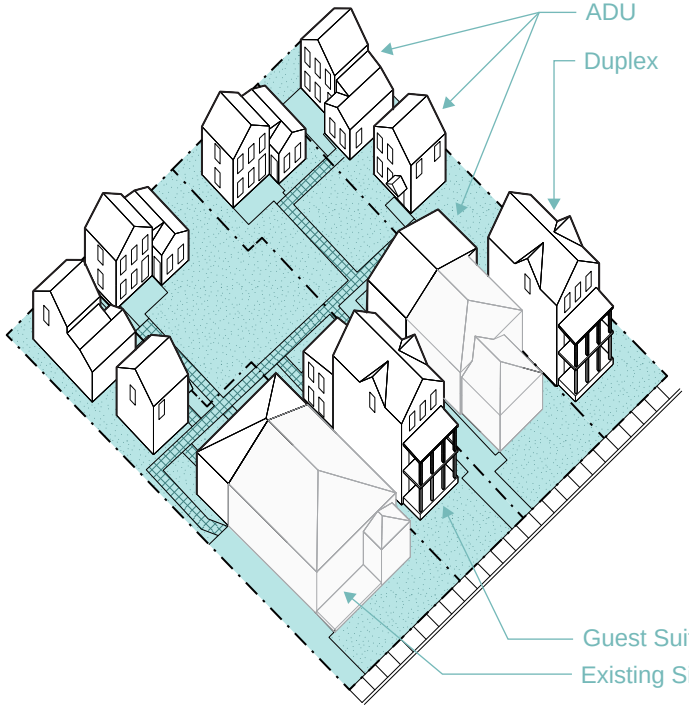
The Canopy
Detroit, MI
EC3 & Studio Detroit
10

Confetti-esque arrangement of five duplexes in a shared garden landscape



Mira Development
Austin, TX
Plural Office
12

Six clustered three story duplex homes with individual garages



Finley St Cottages
Atlanta, GA
Kronberg Urbanists Architects
16

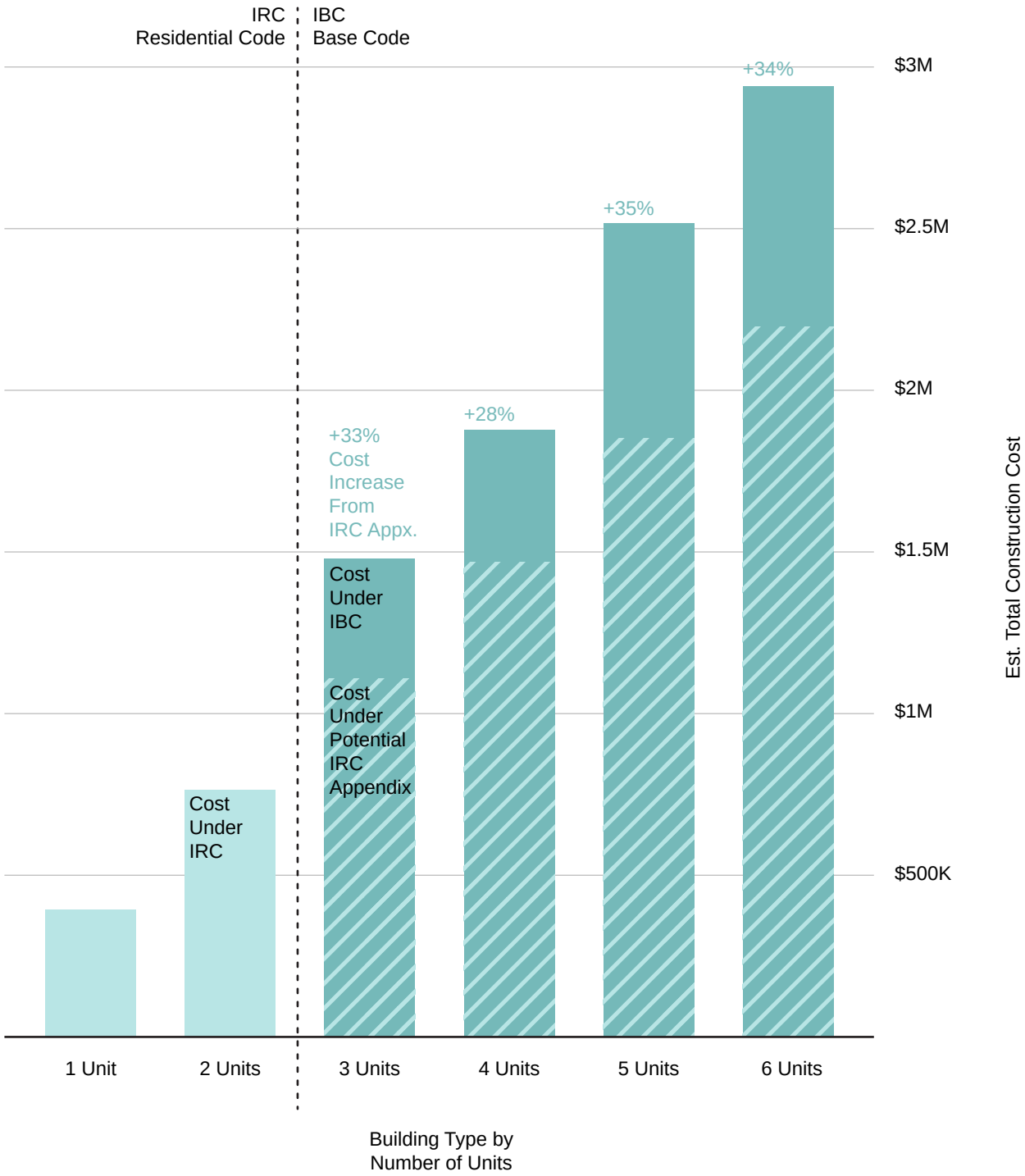
A cottage court of mixed typologies and a renovation of two single family homes

The relative increase in cost for multifamily projects as compared with “residential” projects is felt most acutely for projects with three to six dwelling units—those just over the IBC threshold. Eric Kronberg, Principal at Kronberg Urbanists + Architects in Atlanta, Georgia calls it “the most important threshold in housing policy…. The three-unit building threshold is a big deal. When a building hits that third unit, it typically crosses from IRC to IBC territory, and costs jump significantly, often by 20–30% or more. This creates a substantial barrier to building ‘missing middle’ housing like small apartment buildings.”[63]

When competing for the same high cost urban land as larger multifamily projects, this increase often causes projects to simply stop penciling. A UCLA study prepared for the San Francisco Planning Department found that 5–10 dwelling-unit infill buildings are often financially infeasible without subsidy, in part due to per-unit cost increases associated with code requirements.[64] A Terner Center report comparing for-sale duplexes (IRC) and fourplexes (IBC) found construction costs increased by approximately 24% on a per-square-foot basis.[65]

Small scale developers report frustrating experiences with these barriers in online videos and articles. One developer-builder estimated an increase of more than $30/SF, or approximately $40,000 per unit, when moving from a duplex to a four-unit building.[66] Another study found that a duplex in Denton, Texas costing roughly $140/SF could increase to nearly $200/SF as an eight-unit project, an increase of approximately 30%.[67] One survey respondent quoted an extra $50/SF for the increase in hard and soft costs incurred by the IBC, but not counting the extra cost of the time IBC compliance also incurs. In order to test these costs in Massachusetts we conducted a construction cost comparison of small multifamily structures against one- and two-family homes using the latest estimating software from RS Means, a national standard for cost estimating. It found that overall total construction cost increases due to IBC requirements ranged from 28–35%.

The Threshold Jump at 3 Dwelling Units into the IBC Increases Costs by Roughly 1/3



Study conducted with RS Means Square Foot Calculator. All buildings wood-frame, 3-stories, and without basement except for 5 & 6 units, Data from Greater Boston, Q2 2026.

Conversations with architects, builders, and developers suggest that the increase in construction cost when shifting from building in the residential code to the commercial code typically ranges from 15–40%. These increases stem not from a single requirement, but from the cumulative layering of fire protection, accessibility, energy, engineering, and circulation requirements. Anecdotally, developers, builders, and architects have shared, via a survey and conversations, the below percentages which roughly capture the order of magnitude by which each category of requirements adds cost. These include:

- **10–17% for sprinkler, fire alarm, and fire resistance rating requirements**
  Including building-wide fire alarm and monitoring systems, commercial-grade sprinkler systems, and upgraded utility infrastructure to support them. These systems are intended to slow fire spread, improve occupant notification, and support emergency response in larger or more densely occupied buildings. Fire resistance includes additional layers of gypsum board, firestopping of mechanical and electrical penetrations, and thicker wall and floor assemblies designed to compartmentalize fire between dwelling units.

- **2–15% for accessibility requirements**
  At a baseline this includes larger bathrooms and kitchens, turning clearances, walk-in showers, accessible entries, ramps, and circulation requirements. These provisions support equitable access, but can significantly affect unit layouts, building efficiency, and rentable area. Typically triggered once accessibility provisions or elevators are required. Once required, elevators must be accessible from each unit, and be able to accommodate a commercial stretcher.

- **3–5% due to increased energy code requirements**
  These are triggered depending on jurisdiction and building size. They include higher insulation values, more expensive windows and doors, upgraded electrical systems, and additional compliance documentation. In jurisdictions requiring Passive House standards, these increases may rise substantially higher.

- **3–10% for design, engineering, and stamping requirements**
  Multifamily permitting also varies by AHJ, but typically requires fully coordinated and stamped drawings from multiple licensed professionals, including architectural, structural, civil, mechanical, plumbing, electrical, and fire protection consultants. The added design fees and especially time involved adds burden and risk. In addition, most multifamily requires Construction Control, or site observation and affidavits, from each design professional throughout construction; adding additional cost, time, and headaches for small developers.

Individually, many of these requirements are tied to legitimate life-safety, accessibility, durability, and energy-performance goals. The issue is not necessarily any single provision, but the steep and cumulative cliff that occurs when a building crosses from the IRC into the IBC. Combined these can add more than $150,000 at minimum to go from a two- to a three-family building, in addition to the cost to build the additional unit itself. While this is due to the added requirements and features, it also impacts overall building efficiency, or the share of total square footage that is assigned to a living unit. As one builder put it, "Typically, a two-unit building can be designed with all of the square footage counting towards one or another units, so 100% net/gross, whereas a three-unit building will typically be 90% net/gross. Since a three-unit building will also have sprinkler requirements, the requirement for an accessible ground floor unit, and slightly more money spent on rated assemblies, there might be ~$150k spent on common space, sprinklers and upgraded assemblies if you're building a three-family instead of a two-family in a case where the units are each around 1,000 SF."

Beyond direct hard costs, the hard shift from IRC to IBC fundamentally changes who is able to participate in development. We heard from many developers and builders that want to scale, but once they try multifamily, most swear to never return. Contractors familiar with single-family homes take on 4-–8-plexes, but then say "never again" because the cost and complication is so large. The pain is borne both in the process and bottom-line. IBC projects require expanded consultant teams, engineering coordination, permitting complexity, and inspection intensity. Small developers must effectively operate with the infrastructure of much larger firms to deliver relatively modest projects, often for the same or less profit. In this sense, the IBC establishes not just a building threshold, but a threshold of technical and organizational capacity.

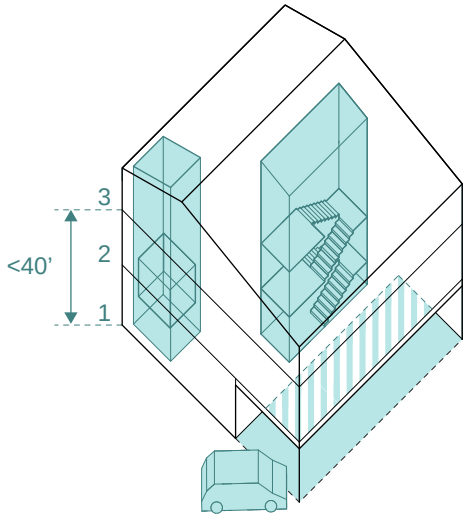
This system pushes builders to either ends of an extreme: the high end, single-family custom home builder, or the large, multifamily corporate developer. As one developer notes, "These dynamics seem to all reduce the feasibility of small and medium development while reinforcing the competitive moat of large developers and developments." With large development as the only answer for multifamily, limited access to large plots of land becomes a driving constraint. Large lots are increasingly rare, and assemblage is very time intensive (as one respondent put it simply, "Land assembly sucks, so people don't do it"). This drives up land costs and further excludes small developers from viable projects. The result is a system optimized for extremes: low-density production or large institutional projects with a clear missing middle.
Although outside of the scope of this report, further research is needed to understand the myriad ways in which this code demarcation has impacted other regulations for SMH. The change from "residential" to commercial" impacts property tax rates,

insurance rates, bank loan terms, and gas and electric utility rates. In Boston, the residential tax rate is for 1–4-dwelling-unit properties, whereas 5+ dwelling properties are taxed at the commercial rate. Elsewhere, rent control ordinances across many older California cities used to explicitly follow this demarcation, with cost protections for multifamily but not single- or two-family. Today in Los Angeles County, Rent Stabilization Ordinance (RSO) price increase caps are measured differently for duplexes than they are for three-unit or more buildings.[68] The related waterfall effects of the two-to-three unit demarcation in other regulatory realms is yet to be fully mapped, but are ripe for further research that seeks to understand how regulation unfairly penalizes SMH.

The increased cost of construction that follows when a building is under IBC codes can be attributed to a number of individual building code provisions, along with design and engineering requirements. What follows is a list and description of those code impacts, organized by thematic category, and complete with proposed modifications that could be either incorporated into a modified model code, or our proposed SMH code appendix. Most of these proposed modifications are broad in definition, and deserve more fine-grained technical evaluation.

This format of explanation and appendix solution is heavily inspired by the work of John Zeanah of Interval, who both authored the report *Beyond Zoning: Hidden Code Barriers to Middle-Scale Housing*, published by the Center for Building in North America, and who led the Memphis Small Multifamily Building code appendix while serving as chief of development and infrastructure for the city. His work in Tennessee and elsewhere has expanded how far SMH zoning reform can go, and can offer a blueprint for advocacy in our own state. The specific suggestions below generally follow the advice of experts in Massachusetts, and from successful SMH code provisions around the country, including Memphis'. They are situated within a suite of life-safety related code elements that ultimately must be evaluated holistically.

The following topics concern the mass and layout of SMH. These are forces that control height and area, but also floor plan arrangement, daylight, natural ventilation, and accessibility.



- **Number of Dwelling Units**

  The residential code limits structures to a maximum of three stories above grade, but has no strict limitation on compartmentation of large spaces, total area, bedrooms, kitchens, or occupancy.[69] Since SMH and large single-family homes can be built in similar sizes, the code demarcation penalizes multifamily only because of its number of dwelling units, and not any other risk factor like height, area, presence of fire-producing elements, or bedrooms.

  Ostensibly the extra requirements for multifamily compensate for the increased risk of living close to other unrelated persons. However, detached dwellings can also pose risk to their neighbors. And, as we have previously shown earlier in this section, densely packed arrangements of single-family, duplex, and townhomes are allowed under the more permissive residential code, despite having increased risk. The jump in code requirements at a specific number of dwellings (three) is vestigial and unproductive to creating standards that can better serve the kinds of housing we need. This limit on dwelling units is also not shared by any other international building code we could find.

- **Two Means of Egress**

  The cost of a four-story stair, according to a Boston-based developer, ranges from $300,000–$400,000. The current code limits single-stair buildings to three stories and four dwellings per floor, but it prohibits common rooftop amenities or other light-risk mixed-use spaces that could be used by the same stair. Research continues to show that low-rise single-stair buildings are very safe; their risk level can be as low as one fifth that of comparable two-stair buildings.[70] This is because single-stair buildings have a limit on their floor plate size and number of occupants, greatly increasing compartmentalization which reduces smoke spread and occupant risk from fire. Besides increased safety, allowing single-stair for SMH would unlock more expansive floor plan layouts and livable area, but code requirements regarding height, number of dwelling units per floor, and fire protection requirements limit this application above three stories. See our 2024 single-stair report for more details on single-stair code reform.

Massachusetts is also one of the only states that amends its residential code to mandate two means of egress for all houses, duplexes, and townhomes. While a front and back door is feasible for many homes, it becomes impractical for smaller cottages, detached and attached ADUs.

- **Elevators**

  While elevators are not mandated by the building code based on the number of units, they are often required for various other factors. Those include when a larger project cannot meet its accessible unit requirements on the ground floor, when the site demands vertical connectivity, for market viability reasons, resident desires, and broadly for affordable, senior, and special population housing. Adding an elevator adds significant cost. Elevators cost three to five times as much in the US as they do in Europe due to our size and technical standards. These differ from the rest of the world's, which are based on ISO 8100, and harmonized around European building practices. For instance, elevators in new US buildings of four or more stories must be sized to accommodate an ambulance stretcher. In addition, local codes can go above US model codes–the Massachusetts Board of Elevator Regulations requires a dedicated control space, even if the elevator does not require one (such as Machine Room-Less (MRL) elevators).[71] These demands, along with associated higher maintenance costs, lead to the US having dramatically fewer accessible elevators than comparable countries, leading to less accessibility overall in our housing.

  Avoiding an elevator is the first step in designing a buildable SMH project.[72] One developer we spoke with told us that a building needed 18 dwelling units or more to even make it pencil with an elevator. Another told us that due to the high elevator cost only affordable subsidized housing can afford to add an elevator for SMH. These costs also disincentivize adding elevators to older walk-up buildings, which are an aging stock but a high percentage of buildings in Massachusetts. The elevator plus two-stair issue might be best summarized by Josh Brandt, a Boston-based developer-builder at Stack: "The cost difference [for the stair and elevator] is really only part of the equation. The resulting change to efficiency (% of salable space) is the bigger issue…. The loss in saleable square footage is far more impactful to projects' ability (or lack thereof) to pencil. I spent a year studying the hell out of a small (~35'x65') infill site. With a single stair and no elevator it could exceed 90% efficiency, but it was too small to overcome fixed costs. With two stairs and an elevator, the efficiency dropped to sub 70%, which is not nearly enough to make the project viable."

- **Carports & Parking Garages**

  Finding room for modest amounts of car parking in SMH is always challenging. Carports, or tucking under cars beneath the building volume helps save floor space if the site and structure allows. However, according to builders often this parking can be interpreted as an "open parking garage," which triggers the need for a non-combustible podium under the building code, which is very expensive.

Proposed Changes for SMH Appendix

- **Overall Appendix Scope**
  The appendix should apply to reasonably sized multifamily buildings. Based on other code proposals and jurisdictions (detailed in the next section of this report), the following requirements would make sense for our appendix:

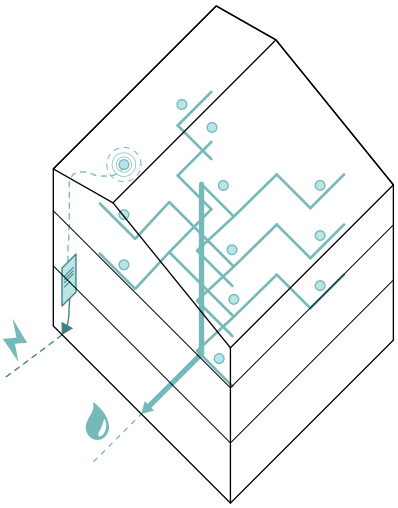
  - Must be limited to three stories above grade plane, or 40 feet from mean grade to its highest occupied floor.
  - Must not have more than 24 dwelling units.
  - Must be of residential occupancy types R-2 or R-3
  - Micro thresholds—for example, for buildings with 2–6, 7–12, and 13–24 dwellings—could be established in order to further calibrate safety features with relevant risk and pay-off. Or these could be based on area, height, number/length of attached fire-rated walls, or other risk-based profile demarcations.

- **Stairs**
  Single-stair rules should be calibrated for SMH. This would include allowing existing IRC residential types to utilize one means of egress, and for SMH to utilize one means of egress with limitations on size. These limitations on size would allow single-stair types to avoid the currently mandatory NFPA13 or 13R sprinkler systems. Since low-rise single-stair is especially safe due to compartmentalization, the number of dwelling units could be increased to six or eight per floor, and an allowance for low-risk mixed-use and common space access should be added to make projects more livable and market responsive. Research has shown that additional smoke detection and smoke evacuation requirements for the corridor would have the most benefit to occupant safety, and might be considered as tradeoffs

- **Elevators**
  The Massachusetts code should permit the use of equipment and methods that comply with the latest version of the ISO 8100. This would allow for the use of smaller elevators built to global standards. In addition, further studies should look at widening the applicability of Limited Use Limited Application (LULA) elevators and platform lifts for increasing building-wide and in-unit accessibility. This would only increase accessibility options, and would match the level of use as would be experienced in smaller buildings.

- **Parking**
  Clear rules for tuck-under parking should be written to align with common wood frame building practices. Compliance should be clarified in a memo so that local AHJs interpret various conditions the same way across towns.

Fire protection features are critical to keeping the kinds of combustible construction that is common to SMH safe for all residents. However, sprinklers and fire alarm requirements are often out of scale with the risk of SMH, considering we currently allow similarly sized structures without sprinklers through the residential code. More research is needed on the potential redundancy of sprinklers in light of other modern fire safety features. The following topics highlight the range of concerns, and proposed appendix modifications.



- **Sprinklers**

  Automatic sprinkler systems are by far the most cost-prohibitive feature one encounters when building multifamily. They are required for all multifamily in Massachusetts regardless of the number of dwellings. Residential sprinklers are not currently required for one and two-family structures. Sprinkler types are categorized by threshold and standard:

  - **NFPA 13**
    - Required for all multifamily buildings with a gross area greater than 12,000 GSF
    - The highest level of sprinkler system, designated for property protection and life safety, requires larger water supply lines, more pressure, more coverage in a building, and is commonly required to be built of black steel.

  - **NFPA 13R (residential)**
    - Required for multifamily buildings <12,000 GSF
    - The “residential” type, designed for life safety with a lesser degree of property protection, has allowances for lower water flow, fewer spaces covered in a building, and allows CPVC pipes.

  - **NFPA13D (domestic)**
    - A modified version is an optional path for three-unit buildings <12,000 GSF that have an automatic water supply or a stored water supply source.
    - This is also a requirement for larger single-family and detached two-family buildings as well as those far from fire service capabilities.
    - This is the “domestic” residential type, designed for just life safety, and along with other lower requirements, notably can be supplied from the building’s domestic water supply line instead of an independent water connection.

- Rudimentary sprinklers were first invented in 1812, automatic ones in 1872, and the first heat-sensitive systems in 1881. The US and Canada are unique globally for high reliance on sprinklers for fire protection. Experts have told us that these systems have made “quantum leaps” in their effectiveness and reliability over the last decades, but that the building code rarely acknowledges this progress through lowering other requirements. Instead what we have is a constant ratcheting up of all requirements over the years, with few levers for pulling back requirements in harmony with technological improvements

  Sprinklers require separate design engineering, have a high upfront cost, and importantly, come with mandatory and proprietary maintenance which incurs ongoing operational costs. These systems also often require a separate water service fee for the building. One builder quoted 25% added cost for this line item alone when going from a two-dwelling building to a three- to four-dwelling building. Sprinklers do have a strong safety record when maintained properly, which is one reason why modern multifamily buildings are so vastly safe compared to modern single-family homes. But, the steep cliff one encounters when building three-dwelling units versus two means a disproportionate amount of safety features for the relative risk and reward.

  Relying on active systems also has downsides; one code consultant who inspects these systems regularly told me that “90% of the time there is something wrong with the sprinkler system.” Another saw two brand-new buildings totaled by water damage from a faulty sprinkler. Older buildings, and buildings not professionally managed (common with SMH) suffer most from neglect of maintenance. In lieu of relying heavily on active sprinklers, passive fire protection methods could be equally incentivised and provide alternative paths for compliance. These could include increased fire-rated and smoke-sealing unit entry doors, higher wall ratings, external common building circulation, or non-combustible construction.

  Massachusetts requires townhouses of three or more attached together to be fully sprinklered. The type of sprinkler system follows the same thresholds for all other multifamily. This added cost greatly disincentivizes low-rise townhomes from being built in an otherwise permissive residential code. Even when they are built in the residential code, there are added utility costs to achieve complete separation of utilities.

- **Alarms, Detectors, & Signs**

  In addition to sprinklers an active array of fire alarms, hard-wired smoke/carbon detectors, control panels, pull stations, and visual/auditory notification devices are also often required.[73] These all cost money to design, build, and maintain, but also are never offset by any complementary passive fire protection features like increasing wall fire rating, construction type, door ratings, or smoke control measures. These systems should be evaluated apart from sprinkler requirements, and on their own merit. For example Bi-Directional Amplifier (BDA) systems (or Emergency Responder Communication Enhancement Systems (ERCES)) in small buildings add a significant amount of cost for not that much safety benefit. They may not make sense for SMH, since it’s easier to navigate and escape a small floorplate building in comparison to larger buildings. One developer we surveyed was renovating an 1880s historic brick building into a 12-dwelling multifamily, and quoted that a BDA, “cost the project $120,000 in change orders, or $10,000 per unit… [because] you cannot know if you need a BDA system until after the building is complete and you can test radio signals, so you end up paying for pre-testing to get a sense of how likely it is. Either you design assuming you will need it and pay for unnecessary costs, or you have to figure it out after the fact, which involves extra cost. For small multifamily developers, unanticipated

substantial costs can significantly eat into their margins and prevent them from doing future projects. The BDA requirement ultimately ends up favoring larger developers with larger buildings who can absorb these costs."

- **Rough Costs**

  For SMH, sprinklers and fire alarms are a big factor in making a project pencil. A Boston-based developer provided some rough figures to illustrate the point.

  - **Design & Permitting**
    Even for a three-family structure a fire protection or mechanical engineer is needed to submit for a permit. Additional time is also needed to design the systems, and to get the municipality's review. The system is typically delegated design, meaning two or three separate engineers are hired to design for permit, engineer for fabrication, and oversee and install on site. The first lays out the conceptual design, then a separate engineer hired by a sprinkler company, and a separate one from a fire alarm company each do their own engineering work during construction.

  - **Initial / Hard Costs**
    For a three-dwelling SMH project the following rough figures were provided:
    - ~$30,000 - Commercial fire sprinkler system
    - ~$7,000 - Dedicated water service for the system
    - ~$5,500 - Installation of the water service from the street to building
    - ~$20,000–$30,000 - Commercial fire alarm system
    - ~$40,000–$70,000 - Total cost of the system, which increases in escalating ways for four or more dwelling units

  - **Ongoing / Operational Costs**
    The following non-exhaustive costs were provided for a 14-microdwelling-unit SMH building:
    - ~$500–$1,000 / year - Sprinkler maintenance (annual inspection)
    - ~$360 / year - Extra water line fee (2" line)
    - ~$600 / year - Smoke alarm monitoring
    - ~$600 / year - Smoke alarm annual inspection
    - ~$600 / year - Fire alarm panel monitoring fee
    - ~$3,000 / year - Ongoing yearly costs

Proposed Changes for SMH Appendix

- **Sprinklers & Alarms**

  Sprinklers should not be unilaterally required for SMH. Instead optional pathways of compliance should be available to achieve safety. One path, based on Memphis SMH appendix,[74] could have a menu of options that looks like this:

SMH size/scale	**No Sprinklers** 2-hour separations	**NFPA 13D** Sprinklers 1-hour separations	**NFPA 13R** Sprinklers ½-hour separations
3–6 dwelling units < 5,000 GSF < 30’ in height	Permit Pathway 1	Pathway 2	Pathway 3
7–12 dwelling units < 12,000 GSF < 40’ in height	Not Permitted (NP)	Pathway 2	Pathway 3
12–24 dwelling units < 24,000 GSF < 40’ in height	NP	NP	Pathway 3

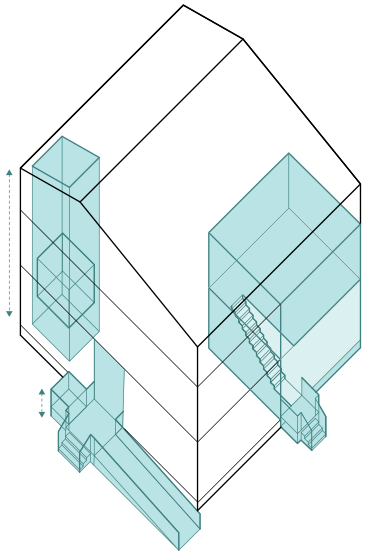
- This simple matrix is only an idea. Further studies might categorize sprinkler requirements by height, area, number of occupants, or maximum travel distance instead of a simple unit cap. For example, El Paso removed the sprinkler requirement but only for 1- to 2-story structures. Whereas Ohio omitted the requirement only for single-stair buildings with up to two stories above grade and an exterior exit.[75]

  Other levers could be pulled to right-size the lifting of sprinkler requirements, such as reducing the maximum travel distance for SMH, to 75’ with no sprinklers, 150’ with NFPA13D, and 250 feet with NFPA13R/13. Buildings equipped with sprinklers might also be relieved from a building-wide fire alarm system. Or that a building-wide fire alarm system can generally be omitted for smaller structures (<8 units), and that having smoke detectors in all units and common areas will provide sufficient protection. Open Exit Access Stairs should still be permitted for two-story one-stair buildings, while allowing them to benefit from the same sprinkler relief.

- **Townhomes**
  To start, attached two-unit buildings could be transferred into the residential code. And, likewise, side-by-side townhomes should be a part of the appendix, classified as multifamily, and should not be limited in number. Like other multifamily their utilities should be allowed to be combined, and they should be exempt from sprinklers if they have two-hour separations between dwelling units, as long as they remain single structures built from ground to sky.

- **Passive Fire Protection**
  Because sprinklers are so critical to the current approach to fire safety, and because they rely heavily on proper maintenance, SMH should consider alternative approaches to fire safety that balance risk with the low level of ongoing support these buildings may receive. That is, passive fire protection measures should be encouraged for SMH, and if strengthened above current IRC standards, could be a more cost effective method of protection and allow savings on active systems like sprinklers that would then would not be required.

Our state is governed by the Massachusetts Architectural Access Board, which issues a separate accessibility code under the title, 521CMR, which was last updated in 2006. This document mandates more stringent accessibility standards than most other states or federal guidelines. Its requirements kick in for any multifamily building, but do not apply to single-family, duplex, or most townhouses.[76] At a default, all for rent/lease multifamily dwellings need some percentage (typically 5%) of dwelling units to be “accessible” (known as Group 2) and all ground level units to be “adaptable” (Group 1) if the building has no elevator. Exceptions to this requirement notably allow zero fully accessible units if the building has fewer than 20 total dwellings. Implications of these rules shape our housing in subtle ways, but also contribute to a confusing and contradictory landscape of accessibility codes, which can also include the Americans with Disabilities Act (ADA), Uniform Federal Accessibility Standards (UFAS), the Fair Housing Act Design Manual (FHADM), and affordable project accessibility guidelines from the Executive Office of Housing and Livable Communities (EOHLC) in addition to separate city housing and/or zoning departments. This leads to varying levels of enforcement, and a pick-your-battle approach to design and development, with risks of compliance for the developer and risks of access for the user.



- **Multistory Dwellings**

  Because state accessibility rules apply to all units in a building if triggered, the multistory dwelling unit (often called duplex, townhome, or maisonette style) is hard to build. If an elevator exists in the project then all floors of all dwellings must connect to it on an “accessible path,” which means multistory units have to have two or more front doors, and are limited in their floor plan area. This essentially requires top floor multistory dwellings to each have space for their own elevator, and for ground floor multistory dwellings to be much less flexible in layout than is common elsewhere in the country. One exception is for buildings without elevators who can have multistory dwellings on upper levels that are not the ground floor. While these are permitted, the height to the top story without an elevator remains a barrier to some.

  One example from our research was a small affordable homeownership building in Somerville that attempted to gain one more family-sized dwelling through a

ground floor plus basement multistory dwelling, but due to MAAB requirements for adaptable accessibility and elevator access the idea was deemed impractical. The project decided to scrap the entire below grade level and reduced the total dwellings from four to three.

Two-level dwellings are extremely prevalent in our historic homes, in other states, and across the world, but they remain rare here. These kinds of dwellings can provide privacy for ground floor homes close to public ways, and they can offer live-work or other kinds of ground floor activation when retail is not feasible or realistic. They should not be disincentivized through the treatment of accessibility as a zero sum game.

- **Elevators**

  While accessibility codes do not require an elevator for any specific size threshold, they may be desired for a variety of previously stated reasons. Yet, once an elevator is added to a building the entire structure then is required to be "accessible." Meaning the elevator must connect to all dwellings and common spaces. This disincentivizes adding an elevator for convenience and accessibility when it may be cheaper to not have it run the full building height or when common spaces like roof decks become too complex (for waterproofing and structural reasons) to connect accessibly. This means the rules discourage elevators, and when they are added, discourages common exterior areas that might otherwise be provided.

- **Clearances**

  For dwellings on the ground floor in all buildings or those on any level in elevator-connected buildings, many onerous dimensional regulations apply. Among these are various clearances around doors, kitchens, bathrooms, electrical panels, and beds. All doors to almost any room in a single dwelling unit must be at least three feet (36") wide, and when combined with their clearances on both sides, make larger floor plans that increase overall project costs, and prohibit more efficient and compact architectural layouts that would benefit SMH.

- **The Ground Floor**

  Even in non-elevator buildings the requirement from MAAB and from the Fair Housing Act (FHA)[77] for ground floor dwellings to be adaptable still mandates a completely accessible approach from street to dwelling. However MAAB disallows any solution besides ramps as of right. Powered lifts for example are only allowed through a state level variance application. Increasing ground floor accessibility is important, but for many reasons a ramp is often not feasible. Zoning measures in Somerville, for example, require a minimum two-foot elevation from grade to any front door. This requirement, stemming from vernacular building fabric, helps buildings blend in with their neighbors and protects ground floor dwelling privacy, but means more work for a building to configure a ramp on a site constrained by other open space zoning requirements or other site pressures.

  The FHA does allow multistory units to be excluded from this ground floor accessibility requirement, but 521 CMR does not exclude those types of units, and only excludes townhomes, leading to further frictions in building successful ground floor units.

Proposed Changes for SMH Appendix

- **Multifamily Scope**
  It's been 20 years since 521CMR was re-calibrated. We encourage either a heavily revised code, or direct incorporation into state codes through the amendment process. Revising 521CMR should seriously consider its impact on multifamily housing design and development—and aim to synchronize with other codes, guidelines, and planning criteria in order to reduce conflicts and inconsistent enforcement. The new code(s) should consider SMH on a sliding scale, and provide different options for compliance.

- **Elevators & Lifts**
  The current system incentivises developers to avoid elevators at all costs, instead of encouraging them by allowing their inclusion to override other requirements. The current system also incentivises projects to avoid designation of 521CMR at all, either through having no ground floor dwellings,[78] having no elevator, or having no common spaces. This system makes housing worse and lowers levels of accessibility broadly. We need tradeoffs and a reasonable approach for small, mid, and large sized multifamily. Elevator requirements could be harmonized with global standards, and LULA lifts and standard wheelchair lifts should be a viable solution for SMH.

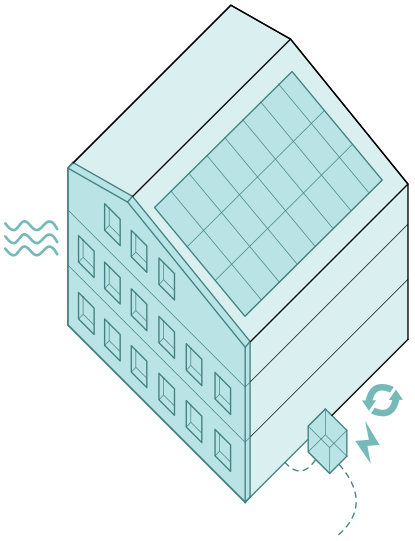
- **Grade & Access**
  Exterior accessible grade access should be balanced against our historic patterns of living and increasing planning regulations. Allowing exterior assisted lifts to provide that access would be one method, but currently only permitted with a special state level variance application on a case-by-case basis. Other methods could change zoning/planning rules so that if a project needs a ramp per code, then site setbacks or site requirements could be relaxed to allow for the new constraint. Accessibility requirements are especially challenging in situations of extreme grade, multistory dwellings, or below grade amenities—and the sites we have left for new housing are often under such challenges.

- **Multistory Dwellings**
  521CMR should be amended or the MAAB provide guidance such that multistory dwellings become a viable path inside multifamily buildings. This would only require amending the language in 521CMR to exempt multistory units as well as townhomes. This would mean, regardless of the presence of an elevator, these types of units would enjoy the same exemption and benefit that townhomes currently have and would harmonize with FHA rules and allow more flexibility in dwelling types.

  Two-level or three-level dwellings provide a diversity of dwelling type that allows more efficient uses of below ground spaces, ground floor dwellings, and different ways of inhabiting a home. For many, an interior stair is a greater signifier of what makes a "home" than having four exterior walls and a yard. Allowing for these dwelling types through code revisions would allow our housing to compete on a quality of life basis with other housing typologies, and with homes in neighboring states or countries.

Envelope and Energy Performance Requirements

Massachusetts has a Base, Stretch, and Specialized Energy Code. The latter is an opt-in requirement that many municipalities in Greater Boston have incorporated. Its most consequential threshold for SMH is that any project greater than 12,000 SF must be designed to Passive House standards.[79] Those standards can increase hard costs by a significant amount, and are some of the strictest in the country.



- **Performance, Design, & Engineering**

  The passive house requirement is a big threshold that developers now seek to design around. Further studies of development costs should look at the scale of building that can better absorb these costs, and likely look at raising the threshold above the current demarcation.

  Energy requirements add hard costs, but they also add soft costs in engineering and design. Beyond an architect, a project now likely needs a specialized mechanical engineer, an envelope consultant, and a passive house consultant or a Home Energy Rating System (HERS) rater. These additional professionals are necessary to evaluate the building science performance of a project and to submit the appropriate compliance. Services include energy modeling, thermal bridging analysis, and comprehensive envelope review. City departments reviewing these new deliverables are also often at a loss of expertise to review the materials and are required to outsource to qualified engineers for compliance checks. One developer said that the biggest cost impact of the new codes were the "time and brain damage caused by new Stretch Energy Code," which add soft costs, but also time and confusion in permitting.

  Energy codes' stated aim is to lower carbon emissions by moving more people into energy efficient buildings. Yet, when those buildings are increasingly hard to build, their redevelopment as well as new construction is disincentivised. Meaning more people may end up living in older buildings, burning more gas, losing more heat through their walls, and commuting further in cars.[80]

- **Utilities & Metering**

  Full electrification, which is a streamlined path in the energy codes, relies on a grid and infrastructure that can support these higher loads. However, new larger meters and transformers are notoriously hard to procure in Massachusetts, and increasing service from the street to a small new building relies on interfacing with Eversource or National Grid, who

are notoriously poor in communication or responsiveness to project schedules. The energy code also requires individual unit meters for energy monitoring even if you only have a master meter for billing. One developer put it this way, “Every added cost and complexity favors larger developments that can spread costs out with economies of scale. But we only have so many large sites available for development.”

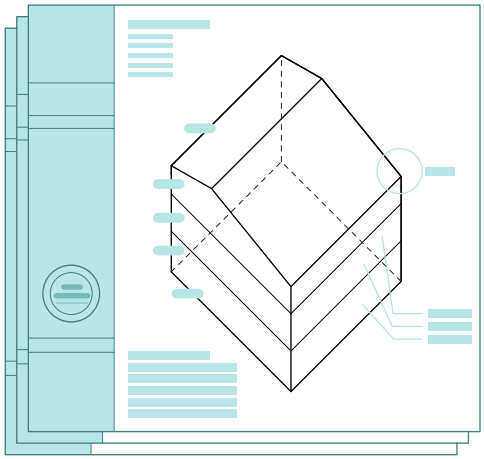
Proposed Changes for SMH Appendix

- **Performance, Design, & Engineering**
  Energy codes should be ratcheted up or down with a clear view of the impact on development outcomes, especially SMH. As a start, the Passive House requirement could be raised to 24,000 square feet, but a more thorough cost-value analysis of new regulations against their intended outcomes should be done.

  Increasing the professional design and engineering services needed to meet the code requirements should be evaluated against their relative burden on SMH. An alternative pathway within the appendix could be created that allows a prescriptive path, such as the one available within the model International Energy Conservation Code (IECC). Massachusetts chose to exclude this from its compliance paths, but offering it as an option could save residential and SMH from the cost and red tape of a HERS rater model and inspection. In addition, the state could publish model building assemblies and standard drawing and specification packages that could be used by builders and architects. The feedback we heard was asking generally for a simpler process that generated fewer headaches and less overhead.

- **Utilities & Metering**
  While many of the implications of upgrading our electrical grid go beyond the scope of the building code, it’s important that electrification requirements in particular consider the costs of upgrading service to the building. An appendix could cover scope in the energy code to allow some requirements to be waived in lieu of a fee; which would allow buildings to comply in spirit, but avoid triggering onerous site electrical upgrades. Waived requirements in the energy code might include having a solar ready roof, electrical-ready charging spots, or separate meters. Some of these could be paid in a fee for district solar, or waived for small buildings.

Beyond the stuff the building is made out of we also have to consider how it gets designed, engineered, and evaluated. The IRC and IBC take different approaches. The former has very loose rules that allow virtually anyone to build a home, while the latter requires a suite of expensive and time-consuming professionals to be engaged. SMH, by its nature as a design challenge, would benefit from some level of professional engagement, but requirements should be right-sized to the scale of building, rather than present a steep cliff at three units.



- **Professional Design Requirements**

  When building a house almost anyone can submit for a building permit (homeowner, contractor, designer), and drawings themselves are only sometimes required. The code compliance happens in the field, during construction, and is delegated to the contractor, sub-contractors, and associated engineers. For any multifamily building in most Greater Boston cities the requirements jump to fully stamped drawings/affidavits from an architect, structural engineer, mechanical engineer, electrical engineer, geotechnical, plumbing engineer, civil engineer, and fire protection engineer. The added design and engineering done ahead of time adds four to 12 months to a project timeline, and must be done before the builder or developer knows they can get a permit. It's also the case that designing more ahead of time can save some costs from delegated design while in construction, but the tradeoff is not one to one. Systems are often designed by a separate engineering firm than the one carrying out the work in the field, each doing its own due diligence—as well as the fact that "stuff" happens during construction, and systems are often re-designed and value-engineered after the fact.

- **Engineering Requirements**

  Engineering and structural design for SMH may use the same types of light-wood framing that a house is built with, and the same type of foundations and systems that houses are built with; but because of the code demarcation, much more upfront engineering is required. In the residential code many professional engineering scopes are allowed to be "delegated design" in that the calculations and certifications of their work is done during construction rather than before a building permit is issued. This is important because costs can balloon when paying more upfront for something that

a contractor could execute in the field through the more streamlined standards in the residential code. These scopes include a Geotechnical Report, Civil Engineering, Architecture and Mechanical, Electrical, Plumbing and Fire Protection Engineering.

- **Permitting & Inspections**

  Multifamily buildings often undergo a separate commercial permit plan review period, along with higher fees (typically calculated as a percentage of the total building gross floor area). Cities usually take the full review time allotted, leading to longer than necessary project pause periods and unexpected delays. Our survey respondents quoted three to six added months of review time for a multifamily versus an IRC project. For a multifamily, permit requirements can also entail more affidavits, and contractor licensing and bonding requirements can lead to a narrower pool of potential builders and higher overall costs. This uniquely punishes SMH, which could, with our appendix, be the “sweet spot” of smaller scale builders.

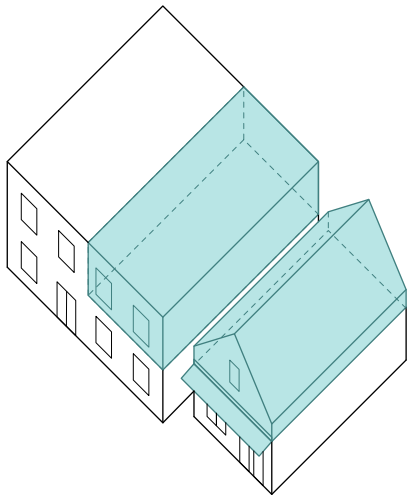
  Inspections, common for any permitted building being constructed, are compounded for SMH because of extra requirements in the commercial building code that each needs its own test and inspection. The IBC’s Chapter 17, Special Inspections, notoriously carries a host of onerous requirements during construction that may not match the scale of risk SMH carries in comparison to much larger buildings with similar inspectional requirements.

Proposed Changes for SMH Appendix

- **Design & Engineering**
  New SMH code appendices surveyed by our team showed a variety of approaches to reducing design and engineering requirements. Structural design and fire protection design were important to maintain, while providing a less arduous path for compliance that can fit into the established delegated design approach that single-family builders employ. Separate fire protection drawing requirements could be dropped for permit, and projects would only have to show the indicated strategy per the code, which would be delegated design during construction. For SMH projects a separate geotechnical report, civil engineering drawings, mechanical / electrical / plumbing drawings, construction control documentation, special inspection, and sprinkler and fire alarm inspections could be removed as requirements, and instead be delegated design, inspected during construction. Structural engineering could be done in line with the prescriptive standards in the IRC as long as the project is done with wood framing and below a certain size (e.g., three stories, <5,000 SF).

- **Permitting Requirements**
  Educating AHJs on the SMH appendix would be critical to streamlining the process for applicants. Municipal requirements for builders should also be right-sized to the scale of risk for the city. Small scale builders already familiar with the IRC have a unique opportunity to be supported and brought in as stakeholders in setting these new reduced requirements.

SMH building code reform should also address mixed-use and adaptive re-use opportunities. Ground floor commercial and live-work dwelling configurations have many benefits, but often when a commercial use is included, or being converted from, it triggers a host of building upgrades which can make projects infeasible. Massachusetts has struck the live-work model codes category from its residential code, further limiting its applicability in our low-rise housing. This could be part of the SMH appendix and also cover state amendments to the International Existing Building Code (IEBC), which governs the adaptive-reuse of buildings being converted to housing as well as deep retrofits of existing multifamily buildings.



- **Mixed-Use**

  The ground floor uses of new multifamily may be dictated partially by zoning, but the building code contributes significantly to how expensive those spaces are, and which types of uses are incentivized as a result. Uses often include parking, commercial space, and residential space. Retail and commercial uses are expensive to build, and increasingly hard to lease. They may be required to be fully NFPA13 sprinklered, always trigger full 521CMR accessibility compliance, and commonly have other life safety features that offer little tradeoffs for low-risk uses like office spaces. Simultaneously, when multifamily is in a mixed-use arrangement, the dwelling units have to be fully NFPA13 sprinkler protected. Residential ground floor dwellings suffer from privacy concerns and, absent significantly well designed setback zones or multilevel configurations, are less than desirable to residents.

  Live-work configurations in particular have been a proven typology of activating the ground floor, providing affordable workspaces, and solving privacy concerns for at-grade dwellings. The current Massachusetts residential code imposes more restrictions on live-work than the model code, further limiting its potential. SMH amendments should strive to carve out low-risk, high-reward “commercial” uses that could add much needed activation to our neighborhoods, both below and inside of our dwellings.

- **Adaptive Re-Use & Renovations**

  Many commercial buildings in historically retail-centric town centers, especially in Massachusetts, are over a century old, and built long before modern codes. Many of these spaces could be brought back to life through conversions to housing. But changing the use of a building from single-family or commercial to residential multifamily often triggers bringing the entire structure up to modern codes, which can mean expensive sprinkler, egress, accessibility, and structural upgrades. Non-hazardous uses (such as those without kitchens) like shops, offices, galleries, and event venues—all of which may need very little actual renovation to be usable—often remain priced out for code compliance reasons. Our older town centers can be ideal locations for new SMH, and they have older buildings that could be preserved—for sequestration of carbon and character— through adaptive re-use into housing.

Proposed Changes for SMH Appendix

- **Mixed-Use**

  The appendix should allow mixed-use occupancies of non-hazardous uses. These could be limited to Group B (business) uses, which could be offices, shops, galleries, studios, or even small gyms. These uses should be allowed in SMH without adding sprinklers or dual egress requirements for the dwellings above. Both occupancies and hazardous operations could be limited such that these spaces would fit within established code thresholds (typically <50 people, and no high-risk cooking equipment). Uses shall be appropriately separated with fire-rated assemblies, and shall not trigger a sprinkler system requirement. This would apply to mixed uses within a building and within a dwelling unit; permitting corner stores and live-work situations which are greatly needed in urban multifamily. Accessibility codes should similarly incorporate the possibility of light-commercial ground floor uses in SMH, and not let those trigger full building accessibility requirements of 521CMR; notwithstanding existing requirements of Fair Housing.

  Live-work dwellings should be their own category, with lighter requirements than the state residential code currently requires, and could draw from the model IRC for guidance on applicability to SMH.

- **Existing Buildings**

  Modifications to SMH in the IRC should also appropriately amend the IEBC so that changing use to residential occupancy does not trigger more intensive requirements than would be under the SMH appendix. This likely means avoiding sprinklers, dual egress, and accessibility upgrades. This would allow more re-use of older commercial building stock for new retail/business use without onerous code requirements that small businesses cannot afford, and which prohibit building re-use.

Part 4

Present & Future Code Reform Paths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The previous section of this report outlined many of the modifications to our codes that would enable SMH to be built more affordably. Some of these recommendations were drawn from surveys and conversations, but many are taken from recent model code amendments that have already been implemented in cities and states throughout the country. Some of these changes have been on the books for decades, while others are more recent. Chicago, for example, has long had its own citywide building code, which includes three-unit buildings and live-work dwelling units into its more permissive category of residential occupancy. Dallas, by contrast, just moved one- to eight-unit buildings into its residential code in 2025—largely as a result of city council advocacy.

While some recent code adoptions have been citywide, others are statewide.

Starting reform in Massachusetts at the city level might focus changes on the most cost-burdened neighborhoods, but it would add complexity to the landscape of permitting for developers working across city lines. It would also contribute to an even more fragmented series of rules than already exists between jurisdictions. Legally in Massachusetts local jurisdictions are not permitted to change their building codes from the state adopted code without explicit permission from the Board of Building Regulations and Standards (BBRS). So, in addition to regulatory barriers, our perspective is that the more streamlined codes can be across political boundaries, the easier it is for the marketplace of development to operate between those boundaries—which can bring down costs through competition.

The largest recent changes to the Massachusetts state building codes and standards have been in our modifications to energy codes. The requirements, some of the strictest in the nation, range from base to stretch to specialized; and are designed to meet 2050 net-zero goals. This change came in response to advocacy and legislative support more than from inside the standard setting board itself. Boards across the country, like the BBRS, have long acted as interpreters of the code, but rarely as proactive agents of change. They have focused on incorporating state-specific context into model codes, like around earthquakes, climate zones, or vernacular building practices. What the BBRS or others do not have, is an institutional practice or capacity for evaluating proactive building code research and meaningful deviations from the model codes on housing. As mentioned earlier in this report, the BBRS is run by an entirely volunteer group of people and has no dedicated staff support.

If more resources were added, the BBRS should be able to develop an

appendix internally, but it's likely a new appendix might first need to be created through a special executive committee, through legislation, through private advocacy, or a combination of those. What's clear is that proposals to modify our codes would have the most success if supported by a well resourced and broad coalition of advocates regardless of the exact method of code writing. That coalition could do its own research and collaborate with lawmakers to pass clear directives for the BBRS to incorporate that research into future code editions. In surveying other jurisdictions around the country, change has happened just like this, from outside of regulatory boards and instead led by city councils, mayors, planning departments, and governors.

Legislation and local adoptions, however, have many downsides. In Rhode Island the legislature passed H 5373 / S 350, bills that would move three- and four-unit multifamily into the IRC. The bill's language then went to a standard setting committee to create the specific code language to enact the change. The committee comprised building officials, engineers, inspectors, and a few building practitioners, but did not have staff support. The committee had few multifamily practitioners or policymakers, did not have adequate staff interest or support, did not assess relevant cost implications, and also had no time limit to enact the change. As a result, ongoing discussions have muted the applicability of the bill for four-family dwelling units, and the real effects of the bill since its passage over a year ago are still unclear and may be a long way from the intent of its authors and supporters.

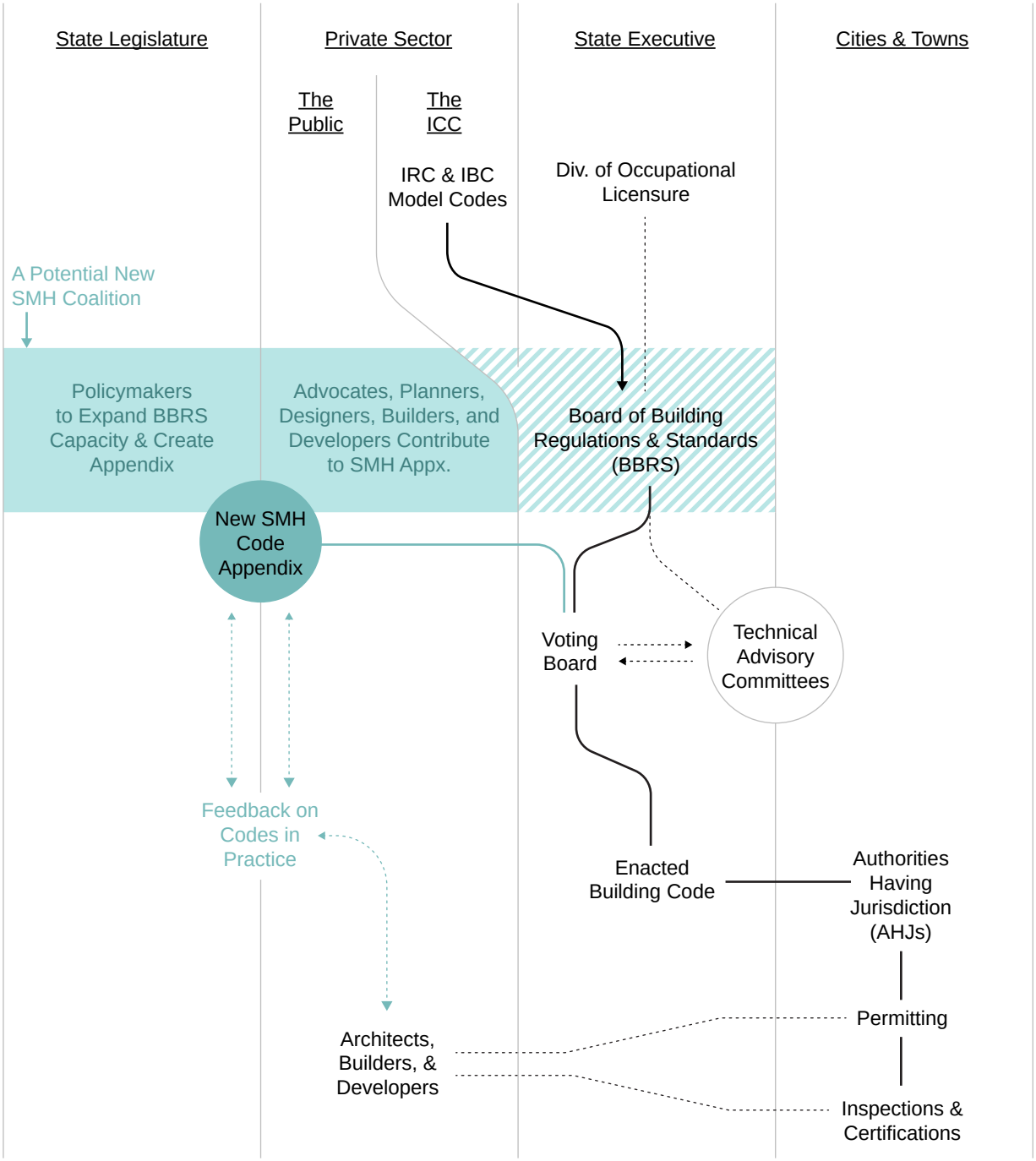
On the flip side, when changes happen regulatorily, they often have the immediate buy-in of the officials charged with enforcement. In El Paso, Texas, changes for SMH were led by the planning division and followed upzoning across the city. In 2015 it became legal for developments under 16 dwelling units and not more than three stories to be built without sprinklers. The change came as a result of long-term land use planning and deep engagement with practitioners. Alex Hoffman, deputy director of planning for the city, said, "Zoning opens the door, but if you don't address the permitting side of things, you are not really addressing the issue." Hoffman and others worked to align multiple departments around the goal of allowing modestly sized multifamily with proportional life safety rules that balanced cost and benefits. A specific local challenge they were responding to was a preponderance of illegal multifamily conversions that led to dangerous new basement apartments, or densely packed converted houses. Permitting had become such a challenge that the building codes were perversely encouraging a more dangerous condition for people in small multifamily buildings. Their solution then, which expanded in scope in 2025, was to allow more reasonable fire safety features and engineering requirements for SMH. A big part of the argument was that the IRC allowed a great deal of latitude for structures under three stories and less than 5,000 SF, but

that even smaller sized multifamily was penalized—and if they wanted to see new density that could fit in with historic scales of housing, they needed to update the codes.

Because the model code development process has been concentrated within the ICC for decades, local and state code officials and boards have little modern experience in evaluating major code changes. Their role for decades has been mostly in enforcement, or for small modifications which do not fundamentally change the scope of the building codes. Regulatory bodies also lack financial or staff capacity to study these changes, and often rely on petitioner research, which is then evaluated by people who may or may not have the relevant experience, and who often lack a clear mandate to take any proposals seriously. Fighting this way, town by town or state by state, takes time, and may lead to further stratification within our codes, where one town has rules much different than the next. The result may be both less mobility for developers, and less consistency in enforcement, leading to more frictions both in the market and in permitting.

All that said, paving the way on regulation has made our state a leader in energy codes, and shows that advocacy can drive change. Divergence from national or model standards should be a celebrated exception if it results in better outcomes for our residents and communities.

A Roadmap for How a New SMH Coalition Can Tie Into the Existing State Code Development Process



Colored Areas = New Additions to the Code Development Process

Because our state and others have limited capacity to meaningfully modify our codes, focusing attention on the ICC would offer the greatest opportunity for systematic change. The downside is that the ICC is slow to change, and lacks the right incentives.

Conversations with proponents and online research has uncovered several past and present proposals that have sought to change the IRC unit limit at the ICC level, but so far all have failed. Most recently, a proposal, RB1-25, sought a three- to four-family dwelling unit inclusion within the residential code. Its provisions would still have sprinklers, but be under the less strenuous NFPA 13D requirement. This proposal was unanimously voted down (10–0) by the IRC code development committee in 2025.

More than two years ago, Florida architect Gregory Burke took up this issue and, through his role on a Northeast Florida Building Association advocacy committee, was connected with folks from NAHB and worked formally on a three-four family code provision. However, after 16 months of refining the code amendment language, and five minutes before the hearing, NAHB pulled support and instead pivoted to a study. The proposal was not voted on. Many of the opposing views wanted further studies to evaluate the impact on structural engineering requirements, even though including more dwellings would not change the overall building size or shape. Despite working with engineers on revisions to the language and trying a second time, the proposal was struck again without a vote, and with no justification offered. Burke quickly understood that behind the scenes, the influence of NAHB was paramount, and without their buy-in, added time in studies, data, or dialogue would be wasted. Burke abandoned the effort.

We have heard from multiple different advocates planning to submit similar proposals in upcoming ICC hearings; specifically planners from Memphis, Tennessee, and El Paso, Texas, who already have SMH code allowances. They are hoping to shape their amendments into model code language that could be changed in the IRC itself. In March of this year NAHB put out the call to form a joint working group under the Construction Codes & Standards (CC&S) Committee, the Multifamily Council, and the Land Development Committee to "foster development of NAHB's long-term vision for "missing middle" housing and establish positions in the short term on building codes and other issues related to these housing types."[81] The call is hopeful, and might finally be able to synthesize and incorporate at the model level the fragmented research into SMH codes that has been successful in a few places. Changes at the ICC would have a broader impact, and allow for a wider implementation of SMH for communities around the country.

In order to understand the context in which our own codes should change, it's helpful to see how other places diverge from the model codes, and where ongoing reform efforts are happening. The following list and accompanying map categorize changes chronologically and into two broad categories: enacted modifications from the model codes and ongoing, not yet implemented changes, which are usually in the form of a legislative bill or study.

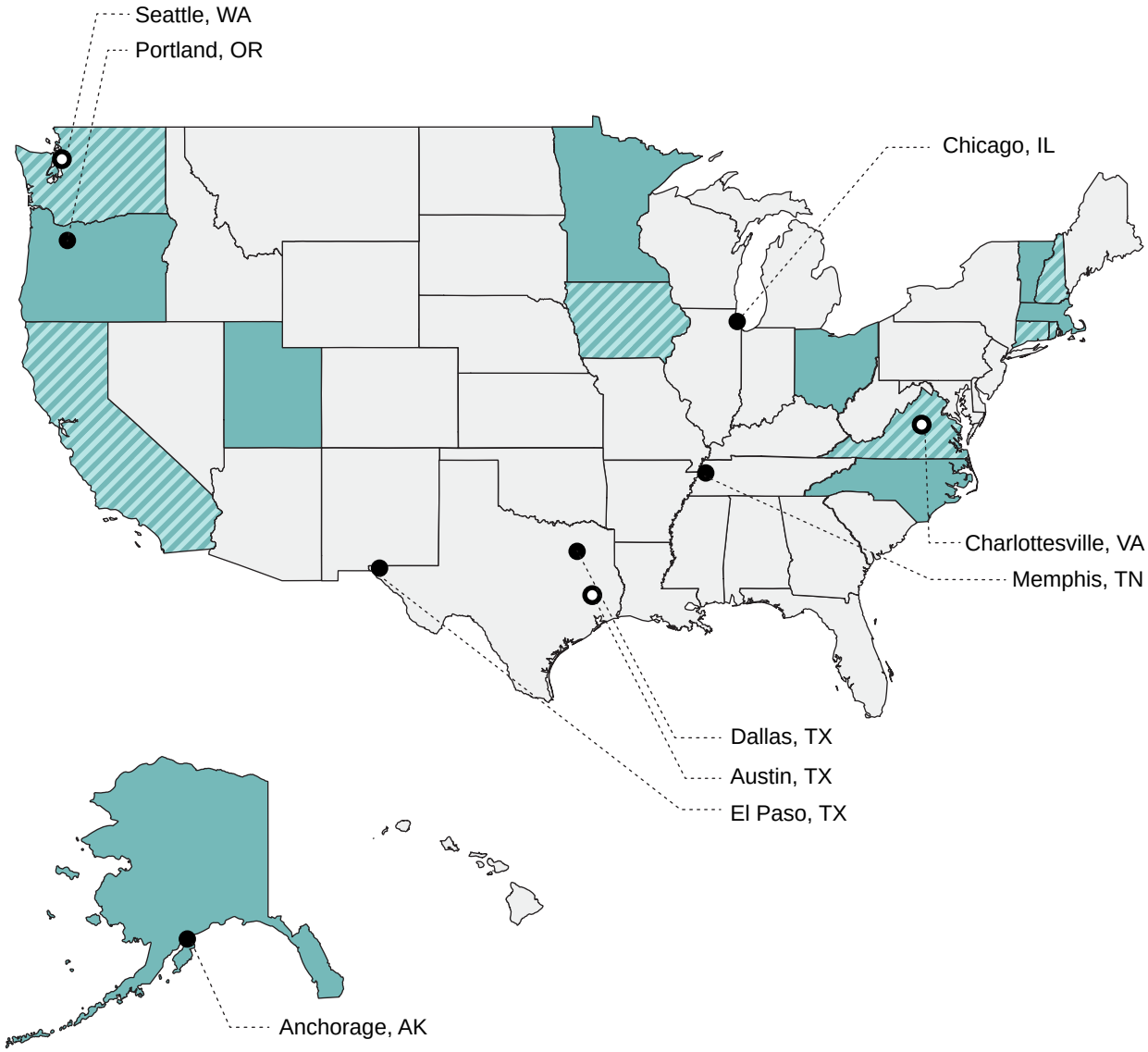
Enacted Modifications to the Multifamily Threshold

Jurisdiction	Date Enacted	Dwelling Unit Scope	Description of changes or scope for SMH
Chicago, IL	Unknown	1–3	*The city does not adopt the International Residential Code, but instead has its own R-5 occupancy group that applies to residential buildings of up to three units (including live/work units) and four stories, to which it applies its own rules. Sprinklers are not required.*
Vermont	Unknown	1–4	*The state does not require that buildings with fewer than five dwellings have a fire sprinkler system installed, with a few conditions (like having direct access to the exterior or an exclusive stair).*
El Paso, TX	2007	1–4	*The amended code removed sprinkler and other requirements.*
El Paso, TX	2015	1–16	*Buildings 1-2 stories do not need automatic sprinkler systems.*
Ohio	2019	1–3	*Three-family structures were incorporated into the new residential code.*
Minnesota	2020	~1–4	*A multifamily structure of less than 4,500 SF does not need a sprinkler system provided it has an R-1 fire area, R-2 fire area, or a combination of R-1 and R-2 fire areas. Also applies to R-3, and R-1 (<9,250 SF) uses.*
Massachusetts	appx. 2024	1–3	*The base code allows R-2 buildings with three units and less than 12,000 gross square feet to install 13D sprinkler systems "provided the water supply, automatic or storied, is capable of providing the water demand for a period of 20 minutes." (It's unclear how many projects in the state have utilized this approach.)*

Jurisdiction	Date Enacted	Dwelling Unit Scope	Description of changes or scope for SMH
Tennessee	2024	3–4	*Through HB 2787 the state prohibited the State Fire Marshal from requiring automatic fire sprinkler systems in 3-family and 4-family dwellings that are under 5,000 square feet and three stories or less.*
Anchorage, AK	2024	1–3	*Amended its residential code to include three units multifamily, and removed the sprinkler requirements for all types from one to three units.*
Utah	2025	3–4	*Legislation (HB175) passed which re-categorized multifamily buildings of three or four dwellings into the residential code as long as they are no more than two stories in height. Permitting and structural requirements for small residential structures were also relaxed.*
Ohio	2025	12	*The state IBC was amended ([F] 903.2.8 Group R), to permit single-stair multifamily buildings of up to 12 units without sprinkler systems. Extra requirements include two-hour fire barriers between dwellings, and the separation of the building into fire areas of maximum two dwellings per floor and six per fire area.*
North Carolina	2025	3–4	*Requires no greater than a two-hour fire resistance rating for triplex and quadplex wall, floor, and ceiling separation assemblies or an automatic fire sprinkler system.*
Oregon	2025	Attached 2-unit buildings	*No sprinklers are required if there are only two, two-unit buildings (for a total of four units) attached to each other, but NFPA 13D systems are required if more than three buildings (for a total of six units) are attached to each other. Two-hour separation is required between the buildings, and heights are limited to two stories.*
Memphis, TN	2025	3–24	*A new small multifamily appendix to the building code allows 3 to 24 dwelling units, no more than 3 stories above grade, a maximum building height of 40 feet, Group R-2 occupancy, and Type V or Type III construction permitted.*
Dallas	2025	1–8	*IRC-based new dwelling code allows these as long as the building is less than four units per story, has a single exit, and a maximum total building size of 7,500 SF. The common areas of the building are limited to the roof, the public corridor, the exit stair, a mail area, a service room for fire protection systems, and, if provided, the elevator. Each unit may have a garage and occupied roof integral to the unit. Except for the installation of fire protection systems, penetrations between dwelling units are not allowed.*
Alaska	2026	1–4	*Through HB 80, the Alaska Housing Finance Corporation adopted the 2018 IRC as the statewide minimum standard for residential buildings with one to four dwellings.*

Jurisdiction	Bill or Study Name	Potential Dwelling Unit Scope	Description of bill, study, or changes being proposed
ICC (National Model Codes)	RB1-25	3–4	*In the 2027 IRC development cycle: Proponents argued that allowing three to four dwelling buildings to be built under the IRC, with NFPA 13D sprinklers, would lower costs and incentivize development. However, RB1-25 was unanimously disapproved (10–0) by the IRC code development committee; the issue remains under active discussion in the current IRC cycle, with a public comment period and further hearings scheduled.*
US Congress (National Policy)	H.R. 6644	N/A	*The Housing for the 21st Century Act previously had a provision requiring a US Government Accountability Office (GAO) study on a federal uniform residential building code, but the language has since been removed.*
California	AB-6 (Ward) & AB1070	3–10[82]	*The state bill under consideration would form a working group to study 3-10 dwelling projects under the California Residential Code (CRC).*
Charlottesville, VA	2026 Legislative Agenda Recommendations	1–6	*Recommends studying the adjustment of the state building code to treat six units and below as residential code.*
Connecticut	N/A	3–4	*The draft of the 2026 Connecticut State Building Code contains an Appendix S, titled "Group R-2 – Triplex and Quadruplex Provisions." The section appears to default to the IBC's standard sprinkler rules, requiring an NFPA 13R system.*
Iowa	SF 310	1–7	*Would remove the sprinkler requirement for these dwelling types.*
New Hampshire	HB1065	1–4	*The state bill under consideration would remove the sprinkler requirement for dwellings of this scale, but only within the scope of the existing building code.*
Rhode Island	H5804A | S1089Aaa	1–4	*Passed in 2025, the working group is still refining details of how modifications for 3-4 dwelling buildings will be changed in the residential code.*
Austin, TX	Policy Memo by the building official	1–3	*It outlines a goal to allow three-unit buildings within the residential code; sprinklers would still be required, but the memo does not specify to what standard.*
Seattle, WA	The City's Housing Task Force recommendations	1–4	*Recommendations include categorizing buildings with one-to-four dwellings into the city residential code with an aim to align the building code with recent upzoning reforms.*
Washington	SBCC	3–6	*In the 2024-2026 session, the state legislature passed a bill directing the state code council to convene a technical advisory group to recommend amendments to the state's residential code for structures under three stories, and other requirements. The current proposal allows multiplexes up to 8,000 SF to utilize NFPA13R systems, as long as there is no internal common corridor or stair.*

Map of Jurisdictions with an Existing or Studying a Significant Deviation From Model Codes and Standards to Improve the Affordability of SMH



The housing crisis we find ourselves in has resulted in a patchwork of efforts to reclaim a typology of housing that used to be commonplace, but now is extraordinarily rare. These efforts in code reform have taken every available path, from legislative to executive to regulatory. They illustrate a unified concern for SMH affordability, but a diverse approach to reform, mostly due to local legal constraints and politics. Some states allow cities and counties to adopt their own code, some do not.

Successes from Memphis, Dallas, and El Paso have dedicated heads of planning departments leading the effort, buttressed by supporting inspectional departments and political allies. Beyond which code requirements could be changed, *how* the code is changed is up for debate. The below options incorporate existing paths along with proposed paths that can happen either through an amendment option or in the model code process itself.

Adding SMH types into the IRC

This approach would simply allow multifamily under a certain number of units and size of building structure to be built within IRC rules. The downsides are in terms of life safety since the IRC has a much worse fire safety record than the IBC. This might lead to the need for many new layers across many code sections so that a sliding scale of requirements could be added throughout the IRC. This may be too complex and tangled.

Amending the IBC to right-size SMH provisions

This approach would draw from Part 3 of this report to change those elements within the IBC specifically for SMH building types. Unfortunately the IBC has such broad applicability to many occupancy and construction types that creating sub-categorical rules for specific scales of SMH may add too much complexity. One can imagine a litany of exceptions for every provision currently in the code, calling out alternate paths for SMH, but without a unified picture of how it all intersects. It's unlikely a state level effort to amend the code would have the institutional capacity to carry out and maintain the heavy level of modification needed.

Creating a new SMH building code

This approach would create a new third building code strictly for residential small multifamily or “missing middle” types. An upside is that a new code for this specific area of architecture could be extremely concise and precise. Its main downside being that a new code would entail a massive amount of work to create and to maintain.[83]

Consolidating the building codes

One other approach might be to abandon the two codes altogether and create a single comprehensive code for all building types. This might be even more work than a new SMH code, but might ultimately result in a more unified approach to requirements that meet the scale of the building they are designed for. A single unified code, with sub-sections and allowances for buildings by their relevant risk, might mandate all stakeholders get a seat at the table to debate changes, rather than two codes with a have and have-not approach.

Creating a SMH appendix

This approach, which was implemented in Memphis, creates a new appendix in the end of the code which describes specific requirements for SMH. The appendix needs only describe the unique provisions to the scope of SMH, and any other requirement is then referred back to the code within which the appendix sits. Importantly this appendix would benefit most from being under the IRC rather than the IBC, such that extraneous requirements for SMH would be under the less onerous code.

The appendix approach seems the favorite among experts we spoke with, and has the highest chance of immediate success to implementation in Massachusetts. It fits neatly into an existing method of exception, and does not touch the larger question of the residential code demarcation or entrenched code development interests—which may be best harmonized at the national model code level. In the long run the single-code-rules-all approach has the most logic and chance at equity, but for short-term needs, unlikely to happen any time soon.

The most cited recent successes in harmonizing SMH building codes come from Memphis, El Paso, Dallas, and North Carolina. In each of these the political context was different than in Massachusetts, but the imperative to allow affordable missing middle housing was consistent.

In Memphis, the code appendix was first formed to harmonize with a large rezoning effort that broadly made legal three- to six family dwelling types. The city planning department wanted to understand how it could modify the building code to make these types easier to build, and in 2021 adopted a model code that allowed them into the IRC. That provision was briefly halted by the state but led to a later success in 2025, allowing three to 24 dwelling units under a new SMH appendix. Tennessee largely allows urban and suburban counties to be exempt from the state oversight as long as they set their own building codes to meet minimum standards. Former Chief of Development and Infrastructure John Zeanah worked on this modified code, and recounted the difference between reform and re-zoning efforts. In code reform you have a different set of stakeholders and a highly technical policy that the average citizen is not plugged into. Most resistance came from entrenched engineers, architects, and life safety professionals who had faith in the model codes and sensed that they were rational and “good”—despite a clear high level of lobbying from the ICC. The modifications team did some technical studies, but had most success with demonstrated logic. Zeanah’s most convincing argument was to compare an imaginary IBC four-dwelling building that had two stacked sets of dwellings with a same-sized IRC four-dwelling building made from a pair of duplex townhomes that share a party wall. The first scenario would have to meet multifamily requirements if it were on a single parcel, whereas the latter could be built under the residential code if the townhomes were technically on adjacent parcels. Since the first scenario is far more expensive than the latter, the code then incentivizes a political tool (parcels) for separation, over actual fire safety tools embedded in the building code (like wall/floor fire ratings). The argument clarified how our current system misaligns risk based on abstract code demarcations, and the importance of a clear ratcheted-back set of rules for the kind of density we most need right now. Zeanah is now working with Pew Charitable Trusts and the Center for Building in North America to turn the Memphis appendix into an ICC proposal so that it may be used in any jurisdiction. Further studies from them will review structural, fire safety, and life safety risks and considerations.

In Texas, El Paso and Dallas recently harmonized their codes. El Paso started its effort in 2007, putting up to four dwelling units into their residential code, and then in 2015 allowed for up

to 16. In Dallas, just last year the city created its own one- to eight-family dwelling code provision. Both cities are now wrestling with rezoning efforts to permit the kind of SMH that their codes now encourage. Both places worked closely with local small-scale developers, engineers, and building officials to balance the code against vernacular ways of building and local concerns. Rather than a one size fits all approach, El Paso's code incorporates structural engineering requirements for a range of types, from 1–2-unit / three-story, or 4-unit / two-story, or 8-unit / one-story buildings—a sliding scale that takes into account relative size rather than a single quantitative trigger.

In Massachusetts we might be best served by focusing our attention on pushing the executive branch to contribute more resources to an institutionalized process of code modification and maintenance. This would at a baseline include more members on the BBRS that can represent the multifamily market, and a specific technical advisory committee focused on multifamily housing. We cannot wait for any national effort (if it exists) to harmonize SMH codes, we must act in the best interest of our commonwealth, and with the available information at hand. The benefit of this approach would be that we could prioritize specific areas of the code that impact Massachusetts architects, developers, builders, and future residents.

The building code is not going to be meaningfully modified for SMH one amendment at a time, proponent by proponent. Massachusetts needs to take this on systematically and meaningfully. Just like the state has regained control on zoning from cities unwilling to participate in creating more housing, it needs to regain control from a building code that has been made elsewhere from an organization unwilling to tailor it to SMH. It can do this by empowering a BBRS or similar agency to take on the issue with a clear mandate and plentiful resources. This report makes the case for the change; it's up to all of us, citizens and electeds, to demand and enact that change.

Part 5 A Small Multifamily Future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Often the idea of new housing conjures up images of a large boxy hotel-like building, or tracts of new single-family homes. In high-cost urban settings like much of Greater Boston, the image of the bulky apartment block dominates. These buildings gained popularity among developers in the 1990s after podium construction was incorporated into the commercial building code, and because mid-rise egress rules make it the most cost-effective way to produce new multifamily at scale. Today, buildings like these, with 50 or more units, contain over 60% of new dwelling units built in our state since 2020. Unfortunately these buildings have many design disadvantages, and practically do not fit onto over 90% of the parcels that are viable to build on. For NIMBYs and other opponents of new multifamily housing, many reasons are used to block construction of these buildings, including school-overcrowding, parking, trash, rodents, character, shadows, and new residents; the list goes on. These potential issues and reactions often scale with building size and smaller multifamily helps attenuate reactions to new housing.

Smaller multifamily buildings, from three to 24 dwelling units, can both provide a range of densities and be configured in more site-specific configurations, which better respond to available parcels. Existing low-rise housing structures can be seen all around Great Boston—they come in a range of densities, and are often the bedrock of our unique architectural history. Examples like the modernist Castle Square development's 3.5-story low-rise portion comes in at 35 dwellings per acre, where the typical Dorchester neighborhood block of brick walk-ups, triple deckers, duplexes, and houses ranges from six to nine dwellings per acre.

A density of six units per acre is needed for a moderate level of transit service, and 16 units is needed for a more frequent level of transit service, making it easy to imagine how new development could be both transit oriented and built from small multifamily housing types.[84]

The state says we need 220,000 new dwellings by 2035, or 10 years from now.[85] Yet studies show we are only producing on average 15,000 new homes a year, and that we will fall short of the 10-year goal by 70,000 homes. Many reforms are needed to unlock additional production, but what would it look like if we attempted to meet that goal only with the gap of SMH?

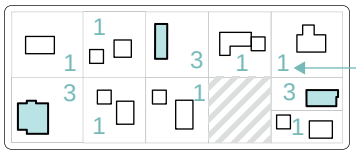
The following design exercise imagines an impractical goal of filling that 70,000 production gap with small multifamily types, and sees what it would look like, where they would fit, and how that maps onto our existing production pipeline.

What does this density look like?

For this study we imagined three new small multifamily buildings on potentially vacant or underutilized lots in existing neighborhoods of densities ranging from two to 16 dwellings per acre. The blocks change from larger parcels and lower densities to smaller parcels and higher existing densities. The addition of the new typologies roughly increases the density by at least a quarter for each prototypical block. With only the insertion of a few new three- to 11-dwelling multifamily buildings on each block, and without any change to parcel lines, a huge housing opportunity can be unlocked. The result is a mix of age-old and newfangled housing typologies: multiplexes, a stacked courtyard, triple-deckers, and dwelling layouts in flat, multilevel, front-to-back, full floor, side-by-side, and more. The urban character could remain filled with tree-lined streets, leafy open spaces, some modest parking, and relatively modest changes to neighborhood character.

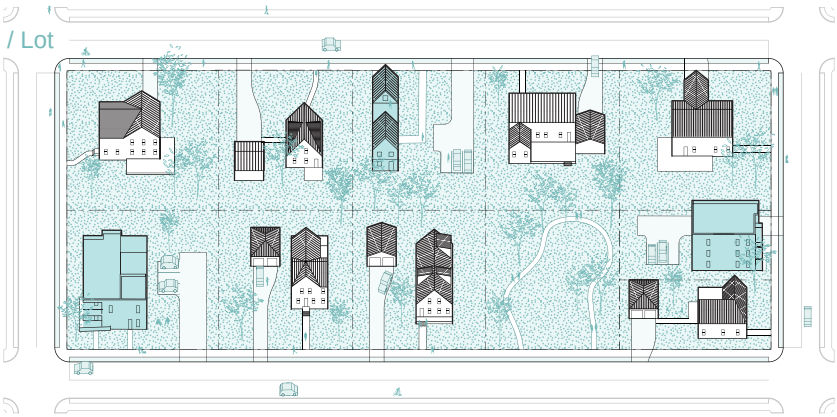
Figure Ground Plan

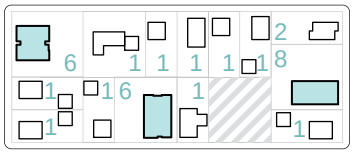
Axonometric Oblique



Prototypical Block in
Hersey Station

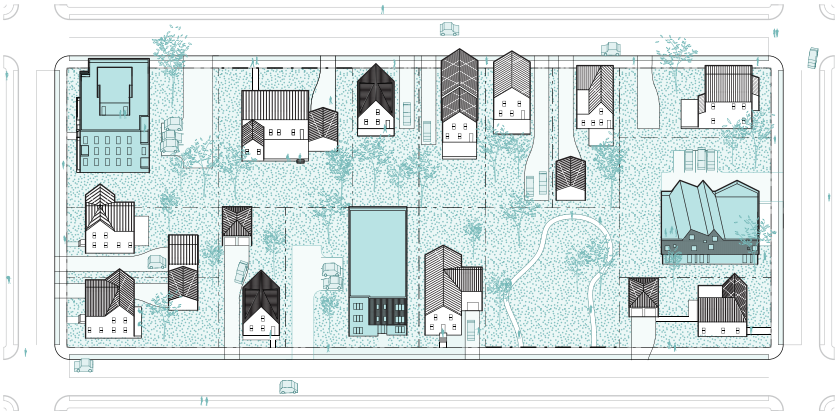
Existing Density 2.9 Dwellings/Acre
New Density 4.2 DU/A

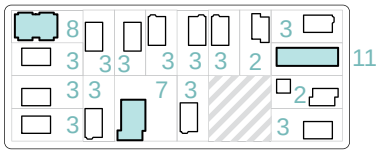




Prototypical Block in
Natick Station

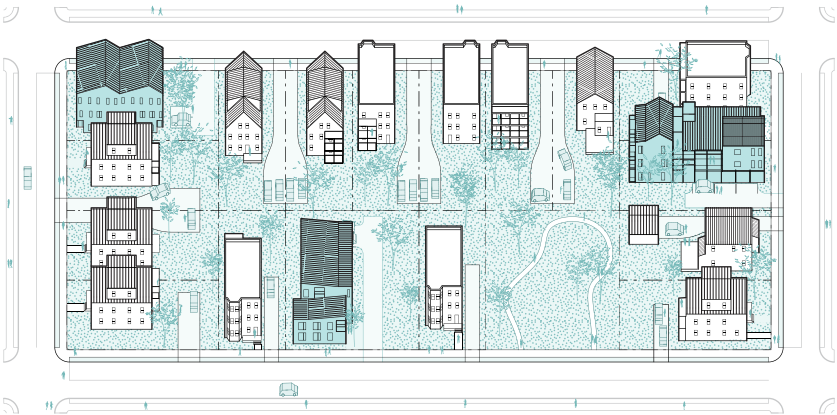
Existing Density 5.3 DU/A
New Density 8.4 DU/A





Prototypical Block in
Roslindale Village Station

Existing Density 10.5 DU/A
New Density 17.2 DU/A



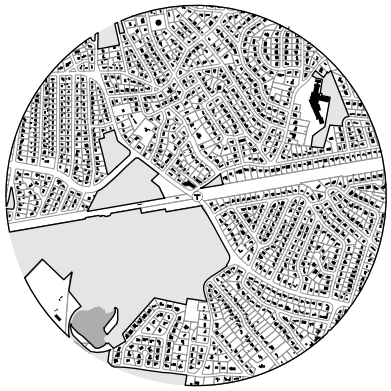
Where is this density being created?

Here we have mapped the existing densities of three neighborhoods that represent a spectrum of places where SMH would have the most applicability. Hersey, a commuter rail bedroom community in Needham of 2.9 dwellings/acre; Natick, a commuter rail village of 5.3 DU/A, and Roslindale Village, an almost-rapid transit neighborhood in Boston of 10.5 DU/A. Shown here are the ground plans of existing buildings in the MBTA station area, and their parcel densities. These station areas are roughly where upzoning initiatives have been focused, and we can see the fine-grain parcel fabric that makes SMH the ideal candidate for infill.

Figure Ground Map

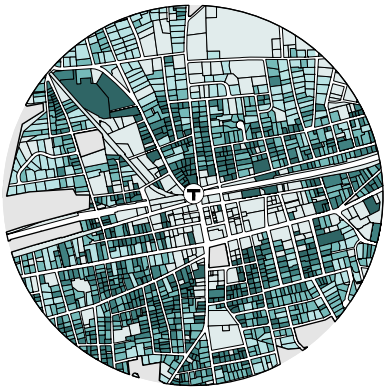
Parcel Density Map

Data from the Residensity parcel dataset created by MHP's Center for Housing Data, July 2025



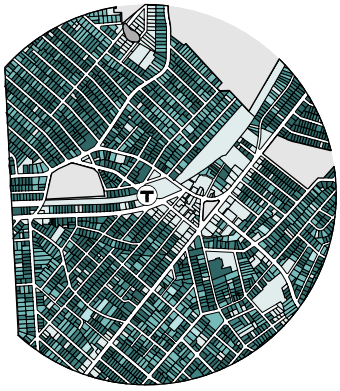
Hersey Station
Needham, MA

Existing Density of
2.9 Dwellings/Acre



Natick Station
Natick, MA

Existing Density of
5.3 Dwellings/Acre



Roslindale Village Station
Boston, MA

Existing Density of
10.5 Dwellings/Acre

Parcel Dwellings / Acre

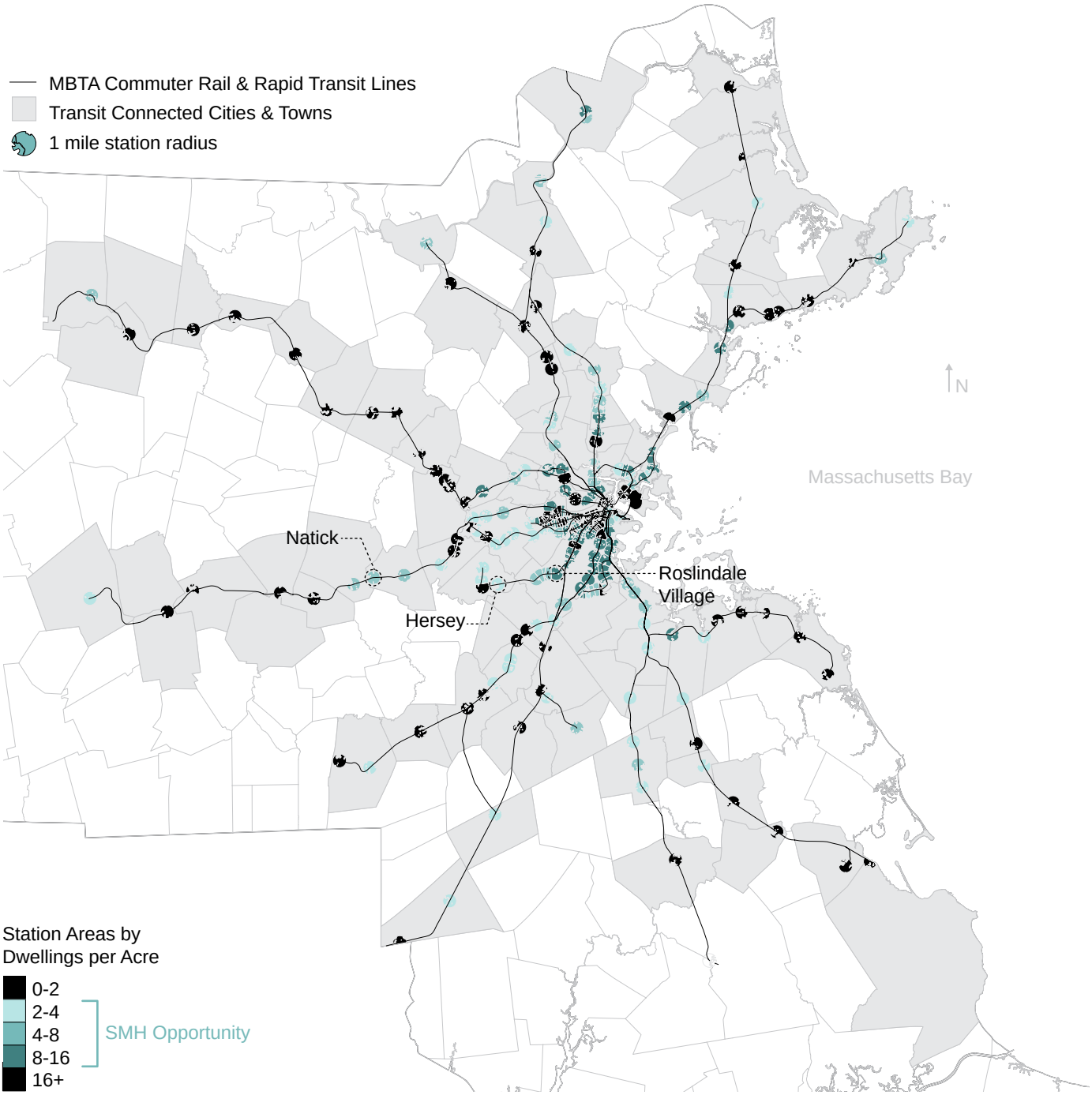
0-2
2-4
5-8
8-16
16+

How many mid-density transit-oriented places exist?

Places like Hersey, Natick, and Roslindale Village span the spectrum of low-to-mid density communities that are most ripe for SMH. These sites are transit-connected, and have densities greater than 2 DU/A and less than 16 DU/A. They are good candidates for SMH because it's likely that on sites below 2 DU/A, houses, duplexes, and ADUs already can be built profitably, and sites above 16 DU/A will need mid-rise multifamily or larger buildings for any increase in density. There are 152 of these communities, representing over 47,000 acres of land. On which currently exists 305,735 homes, and which we imagine here an additional 70,000, representing a roughly 23% increase in density.

Regional Map of Transit Connected Communities Ripe for SMH

Data from the Residensity parcel dataset created by MHP's Center for Housing Data, July 2025

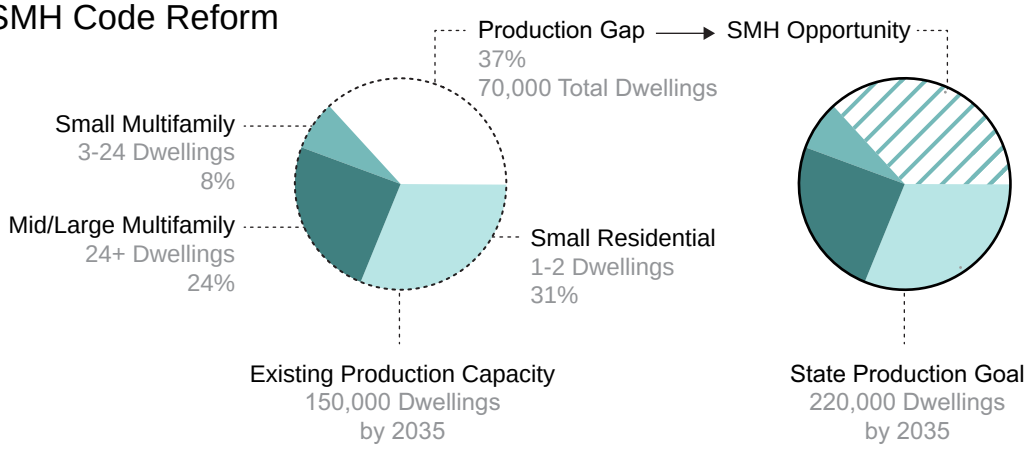


What could this density unlock?

If we take all these MBTA transit connected areas in towns between two and 16 DU/A, we have a hypothetical archipelago of 305,735 existing homes. Adding 70,000 new homes, in SMH, roughly increases their total station area populations by 23%, but does not mean a radical departure from the character of those communities. When looking at the existing kinds of housing in those areas by unit-based typology, the first thing that is immediately clear is the lack of SMH production over the past decades. Of the newly built housing only ~15–20% is in buildings with three to 24 units. If we seriously consider how to get more homes on the market, SMH remains a clear missing link and potential opportunity for production.

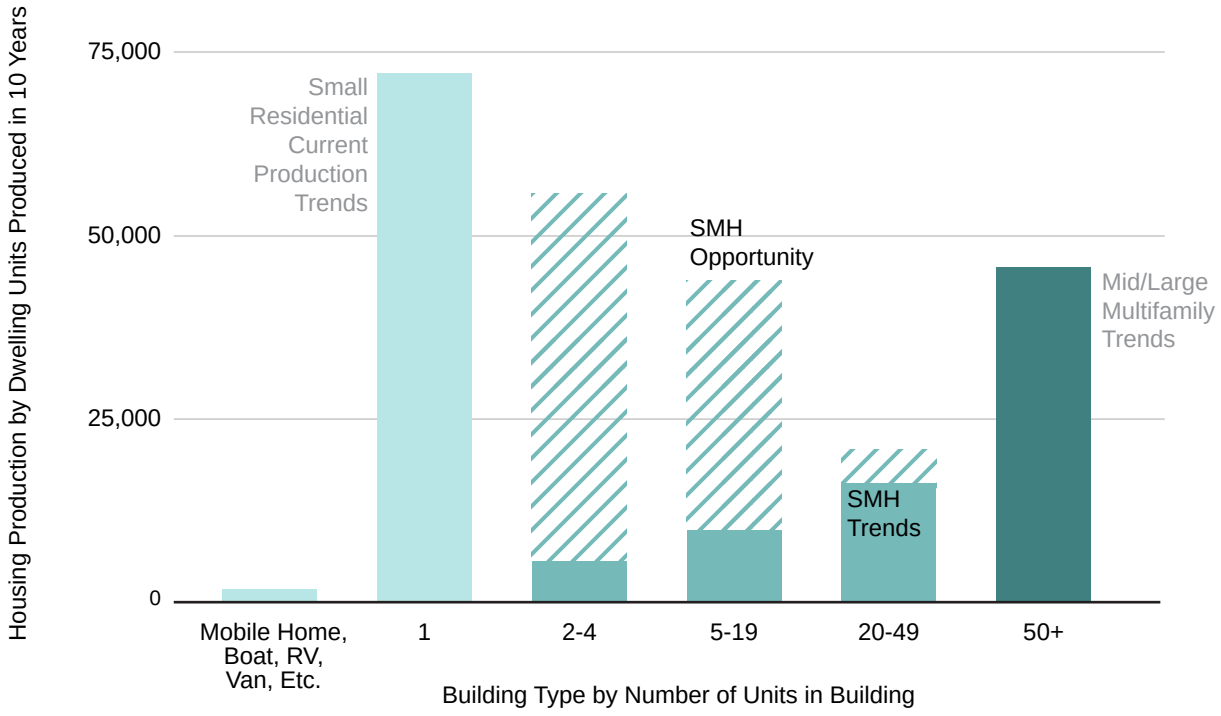
Is 70,000 new units of SMH possible? Probably not, but it is worth understanding how much capacity remains—spatially as well as numerically—so that we can imagine alternative urban possibilities between the densities of car-dominated sprawl or high-rise-packed cities.

Total Production Goal Met with SMH Code Reform



Share of new Housing Units by Building Typology, and SMH Opportunity

Production targets via the State of Massachusetts, Share of dwellings per typology based on US Census data for previous years.



This analysis and architectural projection does not suggest a specific production target that could be unlocked by code reform, a topic for another report on the economics of development and land use. Rather, it seeks to demonstrate that SMH can produce big outcomes. These buildings can be developed on individual infill lots without requiring parcel assembly, allowing housing to be delivered quickly and incrementally. SMH also achieves densities that support rapid transit and local businesses, and the relatively small number of homes per building encourages the creation of meaningful communities. SMH as a building type also lends itself to higher-quality housing opportunities: with more corners and fewer long corridors, these buildings can provide more dual- and triple-aspect homes. This, in turn, increases access to daylight, lowering reliance on artificial lighting (especially in common areas), and air, allowing for passive cooling and cross ventilation. Lastly, smaller building footprints allow easier access to ground floor open space, a housing benefit often reserved for suburban living. Unlocking these small housing types would be a large step forward for our housing goals and for our image of what a home for everyone could look like.

SMH is not a new type of building in the history of architecture, but it is rarer today than it has ever been in our state. The previous exercise visualized the density that SMH can unlock for our production targets, but what would these new buildings look like?

We can both go back in time, and look at some exemplary case studies across the country. In terms of architectural history the low-rise housing type gained its greatest modern relevancy starting in the 1970s. In this decade the reaction to modernist housing typologies was at its peak. The scale and uniformity of tower-in-the-park schemes or repetitive mid-rise bar buildings was being reevaluated, and critique conflated with the notion that public housing programs in general were a failure. In response, an exhibition at the Museum of Modern Art in New York City was held, titled, “Another Chance for Housing: Low-Rise Alternatives.” The exhibition spearheaded by Arther Drexler showcased low-rise housing projects by the Urban Development Corporation (UDC) around New York State. The exhibition was followed by years of discourse and cross-cultural programming between the US and several European countries where modernist low-rise housing schemes were showcased. Not long after these exhibits the movement in New Urbanism also began, largely out of a concern for human-scaled walkable urban housing development. Its members promoted a similar scale

of housing; however, in a less “modern architectural lineage.

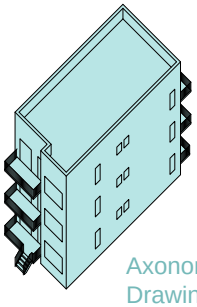
The lack of zoning and building code harmonization around SMH in the US diminished the modernist and new urbanist legacies in this domain but recent years have seen a resurgence of attention to these types, as evidenced by:

- A 2013 exhibit titled “Europe Travels - Low Rise High Density” by Karen Kubey at the New York Center for Architecture.
- A 2019 booklet by Mike Althorpe and Abigail Batchelor, titled “Revolutionary Low Rise,” exploring lessons for London’s future growth from nine radical low rise-high density case studies in the UK, US, and Europe.
- A 2025 book titled “Suburban Alternatives: Survey of Low-Rise High-Density Housing Projects in the United States” by French architects Florian Camai and Mathilde Luguet.

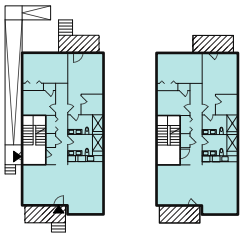
Additionally, design competitions in Los Angeles, Chicago, and Boston have focused on low-rise, high-density infill multifamily housing types in recent years. The Los Angeles Planning Department launched its own “Low-Rise Design Lab” in 2023 to study just these building types for addressing the city’s housing shortage.

While the energy around supporting design at the small multifamily scale is back to a healthy fever, the capacity for these types within our building codes remains rare. Discourse about how we want to live can often move much faster than the ability for architecture and the built environment to catch up. It’s interesting to consider that the moment when the model codes started to separate the one- and two- family code from all else (1971) was the same time the architectural profession turned its attention toward low-rise high-density housing (1973). What has followed is an increasing discourse around these housing types, but a decreasing amount of design-forward built examples. Despite this, a survey of recently built projects has found several new and thoughtful examples of SMH. These projects provide lessons in architectural layouts, urban design responses, code-hacking, vernacular aesthetics, and quality of life design maneuvers applicable beyond the high density scenarios that are currently required to make these specific projects pencil. What follows is a brief catalogue of those examples, which informed our density study, and might inspire a new era of low-rise architectural exploration.

Name
Triple-decker
Architect(s)
Rerame Systems
Construction
2025
Location
Somerville, MA
Dwellings
3
Stories
3
Density (DU/A)
36

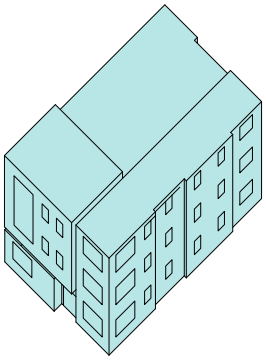


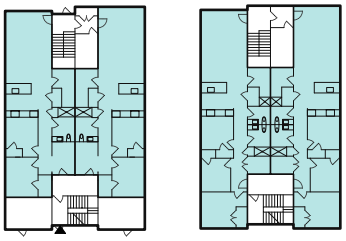
Axonometric Drawing



Floor Plan Level 1 2-3

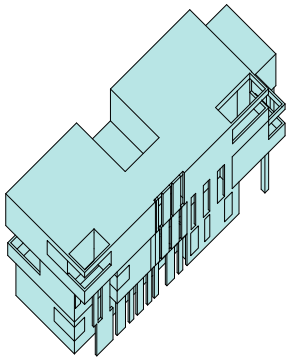
Name
Minneapolis Scattered Site Family Housing
Architect(s)
DJR
Construction
2024
Location
Minneapolis, MN
Dwellings
6
Stories
3
Density (DU/A)
34

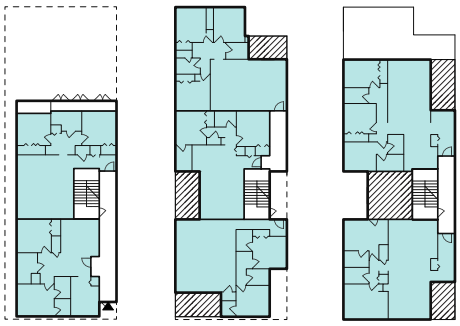




1 2-3

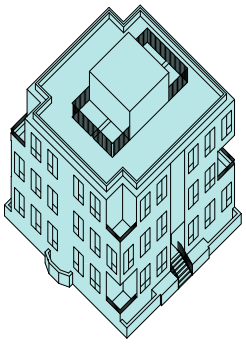
Name
Axolotl
Architect(s)
Yu2e
Construction
2023
Location
Los Angeles, CA
Dwellings
7
Stories
3
Density (DU/A)
44

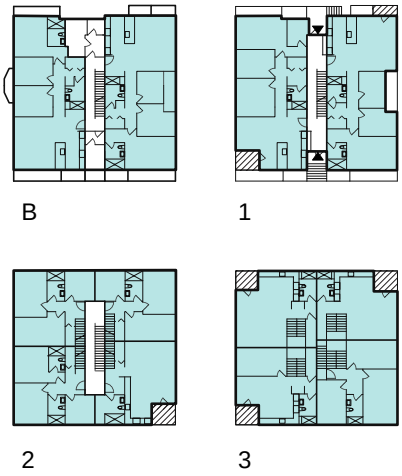




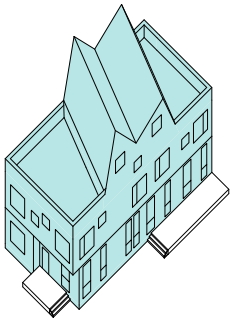
1 2 3

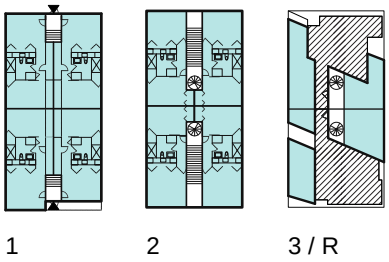
Name
213 Harvard
Architect(s)
Placetailor / JGE
Construction
2025
Location
Cambridge, MA
Dwellings
8
Stories
3 (plus basement)
Density (DU/A)
51



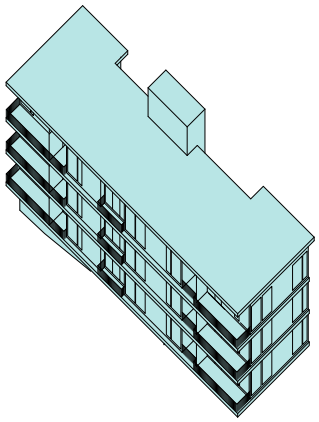


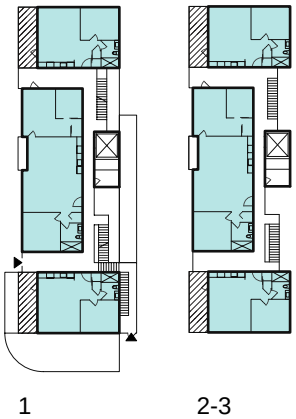
Name
South E8
Architect(s)
LOHA
Construction
2022
Location
Raleigh, NC
Dwellings
8
Stories
3
Density (DU/A)
40



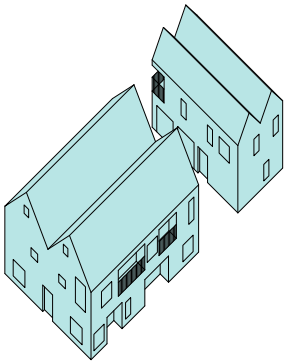


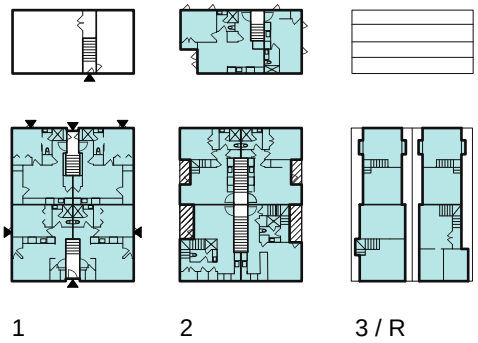
Name
Bungalows on Marathon
Architect(s)
SuperLA
Construction
2024
Location
Los Angeles, CA
Dwellings
9
Stories
3
Density (DU/A)
47



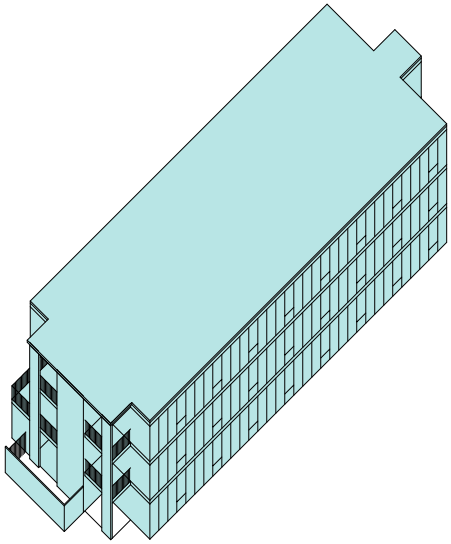


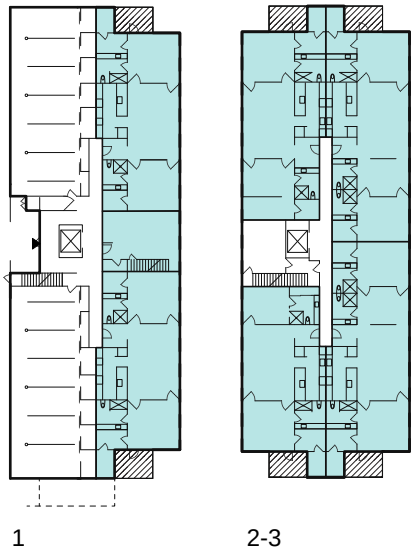
Name
Edenton Micro Suites
Architect(s)
Montgomery Choi
Construction
2024
Location
Raleigh, NC
Dwellings
10
Stories
3
Density (DU/A)
63



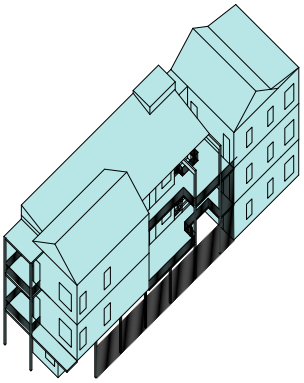


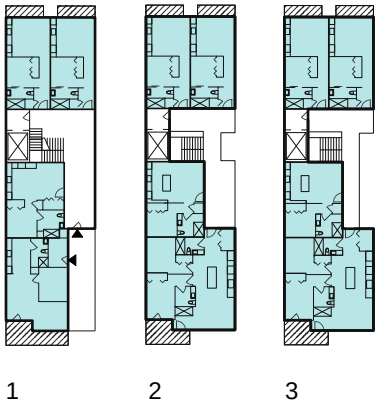
Name
2087 Random Road Apartments
Architect(s)
Bucchieri Architects
Construction
2023
Location
Cleveland, OH
Dwellings
11
Stories
3
Density (DU/A)
28



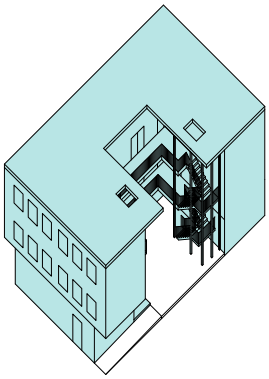


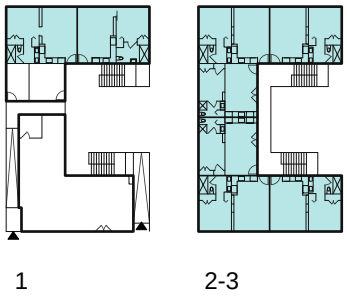
Name
3333 Hennepin
Architect(s)
AWH Architects
Construction
2023
Location
Minneapolis, MN
Dwellings
11
Stories
3
Density (DU/A)
85



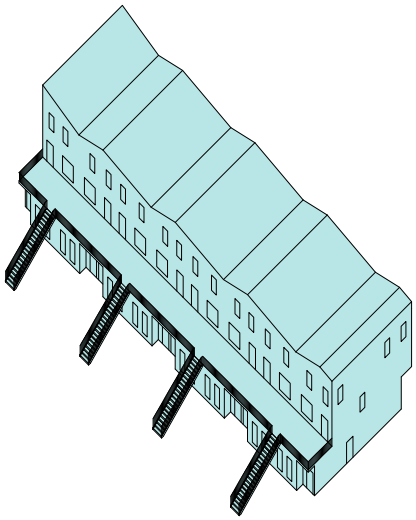


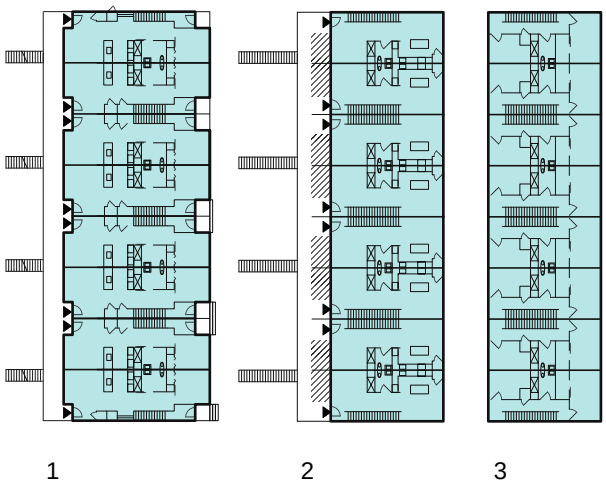
Name
C-Channel Lofts
Architect(s)
Guerilla Devlopment
Construction
2023
Location
Portland, OR
Dwellings
14
Stories
3
Density (DU/A)
113



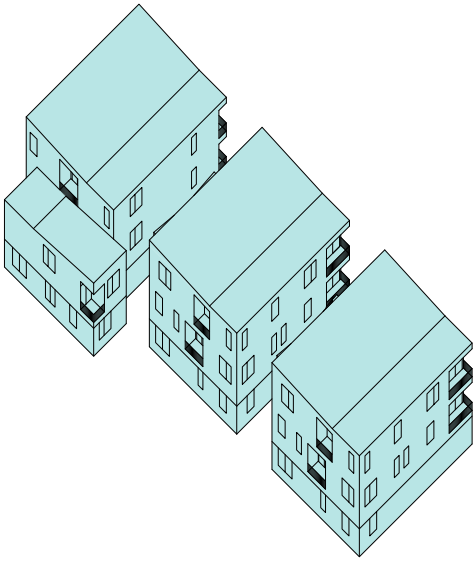


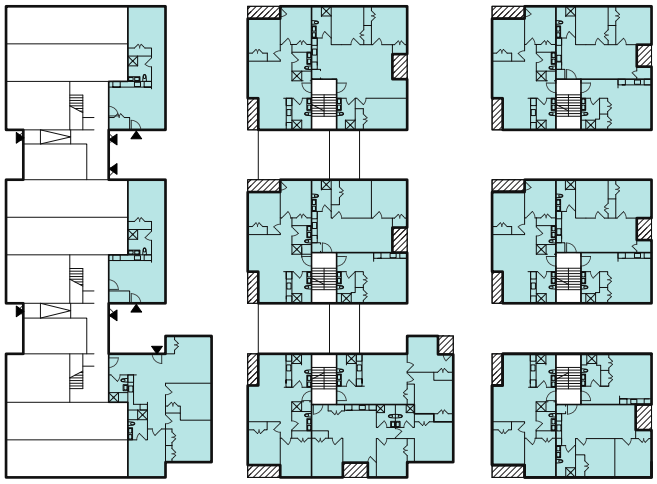
Name
Pittsfield Tyler Street Development
Architect(s)
Utile
Construction
2022
Location
Pittsfield, MA
Dwellings
16
Stories
3
Density (DU/A)
32





Name
Jackson Hole Workforce Housing
Architect(s)
Merge Architects
Construction
2023
Location
Jackson, WY
Dwellings
20
Stories
3
Density (DU/A)
41





This report aims to summarize the various ways in which our building codes create undue friction for SMH, and outline paths toward harmonizing our codes. The report can also be viewed as a first broad look at the issue, with more fine-grained research on many highlighted sub-topics needed next. We hope that readers come away with an understanding of the potential benefits of SMH, which include:

Production

- Entails lower construction costs
- Doesn't require land assembly
- Enables smaller developers, builders, and architects

Housing Quality

- Better daylight
- Cross-ventilation
- Outdoor space
- Smaller, more tight-knit communities
- Accessibility

Urbanism

- Supports rapid transit
- Compatible with existing neighborhoods
- Public acceptance and support
- Aligns with historic character and scale of many cities

The last point is especially salient, because if we can't build the historic patterns of housing we love—housing that has defined our communities—we should re-evaluate the rules we have self-imposed. Additionally, if we can't build the kind of housing that communities call for, that communities have explicitly zoned for, then we should focus on the other other regulatory reforms to meet our housing goals.

Despite being generally perceived as a source of undeniable "truth," our building codes remain just as susceptible to bias and misalignment to goals as other regulations. Our codes provide undeniable safety benefits for residential lives and welfare, but they also determine which building types are practical to build. For decades, that balance has disadvantaged small multifamily housing, but it doesn't have to be this way. Harmonizing the codes to right-size regulations can allow for the types of domestic outcomes we've been lacking.

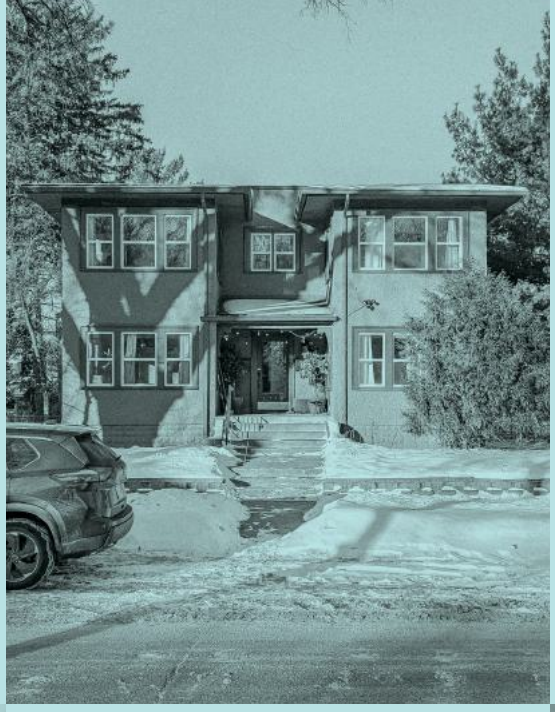
Building code reform alone is not sufficient. Other topics ripe for coordinated reform include zoning (parking requirements, density caps, setbacks, and unfunded inclusionary zoning) and requirements for municipal trash, stormwater, bike parking, and electrical transformers. Addressing these systems together offers a

real opportunity to close the gap between policy ambitions and housing outcomes.

Throughout this report are images of SMH. The majority of these homes were built over half a century ago. The goal is not to re-create these historic homes, but to enable their reimagination in contemporary terms, at scale. Regulatory reform can allow for SMH to be not just legal and practical, but exceptional—neighborhood scale housing that is affordable to build, delightful to inhabit, and able to deliver outcomes far beyond its modest scale.








COMICS


UST AREA RENTALS

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1. International adoptions of the ICC model codes appear in many countries, but notably are highly modified. They are generally changed to the point where unique IBC-specific (compared to other International codes) requirements are gone. This includes removing light-wood framing as an option for structures, vastly reducing sprinkler requirements, and modifying key egress provisions like allowing more single-stair buildings. Reference standards are also changed to local, European, or global standards instead of US ones to account for product availability. Typically the IRC is also not adopted, and it's only the IBC structure and language, with much of the substance dramatically modified.

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10. Baar, "The National Movement," 39

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12. Baar, "The National Movement," 43

13. "Proceedings of the National Housing Association,"
National Housing Association, 1911, page 212

14. Fourth National Conference on City Planning 1912, 182

15. Skalko, "Building Codes Evolve," 35, 36

16. Mathewson, Glenn. "A History of U.S. Building Codes," *Fine Homebuilding*, August/September, 2023. Accessed June 30, 2026. https://www.finehomebuilding.com/2023/07/19/a-history-of-u-s-building-codes

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adopt in part the IBC, but substitute standards from NFPA 101 (The National Fire Protection Association's building code) for some sections, including Chapter 10, which governs single-stair buildings.

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28. International Code Council, "The Code Development Process," Accessed June 30, 2026. https://www.iccsafe.org/products-and-services/i-codes/code-development/

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74. One can also look at the Canadian building code where sprinklers are not required for buildings up to three stories, which have 1-hour separations, and only four dwelling units sharing the same means of egress. Essentially allowing up to six-plex buildings to be built without sprinklers.

75. Ohio Building Code, 2024, Section 9, [F] 903.2.8 Group R

76. Townhomes are exempt from 521CMR Group 1 requirements, but they are “Multiple Dwellings” and other requirements, such as for Group 2, Common Spaces, or other requirements still apply.

77. The Fair Housing Act (FHA) applies to multifamily buildings of four dwellings or more. However the act is not a building code, but civil legislation, meaning architects, builders, and developers bear the burden of compliance, but are rarely trained on its contents. Compliance is only enforced by civil lawsuit, with building officials’ inspections rarely catching its requirements.

78. Like this project, https://www.mergearchitects.com/projects/marginal-street-housing-iii/

79. Passive House is an international standard in building energy performance. It prioritizes continuous insulation, avoiding thermal bridging, air-tight building envelopes, and high-performance windows and doors. It also focuses on highly efficient mechanical fresh air and heating and cooling systems which utilize balanced heat- and moisture-recovery ventilation to improve indoor air quality and reduce energy demands. For more information see https://www.phius.org/passive-building/what-passive-building

80. Hamilton, “Reforming US Building Codes”

81. “NAHB Forming Working Group on Building Codes for Missing Middle Housing.” National Association of Home Builders, March 31, 2026. https://www.nahb.org/blog/2026/03/nahb-working-group-missing-middle-housing.

82. “AB 1070: Residential Developments: Building Standards: Review.” Digital Democracy / CalMatters. Accessed June 29, 2026. https://calmatters.digitaldemocracy.org/bills/ca_202520260ab1070.

83. Modular building proponents are utilizing this strategy to decrease regulatory barriers. According to a recent report, since 2024 five states have set a consistent statewide standard for off-site construction. These standards are co-developed by the ICC and the Modular Building Institute (MBI). These kinds of widely applicable codes can provide a “predictable standard that allows factories to build for a state-level inspection and avoid the local patchwork of divergent rules.” These efforts also conceptually build off the HUD mobile home code, a national code that has a strict scope in application, but allows a unified market approach to providing a housing type utilized by over 20% of Americans.

84. Munson, Lucas, Schuster, Luc, Johnson, Jarred and Calandriello, Katie. “Transit-Supportive Density in Greater Boston.” Boston Indicators. Accessed June 29, 2026. https://www.bostonindicators.org/reports/report-detail-pages/transit-supportive-density-in-greater-boston.

85. “A Home for Everyone.” Mass.gov. Accessed June 29, 2026. https://www.mass.gov/a-home-for-everyone.