



# Office to Residential Conversions: Scalable Opportunity or Too Unique to a City Block?

By Anjali Kolachalam

Up for Growth's **2022 Housing Underproduction in the U.S.** report demonstrated that the United States underproduced homes by nearly 3.8 million units as of 2019, fueling a housing affordability and availability crisis from coast to coast (Up for Growth®, 2022). The fallout from this crisis includes historically low vacancy rates, rising rents and home prices, increasing rates of cost burdening, and economic and environmental issues as cities and households sprawl in a vain attempt to find affordability (Up for Growth, 2022).

As policymakers, advocates, developers, and households seek answers to this crisis, many are questioning whether office buildings in downtowns, newly vacant from pandemic-induced changes in office attendance, could provide much needed housing in job-rich, transit-served areas. As office workers shift their habits to hybrid and remote work environments, foot traffic in many downtowns remains below pre-pandemic levels and the retail and cultural economies that rely on office workers are suffering. A number of federal, state, and local policies aiming to solve the dual problems of empty offices and needed housing with one initiative have sprung up, including \$400 million in incentives for adaptive residential reuse efforts in **California's 2022-24 budget**, a hotel-to-housing conversion bill in **New York** (bill #A06262B), Philadelphia's conversion policy, and local initiatives in San Francisco and Portland to name a few.

The efficacy of these policies, however, has yet to be closely examined. Lawmakers must understand the scale—how many office buildings have the proper architectural dimensions to convert into housing—in order to make a serious impact with policy initiatives. This brief focuses on providing an in-depth look at the potential scalability of office-to-residential conversions in city centers and uses Denver, Colorado as an example. In addition, this brief discusses the building forms that work best (and those that don't work well) for a prototypical office-to-residential conversion project and reviews some of the initial financing considerations for buying and rehabilitating an office building as a conversion project.

As with all Up for Growth policy briefs, this analysis uses real market data and ties the analysis to the perspectives and experienced opinions of Up for Growth's diverse member network of developers, advocates, policymakers, and government staff. Up for Growth surveyed its member network on this topic in Summer 2022 and received 34 responses. In addition, this policy brief includes information gathered from interviews with developers and policymakers on the ground working on these types of development projects every day.

This brief builds from the proposed **Revitalizing Downtowns Act**, sponsored by Senator Debbie Stabenow (D-MI) in 2021. This proposed bill would create a federal development incentive program that would offer a 20% tax credit for expenses to convert obsolete office buildings into residential housing. The program would allow for a credit on 20% of conversion costs, in exchange requiring that 20% of newly converted units be affordable to households earning less than 80% of the Area Median Income. There is a lot to unpack, evaluate, and calibrate to ensure that the program can deliver financially feasible projects to reignite the streetscape.

## Key Findings

- Nearly 80% of surveyed Up for Growth members—26 of 34 responses from policy, practitioner, and advocacy organizations—suggest that **policy action is needed to encourage more office-to-residential conversion**.
- The majority of survey respondents suggest that **revitalizing cityscapes, providing affordable housing, and revitalizing vacant buildings** are the primary benefits of an office-to-residential conversion and should be prioritized.
- Additionally, many members consider **adaptive reuse projects more able to contend with bad faith community arguments** from individuals who oppose all new building projects.
- When measured against feasibility criteria, the potential for office-to-residential conversion was found in **6% of the total building area in Denver’s central business district**.
- **Vacancy rates are unevenly distributed throughout throughout CBDs (central business districts)**, with only a few majority-vacant buildings in the study area. Given the cost of relocating tenants and the high acquisition costs for performing assets with low vacancy rates, a threshold of 25% vacancy was applied to buildings with suitable characteristics for conversion. After applying this filter, **the total square footage drops to 1.5 million, which is 6% of the total building area** in the Denver CBD.

## Why Aren’t There More Office-to-Residential Conversion Projects?

Discussions with architects, developers, and builders demonstrate that successful office-to-residential conversions are unique to the site and existing building. Unlike new construction, rehabilitation and conversion projects must pay careful attention to an existing building’s form and footprint well before considering design concepts. This is particularly relevant when exploring a change of uses, as the development regulations, building codes, and building systems all differ between different use types. Office-to-residential conversions are no different, as the entire design, orientation, and life-safety regulations governing office uses differ from that of residences.

Many cities have seen historic industrial buildings convert to residential and mixed-use developments in inner downtowns and revitalized industrial areas. These turn-of-the-century buildings typically have large, open floorplans and tall ceilings, generally span a portion of a city block, and are typically four to five stories tall. These open spaces lend themselves to conversion well, as it is relatively easy to add floors, plumbing systems, stairwells, or hallways in ways that comply with residential codes. A common conversion was warehouse-to-residential loft-style units or office spaces with open floor plans and high ceilings.

Purpose-built office spaces do not have the same dimensions and open interiors as industrial buildings. Office footprints are typically deeper than residential buildings, and the distance from the windows makes for challenging space planning.

## About Up for Growth

Up for Growth® is a national 501(c)(3) cross-sector member network committed to solving the housing shortage and affordability crisis through data-driven research and evidence-based policy.

Our mission is to forge policies and partnerships to achieve housing equity, eliminate systemic barriers, and create more homes.

## Launching Policy Briefs

Up for Growth is excited to launch its series of policy briefs where we offer evidence-based and data-driven analysis on a variety of pro-housing policies. Each brief will focus on a specific local, regional, state, or federal policy and will inform policymakers, advocates, and practitioners as they advance meaningful solutions to housing underproduction. Up for Growth’s member network will be surveyed to obtain critical insights and considerations to inform policies that further our organization’s mission.

Members can apply to have their ideas for policies to be evaluated in future briefs by submitting their proposals to <https://upforgrowth.org/apply-the-vision/policy-brief-library/>. Let us know, and maybe we’ll add it to our list!

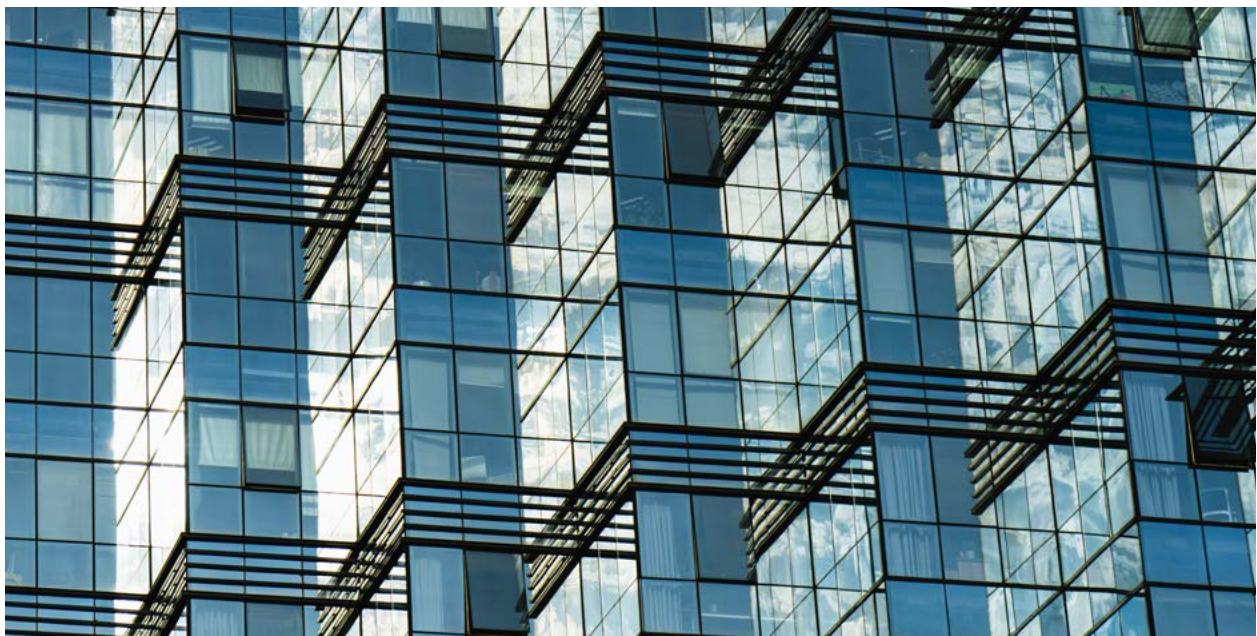
# Challenges with Height

After the invention of steel-frame construction, buildings grew taller, no longer needing to rely on heavy masonry walls to support the building structure and ceiling. Today, most downtowns have several skyscrapers—many of which are office buildings—that range from one to hundreds of stories tall. Interviews with developers and architects suggest that up to about five stories, the best route would be to hollow out an atrium in the center of the building to let in light and air, and to adhere to building code requirements for residential uses. However, beyond a certain height, atriums and lightwells become tunnels and lose their effect. In addition, developing atriums and lightwells can be expensive, impact the building structure, and remove leasable square footage from the building.

# Challenges with Building Footprints

The large building footprints of modern office buildings, particularly if the footprint is square or has zero lot line (connected to adjacent buildings) and lacks windows on one side, make for an inefficient layout of residential units for several reasons.

- Depending on the configuration, building system components in office floorplates may need to be gutted or scraped and rerouted to get plumbing to kitchens and bathrooms in residential units.
- Residential units need functioning windows in bedrooms. In Denver, every “habitable room” within a dwelling unit must have a window that opens and fulfills both light and ventilation criteria. Large floorplates do not translate to double-loaded corridors (the most efficient use of leasable floorspace) because the interior side of the hallway would not have windows unless the conversion created an atrium or lightwell. In addition, many office windows do not open.
- Residential units typically max out at about 30ft deep, but in a larger floorplate, they would need to be about 45ft deep. This creates a long tunnel-like unit that is harder to configure.
- Because most residential building codes require bedrooms to have exterior windows, the unit configuration is limited. A bedroom without an exterior window typically cannot have walls that extend to the ceiling under most codes.
- Since most office building systems (HVAC, electrical, elevators, stairs, etc.) are located in the center of larger office buildings, some of the interior space can be reoriented to common areas, shared spaces, or game or TV rooms, etc. These types of residential amenities can draw higher rents but these spaces are not leasable. They would lack windows and natural light as well.
- In some residential building codes, all residential unit front doors must be within 100 feet of a staircase. For this reason, most newly constructed residential buildings have two sets of stairwells. Because most offices have a single stairwell near the center of the building, this presents a challenge to the residential unit layout efficiency.



# Denver Office Vacancy Analysis

Many policy discussions start with the notion that downtown office buildings have a lot of vacancy due to post-pandemic changes in remote and hybrid work environments. Reports from real estate firm Cushman & Wakefield suggest that in Q1, 24.9% of office spaces in Denver's CBD were vacant, increasing to 26.4% in Q2 (Cushman & Wakefield, 2022). The Q2 report from real estate firm JLL suggests that subleases coming back on the market reduced office absorption and increased vacancy in Q2 (JLL, 2022).

It is common to see headlines that discuss millions of square feet of vacant office space in a city's downtown. The problem is that most of this vacancy is spread across numerous buildings. The prevalence of full vacancy, or even 50%+ vacancy, in a property is much lower.

For this analysis, we looked at the characteristics of 208 office buildings in Denver's two-square mile CBD.

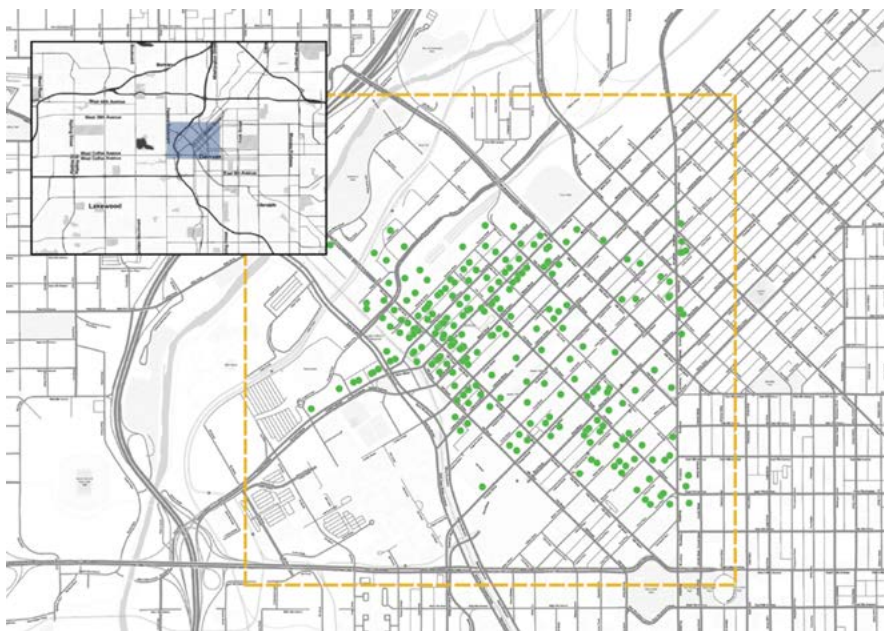


Figure 1. Denver Central Business District and Office Buildings

## Finding Vacant Buildings with Suitable Conversion Floorplates

Research and interviews with architects and developers who have undertaken and evaluated office-to-residential conversion projects suggest that not all buildings are good candidates. While buildings that do not meet ideal standards can and are converted into residential buildings, these projects are idiosyncratic and face unique market drivers. The best candidate buildings are at least five stories tall and have a floorplate larger than 5,000 square feet, with a width (depth) between 30ft and 80ft. These dimensions ensure that residential units would be fewer than 40ft long and that there is enough square footage to hold at least four 1,000 sq. ft. units. These criteria increase the prospect that there are enough units to make the conversion project financially feasible. In addition, we looked for properties that were built before 2010 (and not repositioned recently), that had available data on vacancy, and that had a vacancy rate of at least 25%. Figure 1 describes the process of applying these criteria to the office spaces in Denver's CBD.

## Statistics on the Denver Central Business District:

### Offices:

- 208 office buildings
- 27.2 million rentable square feet of office space
- 28% current vacancy rate
- \$32.00 per square foot average annual office rent
- 139,925 total jobs

### Residential:

- 26,452 population
- 19,087 housing units
- 85% housing occupancy rate

Sources: ECONorthwest analysis of Costar, 2020 Decennial Census, and 2019 Census Longitudinal Employer-Household Dynamic (LEHD) data

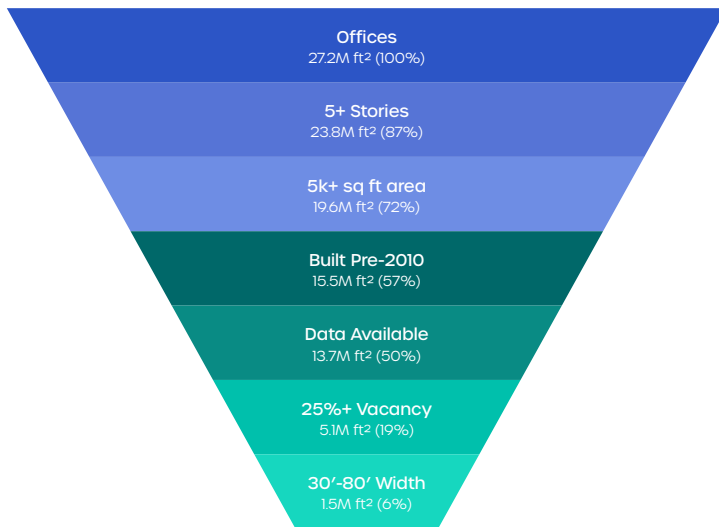
# Analysis Methods

Using data from CoStar and Open Street Maps, we identified 12 office buildings suitable for office conversion based on the following criteria of building characteristics (Figure 2):

- At least 5 stories
- Floor plate greater than 5,000 sq.ft.
- Built before 2010
- Available data on vacancy
- Vacancy greater than 25%
- Dimensions of rentable areas: a floorplate width between 30ft and 80ft

We applied these criteria in a granular way, reviewing whether upper floors might be appropriate for conversion while lower floors not.

The first step was to identify the building characteristics most likely to support a financially feasible conversion. This results in about 7.4 million sq. ft. (or 27% of the total square footage) in Denver’s CBD and serves as the upper end bound for conversion, excluding vacancy rate as a consideration. Because performing assets are costly to acquire, buildings with a large and growing vacancy rate are the most likely candidates for conversion. The first limiting factor is that vacancy rates aren’t available for every building (using CoStar as the data source). Where vacancy rates are available, a threshold of 25% vacancy was applied. While it is unlikely that a building with 25% vacancy is a distressed asset (unable to meet its debt service), office leases tend to operate on a multi-year model, which may obscure future vacancy trends in these properties, suggesting more buildings may become distressed assets in the coming years. The effect of downsizing offices in the wake of the COVID-19 pandemic and hybridized work environments may be a market trend more easily observable in the coming years.



1 Building 2 # Stories 3 Floor Plate 4 Year Built 5 Vacancy Data 6 Vacancy % 7 Building Width

Figure 2. Building Filtering Criteria

After applying a vacancy rate threshold of 25%, the total stock of leasable area of the 208 office buildings drops from 27.2 million sq. ft. to 1.5 million sq. ft. This translates to 6% of the collective rentable area that is suitable for conversion.

In the current market, very few of these large properties had meaningfully high vacancy rates. This means that these are revenue-generating assets that would need to be purchased. The highest impact cases (buildings with the most rentable area) would be prohibitively expensive to convert because they have high occupancy and would need to buy out / relocate existing tenants. Buildings with vacancy rates above 50% are few and far between. Among them, none are suitable for conversion (based on square footage, year built, etc.).

# Policy Implications

Policies encouraging office-to-residential conversions in CBDs have significant benefits and considerable challenges, namely in scaling. Using Denver as an example city, this policy brief demonstrates that the suitable office spaces in the CBD amounted to only five buildings out of 208 offices, accounting for only 1.5 million sq. ft. (6% of collective rentable area).

Adding to the challenge of scalability are some financial barriers facing developers who do find a suitable property.

- Acquisition costs are due to the purchase price of a revenue-generating asset and or relocation costs.
- Although they've declined in the post-pandemic period, commercial rents are still typically higher than residential rents in most markets, making the cost of conversion challenging to achieve financial feasibility.
- Rehabilitation costs can be close to as much as the cost of new construction, largely due to the unknown risks and building conditions, the challenges associated with structural retrofits, and inefficient floorplates.
- Due to the one-off nature of this type of development, there are few market comps for developers and lenders to underwrite the risk.

As with many other issues, policymakers have a complicated set of tradeoffs to consider. This policy brief demonstrates that while there is currently a relatively limited stock of convertible space, there are broad benefits to these types of programs, such as revitalizing downtowns and circumventing community opposition to new housing development. Adaptive reuse, including office-to-residential conversion, is an important tool in combating housing underproduction; however, it is not a “silver bullet” solution.

Policymakers and developers should pinpoint opportunities to expand the “goldilocks zone” of suitable properties and then layer in financial subsidies through various incentive programs. The use of conversion policies being considered in San Francisco, Portland, and New York, and Philadelphia’s existing conversion program, all demonstrate that policymakers have a desire to further evaluate the possibilities of solving the dual crises of housing underproduction and distressed office assets. A straightforward first step for policymakers is to simply allow conversions to happen, removing barriers in the zoning or development code. Additional analysis is needed in specific market conditions to understand the types of subsidies or incentives that would be effective in making a conversion program scalable.

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## Endnotes

Cushman & Wakefield. 2022. “Denver Marketbeat Reports.” <https://www.cushmanwakefield.com/en/united-states/insights/us-marketbeats/denver-marketbeats>

City and County of Denver Residential Housing Regulations, Chapter 27. 2016. <https://www.denvergov.org/content/dam/denvergov/Portals/771/documents/PHI/HFHH/Residential-Housing-Regulation.pdf>

JLL. 2022. “Denver.” <https://www.us.jll.com/content/dam/jll-com/documents/pdf/research/americas/us/q2-2022-office-insights/jll-us-office-insight-q2-2022-denver.pdf>



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