

Mediating Policy to Mix Making Spaces

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Submitted: 1 March 2025 **Accepted:** 28 October 2025 **Published:** 3 December 2025

Issue: This article is part of the issue “Planning for Locally Embedded Economies in the Productive City” edited by Lech Suwala (Technical University Berlin), Robert Kitzmann (Humboldt University Berlin), Sebastian Henn (Friedrich Schiller University Jena), and Stefan Gärtner (Institute for Work and Technology), fully open access at <https://doi.org/10.17645/up.i436>

Abstract

Cities have agency to reinterpret their building, zoning, and environmental code policies to adapt to the new economy and contemporary ways products are made in urban settings. The many vacant spaces in urban centers—from retail spaces to former factory buildings—can be rehabilitated for making things in the new urban economy of artisanal and light manufacturing and thus mix with other uses. New buildings can also be purpose-built with these mixes to meet current safety and environmental codes, and, if zoned proactively, these spaces can provide economic stability, nimble development alternatives, and dynamic urban symbiosis. Continuing the research I have conducted for my exhibitions, books, essays, and fieldwork in specific cities, this essay analyzes ways that production can be reinserted into cities in mixed-use buildings and districts that are now in the planning stages or have been recently realized. Some projects feature block-level mixes and vertical building configurations created by the volumetric separation of production from living as a new typology. The projects discussed here can inspire and guide city planning policies and economic development departments by integrating the new small, clean, and quiet production into cities and allowing for much more flexible and granular land-use and zoning regulations that will support small- and medium-sized enterprises and provide jobs for local residents. Key to these projects is the strength of mission-driven organizations that can work to bring manufacturing back through new zoning code overlays and social connectivity. Project locations include those where I have been working, or conducting in-person research in the U.S. cities of Berkeley, New York, Newark, Somerville, Trenton, and in Europe those of Brussels, Rome, and Turin.

Keywords

artisan; ecosystem; hybrid; mixed-use; mixity; productive cities; regeneration; small- and medium-sized enterprises; urban manufacturing; zoning overlays

1. Introduction

In the new economy of the Fourth Industrial Revolution, parameters for urban manufacturing have evolved spatially and environmentally. There is a shift from behemoth factories spewing harmful emissions found in export processing zones and isolated industrial districts toward smaller-scale, lighter, and nonpolluting industries and green, quiet, more pristine production integrated in urban settings. At a reduced scale, former industrial buildings and new multistoried hybrids (buildings that have a mix of uses) can offer small firms dynamic, embedded, and self-supporting ecosystems (Becker & Friedman, 2020; Croxford et al., 2020; Rappaport, 2017, 2023). Technological advances are transforming industrial organizations spatially and economically. The corresponding increase in local jobs on the factory floor as well as the business side have the potential to establish a new hybrid paradigm at the building, district, and citywide scales. Allowing variously scaled programs to be incorporated into regulatory plans, with mixity, provides opportunities for job creation near where people live. This proximity of working and living reduces an individual's carbon footprint while creating the 15-minute city where everything is in a walking radius that Clarence Perry in 1929 developed through his neighborhood concept (Perry, 1929/1989). In this realm, as former Baumeister Kristiaan Borret of Brussels has said, “production must be encouraged in the city and included as an integral part of the urban fabric. It must be able to reveal itself, in connection with daily life” (Borret, 2018, p. 6).

When land use zoning allows for mixed uses, especially in highly valued real estate markets such as New York City, the preferred new development proposals are those offering maximum profit and higher taxation of land use. Higher-end housing and expensive service and financial-oriented workspace dominate the market, not lower-rent industrial space. New policies thereby need to place affordability at the core of rezoning for mixed-use buildings and districts to counter commercial and industrial gentrification and not to encourage it (Becker & Friedman, 2020, p. 211; Grodach & Martin, 2025; Leigh & Hoelzel, 2012; Wolf-Powers, 2005, p. 390). This essay shows how cities in New York, California, New Jersey, and Italy—subjects of my recent research—are revising standard modernist land-use policies to respond to the artisanal and high-tech boom with layers of creative zoning codes in what is called “overlays,” or new land-use districts, allowing new construction and adaptive reuse projects for small- and medium-sized enterprises to be integrated in cities with economic and environmental resilience. In order to substantiate these topics, I analyzed zoning policies and recent changes to city land use plans, met with economists and architects as well as local businesses who desire to remain in place.

To comprehend the evolution of the new mixed economy since the 1980s, it is essential to recognize a transformation in the urban economy in many cities of the Global North: the decline of large-scale industrial employers that once hired thousands of workers has coincided with the proliferation of micro-manufacturing enterprises, typically employing fewer than ten workers. For example, in 2019 over 10,000 micromanufacturing businesses in Turin employed up to nine employees, which comprises 80 percent of all manufacturing firms (Robiglio & Repellino, 2022, p. 146). In New York, currently, there are many smaller companies that employ fewer workers, but add to the total number of employees. While 90 percent of industrial businesses employ fewer than 100 people, 50 percent employ just five people (Manufacturing and Industrial Innovation Council New York, 2025). Because these companies are small, they can be integrated into geographically disperse workspaces increasing local production and jobs if cities rezone at a district scale proactively (Croxford et al., 2018, p. 68). The examples in this essay can serve as mixed-use models of good practices for former industrial spaces and new affordable mixes as communal

sites of interaction and economic ecosystems at the neighborhood level and demonstrate how methods to mix production can be made possible by:

- 1) Making manufacturing visible;
- 2) Organizing hybrid building massing volumes according to programs;
- 3) Creating zoning use overlays;
- 4) And linking the industrial community with the neighborhood residents.

This essay is organized by first describing the historical context of land use separation and its evolution. It then demonstrates the interest of integrating light industry in cities through the consumer's interest in watching the production process and the need for jobs. It then focuses on how some cities as diverse as Brussels; Somerville, Massachusetts; Berkeley, California; and Rome are working towards forming mixed-use districts in innovative ways. The result is that additional layers of building codes specific to light industry can allow for the new mix. The section following is a more in-depth discussion of specific mixed-use projects in New Jersey and New York that are potential models both programmatically and volumetrically. It concludes with how local organizations that support these mixes can bolster economic development with an equitable goal and create dynamic cities.

2. Urban Land Use From Separation to Integration

As we reevaluate the past segregation of uses that were developed by Modern architects in La Sarraz, Switzerland (1928) with the *Congrès international d'architecture moderne* or CIAM (Barnett, 1986, pp. 13–15) these distinctions now seem obsolete. Modernists focused on separating uses—residential, transportation, work, play—shifting those functions that were not cross-compatible beyond the urban core, cordoned off through highway networks, or, in the case of industry, moved to specially zoned districts in hinterlands. The intent of the nuisance-focused land-use zoning code in most urban areas is to protect the public from the negative sensory impacts of noise, odors, dust, and general activity that are incompatible with human well-being. Those nuisances and their public perception have changed. If industries no longer emit repulsive smells, which are subjective in any case, then the “nuisance” does not need to be regulated so tightly, and alternative zoning codes can guide urban development (Croxford et al., 2020, p. 73). Additionally, because small and light industrial enterprises that are now occupying spaces in cities do not pollute in the same way as heavy industry, the integration of making things in these dispersed urban spaces is made possible via three organizational paths: (1) smaller industries integrated in former “vertical urban factories” through adaptive reuse of factories; (2) newly built projects; and (3) at the block scale, dispersed in retail spaces or commercial buildings (Rappaport, 2017). The integration of these industrial entrepreneurs into neighborhoods can provide jobs to boost equity and stability for both higher and lesser skilled workers, with additional jobs related to administrative and services (Grodach & Guerra-Tao, 2023). On the one hand, established zoning regulations limit the imaginative potential of urban districts to a singular and monofunctional place that is only used at one time: offices by day/no activities at night; factory by day/no one living there (Kelly, 2016, p. 125). On the other hand, often industries still prefer monofunctional zones as they do not want to interact with what are quality of life issues, can have louder noise levels, and can have deliveries unimpeded by residents and pedestrians 24/7 (Conway, 2020, pp. 81–82). So the question remains, how do we create new mixed-use districts and buildings that allow working and living and/or production and retail to cohabit?

2.1. Making Production Visible

One current urban improvement idea is that of making light local production enterprises visible in streetscapes to help revitalize economies, even as we acknowledge that it might lead to higher-end products and some industrial gentrification (Grodach & Martin, 2018). Younger entrepreneurs and tech start-ups are gravitating towards the small-batch craft and artisanal work often produced by “neo-cottage” industries and micromanufacturing (Croxford et al., 2018, p. 35; Rappaport, 2015, p. 200). These economically stable urban industries, which cater to urban dwellers, fall most often into “F” categories: fashion, food, furniture, fabrication, and film (Micelli, 2011). Many of these companies can adapt to diverse spaces where the workers use prototyping, high-tech fabrication, and more hands-on work in an ecosystem where tools and methods can be shared (Anderson, 2013, p. 67). Some of these businesses grow organically across generations, embedded in a culture that is unrelated to land use, and become crucial to a city’s economy. These “intangible” cultural traditions often represent dying art forms that need safeguarding and are place-dependent (Figure 1).



Figure 1. Craft manufacturer in New York City. Photograph by Nina Rappaport, 2022.

When craft and maker entrepreneurs (those who make things and form businesses) expanded with urban workshops and storefronts as well as through on-line platform sales, their authenticity became popular with consumers (Anderson, 2013, p. 182). Understanding the maker or fabricator’s production process adds value to the product because customized production is distinctive (Meyer, 2023). Their increased visibility has led to what I call the “consumption of production,” where consumers have access to learn methods and also enjoy watching the production process, whether via the factory tour or through a shop window (Rappaport, 2003, pp. 58–65). Even some larger factories became showcases for workers, as in Dresden, where Henn Architect’s 2009 design of the VW Transparent factory added a dynamism to the city with views from glass facades into the production floor. This openness connects the consumer to the product they are about to buy in contrast to the distant factories of fast fashion and global production (Ruby, 1999). The factory-museum has also become a renewed urban typology as seen in the 2023 Lindt & Sprungli factory-museum in Zurich designed by Christ & Gantenbein. The history of chocolate is on display in didactic exhibitions and a chocolate tasting experience connects the consumer to the product. This concept of watching and learning about production

can help to bring activities back to city centers as a place of meditating local production in terms of jobs while simultaneously enlivens the streetscape as an urban design goal.

3. The Hybrid Through Zoning Overlays; Dispersed Light Industry Block by Block

Although city governments have agency to change building, zoning, and environmental codes, the bureaucratic process to enact a new law is filled with conflicts and demands from many different city departments, preventing them from responding nimbly to immediate economic and social issues. This adversely affects entrepreneurs who need to bring products to market quickly. Few city planning agencies know how to create new building and land-use codes to intermingle production, even though these adjacencies exist historically and organically in cities such as Seoul, Tokyo, and Hanoi in shophouses: shops and workshops on the ground floor, residences above. When industries fail or move, often their lands are designated as polluted brownfields and sit dormant until developers realize their potential decades later and propose to convert the land to more valuable market-rate residential uses. This can be seen in the high-rise luxury towers that continue to proliferate in New York's previously industrial waterfront districts: Long Island City, Queens, and Williamsburg, Brooklyn (Capuano, 2003). Usually, the zoning changes allow for taller buildings, thereby increasing height and site bulk; these development projects do not include industry, so most have become residential, thereby removing industrial lands from potential regeneration plans or making them unaffordable (Podemski, 2013, p. 16; Wolf-Powers, 2005, p. 328).

One way that cities have started to loosen their Euclidian zoning regulations is through not-often-used, hard-to-regulate performance zoning where, instead of a blanket code, pollution and nuisances are evaluated on a case-by-case basis where each site must be analyzed in person and monitored by understaffed city agencies (Elliott, 2008, pp. 24–26). Performance zoning gained popularity in the U.S. in the 1980s but has since faltered as a trend. In other cases, cities such as those in Germany have a framework for the Urbanes Gebiet ("urban area") established in 2017 to encourage mixed uses on former industrial sites and as ways to reinvigorate downtowns. However, it does not include industrial use (Brandt et al., 2017; Schoppengerd, 2023). Of interest is the evolution of regulatory changes as cities such as Turin are evaluating sites more organically without changing the city-wide zoning codes. There, a chocolate company integrated a small production facility into the city block adjacent to residential buildings (Robiglio, 2022, p. 149). Workshops or little garages—as in the industrial revolution—have repurposed the interior courtyards of residential blocks that now house custom bicycle fabricators, food producers, glass artists, ceramists, and young fashion companies, among others. It is yet to be seen how regulations will have to change in order to maintain the small enterprises in place (Robiglio, 2022, p. 155).

With some success other cities, including those that I have been studying or involved in—Berkeley, Newark, Trenton, Somerville, Brussels, and Rome—are undertaking more granular methods for innovative mixed-use zoning regulations as added layers of land use and zoning codes on top of existing regulations, called overlays, that are inspiring building owners to reweave light manufacturing into the urban fabric. Influential to this discussion is the innovative 2016 "Production Distribution Repair Zones" initiative in San Francisco (Grodach & Martin, 2018; Pendras et al., 2023, p. 229; San Francisco City, 2025) as well as the importance of Brussels' "Enterprise Zones in an Urban Environment" (De Boeck & Ryckewaert, 2020). I will use examples of Brussels' "Enterprise Zones in an Urban Environment"; Somerville's new "Fabrication Zone"; West Berkeley's "Light Manufacturing Plan"; Rome's "Artisan Craft Districts"; and the city of Newark, New Jersey, which uses a more normative nomenclature such as MX

(for Mixed) and “Light Industrial District” to indicate the mix of uses. In this moment, the cities allowing for lighter nonpolluting production with other uses represent a kind of avant-garde of land use planners. They are experimenting with ways to maintain industry and increase jobs in synergy with mixed-use building activity and are seen in the examples below.

3.1. Brussels

A pioneering industrial regeneration model to rebuild disused sites, introduced seven years ago in Brussels, is the concept of Enterprise Zones in an Urban Environment or ZEMU (Borret, 2018). Brussels is better known than other cities so I will limit my discussion here (see also Ryckewaert et al., 2021). There, an equilibrium between industry and new developments was created by integrating industries into new urban amalgamations in the city’s Canal Area. The 2014 linear Canal Plan reimagined the integration of residential into heavy-industrial uses along the canal’s shores where goods are still transported by barge to the broader Belgian regions (Canal Plan, 2017). The desire for revitalization of the city’s brownfields and abandoned post-industrial development sites helped to expand urban development areas and instigate mixed-use zoning (Borret, 2023). Brussels’ success is evident in the new projects built with the city development arm and innovative zoning codes that require new housing projects in these areas to provide space for new industrial tenants. This is working because of the light industrial and non-polluting uses and the fact that people who move into the buildings know that these uses are adjacent (Borret, 2018).

3.2. Somerville

While Brussels is an exemplar, other cities are experimenting with new smaller light industrial districts in their own contexts with the addition of zoning overlays. For example, in 2017 in Somerville, Massachusetts, where a former factory building is filled with smaller local producers, the city designated the area as a Fabrication District to support “activities common to the arts & creative economy...and a variety of employment opportunities in the arts & creative enterprises” (Dwan, 2023). The code requires that five percent of the floor area of new buildings be set aside for productive space with large floor plates and storefronts to revitalize urban districts through window displays visible to pedestrians. This Fabrication District zoning overlay could be a model for small and light industries (chocolate and hot sauce), and encouraged local light industries to stay in the neighborhood. However, the free-market process continues, and now a developer has proposed to demolish the main industrial building and add adjacent sites for a residential project. A community engagement process in the summer of 2025 tried to negotiate with the developer to keep affordable spaces for light industry and housing in the area but now a 1.5 million-square-foot (93,000-square-meter) complex will be built in between the less profitable arts and industrial uses to maintain affordable production spaces.

3.3. Berkeley

The city of Berkeley, California, created the West Berkeley Plan Light Manufacturing District to allow companies to have spaces for production *if* they include retail. The new rules as according to the Zoning Regulations intended to “encourage development of an area where light manufacturers can operate free from the economic, physical, and social constraints caused by incompatible uses” and by requiring that companies have adequate space to do so; the codes also support the establishment of companies that

“encourage the creation and continuation of well-paid jobs that do not require advanced degrees” (Berkeley City, n.d.). The city’s intention is to have on-site retail space so that businesses can sell their goods and to maintain and enhance the economic viability of manufacturers in the district (Berkeley City, n.d.). The Inside Line bag company, which has a factory space in conjunction with their retail space, has been successful with this model. Inside Line workers cut and assemble thick canvas fabric using heavy-duty sewing machines to make fashionable and functional backpacks and handbags. The sewers sit in the front of the space with their backs to the cashier and consumers so that they can concentrate. This production and display space creates the street-level dynamism described earlier, and the workers creating the products are visible to the consumer (Figure 2).



Figure 2. Inside Line bag company with worker in store, Berkeley, California. Photograph by Nina Rappaport, 2024.

3.4. Rome

In cities such as Rome, where it is essential to provide space for local artisans who help conserve the historic urban fabric, the city planning office institutionalized light fabrication and artisanal workspaces by implementing new zoning with preservation safeguards. In 2020, the city created an Artisan Craft District a block from the tourist pedestrian area along the Tiber River in the Tor Nona Area that was nearly destroyed by Mussolini’s planners in the 1930s. It has also changed its General Regulatory Plan to protect and promote artisanal activities for specific craft-related trades; the concept is to protect “the intangible, cultural and economic heritage of the city, in consideration of the knowledge and traditions that distinguish it” (“Roma Capitale, nasce il distretto dell’artigianato artistico,” 2020, p. 6). In order to reinvigorate their craft heritage, in collaboration with the Schools of Art and Crafts of Rome Capital, there will be training and educational programs to transfer knowledge between master craftspeople and students, similar to medieval craft guilds. The artisans can sell their work in the designated buildings that will support their economic sustainability but also maintain the historic atmosphere. The city is tying the program into the redevelopment of the local economy to promote creative entrepreneurs. Many of the businesses are also related to the building

construction, craft, and conservation industries such as mosaic, plaster work, stone carving, and fresco painting whose skilled workers will, in turn, renovate the city's architectural heritage in a renewed ecosystem. The program also incentivizes the city to renovate and manage the buildings in these districts. One woodworker, for example, operates from a workshop with a large shopfront window that he often leaves open so that passersby can see the activity inside, in a consumption of production interchange, and from which he can easily deliver his cabinetry, stage sets, and furniture locally (personal communication with woodworker, February 2025). The area is zoned for commercial uses that include production, not only consumption. This type of land-use regulation encourages a synergistic ecosystem that helps the city promote and sustain artisans as well as the economy as it attracts consumers and fosters vital networks. The city is thus "strengthening the local productive fabric and the coordinated management of initiatives for the promotion and development of artisan, commercial, industrial, service, and freelance businesses" (Rome City, 2019). The mastery of craft is one example of an intangible cultural heritage tied to the city being valued on a level with protecting physical structures and monuments.

4. Linking Industrial Community to the Neighborhood

The mix of uses can help to revitalize declining former industrial neighborhoods as long as they have connections to the community and local entrepreneurs are engaged. At the building scale, adding new layers of building code regulations that allow the mix of industry also protects enterprises while providing housing or commercial uses. For solely manufacturing uses, one volume that is efficient is the "vertical urban factory" (Rappaport, 2015, p. 36), which utilizes existing multistoried buildings or is built anew. One company can occupy the entire building, or smaller companies can occupy layered or stacked spaces (Figure 3). Within these multi-tenanted buildings, productive communities grow and a self-supporting ecosystem evolves symbiotically through skill and equipment sharing. Examples that I have been researching, visiting, and discussing with the building managers are the Greenpoint Manufacturing and Design Center's (GMDC) series of six buildings, the Pfizer building in Brooklyn, and Keilepand in Rotterdam. Keilepand is particularly community-oriented as there the workers in the building eat lunch at on-site cafeterias; woodworkers combine efforts with metal workers to build furniture; vegetable gardens supply in-house cafés; and ground-floor exhibition spaces accommodate art shows, events, and other gatherings and presentations.

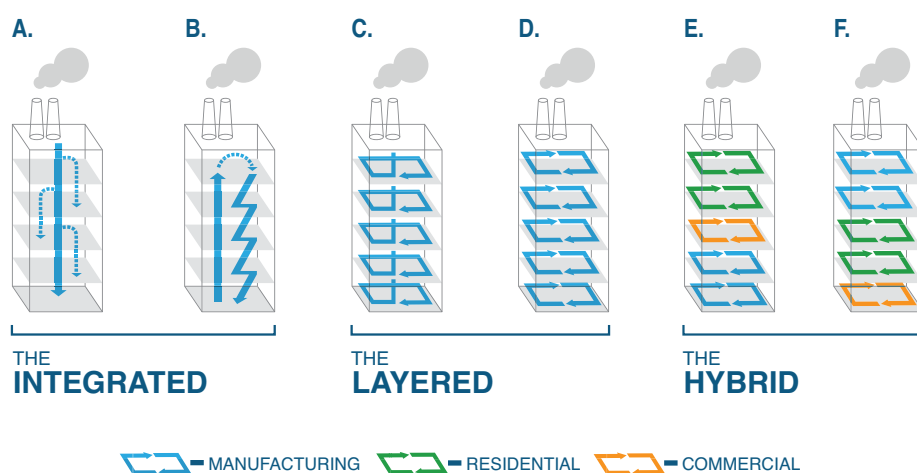


Figure 3. Vertical urban factory showing different configurations for light manufacturing, and mixed use in the Integrated (A&B), Layered (C&D), and Hybrid (E&F). Illustration by Sarah Gephart with Alex Lange.

While no data about the synergy has been collected yet, we know that it occurs through observation and discussions with the building owners who oversee the facilities of these mission-driven organizations (personal communications with M. Adams, 2024, B. Coleman, 2025, and J. Rosenblum, 2025).

While the mix of diverse types of light manufacturing is more normative, the mix with residential is complex and thus requires new layered zoning or building codes. Four typologies of residential uses mixed with light industrial uses that I am highlighting were organized through new land-use and building codes. Some of these ideas of volumetric massing of mixes have been studied in the analysis of Hoppenbrouwer and Louw (2005) in Amsterdam and continued in later studies (Ryckewaert et al., 2021). The analysis below is based on projects that I have been involved in, or researched in the U.S., along with my earlier work on the Vertical Urban Factory historic case studies in my eponymous traveling exhibition (Vertical Urban Factory, 2011) and include current projects with the Center for Urban Industry in New Jersey.

The first massing concept that is gaining traction is a simple diagram of lower floors containing the light-manufacturing space with commercial and residential spaces above. Often, the architects design a separate podium space with horizontal divisions to protect residents from vibration and nuisances. Some examples I often cite include the Strathcona project in Vancouver, which combines residential and light-industrial spaces (Rappaport, 2017, p. 74); the project Making a(nd) Living by Plusoffice; and NovaCity by DDS + Architects, both in Brussels (Borret, 2018, p. 27; Ryckewaert et al., 2021, pp. 340–342; Verbakel, 2022, p. 70; Figure 4). A second configuration of building volumes includes vertical volumes linked by common spaces on the ground floor in, at times, a separate volume. This is seen in the project of The Bridge, for light industry and assisted living, as described below. And the third configuration is a more scattered site with individual buildings hosting different functions but often with light manufacturing and artisanal production on the ground floors. The potential for shared spaces then requires design systemization, as the more complex mechanical systems for industrial waste, logistics, and services must be separated from the residential uses to protect residents, which is the point of the building code (Grodach & Martin, 2018;



Figure 4. Novacity, Brussels. Rendering by DDS + Architects, 2022, showing the manufacturing podium and the residential tower; building now completed.

Shapiro & Bingham, 2020, p. 202). Elevators may be allocated for residential or industrial use and the delivery and heavy-truck logistics can be separated from entrances; courtyards can also be used to allow trucks to come in off the street and not interfere with pedestrians. A fourth configuration is not the physical building volume per se but programmatic including hybrid scattered activities such as cultural spaces, day care, and recreation areas that can serve as the new industrial commons where people can interact in a district or neighborhood (Rappaport, 2022; Suwala et al., 2025).

These new typologies of the hybrid urban factory serve as innovative models and inspire ways to increase the inclusion of light manufacturing and smaller workshops throughout the urban fabric with newly established building and zoning regulations in each city. Four projects that I have been providing support and outreach for were realized in 2024 and 2025 in the New York–New Jersey region: The Bridge, Makerhoods, Willow Works, and Productive Community Connections.

4.1. The Bridge–Podium

In Brownsville, Brooklyn, two mission-driven organizations—a social service organization called The Bridge and the non-profit manufacturing real estate company, the GMDC—developed a new building for lower-income residences and light manufacturing spaces. Think + Architects designed a mix of uses in a 180,000-square-foot complex that opened in 2024. The Bridge features two, eight-story volumes on a podium base for light manufacturing, similar to the Brussels projects, and offers 174 affordable apartments for low-income residents and homeless veterans, including 87 units with supportive services in offices that surround an interior courtyard (Figure 5).



Figure 5. The Bridge, Brooklyn. Courtyard view with garden and two parallel residential volumes, Think + Architects, 2024.

Unusual for a new project is the inclusion of light manufacturing in 39,000 square feet (3,600 square meters) of working spaces below the landscape courtyard. These workshops are leased by GMDC to local start-ups including a furniture company, woodworkers, cabinet makers, and plaster workers. A light-filled entrance leads

up to a second floor where the community rooms, offices, and laundry spaces are situated as buffers above the light manufacturing spaces. Vaporproof barriers create a protective membrane for the safety of tenants and insulation limits noise and vibration.

As an untested scenario, the regulations were difficult for the architects, the nonprofit developers, and the city agencies who basically invented the hybrid combinations as they went. Numerous environmental and building code specifications addressed pollution, fire, safety, and program issues and requirements as the land use was designated residential. The nonprofits requested to change the zoning assigned to this site, creating a great deal of risk and unknowns (Coleman, 2023). After numerous public meetings, they were able to convince the planning agencies to change the zoning from R6 (residential up to six stories) to M1–4 (light manufacturing with other uses R6A and R7A) as a new special mixed-use district (MX-19) in what is known as a mandatory inclusionary housing area for affordable housing, underscoring that clean and lean production makes mixing with residential feasible.

On the ground-floor industrial space, the architects designed a faceted facade that permits light to penetrate the factory space through translucent L-shaped windows. Preventing the blocking of foot traffic and other sidewalk access by loading dock activity was also solved. Now that the spaces are occupied, new ways of thinking in New York about mixed-use inclusive of light manufacturing have accelerated; this project's success and its use mix awaits replication to be established as a new urban paradigm.

4.2. *Makerhoods—Vertical With Courtyard*

In New Jersey—a state that is the most densely populated in the U.S. with a mix of uses that form a visual hodgepodge of decay along the freeways and train corridors—entrepreneurs and public agencies are reframing ways to repurpose numerous vacant industrial buildings.

In Newark, a project called Makerhoods, which launched its planning phase in 2020, was inspired by my hybrid factory concept (Rappaport, 2015, p. 446). It involved saving the abandoned 20,000-square-foot (1,880 square-meter) hilltop 1888 Krueger Mansion, built by a brewery entrepreneur, to create a work-live complex. The developer Avi Telyas restored the building and added an L-shaped mixed-use space to the site in 2023. Using historic preservation tax credits and local grants and loans, he transformed the mansion into a community hub with workshops, rental offices, a café, and event spaces. On the adjacent site, Garrison Architects designed the six-story, 65,000-square-foot (6,038-square-meter), L-shaped building with 66 affordable apartments, and ten lower-level, double-height studio spaces with retail space facing either the courtyard or the street. These spaces come with the apartment lease, in a way similar to the Asian shophouse, so that makers can live above their workplaces. A common rear courtyard where community events can take place features an 8,000-square-foot (743-square-meter) commercial kitchen, a greenhouse, and open spaces for trucks to turn around (Figure 6).

The mix was possible because the city of Newark already allowed different programs through their MX-1 and MX-2 zoning codes for residential, commercial, and industrial to be combined on one site (Rich, 2015; personal communication with Rich in 2025). They also started a Light Industrial District zoning regulation to support low-impact manufacturing, artisanal production, and tech-oriented businesses in designated areas, particularly on transitional sites and former brownfields where a great deal of social injustice occurred because



Figure 6. Makerhoods, Newark, showing the historic mansion and the new affordable housing. Photograph by Nina Rappaport, 2024.

of public housing built adjacent to the polluted sites from the 1980s through the 1990s (Chien & Knoble, 2024, pp. 7–14). As noted in the city’s zoning code, “the Light Industrial District allows the development of manufacturing and warehousing facilities, research and development labs, and other light industrial uses that do not produce significant noise or pollution” (Newark City, 2015). However, although the zoning allows for this mix, few have taken advantage of it in the same way as Makerhoods, with production spaces as part of a new development project. One reason for its success is that it is mission-driven to support local business and entrepreneurs who now produce candles, cosmetics, clothes, photography, film sets, and furniture in a new urban symbiotic ecosystem.

4.3. Trenton and the Center for Urban Industry (CUI), New Jersey—Scattered Hybrid Programs

In New Jersey, I initiated a Center for Urban Industry (CUI) with Kean University’s Watson Institute (www.urbanindustryNJ.org) to encourage light industrial uses mixed with others, and to influence change in urban zoning policies to embrace new forms of light, clean, and quiet industries such as high-tech and biotech, as well as artisanal food-related producers. These initiatives can be models for the renovation of historic industrial building projects with manufacturing enterprises that offer unskilled jobs and could pay higher than the minimum wage. A few projects to repurpose abandoned factory buildings and support new enterprises are underway, some initiated by private property developers, and others on city-owned sites redeveloped through city-sponsored requests for proposals. The goal is to help local entrepreneurs grow with assistance from city departments of planning and economic development and inject new life and new opportunity into New Jersey cities. Throughout the state, the CUI is initiating partnerships with public and private entities to identify industrial regeneration areas for redevelopment and critical urban sites

for future rebirth. The idea of mixed use has potential for economic flexibility and the renewal of community connections.

With the CUI, the first in-depth work has been with the city of Trenton, a shrinking state capital suffering from declining employment and quality of life, which has its origins in the white flight and rampant crime that occurred in the 1960s (Cumbler, 1989). Historically, the city was renowned for its pottery production, such as porcelain dishware, and electrical and sanitary supplies manufactured by over 20 companies. Trenton was also a major production center for steel wire rope factories, established in the nineteenth century by John A. Roebling for the construction of the Brooklyn Bridge and by Peter Cooper (inventor of the I-beam) used in the transatlantic telegraph cable. But when the companies making steel wire rope failed in the 1970s, they left polluted areas and abandoned sites, including a 20-acre Roebling manufacturing complex and blocks of factories now in city ownership (Figure 7). The post-industrial ruins have left dilapidated conditions adjacent to what are now poorer residential communities built on lands that are designated for environmental clean-up, placing a negative stigma on these neighborhoods and illustrating environmental injustice (Chien & Knoble, 2024, pp. 7–14). The city now owns some of these properties and has engaged the CUI to assist with visions for the future to assist local entrepreneurs and help with access to funding and redevelopment methods.



Figure 7. Historic Roebling Complex, part of a new development site, Trenton, New Jersey. Photograph by Nina Rappaport, 2022.

On one former 1.5-acre (6,000-square-meter) industrial site in Trenton, an entrepreneur of a new prefabricated wall panel company called Willow Works is creating a mix of light industry, residential, and community use. He is planning a 20,000-square-foot (1,860 square-meter) complex in an adaptive reuse of a brick complex. His products will be used to rehabilitate houses in the area. The design scheme integrates a series of smaller volumes with new insertions to provide space for the factory, community area, a maker

space, and housing units. Sited on a corner close to the city center, the mix can increase the owner's opportunity for financial investment through grants and loans in an area designated in need of revitalization. By combining different uses, he can be awarded public funding for different aspects of the project in an incremental development project. The CUI is assisting with predevelopment guidance, design, and connections to appropriate public and business support agencies to bolster the community and its economy (Figure 8).

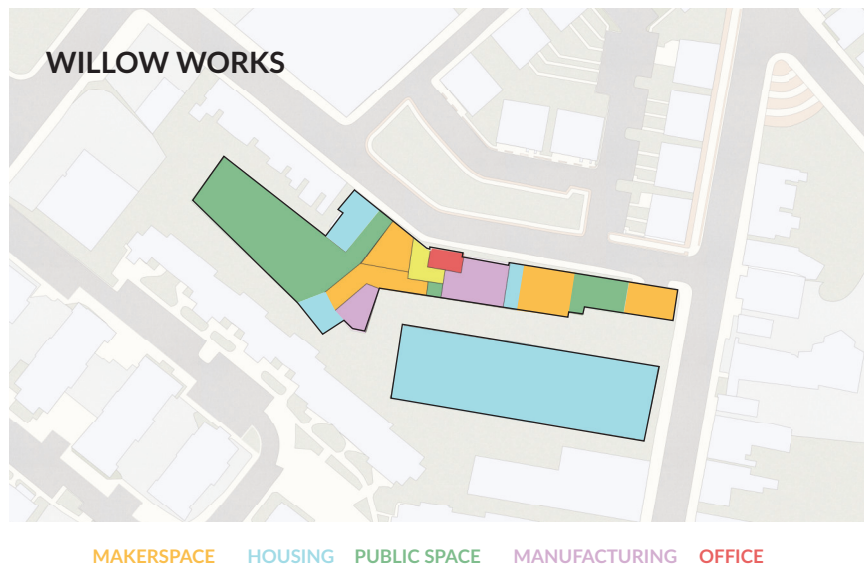


Figure 8. Willow Works, Trenton plan for site. Image by Center for Urban Industry, Alex Lange, 2024.

4.4. Connecting Production to Community

The CUI is also proposing catalysts to link city blocks between the industries and the residential uses through shared activities and common spaces. One collaborative potential is to reconsider ways to reshape a 1970s mini-industrial district in the neglected East Trenton neighborhood, a 20-minute walk from the train station, on a street once filled with former pottery producers. There, a developer built six standard shed factories that he leases to a variety of businesses, including a production artist, a linen distributor, a fish producer, a safety flashlight manufacturer, a building supply firm, a recycling industrial shelving company, and a cleaning service. The original plan has a surprisingly careful landscape design along North Clinton Avenue with rows of trees, green lawns, and large delivery areas at the rear of the buildings with access from a short industrial road where heavier industries border the railway tracks that once brought coal to the pottery companies. Across North Clinton Avenue is a residential area that has no relationship to the industrial enterprises—most of the businesses do not know the community (personal communication with factory owner, November 2025). The CUI is working to form links, literally, between the two sides of the street through shared community spaces and activities such as a shared recreational space and walking tours, called “productive walks.” With these social initiatives, the residents can learn how local entrepreneurs organize their companies and production process and, vice versa, the companies can meet the residents and mentor them for future jobs (Figure 9).

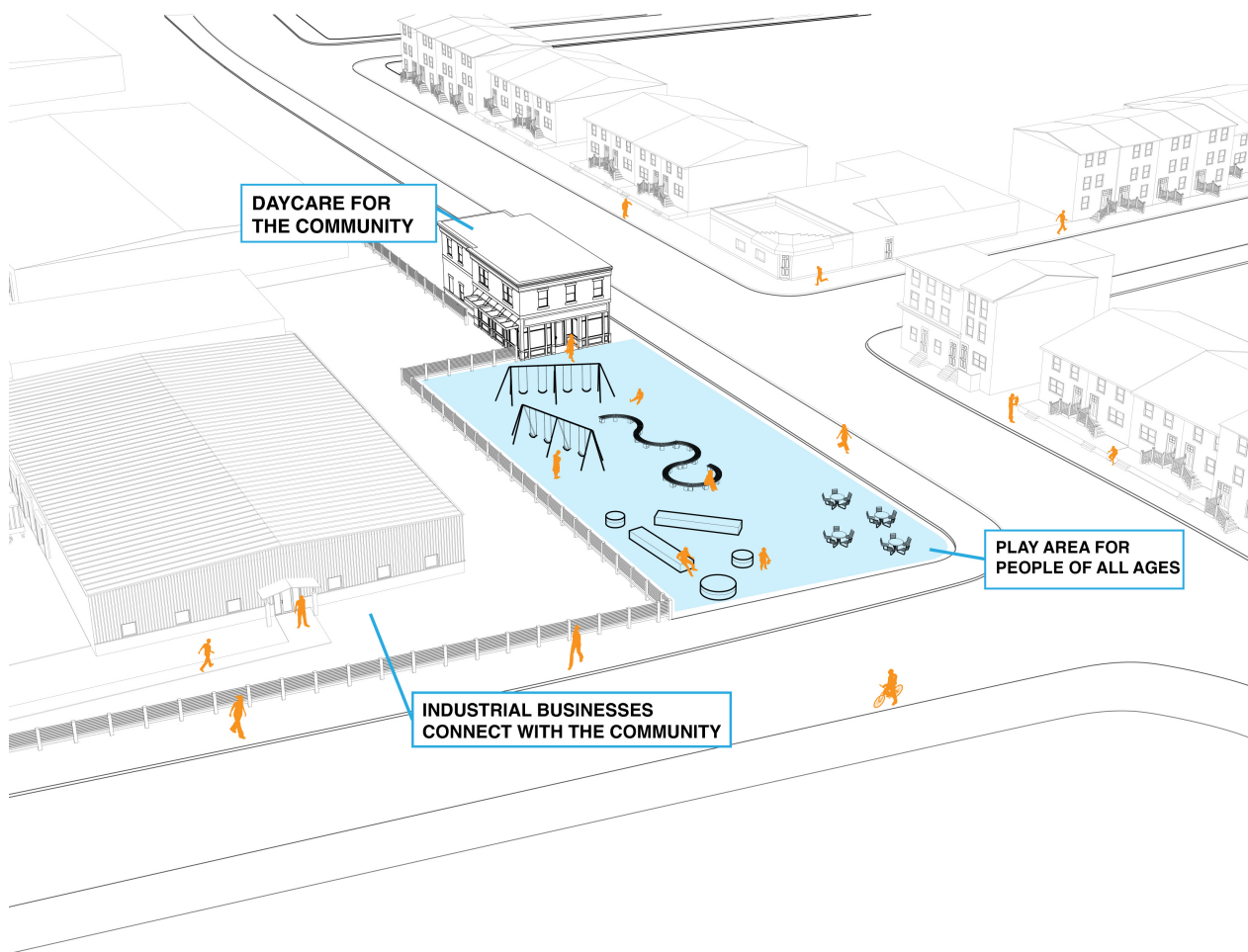


Figure 9. N. Clinton Community Connections concept, Trenton. Image by Center for Urban Industry and Vertical Urban Factory.

Productive walks have proven a valuable way to introduce communities to local manufacturing spaces, as seen in a project in Long Island City called Connecting the Arts, where light manufacturers and artists learn about each other's practices and works and then began collaborations (Design Trust for Public Space, 2006). Making work visible to the public involves removing barriers and creating new relationships. For example, in Long Island City, a company that makes high-tech electrical and metal work is providing machines and space for a recycling center to make metal containers, and they invite artists into the workshops to do metal welding for their own projects, like an artist-in-factory residency. On the business side, the CUI has also organized business-to-business-to community tours with Developer Days to bring potential building owners to see the abandoned industrial sites and meet public officials in charge of them. The CUI has held entrepreneurs' roundtables to discuss together ways to assist start-up businesses in mentorship programs that will lead to larger Entrepreneur Days. These examples demonstrate how essential it is to be engaged in communities, as company owners and local residents can create a symbiosis not only between the physical production environments but also through social spaces and community engagement for an economically sustainable urban mix (Table 1).

Table 1. Chart showing the three main hybrid projects and their variations for an affordable mix.

	Project name	Massing of project	Square ft	Reuse or new	Mix	Management type	Zoning type	Rent type	Common space
	The Bridge, Brooklyn	two volumes on podium vertical	180,000	new	housing community space light industry	mission-driven non-profit housing nonprofit production storefront commercial	R6 (residential of up to 6 stories) to a M1-4 (R6A and R7A) as a new Special Mixed-Use District (MX-19) in a Mandatory Inclusionary Housing area	affordable supportive some market	four shared common rooms lobby and entry garden courtyard
	Makerhoods, Newark	I-shaped volumes around courtyard vertical	65,000	new and reuse	housing community space artisanal	mission-driven housing company private artisanal for-profit office spaces	early use of existing zoning code MX2	affordable subsidized some market	courtyard logistics-events lobby cafe
	Willow Street, Trenton	scattered volumes low-rise vertical	20,000	reuse	house community space light industry	private but mission-driven private house private shared space possible non-profit common	RH1- High-Density Residential change to mixed use	market some grants	shared workspace future common workspace

5. Conclusion

As city agencies recognize new needs for flexibility in building and zoning codes that allow for a mix of local artisanal and small-scale producers with commercial, residential, and community uses in hybrid spaces there is an innovative opportunity to restitch the urban fabric and build more vibrant communities as seen in case studies around the world (Becker & Friedman, 2020; Grodach & Martin, 2025; Ryckewaert et al., 2021; Wolf-Powers, 2005). The mixes provide a dynamic intermingling of people with different skill levels and interests during times of economic uncertainty (Grodach & Guerra-Tao, 2023). With the aforementioned potentials for establishing new layers of zoning codes on top of the existing ones, a mix of artisan and maker uses can contribute to increased light industry in cities. Key components that allow this to occur are both social—interest in production visibility and linking the community with residents—and physical—hybrid massing through programs at the building and site scale.

Perhaps it will be seen, as from these examples, that the overlays for land use, while not the building-by-building evaluations of earlier performance zoning, will be the method to reestablish these production uses into the city, combining the ideas of the Brussels planners with those of the Brooklyn and New Jersey projects described here. While physical and financial analysis is still needed, and more dialogue between business owners, city planning, and economic development agencies is required, it is evident that connecting communities becomes essential. Through my re-evaluation of the regulatory land-use and building standards affecting organic change on the ground, I am optimistic about the potential for new codes to measure and determine where light manufacturing can safely and compatibly be located in mixed-use buildings and urban blocks. As discovered through this on-going analysis, local agencies require increased support and creative visioning of potential solutions. If new combinations of uses can occupy the finer grain of cities in hybrid paradigms, the multiplicities of programs and spaces will inspire urban policies to support social and economic equity with resiliency for more dynamic cities.

Conflict of Interests

The author declares no conflict of interests.

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