ABSTRACT

NEIGHBORHOOD REBUILDING CENTERS: IMAGINING A MORE COOPERATIVE FUTURE FOR URBAN RUST BELT NEIGHBORHOODS

by Kathryn Anice Ervin

Cohousing and coliving are two housing forms that aim to address loneliness and encourage better social connection through shared common spaces and intentional community design. These housing concepts have not yet taken root in one setting with great need for improved social connection: the urban neighborhoods of post-industrial cities in the United States. This architectural thesis project examines the history of collective self-organized housing movements through case studies in Modernist *existenz minimum,* Danish *bofellesskap*, Rust Belt mutual housing, American cohousing, German *baugruppen*, global coliving, and Swiss real estate cooperatives. A master plan for a city block adjacent to downtown Dayton, Ohio proposes two cohousing clusters connected to a neighborhood-scale community center with attached coliving units. The design addresses the loss of recreational amenities in struggling urban centers by opening the cohousing common house as a center for the broader community, along with integrated workspaces, workshops, and studios that reflect the changing nature of work in this region. By imagining a development vision that fulfills an untapped desire for greater community connectedness without sacrificing private space, Rust Belt cities can leverage their plentiful land and lead the way in shaping a new ideal to which Americans can aspire.

KEYWORDS: community centers, cooperatives, collective self-organized (CSO) housing, cohousing, coliving, design of shared amenities, multi-family housing design, Rust Belt, Middle West, Dayton, Ohio

NEIGHBORHOOD REBUILDING CENTERS: IMAGINING A MORE COOPERATIVE FUTURE FOR URBAN RUST BELT NEIGHBORHOODS

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Kathryn Anice Ervin

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Advisor: Jeff Kruth

Reader: Gerardo Brown-Manrique

Reader: Gulen Cevik

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Kathryn Anice Ervin

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Jeffrey T. Kruth
Jeff Kruth

Gerardo Brown-Manrique

Gulen Cevik

Table of Contents

LIST OF FIGURES

DEDICATION

This thesis is dedicated to the friends, colleagues, and residents of both Dayton and Lancaster, Ohio with whom I have worked in previous community development roles. Their personal and professional experiences have been critical in informing my worldview and this work, and I hope to carry them with me into my work as a designer.

ACKNOWLEDGEMENTS

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INTRODUCTION: AN EPIDEMIC OF LONELINESS

Figure 1: An Epidemic of Loneliness; Source: Vivarium film (2020).

Figure 2: Gaming bed; Source: Bauhütte

When I began this project in the Spring of 2020, global circumstances did not point to a future flourishing of shared urban communal spaces, with many Americans fleeing apartment buildings in cities for less dense alternatives. A viral article circulating on the Internet proclaimed that "Japan Has Created The Ultimate Gaming Bed, So You Never Have To Rejoin Society Again[1]" (Figure 2), and at the time, this seemed to be the future of architecture: isolated cells allowing individuals to connect to their online life with no connection to people around them. As the pandemic slowly becomes endemic, the limits of this lifestyle have become apparent, with many examining the loneliness caused by their built environment, and related mental health outcomes that have become a nation-wide concern. Even prior to 2020, national public health officials had declared loneliness to be an epidemic with health outcomes as serious as smoking or diabetes,[2] and U.S. Surgeon General Vivek Murthy has since released a book arguing that loneliness is "a root cause and contributor to many of the epidemics sweeping the world today from alcohol and drug addiction to violence to depression and anxiety." Murthy calls for a 'moon-shot' effort to build a more connected American culture.[3]

As a city planner and nonprofit community development manager in my hometown of Dayton, Ohio, the challenges of working within a post-industrial, 'rust belt' context were often overwhelming. Like America's other so-called 'legacy' cities, Dayton's economy suffered greatly as the processes of globalization moved manufacturing jobs overseas. Many of the residents now live in substandard, aging rental housing with little sense of control over their circumstances. The ability to organize for any kind of collective action is often hampered by residents' outright fear of getting to know each other; challenging work and home lives make involvement that much harder. Many urban families had migrated from areas with very deeply

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[1] OddityMall website, accessed May 3, 2022, https://odditymall.com/ultimate-gaming-bed

[2] Mattie Quinn, "Loneliness May Be a Bigger Public Health Threat Than Smoking or Obesity," *Governing Magazine*, May 2018.

[3] Vivek Murthy, *Together: The Healing Power of Human Connection in a Sometimes Lonely World.* First edition. Harper Wave, an imprint of HarperCollins, 2020.

woven social fabric in Appalachia and the Deep South and found their new northern home alienating and isolating. People with greater wealth fled to the suburbs long ago and left lower-income city residents in concentrated poverty to pay for the government services that once supported a much larger population. These taxes also funded and maintained an extensive infrastructure that, along with center-city institutional assets, would be wasteful to simply discard as the population continues to sprawl.

Meanwhile, ever since my undergraduate experience in western Massachusetts, I had been fascinated by new communities cropping up in that state as well as other primarily coastal, progressively minded and highly educated areas. Inspired by Danish 'living communities' or *bofellesskab,* these new American cohousing communities struck me as everything my suburban childhood was lacking, and, later in life, as a living arrangement that could benefit the disconnected urban communities in which I had worked professionally. Cohousing communities are intentionally designed to balance a sense of privacy and community, with extensive common space in addition to fully autonomous but smaller individual homes (Figure 3). In the United States until recently, cohousing has mostly taken the form of low-density suburban clustered housing. Despite some theoretical cost savings due to increased resource sharing, American cohousing is typically no more affordable than other market rate housing.

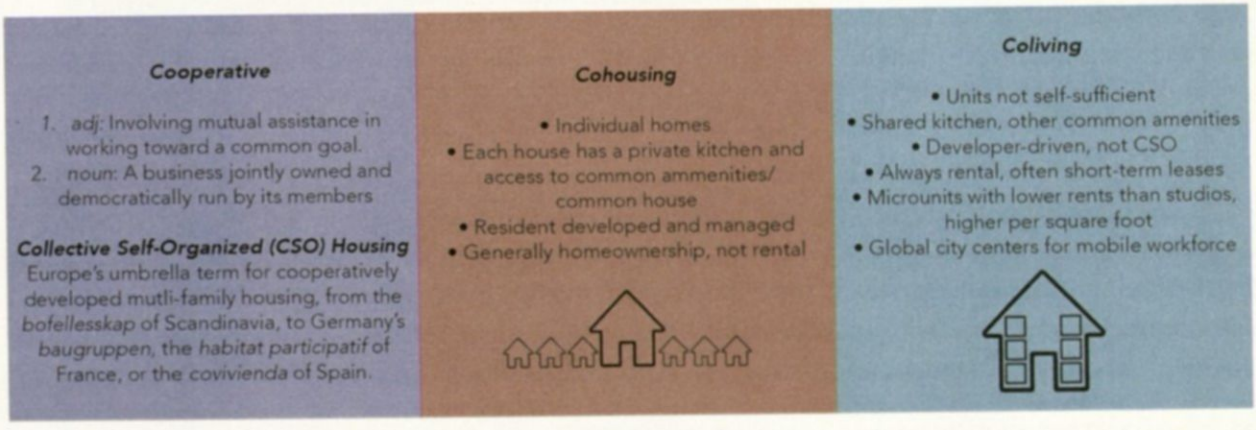

Figure 3: Key Terms; Source: created by author.

This project is my attempt to synthesize these two disparate worlds, to understand how cooperative neighborhoods developed under very different socioeconomic conditions might translate into developments that can help stabilize inner city residential neighborhoods in struggling areas like my own. My particular geographic interest is in designing for residential neighborhoods at the edge of downtowns - at a walkable middle density often lacking in American cities, which quickly transition from towers in Central Business Districts to single-family homes in exclusively residential zoned neighborhoods. I will also explore different development and ownership models and how they may impact the design strategies for commoning. Although housing affordability is an obvious need in legacy cities, my aim is to design diverse communities that can appeal to a wide mixture of incomes within one block. This paper will explore not only Scandinavian-inspired cohousing and an American experiment with affordability, but also look at architectural commoning more broadly, from early Modernist

experiments in commoned social housing, to industrial labor mutual home communities, to new coliving designs for the global corporate workforce.

The importance of increasing our culture's connection extends beyond the personal into the political. In a time of increasing support for authoritarianism, we must be reminded that a thriving democracy begins at the most local of levels. As Hannah Arendt warned in the 1950's: "What prepares men for totalitarian domination in the non-totalitarian world is the fact that loneliness, once a borderline experience usually suffered in certain marginal social conditions like old age, has become an everyday experience of the ever-growing masses of our century."[4]

METHODOLOGY

A review of existing literature related to collective and commoned housing was essential to understanding the breadth and history of the subject. The book *Together! The New Architecture of the Collective* published in conjunction with the 2017 Vitra Design Museum's exhibit showcased the broad range of collective housing developments occurring recently around the world, along with a thorough survey of historical precedents. Susanne Schmid's *A History of Collective Living: Forms of Shared Housing* is a thorough history on the subject, with 324 pages of collective housing typology history and case studies, each with detailed plans and photographs. Kathryn McCamant and Charles Durrett's 1988 *Cohousing: A Contemporary Approach to Housing Ourselves* inventoried Danish cohousing and distilled it into principles that would serve as the basis for many of the American communities that followed, many of which their firm designed. The German published *CoHousing Inclusive: Self-Organized, Community-Led Housing for All* showcases recent European attempts to open cohousing to a broader spectrum of diverse residents. Key to my understanding of the political imperatives of common space was an article by geographer Paul Chatterton "Building Transitions to Post-Capitalist Urban Commons" as well as E-flux Architecture's "Promised Land: Housing from Commodification to Cooperation." Due to the timing of my research with the COVID-19 pandemic, I had to rely largely on books and articles available digitally, as physical libraries shut down early in my process. After surveying the landscape of collective housing, several useful models emerged to form the basis of case study selection. I've chosen to examine not only Scandinavian and American cohousing, and the denser German *baugruppen* and Swiss *genossenschaft*, but also look at mutual home communities for industrial workers, earlier European Modernist experiments in collective living, along with the new growth industry of collective living dubbed coliving.

A considerable amount of time was spent combing through the individual websites of existing cohousing communities and coliving developments. The American directory of communities can be accessed through the Cohousing Association of the US's website[5]. This enabled me to

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[4] Samantha Rose Hill, "For Hannah Arendt, Totalitarianism is Rooted in Loneliness | Aeon Essays." Aeon. Last modified 16, 2020. https://aeon.co/essays/for-hannah-arendt-totalitarianism-is-rooted-in-loneliness.

[5] Cohousing Association of the US, "Directory," accessed May 3, 2022, https://www.cohousing.org/directory/

Figure 4: A compilation of common house designs; Source: Compiled by author

inventory plans and other architectural resources to inform my design, such as the compilation board of all the common house plans I could find (Figure 4).

Some of the most thorough recent research in the field of coliving has been conducted by SPACE 10, the research arm of IKEA, the Swedish-based multinational furniture conglomerate.[6] Their "One Shared House, 2030" surveyed thousands of consumers around the globe about their willingness to share residential space and the factors that would affect it. The online tool allows users to filter results by country, age group, gender, and life situation. SPACE10 also partnered with EFFEKT Architects to release "The Urban Village Project" in 2019, a fully-developed vision for collaborative living in the future, complete with an IKEA kit-of-parts for constructing new coliving arrangements.[7]

In the Spring of 2021, I attended a five-session online workshop led by Charles Durrett of The Cohousing Company, who, along with his partner Kathryn McCamant, sparked the US cohousing movement with the publication of their 1988 book *Cohousing: A Contemporary Approach to Housing Ourselves.* The talks gave useful insight into guidelines for cohousing master planning, as well as details of construction methods and ownership models to keep units as affordable as possible.

Figure 5: "One Shared House, 2030" web tool for coliving research; Source: SPACE10

[6] SPACE10, "One Shared House 2030," accessed May 3, 2022, http://onesharedhouse2030.com/.
[7] SPACE10 and EFFEKT Architects. "The Urban Village Project" https://www.urbanvillageproject.com/

CASE STUDIES

CASE STUDY IN EARLY MODERN *EXISTENZ MINIMUM*: ISOKON FLATS AND KENSAL HOUSE

- Example of the early modernist interest in reducing units of multi-family housing to their minimum requirements in favor of common amenities
- Demonstrates the social advantages of a single-loaded corridor with exterior balcony circulation

Prior to the Industrial Revolution, much of the population of Europe lived in large household arrangements of multi-generational families and their servants and other employees.[8] The nineteenth century saw grand social experiments attempt to counter the alienation produced by new industrial labor realities, with large-scale utopian designs for communal living. By the early twentieth century, with most housing being built for nuclear families, the Modernist social agenda included housing to address the needs of others—namely singles, widows and widowers, divorcées, students, and 'urban nomads'—that did not fit the available offerings.[9] In 1929, the second congress of CIAM (International Congresses of Modern Architecture) focused on the Apartment for Subsistence Living, minimum dwelling standards for optimal human existence. One's minimalist lifestyle could be maximized by supplementing a micro-unit with shared facilities and services. Reformers of women's conditions at the time also innovated models of reducing housework through shared kitchens and staff.

Figure 6: Isokon Flats; Source: Getty Images

In London, the Isokon (a.k.a. Lawn Road) Flats, designed by Canadian engineer Wells Coates, came to be one of the more celebrated examples of both the minimum dwelling (*existenz minimum*) and centralized-services rationale for collectivized living. Although these motivations were not as directly about social community building as later collective projects, the socialite owners took great care to curate the tenants of the thirty-two small units so that it was a social hub for London's intelligentsia, from Walter Gropius and Marcel Breuer to Agatha Christie to numerous Russian spies.[10] The center of the action was the famed 'Isobar' and restaurant, with

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[8] Susanne Schmid, Dietmar Eberle, and Margrit Hugentobler, *A History of Collective Living: Forms of Shared Housing*. (Basel: Birkhäuser Verlag, 2019), 19.

[9] Schmid, *A History of Collective Living*, 56.

[10] Anna Dorothea Ker, "The Secret History Of London's Isokon Building," *IGNANT*, December 18, 2018, https://www.ignant.com/2016/04/04/the-secret-history-of-londons-isokon-building/.

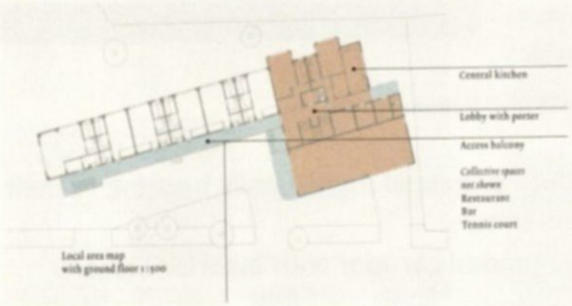

Figure 7: Isokon Plan; Source: Susanne Schmid

an elite supper club for residents and their guests. The Isobar's kitchen was not only for dining in the restaurant, it was also the central kitchen for the room service, meant to be a primary meal source for the residents, as their units only had small kitchenettes. Other services from cleaning to shoe shine was available from the shared staff–"everything done for you," as the advertising said. These units were arranged along a single access balcony in reinforced site-cast concrete, forming dramatic horizontal bands, and creating a sense of shared outdoor space—a feature that is just now being used in higher density cohousing.

The current director of the Isokon Gallery explains why Isokon was so radical for its time: "Britain was architecturally very conservative at the time, and the few architects building in the Modernist style were mainly immigrants. Most had been building private, exclusive villas for rich industrialists in a style close to Le Corbusier, so a block of flats with communal service elements like cooking and cleaning was radical. But it was not a working-class building – it was aimed at intellectual, working middle class people." Although designed for the intellectual elite, Isokon would in turn inspire future social housing for lower-income residents, such as London's first modernist social housing estate, Kensal House. Built in 1937 by Marcel Fry, this "urban village," contained sixty-eight two- to three-bedroom units, each with balconies and access to a huge range of common facilities—"workshops, a communal laundry, nursery, community center, allotments, clubroom and canteen facilities"—as well as regular clubs and classes.[11] Perhaps most radical was that this low-income housing was self-managed as a collective of its residents.

CASE STUDY IN SCANDINAVIAN COHOUSING: JYSTRUP SAVVAERK

- Classic Danish cohousing village in low-density rural setting
- Passive solar glazed pedestrian street with common house at vertex

The earliest Scandinavian cohousing also had its roots in 1930s Modernism. It began not as search for neighborly community, but in an early Swedish feminist search for freedom from household labor.[12] The first *kollectivhaus* were mid-rise buildings not unlike Isokon, where modern amenities such as the food lifts from centralized kitchens as well as full household staff employed amongst all residents would provide the progressive middle-class intellectual families

[11] Matthew Stewart, "The Collective Is Not a New Way of Living – It's an Old One, Commodified," accessed May 3, 2022, *https://failedarchitecture.com/the-collective-is-not-a-new-way-of-living-its-an-old-one-commodified/*.

[12] Dick Urban Vestbro. "Cohousing in Sweden, history and present situation." Stockholm: Royal Institute of Technology & Kollektivhus NU, 2014.

living there complete freedom from housework. In the 1970s, as more experiments in communal living and elsewhere flourished, a "self-work" attitude developed, and all (men and women) were expected to contribute to the work of a household and community.

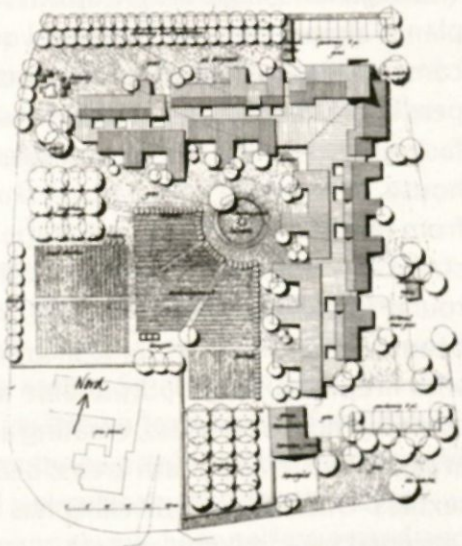

Figure 8: Site Plan of Jystruup Savvaerk; Source: Vandkusten Architects

In Denmark, these changing lifestyles led to a reinvention of neighborhood form, with a lower-density approach of fully sufficient private townhouses clustered among shared common greenspace and extensive common facilities. These neighborhoods came to be known as *bofoelleskab*, which translate to 'living communities' or cohousing. Generally located in a single centralized 'common house,' the common facilities may include a kitchen and dining hall—for optional evening meals with neighbors—children's playrooms, workshops, guest rooms and laundry facilities. [13] Every aspect of a community's design is intended to enhance both social interaction and a household's need for privacy.

In documenting the sixty-seven communities that existed in Denmark at the time of her research in 1988, architect Kathryn McCamant identified several key principles shared by the communities.[14] Unlike some communes and other forms of intentional communities, cohousing has no centralized figure of authority, with a non-hierarchical structure and consensus decision making. There is no communal economy; residents find their sources of income elsewhere. There must be a participatory process in the development of the community to tailor the design to actual residents' needs—a community entirely created by a developer may be "cohousing-like" but it is not true cohousing. The physical design must be intentional about creating a sense of community through architectural form, allowing plenty of opportunities for social interaction, especially through the common facilities, another key requirement of cohousing. Finally, to be considered cohousing under the Danish definition, the community must be self-managed by its residents, with policies and governance coordinated by its members, who share in the ongoing maintenance and actively participate in the life of the neighborhood.

Figure 10: Interior of Jystrup Savvaerk; Source: Vandkunsten Architects

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[13] Kathryn McCamant, Charles Durrett, and Ellen Hertzman. *Cohousing : A Contemporary Approach to Housing Ourselves.* 2nd ed. / with Ellen Hertzman. (Berkeley: Ten Speed Press, 1994).

[14] McCamant, *Cohousing,* 35-49.

The organizing logic of Jystrup Savvaerk's site plan is almost identical to several other Danish communities in that it features two perpendicular pedestrian streets with rowhouses facing inward, intersecting at a larger common house. What makes this *bofoelleskab* different from all but a few others is that the pedestrian streets are enclosed in glass, providing year-round sociability between homes, and creating beautiful opportunities for lush greenhouse courtyards, children's play areas, and seating areas with fireplaces. Bright purple-blue accent walls contrast with ubiquitous plants. The walls to the common house are glass, creating a continuum of social spaces that lead into a fireplace social area; childcare and youth areas; billiard room, and separate workshops for wood, metals, and textiles. Outside, each dwelling has a recessed lawn area that serves as a semi-private patio. Designed by Vandkunsten Architects in 1984, the exterior combines traditional Scandinavian steep-pitched forms and black-stained wood with modern glass, steel, and corrugated roofing/sheathing.

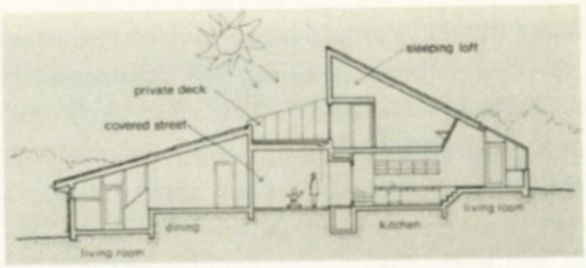

Figure 9: Section of Jystrup Savvaerk; Source: Vandkunsten Architects

The interiors of private homes were carefully considered in section, with lofts maximizing space in the high ceilings of the outer units. The one- to three-bedroom units range from 680 to 1,045 square feet. There are two "supplemental rooms" adjacent to the pedestrian streets that can be rented short- or long-term if a household feels they need more space.

Nightly meals are an important part of community life at Jystrup; not all communities hold meals this frequently, some only one or two nights a week. With this schedule, every adult is expected to prepare dinner one night a week, participating on seven teams of five or six cooks. A household can choose a plan of 20 or 30 dinners a month, with costs averaging a dollar per meal (in 1988).[15]

LOCAL CASE STUDY OF MUTUAL HOUSING: DAYTON'S GREENMONT VILLAGE

- Demonstrates that collective housing is not a new concept to Rust Belt communities and can be very popular

Neighborhood designs with community orientation and shared common spaces aren't entirely foreign to legacy cities; indeed, these former centers of industry were sites of innovation in how to effectively house a rapidly expanding workforce, and the mid-century union labor orientation aligned well with collective models. The Dayton region, for example, is home


Figure 11: Greenmont Village; Source: daytonology.com

[15] McCamant, *Cohousing*, 35-49.

to at least three World War II-era mutual housing communities with shared land and amenities, built to quickly accommodate a huge influx of defense factory workers.[16] Mutual Home Associations are "nonprofit, membership-controlled corporations that develop and own affordable housing for members of the corporation" that create housing "designed for families who are priced out of the homeownership market but who want greater control over their living environments."[17]

Greenmont Village is a mutual-ownership community for largely working-class residents that has been thriving at the edge of Dayton for over eighty years. Its success can be seen in its waiting list; future residents can take years to find an available house, despite not being considered the most aesthetically attractive by standard local tastes. Small boxes with aluminum siding, they aren't all that different from a typical Levittown tract home of the day, except for the noticeably absent pitched roof and the community-ownership of the land around them. These flat-roofed modest homes are arranged around a circular ring road with a large greenspace at the center with a playground. The community has always been self-governed and originally contained its own school, community meeting house, post-office, food co-op, daycare center, nondenominational church, and thirty-acres of community gardens. In considering commoned models, Greenmont Village demonstrates that the idea isn't entirely foreign and that mutually-owned communities can be quite desirable even in a Rust Belt context.

Case Study in American Cohousing and Affordability: Petaluma Avenue Homes

- Typical of US cohousing stylistically but somewhat higher density. Features clustered townhomes with central common house.
- Cautionary regarding limits of US affordable housing subsidies in cohousing.
- The same architects have built a large portion of American cohousing.

Figure 12: Petaluma Avenue Homes; Source: Schemata Workshop

The story of Petaluma Avenue Homes, the United State's first all-affordable cohousing-inspired community, is in part a cautionary tale of how federal affordable housing funding and the principles of cohousing can conflict. In form it is a typical example of the layout and architectural style that has come to dominate the approximately one-hundred seventy cohousing communities in the United States. It is described as cohousing-inspired, rather than cohousing, in that the requirements of federal funding have

[16] Renee Wilde. "Mutual Housing Experiment Still Going Strong 80 Years Later," *WYSO Public Radio Website*, Accessed May 10, 2020, https://www.wyso.org/post/mutual-housing-experiment-still-going-strong-80-years-later.

[17] Enterprise Community Partners. "Alternative Financing Models - Hybrids of Homeownership Mutual Housing," Accessed May 10, 2020.

shaped its character so much that many of the cohousing principles cannot be achieved. However it also demonstrates the promise that these principles can provide a great advantage to residents of affordable housing if policy changes allow for its potential to be actualized, or if restrictive federal funds are only a portion of a mixed-income community's path to incorporating affordability.

The Petaluma Avenue Homes project was developed by the leading American cohousing developer, McCamant and Durrett, along with affordable housing developer AHA, in response to a request for proposals by the City of San Sebastopol in northern California.[18] The physical design is typical of McCamant & Durrett's other neighborhoods: colorful row housing clustered around two green courtyards with a 3,100 square foot common house at the center. The funding mix of its forty-five affordable townhouse units included Low Income Housing Tax Credits (LIHTC), which carry strict limitations on resident selection. A key requirement of a successful cohousing community is that its residents intentionally choose to live in a community where they will know their neighbors and participate in community life. The tenants of LIHTC projects are chosen by lottery close to the time of move-in, making it impossible to know whether the residents have a genuine interest in community living. Ultimately, only a quarter of residents surveyed expressed serious interest in the cohousing concept. Future residents generally participate in the design and development of the neighborhood to tailor it perfectly to their needs and interests—with the LIHTC process developers would not know which residents would meet income certification until after the design process concluded. Furthermore, residents ultimately oversee the management and decision making in the community using non-hierarchical consensus processes—with low-income residents often working two jobs to pay their bills, this engagement has been challenging. Tax credit compliance does not allow for the self-management usually seen in cohousing, and professional property management staff lives on-site.

The experienced developers did try a range of solutions to address these issues from the start. Instead of the traditional design charrettes with future residents, they formed an advisory committee of relevant community stakeholders and potential residents. Since many of the income-qualified potential residents had never heard of the cohousing process, they held cohousing information sessions as part of the prequalification process. A community process consultant was hired to facilitate community building among new residents and train them in consensus decision-making and other leadership skills. Despite challenges, a number of civic projects, such as childcare and other service and skill sharing efforts have developed beyond what is typically seen in low-income housing.

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[18] Jerome L. Garciano, "Affordable Cohousing: Challenges and Opportunities for Supportive Relational Networks in Mixed-Income Housing," *Journal of Affordable Housing and Community Development Law* 20, no. 2 (2010): 169–92.

Figure 13: Spreefeld as seen from the River Spree; Source: ArchDaily

Figure 14: Axon of ground-level flexible work and communal spaces at Spreefeld; Source: ArchDaily

- Simple flexible construction allows for affordability and changing uses
- First floor flex and workshop spaces encourage small business
- Porous integration into urban brownfield site

Within the Berlin region alone, over one thousand cohousing-inspired communities have been developed in the last forty years[19], but the greatest momentum has been in the past two decades, following chronologically after the first Scandinavian and American communities, and along with a renaissance of Berlin's desirability as a place to live. Once known for its gritty urbanism and low rent, Berlin's collective housing benefitted from a surplus of available land, some still undeveloped since World War II, where they built much denser collective housing blocks, known as *baugruppen*. Now confronted with escalating prices that have required a government freeze on rents, Germans are innovating ways to maintain affordability that can be a model for American legacy cities.

Land along the Spreefeld River had been part of the inaccessible border with East Berlin and remained vacant until 2011, when international developers eyed it for expensive housing that would have cut off public access to the river. Local activists convinced the government to let them develop the site as a cooperative initiative to "realize diverse forms of living, working and gardening, with a foundation of publicly accessible spaces."[20]

After a lengthy group process that included the broader community, the riverfront site was developed into a block of three mid-rise towers that in total house ninety-five adults and forty-five children, with a green at the center. The key to Spreefeld's design is flexible architecture -

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19 "Projects," CoHousing: Berlin Website, Accessed May 9, 2020, https://www.cohousing-berlin.de/en.

20 Institute for Creative Sustainability, *CoHousing Inclusive: Self-Organized, Community-Led Housing for All*, (Berlin: Jovis Verlag, 2017,) 34.

its simple structural system will allow for ongoing change--walls can be easily added or removed within the column grid. Ground level features in each building include a large, double-height "Option Space" (shown in yellow in the diagram) for use by the cooperative and the public, coworking spaces, and rentable commercial studios and workshops. Youth club, laundry, and communal rooms are located on a mezzanine level. The remaining floors are divided into standard independent flats and two levels of "cluster units"—though the studio units each contain a small kitchenette and bath and often a private terrace, they also share a full kitchen, living room, bathroom, and communal terrace between the two floors.[21]

CASE STUDY IN COLIVING: THE COLLECTIVE GREAT OAK, LONDON

Figure 15: The Collective Old Oak; Source: thecollective.com

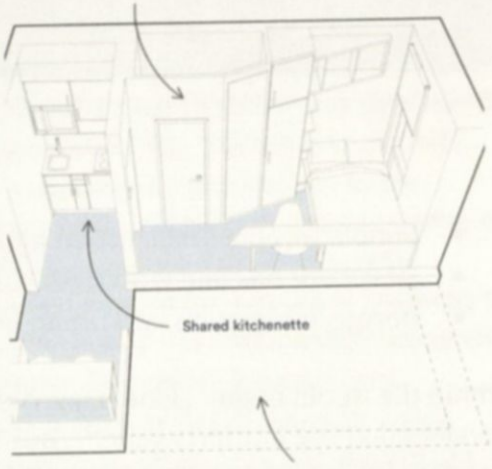

Figure 16: Coliving Microunit; Source: thecollective.com

Inspired by cohousing, but noticeably lacking some of its central principals, such as resident involvement in design and management, coliving has been quickly growing in popularity in the last decade. Coliving promises an instant sense of community to its residents, often young, mobile employees of the global corporate workforce who are not looking to put down roots. These buildings tend to exist in cities where the real estate market is pricing out all but the wealthy; renters are willing to sacrifice personal space in order to keep their rent within a moderate (but not by most estimations an "affordable") budget. Accommodations are often micro-units or even dormitory style, completely lacking in private space. Leading the movement are a handful of lifestyle brands with multiple locations and property assets in the billions, perhaps most notoriously WeLive--a branch of WeWork--along with StarCity, Roam, and The Collective.

In his article "The Collective is Not a New Way of Living – It's an Old One, Commodified," Matthew Stewart compares one of these properties to the Isokon Flats and Kensal House. "Sold

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[21] Daniel Sanchez. "Coop Housing at River Spreefeld / Carpaneto Architekten Fatkoehl Architekten BARarchitekten." ArchDaily. ArchDaily, January 17, 2015. https://www.archdaily.com/587590/coop-housing-project-at-the-river-spreefeld-carpaneto-architekten-fatkoehl-architekten-bararchitekten.

to Generation Yers as "curated communities", London's The Collective Old Oak is a pricey copy of 1930s modernist projects, stripped of their social agendas."[22]

Stewart also critiques the banality of Old Oak's architecture, two large horizontal boxes with narrow vertical windows intersecting each other, one hovering over an expansive glass lobby and its end propped up by massive angled columns as an entry feature. A survey of other coliving properties shows many similar cost-efficient large boxes, where the emphasis is placed on trendy interior design accents in the common spaces. Residential floors contain a dark, double-loaded corridor flanked by the tiniest of tiny homes, 546 micro-apartments, each smaller than many suburban closets. With the arrival of COVID-19, one can only imagine the challenges of social distancing within this housing arrangement.

CASE STUDY IN COOPERATIVE COMPLEXITY: ZURICH'S KALKBREITE COOPERATIVE

Figure 17: Aerial view of Kalkbreite; Source: GoogleEarth

- Perimeter block with raised communal courtyard
- Complexity of organization, program, and unit types: 1900 members, several unit types

In the context of one of the most expensive cities on Earth—Zurich, Switzerland—cooperative building groups are becoming a commonplace tool for promoting housing affordability. The Kalkbreite Cooperative stands out among them for the sheer ambition of scale, as well as the complexity of its governing organization and program. The Kalkbreite Cooperative, consisting of over 1,900 members throughout Zurich, was created by concerned citizens who wanted to redevelop a neglected rail yard in the heart of Zurich. [23] Anyone—not just the residents of the building's ninety-seven units—can apply to become a member of the cooperative by paying for a membership. The extensive participatory process resulted in unit types that meet every possible need: individual units designed for one person, two people, single parents or two parents, flat shares, flat shares for those with children, studios, and those connected to the 'large household'—a cohousing cluster. The program includes not only residential units, but a wide variety of commercial spaces on the street level—including a bar, cinema, restaurants, even a candy shop—and professional offices above. Because the perimeter block is built over a train yard, the 'roof' of the train level becomes the floor of an outdoor communal level between the perimeter spaces. The cooperative has since gone on to build another development called the Zollhaus.

[22] Stewart, "The Collective Is Not a New Way of Living."

[23] Kalkbreite Cooperative, "About Us," accessed May 3, 2022, https://www.kalkbreite.net/en/about-us/.

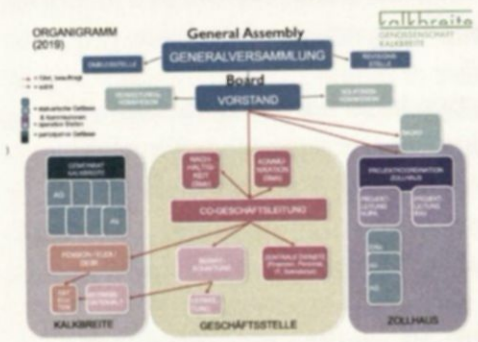


Figure 18: The complicated org chart of Kalkbreite; Source: Kalkbreite website, translated by author

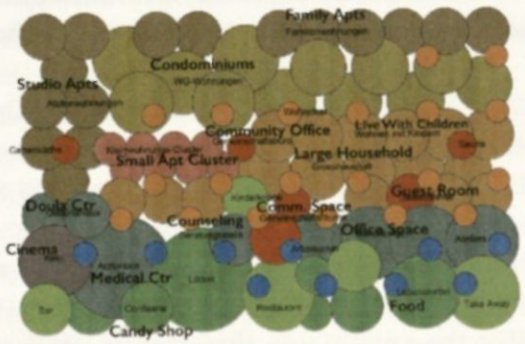


Figure 19: The complicated program of Kalkbreite; Source: Kalkbreite website, translated by author

DISCUSSION OF FINDINGS

At the outset of my research, a fundamental question was whether the physical forms of collective neighborhoods—the common spaces and design qualities that encourage interaction and help build community—could be recreated by traditional developers to expand the reach more broadly in the American landscape. Some of the principles of cohousing are incredibly cumbersome and require leadership and group participation skills that many Americans lack. At present, there are fewer than one-hundred seventy cohousing communities in the United States,[24] and I questioned whether these principles were too restrictive to be practical on a larger scale.

As I read the stories of residents of collective living, however, they repeatedly echoed the same thought—that community ownership/management is *the* essential quality that makes a place a real community. In Germany in particular, the self-organizing nature of the *baugruppen* is highlighted as what makes them unique in a global landscape of increasing economic inequality, skyrocketing rents, and developers maximizing profit at all costs. Many parts of Europe seem to be making progress in realizing the affordability potential of shared living, with governments playing an important support role. Here in the United States government funding can carry such restrictive rules that communities must be creative in their search for affordability or else work to change the rules. Lessons from Germany also stress the need for architects to keep their designs simple and flexible to maximize affordability, creating a basic, quality structure that can be modified by lower income residents as funding allows and as needs for space change.

Alternative ownership models may hold some potential to cut the profit-seeking developer out of the process and allow future residents to organize effectively as their own developers. Community Land Trusts—in which a nonprofit permanently owns the land and leases it to the owners of the homes built on it—have been pioneered in strong-market cities with serious gentrification pressure, but may also serve a purpose in weak-market collective housing. Other

[24] The Cohousing Association of the US, "Directory," http://www.cohousing.org/directory

communities, such as Minneapolis, have grown tired of waiting for private developers to take interest in their areas and have formed Community Real Estate Investment Trusts, with neighborhood residents investing their own money to renovate existing structures or provide new needed amenities, to replace traditional Real Estate Investment Trusts. These Community REITs may serve a similar purpose to Europe's cooperative models.

Community nonprofits acting as their own developers of collective housing may increase the need for architects to act as development facilitators beyond their normal design roles, as some professional development experience beyond that of community volunteers is generally necessary. This participatory mode of design and development also requires architecture firms to employ designers with advanced group facilitation skills who are able to work in diverse contexts. Currently a handful of small American design and development firms fill this niche role.

My broad review of collective housing models over the past century shows that the motivations for sharing space are infinitely varied—people may choose to live together for a mixture of economic, political, or social reasons. This wide variation has resulted in endless differences in physical design, and there is no one right one-size-fits all answer for any housing model. The best solutions are authentic to a local community in a specific area, with their participation in the design and continued involvement in the management of their collective home.

Findings regarding cohousing and coliving demographics explain who is currently living in these communities and reveal potential areas for growth. A study by Robert Boyer and Suzanne Leland showed that in a 2012 nationwide congressional survey, cohousing residents were seventy-two percent female, and were much older, whiter, wealthier, more highly educated, and more likely to be divorced compared to the average American (Figure 13).[25] Only one-percent were Republican. The survey also revealed that 26 percent of respondents had an interest in living in cohousing, and those respondents did not necessarily align with the demographics of those living in communities at the time. Widows and low-income people were especially interested but under-represented.

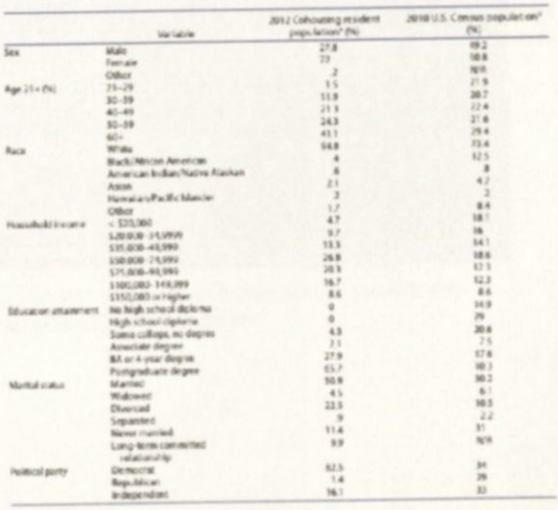


Figure 20: Cohousing demographics in 2012; Source: Boyer and Leland

[25] Robert H. W. Boyer & Suzanne Leland (2018) Cohousing For Whom? Survey Evidence to Support the Diffusion of Socially and Spatially Integrated Housing in the United States, Housing Policy Debate, 28:5, 653-667, DOI: 10.1080/10511482.2018.1424724

While cohousing neighborhoods are resident-developed and therefore data are fairly scarce, data regarding the growing coliving sector are detailed in numerous recent real estate-industry investor reports, largely due to the fact that developers are seeing much higher rents per-square-foot, even when the costs of common amenities are considered (Figure 17).[26] The lower square footage generally translates to lower overall rents for the residents as well, and I speculate that lower coliving rents could generate profit for a larger cooperatively-owned community that might offset affordability issues of cohousing units. Prior to the pandemic, the coliving sector was seeing a tremendous potential for growth, with less than eight-thousand current beds in existence but at least another 54,000 in the development pipeline (Figure 18).

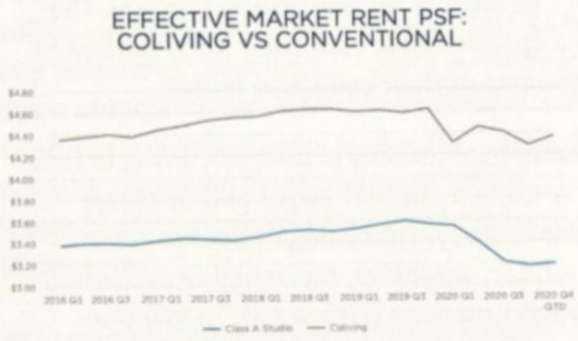


Figure 21: Rent PSF Coliving vs. Conventional; Source: Cushman & Wakefield

Figure 22: Map of Coliving and Numbers of Beds; Source: Cushman & Wakefield

[26] Cushman & Wakefield RE Services, "Coliving During Covid-19: How Communal Living Has Adapted to the New Normal," published November 2020, accessed May 3, 2022. https://www.cushmanwakefield.com/en/insights/covid-19/coliving-during-covid-19

SITE ANALYSIS

Figure 22: Typical housing adjacent to site; Source: Author

SITE HISTORY

Figure 23: Old River Park, an example of the lost recreation around site; Source: Dayton History

Figure 24: Economically diverse housing for local factory workers; Source: Dayton History and Author

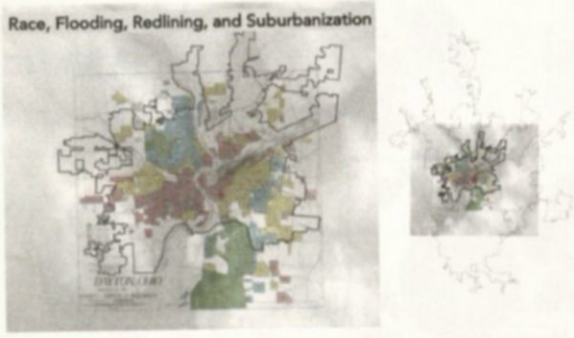


Figure 25: Race, Flooding, & Suburbanization; Source: maps layered by author

Figure 26: Sanborn map of area in 1887; Source: Sanborn map (Library of Congress) edited by Author

SITE ANALYSIS DRAWINGS

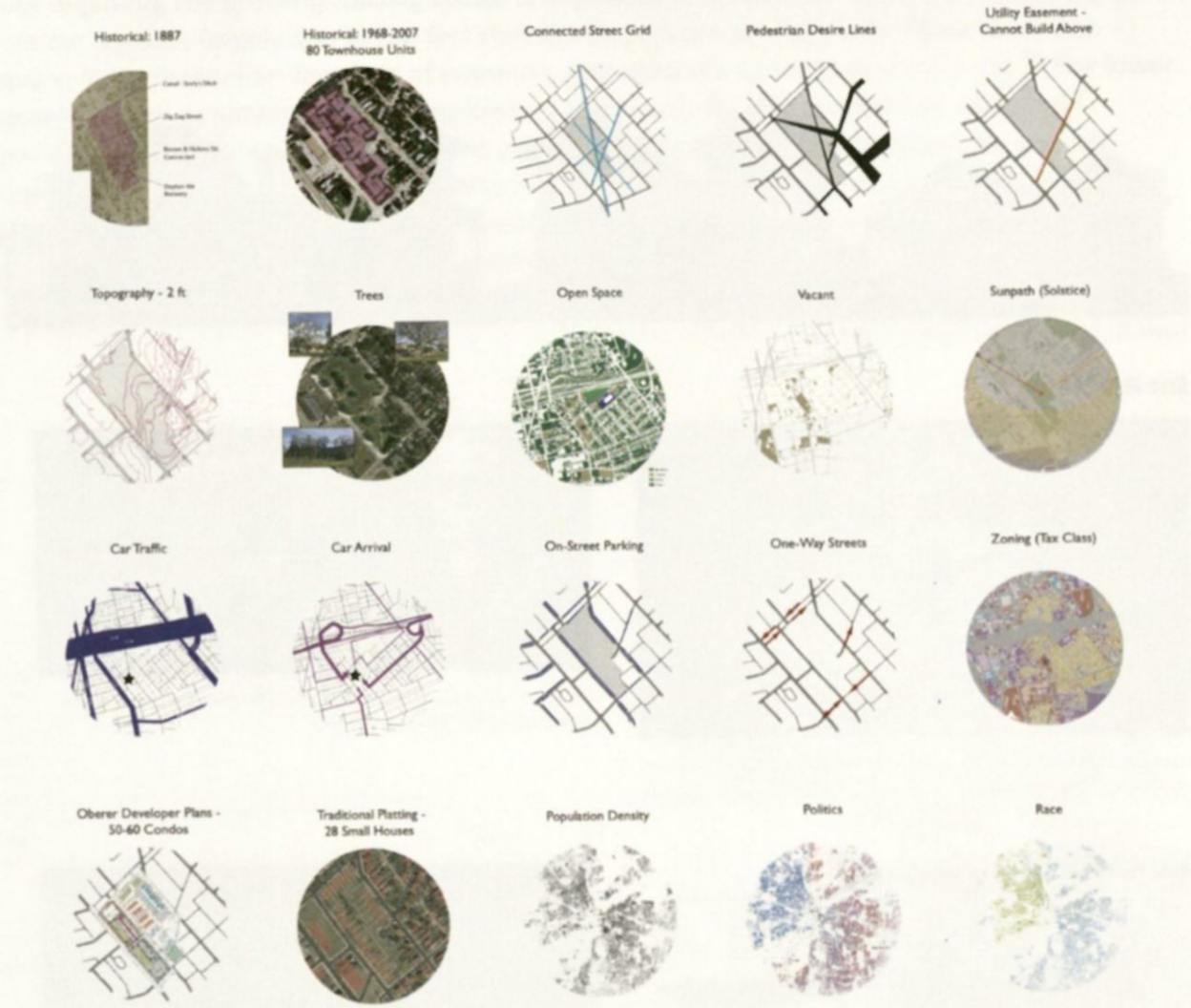


Figure 27: Site Analysis Drawings; Source: GIS maps prepared by author

COMPARING SITE SIZE TO PRECEDENTS

To better understand the scale of building that could fit on a 4.5 acre site, I traced the footprints of nine varied precedents and transposed them onto a GIS map of my site (Figure 23). The results showed this site to be ideal for my goals, with most precedents fitting comfortably within its limits.

Figure 28: Precedent size mapped to site; Source: GIS maps created by author

DESIGN PROCESS

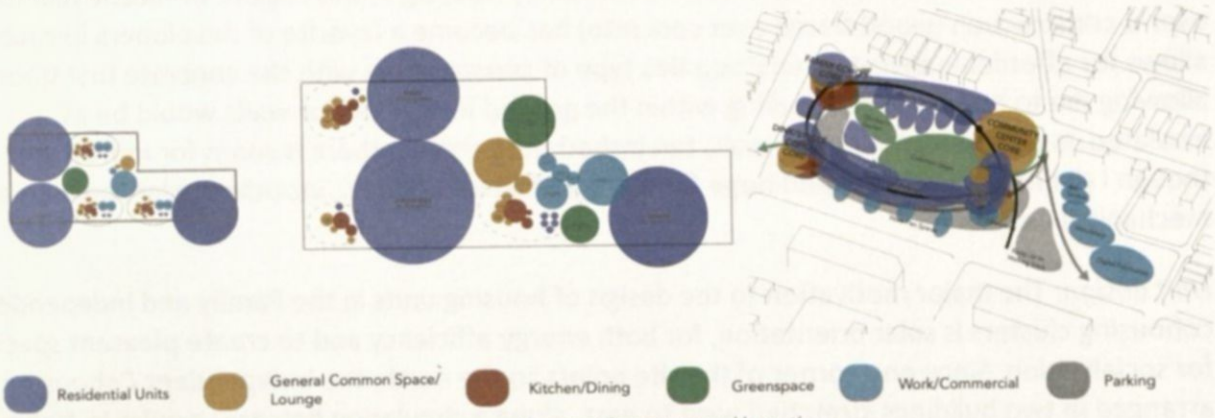


Figure 29: Program scale bubble diagrams and three-dimensional layering; Source: created by author.

Program Design: After reviewing plans and other architectural drawings from American cohousing communities, I determined approximate sizes for a program that would place three cohousing clusters on the site (Figure 24, left). I approximated the size and number of clusters using the rule of thumb described by Charles Durrett: that cohousing communities must be limited to no more than fifty adults each because above that number group decision-making

becomes unmanageable.[27] However, simply densifying the typical American cohousing neighborhood, designed for much lower density contexts, would offer little to residents of the surrounding neighborhood, and as new construction, it brings a likelihood of gentrification. Multiple cohousing clusters on one site also present an opportunity to save costs by combining amenities that could be shared by more than one cluster. I therefore presented a second drawing (Figure 24, center) showing two cohousing clusters with amenities that are essential to the function of the cluster, such as the community kitchen and dining, lounge, laundry, mailroom, guestroom, and commercial spaces for live-work units. The clusters are differentiated by their child-friendliness: a 'Family' cohousing cluster along the east of the site would feature children's play areas, and an 'Independent' cluster would serve singles, couples, and others who prefer an adults-only setting. Amenities that could be shared between cohousing and coliving units, as well as residents of the broader neighborhood, are grouped into a neighborhood community center at the southern half of the site. These amenities include recreation facilities such as gymnasium/assembly hall, a cardio and weight fitness gym, locker rooms, hot tub decks, a sauna and steam room. There is also a large indoor/outdoor dining area and kitchen that can serve both neighborhood events and provide a leasable commercial kitchen to food entrepreneurs during the day, as well as a coworking facility with leasable office space and equipment. The community center portion also includes a woodshop, fabrication workshop, and art studios at the very southern end, connected by a large climate screen yard that would enable semi-outdoor fabrication of large items. Finally, adjacent to community center are thirty-two small coliving units, each with their own bathroom but without individual kitchens. Each floor features a shared kitchen, dining, and lounges, and the first floor provides a laundry and party space. After arranging this program in plan, I created a third drawing to visually imagine how the program would be layered three-dimensionally (Figure 24, right).

Construction methods and material design: I aimed to keep construction and materials simple, efficient, and within the norms of similar multi-family housing in this region. In recent years, 5-over-1 construction (wood frame over concrete) has become a favorite of developers because it allows for affordable density. I envision this type of construction, with the concrete first floor allowing me to build covered parking within the ground level. Exterior walls would be as insulated as possible (plans show walls ten inched thick though there is room for more), and though I did not detail it, I would hope for energy efficient systems, including solar rooftops and mechanical ventilation.

Unit design: The major motivation to the design of housing units in the Family and Independent cohousing clusters is solar orientation, for both energy efficiency and to create pleasant spaces for socialization. Since one corner of the site points to the north, the Independent Cohousing is arranged in two buildings stretched west to east, along a circulation balcony, similar to Isokon Flats, however the exterior side of the hallway would be lined with glass commercial roll-up garage doors. This would allow for maximum sociability of outdoor spaces when open during the summer and solar heat gain during the winter. The units themselves would be arranged from most public—a winter garden at south between the living areas and hallways—to most

[27] Charles Durrett, discussions during "Affordable Cohousing" online workshops, Spring 2021.

private, bedrooms at north (Figure 25). Bathrooms and kitchens are arranged at center to maximize plumbing efficiency and minimize cost.

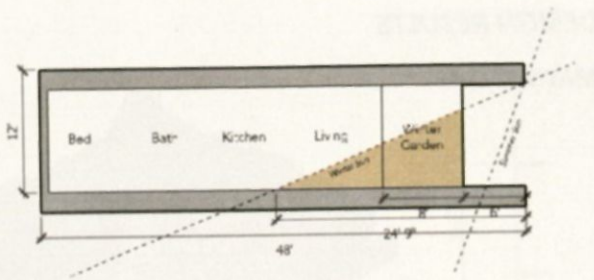


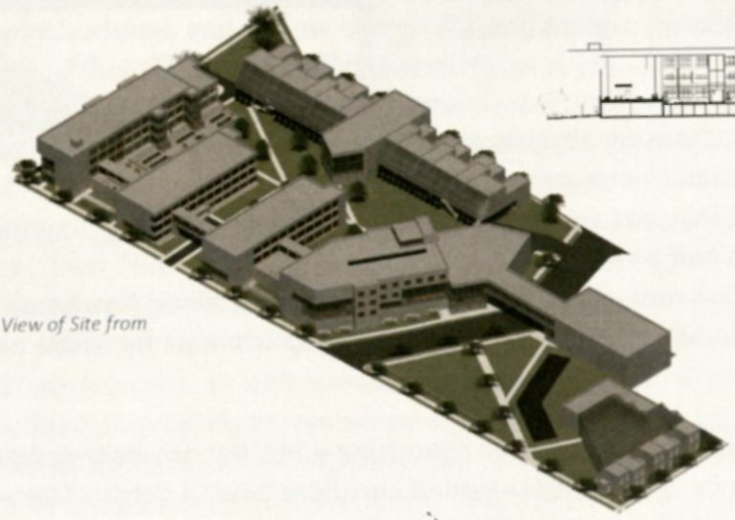
Figure 30: Solar unit design; Source: Created by author.

The design of the Family Cohousing also has a solar orientation, but through rowhouses along the east side of the site. It features an indoor playground winter-garden and a glazed pedestrian street connecting rowhouses from the interior of the block. Rowhouses alternate between two and three stories, and in between are small apartments for single parents and their children.

Coliving units are similar to the one-bedroom cohousing units, but are arranged on a double loaded corridor for efficiency. Since double-loaded corridors tend to detract from sociability, I created a light filled atrium at the center with nooks for seating.

DESIGN RESULTS

MASTER PLAN



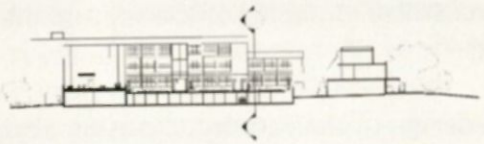


Figure 31: Transverse Site Section

Figure 32: Axonometric View of Site from South

Figure 33: Longitudinal Site Section

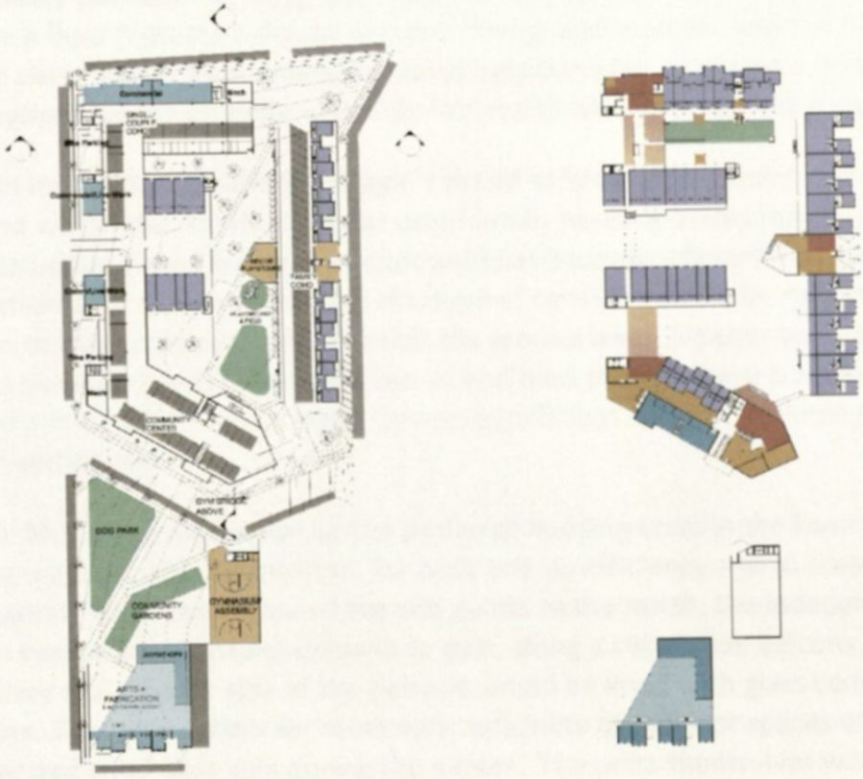


Figure 34: Ground and Second Level Plans

COMMUNITY CENTER AND COLIVING

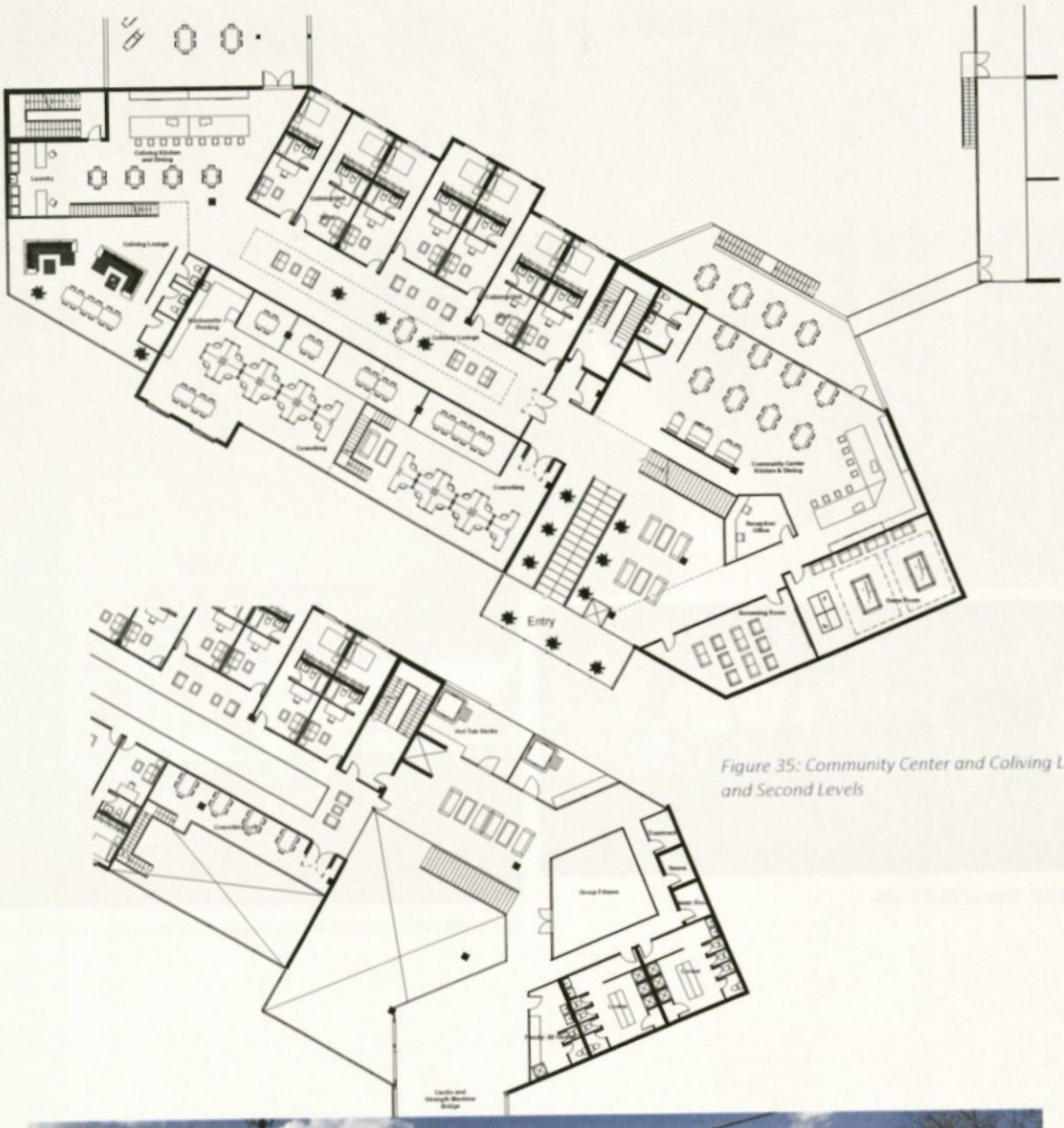


Figure 35: Community Center and Coliving Lower and Second Levels

Figure 36: View from South

Figure 37: Community Center Entry

Figure 38: View of Group Fitness and Hot Tubs

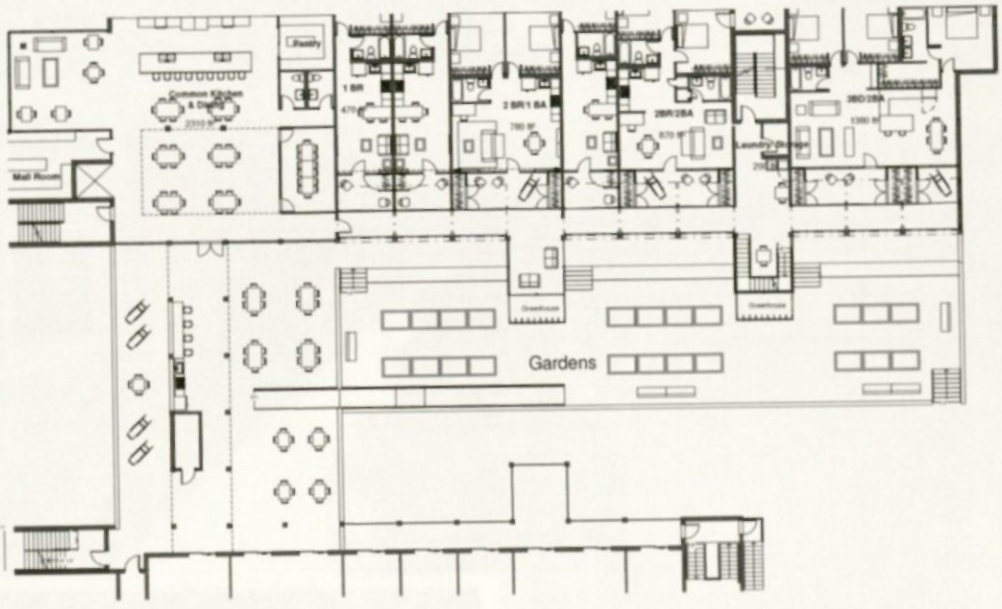
Figure 39: View of Gym Bridge

Figure 40: Father and Child Crossing from Community Center to Home

Figure 41: Party in the Coliving Lounge

Figure 42: Coliving Kitchen and Laundry

Figure 43: Coliving Hallway


Mail Room
Gardens

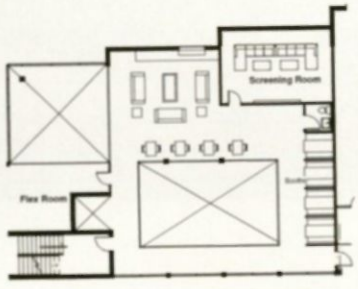

Screening Room
Flex Room

Figure 46: Entering Into Independent Cohousing

Figure 47: Looking North to Indy Coho Entry from Roof Patio

Figure 48: Looking West Along Indy Coho Gardens

Figure 49: View into 1 BR apartment

Figure 50: View Out of 2BR Apartment

REFLECTION AFTER THESIS REVIEW

The above work was presented April 27th to guest critics Patricia Kucker of Penn State, Renee Martin of the University of Cincinnati, and Terry Welker, a local chief building official, architect, and sculptor.

A primary concern was the institutional scale of some of the buildings, which was feedback received from my committee throughout the semester, and similarly whether it related well enough to its residential surroundings. I regretted showing the axonometric rendering from only its most institutionally scaled angle, with the community center facing forward. From the opposite side the scale reads differently, with neighborly rowhouses on one edge and on the other an apartment building whose façade reflects the residential façade rhythm. I did, however, aspire to a higher density, and chose the site based on its appropriate location between the central business district and single-family residential. Situating coliving within a community center feels appropriate to me given the age and lifestyle of potential residents, though Renee shared helpful ideas for separating the coliving wing by more than just a wall (a courtyard, perhaps).

Throughout the design process I was slowed down by a desire to achieve a more clustered approach to units, a form that reads as an agglomeration of individuals creating a whole, rather than large monoliths. I considered Safdie's Habitat 67, for instance, as achieving this effect. Ultimately I had to simplify my design into simple boxes with rational, straight-forward circulation due to the complexity of my program, my time constraints, and my newness to the computer software I was using. Moving forward, I would seek out more complex arrangements of units, with more moments of private refuge, and more variation in façade rhythms and heights to achieve a more human scale. The spaces between the buildings deserve further consideration to break them from large open spaces to differentiated nodes of activity.

The project became its most enjoyable and rewarding only as I ran final renders after I added people to my model. With every person added, I realized I was telling stories through their arrangement, imagining the party that could be happening in the coliving lounge; the woman sitting in her private apartment, gazing out upon two people sitting on the deck; the group enjoying the hot tub while others enjoyed dinner on the deck below. It felt a bit like a middle-aged woman playing with dolls, but it reminded me of the purpose of good placemaking.

The critics encouraged me to continue to look at the project through a developer's lens, laying a potential process for development unfolding in stages, and continuing to support this theoretical project with a sense of reality. I intend to keep refining the project with the goal of sharing it in Dayton and potentially other similar communities. I have signed up to share posters at a downtown Dayton art festival in less than three weeks as a first step to continuing this conversation.

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