Denver Low-Rise: New Domestic Forms of Collective Living is the second foundational design studio in the 3-Year M.Arch program at the University of Colorado Denver College of Architecture and Planning. The course focuses on a spatial investigation of shared domestic spaces, speculating on a new paradigm of collective housing driven by the studio's collective research on "Missing Middle" housing typologies.

Today, mid-sized and large American cities, such as Denver, Seattle, Albuquerque, Minneapolis, and Richmond, all have in common problems with housing affordability, gentrification, and homelessness. Denver, for instance, has one of the nation's worst housing shortages, with the city having a deficit of approximately 70,000 units. This housing problem is even exacerbated by the predominant single-family housing model. With less land for building houses and with soaring prices for rent and mortgages, low- and moderate-income households have been displaced, which has diminished housing equity by intensifying the existing social and racial segregation. Moreover, the insistence on the idealized single-family housing has championed the privatization of public spaces, such as swimming pools and gardens, attenuating the advantage of sharing spaces and resources among a more diverse constituency, such as child-free couples and multi-generational households. With less flexible arrangements, the current housing model fails to engage a wider variety of living demands, creating more barriers to expand the measures of affordability and collectivity celebrated by the real dwellers of contemporary cities.

Responding to these conditions, this studio asks: how could we update the existing framework of "Missing Middle" housing and create new typologies that engage the diverse constituents of growing American cities? Thinking through new technologies and cultural shifts that inspire contemporary dwelling changes, what domestic forms—such as shared living rooms, collective kitchens, and communal laundry facilities—could be updated, reinvented, and collectivized to enable a common ground?

According to Denver's new 5-year housing plan, policies have been made to suggest new paths of expanding housing options by allowing more Accessory Dwelling Units and "Missing Middle" housing development in low-rise neighborhoods and low-medium scale residential areas. While both options are economically and spatially effective, the "Missing Middle" housing offers broader social benefits, proposing shared, collective forms of architecture that bolster a sense of community and resilience with an improved ability to age in place. Through different degrees of sharing spatial and social resources, the "Missing Middle" housing establishes a common ground where the relationships between individual, collective, community, city, gender, race, and public health are socially defined.

In these ways, the projects arising from this studio speculate on reinvented types of "Missing Middle" housing schemes, fostering architectural developments for which equity, diversity, inclusion, accessibility, and quality are materially investigated. With a representational emphasis on line drawings and model photographs, the outcomes for this studio render visible the material forces that make up the new paradigm of collective housing in Denver and other American cities in the twenty-first century.
FOUNDATIONAL STUDIO LEARNING SEQUENCE

**PROJECT 01**
**PRECEDENT**
Collect materials regarding the pre-selected precedents that present qualities of “Missing Middle” Housing. Develop a series of analytical and speculative drawings, including diagrams and collages, to document and represent the aesthetic, logic, and organization of each project.

**PROJECT 02**
**RESEARCH**
Working collaboratively as a group, conduct a series of site analyses to dissect the social, environmental, and cultural layers that constitute the natural and built environment of the neighborhood. Research “Missing Middle” housing and common domestic spaces. Complete a 1/8” site model.

**PROJECT 03**
**SCHEME**
Following analysis and research, each student develops schemes that reinterpret a “Missing Middle” housing typology, and which conceive new forms of domestic living better aligned with contemporary dwelling needs. 1/8” massing models are required in response to the site.

**PROJECT 04**
**DEVELOPMENT**
The last part of the course requires students to work in pairs on a single design proposition, consisting of 8 units that are complemented by a ‘common ground,’ which integrates collective living through programs such as communal kitchens and reimagined laundry facilities. Placing an emphasis on the clarity of two- and three-dimensional representations, this assignment intends to help students develop cohesive approaches to articulate their design intentions.

**WK 01**
**DIGITAL TOOL**
Develop a series of digital-making and physical-making skills through learning different software, including Rhino and Adobe Suite.

**WK 02**
**REPRESENTATION**
Collect materials regarding a series of pre-selected precedents that present qualities of “Missing Middle” Housing. Polish the representational skills to produce drawings, diagrams, physical models that document the aesthetic, logic, and organization of each project.

**WK 03**
**RESEARCH**
Develop a series of analytical and representational skills to dissect the social, political, environmental, and cultural layers that constitute the natural and built environment of the neighborhood. How is a site represented, constructed, and manipulated?

**WK 04**
**SITE**
Develop a clear understanding of a spatial organization that composes fundamental elements to generate a cohesive idea for housing. Understand the relationship between the inside and outside, exterior and interior, public and private, etc.

**WK 05**
**ORGANIZATION**
Develop clear understanding of domestic programs related to affordable and collective housing, and establish creative and critical thoughts on defining the roles of collectivity and affordability in response to contemporary housing problems. What is the measure of affordability and collectivity in the context of the site? How could the blurring of normative boundaries between different domestic programs produce new sets of social and spatial benefits?

**WK 06**
**STRUCTURE & MATERIAL**
Develop a foundational understanding of different structural systems, such as wood framing, steel framing, and concrete framing, and explore design opportunities that integrate the project’s space, structure, form, and material, etc.

**WK 07**
**CRITICAL THINKING**
Develop a set of self-evaluation and critical thinking skills on examining their own projects and their positioning through situating the design problems amidst private and public spheres as catalysts for social change.

**WK 08**
**PROGRAM**
Develop a series of comprehensive analytical skills to dissect the themes of domesticity, architectural contemporary culture, site conditions, design methods deployed in precedents by different architects in different architectural contexts.
IMMERSIVE WORKSHOPS
“Table Manners: Housing Geostories”

Through a combination of immersive events and workshops, students got to experience first-hand the ways in which simple architectural means—such as the use of furniture, lights, and food—could radically change spaces and the outcomes of social interactions.

REPRESENTATION LECTURE SERIES
“Representing A House”

Over the course of the semester, several designers working on visual representation were invited to share their work and teach tools to produce striking architectures through varied drawing and modeling techniques.
PROJECT 01
PRECEDENT

Students worked individually to develop a comprehensive set of 2D drawings, making case study booklets as a way of sharing knowledge with others. Additionally, they developed a series of analytical and speculative drawings that distilled design methodologies.
PROJECT 01
PRECEDENT

After drawing their case studies and producing booklets, students created ‘chunk models’ that reimagined the material reality of existing works, and which reinterpreted space through furniture, partitions, and other minimally invasive techniques.
Looking at a site in Denver’s Capitol Hill neighborhood, students revealed the historical, social, environmental, geologic, and other layers that make up the city. With these studies, they speculated on programs for their ‘common grounds’ that could serve all city dwellers.
The students also collected information about "Missing Middle" housing typologies, tracking the locations of existing examples of these types across their site's neighborhood, looking at zoning restrictions, and contextualizing them in local and national policy.
Following analysis and research, each student developed several possible schemes that reinterpreted a "Missing Middle" housing typology, and which conceived new forms of domestic living better aligned with contemporary dwelling needs.
Finally, students worked in pairs on a single design proposition, consisting of **8 units that were complemented by a 'common ground,' which integrated collective living through programs such as communal kitchens, shared terraces, and reimagined laundry facilities.**
REINVENTED DOMESTIC FORMS
GROUP 1: TOWNHOUSE TYPE

This reinvented townhouse type creates gradients of public, collective, and private space, offering large recreation areas for the neighborhood, work/study areas for selected community members, shared kitchens for its residents, and private bathrooms and bedrooms.
REINVENTED DOMESTIC FORMS
GROUP 2: COTTAGE COURT TYPE

This reimagined cottage court building proposes a shared kitchen for all its residents, along with private interior courtyards, where residents can choose to interact with one another from their windows, while maintaining privacy through the precise orientation of unit walls.
REINVENTED DOMESTIC FORMS
GROUP 2: COTTAGE COURT TYPE
REINVENTED DOMESTIC FORMS
GROUP 3: COTTAGE COURT TYPE

This housing complex provides **eight residential units anchored around a central social hub**; a **laundromat** that uses a **greywater system** to sustain a **plant shop** and **food crops grown on site** as provisions for a corner café.
REINVENTED DOMESTIC FORMS
GROUP 3: COTTAGE COURT TYPE
REINVENTED DOMESTIC FORMS
GROUP 4: MULTI-PLEX TYPE

This collective student housing project elevates the traditional dormitory model through a nested design concept, where residents can maintain their individuality and privacy, while having the freedom to access communal indoor and outdoor areas.
REINVENTED DOMESTIC FORMS
GROUP 4: MULTI-PLEX TYPE
REINVENTED DOMESTIC FORMS

GROUP 5: LIVE-WORK TYPE

This live-work project radicalizes its typology by shearing north- and south-facing walls, and creating gaps between different units. This maximizes solar orientation, while allowing ample room for air to travel through the units and into ground-floor shared spaces.
REINVENTED DOMESTIC FORMS
GROUP 6: LIVE-WORK TYPE

This housing scheme for living and working maximizes its footprint on the neighborhood by creating a *sunken plaza*, welcoming passersby to its public *cafés and restaurants*, while enabling ample private space for dwelling.
Reflection

Denver Low-Rise: New Domestic Forms of Collective Living proposed an impossible task: to rethink housing in Denver by looking at small-scale domestic forms, and their positioning amidst private and public spheres, as catalysts for social change. In addition, this studio—which featured an exceptionally large number of students—was taught in the second semester of the 3-Year Master of Architecture program, for students with no background in architecture.

The students’ integrity, intensity, and insistence on resolving the social issues of the built environment did not go unnoticed. Some of them used kitchens and dining areas as collective spaces to bring people together. Others paid attention to the ongoing environmental crisis and the possibilities to reduce waste in housing schemes, repurposing water for edible gardens, or refuse for material-making. Some students tried to blur the boundaries between city and building, while others exacerbated those edges in their attempts to give more than was expected to their surrounding communities. In all instances, this intense dedication and continuous questioning left two things unanswered: what is preventing professional practice from reinvigorating housing with collective spaces, and what role in policy-making should architects play?

While we have no specific answers to these questions yet, we hope to continue to look at our surrounding environments, finding beauty in the ordinary, and using architecture as an avenue for bringing justice, equity, diversity, and inclusion to the built environment.

Month/Year Completed
May 2023

Role of Nominees
Leyuan Li, Assistant Professor, coordinated this course and taught one section of 15 students. José Ibarra, Assistant Professor, taught a second section of 16 students.

Collaborators and Funding Sources
Expenses
No collaborators or funding venues were engaged for this project. All physical models were produced and funded by the students.

Student Compensation
Matthew Hayes worked as a paid teaching assistant for 10 hours per week. 31 students contributed to this project for a 6-credit studio course: Abdullah Alrumaihi, Berenice Avina Ibarra, Geoffrey Bremer, Blake Brooks, Fritz Carpenter, Stephanie Clouse, Joseph Colella, Desiree Domingo, Sarah Donato, Luke Duarte-Silva Barry, Zachary Duncan, Matthew Epperly, Dreen Fincham, Alexander Gardiner, Martina Grbac, Jordan Hall, Kayla Hart, Michael Hirsch, Theresa Khoury, Abraham Martin, Claire Messer, Fatima Montano, Irina Murphy, Patrick O’Hara, Sophia Ostendorf, Abhinav Sahariah, Knisely Sautel, Alejandro Trejo Gorocica, Meredith Vanderloon, Hunter Wahlgren, and Joanna Walker.

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Matthew Hayes, CAP VRC, and students.