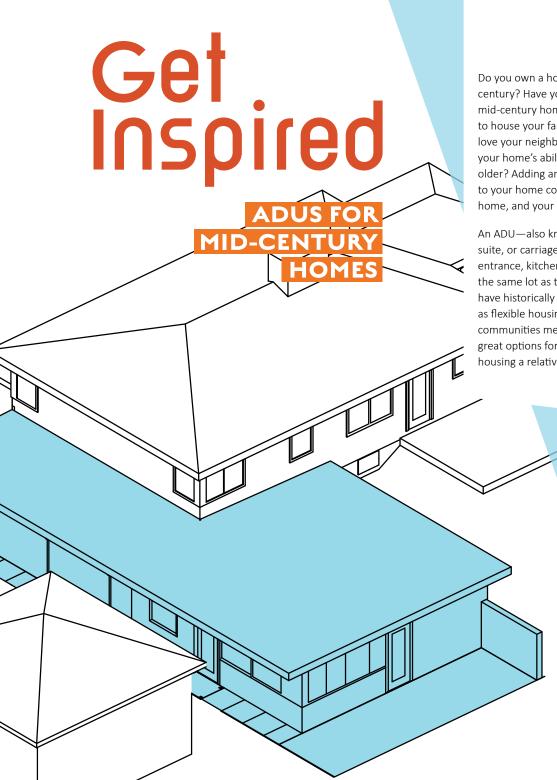


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Do you own a home built in the mid-twentieth century? Have you ever wished that your mid-century home had more space and capacity to house your family, relatives, or neighbors? Do you love your neighborhood but have concerns about your home's ability to meet your needs as you get older? Adding an Accessory Dwelling Unit (ADU) to your home could be a great option for you, your home, and your community.

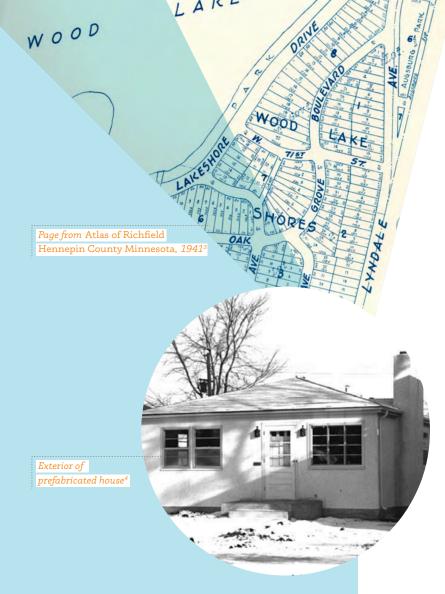
An ADU—also known as a granny flat, mother-in-law-suite, or carriage house—is a small unit with its own entrance, kitchen, and bathroom positioned on the same lot as the larger primary house. ADUs have historically existed in the Twin Cities region as flexible housing options that help families and communities meet their housing needs. They are great options for families who are interested in housing a relative, generating rental income,

downsizing in retirement, and/or aging-in-place. ADUs are also good for communities, as they tend to provide affordable private rental options in established neighborhoods, are environmentally friendly, and add value to existing properties. ADUs can help communities meet growing demand for both multigenerational living options and housing for smaller (1-2 person) households.

While municipalities across the Twin Cities region have adopted formal policies allowing ADUs in recent years, ADUs remain scarce in the mid-century neighborhoods that surround Minneapolis and Saint Paul. Without existing models, it may be difficult to envision how an ADU would fit into your property and your mid-century neighborhood. The purpose of this book is to help you visualize a tangible, feasible ADU that meets your family's needs and provides a new home in your community.

#### This Idea Book is organized in three sections:

- Learn about your neighborhood's history. Explore how mid-century neighborhoods were developed to address some of the same challenges that the Twin Cities region experiences today.
  - Review the basics of ADU planning. Learn about different ADU types, consider key design questions, and get acquainted with architectural graphics.
    - **Get inspired.** Take a look at six sample ADU plans—including architectural drawings and cost estimations—that are compatible with the architectural style, common site conditions, and local regulations for mid-century homes in the Twin Cities.



### Mid-Century Housing History: How the Post-War Era Transformed the Twin Cities Region

#### WHY MID-CENTURY HOMES?

Houses in the mid-century neighborhoods surrounding the Twin Cities offer many commonalities—the style, size, and lot of each house on the block might look the same, and historical context reveals that these homes share a design that prioritizes affordability and flexibility to meet the changing needs of families.

The mid-century housing boom following World War II was created by a mix of market pressure, government incentives, and a booming economy. These factors spurred the building sector to produce single family homes at an unprecedented rate, in a new architectural style, leveraging new building technologies. Architects, builders, designers, and manufacturers altered their practices and learned from each other, through mass media and concerted effort, to meet the needs of the postwar housing demand. With the advent of the automobile, townships and farmland surrounding the Twin Cities became increasingly reachable and were soon subdivided, with most platting occurring south and west of Minneapolis. These first ring suburbs are packed with mass-produced, so-called "economy homes." In the Twin Cities, the number of housing units nearly doubled between 1940 and 1960, with peaks in the years 1950 and 1955. Postwar suburban development in the Twin Cities illustrates how innovative design and economic efforts changed the housing industry, created a lasting architectural style, and incorporated new building and city planning technologies.

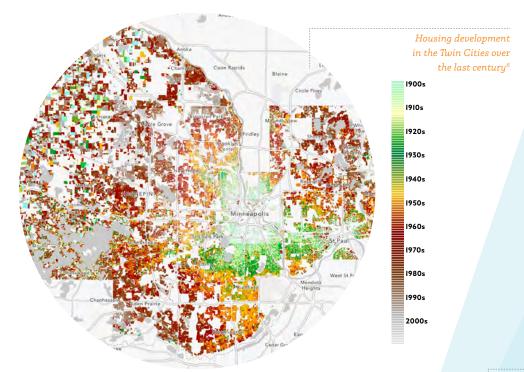
#### MID-CENTURY HOUSING BOOM

During WWII, home building in the Twin Cities came to a virtual standstill. In Minneapolis, the city only issued three residential building permits in 1943.<sup>2</sup> Material scarcity, insufficient labor, and weak demand during the war created a housing shortage in the years following. Throughout the 1930s and 40s, various federal efforts sought to satiate America's changing housing needs. New Deal legislation supported loans for the production and purchase of housing. In 1933, the government-sponsored Home Owners Loan Corporation (HOLC), provided financial assistance for new homeowners who qualified.

The Federal Housing Authority (FHA), established in 1934, insured mortgages to buyers and builders who operated within their austere guidelines. In 1944, the Serviceman's Readjustment Act (also known as the GI Bill) guaranteed loans with a low interest rate and small down payment to WWII veterans for the purchase of a home. The HOLC, FHA, and GI Bill were intended to help white homebuyers and purposefully excluded people of color.

These federal programs, along with private lending practices, shaped real estate development patterns in suburbs and served to deepen and solidify structural racism and segregation. The HOLC included a policy of "minority containment", an issue compounded by racist lending practices throughout the period, known as redlining.<sup>5</sup> To this day, the impact of these policies and practices is evident in the demographic makeup of mid-century neighborhoods.

As the war drew to a close, the housing shortage intensified when a rush of veterans returning home were flush with purchasing power from these postwar federal policies. By the end of the 1940s, the stage was set for builders, developers, and manufacturers to change the housing industry, ushering in the mid-century housing boom: an era of mass-produced, mass-customized, single-family homes, designed for the economic and material conditions of a family. After wartime restrictions on building were lifted in 1945, the postwar housing boom took off. Three factors contributed to changing the housing industry, with lasting effects: economic growth, strong demand for housing, and readily available credit for white men.<sup>7</sup> These factors gave rise to a new type of builder, one who built without a customer in mind. This merchant builder designed homes based on trade journals, market research, and in compliance with FHA guidelines. Advances in production technology allowed for mass pre-fabrication, while a surging labor force could build homes quickly. Levittown, PA, is the most famous example of this postwar mass-produced housing, creating one of the largest new suburban developments in the eastern US. Builders in the Twin Cities area tended to operate on a smaller scale, but with similar urgency.



In 1946, a Minneapolis builder boasted about finishing one house every eight hours. The Housing Act of 1949, produced in part by Senator Joseph McCarthy, reasserted the reliance of the country on private industry to meet housing demands. With subsidies for the building industry, more easily available mortgages, and mass production techniques, home builders were able to build cheaply like never before and worked together to meet demand.

Builders of this period exchanged information abundantly, meeting at conferences to exchange plans, specifications, and price lists. <sup>11</sup> Trade publications broadcast designs and building expertise, enabling a smaller scale of builders— a professional class as opposed to the newly emergent commercial class—who built at scale and occasionally in the speculative manner of merchant builders. In the Twin Cities, most homes were built by hundreds of small firms, who produced between 6 and 20 homes per year. <sup>12</sup> This exchange of information, combined with mass-produced building components and FHA guidelines, created a new type of suburban home specific to the era, with a design that would become commonplace across the country.





#### **ECONOMY OF STYLE**

Changes in the housing industry resulted in a new architecture of economy. FHA guidelines required that homes available for financing be priced between \$6,000 and \$8,000, and between 800 and 1000 square feet in size. <sup>13</sup> This period produced the economy house, done in the minimal traditional style. FHA guidelines prohibited prewar styles, typically two stories with a pitched roof and basement, and required homes to be built with no excessive size or cost. <sup>14</sup> The latter half of the 1940s saw rising material and labor costs, keeping house sizes small and causing a brief ebb in the housing industry.

Architectural style can be expressed in form and ornamentation. The forms of postwar single-family homes were dictated by FHA guidelines, material availability and cost, lot size, and city requirements. To keep costs down, ornamentation was one of the first design choices to be eliminated. Builders adapted existing, traditional architectural styles to these new challenges. High architectural style was a low priority. Though some homes were designed by architects, many were developer-built homes in the "minimal traditional" architectural style, where the compact and simplified form of the house takes precedence over ornamentation of a particular style.

#### **CHANGING NEEDS**

The middle of the last century saw societal changes across the world at a rate like never before. In the Twin Cities, houses were built at breakneck pace to meet demand fueled by federal housing policies and the end of a long wartime period. The housing industry changed drastically to meet the needs of the moment. By using new building technologies, sharing information, and building speculatively, the homebuilders of the postwar period built the first ring suburbs of the Twin Cities. In the 21st century, our region faces another housing shortage. Yet again, the housing industry must adapt to provide more housing options and meet growing demand, so every Minnesotan may have a safe and affordable home. Mid-century neighborhoods can adapt to create new housing options, in part by adding Accessory Dwelling Units.

Mid-century house construction<sup>15</sup>

## Planning an ADU

There are three basic types of ADUs: internal, attached, and detached. The six ADU case studies in this booklet show variations of these types, such as an internal basement conversion ADU and a detached single-level ADU with a garage.

#### **ADU TYPES**

#### **INTERNAL**

ADUs are located within the structure and footprint of the main house, such as a converted basement or attic renovation.



ADUs share one or more walls with the primary house. This type of ADU is commonly constructed as an addition or a conversion of an attached garage.

#### **DETACHED**

ADUs are often the most visible type of ADU, existing within the lot, but as a separate building in the back or side yard. They are typically the most expensive to build and include freestanding backyard structures, detached garage conversions, same-level additions to a detached garage, or above-garage units.













As of 2021, nineteen cities in the Twin Cities metro currently have zoning policies that allow for ADUs. Each city publishes unique provisions for building ADUs such as where on the lot ADUs are permitted, whether owner occupancy is required, and minimum and maximum sizes for ADUs. Municipalities may also regulate the appearance of an ADU, its architectural style and view from the street, alley and driveway orientation, or number of garages.

Consider these questions as you envision an ADU that could be right for you:

- How will your ADU be used?
- Who will be living in your ADU and what might be your relationship with them?
- How many rooms are preferred?
- What are the opportunities and constraints of your lot configuration?
- What is allowed in your municipal area?
   (see Resources on page 52 for contact information for your local planning department.)

For more details on the process of adding an ADU to your home, see Family Housing Fund's <u>Home + home: Twin Cities ADU Guidebook for Homeowners</u>.

#### **ARCHITECTURAL SYMBOLS**

In the next section, you will find midcentury ADU case studies that use a variety of common architectural graphics to communicate different structural, contextual, and aesthetic features of each site and ADU.

**Site plans** are used to communicate site conditions of the site from above.

**Floor plans** communicate the layout of the building and locations for walls, doors, windows, stairs, furniture, and appliances from above.

**Elevations** are used to communicate what each exterior side of the building and site looks like in 2D.

**Details** are used to communicate how structures and components are put together. Details show relationships between studs, joists, stringers, and other individual parts of the building and structure.

**Renderings** are artistic depictions of the look and feel of the building. Renderings are used to show relationships between things like color, scale, finish, vegetation, and people.

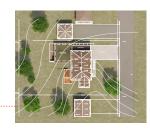
#### LEGEND

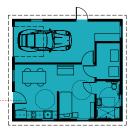






Turning Radius (30° min)



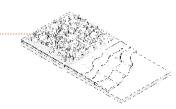














### **ADU Case Studies**







#### CASE STUDY A

CASE STUDY B

**CASE STUDY C** 

<b>ADU TYPE</b> Detached, single level with garage	<b>ADU TYPE</b> Detached, above garage	<b>ADU TYPE</b> Detached, single level with garage
YEAR EXISTING HOME WAS BUILT	YEAR EXISTING HOME WAS BUILT	YEAR EXISTING HOME WAS BUILT
1949	1950	1952
<b>LOCATION</b>	<b>LOCATION</b>	<b>LOCATION</b>
Crystal	Richfield	Crystal
<b>ADU BEDROOMS</b>	<b>ADU BEDROOMS</b>	<b>ADU BEDROOMS</b>
Studio	Studio	1 Bedroom
ESTIMATED COST	ESTIMATED COST	ESTIMATED COST
<b>\$258,890</b>	<b>\$254,870</b>	<b>\$258,890</b>





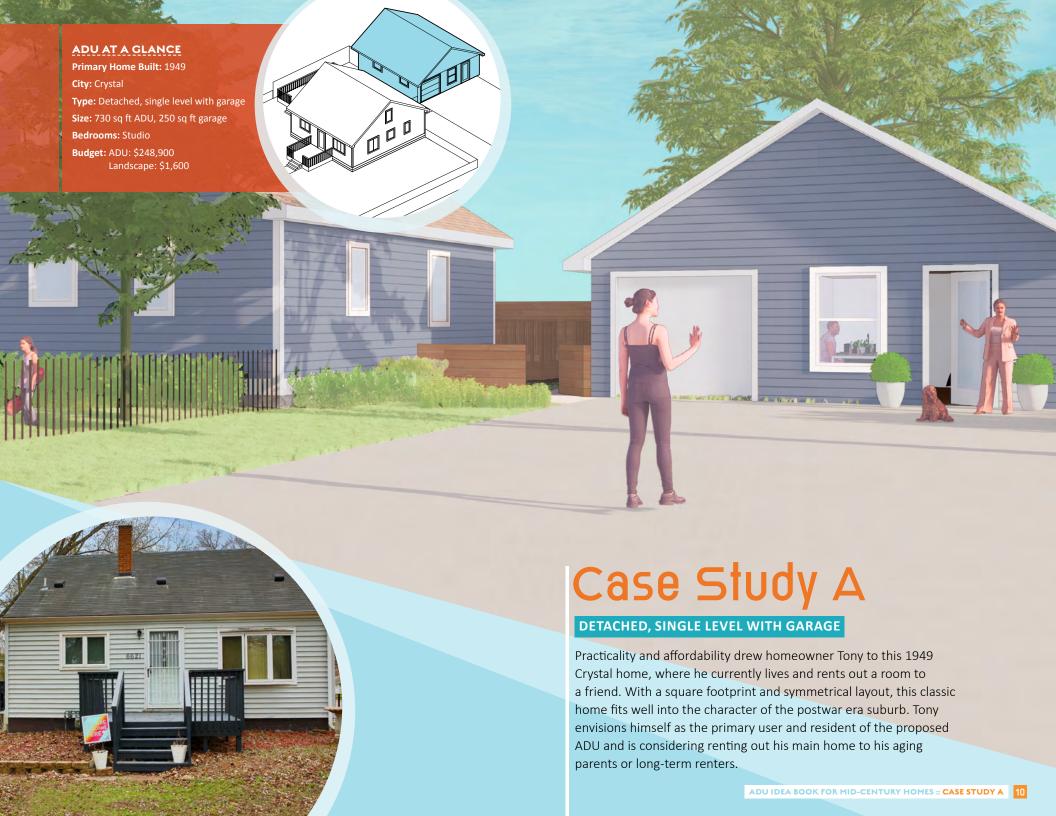


#### **CASE STUDY D**

**CASE STUDY E** 

**CASE STUDY F** 

<b>ADU TYPE</b> Attached, single level with carport	ADU TYPE Attached, second level addition	ADU TYPE Attached, interior/basement conversion
YEAR EXISTING HOME WAS BUILT 1954	YEAR EXISTING HOME WAS BUILT $1962$	YEAR EXISTING HOME WAS BUILT 1967
<b>LOCATION</b>	<b>LOCATION</b>	<b>LOCATION</b>
Richfield	White Bear Lake	Roseville
<b>ADU BEDROOMS</b>	<b>ADU BEDROOMS</b>	<b>ADU BEDROOMS</b>
2 Bedrooms	1 Bedroom	1 Bedroom
ESTIMATED COST	ESTIMATED COST	ESTIMATED COST
\$214,780	<b>\$153,200</b>	<b>\$76,250</b>



This ADU design replaces the home's detached garage with a miniature version of the primary home. The ADU's exterior shares the same gabled roof and window shape as the existing house. Because Tony imagines one day providing housing to his parents, the single-level floor plan includes accessibility considerations such as wide doorways, low door thresholds, and no stairs.

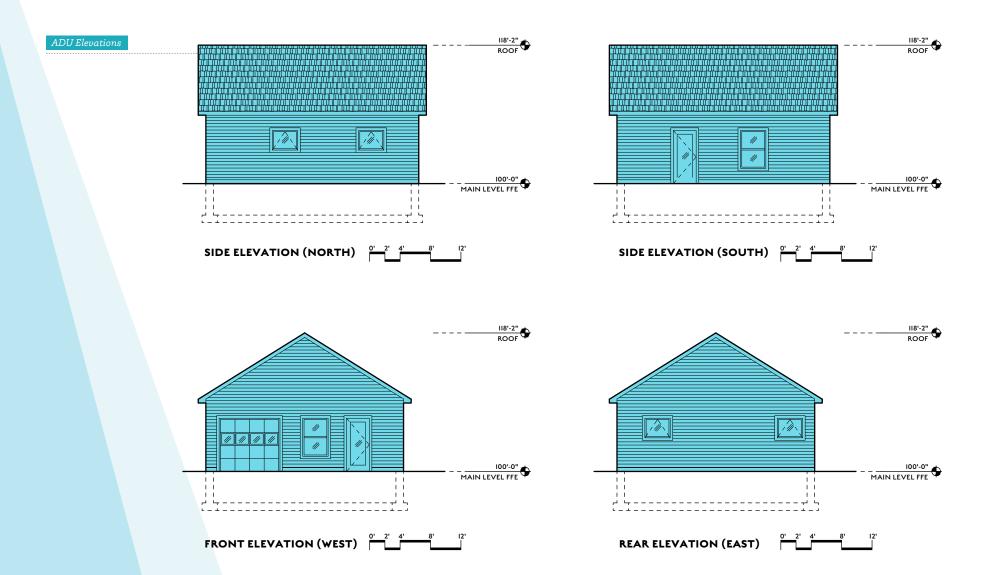
In the landscape surrounding the new ADU, ornamental grasses and shrub plantings can be added at the edges to soften the appearance of the building and help add privacy from neighbors and the primary dwelling unit.

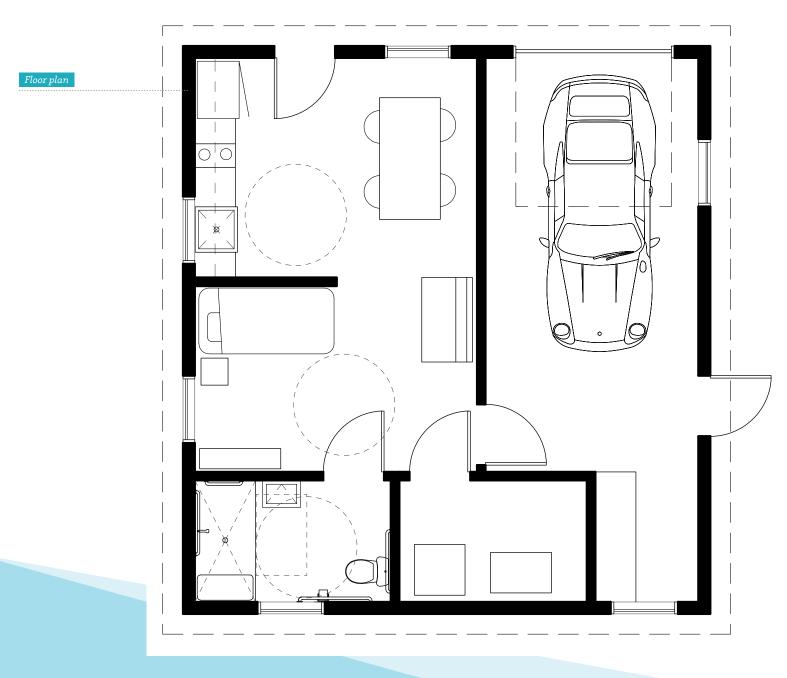
To meet Crystal's zoning code, this ADU includes an enclosed garage and does not exceed 50% of the finished floor area of the main home.

Considering the finished floor area of the main home is 1,750 square feet in size, this studio ADU with attached garage is an ideal fit for Crystal's current zoning and building code.

Through conversations with city officials, a homeowner may apply to construct a design that differs from current city code; this is called a variance. With a variance, this ADU design could be constructed with an additional bedroom instead of a garage, providing more living space for a future resident or family. While variances are common, it is important to determine early in your ADU design process whether to apply for a variance, and you should work with an experienced designer to include quality plans in a variance application.







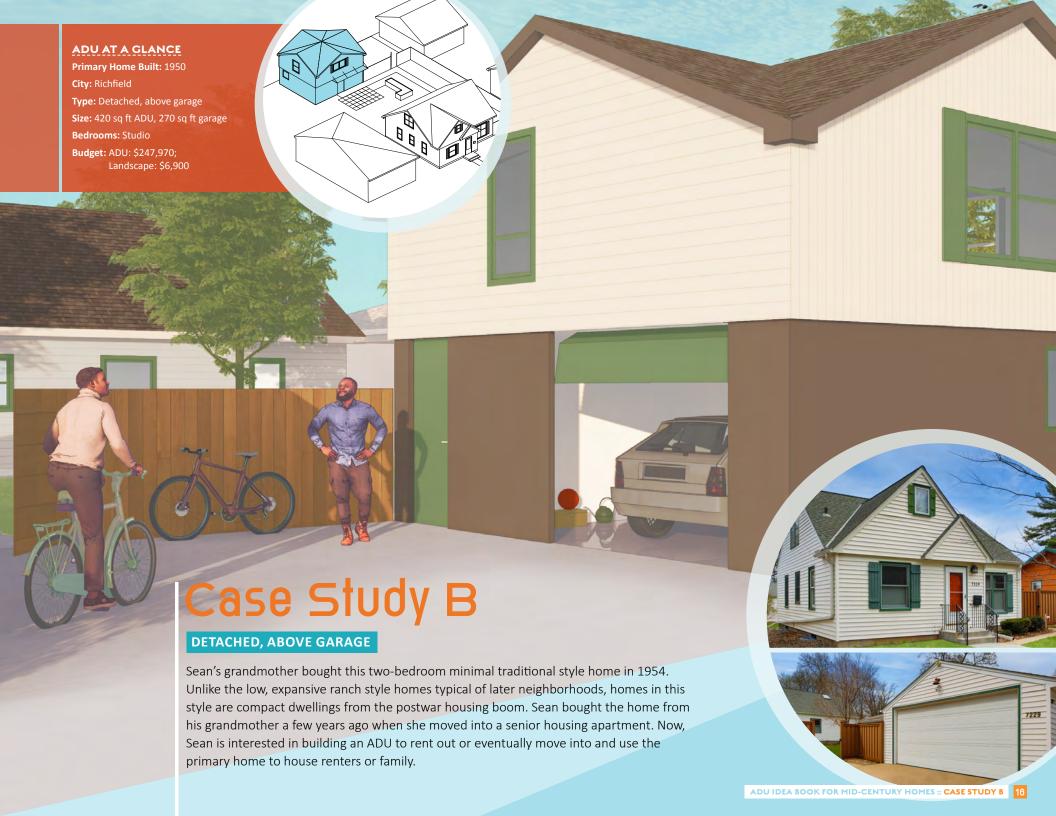




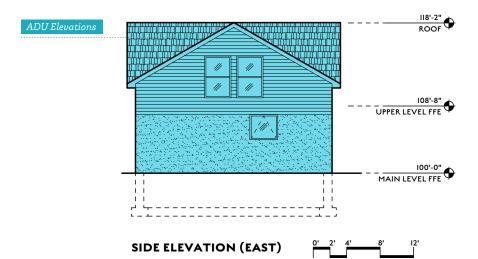
DESIGN FEES THROUGH PERMIT	\$10,000		APPLIANC
ENGINEERING	\$3,000		GYP BOAR
SURVEY FEES (EXIST, NEW)	\$2,000		CABINETS
PERMIT FEES	\$1,500		INTERIOR
EXCAVATION / SHORING / DEMO	\$32,900		PAINT
FOUNDATION / FROST FOOTING	\$14,500		VINYL
FRAMING			QUAR <sup>-</sup>
TRUSSES	\$18,700		TILE
SHEATHING	\$6,800		INTERIOR
STUDS	\$4,100		PAINT
LABOR	\$10,200		QUAR <sup>-</sup>
PLUMBING			TILE
SEWER FROM STREET	\$15,600		INTERIOR
WATER FROM STREET	\$7,500		PAINT
INTERNAL PLUMBING	\$8,800		VINYL
FIXTURES / TUB / TOILET / SINK	\$1,800		SUMP PUI
WINDOWS	\$9,700		LANDSCAF
DOORS	\$2,500	PRIVATE	PEREN
STUCCO / BRICK EXTERIOR / PAINT	\$12,300		TREES
ROOF / GUTTERS	\$9,000		TURF
INSULATION	\$5,600		CONC
ELECTRICAL		WALK	GATHE
HOOK UP FROM STREET	\$2,500		CONC
GENERAL ELECTRICAL INTERNAL	\$9,200		GATHE
HVAC			FENCII
AC UNIT	\$5,000	ADU	PLANK
FURNACE	\$7,000		
GAS HOOKUP- STREET	\$2,300		

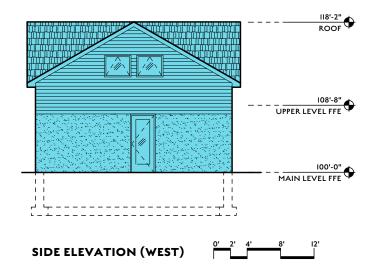
APPLIANCES	\$4,800
GYP BOARD	\$10,500
CABINETS	\$4,500
INTERIOR FINISHES - KITCHEN	
PAINT	\$4,300
VINYL PLANK FLOORS	\$3,200
QUARTZ COUNTERTOP	\$4,600
TILE	\$3,200
INTERIOR FINISHES - BATHROOM	
PAINT	\$1,200
QUARTZ COUNTERTOP / VANITY	\$800
TILE	\$2,100
INTERIOR FINISHES - LIVING / BEDROOM	
PAINT	\$4,300
VINYL PLANK FLOORS	\$4,600
SUMP PUMP / RADON / DRAIN TILE	\$6,000
LANDSCAPE	
PERENNIALS	\$980
TREES	
TURF GRASS	
CONCRETE WALKWAYS / STEPS	\$870
GATHERING AREA (PAVERS)	
CONCRETE DRIVEWAY	
GATHERING AREA (GRAVEL)	\$440
FENCING	
PLANK PAVERS	\$720

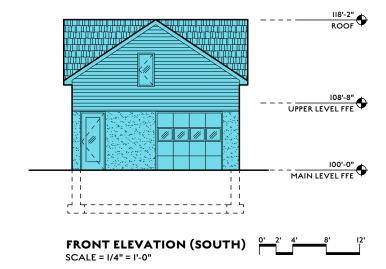
TOTAL ESTIMATED COSTS \$258,890

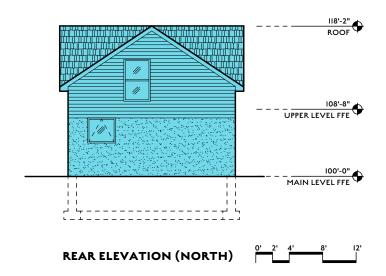


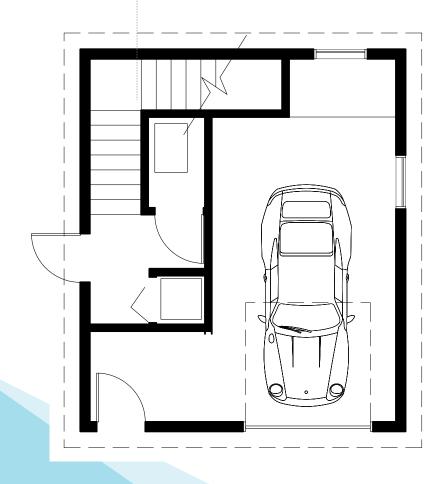
An above-garage ADU is the best choice for Sean, considering the lot size, alley access, and Richfield's current parking requirements. This detached two-story structure would replace the existing garage, providing a new one-car garage on the first level and a studio apartment on the second. The ADU will have a private interior entry with space for laundry machines and stairs that lead up to the second floor. To conform with Richfield's height requirements, this ADU has a cross gable roof that maximizes the unit's volume while also nodding to the primary home's minimal traditional style. The cross-gable roof organizes the studio apartment into four quadrants: the MAIN HOUSE kitchen, living area, bathroom, and stairs. The corners of this ADU design have low ceilings, perfect for storage and utility space (either finished or unfinished). Outside the ADU's entrance is a private patio and raised beds that can be shared by tenants and divide the outdoor spaces of the two homes. ADU IDEA BOOK FOR MID-CENTURY HOMES :: CASE STUDY B 17

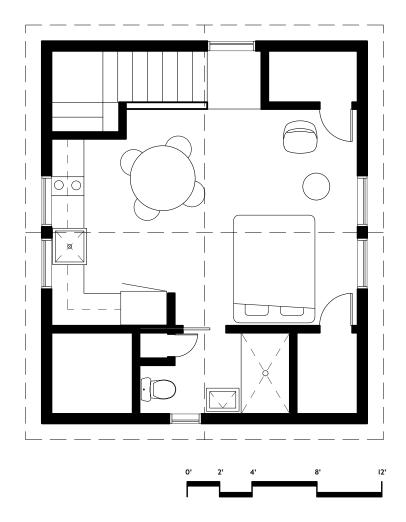














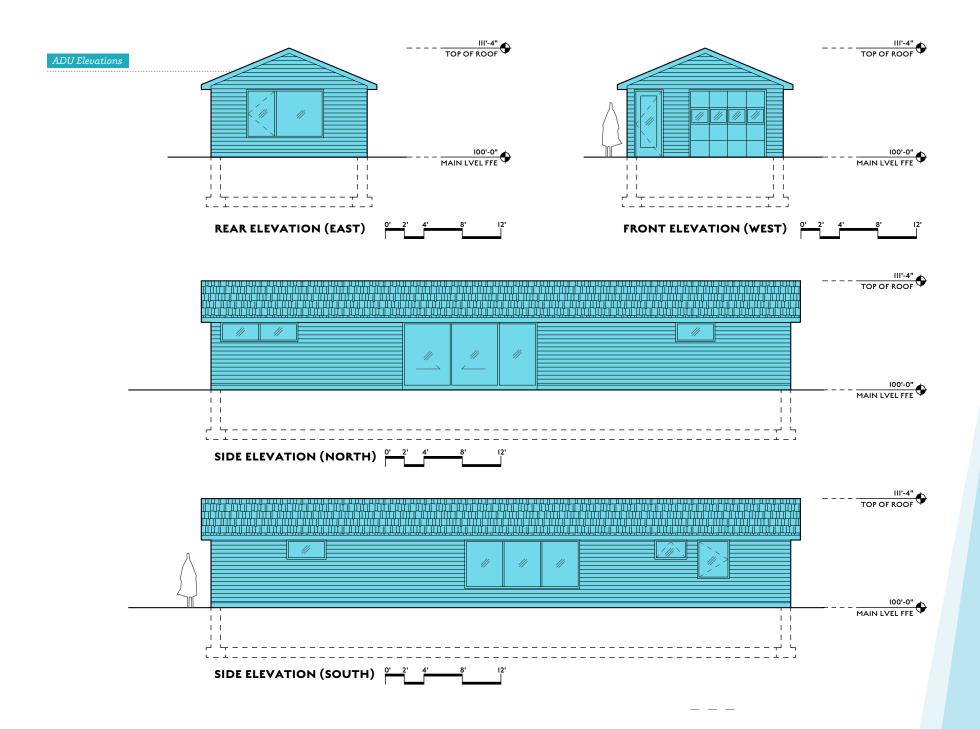
DESIGN FEES THROUGH PERMIT	\$10,000
ENGINEERING	\$3,000
SURVEY FEES (EXIST, NEW)	\$2,000
PERMIT FEES	\$1,500
EXCAVATION / SHORING / DEMO	\$25,800
FOUNDATION / FROST FOOTING	\$12,800
FRAMING	
TRUSSES	\$21,400
SHEATHING	\$7,890
STUDS	\$4,200
LABOR	\$11,200
PLUMBING	
SEWER FROM STREET	\$16,200
WATER FROM STREET	\$8,200 MAIN HOUSE
INTERNAL PLUMBING	\$9,100
FIXTURES / TUB / TOILET / SINK	\$1,800
WINDOWS	\$5,200
DOORS	\$2,300
STUCCO / BRICK EXTERIOR / PAINT	\$13,300
ROOF / GUTTERS	\$8,800
INSULATION	\$9,800
ELECTRICAL	
HOOK UP FROM STREET	\$2,500
GENERAL ELECTRICAL INTERNAL	\$8,800
HVAC	AGE
AC UNIT	\$5,000
FURNACE	\$7,000
GAS HOOKUP- STREET	\$2,100

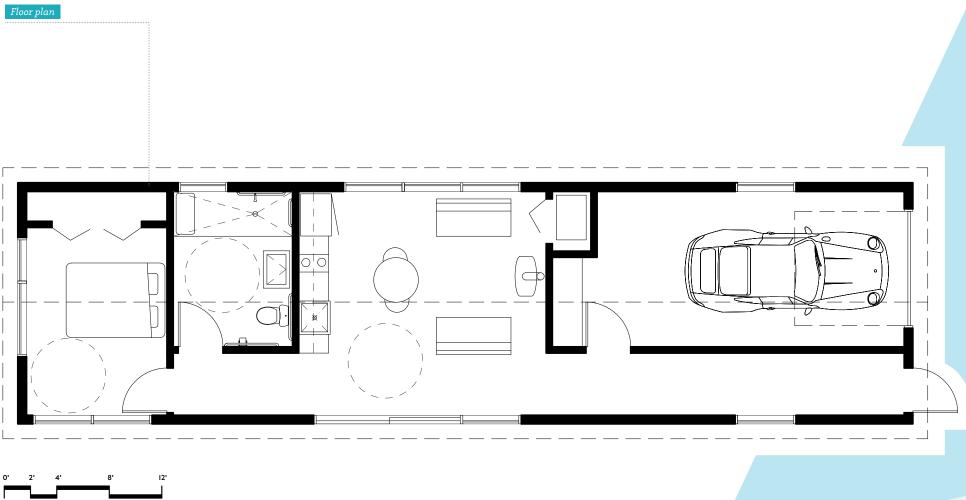
APPLIANCES	\$4,800
GYP BOARD	\$8,700
CABINETS	\$4,500
INTERIOR FINISHES - KITCHEN	
PAINT	\$3,100
VINYL PLANK FLOORS	\$2,980
QUARTZ COUNTERTOP	\$4,700
TILE	\$3,500
INTERIOR FINISHES - BATHROOM	
PAINT	\$1,200
QUARTZ COUNTERTOP / VANITY	\$800
TILE	\$2,100
INTERIOR FINISHES - LIVING / BEDROOM	
PAINT	\$3,400
VINYL PLANK FLOORS	\$3,900
SUMP PUMP / RADON / DRAIN TILE	\$5,200
LANDSCAPE	
PERENNIALS	\$1,580
TREES	\$300
TURF GRASS	
CONCRETE WALKWAYS / STEPS	\$2,100
GATHERING AREA (PAVERS)	\$2,200
CONCRETE DRIVEWAY	
GATHERING AREA (GRAVEL)	
FENCING	\$800
PLANK PAVERS	

TOTAL ESTIMATED COSTS \$254,870



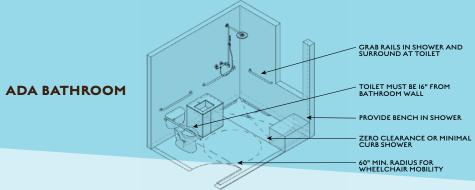












D	ESIGN FEES THROUGH PERMIT	\$10,000	
Εľ	NGINEERING	\$3,000	
SI	JRVEY FEES (EXIST, NEW)	\$2,000	
PI	ERMIT FEES	\$1,500	
E	CAVATION / SHORING / DEMO	\$32,900	
FC	OUNDATION / FROST FOOTING	\$14,500	X
FF	RAMING		
	TRUSSES	\$18,700	
	SHEATHING	\$6,800	
	STUDS	\$4,100	
	LABOR	\$10,200	ASSIV.
PI	LUMBING		
	SEWER FROM STREET	\$15,600	
	WATER FROM STREET	\$7,500	
	INTERNAL PLUMBING	\$8,800	
	FIXTURES / TUB / TOILET / SINK	\$1,800	
W	INDOWS	\$9,700	
D	OORS	\$2,500	MAIN HOUSE
ST	TUCCO / BRICK EXTERIOR / PAINT	\$12,300	
R	OOF / GUTTERS	\$9,000	
IN	ISULATION	\$5,600	A
EL	ECTRICAL		
	HOOK UP FROM STREET	\$2,500	
	GENERAL ELECTRICAL INTERNAL	\$9,200	
Н	VAC		
	AC UNIT	\$5,000	
	FURNACE	\$7,000	
	GAS HOOKUP- STREET	\$2,300	

APPLIANCES	\$4,800
GYP BOARD	\$10,500
CABINETS	\$4,500
INTERIOR FINISHES - KITCHEN	
PAINT	\$4,300
VINYL PLANK FLOORS	\$3,200
QUARTZ COUNTERTOP	\$4,600
TILE	\$3,200
INTERIOR FINISHES - BATHROOM	
PAINT	\$1,200
QUARTZ COUNTERTOP / VANITY	\$800
TILE	\$2,100
INTERIOR FINISHES - LIVING / BEDROOM	
PAINT	\$4,300
VINYL PLANK FLOORS	\$4,600
SUMP PUMP / RADON / DRAIN TILE	\$6,000
LANDSCAPE	
PERENNIALS	\$980
TREES	
TURF GRASS PATIO	
CONCRETE WALKWAYS / STEPS	\$870
GATHERING AREA (PAVERS)	
CONCRETE DRIVEWAY	
GATHERING AREA (GRAVEL)	\$440
FENCING	
PLANK PAVERS	\$720

TOTAL ESTIMATED COSTS \$258,890



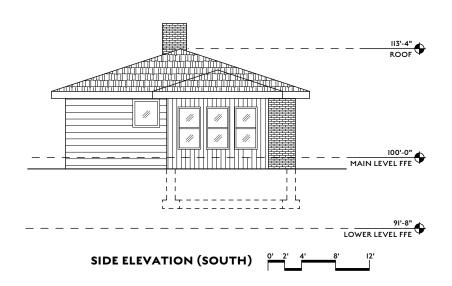
Prairie-style architecture prioritizes connection to the landscape. In the same spirit, this ADU is placed on the low end of the lot and uses an extensive green roof to complement the yard. It also borrows the deep eaves and horizontal lines of the main home, supporting the midcentury aesthetic and character of the neighborhood.

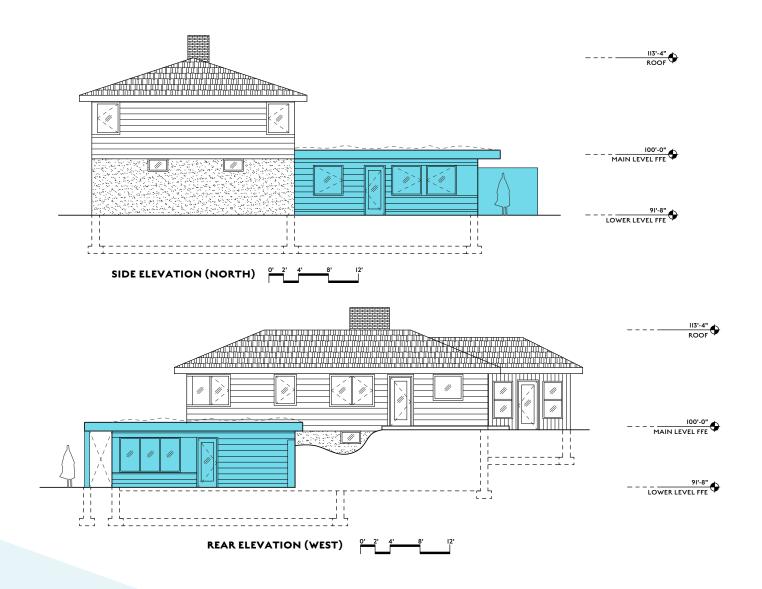
This two-bedroom ADU could be rented to another young family. The thick retaining wall that is built into the slope of the site extends to the exterior, creating a private patio for the ADU residents, so both families on the lot may have their own exterior spaces. To meet Richfield's parking requirements, this ADU includes a new carport, a popular feature in midcentury housing. The carport offers a cost-effective means of sheltering vehicles in the winter months and could even double as a covered gathering space in warmer months.

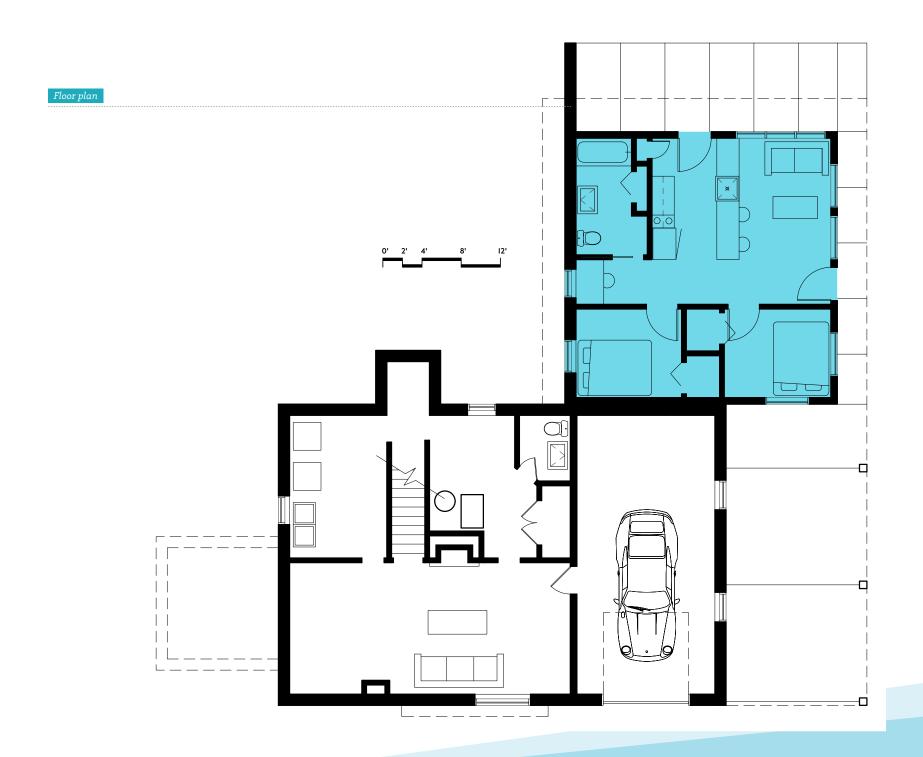
Green roofs may provide additional insulation and help reduce energy costs, but they will add to the upfront cost of building your ADU. One alternative to the green roof in this ADU design is a shallow sloped roof (½" / ft minimum slope) constructed of rigid, tapered insulation protected by a durable, commercial-grade rubber roof. With help from your architect or building team, you should consider which roof type is right for you early in the design process.









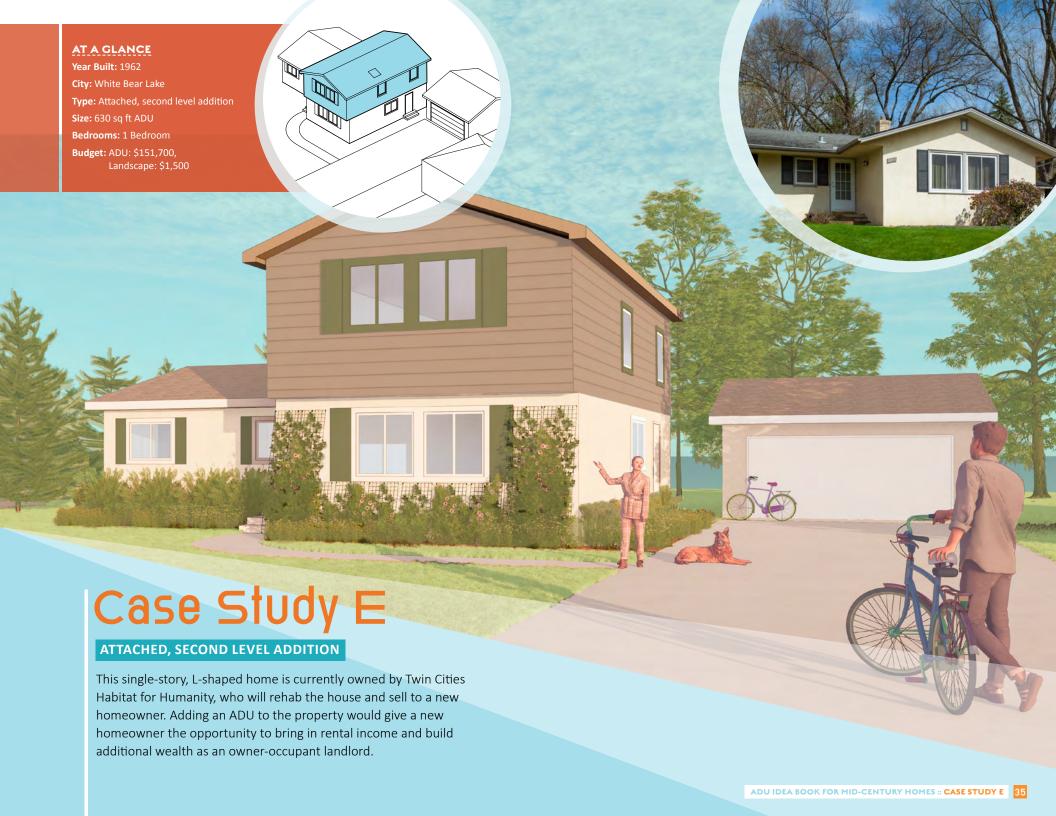




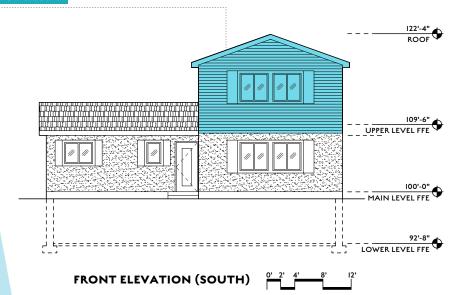
DESIGN FEES THROUGH PERMIT	\$10,000	
ENGINEERING	\$3,000	
SURVEY FEES (EXIST, NEW)	\$2,000	
PERMIT FEES	\$1,500	
EXCAVATION / SHORING / DEMO	\$4,600	
FOUNDATION / FROST FOOTING	\$5,800	
FRAMING		
TRUSSES	\$32,200	
SHEATHING	\$3,990	
STUDS	\$3,400	
LABOR	\$4,500	
PLUMBING		
SEWER FROM STREET	\$18,000	
WATER FROM STREET	\$7,000	
INTERNAL PLUMBING	\$8,800	
FIXTURES / TUB / TOILET / SINK	\$1,800	
WINDOWS	\$4,800	
DOORS	\$1,800	
STUCCO / BRICK EXTERIOR / PAINT	\$6,890	
ROOF / GUTTERS	\$10,900	
INSULATION	\$4,800	
ELECTRICAL		
HOOK UP FROM STREET	\$1,800	
GENERAL ELECTRICAL INTERNAL	\$7,800	
HVAC		
AC UNIT	\$5,000	
FURNACE	\$7,000	
GAS HOOKUP- STREET	\$2,400	

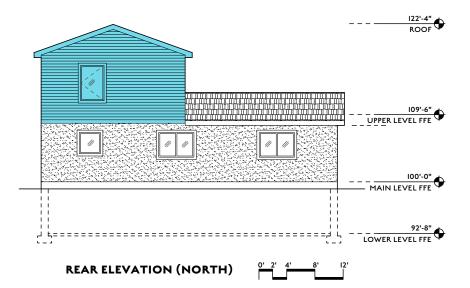
APPLIANCES	\$4,800
GYP BOARD	\$4,200
CABINETS	\$4,600
INTERIOR FINISHES - KITCHEN	
PAINT	\$2,800
VINYL PLANK FLOORS	\$2,760
QUARTZ COUNTERTOP	\$4,800
TILE	\$3,600
INTERIOR FINISHES - BATHROOM	
PAINT	\$1,200
QUARTZ COUNTERTOP / VANITY	\$800
TILE	\$2,100
INTERIOR FINISHES - LIVING / BEDROOM	
PAINT	\$3,200
VINYL PLANK FLOORS	\$3,800
SUMP PUMP / RADON / DRAIN TILE	\$4,400
LANDSCAPE	
PERENNIALS	
TREES	
TURF GRASS	\$50
CONCRETE WALKWAYS / STEPS	\$1,870
GATHERING AREA (PAVERS)	
CONCRETE DRIVEWAY	\$9,500
GATHERING AREA (GRAVEL)	\$520
FENCING	
PLANK PAVERS	

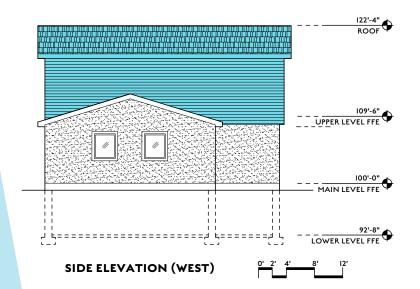
TOTAL ESTIMATED COSTS \$214,780

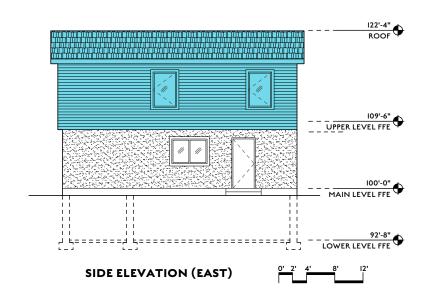


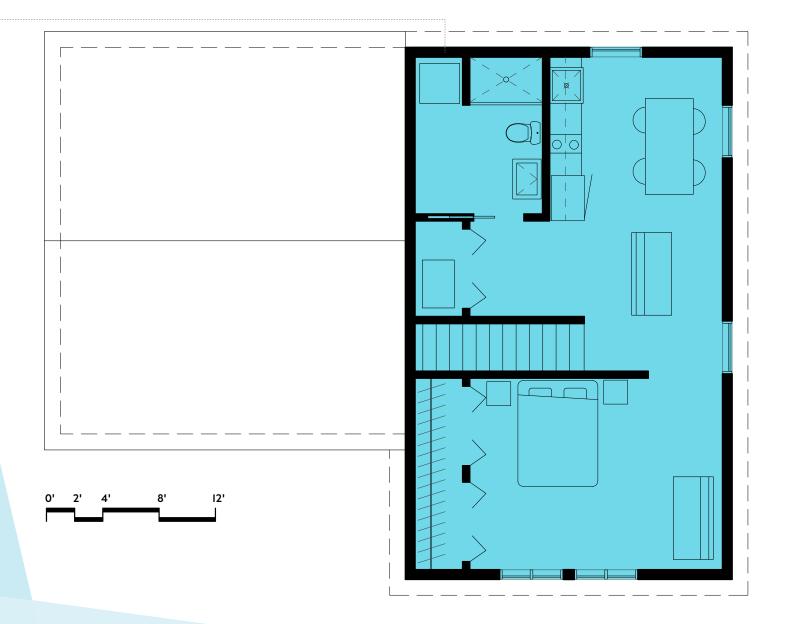










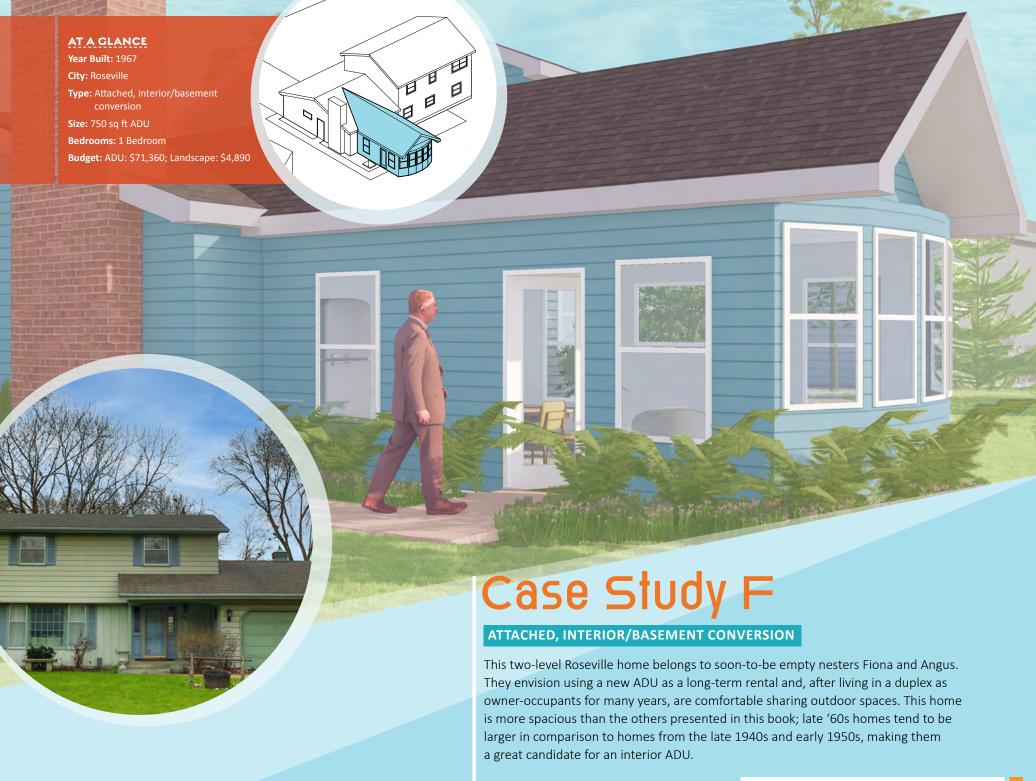




DESIGN FEES THROUGH PERMIT	\$10,000	
ENGINEERING	\$2,500	
SURVEY FEES (EXIST, NEW)	\$0	
PERMIT FEES	\$1,500	
EXCAVATION / SHORING / DEMO	\$13,000	
FOUNDATION / FROST FOOTING	N/A	
FRAMING		
TRUSSES	\$12,300	
SHEATHING	\$4,600	
STUDS	\$5,300	
LABOR	\$14,500	
PLUMBING		
SEWER FROM STREET	\$0	
WATER FROM STREET	\$0	
INTERNAL PLUMBING	\$0	
FIXTURES / TUB / TOILET / SINK	\$1,800	
WINDOWS	\$2,400	
DOORS	\$1,500	
STUCCO / BRICK EXTERIOR / PAINT	\$12,300	
ROOF / GUTTERS	\$1,800	
INSULATION	\$6,800	
ELECTRICAL		
HOOK UP FROM STREET	\$0	
GENERAL ELECTRICAL INTERNAL	\$7,600	
HVAC		
AC UNIT	\$5,000	
FURNACE	\$7,000	
GAS HOOKUP- STREET	\$0	

APPLIANCES	\$4,800
GYP BOARD	\$6,300
CABINETS	\$4,600
INTERIOR FINISHES - KITCHEN	
PAINT	\$3,600
VINYL PLANK FLOORS	\$3,200
QUARTZ COUNTERTOP	\$4,300
TILE	\$3,200
INTERIOR FINISHES - BATHROOM	
PAINT	\$1,300
QUARTZ COUNTERTOP / VANITY	\$800
TILE	\$1,200
INTERIOR FINISHES - LIVING / BEDROOM	
PAINT	\$1,300
VINYL PLANK FLOORS	\$4,200
SUMP PUMP / RADON / DRAIN TILE	\$0
LANDSCAPE	
PERENNIALS	\$1,500
TREES	
TURF GRASS	
CONCRETE WALKWAYS / STEPS	
GATHERING AREA (PAVERS)	
CONCRETE DRIVEWAY	
GATHERING AREA (GRAVEL)	
FENCING	
PLANK PAVERS	

TOTAL ESTIMATED COSTS \$153,200

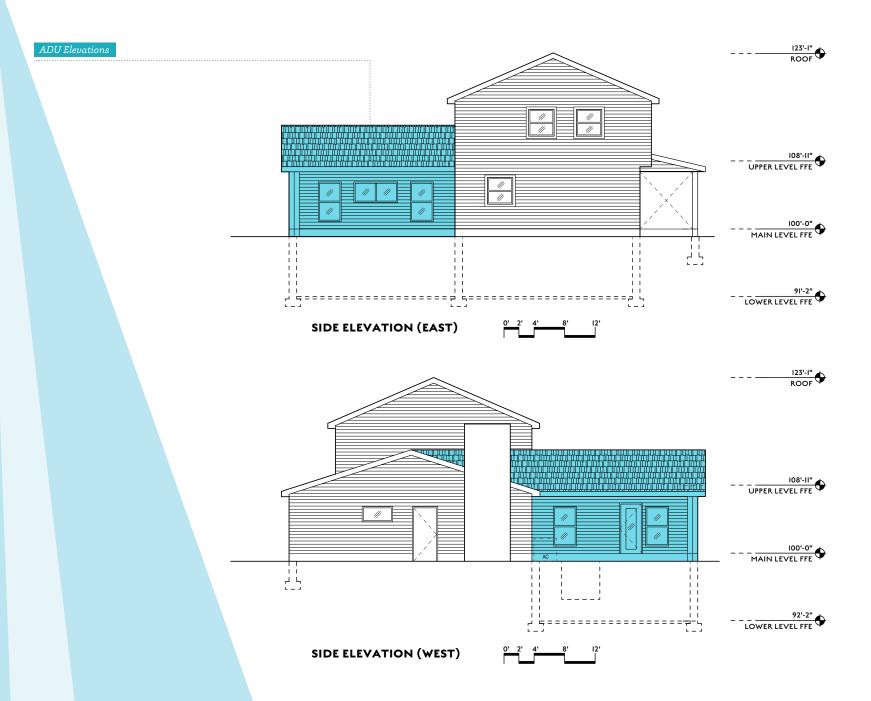


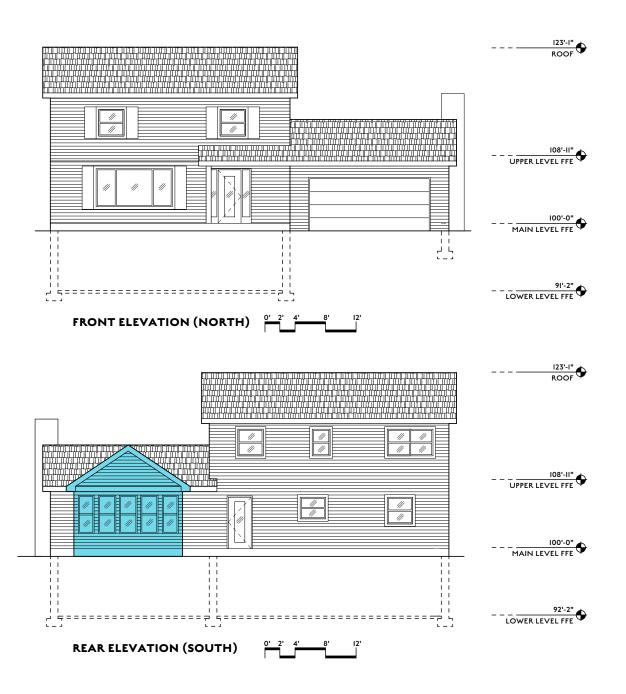
This ADU converts an existing sunroom and part of the basement into a two-level ADU with gracious windows and an open southern stair that brings sunlight into the lower level. While many midcentury houses were built with unfinished attics or basements, a basement-only ADU was not a convenient option for this home due to ceiling height regulations and other structural factors. This ADU shares a roof and some internal walls with the existing home, and discrete entrances separate the units. A new walkway leads to the entrance of the ADU. Landscape plantings screen the ADU's new egress window. The addition of a tree and relocation of the patio door on the main level of the existing house provides greater privacy to both homes.

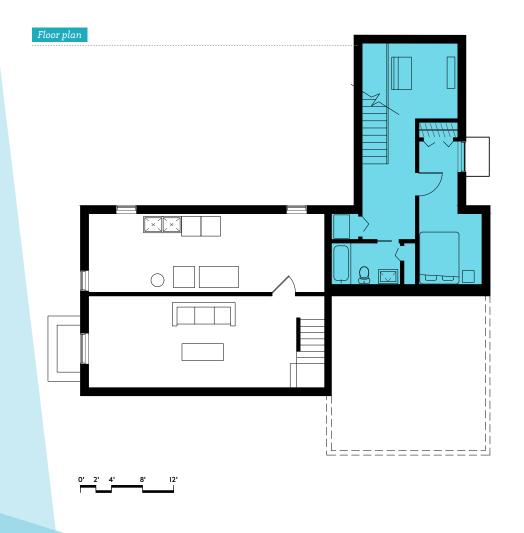
An interior renovation to create an ADU is an opportunity to rework existing spaces to benefit both the house and the neighborhood. If the main house is large enough to accommodate an ADU, an interior renovation is also an effective cost saving measure. In this design, the ADU can share the sewer, water, and other connections with the primary house, significantly reducing construction costs. There is also no need to provide a new foundation or roof. With new windows and doors, the addition of a new exterior walkway and landscaping, and an interior renovation, this lot can accommodate two homes.

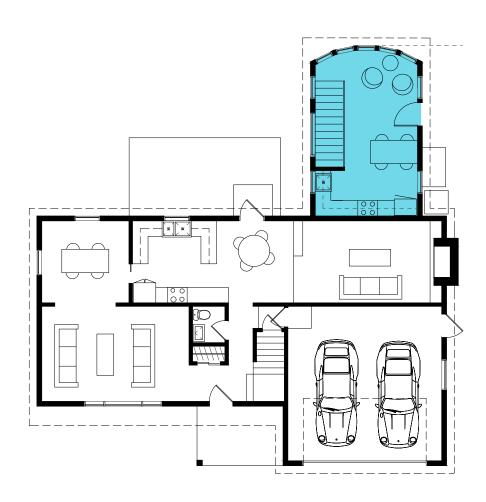
MAIN HOUSE AD/U TREE PORCH

**DRIVEWAY** 











DESIGN FEES THROUGH PERMIT	\$8,000
ENGINEERING	\$1,500
SURVEY FEES (EXIST, NEW)	\$0
PERMIT FEES	\$1,000
EXCAVATION / SHORING / DEMO	\$4,500
FOUNDATION / FROST FOOTING	N/A
FRAMING	
TRUSSES	\$0
SHEATHING	\$0
STUDS	\$4,560
LABOR	\$12,400
PLUMBING	
SEWER FROM STREET	\$0
WATER FROM STREET	\$0
INTERNAL PLUMBING	\$0
FIXTURES / TUB / TOILET / SINK	
WINDOWS	\$1,000
DOORS	\$2,300
STUCCO / BRICK EXTERIOR / PAINT	\$0
ROOF / GUTTERS	\$0
INSULATION	\$2,400
ELECTRICAL	
HOOK UP FROM STREET	\$0
GENERAL ELECTRICAL INTERNAL	\$5,600
HVAC	
AC UNIT	\$5,000
FURNACE	\$6,000
GAS HOOKUP- STREET	\$0

APPLIANCES	
GYP BOARD	\$6,500
CABINETS	
INTERIOR FINISHES - KITCHEN	
PAINT	\$3,500
VINYL PLANK FLOORS	
QUARTZ COUNTERTOP	
TILE	\$0
INTERIOR FINISHES - BATHROOM	
PAINT	\$0
QUARTZ COUNTERTOP / VANITY	\$0
TILE	\$0
INTERIOR FINISHES - LIVING / BEDROOM	
PAINT	\$3,400
VINYL PLANK FLOORS	\$3,700
SUMP PUMP / RADON / DRAIN TILE	\$0
LANDSCAPE	
PERENNIALS	\$2,250
TREES	\$300
TURF GRASS	
CONCRETE WALKWAYS / STEPS	\$2,340
GATHERING AREA (PAVERS)	
CONCRETE DRIVEWAY	
GATHERING AREA (GRAVEL)	
FENCING	
PLANK PAVERS	

TOTAL ESTIMATED COSTS \$76,250

## Conclusion

Mid-century neighborhoods were developed to provide affordable homes that met the changing needs of families following World War II. In the same spirit, ADUs now present a small but meaningful way to create more affordable housing options while meeting family needs as they change and evolve over time. ADUs create important opportunities for families to expand, downsize, and age in place; to bring in additional income; and to house family members or caretakers. They also benefit communities by increasing housing options and improving access to neighborhoods that historically excluded renters and Black families, Indigenous families, and people of color.

The ADU concepts presented in this book were designed to maximize affordability and replicability while meeting the unique conditions of each of the case study homes. These designs are intended to help you visualize what is possible for your mid-century home and ease the design process for you. By using these designs as a starting point in your ADU journey, you may be able to save time, energy, and costs in the design process.

Inspired to learn more and get started on your own ADU project? Look through Family Housing Fund's **ADU Guidebook for Homeowners** for an in-depth, step-by-step guide through the process of building an ADU.

## **Endnotes**

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- 15. House construction, location unknown (Supplied Title). 1955. Norton & Peel Photograph Collection, Minnesota Historical Society, Saint Paul, MN.

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## **Appendix**

#### CODES, TECH, AND PERMITTING

Residential Building Code: The International Residential Code, or IRC, describes minimum requirements and basic conditions required to design and build most single-family homes and ADUs. Building codes are used by cities and municipalities to protect public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures. The code is lengthy and detailed, so you should consult with a design professional, an architect, or a contractor for guidance.

Zoning Code: Metro areas all have unique zoning codes that have been adapted over time. These codes pertain to building zoning types (commercial, residential, industrial, etc.), rules for setbacks and heights, parking requirements, and other requirements. Zoning code often takes into consideration the size of the parcel, the proposed square footage of interior spaces, the lot coverage, as well as adjacent building conditions. It is highly advisable to meet with city planning staff for your local jurisdiction early on in the process to confirm all setbacks, height restrictions, lot coverage requirements, and other relevant regulations prior to substantial development of your ADU design. All city zoning codes are available online and can be found in the planning department section of your local municipality.

Technology: Conventional wood framing has been embraced for this booklet as a cost effective and efficient method of construction. Forced air furnaces are separate from the home and provide a cost-effective way to heat and cool. Frost footings, which are foundation walls that extend below the front line, are not the only footing type possible for ADUs in Minnesota, however they are highly recommended and even required for attached ADUs. For all detached ADUs in this booklet, utilities are metered separately as is required by most jurisdictions. Insulation values are an essential part of keeping your ADU conditioned. In Minnesota, exterior walls are made with 2x6 construction to allow for an insulation value of approximately R-19.

Permitting: All jurisdictions require a building permit to begin construction work. They will also require inspections at key points during the construction and again to provide a certificate of occupancy once the construction is substantially complete, if relevant. When applying for a permit, you must provide an application as well as design and engineering drawings to the city for approval of zoning and building code requirements. The application will clearly outline all required drawings, including architectural, structural and surveys that are required for approvals. Once an application is deemed complete by city staff, it can be fully reviewed by the city for a fee. A city may request revisions during the review process if required.

# Glossary

- Mid-century Neighborhood: Any neighborhood with platting and housing construction occurring between the 1930s and the 1960s.
- First Ring Suburb: Townships, cities, and neighborhoods surrounding an urban core. First ring suburban development peaked in the postwar era and predates that of newer, second ring suburbs. Twin Cities first ring suburbs include Richfield and Roseville.
- Economy Home: Mass-produced and mass-designed homes typical of midcentury neighborhoods. FHA guidelines required homes available for financing to cost between \$6,000 and \$8,000 (roughly \$110,000 and \$150,000 in 2021) and to be between 800 and 1,000 sq ft.
- Internal ADU: Accessory dwelling units that are located within the structure of the main dwelling unit, such as a converted basement or attic. These are generally the least expensive type of ADU to build.
- Attached ADU: Accessory dwelling units that are physically connected to the main dwelling unit by one or more walls. These ADUs
  are commonly constructed as additions to the primary house or conversions of attached garages.
- Detached ADU: Accessory dwelling units that are not physically connected to the main dwelling unit. These ADUs are generally the
  most expensive to build and include freestanding backyard structures and detached garage conversions.
- Zoning Code: These are laws regulating land use for a municipal area. Examples of zoning code relating to ADUs include minimum and maximum sizes, parking space requirements, and building materials.
- Building Code: These are laws regulating building construction and are enforced locally via plan reviews and inspections. Examples include fire protection, ventilation, and accessibility requirements.
- Building Permits: Permits are required documents for new construction, reconstruction, and alteration of buildings. Check with local government office for permitting requirements relative to ADUs.
- Finished Floor Area: This is the floor area of a building that has been finished. Zoning codes relating to ADUs are often based on the finished floor area of the main dwelling unit.
- Accessibility: Refers to the level of usability of an ADU. Accessibility considerations include ramps, single-story layouts, door frame widths, and wheelchair turning radius.
- Age in Place: When someone chooses to live in their home or on their lot as they age. Many people use ADUs as a way to age in place, by constructing and moving into an accessible ADU and having family members or caretakers move into the main dwelling unit.

### Additional Resources

- Family Housing Fund's Home + home: ADU Guidebook for Homeowners (includes contact information for Twin Cities planning departments) www.fhfund.org/report/adu/
- Twin Cities ADU Designers and Contractors, compiled by Family Housing Fund www.fhfund.org/report/adu-designers-and-contractors/
- Twin Cities Municipal ADU Policies, compiled by Family Housing Fund www.fhfund.org/report/twin-cities-municipal-adu-policies/
- Book
   Peterson, Kol. 2018. Backdoor Revolution: The Definitive Guide to ADU Development. Accessory Dwelling Strategies, LLC
- Websites
   www.accessorydwellings.org
   www.buildinganadu.com

www.secondunitcentersmc.org

• Other Guidebooks

Los Angeles, California: Building an ADU: Guidebook to Accessory Dwelling Units in the City of Los Angeles www.citylab.ucla.edu/adu-guidebook

San Mateo County, California: Second Unit Inspiration www.secondunitcentersmc.org/wp-content/uploads/ADU-Idea-Book-FINAL-ONLINE-VERSION.pdf

Santa Cruz, California: Accessory Dwelling Unit Manual: Growing Santa Cruz's Neighborhoods from the Inside www.cityofsantacruz.com/home/showdocument?id=8875

Santa Cruz County, California: ADU Basics www.scooplanning.com/Portals/2/County/adu/ADU%20Basics.

pdf?ver=2018-06-07-110146-073

Santa Cruz County, California: ADU Financing Guide www.scooplanning.com/Portals/2/County/adu/ADU%20Financing%20Guide. pdf?ver=2018-06-07-110307-117

San Francisco, California: sf-ADU www.sfplanning.org/resource/accessory-dwelling-unit-handbook

Seattle, Washington: A Guide to Building a Backyard Cottage www.seattle.gov/Documents/Departments/SeattlePlanningCommission/BackyardCottages/BackyardCottagesGuide-final.pdf

# About Family Housing Fund

The Family Housing Fund believes it takes all of us working together to build a strong system that supports access to decent, affordable homes for everyone. Established as a nonprofit housing intermediary in 1980, we support the Cities of Minneapolis and Saint Paul, the Metropolitan Council, and Minnesota Housing in their efforts to meet the seven-county metropolitan region's affordable housing needs. We are unique in focusing on all facets of housing and working across sectors to ensure systemic change.

#### **CREDITS**

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#### **THANK YOU**

Family Housing Fund would like to thank all of the homeowners who volunteered to have their homes featured in this book, as well as Twin Cities Habitat for Humanity. We also thank the city planning staff in Crystal, Richfield, Roseville, and White Bear Lake who introduced us to homeowners and worked with us to develop code-compliant ADU plans. Thank you for making this book possible.

