

ADAPTING HOME

RESIDENTIAL DEVELOPMENT AND DOMESTIC COMFORT IN VERMONT

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INTRODUCTION

Comfort as a physical construct is defined as a need for shelter, light, and climate control. As a social construct, comfort is determined by the desire for privacy or co-habitation, more space, or an open layout. Social insulation – a form of social comfort favoring privacy – is the act of architecturally barricading one’s self from others, such as through the layout of the home, placement of the front door, and size of the site. It is the strategic use of architectural elements or characteristics of the site to conceal or buffer as a method for achieving privacy. While social insulation can be employed to achieve gradients of privacy, social isolation is the complete disconnect between the occupant and the surrounding environment. The National House, the purveyor of social isolation and a pre-packaged idea of comfort, is the counterpoint to the local Vermont home, the manifestation of the search for comfort. Pre-packaged comfort comes at an additional price, since static buildings without the ability to adapt over time as needed are incapable of responding to the household’s constantly evolving definition of comfort. Physical comfort has been solved and standardized and now refers to more trivial luxury features as even the most inexpensive homes, by code, are readily survivable by their inhabitants.

While Vermont’s residential building tradition primarily manifests as the modification of the house over time in search of physical, social, and economic comfort, a newfound desire for social insulation on the national scale has led to the influx of pre-packaged comfort into

the Champlain Valley’s residential housing stock. Not only has this trend escalated the region’s affordable housing shortage and loss of rural landscape, it has established a residential housing stock that does not reflect the character of the local Vermont home. Historically, physical comfort has been the primary basis of residential design in Vermont. As a result, the local Vermont home is an amalgamation of built additions and renovations in pursuit of this goal. The same principles of adaptation should be applied to new and existing housing stock as a response to the current desire for social comfort. Through the modification of existing housing types, the Champlain Valley can increase housing choice, strengthen its regional identity, and provide the physical comfort and alternative methods for privacy currently achieved through the mass importation of the National House.

Vermont is the second most rural state in the country and its scenic landscape and quaint towns entice outsiders. The desire to live in a rural environment ironically threatens the landscape as new residential development most often comes in the form of the National House. Vermont’s built environment is becoming homogenized, resulting in the infill of low-density construction across the state. Each home is spaced to allow for a curated natural buffer to serve as a thick screen between neighbors. For the affluent who can afford it, the home is set away from others, and for those of middle-income, the building has become a fortress of large garages and setback



Fig. 1. Detached, Single-Family House in Williston

entrances to increase social insulation. Low-income housing, often in the form of apartments, is typically seen as undesirable due to the constraints placed on its ability for social insulation. Social insulation goes hand-in-hand with ideas of individualism and the desire for privacy in Vermont. It is crucial to supply alternatives that allow for social insulation without the total isolation of the National House or the loss of landscape that occurs with the current trend of low-density development.

Vermont is experiencing a loss of “ruralness” as social insulation replaces physical comfort as the driver of residential design. Furthermore, the pre-packaged comfort often associated with social insulation requires an upfront cost. The variety of Vermont’s housing stock is limited, as most homes are single-family and 36% of Vermonters are currently cost-burdened, meaning they spend over 30% of their income on housing.¹ Ultimately, there is a shortage of housing that can affordably meet diverse comfort needs. Without the ability to adapt the home over time, in the tradition of the local Vermont home, the house is only compatible with specific familial



Fig. 2. Attached, Single-Family Garages in Williston

compositions and incomes. By providing the means to adapt a dwelling at will, residents are able to customize the home to fit their individual physical and social comfort needs, based on income and family demographics. In turn, this infuses the housing stock with a variety of affordable homes in the tradition of the local Vermont home.

CRAFTING
COMFORT

THE CHAMPLAIN VALLEY

THE EVOLUTION OF COMFORT IN ARCHITECTURE

WHAT IS COMFORT?

Comfort is a mercurial concept. Its meaning has evolved over time, recognized as both an attribute and state of being. Originally reserved for one’s emotional status, the perception of comfort has expanded to encompass both a mental and physical achievement. For example, you can comfort a friend who has lost a loved one while sitting on a comfortable sofa. In this way, comfort as a term is highly adaptable while performing several functions at once.

Ultimately, comfort is linked to personal impressions of contentedness. While different aspects of comfort have been standardized over time, nothing is universally comfortable. Comfort is subjective. To better understand its implications and subtleties, comfort can be divided into three distinct categories: physical comfort, social comfort, and economic comfort.

PHYSICAL COMFORT

As long as humans have existed, we have found new ways to control our environment in order to survive and in search of physical comfort. Put simply,

Physical Comfort in Vermont: Establishing a Settlement

COMFORT IN VERMONT

Vermont is a small state located in the northeast region of the United States of America, known as New England. This region was one of the first to be settled by Western colonizers, and as a result, early architectural and planning practices are closely tied to those of its European counterparts. In Vermont, as the dwelling evolves over time, so does its relationship with comfort. The house, originally based strongly on European precedents, begins to develop regional variations as the inhabitants encounter different materials and needs. Due to innovations in technology, Vermont dwellings are adapted over time to better achieve standards of physical comfort. As technology evolves, so does the spatial organization of the home. By the mid-twentieth century, main barriers against physical comfort were satisfactorily solved, and social comfort became the predominant organizer of space. By this point, we see the establishment of a national style and the loss of regional variations, such as the adaptable Vermont home.

THE FIRST SETTLERS

When Vermont became the fourteenth state in 1791 the area was already occupied by 85,000 inhabitants.³⁵ Military roads connecting New Hampshire and New York provided some of the first opportunities for settlement in the 1760s.³⁶ This was shortly followed by the New Hampshire Grants, when New Hampshire governor Benning Wentworth sold land, which was also claimed by New York, at under one-hundredth the cost of unsettled land in other colonies.³⁷ 12,000 residents were recorded in 1774 as a direct result of New Hampshire land purchases,



Fig. 3. Water Transportation Network in the Early 1800s

with countless others moving to the area with property purchased from New York.³⁸

Newly established towns were often planned in advance of settlement and centered around an anticipated North-South and East-West crossing or a common green.³⁹ Most of Vermont’s villages were established around the transition from colony to state, and ease of access to water and roadways determined the primary location at the time.⁴⁰ The location of the waterway on which a village was established strongly determined the community’s architectural preference. Glenn and Johnson, authors of *Buildings of Vermont*, note:

This pattern of settlement along watersheds set the general ‘downriver’ cultural orientation in most rural communities, where, for example, local architecture tended to reflect the stylistic preferences of downstream contemporaries rather than those of a neighboring town in an adjacent river drainage.⁴¹

The Champlain Valley, situated in Western Vermont between Lake Champlain and the Green Mountains, is accessible from New York City via the 1823 Champlain Canal connecting Lake Champlain and the Hudson River.⁴² As a result, the regional styles of Western and Eastern Vermont differ. While influences from the English can be found east of the Green



Fig. 4. View from Vermont Looking West Towards Lake Champlain and the Adirondack Mountains

physical comfort is the need for thermal insulation. It relates to aspects of our environment that physically affect our personage: shelter, light, and climate control. Physical comfort, as a concept, was first introduced in the eighteenth century.² In John Crowley’s 1999 article, “The Sensibility of Comfort”, Crowley writes, “Comfort became significant in the eighteenth century as an attribute of the body and its physical environment, supplanting an earlier sense of comfort meaning moral and spiritual support.”³ Furthermore, Crowley intones that the ideas of physical comfort became a type of knowledge, especially throughout literature on the economy, and soon physical comfort pervaded commercial trends.⁴ While there had always been a desire to improve one’s dwelling – to make it warmer, brighter, or more weather-resistant – this is the first time that the term comfort was applied to an idea of physical contentedness in direct relation to an environmental interaction. This idea of physical comfort branched in two different directions; the comfort of a space and the comfort of objects within a space.

As the quality of comfort gained importance, it became standardized as an attribute and as a set of regulations. In 1923, the American Society of Heating and Ventilating Engineers (ASHVE) began researching heat and humidity in order to define optimal thermal comfort and produce industry wide regulations.⁵ By the 1970s, ASHVE determined comfort to be a “condition of [the] mind that expresses satisfaction with the environment.”⁶ Despite understanding the role of the mind in ascribing comfort, ASHVE was looking only at the physiological body to determine a comfort range. In actuality, the span of comfort is much broader as individuals identify themselves as comfortable even when existing conditions do not meet prescribed comfort standards.⁷ This phenomenon signifies that comfort extends beyond quantifiable responses to stimuli and varies from person to person.

This is true as well for objects. Furniture designed to be ergonomically

Mountains, due to the presence of the Connecticut River bridging Vermont, Massachusetts, Rhode Island, and Connecticut settlers, influences west of the Green Mountain stem primarily from New York City’s Dutch settlers. For this reason, regional building trends through Vermont tend to vary, based on the origin of the initial inhabitants. The location of settlements and proximity to major trade routes also influenced the wealth and growth of towns. Williston, Shelburne, and Charlotte, all founded in the early 1760s, were the largest villages in the area.⁴³ After the construction of the Champlain Canal, Burlington, then known as the Potash Trading Center, exploded due to its newfound connection to New York City.⁴⁴

Architectural variances between towns also resulted from the influence of notable architects at the time. While most towns were planned in advance, most developers chose to sell the land they had purchased to settlers instead of relocating themselves.⁴⁵ However, these proprietors often gifted civic projects to the town, such as a village green, church or school, which were often centrally located within the town and likely to be designed by architects.⁴⁶ Houses were influenced by the prevalent styles of the time but ultimately designed and constructed by local craftsmen. Within a municipality, the dwellings were dispersed on large plots with fences to contain livestock.⁴⁷ In contrast, mill towns evolved around a main road with a multitude of commercial entities, such as merchants and lawyers. The wealthier inhabitants, nostalgic for the towns they had left, tried to implement the planning and architectural principles they were familiar with. As a result, well-known architects were called upon to contribute to the new towns and are responsible for the design of many churches and larger civic buildings. Local craftsmen copied the imported style, which was often additionally published in builder’s guides.⁴⁸ Thus, Vermont’s architecture was highly influenced by the happenings in larger regional hubs, such as Boston and New York City. This influence can also be seen in the evolution of Vermont’s domestic dwellings.

THE FIRST HOUSES

While log houses have commonly been associated with the first settlers in late eighteenth century Vermont, these structures were often temporary in nature as an initial one- or two-room shelter. The next structure built was typically a 30-foot by 40-foot wood-framed barn. As a show of prosperity, the barns often fronted the road.⁴⁹ These two structures were followed by a one-and-a-half to two-story timber-framed dwelling and additional barn structures.⁵⁰ Regional differences were present even in these early houses. Whereas northeastern Vermont saw the production of traditional English Cape Cod, Saltbox, and I-houses, southwestern Vermont buildings tended to have flared eaves, gambrel roofs, and bent wood framing or brick construction typical of the Dutch in the Hudson

comfortable is not attributed with the same level of comfort as a plush sofa or armchair.⁸ Elizabeth Shove, author of *Comfort, Cleanliness and Convenience: The Social Organization of Normality*, writes that “it is clear that the process of being and making oneself comfortable stretches beyond the appropriation and use of individual commodities, even when those objects are imbued with attributes of comfort.”⁹ Despite the subjectivity apparent in individual comfort preferences, including culturally different definitions of comfort, globalization has led to the standardization and commodification of comfort.¹⁰ Shove writes:

*Needs have been defined and reproduced in an incredibly precise manner and in a manner that takes no account of the historical variability of indoor climates or the range of conditions in which people of different cultures say they are comfortable.*¹¹

In response, it has been noted that environments are more widely accepted as comfortable when they offer opportunities for individuals to adjust their surroundings according to their own comfort preferences.¹² In this way, the ability to make oneself comfortable is synonymous with the ability to modify the individual’s surrounding environment.

THE TRANSITION FROM PHYSICAL TO SOCIAL COMFORT

At the same time that the thermal environment of the house was being regulated in the name of comfort, the organization of space was also instilled with notions of comfort. Social comfort can be defined as a cultural construct determining the appropriate level of intimacy for each space and situation. Ultimately, social comfort can be seen as an undulating scale ranging from community to privacy. In this sense, we see the concept of comfort once again expand with meaning. In the nineteenth century it was thought that comfort had a direct relationship to the domestic floorplan and interaction of inhabitants.¹³ More recently, architect Terence Riley believes that social

Valley.⁵¹ In the Champlain Valley, located in mid- to northwestern Vermont, the need to clear forests promoted the production of frame-and-plank wall construction methods due to the abundance of timber.⁵² Houses throughout the state in the late eighteenth century were small, given that materials such as nails and glass had to be imported.⁵³

Many older homes used “trunnels,” or wooden nails.⁵⁴ Footings were dug below the frost line and foundation walls were made of stacked stones that may have been later filled in with wet cement mortar to patch air and water leaks.⁵⁵ Sills, flat timbers laid on top of foundation walls, supported heavy beams used to support the floor. These beams were often only flattened on top to support floorboards⁵⁶ and tied into both the sill and the girder, a larger beam that ran the width of the house,⁵⁷ commonly with a mortise and tenon joint.⁵⁸ Heavy corner posts supported the attic or second-story, sometimes with diagonal bracing.⁵⁹ The beams and girders of the upper floor, although framed similarly, were typically hewn-flat on all four sides and left exposed to view. Self-supporting plank walls were used to divide interior space.⁶⁰ In the early- to mid-nineteenth century, the plank walls and floor beams were often plastered over to hide the wood from site and create a surface for stenciling or wallpaper.⁶¹ The first stud walls were wider-set than today’s standards and typically four-inch by four-inch members.⁶²

Homes at this time were mostly hand-hewn. The wood came from the household’s property, with eastern white pine and spruce popular at higher altitudes and hemlock more prevalent in lower-lying areas. Although maple was also widely present, softwoods were favored over hardwoods like maple because they were lighter.⁶³ After being cut down in the winter, when there was no sap, the bark would be removed, and the timber left to dry for about a year.⁶⁴ The logs were then hand-hewn and erected on-site. Although mills with upright saws, and later circular saws, existed in the area, it was difficult and expensive to transport the logs. Smaller members and floorboards, which were more difficult to cut straight by hand, were most commonly cut at mills and transported. Well into the mid-nineteenth century, dwellings included a mix of hand-hewn and mill-cut lumber.⁶⁵

Some of the earliest domestic structures in Vermont, built in the early 1700s, were built in the Georgian style. This echoed trends throughout the colonies and heralded a classical Roman architectural revival. The Georgian style can be identified by the molding, which was based on the shape of a circle, and its importance as a second element from the rest of the structure.⁶⁶ These early homes were mostly constructed of eastern white pine and had only sheathing boards for protection against the elements, which were later replaced by clapboards.⁶⁷ The chimney was

Fig. 5. Framing Model of Expanded Cape Cod House in Central Vermont





Fig. 6. Framing Model of Expanded Cape Cod House in Central Vermont



Fig. 7. Framing Model of Expanded Cape Cod House in Central Vermont

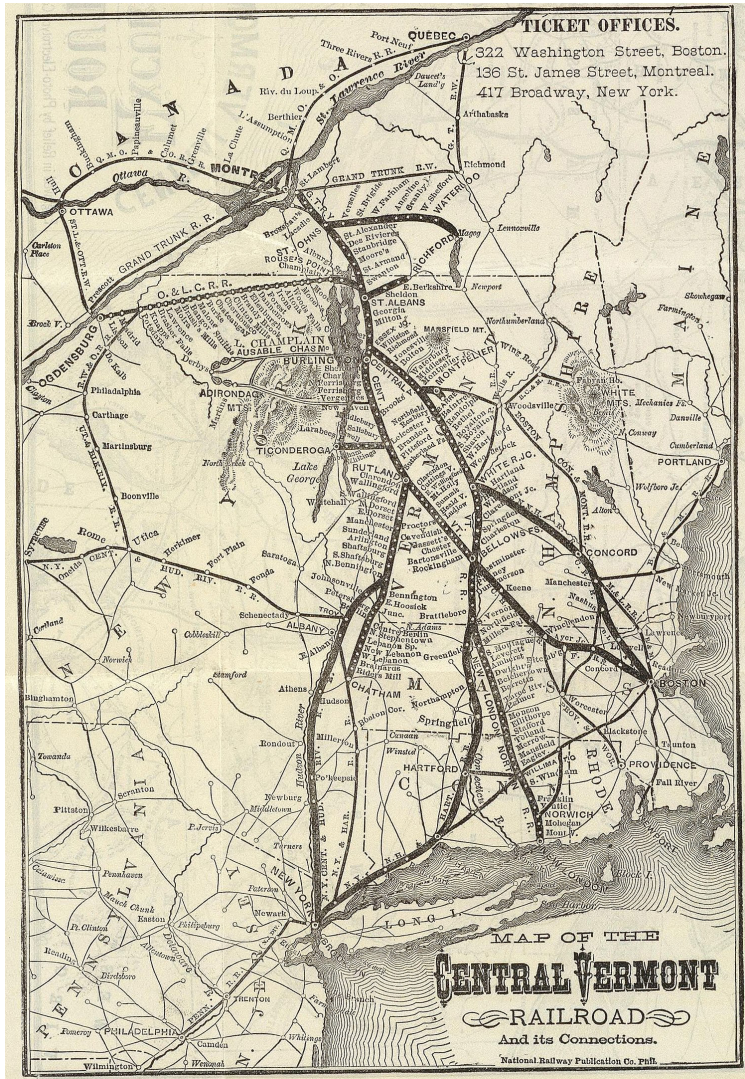


Fig. 8. Map of the Central Vermont Railroad in 1879

placed either centrally or located on each end of the dwelling.⁶⁸ Rooms were small and compartmentalized due to the reliance on the chimney for heat.⁶⁹ Cellars directly tied to the kitchen’s needs for food processing and storage.⁷⁰ The foundation walls were originally made of fieldstone, protruding half a foot above ground, and backed with bricks. Towards the end of the eighteenth century, large granite blocks capped the fieldstones above ground.⁷¹

The floorplans of the Georgian houses were fairly limited due to building constraints and comfort needs. The plan generally featured a central chimney or stairwell and was framed with four H-shaped bents, one per side and two in the middle, adjacent to the central core. Shops or warehouses, where no internal segregation was required, typically had equally spaced bents that did not relate to the position of the chimney.⁷² Instead of a rafter-and-purlin roof, these houses typically employed “common rafters” which were lighter and much more closely spaced together, from two-foot to four-foot distances. Sheathing for the roof was nailed directly to the common rafters.⁷³ Tie beams followed the pattern of the bents and mid-point collar-ties stiffened the rafters.⁷⁴

In the Champlain Valley, due to Dutch influences, a knee-wall frame, also known as a continental frame, was often used, which allowed for a one-and-a-half story dwelling. In contrast, English settlers to the east were more likely to build one- or two-story houses.⁷⁵ One-and-a-half story dwellings continued to be popular throughout the Greek Revival period, as the added height helped to emphasize the templar character of the façade.⁷⁶ The typical continental frame was modified using stronger post-and-beam joints to replace the diagonal bracing that protruded into interior rooms.⁷⁷ The frames were further braced with smaller diagonal members to resist racking, which is known as the New England Braced-Frame.⁷⁸ These homes also required smaller infill, such as studs and floor joists. Exterior sheathing consisted of one-inch white pine or spruce boards often cut at a mill on a reciprocating or upright saw. The boards produced by the mill were categorized as “clear”, “merchantable” and “refuse,” with the refuse boards typically used for attics and sub-flooring so that moisture could better evaporate.⁷⁹ At this time, brick was primarily reserved for chimneys.⁸⁰

The Federal style replaced the Georgian style in the late 1700s.⁸¹ These dwellings experienced more flexibility with the layout and the chimney was generally smaller and at times incorporated into the outer wall.⁸² Heavy mantles, which were only in homes of the wealthiest during the Georgian period, became slimmer and more popular as local craftsmen were able to reproduce them from newly published architectural guidebooks.⁸³ The front door also gained a semi-circular window above it.⁸⁴ Instead of

comfort, especially privacy, has been tied to domestic space since the seventeenth century.¹⁴ Most agree, however, that the role of privacy took hold with the expansion of the household between servants and those served.

One example of the restructuring of the home for privacy is the relocation of the kitchen over time. Originally, the hearth was the center of the home for physical comfort, due to the need for warmth, and social comfort, when cooking was a communal activity. When servants took over many domestic chores, and new innovations for thermal comfort were introduced, the kitchen was hidden out of site. By this point, cooking became seen as a chore of servants, whereas eating was a pleasure of the rich.¹⁵ As the role of servants in the home declined, the kitchen remained separate as an artifact of a wealthy lifestyle.¹⁶ It is only recently, with the advent of the open concept plan throughout the United States, that the kitchen is returning to its original status as the center of the home. Although previously given this role for the practicality of staying warm, modern day technology ensures that the recentralization of the kitchen relates solely to the social reorganization of the home.

The plan has often been used as a tool to organize social interactions and as a way to envision physical comfort. Robert Kerr, author of the 1864 treatise *The Gentleman’s House*, promoted “imaginative inhabitation” as a tool for determining comfort.¹⁷ He plotted furniture on the plan so that future inhabitants could better visualize themselves living in the space and interacting with other residents.¹⁸ The furniture was instilled with the social hierarchy and identity of the residents at a time when the human body was becoming more private.¹⁹ Through this strategy, “Imaginative inhabitation forecloses on the future possibility of inhibiting the materially complete house by promoting comfort as the measure of proof for successful inhabitation, and therefore a successful plan.”²⁰ By imagining inhabiting the plan, aided by the inclusion of

paneling or wainscoting, plaster became a more popular material.⁸⁵ Nails also changed shape from handmade iron rods⁸⁶ to manufactured square slivers of iron that were faster to produce and more economical.⁸⁷

In the 1830s, the preferred architectural style switched to Greek Revival, known for its heavier profiles and moldings based on parabolic shapes.⁸⁸ The 1830s also witnessed the end of the “scribe-rule” and the beginning of the “square-rule,” as framing became more standardized.⁸⁹ Unlike the scribe-rule, where unique symbols marked each individual joint, the square-rule allowed for the creation of a schedule of joints so that members could be produced at different sites in different sizes and still fit together.⁹⁰ Additionally, metal roofs became an alternative to replace wooden shingles. Tin-plated sheet iron was imported from Britain or locally available tin was alloyed with lead and covered iron or steel. Tin-coated steel and zinc galvanized steel or iron became more popular options for metal roofs as the cost of steel decreased.⁹¹ Copper, which was more expensive, was typically only used for irregular shaped roofs.⁹² Metal was favored in the northeast as it allowed for snow to easily slide off and not accumulate.⁹³ Additional inventions were introduced around this time, such as the circular saw, but many technologies did not become widespread in the Champlain Valley until the construction of the railway in the mid-nineteenth century.

CONNECTING TO THE REGIONAL NETWORK

The first railroads in Vermont were constructed between 1848 and 1858, with access expanding throughout the second- half of the century.⁹⁴ In 1849, Burlington first became connected by rail and this network extended from New York City and Boston to Montreal by 1879.⁹⁵ At the time the railroad was established in Burlington, the community had 7,500 residents.⁹⁶ More rural towns did not exceed 1,000 to 2,000 residents.⁹⁷ Up until this point, Vermont was primarily rural with a focus on agriculture and sheep farming. By 1850, dairy farming quickly began to replace sheep farming⁹⁸ as Vermont grew to be Boston’s largest dairy supplier.⁹⁹ Additionally, with the construction of the railroads, Vermont benefitted from the export of wood, marble, granite, and slate, which had until this point only been produced for private local use.¹⁰⁰ Vermont, and adjacent areas of New York, quickly became renowned for their slate as local quarries produced a variety of colors, such as green, purple, and red. Slate was especially popular in larger maritime settlements due to fear of fire.¹⁰¹

Due to their importance in the trade networks, railroads influenced the planning and architecture of local villages. Towns reorganized or were established along rail depots and grids¹⁰² and architectural pattern books

purposefully arranged furniture, social ideas about comfort were ordering the physical layout of space.

While the plan was inextricably tied to domestic comfort, there was some debate at the time between desired levels of intimacy and privacy. In his writing, Kerr favored the separation of inhabitants and functions.²¹ He believed that “comfort was to be found at the end of a corridor behind a closed door” for the benefit of both the served and servants.²² Not long after in 1880, JJ Stevenson argued in his own treatise, *House Architecture*, for the co-mingling of the inhabitants.²³ He took an opposite view from Kerr, encouraging the merging of several rooms into one for family use. He also encouraged less privacy between the household and its staff, as a higher degree of intimacy would result in increased loyalty.²⁴

Privacy as a trend has been long lived and is often seen as an ultimate aspiration. This may first be seen in the segregation of the plan and separation of servants from served, but it is also clear in the context of the development of suburbia. The center of the city, once the seat of opulence, came to be seen as dirty, diseased, and derelict after the advent of the industrial revolution. With the innovation of fast and consistent transportation, those with the means to do so fled the city for health and comfort. A pattern of commute was established as the affluent worked in the city during the day, returning in the evening to their pseudo-country home. The home became a retreat from the crowded cities, associated with a life of comfort and success. The rise of suburbia further cemented the collective national aspiration for retreat and seclusion.

SOCIAL INSULATION AS A FORM OF COMFORT

While privacy and social insulation have become desirable characteristics throughout the country, it is not without contest. In *A Pattern Language*,

and materials also made their way to the Champlain Valley by train.¹⁰³ Merchants flocked to these fast growing settlements and brought with them diversity that had not yet been seen in the area.¹⁰⁴ Ending the Greek Revival period, the first train stations were constructed in the Italianate style.¹⁰⁵ The railroads also reignited growth in the area, which had slowed as inhabitants moved away for warmer climates and better soil.¹⁰⁶ The Civil War, fought during the 1860s, also played a role in propelling the region economically. Several wealthy residents returned after the war with newfound fortunes that they used to implement new agricultural models for breeding, dairy, and orchards. The Webbs, the founders of the popular Shelburne Farms, were one of these families.¹⁰⁷ A late-1800s campaign further prompted the return of ex-patriots, or donations, such as schools, and sparked the tourist industry.¹⁰⁸ By 1900, the population of Burlington had grown to 20,000.¹⁰⁹

Regional railroads and steamers traveling up Lake Champlain brought tourists to the area, enticed by the railroad's published promotions of “Vermont as an unspoiled land where one could still experience idealized rural and village life.”¹¹⁰ These publications:

...presented the state as a summer recreational paradise and encouraged the purchase of old farms for seasonal use. From the 1890s on, rural-seeking out-of-staters acquired and rehabilitated farmhouses and village houses that fit their vision of an old Vermont homestead.¹¹¹

The Champlain Valley, which includes Lake Champlain, to this day maintains a strong tourist industry revolving around lakeside inns, clubs, camps, and vacation homes, and markets itself as a rural escape for regional urban cores, like Boston and New York City. As a direct result of tourism, Vermont became the first state to establish a publicity bureau in 1911.¹¹²

In the 1930s, lakeside tourism expanded to include skiing, such as in the Champlain Valley's mountain town of Stowe. The rise of a ski tourism industry may have resulted from the 1932 Winter Olympics, which were held just across Lake Champlain in Lake Placid, New York.¹¹³ Tourism also expanded throughout the valley at this time due to the automobile and improved roads. In 1927, economic downturn coincided with a flood that destroyed countless bridges and roads in the area. In response, and to stimulate the economy, better bridges and a more extensive road network was built with an emphasis on engaging a new wave of tourists traveling by car.¹¹⁴

The first half of the twentieth century was a tumultuous time for the

Christopher Alexander argues that “Isolated buildings are symptoms of a disconnected sick society.”²⁵ He further connects the isolation of buildings to the breakdown of community:

...isolated buildings have become so popular, so automatic, so taken for granted in our time, because people seek refuge from the need to confront their neighbors, refuge from the need to work out common problems. In this sense, the isolated buildings are not only symptoms of withdrawal, but they also perpetuate and nurture the sickness.²⁶

In an effort to strengthen community, encourage problem solving, and spark relationships, Alexander urges for the connection of buildings wherever possible.²⁷ However, physical separation does not necessarily mean total disconnection. Terance Riley argues that the physical isolation of houses does not mean the inhabitants are fully cut off from the public.²⁸ He cites media as a mode of connection despite physical distance, stating that “the private house has become a permeable structure, receiving and transmitting images, sounds, text and data.”²⁹ However, digital intimacy does not contribute to the community that the house is a part of.

While homes have been insulated against the environment, they are not, as of yet, insulated from the digital. While the digital has many benefits in its own right, it does not generate physical community connections. Not only is the home no longer the secluded retreat it was once seen to be, the rise of digital technology only furthers the isolation between houses. As Serge Chermayeff and Christopher Alexander write in *Community and Privacy: Toward a New Architecture of Humanism*:

country, including the Great Depression of the 1930s and World War I and II. Several severe floods and the economic downturn spurred new infrastructure projects, job creation, and the establishment of the Vermont Development Department in 1949. The department aimed to attract new industries and further promote tourism in the state.¹¹⁵ Similar to the changes wrought by the introduction of the rail system in the mid-twentieth century, the construction of the interstate in the late-1960s heralded the next big shift in the development of the Champlain Valley.

STANDARDIZING PHYSICAL COMFORT WITH NEW TECHNOLOGY

The period between the construction of the railroads throughout Vermont and the construction of the interstate marks a significant shift in regional construction practices. Throughout the world, the invention and advancements in machinery were changing daily life, and this was no different in the Champlain Valley. In particular, the domestic setting was revolutionized as innovation led to more efficient and standardized building practices. With technology, physical comfort within the domestic setting was greatly resolved, which paved the way for the layout of the home to shift influence to ideas of social comfort.

In the mid-nineteenth century, advancements in technologies and greater ease of transportation led to the manufacturing, standardization, and importation of building products. Along with railroads, steam power led to the invention of the circular saw at this time, which replaced the previous reciprocating saw.¹¹⁶ This technology took longer to reach farms and the most rural communities but allowed for the quick production of lighter framing elements which replaced the heavier braced frame.¹¹⁷ The balloon frame, invented in Chicago in the mid-1800s, is the most prominent framing system to take advantage of this new technology.¹¹⁸ The balloon frame as a structural system required 2x4 studs spaced 16 inches on center and fastened with nails. 2x8 or 2x10 members were used for joists and rafters. The studs spanned both first and second floors and replaced the need for heavy timbers. This meant that the layout of the dwelling was much more flexible, it could be constructed more quickly, and it did not require the same level of skill to construct.¹¹⁹ Its major downfall was fire and strength, but over the years it was further developed to include firestops in the cavities walls and diagonal sheathing and subflooring to resist racking.¹²⁰ As balloon framing slowly spread throughout Vermont, it was often combined with heavy timber members or joints into the twentieth century.¹²¹ Other mid-nineteenth century innovations that took off were planning machines which efficiently replace hand-planning,¹²² zinc based paint, although it was still commonly mixed with lead to achieve the desired coverage,¹²³ and the production of manufactured iron nails.¹²⁴



Fig. 9. Aerial of Stowe, Vermont



Fig. 10. Path Leading to Patio Socially Insulated by Garages



Fig. 11. Rear Dwelling Socially Insulated from Street by Detached Garage

What was once a commonplace – the possibility of escape from the crowd for privacy and rest – has all but vanished. The crowds, once restricted to the streets and borders of the public domain, now follow unbidden into the solitary, private, domain by means of electronic media intruding acoustically through the thin partition that fails to separate man from his noisy neighbor³⁰... Only physical insulation against the dangers and pain of invasion - interruption by people, traffic, and noise – can inhibit chaos and confusion.”³¹

While social comfort is the degree of privacy or intimacy one desires within one’s domicile, social insulation is the act of physically and mentally distancing oneself from the surrounding community. Social insulation is represented through architecture and planning, such as the no-man’s land patch of grass between houses or the steady retreat of the front door. While the desire for privacy is well within one’s rights to their own comfort, social insulation has emerged as a cultural construct that does more harm than good. As Chermayeff writes, “Isolation in the vast sprawl of suburbia has led to a spiraling dependence on transportation and communication to provide contacts and experiences missing at home.”³² Not only does it fail to adequately provide the privacy households and individuals may crave, it severs valuable ties to the community in which the house is located. Instead, there must be a balance between the desire for privacy and participation in community.

WEALTH, COMFORT, AND ISOLATION

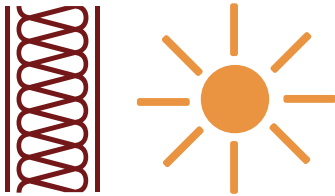
Beyond an attribute or state of being comfort is also an achievement. Comfort has long been seen as an aspiration, often only achievable by the wealthy. The phrase “living a life of comfort” comes to mind, meaning a life with more than adequate physical, social, and economic comfort. Capitalism has furthered this idea by commodifying comfort – comfort often comes with an additional price tag, whether it be a mattress, car, or upgraded fixtures within a home. However, it is also thought that comfort is a human right, not a luxury. Throughout the eighteenth century especially, the idea that everyone

At this time, a new architectural guidebook, Cottage Residences, was written and published by Andrew Jackson Downing in 1842. Although guidebooks had been circulating for years among architects and craftsmen, this publication was crucial as the “first American book to discuss the purposes, arrangement, and aesthetics of dwelling houses.” Additionally, the book was “the first to link the design of a house to the economic circumstances, personal interests, and family life of its owners.”¹²⁵ The book introduced several building types in the romantic styles and offered the reader the opportunity to select a variety of styles at their own whim. As architectural historian James Garvin writes, “This was the birth of the eclectic attitude toward house design that has pervaded American architecture ever since.”¹²⁶ This was a crucial concept in promoting a domesticity that became directly related to the preference of the inhabitant. Furthermore, Downing was a proponent of technology that increased the comfort and quality of everyday life and thought decoration and personalization of each room by the residents was essential.¹²⁷ This publication indicated a change in the way the home was viewed and its implicit connection to the inhabitant.

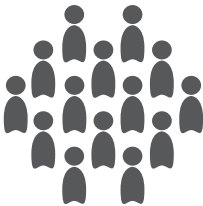
The end of the nineteenth century saw a continuation of a mix of styles available for the inhabitant to choose from. In areas mostly removed from the presence of architects, the concept of mail order house plans took hold.¹²⁸ These often took the form of books or catalogs published by architects or architectural associations and offered a variety of styles and materials to choose from. The selection included anything from Colonial Revival features based on the Federal or Georgian styles, gables and turrets in the Queen Anne style (often combined with shingled elevations), or mansard roofs characteristic of the French Second Empire.¹²⁹ At this time, the floorplan also became detached from the façade, meaning the internal organization and the exterior aesthetic could be chosen and modified separately.¹³⁰

The detachment of the floorplan coincides with a shift in the meaning of domesticity, largely due to new and available technology. The fireplace, once the axis of the home due to its need to provide both warmth and cooking, was replaced with a steam-boiler or hot air furnace in the basement¹³¹ and a stove in the kitchen.¹³² Instead of a plan centered on the kitchen, the plan evolved to accommodate eating, living, and sleeping as three equally prominent spaces within the home.¹³³ Modern plumbing also dictated the need for a bathroom to be accommodated within the home.¹³⁴ As the organization of the plan shifted, and rooms could become more open due to central air, “a house could be regarded as a series of specialized but interrelated spaces rather than a series of compartments.”¹³⁵ The kitchen remained disconnected, due to sounds and smell, but other rooms, originally compartmentalized, now

PHYSICAL
COMFORT



SOCIAL
COMFORT



ECONOMIC
COMFORT



Fig. 12. The Three Constructs of Comfort

was entitled to comfort gained popularity. According to John Crowley, at this time “physical comfort could be asserted as a right of the unprivileged and a humanitarian responsibility of the propertied.”³³ While there has been a concentrated effort to define and standardize comfort for mass consumption, ultimately comfort is still associated with wealth. This is especially true in relation to the concept of a vacation home.

The vacation home is often tucked away in the rural countryside; a secluded oasis. It serves as an escape from everyday stimulation and as the ultimate purveyor of privacy. Like other commodities of comfort, the vacation home, the ultimate comfort, is reserved for those who can afford it. In this respect, privacy equates to wealth. The more affluent the household, the larger the property and the higher the degree of privacy and isolation. This is often true for both the vacation home and for the primary dwelling. As wealth decreases, so does lot size and the separation between dwelling units. At the opposite end of the spectrum, low-income households primarily live in apartments with thin walls serving as the only form of insulation. Thin walls do not necessarily mean a stronger sense of community, only a decreased state of comfort. Social insulation is apparent throughout all brackets of housing. While it may take the form of a thick hedge or recessed door, proximity does not equal community.

ECONOMIC COMFORT

Just as physical and social comfort are determined by the individual, so is economic comfort. Economic comfort essentially boils down to affordability. In the United States, a dwelling unit is deemed affordable if the household’s spending on housing costs, such as rent or mortgage and utilities, does not exceed 30% of the household’s gross income.³⁴ Like all forms of comfort, economic comfort has been standardized. In this case, the standardization of

became better connected through sliding doors.¹³⁶ This is also true for the relationship from interior to exterior, which took advantage of new transitional spaces, such as porches and balconies.¹³⁷ Due to innovations in technology, the layout of the home decentralized from the kitchen to a series of interconnected spaces. This marks an important moment where physical comfort is restructuring the social order of the home.

With the turn of the twentieth century, physical, social, and economic comfort converged in the form of kit houses. Previously, mail order plans were reserved for the wealthy, but as standardization increased, so did the availability of these designs for the average American.¹³⁸ Often, these plans were distributed and promoted by local building and framing companies, which made a profit by providing the material needed.¹³⁹ The local builders and craftsmen, who originally played a role in the design and style of the home, became suppliers instead of innovators. Regional differences, due to the establishment and reinforcement of local builders discovering and iterating on plans that were regionally preferred, began to be replaced by a national layout and style.¹⁴⁰ It was not long before larger producers of planned houses realized they could supply both the design and material in the form of kit houses.¹⁴¹ The two largest companies, both midwestern based, were Sears, Roebuck and Company, and Montgomery Ward. Sears had the advantage, as they were able to supply every element of the house, from the plan, to the material, to the paint, furniture, and finishings.¹⁴² Advancements in the building industry made kit houses economical, quick to build, and comfortable for the buyer.

Another industry change at this time was the introduction of platform framing. Unlike the balloon frame, the platform frame was built one level at a time.¹⁴³ Shorter studs reduced building costs, decreased fire issues, and increased the strength of the structural system given a rigid frame that shrunk much more evenly.¹⁴⁴ Steel wire nails, developed in the late-1800s, came in a variety of gauges and strengths and were a stronger and less expensive option for securing the frame.¹⁴⁵ The walls, originally covered with lime plaster, were replaced with gypsum wall plaster that took hours instead of days or even weeks to dry, significantly increasing the speed of construction. It was not long before this technology had been condensed to the form of gypsum wall board which could be quickly installed on-site.¹⁴⁶ Commercial glass, previously hand blown, was developed using flat or drawn techniques, increasing the clarity and speed of production.¹⁴⁷ Small cement machines were used on-site, producing mortar for below-grade stones,¹⁴⁸ and asphalt roofing shingles first appeared.¹⁴⁹

These technologies, coupled with kit houses in the Queen Anne, Arts and Crafts, Tudor, and Colonial Revival styles, saturated the nation. The last Sears houses, built in the 1940s, were predominately constructed in New



Fig. 13. Williston Farmhouse, 1905

economic comfort allows for adjustment based on individual resources. While households may be able to spend more or less than 30% of their income without undue financial burden, 30% provides a consistent benchmark to assess economic comfort and will be used as a marker throughout this study.

In summary, domestic comfort relies on three distinct forms of comfort: physical, social, and economic. While these categories have evolved over time, and are often inter-related, they all must be calibrated to the individual. Ultimately, an outsider can only theorize another’s comfort, and must allow for enough adaptability that an individual is able to adjust the environment as needed. While comfort has been commercialized, comfort should be accessible to all. Luxury and comfort are not synonymous, and physical, social, and economic comfort should be thoroughly developed when designing domestic space.

England.¹⁵⁰ Architectural historian, James Garvin, writes, “Together, these many designs reveal national tastes and fashions, not regional ones. The early twentieth century saw the rise of architectural and manufacturing forces that obliterated regionalism in American design.”¹⁵¹ However, he goes on to say that “[d]espite the loss of regional character..these dwellings as a group are among the best planned and most comfortable houses ever built.”¹⁵² This is due to high-quality materials, capitalist competition to produce desirable layouts, and the influences of earlier writings like Andrew Jackson Downing.¹⁵³ This does not hold true post-World War II with the need for quick and cheap housing.

The post-war building industry shifted to many of the systems, materials, and methods that we are familiar with today. This includes concrete foundations, given the ability of trucks to mix in transit,¹⁵⁴ float glass,¹⁵⁵ latex paint,¹⁵⁶ drywall,¹⁵⁷ and a surge in popularity of asphalt roofing shingles.¹⁵⁸ Houses in the Champlain Valley, with their own unique style influenced by the New York City Dutch, began to lose their regional influence as the National House prevailed. Physical comfort became standardized, satisfactorily solved across the board, and in turn the design of the house shifted to revolve around societal ideas of success, domesticity, and privacy. Social comfort replaced physical comfort as the primary system through which the dwelling was organized.

THE MALLEABLE HOME

Settlement in Vermont, and its architectural types, developed in response to a need for physical comfort. This manifested in the materials used, the layout of the dwelling, and the constant adaptation of the house over time. As authors Glenn Andres and Curtis Johnson state:

*A native frugality and conservatism, in combination with a relatively slow-paced economy that developed through addition and adaptation rather than replacement, have left a remarkably unchanged Vermont that conserves records and lessons about things that America may have lost elsewhere, but still remembers.*¹⁵⁹

While there are countless examples of historic architecture, quaint farmhouses, and charming town villages in the Champlain Valley, the main take-away is that Vermonters modified their home over time. While older homes have been torn down and replaced through many parts of the country, these homes still remain mostly intact in Vermont. They provide evidence of additions over time in order to accommodate changing needs, growing wealth, and evolving families, and they illustrate the importance of physical measures of comfort in residential design.

It is important to note that many of these homes remain due to a series of conditions in Vermont that may present as less than ideal for some. These conditions are poverty and tourism. Author James Garvin writes, “It is frequently noted that poverty is the friend

of preservation. Where people are too poor to afford the luxury of remodeling or replacing their dwellings, old houses survive, provided that the roof is kept reasonably tight.”¹⁶⁰ On the other end of the spectrum, the tourism industry promoted Vermont as the ideal rural getaway, and for those who could afford to, there has been a substantial interest in purchasing an old farmhouse and updating it to contain modern amenities that do not detract from its rustic charm. In both cases, we end up with old Vermont homes that are adapted by the owners as needed and desired overtime.

This characteristic of adaptation has been well established throughout Vermont’s architectural history and is particularly evident in the practice of expanding homes with wings or ells in the first half of the nineteenth century.¹⁶¹ A wing is an addition that runs in the same direction as the main house and is connected end to end. The wing may be setback from the front elevation of the house, or the wing may be flush with it.¹⁶² Typically the wing is shorter than the length of the main house, but it may be extended to touch another structure, such as a barn.¹⁶³ The practice of connecting the house to the barn was common in eastern Vermont.¹⁶⁴ In contrast, an ell is an addition that connects perpendicularly to the back side of the main house, forming the letter “L.”¹⁶⁵ When expanding the home, the choice between wing and ell was often determined by the conditions of the site.¹⁶⁶ Additionally, it was thought that a wing needed to be more ornate in appearance, to match the formal embellishments on

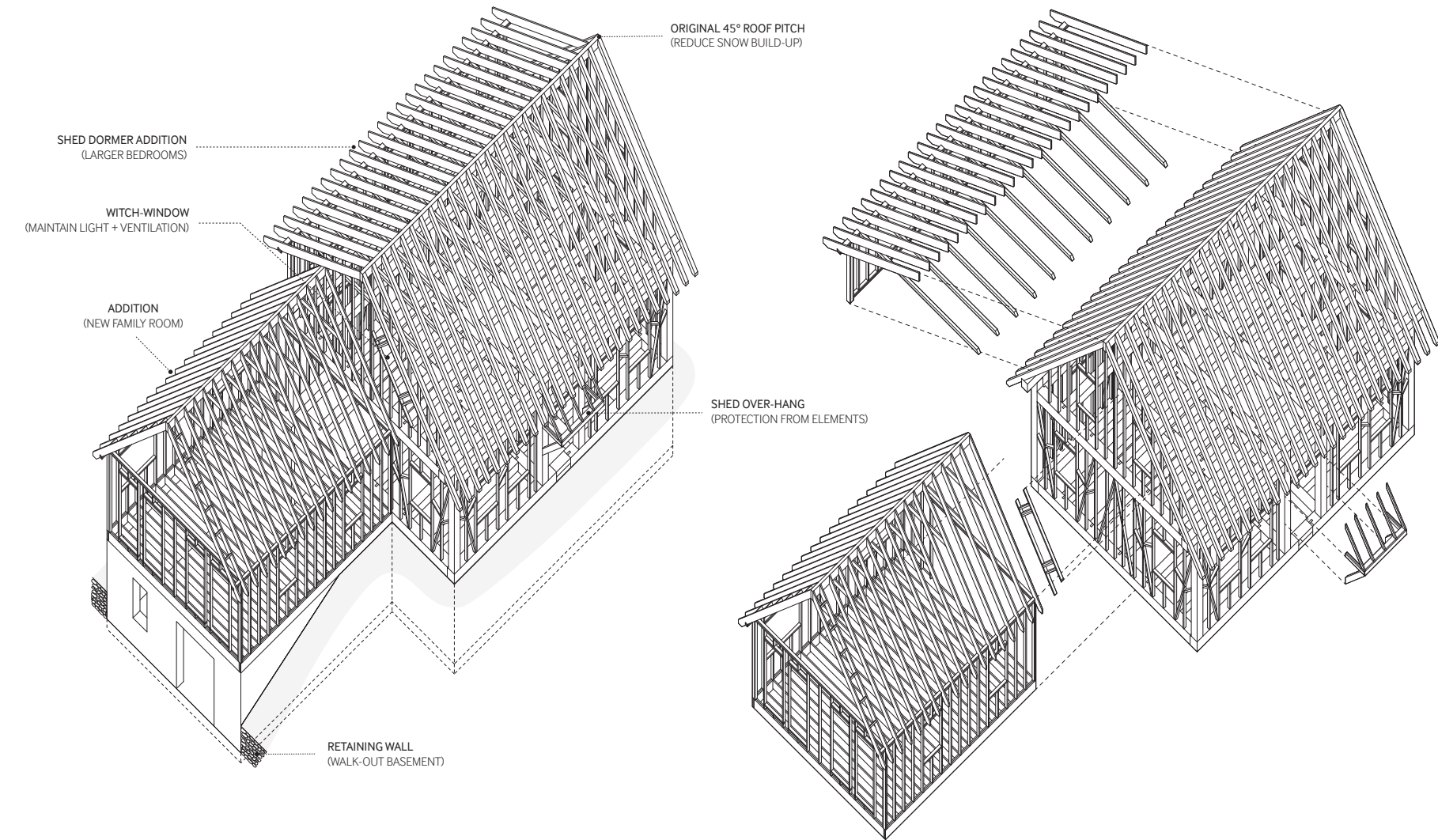


Fig. 14. Adapting for Comfort in Vermont, Axonometric

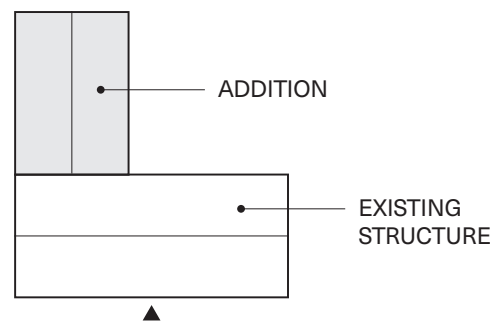


Fig. 15. Ell Addition Type

the front of the house, while the ell should be simpler in character in alignment with the back of the house.¹⁶⁷ As explained by architectural historian Herbert Wheaton Congdon:

Few of the really old houses have come down to us in their original simple rectangular plan. Most of them have had additions, a wing or an ell. In very old houses this little structure may be the original home, and as family and wealth increased, the 'new house' attached to it became the main building, a case of the tail wagging the dog, historically.¹⁶⁸

In this case, the home was modified to accommodate notions of social and economic comfort, as the family expanded and became more affluent, but ideas of physical comfort were prioritized in the modifications.

One example of the continued emphasis on physical comfort throughout this period is that of the witch window. The witch window, also known as the Vermont window, the casket window, or the lazy window, is a standard window that has been rotated to fit between the roofline and eaves of two adjoining structures.¹⁶⁹ The legend goes that witches cannot fly brooms through angled windows, but the more likely explanation is the window was rotated as a solution to get light and ventilation into a second-floor room. It is easy to imagine that the idea was quickly praised by locals as a practical solution, since all you needed was a standard window. Thus, we have an example of a regional building characteristic found throughout

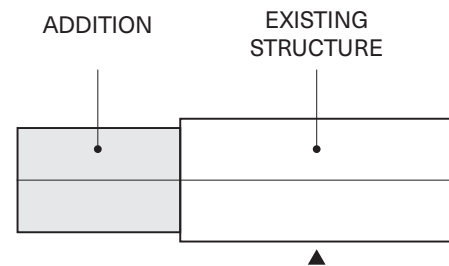


Fig. 16. Wing Addition Type

Vermont and the surrounding states, as a practical solution to a problem of physical comfort.

The home, as seen, is adaptable over time. It is modified by its inhabitants, whether the home is passed down through generations or changes ownership. Predominantly through the mid-twentieth century, the home was adapted to meet evolving expectations of physical comfort. As technology advanced, domesticity changed to follow suit, implementing innovations meant to make everyday life easier and more efficient. By the mid-1900s, many of our current building standards had been established. Physical comfort, once attached to conditions crucial for survival, transitioned to define luxury items throughout the country. Instead, social comfort took center stage as the American way of life, prioritized around privacy and wealth, transitioned to a suburban lifestyle. Architectural historian Merritt Lerley writes that the “American house is inextricably linked with the evolution of American life...” as the house is irrevocably tied to technological innovation, economic policies, and cultural norms.¹⁷⁰ However, post-World War II, these characteristics combined to create a market for a detached single-family home, purposefully removed from others, and static in its ability to evolve overtime. Instead of renovating the home to express changes in inhabitation, residents moved to a new, often temporary house, that better fit their current needs. This has been the trend up through today, where houses are bought and sold instead of modified as the inhabitants' needs change.



Fig. 17. Witch Window in a Vermont Home

PURCHASING
COMFORT

WILLISTON

Comfort as Commodity and the Rise of the National Home

THE ROLE OF THE GOVERNMENT

Pre-1930s, the government was predominantly absent from the building industry.¹⁷¹ The 1929 stock market crash and resulting Great Depression shifted the government’s involvement and the shape of development. There are three primary ways in which government policy has influenced residential housing, including the investment in a highway network, the creation of the Federal Housing Administration (FHA), and the implementation of zoning codes.

By the time of the Great Depression, the car was already gaining in popularity. Originally marketed to those seeking adventure and sport, by World War I the car had transitioned to a more dependable and comfortable vehicle for pleasure. With the onset of government involvement in establishing a network of roads, the car quickly became the commuter necessity that we know today.¹⁷² By the time the stock market crashed in 1929, the government had already established the Federal Road Act (1916) to help states fund road development, and the Bureau of Public Roads (1921), to prioritize a highway network connecting larger cities.¹⁷³ The investment in roads increased during

Rapid Growth in Williston: Establishing an Economy

WILLISTON AS A COMMERCIAL CENTER

Williston, Vermont is located at exit 15 on Interstate-89. The highway cuts through Vermont and New Hampshire from northwest to southeast and serves as a crucial connection in the road network linking Montreal and Boston. The interstate first opened in 1968¹⁹⁹ and was a result of the 1956 Interstate Highway Act.²⁰⁰ The purpose of the bill was to provide easier mobilization for national defense in the face of a war. “Defense though Decentralization” was a common argument during the cold war in order to be better prepared for a possible nuclear attack.²⁰¹ The construction of an extensive road network was also backed by several industries, such as oil producers, car dealerships, and home-builder associations, who saw the benefit in the establishment of a cohesive road system. ²⁰² By its completion in 1978, only 20 percent of Vermont residents lived more than 30 miles from a highway.²⁰³ The construction of Interstate-89 irrevocably changed the pattern of development in Vermont. Authors Glenn Andres and Curtis Johnson write:

As Vermont became easily accessible by motor vehicle from the East Coast megalopolis, accelerating tourism and immigration, the state increasingly adopted the standards of the megalopolis: long commutes to work, sprawl dispersing formerly tight village fabrics, chain retail big boxes on highways competing with local downtown businesses, suburban housing developments or large trophy houses occupying acres of former agricultural and wooded land, and condominium “villages” at major ski areas.²⁰⁴

Nowhere was this new type of development seen more than in Williston, Vermont. Due to its location off of Interstate-89 and its close proximity to



Fig. 18. Interstate-89 Under Construction, Williston, 1961



Fig. 19. Interstate-89 Orientation, 1963



Fig. 20. Williston Billboard (now prohibited by law in Vermont), 1976



Fig. 21. Williston Commuter Parking, 1975



Fig. 22. Vermont Route 2A in Williston, 1965

the recession as a quick means to employ a large number of workers.¹⁷⁴ Roads also garnered public funding as they were seen as an amenity for the public good, in comparison to privately funded mass transportation. While money poured into creating a street network, companies operating trains and streetcars fell on hard times without government support.¹⁷⁵ Neighborhoods, originally been planned around streetcar lines, were no longer constricted to small, walkable blocks within commuting distance of stations. The car allowed for lower-density settlement where large lots were detached from any form of public transportation.¹⁷⁶ While we often prescribe the United States' lack of mass transit to an unforeseen consequence of development, a 1941 survey by the Bureau of Public Roads had already noticed this consequence. The survey determined that 2,100 municipalities between 2,500 and 50,000 people were fully car dependent.¹⁷⁷ Despite these findings, development continued as before.

Along with its investment in infrastructure during the Great Depression, the government also increased its involvement in the housing industry. In 1934, the National Housing Act resulted in the creation of the Federal Housing Administration (FHA).¹⁷⁸ In the five years surrounding the stock market crash, new residential construction plummeted by 95 percent.¹⁷⁹ Similarly to the push for new roads, the goal of the housing act was to stimulate the economy through the creation of new jobs in the building industry. It did this by protecting private lenders against loss through insuring long-term mortgage loans.¹⁸⁰ While FHA loans were beneficial in restarting the economy, they also promoted economic and racial segregation and set the tone for a system of homogeneous and low-density residential development. FHA loans favored new residential construction over modifications to existing homes and loan values were tied to the appraised value of the area.¹⁸¹ Neighborhoods with higher density and older homes were categorized as less desirable and more likely to become low-income areas and were thus barred from the majority of

FHA loans.¹⁸² The system of the categorization, assessment, and rating of areas disproportionately disadvantaged minorities and inner-city development.¹⁸³ As a result, new residential construction on the outskirts of cities, catering to households of the same socio-economic status, boomed. This trend was compounded with the introduction of zoning codes.

New York City was the first municipality to adopt a zoning ordinance in 1916, but by 1936, 85 percent of cities had some type of zoning code in place.¹⁸⁴ Zoning became a system, still in use today, to separate areas by use. Author and historian Kenneth Jackson writes, “In theory zoning was designed to protect the interests of all citizens by limiting land speculation and congestion... [i]n actuality zoning was a device used to keep poor people and obnoxious industries out of affluent areas.”¹⁸⁵ This resulted in the commercialization of cities as new residential development was moved to the suburbs. However, this only included detached, single-family housing. Multi-family and mixed housing were zoned separately from single-family housing and prohibited from new suburban development. Furthermore, FHA loans favored new single-family construction, compounding the disappearance of mixed and multi-family residences from the nation's housing stock.¹⁸⁶ Due to this confluence of factors, Jackson states that “the American suburb was transformed from an affluent preserve into the normal expectation of the middle class.”¹⁸⁷ In fact, the suburban home has dominated American culture ever since and become the symbol of success for the average working American.

POST-WORLD WAR II SUBURBAN HOUSING

The United States' involvement in World War II officially ended the Great Depression in 1941 due to an influx of jobs.¹⁸⁸ Production shifted almost entirely to war-related industries and residential building halted. Architects without work published dream homes in women's magazines and the suburban



Fig. 23. Detached, Single-Family House in Williston

home became the aspiration for the young married couple with the “good-bye” baby.¹⁸⁹ At the end of the war, there was a massive need for housing. In 1944 the Servicemen's Readjustment Act, more commonly known as the GI Bill, was established to accommodate the returning 16 million servicemen.¹⁹⁰ Until the late 1960's, Veterans Affairs (VA) and the FHA were predominately the same program. Both the VA loan and the FHA loan protected private lenders, and with down payments of less than 10 percent, it often was less expensive to buy than to rent.¹⁹¹

Due to the mass quantity of housing needed, the market favored large developers that could produce extensive housing tracts over small-scale contractors with a more limited scope. These homes were standardized for quick production and included the latest technological amenities, tied exclusively to marketing a comfortable life. Kenneth Jackson notes, “Almost every contractor built, post-World War II home had central heating, indoor plumbing, telephones,



Fig. 24. Attached, Single-Family Houses in Williston

automatic stoves, refrigerators, and washing machines.”¹⁹² In contrast to the abundance of amenities, the variety of available plans declined. This lack of architectural diversity can be attributed to the need to reduce design fees and the increase the efficiency of production. While larger developers may have offered six or so floor plans, others only offered three.¹⁹³ The postwar house, therefore, became a repeated dwelling, on a large lot, outside of the city's center, dependent on the car, and segregated from households not of similar income, age, and race. This developer home has become the National House that we know today.

THE NATIONAL HOUSE

In the current housing market, the National House is the dwelling that cannot be regionally placed. It has been repeated, reproduced, and marketed so thoroughly across the country that it has permeated all corners of

development. It is based on the suburban ideal of the detached, single-family home and favors privacy and the car at the expense of a strong community. Author, professor, and architectural historian Thomas Hubka champions the “common house,” which varies subtly from the concept of the National House. Hubka defines “common houses” as “most small-to-medium-sized houses (and almost all multi-unit houses) that were not designed and constructed by architects and builders for individual owners.”¹⁹⁴ Furthermore, he states:

*Although widely maligned in professional and popular literature, the practice of repetitive-speculative development is by far the most dominant method of construction for well over three-fourths of America's housing units today and in most regions since the late nineteenth century.*¹⁹⁵

There is merit in the success of the common house that architects should not disregard. This housing type, although nationally recognizable, was typically regionally modified, including through the layout of the plan or aesthetic of the exterior. The plan, in particular, was calibrated to the region and replicated countless by local builders due to its success.¹⁹⁶ These houses, although similar to each other, created a unified development that was sensitive to the region and requirements of the occupants.

One of the main differences between the common house and the National House is its inability to adapt over time. The National House evolved from the common house, but the common house was “primarily built with the intention of inviting and facilitating change to its original fabric and setting.”¹⁹⁷ In contrast, the National House is static. It is not meant to be expanded on but rather to be purchased, lived-in temporarily, outgrown, and then resold. The intractable design of the dwelling is inherently uncomfortable for the resident, despite the consumer luxuries it often provides. This is because comfort includes physical, social, and economic constructs, and in tandem these elements create an adaptable, and therefore comfortable, house.

Burlington, Williston quickly took on the characteristics of a suburb.

Chittenden County, as a whole, experienced significant growth post-World War II and to this day the county has twice the population of other Vermont counties.²⁰⁵ This is largely due to IBM and General Electric, both large companies that were located in the area, as well as Burlington International Airport and Interstate-89.²⁰⁶ The quick growth of the post-war economy necessitated the need for houses, and as seen nationwide, housing took the form of subdivisions with little reference to regional building traditions. As farming and dairy production declined throughout the state, new housing was built on former pastures. Exit 15 in Williston, which converges with US Route 2 and Vermont Route 2A, was a prime location for big-box retail, office parks, and housing subdivisions as it could conveniently serve the rest of the increasingly commuter-oriented county. In effect, Williston has transitioned from a small Vermont town to a suburb of Burlington, and in the process has lost much of its own identity.

THE HOMOGENIZATION OF DWELLING TYPES

North of Interstate-89, the wide, gently curving streets, and low-density housing of the typical suburban subdivision dot the landscape of former farmlands. While south of the highway has remained rural, the northern half features the old village center, the more recent commercial center, business parks, and light industrial activity. The majority of new residential building has been single-family detached or attached housing. This housing forms pockets of development, physically separated by trees, fields, and cul-de-sacs, and composed of copies of the National House.

The primary problem with the presence of the National House in Williston is its ability to serve only a portion of the population. The houses produced lack variety in their floor plans and affordability in their price. Due to its quick rate of growth, Chittenden County, including Williston, is in a constant need of new housing of all types, but industry standards have promoted the single-family home above all others. While this dwelling type is financially unattainable for some, for others it is simply inefficient. Adults at different stages in their lives often require different housing types. When alternative housing is not provided, communities become stagnate due to a lack of diversity. Architect and professor emeritus, Christopher Alexander, notes the prevalence of housing communities separated by type nationwide, as well as its effects. He states, “People need support and confirmation from people who have reached a different stage in the life cycle, at the same time that they also need support from people who are at the same stage as they themselves.”²⁰⁷ A mix of household types is not possible in communities that are composed fully of



Fig. 25. Exit 15 on Interstate-89 in Williston, 1975



Fig. 26. New Development at Tafts Corners, Williston



Fig. 27. Duplexes Under Construction in Williston, 2019



Fig. 28. Duplexes For Sale in Williston, 2019

The common house was meant to be modified over time as it was typically constructed with a modest initial budget.¹⁹⁸ In combination with a FHA or VA loan, this lowered the financial barrier and made homeownership more accessible. The common house was also not as socially isolated as the National House and provided a greater level of social comfort through engagement with the community. Now the National House often used strategies, such as a two-car garage at the front of the house, and a front door tucked almost out of view, as physical barriers for privacy. In addition, the National House is socially isolated from its neighbors through a lack of community spaces, the absence of sidewalks, wide streets that are hazardous to play in, and houses that have been recessed from the road.

Although commonly marketed as customizable, the National House is not adaptable to individual comfort needs. Would-be owners are given superficial choices, such as the inclusion of an electric fireplace for an extra fee, that ultimately does not change the household's ability to inhabitant the space. It also does not allow for these premium features to be added at a later date in correlation to a household's evolving finances. Even through its appearance and layout, the National House is not meant to be expanded. The house is often built, not as a single form, but as a series of articulations and bump-outs meant to mimic the traditional expansion of the house through time. These faux additions and unnecessarily complex form prohibit the possibility of future expansion. The temporal nature of the National House, combined with its self-imposed isolation and lack of adaptability, inhibits the dwelling to meet the comfort needs of the household.

three-bedroom houses or studio apartments. Different life stages require alternate dwelling types to affordably meet the needs of their inhabitants.

Community also suffers in homogeneous neighborhoods because residents are forced to move away to find more appropriate housing at major life stages. A young couple may want to move when they start a family, empty-nesters may want to downsize when their children leave the house, and elderly residents may require single-floor living or a residence with less maintenance. If the neighborhood they live in does not have alternative housing types, the household must move out of the area to find appropriate accommodations. This discourages investment in the concept of community and civic responsibility as residents are less likely to be concerned for the development's future.

The following studies look at attached single-family housing communities in Williston. Attached single-family homes are commonly duplexes, triplexes, or townhomes – dwellings that share one or two common walls. Since the first attached single-family development, River Cove, was built in Williston in the late 1970s, there has been a steady stream of similar types of communities. By diagraming their development through plan, it is possible to see trends over time (fig. 30 and 31). While the dwellings started fairly modest in size and program, the majority of units have grown to accommodate additional living space. The treatment of the garage has also shifted, from non-existent, to an attached one-car garage, to a two-car garage that has become fully integrated into the form of the house and takes over a significant portion of the front façade. The location of the kitchen has stayed fairly stable. It is generally located at the front of the house, with the living room at the rear, and the dining area serving as a connection between the two. When looking at the price of the units, there appears to be a correlation between price and square footage. Based on data from the most recent sales for each development, larger homes are generally selling for more. These prices range approximately between \$200,000 to almost \$550,000. According to the online real-estate marketplace, Zillow, the median home price in Williston is \$352,000.²⁰⁸ Of the five most recently constructed dwellings from this study, only two were below the median home price (fig. 31). Historically, the attached single-family dwelling is as a more affordable, manageable, and higher-density alternative than the detached single-family house. Instead these studies predominately show that these dwellings have taken on several characteristics of the National House. This can most clearly be seen in the treatment of the garage, the wide and winding suburban streets, and the inability to adapt the dwelling as needed.

Williston Transportation, Development and Zoning

- Taft Corners
- Business Park
- Mixed-Use Commercial
- Mixed-Use Residential
- Industrial
- Gateway
- Village Center
- Residential
- Rural
- State-Designated Growth Center
- State-Designated Village Center
- Bus Route
- Bus Stop

Fig. 29. Williston Transportation, Growth Development, and Zoning Map

Williston's Attached, Single-Family Dwellings

DATE CONSTRUCTED

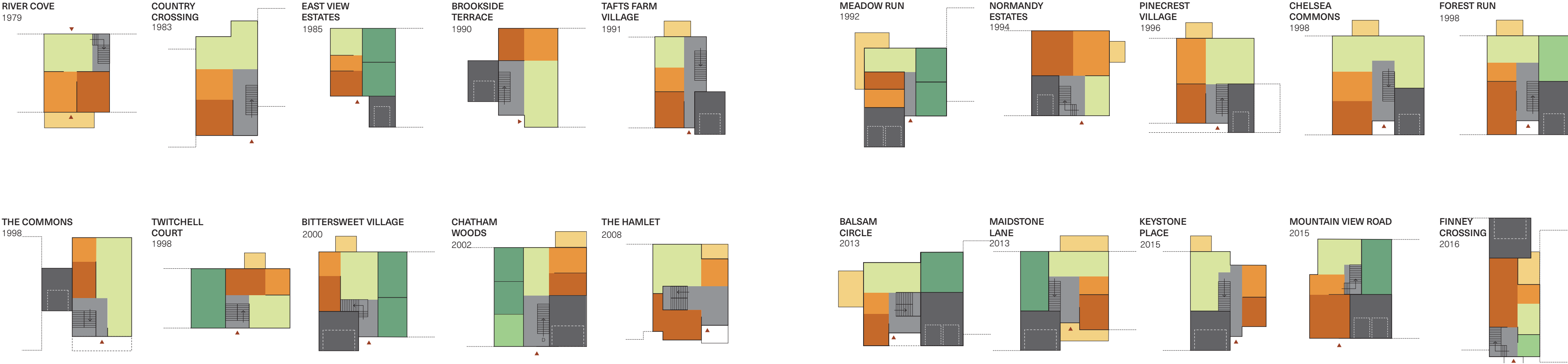
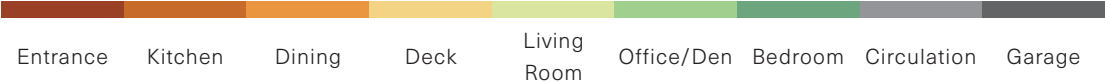


Fig. 30. Attached, Single-Family Dwellings by Date Constructed

Williston's Attached, Single-Family Dwellings

PRICE

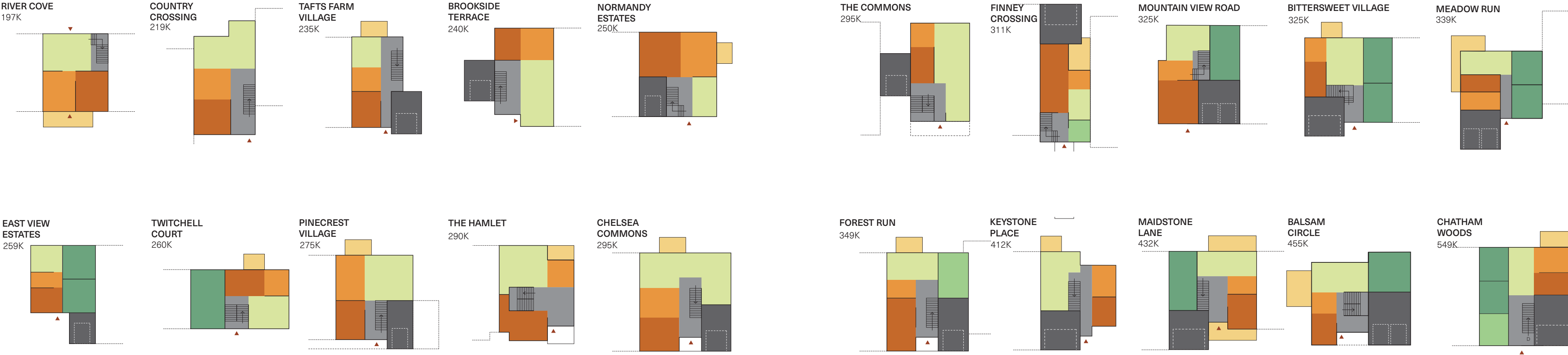
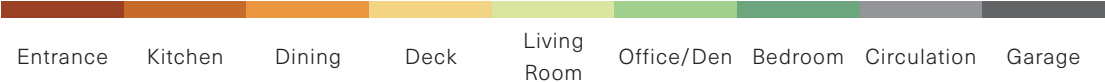
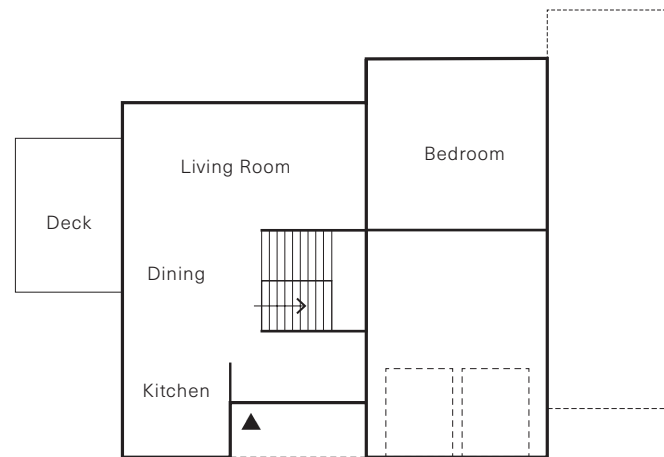


Fig. 31. Attached, Single-Family Dwellings by Price



01. Balsam Circle

2012 - 2014
2 - 3 bd, 2 ba
Attached 2 - car garage
Approx. 2,461 sq.ft.
14 D.U. total

Barone Construction, Inc.
55+ Community



Fig. 32. (Top) Balsam Circle
Fig. 33. (Bottom) Aerial

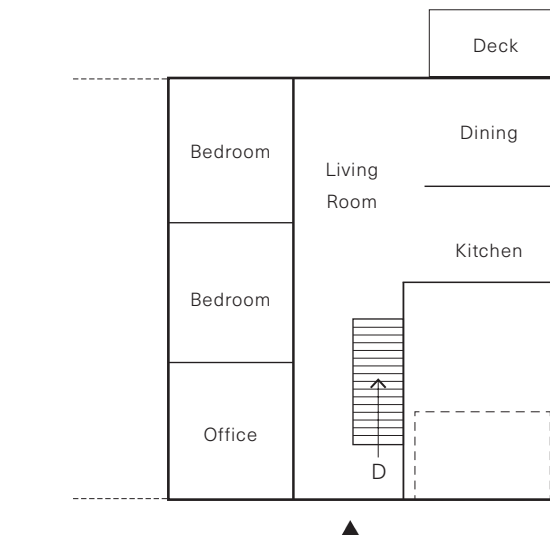
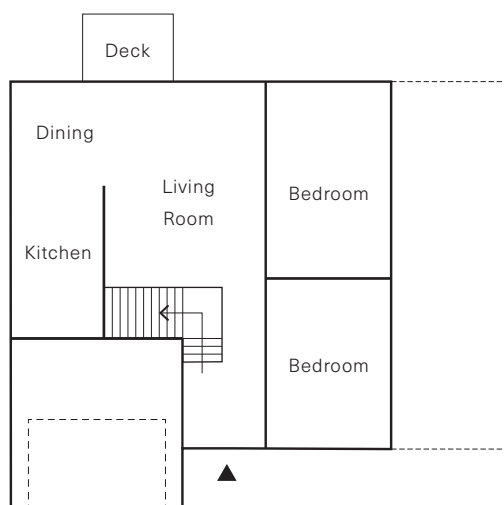


02. Bittersweet Village

2000
2 - 3 bd, 2 - 3 ba
Attached 2 - car garage
Approx. 2,640 sq.ft.
82 D.U. total



Fig. 34. (Top) Bittersweet Village
Fig. 35. (Bottom) Aerial



04. Chatham Woods

Early 2000s
2 - 3 bd, 2 - 4 ba
Attached 2 - car garage
Approx. 1,700 - 3,700 sq.ft.
46 D.U. total

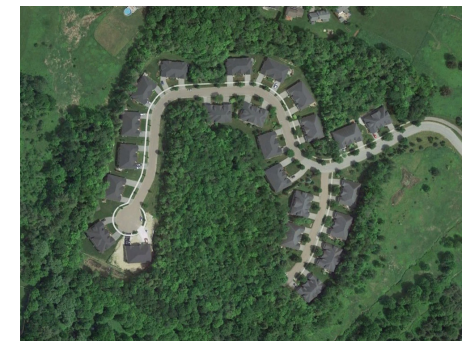
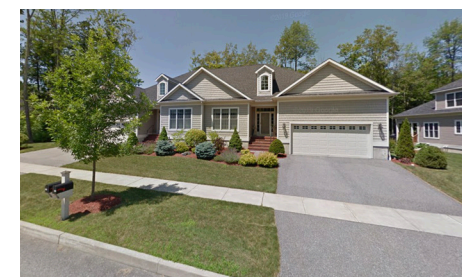


Fig. 38. (Top) Chatham Woods
Fig. 39. (Bottom) Aerial



05. Chelsea Commons

1994 - 2000
2 - 3 bd, 2.5 - 3 ba
Attached 1 - 2 - car garage
Approx. 2,148 sq.ft.
72 D.U. total

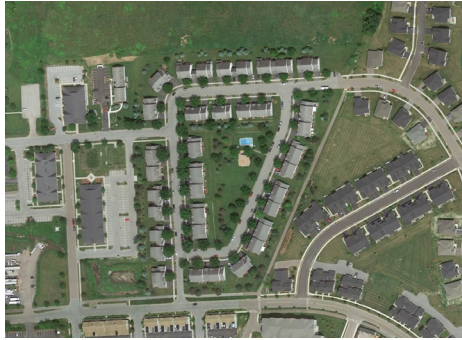
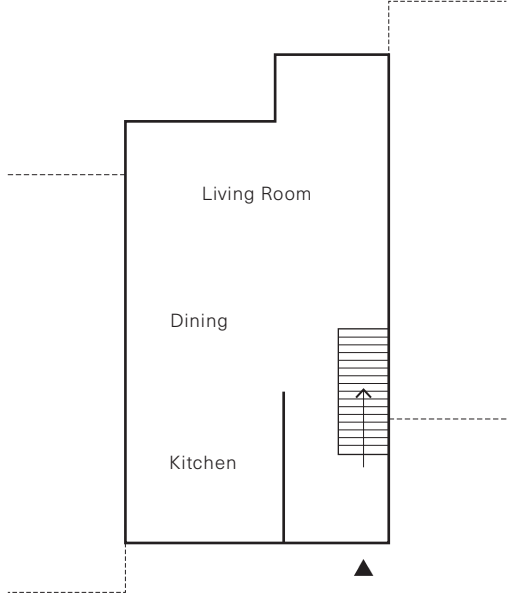
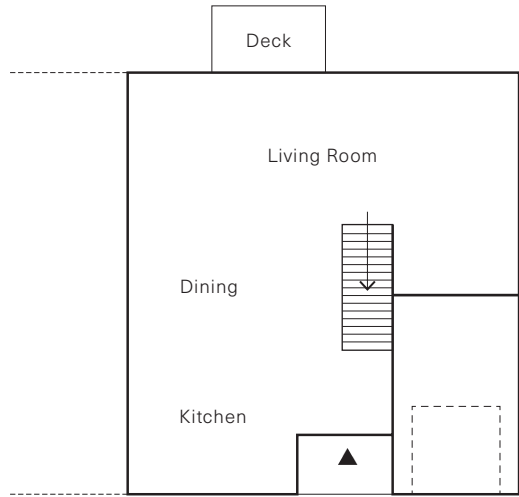


Fig. 40. (Top) Chelsea Commons
Fig. 41. (Bottom) Aerial

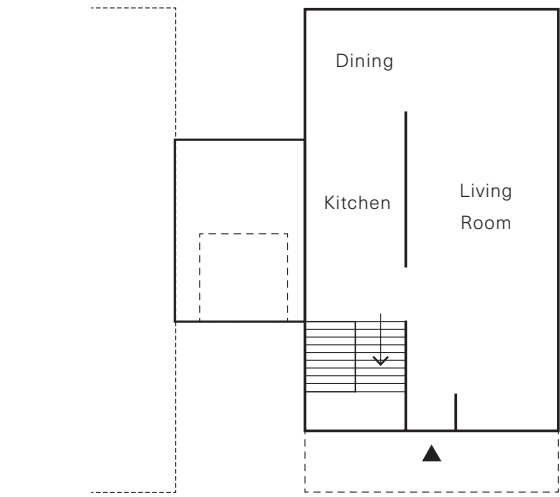


07. Country Crossing

1983
2 bd, 2 ba
Detached 1 - car garage
Approx. 1,330 sq.ft.
31 D.U. total



Fig. 44. (Top) Country Crossing
Fig. 45. (Bottom) Aerial



06. The Commons

1998
2 bd - 3bd, 1 - 2 ba
Attached 1 - 2 - car garage
Approx. 1,800 - 2,600 sq.ft.
39 D.U. total



Fig. 42. (Top) The Commons
Fig. 43. (Bottom) Aerial



08. Eastview Estates

1984 - 1986
2 bd, 2 ba
Detached 1 - car garage
Approx. 1,250 sq.ft.
94 D.U. total

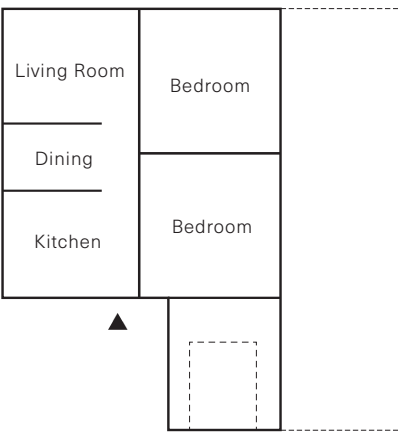
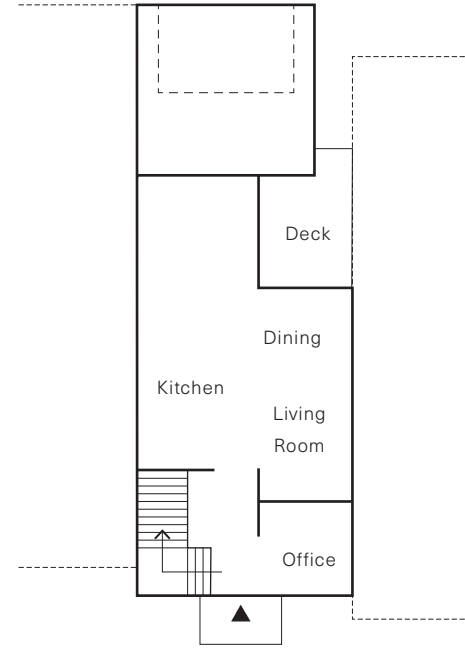


Fig. 46. (Top) Eastview Estates
Fig. 47. (Bottom) Aerial



09. Finney Crossing
 2014 - 2019
 2 - 3 bd, 2 - 4 ba
 Attached 2 - car garage
 Approx. 1,700 - 3,700 sq.ft.
 55 D.U. total
 Snyder Homes



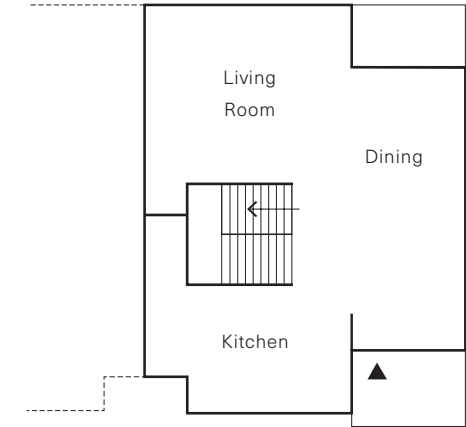
Fig. 48. (Top) Finney Crossing
 Fig. 49. (Bottom) Aerial



11. The Hamlet
 2008
 2 bd, 2.5 ba
 Detached 1 - car garage
 Approx. 1,653 sq.ft.
 10 D.U. total



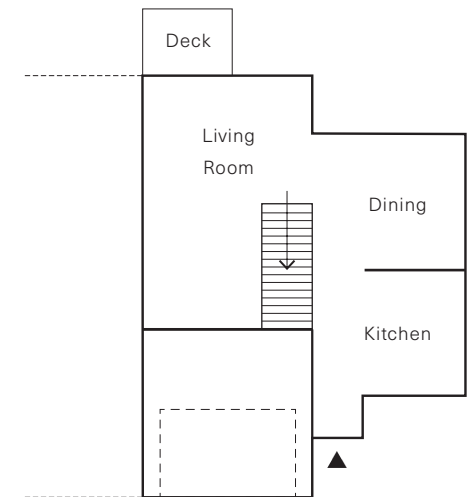
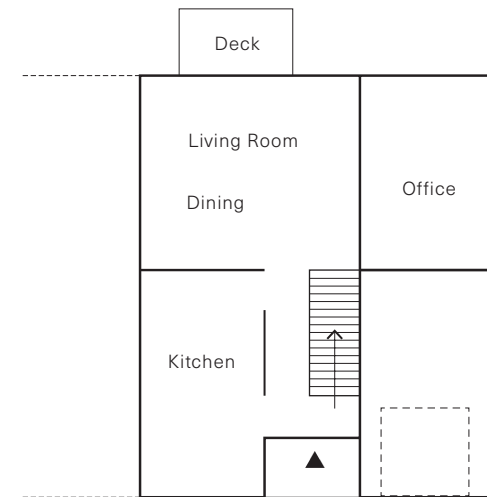
Fig. 52. (Top) The Hamlet
 Fig. 53. (Bottom) Aerial



10. Forest Run
 1998
 2 - 4 bd, 2 - 3 ba
 Attached 1 - car garage
 Approx. 2,700 sq.ft.
 38 D.U. total



Fig. 50. (Top) Forest Run
 Fig. 51. (Bottom) Aerial



12. Keystone Place
 2015
 2 - 3 bd, 2 - 3 ba
 Attached 2 - car garage
 Approx. 2,367 sq.ft.
 10 D.U. total



Fig. 54. (Top) Keystone Place
 Fig. 55. (Bottom) Aerial



13. Maidstone Lane

2013
3 - 4 bd, 2 - 3 ba
Attached 2 - car garage
Approx. 2,367 sq.ft.
23 D.U. total

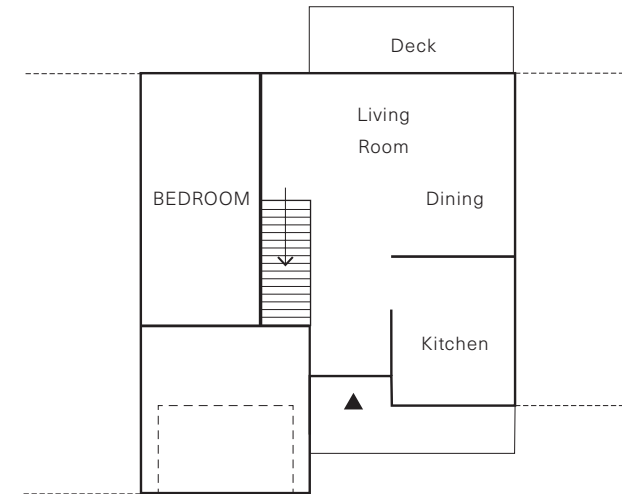


Fig. 56. (Top) Maidstone Lane
 Fig. 57. (Bottom) Aerial

14. Meadow Run

1992
2 - 4 bd, 2 - 3 ba
Attached 2 - car garage
Approx. 1,897 sq.ft.
51 D.U. total

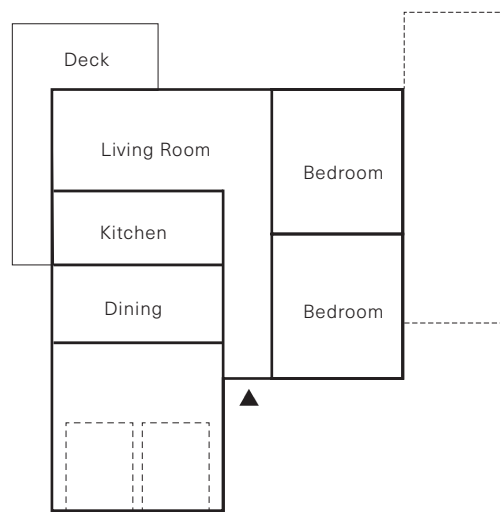


Fig. 58. (Top) Mountain Run
 Fig. 59. (Bottom) Aerial



16. Normandy Estates

1994
2 bd, 2 ba
Attached 1 - 2 - car garage
Approx. 2,500 sq.ft.
7 D.U. total

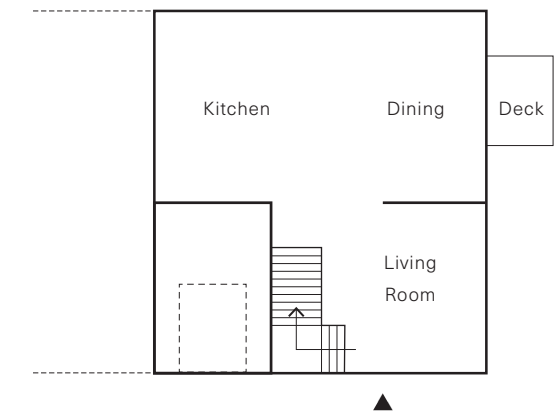


Fig. 62. (Top) Normandy Estates
 Fig. 63. (Bottom) Aerial

15. Mountainview Road

2015
3 bd, 4 ba
Attached 2 - car garage
Approx. 2,370 sq.ft.
4 D.U. total

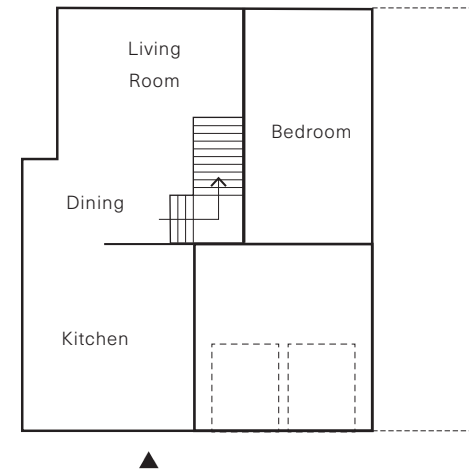
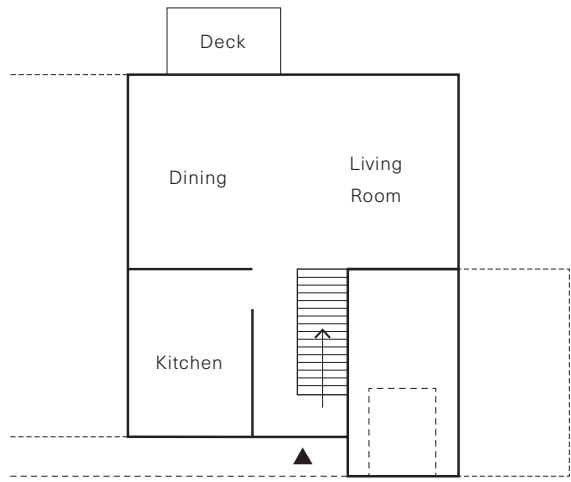


Fig. 60. (Top) Mountain View Road
 Fig. 61. (Bottom) Aerial



17. Pinecrest Village



1996
2 - 3 bd, 1 - 2 ba
Attached 1 - car garage
Approx. 1,403 sq.ft.
81 D.U. total



Fig. 64. (Top) Pinecrest Village
Fig. 65. (Bottom) Aerial

19. Tafts Farm Village



1991
2 bd, 1 - 3 ba
Attached 1 - car garage
Approx. 1,065 sq.ft.
90 D.U. total

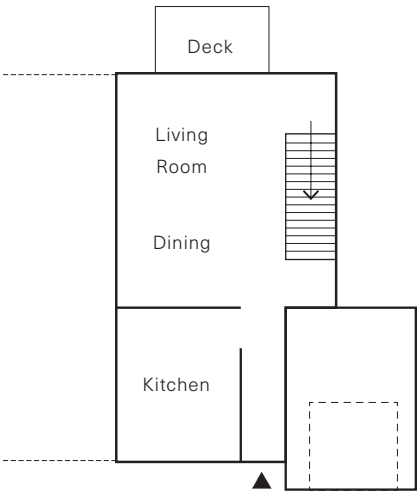


Fig. 68. (Top) Tafts Farm Village
Fig. 69. (Bottom) Aerial

18. River Cove



1979
2 bd, 1 ba
No Garage
Approx. 864 sq.ft.
36 D.U. total

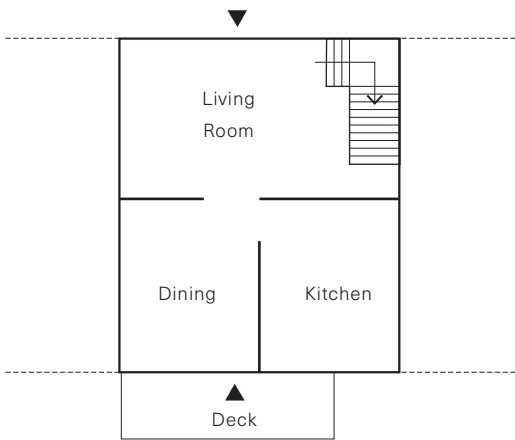
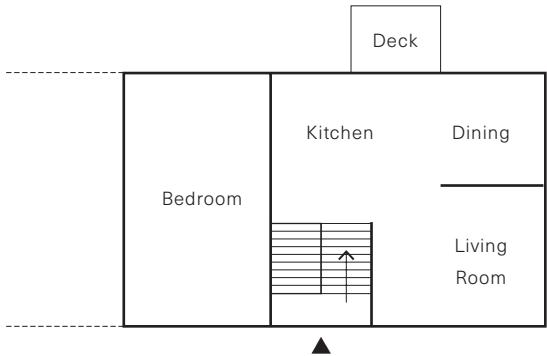


Fig. 66. (Top) River Cove
Fig. 67. (Bottom) Aerial

20. Twitchell Court



1998
3 bd, 2 ba
Attached 1 - car garage
Approx. 1,636 sq.ft.
6 D.U. total



Fig. 70. (Top) Twitchell Court
Fig. 71. (Bottom) Aerial

THE INTRACTABLE HOUSE

The intractable house characterizes most of the dwellings north of Interstate-89 in Williston. It was constructed under 50 years ago, it blends into a row of identical houses, the garage clamors for attention, and its articulated form mimics that of a dwelling modified over time. However, this house discourages adaptation. Instead of changing to meet the needs of its inhabitants, the inhabitants change over time. They move when the house no longer fits and the dwelling returns to its original state, ready for its next owner. There is no mark, no notation, of the previous residents. By leaving without a trace, it is as if they never truly settled.

This has been the prominent trend in residential construction since World War II. The house became a commodity that could be purchased, sold, and upgraded. Originally, the suburban home was a luxury of the wealthy and a calculated escape from the city. The standardization of the home made this practice attainable for the new middle class. The suburban house became the ultimate harbinger of comfort. FHA and VA loans made it affordable, new technology, such as central air, made it physically comfortable, and its location on a large lot at the periphery of the city, physically distanced from neighbors, exuded ultimate privacy. It is no wonder that this home was replicated nationally, as it seemed to have it all.

On closer inspection, the greatest cost of the National House comes at the expense of community. The new suburban development was heavily based on the car, meaning roads were widened, driveways

and then garages added, and soon households could essentially go from home to work and back again without interacting with a single neighbor. Through advancements such as the internet the household retreated indoors, and physical community lost much of its meaning. The desire for privacy increased from a benign desire for social insulation, to the more harmful act of social isolation and full disconnection from the surrounding context. Marketing for the home turned inwards, focused on luxuries which could be purchased to presumably provide maximum comfort, such as the master bedroom retreat. After several years, when the home is no longer comfortable, the household purchases a new dwelling. These constant moves sever any possibility of forming ties within a community and create a neighborhood of residents uninvested in local development and civic engagement.

By injecting the adaptability of traditional Vermont residences into the current building industry dominated by the National House, a progressive dwelling is formed which can respond to the needs of its inhabitants while maintaining the familiarity of the suburban aspiration. An adaptable home can converse directly with questions of affordability, can respond to household changes, and can promote a stronger sense of community and communal responsibility by encouraging residents to put down roots and stay a while. It is crucial that the National House evolves to be adaptable in Williston and locally contextual nationwide.



Fig. 72. Residential Street in Williston, 2019

RECLAIMING COMFORT

**TAFTS
CORNERS**

ALTERNATIVE DEVELOPMENT

THE ROLE OF THE ARCHITECT

The comfortable home is the adaptable home. Every household's organization, finances, and desire for intimacy or privacy are differ. Comfort is comprised of physical, social, and economic constructs with adaptability as the link between all three. The ability to modify a space over time in order to meet various comfort needs is crucial in designing a comfortable home. The adaptable home is also important in regenerating a sense of place in Williston's residential architecture. The Vermont home is adaptable over time while the National House, which has been imported throughout Williston, is not. By replicating the National House in each new housing development, Vermont's regional building tradition begins to disappear, and Williston is left without a clear identity. It is hard to love and cherish that which you cannot define. In order to grow Williston's commercial core into a vibrant town center, as the town and its resident's desire, defining the role of the built environment is crucial. Architecture is not neutral. It influences human behavior, patterns of use, and a sense of place. As such, it is the role of the architect to help create an environment that matches its inhabitants' intentions.

Design Proposal: Establishing a Type

PHASES OF LIVING

Providing adaptable dwelling units in Williston's commercial center can help define the town's identity, community, and sense of place. It can do this by providing affordable housing based on the local building tradition of home modification over time. Part of the idea of the adaptable home is that it replaces the need to move at major life stages, creating a community that is more diverse with residents that are invested in its well-being. The adaptable home includes options for a small home, large home, and a first-floor bedroom, to accommodate different household types.

The small home mimics the function of an accessory dwelling unit (ADU), which is a small apartment located on a homeowner's lot. Since 2005, Vermont homeowner's have been allowed to build ADUs by-right.²¹⁰ An ADU can take several forms but are virtually always required to be a studio or one-bedroom apartment that is smaller than the main dwelling. Common configurations for ADUs include basement, attic, and garage conversions, but they can also be a newly built, fully detached structure on the same lot. Additionally, ADUs can serve a variety purposes, such as an in-law suit for aging parents or rental unit to help cover the cost of the house's mortgage.

The small home expands on the idea of the ADU by translating a type that is usually an afterthought to a type that could be the first building on the lot. The small home can serve as a starter home for a young adult or couple. As the household grows in size, and expands its finances, the small home can be lived in during construction while the large home is built. The small home can be rented out until it is needed by the household again. At that



Fig. 73. Study Model of an Adaptable Home

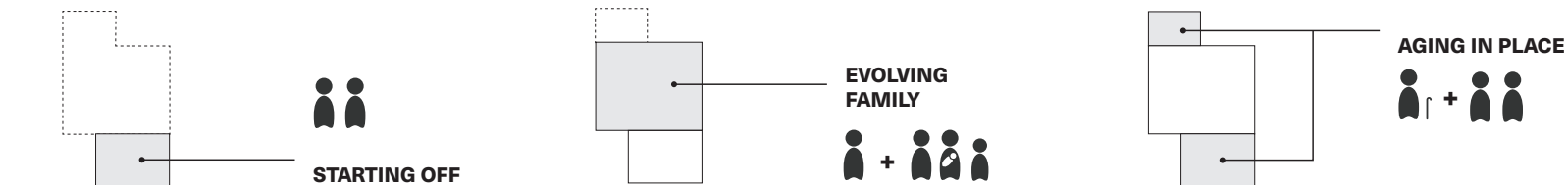


Fig. 74. Phases of Living

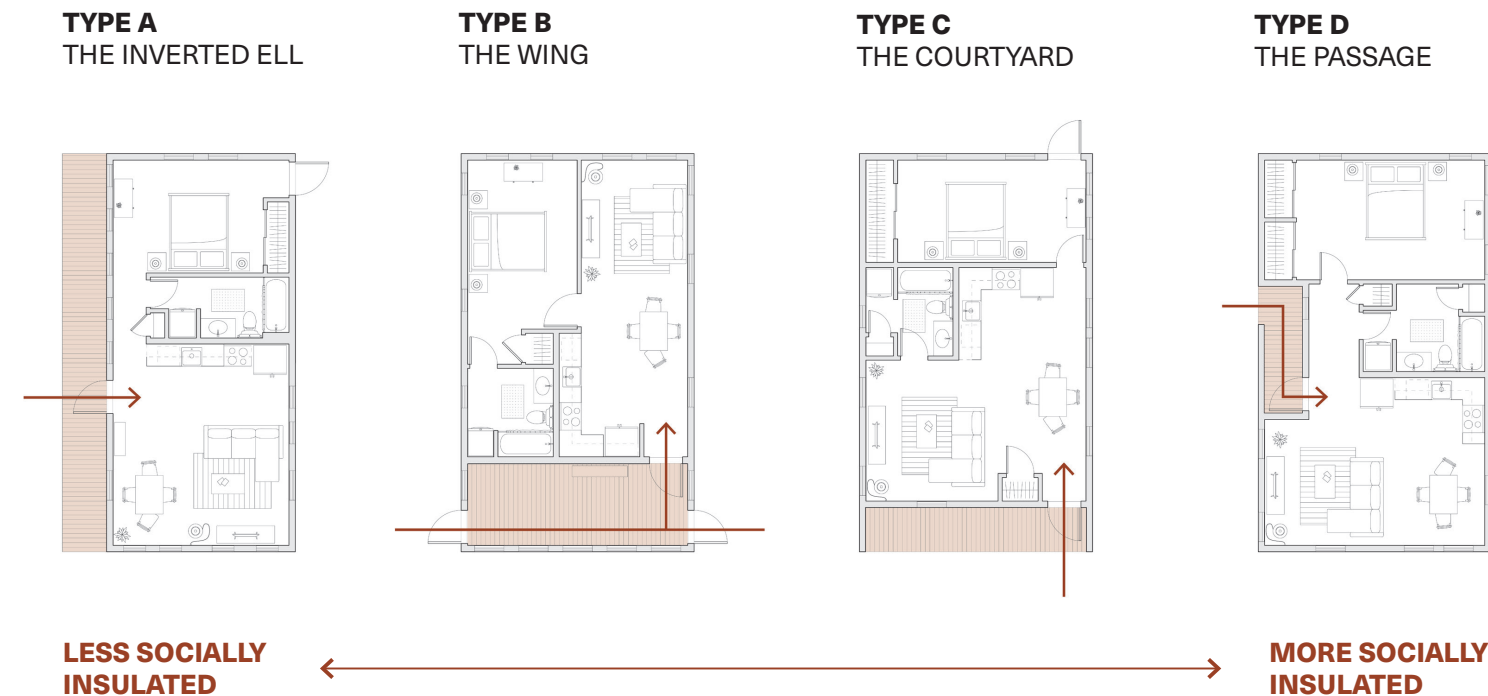


Fig. 75. Small Home Entrances

The National House, a product of countless systems at work, has played a vital role in defining American culture and place. However, the suburban house has lost its sense of regionalism. It has become a general stand-in for the construct of domesticity and the house but in actuality there is no one size fits all. The National House is not equipped to meet the individual needs of the inhabitants because it prohibits the modification necessary to make it truly comfortable. This goes directly against Vermont’s building tradition of the malleable home. The architect has a responsibility to be aware of the place in which they are working. There is a duty to understand the existing context and the implications of a design. With this in mind, it is up to the architect to creatively work within the imposed systemic constraints to merge capitalist charged mass development with individual comfort needs.

point, the small home may go to a family member who needs help getting back on their feet, it might be used by elderly parents as an alternative to a retirement home, or it could be inhabited by a home health worker for the aging owners. The opportunities are flexible and able to accommodate a variety of household combination types.

The large home can be built after the ADU as a way for the household to expand without relocating. Conversely, there is no set order of development. The large house can be built first and an ADU added later, as is the norm. Either way, the large home provides the space to raise a family and the ability to put down roots and grow into and personalize a home.

Lastly, the first-floor bedroom provides the opportunity to age in place. With a first-floor bedroom addition, the needs of an elderly household can be met without having to traverse a flight of stairs daily. This allows an aging household to stay put as long as possible, especially if a family

This type of work cannot be done without input from the community. The architect is not all knowing, and each person, each community, each town, differs. Collaboration is a crucial step in determining intent as design is not just a product but a process. Participation from the community will strengthen the ultimate outcome and foster a sense of pride and responsibility in the residents. This ensures the ultimate quality, resiliency, and longevity of the design and its ability to meet the desired intent. According to the town master plan, Williston wants to strengthen its commercial center.²⁰⁹ It wants to guide new development into a diverse, walkable, and vibrant community. The architect should be able to provide the guidance needed to achieve this goal. It is the responsibility of the architect to create space and ultimately determine what kind of space it will be.

member or home health aide lives in the small home. As with all phases, the first-floor bedroom is multi-functional. The addition can be added early on as a playroom or family room, possibly to be converted down the road. It could accommodate a roommate, or the first-floor bedroom can provide additional privacy between caregivers and dependents. All three phases, combinable in a multitude of ways, provide housing for varying household types at a variety of price points. This ensures that the neighborhood is socio-economically diverse and inhabited by long term residents invested in its future.

TAFTS CORNERS

The proposed location for this community of adaptable homes is at the heart of Williston's commercial district. It is zoned mixed-used commercial and the area is known as Tafts Corners. The site is bordered by Marshall Avenue to the north and Harvest Lane in all other directions. Harvest Lane provides the only access to Walmart and Home Depot, both located to the south of the site. The site is more immediately surrounded by open farmlands, a car dealership, tire warehouse, garden supply store, pet supply store, and laboratory. There is access directly through the site to any of these locations, despite its central position between a wide mix of commercial retail. However, surrounding the site are several bus stops for the Green Mountain Transit Authority (GMTA) which services much of Chittenden County and all of the greater Burlington area. The site, which stands vacant, is in the ideal location to help ground and provide better access to the existing commercial development.

The intention is that the site is developed over time, at pace with the needs of the residents. The site is divided into individual lots in clusters around a common green. The proposed density of the masterplan when fully developed is about seven dwelling units per acre, including ADUs, which is on par with other planned communities in the area. One street cuts through the site and terminates at the Home Depot entrance and Retail Way. It provides additional on-street parking for the surrounding residences. Pathways cross the site, creating a more direct route of access for pedestrians and residents traversing the area. There is a wider arterial pathway, crossing the site from north to southwest, which ends at the GMTA bus stop and sidewalk that leads up to Walmart. A smaller, more scenic path runs the other direction, following the creek. The path also passes the storm water management pond. Dwellings are located directly off of these paths, utilizing on-street parking, or have driveway access from the road. The variation in dwelling location allows for different degrees of privacy, whether the household prefers to be more secluded or at the center of the action.

Fig. 76. Site



Fig. 77. Tafts Corners, 1962



Fig. 78. Tafts Corners, 2018



Fig. 79. The Passage, Section



Dwelling Types

There are four dwelling types, which offer adaptability and varying degrees of privacy. These types range from a more open layout and prominent front entry to a segregated layout with a hidden entrance. Each dwelling type has a corresponding small home, large home, and first-floor bedroom design. However, the small homes are interchangeable, so this means that the starting small home does not necessarily determine the layout and level of privacy of the rest of the residence. Additionally, the owner does not need to start with the small home, which affords greater flexibility to the needs of the household. While the sequence of small home, large home, to first-floor bedroom is targeted to the young adult or couple buying their first home, the ability to start with the large home, large home and ADU, or large home and first-floor bedroom, attracts a variety of household types from the beginning of development.

In all dwelling types, the kitchen has been positioned as the heart of the home. This references the original Vermont dwelling, which centered around the kitchen out of a physical need for warmth. It also recalls the recent social reorganization of the home. The kitchen went from being the heart of the home to a room allocated to servants out of sight. Even with the general dismissal of servants from the home, the kitchen remained hidden as a symbol of utility. Now, the kitchen has remerged as the axis of the home due to changing socio-cultural norms. The duties of cooking are often shared and have been accepted as an often joyous and prideful activity. In response, the kitchen has migrated to its preferred central location.

All homes utilize a system of structural insulated panels (SIPs) which allows for quick construction, as opens for doors, windows, and utilities can be routed in-factory and then rapidly assembled on-site. SIPs are also known for their higher thermal insulations values and there are several local manufactures. Although SIPs cost more than a conventionally framed structure, their performance mitigate overall energy costs and provide a cost-effective structural and insulation system in the long run. Within these dwellings, SIPs are utilized for the exterior walls and roofs while conventional framing is used for the floors and interior walls. Kitchens and bathrooms are located adjacent to each other wherever possible, to minimize plumbing costs, and are located on interior walls in order to avoid issues with frozen pipes in the colder months. The pitched, metal-clad roofs facilitate snow removal and are known for their longevity. The large house is designed with a basement, which houses laundry and additional storage, and can be converted at will. Concrete foundations for the small home and first-floor bedroom extend below the frost line, which is five feet in Williston.

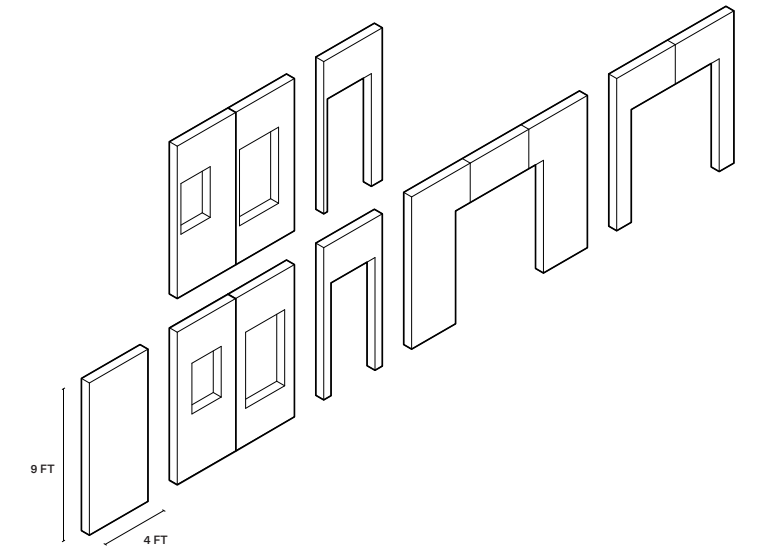


Fig. 80. SIP Panel Types

Fig. 81. Site Proposal

Speculative Development

INTEGRATING COMMUNITY

All four dwelling types are strong characters that provide privacy while still encouraging community engagement. Porches and decks appear on the front and rear of many of the dwelling types, and the rear of most of the units face each housing cluster's communal green. This green can be developed in line with the residents' wishes and agreement, such as a community garden. While each cluster is encouraged to interact, each dwelling type provides sufficient privacy to allow for a preferred degree of social insulation. Paths link the entire neighborhood together and provide access through the site to non-residents. The community is not gated but a hierarchy of privacy is apparent through the placement of paths and structures. This creates a system that invites non-residents through the site while maintaining the privacy of individual dwellings. While the neighborhood may look similar to the traditional subdivision at first glance, subtle variations have a significant impact on the identity and functionality of the neighborhood.



Fig. 82. Speculative Development at Tafts Corners, 10 Years

Phase 01

NEXT 10 YEARS

The site is divided into individual plots to be developed by the homeowner over time. The homeowner does not have to start with the small home but can pick the starting configuration that makes the most sense for the household.



Fig. 83. Speculative Development at Tafts Corners, 20 Years

Phase 02

NEXT 20 YEARS

After 20 years of developed there will be a mix of dwelling types, ranging from individual small homes to dwellings that have been fully expanded. While some original homeowners have moved away and sold the property, a strong community with plenty of long-term residents has been established.



Fig. 84. Speculative Development at Tafts Corners, 30 Years

Phase 03

NEXT 30 YEARS

By 30 years of development the neighborhood has significantly increased in density. Dwellings have likely been supplemented with additional modifications beyond the three initially proposed configurations.





Fig. 85. The Inverted Ell, Isometric

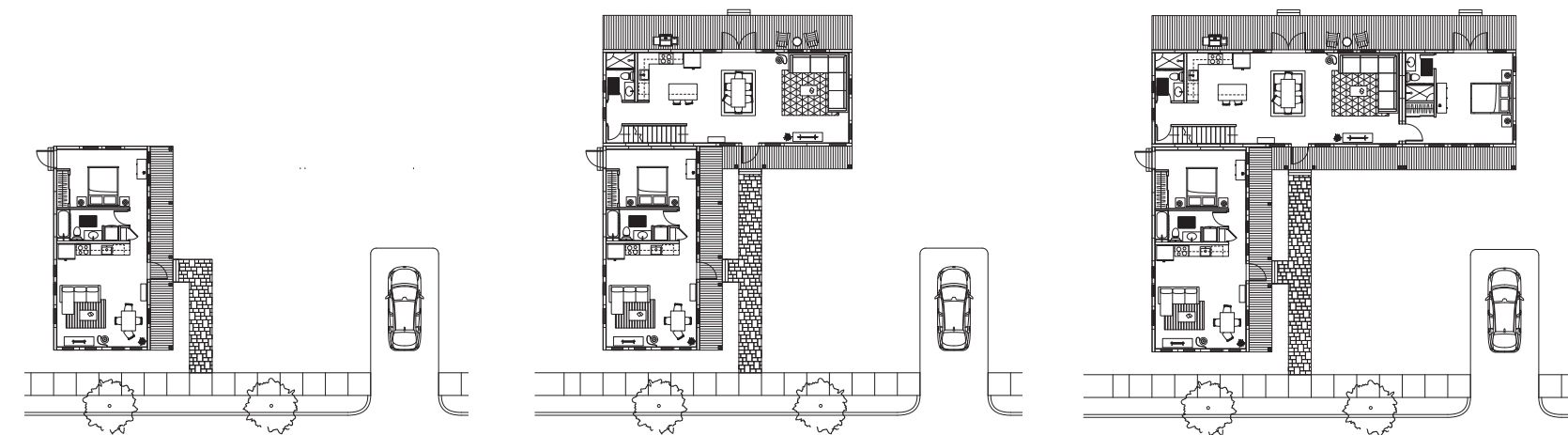


Fig. 86. Possible Sequence of Adaptation for the Inverted Ell Type

Type A

THE INVERTED ELL

Of the four dwelling types, the Inverted Ell is the most open. It appears as one unit unified by the extensive front porch. This type is based on the historic tradition of adding an addition perpendicular to the rear of the house, creating an overall structure shaped like an “L.” In the Inverted Ell, the small home is fixed perpendicular to the front of the large home, creating a front yard and wrap-around front porch. Residents enter directly into the living space, which features an open layout centered around the kitchen. In the small and large homes, there is an easy transition from kitchen, to dining, to living room. In the large home, the first-floor bedroom directly abuts the living room and extends both the front porch and rear deck. In the small home, the bedroom is separated from the main living space by a short hallway and the bathroom. On the second floor, the larger bedroom can be divided to form a hallway to the additional second floor living space included in the addition of the first-floor bedroom.



Fig. 87. The Inverted Ell, Front Elevation



Fig. 88. The Inverted Ell, Side Elevation

Fig. 89. The Inverted Ell, First Floor Plan, Fully Developed

0 4ft 8ft 12ft

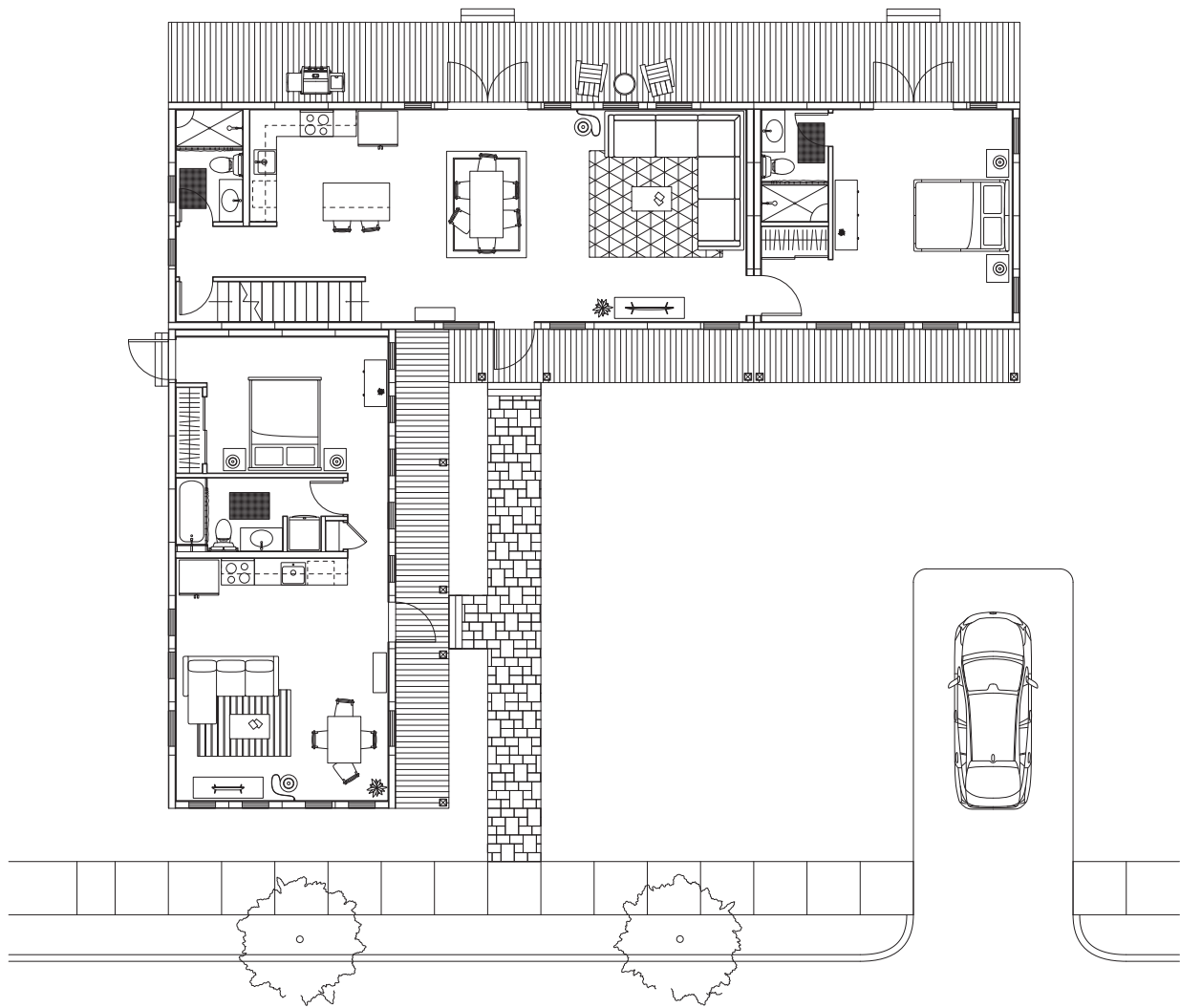
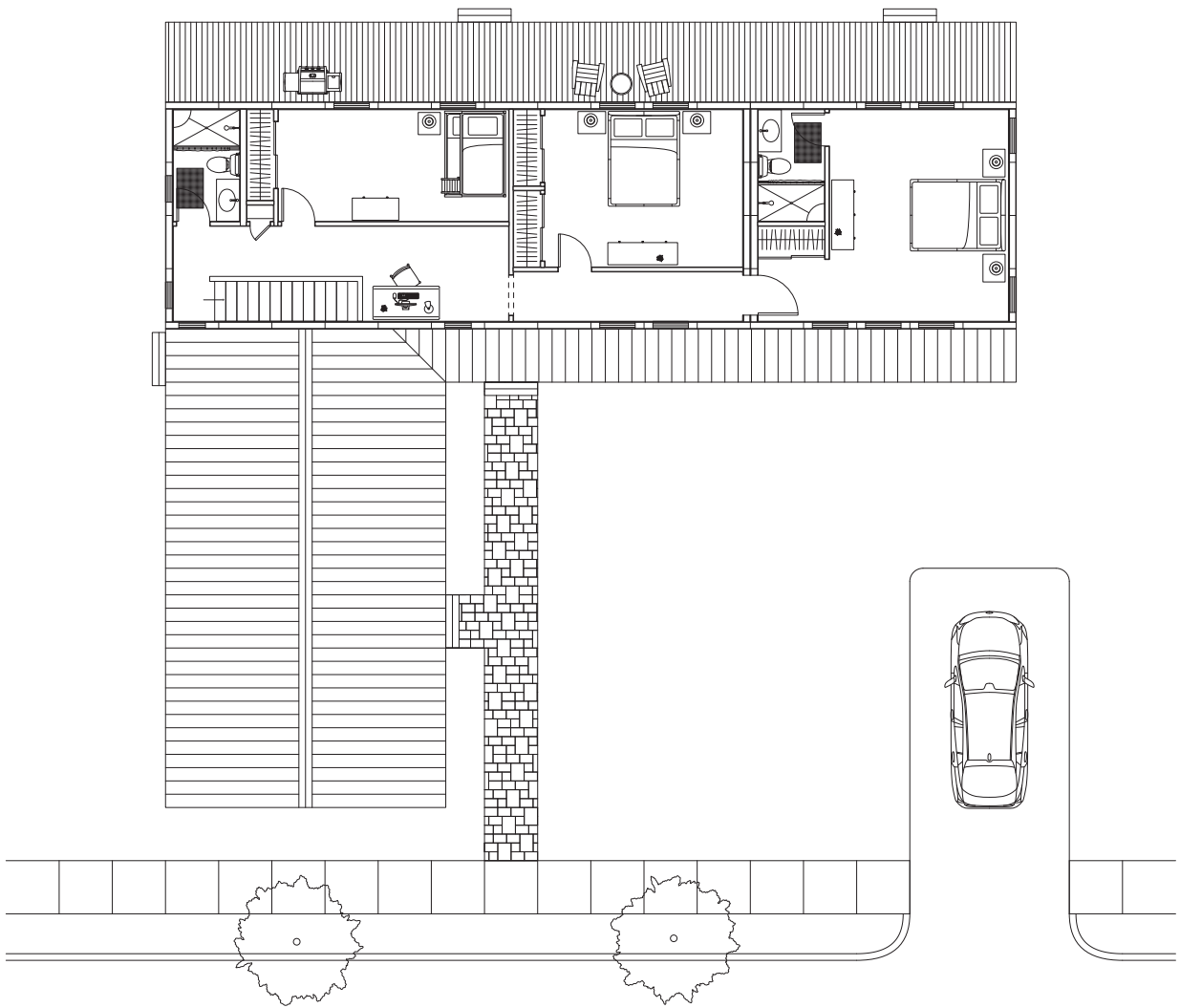


Fig. 90. The Inverted Ell, Second Floor Plan, Fully Developed

0 4ft 8ft 12ft



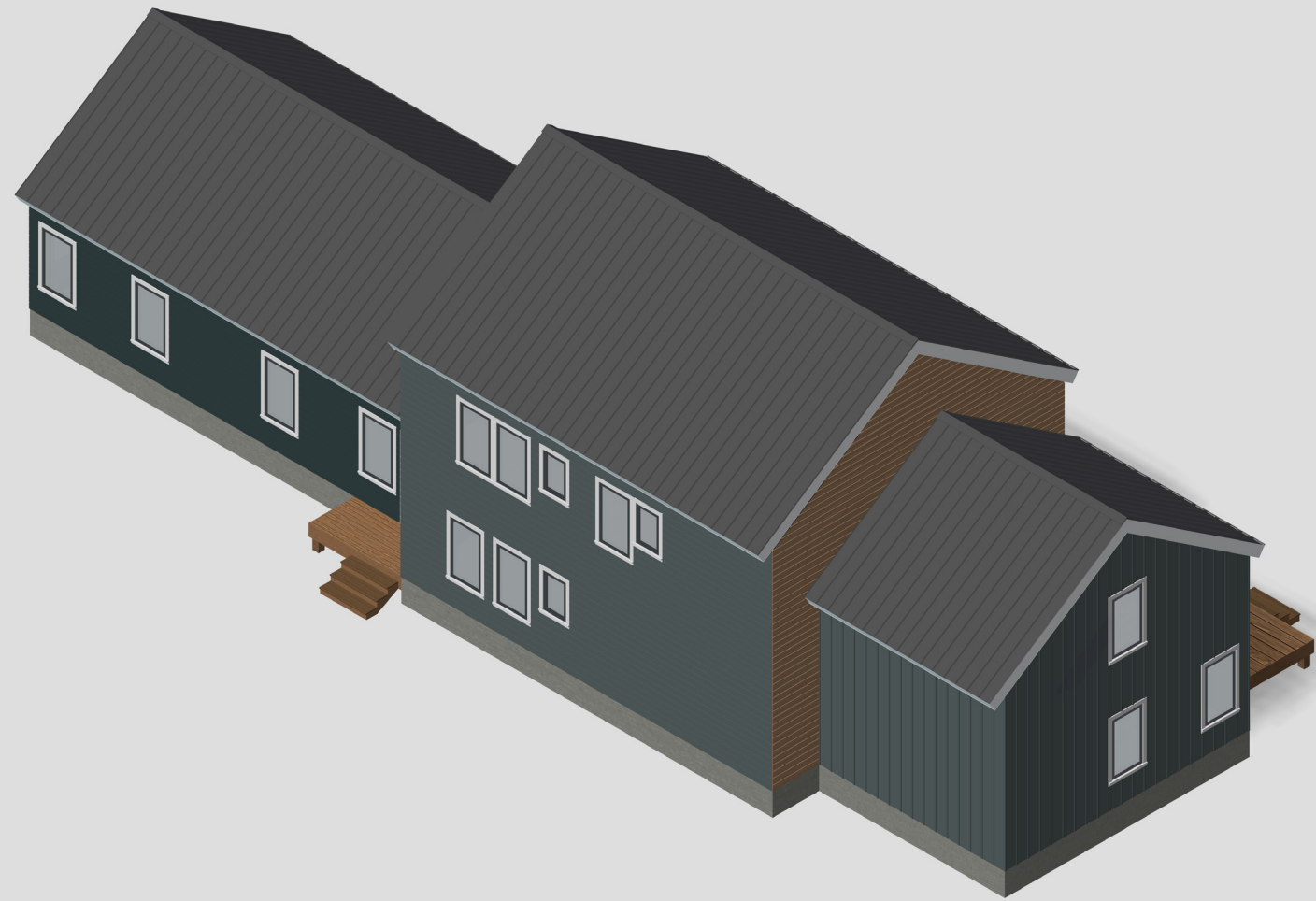


Fig. 91. The Wing, Isometric

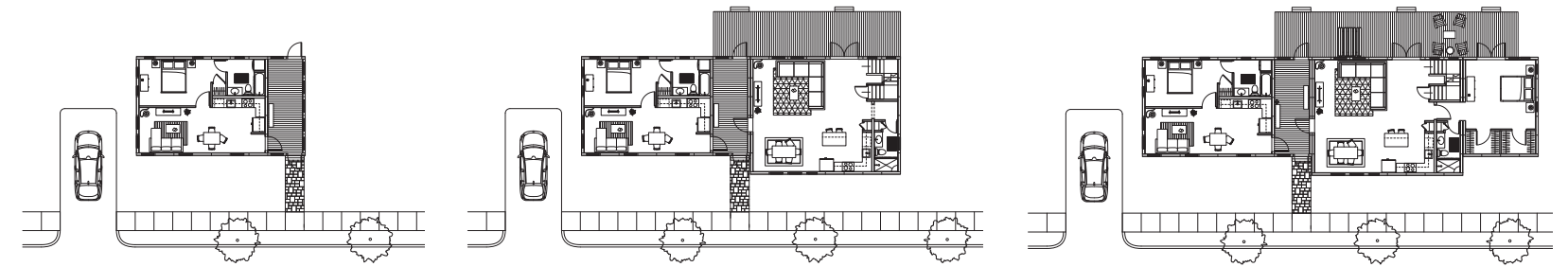


Fig. 92. Possible Sequence of Adaptation for the Wing Type

Type B

THE WING

The Wing dwelling type embraces a shared entrance and backyard. The shared entrance unifies the dwelling as one larger unit and provides a mudroom space that is so crucial to veritable Vermont weather. This space can also serve as a breezeway through to the rear yard or as a front porch or sunroom for the small home before it is expanded. Main entrances for both units are located off of the shared corridor and open directly into a shared kitchen, dining, and living room layout. With the addition of the first-floor bedroom to the large home, the first-floor bathroom can be either fully or partially closed to the rest of the house. The second floor of the larger home includes three similarly sized bedrooms, and the option for a larger separated bedroom, all off of the main landing. Like the Inverted Ell, the Wing is based on a historic tradition of adaption. However, the structure is expanded from the side of the house instead of the rear and is known as a wing.

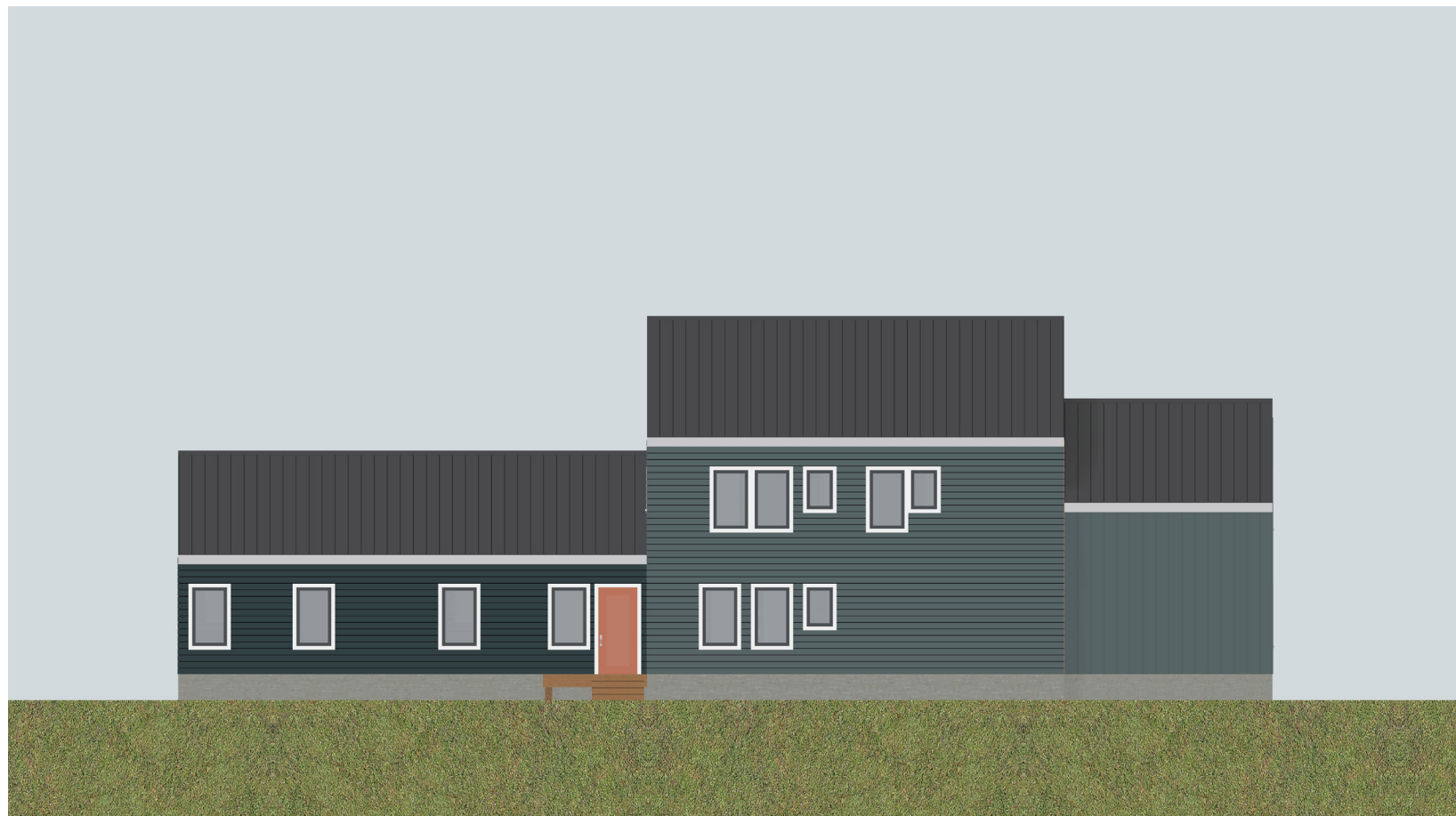


Fig. 93. The Wing, Front Elevation

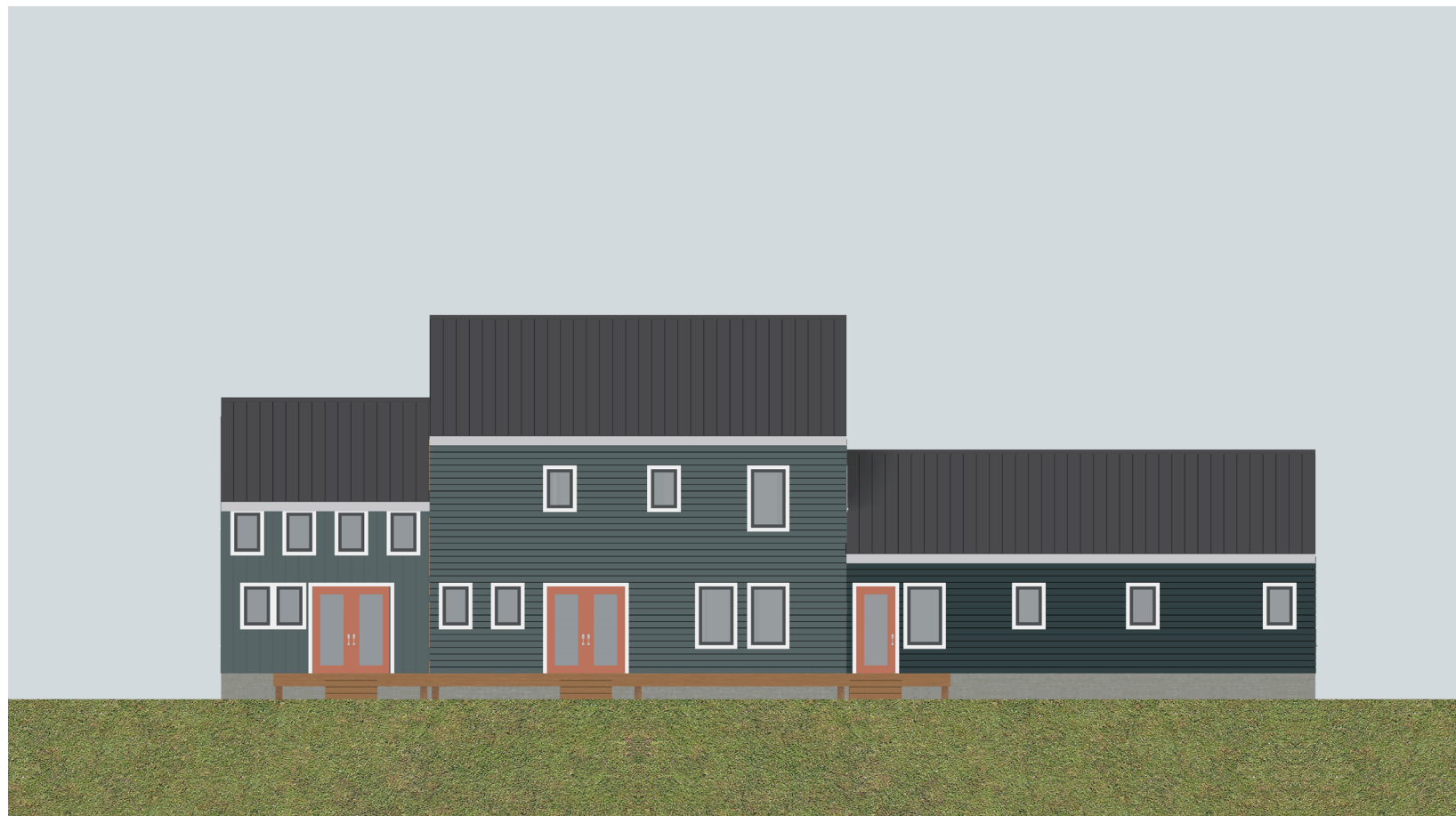


Fig. 94. The Wing, Rear Elevation

Fig. 95. The Wing, First Floor Plan, Fully Developed

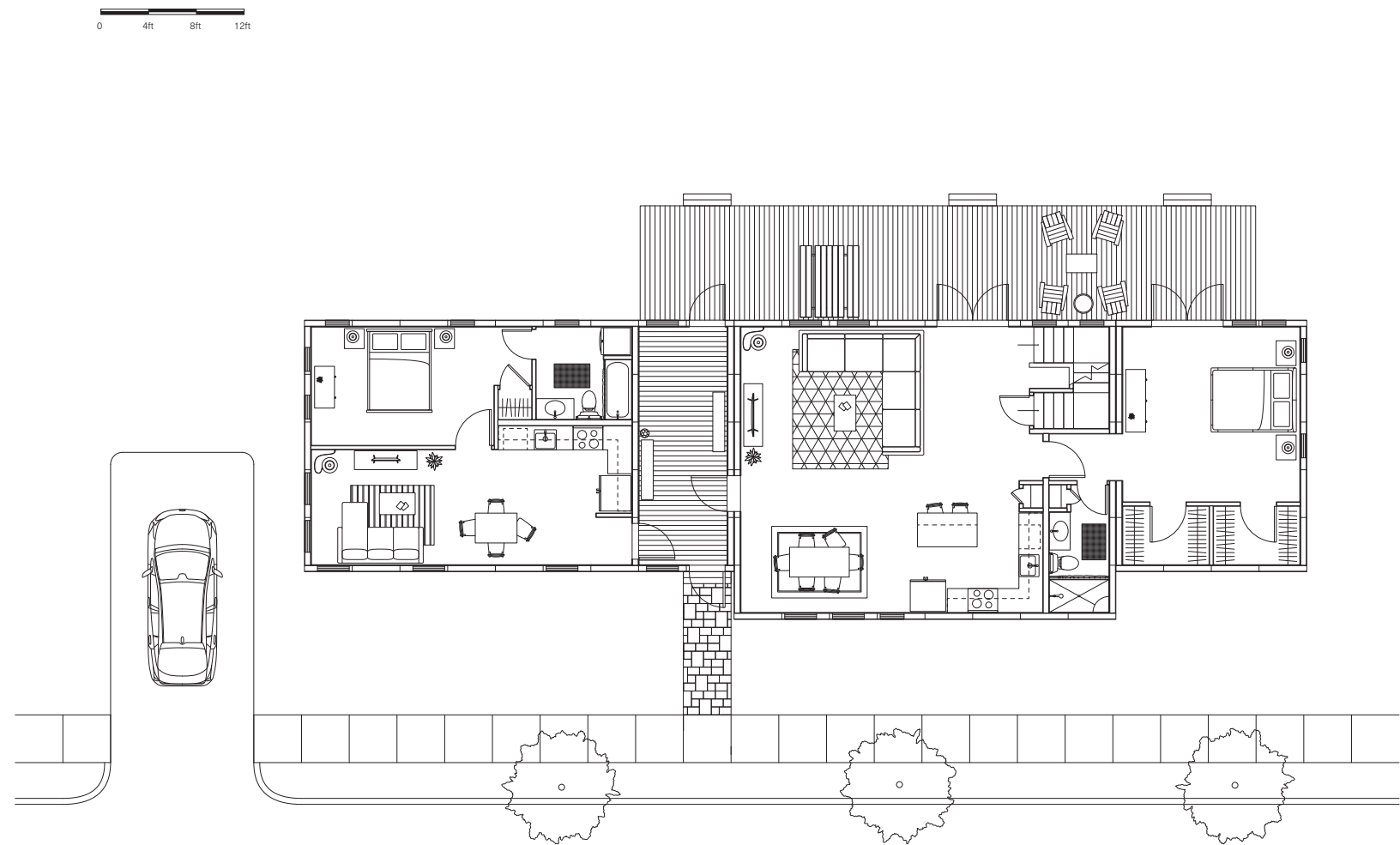
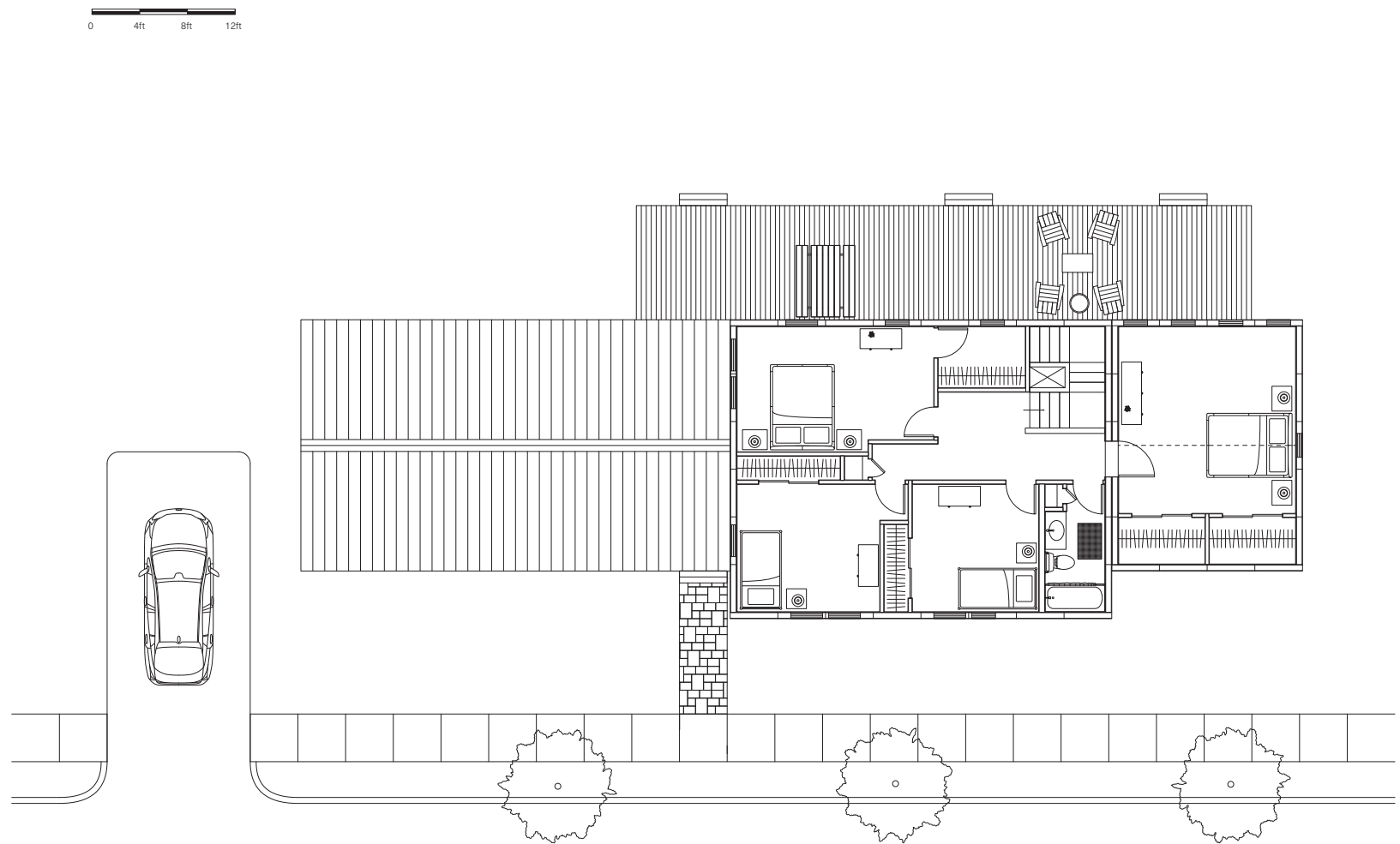


Fig. 96. The Wing, Second Floor Plan, Fully Developed



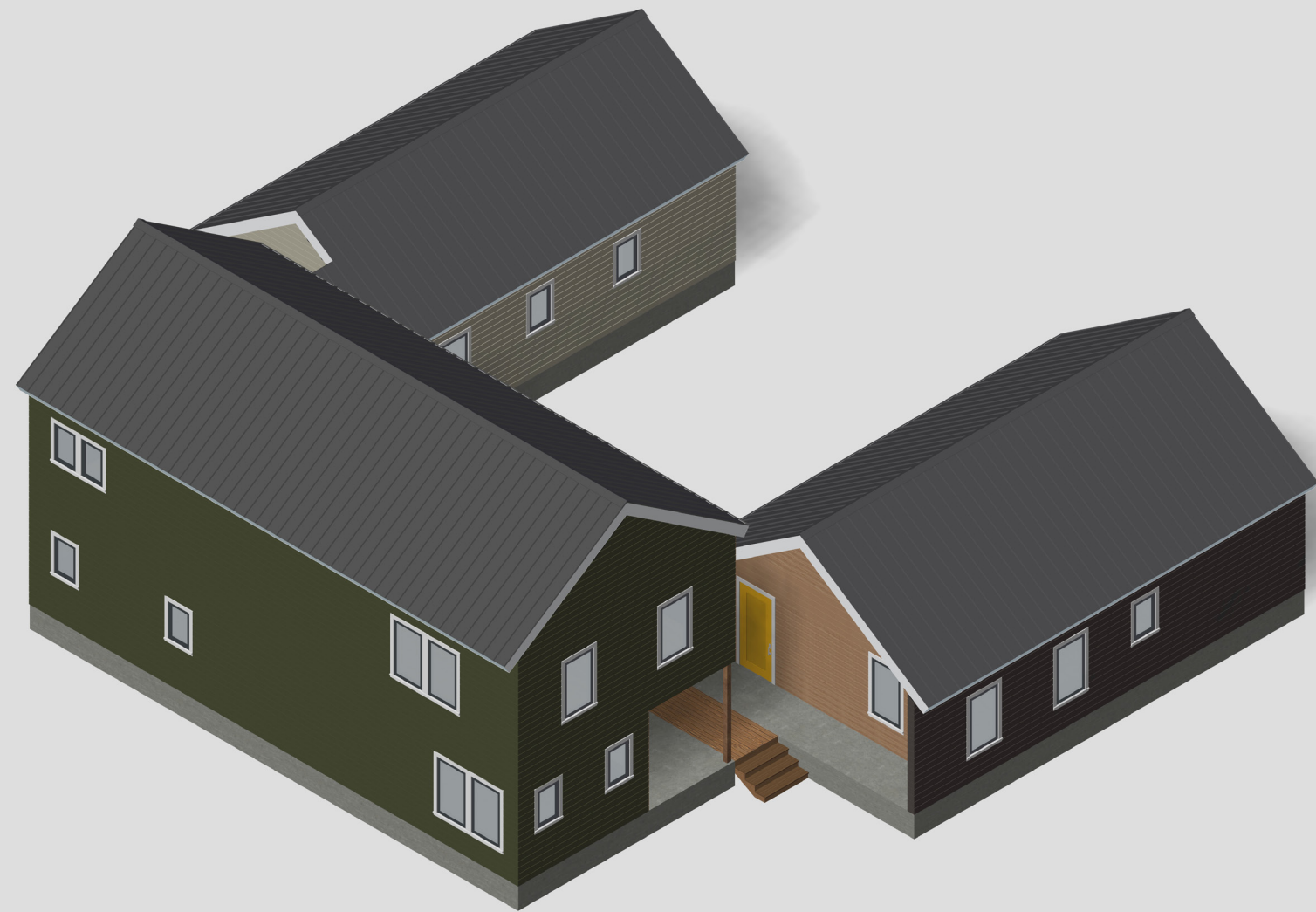


Fig. 97. The Courtyard, Isometric

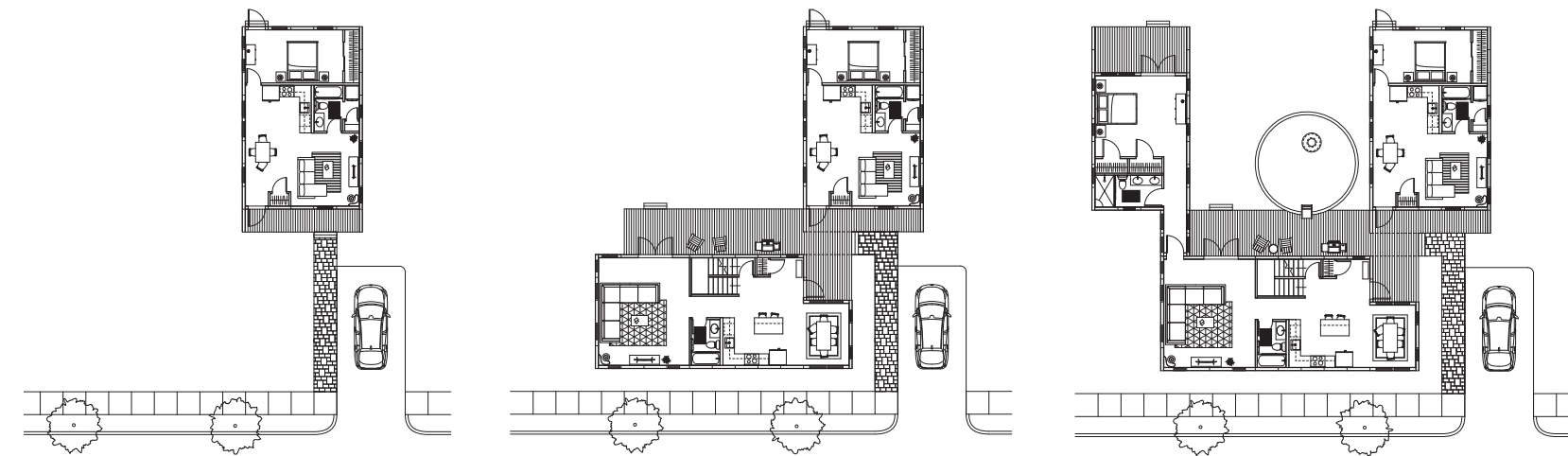


Fig. 98. Possible Sequence of Adaptation for the Courtyard Type

Type C

THE COURTYARD

The Courtyard dwelling type provides greater privacy by enclosing the rear yard over time with each successive addition. Additionally, the entrances are offset from the front of the dwelling and setback into the structure. The small home is detached from the large home, providing a higher degree of social insulation between the two units. The first-floor bedroom is a suite with its own rear porch and is connected to the large house only via a short hallway. The layout of the large house is less open than the Inverted Ell and the Wing and utilizes the stairwell and the bathroom as a buffer between the living room and the kitchen and dining area. On the second floor, the smaller bedrooms are separated from the master bedroom by the stairs, landing, and bathroom, providing additional privacy between caregiver and dependent.



Fig. 99. The Courtyard, Side Elevation



Fig. 100. The Courtyard, Rear Elevation

Fig. 101. The Courtyard, First Floor Plan, Fully Developed

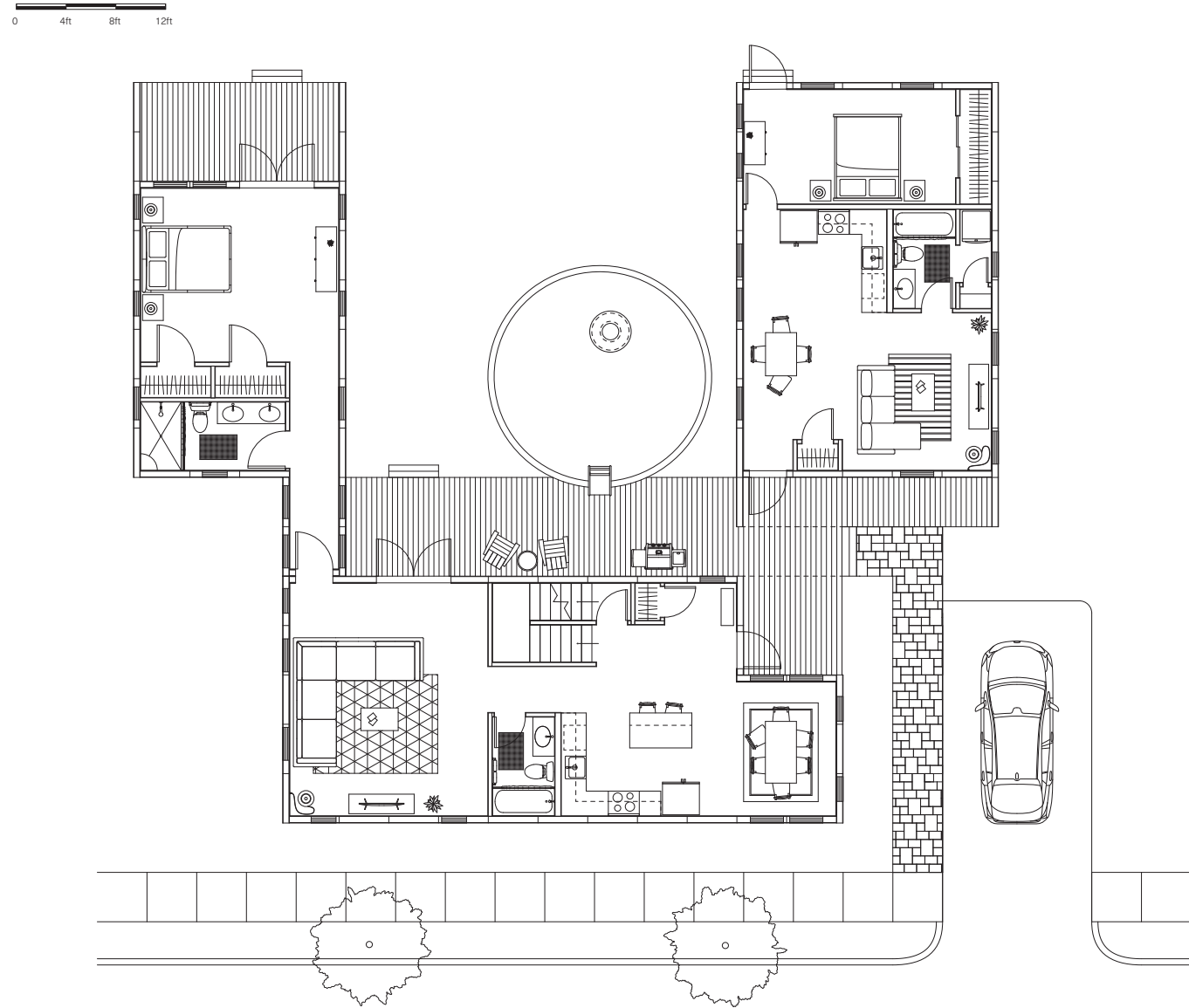
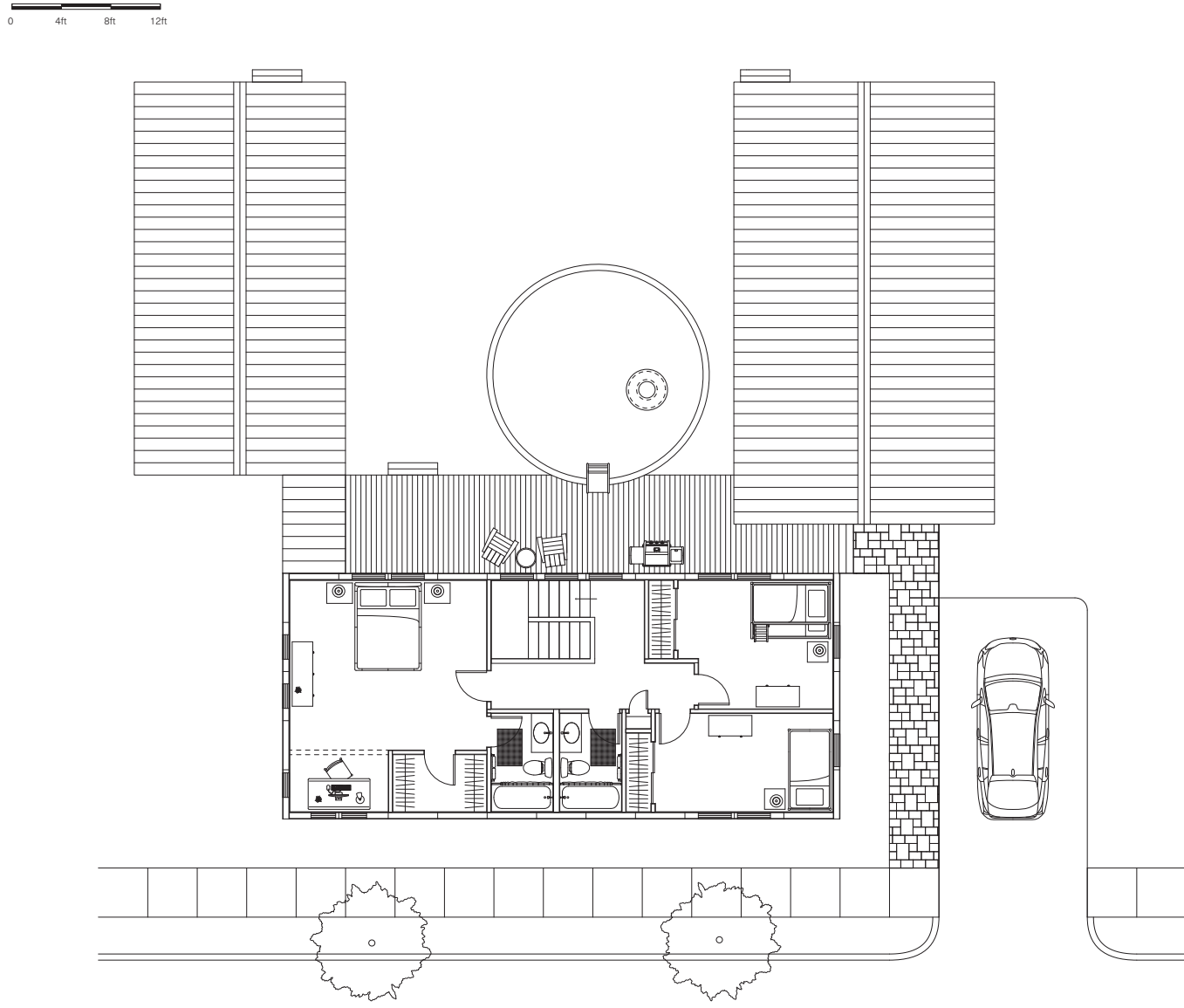


Fig. 102. The Courtyard, Second Floor Plan, Fully Developed



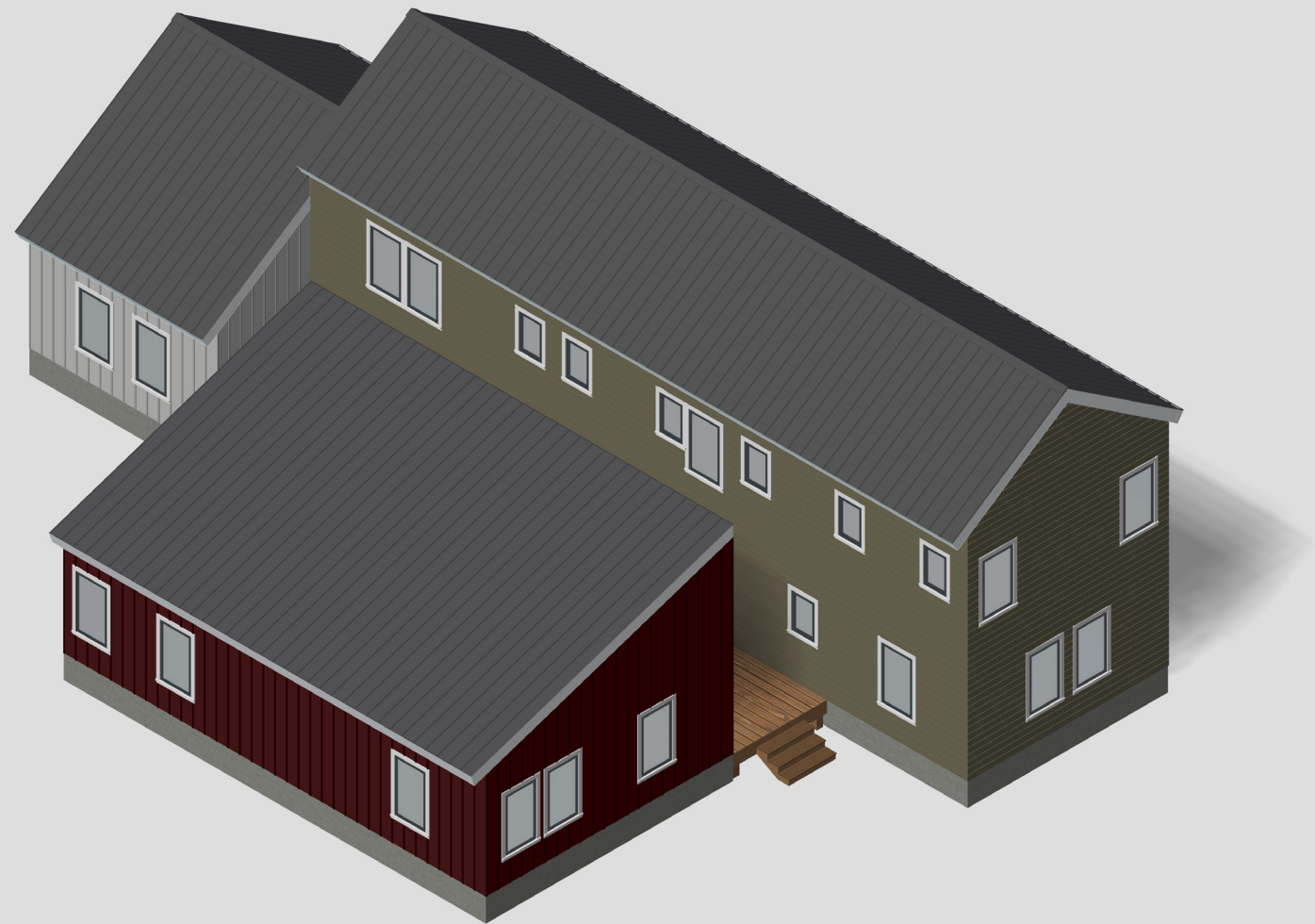


Fig. 103. The Passage, Isometric

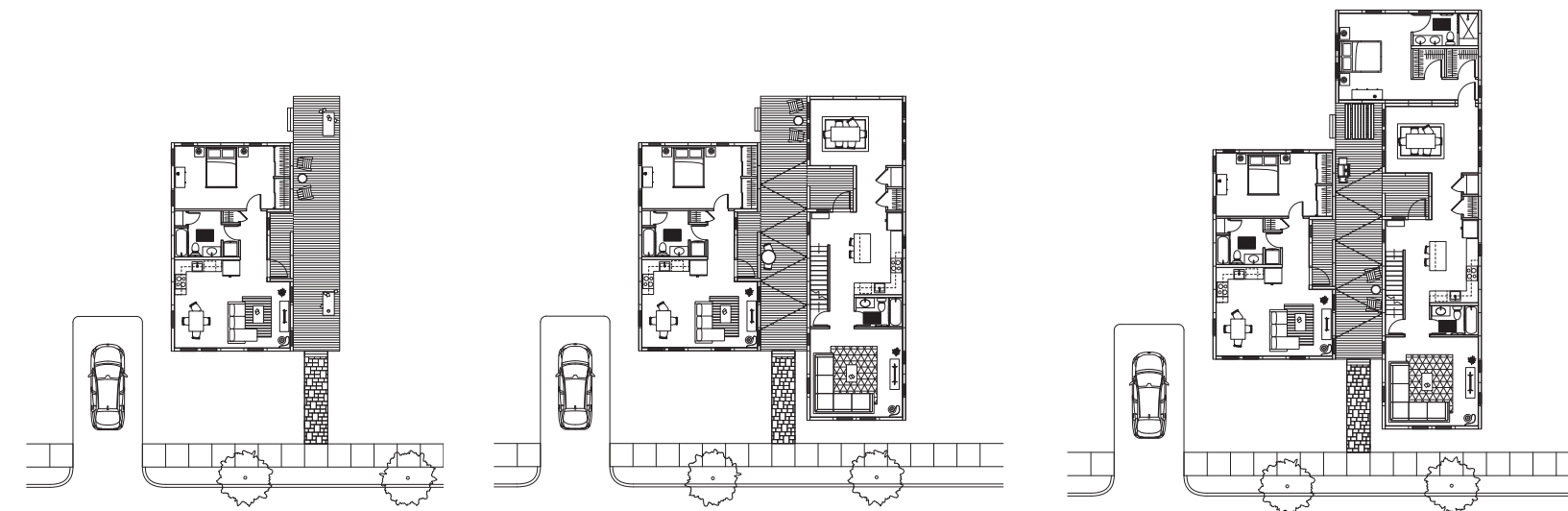


Fig. 104. Possible Sequence of Adaptation for the Passage Type

Type D

THE PASSAGE

The Passage dwelling type provides the highest level of social insulation from the surrounding community and between the two dwelling types. The entrances for both the small and large homes are hidden from passers-by and require the user to turn a corner when entering the unit. The first-floor layout of the large home is separated into three distinct uses, living room, kitchen, and dining room, which are physically distanced through hallways and further insulated by the bathroom, stairs, and closet. The two units share one central corridor that, when fully developed, is mostly enclosed from its surroundings. The second-floor features bedrooms at opposite ends of the dwelling with closets strategically placed to provide additional insulation between rooms.



Fig. 105. The Passage, Front Elevation



Fig. 106. The Passage, Side Elevation

Fig. 107. The Passage, First Floor Plan, Fully Developed

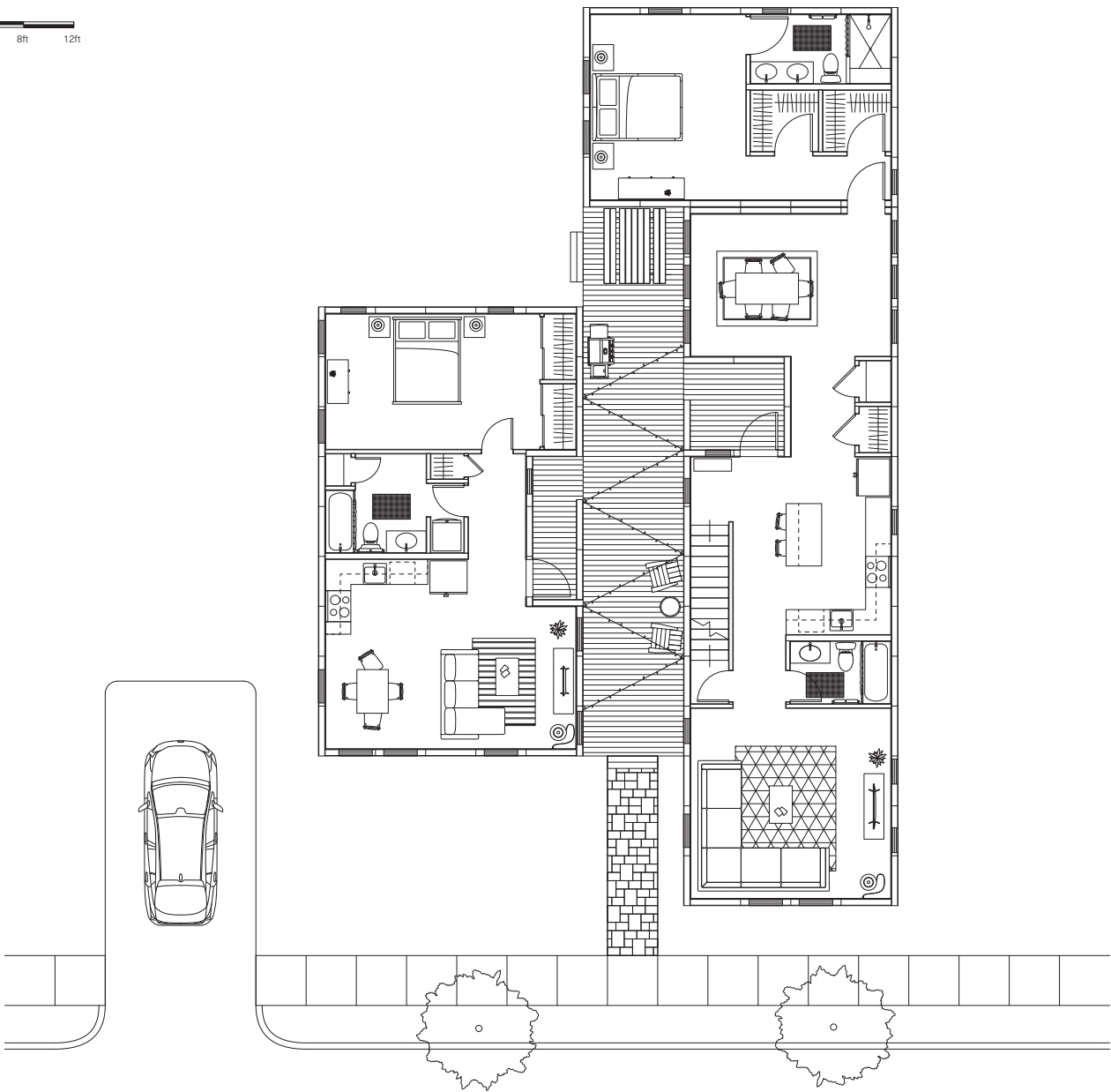


Fig. 108. The Passage, Second Floor Plan, Fully Developed

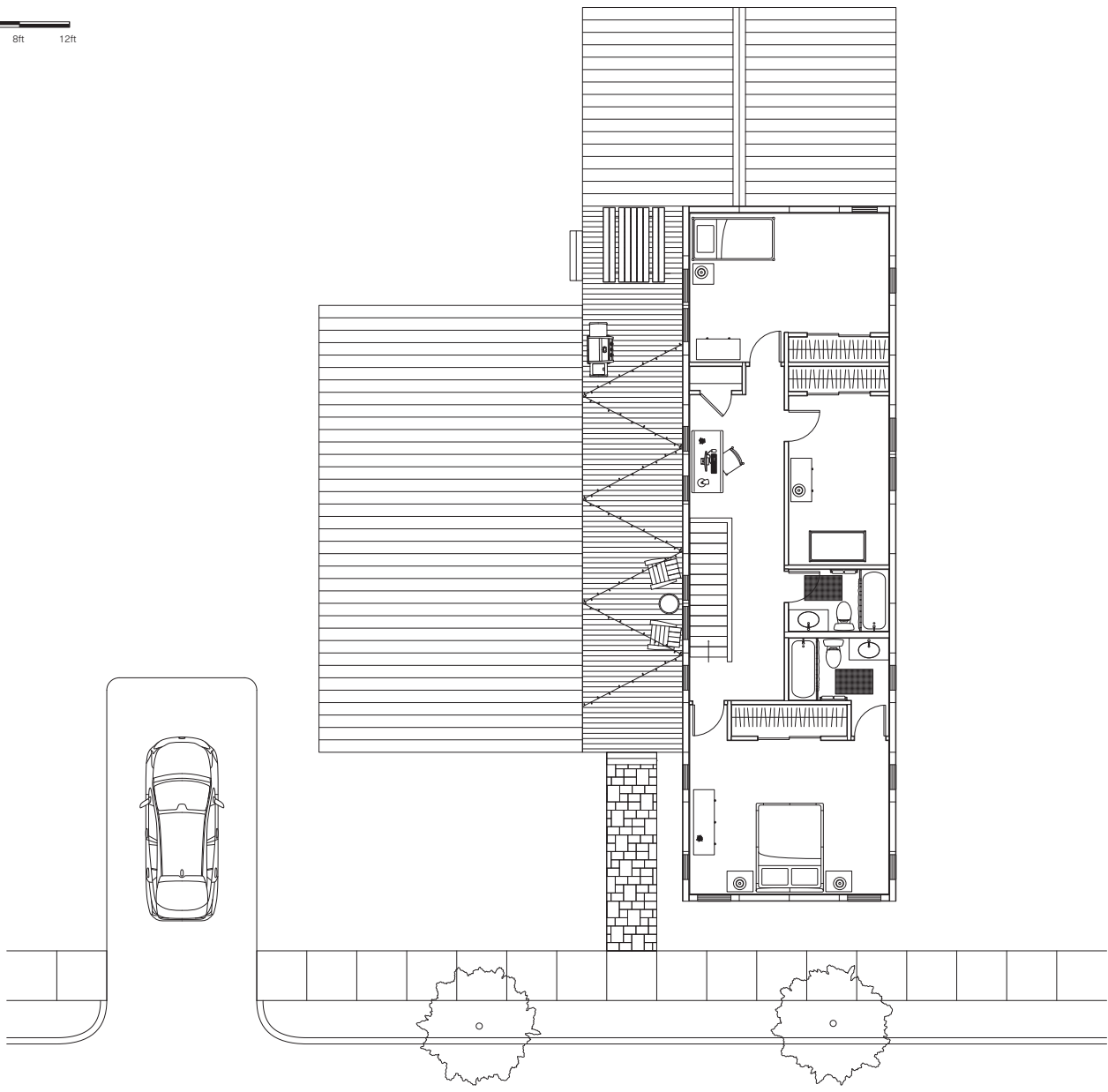




Fig. 109. Visualization of Community Garden Looking North



Fig. 110. Visualization of Arterial Path Looking South

THE ADAPTABLE HOME

The adaptable home is a dwelling type currently missing from Williston's housing stock that provides comfortable living and an emphasis on a vibrant and integrated community. While the proposal outlines four distinct dwelling types, there are opportunities for Vermonter's to demonstrate their resourcefulness to further fit their needs. The system of construction and addition allows for the easy modification of the dwelling, beyond the outlined varieties. For instance, dwelling types can be joined to create an adaptable duplex, or the layout of the small home can be converted to an above-garage unit. The goal of the community is to challenge the legitimacy of the National House and provide an alternative, and more appropriate, setting of domesticity. Given the ingenuity of Vermonters over the years, as witnessed through connected homes and elements like the witch window, the proposed neighborhood provides a starting point for redefining housing in Williston.

The adaptable home addresses all three constructs of comfort (physical, social, and economic) in a method consistent with Vermont's building tradition while embracing the prevalence and familiarity of the National House. The proposal employs strategies consistent with Vermont dwellings, such as shelter at the front entrance for protection from the elements and plumbing located in interior walls to prevent freezing. It also utilizes the more recent innovation, and locally sourced product, of structural insulated panels as a method of physical insulation from cold winters and hot summers.

Additionally, the four dwelling types account for different desired degrees of privacy, both within the unit and within the community

at large. This allows for households to socially insulate themselves, recognizing the importance and value of privacy in our current culture, without completely isolating themselves as is the case with subdivisions comprised of the National House. The value of community is often overlooked in planned communities, to the detriment of the overall comfort and happiness of the residents. According to a study by the Federal National Mortgage Association (Fannie Mae), "Community is the amenity most cherished by those looking for a place to live...[and] Americans prefer a good community to a good house by a margin of three to one."²¹¹ A good community is an essential element of a comfortable home and relies on a diverse group of residents that are invested in the place they live.

The adaptable home not only encourages households of all types but also the aging in place of its inhabitants. By being able to modify the home to fit each major life stage, households can remain in the community instead of having to relocate. A variety of dwelling types, and the ability to increase the size and value of the home over time, also addresses the economic comfort of the neighborhood and its affordability. As the commercial district of the region, Williston contains a multitude of commercial businesses. It is crucial that local workers of all industries have quality and affordable housing within close proximity. This will ultimately increase the walkability, character, and resiliency of the area. Adaptable housing ensures quality housing that addresses the comfort needs of the inhabitants while promoting the long heritage of Vermont's self-proclaimed resourcefulness. Williston can embrace future development, and define the town's identity, by adapting the model of the National House to form a regionally and individually specific building type.



Fig. 111. Aerial Visualization of Speculative Development, Isometric

APPENDIX A: THE WITCH WINDOW

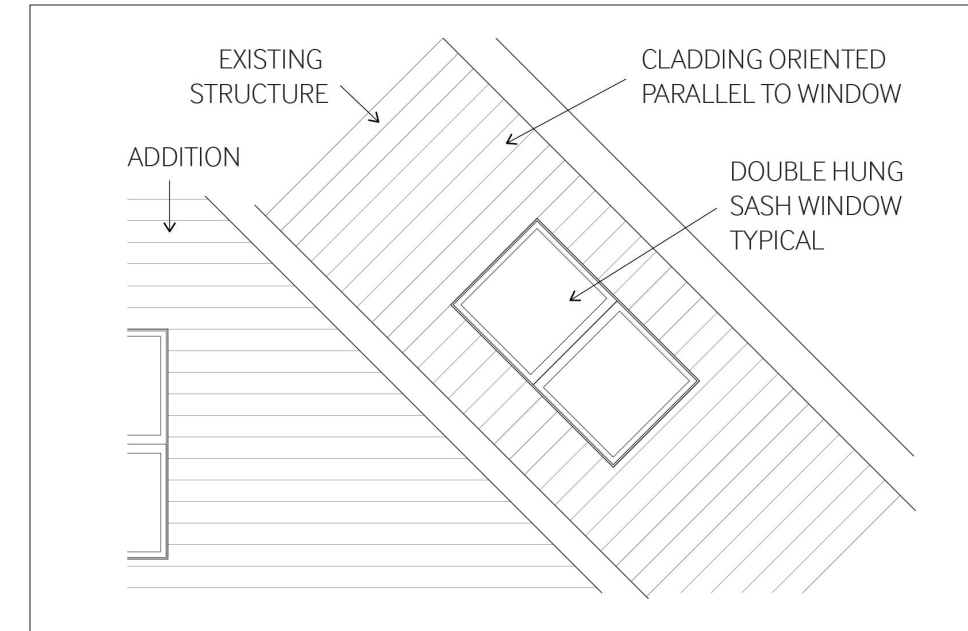


Fig. 112. Exterior Detail of a Witch Window

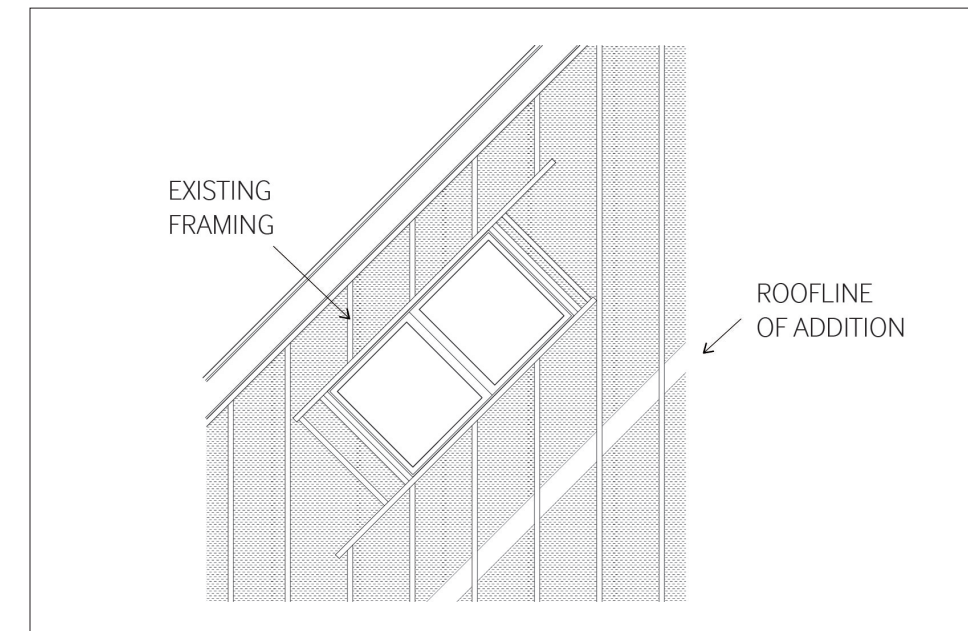


Fig. 113. Interior Detail of a Witch Window

APPENDIX B: AN ECONOMIC AND HOUSING OVERVIEW OF CHITTENDEN COUNTY

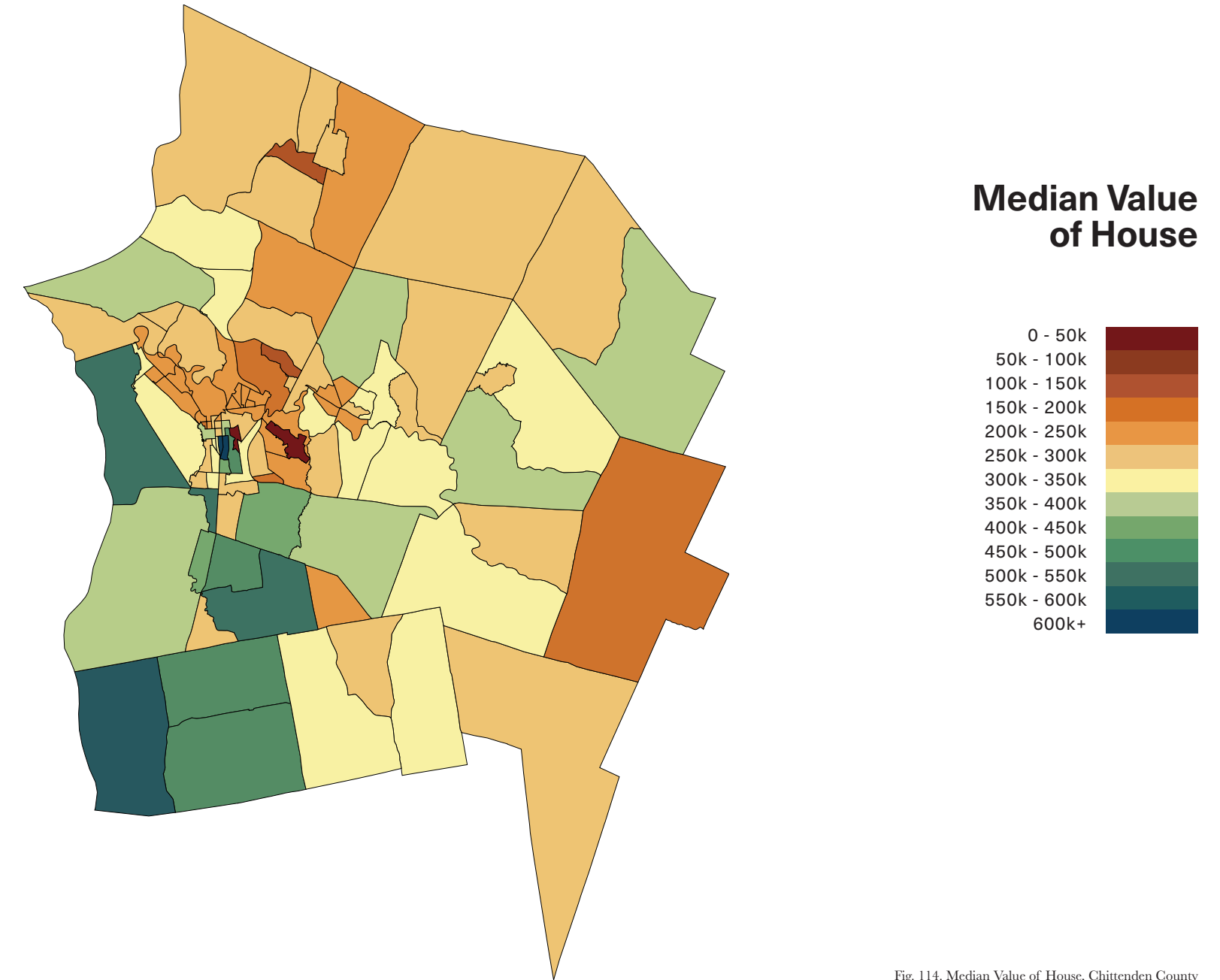


Fig. 114. Median Value of House, Chittenden County

Median Cost of Rent

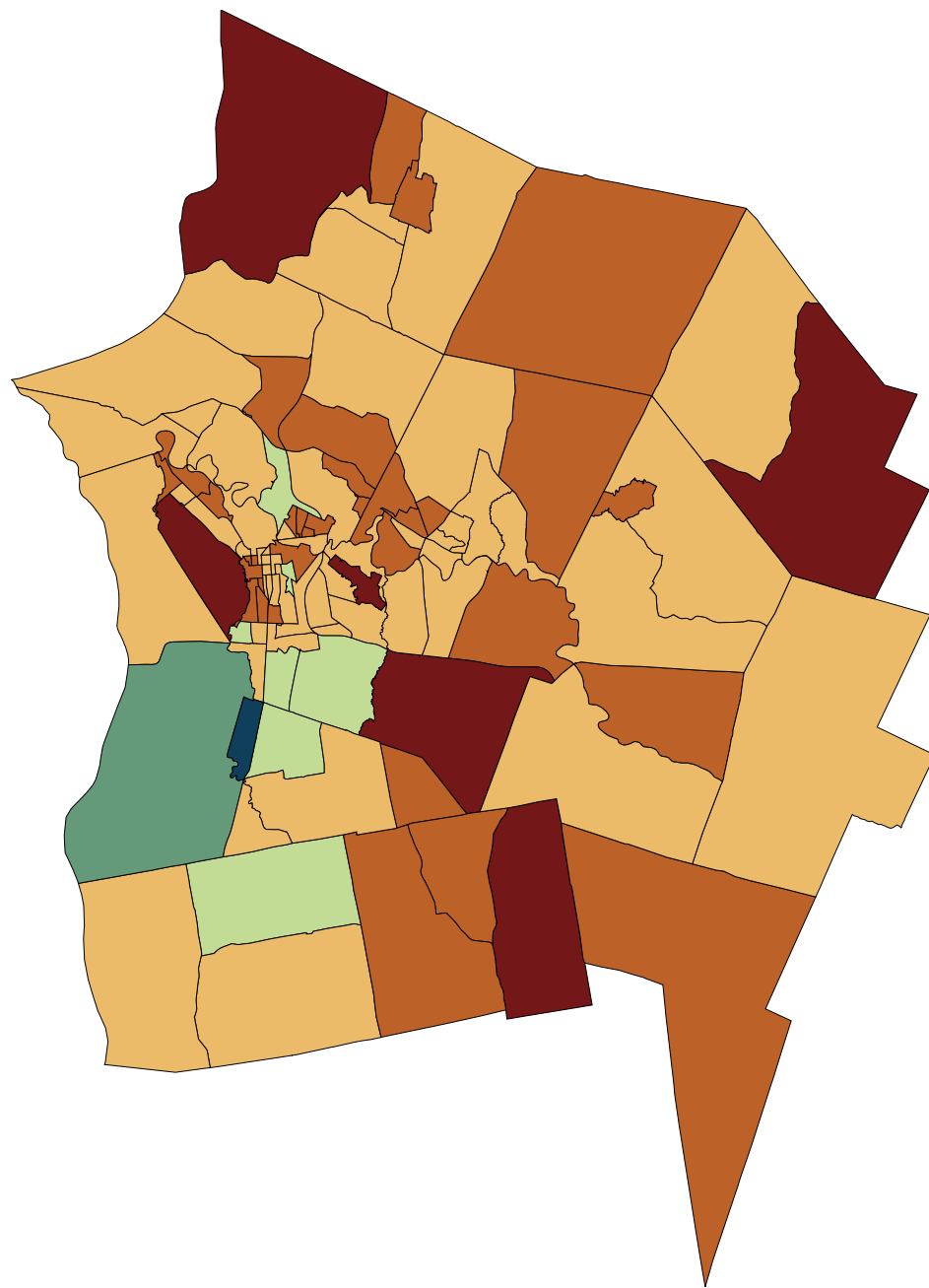
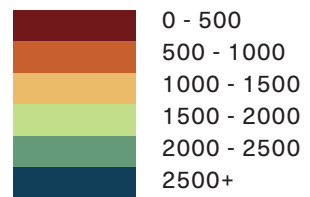


Fig. 115. Median Cost of Rent, Chittenden County

Percentage of Residential Units that are Renter Occupied

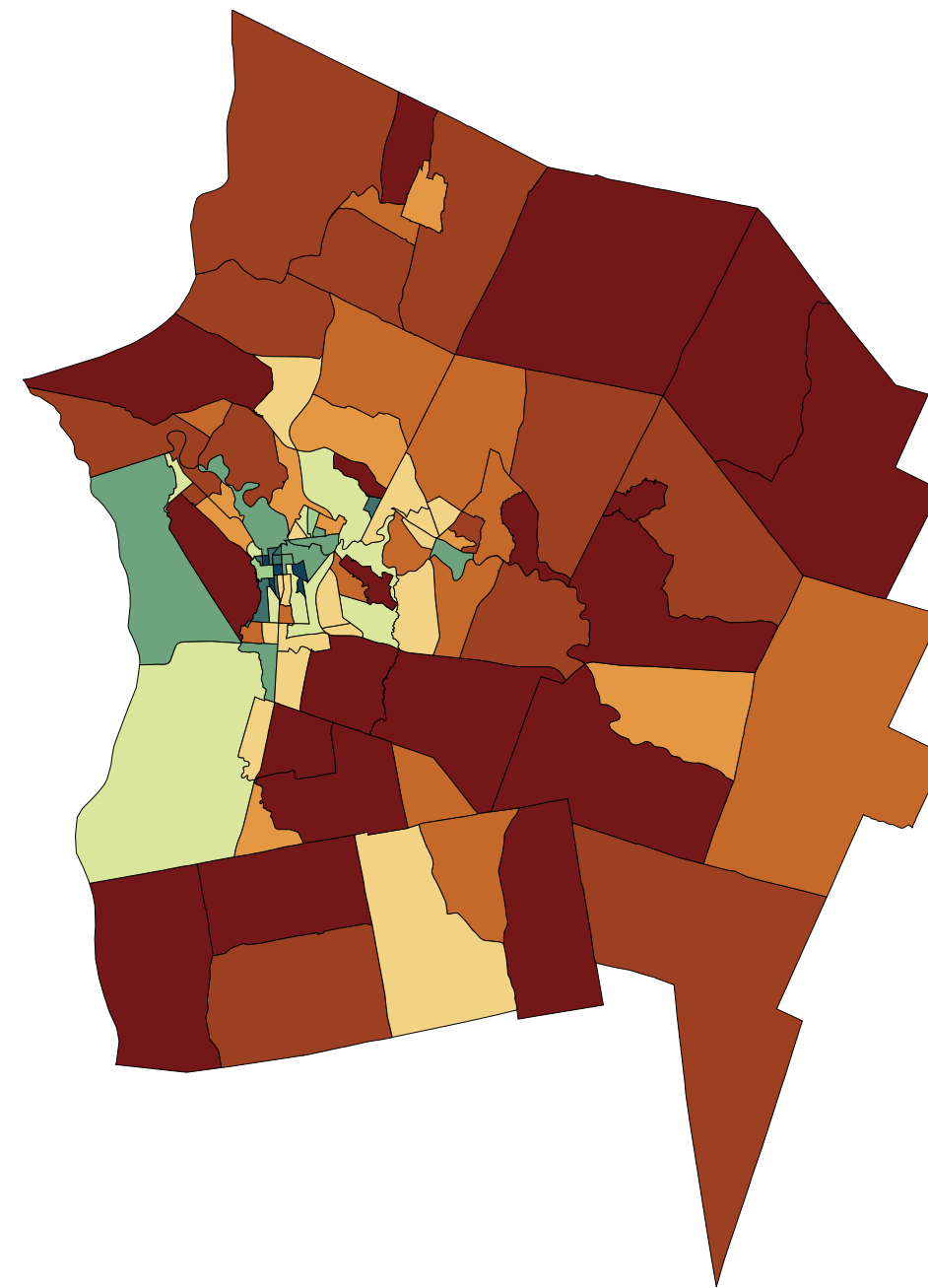
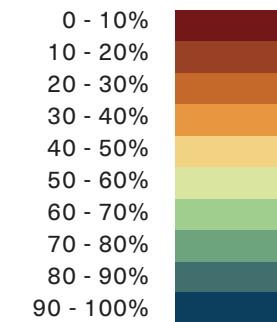


Fig. 116. Percentage of Residential Units that are Renter Occupied, Chittenden County

Percentage of Housing Stock that is Single-Family

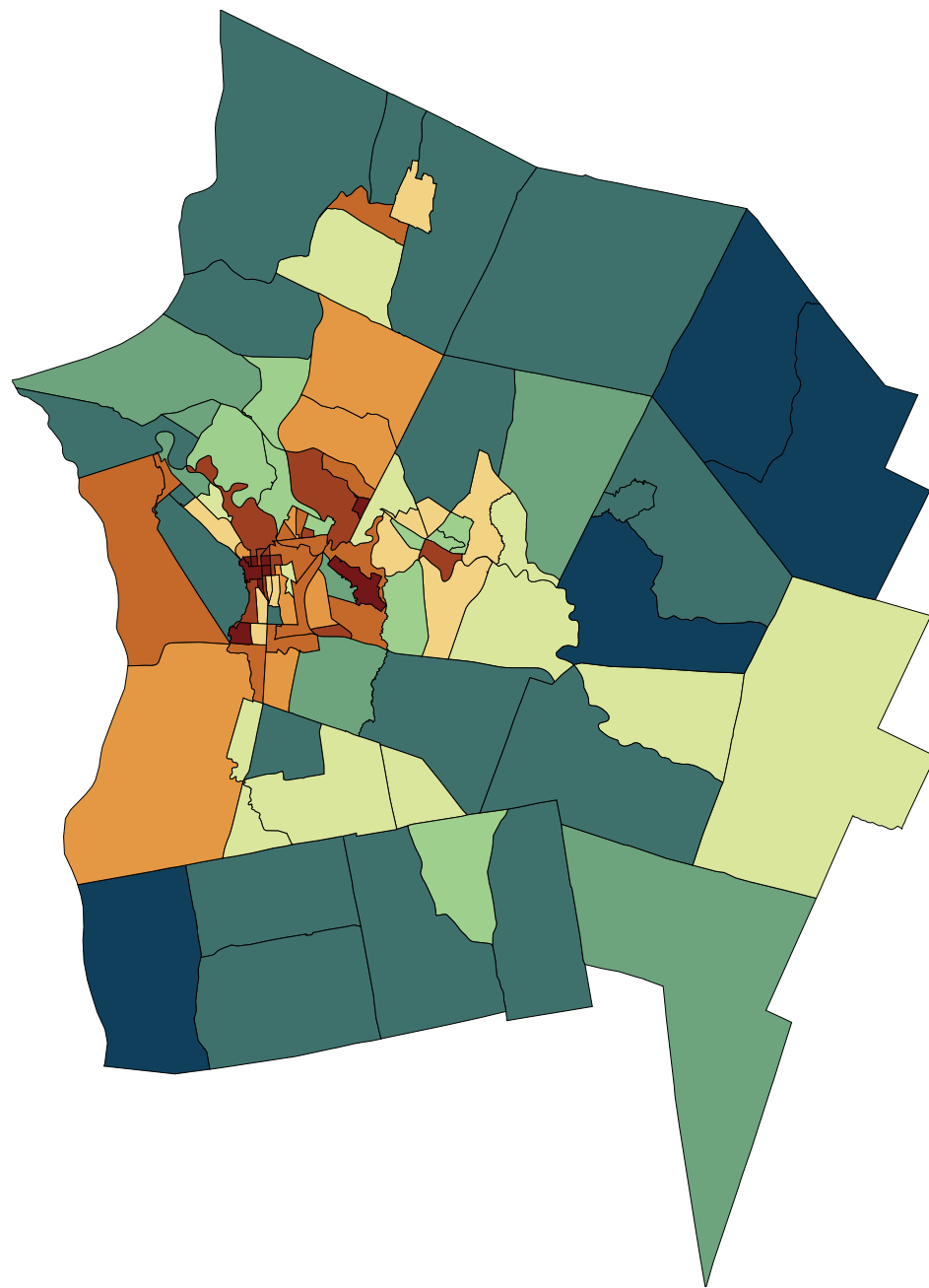
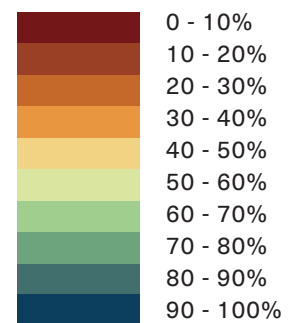


Fig. 117. Percentage of Housing Stock that is Single-Family, Chittenden County

Median Year House Was Built

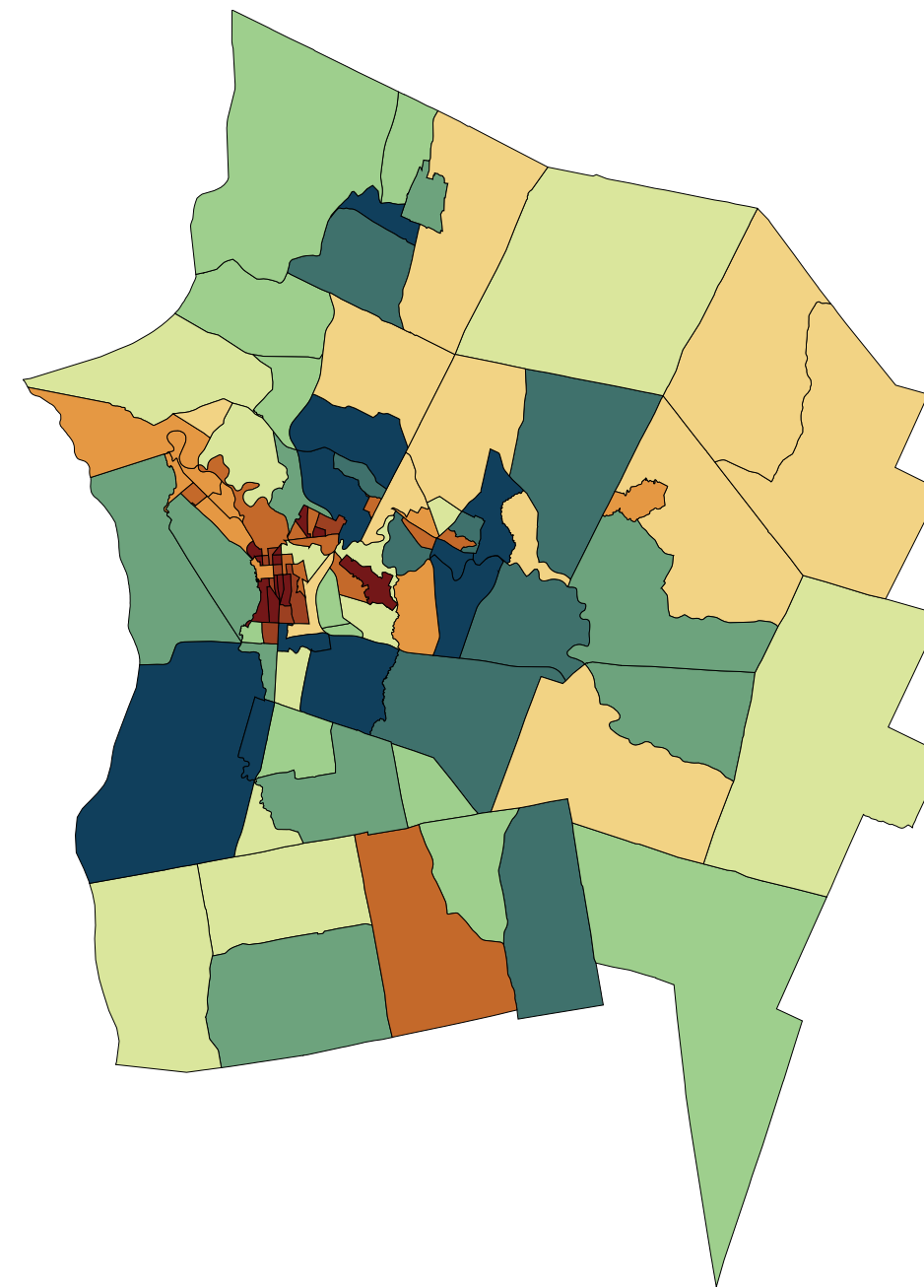
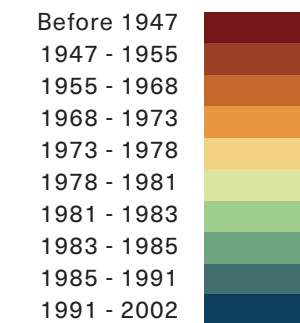


Fig. 118. Median Year House Was Built, Chittenden County

Percentage of Vacant Residential Units

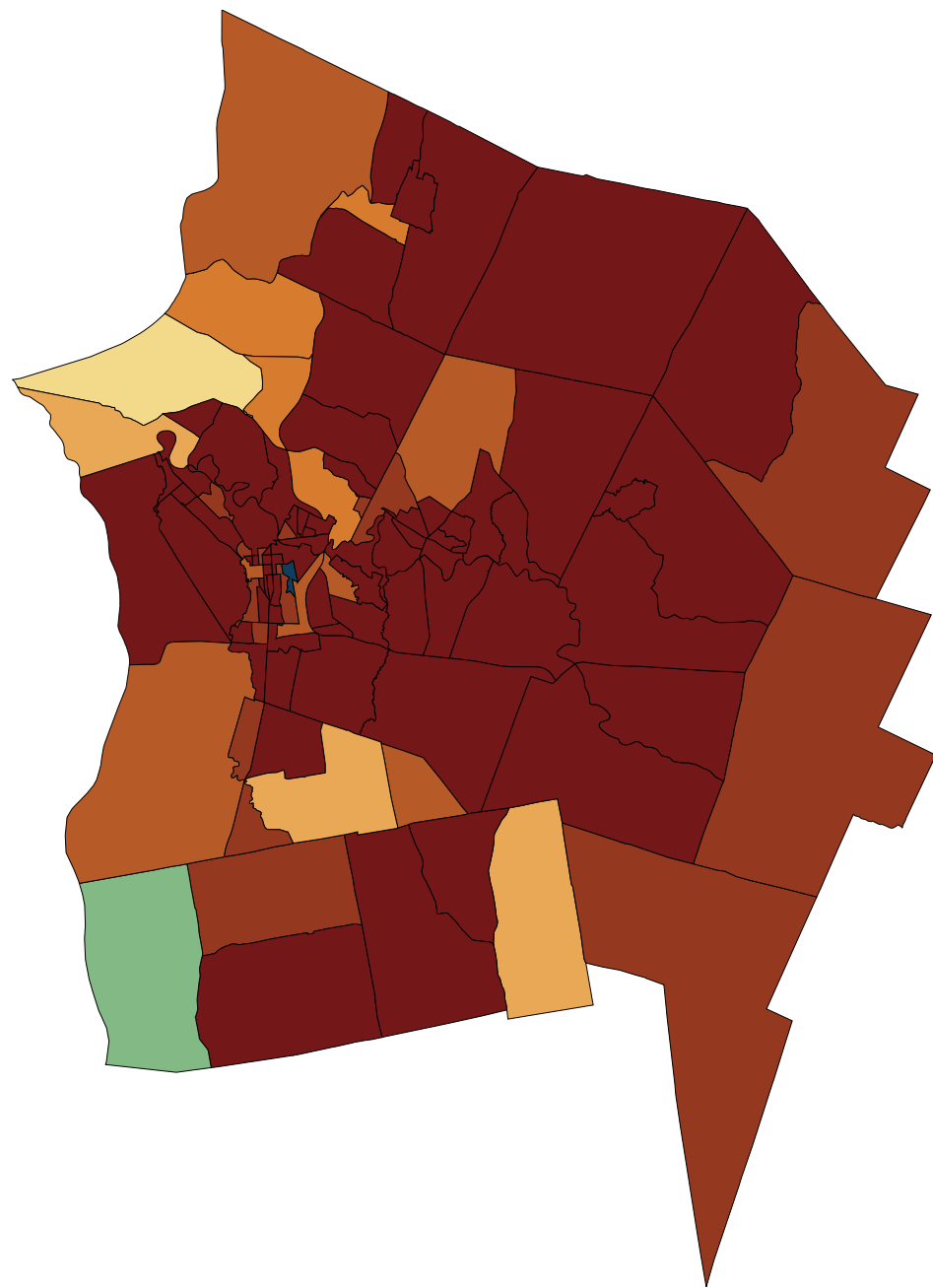
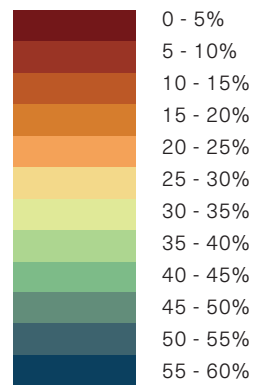


Fig. 119. Percentage of Vacant Residential Units, Chittenden County

Median Gross Income Per Household

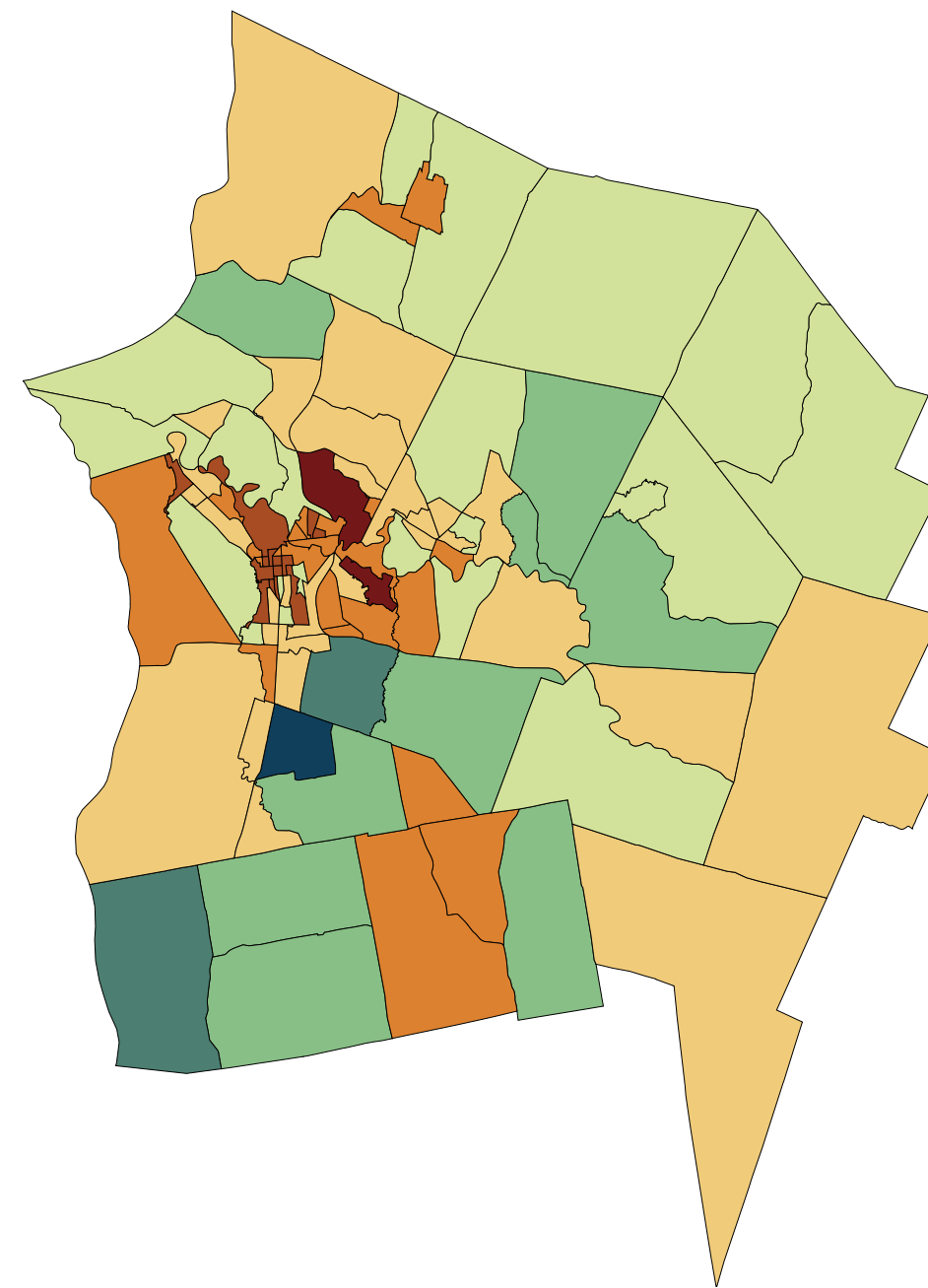
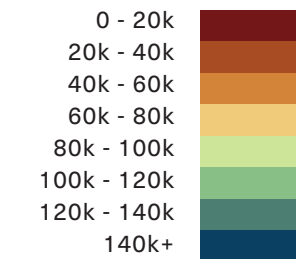


Fig. 120. Median Gross Income Per Household, Chittenden County

APPENDIX C: ACCESSORY DWELLING UNIT CONFIGURATIONS

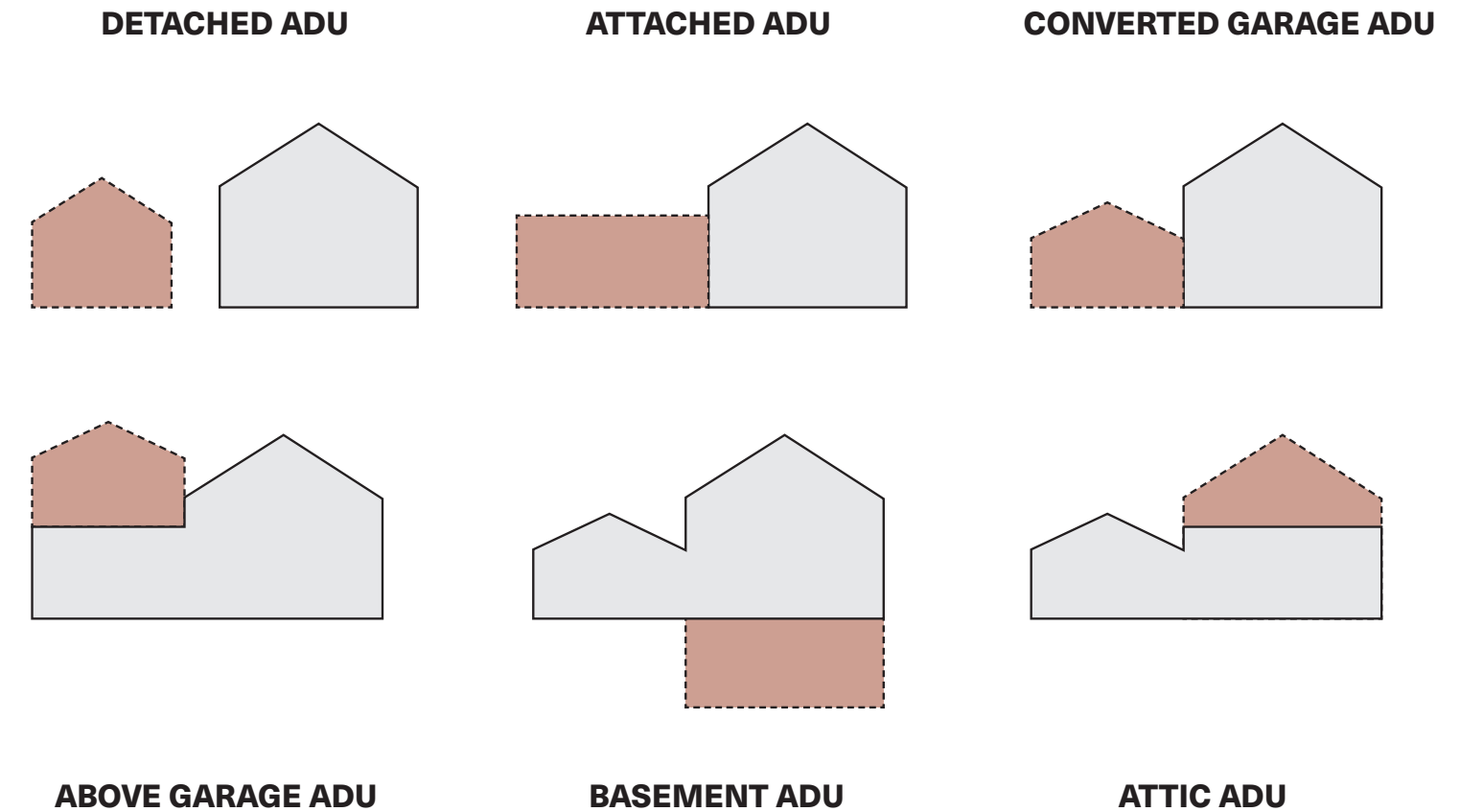


Fig. 121. Accessory Dwelling Unit (ADU) Configurations

APPENDIX D:

**STRUCTURAL
INSULATED PANELS
(SIPS)**

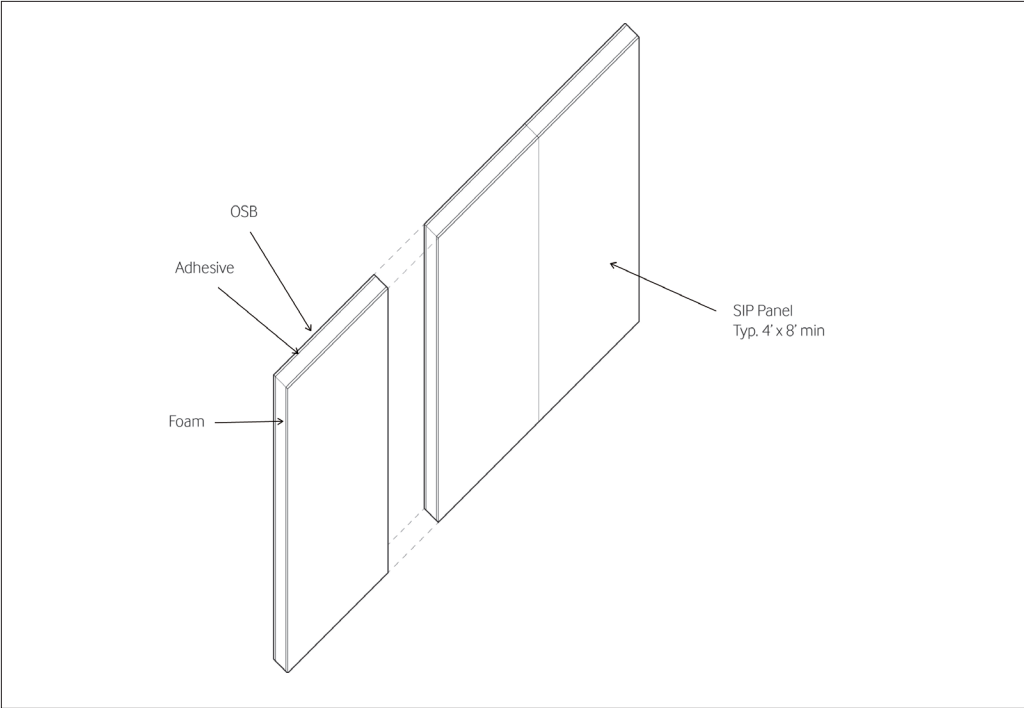


Fig. 122. Typical Structural Insulated Panel (SIP)

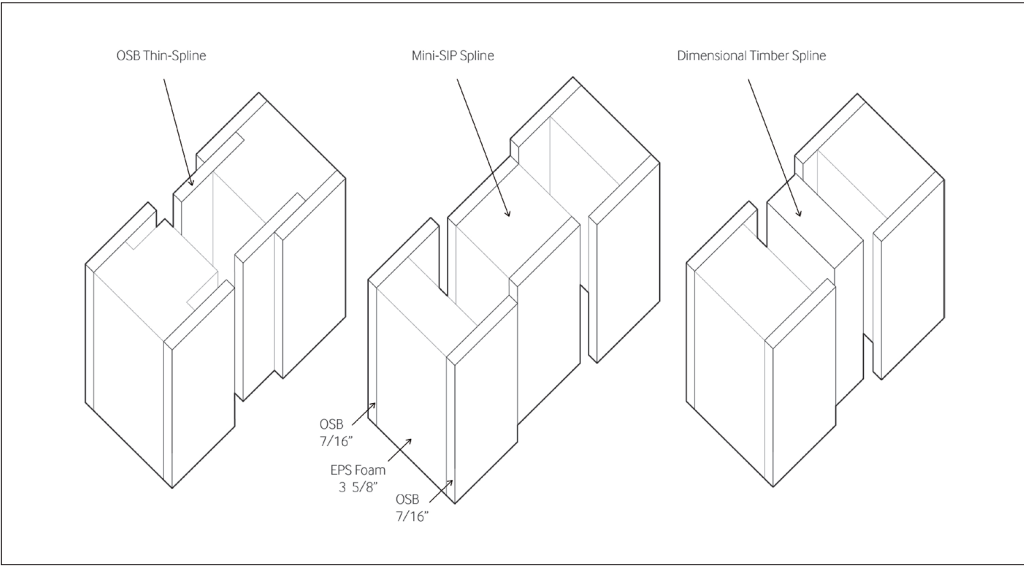


Fig. 123. Standard Joints Used for SIP Wall Connections

Fig. 124. Typical SIP Assembly for Residential House in Vermont

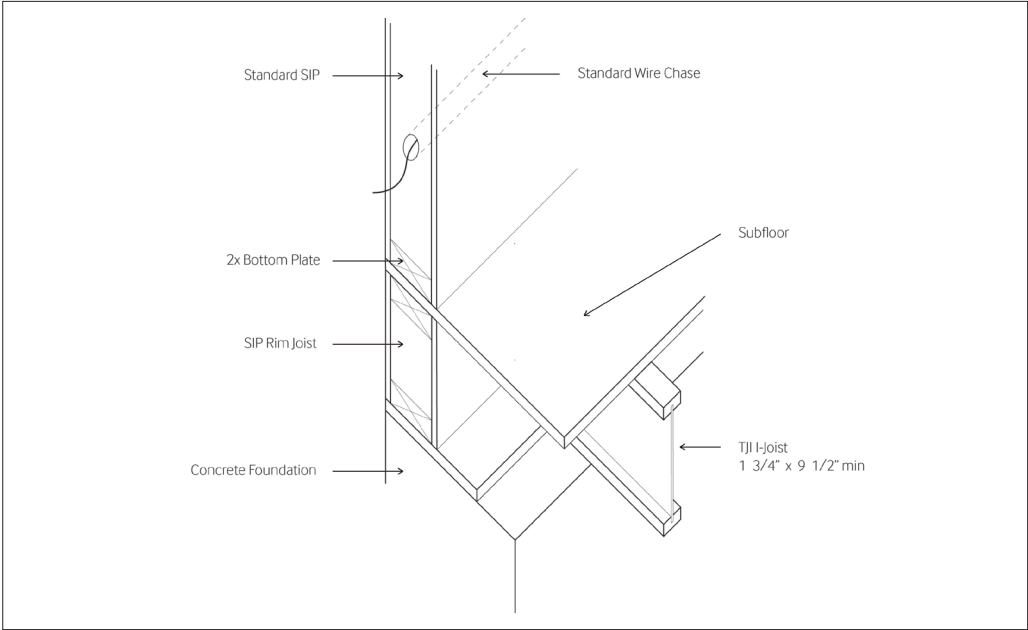


Fig. 125. Typical SIP Wall for Residential House in Vermont

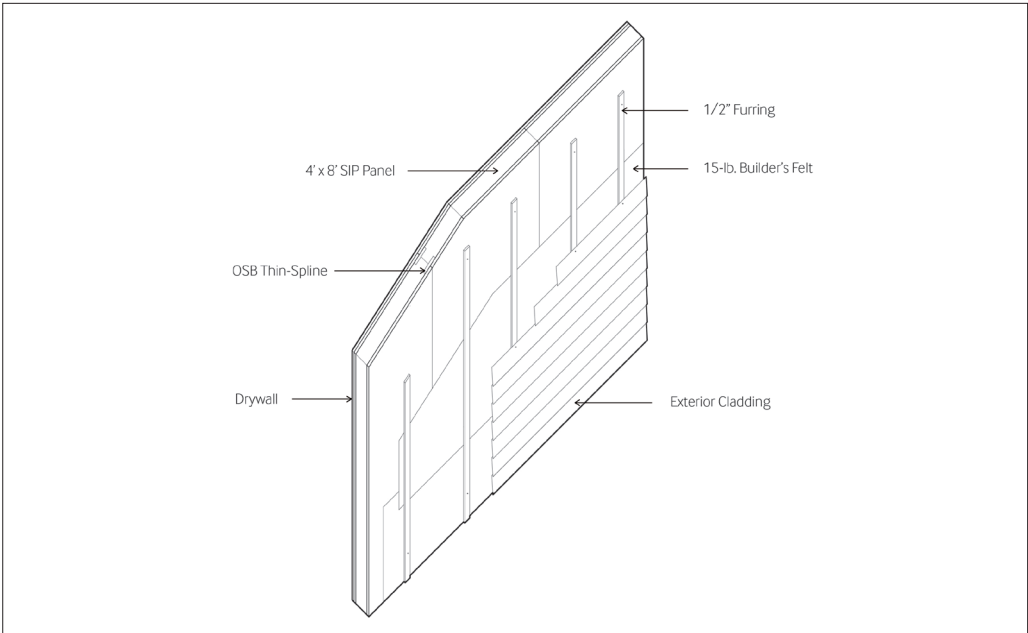


Fig. 126. SIP Wall Detail

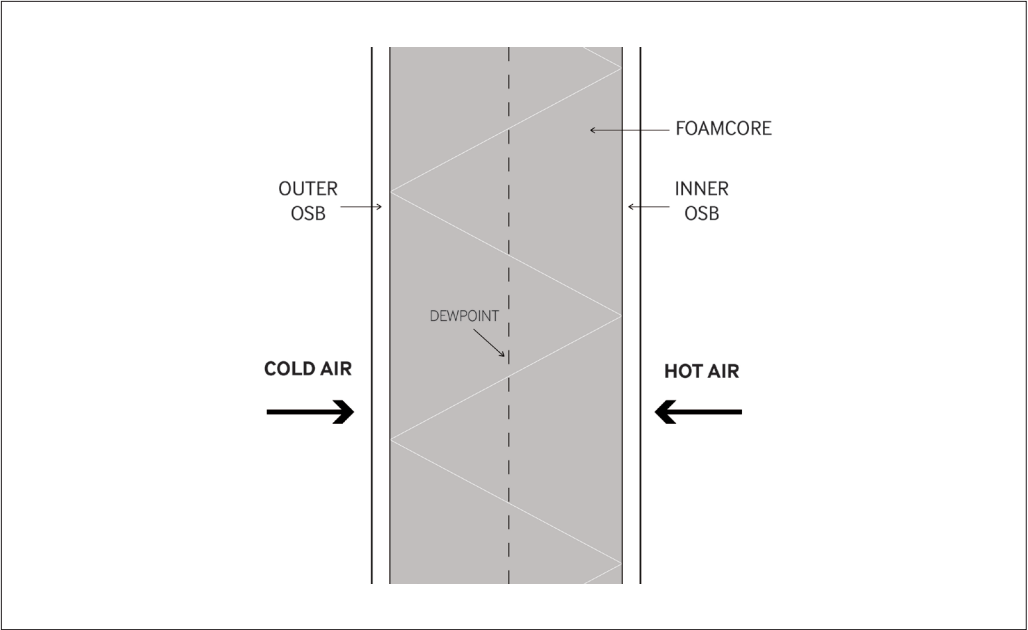
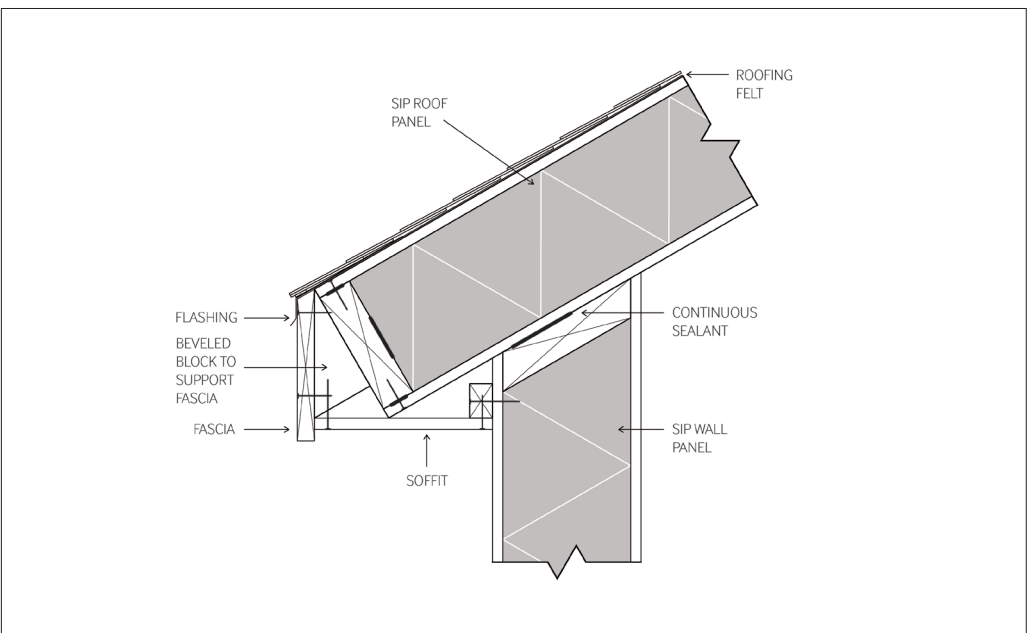


Fig. 127. SIP Roof and Soffit Framing Detail



APPENDIX E: RETENTION POND

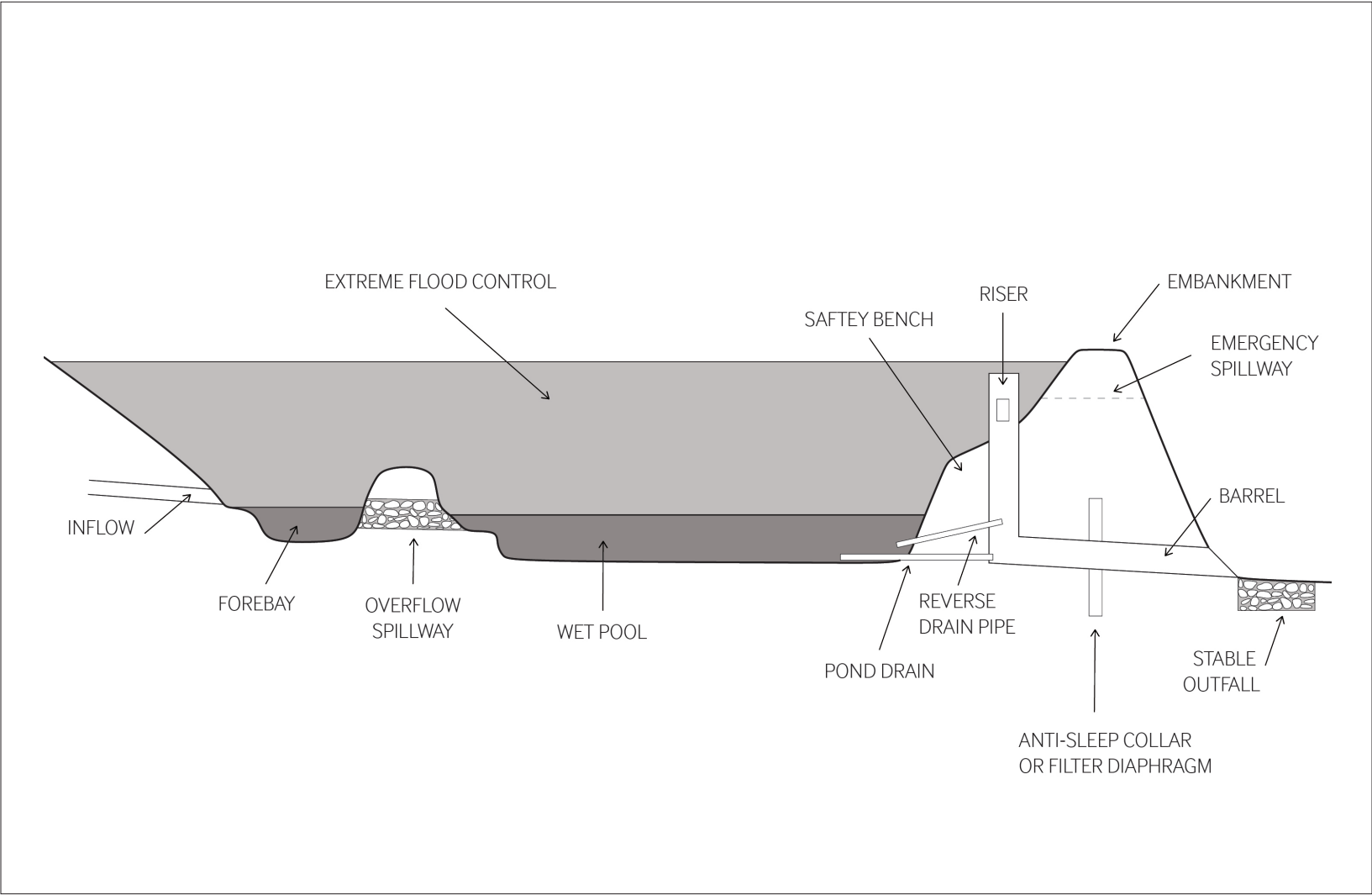


Fig. 128. Detail of Retention Pond

GLOSSARY

Accessory Dwelling Unit (ADU) / A studio or one bedroom apartment on a homeowner's property in addition to the primary dwelling.

Architecture / An inhabitable space built for the purpose of human occupation and use.

'a'rchitecture / An inhabitable space built for the purpose of human occupation and use.

'A'rchitecture / An inhabitable space built for the purpose of human occupation and use ... but elevated beyond the status of a building due to instilled meaning by designers and/or consumers.

Affordable Housing / The rent or mortgage expenses of a residential unit that does not exceed over 30% of the household's income.

Comfort / Both an attribute and achievement. The combined physical, mental, and financial satisfaction with an object or place.

Economic Comfort / Financially within one's means.

Physical Comfort / The physical need or desire for shelter, light, and climate control.

Social Comfort / The degree of privacy or intimacy an individual perceives is needed for personal contentment within a space. Can be a social construct determined by hegemonic norms of the time.

Pre-Packaged Comfort / The standardization of architectural elements in a dwelling that fulfill the most basic requirements for comfort but cannot be individually customized.

Density / The number of dwelling units per acre. For example: 6 units on a 0.5 acre lot equates to a density of 12 D.U./acre.

6 units/0.5acre = 12 dwelling units/acre.

Dwelling Unit (D.U.) / A self-contained structure, or part of a structure, used by a household as a residence.

Home / A residential unit that has been embraced, modified, and adapted by its residents and effectively meets the household's comfort requirements.

Local Vermont Home / A residential unit constructed in Vermont that has been physically modified over time in search of comfort.

House / A residential unit.

National House / The purveyor of social insulation and a pre-packaged idea of comfort. Generally a new build in a cluster of similar houses that is irrespective of vernacular architectural traditions.

Housing Type / A residential dwelling classified by the number of households it accommodates, e.g. detached single-family, duplex, single room occupancy (SRO), etc.

Privacy / Physical and mental seclusion from others.

Social Insulation / A form of social comfort favoring privacy, which manifests in the act of architecturally barricading one's self or household from others. Social insulation can be thought of as a gradient of privacy.

Social Isolation / The complete social disconnect from the surrounding community - the extreme of social insulation.

Structural Insulated Panel (SIP) / A laminate building system that is usually rigid insulation/foam backed on either side by oriented strand board (OSB), although it comes in other configurations. It can be used as a structural and thermal insulation system for walls, floors, and roofs.

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BIBLIOGRAPHY

Alexander, Christopher, Sara Ishikawa, and Murray Silverstein. *A Pattern Language: Towns. Buildings, Construction*. Oxford University Press, 1977.

Burlington Free Press. *Champlain Valley Through Our Eyes*. Pediment Publishing, 2012.

Congdon, Herbert Wheaton. *Early American Homes for Today: A Treasury of Decorative Details and Restoration Procedures*. Charles E. Tuttle Company, 1963.

Chermayeff, Serge and Christopher Alexander. *Community and Privacy: Toward a New Architecture of Humanism*. Anchor Books, 1965.

Duany, Andrés et al. *Suburban Nation: The Rise of Sprawl and the Decline of the American Dream*. North Point Press, 2000.

Garvin, James L. *A Building History of Northern New England*. University Press of New England, 2001.

Glenn, Andres and Curtis B. Johnson. *Buildings of Vermont*. University of Virginia Press, 2014.

Hubka, Thomas C. *Houses Without Names: Architectural Nomenclature and the Classification of America's Common Houses*. University of Tennessee Press, 2013.

Ierley, Merritt. *Open House: A Guided Tour of the American Home, 1637 - Present*. Henry Holt and Company, Inc., 1999.

Jackson, Kenneth T. *Crabgrass Frontier: The Suburbanization of the United States*. Oxford University Press, 1987.

McAlester, Virginia Savage. *A Field Guide to American Houses: The Definitive to Identifying and Understanding America's Domestic Architecture*. 2nd ed., Alfred A. Knopf, 2013.

Rice, Charles. *The Emergence of the Interior: Architecture, Modernity, Domesticity*. Routledge, 2007.

Shove, Elizabeth. *Comfort, Cleanliness and Convenience: The Social Organization of Normality*. Berg, 2003.

Williams, Norman, Jr., Edmund H. Kellog, and Peter M. Lavigne. *Vermont Townscape*. Center for Urban Policy Research, 1987.

NOTES

1 "Cost-burdened Households - Households by Housing Costs as a Percentage of Household Income", *housingdata.org*, <https://www.housingdata.org/profile/housing-needs/cost-burdened-households>, accessed May 28, 2020.

2 Elizabeth Shove, *Comfort, Cleanliness and Convenience: The Social Organization of Normality*, Berg, 2003, 41.

3 Charles Rice, *The Emergence of the Interior: Architecture, Modernity, Domesticity*, Routledge, 2007, 69.

4 Rice, 69.

5 Shove, *Comfort, Cleanliness, and Convenience*, 30.

6 Shove, 32.

7 Shove, 34.

8 Shove, 25.

9 Shove, 25.

10 Shove, 21-22.

11 Shove, 41.

12 Shove, 36.

13 Rice, *The Emergence of the Interior*, 57.

14 Rice, 113.

15 Christopher Alexander et al., *A Pattern Language: Towns, Buildings, Construction*, Oxford University Press, 1977, 662.

16 Alexander, 661.

17 Rice, *The Emergence of the Interior*, 59.

18 Rice, 59-60.

19 Rice, 58.

20 Rice, 68.

21 Rice, 57.

22 Rice, 68.

23 Rice, 57.

24 Rice, 71-72.

25 Alexander, *A Pattern Language*, 532.

26 Alexander, 533.

27 Alexander, 533.

28 Rice, *The Emergence of the Interior*, 113.

29 Rice, 11.

30 Serge Chermayeff and Christopher Alexander, *Community and Privacy: Toward a New Architecture of Humanism*, Anchor Books, 1965, 74.

31 Chermayeff, 75.

32 Chermayeff, 63.

33 Rice, *The Emergence of the Interior*, 69.

34 "Cost-burdened Households - Households by Housing Costs as a Percentage of Household Income", *housingdata.org*, <https://www.housingdata.org/profile/housing-needs/cost-burdened-households>, accessed May 28, 2020.

35 Andres Glenn and Curtis B. Johnson, *Buildings of Vermont. University of Virginia Press*, 2014, 5.

36 Glenn, 3.

37 Glenn, 3.

38 Glenn, 4.

39 Glenn, 3.

40 Glenn, 7-8.

41 Glenn, 5.

42 Glenn, 135.

43 Glenn, 135.

44 Glenn, 135.

45 Glenn, 3.

46 Glenn, 8.

47 Glenn, 8.

48 Glenn, 8.

49 Glenn, 5.

50 Glenn, 6.

51 Glenn, 6.

52 Glenn, 6.

53 Glenn, 7.

54 Herbert Wheaton Congdon, *Early American Homes for Today: A Treasury of Decorative Details and Restoration Procedures*, Charles E. Tuttle Company, 1963, 23.

55 Congdon, 24.

56 Congdon, 24.

57 Congdon, 25.

58 Congdon, 24.

59 Congdon, 25.

60 Congdon, 25.

61 Congdon, 26.

62 Congdon, 26.

63 Congdon, 28.

64 Congdon, 28.

65 Congdon, 30.

66 James L. Garvin, *A Building History of Northern New England*, University Press of New England, 2001, 38-39.

67 Garvin, 32.

68 Garvin, 114.

69 Garvin, 126.

70 Garvin, 43.

71 Garvin, 45.

72 Garvin, 11.

73 Garvin, 13.

74 Garvin, 15.

75 Garvin, 15.

76 Garvin, 17.

77 Garvin, 17.

78 Garvin, 17.

79 Garvin, 19.

80 Garvin, 49.

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82 Garvin, 114.

83 Garvin, 106.

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86 Garvin, 74.

87 Garvin, 76.

88 Garvin, 39-40.

89 Garvin, 20.

90 Garvin, 20.

91 Garvin, 30-31.

92 Garvin, 30.

93 Garvin, 31.

94 Glenn, *Buildings of Vermont*, 11.

95 Glenn, 136.

96 Glenn, 136.

97 Glenn, 137.

98 Glenn, 135.

99 Glenn, 16.

100 Glenn, 12.

101 Glenn, 30.

102 Glenn, 12.

103 Glenn, 11.

104 Glenn, 12.

105 Glenn, 12-13.

106 Glenn, 17.

107 Glenn, 19.

108 Glenn, 17-18.
109 Glenn, 137.
110 Glenn, 20.
111 Glenn, 20.
112 Burlington Free Press, *Champlain Valley Through Our Eyes*, Pediment Publishing, 2012, 53.
113 Glenn, *Buildings of Vermont*, 22.
114 Glenn, 23.
115 Burlington Free Press, *Champlain Valley Through Our Eyes*, 93.
116 Glenn, *Buildings of Vermont*, 11.
117 Garvin, *A Building History of Northern New England*, 23.
118 Garvin, 26.
119 Garvin, 24.
120 Garvin, 25.
121 Garvin, 26.
122 Garvin, 37.
123 Garvin, 88.
124 Congdon, *Early American Homes for Today*, 27.
125 Garvin, *A Building History of Northern New England*, 118.
126 Garvin, 121.
127 Garvin, 121.
128 Garvin, 125.
129 Garvin, 126.
130 Thomas C. Hubka, *Houses Without Names: Architectural Nomenclature and the Classification of America's Common Houses*, University of Tennessee Press, 2013, 48.
131 Garvin, *A Building History of Northern New England*, 127.
132 Congdon, *Early American Homes for Today*, 40.
133 Hubka, *Houses Without Names*, 65.
134 Congdon, *Early American Homes for Today*, 40.
135 Garvin, *A Building History of Northern New England*, 127.
136 Garvin, 127.
137 Garvin, 128.
138 Garvin, 128-129.
139 Garvin, 129.
140 Garvin, 135.
141 Garvin, 130.
142 Garvin, 131.
143 Garvin, 27.
144 Garvin, 28.
145 Garvin, 77.
146 Garvin, 70.
147 Garvin, 94.
148 Garvin, 47-48.
149 Garvin, 31.
150 Garvin, 131.
151 Garvin, 135.
152 Garvin, 135.
153 Garvin, 135.
154 Garvin, 47-48.
155 Garvin, 90.
156 Garvin, 90.
157 Garvin, 71.
158 Garvin, 28.
159 Glenn, *Buildings of Vermont*, 1.
160 Garvin, *A Building History of Northern New England*, 2.
161 Congdon, *Early American Homes for Today*, 40.
162 Congdon, 36.
163 Congdon, 38.
164 Glenn, *Buildings of Vermont*, 10.
165 Congdon, *Early American Homes for Today*, 39.
166 Congdon, 38.
167 Congdon, 39.
168 Congdon, 35-36.
169 Norman Williams, Jr., Edmund H. Kellog, and Peter M. Lavigne, *Vermont Townscape, Center for Urban Policy Research*, 1987, 170.
170 Merritt Ierley, *Open House: A Guided Tour of the American Home, 1637 – Present*, Henry Holt and Company, Inc., 1999, 3.
171 Kenneth T. Jackson, *Crabgrass Frontier: The Suburbanization of the United States*, Oxford University Press, 1987, 192.
172 Jackson, 181.
173 Jackson, 167.
174 Jackson, 167.

175 Jackson, 168.
176 Jackson, 184-185.
177 Jackson, 189.
178 Jackson, 203-204.
179 Jackson, 193.
180 Jackson, 204.
181 Jackson, 206-207.
182 Jackson, 207.
183 Jackson, 206.
184 Jackson, 242.
185 Jackson, 242.
186 Jackson, 206.
187 Jackson, 216.
188 Burlington Free Press, *Champlain Valley Through Our Eyes*, 93.
189 Jackson, *Crabgrass Frontier*, 232.
190 Jackson, 204.
191 Jackson, 205.
192 Jackson, 243.
193 Jackson, 239.
194 Hubka, *Houses Without Names*, 7.
195 Hubka, 10.
196 Hubka, 37.
197 Hubka, 28-29.
198 Hubka, 28-29.
199 Glenn, *Buildings of Vermont*, 25.
200 Jackson, *Crabgrass Frontier*, 191.
201 Jackson, 249.
202 Jackson, 248-249.
203 Glenn, *Buildings of Vermont*, 25.
204 Glenn, 25.
205 Glenn, 135.
206 Glenn, 137.
207 Alexander, *A Pattern Language*, 188.
208 "Williston Home Prices and Values", *Zillow*, <https://www.zillow.com/williston-vt/home-values/>, accessed May 28, 2020.
209 "Town Plan: 2016-2024 Williston Comprehensive Plan", [https://www.town.williston.vt.us/vertical/Sites/%7BF506B13C-605B-4878-8062-87E5927E49F0%7D/uploads/Approved_Amended_Williston_Comprehensive_Plan_Document_Nov_5_2018\(1\).pdf](https://www.town.williston.vt.us/vertical/Sites/%7BF506B13C-605B-4878-8062-87E5927E49F0%7D/uploads/Approved_Amended_Williston_Comprehensive_Plan_Document_Nov_5_2018(1).pdf), revised November 5, 2018, 14.
210 Department of Housing and Community Development, "Accessory Dwelling Units: A Guide for Home-owners", <https://accd.vermont.gov/sites/accdnew/files/documents/H-Instructions-2013EditionAccessoryAptsBrochure.pdf>, revised 2013.
211 Andrés Duany et al., *Suburban Nation: The Rise of Sprawl and the Decline of the American Dream*, 112.