



HOUSING FOR THE NEXT GENERATION OF DULUTH'S WORKFORCE

A Comparative Study of Single-Family Housing
Construction Costs in Duluth

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This report was prepared by the Northspan Group, Inc., a private non-profit business and community development corporation located in Duluth.

Executive Summary

This report seeks to analyze costs associated with the development of single-family workforce housing in Duluth, Minnesota. It explores a range of factors that affect the cost of constructing new single-family homes to determine where Duluth's costs are high relative to several comparison cities. It also investigates home renovation costs as a potential alternative to new construction. It offers a framework for next steps available to policymakers and other stakeholders who seek to develop more single-family housing units in Duluth.

Background

This report opens with a brief overview of the Duluth housing market and the city's stated goals to add new units to meet demand. It emphasizes the role of single-family housing in meeting these goals, especially as Duluth's metropolitan area continues its gradual growth. It then explores the role of national trends such as decreased construction per person, increased home size, and changes in desired products that make housing costs more expensive, either directly through higher construction costs or indirectly through limits on housing supply. The background section concludes by reaffirming the value of homeownership for family stability and wealth creation, and its ability to create a virtuous cycle for cities that continue to provide desirable housing products.

Methodology

This report uses a series of tools to measure housing costs across Duluth and several comparison cities in the Upper Midwest. It identifies a basic housing product built with at least some regularity across all of these markets to control for as many factors as possible. Next, it uses a series of methods to compare costs across the cities, including:

- Home sales data from a database of Multiple Listing Service (MLS) home sales information
- Construction cost estimation tools
- Permit and utility connection fee estimates
- Renovation cost data
- Information on state regulatory regimes
- Construction wage data

Together, these methods provide insights into a wide range of steps the home construction process.

Comparative Analysis

The report uses the tools detailed in the methodology section to draw conclusions about home construction. Home sales data confirm the assumption that new housing in Duluth appears more expensive than in other cities, though they also point to factors such as site preparation costs, lot sizes, and a lack of large-scale housing developments that are likely responsible for substantial portions of the imbalance. Construction cost estimation tools suggest Duluth labor costs are somewhat higher than in

most of the comparison cities, though they are not the leading factor in the imbalance. Building permit and utility connection data show that Duluth's cost structure is one of the most expensive among the comparison cities. Renovation is a potential option to create like-new conditions in Duluth's abundant supply of older homes, but the cost-effectiveness of such measures is highly dependent on the state of the home. Minnesota as a whole has a well-documented tendency to create regulatory barriers that drive up housing prices, while wage data for home construction-related job classes also points to somewhat higher costs in Duluth. These factors all combine to push up Duluth's housing construction prices.

Recommendations

Given the obstacles facing the construction of new single-family housing at affordable price points, this report recommends a series of steps available to a variety of stakeholders to address the lack of affordable workforce housing. These recommendations include:

- Offer flexible programs that leverage public-private partnerships to support new development, including the creation of a housing trust fund and expansion of existing programs that promote new or infill development
- Revisit high building permit and natural gas connection fees for both new construction and renovation projects
- Streamline the permitting process to create greater user-friendliness
- Protect the city's existing, relatively affordable single-family housing stock from deterioration or conversion to other uses
- Explore incentives for renovation of Duluth's existing single-family housing stock so as to create like-new conditions in older homes
- Work toward regional housing solutions that understand housing market dynamics beyond the city limits
- Avoid blanket prohibitions on development beyond existing service areas
- Continue to engage local housing developers to understand their needs
- Increase training opportunities in the construction trades

While no single one of these solutions will make workforce single-family housing more affordable in Duluth, they can, together, improve Duluth's chances of building and maintaining a housing stock that meets the desires of local homebuyers and improves the city's tax base.

Housing for the Next Generation of Duluth's Workforce

Introduction

In March 2017, the Duluth Area Association of REALTORS (DAAR; now the Lake Superior Area REALTORS, or LSAR) approached The Northspan Group, Inc. with a Request for Proposals for a project to assess construction costs in the city of Duluth. LSAR and numerous other stakeholders had anecdotal evidence that construction costs for homes are higher in Duluth than in comparable markets. The study aimed to verify the accuracy of this claim and identify the causes of any gap between construction costs in Duluth and in other markets. Northspan collaborated with partners at LSAR, the Arrowhead Builders Association, and the City of Duluth to gather the information necessary to conduct this study.

We would like to acknowledge the following partners who helped make this report reality:



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1Roof Community Housing
Cliff Knettel

Homeownership: A Crucial Element of Duluth’s Future

Duluth’s Need for Single-Family Housing

A need for new housing development is a point of consensus among many Duluth citizens, policymakers, and businesspeople. A 2014 Maxfield study revealed a need for 4,500 new housing units in Duluth by 2020,¹ and Mayor Emily Larson identified meeting this goal as one of her chief priorities in her 2017 State of the City address. To date, much of the conversation around tools to achieve this goal has focused on multi-family housing, in part due to high rents imposed on some of Duluth’s neediest residents,² and in part because it allows for construction on a large scale that creates many more units than single-family housing. Market trends also drive some of this emphasis, as households that lack children, either in the form younger households without children or older empty-nesters, are an increasing share of the population.

Rental housing, however, is just one part of the equation. The Maxfield study also indicated a market area including Duluth and six neighboring cities and townships could support 150 new single-family homes per year from 2014 to 2020. City permit data shows 31 housing starts in 2014 and 45 starts in Duluth in 2015; despite a somewhat larger number of starts beyond city limits, the region has not met this goal, and Duluth proper has captured a very small portion of the demand relative to its size within the region. This large demand for new single-family homes may appear counterintuitive in a city with little population growth, but it is nonetheless real due to a series of dynamics in the housing market.



Housing markets function on regional levels, as residents will choose homes based on a variety of factors ranging from land availability and affordability to access to jobs and amenities. A lack of buildable land is a reality in Duluth, as existing development and rough terrain limit available lots. Due to long periods of stable or shrinking populations and other demographic factors, Duluth did not experience tract development or suburbanization on the same scale as many established cities over the second half of the

¹ “Workforce housing needs in Duluth, Minnesota.” Maxfield Research, Inc., April 2014. <https://downtownduluth.com/df-data/files/April%202014-Executive-Summary-Workforce-Housing-Needs-Maxfield-Research.pdf>
² Johnson, Brooks. “(Un)affordable housing: Duluthians of all income levels shell out more than they should for rent.” *Duluth News Tribune* 8 July 2017. <http://www.duluthnewstribune.com/business/4294669-unaffordable-housing-duluthians-all-income-levels-shell-out-more-they-should-rent>

twentieth century. Changing consumer demands drive interest in new home designs or living arrangements, and Duluth's existing, largely aged housing stock has a wide range in quality and has had mixed success in meeting homebuyers' desires. And despite a lack of growth in the city proper, there has been a consistent push for new development on the outskirts of Duluth, particularly since 1990, both within the city limits and in surrounding townships and communities such as Hermantown. While Duluth's population has been essentially flat since 1990, population growth has clipped along at a steady 3.5 percent rate in these outlying areas over that same time.³ Failure to capture this metropolitan population growth limits Duluth's efforts to expand its tax base and add new residents.

Struggles Far Beyond Duluth

A number of the forces that make new home construction difficult are by no means unique to Duluth. A rise in new home prices across the nation consistently outpaces growth in median incomes; Census Bureau household income data, when compared to results of bi-annual home cost surveys by the National Association of Homebuilders, reveal that inflation-adjusted incomes have risen just 2 percent since 1998, while new home sales prices have risen 25 percent.^{4 5} Methods for reining in these skyrocketing housing prices are a necessity if homeownership is to continue to function as a widely accessible tool of wealth creation and residential stability.

A lack of new supply puts upward pressure on housing markets, particularly in-built out cities with little excess housing stock

A portion of this struggle is a simple matter of supply. The number of housing units built per each additional person in the U.S. population plummeted amid the late 00s recession and has yet to fully recover.⁶ This trend continues even as the average household size in the U.S. continues to decrease, which leads to a need for even more housing units than population growth trends alone would suggest. A lack of new supply puts upward pressure on housing markets, particularly in-built out cities with little excess housing stock, and a growing consensus in housing policy scholarship emphasizes the downsides of political and regulatory environments that (often unintentionally) limit supply and drive up costs.⁷

At the same time, changing tastes and economic forces have also left the housing market looking nothing like it did decades earlier. The construction of affordable, identical tract housing is far less common than it was in the mid-20th century.⁸ The average new home was 1,000 square feet larger in 2015 than it was in 1973; while prices per square foot have held fairly steady when adjusted for inflation, newer homes are often more expensive now simply because they are larger.⁹ Custom homebuilders enjoy much higher

³ U.S. Census and American Community Survey, 1990-2016.

⁴ U.S. Census and American Community Survey, 1998-2016.

⁵ Ford, Carmel. "Cost of Constructing a Home." *National Association of Homebuilders Economics and Housing Policy Group*. 1 December 2017; American Community Survey, 1998 and 2016.

⁶ St. Louis Fed Fred. <https://streets.mn/2017/08/10/visualizing-our-backlog-of-home-building/>

⁷ Glaeser, Ed and Joe Gyourko. "The economic implications of housing supply." *National Bureau of Economic Research*, NBER Working Paper No. 23833. Issued September 2017. <http://www.nber.org/papers/w23833>

⁸ This trend may not necessarily be such a bad thing for the long-term fiscal health of cities. Many suburbs that developed this stock en masse in the mid-20th century are now facing fiscal crises as a uniform housing stock ages and declines in value at the same rate. Healthy neighborhoods, according to urban scholars dating back to Jane Jacobs' *Life and Death of Great American Cities*, benefit from steady waves of new home construction and rehabilitation.

⁹ Perry, Mark J. "New US homes today are 1,000 square feet larger than in 1973 and living space per person has nearly doubled." *American Enterprise Institute* 5 June 2016. <http://www.aei.org/publication/new-us-homes-today-are-1000-square-feet-larger-than-in-1973-and-living-space-per-person-has-nearly-doubled/>

margins on homes for higher-end consumers, and many tract builders folded under the economic stress of the late 00s recession. Stagnant inflation-adjusted incomes coupled with a changing market make homebuilding for middle- and lower-income brackets a more difficult proposition.

Changes in demographics and desires also lead to new gaps in the market that the existing stock can fail to support. For example, a basic single-story home under 2,000 square feet can support both new families looking to make their first home purchase and a growing population of elderly empty-nesters seeking to downsize from the homes in which they raised their children and spare themselves the difficulty of negotiating stairs or managing unneeded space as they age. Older homes often score poorly in accessibility, and retrofitting them to fit the wants and needs of contemporary homebuyers can prove far more costly than building new homes that meet explicit “universal design” accessibility standards.¹⁰ A lack of a particular housing product can inflate certain segments of the market as supply fails to align with demand.

Construction workforce shortages also push costs higher. While labor shortages are most extreme in areas with both low unemployment and population growth like Duluth, few locations can escape them. Even in larger markets such as the Twin Cities, construction job openings have skyrocketed, with contractors struggling to fill positions, leading to delays and rising costs.¹¹ This shortage of construction workers, particularly among skilled laborers, is in part a product of a tight labor market that appears unlikely to change in the near future, given Duluth’s demographic trends. Additional factors may also drive this shortage, however, and while any effort to account for this gap would require further study, a number of tools could help incentivize entry to the market, including availability of training for skilled labor, higher wage rates, and better exposure to opportunities in vocational education.

The Promise of Homeownership

In spite of national trends that have made homeownership more difficult to attain, it remains one of the most reliable paths to prosperity. With the exception of periodic financial shocks as in the wake of the late 00s housing market collapse and in severely depressed neighborhoods where values do not rise, real estate tends to be a reliable investment. Opportunities to purchase new homes give families vehicles of wealth generation as property values increase. The long-term residential stability afforded by homeownership allows families to set down roots and build networks, and can help individuals, particularly those from disadvantaged backgrounds, climb into the middle class.¹²

The long-term residential stability afforded by homeownership allows families to set down roots and build networks, and can help individuals, particularly those from disadvantaged backgrounds, climb into the middle class.

¹⁰ Sullivan, Jenny. “Demand for accessible homes will rise, experts say.” *Builder* 1 July 2008. http://www.builderonline.com/design/projects/demand-for-accessible-homes-will-rise-experts-say_o

¹¹ Norfleet, Nicole and Jim Buchta. “Shortage of skilled workers squeezing Twin Cities builders.” *Star Tribune* 5 July 2017. http://www.startribune.com/worse-than-dating-twin-cities-builders-go-all-out-to-find-workers/432561123/?om_rid=1657582025&om_mid=1657582025

¹² Galster, George, David Marcotte, Marv Mandell, Hal Wolman, and Nancy Augustine (2007). “The impact of parental homeownership on children’s outcomes during early childhood.” *Housing Policy Debate* 18(4), 785-827.

Single-family housing remains vital to the attraction and retention of young families who lay the foundation for any community's long-term demographic stability. This trend is unlikely to change, despite accounts in popular press suggesting many millennials prefer multi-family housing.^{13 14} New home development also plays a major role in the region's economic development, as a new single-family home "contributes 2.5 times as much to the national GDP as an apartment unit," in addition to positive correlations with other indicators of civic health such as voting, volunteerism, and child welfare.¹⁵ Whether homeownership is a direct cause of these benefits or merely part of a package of positive economic and social forces working in unison, a failure to meet the demand for housing can close a city off from considerable benefits.

Conclusions



Homeownership is intimately tied to American financial success and social stability, but its future is in peril. Limited adequate supply and rising construction costs price families out of new homes or force them into risky financial situations through large down payments or mortgages, jeopardizing their access to this vital tool for wealth creation. While Duluth's housing market is subject to many trends beyond its control, the city does have some tools at its disposal to help meet demand. Any discussion of housing

affordability in Duluth must therefore address new single-family housing construction and make sure the pathway to ownership remains open.

Methodology

Given the constraints facing the housing market in Duluth, this report seeks to identify the major drivers of home construction prices through a comparative analysis. It uses a wide array of tools to approximate housing prices, including records of home sales after construction, construction cost estimation tools, permitting and connection data, and wage data. While it was the initial intent of this report to receive bids on a hypothetical home design from homebuilders in each comparison city, poor response rates hampered these efforts and forced stakeholders to explore other options. Despite the lack of primary data, the report draws from a wide range of sources to construct a picture of the Duluth

This study focuses on a basic home design that is affordable for first-time homebuyers on middle class incomes

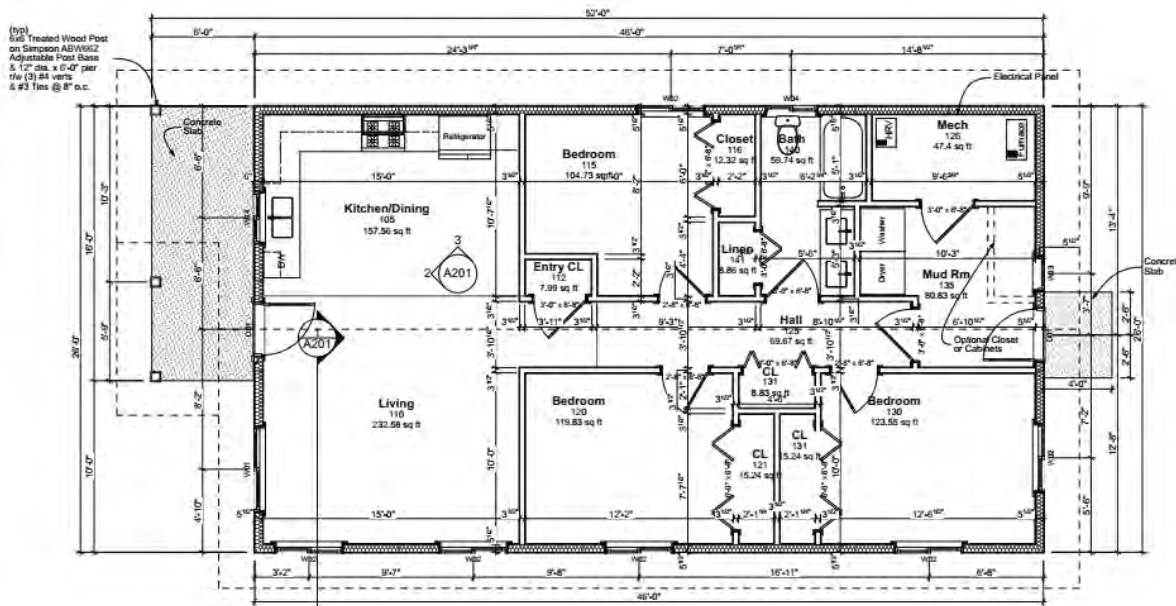
¹³ Thompson, Derek and Jordan Weissman. "The cheapest generation: Why Millennials aren't buying cars or houses, and what it means for the economy." *The Atlantic* September 2012. <https://www.theatlantic.com/magazine/archive/2012/09/the-cheapest-generation/309060/>

¹⁴ While more millennials may prefer to rent relative to previous generations, 90 percent of millennials still express a desire for eventual homeownership. High rates of rentership among those in their 20s are likely more attributable to the financial situations of most individuals in this age group than a deep-seated preference for apartment buildings. See: Fannie Mae National Housing Survey. *What younger renters want and the financial constraints they see*. 2014. <http://www.fanniemae.com/resources/file/research/housingsurvey/pdf/nhsmay2014presentation.pdf>

¹⁵ Kotkin, Joel. "The high cost of a home is turning American Millennials into the new serfs." *The Daily Beast* February 4 2017. <http://www.thedailybeast.com/the-high-cost-of-a-home-is-turning-american-millennials-into-the-new-serfs>

homebuilding market, and Duluth area builders reviewed the construction estimate portion of the report and deemed the numbers largely accurate for construction on sites lacking any unique circumstances.

This study focuses on a basic home design that is affordable for first-time homebuyers on middle class incomes¹⁶ (a product sometimes known as “workforce housing”), and also smaller homes for downsizing empty-nesters. Given the aging population in northeast Minnesota and northwest Wisconsin, there is a market for easily accessible units with fewer maintenance needs, and members of the Arrowhead Builders Association anecdotally noted that many new homes are designed with this population in mind. Stakeholders identified a 3-bedroom, 2-bathroom custom-built home as an average entry level workforce housing product for the study; in order to capture a somewhat broader range of houses within its survey of sales data, this report also looked homes with anywhere between 1.5 and 2.25 bathrooms in comparison cities. As homes within these parameters can vary dramatically in size, design, quality, and ultimate price, this study hones in on what might be considered a base model home with average quality materials and finishes. A review of REALTOR sales data pointed toward a 1,800 square foot single-story home built on a slab foundation as a model constructed with at least some regularity in all cities studied in this report. A Duluth area architect, Keppers Design, provided architectural drawings for a recently constructed home that fits many of these parameters (see Appendix A). While there are innumerable differences between custom-built homes, these rough guidelines approximate this report’s working definition of workforce housing, and will serve as the base for its analysis.



To understand construction costs in Duluth relative to other cities in the Upper Midwest, stakeholders agreed on five comparison cities: St. Cloud, Rochester, and Moorhead, Minnesota; and Eau Claire and Superior, Wisconsin. While these cities have diverse economies, they all share important characteristics

¹⁶ The Pew Research Center defines “middle-class” median household incomes as those falling between 67 percent and 200 percent of the national median income, or a range of roughly \$42,000-\$125,000. See “America’s shrinking middle class: A close look at changes within metropolitan areas.” Pew Research Center, 11 May 2016. <http://www.pewsocialtrends.org/2016/05/11/americas-shrinking-middle-class-a-close-look-at-changes-within-metropolitan-areas/>

with Duluth in that they are at least somewhat removed from the largest metropolitan areas in their respective states, and all have metropolitan populations within roughly 50,000 people of Duluth.¹⁷ Focusing on the closest cities geographically helps to control for additional factors that may influence construction such as climate and costs of raw materials, while drawing from multiple states provides some perspective on the impacts of different regulatory regimes. In the interest of providing a wider sample, this report also pulled data on another Minnesota comparison city, Mankato, in the initial comparison of home values across cities. Superior, which sits within the same metropolitan area as Duluth, provides additional perspective on the effects of state policy and terrain on costs.

With these comparative parameters established, the study will explore data from REALTOR sales records, construction cost estimation tools, permitting and utility costs, and wage data to draw conclusions on housing construction across different cities. This report aims to provide an approximate understanding the housing market the comparison cities; few figures are fixed in stone, and evolving costs in every category make even the most precise analysis dated in a short period of time. No report can quantify all factors at play. The data, however, do point toward common themes that affect housing prices in the comparison cities, and allow for some conclusions and sensible approaches to advance affordable home construction in Duluth.

REALTOR Sales Data

Through the Lake Superior Association of REALTORS, researchers gained access to local MLS data, accessed via realtor.com. While this system does not provide data on home construction prices, it can point to general trends in new construction in the comparison cities through sales data for new homes. These data provide an overview of the housing product being built in different cities in the past ten years, and can point toward potential reasons for some of the price differences between cities.

This study assesses all 35 new homes within the established parameters with complete City of Duluth permit record data constructed since 2009, and all 15 homes constructed in Superior during that time frame that appear in the MLS database. As all of the comparison cities other than Superior had a significantly larger number of homes constructed over this time period than Duluth did, this study chose 40 homes in each of these cities at random for analysis. These cross-sections provided enough information to understand the general products constructed in each community.

¹⁷ While the American Community Survey (2015) reports a population of 279,748 for the Duluth MSA, this number is inflated by the large size of St. Louis County, all of which is included in the MSA by the U.S. census. Removing census tracts in the northern half of St. Louis County from the MSA's population produces a figure of 204,762.

Table 1: Comparison City Population, Income, and Home Value Data

City	City Population	Metro Population	City Med. HH Income	Metro Med. HH Income	Average New Home Sales Price
Duluth	86,293	204,762	\$45,034	\$52,897	\$301,084
St. Cloud	59,108	191,816	\$45,437	\$54,157	\$238,669
Rochester	114,011	211,250	\$64,554	\$65,627	\$292,030
Moorhead	42,492	223,379	\$53,360	\$56,051	\$188,634
Eau Claire	68,339	164,490	\$43,541	\$52,094	\$219,984
Mankato	41,720	98,211	\$41,425	\$52,497	\$278,881
Superior	26,475	204,762	\$40,198	\$52,897	\$197,507

Note: Duluth metro data does not match U.S. Census data due to exclusion of northern St. Louis County. Superior and Duluth share the same metropolitan area. Source: American Community Survey, 2015.

The average price of the products available in the communities tends to correlate with their broader economies. Rochester’s new home prices reflect the community’s relatively high median household income, with an average estimated value of over \$292,000 in a 40-home random sample, while just two of 15 homes within the study’s parameters built since 2009 in the city with the lowest median household income, Superior, exceed an estimated value of \$300,000. The average home prices appear to reflect the demand for different products within each city.

The obvious exception to this trend is Duluth. Residential construction data since 2009 reveals a mean estimated value of \$301,084 within city limits, the highest of seven comparison cities and a whopping \$112,450 higher than the mean value in Moorhead, Minnesota. This is no doubt in part reflective of the size and quality of homes built in Duluth when compared to those built in Moorhead, but raises numerous questions over why such different products are built despite the fact that Moorhead’s median household income (\$53,360, according to the 2015 American Community Survey) is nearly \$10,000 higher than Duluth’s (\$45,034). There are clearly trends at play in Duluth that alter its market and demand further investigation.

One striking difference between new construction in Duluth and in the comparison cities is the dearth of small-lot construction. Out of 35 permitted new homes in Duluth with data, only four were built on lots smaller than 10,000 sq. ft. within the city limits, and the figure only grows more extreme in surrounding communities such as Hermantown, Rice Lake, Esko, and townships north of Duluth, where lots are frequently larger than an acre. This trend toward large lots drives up land prices for new homes, can increase expenses for utility connections when not already present, and may also imply the construction of a more expensive custom-built product given the financial capacity of the homeowner. Even Hawk Ridge Estates, a recent Duluth

Out of 35 permitted new homes in Duluth with data, only four were built on lots smaller than 10,000 sq. ft.

subdivision owned by the Duluth Housing and Redevelopment Authority with goals for mixed income, features lots largely around a third of an acre in size, and few homes that sold for less than \$300,000.^{18 19}



Topography is likely a driving factor in construction design. For example, many Duluth homes are built on hills, and their footprints can appear dramatically different depending on the angle from which one views the home. Nearly half of new homes in Duluth are split-level homes, a higher percentage than in other cities, and unlike the comparison cities, these split-levels almost always feature walkout basements. A comparison of Duluth and Superior housing products lends credence to this comparison; while sample size is very small, new home construction on Superior's flatter terrain looks very different from construction in hilly Duluth. All fifteen Superior homes were built on slabs, and while seven of these fifteen matched the most common product in Duluth—a single-story slab home on a large lot—a majority of Superior's construction was on smaller lots, and evenly split between single-story and two-story homes. Two-story slab homes, a product that might seem an obvious candidate for smaller Duluth infill lots, simply have not been built as a 3-bedroom starter home within the city limits.²⁰

A survey of new home construction across comparison cities reveals a number of particularities for each market. In St. Cloud, for example, over 80 percent of the sample of homes built since 2007 consists of single-story slab homes, and the vast majority of those were built on lots between 6,000 and 9,000 sq. ft. These small patio homes dominate entire subdivisions. Moorhead, which is part of the rapidly growing Fargo-Moorhead metropolitan area, likewise has a common product that dominates the new housing market: split-level homes with finished basements, most featuring a back deck off of the upper floor. As in St. Cloud, this dominant housing product is typically built on smaller lots, and rarely are the homes walkouts. Many of these homes are nearly identical products, suggesting they are almost certainly built by national homebuilders who develop entire subdivisions. The demand for development at such a scale simply does not exist in the Duluth area. Many of these less expensive products may also be modular homes, which cut down on

A lack of national homebuilders, which can develop full neighborhoods of tract housing and enjoy the benefits of producing at scale, clearly affects Duluth housing prices.

¹⁸ This point is not to criticize the HRA, as the successful development of Hawk Ridge Estates shows there is demand at this higher price point as well. When home construction keeps pace with or outstrips demand, the development of higher-end units can, in theory, lead other older houses to filter downward in price and become affordable to middle- and lower-income buyers, creating a virtuous cycle; this point is contested, and the subject of a debate beyond the scope of this study. The Hawk Ridge experience does, however, underscore the market challenges of developing and a lower price point.

¹⁹ Johnson, Brooks. "Hawk Ridge Estates nears completion." *Duluth News Tribune* 29 November 2017. <http://www.duluthnewstribune.com/business/4367051-hawk-ridge-estates-nears-completion>

²⁰ Several homes in the development between 40th and 41st Avenues East and Jay and Dodge Streets in the Lakeside neighborhood, which came online after the initial collection of Duluth data, fit this bill, though they are also larger than the average home identified earlier in this report; as of this report's completion, several of them are on the market for \$340,000.

construction costs by relying on a standardized style that are manufactured elsewhere and then assembled on site. The National Association of Homebuilders estimates a difference of \$11 in the price per square foot in the construction of average custom homes when compared to speculative homes, leading to a pricing difference of nearly \$20,000 between the two products for a 1,800 sq. ft. house.²¹

A lack of national homebuilders, which can develop full neighborhoods of tract housing and enjoy the benefits of producing at scale, clearly affects Duluth housing prices. The Duluth area lacks the explosive growth of the Fargo-Moorhead and St. Cloud metropolitan areas, and as a result its new home construction is necessarily custom-built. The future owners of custom homes tend to desire more expensive materials and modifications and may change plans in the middle of the construction process, all of which can drive up prices in ways that the construction of largely identical products across a subdivision for unknown buyers cannot.²² Economies of scale also allow national homebuilders to purchase raw materials in larger quantities, again lowering construction costs. Without the economic and population growth necessary to guarantee rapid sales of new homes attainable in other markets, national builders are unlikely to launch large-scale developments in Duluth.

Conclusions

Differences between new housing products built in Duluth and several comparison cities in the Upper Midwest help to explain why new homes in Duluth tend to be more expensive. Larger lot sizes, topographical obstacles, and a lack of demand for large developments at scale all cause direct and indirect increases in home construction prices, in turn driving up the cost of new homes. Even successful, carefully managed subdivision developments in Duluth such as Hawk Ridge Estates and a 2017 infill project on the western end of the Lakeside neighborhood often rely on a large number of market-rate homes ranging from \$300,000-\$500,000 in value to subsidize a handful of homes specifically designed to be affordable. Naturally affordable new development in Duluth remains an elusive goal.

Few of these observations will surprise those who are familiar with the local housing market. But while these points provide some context for the imbalance between Duluth and other prices, they do not necessarily point to the root causes within the construction process that drive these difference. In order to assess factors specific to Duluth that may be within policymakers' control, this study now turns to a comparison of construction costs for an identical housing product across several cities in the Upper Midwest.

Cost Estimation Tools

Numerous national construction cost databases offer estimates of prices for inputs into new homes, which they break out by line item. While not as precise as a direct survey, these estimators can give a general overview of housing price trends and the various factors that affect them in different metropolitan areas.

²¹ Siniavskaia, Natalia. "Sale and Contract Prices per Square Foot in 2016." *National Association of Home Builders Eye on Housing Blog*. 17 October 2017. http://eyeonhousing.org/2017/10/sale-and-contract-prices-per-square-foot-in-2016/?utm_source=newsletter&utm_medium=6-1019&utm_campaign=eoe2017

²² Siniavskaia.

Home price estimation is an inexact art. Despite the seeming sophistication of estimation models, the field is so broad that obtaining exact dollar numbers for the cost of a project remains very difficult without going through the process of a bid. And, even with a number of bids in hand, the number of small factors and different levels of product are so numerous that a small number of differences between homes can swiftly add up; the range of bids can be as large as \$100,000 for a single home, according to one local developer. Prices can also swing significantly based on demand in a particular construction season. However, these numbers do provide a general overview of the construction market in normal conditions, and allow this study to approximate costs for new housing construction. For the sake of a consistent comparison, this study adopts the standard workforce housing model outlined in the methodology section. While this model of home does not necessarily reflect the nuances found in the construction styles and trends within the different cities, the home sales data suggest it is a product built with at least some regularity in all of them.

This report relies on two of the most widely accepted construction cost estimating tools: Craftsman and RS Means. While these tools produce noticeably different numbers for new home construction in the comparison cities, they do point toward some common trends.

Craftsman

Craftsman is one of the longest-established construction cost estimators. Its methodology calculates a standard price for a home based on criteria entered by the user, and then adjusts prices by metropolitan area according to percentages based on costs for materials, labor, and equipment. Complete reports generated by Craftsman for homes in each metropolitan area are included in Appendix B.

According to basic Craftsman data, housing prices in Duluth/Superior, Fargo/Moorhead, and St. Cloud are all roughly equivalent, while Rochester and Eau Claire come in about \$7,000 cheaper. While Duluth's labor costs are the highest of any city in the study, these high costs are offset somewhat by savings in materials and equipment, which are larger in the Duluth area than in the other markets. As material costs constitute a larger percentage of housing construction costs than labor, Duluth's modest savings in materials balance out the high labor costs when compared to Fargo/Moorhead, which enjoys less expensive labor but minimal adjustment to materials costs. Rochester and Eau Claire, meanwhile, feature noticeably lower labor costs, leading to a savings of approximately \$7,000 per house in these markets.

The differences that emerge in the Craftsman data do not explain variation in new home prices and generally do not support the notion that construction of new, stick-built homes in Duluth is significantly more expensive than in other markets.

Table 2: Craftsman Multipliers for Comparison Metro Areas

City	Materials Pct.	Materials	Labor Pct.	Labor	Equip. Pct.	Equip.	Total
<i>Duluth/Superior</i>	-2%	\$121,072	+7%	\$82,100	-1%	\$4,391	\$207,563
<i>Fargo/Moorhead</i>	0%	\$123,227	+3%	\$80,271	0%	\$4,392	\$207,890
<i>Rochester</i>	0%	\$121,523	-3%	\$74,503	0%	\$4,436	\$200,462
<i>St. Cloud</i>	-1%	\$121,962	+6%	\$81,343	0%	\$4,436	\$207,741
<i>Eau Claire</i>	-1%	\$121,002	-4%	\$74,855	0%	\$4,392	\$200,249

Source: Craftsman, 2017. Percentages have been rounded by Craftsman.

RS Means

Another cost estimation tool, RS Means, allows for greater precision in estimates, as it breaks out costs for a number of line items by city. As with Craftsman, it makes a distinction between materials and labor (here referred to as installation), but further subdivides into such categories as ceilings, floorings, wall finishes, concrete, and masonry, and develops distinct multipliers for each. Their data includes a long list of cities across the country, including some smaller communities such as Willmar and Thief River Falls; unfortunately for this study, however, it does not include Moorhead.²³ While acknowledging the obvious limitations stemming from using data from the other side of a state line, this portion of the study includes RS Means data on the Fargo construction market. The overall multipliers are presented in Table 3.

Table 3: Overall RS Means Multipliers for Comparison Cities

City	Materials	Installation	Total	Model Home Cost
<i>Duluth</i>	99.8	102.7	101.1	\$228,702
<i>Fargo</i>	100.1	81.8	92.1	\$208,343
<i>Rochester</i>	102.3	100.9	100.9	\$228,249
<i>St. Cloud</i>	95.2	111.3	102.3	\$231,417
<i>Eau Claire</i>	97.6	97.3	97.5	\$220,559
<i>Superior</i>	95.4	97.1	96.1	\$217,392

RS Means' most detailed cost data apply to larger-scale construction, but the company also produces a separate set of data for residential construction that provides a national average cost per square foot of living area for framing, siding, masonry, and basement construction for a wide range of standard model houses of varying levels of quality. Additional data also details the added cost from a number of modifications, such as the addition of an attached garage, additional bathrooms, and higher quality

²³ This decision seems especially curious given that it does include Superior, a city with a smaller population than Moorhead with a similar relationship to its metropolitan neighbor across a state boundary.

finishes or add-ons. Homebuilders can use these average figures and apply the weighted averages for materials and installation to determine the costs of line items in a construction budget.

To perform its analysis, this study uses an RS Means model home deemed to be of “average” quality with a “simple design and standard plans.” All other parameters met the median home identified in earlier stages of this study: the home is 1,800 square feet in living area, built on a slab with no basement, a single story, and has two bathrooms, wood siding and frames, and an attached garage. These assumptions produce a home costing \$226,214 before applying location adjustments.

The 2018 overall multipliers do not align with those of Craftsman, and also vary more widely, as the RS Means location adjustments produce a range of \$23,074 across the cities in the study. With little knowledge of the inner workings of either system, it is difficult to speculate on why these differences may exist. Duluth, at \$228,702, is the second-most expensive of these cities to build a home, with only St. Cloud showing higher costs. Duluth’s construction costs are roughly identical to those in Rochester, while the two Wisconsin cities are noticeably lower, both hovering around \$220,000, and Fargo has by far the lowest home construction costs at \$208,343.²⁴ These findings support the general perception that home construction in the Duluth area is more expensive than in some other nearby cities, but also suggest Duluth is on a fairly similar level to other Minnesota cities, and to the national average.²⁵

The clustering of the cities’ relative costs by state points to the role of state-level regulatory policy and labor practices in driving home construction costs. Labor costs appear to be the primary driver of differences; while Duluth does have some of the highest materials costs of the studied cities, they are still less than the national average, and the relative range of materials costs is much smaller than that of installation costs. Though St. Cloud’s installation costs far outpace Duluth’s, labor costs remain somewhat high by national standards. Overall trends in installation cost indices map on to those of the overall home costs, as the three Minnesota cities are noticeably more expensive than the two Wisconsin cities, which in turn are much more expensive than Fargo.

while Duluth does have some of the highest materials costs of the studied cities, they are still less than the national average

RS Means Line Item Costs

Because RS Means gives different weights to the line item multipliers that factor into its average construction cost multiplier and does not share its weighting methodology, its modeling tables cannot

²⁴ It is also perhaps worth noting that labor rates increased by 6 percent relative to the national average in Fargo between 2017 and 2018 data, while the other comparison cities remained fairly constant, or, in Duluth’s case, actually declined. Fargo’s low-cost labor boom may not necessarily be a long-term trend.

²⁵ As with Fargo, Duluth’s RS Means labor rates underwent a significant change between 2017 and 2018, and underwent a significant drop relative to the comparison cities. It remains to be seen whether this is a momentary blip in the data or a longer-term trend. Using the higher labor costs from the 2017 numbers, would raise construction prices approximately 4% in Duluth, which yield a difference of \$5,000-\$10,000 for a modestly priced new home.

provide specific dollar amounts for each line item. However, the multipliers for each line item are available, and can at least give some insight into where the costs run high or low in certain cities.

Some of the trends are consistent across all of the Upper Midwestern cities studied in this report. Thermal and moisture protection, for example, is predictably expensive, given the harsh winter climates in all of the comparison cities, and higher in Duluth than in some of the more southerly locations. Contractor equipment runs high in all cities, and site preparation and metalwork also trend higher in all cities but Fargo, which is often an outlier on labor costs. Masonry and wall painting and finishing work run high in all Minnesota cities, with Duluth toward the upper end of those categories. As expected, Minnesota labor costs are higher than in its neighbors due to the state's strong union culture, a trend that is most evident in flooring installation labor costs, and also substantial in concrete work. Relative to the comparison cities, Duluth's labor costs are most elevated in a handful of categories, including flooring, masonry, and wall finishes. A lack of information on the internal workings of RS Means' methodology makes it difficult to estimate the cost savings of reining in these high cost line items, but they certainly warrant further attention.

Table 4: RS Means Line Item Multipliers for Materials and Installation in All Comparison Cities

	Duluth			St. Cloud			Rochester			Fargo			Eau Claire			Superior		
	Mat	Inst	Total	Mat	Inst	Total	Mat	Inst	Total	Mat	Inst	Total	Mat	Inst	Total	Mat	Inst	Total
Contractor Equipment		103.4	103.4		103	103		103.4	103.4		100.3	100.3		102.7	102.7		103.0	103.0
Site & Infr., Demolition	99.8	102.9	102.0	93.7	105.6	102.1	93.7	102.6	101.4	97.6	98.6	98.3	97.0	104.3	102.1	92.6	104.1	100.7
Concrete	95.1	99.9	97.3	85.5	113.1	98.1	85.5	101.6	96.2	93.4	82.9	88.6	91.8	104.5	97.6	84.6	97.3	30.4
Masonry	99.2	110.1	106.0	109.0	108.7	108.8	109.0	107.8	104.4	107.1	89.0	95.9	92.0	98.7	96.1	117.4	100.8	107.1
Metals	101.2	118.8	106.6	95.3	120.3	103.0	95.3	122.0	107.4	101.2	94.2	99.1	96.3	104.5	97.6	97.6	103.8	99.5
Wood, plastics, & composites	93.1	93.6	93.3	81.2	111.8	98.2	81.2	97.4	96.6	92.5	70.7	80.4	98.3	107.8	103.6	86.3	87.5	87.0
Thermal & moisture protection	105.1	104.0	104.6	104.5	106.0	105.1	104.5	93.5	103.0	105.9	86.7	97.8	103.5	98.9	101.6	104.2	89.4	98.0
Openings	105.8	106.0	105.8	90.7	121.5	97.8	90.7	113.5	103.6	101.4	81.0	96.7	101.8	107.2	103.1	87.4	93.4	88.8
Plaster & gypsum board	92.7	93.9	93.5	94.8	112.7	106.8	94.8	97.8	99.7	101.0	70.3	80.4	110.1	108.4	109.0	95.4	87.7	90.2
Ceilings & acoustic trtmt.	94.3	93.9	94.0	57.8	112.7	94.8	57.8	97.8	97.3	99.9	70.3	79.9	90.3	108.4	102.5	57.8	87.7	78.0
Flooring	92.7	122.4	100.9	86.3	90.4	87.4	86.3	86.5	91.6	96.1	52.6	84.1	80.8	112.6	89.5	90.7	127.2	100.8
Wall finishes & painting/coating	85.5	109.2	99.3	96.2	123.2	112.0	96.2	102.6	95.6	90.8	70.4	78.9	84.9	79.9	82.0	85.3	110.6	100.1
Finishes	90.5	102.2	96.8	81.2	111.2	97.5	81.2	97.5	94.7	100.8	96.9	70.6	82.6	105.0	97.0	81.8	98.6	90.9
Fire suppr, plumbing & HVAC	100.0	96.3	98.4	99.6	108.2	103.2	99.6	93.9	97.4	100.1	77.0	90.2	100.1	87.3	94.7	96.5	91.5	94.4
Electrical & util	103.1	99.5	101.2	102.1	113.2	107.9	102.1	92.0	96.6	103.5	73.3	87.8	104.0	84.8	94.0	106.9	98.7	102.6
Weighted avg.	99.8	102.7	101.1	95.2	111.3	102.3	95.2	100.9	99.7	100.1	81.8	92.1	97.6	97.3	97.5	95.4	97.1	96.1

Source: RS Means, 2018.

Other Considerations

Construction cost estimating tools focus specifically on the construction process and omit some other factors that may drive prices. Neither Craftsman nor RS Means includes lot purchase in its estimations, which adds tens of thousands of dollars to the final purchase cost of a home; land values can vary significantly, though a cursory look through available lots of a standard size and without any distinguishing features (for example, lakefront property) suggests little variation between the comparison cities. These numbers also do not include builder profit and commission, which again are largely consistent across cities, but can amount to up to 20 percent of construction costs. Together, these factors can add over \$100,000 to the construction prices quoted by the estimation tools, though they will not vary significantly by city.

An additional factor that does not appear in average cost estimate data, however, may be a major source of cost differences between Duluth and the comparison cities. Both Craftsman and RS Means give a common figure for the work and equipment necessary for site preparation, but do not account for the regularity with which one might encounter costly obstacles such as the bedrock and substantial slopes common in Duluth. Craftsman does allow for slope adjustments in its estimations, and a home otherwise identical to the model built on a 10-foot slope leads to an increase of nearly \$11,000 over the same house on flat ground. This suggests site-related factors can be a significant driver of increased costs, and may in fact be the largest single factor differentiating home construction prices between Duluth and other locations.

Conclusions

While Craftsman and RS Means produce noticeably different cost estimates for the same house for reasons that remain behind the curtains of each tool's methodology, the data do point to some common conclusions. Construction cost estimating tools suggest that materials and labor costs are not major drivers of differences between Duluth and the comparison cities. While prices are often somewhat higher in Duluth, the gap rarely amounts to a large sum. When outliers are removed (Fargo on the low end, St. Cloud on the high end), Duluth is usually at or even under the average on most line items when measured against the comparison cities, and fairly consistent with national averages as well. Though there are a handful of job classes where labor costs run high in Duluth, labor itself is not the driving cause of any major imbalances in home prices. Instead, forces beyond the actual construction process of a stick-built home, most notably site factors related to slope and bedrock, appear to drive cost disparities. The remainder of this report explores several additional potential factors.

City Permits and Utility Connections

In addition to the costs of construction, municipalities charge homebuilders numerous fees in order to deliver a building permit and connect homes to utilities. However, these permit fees and connection costs can vary noticeably from city to city, and certainly contribute to the new home construction cost imbalance. Numbers were determined using publically available fee schedules from each city and confirmed with city and utility staff. A review of this data reveals that Duluth has the highest average burden for homebuilders among the comparison cities, as high permit and plan review fees and a unique natural gas connection charge drive up prices.

Comparisons of line items within permit fees across the studied cities are not always reliable guides, as many include different small fees or roll certain costs into overall assessments. For example, St. Cloud builds a \$100 fee from the state of Minnesota (included under “misc. fees and surcharges” in the other cities) directly into its permit cost, and Superior includes nearly all aspects of construction permitting in one single lump sum fee. Some up-front costs can also be pushed on to the homebuyer instead of the builder, as in the case of Eau Claire, which applies a water plant rider to residents’ monthly utility bills instead of charging a large immediate bill as in the case of Rochester. This arrangement spares any burden in the construction phase but passes the charge on to consumers. Small additions to house plans, from sump pumps to additional plumbing fixtures, can drive up prices in small increments in nearly every city. This study attempts to capture these fees when possible, but they will vary greatly from project to project, and while potentially burdensome to builders in staff time devoted to lengthy applications, they are not the main driver of cost differences between cities.

Table 5: Permit and utility connection costs for a \$200,000 home in comparison cities, 2017

City	Permit - Base Fee	Multiplier	Permit - Total	Plan Review %	Plan Review	Water/ Sewer	Natural Gas	Misc. Fees and Surcharges	Total
St. Cloud	\$ 744	\$ 4.00	\$ 1,144	40%	\$ 458	\$ 4,414			\$ 6,016
Duluth	\$ 1,137	\$ 6.43	\$ 1,780	65%	\$ 1,157	\$ 1,320	\$ 750	\$ 240	\$ 5,247
Rochester	\$ 650	\$ 3.50	\$ 1,000	35%	\$ 350	\$ 3,200		\$ 365	\$ 4,915
Superior	\$ 1,000		\$ 2,032	Included in base fee		\$ 809			\$ 2,841
Eau Claire	\$ 99		\$ 474	Flat fee	\$ 99	\$ 183		\$ 560	\$ 1,316
Moorhead	\$ 484	\$ 2.30	\$ 714	N/A for residential		\$ 376		\$ 100	\$ 1,190

Plan reviews, unless otherwise noted, are a percentage of the total building permit cost. Misc. fees include state surcharges, plumbing fees beyond initial connections to utilities, and permit costs related to excavation, driveways, and zoning.

Building Permit Fees

Building permit costs in the city of Duluth and most of the comparison cities vary based on the valuation of the construction work. In St. Cloud, Duluth, Rochester, and Moorhead, permits cost a flat amount (base fee) for the first \$100,000 in valuation, plus the product of a multiplier times every additional \$1,000 in valuation. Superior and Eau Claire use a flat fee plus an additional, differing cost per square foot of finished and unfinished area. In addition to the fee, the city applies a plan review fee totaling 65% of the valuation to each new single family home. New home construction in Duluth also requires two \$70 excavation permits for utilities and for driveway construction.

As shown by Table 5, Duluth's permit costs are among the highest among the six comparison cities. These imbalances are exacerbated by the fact that they are often tied to the home's initial valuation, which can vary significantly by market. Given that the exact same home will have different valuations in different cities due to the costs of materials and labor, a higher valuation caused by such costs will only drive up permitting costs and even further expand imbalances between cities. Duluth's fee structure, with the highest multiplier and for every additional \$1,000 in valuation and one of the highest percentages of overall costs in the variable rate, is particularly exacting on higher-valued homes. For example, a \$400,000 new home in Duluth would amass permit and plan review fees in excess of \$5,000, while the fees for the same house would only be just over \$1,000 in Moorhead. The percentage used for the plan review is also noticeably higher in Duluth than the other cities that charge in a similar fashion, leading the plan review fee to be much higher than in the comparison cities.

Utility Connections

Methods of administering utility connection fees also range widely across the comparison cities. Duluth requires a \$940 Capacity Availability Fee (CAF) for sewer connections when builders apply for the initial building permit. If the water main is stubbed along the property, Duluth does not require an additional fee to connect to the system; without a stub, the city assesses a \$380 tapping fee. (This study assumes the payment of this fee across all comparison cities.) Due to the sensitivity of natural gas connections, the City completes these connections on its own, and costs will vary based on the location of the utility stub and the distance from the line to the house. According to City estimates, this extension would cost \$750 for the sample home. Connections of water and sewer lines are the responsibility of the homebuilder, with an average estimated cost of \$5,000; these costs are included in the plumbing line item in house construction budgets.

Duluth is unique among the comparison cities in that it has a unified municipal water, sewer, and gas provider, Comfort Systems. Superior also receives utility services from a single provider (Superior Water, Light & Power, a subsidiary of ALLETE, which also provides electricity), while all other cities receive their natural gas services from larger utility companies such as Xcel Energy and Minnesota Energy Resources. While municipal utilities give cities greater control over rates than if they are left to an outside company, economies of scale may also give these larger providers advantages in delivering lower costs to homebuilders.

Table 5 shows that Duluth’s water and sewer connection costs are on the high end of the comparison cities. City water and sewer fees are noticeably more expensive than Moorhead or Eau Claire, and somewhat higher than in Superior. Rochester’s high cost stems from a large additional fee dedicated to improvements at its treatment facility, while St. Cloud’s water and sewer connection fees are outliers in their very high costs.

The difference between Duluth and the other cities is also glaring in natural gas connection fees. Duluth’s Comfort Systems imposes a fee for the extension of natural gas lines to all new homes, whereas gas providers in other cities only apply the fee if the house sits over 95 feet (in Superior) or 75 feet (in all other cities) from the property line. Assuming a standard 66 foot wide street (meaning 33 feet fall within the property line) and a 25-foot setback from the edge of the street, the total distance for the gas extension is 58 feet, which is well under the distance for which the utilities charge to extend service. As a result, the sample home would only be assessed a connection fee in Duluth, where the fee applies to all properties, though it varies based on distance from the property or gas line.

Conclusions

A review of permit and utility connection fees shows that Duluth’s fees are second only to St. Cloud among the comparison cities, and exceed the others in most categories. The city imposes a unique natural gas connection fee, charges more for basic permitting and plan reviews than other cities, and uses a fee structure that grows considerably more expensive as the valuation of a new home rises. All of these factors contribute to higher construction costs in Duluth.

Changes to permit and connection fees will require careful review of city budgets, and cities such as Duluth may be hamstrung by a relative lack of construction activity vis-à-vis the comparison cities, which enjoy the benefits of greater cash flow from more consistent construction activity. Building new utility connections across Duluth’s challenging terrain is also a cost driver. However, even without changes to fee structures, there is room for improvement. Conducting this survey at times pointed to a lack of coordination in permitting and connection fees for new homes, as regulation of these various permits and fees is often scattered between planning, building inspection, public works departments, and private or city-owned utilities that may or may not be fully aware of regulations enacted by other departments or entities. Information for different fees could at times prove remarkably difficult to find, and was scattered across web pages for numerous entities, if it was even available at all. A coordinated system that identifies all costs across the board would at the very least give homebuilders (and commercial builders, for that matter) a smoother process and a more accurate picture of the costs involved in the construction process.

Renovation Costs

Renovation is an appealing potential option in lieu of new home construction, particularly within the Duluth city limits, where developable land is at a premium. The city's aging housing stock could, through a series of renovations and additions, come to resemble the sort of product found in the newer comparison cities. The variety among the quality of these homes, however, makes firm conclusions on the viability of large-scale renovation efforts challenging.



Duluth features a large housing stock that could provide naturally occurring affordable housing to those who might normally be in the market for a new home. While only 36 homes within the definition of workforce housing outlined in the methodology section have been issued building permits in Duluth since 2009, a search of the local MLS data from realtor.com's database for 3-bedroom, 2-bathroom homes under 1,900 square feet built prior to 1970 returns 4,852 single family homes, the vast majority within the city proper. A random sample of 40 recently sold homes within this category revealed an average sale price of \$167,812. At first blush, this appears much less expensive than new construction of a similar style home, which can range from \$240,000-\$290,000 depending on the construction estimation tool and cost of the lot. The quality, as one might expect, varies wildly among these homes, with some priced as little as \$73,000, though none within the sample exceeded \$250,000. If these homes can be updated at relatively low costs, they may offer an affordable alternative to new construction.

The variety of the housing stock makes it difficult to assess the level of renovation necessary to create like-new conditions that would satisfy the desires of homebuyers. The data below are for a full remodel

of a home; many older homes will be in varying states of need for upgrades, and many may not require this full bill. Table 6 presents estimates for renovation of various line items in each city using the two estimation tools. Craftsman data uses line items from the Craftsman budget estimates in Appendix B, while RS Means data applies overall city multipliers to national averages obtained from HomeAdvisor, a home improvement data aggregator. The Craftsman estimates do not aggregate data for renovations of complete rooms such as bathrooms, kitchens, and garages, making a precise comparison difficult, though a comparison of subtotals for other line items shows significantly higher costs using Craftsman methodology. Figures between cities do not align, and suggest a range of approximately \$10,000 between cities. Duluth has the second-highest costs using both tools, falling just short of costs in St. Cloud.

Table 6: Renovation costs in comparison cities derived from construction cost estimation tools

	RS Means						Craftsman				
	Ntl. Std.	Duluth	St. Cloud	Rochester	Fargo	Eau Claire	Duluth	St. Cloud	Rochester	Fargo	Eau Claire
Flooring	\$ 4,410	\$ 4,459	\$ 4,511	\$ 4,397	\$ 4,062	\$ 4,300	\$ 7,305	\$ 7,323	\$ 7,130	\$ 7,290	\$ 7,058
Electrical Re-Wiring	\$ 1,300	\$ 1,314	\$ 1,330	\$ 1,296	\$ 1,197	\$ 1,268	\$ 6,282	\$ 6,270	\$ 5,968	\$ 6,116	\$ 5,841
Siding (vinyl)	\$ 9,195	\$ 9,296	\$ 9,406	\$ 9,167	\$ 8,469	\$ 8,965	\$ 14,268	\$ 14,328	\$ 14,046	\$ 14,127	\$ 13,761
New Furnace	\$ 4,216	\$ 4,262	\$ 4,313	\$ 4,203	\$ 3,883	\$ 4,111	\$ 9,157	\$ 9,140	\$ 8,697	\$ 9,015	\$ 8,608
Air Conditioning	\$ 5,341	\$ 5,400	\$ 5,464	\$ 5,325	\$ 4,919	\$ 5,207	<i>(Included in furnace costs for complete HVAC system)</i>				
Roofing	\$ 7,238	\$ 7,318	\$ 7,404	\$ 7,216	\$ 6,666	\$ 7,057	\$ 12,212	\$ 12,247	\$ 11,941	\$ 12,058	\$ 11,685
Insulation	\$ 1,366	\$ 1,381	\$ 1,397	\$ 1,362	\$ 1,258	\$ 1,332	\$ 3,728	\$ 3,739	\$ 3,649	\$ 3,697	\$ 3,584
Windows	\$ 5,018	\$ 5,073	\$ 5,133	\$ 5,003	\$ 4,622	\$ 4,893	\$ 3,266	\$ 3,280	\$ 3,222	\$ 3,237	\$ 3,151
Subtotal	\$ 38,084	\$ 38,503	\$ 38,960	\$ 37,970	\$ 35,075	\$ 37,132	\$ 56,218	\$ 56,327	\$ 54,653	\$ 55,540	\$ 53,688
Kitchen	\$ 21,958	\$ 22,200	\$ 22,463	\$ 21,892	\$ 20,223	\$ 21,409					
Bathroom	\$ 9,633	\$ 9,739	\$ 9,855	\$ 9,604	\$ 8,872	\$ 9,392					
New Garage	\$ 25,727	\$ 26,010	\$ 26,319	\$ 25,650	\$ 23,695	\$ 25,084					
Total	\$ 95,402	\$ 96,451	\$ 97,596	\$ 95,116	\$ 87,865	\$ 93,017	\$ 56,218	\$ 56,327	\$ 54,653	\$ 55,540	\$ 53,688

Sources: Craftsman, 2017; HomeAdvisor and RS Means, 2018.

Whether or not renovation proves more affordable than new construction is highly dependent on the cost of the existing home and the extent of the renovations necessary. An \$180,000 home that could benefit from a new kitchen, bathroom, and fresh paint or wallpaper could certainly prove cheaper than new construction, and homes selling for less than \$120,000 could undergo the full slate of changes listed in Table 6 and still come out as a strong investment. A mounting need for changes or issues that go beyond cosmetic updates, however, could quickly outstrip the benefits of renovation for many homes. These data also omit more ambitious projects that homeowners may undertake, including additions of new bathrooms or bedrooms, finishing a basement, or any structural work necessary. An older home at the Duluth average of \$167,812 could undergo the full range of renovations and remain under the cost of new construction only if the new home were built on a relatively expensive lot. Every used home purchase requires a cost-benefit analysis of needed or desired upgrades, rendering sweeping conclusions about relative affordability impossible.

Many of the additional factors that drive new home construction costs also apply to renovation. Permit costs for renovations and additions, while lower due to the smaller size of the projects, still operate on the same fee schedules. Acquisition costs for raw materials, labor costs for hours of work, and contractors' profit margins will, similarly, only be lower due to the size of the project, and may be complicated by a need for demolition or removal of old parts. The time and effort necessary to complete or oversee a renovation or addition is also a significant factor for many homebuyers, even if such projects make financial sense when looking at raw numbers. Renovation offers a promising approach for a number of properties, and city assistance or incentives could help facilitate more projects of this variety. The practicality of renovation, however, will hinge on a variety of factors that change on a case-by-case basis.

Other Factors Driving Construction Prices

In addition to permitting and land costs, a few additional factors merit attention: state-level regulation, which appears to have a noticeable effect in Minnesota, and construction wage data, which can provide some insight into specific labor classes that may drive construction prices.

Minnesota's Regulatory Environment

Fees and regulatory issues raise construction prices across Minnesota. Unlike surrounding states, Minnesota has particularly stringent requirements for energy efficiency and safety codes, and while these expenses pale in comparison to some of the other drivers of home costs, their impacts are real.²⁶ Though some of these efficiency requirements later pass along savings to the homeowner through decreased energy bills, they also make the up-front purchase of a home more costly. Permit and utility connection fees reflect these tighter regulations, and many other costs are more difficult to account for, but are passed along to homebuyers through the increased costs for builders.

Zoning regulations can also hinder housing development, both by creating a shortage of land for new construction and through anti-density regulations that prevent construction of multifamily housing that could relieve some stress on the single-family market. While less of a factor in Duluth, some metropolitan areas employ methods to direct new development to specific areas, as in the case of Portland, Oregon's urban growth boundary and the Twin Cities' Metropolitan Urban Service Area (MUSA) line. These tools limit development to designed tracts of land, either through outright prohibition or the prevention of municipal service extension to land beyond designated boundaries. These regulatory tools can direct growth in ways that conform to broader regional goals, but also run some risk of unintended market distortions should the boundaries inhibit the construction of enough housing to meet demand.²⁷ Ultimately, policymakers must strike a balance between regulations that may have positive overall outcomes and the burdens they place upon builders and homebuyers.

²⁶ Shaw, Bob and Tad Vezner. "The cost of housing: Fees, regulations and lot prices drive up Minn. prices." *St. Paul Pioneer Press* 16 April 2017.

²⁷ Mathur, Shishir. "Impact of urban growth boundary on housing and land prices: Evidence from King County, Washington." *Housing Studies* 29:1 (2014). <http://www.tandfonline.com/doi/abs/10.1080/02673037.2013.825695?src=recsys&journalCode=chos20>

Wage Data

Residential construction wage growth has outpaced many other sectors and industries, a trend that is particularly obvious in Minnesota, Wisconsin, and North Dakota.²⁸ Anecdotally, critics of local building costs often cite the Duluth area’s strong labor presence as a factor driving prices. Cost estimation and prevailing wage data provide mixed support for this contention, pointing to a handful of trades in which wages are indeed higher, while on the whole displaying only modestly higher costs than in most other Minnesota and U.S. cities.

State economic development departments collect median wage rates via surveys of employers, which allow for comparisons across regions. This data is not without its limitations, given that Minnesota’s data is by multi-county region, meaning data in the city itself may or may not match that of distant outlying communities. Wages in the Arrowhead are also likely driven higher by the region’s jobs in extractive industries such as logging and mining, which pay high wages and compete for a similar workforce. These data do, however, provide a general overview of hourly wage rates for different job classes, and show that Duluth area wages are consistently higher than other communities (see Table 7). These data somewhat contradict those produced by the construction cost estimators, which do not place Duluth significantly higher than the comparison cities. Superior’s wage rates, which largely align with Duluth’s, also suggest that differences between states are not a driving factor in wage rates, and that they are instead driven by local factors. Once again, however, the differences are not extreme: Duluth’s wage rates do tend to align with the state as a whole in all job classes but painters, again reinforcing the conclusions of the estimator data, which suggest labor is just one of a number of forces that pushes the cost of construction up in Duluth.

Table 7: Median Wage Data for Job Classes

Job Class	Arrowhead (Duluth)	Central (St. Cloud)	West Central (Moorhead)	Southeast (Rochester)	Eau Claire Co.	Douglas Co.	MN Median	WI Median
Carpenters	\$ 24.37	\$ 21.75	\$ 18.66	\$ 22.93	\$ 28.61	\$ 23.39	\$ 23.07	\$ 24.08
Cement Masons	\$ 26.13	\$ 24.73	\$ 22.37	\$ 23.90	\$ 24.49	N/A	\$ 25.85	\$ 24.41
Electricians	\$ 32.12	\$ 26.88	\$ 23.04	\$ 29.95	\$ 28.30	\$ 32.34	\$ 32.46	\$ 27.84
Painters	\$ 24.68	\$ 21.25	\$ 24.27	\$ 21.61	\$ 23.57	N/A	\$ 20.47	\$ 20.51
Plumbers	\$ 33.66	\$ 27.53	\$ 27.87	\$ 29.00	\$ 31.84	\$ 33.21	\$ 34.08	\$ 31.91
Construction Laborers	\$ 22.83	\$ 21.34	\$ 16.40	\$ 18.61	\$ 21.13	\$ 21.77	\$ 21.35	\$ 19.93

Sources: DEED Career and Education Explorer; Wisconsin WorkNet County Wage Comparison

²⁸ Zhao, Na. “Residential Building Construction Wages Are on the Rise.” *National Association of Home Builders Eye on Housing Blog*. 26 June 2016. <http://eyeonhousing.org/2016/06/residential-building-construction-wages-are-on-the-rise/>

States also collect data on prevailing wages used in residential construction projects by county, which allows for more granular analysis. While these wage rates are limited to projects with some public financing, meaning the sample size is often small, they give a general overview of the labor market within the construction trades. Though St. Louis County’s rates are generally in line with other Minnesota counties with data, wages do appear dramatically higher for two labor classes: cement masons and drywall tapers, both of whom are paid approximately double the rate of the counterparts in Olmsted County, which is the only other Minnesota county with data in these categories. Much of the difference is attributable to the existence of fringe benefits in St. Louis County that do not exist in Olmsted County, likely underscoring the strength of organized labor in the Duluth area. The large size of the county may also distort data somewhat, as projects on the Iron Range are lumped in with rates in the immediate Duluth area. However, the relatively high costs for roofers and drywall tapers do align with relatively high labor costs outlined by RS Means data, suggesting that labor for trades related to the structure of the home (as opposed to interior work such as plumbing and electrical jobs) is indeed more expensive in Duluth. This again supports the general conclusion that high labor costs in a handful of trades is a contributor to higher home construction costs, but hardly the source of a major imbalance.

Table 8: Prevailing Wage Data for Residential Single-Family Construction

Data includes wage rates plus benefits to equal total compensation

<i>Labor Class</i>	Clay Co., MN (Moorhead)	Olmsted Co., MN (Rochester)	St. Louis Co., MN (Duluth)	Stearns Co., MN (St. Cloud)	Douglas Co., WI (Superior)	Eau Claire Co., WI (Eau Claire)
<i>Bricklayers</i>	N/A	33.12+30.71=53.83	27.75+23.64=51.39	N/A	30.00+9.92=39.92	31.12+8.20=39.32
<i>Carpenters</i>	23.69+0.00 =23.69	20.00+2.24=22.24	22.00+7.93=29.93	25.00+4.87=29.87	22.00+5.00=27.00	22.00+6.28=28.28
<i>Carpet Layers</i>	N/A	21.28+13.22=34.50	N/A	N/A	25.00+0.00=25.00	24.04+4.89=28.93
<i>Cement Masons</i>	N/A	24.00+0.00=24.00	30.61+16.88=47.79	N/A	17.00+0.00=17.00	23.00+0.00=23.00
<i>Electricians</i>	30.00+25.00=55.00	38.57+26.04=64.61	34.92+25.06=59.98	32.94+21.13=54.07	25.00+10.45=35.45	22.00+3.37=25.37
<i>Painters</i>	N/A	13.53+1.56=16.09	12.00+0.00=12.00	30.00+1.45=31.45	18.50+0.00=18.50	19.50+1.37=20.87
<i>Plumbers</i>	N/A	38.91+19.98=58.89	40.86+18.66=59.52	41.48+22.04=63.52	37.27+17.88=55.15	35.22+1.57=36.79
<i>Roofers</i>	N/A	23.37+10.75=34.12	28.89+11.13=40.02	N/A	16.50+12.44=28.94	23.75+5.26=29.01
<i>Drywall Tapers</i>	N/A	18.50+0.91=19.41	26.66+18.67=45.33	N/A	25.00+0.00=25.00	17.00+0.00=17.00

Data source: Data request to MN Department of Labor, November 2017; Wisconsin Department of Workforce Development, 2016.

Conclusions

Taken as a whole, the evidence in this report suggests there is no single obvious smoking gun that drives up housing prices. Instead, a large number of factors add up to drive prices in Duluth higher than in most comparison cities.

The conclusions of the home sales analysis and the construction estimation tools seem to square awkwardly with one another. Prices for new homes of the same size and style appear noticeably higher in Duluth than in the comparison cities, while construction estimating tools yield only relatively minor differences in the construction of new custom homes. This seeming inconsistency points to broader market forces that likely drive the gap, most notably a lack of tract housing on small lots that serves as workforce housing in other markets. Instead, the city's large stock of relatively affordable existing older homes provides a fairly inexpensive, if not always ideal, entry to homeownership.

While estimating tools and wage data produce scattered results, a preponderance of evidence does suggest that labor costs trend somewhat high in Duluth. Rarely are these imbalances extreme, however, and materials, not labor, are still the largest expense in home construction. Permitting and utility connection cost data also points toward a subtle but real factor that increases construction prices in Duluth. The statewide regulatory environment can further constrain development at affordable price points, leading to a lack of supply that feeds a vicious cycle in home construction.

A number of these factors are beyond the control of local policy. Site preparation and building on slopes and bedrock are facts of life in Duluth, and materials costs are largely at the mercy of market forces, logistics networks, and regulations from higher levels of government. Stagnant household incomes coupled with steady demand on the higher end of the housing market leaves homebuilders in a situation in which high-end construction is far more profitable than developing a larger number of smaller homes.

Still, local actors have some tools at their disposal. Permit and connection fees and processes remain within city control, as do broader land use regulations, and Duluth has avenues to influence regulations imposed by higher levels of government. Incentive models used in other cities could spur more new development. While housing renovation is complicated by countless factors, the relative cost-effectiveness of some upgrades could also point toward certain tools to boost the local housing stock. Regional cooperation in the pursuit of common goals also offers an avenue toward solutions for a broader labor market. Duluth area stakeholders can also chip away at the labor shortage in skilled trades through recruitment and initiatives to guide those interested in the trades toward stable employment. The following section outlines a series of recommendations stemming from the findings in this report.

Recommendations

A. Offer Programs to Support New Development

The most obvious way that Duluth can support new housing development is to provide immediate incentives for the construction of new homes. Mayor Larson proposed a \$1-2 million housing fund for

owner occupied-housing, which clearly stands to make a significant dent in the lack of workforce housing. Seeing this proposal through to fruition will require a concerted effort by local officials, and careful program design to ensure these dollars support the largest number of homes at the most in-demand price points. Minnesota communities as large as Minneapolis and as small as Red Wing have successfully implemented housing trust funds, and offer models for Duluth. In addition to general support for new housing construction, the fund could also be tailored to suit some of Duluth's unique needs, such as the increased architectural or engineering costs that may come with development on slopes or bedrock.

A number of existing programs offer housing development incentives, and could benefit from expansion or greater visibility. The community land trust operated by 1Roof Community Housing in Duluth provides single-family homes in perpetual affordability through nonprofit control of the land beneath a resold house, and growing this model could lead to significant increases in housing specifically tailored toward working families. An existing Build Up Duluth program through the city's Housing and Redevelopment Authority offers a forgivable loan of up to \$50,000 for home construction on available lots in the Central and East Hillside neighborhoods. This is a generous level of support, but its narrow geographic criteria make for a very narrow impact. The website's current listings include a grand total of two available lots. Expanding this program or developing a similar one to cover a broader geographic area could make a much more meaningful dent in the city's single-family housing shortage.

In general, increased visibility for these efforts that emphasize the role of homeownership in building a stable and successful population base could give added life to housing development, particularly for residents who may otherwise lack the necessary resources. The Build Up Duluth program's emphasis on infill rightly emphasizes development on lots that already are connected or in close proximity to city utilities. Infill projects are also more likely to offer the small-lot developments that are otherwise surprisingly rare in Duluth. A full catalogue of developable infill lots could give potential homebuilders a full range of options and combat any notion that Duluth lacks convenient land for new development.

B. Revisit Fees and Regulations

Duluth's budget is complex and the city has unique needs among the comparison cities given its aging infrastructure, so this report will make no specific recommendations on where the city could lower fees, and to what level. However, city staff should revisit its fee structures and ensure that its higher rates for services such as building permits, plan reviews, and natural gas connections are justified and necessary.

C. Improve Efficiency within the Permitting Process

Duluth should build on its existing system to further create an easy-to-use, single point of access for new construction information in the city. This portal should include all necessary information on building codes, permitting requirements and fee structures, and utility connections. Even without changing cost structures, there is room for greater collaboration across city departments that would better demonstrate city friendliness to builders. The City of Duluth's One Stop Shop and its eTRAKiT online portal take steps in the right direction, but there is still room for greater integration of information and steps necessary for the completion of a house. City staff could work with a focus group of local developers to walk through the home construction process from the perspective of a homebuilder to identify points of frustration and

inefficiencies. An enhanced internal workflow system that could move applications within the city from one department to another after one single initial request for all permits from the developer would provide a level of customer service that meets or exceeds those in other cities, sending a clear message that Duluth is open for business.

Greater transparency, with clear details on all necessary permits and their fee schedules in one single place on the city website, would be another obvious and affordable step for Duluth to make developers' lives easier. Moorhead lays out all possible building-related fees on a single page on its website, and utilities such as Xcel Energy make connection fee costs easily accessible. Adding these fees to the city website, or at least providing a direct and obvious link to information on the Comfort Systems website, would make an opaque process much clearer. Streamlined application processes would save headaches and free up builders to spend more time at work sites, potentially resulting in a faster rate of construction that facilitates more housing starts.

D. Protect the City's Desirable, Naturally Affordable Single-Family Housing Stock

Duluth has a fairly large stock of relatively inexpensive homes, and managing this stock requires a delicate balancing act between preserving affordability and necessary updates to maintain attractiveness to homebuyers. To ensure continued desirability of older homes, the city should explore measures to support steady updates and push for strong enforcement of city codes to prevent deterioration. Aggressive measures to demolish blighted properties in recent years help preserve values of neighboring homes and open up some lots for development, but teardowns alone are also unlikely to shift the housing market in any significant way in Duluth.²⁹

Many single-family homes in the naturally affordable category are also candidates for conversion into rental properties. While Duluth faces a housing shortage among rental properties as well, the city has also seen a considerable amount of new apartment development in recent years. Given the relative ease of producing rental units at a large scale, protection of the existing single-family housing stock should remain a priority for Duluth policymakers seeking to maintain a skilled workforce and offer the upward mobility that moves in tandem with homeownership. This is especially true in a city whose single-family housing stock faces growth constraints due to a lack of available land.

E. Consider Renovation Incentives

Renovation remains an appealing option in Duluth given the age of its housing stock and relative lack of land, and a January 2018 draft of its Imagine Duluth 2035 comprehensive plan indicates a desire to support further renovation efforts. Several existing programs provide support in this area, particularly for energy efficiency. Comfort Systems offers a home energy loan program that helps homeowners with repairs that can improve energy bills,³⁰ Minnesota Power offers rebates for some upgrades, St. Louis County offers financing through the Property-Assessed Clean Energy (PACE) program. For a broader range of projects, homebuyers and homeowners can use the Federal Housing Administration's 203(k) rehabilitation

²⁹ Land prices in Duluth are not rising quickly enough to justify the costs of home purchase and demolition prior to new construction, a trend that fuels the teardown phenomenon in certain neighborhoods or suburbs of larger metropolitan areas. See McMillen, Daniel P. "Teardowns: Costs, Benefits, and Public Policy." Lincoln Institute of Land Policy, July 2006.

³⁰ For more information, see <http://www.comfortsystemsduluth.com/conservation/home-energy-loans/>.

mortgage insurance to finance renovations. An existing renovation program through the Housing and Redevelopment Authority with broad criteria offers deferred, zero-interest loans with no repayment until the sale of the home or in 30 years. However, this program operates under strict income eligibility limits stemming from the U.S. Department Housing and Urban Development, and most families who are seeking the workforce housing product outlined in this report are likely ineligible. Nonprofits such as 1Roof also provide owner-occupied rehabilitation loans along with a range of other services for clients that meet certain eligibility criteria.

Other cities offer more robust renovation incentives that help spur significant redevelopment of workforce housing. The Home for Generations II program from the City of Coon Rapids offers incentives for large remodeling projects, with a \$5,000 grant and a 50 percent permit cost rebate for remodeling projects exceeding \$35,000 in homes that are at least 20 years old. These funds are accessible to anyone, regardless of income, for most any project.³¹ Brooklyn Center, meanwhile, offers a home rehabilitation loan program of up to \$50,000 at a 3 percent interest rate for households with median incomes under \$104,000, a much higher bar than that set by the Duluth HRA programs.³² While cities can set loan or grant criteria at any level based on available funds and desired outcomes, many communities have successfully implemented programs that funnel public dollars toward specific housing fixes.

Duluth could also benefit from greater investigation into the most pressing needs within its existing single-family housing stock. More explicit survey work to determine the deficiencies of existing housing in the eyes of local homebuyers could lead to programs that take aim at the most desired fixes. Greater knowledge of needs could also lead to redirection of existing funds for housing renovation such as the Community Development Block Grant (CDBG) dollars allocated the city toward specific initiatives. A Duluth housing trust fund, as detailed in Recommendation A, could allow for considerable flexibility and direct funds toward renovation efforts. The options for program design are nearly endless, and the city could certainly craft a program that responds to its most pressing renovation needs.

Renovation efforts also suffer from a lack of knowledge about existing programs and the overall benefits of regular updates. The city could work with local real estate agents to educate homebuyers and the general public, particularly first-time homebuyers, on the benefits of renovation as an affordable and realistic alternative to new construction. Even without new programs, Duluth could benefit from a catalogue of available programs in a single place. Improved dissemination of information would also increase awareness of the importance of upgrades for home resale value, thereby helping sellers recoup maximum value and meeting the wants and needs of buyers, all while maintaining the tax base.

F. Understand Housing as a Regional Issue

To date, most analysis of Duluth's housing demand has focused on the city of Duluth itself, and while Duluth is the central hub of the northeast Minnesota economy, nearly 60 percent of the people who work in the city do not reside within it.³³ Housing demand is a regional issue, and planning efforts to find available land, distribute units in equitable ways that meet the demand of homebuyers, and plan utility

³¹ For more information, see <http://www.coonrapidsmn.gov/547/Home-for-Generations-II>

³² For more information, see <http://www.cityofbrooklyncenter.org/index.aspx?NID=253>

³³ US Census OnTheMap, 2014.

extensions require regional solutions. A coalition dedicated to greater regional housing planning could help facilitate productive conversations that understand the dynamics of the metropolitan labor pool and avoid pitting Duluth against its neighbors.

G. Avoid Blanket Prohibitions on New Development beyond Service Areas

City budgets for infrastructure extension and repairs will no doubt drive future land use and service extension decisions, and there are clearly instances in which municipal service extensions for the sake of a small number of new homes do not make financial sense. However, strict regulations may needlessly preclude greenfield developments that are at least worthy of case-by-case consideration. Housing policy must recognize potential downstream effects of regulation on the housing market, and that it may even create perverse incentives for new development to occur beyond city limits or service boundaries where regulations are less strict. Such policies could negate many of their stated goals such as sprawl reduction and environmental friendliness, and also keep Duluth from benefitting from the new development and population growth that is occurring in its metropolitan area. A blanket prohibition or urban growth boundary specific to the city, as suggested in one of the research questions for the Imagine 2035 plan, would do nothing to help Duluth's housing shortage, and could well exacerbate it.

H. Continue to Engage Local Developers

Stakeholders in this report made repeated efforts to engage Duluth area homebuilders over the course of 2017, including offers of compensation for completion of a bid on the construction costs of the sample house. These efforts were not successful, forcing this report to rely on third party data aggregators in an effort to corroborate some of the trends they identified anecdotally. Should the conversation that stems from this report bring homebuilders back to the table, there are opportunities for greater collaboration. A summit or series of focus groups for local developers could allow them to work together to identify inefficiencies within the Duluth area housing market and point toward any potential policy solutions. Unless they come forward to explore issues or recommend changes, housing developers will continue to face the same environment they do today.

I. Increase Training Opportunities in Construction Trades

Skilled labor shortages clearly drive up housing prices, and also cause construction delays that have secondary effects on the market. A larger labor pool, particularly for trades that trend particularly high in costs, would help bring costs in line with national averages and rein in large increases. Duluth and its homebuilding partners should work with the building trades to identify opportunities to increase workforce, and look to partners such as WorkForce Centers, NORTHFORCE, and local schools to explore ways to broaden the pool. A cooperative approach will help avoid adversarial relations with local trades and build toward common solutions. In the event of a prolonged shortage, training programs through community and technical colleges and in local high schools could funnel talent into high-demand fields.

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APPENDICES



1 Site Aerial Context
A001



Sheet Index	
Site Plan and Schedules	
A001	Cover Sheet and Site Plan
Plans	
A101	Main Level Plan
Sections & Details	
A201	Sections & Details

Example House 2017

Drawings and Specifications as instruments of service are and shall remain the property of the Architect. They are not to be used on extensions of the project, or other projects, except by agreement in writing and appropriate compensation to the Architect.
The General Contractor is responsible for confirming and correlating dimensions at the job site. The Architect will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the project.
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Property Information

Project Type:
Owners: , contact:
Site Address:
Assessor Parcel Number:
Zoning: R-3
Setbacks: Side 7 ft, Rear 25 ft, Front 5 ft to porch, 11 ft to house
Building Height: 12'-7" roof midpoint, 16'-5" roof peak

Gross Floor Area

Main Level 1,196 Sq Ft

- Roof Truss Design Criteria:**
- Snow Load 46.2 psf
 - Live Load 20 psf
 - Dead Load 20 psf

- Wall Bracing Design:**
- Exterior Walls are braced with continuous 5/8" OSB

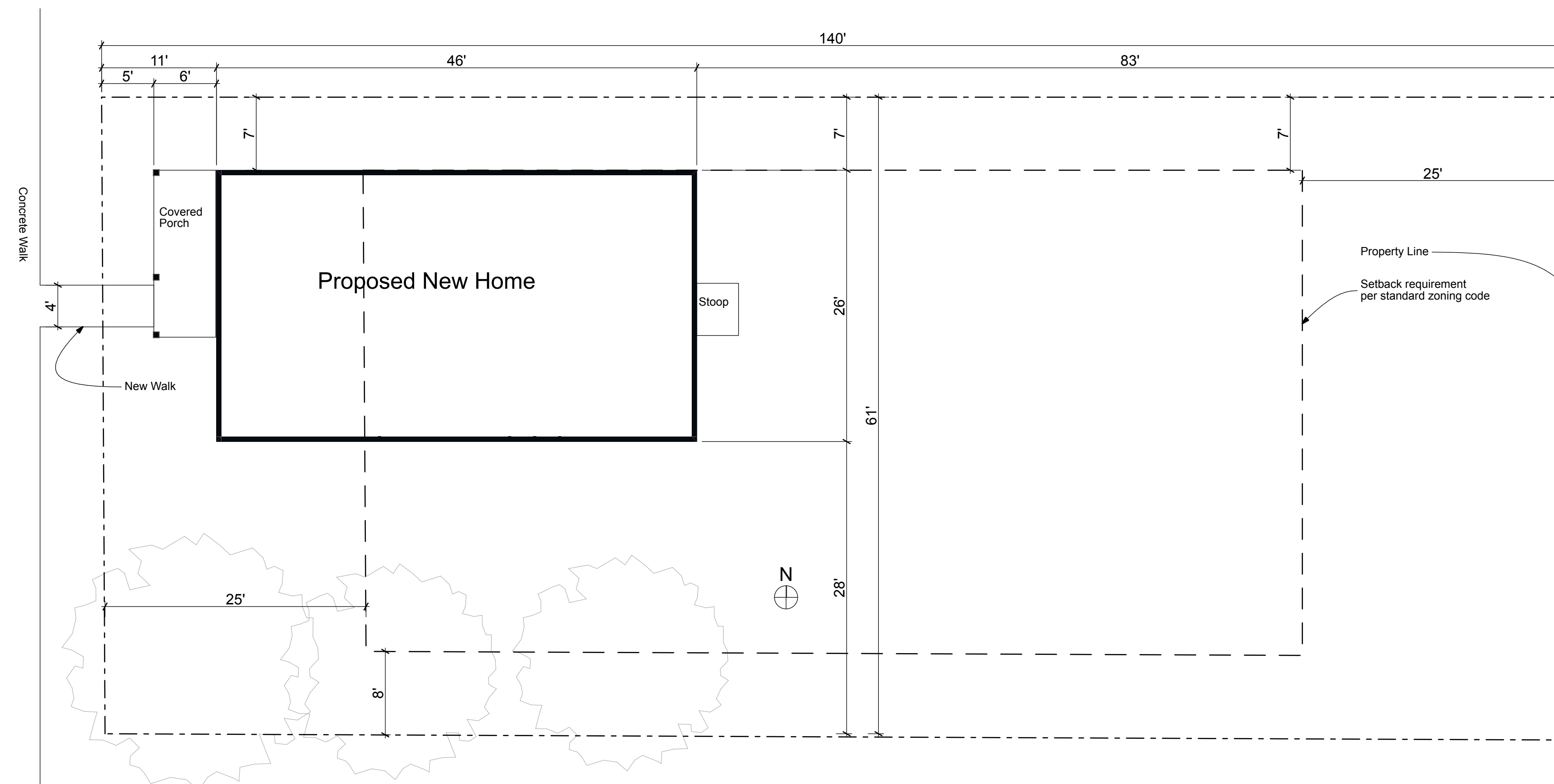
General Notes

1. All work shall conform to the Local Building Code and all other applicable codes and ordinances.
2. Verify all rough-in dimensions and locations for equipment, fixtures etc. Provide all blocking, buck-outs, backing and jacks required for installation.
3. All wood in contact with concrete to be pressure treated.
4. All flashing to be galvanized, galvalume or factory finish to be approved by architect and owner.
5. Contractor shall verify all existing conditions prior to initiating any portion of the work.
6. Provide all protection, shoring and bracing as required by site conditions in order to maintain a safe job site and protect components to remain.
7. Stair and guardrail openings to be less than 4".
8. Tight line all affected drainage to approved drainage system.
9. All framing to be properly caulked, sealed, gasketed or otherwise treated to minimize air infiltration prior to sheathing and finishing.
10. All (new) smoke detectors to be hardwired to home's electrical system.

ISSUED:
7-24-2017

Cover Sheet and Site Plan

A001



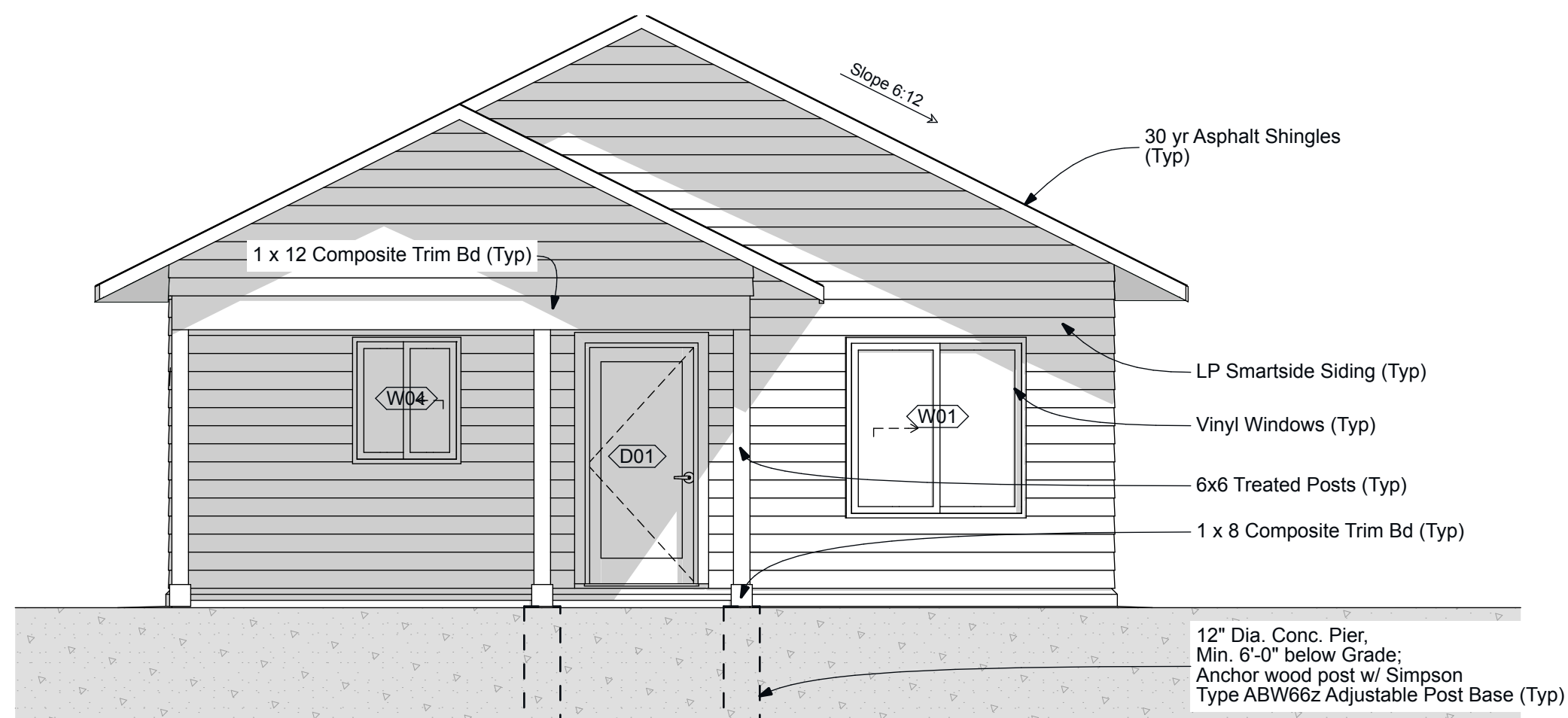
3 Site Plan
A001
SCALE: 1/8" = 1'-0"

Example House 2017

Drawings and Specifications as instruments of service are and shall remain the property of the Architect. They are not to be used on extensions of the project, or other projects, except by agreement in writing and appropriate compensation to the Architect.

The General Contractor is responsible for confirming and correlating dimensions at the job site. The Architect will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the project.

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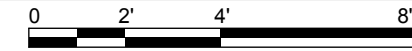
1 West Elevation

SCALE: 1/4" = 1'-0"



2 South Elevation

SCALE: 1/4" = 1'-0"



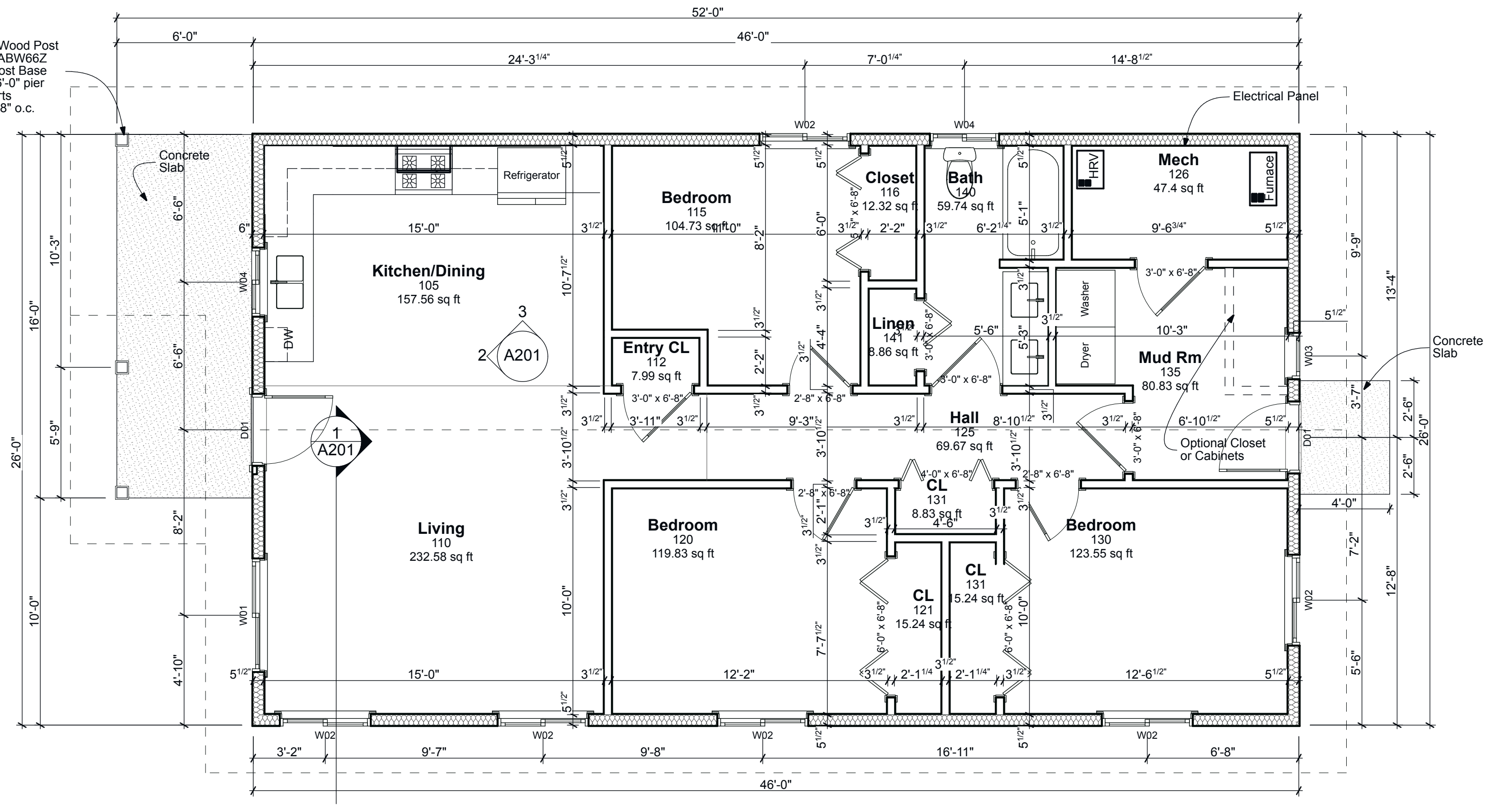
Zone Number	Room Name	Area (Sq. Ft.)	Required Daylight Area	Daylight Area	Special Notes
105	Kitchen/Dining	157.56	12.64	5.6	Daylight area shared with Living: 32 sf req'd, 47.36 provided
110	Living	232.58	19.4	41.76	Daylight area shared with Kitchen/Dining: 32 sf req'd, 47.36 provided
112	Entry CL	7.99	NA		
115	Bedroom	104.73	9.22	11.34	
116	Closet	12.32	NA		
120	Bedroom	119.83	8.96	11.34	
121	CL	15.24	NA		
125	Hall	69.67	NA		
128	Mech	47.40	NA		
130	Bedroom	123.55	9.96	22.68	
131	CL	8.83	NA		
131	CL	15.24	NA		
135	Mud Rm	80.83	5.26	3.5	
140	Bath	59.74	6.1	11.34	
141	Linen	8.86	NA		

3 Room Schedule

ID	Mfgr	Type	Model	Width	Height	QTY.	Glass Area	Area (sq. ft.)	U-Factor	Egress	Tempered	Notes
W01	Walsh	Sliding	Tundra 6100	5'-0"	5'-0"	1	19.08	25.00	0.30	Yes	No	
W02	Walsh	Sliding	Tundra 6100	4'-0"	4'-0"	6	11.34	16.00	0.30	Yes	No	
W03	Walsh	Casement	Tundra 6600	2'-0"	3'-0"	1	3.5	6.00	0.28	No	Yes	
W04	Walsh	Sliding	Tundra 6100	3'-0"	3'-6"	1	5.6	10.50	0.30	No	Yes	
W04	Walsh	Sliding	Tundra 6100	3'-0"	3'-6"	1	11.34	10.50	0.30	No	Yes	

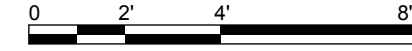
4 Window Schedule

(typ)
6x6 Treated Wood Post on Simpson ABW66Z Adjustable Post Base & 12" dia. x 6'-0" pier r/w (3) #4 vert's & #3 Ties @ 8" o.c.



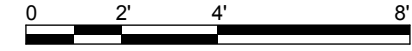
5 Main Level

SCALE: 1/4" = 1'-0"



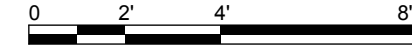
6 East Elevation

SCALE: 1/4" = 1'-0"



7 North Elevation

SCALE: 1/4" = 1'-0"



ISSUED:

7-24-2017

Main Level Plan

A101



The insurance replacement estimate of this home is \$219,263

The cost to replace this home would be \$207,563.

The cost to demolish the home after a total loss would be \$11,700.

The estimated value of the unimproved site of this home is \$60,000.

This is an estimate of the cost to replace the 1,800 square foot single-family residence located at MN with a building of equal quality, materials, design, layout and workmanship and using methods, techniques and procedures that meet current construction standards. This estimate includes excavation for a foundation on a prepared building pad as required for normal soil condition and utility lines under the building. Costs are current to October, 2017. Replacement is assumed to be done under competitive conditions without significant labor or material shortages.

Characteristics of this home include the following.

The perimeter of the building has 6 corners.

The living area is 1,800 square feet.

The number of stories is 1.

This home was built in 2017 (average age considering all additions).

Garage: 528 square feet of attached garage with no interior finish.

Concrete deck, walk or driveway: 360 square feet of surface.

Central ducted heating and cooling.

The quality of this home could be summarized as "Class 5, Average Standard."

Homes of this quality commonly have the following characteristics:

Class 4 foundation and floor. Reinforced concrete or concrete block foundation. Conventional wood frame floor or slab on grade. Change in elevation.

Class 5 frame exterior walls. At least one wall offset or decorative opening. At least one change in wall height.

Class 5 exterior finish. Average stucco, EIFS, plank or panel siding. Some trim or veneer.

Class 5 windows and doors. Standard grade vinyl windows. Commodity grade interior and exterior doors.

Class 5 roof and soffit. Dual pitch roof with built-up or architectural composition shingle roof cover. 2 foot open soffit

Class 5 interior finish. Textured average quality gypboard. Most walls are rectangular. 8 foot ceilings with spray acoustic texture.

Class 5 floor finish. Good sheet vinyl or standard carpet in most rooms. Small area of tile or hardwood at entry.

Class 5 bathrooms. Average plastic tub and shower in master bath. Three fixtures in other bathrooms.

Class 5 plumbing and electrical. 3 low-cost plumbing fixtures per bathroom. 12 light fixtures. 5 built-in low-cost appliances.

Class 4 kitchen. 15 LF of low cost wall and base cabinets. Low cost tile or acrylic counter top.

Insurance Replacement Estimate by Cost Category

Direct Cost Items

Item Name	Materials	Labor	Equipment	Total
Excavation	----	2,184	651	2,835
Foundation, Piers, Flatwork	7,568	10,327	1,890	19,785
Insulation	2,368	1,360	----	3,728
Rough Hardware	445	608	112	1,165
Framing	14,439	17,988	----	32,427
Exterior Finish	8,312	4,367	1,589	14,268
Exterior Trim	593	949	149	1,691
Doors	2,277	1,354	----	3,631
Windows	2,294	972	----	3,266
Roofing, Soffit, Fascia	7,644	4,568	----	12,212
Finish Carpentry	893	3,308	----	4,201
Interior Wall Finish	3,381	4,493	----	7,874
Lighting Fixtures	1,776	486	----	2,262
Painting	2,010	4,075	----	6,085
Carpet, Flooring	4,466	2,839	----	7,305
Bath Accessories	734	400	----	1,134
Shower & Tub Enclosures	478	349	----	827
Plumbing Fixtures	4,306	1,829	----	6,135
Plumbing Rough-in	2,137	4,650	----	6,787
Wiring	2,401	3,881	----	6,282
Built In Appliances	2,832	343	----	3,175
Cabinets	5,821	1,589	----	7,410
Countertops	1,770	1,288	----	3,058
Central Heating and Cooling	3,471	5,686	----	9,157
Garage Door	1,656	904	----	2,560
Subtotal direct job cost	\$84,072	\$80,797	\$4,391	\$169,260

Indirect Cost Items

Item Name	Materials	Labor	Equipment	Total
Final Cleanup	----	1,303	----	1,303
Insurance	6,533	----	----	6,533
Permits & Utilities	4,621	----	----	4,621
Design & Engineering	2,150	----	----	2,150
Subtotal indirect job cost	\$13,304	\$1,303	----	\$14,607

Grand Total

Item Name	Materials	Labor	Equipment	Total
Contractor Markup	\$23,696	----	----	\$23,696
Total cost	\$121,072	\$82,100	\$4,391	\$207,563

The insurance replacement estimates in this report are based on figures which appear in *National Building Cost Manual* published by Craftsman Book Company, 6058 Corte del Cedro, Carlsbad, CA 92011, 1-800-829-8123, <http://www.craftsman-book.com>. The sources and methods used to develop this estimate of replacement value reflect changes in the costs of reconstruction and rebuilding, including changes in labor, materials and supplies and are based on a cost index for the Zip area 556-558 Duluth, Minnesota. Index costs for this area are: -2% for material, +7% for labor and -1% for equipment. This estimate assumes a single home is being replaced.

October 9, 2017



The insurance replacement estimate of this home is \$211,949

The cost to replace this home would be \$200,249.

The cost to demolish the home after a total loss would be \$11,700.

The estimated value of the unimproved site of this home is \$50,000.

This is an estimate of the cost to replace the 1,800 square foot single-family residence located at WI with a building of equal quality, materials, design, layout and workmanship and using methods, techniques and procedures that meet current construction standards. This estimate includes excavation for a foundation on a prepared building pad as required for normal soil condition and utility lines under the building. Costs are current to October, 2017. Replacement is assumed to be done under competitive conditions without significant labor or material shortages.

Characteristics of this home include the following.

The perimeter of the building has 6 corners.

The living area is 1,800 square feet.

The number of stories is 1.

This home was built in 2017 (average age considering all additions).

Garage: 528 square feet of attached garage under the main building roof, same finish as the home interior.

Concrete deck, walk or driveway: 360 square feet of surface.

Central ducted heating and cooling.

The quality of this home could be summarized as "Class 5, Average Standard."

Homes of this quality commonly have the following characteristics:

Class 4 foundation and floor. Reinforced concrete or concrete block foundation. Conventional wood frame floor or slab on grade. Change in elevation.

Class 5 frame exterior walls. At least one wall offset or decorative opening. At least one change in wall height.

Class 5 exterior finish. Average stucco, EIFS, plank or panel siding. Some trim or veneer.

Class 5 windows and doors. Standard grade vinyl windows. Commodity grade interior and exterior doors.

Class 5 roof and soffit. Dual pitch roof with built-up or architectural composition shingle roof cover. 2 foot open soffit

Class 5 interior finish. Textured average quality gypboard. Most walls are rectangular. 8 foot ceilings with spray acoustic texture.

Class 5 floor finish. Good sheet vinyl or standard carpet in most rooms. Small area of tile or hardwood at entry.

Class 5 bathrooms. Average plastic tub and shower in master bath. Three fixtures in other bathrooms.

Class 5 plumbing and electrical. 3 low-cost plumbing fixtures per bathroom. 12 light fixtures. 5 built-in low-cost appliances.

Class 4 kitchen. 15 LF of low cost wall and base cabinets. Low cost tile or acrylic counter top.

Insurance Replacement Estimate by Cost Category

Direct Cost Items

Item Name	Materials	Labor	Equipment	Total
Excavation	----	1,941	652	2,593
Foundation, Piers, Flatwork	7,580	9,188	1,892	18,660
Insulation	2,364	1,220	----	3,584
Rough Hardware	445	538	111	1,094
Framing	14,418	15,952	----	30,370
Exterior Finish	8,301	3,873	1,587	13,761
Exterior Trim	593	842	150	1,585
Doors	2,275	1,201	----	3,476
Windows	2,291	860	----	3,151
Roofing, Soffit, Fascia	7,633	4,052	----	11,685
Finish Carpentry	1,034	3,405	----	4,439
Interior Wall Finish	3,917	4,625	----	8,542
Lighting Fixtures	1,773	431	----	2,204
Painting	2,328	4,194	----	6,522
Carpet, Flooring	4,511	2,547	----	7,058
Bath Accessories	742	359	----	1,101
Shower & Tub Enclosures	483	313	----	796
Plumbing Fixtures	4,350	1,641	----	5,991
Plumbing Rough-in	2,159	4,172	----	6,331
Wiring	2,399	3,442	----	5,841
Built In Appliances	2,861	308	----	3,169
Cabinets	5,881	1,426	----	7,307
Countertops	1,788	1,156	----	2,944
Central Heating and Cooling	3,507	5,101	----	8,608
Garage Door	1,673	811	----	2,484
Subtotal direct job cost	\$85,306	\$73,598	\$4,392	\$163,296

Indirect Cost Items

Item Name	Materials	Labor	Equipment	Total
Final Cleanup	----	1,257	----	1,257
Insurance	6,303	----	----	6,303
Permits & Utilities	4,458	----	----	4,458
Design & Engineering	2,074	----	----	2,074
Subtotal indirect job cost	\$12,835	\$1,257	----	\$14,092

Grand Total

Item Name	Materials	Labor	Equipment	Total
Contractor Markup	\$22,861	----	----	\$22,861
Total cost	\$121,002	\$74,855	\$4,392	\$200,249

The insurance replacement estimates in this report are based on figures which appear in *National Building Cost Manual* published by Craftsman Book Company, 6058 Corte del Cedro, Carlsbad, CA 92011, 1-800-829-8123, <http://www.craftsman-book.com>. The sources and methods used to develop this estimate of replacement value reflect changes in the costs of reconstruction and rebuilding, including changes in labor, materials and supplies and are based on a cost index for the Zip area 547 Eau Claire, Wisconsin. Index costs for this area are: -1% for material, -4% for labor and 0% for equipment. This estimate assumes a single home is being replaced.

October 9, 2017

The insurance replacement estimate of this home is \$219,590

The cost to replace this home would be \$207,890.

The cost to demolish the home after a total loss would be \$11,700.

The estimated value of the unimproved site of this home is \$60,000.

This is an estimate of the cost to replace the 1,800 square foot single-family residence located at ND with a building of equal quality, materials, design, layout and workmanship and using methods, techniques and procedures that meet current construction standards. This estimate includes excavation for a foundation on a prepared building pad as required for normal soil condition and utility lines under the building. Costs are current to October, 2017. Replacement is assumed to be done under competitive conditions without significant labor or material shortages.

Characteristics of this home include the following.

The perimeter of the building has 6 corners.

The living area is 1,800 square feet.

The number of stories is 1.

This home was built in 2017 (average age considering all additions).

Garage: 528 square feet of attached garage under the main building roof, same finish as the home interior.

Concrete deck, walk or driveway: 360 square feet of surface.

Central ducted heating and cooling.

The quality of this home could be summarized as "Class 5, Average Standard."

Homes of this quality commonly have the following characteristics:

Class 4 foundation and floor. Reinforced concrete or concrete block foundation. Conventional wood frame floor or slab on grade. Change in elevation.

Class 5 frame exterior walls. At least one wall offset or decorative opening. At least one change in wall height.

Class 5 exterior finish. Average stucco, EIFS, plank or panel siding. Some trim or veneer.

Class 5 windows and doors. Standard grade vinyl windows. Commodity grade interior and exterior doors.

Class 5 roof and soffit. Dual pitch roof with built-up or architectural composition shingle roof cover. 2 foot open soffit

Class 5 interior finish. Textured average quality gypboard. Most walls are rectangular. 8 foot ceilings with spray acoustic texture.

Class 5 floor finish. Good sheet vinyl or standard carpet in most rooms. Small area of tile or hardwood at entry.

Class 5 bathrooms. Average plastic tub and shower in master bath. Three fixtures in other bathrooms.

Class 5 plumbing and electrical. 3 low-cost plumbing fixtures per bathroom. 12 light fixtures. 5 built-in low-cost appliances.

Class 4 kitchen. 15 LF of low cost wall and base cabinets. Low cost tile or acrylic counter top.

Insurance Replacement Estimate by Cost Category

Direct Cost Items

Item Name	Materials	Labor	Equipment	Total
Excavation	----	2,083	652	2,735
Foundation, Piers, Flatwork	7,657	9,858	1,892	19,407
Insulation	2,388	1,309	----	3,697
Rough Hardware	449	577	111	1,137
Framing	14,564	17,116	----	31,680
Exterior Finish	8,385	4,155	1,587	14,127
Exterior Trim	599	903	150	1,652
Doors	2,298	1,289	----	3,587
Windows	2,314	923	----	3,237
Roofing, Soffit, Fascia	7,710	4,348	----	12,058
Finish Carpentry	1,044	3,653	----	4,697
Interior Wall Finish	3,957	4,963	----	8,920
Lighting Fixtures	1,791	462	----	2,253
Painting	2,352	4,500	----	6,852
Carpet, Flooring	4,557	2,733	----	7,290
Bath Accessories	749	385	----	1,134
Shower & Tub Enclosures	488	336	----	824
Plumbing Fixtures	4,394	1,760	----	6,154
Plumbing Rough-in	2,181	4,476	----	6,657
Wiring	2,423	3,693	----	6,116
Built In Appliances	2,890	331	----	3,221
Cabinets	5,940	1,530	----	7,470
Countertops	1,806	1,240	----	3,046
Central Heating and Cooling	3,542	5,473	----	9,015
Garage Door	1,690	870	----	2,560
Subtotal direct job cost	\$86,168	\$78,966	\$4,392	\$169,526

Indirect Cost Items

Item Name	Materials	Labor	Equipment	Total
Final Cleanup	----	1,305	----	1,305
Insurance	6,544	----	----	6,544
Permits & Utilities	4,628	----	----	4,628
Design & Engineering	2,153	----	----	2,153
Subtotal indirect job cost	\$13,325	\$1,305	----	\$14,630

Grand Total

Item Name	Materials	Labor	Equipment	Total
Contractor Markup	\$23,734	----	----	\$23,734
Total cost	\$123,227	\$80,271	\$4,392	\$207,890

The insurance replacement estimates in this report are based on figures which appear in *National Building Cost Manual* published by Craftsman Book Company, 6058 Corte del Cedro, Carlsbad, CA 92011, 1-800-829-8123, <http://www.craftsman-book.com>. The sources and methods used to develop this estimate of replacement value reflect changes in the costs of reconstruction and rebuilding, including changes in labor, materials and supplies and are based on a cost index for the Zip area 580-581 Fargo, North Dakota. Index costs for this area are: 0% for material, +3% for labor and 0% for equipment. This estimate assumes a single home is being replaced.

October 9, 2017

The insurance replacement estimate of this home is \$219,441

The cost to replace this home would be \$207,741.

The cost to demolish the home after a total loss would be \$11,700.

The estimated value of the unimproved site of this home is \$60,000.

This is an estimate of the cost to replace the 1,800 square foot single-family residence located at MN with a building of equal quality, materials, design, layout and workmanship and using methods, techniques and procedures that meet current construction standards. This estimate includes excavation for a foundation on a prepared building pad as required for normal soil condition and utility lines under the building. Costs are current to October, 2017. Replacement is assumed to be done under competitive conditions without significant labor or material shortages.

Characteristics of this home include the following.

The perimeter of the building has 6 corners.

The living area is 1,800 square feet.

The number of stories is 1.

This home was built in 2017 (average age considering all additions).

Garage: 528 square feet of attached garage with no interior finish.

Concrete deck, walk or driveway: 360 square feet of surface.

Central ducted heating and cooling.

The quality of this home could be summarized as "Class 5, Average Standard."

Homes of this quality commonly have the following characteristics:

Class 4 foundation and floor. Reinforced concrete or concrete block foundation. Conventional wood frame floor or slab on grade. Change in elevation.

Class 5 frame exterior walls. At least one wall offset or decorative opening. At least one change in wall height.

Class 5 exterior finish. Average stucco, EIFS, plank or panel siding. Some trim or veneer.

Class 5 windows and doors. Standard grade vinyl windows. Commodity grade interior and exterior doors.

Class 5 roof and soffit. Dual pitch roof with built-up or architectural composition shingle roof cover. 2 foot open soffit

Class 5 interior finish. Textured average quality gypboard. Most walls are rectangular. 8 foot ceilings with spray acoustic texture.

Class 5 floor finish. Good sheet vinyl or standard carpet in most rooms. Small area of tile or hardwood at entry.

Class 5 bathrooms. Average plastic tub and shower in master bath. Three fixtures in other bathrooms.

Class 5 plumbing and electrical. 3 low-cost plumbing fixtures per bathroom. 12 light fixtures. 5 built-in low-cost appliances.

Class 4 kitchen. 15 LF of low cost wall and base cabinets. Low cost tile or acrylic counter top.

Insurance Replacement Estimate by Cost Category

Direct Cost Items

Item Name	Materials	Labor	Equipment	Total
Excavation	----	2,163	658	2,821
Foundation, Piers, Flatwork	7,645	10,230	1,909	19,784
Insulation	2,392	1,347	----	3,739
Rough Hardware	449	602	113	1,164
Framing	14,587	17,820	----	32,407
Exterior Finish	8,397	4,326	1,605	14,328
Exterior Trim	599	940	151	1,690
Doors	2,300	1,341	----	3,641
Windows	2,318	962	----	3,280
Roofing, Soffit, Fascia	7,722	4,525	----	12,247
Finish Carpentry	902	3,278	----	4,180
Interior Wall Finish	3,415	4,451	----	7,866
Lighting Fixtures	1,794	481	----	2,275
Painting	2,030	4,036	----	6,066
Carpet, Flooring	4,511	2,812	----	7,323
Bath Accessories	742	396	----	1,138
Shower & Tub Enclosures	483	346	----	829
Plumbing Fixtures	4,350	1,812	----	6,162
Plumbing Rough-in	2,159	4,607	----	6,766
Wiring	2,425	3,845	----	6,270
Built In Appliances	2,861	340	----	3,201
Cabinets	5,881	1,574	----	7,455
Countertops	1,788	1,276	----	3,064
Central Heating and Cooling	3,507	5,633	----	9,140
Garage Door	1,673	896	----	2,569
Subtotal direct job cost	\$84,930	\$80,039	\$4,436	\$169,405

Indirect Cost Items

Item Name	Materials	Labor	Equipment	Total
Final Cleanup	----	1,304	----	1,304
Insurance	6,539	----	----	6,539
Permits & Utilities	4,625	----	----	4,625
Design & Engineering	2,151	----	----	2,151
Subtotal indirect job cost	\$13,315	\$1,304	----	\$14,619

Grand Total

Item Name	Materials	Labor	Equipment	Total
Contractor Markup	\$23,717	----	----	\$23,717
Total cost	\$121,962	\$81,343	\$4,436	\$207,741

The insurance replacement estimates in this report are based on figures which appear in *National Building Cost Manual* published by Craftsman Book Company, 6058 Corte del Cedro, Carlsbad, CA 92011, 1-800-829-8123, <http://www.craftsman-book.com>. The sources and methods used to develop this estimate of replacement value reflect changes in the costs of reconstruction and rebuilding, including changes in labor, materials and supplies and are based on a cost index for the Zip area 563 St Cloud, Minnesota. Index costs for this area are: -1% for material, +6% for labor and 0% for equipment. This estimate assumes a single home is being replaced.

October 9, 2017



The insurance replacement estimate of this home is \$212,162

The cost to replace this home would be \$200,462.

The cost to demolish the home after a total loss would be \$11,700.

The estimated value of the unimproved site of this home is \$60,000.

This is an estimate of the cost to replace the 1,800 square foot single-family residence located at MN with a building of equal quality, materials, design, layout and workmanship and using methods, techniques and procedures that meet current construction standards. This estimate includes excavation for a foundation on a prepared building pad as required for normal soil condition and utility lines under the building. Costs are current to October, 2017. Replacement is assumed to be done under competitive conditions without significant labor or material shortages.

Characteristics of this home include the following.

The perimeter of the building has 6 corners.

The living area is 1,800 square feet.

The number of stories is 1.

This home was built in 2017 (average age considering all additions).

Garage: 528 square feet of attached garage with no interior finish.

Concrete deck, walk or driveway: 360 square feet of surface.

Central ducted heating and cooling.

The quality of this home could be summarized as "Class 5, Average Standard."

Homes of this quality commonly have the following characteristics:

Class 4 foundation and floor. Reinforced concrete or concrete block foundation. Conventional wood frame floor or slab on grade. Change in elevation.

Class 5 frame exterior walls. At least one wall offset or decorative opening. At least one change in wall height.

Class 5 exterior finish. Average stucco, EIFS, plank or panel siding. Some trim or veneer.

Class 5 windows and doors. Standard grade vinyl windows. Commodity grade interior and exterior doors.

Class 5 roof and soffit. Dual pitch roof with built-up or architectural composition shingle roof cover. 2 foot open soffit

Class 5 interior finish. Textured average quality gypboard. Most walls are rectangular. 8 foot ceilings with spray acoustic texture.

Class 5 floor finish. Good sheet vinyl or standard carpet in most rooms. Small area of tile or hardwood at entry.

Class 5 bathrooms. Average plastic tub and shower in master bath. Three fixtures in other bathrooms.

Class 5 plumbing and electrical. 3 low-cost plumbing fixtures per bathroom. 12 light fixtures. 5 built-in low-cost appliances.

Class 4 kitchen. 15 LF of low cost wall and base cabinets. Low cost tile or acrylic counter top.

Insurance Replacement Estimate by Cost Category

Direct Cost Items

Item Name	Materials	Labor	Equipment	Total
Excavation	----	1,980	658	2,638
Foundation, Piers, Flatwork	7,722	9,361	1,909	18,992
Insulation	2,416	1,233	----	3,649
Rough Hardware	454	551	113	1,118
Framing	14,734	16,307	----	31,041
Exterior Finish	8,482	3,959	1,605	14,046
Exterior Trim	605	860	151	1,616
Doors	2,323	1,227	----	3,550
Windows	2,341	881	----	3,222
Roofing, Soffit, Fascia	7,800	4,141	----	11,941
Finish Carpentry	911	2,999	----	3,910
Interior Wall Finish	3,450	4,073	----	7,523
Lighting Fixtures	1,812	440	----	2,252
Painting	2,051	3,694	----	5,745
Carpet, Flooring	4,557	2,573	----	7,130
Bath Accessories	749	363	----	1,112
Shower & Tub Enclosures	488	316	----	804
Plumbing Fixtures	4,394	1,658	----	6,052
Plumbing Rough-in	2,181	4,216	----	6,397
Wiring	2,450	3,518	----	5,968
Built In Appliances	2,890	311	----	3,201
Cabinets	5,940	1,440	----	7,380
Countertops	1,806	1,168	----	2,974
Central Heating and Cooling	3,542	5,155	----	8,697
Garage Door	1,690	820	----	2,510
Subtotal direct job cost	\$85,788	\$73,244	\$4,436	\$163,468

Indirect Cost Items

Item Name	Materials	Labor	Equipment	Total
Final Cleanup	----	1,259	----	1,259
Insurance	6,310	----	----	6,310
Permits & Utilities	4,463	----	----	4,463
Design & Engineering	2,076	----	----	2,076
Subtotal indirect job cost	\$12,849	\$1,259	----	\$14,108

Grand Total

Item Name	Materials	Labor	Equipment	Total
Contractor Markup	\$22,886	----	----	\$22,886
Total cost	\$121,523	\$74,503	\$4,436	\$200,462

The insurance replacement estimates in this report are based on figures which appear in *National Building Cost Manual* published by Craftsman Book Company, 6058 Corte del Cedro, Carlsbad, CA 92011, 1-800-829-8123, <http://www.craftsman-book.com>. The sources and methods used to develop this estimate of replacement value reflect changes in the costs of reconstruction and rebuilding, including changes in labor, materials and supplies and are based on a cost index for the Zip area 559 Rochester, Minnesota. Index costs for this area are: 0% for material, -3% for labor and 0% for equipment. This estimate assumes a single home is being replaced.

October 9, 2017
