July 30-31, 2025

Advanced Residential Assessing

MAAO
Minnesota Association of Assessing Officers

Course Description

Developed and instructed by the MAAO Residential Committee, Advanced Residential Assessing is a 14-hour (15 hours with exam), 2-day course. This elective course is for assessors who have to deal with more specific type properties that are difficult to assess due to lack of data and sales. Topics this course covers include obsolescence of a house, pole buildings with living quarters, log homes, tiny homes, waterfront properties, executive homes, and historic homes. This class will teach and give participants advice on how to look at and value these types of properties. Participation and discussion is encouraged. At the end of the class, an exam will follow.

Agenda

Day 1

8:00 – 8:30: Introductions and Going Over the Course

8:30 – 9:45: Obsolescence of a House

9:45 – 10:00: Break

10:00 – 10:45: Finish up Obsolescence of a House

10:45 – Noon: Historic Homes

Noon – 1:00: Lunch

1:00 – 3:00: Pole Building with Living Quarters

3:00 – 3:15: Break

3:15 – 4:30: Log Homes

4:30: Review

5:00: Dismissal

Day 2

8:00 – 8:15: Review

8:15 – 10:00: Waterfront (Lakeshore) Properties

10:00 – 10:15: Break

10:15 – Noon: Finish up Waterfront (Lakeshore) Properties

Noon – 1:00: Lunch

1:00 – 2:00: Executive Homes

2:00 – 2:15: Break

2:15 – 3:30: Tiny Homes

3:30: Wrap Up

4:00: Dismissal

1-hour fully proctored online exam available to take independently on your own device anytime between course dismissal and 11:59 pm Friday

*This course is pending approval by the Minnesota State Board of Assessors for 15 CEHs (14 CEHs without exam). Please note: **two** board approved 15-hour courses may be eligible as the equivalent to the elective required for AMA licensure.*

Module 1: Physical, Economic and Functional Obsolescence of a House

When it comes to valuing a house, all aspects are taken into consideration. Most houses do not have many issues. However, there are some houses out there that may have some obsolescence to them. This section will explain those situations and it will go over the physical, economical, and functional obsolescence of a house.

Definitions

All following definitions are from the International Association of Assessing Officers (IAAO).

Obsolescence

A decrease in the value of a property occasioned solely by shifts in demand from properties of this type to other types of property and/or to personal services. Some of the principal causes of obsolescence are:

1. changes in the esthetic arts;
2. changes in the industrial arts, such as new inventions and new processes;
3. legislative enactments;
4. change in consumer demand for products that results in inadequacy or over adequacy;
5. migration of markets that results in misplacement of the property.

Contrast depreciation, physical; depreciation, economic.

Highest & Best Use

A concept in real estate appraisal in which market value is achieved by the reasonably and probable legal land use that results in the highest value.

Cost to Cure

Estimated cost to correct or replaced a component or defect within a property.

Depreciation, Curable

That part of depreciation which can be reversed by correcting deferred maintenance and by remodeling to relieve functional obsolescence.

Examples Include: Roof replacement, floor covering replacement, painting

Incurable

A part of depreciation for which it is not economical to correct the condition, and if corrected, the cost of correcting the condition exceeds the value added.

Examples Include: Poor floor planning, raising your roof so you have 10 ft ceilings instead of 8 ft, replacing a swimming pool with a new one.

Physical Obsolescence

Physical Deterioration

A cause of depreciation that is a loss in value due to ordinary wear and tear and the forces of nature.

Exterior Examples of Physical Obsolescence:

- Old roof
- Paint falling off siding/sofit/facia
- Old windows & doors that aren't energy efficient

Interior Examples of Physical Obsolescence:

- Cosmetic
- Carpet/vinyl flooring torn
- Old kitchen
- Old bathroom

What is Considered if Highest & Best Use is to Tear Down a House

Examples:

- No water or electricity, especially for years
- Mold
- Structural Damage
- Future development

Hoarder House

What to look for at a hoarder house:

- Is the house being maintained?
- Despite the excessive material, are there any interior updates?
- Is the excessive material causing damage to the house?
- Picturing the interior not having excessive material, would the value still be the same?

Economic Obsolescence

Definition:

A cause of depreciation which is a loss in value as a result of impairment in utility and desirability caused by factors outside the property's boundaries.

Examples:

- Railroad Tracks
- New Highway
- Zoning Changes
- Manufacturing Plant

Economic Obsolescence have been ruled by the courts.

Rare decision faults MSP airport for lowering property value

Judge said Kelley Farm heirs deserve compensation for plane noise.

By PAT DOYLE Star Tribune

SEPTEMBER 19, 2012 — 11:18PM

MARLIN LEVISON – STAR TRIBUNE

An MSP airport runway opened in 2005 diverted planes directly over the Kelley Farm.

TEXT SIZE

Example of Economic Obsolescence in the City of Winona

In 2004, Pelzer Street was converted from a two-lane road that had a railroad crossing to a four-lane road and a new bridge that crosses the railroad tracks. Many houses were bought out and demolished to make room for the project. One house was not bought out.

Another factor about the road this house sits on is that heavy industrial companies including Fastenal and many others are nearby and use this road. Many semi-trucks pass this house every day. Also, you can't park on the street, and you can only get in the driveway by going north. Driving south won't get you into the driveway due to the median.

The one house that is left:

- was built in 1990
- has three bedrooms and two bathrooms
- has a total of 1,426 heated square feet
- sold in 2018
    - It was put on the market around 3/1/2018, and the original asking price was $199,900.
    - It sold about eight months later on 11/14/2018 for $150,350.
    - Outside influence appears to have played a part in the sale

Example of Economic Obsolescence from Railroad Tracks

In the parcels outlined in yellow, the taxpayer has voiced strong concerns about their valuation being too high due to being on the railroad tracks.

Research was conducted to determine if the railroad tracks are hurting property values.

1st Step: After discussing with the City Administrator of St. Charles (where the subject property is located), three trains on average go through the city daily. In comparison, the City of Winona has around 20 trains passing through daily.

2nd Step: What do the sales show?

Sales over the last five years:

- 1482 Terry LN: Sold 10/16/17 for $239,000.
    - Assessed at $198,600

- 1019 Idso CT: Sold 6/29/18 for $231,000.
    - Assessed at $208,200

- 1484 Terry LN: Sold 5/17/19 for $210,000.
    - Assessed at $225,600

- 1073 Idso CT: Sold 7/31/19 for $322,500.
    - Assessed at $303,000

- 1425 Terry Dr: Sold 12/17/2021 for $330,000.
    - Assessed at $271,200

- 514 E 15th St: Sold 1/31/2022 for $370,000.
    - Assessed at $316,900

It appears in this situation that the railroad is not causing any economic obsolescence.

Discussion Time: Is this Economic Obsolescence?

- Lot was purchased on July 18, 2013.
- House to the north is in the city limits, but the junk lot is in the township.
- Owner of the lot has been sending his damaged cars, tractors, boats, etc. since purchasing the property.
- Owner to the north is not happy about the situation.

Would this be considered economic obsolescence for the homeowner?

Functional Obsolescence

Definition:

Loss in value of a property resulting from changes in tastes, preferences, technical innovations, or market standards.

Examples:

- Walk through a bedroom to get to another bedroom.
- Toilet in the kitchen (likely seen in an old house or built for the convenience for an elderly person).
- House has excess square feet relative to the neighborhood.
- Poor design

This house used to be a funeral home in the City of St. Charles. The funeral home built a new facility and sold their old place in 2010. To this day, the upstairs of the house is the main living quarters, including the kitchen. The main level looks like a funeral home.

Example of Functional Obsolescence in a neighborhood in Goodview, Winona County

Details of the Neighborhood:

- Most of the houses were built between 1990 and 2000.
- Most houses are ramblers or split entry. There are a couple of two-story homes.
- Construction is standard around that time.
- Square footage for these homes in this neighborhood is around 1,700.

Then, there is this house:

Details of this big house:

- House started construction in 2000.
- GLA is 5,708 square feet, with approximately 1,000 square feet in the basement.
- Six bedrooms and three and half bathrooms
- Only house in this neighborhood that is two and a quarter story.
- House sold in 2014, house still wasn't complete. A house flipper bought the house. Sold under assessed value.
- House was finally completed in 2017 and sold under assessed value.
- Sold on 11/13/19 for $415,160; assessed value at the time was $486,500.

Discussion Time: What would you do?

- House built in 1982.
- At the time the house was built, half the house was constructed on dedicated ROW; however, this was not known at the time.
- House recently went on the market.
- The property had a potential buyer; upon discovery of the ROW, they backed out.

How would you handle this?

Module 2: Historic Homes

Historic Homes

Historic homes have “historical” significance. They are a part of the community, and they are pieces of the past. They also can be difficult to assess. There are limitations to what you can do to them, and they can get very expensive to remodel.

There are about 3,700 single family residences that are considered historic in Minnesota. This module will go over how a house gets on the National Register of Historic Places, the Heritage Preservation Commission, pros and cons of owning a historic property, examples of costs in remodeling a historic property, and suggestions and tips on how to look at these properties.

Criteria

How does a property get on the National Register of Historic Places? The following criteria of evaluation are defined by the Minnesota State Historic Preservation office.

- “The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and…

- That are associated with events that have made significant contribution to the broad patterns of our history; or…

- That are associated with the lives of persons significant in our past or…

- That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or…

- That have yielded, or may be likely to yield, information important in prehistory or history.”

Criteria Considerations

After the criteria of evaluation, there are criteria considerations. According to the state, "Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that meet the criteria or if they fall within the following categories:

- A religious property deriving primary significance from architectural or artistic distinction or historical importance; or…
- A building or structure removed from its original location, but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event or....
- A birthplace or grave of a historical figure of outstanding importance if there is no other appropriate site or building directly associated with their productive life; or…
- A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or…
- A reconstructed building accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or….
- A property primarily commemorative in intent if design, age, tradition or symbolic value has invested it with its own historical significance;
- A property achieving significance within the past 50 years if it is of exceptional importance."

Registering a Historic Property

How do I prepare a National Register nomination?

Attention National Register Nomination Preparers!
The National Park Service, National Register Program is no longer accepting archival discs and printed photographs related to National Register Nominations. Beginning immediately, the MN SHPO is requesting that all photo documentation be submitted in electronic format only. The requirements for photo size and resolution have not changed. Each photograph should be submitted as a TIFF, 300 pixels per inch (ppi) or greater resolution, and at least 3000 pixels on its longest side. Please contact SHPO National Register staff if you have any questions.

1. Become familiar with the nomination process.

The National Register program, directed by the National Park Service, is administered in each state by its State Historic Preservation Office (SHPO). Nominations for listing a property on the National Register may be initiated by the SHPO or by private individuals and organizations. However, nominations must be submitted through the SHPO.

The nomination serves to make the case for the property's significance. If the Minnesota Historical Society's State Review Board determines that the property meets National Register criteria, the nomination is sent to the State Historic Preservation Officer for signature and then to the Keeper of the National Register in Washington, D.C., for final review and approval.

2. Learn the National Register criteria used to measure a property's significance.

Properties listed on the National Register must meet certain criteria of historical significance and physical integrity.

3. Determine the property's potential for listing on the National Register.

You may request a preliminary evaluation by the SHPO on the property's potential for National Register eligibility. Contact SHPO to request a preliminary evaluation package for the type of property you want evaluated-school, church, commercial building, residence, etc. Include your address for delivery by U.S. mail. Once you have completed a draft nomination form, SHPO staff will review your draft and notify you of their opinion on the property's eligibility.

4. Complete the nomination.

If you decide to proceed, it will be your responsibility to submit a complete nomination for the property, including maps and photographs. You may complete the nomination yourself or retain the services of a Preservation Specialist.

Upcoming Nominations

See documents for upcoming nominations on our State Review Board meetings page.

Heritage Preservation Commissions

In the state of Minnesota, there are 54 Heritage Preservation Commissions. These commissions help preserve historic properties. They are typically appointed by the mayor. Any alterations to historic properties may need to be approved by the commission.

Some neighborhoods are designated as historic districts. Below is an example of a neighborhood historic district in the city of Winona.

Pros and Cons of Owning Historic Property

According to Keller Williams, the pros of owning a historic property include:

- You have a home that has amazing architectural styles, along with beauty and charm that you can't find elsewhere
- The history that goes with it
- You own a piece of history
- If the home is in a historic district, it could protect your home's value
- Potential tax incentives

The cons, according to Keller Williams, include:

- Repairs and renovations are likely costly and possibly not allowed
- Structural issues
- Hazardous material (asbestos and/or lead paint, especially in houses with wood siding)
- Finding contractors that have the skill and expertise to do work on a historic home
- Due to Historic Preservation Commissions, you are limited to what you can alter or update
- Insurance on the home could be higher

Example: The Cost of Owning Historic Property

The above photo shows a historic property before the front porch got remodeled. After a $25,000 permit on top of hiring a specialty craftsman to work on the posts, the front porch received a facelift, shown below.

Tips on How to Assess Historic Properties

- Check sales, check sales, check sales
- Keep in mind the expensive upkeep these houses can have.
- Also keep in mind any extensive remodeling that is done; does the remodeling cost equal the value?
- Always follow your office guidelines.

Module 3: Shop Houses and Barndominiums

History of Barndominiums

A barndominium is a type of structure that combines the functionality of a barn with the comfort of a traditional home. The term "barndominium" is a combination of "barn" and "condominium".

These structures typically have a large, open floor plan and feature high ceilings, exposed beams, and rustic finishes. They often include a living area, kitchen, bedrooms, and bathrooms, as well as space for storage or workshops.

Barndominiums have gained popularity in recent years, particularly in rural areas, as they offer a cost-effective and customizable alternative to traditional homes. They can be designed in a variety of styles, from modern and sleek to traditional and rustic.

In addition to their residential use, barndominiums are also used for commercial and industrial purposes, such as workshops, retail spaces, and storage facilities.

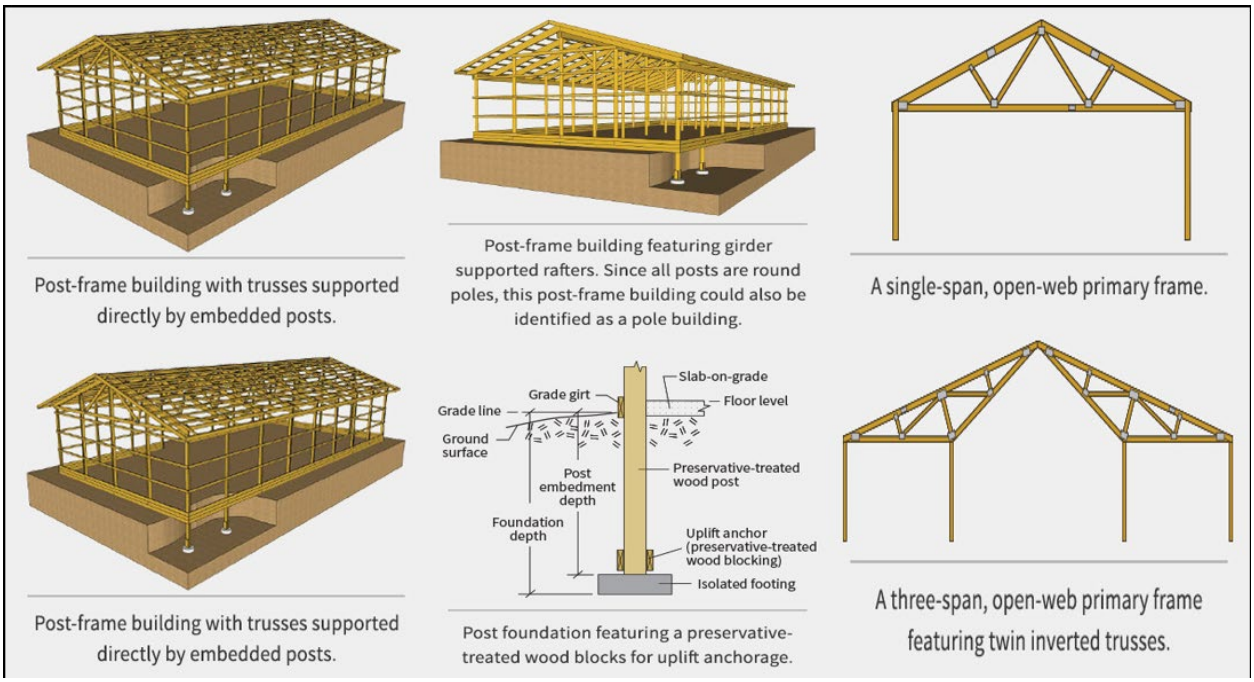
Pole Framing

Pole framing, also known as post-frame construction, is a building technique that uses large poles or posts as the structural support for the building. The poles are typically made of wood, although steel or concrete can also be used. Pole framing is often used for building agricultural and commercial buildings, such as barns, warehouses, and storage facilities, but can also be used for residential construction.

In pole framing, the poles are placed in the ground at regular intervals, typically 8 to 12 feet apart. They are then anchored in place using concrete footings or other types of supports. Horizontal beams are then attached to the tops of the poles, creating a frame that supports the roof and walls of the building.

The advantages of pole framing include its cost-effectiveness, speed of construction, and flexibility in design. Because the poles can be spaced further apart than traditional framing techniques, fewer materials are needed, resulting in cost savings. Additionally, because the poles are set directly into the ground, they can be used to support buildings on uneven or sloping terrain.

Pole framing is a popular building technique for those who require a large, open space, such as farmers or commercial businesses, due to its ability to span long distances without the need for load-bearing walls.



Advantages of Pole Framing

- The style of a pole building with living quarters is attractive to many.
- Pole buildings are quick to build.
- They are resilient structures.
- Possibly most importantly, the interior space is flexible. Post framed structures allow for greater amounts of open space and can be used for many different purposes, like shops, living space, mancaves, and storage.
- Pole buildings can be generally less expensive than other forms of construction.
- For many, post framed homes with living quarters will help with work. For some, it's working on vehicles in an attached garage, while others might use the larger open spaces for storage or shops.
- The larger space can help keep equipment in better shape.
- The interior walls (not the post framed walls) are not load-bearing.

Disadvantages of Pole Framing

While pole framing has many advantages, there are also some disadvantages to consider:

1. Limited design options: Pole framing uses large posts for support, which limits design options. It may not be suitable for more intricate or complicated designs.
2. Limited insulation: Pole framing provides less space for insulation, which may not be enough for colder climates or regions with harsh weather conditions.
3. Maintenance: The wood used in pole framing can be prone to rot, insect infestations, and decay over time. Regular maintenance is required to prevent these issues and extend the life of the structure.
4. Cost: While pole framing can be a cost-effective building method, it may not be cheaper than traditional framing in some cases. The cost of materials and labor may vary depending on the location and size of the project.

Repairing Pole Frame

- All buildings deteriorate. If a property owner talks to you about decay or issues with a pole framed building, either a shouse or pole shed, there are some common issues and repairs to look for.
- The cost to repair a post runs at a low point of $500, according to Midwest pole barn builder FBi Buildings.

Rotted post

Repaired post

Uses for Pole Buildings with Living Quarters

- Most pole buildings with living quarters will be used for maintaining equipment close to home.
- Commonly used by truckers, farmers, and mechanics for their large garages and versatility.
- Some pole buildings with living quarters are converted pole buildings. The advantage of building living space in a pole building is not needing load-bearing walls and being able to create wider living spaces.

Differences Between Shouses and Barndominiums

A barndominium and a shouse are similar in that they are both types of buildings that combine a living space with a workspace or storage area. However, there are some differences between the two.

A barndominium typically refers to a type of building that is constructed using a metal or steel frame with exterior walls made of metal panels or other materials. The interior of the building is typically divided into living quarters and a workspace or storage area, with a separate entrance for each. Barndominiums often have a more rustic or industrial aesthetic and are popular in rural or agricultural areas.

A shouse, on the other hand, is a type of building that combines a living space with a workshop or garage area. The term "shouse" is a combination of "shed" and "house," and these buildings often have a more traditional residential appearance, with siding or brick exterior walls. Shouses are typically constructed using a mixture of traditional framing methods and pole framing, rather than a metal or steel frame.

Overall, the main difference between a barndominium and a shouse is the construction method and the aesthetic of the building. While both types of buildings offer a combination of living space and workspace or storage area, barndominiums have a more rustic, industrial look, while shouses are more traditional in appearance.

Barndominium

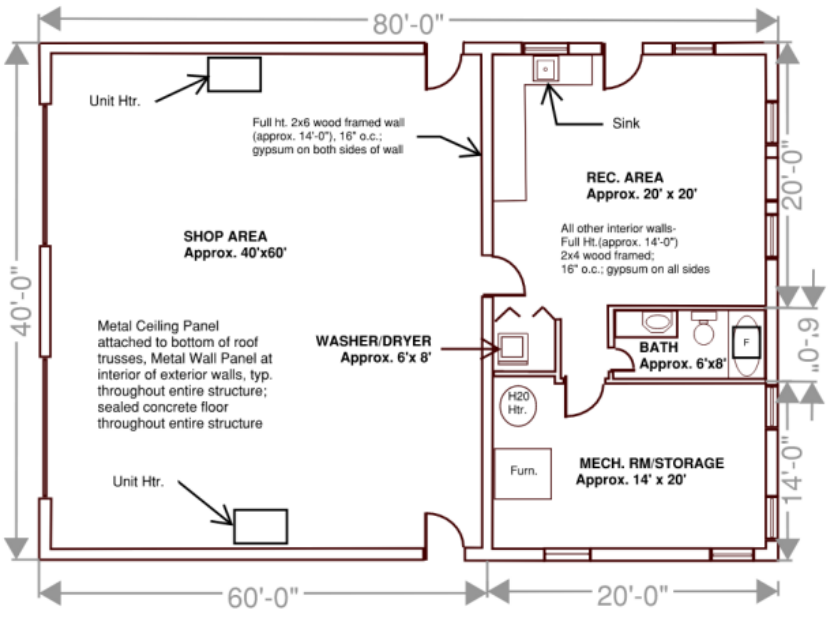
Shouse

Building Code Related to Barndominiums in Minnesota

In Minnesota, barndominiums are typically classified as residential properties and must comply with the state's residential building codes. The specific building codes for barndominiums in Minnesota may vary depending on the location and intended use of the structure, as well as the size and other characteristics of the building.

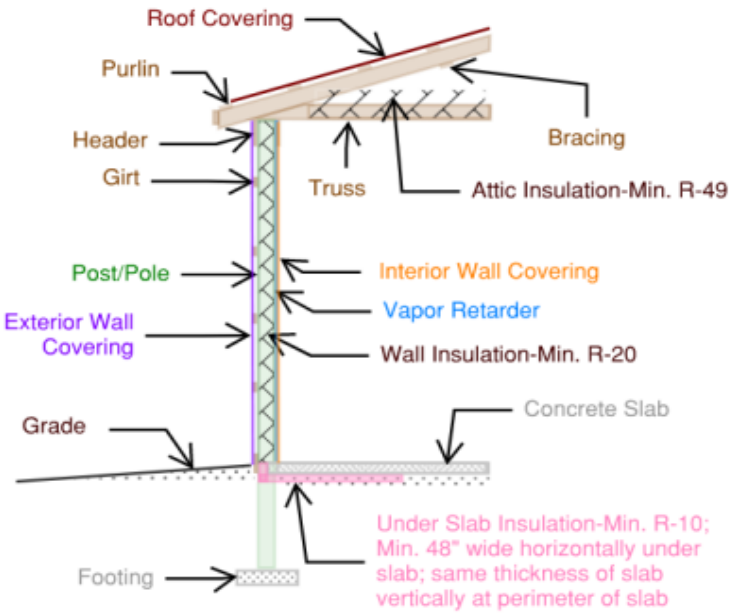
Some of the key building codes that may apply to barndominiums in Minnesota include:

1. International Building Code (IBC): This code establishes the minimum requirements for the design, construction, and maintenance of buildings and structures, including barndominiums. It covers areas such as building materials, structural design, fire safety, plumbing, electrical systems, and accessibility.
2. International Residential Code (IRC): This code is specifically designed for residential buildings and covers areas such as foundation and basement construction, framing and roofing, wall, and floor construction, plumbing and mechanical systems, and energy efficiency.
3. Minnesota State Building Code (MSBC): This code establishes the minimum standards for building construction and applies to all buildings, including barndominiums. It covers areas such as structural design, fire safety, plumbing and mechanical systems, electrical systems, and accessibility.
4. Minnesota Energy Code: This code sets the standards for energy efficiency in buildings and covers areas such as insulation, ventilation, lighting, and heating and cooling systems.



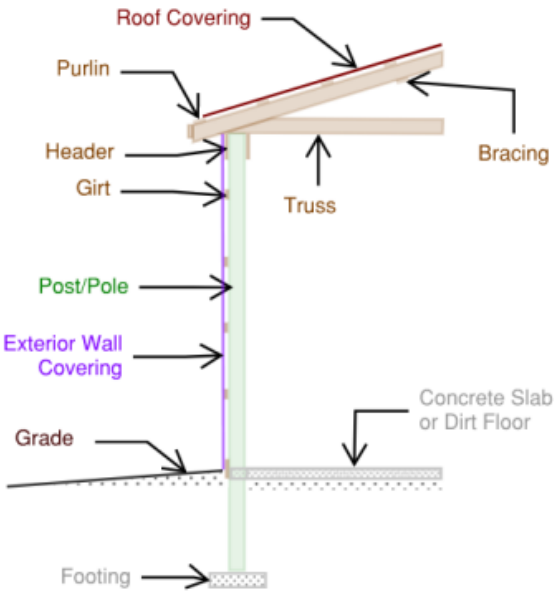
Non-Structural Floor Plan

EXAMPLES of REQUIRED DETAILS



Cross Section
Proposed & Future Heated Structure

Hydronic or other in floor heating see MN Energy and Mechanical Codes for under-slab insulation requirements.



Cross Section
Unheated Structure

BUILDING Permit Submittal shall include:

- ☐ **Building Permit Application,** completed in its entirety, including signature and valuation.
- ☐ **A site plan** (or **Certificate of Survey** if required by municipality) drawn to scale and dimensioned identifying proposed building dimensions with measurements from the adjacent lot lines; as well a all lot lines, setbacks, easements, adjacent street names, and all structures on the property. **Chec with your municipality to determine setback requirements of your specific property.**
- ☐ **A signed engineered plan**. Plans should include:
- ☐ **A floor plan** indicating the proposed building size, size of headers over openings, size and spacir of roof rafters/trusses.
- ☐ **A cross-section view** indicating the depth of concrete slab and perimeter bearing, size and spacing of anchor bolts, pitch of roof, size and spacing of roof rafters/trusses, type(s) of sheathing and siding material, size and spacing of studs, ceiling height.
- ☐ **Elevations** indicating the height of structure from established grade, type of roof covering materials, type of exterior wall covering.
- ☐ Additional information may be required by the plan reviewer.

Cost Analysis

Part 1: Land Cost to Build

Not all land plots are suitable or prepared for a barndominium. A land survey, which helps determine a plot's suitability for building, costs between $380 and $750. Land clearing costs between $1,359 to $5,572, while leveling a property for a foundation costs between $1,000 and $3,230.

Part 2: Foundation

A foundation for a barndominium can be made of concrete, concrete block, or masonry. It's designed to support the weight of the structure and keep moisture away to prevent damage. Barndominiums do require a foundation like any other type of building, even if it's a prefabricated build.

The price of a foundation depends on its type, size, soil conditions, and the amount of excavation and materials needed. A property owner can expect to pay anywhere from $4,000 to $44,500 for a barndominium foundation, including excavation.

Extra landscaping work to prevent flooding, such as the installation of a French drain system or the addition of a concrete foundation for a garage can increase the price of the installation.

Part 3: Labor

Labor costs make up 35 percent of a barndominium's construction cost. The final labor cost depends on the size of the barndominium and the complexity of the build. It also depends on the size of the crew required to get the job done and the length of time they're on-site.

Part 4: Construction Materials

It's estimated that approximately 40 percent of a barndominium's budget goes toward construction materials. These include framing kits, siding, roofing, doors, plumbing, wiring, and drywall.

A barndominium kit costs between $5,000 and $350,000. With such a large price range, this is a price-influencing factor for homeowners to pay attention to. The total cost of construction materials depends on the type and quality of materials used as well as the amount of design the home requires.

Part 5: Finishing Materials

Finishing materials complete the look of a barndominium. When added together, their costs make up the final 10 percent of a barndominium construction budget. Finishing materials can include bathroom fixtures, cabinetry and hardware, countertops, furniture, kitchen appliances, light fixtures, paint, shelving, trim and crown molding, and window treatments.

Part 6: Miscellaneous

- Permits for a barndominium add $1,200 to $2,000 to the budget.
- Predesigned barndominium plans cost between $1,500 and $2,000.
- Working with an architect on a floor plan can cost up to $4,500.
- Installing a new septic tank costs between $3,280 and $10,680.
- Property owners can expect to pay anywhere between $1,000 and $30,000 to add utility services to their lot.

Building Size and Price to Build

The cost to build a barndominium is heavily influenced by the size of the building. The larger a barndominium, the higher its construction costs will be. Additional materials, labor, and other factors like permits and inspections can all add up faster for a larger barndominium compared to a smaller model.

Estimate to Build a 80' x 120' Shop in Southern Minnesota:

Local construction company	
Base bid	$256,237
Adders	$7,589
	$7,500
Labor	$70,000
Concrete	$165,900
Rough total	$500,226
$/sqft total	$52.84

National construction company	
Base bid	$537,894
Adders – discount added	- $55,000
Concrete	$165,900
Rough total	$648,794
$/sqft total	$67.58

Morton Buildings with Living Quarters Price Guide

- **Size**: Generally speaking, the bigger the building, the higher overall price you can expect to pay. The consultant will give you a general idea of the cost of the project based on the building plans.
- **Location**: The location where the building will be placed will have a major impact on the overall price. Zoning issues, building codes and permits will all have a direct reflection on the final price of your Morton home.
- **Site**: Many lots will need to be properly prepared for construction. A sales consultant will analyze your site to determine what work needs to be done, if any.
- **Features**: As mentioned previously, you'll have a variety of features to choose from that will reflect on the final cost of the project.
- **Project Scope:** Several professionals will be needed to help you finish a project: plumbers, electricians, inspectors and so on. Morgan's consultants will talk to you about the project, and they also offer a turnkey construction.

Metal Building Homes Barndominium Build Kit

You'll find larger high-end builds costing $300,000 or more, and you'll also find other builders that will charge you $85 per square foot for a complete build-out. This would include the building materials, high-grade finish, and the concrete slab.

> If you wanted just the basic shell with living quarters, you can find prices as low as $26 per square foot.

A basic shell will include the slab, building, plumbing, metal or wood, electrical stub outs, vents, sinks, showers and washrooms. This is not a complete finish, so you'll need to do a lot of framing work inside yourself or hire a general contractor.

You'll also find a shell that has been completely built and ready for finish for around $35 a square foot.

Building Guide Shop House Build Kit

40x60 Shop Houses

With either 2,400 sq ft on one level or 4,800 square feet on two levels, a 40x60 shop house can be configured with either two or three bedrooms and have 1,200 sq ft of clear span workspace. All Shouses are customized to your specs. Get started with competing quotes from our vetted suppliers.

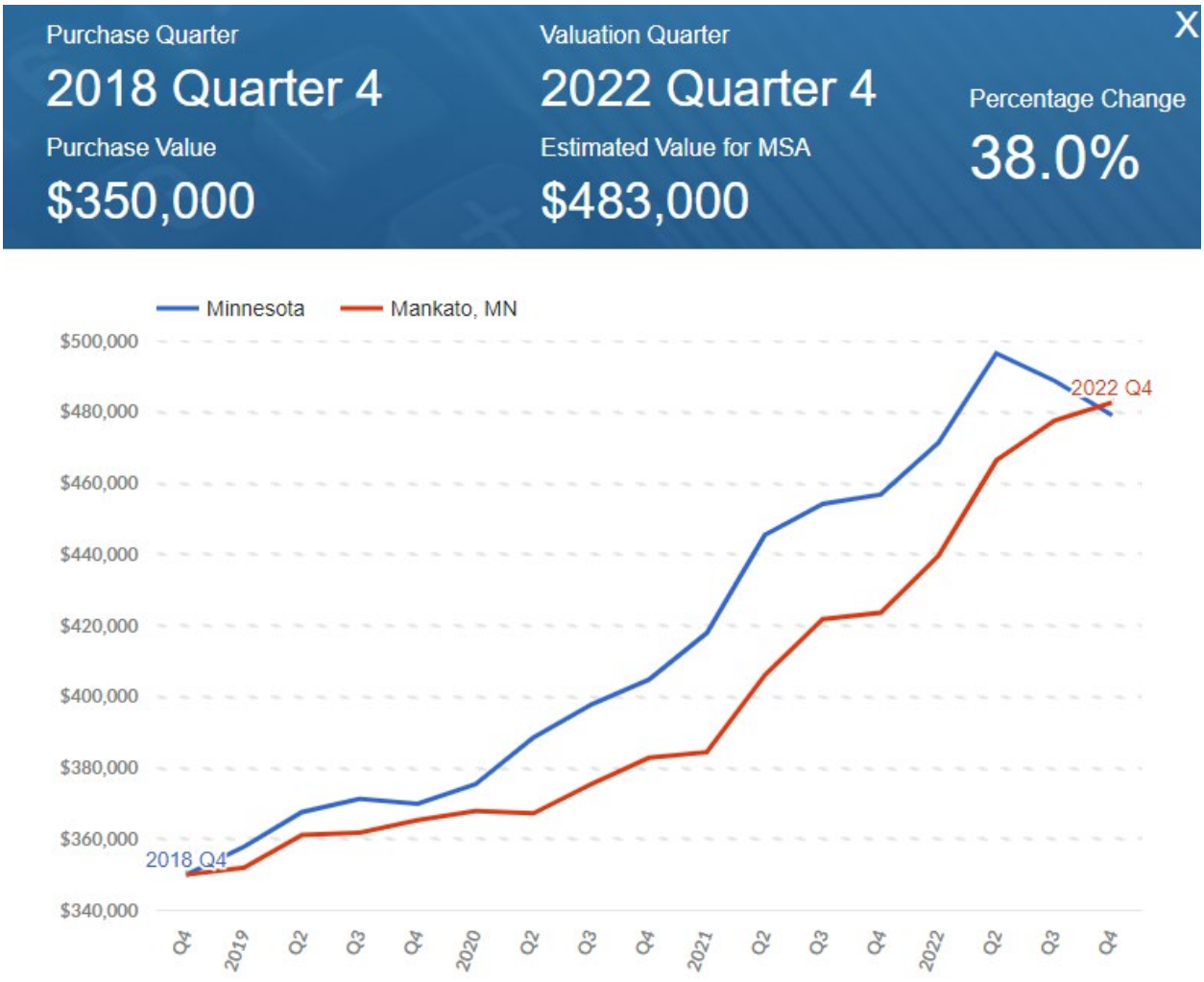
Two Bedroom Shop Home
BuildingsGuide ©

INSTALLED SHOUSE KITS FROM: **$25 - $50** PER SQ FT

Resale of Barndominiums

Some factors to look at:

- Age of home
    - Newer built homes will hold value for longer.
- Special features:
    - Energy efficient appliances
    - Outdoor living space
    - Storage space
    - Hardwood flooring
    - Extra doors for garage
    - Heating type
        - Many barndominiums with large garages will have geothermal heat. Some will have regular space heaters in the garage portions of the home.
- Building quality / durability
    - Metal barndomiums will be more durable than wood.
- Cost to build
    - High cost usually equates to higher quality materials and size.
    - Good to use for looking at correlation.
- Current condition
    - Concrete condition is important; no cracks or damage is going to be valued higher.
- Location
    - Locations with more demand will see prices sustain in value.



Looking at the price of a pole building with living quarters purchased in Martin County for $350,000, the FHFA (Federal Housing Financing Agency) calculator shows that the house purchased in 2018 would've appreciated 38% by Q4 2022. The difference in percent change is only based on region.

What Will Hurt the Value of a Barndominium

- Improper maintenance, especially with the exterior of the property
- Issues with landscaping
    - Many barndominium buyers will pay attention to the surrounding land the home is on

Conclusion

- Barndominiums and shop houses are often misunderstood and misclassified.
- The terms are often interchangeable, but the key factor between both is the use of pole framing.
- It's important to pay attention to the cost to build as well as factors involved in the property's resale value.
- Most pole buildings with living quarters will be found in rural areas, and the general market conditions for that region will apply to these homes.
- Pole buildings with living quarters are becoming more common in Minnesota, and it's important to see existing examples to appraise in the future.

Notes

Sources

1. What Is a Shop House & Who Builds the Best? (polebarnhouse.org)
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10. https://www.fhfa.gov/DataTools/Tools/Pages/HPI-Calculator.aspx
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Module 4: Log Homes

Log Homes

By definition, the single most predominant characteristic of log homes is… logs.

When you close your eyes and think of a log cabin or home, what do you see?

The rustic home of early settlers? Or an oasis of wood?

Both are examples of what you can find in log home designs – along with everything in between.

The longevity and strength of log homes is evidenced in the well-built log structures of Norway and Russia, some of which are still standing and used after more than 800 years. The integrity of log home structural design is essential to a long-lived legacy, and a look at structural components is critical.

Points of consideration we will discuss in this module include:

- Choice of what logs to use – understanding the differences and characteristics of various species.
- Building styles – home, cabin, or summer cottage.
- Who is building log homes?

Choice of Logs to Use

There are over seven hundred species of trees in the USA, yet manufacturers only use roughly two dozen of them to build log homes. So, how do you know which species to opt for if you do need to source logs?

Choosing the right logs is an important decision that needs to be made at the beginning of the log home planning process. The logs will determine the overall look and structure of the finished log home, the cost, and how well the home will withstand Mother Nature.

Deciding which species of tree should be used to build a log home will fall to several key factors: appearance, cost, R-value, decay resistance, sturdiness/stability, and availability.

Appearance

The look of the logs, and what a home builder finds attractive, is very much dependent on personal taste. However, it must also be considered that the appearance of logs can change when preservatives are applied or through weathering.

If a builder is selecting their own logs, they will want to make sure they are straight and have a good length of around 10 to 12 meters.

Cost

The cost of logs can vary quite largely depending on the species.

Usually, slow-growing species such as northern white cedar are more expensive, while fast-growing species such as yellow pine are less expensive.

The price can also be affected by the area in which a home builder lives. If a species of wood is not readily available in the building location, there will be the added cost of transportation.

R-Value

Insulation efficiency varies in different species of logs; however, the difference is only very marginal, and there are lots of other ways to insulate a log cabin and make it as energy efficient as possible. Therefore, the species of log chosen won't have a huge impact on R-value.

Decay resistance

Trees produce their own natural decay resistance through toxins. These toxins help the tree to resist attack from insect infestations and fungi.

The older the tree, the higher the concentration of toxins. Therefore, the more heartwood a tree has, the more resistant it is to decay.

Fast-growing species have more sapwood, so are typically less resistant to decay. However, these species should not be ruled out, as they are easy to protect and maintain with wood preservatives.

Even the most naturally highly resistant species such as cypress, redwood, and western red cedar will still require treatment and maintenance.

Stability

Almost all logs are likely to shrink and settle. Other concerns are that they may twist, warp, and check. These concerns can be avoided by choosing appropriate good-quality logs during the selection stage, thus ensuring a log cabin is stable and sturdy.

Availability

Log choices will very much depend on what is available in a given local area, unless a builder is willing to pay a premium for transportation costs. Once the species of log has been chosen, the home builder will want to consider where the trees have been grown and how they are cut and dried.

Where the trees are grown

The higher the altitude at which the trees grow, the better.

Slow-growing trees produce much more dense wood and have tight growth rings, which usually yield fewer cracks as the logs are drying.

Many trees are now grown in tree farms to keep up with the demand. This results in less decay-resistant trees, as they have not had the time to develop as many concentrated toxins as a tree grown over a longer period of time.

Additionally, trees that are grown quickly are more likely to be mostly sapwood, which will lead to a log cabin which is prone to shrink and warp more substantially.

When and how the wood is cut

Logs should be felled in the winter to make sure the sap content is at its lowest.

If a builder is buying logs from a manufacturer, it is important to also ask which cut off the log they use.

Although more expensive, you ideally want the cut to be mostly heartwood, the strongest part of the tree, and not the sides of the log.

How the logs are dried

All logs have moisture when freshly cut. The logs in log houses have a varying degree of moisture content. In the case of handcrafted logs, moisture will naturally leave the timber, drying it out until it stabilizes with its climate. This drying-out causes movement and shrinking of the log's diameter. As logs and timbers dry, the differential shrinkage (radial versus tangential) causes small cracks known as "checks" to open slowly over time. Checking is a natural process in both air- and kiln-dried logs. This occurs in all log houses regardless of construction method or how the timber is allowed to dry and is considered normal.

There are three main types of drying:

- Green drying – After construction, green logs dry in service during use of the log building. Within about four years, green logs reach equilibrium with local conditions and have moisture content between 6% and 12% depending on local climate, season, and location.

- Air dried logs – Fresh cut logs are allowed to sit outside in the open air to dry naturally. The timbers are stacked with spacers known as “stickers” between them. This process allows the moisture to fall as the timber dries. A log with a diameter of 8 inches will usually reach equilibrium in about 18 months. Air circulation is critical, or the logs may begin to rot before properly drying, especially in humid regions. The logs must be kept under some type of cover to reduce the impact of rain and snow elements on the drying process.

- Kiln dried logs – Green timber is placed inside a large oven, where the moisture is removed from them. These logs can suffer severe checking and cracking if the kiln controls are not properly

maintained and monitored. Use of a kiln can reduce the drying time from many months to several weeks. Kiln dried logs can be expected to shrink and settle over time, but to a lesser extent than green logs.

Log Types

Logs are a renewable resource. Wise and selective use of trees and forestry practices must be seriously re-evaluated. Clear-cut practices, reforestation, and selective logging are all influencing what logs are available.

The log builder can make efficient use of our forest heritage. Building with logs can make sense. What logs are used and how buildings are built can prioritize and ensure logs are most efficiently and effectively used.

The most popular logs used to build log homes are very much dependent on the trees grown in each area or the availability and cost of trees in a particular area. These are the most common trees used in each region:

- North America:
    - Pine (white, yellow, and red)
    - Eastern or Western White Cedar
    - Cypress
    - Spruce
    - Fir
    - Hemlock
    - Ponderosa Pine
    - Lodgepole Pine
    - Hardwoods such as Oak, Poplar, and Walnut

- Europe:
    - Spruce
    - Pine

- Australia:
    - Douglas Fir
    - Cypress
    - Larch
    - Redwood

It is a difficult call to determine any one species as the best for building, as choosing logs is very particular to the individual and the area in which one is intending to build.

The following table breaks down details of each species of tree.

Wood Species	Appearance	R-Value (Per Inch)	Cost	Decay Resistance	Stability	Availability
Atlantic White Cedar	Heartwood - light brown Sapwood -- white/ off-white	1.41	Finer grade of wood - expensive	High decay resistance	Shrinkage rate is small.	Northern Carolina, Gulf Coast
Northern White Cedar	Heartwood - light brown Sapwood -- white/ off-white	1.41	Expensive	High decay resistance	Shrinkage rate is small.	Maine Great Lakes states
Western Red Cedar	Heartwood - reddish or pinkish brown to dull brown	1.09	Expensive	High decay resistance	Shrinkage rate is small.	Washington, Oregon, Idaho, Montana, Europe
Cypress (Red and Yellow)	Heartwood - varies in color, from light yellowish brown to chocolate Sapwood - nearly white.	1.04	Very expensive	One of the most decay-resistant woods	Shrinkage rate is moderately small.	Southern and south Atlantic states, Australia
Douglas Fir	Heartwood -- red and blond color	0.99	Moderately -- expensively priced	Moderately decay resistant.	Shrinkage rate small to moderate.	Oregon, Washington, California, Australia
True Fir	Heartwood and sapwood - wood creamy white to pale brown	1.27	Usually not available in large enough diameter to build a log home.	Low decay resistance.	Shrinkage rate small to moderate.	Balsam fir in New England, New York, Pennsylvania, Great Lakes states; Fraser fir in Appalachian regions of Virginia, North Carolina, Tennessee.
True Fir (Western Species)	Heartwood and sapwood - wood creamy white to pale brown.	0.99	Moderately -- expensively priced	Low decay resistance.	Shrinkage rate small to moderate.	Washington, Oregon, California, western Montana, northern Idaho.
Eastern Hemlock	Heartwood - pale brown/red. Sapwood -- slightly lighter in color.	1.16	Moderately priced	Low decay resistance.	Doesn't usually twist or check but prone to wind shake damage.	New England, Mid-Atlantic states, Great Lakes states
Western Hemlock	Heartwood and sapwood - white with a purplish tinge.	1.16	Moderately priced	Low decay resistance.	Shrinkage rate is moderately high.	Pacific Coast of Oregon and Washington, from northern Rocky Mountains north to Canada and Alaska.
Larch	Heartwood - yellowish brown. Sapwood - yellowish white.	0.99	Moderately priced	Moderate decay resistance	Shrinkage rate is moderately high.	Idaho, Montana, Oregon, Washington, Australia
Red Oak	Heartwood -- tan/ brown with a hue of red. Sapwood - nearly white.	0.79	Difficult to get satisfactory amount required to build. Moderately expensive.	Low decay resistance.	Shrinks quite substantially during drying.	Southern states, Southern mountain regions, Atlantic coastal plains, central states.
White Oak	Heartwood - golden tan/brown/brown. Sapwood- almost white.	0.75	Expensive to kiln dry due to size.	Moderate/ high decay resistance.	Shrinks quite substantially during drying.	South Atlantic, central states, southern Appalachian region.
Eastern White Pine	Heartwood - light brown	1.32	Moderately priced	Moderate decay resistance.	Shrinkage rate is small	New England, Great Lakes states, Middle Atlantic and South Atlantic states.
Lodgepole Pine	Heartwood - light yellow/light yellow brown. Sapwood -- yellow/almost white.	1.20	Modestly priced	Low decay resistance.	Shrinkage rate is around half that of other pines.	Central Rocky Mountain states, Idaho, Montana, Oregon, Washington.
Ponderosa Pine	Heartwood - light reddish brown. Sapwood -- almost white/pale yellow.	1.16	Modestly priced	Low decay resistance.	Shrinkage rate is moderately small.	Oregon, Washington, California, Montana, Idaho, southern Rocky Mountains, Black Hills of South Dakota, Wyoming

Red Pine	Heartwood - pale red/reddish brown. Sapwood – almost white with a yellow tinge	1.04	Modestly priced		Shrinkage rate is moderately high.	Maine, Vermont, New Hampshire, Rhode Island, Connecticut, Massachusetts, Wisconsin, Michigan, Minnesota, Indiana, Ohio, Illinois, New York, Pennsylvania.
Yellow Pine	Heartwood – reddish brown. Sapwood – yellow/white.	0.91	Quite cheap for floors and framing	Moderate decay resistance.	High shrinkage rate but stable once seasoned.	Georgia, Alabama, North Carolina, Mississippi, Arkansas, Louisiana. Europe
Western White Pine	Heartwood – cream/light reddish brown, darkens overtime. Sapwood – yellow/white.	1.32	Widely available in big quantities- less expensive than other pines.	Low decay resistance.	High shrinkage rate but stable once seasoned.	Idaho, Washington, Montana, Oregon.
Yellow Poplar	Heartwood – yellow/brown. Sapwood – white.	1.13	Not usually available in large quantities.	Low decay resistance.	Moderately large shrinkage rate	South America
Redwood	Heartwood - light cherry to dark mahogany. Sapwood – almost white.	1.0	Expensive	High decay resistance.	Small shrinkage rate.	California coast Australia
Spruce	Little distinction between heartwood and sapwood – light in color	1.16	Construction grade is cheap, good quality logs more expensive.	Low decay resistance.	Moderate shrinkage rate.	New England, Appalachians Great Lakes states, New England, Europe
Englemann Spruce	Heartwood – white/slight tinge of red. Sapwood – similar to heartwood	0.99	Construction grade is cheap, good quality logs more expensive.	Low decay resistance.	Moderately small shrinkage rate.	Rocky Mountain states, Oregon.
Black Walnut	Heartwood - light to dark brown. Sapwood - almost white.	Not available	Expensive to kiln-dry.	High decay resistance.	Shrinks quite substantially during drying.	Central States of America

To summarize, log home builders should consider the following when deciding upon a type of wood species:

- Appearance
- Cost
- Insulation (R-Value)
- Decay resistance
- Stability
- Availability based on location

Regardless of which logs are chosen to build a log home, one also needs to ensure that a log home is well designed during the planning process to allow for shrinkage, that the logs are treated appropriately before construction, and that the logs are maintained regularly upon completion.

Log Profile Styles

The timbers cut for a log home can be shaped into one of many profiles. These timbers are stacked horizontally to form the walls of the home.

Depending on the log's profile, these logs can be affixed by any number of spikes, nails, or fasteners on the market. The logs can also be "tongue & groove," where cuts to a log's bottom edge fit into a protrusion created in a lower log's top. Some log home manufacturers also use chinking between horizontal logs. Depending upon the manufacturer's system, chinking can be either functional or cosmetic:

Different log profiles can include:

1. **Square & Rectangular Log:** Logs are cut with four square corners. These logs can be uniform in width and height or rectangular.

2. **Round Log:** Logs are cut circular, with no angles or corners. Round log homes often use thru bolts for support. Logs cut circular on each end but with a flat top and bottom are often called "round/round" or "double round" logs.

3. **Swedish Cope:** Logs are cut circular, with a crescent removed from the bottom of the log, so that each log can stack atop another.

4. **D-Log:** Logs are cut with one round side and one flat side for consumers who desire one side of a log wall to have a flat surface while the other retains a rounded edge.

5. **Handcrafted:** Timbers are debarked by hand, and each log retains its natural shape. Handcrafted log homes are built so each log is in a precise location in the home, allowing for maximum stability while retaining a rustic look.

Corner Styles

1. **Interlocking Corners:** Wood is cut from the four sides of a log, recessing an area to lock into the intersecting log and hold both logs rigidly in place in all directions. This style is similar to the Lincoln Logs you may have played with as a child.

2. **Saddle-Notch Corners:** Used with the Swedish cope profile, an additional crescent is cut from each log to allow logs from the opposing wall to lock into place at the corner.

3. **Dove Tail:** A log's end is cut to produce a fan-shaped wedge. As the logs are stacked, the ends of one wall's logs lock into the perpendicular logs.

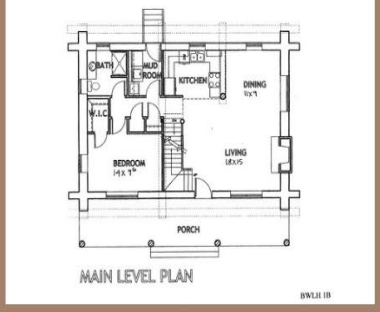
4. **Butt & Pass:** One log stops where it meets a perpendicular log, which extends past the corner of the home.

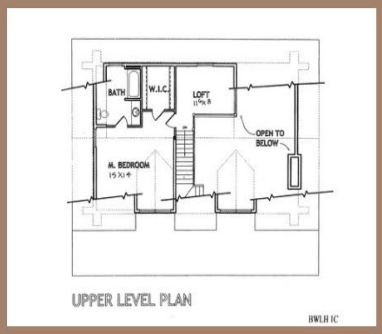
5. **Corner Post:** A vertical post at each corner has a mortise along its length into which the logs lock.

Plans

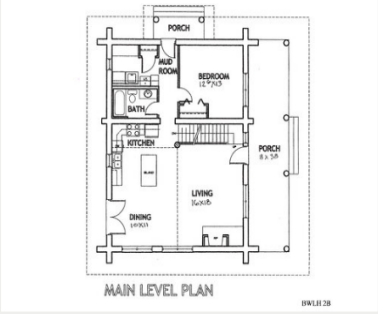
In addition to choosing wood species and construction styles, a log home builder has a variety of plans to choose from. Below, you will find some examples of log home plans.

Plan #1 - Mountain Escape

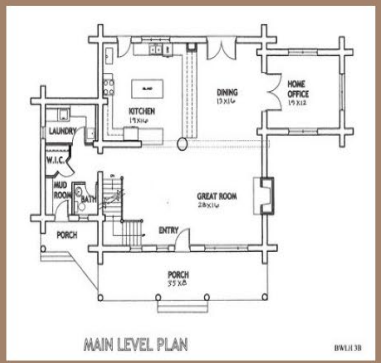


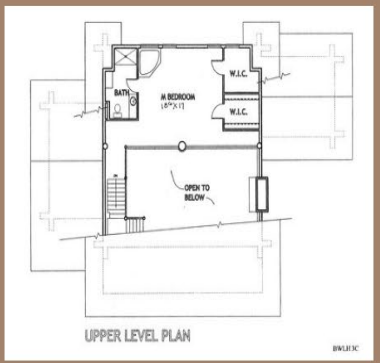


Plan #2 - The Monterey

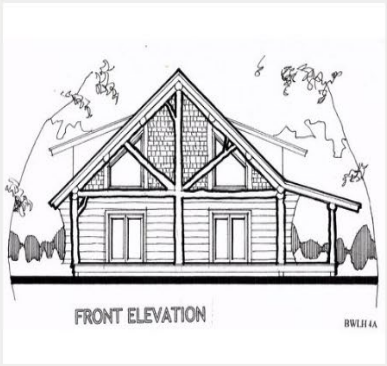


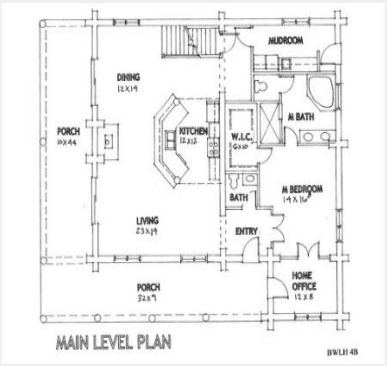
Plan #3 - The Red Pine



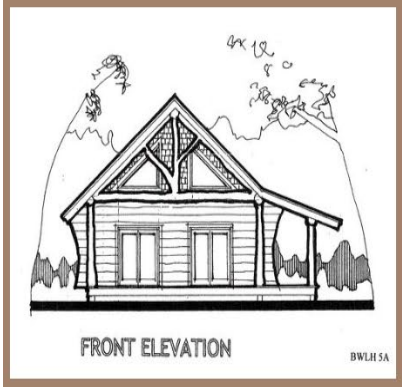


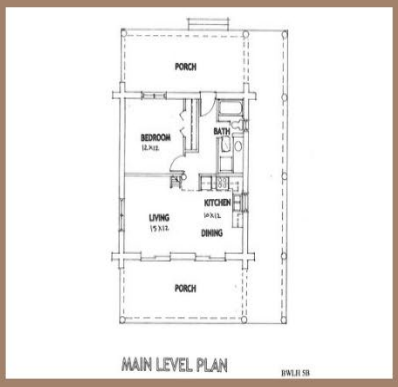
Plan #4 - The Aspen

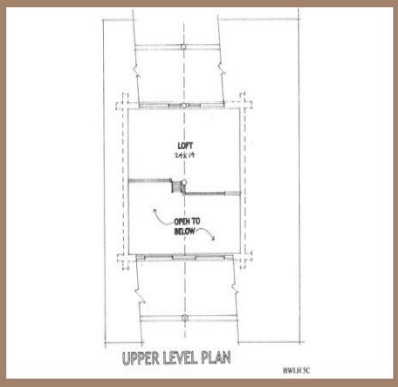




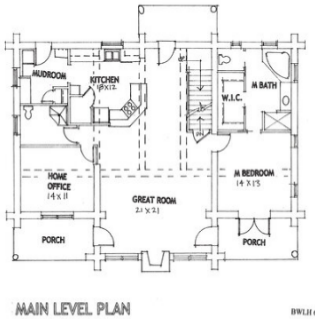
Plan #5 - The Getaway

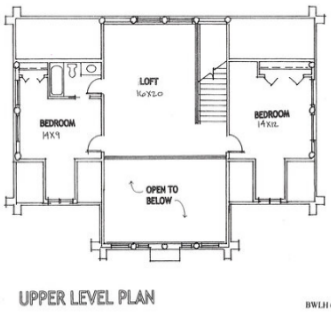






Plan #6 - The Retreat





Regardless of whether your idea of a log home is simple or elaborate, there is a plan and style for everyone.

Construction

Be it a cabin in the woods or a full-time residence, there are tools that are standard with log-built homes and stick built homes. The below list was taken from a log home building seminar and contains some more specialized tools that are universal in their use for log homes.

Log Building Tools:

1. Draw knife – Barr or Timber Tool drawknives are recommended (9” or bigger)
2. (Optional) Chisel – mortise or framing chisel (1”, 1 ½” or 2”)
3. Mallet
4. Scriber – There are a few different options on Schroeder Log Home Supply, but we recommend the Robert Chambers scriber.
5. (Optional) Log cleats (two sets)
6. 4 or 5-inch angle grinder with separate rubber/plastic sanding backer and #24 or #36 grit discs
7. Chainsaw and accompanying tools: scrench (screwdriver-wrench combo), files. Saw should have 16” or 18” bar with .325 pitch. For log building the chain should be chipper or semi-chisel with rounded profile and should be an official, green-linked safety chain
8. 2 gallons of mixed gas for the chainsaw and 1 gallon of bar and chain oil
9. (Optional) Peavey with a 4- or 5-foot handle
10. Utility knife
11. Tape measure (25 -50 foot)
12. Chalk line with black or blue chalk
13. 2’ level
14. Lumber crayons and pencils
15. Prybar
16. 100’ extension cord

Safety Gear:

1. Hard hat with face shield
2. Hearing protection (usually the hardhat will have earmuffs built in)
3. Safety glasses
4. First aid kit
5. Leather gloves
6. Chainsaw protective chaps
7. Steel toed boots

Examples

721 107th St, Roberts, WI 54023
Expired listing 5/8/2014 & 4/15/2015
Listed $1,250,000

Log home nestled on 53.96 acres & 3000' lake frontage. Private road to 2BR/2BA home surrounded by wild life. Bunk House above detached garage. One of a kind retreat!

46696 Otter Shores Road, Candor Twp, MN 56587

Active 11/29/2022 list

$975,000

If you like the outdoors and privacy, this is the spot for you! This property features over 800 feet of lake shore on Otter Lake and over 16 acres of woods. Otter Lake has excellent pan fishing, as well as bass and northern. Otter is a private lake with no public access and minimal owners on the lake, with the opportunity to hunt deer or turkey without leaving your property. Otter Lake also has good water clarity, so you can swim, relax, and enjoy listening to the loons. This property is a beautiful real log home with an Open floor plan, a large loft area, and a walkout basement. Home has a large deck with a wonderful view of the lake. You'll love this 3-bedroom, 3-bath home with additional square footage to finish in the lower level. This would make a great retreat to enjoy the outdoors and relax!








Notes

Module 6: Executive Homes

Executive Homes

Executive homes are a type of home that is intended to provide the occupant with higher-than-average levels of comfort, quality, and convenience.

Originally, mansions (which is derived from the old French “manse” - a dwelling) were built as fortresses by the wealthy for protection.

In Europe, from the 15th century onwards, a combination of politics and advances in weaponry negated the need for the aristocracy to live in fortified castles. As a result, many were transformed into mansions without defenses or demolished and rebuilt in a more modern, undefended style.

What is and was generally exceptional about the locations is that they are large, multi-acreage, non-tillable sites that were often difficult to build on or had panoramic views.

Features and Amenities

The primary “rule of thumb” with executive home properties is that they have excellent quality and craftsmanship with high quality features, unique locations and amenities, superior fenestration, curb appeal, etc.

Valuation Techniques

- **Deep Research**
  - How far back have you looked? You may need to look at similar locations further away than normal.
  - Have you looked for older, similar sales? Past months? Past years?

- **Previous Subject Sale**
  - Has the property been sold before?
  - How do prior sales prices compare?
  - How does this property fit into the context of the market?

- **"That One Feature…"**
  - Extra features that are less common for the neighborhood
  - Cost of the feature may be far more than the actual value it adds
  - May not be able to find exact feature matches, but can you find something similar?

- **Competitive Areas**
  - How sparse/abundant are sales in this neighborhood?
  - Where else would a buyer consider purchasing?
  - If neighborhoods are truly competitive, prices may be similar over time in multiple areas

- **Bottom & Top**
  - Where are the top and bottom of the price market in a neighborhood?
  - May give context for where the value of a property is likely to fit (even a wide range may be better than nothing)

- **Ask for Advice**
  - Seek out others who have previously valued a similar property
    - Who did they talk to? Where did they go for comps? What was challenging for them?
  - Contact high-end builders
  - Look at outlier classwork (e.g., IAAO, MAAO, AI)

- **Target Buyer**
  - Who do you think is the target buyer for this property?
  - Range of Value
  - For out-of-the-ordinary properties, identifying a precise value may not be realistic
  - What range of values would apply to this home?

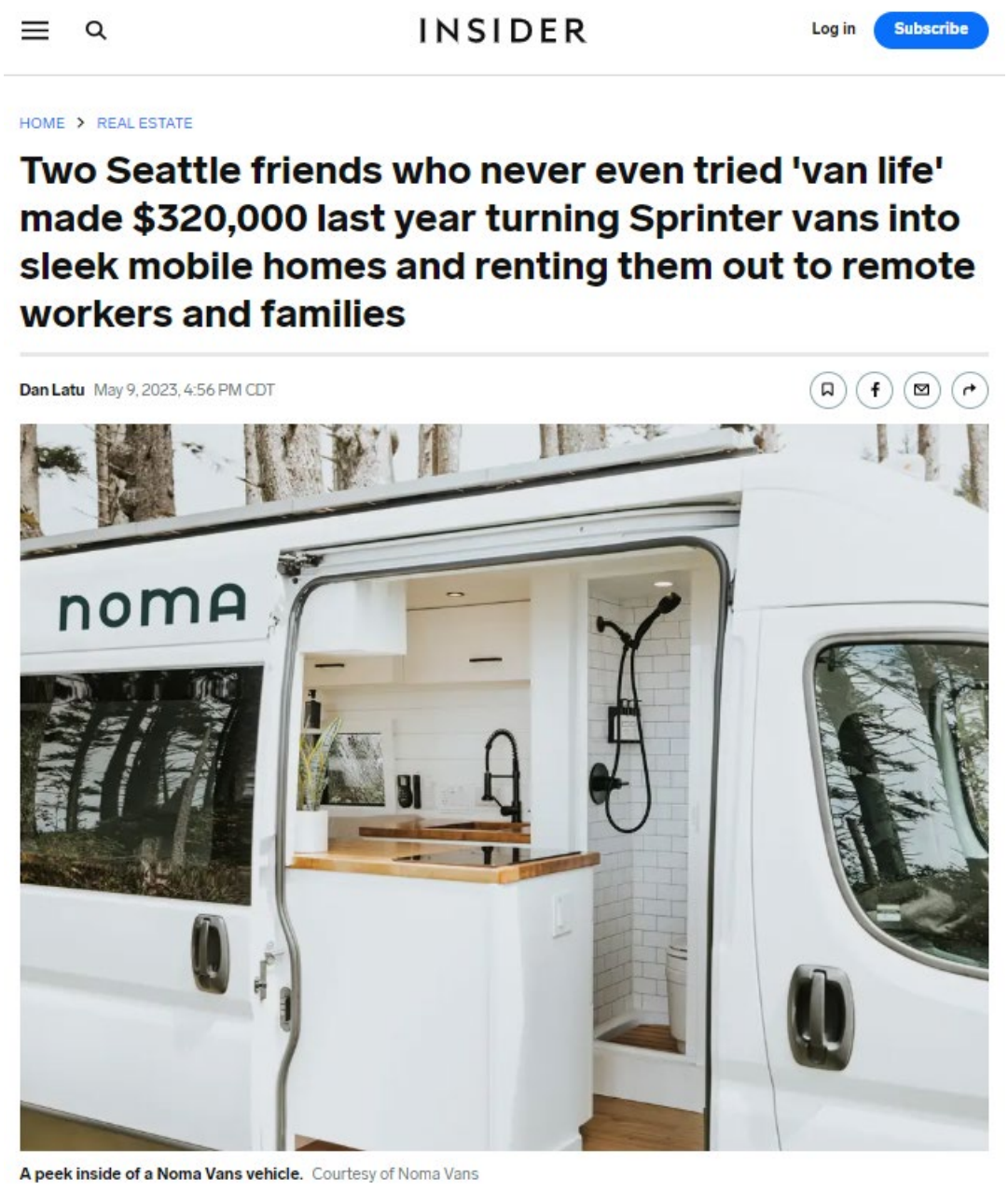
Notes

Module 7: Tiny Homes

The 2021 Census Bureau data reports that the average size of a new home in the U.S. was 2,400 square feet – twice as much space as British, Italian, and Japanese houses, and three times more than homes in Russia and China.

That being said, some people are bucking the big house trend.

In this module, we'll explore some of the pros and cons of the tiny home trend.



Tiny Homes

According to the Minnesota Department of Labor and Industry, tiny houses are loosely defined as ranging from about 100 to 400 square feet.

Tiny houses get fourthly 240,000 Google searches every month. The “movement”, as it’s called by tiny home owners and enthusiasts, as at least three TV shows as of 2023 dedicated to tiny house living:

- Tiny House Hunters
- Tiny House Builders
- Tiny House Nation

There are a number of reasons homeowners choose the tiny home movement:

- Homeownership without a mortgage
- Portability
- Smaller environmental impact

As with other homes, tiny houses are regulated by building codes, zoning codes, and the Department of Housing and Urban Development. The following pages contain a Minnesota Department of Labor and Industry tiny houses pamphlet put together in 2020.

TINY HOUSES AND THE 2020 MINNESOTA RESIDENTIAL CODE

Minnesota Department of Labor and Industry

OVERVIEW

"Tiny houses" have received a lot of attention and interest in recent years. The following information is provided to clarify how these small structures are regulated by the Minnesota State Building Code. The Minnesota State Building Code is the standard of construction that applies statewide for the construction of buildings (MS 326B.121) including tiny houses.

Loosely defined, tiny houses range from about 100 to 400 square feet. The following describes how these houses are regulated by building codes, zoning codes and the Department of Housing and Urban Development (HUD).

The trend of tiny houses has received a lot of attention in recent years. This handout is provided to clarify how these small structures are regulated by the Minnesota State Building code.

ZONING REQUIREMENTS

Municipalities establish zoning ordinances to regulate land use, location, height, width, type of foundation, number of stories and size of buildings. These zoning ordinances vary by municipality.

Minimum building size varies from areas of 500 to 2,000 square feet. Jurisdictions may also require minimum lot sizes related to the house size. Sometimes there are minimum house size requirements such as 24 feet by 24 feet or a minimum dimension of 20 feet. Because of these varying requirements, the jurisdiction must be consulted for specifics

BUILDING CODES

The Minnesota Residential Code includes Appendix Q, Tiny Houses. The "code," for the purpose of constructing houses, means the 2020 Minnesota Residential Code. It is the standard that applies statewide.

The 2020 Minnesota Residential Code defines a dwelling as a single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation. Appendix Q defines a tiny house as a dwelling 400 square feet or less in floor area excluding lofts. The code includes requirements for light, ventilation, heating, minimum room sizes, ceiling heights, sanitation, toilet, bath and shower spaces, emergency escape and rescue openings, means of egress, smoke alarms and carbon monoxide alarms.

Other codes related to house construction include:

- Minnesota Energy Code
- Minnesota Mechanical Code
- Minnesota Electrical Code
- Minnesota Rules Chapter 1303
- Minnesota Plumbing Code

DEPARTMENT OF LABOR AND INDUSTRY
CONSTRUCTION CODES AND LICENSING

Construction Codes and Licensing Division
Web: www.dli.mn.gov Phone: 651-284-5012

This flier is an overview of guidelines for tiny houses in Minnesota and can be provided in different formats by calling 651-284-5012 or 1-800-657-3944.

PREFABRICATED BUILDINGS

Minnesota Rules, Chapter 1360

Tiny houses constructed as prefabricated buildings must comply with the requirements of Minnesota Rules Chapter 1360 and be designed and constructed in accordance with the Minnesota Residential Code. Review of building plans and inspections are performed by the Minnesota Department of Labor and Industry. The completed building requires a Minnesota prefabricated building label.

Example prefab construction label - located under kitchen sink.

Prefabricated building manufacturers are permitted to build three or fewer buildings per year. Construction of more than three buildings is regulated by Minnesota Rules Chapter 1361 for industrialized/modular buildings.

A data plate must be attached to the dwelling that includes the following minimum information:

- design loads
- codes
- IIBC label numbers
- serial numbers
- model designation
- date of manufacture
- name and address of manufacture
- occupancy and type of construction.

All on-site work is subject to local jurisdiction and inspections according to the Minnesota Residential Code.

INDUSTRIALIZED/MODULAR BUILDINGS

Minnesota Rules, Chapter 1361; Interstate Industrialized Buildings Commission (IIBC)

Tiny houses constructed as modular buildings must comply with Minnesota Rules Chapter 1361 and the Interstate Industrialized Buildings Commission (IIBC). These modular dwellings must be designed and constructed in accordance with the Minnesota Residential Code. Review of dwelling plans and in-plant inspections are performed by a certified IIBC third-party agency.

Modular buildings must have IIBC construction labels on each building section or every 600 square feet of closed panels.

A data plate must be attached to the dwelling that includes the following minimum information:

- design loads
- codes
- serial numbers
- IIBC label numbers
- model designation
- date of manufacture
- name and address of manufacture
- occupancy and type of construction.

Example IIBC label - located inside each home section.

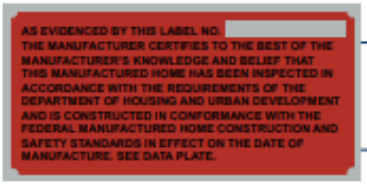
All on-site work is subject to local jurisdiction and inspections according to the Minnesota Residential Code.

HUD MANUFACTURED HOMES

Tiny houses constructed as a manufactured home must comply with U.S. Department of Housing and Urban Development (HUD Code). "Manufactured home" means a single family dwelling in one or more sections, which in the traveling mode is 8 body feet or more in width or 40 body feet or more in length, or, when erected on site, is 320 or more square feet, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities.

A data plate must be attached to the dwelling unit to include the following as a minimum:

- design loads
- codes
- label numbers
- serial numbers
- model designation,
- date of manufacture
- name and address of manufacturer



Example HUD construction label - located on exterior of each section.

Review of dwelling plans and in-plant inspections are performed by HUD-certified third-party agencies. All on-site work is subject to the local jurisdiction and inspections according to the Minnesota Residential Code.

SITE-BUILT STRUCTURES

Tiny houses constructed on site are regulated by the Minnesota State Building Code. The dwelling construction must comply with all the requirements of the Minnesota Residential Code.

The Minnesota Residential Code can be viewed at http://codes.iccsafe.org/app/book/toc/Minnesota/Residential/index.html.

NOTE:

Recreational park trailers, or park models, are designed as **temporary** living quarters for recreational, camping or seasonal use but not as year-round dwellings. These trailers are often constructed to ANSI standard (A119.5) and are self-certified by the manufacturer.

MINNESOTA RESIDENTIAL CODE

The following code references provide general code requirements related to dwelling construction. The dwelling must comply with all applicable requirements of the Minnesota State Building Code.

General requirements

R202 – Definition of dwelling unit and habitable space.

Dwelling unit: A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

Habitable space: A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces.

R301.1 Application.

Buildings and structures must be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads prescribed in this code. The construction of buildings and structures in this code must result in a structure that transfers all loads from their point of origin to the foundation.

Continues on next page.

General requirements, continued.

R303 – Light, ventilation and heating
Habitable rooms must have 8 percent of the floor area as natural light and 4 percent of the floor area as natural ventilation (see exceptions).

Bathrooms must have 3 square feet of natural light and 1.5 square feet of natural ventilation (see exception).

Mechanical ventilation must comply with Minnesota Rules 1322.

Dwelling must be capable of maintaining a minimum room temperature of 68 degrees at three feet above the floor and two feet from the exterior walls (excludes use of portable heaters).

R304 – Minimum room areas
Habitable rooms must be at least 70 square feet in area and not less than 7 feet in any direction (except kitchens).

R306 – Sanitation
Every dwelling unit must have a water closet, lavatory tub or shower and kitchen sink.

All plumbing fixtures must be connected to a sanitary sewer or approved private sewage system and an approved water supply.

Kitchen sinks, lavatories, bathtubs, showers, bidets, laundry tubs and washing machines must have hot and cold water.

R307 – Toilet, bath and shower spaces
See the Minnesota Plumbing Code for required plumbing fixture clearances.

Bathtubs, shower floors, and walls must have a nonabsorbent surface a minimum of 6 feet above the floor.

R310 – Emergency escape and rescue openings
Basements, habitable attics and every sleeping room must have at least one operable emergency escape and rescue opening of 5.7 square feet. (See code for minimum dimensions).

R311 – Means of egress
All dwellings must have a means of egress door with a clear width of 32 inches and a clear height of 78 inches.

A floor or landing is required on each side of exterior doors.

Exterior landings must be positively attached to the primary structure.

Hallways and stairways must have a minimum width of 36 inches.

Stair treads must be 10 inches minimum in depth, stair risers 7.75 inches in height, or as permitted in Appendix Q.

A floor or landing is required at the top and bottom of each stairway.

A handrail is required at stairs having four or more risers.

R314 – Smoke alarms
Smoke alarms are required in each sleeping room, immediate vicinity of the bedrooms, and on each additional story of the dwelling including basements and habitable attics.

R315 – Carbon monoxide alarms
Carbon monoxide alarms are required in every dwelling unit having fuel-fired appliances or attached garage.

MR 1322 – Residential Energy Code
Dwellings must comply with the Minnesota Energy Code.

MR 1346 – Mechanical Code
Dwellings must comply with the Minnesota Mechanical Code.

MR 1303 – Radon requirements
Dwellings must comply with Minnesota Rules Chapter 1303 for either passive or active radon control systems.

MR 1315 – Electrical Code
All electrical service, wiring and fixtures for the structure must comply with the National Electrical Code.

MR 4715 – Plumbing Code
Dwellings must comply with the Minnesota Plumbing code.

Appendix Q – Tiny Houses

AQ101 – Scope
Tiny houses used as dwelling units must comply with the Minnesota Residential Code unless otherwise stated in Appendix Q.

AQ102/R202 – Definitions
Tiny house: A dwelling that is 400 square feet or less in floor area measured from inside of wall to inside of wall and excludes lofts.

Loft: A floor level more than 30 inches above the main floor with a ceiling height less than 6 feet 8 inches and used as living or sleeping space.

AQ103 – Ceiling height
Habitable space and hallways must have a minimum ceiling height of 6 feet 8 inches. Bathrooms, toilet rooms and kitchen shall have a minimum ceiling height of at least 6 feet 4 inches.

AQ104 – Lofts (area and access)
Lofts used for living or sleeping require a floor area of 35 square feet minimum with a horizontal dimension not less than 5 feet. Loft ceiling heights less than 3 feet are not included in the minimum required loft floor area.

Lofts must have access by stairways, ladders, alternating tread devices, or ships ladders. (See section for specific compliance requirements).

Lofts guards are required on open side of lofts and cannot be less than 36 inches in height or one-half of the clear height to the ceiling, whichever is less.

AQ105 – Emergency escape and rescue openings (EERO)
Emergency escape and rescue openings must comply with Section R310. (See exception for loft roof access windows).

Tiny houses come in a variety of shapes and styles. A tiny home can be a log cabin in the woods, a luxurious waterfront cottage, or even a repurposed shipping container.

Tiny Homes on Wheels

One of the best-known manufacturers of tiny houses is the Tumbleweed Tiny House Company. Its four basic house models all have wood exteriors, some rustic in style and some modern. They range in size from 117 to 221 square feet, and all of them are mounted on trailers for towing. Buyers can have a house built to order or buy the plans and build their own.

Starting at $96,959 *Source: Tumbleweed Tiny House Company*









Starting at $94,959

Source: Tumbleweed Tiny House Company

Starting at $89,959

Source: Tumbleweed Tiny House Company


ROANOKE















Length	26′
Sleeps	2 + 2 in loft
Width	8′ 6″
Height	13′5″
Square Footage	225 + 89 in loft
Dry Weight	~13,300 lbs
Towing	1 Ton

Starting at $89,959

Source: Tumbleweed Tiny House Company

Other Minnesota Tiny Home Examples

Not all tiny homes are on wheels. Here are a couple other examples of the tiny home movement in the state.

Property Overview

Simplicity and freedom at its best. Have you been dreaming of your own piece of lane you can pursue a simple, abundant life on? This is it. Located on 1.65 acres of level ground, beautiful old growth pines and mature trees grace the land, with beautiful views of Island Lake right outside your door. The thoughtfully designed tiny home was created for efficiency and ease of living. Steel siding and roofing keeps maintenance to a minimum, while the warm cedar accents gracefully embrace the bespoke tiny home into the surrounding natural landscape. The tiny home is fully mobile, and well insulated with both spray foam and sheet foam insulation for winter coziness, while the skirting offers a buffer from the elements and provides you with year-round living. Everything about this Tiny Home is intentionally curated to live life LARGE. Begin your journey to MORE of less today!

MLS listing #6223401

48088 Blue Heron Trail, Rush City, MN 55069

Check out this unique 2+ acre property on Goose Lake with 151 ft of lakefront. Level walk to lake. Cabin with loft. Separate bathhouse with deck 16x10. Bathhouse built in 2020 has toilet, shower, washer and dryer. Bathhouse has a commercial grade stainless steel sink great for cleaning the day's catch. Bathhouse has spray foam insulation. Outbuilding with lean-to. Lean-to is tall enough to fit an RV/camper. Seller sees deer every evening. Pond on property with 19 turtles. Smaller extra storage shed. Seller leaving remaining personal items with the exception of some firewood. Tremendous room for expansion. With the right conditions access Upper Goose Lake, Lower Goose Lake, Mandall Lake and Robour Lake. Snowmobile for miles in the winter on the frozen lakes.

Van Life

In addition or complimentary to a wheeled or stationary building are other methods of tiny home living. Van, bus, box truck, and ambulance conversions are just a few examples.

When you think of van living, your first thought may be the Saturday Night Live sketch with the late Chris Farley. *Source: https://youtu.be/bXk3teJpzGU*

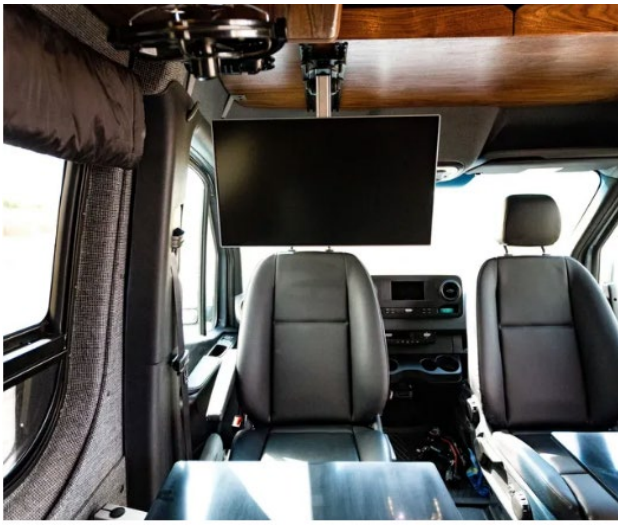
Joking aside, van life is an alternative lifestyle similar to living in a RV, tiny home, or houseboat. The van life movement is popular among digital nomads, minimalists, and outdoor lovers. Full-time van dwellers travel frequently and live in self-converted vehicles. These vehicles are often parked overnight on public lands for minimal or no fee. The owners are often remote workers or participate in the "gig economy" throughout their travels.

Van life, like the tiny home movement, is different for everyone. Some van dwellers live in homemade campers. Others spend thousands purchasing a rig from a professional campervan conversion company. There are also those who fall in between the two.

Example: Outpost Vans

One example of the custom-built campervan conversion companies is Outpost Vans. Some of the vans they convert include the Mercedes Sprinter, Ram Promaster, and Ford Transit.

Outpost Vans offers both rental services as well as customer conversions. The typical build averages between $50,000 and $80,000 just for the conversion. The van price is not included in this quote, and a build takes anywhere from 12 to 16 weeks to complete.


Source: www.outpostvans.com

Pros & Cons of Van Life

Much like a tiny home, van living has its own pros and cons often touted by those in the movement.

Benefits:

- Adventure – a new adventure awaits around every corner. Whether you are van-camping on the beach or in a nation park, no two days are the same.
- No strings attached – There isn't an additional mortgage; your payment reflects the mode of transportation you have.
- Meeting new people – Van life brings you close to nature and puts you in contact with other individuals who share your lifestyle.
- Nature – Van dwelling allows you to escape the hustle and bustle of city life and reconnect with nature.
- Customization – Van conversions can easily be customized according to your needs and preferences.
- Simplicity – Van life encompasses both living and transportation, whereas tiny homes are only geared toward the living aspect.

Drawbacks:

- Unexpected expenses – Mechanical issues and rising gas prices are examples. Adequate insurance coverage for a conversion van often requires both auto and homeowners.
- Additional stressors – Constantly dealing with new situations, finding places to park, temperature fluctuations, and lack of structure.
- Limited space – Van life means living in a small spacem often without luxuries like toilets and indoor plumbing.
- Privacy concerns – Parking in public areas or on a campground for convenience, accessibility, and other factors and amenities often means sacrificing privacy.
- Weather dependency – Safe and comfortable van life is heavily dependent on the weather, making it less appealing in cold or rainy climates.

Benefits of Tiny Home Living

Some benefits of small home living include:

- **Lower Expenses**. A tiny house costs a lot less to build than a full-sized one. According to The Tiny Life, it's possible to build a tiny house for an average of $23,000. The average price for a full-sized house, by contrast, is $272,000 – more than 10 times as much. Cutting back on housing expenses enables tiny house owners to put more money toward luxuries (such as travel), save for retirement by using what you might have been spending on a house payment to put into an IRA, or simply work less.

- **No Mortgage**. Most people can't afford to buy a house without taking out a mortgage, which only adds to the long-term cost. A 30-year mortgage at 4.5% interest raises the overall cost of the average house to $482,000. At 2023 interest rates and 3% down, this same house would cost nearly $632,000 over 30 years. The Tiny Life reports that 68% of tiny house owners own their homes free and clear, as compared to just 29% of all homeowners.

- **Lower Energy Use**. Tiny houses don't just cost less upfront – they're also much cheaper to maintain. Bills for electricity, fuel, water, and waste disposal are all much lower. In addition, it's much easier to live off the grid in a tiny house, since you can heat the entire space with a small wood stove and power it with a small solar array. Many tiny houses even have composting toilets, which break down waste without needing to be hooked up to a sewage system.

- **Freedom of Movement**. A tiny house has a small footprint, so it doesn't require a large plot of land. In addition, many small houses are built on trailers, so their owners can take them along whenever they move to a new city. For many people, this is a way to enjoy a life on the road without giving up all the comforts of home.

- **Easier Maintenance**. A tiny house is easy to take care of. With less space to clean and fewer appliances to repair, tiny house owners can spend less time on chores and more on their work, hobbies, and relationships.

- **Harmony With Nature**. The tiny house movement goes hand-in-hand with the environmental movement. Tiny houses require less material to build and less energy to power. Also, their small size makes them easier to site in a place that's close to nature.

- **A Simpler Life**. A tiny house doesn't have room for any kind of excess stuff: bulging wardrobes, elaborate electronics, and huge libraries of books and videos. Tiny homeowners pare their belongings down to the essentials, keeping only the items that truly enrich their lives.

Disadvantages of Tiny Home Living

A home with less than 500 square feet of space has a few drawbacks, which may include:

- **Less Living Space**. A tiny house doesn't have room for a full-sized luxury kitchen or bathroom. Tiny house owners often must "make do" without a bathtub or full-sized kitchen appliances, unless they're willing to sacrifice other space for them. And while a tiny house makes a comfortable home for one or two people, it can get crowded with a whole family sharing such a small space. It's especially difficult for families with teenagers, who want more privacy for doing homework and hanging out with friends.

- **Less Storage Space**. For most families, moving into a tiny house means getting rid of a lot of belongings, and not all of them are unnecessary junk. Episodes of "Tiny House Nation" show downsizing families reluctantly giving up some of their favorite possessions: kids' toys, home brewing equipment, exercise equipment, and most of a prized shoe collection. One couple even must give up two cats they've had since before they were married, because the cats can't live peacefully together in such a small space.

- **Limited Entertaining Capability**. It clearly isn't possible to host a Thanksgiving dinner for 10 people when your table can barely seat four, or have your in-laws come to visit when there's no room for an extra bed. Many tiny house owners try to make up for these problems by adding more outdoor living space, such as a hot tub or a deck for picnics. Some even build a second tiny house to use as a guest cabin.

- **Zoning Rules**. Although a tiny house doesn't require much land, many towns make it difficult to build one. Zoning laws often include a minimum size for dwellings, and a 200-square-foot tiny house isn't usually big enough to make the cut. To get around these rules, some tiny house owners buy a full-sized house, rent it out, and then park their tiny houses in the backyard as either "outbuildings" or "vehicles." Trailer parks can also provide a home for a tiny house.

- **Financing**. For those who can't afford to buy or build a tiny house for cash, getting a loan is more challenging than it is for other home buyers. It usually isn't possible to take out a standard mortgage loan, because banks don't consider a tiny house to have enough value to make good collateral. Some tiny house buyers are able to finance their houses with personal loans from a company like SoFi, while others borrow money from friends and family members. Another approach is to use a home equity line of credit from Figure.com. Once the line of credit on your current home is paid off, you can sell and move into your tiny home full time.

TINY HOUSES

And the people who live in them

The tiny house phonomenon redefines what makes a house a home, empowers the people for a better future and leads a movement that breaks the mold every day. Tiny house people come from all walks of life. This is their story.

SIXTY-EIGHT PERCENT

of tiny house people have no mortgage, compared to 29.3% of all U.S. homeowners.[1]

YOU CAN BANK ON IT

55% of tiny house people have more savings than the average American, with a median of $10,972 in the bank.

A HOME THAT YOU OWN

78% of tiny house people own their home, compared to 65% of homeowners with traditional houses.[2]

THE REAL COST OF HOUSING

The average cost to build a tiny house is $23,000 if built by the owner.

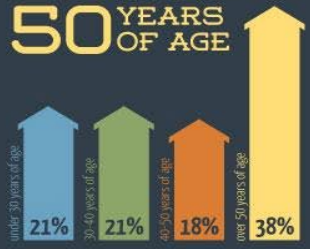
The average cost of a standard-sized house is approximately $272,000.[3]

Add $209,704 interest on a 4.25% 30-year loan and it's $481,704!

TINY HOUSE, BIG LIVING

The average tiny house is 186 sq/ft while the standard U.S. house takes up nearly 2100 sq/ft. That adds up to nearly 11.3 Tiny Houses![4]

APPROXIMATELY 2 OUT OF 5 TINY HOME OWNERS ARE OVER 50 YEARS OF AGE



ISLAND SAVINGS TIME

32% of tiny house people have more than $10,000 saved for retirement.

62% of tiny house people have less than $5,000 saved for retirement.

GIVE YOURSELF SOME CREDIT

89% of tiny house people have less credit card debt than the average American, with 65% of tiny house people having zero credit card debt.[5]

THE FAIRER SEX WINS

More women own tiny houses than men.

$42,038

per capita income of tiny house people.

EARNING $478 more annually than the average American.

Tiny house people are twice as likely to have a masters degree, while they are on par with the average college graduation rates.

Sources:
1- http://www.latimes.com
2,3,6 - http://www.census.gov
4 - http://www.nahb.org
5 - http://www.nerdwallet.com

THE TINY LIFE
TINY HOUSES, TINY LIVING

Notes

This course has been approved by the State Board of Assessors for a total of 15 CEHs – 14 hours of instruction and 1 hour for the exam. To use this course as a property-type specific licensure course, **you must take the exam**. You do not need to take the exam if you only need CEHs, in which case you will only receive 14 hours.

Upon completion of this course, you will receive an email from MAAO with your completion verification and exam results, if applicable. Please allow 30 days to receive the email from no-reply@certifier.io; we recommend ensuring this email address is added to your safe senders / contact list and whitelisted by your IT. The instructors of this course will **not have your results**. To receive credit, you will need to upload the completion verification and course information into the State Board of Assessors Licensing System. Questions regarding the Assessor Licensing System may be directed to assessors.board@state.mn.us.

MAAO will send out a feedback survey via email from SurveyMonkey. We ask that you take the time to complete this survey and provide feedback. Your feedback is valued and utilized when MAAO education committees make changes/updates to this course.

Thank you for supporting MAAO.

Instructors:

- John Conway - Wabasha County
- Matthew Bye - City of Minneapolis
- Jason Jorgensen - Wadena County

Questions? Comments?

Contact MAAO Education Coordinators at educationcoordinator@mnmaao.org