The NOAH Dwelling Standard

for Tiny **Homes** on Wheels

(suitable for full time habitation)

A Standard and Inspection Guide.

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Why is a Standard for Tiny Homes on Wheels or Movable Tiny Homes needed?

Tiny homes on Wheels have become very popular in the last few years, however, there is no specific standard for this unique product.

Without standards, builders must rely on their own ideas, skill and abilities to construct a product that will in many cases be lived in full time. Some builders and jurisdictions are using standards from the RV industry to construct the Tiny House on Wheels. However, these standards are specifically designed for seasonal and temporary occupancy and are insufficient for full time habitation. Because of the current housing crisis, some jurisdictions have passed ordinances allowing full time occupancy in Tiny Houses built to an RV standard.

In 2015 the American Tiny House Association published Construction Guidelines for Tiny Houses on Wheels, but soon repealed them because of the potential liability.

There is an initiative through the ASTM subcommittee E 06.26 to create a standard for a tiny house on wheels. We welcome and support any initiatives for Tiny House on Wheels Standards that would advance the Tiny House Industry and create a safer home.

In the interim, we have created this publication to be used voluntarily by NOAH's member manufacturers/builders and would offer it to jurisdictions and tiny home builders for the construction of a tiny home on wheels that is intended to be lived in full time.

National Organization of Alternative Housing Inc. a 501 C 3 non profit

Since 2015.

Standard & Inspection Guide of a Tiny **Home** on Wheels

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Introduction

This Standard for Tiny **Homes** on Wheels (Tiny Homes) shall be called the "The Tiny Home Standard" with amendments to the 2018 IRC, 2020 NEC and other standards and codes to make a Tiny Home more suitable for full time habitation.

This Standard should not be confused with:

- A standard for Tiny **Houses** on Wheels, the Noah + Standard, Park Model RVs, Travel Trailers, These standards are for short term seasonal use.
- Or Manufactured Housing (HUD).
- In the spring of 2023 ICC posted a pins notification regarding their efforts to write standards for tiny houses on wheels. (BSR/ICC/THIA 1215-202x, Design, Construction, Inspection and Regulation of Tiny Houses for Permanent Occupancy)

Building Standards

This Standard includes standards from multiple entities, including the International Code Council (ICC), the American National Standards Institute (ANSI), the National Fire Protection Association (NFPA), the American Wood Council (AWC), and the Engineered Wood Association (APA).

Full time residency

To make the Tiny Home more suitable for full time habitation, the THOW Standard incorporates the 2018 IRC (international Residential Code, including Appendix AQ), 2020 NFPA 70 National Electric Code (NEC). Additionally, the Standard requires and inspects for provisions per the following stipulations of AWC, and APA codes.

Plans Review

For each model of MTH, construction drawings with a minimum of floorplan, elevations, Chassis specifications and foundation design shall be required. The plan will be reviewed to meet the minimum requirements of this Standard.

Chassis as floor system.

One of the biggest challenges in allowing tiny homes is that a metal chassis is used not only to transport the home but also as a floor system. This Standard has added the following requirements for the chassis.

The Tiny Home Vehicle Chassis can also be used as the base frame of a Tiny Home provided it is designed and constructed to give the home the required support, uplift and seismic stability for long-term occupancy.
Chassis/trailer shall be constructed by a trailer manufacturer for the purpose of providing such design loads. The chassis/floor system will need specifications of the main rail, crossmembers and outriggers; but not require engineering.

Example: for a trailer 8'x32' the main rails 2"x6" x ¼" tube steel, crossmembers 2"x3"x ¼" tube steel, outriggers 2"x3"x ¼" tube steel,

Non "built for purpose" trailers or altered "built for purpose" trailers or self-built trailers shall be designed and/or stamped by a licensed engineer. Signed documentation shall state the chassis/trailer meets the required design loads and shall be submitted with the plans for review.

Additionally, DOT requirements shall be met for transporting the Tiny Home. i.e. axles, tongue, electric brakes, lighting etc.

Connect of subfloor to metal chassis using self-tapping #8 screws sufficient for the threads to penetrate the thickness of the rails and crossmembers and outriggers.

If there is a metal pan on the trailer, the pan must only be "tack or spot " welded to allow moisture to escape or venting must be installed in every bay of the metal pan before installing the insulation.
Exception: in Hawaii floor insulation is not required. If no floor insulation is installed, venting will not be required.

A thermal break is required between the metal chassis and wood subfloor.

Cantilevered floor systems supporting the exterior walls shall have a solid full depth blocking placed in every joist bay over the metal trailer frame.

Loft Heights

Loft heights have also been a challenge when constructing the home to legally meet the DOT requirement for transporting on the roadways, while still having room in a wall section for a secondary egress or Emergency Escape and Rescue opening. The Movable Tiny Home Standards has amended the IRC Appendix AQ as follows:

AQ 104.2.1.4 Landing Platform

To get 6'2" headroom on the landing, increase the maximum distance from the landing to the loft to 26 inches. It would read:

The landing platform riser height to the loft floor shall be not less than 18 inches and not greater than 26 inches.

One challenge with Tiny Homes is finding the wall area needed to install a "secondary means of egress."
Add the following to this section.
The landing platform is made an integral part of the loft. The exterior wall of the landing platform can be the location of the Emergency Escape and Rescue opening per R310.2. note: the handrail or any other obstructions shall not infringe upon the clear opening requirements and glazing shall be tempered.

Inspection Services

Appendix A addresses the inspection and certification of the Tiny Home on Wheels. This includes the qualification for a Third Party Inspection Agency and Impartiality requirements.

Member manufacturers have pledged to build to this Standard for Tiny Homes giving Noah Certified Inc. the "Authority Having Jurisdiction" for the construction of a Movable Tiny Home.

A jurisdiction can adopt these standards using similar language.

Noah Certified Inc. hereby adopts and incorporates by reference the following nationally recognized codes, standards, guidelines, procedures, or rules with the amendments, revisions, additions, deletions, or exceptions/exemptions specified below. The incorporated codes, standards, guidelines, procedures, or rules do include later revisions. Electronic copies are available from National Organization of Alternative Housing Inc.

A Standard for Movable Tiny Homes;

Chapter 1.0 Scope and Definitions

1.1 Scope. This Standard shall be used for the construction and certification of a Tiny Home on Wheels (THOW) and guidance for inspecting and certifying a Tiny Home on Wheels for compliance with this Standard. It will also offer the qualifications for third party inspectors, inspection agencies, a path to foundations, utility hook ups, and the issuing of a Certificate of Compliance.

1.2 Definitions

1. "Authority Having Jurisdiction" or "AHJ" means the local building and zoning department with oversight over where the structure is to be located.
2. "Built-for-Purpose Trailer" means a vehicle trailer that is built to serve as a construction platform for a tiny home and has: a Vehicle Identification Number (VIN), a Gross Vehicle Weight Rating (GVWR), and is capable of sustaining and moving a tiny home.
3. "Certificate of Compliance" a document signed by the inspector, certifying compliance with the standard or code.
4. "Seal" means a seal, label, insignia, or mark issued by an authorized third party that when permanently affixed to a structure confirms compliance to the requirements for the construction of a Tiny Home.
5. "Data Plate" means a label affixed to the electric panel or sink cabinet door, with the following information, name and contact information of the builder, date of completion of the THOW, Standard to which the THOW was constructed, insulation values of floor, walls, ceiling. Wind load, snow load, and seismic load. (See 2.2.1)
6. "Tiny Home on Wheels" (THOW) means a new housing type that is designed and built so that the exterior has the appearance of a conventional single-

family dwelling unit, using conventional building materials, and is thus architecturally distinct from traditional mobile homes and recreational vehicles.The total area of a movable tiny home in setup mode, when measured from the exterior surface of the exterior stud walls at the level of maximum dimensions, not including any bay window, does not exceed 400 square feet when constructed in accordance with these standards. A THOW must be built according to such standards,The builder certifies compliance with this Standard. The THOW must be inspected and verified by a qualified third party for compliance with this Standard.

7. “Tiny House on Wheels”. A new housing type that meets the state’s requirements for seasonal or temporary occupancy.
8. “Inspections” visual inspection of the construction by a qualified inspector to verify compliance to the Standard. Inspections can be performed in-person or remotely.
9. “Builder/Manufacturer” means the person or entity constructing the tiny house.
10. Factory/ Off Site Plant means a location other than the site on which the tiny house is to be occupied.
11. “Factory Compliance Assurance Representative” means the Tiny House Builder or his designee who performs the factory end of the remote inspection.
12. “Remote Inspection” means an inspection performed where the inspector is in a location other than the manufacturing plant using a computer having an internet or cellular connection to communicate with a factory quality assurance representative. Factory Compliance Assurance Representative shall utilize a smart device (cell phone, tablet, etc.). The inspection must be performed “real time” with continuous live stream video from the plant, and two-way audio. Each inspection must be securely stored on the internet and retrievable by VIN, serial number, insignia number or other approved identifier.
13. “Permanent Foundation” means a foundation and utility hookups that cannot easily be disassembled.
14. “Temporary Foundation” means a foundation and utility hookups that can easily be disassembled so the THOW can move to a new location.
15. “ICC Certified Inspector” means an inspector certified by the International Code Council as meeting certain requirements, training and education.
16. “InterNACHI Certified Professional Inspector” means an inspector certified by InterNACHI as meeting certain requirements, training and education.

17. “Third Party Inspection Agency” means an agency that is certified by an Accredited Inspection Company Firm as an inspection body to ISO/IEC 17020.

18. “Third party Inspector” means an inspector with the required credentials to perform inspections.
19. “Conflict of Interest” means a situation where the integrity of the impartial inspection can be compromised.
20. “Accredited Inspection Company Firms” – shall currently be listed with a national listing agency such as the ANSI Accreditation Board or International Accreditation Service (IAS), as an inspection body, (ISO/IEC 17020)
21. “Manufactured/ Mobile Home” (HUD) a home built to the HUD Code 22. “Site Built Home” means a home built on the site on which it will remain.
    23. “Recreational Vehicle” means a vehicle designed for temporary and/or seasonal use only.
    24. “Park Model RV” means a vehicle constructed to ANSI 119.5
    25. “Plan” means a specific design for the construction of a structure submitted by the manufacturer to the AHJ for review and approval that typically includes a floor plan, elevation drawings, structural pages, electrical circuit layouts, recommended foundation drawings, mechanical drawings, plumbing isometrics, cross section drawings, an energy code compliance report, heat load calculations, and the engineering calculations.
    26. “Open Construction” means any building component, assembly, or system manufactured in such a manner that all parts or processes of manufacture can be readily inspected at the building site without disassembly, damage, or destruction, i.e., panelized construction assembled on site. Open construction means there is nothing in the construction of the unit which cannot be inspected.
    27. “Closed Panel System” means a building component or assembly built off-site that may include electrical, plumbing, mechanical, or insulation with finishes applied to both sides and then transported to be erected on-site to complete a residential or nonresidential building.
    28. “Vehicle Chassis” means the base frame of a single-family dwelling, designed and constructed for long-term occupancy that supports the home’s construction and transportation, and includes axles, wheels, GVWR and a VIN.

Chapter 2.0 Structure

2.1 This section of the Standard adopts the International Residential Code (IRC) with the following amendments.

2.2 The International Residential Code (IRC), 2021 Edition, published by the International Code Council, Inc. (ICC). This is a safety code and is available through the ICC at: https://www.iccsafe.org.

2.2.1 **Table R301.2 (1) -**

Revise as follows:

DATA PLATE:

A data plate shall be located on inside the door of the kitchen cabinet or vanity cabinet it there is no kitchen cabinet, with the following:

1. Manufacturer's name and address.

2.Compliance assurance agency certification number.

3.Serial number of each module of the building.

4.Serial number of the state registration seal.

5.Date of manufacture of the building.

6.List of codes and standards under which the building was evaluated and constructed.

7.Design live roof load; design floor live load; design wind speed; design ground snow load; and seismic design and risk category.

8.Thermal resistance (“R”) values.

9. Designation of electrical service ratings, directions for water and drain connections and, where applicable, identification of permissible type of gas for appliances.

R301.2 Climatic and Geographic Design Criteria

Climatic or Geographic Design Criteria for IRC Dwellings	Tiny Home on Wheels
Roof Snow load	
Basic Wind Speed	
Wind Topographic Effects	
Seismic Design Category	
Weathering	
Frost Line Depth	
Termite Damage	
Winter Design Temperature	
Ice Barrier Underlayment Requirement	
Flood Hazards	
Air Freezing Index[3]	
Mean Annual Temperature[3]	

If the loads are equal to or more than the local requirements, the home will be admitted into the jurisdiction. If the loads required in the jurisdiction are less than the unit construction, but substantially close, it will be up the the local building department to determine if the unit will be allowed.

[3] See the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32° Fahrenheit)" at www.ncdc.noaa.gov.

2.2.2

2.2.3 **Chapter 3 Foundation** add **Section R409**
Temporary Foundation

A foundation designed so the Tiny Home can easily be removed for transport to another location. The manufacturer of the Tiny Home will provide specifications detailing the construction and installation of the MTH on a temporary foundation. The foundation shall be designed and constructed to give the home the required support, uplift, latitudinal/longitudinal and seismic stability.

note: The manufacturer may use a permanent style foundation such as a poured concrete pier or helical piles foundation with a quick disconnect capability or a temporary or removable style such as a cinder block pier on pads, or removable foundation.

2.2.4 **Chapter 5 Floors**

Add this new section with the following language.

R508 Chassis/Trailer Floor System

The Tiny Home Vehicle Chassis can also be used as the base frame of a Tiny Home provided it is designed and constructed to give the home the required support, uplift, latitudinal/longitudinal and seismic stability.

The chassis/trailer must be a “built for purpose” chassis/trailer, constructed by a trailer manufacturer for the purpose of providing such design loads. Submit with the plans for review the specifications of the main rail, crossmembers and outriggers.

Example: a welded chassis/trailer for a MTH 8’x32’ shall have the main rails of 2”x6” x ¼” tube steel 72” apart, crossmembers of 2”x3”x ¼” tube steel 16” o.c., and outriggers of 2”x3”x ¼” tube steel 16” o.c.”

Non “built for purpose” trailers or altered “built for purpose” trailers or self-built trailers must be designed and/or stamped by a licensed engineer. Signed documentation must state the chassis/trailer meets the required design loads and must be submitted with the plans for review.
Additionally, when in transport, the chassis/trailer must meet the DOT and/or NHTSA requirements for transporting the Tiny Home. i.e. axles, tongue, electric brakes, lighting etc.

Connection of the subfloor to metal chassis must be made using self-tapping #8 screws sufficient for the threads to penetrate the thickness of the rails and crossmembers and outriggers 8” o.c.. A thermal break is required between the metal and the subfloor.

If there is a metal pan on the trailer, the pan must only be “tack or spot “ welded to allow moisture to escape along the perimeter and joints; or venting must be installed in every bay of the metal pan before installing the insulation.

Exception: In locations like Hawaii, where no floor insulation is required. If no floor insulation is installed, venting will not be required.

2.2.5

2.2.6

2.2.7 **Section R310.1 Emergency escape and rescue opening required**

2.2.8 **Section R310.2.2 Window sill height**

Replace the word “sill” with the word “opening” in the section title and replace the word “sill” with “window opening”.

2.2.9

2.2.10 **Section R312.2.1 Window sill heights**

Replace the word “sill” with the word “opening” in the section title and delete the words “the sill of”.

2.2.11 Cantilevered floor systems supporting the exterior walls shall have a solid full depth blocking placed in every joist bay over the metal trailer frame.

2.2.12 **Section 314.3 (2) Smoke Alarms – Location**

Smoke detectors shall be hard wired and multiple smoke detectors shall be interconnected. If the MTH is 30’ long or less, only one smoke detector shall be required. A MTH longer than 30’ shall have at least two smoke detectors. A bedroom with a way to close it off or a loft with a solid wall closing off more than 50% of the loft access shall have its own smoke detector.

2.2.13 **Section 314.6 Smoke Alarms – Power Source** Add
to the end of the paragraph the following:
"Smoke and/or carbon monoxide alarms shall not be installed on a circuit dedicated only for smoke and/or carbon monoxide alarms."

2.2.14

2.2.15 **Section 315.6 Carbon monoxide alarms – Power Source** Add
to the end of the paragraph the following:
"Smoke and/or carbon monoxide alarms shall not be installed on a circuit dedicated only for smoke and/or carbon monoxide alarms."

2.2.16

2.2.17 **Section R905.1.2 Ice barriers**
Revise to read as follows:
Due to a history of ice forming along eaves in colder climates, an ice barrier is required. The ice barrier shall consist of a self-adhering polymer-modified bitumen sheet or of not fewer than two layers of underlayment cemented together and to the roof. For roof pitches greater than 4/12, the ice barrier shall extend from the eave's edge to a point at least 24" inside the exterior wall line of the building. For roof pitches 4/12 or less, the entire roof shall be covered.

2.2.18 **Section R1004.4, G2406.2 exceptions 3 and 4, G2425.8 #7, G2445**
Delete all and replace with the following:
Unvented fuel fired room heaters and unvented fuel fired fireplaces are prohibited.

2.2.19 Add the following new sections:
Section R1001.1 and R1004.1 – Fireplaces
Every new fireplace must comply with one of the following:

1. Listed and labeled fireplace and chimney systems composed of factory-made components, and assembled in the field in accordance with manufacturer's instructions and the conditions of the listing, and
2. Approved gas logs.

2.2.20 **Delete the entire IRC Chapters 21-22.**

2.2.21

2.2.22

2.2.23

2.2.24 **Appendix AQ Tiny Houses** Adopted.

AQ 104.2.1.4 Landing Platform

Replace 18 inches with 26 inches. It should read:

The landing platform riser height to the loft floor shall be not less than 16 inches and not greater than 26 inches.

Add the following to this section.

The landing platform is made an integral part of the loft and the exterior wall the landing platform can be the location of the Emergency Escape and Rescue opening per R310.2. note: the handrail or any other obstructions must not infringe upon the clear opening requirements. note: this opening must be tempered glass. All glazing within the loft shall be tempered/anti shatter.

2.2.25

2.2.26

Chapter 3.0 Plumbing

All Plumbing per IRC, 2021 edition, reviewed for updates on a tri-annual basis.

See Section M2004, Chapters 25 to 32 Also See Chapter 2 for Definitions as well as any referenced sections within.

<u>Modified Code Sections.</u>

New Definitions, Chapter 2;
Tiny HOUSE On Wheels with ours.....

Movable Tiny HOME with ours.....

New Definition, Chapter 2;

3/4 bathroom, a group of fixtures, including or excluding a bidet, consisting of a water closet and bathtub or shower. Such fixtures are located on the same floor level. Note, A 3/4 bathroom may use the kitchen sink as it's means for hand washing and similar.

2705.1 (5) Exception,

Water closets, lavatories & bidets.

Clearance may be reduced from 15" / 30" AND 21" front clearance too;

12" from its center to any side wall, partition or vanity closer or then 24" center to center between adjacent fixtures. There shall be a clearance of not less than 18" in front of a water closet, lavatory & bidet to any wall fixture or door.

2801.8 Water Heater Seismic Bracing.

Language change from seismic zone D, D1, D2 & C too;

All water heaters installed in THOW shall be anchored or strapped in the upper one third and lower one third of the appliance to resist a horizontal force equal to one third of the operating weight of the water heater, acting in any horizontal direction, or in accordance with the appliance manufacturer's recommendations.
2804.6.1 Requirements For Discharge Pipes.

Add 10.1.

When exterior mounted appliance discharges to the exterior, pipe shall terminate at a level equal or lower than the highest visible point of the main chassis frame rail supporting the THOW.

Chapter 30

ADD NEW SECTION.

Homes having black/gray waters holding tanks;

Fresh water Tank vents

-sized and secured per manufacturer's installation instructions.

-gate valve shall be installed, after all branches / fixtures and immediately prior to exiting chassis for onsite sanitary sewer connection/lateral.

3103.2 Frost Closure

Delete Section.

ADD NEW SECTION

3201.2.1.5. Waterless Valve.

May be used in accordance with the manufactures listing for the appropriate size permitted. - Outside water pipes and DWV shall be protected against cold climate weather, as determined by the owner.

Chapter 4.0 Mechanical - 2018 IRC
Chapter 12- 20

All Mechanical per IRC, 2018 edition, reviewed for updates on a tri-annual basis.

Delete the following:

Add sections:

Chapter 14

Tiny home Heat Source: Single heat source allowed:

1. **Wood Stoves to be listed per chapter 3 irc**
2. **Mini Split installed per manufacture and listed and labeled**
3. **Direct Vent appliances**
4. **Electric Heat**
5. **In-floor heating**

Whole house mechanical ventilation:

Minimum ventilation rate 50 CFM intermittent 30 CFM if continuous. Humidistat

ERV energy recovery ventilation per manuf listed

One per unit operate on approved humidistat in bathroom if no window allowed as whole house ventilation

Bathroom exhaust may be considered as the intent of whole house ventilation.

Prescriptive Method

1. **Prescriptive airflow based on:**
   - **a Floor area of tiny home**
   - **b. Number of bedrooms (excluding lofts)**
   - **c. Continuous or intermittent 50 CFM intermittent 30 CFM if continuous.**

Propane: Install per IRC with approved Quick disconnects at connection point of service not appliance with approved listed material per plumbing code

Chapter 5.0 Electrical -

5.1 In addition to 2021 IRC this section of the Standard adopts NFPA 70 2020 NEC with the following amendments:This section of the Standard adopts the International Residential Code (IRC) with the following amendments.

5.2 The National Electric Code (NEC), 2020 Edition of NFPA 70, published by the

International Code Council, Inc. (ICC). This is a safety code and is available through the ICC at: https://www.iccsafe.org.

5.3 Electric Service:

5.3.1 Electric Supply

Each Tiny Home must have only 1 main power supply.
Proper gauge wire for service supply is required.
Up to 5 circuits may be on a 30A service. 6 circuits or more will require a 50A or better service.

Main Disconnect:
The electric shall be required to have its own means of disconnect.
This may be achieved by either installing a separate disconnect switch or a main breaker equal to or greater amperage than the feeder cable.

NEC 210.12 AFCI (Arc Fault Breaker)
AFCI protection is required in all areas.
Exception: Bathrooms, Kitchen counters, Outside, Refrigerator or any other wet area.

5.3.2 Grounding
Grounding of the electric panel will be required using #8 copper wire or greater.
Metal roof/siding panels must be grounded/ bonded with 8 AWG copper to the trailer frame.
All externally run wiring must be protected.

5.3.3 Electric Panels
Electric panels shall be accessible at all times.
Working clearance for the electric panel 24" wide 30" deep. Height of the top breaker not to exceed 6' 6" from floor or deck.
Electric panels may not be installed in a bathroom, closet or stairs and wet area.

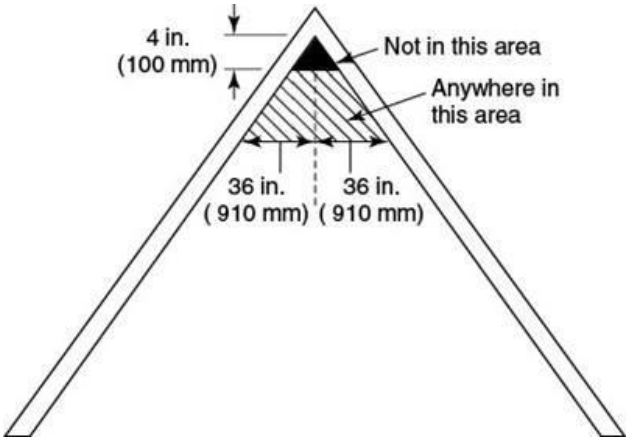
5.3.4 References and Clarifications
Branch circuits. NEC 210
Bathroom branch circuits shall be as provided in NEC 211.11 (3)
Kitchen Receptacle Requirements in accordance to NEC 210.52 (B)
All branch circuits shall be installed in accordance with NEC 210.50 (A) (B) (C) 210.52.
One GFCI protected outside outlet will be required.
One outside light by all exit doors will be required.
All wiring will have proper stapling and nail plates where required.
All switches & receptacles are to be sized for the circuits they are serving.
All outside electrical equipment shall have a separate means of disconnect.

5.4 Smoke Detectors:

All tiny homes on wheels must have an ABC fire extinguisher and must be in plain view within 24" of the main entry door.

Installing smoke alarms
Choose smoke alarms that have the label of a recognized testing laboratory.
Install smoke alarms inside each bedroom.
On levels without bedrooms, install alarms in the living room (or den or family room) or near the stairway to the upper level, or in both locations.
Smoke alarms should be installed at least 10 feet (3 meters) from a cooking appliance to minimize false alarms when cooking.

Mount smoke alarms high on walls or ceilings (remember, smoke rises). Wall-mounted alarms should be installed not more than 12 inches away from the ceiling (to the top of the alarm). If you have ceilings that are pitched, install the alarm within 3 feet of the peak but not within the apex of the peak (four inches down from the peak).



Don't install smoke alarms near windows, doors, or ducts where drafts might interfere with their operation.

Never paint smoke alarms. Paint, stickers, or other decorations could keep the alarms from working.

For the best protection, interconnect all smoke alarms. When one smoke alarm sounds they all sound. Interconnection can be done using hard-wiring or wireless technology.

When interconnected smoke alarms are installed, it is important that all of the alarms are from the same manufacturer. If the alarms are not compatible, they may not sound.

There are two types of smoke alarms – ionization and photoelectric. An ionization smoke alarm is generally more responsive to flaming fires, and a photoelectric smoke alarm is generally more responsive to smoldering fires. For the best protection, both types of alarms or combination ionization-photoelectric alarms, also known as dual sensor smoke alarms, are recommended.

Chapter 6.0 Energy, Insulation and Moisture Control

Chapter 11 ENERGY EFFICIENCY

see: *N1101.7 (R301.1) Climate Zones*

N1102.2.2 (R402.2.2) Ceilings Without Attics

Where Section N1102.1.3 requires insulation *R*-values greater than R-30 in the interstitial space above a ceiling and below the structural roof deck, and the design of the roof/ceiling assembly does not allow sufficient space for the required insulation, the minimum required insulation *R*-value for such roof/ceiling assemblies shall be R-30. Insulation shall extend over the top of the wall plate to the outer edge of such plate and shall not be compressed. This reduction of insulation from the requirements of Section N1102.1.3 shall be limited to 500 square feet (46 m2) or 20 percent of the total insulated ceiling area, whichever is less. This reduction shall not apply to the Total UA alternative in Section N1102.1.5. remove "or 20 percent of the total insulated ceiling area, whichever is less".

Building thermal envelope:

(Listed weather resistive Barrier)perR703.1 General

Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section R703.4.

R703.1.1 Water Resistance

The exterior wall envelope shall be designed and constructed in a manner that prevents the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior cladding as required by Section R703.2 and a means of draining to the exterior water that penetrates the exterior cladding.

Insulation and Fenestration values
Minimum:
R-13 walls and 19 floors
R 30 ceilings
Res check is acceptable in lieu of the above prescriptive R values, when res check demonstrates compliance with current code edition.
Sealing Around doors and windows

Double pane windows with a minimum U Factor of .32
Skylight minimum U factor .55

Insulation in wheel well areas R-5

Exterior pipe per:
N1103.5.3 (R403.5.3) Hot Water Pipe Insulation:
Insulation for service hot water piping with a thermal resistance, R-value, of not less than R-3 shall be applied to the following:

1. Piping 3/4 inch (19 mm) and larger in nominal diameter located inside the conditioned space.
2. Piping serving more than one dwelling unit.
3. Piping located outside the conditioned space.
4. Piping from the water heater to a distribution manifold.
5. Piping located under a floor slab.
6. Buried piping.
7. Supply and return piping in circulation and recirculation systems other than cold water pipe return demand recirculation systems.

Appendix A

Inspection Services

To be qualified to perform a the inspection and certification of the tiny home on wheels, the Third-party inspection agency – must currently be listed with a national listing agency such as the International Accreditation Service (IAS), or ANSI National Accreditation Board (ANAB) for ISO/IEC 17020 Inspection Body, or meet the requirements of ASTM E699 or E541.

Inspections must be performed at all critical stages of construction of each home for compliance to this Standard.

Inspectors must be licensed Engineers, ICC Certified Inspectors or Municipal Building Inspectors.

Inspections may be performed, in-person or remotely. In person inspections must be performed, documented and recorded by the in-person inspector. Remote inspections must be performed using an expert mobile application which can be hosted anywhere. Live stream video & audio allow the inspector to guide the builder through each Inspection Stage. Inspectors must also take snapshots/photos during the Inspection Video & make annotations to thoroughly document specific details.

Inspection records for each phase of construction must be securely stored using AES-256 encryption of data which is stored in secure facilities that meet PCI, HIPAA, Military, and other regulatory requirements. Records are stored and retrievable by the following identifiers:

- VIN – Vehicle Identification Number/or Other Identifier
- Certification Seal Number
- Builder Name
- State supplied Insignia

Fees will be spelled out in an agreement between the Third party inspection agency and the builder. If the build does not pass the inspection, a one-time re-inspection will be performed, at no additional fee. After the second inspection, if the build does not pass, there will be a re-inspect fee for each additional inspection performed. Builders failing or refusing compliance are subject to disciplinary action ranging from probation (resulting in more frequent inspections & re-inspection fees) to expulsion from this inspection and certification process.

Upon completion the THOW receives a Seal from the Third Party Agency along with a Certificate of Compliance stating that the Builder Certifies Compliance with the Standard.

Impartiality Assurance

Impartiality between inspectors and builders must be maintained. An impartiality policy must be maintained in an operation manual. Inspectors must fill out a report annually, an affidavit for any conflicts or potential conflicts of interest in the previous 12 months. The Third Party Agency must be audited annually for handling Impartiality Assurance and receive an nationally recognized accreditation as an inspection body such as ISO/IEC 17020.
Inspection agencies or individuals performing inspections under ASTM E699 or E541 must sign an affidavit of impartiality affirming the inspector was not influenced or enticed in any way to not remain impartial while performing the inspection and certification of the tiny home.