

## CONTENTS

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CSA Standards for Tiny Houses – DRAFT .....	2
Purpose .....	2
Independent Inspection .....	2
Process .....	3
Definition.....	3
<b>Applicable Standards and amendments .....</b>	<b>4</b>
THOWs should meet the following CSA Standards.....	4

# CSA STANDARDS FOR TINY HOUSES – DRAFT

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## *TINY HOUSE CONSTRUCTION STANDARDS*

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### PURPOSE

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This document is intended to provide a framework for municipalities to modify their regulations to permit tiny houses permanent legal dwellings.

These are also proposed changes to the CSA Z240 MH standards. The goal is that tiny house builders, owners, and municipalities will all have way to ensuring that a tiny house on wheels meets minimum construction and safety standards for use as a permanent residence.

Having your tiny house inspected as you build, and certified as a manufactured home (with the proposed amendments) is proof that the house was built to specific standards may create more opportunities to legally park and live in your tiny house.

Our foundation research indicates that municipalities are more receptive to Manufactured homes than Recreational Vehicles.

The proposed standards are in keeping with CSA Z240 MH Manufactured Homes standard. However, we are proposing several amendments. These amendments are in draft form and should not be considered a means of certification.

It is our intention to submit these amendments for revision and incorporation to the Z240 MH.

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### INDEPENDENT INSPECTION

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Recreational Vehicle Industry Association Inspection is available through professional associations:

- Pacific West Associates can certify that your tiny house on wheels meets the same standards as a traditional Recreational Vehicle (either NFPA 1192 or ANSI 119.5)
- National Organization of Alternative Housing can certify that your tiny house on wheels meets the unique standards that it created for tiny house construction
- Recreational Vehicle Industry Association (RVIA) can certify your tiny house to meet standard for an RV.

Please note that these certifications are not the same as being certified as Manufactured Home and may prevent you from being certified Manufactured Home.

Being certified as a Recreational Vehicle may enable you to insure your RV, however RVs are 3 season vehicles and cannot be considered a permanent residence, while Manufactured Homes can be.

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## PROCESS

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We recommend that you create a documentation package as you build your tiny house, including the following items:

- Detailed structural plans illustrating the location of studs, joists, rafters, and engineered connectors (hurricane clips, tension ties, etc.).
- Plans should clearly address how the structure is secured to the trailer, and how the floors, walls, and roof are framed and sheathed. Plans should also include an illustration of a floor, wall and roof section, showing the building members, insulation, vapour barrier, moisture barrier, sheathing, siding and roofing.
- Detailed diagram of the electrical plan.
- Photographs of the framing, roof, insulation, rough plumbing, and rough electrical.
- Complete, detailed bill of materials. Where salvage or donated materials are used, the builder should provide a full description of the materials. It is recommended that receipts be saved along with the bill of materials, as the Ministry of Transportation may request these when you register your tiny house on wheels.
- A statement describing your construction methods along with the names and addresses of any subcontractors you may have hired.

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## DEFINITION

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A tiny house on wheels (THOW), for the purposes of these guidelines, is a structure which is intended as a full time residence or year-round rental property and meets these four conditions:

1. Built on a trailer - Towable by a bumper hitch, goose-neck hitch, or fifth-wheel connection. Cannot move (and was not designed to be moved) under its own power.
2. Is no larger than allowed by applicable provincial law when being moved. (The typical THOW is no more than 8'6" wide, and 40' long. Larger tiny houses may require additional driver's license enhancement and/or special permits when being towed.)
3. Roof height no more than 13'6" high. Roof height is from bottom of tires to the top of the highest exterior point on the house, including any protrusions. The roof height may be taller when stationary, as long as it is collapsible for towing of the THOW. Chimney piping may need to be removed for travel and then reinstalled to meet clearance requirements for use.
4. Includes basic functional areas that support normal daily routines (such as cooking, sleeping, and toiletry).

## APPLICABLE STANDARDS AND AMENDMENTS

THOWS SHOULD MEET THE FOLLOWING CSA STANDARDS

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**(CSA STANDARDS - DOC REVIEW: Z240 MH MANUFACTURED HOMES)**

**CSA STANDARDS - DOC REVIEW: Z240 MH MANUFACTURED HOMES**

Z240 MH	SECTIONS	CURRENT STANDARDS	PROPOSED AMENDMENTS
<b>General requirements</b>		Z240.0.1	
<b>Vehicular requirements</b>		Z240.1.1 CSA CAN3-D313 for brake performance.	Reference Ministry of Transportation Trailer requirements and ICBC.
<b>Structural requirements</b>		Z240.2.1	
	Structural design		<p><b>5.1.3.2 Test Procedures</b> We propose testing the structure and explaining the test process to the inspector, without needing to submit the procedure to the CSA for approval ahead of time, as long as the test procedure is only used on one structure prior to inspection.</p> <p><b>5.2.3 Wind Loads</b> 100km/h completely exposed (exposure category D <a href="http://www.worldtower.com/QR_222_G_Exp.htm">http://www.worldtower.com/QR_222_G_Exp.htm</a>) which is equivalent to 0.35 kPa (7.41 psf). Uplift force of 0.43 kPa, which is more than the 0.4 that is currently required for manufactured homes.</p> <p><b>5.5.1 Floors or Table 2</b> May need to specify lag bolts for structures less than 13.4m long e.g. 24 inches on centre.</p> <p>References CAN/CSA-O86, -S16, -S136, -S157 and Canadian Wood Council's Engineering Guide for Wood Frame Construction 5.2.1 and 5.2.3, for structural members. References National Building Code 2.3 division C for testing procedure. References National Building Code 9.23.4.2 part 9 for floor load. References National Building Code 9.4.2.2 part 9 division b for snow loads. References CSA 240.10.1 for anchorage requirements. References National Building Code 9.23.14-17 for subflooring, roof sheathing, wall sheathing, and wall sheathing membrane.</p>

**CSA STANDARDS - DOC REVIEW: Z240 MH MANUFACTURED HOMES**

Z240 MH	SECTIONS	CURRENT STANDARDS	PROPOSED AMENDMENTS
	Construction		<p><b>6.8.2 Heights of Rooms and Spaces</b> 1.067 metres is bedroom spaces (or sleeping space)</p> <p><b>5.6.1.2 Table 3 and 5 Framing</b> Refer to National Building Code</p>
	Roof Trusses test		<p><b>7.1 General</b> References CSA S307 clause 3-7 for testing roof trusses</p>
	Floor Assemblies test		<p><b>8.3 Testing Procedure</b> 1.9 kPa over an entire 8.5' x 30' floor would be 4,650 kg, which is difficult for an individual builder to manage. An alternative testing procedure should be permitted where 100kg is applied to one square foot at a time, and deflection is measured.</p>
<b>Installation for gas-burning</b>		Z240.4.1	
	electrical wiring		
	Specific appliances		
	venting		
	pipng		
	leak testing for piping		
	markings		
<b>Installation for oil-fire appliances</b>		Z240.5.1	
	combustion air		
	venting		
	Oil tanks		
	ducting		

**CSA STANDARDS - DOC REVIEW: Z240 MH MANUFACTURED HOMES**

Z240 MH	SECTIONS	CURRENT STANDARDS	PROPOSED AMENDMENTS
<b>Load calculations</b>			
	heat loss and heat gain		Reference to Reference ASHRA 90.1 for zones, ASHRAE Handbook--Fundamentals of HRAI SAR-G1 for calculating heat loss.
	fabrication of ducts		
	airtightness of supply air duct system		
	insulation		
	registers, diffusers and grilles		
<b>Anchoring, Skirting Manufacture d Homes</b>		Anchorage: Z240.10.1-08 Skirting: Z240.10.1-08	
<b>Foundations for Manufacture d Homes</b>			<b>Surface preparation</b> The ground under the tiny house may also be on a suitable concrete slab foundation are defined by BC Building Code Division B, Part 9, Section 9.12.22

**CSA STANDARDS - DOC REVIEW: Z240 MH MANUFACTURED HOMES**

Z240 MH	SECTIONS	CURRENT STANDARDS	PROPOSED AMENDMENTS
<b>Sewer Hookup</b>			<p><b>Sewage hookup</b>                      - For a tiny home with a flush toilet, as defined in CSA Z240.10.1-08, for a tiny home with a standard flush toilet.</p> <p>Reference Min of Health Manual - Composting Toilet &amp; Greywater. To be used in tandem with AEPEG, Plumbing &amp; Electrical codes and Sewerage System regulations  <a href="http://www.bclaws.ca/civix/document/id/complete/statreg/326_2004">http://www.bclaws.ca/civix/document/id/complete/statreg/326_2004</a></p>
<b>Water, electrical hookups</b>			<p>Refer to BC plumbing and electrical codes with relevant alternative energy and water provision</p>
<b>Setback and Parking</b>			<p><b>Setback</b>                      The tiny house shall be placed so that it is aligned with adjacent structures, either on the same property or on neighbouring properties. If the setback from the road is different on the two neighbouring properties, either one may be used.</p> <p><b>Parking</b>                      A tiny house will be considered to be a temporary structure and no additional parking spaces need to be provided.</p>