

Mobile Homes

Guide to site preparation, foundation and
anchorage requirements for Mobile Homes.



Includes information for:

- Repairs, Renovations, Alterations and Additions.
- Replacing Fuel Fired Appliances and Installing Wood Burning Stoves.

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Definitions:

Factory-Built House – a modular home, a mobile home, or a panelized home built in a manufacturing plant and transported to its point of installation.

Mobile Home – a transportable, single – or multiple-section single family dwelling that conforms to the CAN/CSA-Z240MH Series of Standards at time of manufacture. It is ready for occupancy; upon completion of set-up in accordance with required factory-recommended installation instructions.

Construction and Inspection Standards:

The factory built mobile homes CSA Standard A277-01 describes an approved in-factory certification procedure to insure inspections for compliance to the CAN/CSA-Z240 Standard as the various components and subassemblies are installed.

The certification procedure set forth by CSA/A277-01 provides a means of verifying that the factory built mobile home, including the structural, plumbing, heating/ventilation and electrical systems have been built to meet or exceed the CAN/CSA-Z240 Standard for mobile homes.

The manufacturer shall provide with each mobile home a copy of set-up instructions covering installation requirements, foundation support details and connection to services.

This booklet is designed to provide a general overview of site preparation, foundation and anchorage requirements for mobile homes as well as address some of the more common questions regarding mobile homes. Should you have any questions or concerns that are not covered in this booklet, please contact the Rural Municipality of Whitemouth for assistance.

Are Building Permits required for mobile homes?

Yes, a Building Permit is needed whether the mobile home is new or relocated from an existing site (older mobile home). All mobile homes in Manitoba are required to be CSA certified, New homes come with this certification, however if you are dealing with an older mobile home, it may not be certified.

Those mobile homes that are not certified must be subjected to a Standards Inspection, which is carried out by the Department of Labour. You will be required to provide the RM a copy of the inspection report from the Department of Labour (Building and Mobile Homes Act).

How do I know if my mobile home is certified?

A certification sticker can be found on all mobile homes that are CSA certified. This sticker can be found near the doorway or the electrical panel. An example of this certification indicator is illustrated.



Documentation Required when Applying for a Building Permit to relocate a New Mobile Home:

- Completed Building Permit Application form.
- Surveyor's Building Location Certificate (BLC) conforming to Municipal Zoning By-laws and Development Agreement (if applicable), showing the proposed location of the Mobile Home and location of **all** existing structures on the site to all property lines.
- Lot Grade Permit from the municipality (if applicable).
- Mobile home floor plan showing overall size of the home and rooms.
- Manufacturer's foundation requirements for the mobile home.
- The year, make, model number, serial number and CSA number for the mobile home.

Relocation of an Older Mobile Home:

In addition the following information is required when relocating an Older Mobile Home:

- A pre-inspection of the older mobile home (fees applicable), conducted by the Rural Municipality's Building Inspector. If the mobile home is being moved-in from the outside of our district, other means for an inspection will be required.
- Photos which include: Interior, Exterior and CSA Seal.

Limiting Distance & Openings:

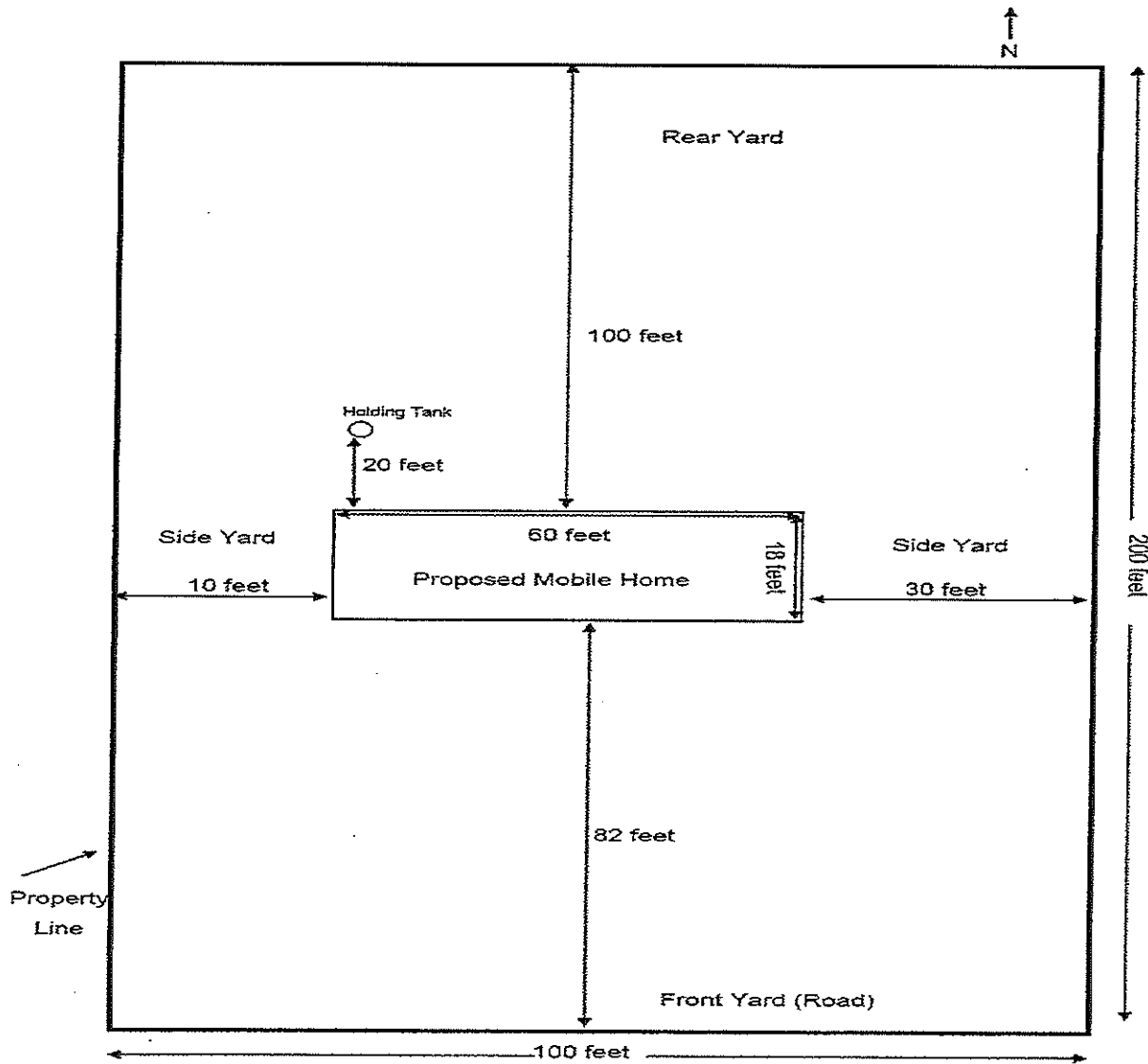
The distance from the building to the property lines places limitations on the area of unprotected opening (i.e.: windows, doors, vents, etc.) on exterior walls of the building and the area of glazed openings on the exterior walls of a single-family dwelling with no dwelling unit above. Tables 9.10.14.4 and 9.10.15.4 of the Manitoba Building Code sets the percentage of openings allowed.

- At less than 1.2 m (4 ft) the percentage is 0%.
- At 1.2 m (4 ft) to 2 m (6.56 ft) the maximum size and spacing of glazed and unprotected openings is strictly regulated.
- Over 2 m (5.56 ft) the percentage of openings allowed increases with distance within the tables.

What information should be indicated on the Surveyor's Building Location Certificate (BLC)?

- a) Property legal description, street name, lot number and dimensions;
- b) Distances from building property lines and building to building (if applicable);
- c) Projections and dimensions of any eaves, alcoves, canopies, wing walls, steps, landings, decks, etc.;
- d) The dimensions and locations of all approaches/driveways;
- e) Vehicle parking area (if applicable under the local Zoning By-laws);
- f) Location of accessory structures (sheds, detached garage, etc.);
- g) Location of downspouts (DP) and sump-pump discharge (SPD); and
- h) Location of wells, holding tanks and septic fields (if applicable).

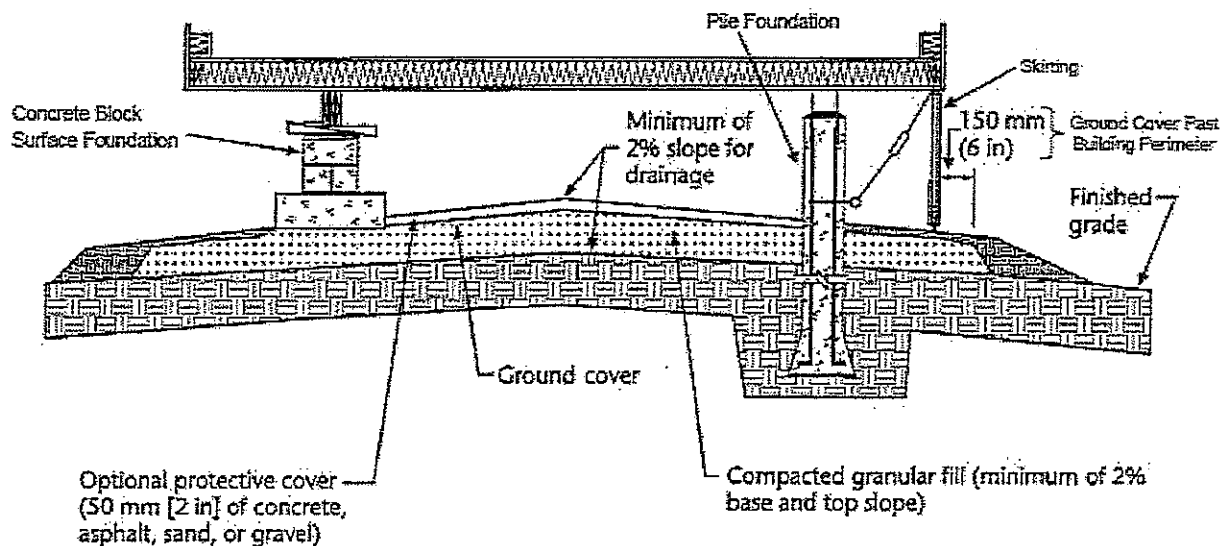
FIGURE 1 NOTE that a typical BLC will have more detail than this sample.



What steps must be taken during site preparation for a mobile home?

- As a first step, all topsoil and organic material must be removed from the site below the mobile home location.
- The base of the excavated site area should then be graded from the center to the outside, or from side to side, with a minimum slope of 2% (1/8 in. per ft) to prevent water accumulation under the home.
- The area should then be filled with gravel or suitable inorganic material to a level above the surrounding finished grade. See Figure 2.
- All backfill in the area of footings for surface foundations should be compacted. This fill should be similarly graded with a minimum slope of 2%.
- A ground cover shall be placed over the entire area below the mobile home and shall extend 150 mm (6 in.) beyond the perimeter to prevent upward movement of moisture into the space beneath the home. If the ground cover cannot be one piece, the sections must be overlapped at least 100 mm (4 in.) at the joints and weighed down.
- The ground cover provided shall consist of not less than:
 - a) 50 mm (2 in.) of asphalt
 - b) 100 mm (3 in.) of 15 MPA Portland cement concrete
 - c) Type S roll roofing; or
 - d) .15 mm (6 mil) polyethylene sheet CGSB with joints lapped at least 300 mm (12 in.)
- Polyethylene shall be weighed down with a 50 mm (2 in.) cover of sand or gravel or covered with a concrete skim coat not less than 50 mm (2 in.) thick.

FIGURE 2 – Site Preparation



Is there a minimum clearance required under the mobile home?

Yes. A vertical clearance of at least 600 mm (24 in.) shall be maintained between the top of the finished grade under the home and the bottom of the floor joists.

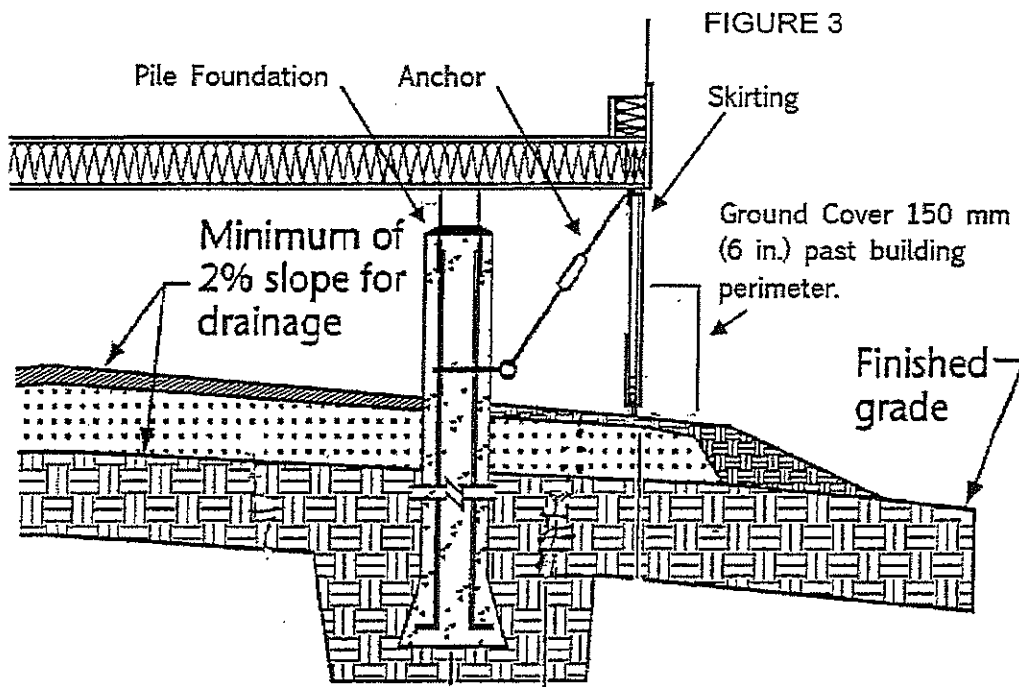
In homes that incorporate a lowered section (e.g., sunken living room), or where the home is installed on a sloping sight, the vertical clearance between the top of the finished grade and the bottom of the joists of the lowered section shall be at least 300 mm (12 in.).

In all cases, sufficient vertical clearance shall be provided to allow ready access for servicing and replacement of heating, plumbing, and other equipment located under the home.

Does one acceptable foundation system exist for all mobile homes?

No. Depending on the soil type and ground conditions, a number of different systems can be incorporated. The main types of foundation systems are the pile foundation and surface foundation.

PILE FOUNDATION SYSTEM: Friction Piles with a 16 inch minimum diameter and a minimum depth of 20 feet or Spread Bore Piles with a minimum depth of 8 feet, are acceptable for a pile foundation. See figure 3.



SURFACE FOUNDATION: Two of the more common surface foundations systems are the Concrete Block Surface Foundation, and the Wood Crib Surface Foundation. See Figures 4 & 5.

FIGURE 4 - Concrete Block Surface Foundation

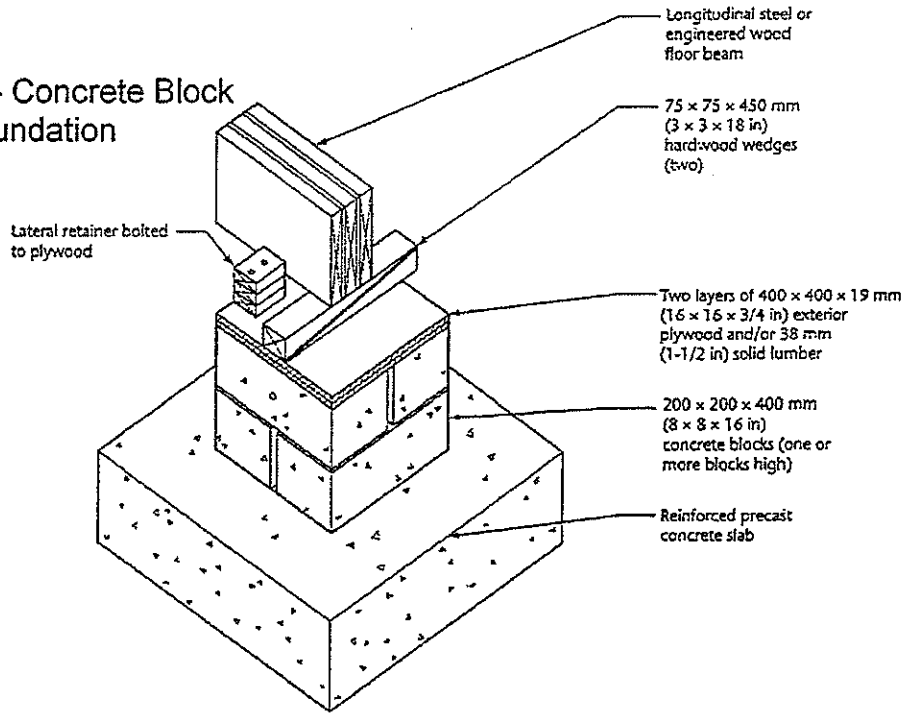
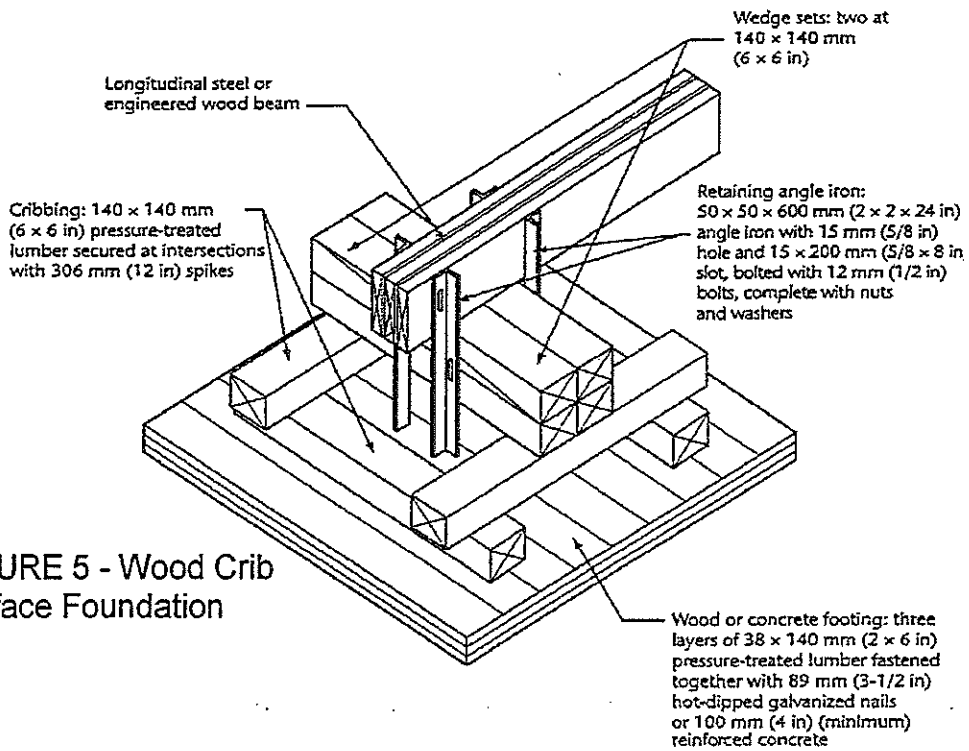


FIGURE 5 - Wood Crib Surface Foundation

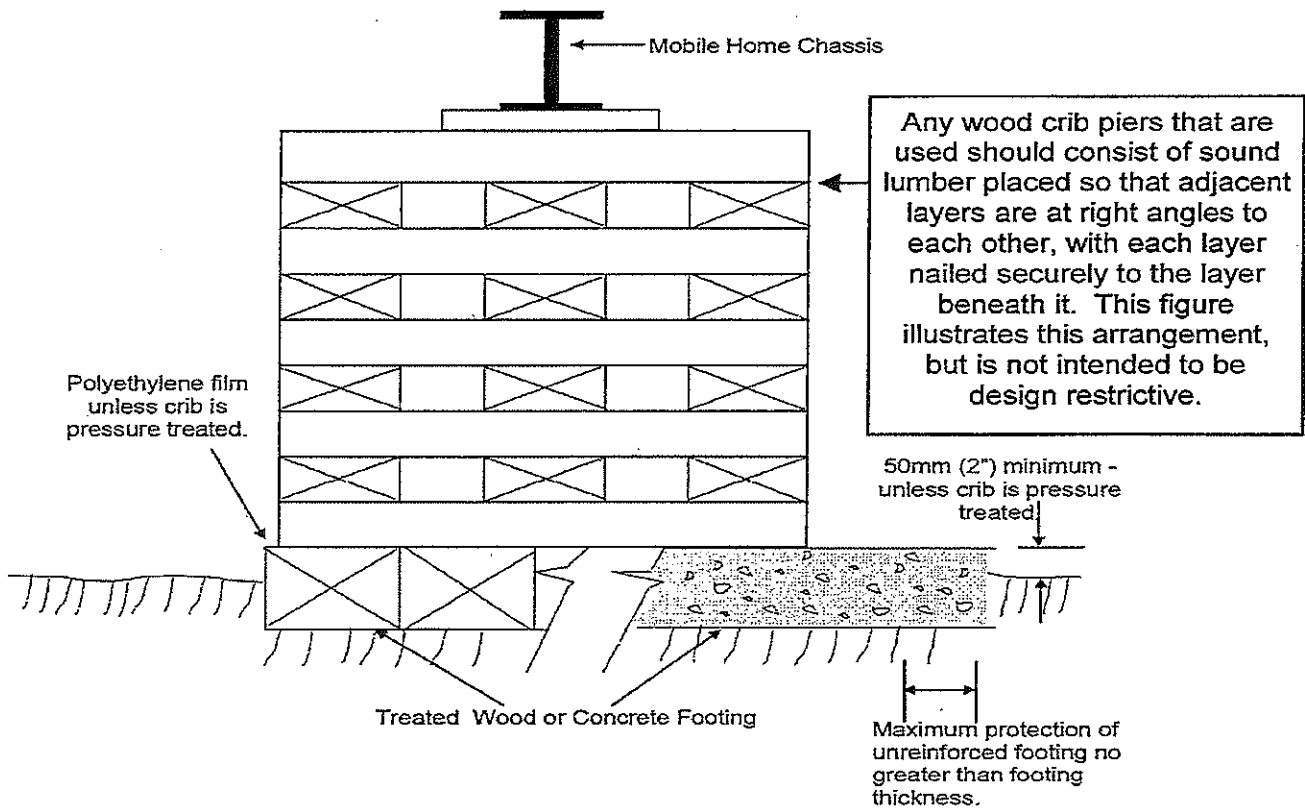
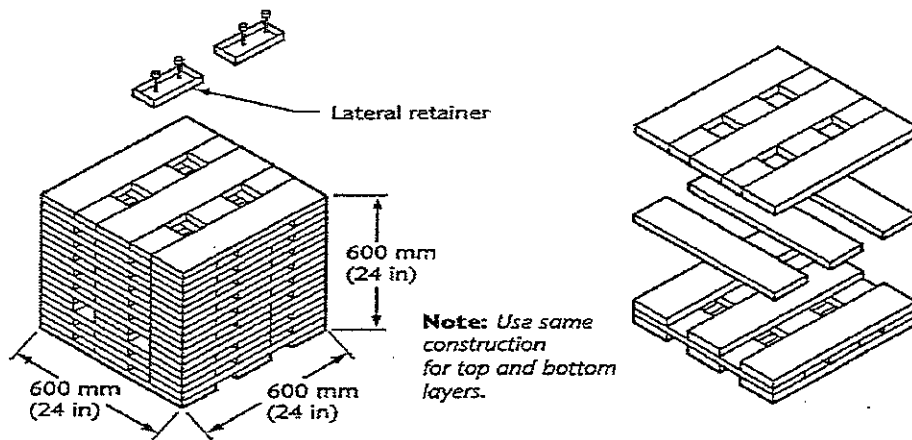


WOOD CRIB SURFACE FOUNDATION: Any wood crib piers that are used should consist of sound lumber placed so that adjacent layers are at right angles to each other, with each layer nailed securely to the layer beneath it. Figure 6 illustrates this arrangement, but is not intended to be design restrictive.

NOTE: The mobile home manufactures specifications should be followed for the spacing between cribs. If this information is not available, the maximum spacing between cribs is 12 feet.

If the cribbing is not pressure treated, a poly sheet must be placed between the cribbing and the concrete slab or pressure treated base. Cribbing is to be mailed together and the longitudinal floor beams are to be fastened to the top of the crib.

**FIGURE 6 -
Wood Crib
Surface
Foundation**



Does my mobile home require an anchoring system?

Depending on the size and age of the mobile home, it may or may not require an anchoring system. New mobile homes and single-wide mobile homes having a gross weight of at least 8400 kg. (18,500 lbs), do not normally require additional anchorage. The retaining brackets between the mobile home's longitudinal main beams and the foundation cribbing provide sufficient anchorage. See figure 3 for anchorage to pile foundation.

Are there any requirements for the skirting around a mobile home?

Skirting should be designed to accommodate a minimum of 50 mm (2 in.) vertical movement of the soil due to frost action. Any part of the skirting in contact with the ground should be corrosion resistant if metal skirting is used, or pressure treated if wood is used. Cut ends of pressure treated wood members would be brush or dip treated in accordance with the preservative manufacturer's instructions. The exterior surface of the mobile home skirting should also be painted or otherwise made resistant to weather.

What type of ventilation is required?

When skirting is used, it must allow for year-round ventilation. This can be accomplished by installing vented skirting manufactured for this purpose, or by installing screened louvers or grilles. If louvers or grilles are used, there must be a minimum of 1 sq. ft. of unobstructed venting for each 500 sq. ft. of floor area of the mobile home. These grilles should be uniformly spaced on each side of the mobile home.

At least one access panel of not less than 20 in. x 28 in. shall be provided in the skirting for periodic inspections and maintenance of services. This panel should be located close to sewer and water connections.

Mobile Home Sewer Service:

A building sewer service for a mobile home shall be not less than 4 in. in size and terminated above ground and provided with a tamperproof terminal connection that is capable of being repeatedly connected, disconnected and sealed. The design and construction of the sewer pipe and connection has to be such that the effects of frost heave are minimized.

Mobile Home Water Service:

The water service pipe for a mobile home shall not be less than $\frac{3}{4}$ in in size, terminated above ground and provided with a tamperproof terminal connection that is capable of being repeatedly connected, disconnected and sealed. The water service pipe and terminal connection are to be protected from frost heave.

The water service pipe should be provided with a curb stop and a means of draining that part of the pipe located above the frost line when not in use.

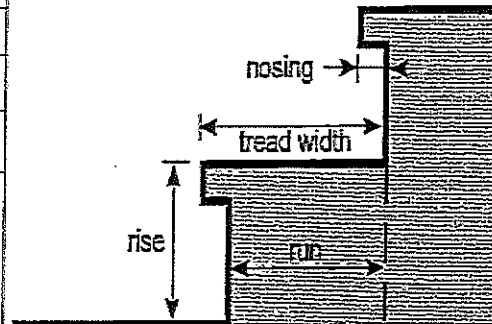
Landings, Stairs, Handrails, and Guards:

A landing shall be provided at the top of the exterior stairs serving the main entrance of a mobile home and secondary entrance to a mobile home where the secondary entrance stair has more than 3 risers. The width of the landing shall not be less than the width of the stairs and the length not less than 860 mm (34 in.).

Exterior stairs serving a mobile home shall have a width of not less than 860 mm (34 in.). The risers shall be of uniform height and the treads shall have a uniform run and tread depth. The maximum tolerance for rise, run and tread depth is 5 mm (3/16") between adjacent treads and 10 mm (3/8") in total flight of stairs.

Riser height, run and tread depth for rectangular treads:

| STAIR | MIN | MAX |
|--|-----------------|----------------|
| Rise | 125mm (6 in.) | 200mm (8 in.) |
| Run | 210mm (8 ¼ in.) | 335mm (13 in.) |
| Tread Depth | 235mm (9 ¼ in.) | 355mm (14 in.) |
| <p><i>Uniformity and tolerance for treads and risers in any flight: 5mm (3/16 in.) between adjacent risers and treads and 10mm (3/8 in) for the flight.</i></p> <p>Note: <i>If the run is less than 250mm (10 in.) then a nosing of at least 25mm (1 in.) must be provided.</i></p> | | |



Handrails (see illustrations on following pages):

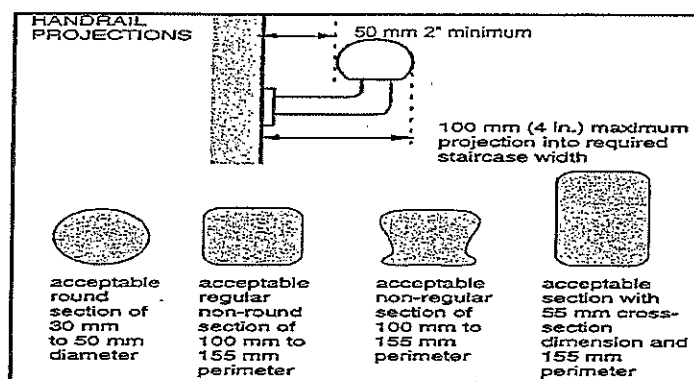
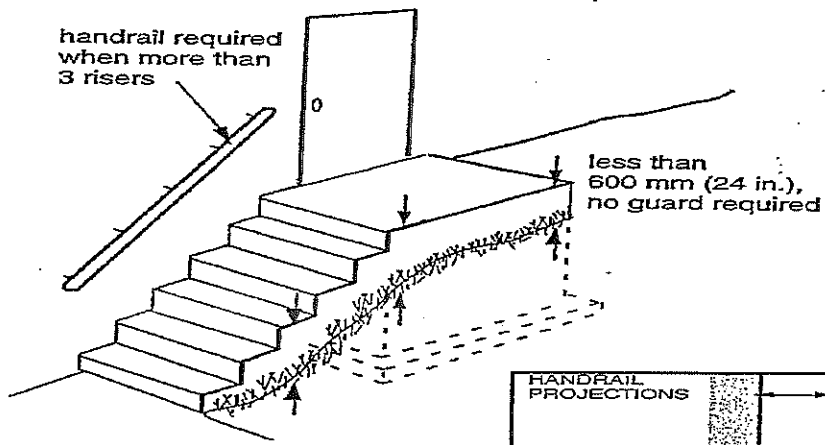
A handrail is required for an exterior stair having more than 3 risers, serving a mobile home. The handrail shall be continuous throughout the length of the stair including landing, except where interrupted by new posts at changes in direction, and extend at least 300 mm (12 in.) beyond the top and bottom of the flight. The height of the handrail shall be not less than 865 mm (34 in.) and not more than 965 mm (38 in.). The height of handrails on stairs is measured vertically from the top of the handrails to a line drawn through the leading edge of the treads.

A clearance of 50 mm (2 in.) shall be provided between a handrail and any surface behind it and the handrail shall be continually graspable along the entire length. The handrail must be designed and attached in such a manner to resist movement under load.

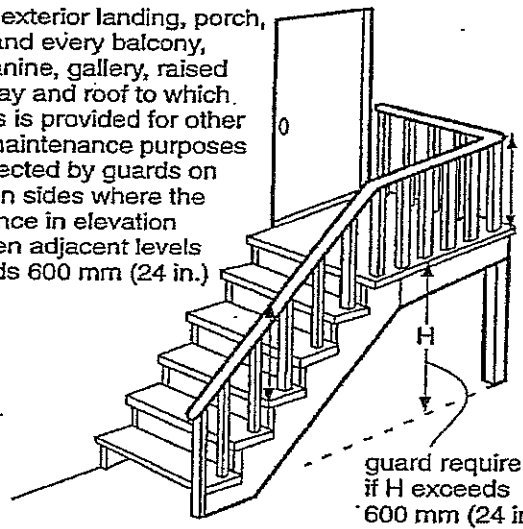
Guards:

Landings that are more than 600 mm (24 in.) above adjacent ground surface requires a guard that is capable of withstanding specific horizontal and vertical loads. The height of the guard shall be not less than 900 mm (36 in.) when the landing is between 600 mm (24 in.) and 1800 mm (72 in.) and 1070 mm (42 in.) when the landing is over 1800 mm (72 in.). Openings in guards shall not exceed 100 mm (4 in.) and shall be designed to prevent climbing.

NOTE: Landings that are over 50 sq. ft. in area are considered to be decks and require a permit before starting construction. Contact the Rural Municipality of Whitemouth for more information. Landings must conform to the same code requirements for framing, stairs, handrails and guards as a deck.



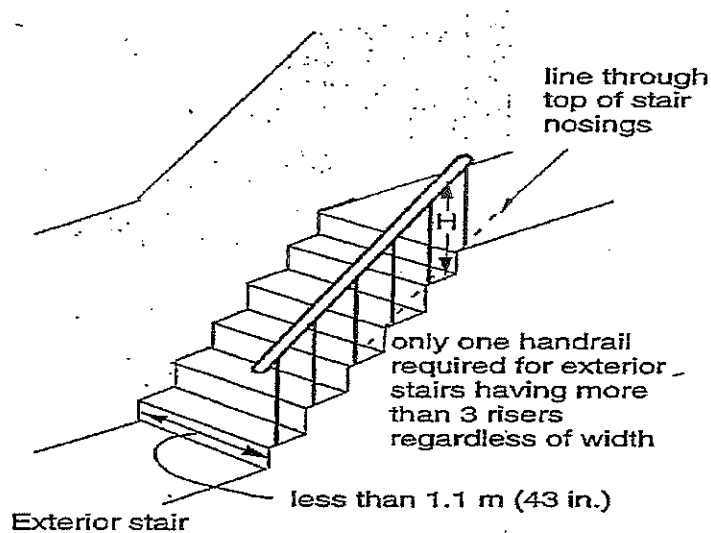
Every exterior landing, porch, deck and every balcony, mezzanine, gallery, raised walkway and roof to which access is provided for other than maintenance purposes is protected by guards on all open sides where the difference in elevation between adjacent levels exceeds 600 mm (24 in.)



900 mm (36 in.) minimum guard height if H is 1.8 m (6 ft.) or less

guard required if H exceeds 600 mm (24 in.)

A handrail is provided on
 a) at least one side of stairs less than 1.1 m (43 in.) width, and
 b) two sides of stairs 1.1 m (43 in.) width or greater
 Exceptions: Handrails not required for stairs within dwelling units having not more than 2 risers, or exterior stairs with not more than 3 risers



Smoke Alarms:

Smoke alarms are to be installed in each bedroom and in the hallway near the living area. Hard wired or wireless interconnected units are to be installed on or near the ceiling.

Carbon Monoxide Alarms:

Carbon monoxide alarms conforming to CAN/CSA-6.19 "Residential Carbon Monoxide Alarming Devices," shall be mechanically fixed on or near the ceiling in each room which contains a fuel burning appliance.

Wood Burning Stoves:

Solid fuel appliances to be installed in a mobile home shall:

- a) Be certified to the CSA Standard CAN/CSA-B366.1;
- b) Have provisions for obtaining all the required combustion air directly outdoors; and
- c) Be provided by the manufacturer, with hardware that accompanies the appliance for:
 - venting the appliance through combustible construction;
 - protection for combustible flooring; and
 - provisions for attaching the appliance to the floor.

A certified appliance, accessory components, and equipment shall be installed in accordance with the manufacturer's installation instructions.

Replacing a Fuel Fired Furnace:

A furnace certified for mobile homes shall be installed as the replacement unit. Many of the older mobile homes did not have drywall lining the walls and ceiling of the area the furnace was installed in. Before installing the new furnace, line the walls and ceiling with ½ in. drywall and tape the joints.

Repairs and Alterations to Mobile Homes:

Repairs and alterations to mobile homes are to be done in a manner that maintains the integrity of the original construction. Mobile homes are constructed to standards that may be compromised when alterations are made. Alterations, such as replacing the paneling with drywall (gyprock), can overload the cantilevered floor joist as the original design did not take this extra weight into consideration. In carrying out alterations or renovations, materials of similar weight and flame spread ratings should be used.

Bedroom Windows:

Older mobile homes whose bedroom windows do not meet current egress requirements shall have bedroom windows replaced with ones that do meet egress requirements. Egress is required to provide an unobstructed opening of not less than .35 sq. m. (3.77 sq. ft.) with no dimension less than 380 mm (15 in.).

Moving Partitions:

If walls are to be moved, hallways are to have an unobstructed width of 860 mm (34 in.).

Additions to Mobile Homes:

A Building Permit is required for an addition to your mobile home.

Required Drawings:

Floor Plan: The floor plan shall be drawn to scale and will include the floor plan of the mobile home with the floor plan addition. The floor plan of the addition shall have the following details:

- a) Size and types of rooms;
- b) Location and sizes of windows that are located less than 1.2 m (4 ft.) from the property line;
- c) If there is a wood stove, indicate type and location; and
- d) Wired-in smoke alarm if the addition includes a new bedroom.

Cross Section: The cross section for the addition shows the construction used. On the cross section are recorded the materials and sizes to be used. In addition, the footing and foundation are dimensioned. Other details, such as ceiling height and location of grade are shown. In summary, every detail of the construction should be identified.

Elevations: A minimum of two elevations are required to show the additions added to the mobile home. The stair landing, stairs, handrail and guards should be shown on the elevation drawings.

Construction Requirements:

Additions to a mobile shall be done in such a manner that if the mobile home were to be moved, it should be able to do so without damage to the mobile home.

Mobile homes are designed to be deformation resistant buildings and therefore can be setup on a surface foundation as illustrated in this booklet. Additions to mobile homes are required to be connected in such a manner that movement between the mobile home and the addition will not damage the mobile home. The addition must be constructed to minimize damage to the addition from movement in the foundation due to frost heave and other changing soil conditions.

If you have questions regarding these standards, contact the Rural Municipality of Whitemouth office at 204-348-2221.