

Part 3

**CITY OF WINNEMUCCA
AND
HUMBOLDT COUNTY
BUILDING DEPARTMENTS**

**SETTING UP YOUR MANUFACTURED
HOME**

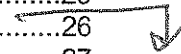
THE INFORMATION CONTAINED IN THIS HANDOUT IS FOR SETTING UP MOBILE
HOMES/MANUFACTURED HOUSES FOR ALL AGES

Please utilize the checklist on the back of this handout. Review checklist and complete
all items before calling for an inspection

REVISED MARCH 2014

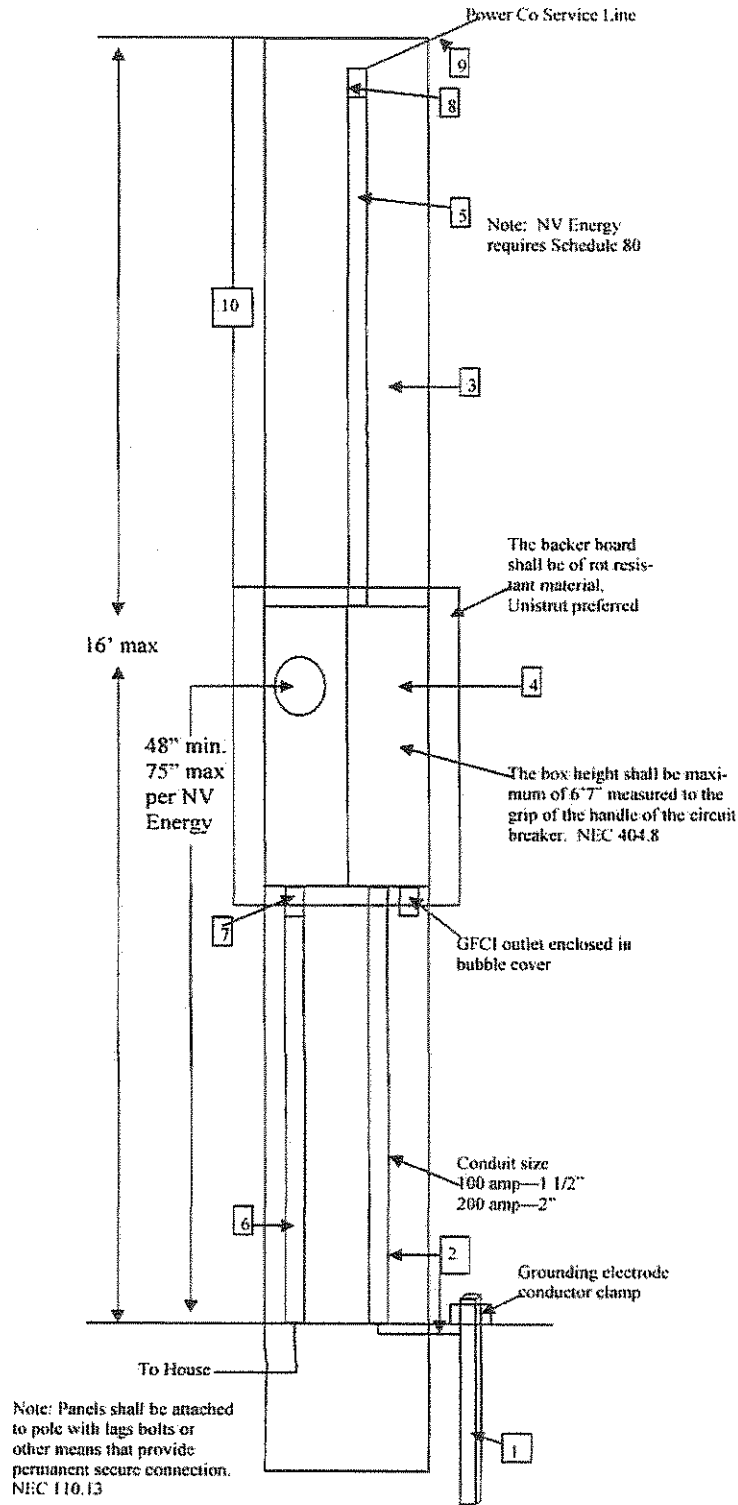
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part 3

FIGURE 312B



1. Ground Electrode Conductor may be:
 - a. Rods of iron or steel or stainless steel at least 5/8" in diameter
 - b. Rods of listed nonferrous metal (copper or copper clad) not less than 1/2" diameter.
 - c. Pipe or conduit not less than 3/4" trade size & where of iron or steel shall have the outer surface galvanized or otherwise metal coated for corrosion protection.
 - d. The electrode shall be installed such that at least 8' of length is in contact with soil. NEC 205.52.A(5)
 - e. Grounding electrode conductor clamp shall be installed above grade.
2. Grounding Electrode Conductor—Bare #6 copper for 100 amp service. Bar #4 copper for 200 amp service. NEC Table 250.66
Shall be secured in an approved manner & connected to ground rod.
3. Wood pole—must be 6"x6" square or 6" diameter round at the top & 10" diameter round at the bottom. Rot treated by pressure method

Pole Length(Ft)	Depth(ft)
25	4 1/2
30	5
35	5 1/2
40	6
4. Meter base-(socket) with main disconnect breaker (NEC 230.70). General means shall be provided to disconnect all conductors in a building or structure from the service entrance conductors. The disconnect shall be an external disconnect installed immediately adjacent to the meter locations. Switch boards and panels shall comply with NEC Article 408
5. Service conduit Schedule 80 sunlight resistant PVC (8' long min). Size conduit per wire size installed. Secure conduit to pole @ 30' o.c.
6. Load side conduit, Schedule 80 sunlight resistant PVC. NEC 300.50. Size conduit per wire size.
7. Conduit access fitting (optional). Install approved fittings and bushings.
8. Service cables shall be equipped with rain tight service head. NEC 230.54
9. Insulated wire of appropriate size (leave 16" out of weatherhead for drop loop by Power Co)
10. Clearances
 - a. 10' at the electric service entrance to buildings, also at the lowest point of the drip loop of the building electric entrance and above areas or side walks where voltage does not exceed 150 volts to ground.
 - b. 12' over residential property and driveways where the voltage does not exceed 300 volts to ground.
 - c. 15' over residential properties and driveways where the voltage exceeds 300 volts.
 - d. 18' over public streets, alleys, roads, parking areas subject to truck traffic, driveways on other than residential properties.
 - e. Conductors shall have a vertical clearance of not less than 8' above roof surfaces. NEC 203.24(a) (b)
11. Contact the local power company for specific utility company requirements. Commercial equipment is required to be preapproved by power company.

17. Gas System Installation

The following component items are required for a gas system

- A. A flexible MH connector between supply and MH.
- B. When the distance between the supply and the MH exceeds 6" approved gas pipe must be used and buried. All buried pipe must have an approved factory coating and joints wrapped with approved material and is required to be inspected prior to burial.
 - 1. Burial Depth
 - a. Horizontal metallic piping – 12"
 - b. Plastic gas piping – 18"
- C. An approved shut-off valve within 6' of the MH. May not be under the MH.
- D. The supply inlet to the MH must project 3" to 6" beyond the exterior wall of the MH. It is recommended that the gas line stub out at the house be 3' from any openings (windows, doors, crawl space, vents etc.) and electrical panels or fixtures. Gas pipe shall not be buried under the house.
- E. Gas flexible connectors or an approved listed disconnect device shall be installed where a gas line crosses the marriage line as required by the manufacturer or the State Manufactured Housing Division.
- F. Gas line shall be strapped or supported 4' o.c.
- G. All gas piping shall be sized appropriately for the appliances they serve and the pipe length. The size of the main supply line installed by the factory shall be maintained and not reduced. The Building Department can assist with sizing of the pipe.
- H. Testing the gas line – the person responsible for the set-up shall:
Provide a manometer test or PSI gauge for a period of not less than 10 minutes.
 - a. Manometer test – pressurized to at least 10" but not more than 14"
 - b. Pressure gauge shall be calibrated so as to be read in increments of not greater than 1/10 lb and be pressurized to at least 3 lbs but not more than 10 lbs.
 - c. The shut off valves for each appliance shall be in the open position.
 - d. The test must be on and pressurized and the inspector shall witness the test.
- I. Contact your gas provider for their requirements.

18. Water System

- A. Water line burial depth—36"
- B. All MH's must be connected to a domestic well or approved water system by flexible tubing (copper or plastic) properly protected against freezing.
- C. The water inlet shall be connected to the site water supply by an approved connector not less than ¾" nominal diameter.
- D. The water line shall transition to an approved pipe outside of the foundation or exterior wall of the MH.
- E. A water shut-off valve shall be provided to frost line and on the exterior of the house at the water line transition area.
- F. Water line shall be strapped or supported 3' o.c.(approved strapping)
- G. Testing Procedures
 - 1. The water system shall be inspected and tested for leaks after completion at the site. A running water test is required. Water is required to run 3 minutes

19. Sewage Collection System

- A. All MH's must be connected to an approved sewage disposal system.
- B. Septic system installation shall be completed and inspected before a final inspection, is requested or performed on the MH.
- C. Locate your septic system before placing your MH. A minimum of 8 feet is required to the nearest portion of the septic tank.
- D. Transition sewer to ABS or approved pipe outside the foundation or exterior wall.
- E. Pipe must have nominal 3" inside diameter, of a material that is semi-rigid (not less than schedule 40 ABS plastic)
- F. The system must slope at the rate of not less than ¼" per foot.

- G. The connection to the disposal system must be sealed in an adequate approved manner. A 3" coupler is required at the connection.
 - H. Adequate accessible clean-outs shall be provided outside the wall of MH and underneath as needed.
 - I. Sewer line shall be strapped or supported 4' o.c. (approved strapping)
 - J. Burial depth
 - 1. 12" minimum cover
 - 2. If sewer line crosses the water line the sewer line shall be sleeved 5' on each side or cross over (total 10')
 - K. Testing procedures
 - 1. The drainage system must be inspected and tested for leaks after completion at the site. A running water test is required. Water is required to run 3 minutes.
 - L. No sewer pipe shall be permitted outside of the building above ground except for the clean-out.
20. Furnaces, Water Heaters, Dryers
- A. All MH's must be provided with a permanent heat source at the time of inspection. Gas furnaces and water heaters must be listed for installation in a MH.
 - B. All appliance compartments must be sheetrocked with 3/8" type "X" gypsum board. All joints or seams in the gypsum board must be filled or sealed. May use 18 gauge steel if sheetrock cannot be installed.
 - C. Condensate drain must be terminated outside the MH.
 - D. All heating ducts shall be installed at the time of inspection. The ducts shall be supported and not rest on the ground or concrete. Ducts must be insulated to R-8. All ducts shall be attached to collar with screws and wide foil tape or equivalent.
 - E. Hot water heaters shall be checked for the following:
 - 1. Adequate combustion air inlet (See manufacturer's instructions or notes on tank)(Gas only)
 - 2. Properly installed flue vent pipe flashed through roof. (Gas only)
 - 3. Shut-of valve on end of gas supply line.
 - 4. The overflow pipe from the pressure relief valve shall be piped to the outside through the skirting or foundation wall and a turndown elbow installed. Minimum 3/4" required. Install CPVC, copper or galvanized for overflow pipe.
 - 5. Water heater shall be MH approved.
 - 6. Sealed combustion/direct vent water heaters are required in interior locations.
 - 7. Protect from freezing.
 - 8. Strapped in 2 places to prevent movement.
 - 9. The water heater enclosure shall be firestopped with sheetrock and floor structurally sound. All joints must be taped.
 - F. All dryer vents shall be exhausted to the outside of the MH. The dryer duct shall be rigid metal listed for the use. A maximum of 25 feet with 2 elbows is permitted. Support max. 4' o.c.
 - G. A separate permit may be required if AC units are not installed at the time of the final.
 - H. Gas logs are not permitted to be installed in a MH.
21. Skirting (Shall be completed at MH final)
- A. Minimum of an R-8 insulated skirting is required.
 - B. Skirting shall be constructed of a durable rigid material such as vinyl, wood, aluminum, or steel and shall be suitable for exterior exposure. Untreated wood shall not be utilized within 6" of the ground.
 - C. Skirting shall be installed according to the skirting manufacturer's installation instructions and this subsection.
 - D. Skirting shall be adequately secured to assure stability, to minimize vibration, and to minimize susceptibility to wind damage.
 - E. Skirting shall be installed to compensate for possible frost heave.
 - F. Holes or gaps between the skirting and the ground, or any other gap anywhere around the skirting that could permit rodents to get under the home, shall be sealed or backfilled.

- G. Skirting shall not be attached to a manufactured home in a manner that will permit water to be trapped between the skirting and the siding or between the skirting and trim of the manufactured home.
 - H. All framing used to secure skirting material and located within 6" of earth shall be pressure treated lumber.
 - I. Provide a crawl space access. Recommend a minimum of 24"x24" in opening.
 - J. A minimum grade of 5% shall be provided away from the MH and shall be maintained.
 - K. Skirting shall not be backfilled against.
 - L. Provide underfloor venting in skirting.
23. Under Floor Ventilation – Skirting only. See foundation handout for requirements when house is placed on perimeter foundation.
- A. Provide ventilation to the crawl space (1 sq. ft. for each 150 sq. ft. of under floor area)
 - B. A ventilation opening shall be placed 3' from each corner. Vents shall not be spaced more than 10' apart. Vents shall be placed as high as practical.
 - C. Ventilation openings shall be provided with ¼" corrosion resistant wire mesh or with louvered openings with not less than 1/8" screen to retard the entry of vegetation, waste materials, and rodents.
 - D. A minimum of 8 ventilation openings is required on any house.
 - E. In areas subject to freezing, the coverings for the ventilation openings must also be of the adjustable type, permitting them to be in the open or closed position, depending on the climatic conditions.
24. Under Floor Access
- A. Skirting Access:
 - 1. Minimum clear opening of 24"x24".
 - 2. Require no tools, nor more than 5 lbs of force; nor the operation of more than four devices to open.
 - 3. Be easily identifiable
 - 4. Have a minimum of 30" clear space directly in front, outside the perimeter of the home, of each access panel or door.
 - B. Foundation Access:
 - 1. Minimum inside dimension of 24"hx36" w and extend at least 24" from the perimeter of the home.
 - 2. The access well shall have a minimum clear opening of 24" x24" to the underside of the home.
 - 3. The access well shall have a lightweight removable watertight/rot resistant cover made to resist the entrance of animals or water. The cover shall be designed and installed so that it cannot be locked. The cover shall be designed and installed so that it can be easily opened without using any tools.
 - 4. Access opening may be placed on the marriage line if adequate headers support end wall within 6" of end. Headers must be on edge min. 4x6; supported at both ends by piers or blocks. The header shall not encroach into the 24"x24" min. clear opening.
25. Porch/Deck areas – separation is required whether on a foundation or regular block set must be provided with a separation/barrier between the house crawl space and the porch. The barrier must be minimum 12" in height and of the following material skirting, a foundation, or a durable flexible material such as sheet vinyl, Plexiglas, Fiberglass, ABS, or EPDM.
26. Domestic Wells for Residential Use Only
- A. A contractor licensed by the State Contractors Board and Water Resources will file intent to drill and submit well logs to Water Resources to comply with Nevada Revised Statute regulations. One dwelling is allowed for each domestic well.

27. Steps & Landings (Figure 314A-314D)

- A. Steps with adequate landings and handrails shall be provided at all man doors (including french doors and sliding glass doors)
- B. If the factory installs a deck or porch and this area is over 30" above finished grade a guardrail conforming to code requirements shall be installed.

FIGURE 314A
RESIDENTIAL EXTERIOR STAIR
IRC SECTIONS R311 & R312

1. Stairways and landings shall be not less than 36" wide and 36" in depth (36"x36")
2. Landing width equal to the width of the door. Shall not be more than 1 1/2" lower than the top of the threshold.
3. Stairway risers shall be a maximum of 7 3/4" high. The greater rise shall not exceed the smallest by more than 3/8".
4. Stairway treads shall be a minimum of 10" wide measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the treads leading edge. When tread depth is less than 11", a nosing not less than 3/4" but not more than 1 1/4" shall be provided on the stairways with solid risers with no more than 3/8" deviation of projections including the nosing at the level of floors and landings. Bevel of nosing shall not exceed 1/2". Recommend you have a tread depth of 11" to avoid nosing requirement.
5. Stairway Handrails
 - a. Handrails shall be provided on at least one side of each continuous run of tread or flight with 4 or more risers.
 - b. Handrail height, measured vertically from the sloped plan adjoining the tread nosing shall not be less than 34" and not more than 38".
 - c. Handrails shall be continuous for the full length of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals.
 - d. Handrails shall not project more than 4 1/2" on either side of the stairway. Stairways with one hand rail shall not be less than 31 1/2" in width.
6. The walking surface of treads and landings of stairways shall be sloped no steeper than one unit vertical in 48" horizontal.
7. Stair construction shall have a rot resistant base and structurally sound.

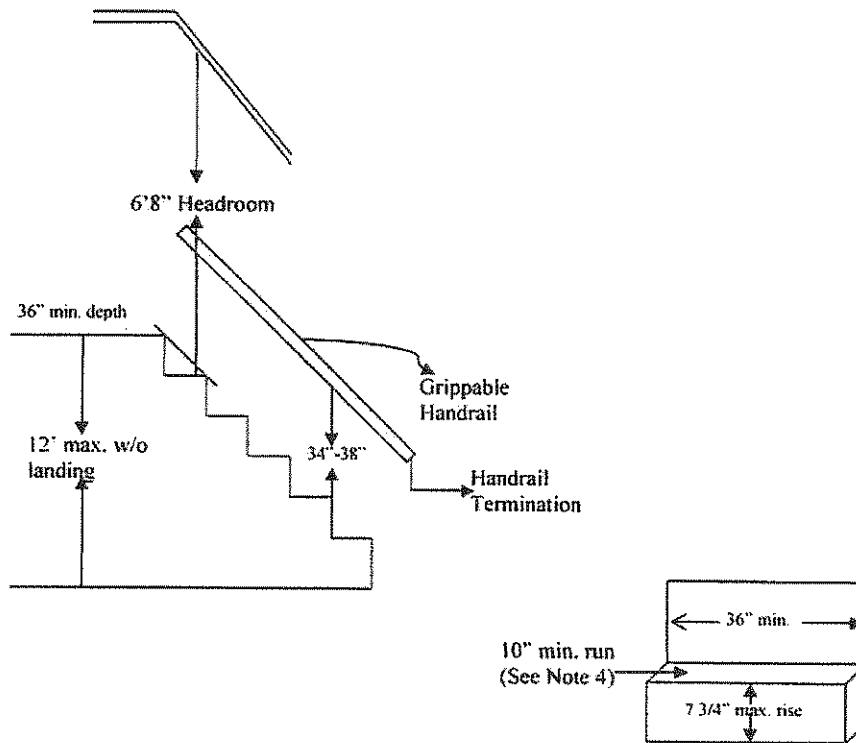
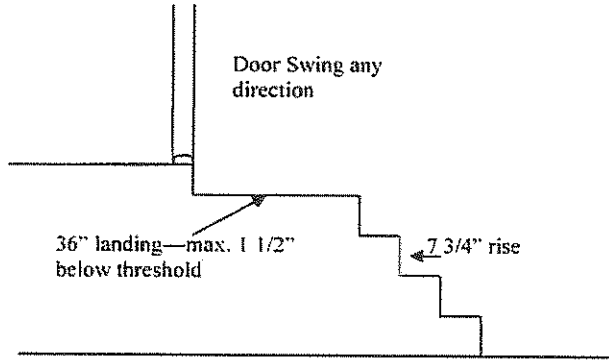


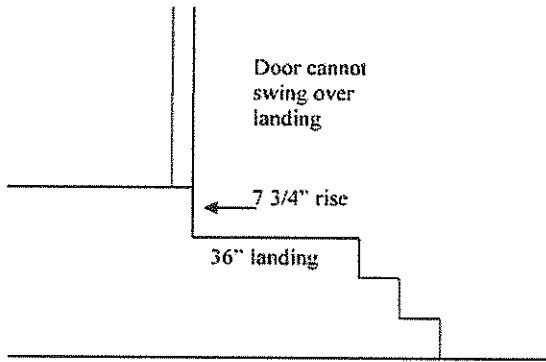
FIGURE 314B
LANDINGS AT DOORS

There shall be a floor or landing on each side of each exterior door. Landings are to be the width of the door and 36" in the direction of travel (typically a 36"x36" landing). Landings shall be located as follows:

1. Note more than 1.5" lower than the top of the threshold of the door.



2. Exception: If the door does not swing over the landing, the landing may be located not more than 7 3/4" lower than the top of the threshold of the door



3. Exception: On doors other than the required exit, where there are no more than two risers and one intermediate tread, a landing is not required. Usually the front door is the required exit, therefore, you could not use this exception on the front door.

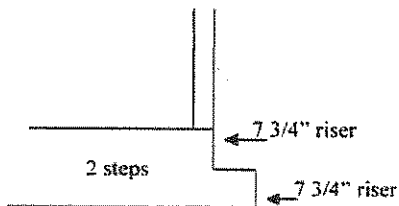
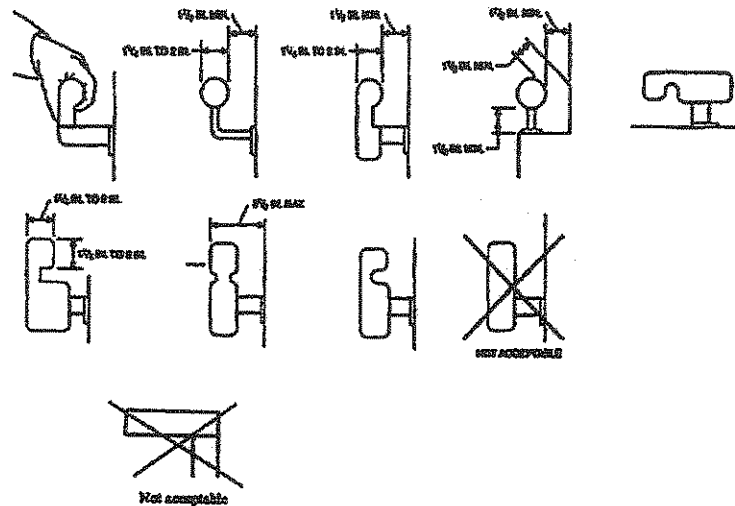


FIGURE 314C
 HANDRAIL GRIP SIZE
 IRC SECTION R311.5.6.3

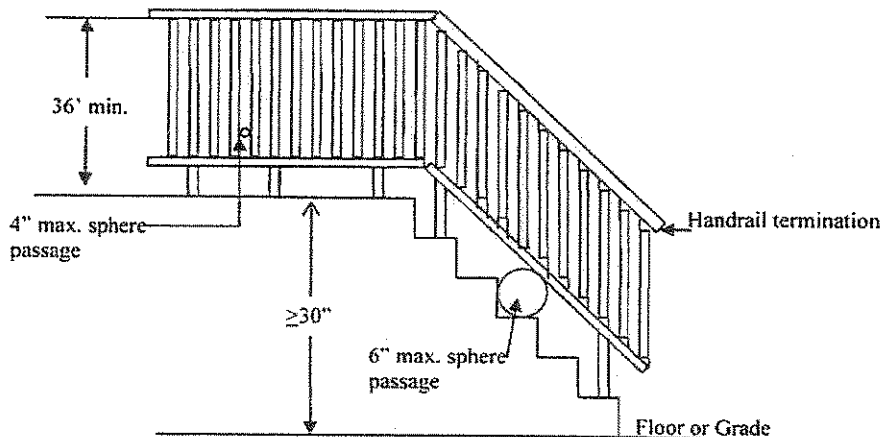


Handgrip Size

- a. Type I. Handrails with a circular cross section shall have an outside diameter of at least $1\frac{1}{4}$ " and not greater than 2". If the handrail is not circular it shall have a perimeter dimension of at least 4" and not greater than $6\frac{1}{4}$ " with a maximum cross section dimension of $2\frac{1}{4}$ ".
- b. Type II. Handrails with a perimeter greater than $6\frac{1}{4}$ " shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin with a distance of $\frac{3}{4}$ " measured vertically from the tallest portion of the profile and achieve a depth of at least $\frac{5}{16}$ " within $\frac{7}{8}$ " below the widest portion of the profile. This required depth shall continue for at least $\frac{3}{8}$ " to a level that is not less than $1\frac{3}{4}$ " below the tallest portion of the profile. The minimum width of the handrail above the recess shall be $1\frac{1}{4}$ " to a maximum of $2\frac{3}{4}$ ". Edges shall have a minimum radius of 0.01 inches.

FIGURE 314 D
GUARDS
IRC SECTION R312

1. Guards are required along open-sided walking surfaces, including stairs, ramps and landings that are located more than 30" measured vertically to the floor or grade below.
2. Open sides of stairs with a total rise of more than 30" above the floor or grade below shall have guards of not less than 34" in height.
3. Guards shall not be less than 36" in height.
4. Guards shall have intermediate rails or ornamental closures which do not allow passage of a sphere 4" or more in diameter.
5. The triangular openings at the side of stair, formed by the riser, tread and bottom rail of a guard shall not allow passage of a sphere 6" in diameter.
6. Stairway Handrails
 - a. Handrails shall be provided on at least one side of each continuous run of tread or flight with 4 or more risers.
 - b. Handrail height, measured vertically from the sloped plan adjoining the tread nosing shall not be less than 34" and not more than 38".
 - c. Handrails shall be continuous for the full length of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals.
 - d. Handrails shall not project more than 4 1/2" on either side of the stairway. Stairways with one hand rail shall not be less than 31 1/2" in width.



28. Miscellaneous

A. Address Numbers

1. Temporary Address

- a. Prior to your first inspection being scheduled you are required to post a temporary address.
- b. The temporary address shall be easily readable and placed on the property line facing the principle street

2. Permanent Address

- a. Before a final inspection is called for a permanent address shall be posted.
- b. Permanent addresses shall be a minimum of 4" high and posted in a prominent and conspicuous location facing the principle street on which the address is based. Typically the house number shall be installed on the house.
- c. For buildings that sit further than 80 feet from the property line the address numbers shall be of sufficient size to be easily viewed or the address shall be placed at the front entrance to the property.

B. A pumphouse shall be provided to protect the pressure tank, water and electrical installations. IRC Section R105.1 & Humboldt County Ordinance 01-03-05 exempts detached pumphouses less than 130 square feet from requiring a permit, however this sections also states "Exemption from the permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of provisions of this code or any other laws or ordinances of this jurisdiction." This requires the materials to be rot resistant and weatherproof. The structure itself must be structurally sound. All plumbing lines and fixtures shall be protected from freezing by approved materials. Electric shall be mounted on a permanent wall or pole (pressure treated). All outlets installed in pumphouses and shall be GFCI protected. The pumphouse may require permits. Check with the Building Department.

C. All additions such as garages, additions, porches, carports, awnings, ramadas, require permits from the Building Department **before** beginning construction. Decks, platforms, and walks do not require permits except when more than 30" above grade. Decks, awnings, and additions shall not support on the MH (see exceptions). If in the future the furnace or water heater needs to be replaced a permit will be required for the installation.

D. Wood Stoves, Pellet Stoves or Fireplaces

- a. All such stoves must be of an approved (listed) type for mobile home/manufactured home use. They shall be installed to the manufacturer's instructions.
- b. All such stoves must be vented with an approved (listed) factory built chimney as recommended by the manufacturer. Termination of chimney vent shall be per listed or 3' above roof and 2' above highest elevation within 10'.
- c. Combustion air duct to the outside is required. Cannot be ducted under the house unless crawl space vents are installed which are not closable.
- d. Hearth construction shall meet manufacturer's instructions.
- e. Wood stove and pellet stove installations are prohibited in sleeping areas.
- f. Separate permits and inspections are required for wood stove and pellet stove installations.

E. Smoke detectors are required and must be mounted and operable for final inspection. A smoke detector is required to be installed in the hallway or room leading to sleeping room.

F. Conversion to Real Property (See separate County handout for requirements)

The owner is required to meet all real property requirements at the time of the MH set-up if runners or permanent foundations are installed and inspected; all real property conversion requirements shall be completed at the time of the MH final inspection. Do not place tongues or axles from the home under the house if installed on runners or full foundations. For a second inspection there will be an additional charge. Perimeter blocking requires a continuous runner to frost line.

G. This office recommends runner installation but they are not required unless you wish to convert to real property or required by zoning.

HUMBOLDT COUNTY BUILDING DEPARTMENT

MANUFACTURED HOME/MOBILE HOME OWNERS INSPECTION CHECKLIST

**FAILURE TO COMPLETE ANY OF THE ITEMS LISTED BELOW WILL RESULT IN A FAILED INSPECTION.
AN \$80.00 REINSPECTION FEE WILL BE ASSESSED IF THE MANUFACTURED HOME/MOBILE HOME
FAILS THE FINAL INSPECTION.**

Refer to the manufactured home set-up handout for specific requirements

- ___1. Installation instructions required for any special installations including tie downs.
- ___2. Pad installed for support of blocking & drainage grade
- ___3. Foundation previously inspected.
- ___4. All organic material removed.
- ___5. Underground utilities inspected.
- ___6. Temporary electric inspection – **Must be requested before the MH final (power has to be on at the final)**
- ___7. Temporary gas inspection – **Must be requested before the MH final (gas has to be on at the final)**
 - a. Pressure test on gas line holding . Inspector to witness test.
 - b. Gas line extends 3" to 6" beyond the exterior wall of the mobile home
 - c. Provide flex and shut off at gas meter
- ___8. Underfloor Inspection for Homes
 - A. Blocking
 - a. Footing
 1. Sized correctly
 2. To frost line at perimeter blocking(if runners only installed)
 3. Correct material
 4. Correct configuration
 - B. Piers
 - ___1. Correct type
 - ___2. Blocks run perpendicular to the frame
 - ___3. Steel stands
 - ___a. Pier load min. 5,000 lbs
 - ___b. Heads alternated
 - ___4. Spacing – 6' o.c. & 12" o.c.
 - ___5. If blocked – must have pressure treated wood between block and runners.
 - C. Perimeter blocking (required if MH is over 11' from sidewall to sidewall)
 - ___1. To frost line (if runners only installed)
 - ___2. Spacing – 8' o.c. & 6" from end
 - ___3. Correct configuration
 - ___4. Correct material
 - D. Block at doors and windows if necessary
 - E. Provide 18" from bottom of frame to top of runner or grade if soft set
 - F. Block pier caps correct
 - G. Block pier shims correct
 - H. Wedges correctly installed
 - I. Max. 36" in height
 - J. Marriage Piers (Only for multi-section homes)
 - a. Manufacturers specifications on marriage/ridge pier location and load of each column (may require more than one pier) on site.
 - b. Footing size for load correct
 - c. Typically blocking – 8' o.c. & 6" from ends
 - d. Max. 36" in height
 - e. No damage to house from elements

- K. Tie Downs (Wind Zone 1 Requirements)
 - a. Installed to manufacturer's instructions/auger with stabilizer plate/strapping correct.
 - b. Installed to meet real property conversion requirements (if runners installed)
 - c. Angle of tie down shall be to manufacturer's instructions
 - d. Spacing – 11' o.c. & 2' from each end
 - f. Anchors shall be 36"
 - g. Straps correct
 - h. Longitudinal anchors and straps installed.
 - i. Alternative system installed per manufacturer (ie: OTI)
- L. Marriage Line(Only for multi-section homes)
 - a. Wall & roof closed up correctly & completely
 - b. Gaps at multi-section areas acceptable
 - c. Lagging at marriage
 - _____1. Roof
 - _____2. Floor
 - d. Sealing Section
 - e. Patching
- M. Electrical
 - a. Provide hangers/supports on conduit 6'o.c.
 - b. Connect cross over per manufacturer's instructions.(multi-section homes)
 - c. Proper wire size and breaker size
 - b. 4 wire system to the MH properly sized
 - c. Ground rod at service
 - d. Well wiring connected
 - e. Mobile home feeder wire connected to main service and mobile home
 - f. Service disconnect within 30 feet .
 - g. Multi-tester on site for continuity test & continuity test cleared
 - h. Connect frame grounding per manufacturer's instructions.
 - i. Recommend set up crew perform any other electrical test specified in the manufacturer's instructions.
 - j. Backboard for service shall be pressure treated or unistrut
 - n. Service installed to NEC and correctly rated.
 - o. Frames/chassis grounded
 - p. Service height – OK
 - q. All outlets will be check by the inspector
- N. Gas System
 - a. Gas flexible connectors shall be installed where a gas line crosses the marriage line as required by the manufacturer or the State Manufactured Housing Division. (multi-section homes)
 - b. Provide gas hangers/supports 6' o.c.
 - c. Provide approved gas flex & gas shut off valves on each gas appliance.
 - d. Properly sized gas line.
 - e. Provide gas test for inspector to witness.
- O. Plumbing System
 - a. Provide hangers/supports
 - b. Connect any crossovers required by the manufacturer. (multi-section homes)
- P. Water System
 - a. Connections
 - b. Protect water line from freezing. If heat tape is utilized install to manufacturer's instructions.
 - c. Provide hangers/supports on water lines per Humboldt County handout
 - d. Provide a shut off valve at water connection at exterior of house – max. 30' from house.
 - e. Provide correct sized water line
 - f. Transition pipe under footing/skirting complete.

- g. Recommend set up crew perform any other test specified in the manufacturer's instructions

Q. Sewage Collection System

- a. MH connected to an approved sewage disposal system
- b. Clean outs
- c. Provide hangers/supports every 4' O.C.
- d. Sewer shall be protected from freezing.
- e. Minimum 3" ABS pipe under the house
- f. Slope 1/4" per foot; sealed pipe
- g. Transition pipe thru foundation/exterior wall complete.
- h. Recommend set up crew perform any other test specified in the manufacturer's instructions

9. Final Inspection

- A. Power and Gas supplied to home
- B. GFCI outlets working
- C. Running water test
- D. Smoke Detectors
- E. Stove & furnace turned on
- F. Windows Operable
- G. Stairs, landings, handrails, guardrails,
- H. Grading

HUMBOLDT COUNTY BUILDING DEPARTMENT
CITY OF WINNEMUCCA BUILDING DEPARTMENT
RESIDENTIAL EXTERIOR STAIR HANDOUT
IRC SECTIONS R311 & R312

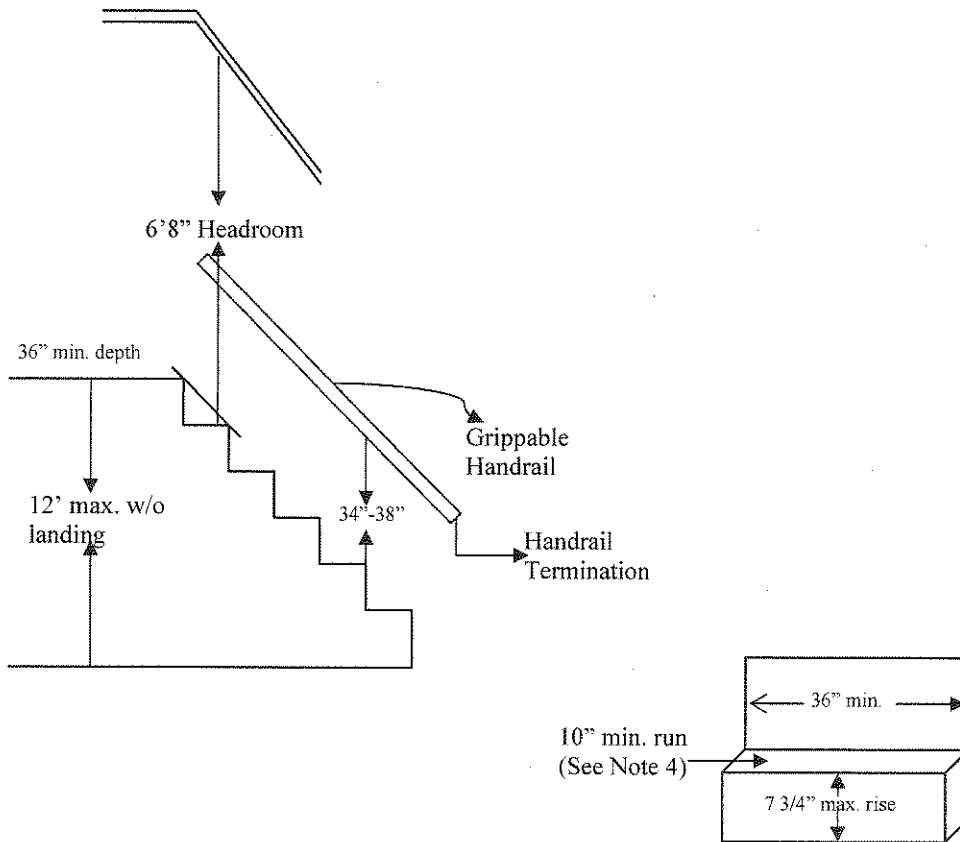
Stairway and handrail requirements are very specific. You are responsible for reading the attachments and making sure stairways comply in EVERY way.

COMMON MISTAKES:

1. Make sure that the stair riser is no more than 7 3/4" and the stair tread is no less than 10".
2. Make sure that the size of the risers and treads are consistent with **no more** than 3/8" deviation between the largest and the smallest treat (i.e. a bottom riser that is 7" and a top riser that is 7 3/4" is **not acceptable** since it is a 3/4" deviation.
3. If the stair treat is less than 11" and you have solid risers, you must have a nosing on the tread not less than 3/4" but no more than 1 1/4". (*To avoid the nosing requirements install an 11" tread.*)
4. You must have a 36" landing on exterior doors—this includes sliding doors (see page 2)
5. There must be at least one handrail when there are **4** or more risers.
6. when installing the handrail, the height must be 34"-38" as measured from the **nosing** of the tread. The **nosing** of the tread is the front edge of the step. If you measure from the back of the step the handrail will be to low. (see page 3 for how-to-measure)
7. A 2x4 laid flat or on edge will not work for a handrail since it is not considered grippable. A min. 2x6 routed to form a grippable edge is acceptable.
8. Handrails must be **continuous** for the full flight of stairs from a point directly **above** the top riser, to a point directly above the lowest riser. The handrails cannot be interrupted by newel posts except where the stairway turns a corner, or at the bottom of the stairway.
9. The ends of handrails must terminate in a safety terminal, newel post, or have an end return. This is to avoid catching clothing or bags on the handrail, which can cause a person to lose their balance.
10. Stairways and landings that are over 30" in height must additionally comply with guardrail requirements show on page 5 of this handout.
11. Exterior stairs base must be rot resistant and structurally sound. A pallet laid flat with a pier of plywood nailed across the top is not rot resistant, nor is it structurally sound. It also tends to rock.

RESIDENTIAL EXTERIOR STAIR
IRC SECTIONS R311 & R312

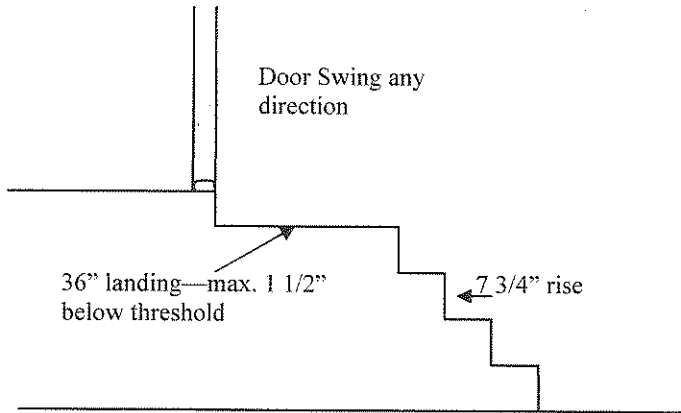
1. Stairways and landings shall be not less than 36" wide and 36" in depth (36"x36")
2. Landing width equal to the width of the door. Shall not be more than 1 1/2" lower than the top of the threshold.
3. Stairway risers shall be a maximum of 7 3/4" high. The greater rise shall not exceed the smallest by more than 3/8".
4. Stairway treads shall be a minimum of 10" wide measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the treads leading edge. When tread depth is less than 11", a nosing not less than 3/4" but not more than 1 1/4" shall be provided on the stairways with solid risers with no more than 3/8" deviation of projections including the nosing at the level of floors and landings. Bevel of nosing shall not exceed 1/2". Recommend you have a tread depth of 11" to avoid nosing requirement.
5. Stairway Handrails
 - a. Handrails shall be provided on at least one side of each continuous run of tread or flight with 4 or more risers.
 - b. Handrail height, measured vertically from the sloped plan adjoining the tread nosing shall not be less than 34" and not more than 38".
 - c. Handrails shall be continuous for the full length of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals.
 - d. Handrails shall not project more than 4 1/2" on either side of the stairway. Stairways with one hand rail shall not be less than 31 1/2" in width.
6. The walking surface of treads and landings of stairways shall be sloped no steeper than one unit vertical in 48" horizontal.
7. Stair construction shall have a rot resistant base and structurally sound.



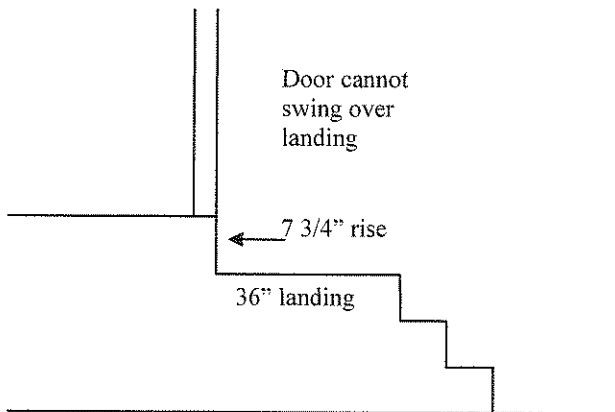
LANDINGS AT DOORS

There shall be a floor or landing on each side of each exterior door. Landings are to be the width of the door and 36" in the direction of travel (typically a 36"x36" landing). Landings shall be located as follows:

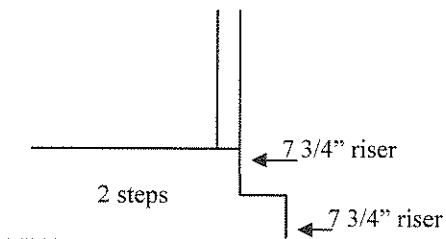
1. Note more than 1.5" lower than the top of the threshold of the door.



2. **Exception:** If the door does not swing over the landing, the landing may be located not more than 7 3/4" lower than the top of the threshold of the door



3. **Exception:** On doors other than the required exit, where there are **no more** than two risers and one intermediate tread, a landing is not required. Usually the front door is the required exit, therefore, you could not use this exception on the front door.



GUARDS
IRC SECTION R312

1. Guards are required along open-sided walking surfaces, including stairs, ramps and landings that are located more than 30" measured vertically to the floor or grade below.
2. Open sides of stairs with a total rise of more than 30" above the floor or grade below shall have guards of not less than 34" in height.
3. Guards shall not be less than 36" in height.
4. Guards shall have intermediate rails or ornamental closures which do not allow passage of a sphere 4" or more in diameter.
5. The triangular openings at the side of stair, formed by the riser, tread and bottom rail of a guard shall not allow passage of a sphere 6" in diameter.
6. Stairway Handrails
 - a. Handrails shall be provided on at least one side of each continuous run of tread or flight with 4 or more risers.
 - b. Handrail height, measured vertically from the sloped plan adjoining the tread nosing shall not be less than 34" and not more than 38".
 - c. Handrails shall be continuous for the full length of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals.
 - d. Handrails shall not project more than 4 1/2" on either side of the stairway. Stairways with one hand rail shall not be less than 31 1/2" in width.

