



Manufactured Home Update

Oregon Department of Consumer & Business Services ■ Building Codes Division

September 2001

Alternate construction: Getting the roof right _____

By Dwight West

Homes built under the Alternate Construction Program are still a big part of the work that we do here at Building Codes. As of August 23, there were 43 homes installed under the Alternate Construction Program this year.

I thought that you might be interested in some of the things we are still finding wrong with the roofs during our inspections.

■ **Exposed fasteners** — State inspectors have found on several homes that the fasteners securing the shingles are not in the proper locations; they are in the tar strip instead of within an inch of the edge of the shingle. Some staples are exposed at the slots.

If the fasteners are in the tar strip, they are exposed to the weather. Care must be taken to ensure that fasteners are not driven too deep, so that they are cutting into the shingles.

■ **Sheathing securement** — Make sure that when you install roof sheathing that fasteners are fully into the top chord of the trusses.

Alternate construction... continued on Page 2

Inside

Customer signatures on paperwork can prevent disputes	2
Bad plastic close-up can damage homes in storage	3
Are you talking site preparation or final grading?	3
How to keep crawlspaces drier	4
Mositure: Have you got it under control?	5
Good installations recognized	6

Installation survey update

Installation-survey information is being gathered by local jurisdictions and BCD field offices around the state. Thanks to building officials and field office managers for helping with the information-gathering process.

The information you send helps us pinpoint training needs and provide training to installers and inspectors.

Jurisdictions that want to participate in the survey may contact Al Rust, (503) 378-8053. ■

December means license renewal for many installers _____

By Albert Endres

By the time you read this article, you will have about two months left before it is time to renew your license. Check the date of expiration on your license to determine if this is the year your license will expire. About half of all installer licenses will expire at the end of December 2001.

BCD is required to send you a notice 45 days prior to expiration, but we have found that many addresses have changed. The burden of renewal is yours. If you

do not renew your license prior to expiration, you must attend the required classes and reapply for a license as if you were a new applicant. If you have an address change, you might want to report it to Building Codes Division before the mailing. You can notify us of the change on the Web or by phone.

If you have questions concerning license renewals, please call Marilyn Mohler, (503) 378-3980, or send e-mail to marilyn.a.mohler@state.or.us. ■

Customer signatures on paperwork can prevent disputes

By Mark Campion

Naturally enough, consumer complaints are a mixed bag: They cover code, cosmetic, and installation problems and concerns. Some of the harder complaints to deal with, from Building Codes' standpoint, are what I call "performance" issues.

Performance issues include phone calls not returned, service crews not showing up on the appointed day, options ordered and not received, oral promises not honored, etc.

Getting those signatures

Although consumer complaints will never go away, many performance issues that deal with contracts and promises can be resolved by doing the following: Put it in writing and be specific. And, have the customer sign and date the document.

Most retailers do this. In fact, I'd say that comprehensive and clear paperwork is the norm. But I often find when I audit homeowners' files in the field or at the retailer's place of business that paperwork lacks customer signatures and the date.

And when contracts or orders have been altered, "change" orders, which should be signed and dated by the customer, are often missing.

Especially frustrating to me are order-option sheets not signed by customers. I am unable to help customers and retailers because contractual paperwork is not in order or is missing altogether.

Many complaints could have been resolved had I been able to show customers that they got exactly what they ordered; that the proof is their signature and date on the dotted line.

The crucial question that manufacturers, retailers, and installers have to ask themselves: If you find yourself in court, will your paper trail hold up in front of a judge? The Department of Justice is looking to the paper trail now in its enforcement activities. That's not surprising, given the bad press our industry has received in this area over the past year. ■

Alternate construction *continued from Page 1*

Inspectors are finding roof sheathing loose due to fasteners that miss the trusses. Check this before you install underlayment paper and shingles. It is a hard fix after the fact.

- **Truss securement** — When installing trusses on site, make sure that you place them directly over the sub-roof trusses and secure them within three inches of each upright.
- **Damaged trusses** — Inspectors are finding trusses that have gang plates missing or pulled loose. It is the responsibility of the installers to ensure that these trusses are repaired or removed. If you repair them, you must do so according to the approved drawings from the manufacturer.

Use the right plans

Installers and contractors need to know that there are designs in the kitchen drawers of all these homes. The designs show explicitly how trusses and roofs are to be assembled. Be sure to use them. Because these homes are built under federal HUD regulations, the factory plans must be used instead of framing practices illustrated in CABO and UBC codes.

Inspection procedures

When inspections are called for, Building Codes Division wants to see as much of the completed roof cavity as possible. Ideally, trusses will have been installed, vents cut out, and some sheathing and shingles installed.

When calling for inspections, keep in mind that we cannot always get to a home within a couple of days. Please call a week in advance so inspectors can get there while the installers are working on the home. ■

Visit the Oregon Building Codes Division Web site: www.oregonbcd.org

Bad plastic close-up can damage homes in storage

By Tom Nicolai

One of the final steps for a manufactured home about to leave the factory is installing close-up plastic over the open marriage line of the home. This protects the home from wind and weather during transport from the factory to the dealer lot or set-up site. Once the home arrives at its destination, the plastic is removed and the sections are “married.”

This is the ideal situation, but not the norm. What usually happens is the home is placed in storage at the transport company holding lot or at the dealer lot and held until the site is ready for the home to be delivered — a period that can be extensive.

The installed plastic is not intended for long-term exposure to the elements. It can be damaged during transport, torn loose by the wind, or ripped along access holes that are cut into it. This leaves the home susceptible to damage from the elements — not so much during the warm, dry summer months, but definitely during Oregon’s rainy seasons.

When close-up plastic is damaged, a home can be badly damaged by the weather. Rain and moisture can ruin floor decking, floor insulation, floor joists, walls, and ceiling. Moisture left unchecked can encourage

the growth of mold and mildew on the walls and ceiling. This happens much too often — especially in the winter.

Manufacturers and dealers, in conjunction with transport companies, should take every step possible to ensure that homes are not exposed to the elements in the manner I’ve described.

Checking the homes during transport and storage to ensure that close-up plastic is in good condition is the simplest way to avoid weather damage to the home. If for some reason the plastic is damaged and the home incurs water damage, the dealer should be notified at once to replace the plastic and take care of any damage that has occurred before it gets worse.

Sometimes these situations are discovered by Building Code Division inspectors who conduct storage-lot inspections and report to the responsible parties. The logical way to avoid weather damage that results from bad close-up plastic would be for the transport company quickly inspect the plastic once the home has reached its destination and make repairs or notify the dealer, if necessary. ■

Are you talking site preparation or final grading?

By Mark Campion

Many homeowners don’t know the difference between site preparation and final grading. Site preparation typically includes excavation or scraping away vegetation at the pad site, cutting hillsides, and moving earth. Final grading is the last step before landscaping, after the home has been set and additions such as garages are finished.

Even homeowners with well-written bids and contracts are sometimes not clear on the differences. I recommend that any paperwork dealing with site preparation — even if final grading is not part of the package — state that final grading is not in-

cluded in the bid or final price. This way, there is no room for confusion.

The same holds true for drainage. Homeowners are surprised to find that the subcontractor’s (or retailer’s) contract for site preparation, concrete runners, and skirting usually does not cover drainage. It’s something that many homeowners tell me they would gladly have paid for if they had known the local jurisdiction required it; they could have included the cost of drainage in their financial package and had the drainage installed before the property was landscaped. ■

Kudos to jurisdiction and field offices

Special thanks go out to the following jurisdiction and field offices for help with the installation survey: Columbia County, Klamath County, Lincoln County, BCD Coquille, BCD The Dalles, BCD Enterprise, BCD Pendleton, BCD Wasco, and BCD Warrenton.

How to keep crawlspaces drier

By Mark Campion

Rising water tables during winter often cause flooded crawlspaces. At other times, surface-water runoff causes flooding.

The most appropriate way to deal with water problems depends on the source of the water. A foundation perimeter drain or sealing could help protect a foundation from surface water runoff — that is, water coming from outside the foundation.

However, if a rising water table below the home causes crawlspace flooding, other measures are necessary to cure the problem.

Don't ignore moisture problems

Water problems are serious. Severe and prolonged crawlspace flooding can structurally damage a home as the foundation settles.

Floor decking may warp and siding buckle and fail. In spite of tight floor construction, ground-moisture barriers, and crawlspace venting, water in the crawlspace causes higher humidity levels in the home's living space.

Nuisance levels of condensation on window surfaces can be a precursor to indoor air quality and health problems associated with high humidity.

Serious health problems are associated with mold growth. Mold is microscopic and extremely persistent; it can be nearly impossible to stop. Mold can damage homes to the point they become uninhabitable and prohibitively expensive to repair.

It's impossible to build basements and crawlspaces that are perfectly watertight. We'd have to build them like boats — and even boats have pumps.

So, although we can't keep water out completely, we can employ water-management measures that limit water entry.

We can also make it easy for water to drain away if it does get into a crawlspace.

Practice prevention

The most effective water-management measures occur long before a home is set, during site selection or site approval. Other effective measures can be taken during site preparation.

OMDS requires some of the measures discussed below; others are conventional good-practice measures that go beyond minimum state code requirements.

Sometimes, doing the minimum isn't enough. Together, required and good-practice water-management measures are the tools we have for keeping crawlspaces dry and extending the lives of our homes.

What the rules require

• Suitability of site — OMDS 302(a) and (b)

The most effective water-management measure is prevention. Sites that are likely to have surface runoff or water-table problems are not appropriate for home placement and should be avoided.

It's surprising how often this most basic step is ignored. We often go to great lengths to site homes where they should not go, virtually guaranteeing ground-water problems and future lawsuits.

• Site grading — OMDS 302(c)

As a minimum code measure, site grading is required to divert water away from the stand. This is not an option.

On some sites, this takes a lot of work. Flat sites are often more difficult to prepare than sites with some slope.

• Site drainage — OMDS 302(c)(2)

If standing surface water is likely to collect on the uphill side of a home stand, curtain drains or other methods of letting the water flow around and away from the home can be installed during site preparation.

Curtain drains are trenches filled with large-diameter gravel. Because of the airspace between gravel particles, the trench becomes the path of least resistance for surface-water runoff. The trench intercepts and diverts the water before it gets near the home.

• Grading at home stand — OMDS(c)(3)

If a site is properly graded, a home will be on a slight mound or pad that's higher than the surrounding area.

The minimum slope requirement (half an inch per foot for a minimum of six feet) will cause surface water to pool six to eight feet away from the building, protecting the underfloor.

Continued on Page 5

Moisture: Have you got it under control? _____

Continued from Page 4

Drainage systems for pit-set homes — OMDS 304(k)

When a home is pit set, the crawlspace floor will be below the level of surrounding grade. Therefore, in areas with high water tables, pit sets are more likely to experience crawlspace flooding than homes set on raised pads.

In areas prone to groundwater problems, the local jurisdiction can require (and conscientious dealers and installers should propose and install) special drainage systems inside the crawlspace that will collect and divert water from pit-set crawlspaces.

These systems are typically perforated pipes, set holes-down in shallow water-collection trenches in the crawlspace and sloped to a drywell or away from the foundation.

Some drainage systems may simply consist of a low-point drain or sump, where water can collect and exit the crawl area through a footing drain. In some cases, where flooding is serious, a sump pump may be needed to mechanically remove water.

Good practices

• Footing drains

Perforated pipe drainage systems laid outside the footing can help collect and divert water that would otherwise pool against the wall of the foundation and enter the crawlspace.

• Foundation sealers

Foundation sealers, waterproofing compounds, or waterproofing membranes can also help keep surface water out of crawlspaces.

However, neither exterior footing drains nor waterproofing systems can deal with water rising out of the ground below the home due to the water table. Exterior footing drains are typically bedded in course gravel and capped with sheet material or bentonite to keep earth from working into the drainage and plugging it.

• Gutters/gutter drains

Significant quantities of water fall on roofs. If roof water is deposited right next to a home, it can make its way into the crawl area.

If gutters aren't installed, grade slope can help divert water away from the home perimeter. If gutters are installed, concrete downspout blocks, shallow trenches,

or gutter drains can be used to move roof water away from a home before it can cause problems. Important point: Gutter drains don't work unless they are sloped to a low-point drain.

The water-management measures selected will be determined by the specific water problems encountered at each site.

It's safe to say that site preparation measures won't be able to overcome the effects of poor site selection or negligent site approval. So it's important for installers to protect themselves by declining installations on sites not suitable for home placement. Unsuitable sites aside, the techniques discussed here are our best tools for dealing with common surface water and groundwater problems. ■

Prepare for winter _____

By Albert Endres

Once again, it is time for everyone to prepare for the wet and cold winter season. Too many homes become victims of this environment when not properly prepared or cared for during transit and pre-delivery storage.

Don't forget the following as you run through your winter-preparation checklist:

- Add antifreeze to toilet tanks and bowls.
- Blow water out of lines.
- Properly secure factory close-up.
- After delivery, have someone check the close-up.
- Offer hand-tapping of shingles for high-wind areas. (Installers may choose to hand tab the ridgecap in high wind areas.)
- Select storm-door options that prevent door leaks.
- Store homes in stable storage areas and check them frequently.
- Pre-check delivery routes for site-delivered homes.

Put your heads together to figure out what other measures can be taken to prevent damage to your homes. ■

Good installations recognized

By Al Rust, Installation Coordinator

On behalf of the manufactured housing industry in Oregon, Building Codes Division recognizes the following installers and their crews for having installed homes during the past quarter without non-conformances:

Philip Bond, Donald; **Richard Parr**, Amity; **Carl Schaumburg**, Albany; **James Reeves**, Longview, Wash.; **Michael Rupert**, Brookings; **Harold Holcomb**, Terrebonne; **Meuy Sophan**, Florence; **Wayne Kindt**, and **John Butcher**, Klamath Falls; **Clint Reed**, Dallas; **Jim Henderson**, Coquille; **Matthew Chaney**, Coos Bay; **Keith Anderson**, Klamath Falls; **Guy Rogers**, Bandon; **Troy Bayless**, Oregon City; **Brian Shimer**, Myrtle Creek

You help give our industry a good name. Thanks for your good work!

Homes were selected at random and inspected by local jurisdictions, BCD Field Offices, and BCD SAA staff. ■

Manufactured Home Update is a regular publication of the Building Codes Division of the Oregon Department of Consumer & Business Services.

Editing, design, and production
DCBS Communications



BCD Administrator
Joseph A. Brewer III

All information in this newsletter is in the public domain and may be reprinted without permission.

In compliance with the *Americans with Disabilities Act* (ADA), this publication is available in alternative formats. Call DCBS Communications, (503) 947-7894.

If you want to be included on our *Manufactured Home Update* mailing list, please call Albert Endres, (503) 378-5975.



Building Codes Division

1535 Edgewater NE, Salem, Oregon

Mailing address:

P.O. Box 14770, Salem OR 97309-0404

PRSRST STD
US POSTAGE
PAID
SALEM OR
PERMIT NO 24