

Manufactured Home Update

Oregon Department of Consumer & Business Services ■ Building Codes Division

October 1999

Training sessions offered to park owners and subdivision developers _____

By Albert Endres

In the course of our years of activities in the manufactured home program, we've found problems in parks and subdivisions that are compounded because the installation or skirting crew does several or all of the homes there. If the crew makes a mistake, it may well be carried through to all the homes. By the time the mistake is discovered by inspectors, it has become a headache that involves time and costs for correction.

If you are involved in a manufactured home project at a park or subdivision, or are just about to start one, we encourage you to use the monitoring inspections and training sessions that BCD and the manufactured home industry provide at no charge. These sessions involve installers, building inspectors, and developers, and help ensure that the methods and processes you use will result in conforming installations.

We'll meet with you, the crews, and the local inspectors at the site. To make arrangements for a training session or to ask questions, call Al Rust, (503) 378-8053, or Albert Endres, (503) 378-5975. ■

BCD reintroduces Building Official Introduction Program _____

By Al Rust

The Building Official Introduction Program has been around since 1996, but has really taken an active role since the first of this year. As of July, 45 building officials and their staffs have participated in this training, which is designed to promote communication between BCD's Manufactured Dwelling Section and

Building Official Program... *continued on page 3*

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Site inspections allowed in lieu of plot plans

By Patrick Lewis

Since the announcement of the manufactured dwelling plot plan requirements in the November/December 1998 *Codelink*, the January 1999 *Manufactured Home Update*, and in the building official's weekly mailing, we've received numerous questions at BCD. The two main questions are repeated and answered below.

Why is BCD putting this extra burden on homeowners and building departments?

At the request of several building officials, a special task force was established to find alternatives to required site inspections of manufactured dwelling lots prior to installation of a manufactured dwelling. Some building officials did not have adequate staff or resources to do site inspection of the lots in addition to required installation inspection and final inspection. The task force's solution was to have permit applicants supply the necessary information on plot plans when applying for permits. The task force reasoned that it would take less time and fewer resources to check a simple plot plan than to perform a third inspection. The concept was presented at a public hearing on August 8, 1998. The Manufactured Structures and Parks Advisory Board heard no objections, approved the concept October 8, and set January 1, 1999, as the effective date.

Can a jurisdiction waive the plot plan requirements by providing a site inspection instead?

OAR 918-500-0065(2) allows the jurisdiction to continue performing site inspections. Though the rules are not specific on using the site inspection in place of the required plot plan, it is certainly reasonable to assume that the site inspection would provide the same level of compliance and meet or exceed the intent of OAR 918-500-0063(2).

To give jurisdictions a choice in this matter, BCD will accept site inspections in place of plot plans as long as the site inspections do all of the following:

- Verify that installation, plumbing, and electrical permits have been issued
- Verify that setbacks from property lines, streets, public sidewalks, and easements of record are correct
- Verify that the manufactured dwelling stand is level and all vegetation has been removed

- Verify that clearances between the dwelling and accessory buildings and structures are correct
- Identify cuts and fills
- Verify that a soil investigation report has been done, if required
- Identify the type of site drainage system and its location, including rain drains
- Verify proper clearances (when necessary) between structures and wells, septic tanks, leach lines, petroleum tanks and natural waterways when the home is located outside of a manufactured dwelling park

If jurisdictions choose to perform the site inspections, they could also inspect the placement of vapor barriers, foundation footings, and other items ready for inspection. ■

Keep service appointments

By Tom Nicolai

Here are examples of comments I don't like to hear:

"I waited all day and the service people never showed up."

"The service people showed up three hours late, did one thing, and left without saying when they would be back."

"The service men said they would be back. That was three months ago, and I haven't heard from them."

Most homeowners have jobs and busy schedules. To keep an appointment for service, they have to take time off work or rearrange their schedules. So, please: Always notify the homeowner when unforeseen circumstances arise that preclude an appointment being kept.

As repairs are delayed and unrepaired items remain visible to customers for extended periods of time, customer frustration increases.

Customer satisfaction is a priority today. If you need to change an appointment, give the customer as much notice as possible. Put yourself in the customer's place: How would you feel if you set up a service appointment that wasn't kept?

A good rule in life and business is to treat others the way you would like to be treated. ■

Recent consumer-assistance inspections encounter “attached garage” door problems

By Ken Cochran

In recent on-site consumer-assistance inspections, BCD staff encountered some homes with noncomplying doors separating the manufactured dwellings and attached garages.

Besides giving other requirements for attached garages, the 1997 OMDS, Section 807(d), specifies that “other openings,” such as doors from dwellings into garages, shall be equipped with doors of solid wood not less than 13/8 inches thick, 20-minute fire-rated or equivalent.

In two recent instances, inspectors found a regular insulated metal door with window lights installed in

one manufactured dwelling and an unlabeled insulated metal door in another. The first was definitely a non-compliance, and the other required documentation demonstrating how the door was equivalent to OMDS requirements to be approved.

Until such time insulated metal doors are added to the OMDS or we are directed otherwise, we must require documentation of equivalency or see a 20-minute fire-rating label affixed to doors separating manufactured homes from attached garages. ■

State offers consumer-assistance program

By Patrick Lewis

Do your customers ever come to you asking for help with manufactured dwelling park issues? Do you lack programs within your municipality to deal with such issues and wonder where to send them for help? Well, there is help available.

The 1989 Oregon Legislative Assembly created the Manufactured Dwelling Park Ombudsman Program to assist park patrons, provide general information and referral resources, and promote improvements in manufactured dwelling park landlord/tenant relationships.

One of the goals of the Manufactured Dwelling Park Ombudsman Program is to provide options for dealing with unresolved park issues. Manufactured Dwelling Park Ombudsman Program staff are trained to help people explore alternatives to the court system for resolving park problems. A mediation session allows parties in dispute to meet with a mediator and work toward resolution of the issue or concern.

The Manufactured Dwelling Park Ombudsman Program also provides information about the tenants rights and responsibilities and can provide copies of Oregon’s Landlord and Tenant Law (ORS Chapter 90) and other materials helpful to park residents.

The Manufactured Dwelling Park Ombudsman Program maintains a comprehensive list of manufactured dwelling parks in Oregon. For persons purchasing or relocating a manufactured dwelling, this directory could be very useful.

The Manufactured Dwelling Park Ombudsman Program is located in Salem in the Oregon Housing and Community Services Department. Most of its services are free. Contact the Manufactured Dwelling Park Ombudsman by calling toll-free, (800) 453-5511, or visit its new Web site, www.hcs.state.or.us.

Please pass this information on to your customers — it may save them a lot of time and grief. ■

Building Official Program ... continued from page 1

building officials; to get input from building officials concerning manufactured home issues; to provide training to building official staff to help them become aware of, understand and comply with Oregon rules, statutes, and standards as they relate to manufactured housing; and to promote consistent application of the requirements.

All of the meetings thus far have been positive, with a lot of good input coming back to the division. I look forward to meeting with all of Oregon’s building officials by the end of this year. If you want to schedule a meeting, please call Al Rust, (503) 378-8053. ■

Smoke detector requirements reviewed

By Patrick Lewis

Based on the number of phone calls to the Technical Advisory Group, there is obviously a great deal of confusion regarding Section 906 of the 1997 Oregon Manufactured Dwelling Standard.

Section 906 of the OMDS establishes standards for smoke detectors within manufactured dwellings, but what is confusing is that there are two different standards, one for manufactured dwellings with smoke detector outlets provided by the manufacturer and one for manufactured dwellings built without provisions for smoke detectors.

Section 906(1) of the OMDS states: *If the manufactured dwelling has been provided with an electrical circuit and outlets for smoke detectors, listed and approved smoke detectors shall be permanently wired to the electrical supply at each smoke detector outlet provided.*

This section refers to homes built to the federal Manufactured Home Construction and Safety Standards (HUD Code) since 1976. If the home has provisions for smoke detectors, then the inspector is required only to ensure they are installed and working at locations provided by the manufacturer.

The HUD Code is quite different from other model codes regarding smoke detector locations. Its 24 CFR 3280.208(b) states: *A smoke detector shall be installed on any wall in the hallway or space communicating with each bedroom area between the living area and the first bedroom door unless a door(s) separates the living area from the bedroom area, in which case the detector(s) shall be installed on the living area side as close to the door(s) as practicable.*

This means only one smoke detector would be required outside the bedroom area except where there are two bedroom areas at opposite ends of the manufactured dwelling.

24 CFR 3280.208(d) of the HUD Code states: *The top of the detector shall be located on a wall 4 inches to 12 inches, or at a distance permitted by the listing, below the ceiling. However, when a detector is mounted on an interior wall below a sloping ceiling, it shall be located 4 inches to 12 inches below the intersection of the connecting exterior wall and the sloping ceiling (cathedral ceiling).*

This means that even if the unit has a cathedral ceiling 10 feet high at the peak, the smoke detector may only have to be seven feet above the floor if the ceiling at the side-wall intersection is 7½ feet high.

The main things to remember about the HUD Code:

- There may be only one or two smoke detectors for the whole house
- The smoke detectors may appear to be too low but are most likely in compliance
- Where there are two or more smoke detectors, they are not required to be interconnected
- There are no requirements for smoke detectors in the bedrooms

Section 906(2) of the OMDS states: *If the manufactured dwelling was manufactured without provisions for smoke detectors or provided outlets are no longer functional, listed and approved battery operated smoke detectors shall be installed according to their listing inside each bedroom and outside each bedroom area.*

This section refers to manufactured dwellings built prior to 1976 (pre-HUD Code) whose original manufacturers may not have provided smoke detectors or whose smoke detector outlets are no longer functional.

In these two cases, inspectors are responsible for ensuring that smoke detectors are installed inside each bedroom and outside each bedroom area. That means in a three-bedroom home where all bedrooms are off the same hallway, four smoke detectors would be required. This section does not specify whether smoke detectors must be on the wall or ceiling, but it requires smoke detectors to be installed according to their listing in the installation instructions.

When are these smoke detectors required? The inspector is not required to ensure that every manufactured dwelling in his or her jurisdiction has operating smoke detectors. In fact, **there are only two instances in which inspectors are required to check for smoke detectors in a manufactured dwelling.**

Section 1001(c) of the OMDS states: *When a manufactured dwelling is being altered, it shall have smoke detectors added according to Section 906...*

If someone alters a manufactured dwelling, which requires a permit and an inspection, the inspector is obligated to require the smoke detectors be installed according to the requirements of 906.

Smoke detectors... continued on page 12

Clearing up smoke detector and GFCI test procedures

By Patrick Lewis

Because of failures reported by homeowners, the Manufactured Structures and Parks Advisory Board adopted OAR 918-500-0065 requiring manufactured dwelling installation inspectors to test ground fault circuit interrupters (GFCI) and smoke detectors on each unit installed. Several jurisdictions have requested information on specific testing procedures required by the rules.

On smoke detectors, the only test necessary is for the inspector to press the test button on the device for five to 10 seconds. If the test button on the smoke detector sets off the alarm, the test is successful. If the alarm does not go off, the inspector needs to identify the failure as a code violation on the inspection report and require a correction.

On GFCIs, the inspector only needs to plug a GFCI receptacle tester into each GFCI-protected receptacle and push the test button. If the test trips the GFCI, it is successful. If the GFCI does not trip, the inspector needs to identify the failure as a code violation on the inspection report and require a correction.

GFCI receptacles are any receptacles located on exterior walls, over kitchen counters within six feet of a sink, and at each bathroom lavatory. If there are several receptacles protected by one GFCI, the inspector will need to reset the GFCI after each test until the whole circuit is tested. GFCI testing devices are available at most building supply stores and will generally cost \$5-\$10 each.

For both tests described above, the inspector should make sure the circuit breakers are in the "on" position. These tests will have been performed at the factory by the manufacturer and again in the field by the installer. The tests are listed under "final inspection," but if the inspector has access to the home during any part of the installation, the tests may be performed as long as there is power to the home.

If the inspector can't enter a home to perform these tests, the permittee should be informed that final inspection cannot be approved until these tests take place. The jurisdiction may charge additional fees if inspectors must make another trip to the home site. Permittees should be told when permits are issued that the house must be accessible to the inspector. ■

Manufactured housing industry salutes high-quality installations

By Al Rust

On behalf of the manufactured housing industry in Oregon, the Building Codes Division Again recognizes installers and their crews for having installed in-compliance homes during the past quarter:

Philip Bond, Donald; Larry R. Brown Jr., Eugene; Ron Kloehn, Eugene; Ken L. Stinnett, Springfield; Gregory Theroux, Oregon City; Paul Winkler, Springfield; Donald Zerkel, Scio; Carl Schaumburg, Albany; William Stoko, Albany; Charley Harrison, Medford; Kenneth Kearney, Roseburg; Pat Humphrey, Oregon City; Perry Allen Trammell, Scio; Michael Allen Wheeler, Albany; Tracy Watson, Woodburn; William Shaver, Salem; Wayne Kindt, Klamath Falls; John Schaffer, Clackamas; Shawn Brumbaugh, Oregon City; James Poetzl, Springfield; Clinton Reed, Dallas; Douglas Daugherty, Klamath Falls; Doug Manley, McMinnville; Wyatt Ledbetter, Lorane; Troy Ozburn, Terrebonne; Dennis R. Boorman Jr., Grants Pass; Michael Soders, Monmouth; Timothy Meyer, Albany; Guy Hurlbert, Bend; Mitchell Todor, Albany.

Thanks for your good work !

For those of you who've noticed that this list is longer than usual, that's because the installations are getting better!

All homes were selected at random and inspected by the OSU Installation Monitoring Project staff. ■

OMDS Q & A

By Patrick Lewis

Question: My inspector counted the number of plumbing fixtures in the manufactured dwelling I was installing and said the pipes were undersized and needed to be replaced with larger ones. Can he do that?

Answer: No. Pipe sizing of manufactured dwelling plumbing systems is based on the federal preemptive Manufactured Housing Construction and Safety Standards 24 CFR 3280. They cannot be changed by state or local governments. The pipe sizing of the building supply line to the manufactured dwelling cannot be based on the number of plumbing fixtures inside the home, either. The inspector is required to use Table 6-3 of the Oregon Plumbing Specialty Code, which assigns 12 fixture units for every manufactured dwelling regardless of size of the home or the total number of plumbing fixtures therein. However this does not include extra fixtures added on site.

Question: Why are inspectors required to perform smoke detector and GFCI tests on manufactured dwellings? Doesn't the manufacturer check these before the home leaves the plant?

Answer: Yes these are tested at the plant and again on site by the installer. However, as a result of numerous homeowner complaints about GFCI circuits and smoke detectors not functioning, the Manufactured Structures and Parks Advisory Board decided to have inspectors perform a final test before the installation inspection was approved.

Question: Is copper tubing with a loop in it allowed for a main gas supply connection to a manufactured dwelling in place of the approved flexible gas connector?

Answer: Though the copper can be bent during installation, it is not suitable or approved as a flexible connector for this purpose.

Question: Can counties require that electrical disconnecting means, such as the meter main, be installed one foot above the flood hazard plain?

Answer: Yes, a jurisdiction can require this. Where the service disconnect is elevated an actuator can be used to switch the breaker on and off or a platform can be built to access the switch.

Question: The new Oregon One and Two Family Dwelling Specialty Code will provide other alternatives to the 20-

minute fire rated door between a dwelling and an attached garage; will the Oregon Manufactured Dwelling Standard do the same?

Answer: Yes. The next Oregon Manufactured Dwelling Standard will read the same as the Oregon One and Two Family Dwelling Specialty Code.

Question: Can the electrical-service pedestal of a manufactured dwelling be located more than 30 feet from the home?

Answer: Yes, the service disconnect is required to be within 30 feet of the manufactured dwelling, but the pedestal or pole that holds the meter base can be located further away. However, the licensed manufactured dwelling installer can only make feeder connections within 30 feet of the home.

Question: A question has been raised by several jurisdictions that have run into similar situations in the field where skirting is braced horizontally or laterally off the piers, pier footings, or pier shims. They ask if this situation is permitted by the 1997 Oregon Manufactured Dwelling Standard?

Answer: While there may be no problem with skirting being anchored to a concrete slab or braced against a continuous concrete footing, there is definitely a problem with skirting being braced against other footing types, piers, and pier shims. Because horizontal pressures transferred from the skirting could move or loosen the footings, piers, or shims, the method would be considered detrimental to the foundation supports and would not meet the intent of the OMDS.

Question: Is there more than one method of bonding two or more chassis between multi-section manufactured dwellings?

Answer: The OMDS requires a solid or stranded No. 8 copper conductor or an equal bonding method to bond the chassis of multi-section manufactured dwellings together. If the prescribed No. 8 conductor is used, it should be attached to each chassis through a bonding lug (usually supplied and attached by the manufacturer), as shown in Figure 404.3 of the OMDS. The bonding lugs should be attached to the steel chassis with self-tapping screws or with a nut and bolt, using a star washer between the bonding lug and the chassis to break the surface of the chassis paint. There is an acceptable method of bonding the chassis of Golden

West or Liberty homes, as shown in Figure 306.5 of the OMDS. This method bonds the steel outriggers of two chassis by bolting them together at the centerline. It also requires star washers (or equivalent) under the bolt and nut to penetrate the chassis paint. At this time in Oregon, Golden West and Liberty homes are the only two homes for which this method may be an option. The bonding continuity between the two chassis can be checked with an inexpensive continuity tester.

Question: *What constitutes an attached structure on a manufactured dwelling?*

Answer: For manufactured dwellings, structures that appear to be attached structures may include garages, carports, cabanas, or awnings. However, this can be misleading: Garages and cabanas are to be self-supported and are not permitted to be structurally attached to the manufactured dwelling except by flashings and roofing materials.

Question: *Can service entrance (SE) cable be used as a feeder between the manufactured dwelling and the service?*

Answer: No, Article 550-24 of the National Electrical Code requires a manufactured dwelling feeder to consist of four insulated, color-coded conductors. Since SE cable does not have four insulated conductors, it cannot be used as a feeder for a manufactured dwelling. And no, the cable sheathing does not count as insulation for the bare conductors.

Question: *If a centerline wall of a manufactured dwelling is only on one side of a multi-section home, does the centerline wall still need to be supported by piers under the floor?*

Answer: Yes, even though the centerline wall is only on one side, the loads are still transferred through the roof and floor connections so that both sides of the centerline need support.

Question: *If a centerline wall does not extend all the way up to provide support to the ceiling or ridge beam, does it still need to be supported by piers under the floor?*

Answer: Yes, even with the absence of the roof loads, there are still substantial loads at the centerline. The pier supports below the centerline walls are also designed to support the dead loads of the centerline wall, the approximately six feet of cantilevered floor, plus all wall and floor live loads from built-in cabinets, their contents and the home's furnishings. These combined loads will usually exceed the roof loads by two to three times, therefore, the support is still necessary.

Question: *What is the proper water-pipe size for the building supply line to a triple-wide manufactured dwelling with three bathrooms, a utility room with washer, and a kitchen with two sinks?*

Answer: Regardless of the number of fixtures or size of the manufactured dwelling, the water-supply line to all manufactured dwellings is based on 12 fixture units according to the Oregon Plumbing Specialty Code, Section 610.7, Table 6-3, and must always be a minimum 3/4-inch diameter. However, if the building supply line is over 100 feet long between the manufactured dwelling and the meter or another water source, Table 6-4 of the Oregon Plumbing Specialty Code would be used to determine the proper pipe size.

Assuming a pressure of 30-45 pounds psi, Table 6-4 allows the building supply line to be 3/4-inch diameter pipe for up to 100 feet, 1-inch diameter for up to 400 feet and 1 1/4-inch diameter for up to 800 feet. Assuming 46-60 psi, Table 6-4 allows the building supply line to be 3/4-inch diameter pipe for up to 150 feet, 1-inch diameter for up to 600 feet and 1 1/4-inch diameter for up to 1,000 feet. And assuming over 60 psi, Table 6-4 allows the building supply line to be 3/4-inch diameter pipe for up to 200 feet, 1-inch diameter for up to 900 feet and 1 1/4-inch diameter for up to 1,000 feet. Hose bibs, sprinkler systems, and water fixtures in accessory buildings or structures that weren't part of the original manufactured-dwelling water system would increase the fixture load beyond the 12 fixture units and would increase the pipe size-to-length ratio according to Tables 6-3 and 6-4.

Question: *What is the required fire rating of the materials used on the exterior of manufactured dwellings?*

Answer: The roofing material is usually a class-A fire-rated roofing; the federal Manufactured Housing Construction and Safety Standard 24 CFR 3280 does not require a fire rating on exterior siding or roofing material of manufactured dwellings.

These questions have been submitted by inspectors and contractors throughout the state. If you have questions concerning manufactured dwellings, please fax them to Patrick Lewis, (503) 378-4101. ■

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 like to call "performance" issues.

Performance issues include phone calls not returned, service crews not showing up on the appointed day, options not received, oral promises apparently not honored, et cetera.

Getting those signatures

Although consumer complaints will never cease, many performance issues that deal with contracts and promises can be resolved if the following two points are kept in mind: Put it in writing and be specific. And have the customer sign and date the contract.

Most retailers do this; in fact, I would say that comprehensive and clear paperwork is the norm. But what I often find when I audit homeowner's files in the field or at the retailer's place of business is that paperwork lacks the customer's signature and date. And when contracts or orders have been altered, "change" orders, which should also be signed and dated by the customer, are missing.

Especially frustrating to me are order option sheets not signed by customers. Not a month goes by in which I'm unable to help customers and retailers because contractual paperwork is not in order or is missing altogether. Many complaints could be resolved if I was able to show customers that they got exactly what they

ordered, and that the proof was their own signature and date on the dotted line.

The crucial question for manufacturers, retailers, and customers: If you find yourself in court, will your paper trail hold up in front of the judge?

Site preparation vs. final grading

Many homeowners don't know the difference between site preparation and final grading. Site preparation typically includes excavation or scraping away the vegetation at the pad site, knocking back hillsides, removing trees, and other related items. Final grading is the last step before landscaping, after the home has been installed and additions such as garages are finished.

Even homeowners with well-written bids and contracts are sometimes not clear on this difference. 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 included 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 doesn't cover drainage. It's something 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 financing package and had the drainage installed *before* their property was landscaped. ■

Inspections find manufactured-dwelling porch problems

By Ken Cochran

Recent on-site consumer-assistance inspections by me and other Consumer Assistance Program Inspection staff have repetitively turned up certain code non-conformances associated with recessed porches on manufactured dwellings.

Code requires separating the uninsulated floor area from the rest of the under-floor enclosure. This barrier is required to be installed by the person installing the perimeter enclosure. Refer to the OMDS, Section 802(b).

Provide appropriate tie-downs on covered recessed porches with more than 70 square feet of floor area. These tie-downs are a part of the installation and required to be installed by the installer making the structural connections. Refer to the OMDS, Section 307(d).

These items may have been missed during the installation inspection process, but this doesn't mean the noncompliance can remain. When identified, it must be corrected by the responsible party. ■

Winter's approach calls for simple preventive measures _____

By Albert Endres

Some of the situations Building Codes Division deals with each winter are shingle loss, rainwater in the bellies of homes, leaky close-up material, waterline and toilet freeze-ups, door leaks, homes sunk in the mud, ridgescaps blown off, and rain damage to homes during installation. The number of such problems can be significantly reduced with a little planning.

To prevent shingle- and ridgescap-loss, dealers, manufacturers, and installers can offer homeowners the option of hand-tabbed shingles. The proper application of an approved asphalt cement can prevent the roof problems we see. A strong sales pitch for hand-tabbing can save relationships later. Installers could incorporate the cost of hand-tabbing the last few field-installed rows.

Installers can avoid weather damage to the home during installation by using poly tarps or extra visqueen. As insurance against bad weather, cover homes with tarps if the roof isn't complete at the end of the day.

In factories and at dealerships, attention to the application and repair of the close-up material on double-wides, tip-outs, and pod connections can prevent flooded homes and water in the belly. Homeowners don't appreciate homes delivered full of water. Rain damage during storage or transit gets transactions off on the wrong foot.

Check the water in toilets and waterlines of unsold homes. Blow out the plumbing lines and add approved anti-freeze to the toilets and P-traps. Offering storm doors to homeowners who live in particularly stormy areas could prevent wind-driven water leakage around exterior doors and avoid hard feelings.

Storage of homes should be monitored. Proper supports should be in place, with homes parked on stable landings and close-up material frequently checked.

Dealers and installers should check access roads and home sites more closely during winter. Too many homes are damaged trying to drag them into unprepared areas.

These situations should be considered all year, but winter's harshness calls for extra attention. ■

Correctly installing blend air systems with air conditioners

By Albert Endres

In one of our recent editions, Bryan Boe of Oregon State submitted an article and picture of a furnace with a blend air system installed where an aftermarket air conditioner A coil was installed. The blend air intake tube was disconnected and never reinstalled. Perhaps due to the article, Bryan recently found an installation that was properly done. Please note the picture which shows the properly completed connection. Thanks to Bryan and those who read the articles in our newsletter. ■



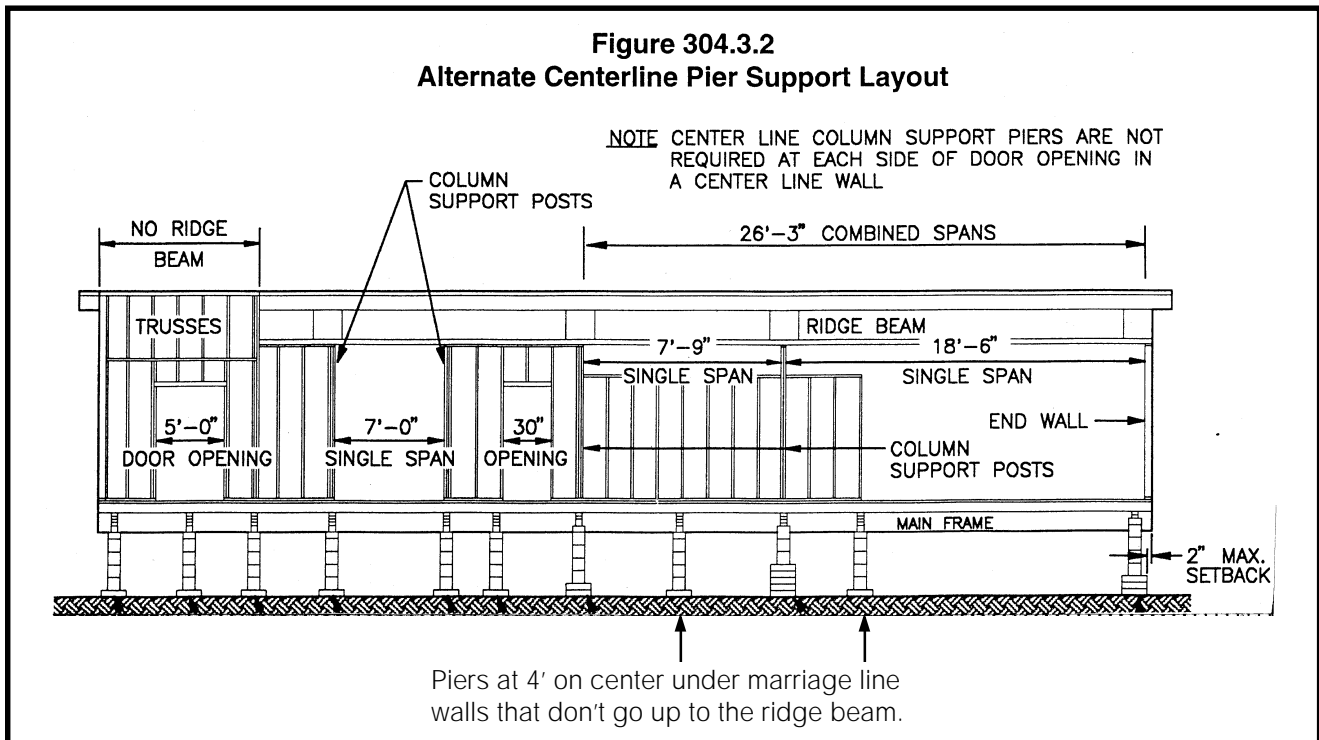
A correctly completed installaton: furnace with aftermarket air conditioner.

Partial walls on marriage lines need piers

By Larry Giardino

One of the most common problems I observe as I do surveys of homes set up around the southern half of the state are missing piers under marriage line walls that don't go all the way to the ridge beam. Table 304 of the OMDS calls for piers to be placed four feet on center under centerline walls, and doesn't distinguish between partial and full-height walls. Webster defines walls as "one of the upright enclosing parts of a building or room." Partial walls often separate kitchens from living

rooms. Though they do not support roof loads, they typically support significant live and dead loads. They usually have cabinets mounted on them, where dishes and food are stored. Walls are also areas of the floor where furniture is typically positioned, imposing additional loads. These loads are the reason the OMDS requires piers under even partial-height centerline walls, as demonstrated in Figure 304.3.2.



Inspector deals with obstructions, ridgebeam support

By Al Rust

A problem occurs when various kinds of obstructions — outriggers, electrical panels, water crossovers, cross members, or heat ducts are located below structural columns that support the ridgebeam.

The OMDS allows installers to offset support piers by as much as six inches for obstructions. See 1997 OMDS 304(f). In most cases, this is not enough of an offset to clear the obstruction. However, when a pier is offset from its required support location by more than six inches, it will not provide adequate support for the ridgebeam column.

I'm asking all manufacturers to double-check blueprints and homes to ensure that the pier-support area below ridgebeam columns is clear of obstructions.

In the future, when an obstruction prevents an installer from placing a support pier in the correct location, the factory could be called on to make the repair. The new requirements for marking centerline column-support locations should help manufacturers spot and correct obstructions that could interfere with pier placement directly below columns. ■

Manufactured Home Update celebrates anniversary _____

By Albert Endres

It doesn't seem possible, but this issue kicks off the start of the fifth year of our publication. It has been a good run so far, with many compliments and a few comments. Over the years, we have had many excellent articles and a few mistakes. Thank you for bearing with us if we have missed a few calls. For the most part, the readers have found our newsletter helpful and, in some cases, entertaining.

As always, we need contributing authors with fresh ideas and different perspectives. All readers are invited to submit articles. We would really appreciate contributions from installers. All submissions should be informative and in keeping with our intended upbeat style.

Thanks to all of you who have written in the past. We have used every article you have submitted. Thanks also to OSU's Bryan Boe and Ted Haskell, editors for the first four years. In an effort to save money and time, we are now using our own communications section for editing.

The purpose of our newsletter is to share as much industry information as we can in plain language. The articles attempt to provide unbiased coverage and information that will help everyone do what is right.

If anyone wants to submit an article, please send it to Albert Endres, Building Codes Division, PO Box 14470, Salem, OR 97309, or fax it to him, (503) 378-4101. ■

Removing unlisted piping proves costly to contractor _____

By Tony Clifton

BCD recently issued an alteration permit for adding a gas appliance as part of the manufactured home sales agreement. The contractor installed flexible gas piping that was not listed; it had to be removed and replaced with approved piping.

When a permit is issued by the division prior to or as part of the sale, the change must comply with

the manufacturer's design approvals (Design Approval Primary Inspection Agency), and the HUD standard.

Remember, you must comply with the HUD standard and manufacturer design requirements. Check with the manufacturer to see what the requirements are.

For permit information, call Albert Endres, (503) 378-5975. ■

Take care with "equal" chassis bonding methods _____

By Tony Clifton

A local installer recently questioned Building Codes about the methods to bond a chassis of a multi-section home. Section 404 (b) of the OMDS states that an installer can bond a chassis by installing a solid, stranded, green-insulated or bare #8 copper conductor **or equal bonding method**.

The installer chose an equal bonding method but didn't follow all the instructions in the manufacturer's manual. The manual called for star washers at each end of the bolt that connects the outriggers of the two frames. But the installer did not use the star washers; he used regular washers.

There must be at least one star washer between the bolt head and the outrigger to penetrate the paint and complete the mechanical bond.

In this case, the installer was written up by the inspector, and rework and associated costs were incurred.

Failure to properly bond a frame can have serious consequences if the frame ever becomes energized and someone comes into contact with it. If anyone has questions concerning this process, call Tony Clifton, (503) 378-2620. ■

Smoke detectors... *continued from page 4*

Section 301 (p) of the OMDS states: *When a manufactured dwelling is being installed, it shall have smoke detectors installed according to Section 906...*

When a manufactured dwelling is installed, whether it's new or a relocated older home, the inspector is obligated to require the smoke detectors according to Section 906(1) or (2) of the OMDS.

Because most manufactured dwelling installations involve HUD Code-manufactured homes, the inspector need only check to see that the home has the smoke detector(s) installed and operational. The field inspector does not need to verify proper location of smoke detectors in HUD Code homes, because this has already been done by the state's in-plant inspectors. ■

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