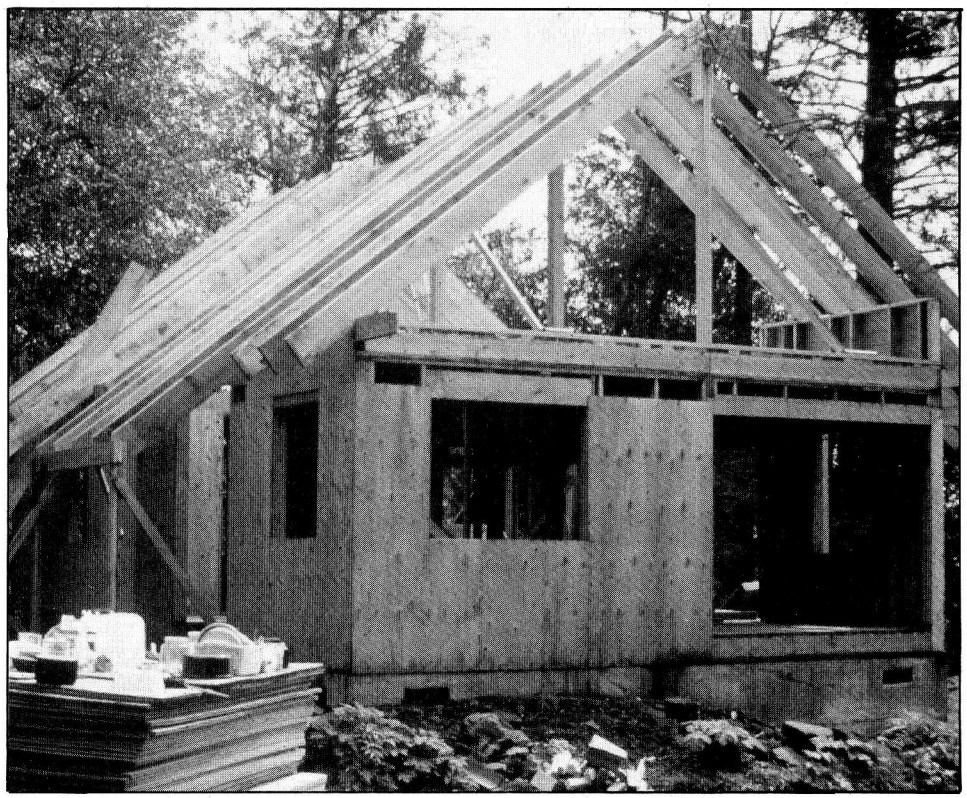
A GUIDE TO

# BUILDING ON THE COAST

*People thinking about building on the coast ask lots of good questions about coastal building, and the answers point out some of our unique problems and the techniques that have been developed to resolve them.*



An Oregon Coast home may look little different from one built elsewhere, but builders must pay close attention to many details in order to deal successfully with corrosive salt spray, termites, hurricane-force winds, and an annual rainfall of 80 to 100 inches. On the coast, normal gutters crumble in a few years. Standard roof shingles may look fine until the first storm, then blow away to more peaceful surroundings. Summer's sunny south entryway may turn into a water-filled wind tunnel in the winter rains. And wrongly placed decks may become unusable windswept follies.

Debates on the "right" way to build for the coast's dramatically changing weather and climate conditions have raged for years.

Take the subject of insulation for example. For a long time, coastal builders balked at putting *any* insulation in the walls of a house. They knew that rot was a frequent problem on the coast, and thought that insulation would interfere with the ventilation needed to remove moisture from within the walls. Thorough testing has shown, however, that insulation does not prevent moisture from leaving the walls, and that properly installed double-glazed windows can prevent many of the moisture and rot problems common in the past. As a result, coast houses can now be built with proper insulation techniques and take advantage of an energy-saving technology that works better here than in almost any other part of the country.

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## Should coast houses be built with wide roof overhangs, narrow ones, or no roof overhangs at all?

The type of roof overhang depends on the planning and weather exposure of the individual house. Overhangs may require special engineering and wind anchorage; they may prevent rain from washing salt spray off the windows. However, they can also create sheltered porches and let you keep windows open during some rainy weather. Overhangs can also keep excess summer sun out of a house, although overheating is rarely a problem here because of our cool ocean breezes.

Eliminating roof overhangs can permit better weather sealing of roof/wall connections, but normal overhangs can keep a lot of the rain off the walls, windows, and foundations. The location of the roof overhangs relative to windows, sun exposure, and orientation of the house should all be taken into consideration in determining your roof overhangs.

## Can solar energy be used on the foggy coast?

Surprisingly, yes, it can. Our winter cold periods coincide with east winds and clear, sunny skies, and the sun does come out often enough during our long heating season to be useable. One advantage of coastal passive solar systems is that you don't have to be as concerned with overheating as elsewhere, as long as you're near the ocean. With best views often to the west, and with the cost effectiveness of superinsulation, a combination of solar tempering and heavy insulation often works out the best.

## What about decks?

People often put a lot of money into large decks that quickly rot away in our wet climate. Expensive cedar is frequently chosen by people who don't realize that after one winter's weathering it will be grey and weathered and indistinguishable from other woods. Decks are often located with no consideration of the cold northwest summer winds that can make the most beautiful deck unusable. Wise homeowners build only what they really need and use preservative-treated or "outdoor"

BY TOM BENDER

wood to prolong the life of the structure and to prevent the growth of slippery moss on the decks during wet weather.

Sunning decks can be placed so that the house shields them from the cold summer winds. If decks must be exposed, tempered glass windscreens offer some protection, although they interfere with the view and add glass that needs frequent cleaning.

## What can be done to minimize corrosion problems?

Coastal salt spray compounds the normal corrosion problems of a wet climate. Galvanized iron flashing, pipes, gutters, outside lighting fixtures, or window hardware doesn't last long enough to be worth serious consideration. Most gutters are now made of plastic or aluminum coated with vinyl or durable "paint" coatings. For roof flashing choose aluminum or the more durable and expensive stainless steel. Lexan plastic outdoor lighting fixtures seem most durable of what is presently available. Doorknobs are customarily put in upside down so moisture drains out of the lock cylinder. Locks with all brass and stainless steel parts are available and advisable for houses with beachfront exposure.

Most coastal building officials require "hot-dipped" galvanized or equally corrosion-resistant nails and framing fasteners. (Hot-dipped galvanizing results in the zinc being ten times thicker than the electroplated zinc on regular galvanized sheetmetal flashing and gutters.) And many northwest suppliers of windows and doors are able to supply stainless steel operating hardware suitable for coastal use. But be sure they deliver what you specify.

## Are cedar shakes the only good answer for roofing?

Not necessarily. Wood, metal, tile, and asphalt composition roofs can be successfully used on the coast. What is essential is to verify that the materials and installation specifications have been tested and approved for winds over 100 mph and that the fasteners are adequately corrosion-resistant and approved for the expected life of the roof. If you choose asphalt composition shingles, make sure they are both heavy enough and self-sealing. Even then, winter installation may require hand sealing of each tab. For houses located under trees, composition roofs may outlast cedar. Concrete or clay tile will create a lifetime fireproof roof, but high wind zones require nailing of each tile, installation of hurricane clips, and greater lap of tiles than normal installations. Metal roofs can be workable if well-insulated to minimize rain noise inside the house. Fiberglass shingles are gaining wider use, although some builders report problems with fiberglass shingles breaking off in high winds.

Hot-dipped galvanized nails are the minimum requirement for fasteners on roofing, unless a specific fastener has been tested and approved for coastal corrosion resistance.

In this climate, adequate roof ventilation is important to prevent rotting of the roof structure and to extend the life of roofing materials. An unvented insulated roof can overheat, reducing its service life by up to two-thirds, while moisture accumulation within the roof structure can cause rotting or provide suitable conditions for termite nesting.

## Which works better on the coast—wood or metal windows?

Where winds can suck water uphill through hairline cracks, even the most expensive wood windows are not a total guarantee against leakage problems. Both wood and aluminum windows can perform adequately if properly designed for the coast. Aluminum should be anodized to minimize corrosion. If you want wood, choose preservative-treated cedar or redwood or use a weather-resistant exterior finish material. Large insulated glass units can fail prematurely due to wind-caused flexing of the glass which can break the seal between the glass panes. Some builders use thicker glass for extra stiffness. Care must be used in installing insulated glass units so that water is drained away from glass seals and so that the sealants used in installing the unit are compatible with the sealants between glazings.

Most coastal builders take extra care installing windows and doors, which are the most common sources of leakage problems. They use sealants between window flanges and building paper to block air and water infiltration routes, and they make sure that building paper always laps properly to shed water away and prevent it from blowing in under the doors. Stainless steel rolling, latching, and hinge hardware is commonly used. Casement windows are gaining favor over sliders because of better infiltration control and elimination of wind "whistle" of sliders. In sandy areas tracks of sliding doors and windows must be vacuumed periodically to keep them in good working order.

Whatever your choice, let your suppliers know you're located on the coast, as they can specify or modify products that will perform adequately.

## How do you deal with termites and other pests?

The most common variety of termites found on the coast requires a moist location for its demolition base camp at your house. The nest can be in the ground under or beside your house, or in a part of the structure kept moist by water leakage. The coast's heavy rainfall and high winds increase the likelihood of moisture getting into the structure, and threat of termites is a major reason to take extra effort to seal the house well to keep moisture out. The abundant coastal forests ensure a plentiful supply for the annual termite airborne migration at the beginning of September. You'll likely find piles of wings around the openings of your house, and observe the brownish critters checking out every nook and cranny for enough moisture to sustain a nest. If they find it, they stay, and you have termite problems. If they don't, you don't. Untreated wood in your house should be kept at least six inches from the ground or cracks in concrete slabs that could lead to a nest location, so you can spot any access tubes being built to the house.

Carpenter ants—inch long, black, friendly and extremely intelligent coastal inhabitants—have their own annual aerial show and search for new worlds in June. They won't eat your house, just cut enough of it away for a nest. In return, they'll keep your house free of dead bugs and other edibles. They go for warmth and food when they migrate, so keep your house and surroundings especially clean during migration, and check around night lights, water heaters, pipes, and dryer vents for clustering creatures planning a nest.

Yellow jackets are a third kind of creature you may find taking off with part of your house. You may find them on almost any weathered wood surface (especially cedar), backing along while scratching loose and wadding up the weathered wood surface to use in building their beautiful "papershell" nests. Except for exposing scratches of unweathered wood, they cause minimal damage—unless, of course, you sit on one!

With the exception of these three types of pests, or an occasional mosquito that can't quite figure out to do, bugs are so minimal on the coast that many people choose to forego screens and leave their houses open wide to the outdoors, opening up some wonderful living opportunities.

The coast is a challenging place to build, but with proper care and the right materials, you can build a home that will give lasting comfort and minimize the cost of living in this wonderful corner of the world. □

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