Common Problems with Walls

There are problems and concerns that are shared by all walls and siding installations. In this article, we will learn about the following commonly found problems with walls:

- inadequate clearance from the ground surface
- inadequate clearance from the roof surface
- dense vegetation
- water intrusion
- planters

1.1 Inadequate Clearance from the Ground

There should be adequate clearance from the ground to the bottom of the siding. Generally speaking, there should be six to eight inches of clearance. Some of the foundation wall should be visible above the ground surface and below the siding. Clients may not like the appearance of the exposed foundation. That area should not be covered up with siding. Siding should extend...
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over the top of the foundation wall to protect that area of the structure. If the siding is 8 inches above the ground surface, then the top of the foundation should be at least 9 to 10 inches above the ground surface.

Siding Distance From Grade

Brick may be found below grade and that may be acceptable, depending upon the type of brick. In some cases the brick may be designed for use underground. If the brick was designed to be underground then there should not be major deterioration or water damage found.

Most other sidings including wood, stucco, fiber-cement, metal, vinyl, and wood-based siding should have adequate clearance from the ground.

Damage from inadequate clearance may include:

- wood rot
- rust
- staining
- clogged or restricted drainage provisions
- water-damaged wood siding
- deteriorated paint

Major problems may occur if the drainage provisions are clogged or restricted. If the moisture drainage provisions of an EIFS are below grade, then the system will not function properly. Water will not be able to drain out of the siding system. Water may enter the structure through the weep or drainage holes. Major water damage such as spalling to masonry brick siding may occur.
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Inside the house, major damage may be found when the drainage provisions of the siding are below grade. Wood rot, water intrusion and insect infestation may be found at the sill plate, floor joist ends, sheathing, and stud walls.

**Inspection Tip**

As you walk around the exterior, look closely at the overall grading, the slope of the ground nearest the house structure, and the distance between the siding and the ground surface. Pay attention to the exposed foundation. Ask yourself, “Is there at least 6 inches of exposed foundation visible all around the perimeter of the structure?” If you see any contact between siding and ground, move in closer to inspect using a probe and a moisture meter. Check for water damage at the siding material. Look for drainage provisions.

Oftentimes, a property owner will add dirt or landscaping materials up against the siding during. Maybe the property owner was doing some landscape work. Or the original grading was simply poorly done. Whatever the reason, there should be adequate clearance between the bottom of the siding and the ground surface to prevent major damage to the siding and water intrusion into the structure.

### 1.2 Inadequate Clearance from the Roof Covering Material

The best building practice is to have some distance or clearance between the bottom of the siding and the roof surface. The siding, no matter what type of material, should not come in contact with the roof covering material. In general, at least one inch of clearance should be found during your inspection. With adequate clearance installed, you may be able to confirm the type, condition, and proper installation of flashing at the roof-to-wall intersection.
Wood siding is particularly vulnerable to moisture damage. Wood siding in contact with a roof surface will wick moisture. End grains of wood and cut edges of wood siding, particularly plywood siding, can easily absorb (or wick) moisture.

**Inspection Tip**

Look for at least an inch of clearance. If you are walking upon the roof, it may be easy to kneedown to get a better look and feel at the bottom of the siding. Use your hand to feel the condition of the siding along the roof surface. Sometimes pushing on the siding may reveal...
concerns about the condition of that roof-to-wall intersection. If there is no clearance at that roof area, then probe for damage and use a moisture meter.

When the siding is damaged, water may penetrate the exterior covering and enter the structure. Adequate clearance between the siding and roof surface is essential.

1.3 Dense vegetation

Some vines and ivy grow on structures. Some do damage; some do not. Some cause cosmetic problems when they are pulled off the house and removed. All vines and ivy tend to hold moisture up against the house siding. They provide paths for water intrusion into the structure. They provide paths for insects to enter the house. Vines can move the siding, loosen fasteners, and cause separations and openings in the exterior covering.

Vines should be kept off of wood siding, away from trim and flashing, off of soffits and fascias, and clear from gutter and downspout systems. Vines should be prevented from growing on and under siding, particularly aluminum.

Dense vegetation with vines and ivy is an inspection restriction. The wall covering may not be completely inspected because of the vegetation. Access to components on the outside of the house may be restricted physically as well as visually. This type of restriction should be noted in an inspection report.

1.4 Wood and Soil Contact

Wooden components that are close to the ground are vulnerable to moisture damage. Siding should have adequate clearance above the ground surface, as well as all unprotected wooden components. The wood around window wells, crawlspace access doors, basement doors, decks, porches, stairs, carports, detached garages, wooden railings, balconies are all susceptible to deterioration as a result of wood and soil contact.

Wood and soil contact is commonly found by inspectors at detached garages. The bottom plate of the stud wall of the detached garage is commonly found to be installed under the ground level. The bottom plate is sometimes covered by the poured concrete floor of the garage, buried, and not readily visible. If the bottom plate is accessible, you should probe it with a screwdriver or some type of pointed instrument. The plate should sound and feel solid and in good condition.

The bottom of the load-bearing posts at carport structures are often deteriorated because of inadequate clearance between the bottom of the posts and the ground.
Retaining walls made of wood are often found to be deteriorated because they are in contact with the ground.

Planters that are installed up against the side of a house cause problems related to wooden components in contact with soil.

**Inspection Tip**

Places to look during your inspection for wood and soil contact include the following:
- Bottom of the siding
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• Where foundation meets wooden structure
• Bottom of doors
• Window sills and jambs
• Window wells
• Crawlspace access panels
• Retaining walls
• Planters
• Carports
• Detached garages
• Porch, deck, and balcony support posts
• Bottom of wooden railing posts
• Bottom of wooden exterior stairs

Protection Against Decay

Protection from decay should be provided in the following locations by the use of naturally durable wood or wood that is preservative treated.

• Wood joists closer than 18 inches or wood girders when closer than 12 inches to exposed ground in crawlspaces or unexcavated areas located within the building foundation perimeter
• All wood framers members that rest on concrete or masonry exterior foundation walls and are less than 8 inches from exposed ground
• Sills and sleepers on a concrete slab that is in direct contact with the ground
• Ends of wood beams entering masonry walls having clearances less than ½-inch all around
• Wood siding, sheathing and wall framing components on the exterior having clearances less than 6 inches from ground
For those areas of a house that are subject to decay, lumber must be pressure preservative treated or of a wood species having a natural resistance to decay. Such naturally durable wood includes the heartwood of decay-resistant redwood, cedar, black locust and black walnut.
Crawlspaces and unexcavated areas under a house will usually contain moisture-laden air. The foundation walls and the concrete floor (slab-on-grade) will absorb moisture from the ground and, by capillary action, will move it to wooden framing components to which they are in contact. Damage to the wood could be possible unless adequate clearance is maintained or the appropriate building material is used.

All structural, load-bearing wood members in contact with the ground should be suitable for ground contact use. Lumber or plywood required to be pressure preservative treated should have the quality mark of an approved agency.

**Wood rot**

Wood rot may be easily overlooked. Rot or water damage could be patched quickly and painted over prior to your inspection. Without close observation or physically touching the damage component, wood rot or water damage by be missed during your inspection. Inspectors often use their fingers or thumb to press upon the suspect components to check for damage and rot. Be very careful when using a screwdriver, instrument, or probe while inspecting windows and doors. You do not want to create more problems that actually exist.

**1.5 Water Intrusion**

To be able to inspect for moisture intrusion and related problems, an inspector should understand the basics of how moisture can move through a house. Moisture or water vapor moves in and out of a house in three ways:

- With air currents
- By diffusion through materials
- By heat transfer
Of these three, air movement accounts for more than 98% of all water vapor movement in building cavities. Air naturally moves from a high-pressure area to a lower one by the easiest path possible—generally through any available hole or crack in the building envelope. Moisture transfer by air currents is very fast (in the range of several hundred cubic feet of air per minute). Thus, to control air movement, a house should have any unintended air paths carefully and permanently sealed.

The other two driving forces—diffusion through materials and heat transfer—are much slower processes. Most common building materials slow moisture diffusion to a large degree, although they never stop it completely. Insulation also helps reduce heat transfer or flow.
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The laws of physics govern how moist air reacts within various temperature conditions. The study of moist air properties is technically referred to as "psychrometrics." A psychrometric chart is used by professionals to determine at what temperature and moisture concentration water vapor begins to condense. This is called the "dew point." By understanding how to find the dew point, you will better understand how to diagnose moisture problems in a house.

Relative humidity (RH) refers to the amount of moisture contained in a quantity of air compared to the maximum amount of moisture the air could hold at the same temperature. As air warms, its ability to hold water vapor increases; this capacity decreases as air cools. For example, according to the psychometric chart, air at 68°F (20°C) with 0.216 ounces of water (H2O) per pound of air (14.8g H2O/kg air) has a 100% RH. The same air at 59°F (15°C) reaches 100% RH with only 0.156 ounces of water per pound of air (10.7g H2O/kg air). The colder air holds about 28% of the moisture that the warmer air does. The moisture that the air can no longer hold condenses on the first cold surface it encounters (the dew point.) If this surface is within an exterior wall cavity, wet insulation and framing will be the result.

In addition to air movement, one can also control temperature and moisture content. Since insulation reduces heat transfer or flow, it also moderates the effect of temperature across the building envelope cavity. In most U.S. climates, properly installed vapor diffusion retarders can be used to reduce the amount of moisture transfer. Except in deliberately ventilated spaces, such as attics, insulation and vapor diffusion retarders work together to reduce the opportunity for condensation in a house's ceilings, walls, and floors.

No wall is perfectly waterproof, especially considering that there will be wall openings and penetrations that compromise the siding materials. A dependence on caulk as a primary barrier to
moisture penetration through openings should be checked during an inspection. Flashing should be installed in the appropriate areas.

**Inspection Tip**

Look at the exterior siding for obvious water damage or signs of deterioration. You won’t be able to tell much about water intrusion by looking at certain siding materials such as vinyl or aluminum. But wood siding may offer clues as to the condition of the wall and the possibility of moisture intrusion. If the siding is deteriorating, that may be a good indication of some damage behind it. Look closely at the siding and try to determine where liquid water may penetrate the siding. Look for large openings where air may enter wall through the siding. When you are inside, look for indications of water intrusion. Water intrusion does not always show up on the building interior.

**1.6 Planters**

Gardens or planters should not be installed up against a structure, unless careful building practices were professionally designed and implemented. In most instances, if you see a garden planter up against the siding, it was likely not installed by an architect, and is a probable concern for water intrusion.

A raised garden or planter with three sides and the fourth side up against the house is usually a source of water penetration through the siding at that area. Aboveground siding materials are not designed to be in contact with dirt. Planters will often be heavily watered, which causes the soil in contact with the siding to be continually damp.
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Gardens or planters up against the house are essentially a landscaping problem that needs to be resolved. Damage to the siding and water intrusion could occur. Water intrusion into the structure may cause major structural damage. Insects love dirt up against a house, particularly subterranean termites.

**Inspection Tip**

Look on the inside of the house on the wall directly opposite the garden or planter for indications of excessive moisture. Look at the baseboard and flooring at this wall area for water stains or possible mold growth.