



### READ ME FIRST!

Move into your home with peace of mind knowing we've got you covered!

You may think that purchasing a brand-new home would mean that you don't have to worry about defects, problems or issues at all, but that's just not the case. Although we work tirelessly to provide our customers with unsurpassed quality, new construction problems beyond our control are more common than you might think. We want to look at some of the common issues you will see in purchasing a new home.

We ask that as you walk through the home, feel free to talk to us about the warranty and what you should expect. At Royalcrest Builders, we offer a robust one-year warranty on things like electrical, heating/air and plumbing systems. Additionally, we stand firmly behind all structural components of your new home, and we're here to help you navigate between what would be considered a structural problem and that which would be considered normal settling.

**Please note:** Cosmetic items that are not flagged during the walkthrough, however, might be considered "homeowner maintenance" once you close, so make sure you're clear on what's included in your warranty and what's not.

**"Issues happen on all homes, but much less with superintendents who walk their homes regularly and communicate well with the trade partners. We take pride in giving our buyers an affordable, well-built home they can enjoy for years to come." —Gary Berg, Royalcrest Builders**

Here are some of the things you can expect to see during the first full year of a heating and cooling cycle of your new home. Please know that these are all "common issues" associated with new construction and are to be expected:

#### **Shrinkage and cracks**

First, when "dry" lumber is purchased from the lumber dealer, by Federal standard it has an average moisture content of 19%. After lumber in the house has gone through one heating season in this area, the average moisture content is 9%. In the process of losing 10% of its weight in water, the wood shrinks. A typical floor joist is a 2x10, which is 9 1/4" high at the time of installation at 19% moisture content. After it dries to 9% moisture, it has shrunk to about 8 7/8" high. The entire house settles the 3/8". However, the floor joist is supported at one end on the concrete foundation and at the other end rests on a center girder, which is made up of 3 2x10's nailed together, which also shrinks 3/8". Therefore, the entire house settles toward the center during the first winter. In the process, diagonal cracks often appear in the drywall at the corners of doors in the interior partitions.



One of the reasons a builder gives a one-year warranty with the house is so that these cracks caused by the lumber shrinkage can be repaired after the heating season. In some cases, the center girder will have to be raised slightly and re-shimmed on the tops of the piers to make the door openings in the cross partitions square again and to close the cracks. This lumber shrinkage is not the builder's fault, and there is nothing a Builder can do about it except make the repairs at the end of the heating season. Likewise, it is useless to make the repairs as the cracks appear, since the lumber may not be through shrinking yet.

### **Nail Pops**

Another thing that may appear as the result of lumber shrinkage is nail pops, where the head of a drywall nail pushes the finishing compound loose and "pops" out of the wall. In this case, the point of the nail stays exactly where it was driven into the wood, but the wood shrinks, leaving a small space between the drywall and the face of the framing member. If any pressure is applied to the wall finish, the drywall slides down the shank of the nail, causing the nail head to protrude, popping off the finishing compound. The solution is to use a punch to drive the nail deeper, then apply new finishing compound, sand, and repaint. Nail popping will appear most often near the corner of a wall or ceiling

### **Truss Rise**

A third problem, which is somewhat related, is that of truss rise. Most roof framing is composed of trusses, which are complete triangular frames that extend from wall to wall. To control energy costs, insulation is used to cover the ceiling, and it is usually deep enough to completely cover the bottom member of the truss. Since it is buried in insulation, the bottom member is warmer than the upper members during the winter, it dries more, causing it to shrink. Because of the geometry of the truss, the bottom member is pulled upward, causing it to lift the ceiling off the interior partitions, particularly near the center wall. During the summer, it will usually return to its original position.

In most cases, this truss rise happens only once, the first winter. However, in about one case in five, it happens each year. It depends upon where in the log the bottom truss member was cut. If the problem happens just once, repair of the drywall tape at the joint between the wall and the ceiling is all that is required. If the problem reappears, the only practical solution is to use a molding to cover the joint. The molding is fastened only to the ceiling and moves up and down on the wall, covering the crack. The problem is not structural and indicates the presence of extra-heavy insulation in the ceiling. This problem is likewise beyond the control of the builder, but should be responsible for repair of the joint after the first heating season.

### **Moisture Condensation**

At the beginning of the first cold weather in the fall, new homeowners are likely to be greeted with moisture condensing on the windows and running down onto the sash and sill. The carefully applied finish is in danger! The humidity is too high. What can they do? Ventilate!v



It may be difficult to open a window in cold weather when you have paid a premium for a well-insulated, tight house, but it is necessary. The building materials are drying, and the moisture has to go somewhere. The lumber is losing about 10% of its total weight in water. There is excess moisture in the concrete work, and in the interior finish materials, particularly plaster and drywall taping compounds. The building materials may release as much as a ton of water during that first heating season, and additional ventilation may be needed to dissipate the moisture. It may be necessary to open a window a crack and/or run a kitchen or bathroom exhaust fan most of the first winter to remove the excess humidity. A moisture problem during the first winter may well be a temporary one, do not take drastic measures to ventilate the house, such as installing an air-to-air heat exchanger, unless the moisture problem reappears the second winter.

### **Grading and Drainage**

The owner of a new house should be aware that even if the builder does the grading properly, some settlement will occur during the first and second years of occupancy. It may well be necessary to add another truckload of dirt around the house to compensate for the settlement of the backfill around the foundation.

### **Balancing Heating and Cooling System**

*(Applies mainly to two-story houses)* An important part of good performance of any comfort conditioning system is balancing the system so the distribution of heated or cooled air is proportional to the loss or gain of each room. A correct balancing adjustment cannot be done in one day and are best done by the homeowner. The system could be balanced by a contractor, but the cost would be excessive, and the adjustments are partially based on your perception of comfort. A typical balancing sequence for the heating season is as follows:

**Step 1.** All dampers, both in the duct system and at register and grille faces, should be opened. If you do not know the location of dampers in the duct system, ask. There may not be any, but there usually are.

**Step 2.** Adjust the room thermostat to a comfortable temperature.

**Step 3.** Leave six or more desk-type thermometers at table height in various rooms. They need not be expensive or accurate, as long as they all read the same when they are in the same location. Observe them once or twice a day during typical winter weather.

**Step 4.** Partially close the dampers, preferably in the duct system, supplying those rooms which tend to be too warm. Usually these will be small rooms and rooms near the furnace. If there are rooms which still do not get warm enough, partially close the dampers to all the other rooms until the cool rooms reach the desired temperature.

**Step 5.** When the system is balanced to the temperatures you like (not necessarily all rooms at the same temperature), the damper settings should be marked.



The procedure will need to be repeated during the cooling season, with the dampers being partially closed to rooms which overcool until the warmest room cools to the desired temperature. The damper settings will be considerably different than for the heating season. When the desired distribution is reached, mark the summer setting. After the correct winter and summer settings are marked, the dampers can be reset easily as the seasons change. If there are rooms which cannot be heated or cooled satisfactorily, it may be necessary to add another duct and outlet (or a duct booster fan), but that is rare.