

What You Don't Know May Not Only Hurt You ...it Could Cost You

*Al Tibbs, President
Closer Look Inspections (Cleveland, OH)*

If the old saying that what you don't know won't hurt you were true, homeowners would have no problems. Many homebuyers purchase homes based on visual, cursory inspections of the home. This may be sufficient in many cases, but with today's homes, there may be underlying issues which require a more technical analysis. First, let's take a look at the meaning of cursory, a word which is fairly common in the home inspection profession.

cursory - (*Lacking in intellectual depth or thoroughness*) *shallow, superficial, uncritical, sketchy, skin-deep, one-dimensional*

Home inspection companies that perform cursory inspections of a property provide a valuable service during real estate transactions. The inspector provides the buyer with peace of mind, educates the prospective buyer on caring for the home and the systems in the home and spots any obvious defects which may require further investigation. For many homes, this form of inspection may be all that is necessary. However, as knowledge of building science increases, so does the need for a more technical inspector that understands building science and problems that are not plainly visible but can be very costly. Today, construction materials and methods have changed. Consumers today demand more energy efficiency, aesthetic appeal and comfort from their homes than in years past and rightfully so. However, we are learning that in many homes these amenities have created new and more complicated problems which require professional evaluation. In recent years problems such as interstitial space moisture, mold, poor indoor air quality and other issues have become more prevalent as the result of newer, tighter building construction and new construction materials. In some cases, the conditions that create problems such as moisture (poor grading, inadequate gutters and downspouts, high water table, etc.) are the same as they have always been. However, new building materials and practices have created tighter buildings so the moisture does not dissipate naturally as in years past. Today, builders should address these concerns during construction by understanding the materials used and accounting for moisture levels within the building.

Many terms used by building science professionals today (e.g. vapor diffusion, interstitial space, stack effect, microbial contamination, etc.) are terms that often have never been heard by builders, inspectors, homeowners, etc. These and other terms are increasingly important to those involved in constructing buildings and assuring their proper operation.

The leading cause of construction defect claims we see in our office are related to moisture problems. These claims could be drastically reduced by implementing better quality control and quality assurance in the initial building stages. Construction defect claims relating to moisture could be minimized or alleviated completely by considering the following both during and after construction:

- Types of building materials and construction systems (e.g. masonry veneer, EIFS, etc)
- Type and condition of roof and site drainage systems and their rates of discharge
- Type of soil, moisture content, and surface /subsurface water flow adjacent to building
- Building usage and moisture generated by occupancy (all sources should be taken in to account when diagnosing moisture problems)
- Condition and absorption rates of materials

- Vapor barrier placement, permeability of materials used in construction
- Type, operation, and condition of heating, ventilating, cooling, humidification/dehumidification, and plumbing systems (HVAC contractors should take ALL sources of moisture in to account before recommending humidifier settings, etc.)
- Daily and seasonal changes in sun, prevailing winds, rain, temperature, and relative humidity (inside and outside)
- Unusual site conditions or irregularities of construction
- Conditions in wall cavities and surface conditions, temperature and relative humidity, and dew-points, insulation levels and placement, vapor barrier location and type, surface materials (wallpaper, vinyl wallpaper, etc.)
- Amount of air infiltration and exfiltration present in a building
- Building pressurization (includes area to area in building, across building envelope), stack effects, local exhaust effects, etc.
- Size of cooling system (over sized cooling systems add to moisture problems)

Having a home inspected by a qualified inspection company can spot some of the problems mentioned above. However, many of the items mentioned are outside of the scope of the services offered by the average home inspection firm. If the inspector does not have the proper level of knowledge or the proper equipment many or most of the above problem areas could be overlooked at considerable cost to the home or building owner. In almost all cases, hidden moisture problems can cause as much or more damage than visible moisture problems. In cases such as moisture in interstitial wall spaces, by the time moisture becomes visible significant damage may have already occurred.

There are currently few inspection firms that have the training and equipment necessary to diagnose problems in buildings such as those described. This has created the need for companies that specialize in diagnosing problems in buildings that may not be visible to the inspectors performing cursory home inspections during real estate transactions. This new type of "forensic inspection" requires a larger investment in training and equipment, but the services provided by such companies will become almost prerequisite to real estate transactions, both commercial and residential in the years ahead. With the ever escalating cost of real estate, and the sky high cost of correcting hidden defects in buildings, the higher cost of the "forensic inspection" is an excellent value.

This new breed of inspector, the "forensic inspector" must make a larger investment in education and equipment than their counterpart cursory inspectors. Some of the requirements to becoming a forensic inspector:

- Knowledge of national and local building codes
- Thorough knowledge of construction materials, methods and principals
- Good understanding of blueprints, specifications and estimating
- Knowledge of building science (pressures, moisture, construction methods and materials, vapor barriers, HVAC systems, building ventilation, moisture movement, etc.)
- HVAC system balancing, diagnostics and troubleshooting

- Thorough knowledge of indoor air quality issues including pollutants and pollution pathways
- Equipment including balometer, air velocity meter, manometer, infrared thermal imaging camera, moisture meters, infrared thermometer, other parameter reading equipment for CO, CO₂, %RH, Temp, Particulate, and other as needed.

These added requirements in education and equipment will mean that inspections performed by such inspectors may cost more than a cursory inspection, however, the peace of mind that comes from knowing there are no hidden defects is worth any additional costs. Homes built since the energy crunch of the 1970's may be more vulnerable to hidden problems that could go undiagnosed during a cursory inspection.

Today, consumers must take the time to do their homework when choosing an inspector. These forensic inspector will more than likely not be at the top of any real estate referral lists due to the more technical and thorough inspection techniques used and the likelihood that hidden problems may be discovered. These concealed problems may be costly to correct and it is to your benefit to hire a company equipped to discover such problems. Litigating a case for non-disclosure after the fact can be quite costly and may be unsuccessful simply because the defects are concealed. It is also important for consumers to understand that the home inspection company performing a cursory inspection of the home will most likely have a contract or agreement disclaiming hidden or concealed defects.

About the Author: Al Tibbs, CIAQT is the president of Closer Look Inspections in Cleveland, OH. Al has been involved in the construction industry as builder, estimator, inspector and environmental professional for over 27 years. Al is an ICC Certified Building Inspector, NBI Certified in HVAC Balancing & Diagnostics, AEE Board Certified Indoor Air Quality Technician (CIAQT) and also holds CIAQM and CIAQI certifications and a State of Ohio Licensed Asbestos Hazard Evaluation Specialist.