

# ***Important Construction Materials Often Can't Be Seen***

*Grant R. Ostreko, RS, CDT, LEED Green Associate  
Waldman Engineering Consultants, Inc.*

It's expected that the buildings we live in and manage will provide a comfortable shelter from the elements. The main building components that provide this shelter can be seen from the outside of the building and the wall cladding and roofing. However, some building components cannot be seen by visual inspection alone and in some cases, aren't installed at all which can lead to moisture finding its way in and causing headaches and damage. Below are several of those building components outlined below.

## **Building Paper**

Most townhome construction consists of wood framing and sheathing with an exterior cladding (siding, brick veneer, stucco, etc.). Building paper, which is a weather resistant barrier that prevents liquid water from penetrating the exterior shell but allows water vapor to pass through, is generally installed between the sheathing and the cladding to provide a barrier and a drainage plane for water that finds its way behind the cladding. Most codes now require building paper to be installed, however, depending on the properties' location, it may not have been required at the time of construction.

Regardless of the type of cladding installed, some amount of moisture will find its way behind it. In older construction, buildings were not as energy efficient and air was able to flow between the interior and exterior more freely. This allowed moisture that may have penetrated the exterior cladding, a means to dry before causing significant damage. Modern construction methods and materials make buildings much more "tight" when completed and moisture that does penetrate the exterior cladding dries slowly and is more likely to cause damage.

Damage to building components due to a lack of this paper include wood rot at the sheathing and framing, mold, damage to interior finishes such as drywall, and creating a desirable environment for wood eating insects. Fairly new associations (less than ten years) have had to replace all of the exterior siding after moisture damage problems were revealed due to a lack of building paper.

## **Underlayments at Sloped Roofing**

Sloped roofing systems consist of several components: the roof framing, wood decking (plywood or oriented strandboard), underlayment, shingles or tiles, and any needed accessories (gutters, vents, penetration flashings, etc.). The underlayment typically consists of a felt sheet that is impregnated with asphalt-based material. Underlayments are installed to provide an additional layer of moisture protection beneath the shingles as well as a protective barrier between the shingles and wood sheathing.

However some locations which are more susceptible to moisture finding its way beneath the shingles require a stronger waterproofing material which is typically referred to as a self-adhering underlayment (Ice and Water Shield® by Grace is commonly used). Self-adhering underlayments are thicker, rubber-like membranes and are recommended to be installed along the building eaves, valleys, near penetrations, around skylights, and at low sloped roofing sections. These types of underlayments provide greater resistance to leakage at roofing areas that are more vulnerable to penetration and a barrier to seepage resulting from ice dams that form at the eaves.

Most roof leaks occur at the areas listed above and repairs typically include installing this element to prevent future recurrence. Roofing replacement projects in this climate should always include installing a self-adhering underlayment at needed areas.