

Glitsa American supports professional craftsmen by providing the most beautiful Swedish finish systems. Wholesale market leader Glitsa American contractors with superior products, tests, and continuing education.

# the Swedish edition

Glitsa American's newsletter for flooring professionals

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## Glitsa Gold Seal System The Diamond of Floor Coatings (Part One of Two – The Wet Look)

by Duane Bartel, President of Glitsa American, Inc.

Gemology is the science of precious stones. It is a science that values and measures optical properties that explain why gems exude such beauty and appeal. In a similar way, wood used in the home has an allure that touches the same aesthetic senses, whether used in furniture, trim or in hardwood floors. Both gems and wood species can astound us with the marvels of the natural world. Their appeal is long lasting and treasured. They are both associated with class, prosperity, even celebrity. Far more than sharing beauty secrets with gems, however, wood has the added benefit of having a practical usefulness and a durable service.

Gems have a timeless beauty. Likewise, educated choices in finish selection and proper floor maintenance and care can assure similar behavior from a hardwood floor providing many years of service and aesthetic enjoyment.

**Do You Have a Hidden Gem in Your Floor? A Diamond in the Rough?** A gemstone in its natural state is not dazzling or beautiful. Instead, they are typically dull and lifeless when discovered. They must be meticulously cut, ground and polished to bring out their character and beauty to the fullest extent possible. Unfortunately, a gem's potential character and beauty may not be fully revealed if these steps are not properly and skillfully performed.

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Likewise, a properly prepared and coated hardwood floor can “bring out the diamond” in the wood being used. But an improperly prepared and coated floor, particularly if using a poor coating choice, will result in a floor that is dull and lifeless. The difference between blah and masterpiece can be as simple as the coating choice that is made.

**Glitsa’s Gold Seal Swedish Finish System Brings Out the Diamond in Your Floor** Just as a skillfully performed sequence of steps can transform a rough looking stone to reveal the beautiful gem within, the same is true of hardwood floors.

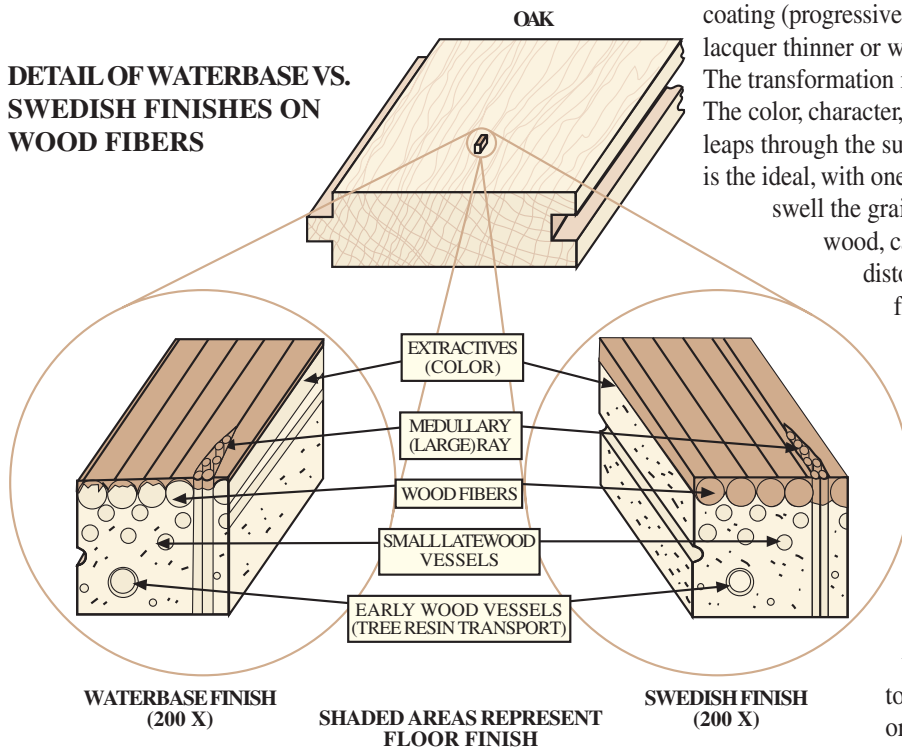
A rough piece of wood can appear dull and lifeless. Its colors will be muted and hazy, its features lacking definition. But mill it properly and it will start to transform. Sand it properly and it will begin to be beautiful. But, without the proper coating choice, it cannot show off its true gem-like characteristics of color, clarity, depth, and brilliance that fully bring the wood to life. For rough wood, the dull image we perceive is the result of highly diffused

light. The rough surface causes light to reflect at many angles and frequencies. The result is a dull, pale, flat, two-dimensional appearance.

A richer sensory experience would be to actually see into the wood fibers, creating a 3-D image. This is an image with depth. Light must have both optimum transmission into and reflection from wood fibers internal and external surfaces to create maximum appeal. It is this 3-D play of light that hits the viewer’s eye and creates the richest possible visual experience.

Diamonds or other gemstones allow us 3-D views of their internal structure, revealing rich optical characteristics of depth, clarity, transparency and reflectivity. Likewise, in order to see and appreciate similar qualities in wood we need to be able to see directly through the surface fibers and into the actual wood cells. Glitsa’s Gold Seal system accomplishes this. The current state of waterbase coatings technology does not achieve this to the extent that solvent-based systems can.

**A Simple Test: The Wet Look** The simplest way to illustrate the potential look of a species of wood is to use a small milled section of wood and sand it to a level appropriate for coating (progressive 40, 60, and 100 grits). Dampen a rag with lacquer thinner or water and wipe the surface of the wood. The transformation in appearance is dramatic and immediate. The color, character, life and brilliance of the wood species leaps through the surface. This is called “the wet look”, and is the ideal, with one exception. Water, if used in this test, will swell the grain and the internal cell structure of the wood, causing grain raise, grain popping and distortion of the internal structure of the wood fiber cells. The cells are essentially bloated and swollen from the water. The surface fibers stand up, creating a ragged surface that reflects light at many angles and frequencies. This creates a flatter, duller, paler, out-of-focus look that negatively impacts clarity, color and brilliance of the wood’s appearance. Solvents don’t have this problem. They easily transfer through wood fibers without distorting them. **But wait, there’s more to this test.** Continue to observe the wood sample as the water or lacquer thinner dries and you will see that when the surface has dried fully, the wood will have transformed back to its old



REFERENCES:  
 1. *The Encyclopedia of Wood*, by Aidan Walker, A Quatro book, 2005.  
 2. *Understanding Wood*, by R. Bruce Hoadley, The Taunton Press, 2000.

dull self. Cinderella has left the castle.

**The Optics of the Wet Look** Why does wetting the surface have such an amazing effect on the beauty of the wood? Wood fibers, which are cellulose, are tubular cellular structures arranged in a honeycomb pattern. They are for the most part empty and serve in life as transport vehicles for water, minerals and, in some cases, sap or to provide support for surrounding fibers. Nature has designed them to easily transport water, natural solvents, and dissolved minerals through their walls.

Flooding the wood surface with water or solvent causes a rapid reaction from the wood cells. Like sponges, they readily wick the liquid into the surface cell structure and fill their cell interiors fully. An interesting optical quality of cellulose, at the cellular level, is that it can become translucent upon saturation with water or solvents. This is why a white cotton t-shirt will become translucent when it gets drenched with water. Cotton, like wood, is composed of cellulose. The liquid becomes an optical bridge through the cell walls, allowing light that would normally simply reflect back from the wood's surface to actually penetrate the wood surface into the cell structure of the wood, then reflect back to the viewer's eye. This adds depth to the image, creating a richer visual effect because it is a 3-D image. Additionally, the optical bridging allows the viewer to see the internal cell structures and colors, which are entrapped tannins and minerals in the cell fibers. Some wood species demonstrate this more than others due to wide variations in wood fiber cell sizes.

Unfortunately, as the water or solvent used in this test evaporates, the optical bridge is lost. For this same reason, many water based floor coatings will typically look great while being applied, only to become flat and dull looking as the coating dries. The optical bridge into the cells is largely lost as the water evaporates out of the wood. In contrast, because of its chemistry, Glitsa's Gold Seal system maintains the optical bridge into the wood fibers throughout the cure, making the wet look permanent.

### **Glitsa's Swedish Finish Keeps Its Wet Look**

How does Glitsa's Gold Seal system keep its beautiful wet look even after cure? All floor coatings are made from a combination of unique resins, solvents and additives. The really significant difference, chemically, between waterbase coatings and solvent-based coatings is waterbase coatings are dispersions while solvent-based coatings are solutions. Water, while having many wonderful qualities, performs poorly as a solvent. Therefore, instead of being able to dissolve resins into water, the resin must be dispersed in what amounts to clumps of large resin molecules (mycelles) suspended in water and co-solvents. While the water in the coating

### ***Waterbase coatings are dispersions while solvent-based coatings are solutions.***

is free to easily penetrate and fill the wood fiber cells, the clumps of resin molecules are too large to penetrate the cell walls. Instead, they solidify during cure primarily on the wood surface instead of through the wood surface into the cells. Co-solvents in the coating permit partial solubility of the resin, which does create some partial bridging. That is why a typical waterbase coating will look better than no coating at all, but cannot fully retain the wet look. The resin molecules must be able to penetrate and cure through the cell walls in order to permanently maintain the optical bridge.

In contrast, because solvent based coatings use solvents that easily and fully dissolve their resins, the resin molecules in the coating transport easily through the wood cells, just as water easily carries mineral nutrients into wood cells in a living tree because those minerals are fully dissolved.

The difference between a solvent based coating and a typical current-technology waterbase coating's ability to penetrate the wood cell's wall to create a permanent optical bridge is like the difference between sifting minestrone soup and salt water through a coffee filter. The soup won't make it through.

Hardwood floors represent a serious investment for the homeowner and a serious commitment in time and effort for the floor contractor. Select wood species and millings are chosen for their beauty and character, often at a premium, to blend with the beauty of the home. When the floor finish can make the difference between blah and masterpiece due to the superior optical properties of it's chemistry, why compromise on great looks and performance? Use Glitsa's Swedish Finish System to create floors that are gems.

**Aging Gracefully** Gems have a quality of ageless beauty. Glitsa's Gold Seal system is unique among floor coatings in sharing this quality. The reasons for this are uniquely tied to Glitsa's chemistry. This will be the subject of the next newsletter article. ♦