“Choosing the Right Glass”

By Greg L. Cunningham

Given all the choices in the glass industry today, choosing the correct glass for the project’s desired appearance has become very challenging. Manufacturers offer an array of tints, coatings, and make-ups which can be over whelming to anyone making the glass selection. The defining three things dictating the glass type preferred are the climate or location, the appearance the Architect and Owner desire, and the cost.

In deciding what glass to use in the project’s location or climate one must first ascertain the desired performance required. Since energy savings are on everyone’s mind now, insulated glass should be the first priority for thermal performance. Insulated glass will provide protection from the cold exterior temperatures and extreme heat as well as providing sound transmission buffers. New spacer and sealant technology are changing the performance of insulated glass. In the very near future twenty-year warranties for seal failures could become common. Other considerations for better thermal performance are argon gas-filled units and warm edge spacer technology which can be expected to save as much as twenty percent of energy costs when compared to hermetically sealed air-filled units and standard spacers.

The next factor for consideration is the coating because tinted glass alone usually is not energy efficient enough to provide substantial savings over the long-term expected life of a building. When selecting a coating for the glass, the two things to take under consideration are light transmission and heat resistance. Glass manufacturers use the terms visible light transmission (VTL) and solar heat gain coefficient (SHGC) to rate the glass’s features for light transmission and heat resistance. The coating types and thicknesses for optimal efficiency in the project’s locale can be selected with the assistance of the glass manufacturer’s technical department or the published performance characteristics readily available from the manufacturer’s website. The three most common coatings are pyrolytic, silver-coated, and magnetron sputter vacuum deposition (MSVD). Each performs differently and comes in a wide variety of combinations and pricing.

The appearance of the glass is what the average person sees as aesthetically pleasing once the building is completed. The Architect and Owner have a wide variety of choices. The most commonly specified glass is blue/green tinted. By adding diversified coatings an array of brilliant hues can be achieved. Other tinted glass types available are green, gray, bronze and blue. Clear glass is also available with different color coatings in a range from the reflectivity of a mirror to transparency allowing visibility to the inside of the building.

Last, but not least in the minds of most Architects and Owners, is the cost of the glass. Naturally high-performance glass will be more costly. The highest performing glass usually has a coating and is also tinted; driving the price higher. However, in a substantially large building, the energy savings alone can pay for the extra cost of the higher performing glass. Savings for heating and cooling costs can be realized during the first year of performance. When making the

glass selection, the Architect and Owner should include the glass manufacturer, glazing contractor, glass consultant and the HVAC equipment contractor and his technical advisers.

Choosing the correct glass has become a science of its own and can be a satisfying, rewarding experience if you are equipped with the right information to make the appropriate choice.