

Hard Facts About Solar Heat and True Energy Efficiency

***Customized Solar Performance:
Choosing the Most Appropriate Glass Solution***

*Tim Andersen, Product Manager
AGC Building Products Sales and Marketing*

When designing and specifying residential replacement windows, energy efficiency is one of the primary concerns for both window fabricators and homeowners. In maximizing year-round energy efficiency, a key consideration is choosing an appropriate level of solar performance—ensuring that windows can capture passive solar heat in cooler regions, and block solar heat gain in warmer climates.

With a range of low-emissivity soft- and hard-coat glass solutions, AGC Flat Glass North America prides itself on offering the industry's broadest product line. Our diverse glass solutions are designed to achieve the customized levels of solar performance that are appropriate for every region of the U.S.

Offering expert technical support and excellent product availability, we can help you choose the most appropriate glass solutions to maximize homeowners' year-round energy efficiency—as well as your own sales and profits.

In specifying the most appropriate glass products for residential replacement windows, it is critical to recognize two simple truths about energy efficiency:

- **In heating-dominated Northern regions, windows require a high SHGC.** To maximize annual energy efficiency, Northern windows demand not only a low U factor—indicating excellent thermal insulation—but also a high SHGC that allows them to capitalize on passive solar heat gain to reduce heating costs. With a high SHGC and low U factor, AGC's hard-coat Comfort E2™ and soft-coat Comfort Ti-PS™ deliver the custom performance required in the North, meeting ENERGY STAR® window standards.
- **Dominated by air conditioning costs, Southern regions demand a low SHGC.** With year-round sun and high temperatures, Southern windows can also benefit from a low U factor to maximize insulation—but should have a low SHGC, to effectively block solar heat and reduce air conditioning usage. AGC's family of soft-coat Comfort Ti™ glass products is ideal for maximizing energy efficiency and meeting ENERGY STAR performance goals in these warmer U.S. regions.

Is Solar Heat a Bad Thing? It Depends On Where You Live.

Because year-round solar heat is a real challenge in Southern climates, there is a growing misconception that a low SHGC is universally desirable—and that solar heat-blocking windows mean “high performance” for every home in America. Nothing could be further from the truth.

In Northern regions, where heating is the dominant year-round energy source, the sun represents a free source of passive solar heat that can actually lower annual utility bills.

Engineered specifically for heating-dominated climates, AGC’s Comfort E2™ offers an excellent balance of passive solar heating and thermal insulation qualities, along with a neutral color that makes it a perfect choice for replacement windows.

During the cooler months that dominate Northern regions, Comfort E2’s unique properties result in higher inside glass temperatures, reducing the “draft” sensation caused by cold glass surfaces. Homeowners will be delighted not only by their reduced heating bills, but also by the new levels of comfort that their replacement windows bring.

In both its energy performance and its processing requirements, Comfort E2 supports environmental protection and green building standards. It reflects AGC's ongoing commitment to environmental stewardship.

A durable hard-coat solution, Comfort E2 offers a number of advantages that can help remove time and costs from your operations—as well as increase your flexibility. (See “Comfort E2: Features and Benefits,” at right.)

Combined with other energy-efficient window components such as spacer systems and PVC framing, Comfort E2 offers outstanding energy savings for Northern homeowners. Best of all, Comfort E2 complements those long-term utility savings with very attractive upfront costs—delivering financial benefits for both homeowners *and* window manufacturers.

Given the important benefits that passive solar heat provides in the North, AGC continues to invest in new research technologies and equipment to create higher-performing hard-coat glass solutions—an investment that benefits both window makers and homeowners.

Comfort E2™:
Features and Benefits

- **Durable hard-coat technology**
- **Excellent balance of thermal insulation and passive solar heat gain**
- **Neutral color**
- **Unlimited shelf life**
- **Easy to fabricate, store, handle, and transport**
- **Single-version solution for both annealed and tempered glass needs**
- **Does not require edge deletion**

AGC also continues to focus on developing soft-coat technologies that can capitalize on passive solar heat in Northern regions. Soft-coat Comfort Ti-PS™ offers high SHGC ratings that allow for passive solar heat gains in moderate to cool climates.

For Southern homes—where solar heat gain is a year-round concern—AGC offers a full line of soft-coat glass solutions with excellent solar-blocking properties, including Comfort Ti-AC 40™, Comfort Ti-AC 36™, and Comfort Ti-AC 23™.

By minimizing solar heat, these hard-working products cut air conditioning costs, the primary energy concern in warmer regions. AGC continues to develop innovative soft-coat technologies for Southern replacement windows, with the goal of achieving powerful new levels of solar heat blocking for homes in this region of the U.S.

An AGC Solution for Every Region

High Solar Heat Gain (passive solar):

Comfort E2™
Comfort Ti-PS™

Medium Solar Heat Gain:

Comfort Ti-AC 40™
Comfort Ti-AC 36™

Low Solar Heat Gain (solar blocking):

Comfort Ti-AC 23™

Delivering Support That Goes “Beyond Glass™”

In addition to meeting the solar-performance needs of the entire country with our innovative glass products, AGC is moving *Beyond Glass*—to make our customers successful with outstanding solutions and services. Advantages of partnering with AGC include:

- **A team of highly collaborative field sales and architectural representatives** whose focus is on your business—and who can help you select the best glass product for your specific needs
- **A knowledgeable customer support team** that can provide appropriate product choices, as well as performance data and specification support
- **Marketing support and Web-based tools** that communicate the benefits of our entire range of products, as well as complex energy-efficiency issues that impact glass selection and window design
- **Superior supply chain capabilities** that provide the flexibility and support you need to efficiently manage your business’s inventory levels, broad product assortments, and product availability
- **A Technical Services hotline, 423-229-7200 or 800-251-0441**, where you can access the best and brightest glass experts in the industry

To learn more about the benefits of AGC’s broad line of soft- and hard-coat glass products, we urge you to call the AGC Technical Services team at our glass hotline, 423-229-7200 or 800-251-0441. You can also send an e-mail to info@na.agc-flatglass.com, or visit us online at www.na.agc-flatglass.com.