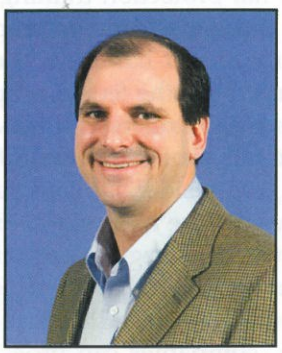
Single-Ply Green

Green by Luxury or by Law? IGCC a Possible Reality

by Shawn Stanley, IB Roof Systems



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I think we all have been enamored with the 'Green' movement so far, it's been a great conversation piece, *a feel good*, if you will. It's allowed us to put feathers in our cap by being involved in LEED projects, installing vegetative roofs, or integrating solar on rooftops. But up to this point our involvement has been a voluntary luxury.

What if starting January 2012 it stopped being 'a feel good' and became a law; written in building code? What if roof-top energy generation from solar, or wind became a requirement? What if tear-off required roof debris to be separated into various recycle bins. What if air quality control matched the strictest California requirements making it almost impossible to light up a hot tar kettle or use the common adhesives and sealants we use today? What if each jurisdiction was allowed to increase minimum green requirements as they desire?

Would you be ready? What would your business look like? What changes would you have to make to your business model, or your crew's skill set? How savvy would you need to be to get business from your customers by presenting a proposal two to three times higher than normal? Are you currently aligned with products and manufacturers that can meet such requirements?

If you have not yet heard of the International Green Construction Code (IGCC) you will and you will need to be familiar with changes and requirements that may affect you and your business. Because this code is an *overlay* code, meaning that it is to be used in conjunction with other mainstream construction codes in the International Code Council (ICC) family, including the International Building Code (IBC) and International Energy Conservation Code (IECC). It has far reaching effects to the sustainable requirements of the building and its roof. Adoption for this code is targeted for January 2012.

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The IGCC is based on a scale named, Zero Energy Performance Index (zEPI). The scale establishes zero net-energy as the absolute goal. The only measurement that matters is how far a building deviates from zero net-energy. The scale would go from zero to 100 with 100 representing the average energy consumption based on 2003 CBECS (Commercial Buildings Energy Consumption Survey) data.

The zEPI scale would allow a jurisdiction to verify a building's compliance to IGCC, therefore, a building that uses twice as much energy as an average building from 2003 receives a score of "200." A building that uses half as much energy as an average building receives a score of "50." Again the goal in using the zEPI scale is to get a buildings net-energy score to zero.

Chapter six of the IGCC – Energy Conservation, Efficiency and Atmospheric Quality may affect you the most. This section provides unprecedented *minimum requirements* for new buildings to have a verified zEPI score of no more than 51.

In new construction you would be allowed to plan for such requirements; more insulation, high quality reflective roofing, controlled water run-off, energy-generating equipment mounted on the roof, etc. But IGCC would require these changes be done to existing buildings as well that hit certain triggers. One of those triggers currently in the code is the sale of a building and another possibly is reroofing. That means an existing building getting a reroof may have to be designed and or retro-fitted to consume almost half the average net-energy of a building built in 2003 just to get a new roof. Building owners needing a new roof may find themselves being presented with a proposal, charging more than the building is worth.

To achieve a score of 51 or less, you will need to be familiar with and

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acceptable). In some low slope roof applications, a combination of warning lines, guardrails, nets, monitors, and personal fall arrest systems are acceptable. On small, low sloped roofs, a monitor alone may be allowed. Roofing companies should keep in mind that any employer caught not providing acceptable fall protection equipment under the new standard could be cited unless they can show why conventional fall protection equipment was not feasible or presented a greater hazard to use. When the new regulations take effect, no company wants to be issued a citation, receive a fine, or have their insurance rates go up. Remember - the change is now the law.

Fall Protection: Benefits Beyond Compliance. Yes, complying with the new OSHA regulations is now law, but there are many benefits to using fall protection equipment beyond compliance. Not only should fall protection equipment be worn because of the new OSHA regulations, but because it truly benefits roofers' safety. As previously mentioned, an average of 40 workers per year are killed in the residential construction industry as a result of falling off a roof – that's a shocking statistic that breaks down to a rate of three or more workers per month. Reiterate to roofing employees that accidents can happen to anyone, no matter their experience level. However, using the proper equipment can help protect workers in the event of a fall. What roofer doesn't want to go home safely at the end of the day?

Companies can overcome any hesitation to compliance by supplying workers with comfortable, high-performing equipment. If equipment is easy to use and comfortable to wear, roofing workers will be more likely to want to wear it. Consider lightweight yet highly durable equipment that can be easily worn for the duration of the workday. For example, full-body harnesses should be constructed with strategically-placed padding and soft, moisture-wicking materials that won't chafe or rub. Fall protection products have come a long way in the last 15 years and now are more comfortable and user-friendly than ever before.

Spring Training: Not Just for Baseball. Residential roofing companies should ensure they make time for their workers to undergo fall protection training in advance of June 16, and spring is the ideal time to prepare before the change. Both classroom and hands-on training sessions will ensure that workers get the feel of properly fitted fall protection equipment and understand how to use it correctly. Most major fall protection manufacturers offer training courses to help residential construction workers learn how to comply with the new regulations.

Certainly, the new OSHA regulations will be a change for the roofing industry, given that the interim guidelines governing the industry have been in place for more than 15 years. However, companies can proactively prepare for the changeover by reading up on the regulations, purchasing proper fall protection equipment that complies with OSHA standard 1926.501 subpart M, and scheduling hands-on training sessions for its roofers. Remember, don't slip up. Think about the change this spring before the calendar turns to summer in order to be fully prepared for the future.

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skilled at roof-top energy generation through, cool roofing, roof-top PV, solar arrays, solar water heating, solar thermal, and wind turbines, in conjunction with a myriad of other building envelope products, may become a must have. Roof-top energy-generating equipment and energy-saving technologies are very expensive, designed to last 20 to 25 years and require careful engineering between sustainable-energy equipment manufacturers and roofing manufacturers to avoid voiding warranties and to ensure the roofing system will not fail throughout the life of the energy-generating technology installed on the roof.

Currently if you need to replace a roof system it may cost around $350/sq, to replace a vegetative roof system around $2,500/sq, or to replace a solar roof system $5,000/sq. You need to be cognoscente, and prepared for this because, if a contractor is not careful or experienced with such installations, and the roof fails due to workmanship or negligence, it could cost the contractor his company. Becoming knowledgeable of IGCC and what roofing systems are documented to perform 20 to 25 years and meet the sustainable IGCC standards may be the difference between a company thriving or dying.

PVC Roof Membranes in an IGCC Building World

Durability, proven history of performance, sustainable documentation, and specifying the best roofing system for your customer will be key in determining what roofing product one should propose for a customer on buildings under IGCC requirements. Cutting corners to reduce cost will not be an option.

PVC is in a great position to help meet IGCC if it is adopted in your state or jurisdiction. Roofs made of PVC contribute significantly to achieving two major objectives of green building programs – the reduction of both building cooling loads (reducing energy consumption) and the urban heat island effect. That is why the reflectance, emittance and/or solar reflectance index criteria for LEED, Energy Star, Green Globes, and California's Title 24 can all be met through the use of reflective PVC roofing materials. PVC roof materials can also be a great foundation for energy saving or producing roof mounted technologies.

All products have environmental impacts resulting from manufacturing and shipping. PVC's long life cycle – and the associated lower energy consumption to both produce the raw material and process it into useful products – makes it as sustainable and advantageous building product to help tackle possible IGCC requirements.

Other roofing product categories may have this capability as well. You should consult with your chosen manufacturers' rep to aid in design of the best roof system to ensure the best possible performance for your customers.

Additional Comments

Another reason why it is important for contractors to be cognoscente of this code is because IGCC allows individual jurisdictions to raise the minimum sustainable values at their discretion. This means that contractors that work in broad geographic markets would need to be aware of each jurisdictions requirement prior to estimating a project.

Mark Graham from the NRCA has been very helpful in educating the roofing industry to what is entailed in the IGCC. He stated in a recent article, "IGCC will provide minimum levels of sustainability and allow jurisdictions to adopt requirements providing higher levels of sustainability. For example, the draft includes a minimum provision that no less than 35% of nonhazardous construction waste be recycled. The jurisdictional requirements allow jurisdictions to select higher levels for recycling - up to 50 or 65% - if desired. As a result, jurisdictions that adopt IGCC may have noticeably different compliance levels.

"The draft also includes options for project electives that become mandatory only as selected and indicated by a building owner or designer. Examples of project electives include use of highly-reflective roof coverings, vegetative roof systems, and additional thermal insulation. For many U.S. regions, use of the additional thermal insulation elective would require roof assemblies to have U-values as low as 0.017 (which is an R-value of 58.8)." "IGCC will fundamentally change the construction industry forever."

I applaud Grahams efforts along with the NRCA in educating the industry and bringing these potential sweeping changes to our attention, allowing us to get involved. States are already looking to adopt IGCC with Maryland becoming the first state to adopt IGCC as a compliance alternate starting January 2012.

Conclusion

IGCC could possibly change energy efficiency and sustainable initiatives from a luxury to a law, changing entirely the way the roofing industry conducts business. This will include significant increases in thermal insulation, required reflective (cool) roof surfaces, vegetative roof systems, and roof mounted energy-generation systems just to reach minimum code requirements. What we could see with IGCC is a migration away from shorter term roof systems to significant, documented, longer performing systems.

I encourage you to educate yourself with IGCC and prepare for it. Identify and align with products and manufacturers that promote products and services that fit well with these requirements. Train your sales force and your crews in the selling and installation of these products. This will help position your company in a much better light if IGCC becomes required. You can download IGCC in its current form and track its progress at www.iccsafe.org/cs/IGCC/Pages/default.aspx.