ADVANCED GLAZINGS LTD

A new era in glass


VOLVO


Halifax

Advanced Glazings Ltd. is a leading innovator in sustainable, state-of-the-art glass solutions. Formed almost 30 years ago by Dr. Douglas Millburn and Michelle Millburn, their goal has long been to develop, manufacture, and market sustainable and commercially viable technologies related to sunlight. Their biggest accomplishment is now their signature product: Solera®, a type of translucent highly-insulated glass that seamlessly integrates with any standard curtain wall or glass framing system. With Solera®, builders and end-users can precisely configure and control light diffusion, visible light transmittance, and solar heat gain properties, all while achieving superior acoustic performance and thermal insulation up to R25.

"In creating Solera, we have put our decades of combined experience in daylight design at our clients' disposal," Dr. Milburn says. "We have empowered architects and builders to create stunning, energy-efficient structures that inspire awe and admiration."

Dr. Milburn points to Volvo Cars Canada as a recent example of an empowered client. Earlier this year, Advanced Glazings proudly announced a strategic project which has come to see the integration of Solera® glass in four of their locations across Canada to start. This groundbreaking collaboration will "herald a new era of sustainable design and energy," Dr. Milburn says, and will result in "an even more pleasing and effective showroom experience to Volvo's infrastructure."

Dr. Milburn was born and raised in Nova Scotia. He earned his undergraduate degree in physics at Mount Allison University, before finishing his studies with a Master's degree in physics and a PhD in solar mechanical engineering, both at the University of Waterloo. He and his wife Michelle


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co-founded Advanced Glazings in Sydney, on the east coast of Cape Breton Island, in 1995. In the years since, he estimates that he has been involved in "several thousand" daylighting projects.

Dr. Milburn credits the company's success over the years to their signature innovation: Solera®. Through the creation of a glass product that is both translucent and highly-insulating, he believes they have changed the building game with respect to architecture, design, and sustainability.

There have always been problems with glass, ever since it was invented, Dr. Milburn remarked. It has always made for more interesting buildings, but it has always come up with energy-efficiency issues. Additionally, there has always been the problem of natural light as it filters into spaces uncontrolled, resulting in the glare of sunlight and ultimately discomfort. The Romans invented blinds to deal with it, but blinds "depower your windows," as Dr. Milburn describes it – "they block your light, they block your view." Thus the need for translucent glass.

The translucent glass options that preceded Solera®, however, all have drawbacks. Acid-etched glass, for instance, is a durable material and attractive material, but it lacks energy efficiency and does not diffuse light well – in fact, Dr. Milburn says "it actually exacerbates your glare problem." White laminated glass, meanwhile, is a "slightly better diffuser, but only slightly." Lastly, there are fibre-reinforced plastic panels, which are great light diffusers and insulate well, but they are single-use plastics with short lifetimes. The plastics also change color and yellow within their short lifetimes, which "ends up being

problematic."

Since early in his career, Dr. Milburn's vision has been to create an alternative glass product that would mitigate those drawbacks. With Solera®, he believes he has succeeded. In his learned opinion, Solera® "is as about as close as you can get to ideal translucent."

"It checks all the boxes," he says. "It has a long lifetime. It will not color change. It goes up to R25 insulation value. It's as close as you can get to a perfect light diffuser, which means absolutely minimal glare. It has the ability to take light of any form, diffuse light or direct beam sunlight, and convert it into soft, gentle light that just fills up the space and backlights."

Solera® has a wide range of varied applications, according to Dr. Milburn, but it proves particularly effective in large open spaces. For example, the product is currently being successfully used in practice facilities for the Toronto Raptors and Sacramento Kings as well as in the gymnasium of the National Circus School in Montreal.

"With large spaces, it's just a no brainer," Dr. Milburn says. "Arenas, gyms, factories, retail spaces – they daylight wonderfully with it. If you want to make a spectacular atrium in a building, it will make your building glow at night. It'll be inviting, it'll be exciting, and it'll be beautiful to be inside."

There is also a lot of opportunity for Solera® in educational buildings, Dr. Milburn says, as there are a lot of open spaces in those buildings, including gyms, cafeterias, and atriums. Even

classrooms can highly benefit.

"Everybody in education understands that natural light helps the learning process," he states. "That's been well quantified and it's been understood for decades. It's just hard to do – but our ideal translucent does an absolutely great job. You can bring daylight deep into classroom spaces and get rid of the whole issue with blinds and everything like that."

Office spaces can similarly benefit, Dr. Milburn continues, as natural light also helps with productivity in adults.

"Daylight just makes for a healthy and productive building," he says. "Natural light is just one of those boxes you can check for a huge enhancement to your building."

Of course, one more particularly viable application for Solera® is car dealerships, as evidenced by Advanced Glazings' recent work with Volvo Cars Canada, integrating Solera® glass in four locations across Canada, including Richmond, Brossard, Laval, and Halifax. Moving forward, they have plans to continue to deploy the product as a key component in their facilities, enhancing both their aesthetic appeal and their environmental performance.

Joe Menchefski is a marketing and sales consultant with Advanced Glazings, as well as the host of the 'Better Buildings for Humans' podcast. He recalls how Volvo came to discover Advanced Glazings, and why he believes working with them makes so much sense:

"They wanted the translucent look," he says. "They wanted natural light in their car dealerships. I mean, car dealers figured this out a long time ago – a car in the showroom has to look the same way that it's going to look in your driveway, or there are going to be issues. So they needed to have full spectrum natural light."

At the same time, Menchefski says, "every car dealer, certainly in North America, knows the pain of glare."

"They know the pain of having really, really bright spots, sometimes far too bright relative to the darker levels within the space," he explains. "So they want light, but they know that it's necessary to control it."

Prior to coming across Solera®, Volvo relied on conventional acid-etched glass, but they recognized "they had a really serious glare problem," Menchefski says. After being introduced to Advanced Glazings through their architect, "they recognized that we could solve that problem, and we could create an environment that's really inviting, that makes potential car buyers want to linger."

"When you get in there and it's beautifully lit and the cars look wonderful and the atmosphere is soft and gentle – well, you have a tendency to hang around," he says. "You have a tendency to listen to think more fondly of Volvo's offering as a result of being in such an inviting atmosphere. That was very conscious on Volvo's part. It goes beyond the light – they've done a lot of brilliant things in their design – but the lighting really contributes to creating an inviting, comfortable atmosphere that people want to be in."

By using Solera®, Dr. Milburn adds, Volvo is able to "really control the view" into their dealerships.

"A normal all-glass building envelope would have an uncontrolled view," he explains. "You would see everything. With Solera®, you get a controlled view. You don't see the interior of the building; you just see that perfect view of the automobiles

that are framed inside there. And at night, they look truly spectacular."

The feedback from Volvo so far has been exceptionally positive. "We are excited to embark on this journey with Advanced Glazings," stated Julian Pastore, manager of Retail Experience and Sustainability at Volvo Cars Canada, in a press release announcing the project. "By incorporating Solera glass into our facilities, we are not only enhancing the visual appeal of our spaces but also reducing our carbon footprint and advancing our sustainability goals."

According to Dr. Milburn, the feedback has also been exceptionally positive on the ground. He recently visited the Volvo dealership in Halifax and spoke directly to the franchise owner and some of the salespeople. "They're over the moon with it," he reports, "because it's such a comfortable environment and it's such a good looking building." Dr. Milburn's wife accompanied him on that visit, and she purchased a vehicle as well – "so that proves it does sell more cars."

Functional and beautiful

Advanced Glazings markets and sells their products a number of different ways. In some cases, they work directly with retailers like Volvo. More often, they sell through architects, who relish in having a tool that help them design buildings that balance and connect the indoors and outdoors. They also work with several school boards – Dr. Milburn estimates they are in “hundreds and hundreds” of schools already, and he says a number of school boards have accepted Solera® as a design standard for effective educational spaces.

Another market segment that Advanced Glazings is excited about is the metal building industry. According to Menchefski, metal buildings represent “a growing percentage of all buildings that are made – and it wouldn’t make any sense to ignore that massive segment.” Additionally, metal buildings are typically industrial and commercial buildings, which tend to have very large spaces inside – “the kind of

spaces that Solera® does a wonderful job of lighting," he says.

In order to service that market segment, Advanced Glazings has introduced their SoleraWall® insulated glass cladding system. That system is glass as a cladding, rather than traditional curtainwall, window, or storefront. It is applied directly over a primary structure, in a similar manner to insulated metal panels. The SoleraWall® system allows clients to mix and match metal panel, vision glass, and translucent engineered light diffusing glass – letting them provide their occupants with controlled views and exceptional natural light.

In addition, SoleraWall® can provide insulation values approaching that of metal panels – "which was previously unheard of in glass," Dr. Milburn says. Consequently, clients can easily integrate glass into their building while adhering to stringent and ever-evolving energy codes.

To further address the metal building market, Advanced Glazings has also sought to team up with go-to-market partners. For example, earlier this year they announced a partnership with WinTech, a company based out Missouri that manufactures windows specifically for the metal building industry. WinTech is now integrating Solera® glass into their frames and selling a complete window product to their client. This collaboration makes it easier than ever for clients to create visually appealing and high-value interiors, without compromising the cost-effectiveness and rapid installation associated with pre-engineered metal buildings.

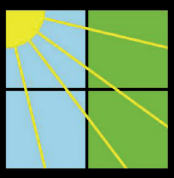
“Advanced Glazings and WinTech are thrilled to embark on a shared journey to revolutionize metal building design by combining sustainable materials, natural light, and efficient construction methods,” said Dr. Milburn in a press release earlier this year. “Our partnering of products will achieve a new era of metal structures that are not only functional but also beautiful, energy-efficient, and conducive to employee well-being.”

Moving forward, Dr. Milburn says the vision for Advanced Glazings is to continue forming strategic partnerships and integrations with key industry players, and in the process continue raising awareness about the many benefits of working with Solera® glass. He’s pleased with their progress so far and he fully expects the company’s profile to keep growing as a result of their good work and satisfied clients.

“We’ve got a number of buildings up, we’ve shown what we can do,” he concludes. “Now we’re really looking to find more of those visionary organizations that want to build better, greener, spectacular buildings, and build them faster and at a lower cost. That’s going very well. It’s a really exciting time to be a part of what we’re doing right now.”

For more on Advanced Glazings, their Solera® line of products, and more examples of past and present projects – and to contact Dr. Milburn, Joe Menchefski, and the rest of their expert team – visit https://advancedglazings.com/

Lastly, check out Joe Menchefski's podcast, 'Better Buildings for Humans' – which is all about how the buildings where we work, play, and live impact our daily lives, well-being, and productivity – at https://bbfhpod.advancedglazings.com/



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