GREEN TECH THE SERIES COLUMN FOR JULY 8, 2015
HEADLINE: LIGHTING UP THE INSIDE OF THE SPA

If you have had the opportunity to follow recent columns, you will know we are in the middle of building an addition to the church (www.alltechgreenchurch.ca). This addition will operate as a boutique spa, though not for nails or facials. Rather, a spa that offers use of two hot tubs, a cold tub, a Finnish sauna and two Infared saunas, a quiet room and a massage room. The spa will offer similar health benefits as do large spas, such as St Anne's, in Brighton, but in a relaxed, smaller setting, with more personal attention.

The building is being assembled using a major percentage of the International Passive House assembly methods. However, we wander away and add recycled and reclaimed items like windows and doors, for example, adding a sustainable benefit. One area I was really conscious of was natural lighting. Having built residences and commercial buildings in the past, I have a real grasp of the benefits. Hence, we have just finished adding in three commercial sized 21 inch sun tunnels from the folks at Velux. They had some extra stock, which we were able to take of and appreciate the price break we received. Velux is one of the finest manufacturers of sun tunnels in North America.

Solar Tube Lighting, Sun Tunnels, Sun Tubes and Solar Tube Daylighting are the common terms that apply to these installations. Sun Tunnels run from the ceiling of a room out to the roof where they collect light that is reflected down tube and then diffused into the attached room. They provide passive light, not unlike a skylight with far less cost. They don't need as much ceiling space and certainly don't have the maintenance attached to a skylight. With the flush ceiling look, they are often mistaken for ceiling light fixtures. Depending upon the size of the tube, they can easily light an area from 100 to 600 sq. feet. A ten inch solar tube can emit up to 3750 lumens of light. a standard incandescent 60 watt light bulb produces 870 lumens. They also produce considerably less heat than a light bulb. One company I heard of while researching this article reported that their daytime lighting costs dropped 86%, once they added a large ceiling array of sun tunnels in their office.

Simply put, this is free lighting, not only during the day, but in the evening too. The pictures this week show the three 21" Velux tunnels we installed. One picture was taken at 7:00 p.m. on a partly cloudy day, while the other was taken three hours later, at 10:00 p.m., from the same location. It's very clear how much light

they capture, not only in the early evening, but at night, too. Even on a cloudy day, they still offer some natural light. This brings me to the benefits, obvious and otherwise. Not only have we have lessened our reliance on electricity, but, in our case, once the spa is finished, the two that are located side by side will actually provide the light for an indoor island planter. We intend to grow the herbs and some of the vegetables for serving to our clients at lunch and to our B&B guests for breakfast.

There is one benefit that many are not aware of; that being the emotional value of natural light. The light that an Energy Star rated sun tunnel produces removes up to 99% of the UV light that discolors fabrics and adds excess heat. Some people are affected by a condition called Seasonal Affective Disorder (SAD), which occurs when one does not get enough exposure to the sun. One survey I have states that sunlight plays an important role as a mood elevator, heightens energy levels and natural alertness. Sun tunnels allow a large amount of natural sunlight and are a side benefit in our relaxation area where two of these tunnels are located.

Sun tunnels offer amazing versatility, especially if you have an internal room where there is no window, as is the case in many bathrooms. Closets are another area where these installations “shine.” The questions I often get when I talk about these are the cost and how long it takes to install. A small sun tunnel, say up to a 14” model, can be installed for less than a $1000.00 and, in some cases, depending upon access, much less. Installation on an existing roof is often fairly easy for a skilled installer. When there are no access issues, such as framework or the ability to get into your attic, I have seen these installed in a morning. With roof flanges, capable of a roof pitch from 15 to 60 degrees, there are practically no roof installations that are not possible. Installation of a sun tunnel is not above the possibility of a reasonably skilled handy homeowner. Given the simplicity of installation, two of us installed all three of ours in 5 hours.

We have a low slope roof, so we built up roof boxes using LVL lumber left over from our main beams. We PL Premium glued and screwed the boxes together, then cut open the holes in the roof. Ice and water shield was used to wrap them up fully and then the joints were sealed. We will be adding a fully fitted four sided metal flashing when the final roof covering is installed. That will take place once the other vents, for plumbing and gas, are installed.

Unlike skylights that need to be facing the sun, sun tunnels capture natural light from nearly any location on your roof. There is no substitute for natural light. It’s

simply better for everyone and the environment, besides the obvious benefit, reduction of your electric bill. The advantages are clearly bright!!

Comments or Questions: Cam Allen L.I.W. NHI ACI LEED Green Assoc
E-mail: cam@alltechconsultinggroup.com