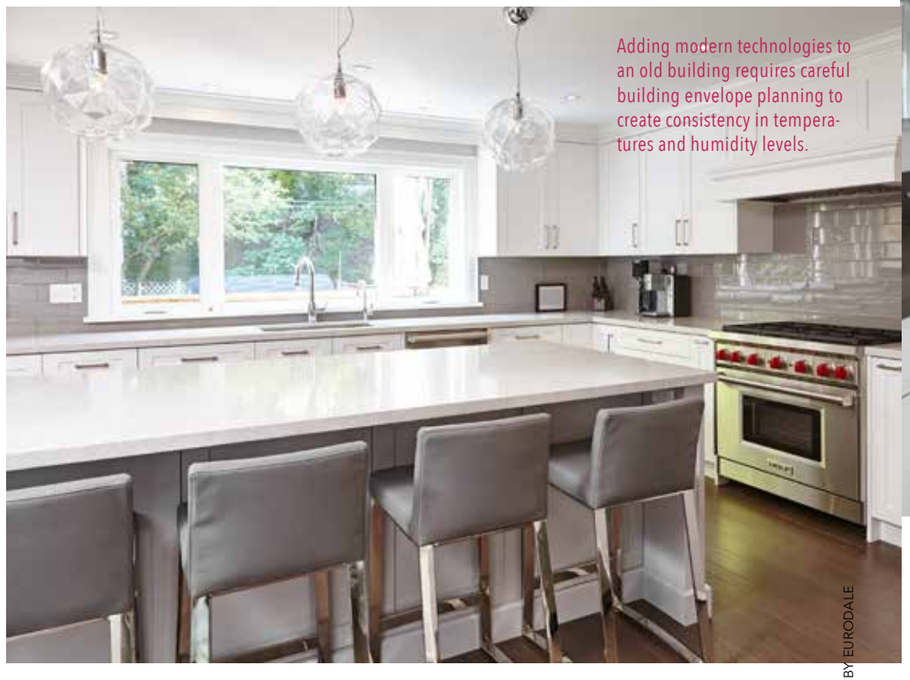
BRENDAN CHARTERS

# *the* BIG PICTURE

When it comes to successful renovations, the adage "the whole is more important than the sum of its parts" really rings true

Shelter, in all shapes and forms, is derived by a summation of parts. A tree with leaves does better at keeping you dry in a summer storm, than one that has shed its canopy in fall. This simplistic reference is expanded in more complicated form when we discuss our most critical element of shelter—our homes. Housing across the decades and centuries has taken many forms. Never in history have the individual parts within those assemblies changed so dramatically in such a short time. The near future will yield us even more substantial changes to the envelopes we reside within than we have ever seen before. Factors pushing and pulling at the whole package include affordability, heritage preservation, sustainability (including short-term and long-term resource management), occupant health, our desire for 'things of beauty,' social norms and responsibilities, (the Jones') as well as our relative ignorance and ability to be sold on something we may not really understand, want or need.



Adding modern technologies to an old building requires careful building envelope planning to create consistency in temperatures and humidity levels.

## DO YOUR HOMEWORK

At the end of the day, people weigh all the above noted differently, so there is no one perfect solution when planning to make changes to one's homestead. No two people are identical, and thus, neither are their actions or inactions when living in their homes, which for the most part, are also different from one another. As such, in planning renovations to existing homes, or planning building envelopes in new homes, we like to think people know enough now to understand that a home with more efficient mechanical systems and greater amount of insulation, will typically consume less energy and should, therefore, be more comfortable and cost less to operate. This basic knowledge is driving positive change throughout the country. The challenge still exists however, that we are all being sold a bill of goods at every turn. Building a home is not rocket science. Building science, however, is becoming increasingly more complex. Understanding how new technologies work together to create total assemblies that manage to separate the indoor and exterior environments, is likely boring to most people. It is critical information though, and should not be dismissed. Even the most well-intentioned designs have shown problems for building lifecycles, homeowners' health and designers and builders' liabilities over the decades.

PHOTOGRAPHY: TOP LEFT AND TOP RIGHT BY VALERIE WILCOX, BOTTOM RIGHT BY EURODALE

## NEW HOME-ENHANCING TECHNOLOGIES

Floors, walls and roofs that are exposed to the exterior have two sides that are constantly at odds with each other. Think of working outside in a rainstorm while wearing one of those old plastic yellow rain coats. The water may not get in, but you are soaking inside as the sweat builds up beneath it. Just as the garment industry has more recently developed waterproof, breathable and insulated clothing—so too has the building industry—to not only manage to keep water out and regulate temperature on your body, but to also allow and even promote the escape of the moisture our bodies create. This is important stuff when it comes to reducing the risk of mould, and premature degradation of structural elements.

◀ Steamy showers and baths produce a lot of moisture that requires a plan to exhaust, ensuring an efficient, comfortable and safe environment for the occupants.

Wood, metal, glass, plastic, hot and cold temperatures all collide throughout a building envelope. Careful sealing of system penetrations is required to avoid air and moisture leakage, which can lead to bigger issues. ▼

## INSIDE OUT

Renovations can take part in a small space in an existing home (i.e., a powder room or a kitchen), and often yield a view inside the existing wall structure/assembly. If you are going to be opening a wall, floor or ceiling that abuts the exterior (either above or below grade), we recommend doing some research on how best to insulate that space, but most importantly, to also learn about Radon, VOCs, air exchange, insulation properties (both thermal- and moisture-wise), as well as vapour and air barriers. Remember—that roof, floor or wall assembly is just that—an assembly, so look at the materials the whole way across it from the exterior to the interior and take the time to learn or pay the pros to educate you about how they interact with each other and what they do independently within the composition. Air leakage is a complex element that saps a lot of energy from our homes, but over-sealing them can also cause problems if not designed for proper air exchange. Working with a professional designer, architect or builder can help to educate you about best practices. Every change in the link of a chain impacts its ability to perform—and there are many links in the housing chain. Knowledge is power.◆

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