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THE TROWEL

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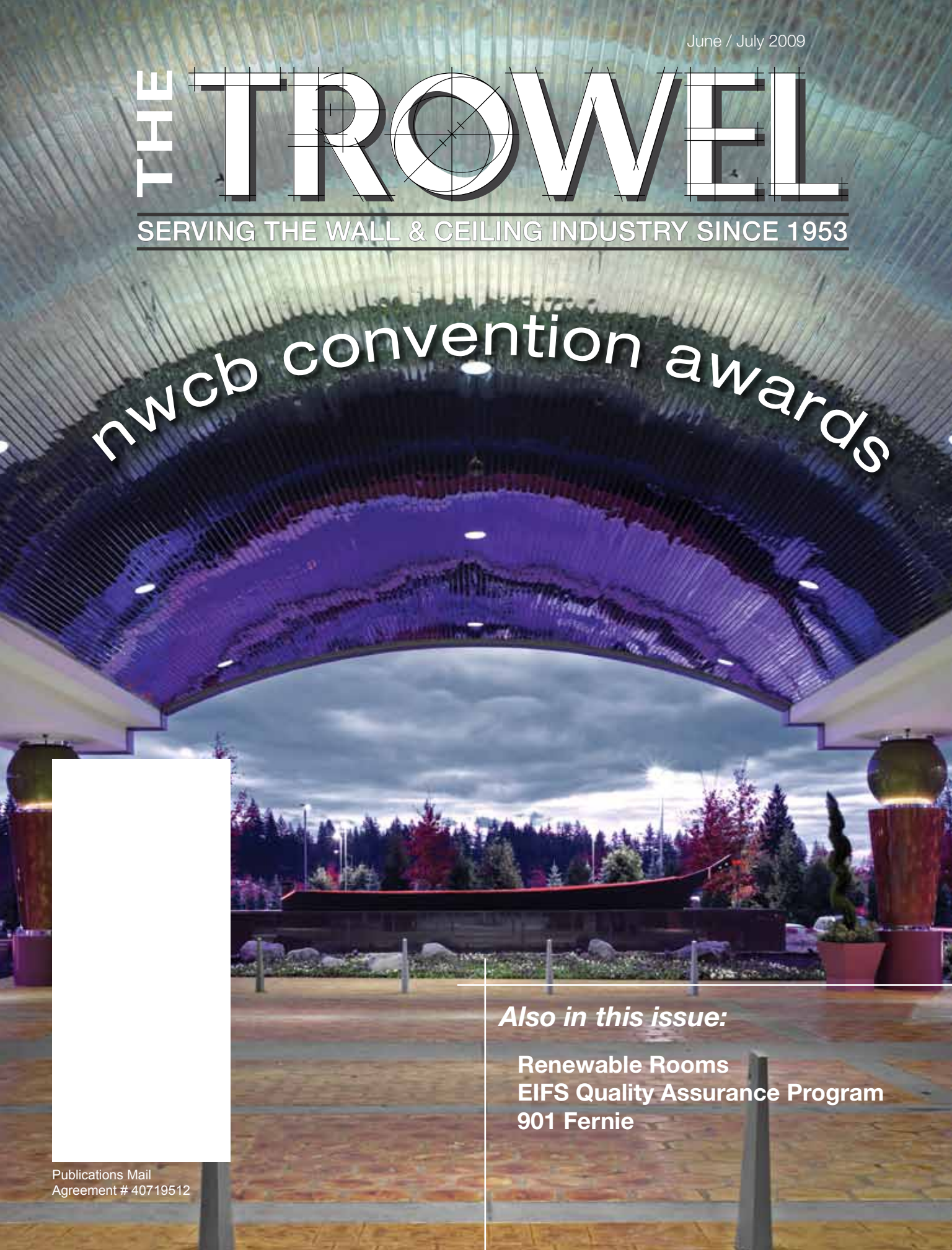

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Performance By Design

by / Teresa Coady AIA, MAIBC, FRAIC, LEED® AP
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There has been a lot of discussion about the merits of the various certification programs now available to building designers, developers, owners, and operators. In BC, all new provincially-owned or leased buildings have to be built to a minimum of LEED® Gold or equivalent. Elsewhere, programs such as the Living Breathing Challenge, European standards such as Passivhaus, and a variety of carbon neutral designs are gaining in popularity. The debate lies in whether the industry requires a standard system by which all energy efficiency goals are measured, or whether the existence of several systems provides flexibility in an ever-evolving industry.

The core issue centres on the methodology surrounding the measurement of building performance. Theoretically, it is possible to obtain LEED® Gold on one building, and a comparatively poorer LEED® rating on a better building. This is because the ASHRAE-based measurement methodology values the percentage-based improvement over a similar, but industry-typical 'reference' building, rather than on an absolute measure of building performance. Some municipalities may decide to move away from the ASHRAE-based LEED® system for this reason, adopting something more definitive in support of building labelling such as the Passivhaus standard. This system requires that the annual energy usage at source should not exceed 250 kWh/m². In Canada, our current annual energy consumption for some facilities has been known to reach 650 kWh/m² at the meter. It is, however, perfectly possible for a Canadian building to be designed to use 120 kWh/m², by providing its own energy on site. This is often referred to as microgeneration.

There are a number of buildings within the Vancouver region that range from 61 kWh/m² to 120 kWh/m² in annual energy consumption. These were built within 'normal' budgets by developers and institutions. If you dig even deeper, you will find that the source of the energy is also a contributory factor when it comes to determining whether or a not a building can be considered carbon neutral, or even close to it.

So, to future-proof your design, what would we recommend? We contend that the best projects are always the result of a rigorous design process. Thus, we advise that it is worth certifying your building to LEED® Gold or better. We also recommend a new focus on the absolute measure of annual energy consumption, (i.e. 120 kWh/m²), or better. This should be combined with a local (micro-utility) energy supply and an electric non-greenhouse gas, (i.e. hydro, photovoltaic, wind, or ocean turbine), energy source.

Now that everyone is aware of the need for improved building performance trials, there is no doubt that building labelling is just around the corner. Owners and tenants will want to know two things: what is the absolute energy consumption per m² and what is the actual GHG tonnage per m²? It is also my guess that these numbers will have to be based on actual measured, rather than engineered, values. Becoming familiar now with these numbers will better prepare you for the likely future of building design for performance. ■

Recognized as a pioneer in sustainable and energy efficient design, Ms. Teresa Coady is the chief executive officer of Bunting Coady Architects (www.buntingcoady.com). Her vision, to create 'living breathing buildings'™, has led her practice to create more square footage of LEED®NC Gold certified institutional and commercial projects than any other firm in North America. The firm is also responsible for developing and pioneering the Integrated Design Process (IDP), which involves the client in all aspects of design and construction. Ms. Coady is a recent recipient of the RBC Canadian Woman Entrepreneur Awards (CWEA), the only architect to receive this honour.