GOING GREEN: UNDERSTANDING SUSTAINABLE BUILDING CERTIFICATIONS

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INTRODUCTION

Sustainability has become the focal point of the design and construction industry. There is increasing awareness of the industry's high energy and fossil fuel use, its contribution to waste levels and the impact of inefficient buildings on global emissions. According to the Global Status Report 2017, a report coordinated by the United Nations Environment Programme,[1] buildings-related carbon dioxide (CO2) emissions have continued to rise by around 1% per annum since 2010. In 2016, fossil fuel use in buildings accounted for 36% of total final energy consumption.[2]

Sustainable building certifications have emerged to independently assess and verify the sustainability of buildings against quantifiable criteria. Over 600 sustainability certification systems for products and buildings exist worldwide. These systems assist practitioners to make informed product and design decisions that help the industry meet the growing demand for sustainability.

Despite the proliferation of sustainability certification systems around the world, practitioners still lack a complete understanding of the scope, purpose and relevance of each system. Each system offers a unique perspective in terms of assessing and verifying the sustainability of buildings and/or building products. The content, objectives and process of each system varies, as does the sustainability criteria against which buildings and products are assessed.

In this whitepaper, we examine common sustainable building certification systems used in Australia and how ratings and/or awards are calculated. We also present design solutions that help practitioners achieve certification under a variety of schemes.

INTRODUCTION TO SUSTAINABLE BUILDING CERTIFICATION

Sustainable building certification plays a critical role in strengthening sustainability agendas within the industry. Certification awards the companies behind sustainable buildings and products with a "badge of honour" that represents their commitment to the vision of a sustainable world.

However, certification is more than merely a marketing tool – studies have shown that certified sustainable buildings often outperform conventional buildings in relation to environmental, economic and social impact.[3] For example, buildings with GreenStar certification have been shown to produce less greenhouse gas emissions, use less electricity and consume less potable water than the average Australian building.[4] For property owners, other benefits include savings on utility bills, lower construction costs and higher property values.[5] Sustainable buildings also deliver elevated health and wellbeing outcomes for occupants due to improved indoor air quality, thermal comfort and ventilation.[6]

Sustainability certification systems are also important in making sense of the increasingly broad definition of "sustainability" being used across various industries. Certification systems provide a common language for sustainable design.[7] They also formalise design and performance criteria,[8] shifting the industry towards making sustainable building design the industry standard.[9]

TYPES OF SUSTAINABLE BUILDING CERTIFICATIONS

The *Guide to Sustainable Building Certifications*[10] describes the three types of sustainable building certification as follows:

- **Single-attribute product certifications:** Labels that cover a single aspect of a product, such as energy efficiency or water usage.
- **Multiple-attribute product certifications:** Labels that assess a range of sustainable aspects or characteristics of a product.
- **Multiple-attribute building certifications**: Systems addressing the building and/or project as a whole against a range of sustainability criteria.

COMMON SUSTAINABLE BUILDING CERTIFICATIONS IN AUSTRALIA

Global GreenTag

Falling under the multiple-attribute product certification category, Global GreenTag is a trusted eco-labelling program administered by Global Greentag Pty Ltd and recognised by the Green Building Council of Australia (GBCA). The Global GreenTag initiative undertakes environmental, health, ethical and social responsibility assessments of products and their manufacturers.

Global GreenTag's LCARate is a world-first "beyond LCA" Life Cycle Analysis (LCA) based rating system for health and sustainability-preferred products. This rating aims to provide a better understanding of the overall sustainability of products compared to worst case "Business as Usual" products.[11] LCARate assesses the environmental impact of products and ingredients at every stage of their lifecycle, from raw material extraction to final disposal. LCARate awards products on four levels of certification: Bronze, Silver, Gold and Platinum.

GreenTag's GreenRate certification is based on full disclosure of ingredients, focusing on health and ecotoxicity among other sustainability criteria.[12] GreenRate looks at the product and its ingredients at various stages and for various issues including aspects of resource use, waste reduction, water consumption and carbon footprint. Products certified under GreenRate are also examined for "fit-for-purpose" and building code compliance. The GreenRate system awards three levels of certification: GreenRate Levels A, B and C.

Certification under LCARate or GreenRate are useful in relation to GBCA's GreenStar building certification system. LCARate contributes to meeting the GreenStar "Life Cycle Impacts" credits with its Environmental Product Declaration (EPD) reporting.[13] The GreenRate certification aims to meet the requirements of the GreenStar "Sustainable Products" credits.[14]

GreenStar

Launched by the GBCA in 2003, GreenStar is Australia's only national and voluntary rating system for assessing buildings, fit outs and communities in terms of sustainable design, construction and operation. GreenStar certification is a formal, documentation-based assessment process involving an independent panel of sustainable development experts. Buildings are rated under the following main categories:

- Management;
- Indoor Environment Quality;
- Energy;
- Transport;
- Water;
- Materials;
- Land Use & Ecology;
- Emissions; and
- Innovation.

GreenStar's rating system is one to six stars, with one star representing the minimum practice and six representing world leadership in that category. Building, fitout, community and construction award projects are awarded ratings only if they achieve best practice or above. Ongoing performance can be rated from one to six stars.

Practitioners should note that while the use of products with EPDs as a minimum contribute to GreenStar certification, the GBCA provides a list of recognised eco-labels under the scheme. This list includes Global GreenTag's GreenRate eco-labelling scheme.[15]

An EPD is an independently-verified and registered document that provides environmental information about a product's life-cycle environmental impact. Industry commentators have noted that the simplified nature of EPDs makes it difficult to use in assessing a product's environmental performance against other products.[16] On the other hand, eco-labels, as they are awarded under a set of defined criteria and standards, enable consumers to easily determine whether a product is the environmentally preferable choice within its category.[17]

WELL Building Standard

Administered by the International WELL Building Institute, the WELL Building Standard is a performance-based system for measuring, certifying and monitoring aspects of the built environment that impact human health and wellbeing. The WELL Building Standard overlaps in terms of requirements with other certifications such as GreenStar.

Certification under the WELL Building Standard involves submission of project documents and onsite audits. There is a total of 102 features that are the basis of certification, all of which are related to one of the seven key concepts: Air, Water, Nourishment, Light, Fitness, Comfort and Mind. Certification is achieved by obtaining a passing score for each concept, resulting in either a Platinum, Gold or Silver award.

Other Certification Systems:
Eco-labelling, Government-led and International Programs

There are a variety of other certification and rating systems that are relevant to Australian practitioners. For example, another prominent eco-labelling scheme is Good Environmental Choice Australia (GECA), which provides an independent tick that certain products and services are better for the environment and reduce their impact on human health.

Launched by the International Living Future Institute, Declare is another eco labelling scheme, this time focusing on providing transparency as to the origin, ingredients and end-of-life impact of products as well as the product's compliance with the Living Building Challenge performance standard.[18]

There are several government-led programs aimed at improving building sustainability. For example, the New South Wale's government's building sustainability index, widely referred to as "BASIX", aims to reduce household energy and water consumption by setting minimum sustainability targets for new and renovated homes.[19] The Australian government administers the Water Efficiency Labelling and Standard (WELS), which requires testing of regulated products and awards star ratings for water efficiency.

Some prominent international building certification programs include LEED (Leadership in Energy and Environmental Design), Active House and BREEAM (Building Research Establishment Environmental Assessment Method). Each of these schemes assess the sustainability and environmental performance of buildings and/or communities under differing criteria.

> " Sustainable building certification plays a critical role in strengthening sustainability agendas within the industry. "

DESIGNING FOR SUSTAINABILITY

No two building projects are the same, so similarly no certification system can be considered "one-size-fits all".[20] A range of considerations will impact certification, including local climate, topography, timing, credit synergies, and local building standards.

In general, multiple-attribute building certifications, such as WELL and GreenStar, require the use of certified "green" products that are code-compliant, with the relevant warranties, and provide proven "green" performance. Eco-labelling such as Global GreenTag, Declare and WELS (for tapware and other plumbing products) helps practitioners choose products that meet these criteria.

When designing for sustainability, it is easier to obtain project certification by selecting products that offer multiple environmental and sustainability benefits. In the boiling and chilled water unit category, there are innovative tap products on the market that offer:

- low carbon footprints;
- eco-friendly materials;
- recyclable parts;
- energy-saving features; and
- water-saving features.

In addition to sustainability certification, practitioners should consider the environmental policies of the manufacturer, the product's maintenance requirements, and the product's impact on occupant health and well-being. Products that are safe, non-toxic and accessible should be selected. This combination of benefits is more effective at ensuring buildings achieve sustainability certification than by using uncertified products.

BILLI ECO, QUADRA AND QUADRA PLUS: THE SUSTAINABLE CHOICE IN INSTANT BOILING AND CHILLED WATER FILTRATION

By considering the composition and construction of each component to every unit, Billi achieves Australia's lowest carbon foot print with its Eco, Quadra and Quadra Plus instant boiling and chilled filtered water systems. These units offer unique power and water consumption advantages, including:

- innovative Heat Exchange technology that recovers the waste heat energy produced in the chilling process to preheat the boiling water;
- high performance insulation that retains water temperature; and
- Standby modes that conserves energy by powering down after two hours of non-use.

Combined, these features enable substantial energy and water savings, making the Eco, Quadra and Quadra Plus the ideal option for sustainability-focused living and work spaces.

Eco, Quadra and Quadra Plus help meet Green Building Design objectives and are Global GreenTag certified, achieving an impressive LCARate GOLD certification. Billi is also the only manufacturer in its category to achieve GreenTag certification.

Billi systems are space saving and make the most of the available underbench area, while offering large boiling and chilled water capacities. The Billi Eco, Quadra and Quadra Plus require minimal cupboard ventilation beyond adequate air space especially when compared to equivalent products on the market.

The Billi Quadra Plus offers the benefits of Billi's boiling and chilled systems with additional features and functionality. The Quadra Plus features a separate sink mixer tap with its own generous hot and cold water supply. This enables the Quadra Plus to function as a hot water service for the mixer tap in addition to providing boiling and chilled drinking water. Quadra Plus units also have a boiling water reserve ensuring boiling water is still available after the hot water supply through the mixer tap is fully drawn.

Billi Eco, Quadra and Quadra Plus are available in sparkling water options. The Billi Sparkling range offers the ultimate in drinking appliances, delivering boiling, chilled and professional sparkling filtered water instantly. Billi also offers an unprecedented range of dispensers and finish options, offering designers and specifiers maximum design flexibility.

BILLI

For more than 25 years, Billi has been the market leader in high performance water filtration solutions for healthy and sustainable work and living spaces. Billi's reputation for quality and reliability is globally renowned, pairing state of the art Australian manufacturing with strong research and development capabilities. Billi is at the forefront of innovation and continues to expand their diverse catalogue of stylish, high performance and sustainable filtration products.

All Billi operations are grounded in a strong, future-oriented sustainability focus. Billi has been GreenTag certified since 2014, and has since continued to hone its progressive, innovative approach to green design.

Billi has recently joined the International WELL Building Institute (IWBI) as a cornerstone member.
IWBI nurtures collaboration with organisations who are leading the global movement to advance human health in buildings and communities. Billi can tap into IWBI's expansive resources and work alongside other WELL-focused organisations that are similarly committed to transforming the built environment and enhancing health and wellness.

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