

## THE LIVING BUILDING CHALLENGE ENABLING TRANSFORMATION

Steve Henry and Jerome Partington

The Living Building Challenge (LBC), has gained real momentum in Aotearoa NZ and is transforming our design and construction industry. This article explores how this is occurring and considers where it may lead us.

The construction sector in NZ faces many issues around sustainability: The leaky building crisis (New Zealand Herald, 2009) revealed an industry that was hardly fit for purpose and struggled to deliver basic quality and value for money, massive contributions to the country's landfills, disregard for toxicity of materials, unhealthy interiors with endemic health problems in housing, significant and avoidable whole of life costs for maintenance and operation along with a lack of integrated design to counter the standard disconnected silo thinking and poor working relationships through the value chain from pre-briefing, design, construction and operation.

A possible contender to turn this unsustainable sector on its head, is The Living Building Challenge, with the key word Challenge making clear that this is not easy. The challenge for most will be aspirational initially, but have a high standard to aim at raises the bar. The LBC is a stringent international certification program for the built environment. Created in 2006 by the non-profit International Living Future Institute, (Scheer & Moss, 2013) it is offered as a philosophy, advocacy tool and certification program that promotes the most advanced measure of sustainability in the built environment. (Starrs, 2012) The LBC can be applied to development at all scales, from buildings – both new construction and renovation – to infrastructure, landscapes, neighborhoods and communities and is more rigorous and challenging than green certification schemes such as NZGBC, LEED or BREEAM (Leedham, 2013). The key opportunity is the LBC's drive to reconnect our buildings and the users with the natural living system and it's health. Projects using the LBC will require a shift to integrated design and will result in a more sustainable sector along with improved relationships.

In 2011, Jasmx's Sustainability Manager Jerome Partington organised a tour of New Zealand by Jason F MacLennan, the founder of LBC to NZ. This led to an exploration of how to further the Challenge, how to educate the industry about the potential and to engage them in the idea of aiming much much higher than Building Code standard. In 2012, Jerome and Steve Henry of Otago Polytechnic's Centre for Sustainable Practice asked if the construction industry was in need of a course that could bring the challenge to the professionals. To do this they applied a set of questions designed to identify readiness for transformation in any given sector:

- Is the sector clearly unsustainable in its current form?
- Was there inspiring international examples of success to motivate?
- Was there evidence of momentum and desire to shift?
- Was there a person who could champion this work with credibility?
- Who could we partner with to begin?

The construction sector clearly ticked all the boxes and faced many issues around sustainability: The leaky building crisis revealed an industry that was hardly fit for purpose and struggled to deliver basic quality and value for money, massive contributions to the country's landfills, disregard for toxicity of materials, unhealthy interiors with endemic health problems in housing, significant and avoidable whole of life costs for maintenance and operation along with a lack of integrated design to counter the standard disconnected silo thinking and poor working relationships through the value chain from pre-briefing, design, construction and operation.

The LBC offered real inspiration and advocacy, that required recognition of limits and therefore innovation in the project goals, and a completely new 'systems' approach with the potential to transform the built environment. The LBC aimed for healthier and more comfortable spaces for people, more equity and beauty in society and only positive or at worst, neutral impacts on the natural living system. The desire to shift from the dialogue of what was bad, such leaky homes and toxic materials, to one that talked about 'what does good look like?' and a focus on healthy living systems and very high performance (90% less energy used) buildings, was welcomed.

The person to champion this work was Jerome Partington with a background in Architecture, Science, Construction and Sustainability, who had support from organisations such as Jasmox and other design practices and industry professionals, the Green Building Council and Crown entities such as the Energy Efficiency Conservation Authority. These proved to be willing partners in the development of training programs. The Creating Living Buildings short course was established in 2014 and has trained over 150 people, with the goal of facilitating integrated design practice, showing that the goals are achievable, easing the industry transformation by creating a community of good practice. Architects, engineers and project managers have completed the course to date and many projects have emerged such as net zero energy homes and education centres.

Some of these Graduate projects, summarized below aim for whole or part certification under the LBC and others simply apply the principles and goals to deliver quality and high performance buildings. By 2017, the short course had been adopted by Architectural Studies program at Canterbury's ARA Institute and Otago Polytechnic which is an indicator of the mainstreaming of this work.

The completion of the beautiful and exemplar Ngai Tahu Te Kura Whare in Taneatua near Whakatane resulted in New Zealand being home to the first Certified Living Building outside North America – a huge achievement and one that laid the ground work for a new regenerative development model of human evolution in pace. The retrofitting of a Dunedin wooden villa by Louis Brown using the LBC to guide success is showing the LBC can be applied at small scale also.

Around 15,000 people in New Zealand have had exposure to the LBC through talks, presentations, open days at LBC projects and professional practice seminars. Print and broadcast media have introduced the ideas and possibilities to many more people as has the fascinating documentary – Ever the Land movie (Grohnert, 2015), Living Futures NZ the local collaborative promotes the LBC, Declare eco-label, education and outcomes with newsletters to more than 2000 people on its database.

Change is afoot.

## PROJECTS

1. Te Kura Whare Tuhoe - certified by ILFI as 'Living' in 2017 and multiple award winning
2. Zero Energy House Auckland - certified NZE
3. Tuhoe follow up projects following principles;
  - Waikaramoana Visitors centre - not to be certified
  - Te Tii Ruatahuna store/accommodation - not to be certified
4. Sustainable Coastlines Education Centre designed by Jasmax using 80% salvaged materials aiming for Living Certification
5. Parklands NZE House – aiming for Net Zero Energy Certification
6. Glenorchy Campground - aiming for Petal part Certification
7. Tanglewood House, in design phase – aiming for Petal part Certification
8. Living House Beachlands, in design phase – aiming for Living Certification, Home Star and Passive House certification
9. LBC House projects in Raglan
10. Kahukura design by Jasmax is a 6600m<sup>2</sup> Architecture and Engineering school at ARA Polytechnic in CHC - recently completed 'shadow living building' with 85% Red List Free material selection, mega energy efficiency and strong bio-phillic identity may proceed to NZE Certification
11. Pegasus Net Zero Energy School – built with solar thermal and electric arrays- uncertified
12. 'Breathe' - 85 unit urban mixed use village – is an unbuilt design for CHC earthquake rebuild competition – a new inspiring model of community and housing
13. Christchurch Girls High School Performing Arts Centre – Net Zero Energy 'Ready' on an Ministry of Education budget
14. Making Home – Louis Brown Dunedin – refurbishment of suburban villa into a LBC home
15. Declare Label – a new international ecolabel identifying ingredients and non-toxicity for building materials - nearly 40 NZ building products have label

## REFERENCES

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