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Ecolibrium

Phased

The HFC phase-down
definitively explained.





The Kinghorn Cancer Centre.
Image: John Gollings.

The centre eventually became known as the Kinghorn Cancer Centre.

The facility would be a true expression of “bench to bedside” thinking where research findings could, and would, be rapidly translated into clinical applications.

Planning for “world’s best” is a common and perfectly reasonable approach to any significant project. The real challenges only arise when budgets and other constraints are brought on board. As both Garvan and St Vincent’s are not-for-profit organisations, those financial limitations are all the more obvious and pressing.

It is also important to note that funding for capital projects is certainly required to enable construction. However, funding for the operational expenditure over the life of an asset, nominally 30-plus years, is another huge factor to consider.

Laboratories are notoriously large consumers of utilities, not least of which is energy. It was with great interest that I attended a conference in 2004 held in Brisbane titled LABbuild where I, and I suspect many Australian-based interested parties, were exposed to a fascinating organisation called Labs21.

LABORATORIES FROM A WHOLE-BUILDING PERSPECTIVE

Labs21 was created by the US Environment Protection Agency (EPA) and Department of Energy (DoE) to improve the efficiency and environmental performance of US-based laboratories from a whole-building perspective.

The Labs21 initiative was, and remains now, under the International Institute for Sustainable Laboratories (I2SL) banner, a great vehicle to improve the performance of a huge energy-hungry sector.

After attending the conference and then having the pleasure of attending subsequent Labs21 conferences and workshops in the US, I found myself in 2008 attending the Labs21 conference in San Jose. There I was able to listen to global leaders in laboratory design specifically sharing ideas, experiences and thoughts on how to improve the energy performance of laboratories and how we could consider introducing these solutions into the coming GSVCC project.

Fab lab

When it comes to sustainable laboratory design, global thinking can lead to local benefits, writes **David Keenan**.

Way back in 2008, I found myself in the middle of planning for a grand ambition to create a world-class cancer centre in Sydney wherein we would bring the very best in patient care and research into one purpose-built facility.

Our planning was supported from the very top of the partner sponsor organisations St Vincent’s Hospital and the Garvan Institute, albeit with little clarity at the time as to when or how funding would follow. It’s a project initiation I am sure is familiar to many.

In our planning for the project, given the very creative working title Garvan St Vincent’s Cancer Centre (GSVCC), we set a lofty target of creating a centre of world-class excellence where the very best of laboratory research would be driven by clinical challenges.

THE KEY TAKEAWAYS FROM THIS JOURNEY

- Plan early: The earlier you start planning, the more opportunity you will have to include all the technology and innovation you aspire to have in your facility.
- Look for global expertise: If you can, seek global best practice and forums such as I2SL for ideas and like-minded individuals you can collaborate with.
- Find adventurous allies: Seek out consultants who are brave enough to try something new because doing something “the way we always have” is not good enough.
- Be determined: You are bound to run into some resistance so once you’ve done all your homework, make sure you stand your ground.

A key session that I recall to this day stands out where I heard Gordon Sharp present on “Combining Dynamic Air Change Rate Sensing with VAV Exhaust Fan Control to Minimise HVAC Energy Consumption in Laboratories”.

I sat there enthralled by what I was hearing. In this presentation I was witnessing real-world installations of technology that were offering an alternate approach to the ventilation rate of laboratories. Traditionally the ventilation rates of laboratories have been both “high” when compared to an office environment and also fixed, only potentially reducing “after hours”.

I was now hearing how, through sensors and controls, we could have a responsive system and by default have typical day-to-day operations consuming less energy. I was witnessing data that showed real installations and readily understood the awesome opportunities to reduce operational expenditure in our yet-to-be-built facility, and of course from an environmentally sustainable design (ESD) perspective help in our own small way.

Witnessing the technology and understanding the opportunity is only one part of the deal, however. Upon returning to Australia I needed to have the support of the client group and, perhaps even more importantly, find engineers willing to take on board new technology that had not yet been installed in Australia.

In 2009, the GSVCC (aka Kinghorn Cancer Centre) project was funded by the Australian federal government, and we were all go to complete design and procurement of the D&C team.

I am pleased to note we were able to procure engineers who were able to

see the benefits of responsive technology and to take on the challenge of being the first-in-country to install such technology. It is very easy to stick to the norm, but it is much more exciting and rewarding to push on and look for continual improvements.

I was challenged through this process from various angles to defend the proposition and to defend the budget to ensure this capital expenditure item was protected to provide operational expenditure relief. I was again lucky to have an informed client group that appreciated the pressures of operating high-value assets.

THE PROOF IS IN THE PUDDING

Fast forward to 2018 and the facility has been successfully operating for six years and with significantly reduced operational expenditure compared to the existing Garvan facility on like-for-like HVAC plant. The proof is in the pudding as they say, and it is extremely satisfying to be able to use technology to derive value for important not-for-profit organisations.

I am happy to preach to the benefits of global thinking and seeking out the best-in-class opportunities to improve our important, and highly expensive, facilities. ■

ABOUT THE AUTHOR

David Keenan is now principal of HDR in Australia and sector lead for Education, Science and Technology. He previously worked for Plenary Health and was responsible for the delivery of the Victorian Comprehensive Cancer Centre. Prior to and for the duration of the GSVCC project, Keenan was the operations manager for the Garvan Institute of Medical Research in Sydney.