



## facilities management



# Focusing on facilities

As pressure builds to improve the sustainability performance of buildings, the operational side of facilities management is coming into its own. In this special feature, *WME* finds the FM industry is sitting on a goldmine of potential.

“We shape our buildings; thereafter, they shape us,” said Winston Churchill in 1943. More than 60 years on, just how much indoor environments shape employee productivity and health remains a topic of intense interest to the property and facility management industry. It is the Holy Grail of those pushing the sustainability envelope in the built environment, but far from the whole tale.

The early focus has been on design, with barely a week going by without some mention of a new green office building development. The management of buildings and facilities is at the start of a quieter revolution.

“The operational side is where the focus is coming now, because the pressure is on to improve existing buildings,” said industry veteran John Goddard.



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The facilities management (FM) industry evolved during the 1980s as businesses outsourced activities such as the management and maintenance of their workplaces. The industry now turns over \$12.4 billion a year and, according to its strategic blueprint, is destined to become a core part of business strategy. The Facilities Management Action Agenda predicts a more senior role for FM managers as buildings get smarter and the pressure continues to mount for environmental improvement and transparency.

Beyond Property's Rodney Timms has 10 "big bets" of what facilities management will look like in 2020, and at least four involve sustainable development drivers. One is the corporate environmental report card.

"We will see water metering down to a floor level, even a business unit level as water becomes scarcer. Recycling, the use of water and energy, the whole environmental footprint issue will become a way of life," he said.

According to Goddard, the Federal Government is already demanding any space it leases over 2,000m<sup>2</sup> must score 4.5 stars on the operations-focused Australian Building Greenhouse Rating. It also "meters by exception", where meters check consumption every 30 minutes and sound an alarm if it has blown out.

In the next couple of years he expects to see major property companies offloading buildings with poor environmental performance and potential, such is the competition in green positioning between the likes of Investa, GPT Group and more recently Stockland.

### Controlling the built environment

Along with an environmental report card, Timms' 2020 reforms feature a social report card including duty of care to facility tenants and users, the emergence of workplace environment as key reputation and human resources tools, and the rising cost of energy and advent of emissions trading.

"The environment and facilities management guys will have to bear the brunt of that because they control the built environment and many of the things in it," he said.

The dynamics vary according to the sector, however. The

drivers to greener office towers, while embryonic, are more compelling than for shopping centres, factories, warehouses and hospitals. Shopping centre managers are unlikely to pare back parking spaces and bright display lighting, both seen as integral to sales, while the industrial sector has shown scant interest as there seems little upside on the face of it.

When Goddard reviewed a proposed design for a 20,000m<sup>2</sup> warehouse last year, the only items in the environmental initiatives category were the solar heated hot water, which saved on the installation of a gas pipeline, and an extended firewater tank.

However, a good litmus test of coming trends is the evolution of the Green Star design tool developed by the Green Building Council of Australia (GBCA). More than 400 office tower projects have registered for its rating scheme, which is perhaps no surprise given the new corporate interest in analysing their carbon footprint. CB Richard Ellis, for example, is going through the process right now.

But more interesting are the tools currently in pilot stage or just over the horizon. GBCA executive director Suzie Guthridge said separate ratings tools are being trialled for retail centres, educational facilities and health care institutions, with each planned for full launch early next year. An industrial facility design tool will be piloted at the end of the year too.

"The tools are funded by industry and they volunteer their time and technical expertise to get them up," says Guthridge. "Interestingly, the industrial sector came to us and said we need an industrial tool."

Goodman International kicked in \$50,000 to get it rolling and Australand and Investa each coughed up \$25,000. The key motivations are carbon accountability and to move before regulation is imposed.

### Future buildings, future skills

Industrial and retail developments typically have the virtue of size compared to CBD office blocks. Architect Nigel Justin from Hawaiian Group is retrofitting a 1970s office in Pitt St, Sydney and found there was little scope to go off-grid for power and water. It required either 40 wind turbines or 2,500m<sup>2</sup> of solar PV cells on the roof, neither of which was remotely possible, and had no scope to store harvested water.

"We are future-proofing the building by keeping the roof free for new technologies," he told a GBCA breakfast in September.

Goddard, on the other hand, is working on the new Beldon green centre in Perth for GE Finance, which is planning a single large wind turbine and a PV array across much of the roof area. Other retailers are dipping a toe in the water too (see Pg 31).

Goodman International is showing the way in sustainable water at its 150-hectare M7 Business Hub at Eastern Creek in Sydney. The roof areas are so big they will harvest far more water than is required and Goodman plans to feed excess flows into Sydney's supply system.

Timms says facilities management already requires a diverse skill set, but this will broaden even further as buildings get smarter and increasingly shape our indoor and outdoor environments.

"They will need soft skills to manage people, technical skills because technology will become integrated, and environmental skills. A lot of them have picked up the batten. Some are still paying lip service to it, but that will change."

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# The search for sustainability

Developer Stockland is going to great lengths to push for sustainability efforts down its supply chain. By Garth Lamb.

Commercial buildings account for some 40 per cent of world energy consumption, 15 per cent of water use and generate 40 per cent of all waste. In its efforts to lessen these impacts, leading Australian property developer Stockland at first focused on its direct water, energy and waste impacts. But it's now going further in the search for true sustainability.

"We feel we have those initiatives and programs in place, the focus is now on what we can do to influence our supply chain, to work more closely with suppliers on meeting our organisational objectives," says the commercial and industrial division's sustainability head, Greg Johnston.

"Our supply chain, the people we have relationships with, we need to bring them on the journey."

Stockland has begun to formalise this approach through a draft sustainable supply chain management policy and code of conduct, intending to set out the prerequisites for doing business with the \$11 billion company.

It also aims to help its suppliers go through the same 'greening' process with their supply chains, setting off what could be a massive trickle down effect throughout the construction and facilities management industry.

"Our intention is to highlight those practices we would like to promote, as well as those we would like to avoid," says the company. "We will look for robustness in a supplier's environment policies... Our approach is not about disqualifying suppliers from doing business with us. Rather, it is to encourage sustainability action plans, generating business value for all involved."

## Get your house in order

The NSW Department of Environment and Climate Change is putting the finishing touches on a step-by-step sustainable property guide, which should be out in November.

DECC's Siobhan Spoljaric says, just like Stockland did, companies need to get their own house in order before engaging suppliers. After that, step one is identifying the environmental risks and opportunities across their entire supply chain.

Step two is communicating the company's expectations and commitments to improve performance, often through a sustainable procurement policy.

The next move is developing specific strategies for different supplier groups. Low risk areas may have a very straightforward response, such as purchasing material with recycled content from office suppliers. For the more complicated relationships, engagement may involve setting minimum performance standards



True sustainability engages contractors from construction to operation.

for contractors. Stockland, for example, ultimately aims for all its suppliers to comply with ISO 14001 for environmental management systems.

All the stakeholders must be kept informed through the implementation of the strategies, with opportunities for joint projects – such as reviewing a product design or providing training to cleaners on how to use the waste system – taken up wherever possible.

The final step: measure and report on progress, especially emphasising the positive outcomes where performance improves.

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40 Albert Road has metering throughout, with additional detail on level four.

# Managing the metering

When it comes to energy use it can be a case of if it ain't metered, then you don't know if it's broke, writes Garth Lamb.

Accurate data is behind most good programs and detailed metering of parameters such as energy and water use is becoming common at many commercial and industrial facilities. Gathering data alone, however, is of little value if the information is poorly interpreted.

Energy management is a non-core activity for most businesses and closer control requires specialist skills, making it a likely area for outsourcing. While companies can't completely forget energy until the contract expires – improvements will often require cultural change – having a specialist manager is a simple way to ensure the system is optimised.

Australia's most impressive green building retrofit, Szencorp's 40 Albert Rd HQ in Melbourne has comprehensive metering throughout. Monitored by Energy Conservation Systems (ECS), the system drills down to an extra level of detail on the fourth floor.

"We're actually metering each of the individual circuits on that floor," says ECS Victorian manager Tony Dorotik. "We've used it as a bit of a test case, allowing people to go online and have a look... they can log on and see what the plasma [TV] in the boardroom has been using, or the fridge in the kitchen.

"That metering has enabled us to unearth absolutely bucket loads about the building and things that weren't going quite right, which we've been able to identify and fix... You can't fix if you don't know

there's a problem there."

One early win was finding the HVAC system kicking in at 6pm and running through until 6am, a waste of energy in an empty building that Dorotik says may not have been discovered without the meters. This low hanging fruit is obviously picked very quickly once a professional starts sifting through data, but Dorotik says big sites are always changing.

"It's as common as an electrical contactor sticking for whatever reasons... a silly electrical contactor in the switchboard with the contacts welded [in the On position] telling a unit to keep going and going," he says.

With baselines set for normal operation, alarms are triggered if energy or water usage exceeds the norm, sending an email or text to ECS technicians.

### Getting an edge on energy use

While ECS monitors third party meters, EP&T bills itself as an 'end to end' energy service provider, both designing the metering products and using its engineering expertise to provide ongoing advice through its monitoring and reporting service (MARS). It manages water and energy for more than 65 per cent of Australia's premium and 'A' grade buildings and says the payback on installing its metering system is typically 2-3 years.

Its flagship intelligent meter, the EDGE G4, is a digital utility monitoring, billing and control unit that can measure 81

electrical and four non-electrical parameters (which allow it to measure water and gas flow). Measuring every known electrical parameter means it is highly flexible and remains useful regardless of which parameter utilities bill clients on.

The G4 can be stand-alone or communicate to an existing building management system (BMS) through a ModBus interface, allowing the BMS to 'see' what is happening at different metering points.

To experienced eyes, this can quickly reveal savings. For example, EP&T could cross-reference HVAC system data with elevator data to reveal the air conditioner kicks in before anyone enters the office.

"We generate a [monthly] report for the client and say 'this is what we've found about how your building is operating – about how each of these components are working together – and here's our recommended strategy of what you can do,'" says EP&T's Rudi Miklosvary.

It is then up to the building managers to implement the strategies. Complicated options, such as installing variable speed drives or upgrading lighting systems, can be investigated once the jobs with easy paybacks have been completed.

While some companies only use meters to check the accuracy of retailers' bills, more rewarding will quickly open up with a specialist options manager on board. Less internal hassle, lower utility bills and resource efficiency make outsourced metering worth a serious look. **WME**

# Shopping for green retail

While major retailers aren't going for sustainable stores wholesale just yet, 'green' outlets could soon be coming to a store near you. By Richard Collins.

Consumer environmental concern is set to rise as a retail driver, according to the 2007 PricewaterhouseCoopers Retail and Consumer Outlook released in March. Despite the issue's low profile to date, PwC's Mike James said once one or two of the name brands twitch, they could drag the entire industry along with them.

A number of new developments suggest this is starting. Woolworths opened its first 'green' supermarket in Sydney in late September, one of five planned along the east coast. The Rouse Hill store features automated energy management systems for lighting control, energy efficient refrigeration and natural gas for bakery and chicken cookers. Flow and time controls on taps, waterless urinals and recycled

water in the toilets will slash water use.

IKEA's new store south of Brisbane has scooped the Queensland EPA's 2007 Industrial Eco-Efficiency Award for overall eco-efficiency. The 29,700m<sup>2</sup> store at Logan will cut energy use more than 20 per cent compared to a conventional building, with features including chilled-beam air conditioning, solar power for water heating (with gas back-up) and rainwater storage in two 3kL tanks for cooling tower water, toilets and landscape irrigation. The façade walls sandwich are panels of rock wool insulation between metal skins, reducing heat absorption.

In nearby Springfield, Mirvac opened stage one of its flagship Orion shopping centre in March, claiming the 35,000m<sup>2</sup>



Rouse Hill has automated lighting control.

hub will halve conventional energy demand and cut water use 62 per cent.

"Its design, natural lighting and other measures will save 5,000 tonnes of greenhouse gas emissions a year," said former Queensland Premier Peter Beattie, with natural ventilation limiting air conditioning to just four months per year.

Consultant John Goddard sees no reason shopping centres can't ultimately be self-sufficient. **WME**

An advertisement for Thies Services. The background is a large image of a worker in a yellow safety vest and headphones sorting through a large pile of waste. The text is overlaid on a blue and green background. The main headline is "Total waste and recycling solutions anywhere in Australia". Below this, there are several circular inset images showing different waste management activities: a waste collection truck, a recycling collection truck, a waste transfer station, a materials recycling facility, and a landfill. The Thies Services logo is in the bottom left corner, and the website address www.thies-services.com.au is below it. The bottom right corner of the ad contains the text "Alternative waste treatment technologies, including waste to energy".

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Recycling collection

Waste transfer stations

Materials recycling facilities

Landfills

Alternative waste treatment technologies, including waste to energy

**THIES SERVICES**  
www.thies-services.com.au



**Your Building website**

The new web portal is intended to become the key online hub for sustainable commercial buildings and facilities. It is packed with information for all those involved across the building life cycle, from owners and occupiers to developers and facility managers. The site provides both 'hard' technical and 'soft' strategic and cultural information. ([www.yourbuilding.org](http://www.yourbuilding.org))

**NABERS rating scheme**

National Australian Built Environment Rating System provides separate ratings for office buildings and tenancies (and homes), and is expected to soon release new tools for hospitals, hotels, schools and retail centres.

# Online tools of the trade

Need a quick point of reference to retrofit your premises or find out the latest guidelines on waste contract issues? Here's a few quick websites to add to your favourites list. By Richard Collins.

It incorporates the Australian Building Greenhouse Rating scheme, and assesses everything from consumption, transport, indoor environment and local environmental impacts. ([www.nabers.com.au](http://www.nabers.com.au))

**Sustainable property guide**

Due for release next month and developed by the NSW Department of Environment and Climate Change, the guide includes checklists on topics such as planning a water efficiency audit, waste contract issues and indoor pollutant sources.

**Investa's green lease guide**

Investa Property Group has developed a precedent lease template setting out environmental and social objectives as part of the relationship between building owner and tenant. This site outlines what a green lease

is, potential savings, what to look for when choosing a building and fitout tips. (Download: <http://tinyurl.com/2goya9>)

**Institute of refrigeration, heating**

Chilled beams or variable air volume? Balanced water systems? Optimised maintenance? The AIRAH site provides technical detail and advice on air conditioning, refrigeration, heating and ventilation. ([www.airah.org.au](http://www.airah.org.au))

**FM Action Agenda**

A strategic approach to the sector developed by the facilities management (FM) industry and the Federal Government, it sets out a 20 point action plan to improve the recognition of FM as a contributor to a more productive and sustainable built environment. ([www.fmactionagenda.org](http://www.fmactionagenda.org))

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