

# Smart building

Singapore firms are well ahead of those in other countries in installing smart building initiatives, according to a report published last week by London-based office software firm Condeco. It found that in Singapore, 72 per cent of business leaders polled said their offices had smart-building features, including networked appliances and energy-efficiency measures, compared with 55 per cent of respondents globally. One of the latest buildings to have tapped smart building management tools to implement energy efficient workspaces is Schneider Electric's regional headquarters. Here, we give a snapshot of how the building in Kallang has cut energy consumption by 20 per cent since its official opening in March 2018.

## HOW IT IS DONE

There are 3,000 sensors connected to IoT (Internet of Things) points that connect 1,100 devices. Data generated by these sensors is collected and analysed to help make real-time informed decisions.

### 270 workplace advisors

These advisors consist of occupancy and comfort sensors. Data collected by these sensors is analysed on a secure cloud solution and tracked at the Workspace Advisor Dashboard. This is where they are ranked against a comfort score and evaluated for more efficient use of space and electricity within the building.



**Comfort sensors** detect temperature, humidity, air quality, and noise levels.



**Occupancy sensors** monitor whether certain areas in the office are being used. This helps facilities managers plan and determine the best configuration of desks for hot-desking at the Kallang office.



## Kallang building statistics:

**Age:** 25 years  
**Floor space:** 18,500 square metres over 9 levels  
**No. of employees:** 1,400  
**Awards:** BCA Green Mark Platinum  
**Duration of transformation:** 1.5 years - core building changes took 12 months, and the Schneider Electric fit-out took 6 months

214  
Card access



### Motion sensors

337 motion sensors trigger air-conditioning and lighting across the office to turn on when people enter and switch off when the room is unoccupied.



### Photo sensors

Installed near the windows, photo sensors detect the intensity of light coming through. These sensors then trigger lighting in the office to adjust its dimness accordingly, reducing unnecessary electrical consumption.

163  
CCTV



### Power tags

Power sensors monitor assets like circuit breakers by providing real-time energy and power measurements. In the event of an overload tripping threat, data is sent to one's smartphone to alert management.

## USE OF RENEWABLE ENERGY

**47%** of the building's monthly energy consumption of 220Mwh is generated from solar panels.

The building has 10 outdoor solar panels on the ground floor and 80 on its rooftop garden on level 8.

The building runs on 100% solar energy in the day time (9.30 am to 4.30 pm).



## GREEN SAVINGS

From when the building started operations:

**1.75GWh\*** energy saved  
**\$S402,500\*** in savings

**40%\*** reduction in energy consumption

\*estimate

By the end of 2018, **2.99GWH** energy saved. This is equivalent to removing **358 cars** (or preventing the addition of another **1,253 metric tons of CO2** to the atmosphere)



## Other energy efficient buildings in Singapore

Many other non-residential buildings in Singapore have been recognised by the Building and Construction Authority (BCA) under their Green Mark scheme.



### PARKROYAL ON PICKERING

- 15,000sqm of lush landscaping. This helps to cool the building
- Nearly 2/3 of the corridors in the hotel are naturally ventilated
- Floor-to-ceiling windows to let in plenty of natural daylight
- Chiller plant system efficiency of 0.633 kW/RT
- NEWater for Cooling Towers
- Motion sensors to conserve energy
- Built-in rain sensors in landscape areas to turn off irrigation when a minimum level of rain is detected
- First development in S'pore built using the Cobiaz technology, a system that reduces concrete usage by placing 'void formers' made of environmentally friendly recycled plastic



### MARINA BAY SANDS

- 90% of Marina Bay Sands' property lightings use energy efficient lighting
- Installation of 145 kWp Solar Photovoltaic system – the highest location of solar panels in Singapore
- Comprehensive waste diversion tracking and management programme
- Over 110,000 control points that allow automated controls over lighting, heating, air-conditioning and water supplies for the entire property, with estimated savings over 46 million kWh of energy a year



Scan for a visual peek into the building