

Troubleshooting energy efficiency in buildings with Fluke 1735

Nowadays, many buildings have a significant measurable impact on the environment. Regular monitoring of energy loads are extremely useful to building managers as these reports can help make the most of a building's resources, and increase energy efficiency by identifying and evaluating energy saving opportunities. This application note looks at using the Fluke 1735 power logger in energy efficiency initiatives.

Application Note

Troubleshooting energy efficiency for buildings may feel like searching for a needle in a haystack, but for the sustainability team at Mirvac, it's all in a day's work.

Mirvac Group (Mircvac) is a leading integrated real estate group, listed on the Australian Securities Exchange (ASX) with activities across the investment and development spectrum.

Established in 1972, Mirvac has more than 37 years of experience in the real estate industry, with a reputation for delivering quality products and services across all of its businesses. Its portfolio includes a mix of commercial offices, retail centres, industrial properties and a hotel.

As one of the leading brands in the Australian development and construction industry with a proven track record for delivering innovative and quality products that exceed and lead the market, Mirvac's team ensures absolute quality control over the entire development process through the implementation of a thorough planning, design and construction process – from concept to completion.

Mirvac is committed to corporate responsibility and sustainability. Two of the company's six corporate social responsibility (CSR) programs are directly related to Mirvac being an environmentally responsible corporate citizen. Titled *Environmental Impact* and *Climate Change Action*, these priorities aim to minimise Mirvac's impact on the environment and reduce greenhouse gas emissions. These strategies aim to help ready Mirvac for a carbon-constrained future.

The need to monitor

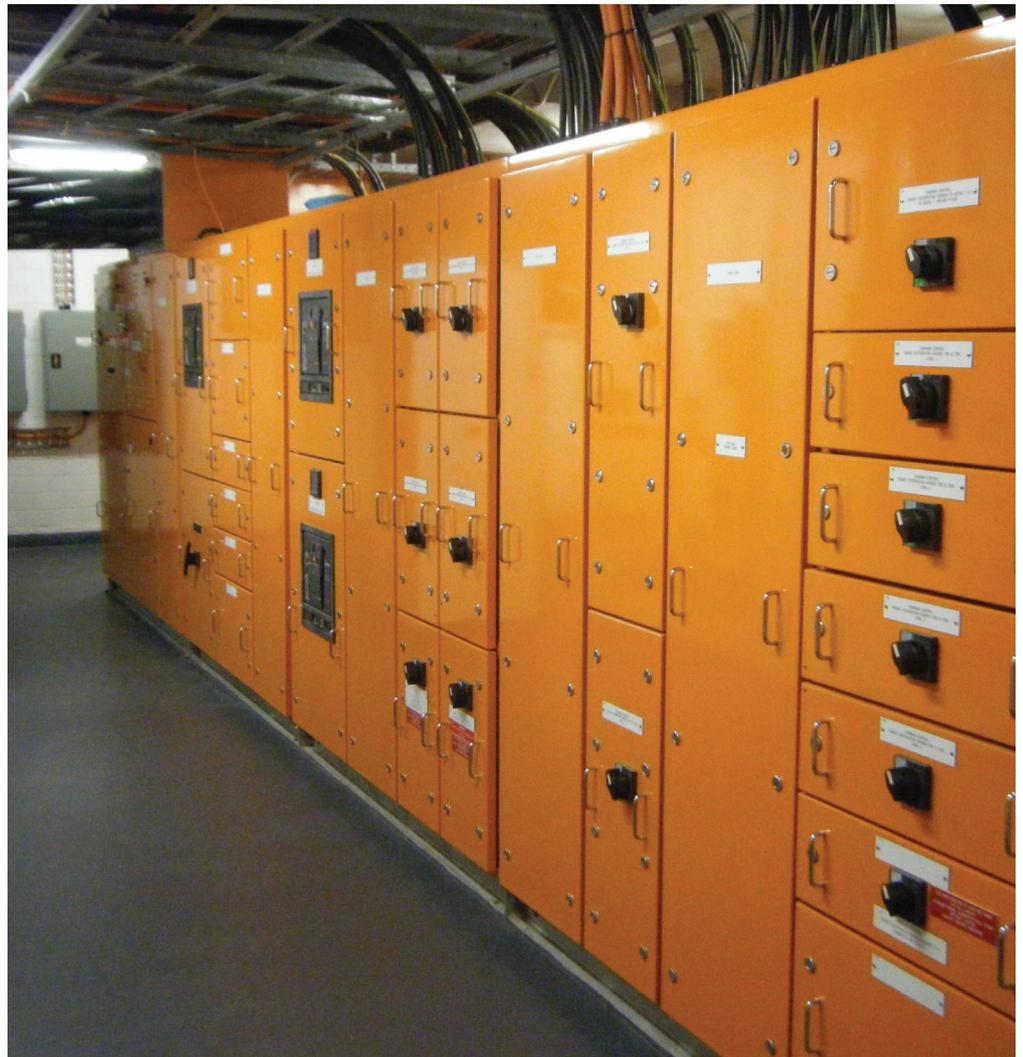
Mirvac continues to improve the energy and greenhouse gas (GHG) performance of its business and respond to climate change risks and opportunities. In addition to its own initiatives, Mirvac is subject to a number of climate change-related regulatory schemes, including various state and federal building codes,

planning and design regulations, and energy and GHG emissions programs.

The Australian government introduced the Energy Efficiency Opportunities (EEO) program in 2006, which encourages large energy-using businesses to improve their energy efficiency by requiring businesses to identify, evaluate and report publicly on cost effective energy savings opportunities. The introduction

of this program meant that Mirvac was able to extend its existing energy efficiency program and meet government requirements, as stipulated by the EEO Act.

Along with the EEO, Mirvac follows the National Australian Built Environment Rating System (NABERS), a performance-based rating system for existing buildings, which is a national initiative managed





From start to finish

Before Adrian Michaels, sustainability manager and Steve Zinga, the sustainability engineer for the Mirvac sustainability team can monitor energy usage and efficiency, they must first set up a benchmark of energy usage within a building. The team uses this benchmark to compare with future data, and to verify that the building is operating at maximum efficiency levels and to ensure future recommendations work.

For Adrian and his crew, data helps the sustainability team analyse exactly what takes place in a building.

Steve Zinga said, "We monitor all energy usage against this initial baseline and compare it to results after 12 months, to see if energy usage has decreased."

"This is an on-going process for the Mirvac sustainability team. We need to constantly improve a building's efficiency to properly plan for a building's future."

To help accurately measure the power usage of its sites, Mirvac chose the Fluke 1735 Power Logger for its ability to conduct energy studies and power quality logging. The Power Logger can be ready within seconds, using the included flexible current probes and color display. The power quality meter can measure a building's electrical power parameters, harmonics, as well as capture voltage events.

"We found the Fluke 1735 Power Logger the most user-friendly product in the market today. We needed a high performing, quality tool that could keep up with our needs and offer accurate readings, which in turn will affect any decisions we make to our buildings' energy usage. Fluke 1735 Power Logger did just that and more."

Designed to measure the most critical three-phase power parameters, the Fluke 1735 can log rms voltage, rms current, phase angle, voltage events, voltage and current THD, voltage and current harmonics up to the 50th, active power, reactive power, power factor, active energy, reactive energy, and more. With memory for up to 45 days of data, the Fluke 1735 can uncover intermittent or hard-to-find issues.

The four current probes are connected with one plug, the instrument automatically detects, scales and powers the probes, making this product very easy to use. These variable range current probes are easily set to 15 A, 150 A, or 3000 A for high accuracy in nearly any application. The voltage connections are single leads, enabling easy and quick set-ups. The colour screen provides instant

confirmation that connections are correct, and then logging begins when the RECORD button is pressed.

The energy assessment capability in the Fluke 1735 Power Logger quantifies energy consumption before and after improvements. This functionality will help Mirvac's management team justify investments in energy saving devices within a building.

Zinga says that the ability to monitor loads helps Mirvac optimise the efficiency of buildings by verifying electrical system capacity before adding loads. Energy and power quality assessment used to validate performance of facility improvements can be quantified by energy consumption, power factor, and general power quality, before and after improvements.

Often huge energy and savings on electricity expenditure is achieved through simple changes such as switching regular light bulbs to more energy efficient types, or adjusting the temperature.

According to Adrian Michaels, Mirvac takes energy efficiency seriously. "As we have rolled out our energy auditing programme across the property portfolio, the Fluke 1735 is a key tool to identify energy saving opportunities. Its ease of use and diagnostic capabilities are second to none when it comes to energy analysis," he said.

Zinga added, "It's very important for everyone in the industry to use natural resources more efficiently. We all have a responsibility to leave the planet in a better position for future generations."

by the NSW Department of Environment, Climate Change and Water.

NABERS rates a commercial office, hotel or residential building on the basis of its measured operational impacts on the environment, and provides a simple indication of how well the site is managing these environmental impacts compared with others.

Buildings under the Mirvac portfolio have a measurable impact on the environment. Because of this, Mirvac has set up a sustainability team to monitor and recommend strategies for the development of climate sensitive buildings. By doing so, Mirvac will be able to make the most of its resources and deliver the best impact for climate sensitive buildings, and ensure efficient operation of Mirvac's assets.

Part of the team's responsibilities include monitoring and identifying necessary changes to the way energy is used to provide lighting, heating, cooling and ventilation, as well as monitoring water use, waste management, air quality, impact on local biodiversity, and on toxic materials that may be present in Mirvac buildings.

To achieve this, the Mirvac sustainability team established a national energy audit program that complies with the Energy Efficiency Opportunities (EEO) Act and is recognised by NABERS.

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