

Name (Mr/Ms/Dr): Mr Rainer Tenius
Job title: General Manager
Company's name: Swissôtel Merchant Court, Singapore
Award won: BCA Green Mark Award (Platinum)
Name of Project that won the award, if applicable: N.A.
Location of project: Swissôtel Merchant Court, Singapore
20 Merchant Road, Singapore 058281

Year project completed or estimated year of completion: October 2014

Why did you decide to participate in the Green Award? What motivated your company to go "green" in its projects?

At Swissôtel Merchant Court, Singapore, we consider the environment to be one of the most significant and challenging components of sustainable development. There can be no doubt that human activity is changing the environmental landscape in a variety of ways, including climate change, water availability, deforestation and land use. We are committed to improving and reducing our impact upon the environment and we integrate this in everything that we do. Our sustainability philosophy is an extension of our Business Excellence approach i.e. defining what we believe is the highest possible standards for our guests, owners, team members, partners and other stakeholders and ensuring that our products and services meet or exceed those levels. We believe that being sustainable and maintaining business excellence are synonymous, whether it's reducing energy, being profitable for owners, improving team member wellbeing or enhancing our reputation for quality – these are all part of our Business Excellence strategy.

As such, when we were planning the retrofit and refurbishment of some of our building systems, we engaged accredited energy consultant Cofely to partner us in implementing solutions that would make better use of energy while reducing environmental impacts for sustainable development.

Having the BCA Green Mark provides a meaningful differentiation of buildings and is beneficial because of the reduction in water and energy bills. At the same time, it is testament to our efforts in reducing our impact on the environment and improving the health and safety standards of all our team members and guests.

Why is having a sustainable built environment important?

We firmly believe that successful business and a corporate responsibility for sustainable development go hand-in-hand. We consider corporate sustainability in all aspects of our business to ensure that customers, team members, the environment, local communities and all our stakeholders understand and benefit from what we do.

Over the past three years Swissôtel Hotels & Resorts has established a robust and strategic sustainability framework, culminating in the implementation of a global sustainability strategy and infrastructure. As part of our commitment to sustainable development, Swissôtel Hotels & Resorts also released its first public sustainability report in December 2012. This report has been produced to inform the global hotel group's guests and stakeholders about the long-term strategy, goals, initiatives and performance relating to sustainability activities across the group.

The Swissôtel Hotels & Resorts sustainability report can be downloaded in PDF format under the following link: <http://www.swissotel.com/about-swissotel/sustainability>.

Please tell us more concerning your green designs for the project. Please list each specific green features and describe how it is green.

One of the key objectives of upgrading our current building systems is to reduce our electricity consumption. In 2012, Swissôtel Merchant Court, Singapore's electrical consumption was 10.5 Gigawatt Hour (GWh). Following the retrofit, the projected annual electricity consumption will be reduced by 20% to 8.3 GWh.

The building systems involved in the upgrade include:

1) Central Water Cooled Chiller Plant

This component makes up 36% of the total energy consumption in the hotel. The current efficiency is at 1.07 kilowatts per refrigeration ton (kW/RT). Following the retrofit works, the total system efficiency will be at 0.6kW/RT, giving us **43.9% energy savings** from the chiller plant energy consumption. The breakdown of the chiller plant component efficient is as follows:

Chiller plant component efficiency	Existing Aircon Plant (kW/RT)	New Aircon Plant (kW/RT)
Chiller	0.67	0.47
Chilled water pump	0.125	0.04
Condenser water pump	0.195	0.06
Cooling tower	0.085	0.03
Total system efficiency	1.074	0.6

The new chiller plant also includes a condenser auto tube cleaning system, which removes dirt buildup within the tubes of the condensing system automatically. As it operates at maximum design efficiency, it helps to reduce operation and maintenance costs, as well as minimize chemical usage.

2) Air Handling Units (AHU)

The AHU make up 6% of the total electricity consumption in the hotel annually. The 14 AHU servicing the Merchant Court Ballroom, function rooms, main lobby and guestrooms have been replaced. The AHU are more energy efficient and have carbon dioxide sensors in them to regulate fresh air intake, modulate the oxygen levels and reduce carbon dioxide levels in the air that is filtered into the hotel for improved indoor air quality.

3) Mechanical Ventilation Fans

Carbon monoxide sensors within the mechanical ventilation fans are installed in the car park, toilets and staircases to improve the air quality to reduce the carbon monoxide levels in the air that is filtered into the hotel.

4) Lighting

16% of the total electricity consumption annually is from the usage of lights. All the lights in guestrooms have been replaced with energy-efficient LED compact fluorescent lights and fluorescent light tubes to reduce the electricity consumption.

In addition, we have also installed motion sensors on lights at staircases so that they switch off when not in use, and switch on automatically when movement is detected.

5) Heat Pumps

4% of the total electricity consumption annually is generated from the heat pumps. We will be installing new heat pumps dedicated for the hot water system for better efficiency. The present co-efficient of performance (COP) of our heat recovery system is at 2.0. The new heat pump will allow us to double the efficiency to a COP of 4.0.

Aside from being more energy efficient, the other key focus is to reduce waste and recycle all materials possible. In 2012, Swissôtel Merchant Court, Singapore recycled a total of 24,959kg of old newspapers and 4,930kg of waste cooking oil. Moving forward, we will also be recycling food waste. Based on our assessment, we generate an estimated 965kg of food waste per day, which adds up to 250 – 350 tonnes of food waste a year!

We will adopt a state of the art organic waste disposal system (ecoDigester from ECO-Wiz) that will recycle solid food waste such as vegetables, fruit scraps, raw and cooked meat, fish, poultry and dairy products into reusable water. The system accelerates the natural decomposition process through biological means like maintaining optimal levels of aeration, moisture, temperature. Under these controlled conditions, microorganisms can safely decompose food waste at a rate much faster than under natural conditions. The discharged water from the recycled waste have been verified by Analytical Laboratories (Singapore) Pte Ltd to be fit for use as recycled water, which will be used for general purposes such as watering plants and washing floors.

More recycling bins will also be placed in common areas of the hotel to encourage all team members and guests to recycle.

Were there any particular challenges facing the planning/design or execution of installing green elements in these projects? Does it cost more? How were they overcome?

The main challenge we faced when we were planning the installation of the new eco-friendly equipment was to minimise disruption to the operations of our hotel because ensuring guest comfort is of utmost priority. Therefore,

we had to plan the implementation of the various new building systems in stages, over a longer period of time.

For example, in our plans to replace the central water cooled chiller plant, we staggered the replacement of the 3 water chillers, which will take one year to complete instead of 8 – 10 months if we were to replace them all at the same time. However, this will allow us to ensure that the air-conditioning system runs without any downtime and does not affect our guests' comfort.

When it came to selecting the equipment for replacement, we found that the more energy-efficient machines did not come at a higher price. In fact, given that we are reducing our electrical and water consumption, we actually save on operational cost in the long run.

Is green a consideration in all your building designs and what factors do you consider in implementing green designs?

We believe that sustainable design is necessary for a growing business and it is a consideration not just in our building designs, but also in the way we operate on a daily basis.

When implementing green designs in our building systems upgrade, we look for ways to maximize energy efficiency wherever possible. Before breaking ground on any work, we also assess environmental aspects and impacts and ensure that environmental training is provided to our team members, in accordance with our site environmental management system (which is ISO14001 certified).

Additionally, in our daily operations we offer guests the opportunity to participate in programmes to reduce environmental impact and constantly reduce and/or recycle waste and all other materials. We regularly monitor emissions and energy consumption so we can identify and act upon trends or issues. As an international company we also share learning and best practices among hotels, ensuring that good ideas are leveraged and expanded throughout the group.