



Case study

Al-Yamamah University

Location
Philips Lighting

Riyadh, Saudi Arabia
Philips Dynalite Controls

PHILIPS
dynalite 

Background

While smart controls are perceived as uneconomic for basic residential projects, the average 40% energy savings they deliver can easily offset these expenses, while extra features of the system add value for the investor. So when the Al-Khudair family decided to construct 224 residential apartments at the Al-Yamamah University, they opted for intelligent lighting controls from Philips Dynalite to improve comfort, add value, simplify use and all importantly, save energy. Not only this, but the solution provided was at a price point significantly below competitors and is upgradable for future requirements.

The challenge

Al-Yamamah University was established on the Qassim Road in Riyadh, Saudi Arabia, by the Al-Khudair family in May 2001. Authorized as an institution of higher learning by the Ministry of Higher Education, Al-Yamamah was initially designated as a college, which opened its doors to male students in September 2004 and to female students in September 2006.

The Al-Yamamah Faculty Housing project was initiated to improve accommodation for the university. Located within the Al-Yamamah University campus, this ambitious project comprises eight residential buildings of seven floors each, containing a total of 224 apartments, each big enough to accommodate a family. The buildings also contain a number of common areas, a Health Club and a parking basement for cars.

The Al-Khudair family initially believed that smart lighting control systems were very expensive and something that were only applicable for luxury homes. Ongoing discussions with the Philips team helped convince the family that such a system is also suitable for business propositions, such as rental apartments in a university.

Not only will a smart system provide a good payback on the investment, but it will also add considerable value to the apartments.

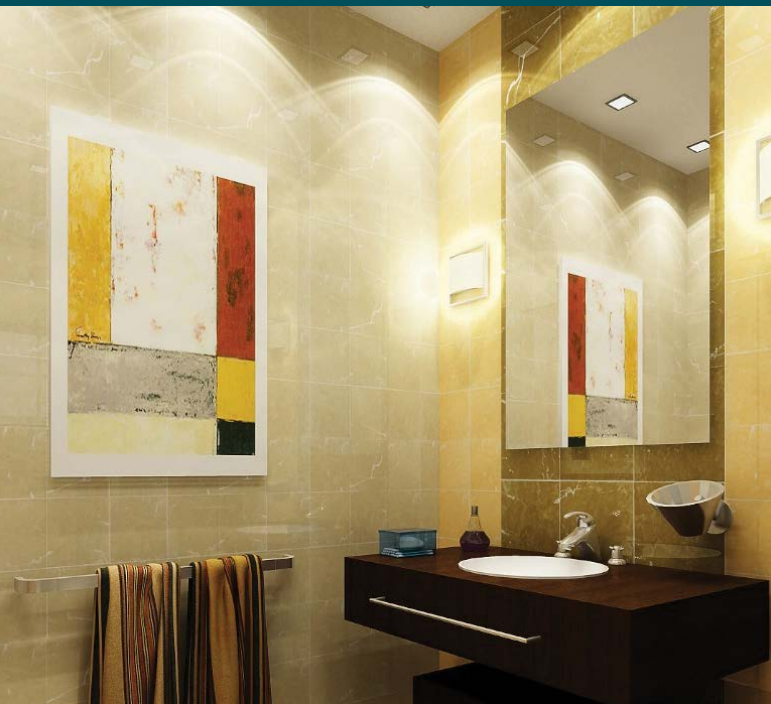
One of the main challenges faced was to convince the client to use an intelligent control system, as originally there was no budget to cover this. The solution developed was designed to give a basic level of functionality in order to keep the cost down, while allowing for future upgrades – including additional dimming control and activation of the shutters. Philips was so successful in providing a cost-efficient solution that the tender was about a fifth of the amount of the tenders from other companies!

An energy saving study for the project demonstrated the added value that a Philips Dynalite lighting control design would contribute to the buildings. After the completion of the design, ongoing support is being provided to enhance the design for today and for future needs.

The solution

The scope of the system included the installation of an intelligent home automation system in all 224 apartments, plus lighting control for the common areas. The system is designed to control HVAC, lighting and electrical sockets, as well as facilitating the monitoring of electricity usage by each apartment.

The controls for each apartment comprise a basic level of functionality and that this would be configured in such a way as to enable the system to be upgradable in the future. Each apartment works as a standalone entity, with on/off control for the HVAC, lighting and electrical sockets – achieved automatically via occupancy sensors and also through intelligent keypads. A number of preset scenarios have been programmed into the system and each apartment has been configured with wireless connectivity to allow iPad or iPhone control, using the Philips Dynalite DynamicTouch software.



Fast facts

Customer

Al-Yamamah University, for the Al-Khudair Family

Location

Riyadh, Saudi Arabia

Products

DDRC1220FR-GL Relay Controller; DLE1220G Leading Edge Dimmer Controller; DDBC1200 Dimmer Controller; DUS804C Multifunction & DUS704W Universal Sensors, DR2PE Revolution User Interfaces & DTP170 Touchscreens, DTK512 Infrared Handset, DDTC001 Timeclock, DynamicTouch, EnvisionProject & MapView.

Lighting Solutions

Energy efficiency and lighting controls for residential.

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Switching and dimming

The apartments are available in three sizes – studios, small apartments or suites. Philips Dyalite DDRC1220FR-GL relay controllers provide the switching control and Philips Dyalite DUS804C universal ceiling-mount sensors are used for occupancy detection. Philips Dyalite DR2PE Revolution user-control panels provide the primary user interface and a Philips Dyalite DTK512 infrared handset, enables remote control of the system.

The Philips Dyalite system also controls all lighting for corridors, basements, stairs and outdoor areas, primarily through the use of DDRC1220FR-GL relay controllers. In these areas, a combination of Philips Dyalite DUS804C daylight sensors, Philips Dyalite DUS704W motion detectors and a Philips Dyalite DDTC001 timeclock allow lighting to be controlled through a combination of daylight harvesting strategies, predefined timed events and occupancy of areas.

In the Health Club, the system is more luxurious, with integration to the HVAC, dimmable lights and different pre-programmed lighting moods. A combination of Philips Dyalite DDRC1220FR-GL relay controllers, DLE1220G leading edge dimmers and DDBC1200 electronic ballast controllers enable a combination of luminaire switching and dimming to be achieved.

Again, a combination of DUS804C daylight sensors and a DDTC001 timeclock allow a daylight harvesting solution to work in conjunction with pre-programmed timed events. Different dimming and HVAC scenarios have also been programmed into the system and these user preferences can be selected via a Philips Dyalite DTP170 color touchscreen or the DR2PE Revolution user interface panels.

Central monitoring

The entire system is connected into a single network using DyNet, Philips Dyalite's sophisticated peer-to-peer communications serial bus network. Philips Dyalite EnvisionProject is being used to commission the system and Philips Dyalite MapView enables the entire network to be monitored from a central control room. Integration between the Dyalite system and the building management system (BMS) is also under discussion and likely to be included in the overall project delivery.

Philips will also provide training to the facilities personnel at the University to enable them to manage and re-program the system as required.



Benefits

The Al-Yamamah University Faculty Housing is a landmark project in the respect that it is one of the first universities in the region – and certainly the first for Saudi Arabia – to opt for intelligent lighting controls within its residential buildings. Furthermore, the project is unique in the number of buildings and the extent of the campus area over which the Philips Dyalite control system operates.

The Al-Khudair family is keenly anticipating the finished result and looking forward to measuring the energy savings achieved through the Philips Dyalite solution. The presence detection functionality is anticipated to enable energy savings of as much as 30 per cent to be achieved, with an additional 10 per cent possible from the daylight harvesting strategies. This means that the additional cost of including an intelligent lighting control solution will be offset over time by the energy it saves. Moreover, the inclusion of these sophisticated controls will add to the comfort and appeal of the university's accommodation, while improving its long-term value.

The project to date has been so successfully implemented and offers such a good level of functionality for cost that the Al-Khudair family is keen to install further Philips Dyalite control systems in the Al-Yamamah University's teaching, research and laboratory facilities. Philips will design and install Philips Dyalite controls in a total of eight more university buildings throughout 2013.



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