

## **Bovis Lend Lease expertise helps Xilinx client HQ win “green” award**

### **Overview**

Living our core values of striving for excellence, the Bovis Lend Lease team in Singapore won the first ever Platinum Green Award for a privately developed industrial facility, from the Building & Construction Authority of Singapore (BCA). Since accession to Kyoto Protocol, the Singapore government has placed great emphasis and incentives to motivate developers towards the creation of environmentally sustainable buildings. However, it was not the rewards that drove the client towards wanting a green building. Both Xilinx Inc. and Bovis Lend Lease had company visions towards creating sustainable outcomes from their business operations and having like-minded client like Xilinx just made things easier.

Xilinx Asia Pacific Pte Ltd (XAP), a subsidiary of Xilinx Inc. is expanding their operations in the region and is proposing to build their new Asia Pacific Headquarters at Changi Business Park.

Xilinx Inc is a fab-less semiconductor business and is the leader in programmable logic devices with 50% of the world market share.

### **Building data**

The building has 6 storeys and 1 level of basement car park. It has an approximate gross floor area of 222,000sq ft and a total build area of 290,655sq ft. Total Construction cost is US\$40 million.

The building is designed to house 3 main activities taking up:-

- 1) Warehousing
- 2) Test Floor and Labs
- 3) General Offices

In general the offices and circulation areas and facade are designed to Group A Office Requirement with quality finishes similar to that of the Applied Materials Building.

Tasked to ensure the incorporation of sustainable elements to Xilinx's headquarters, Bovis Lend Lease proposed green features that enabled a mere 1.1% increase in construction investment but reaps an expected \$500,000 savings each year. Features include:-

### **Lighting Management**

The arrangement of sectionalised energy-saving lightings is computerised to enable alternating lighting depending on the light flow in the building. Depending on the brightness of the environment, the computerised pre-programmed lighting management system will manage the number of lights used and hence is able to eliminate use of lights in less required sections. Since lighting is centrally managed and pre-programmed, there are no light switches in the building.

### **Recycled Chips for Signage**

Xilinx will recycle its unwanted chips to turn them into usable signages in the building, thereby cutting down on waste generation. Signages are found on every level of the new AP headquarters building, and they are all made of discarded chips from the production line.

### **Recycling of Condensate Water for Landscape Irrigation**

With the use of air-conditioners, condensation takes place and water is generated. This is normally channelled out of the building as waste water. In Xilinx's facility, however, condensate water is collected and recycled for landscape irrigation.

### **Integration of Building Management and IP Camera System Through Xilinx IT Net Work**

Conventionally, all CCTV system and monitoring devices require dedicated home run to the central system, which is located at the Fire Fighting Command Centre. However, our design has enabled us to run all the control cables to the nearest network switches in the communication rooms instead and signal will be feedback to the central system via the IT network. This results in an estimated saving of 40% of cable and support system used.

### **Use of Pre-Cooled AHUs (incorporated with Heat Pipes) with Desiccant Dehumidifier to Maintain the RH Within the Environmental Controlled Area**

The test floor within the building requires humidity control. The main factor causing humidity to rise is the outdoor air supply serving the various air handling units on the various floors. Creative design to maintain the humidity is introduced by implementing pre-cool AHU with heat pipes to bring in the outdoor air. This design reduces the size of the desiccant dehumidifier used for humidity control and decreases the operating period resulting in remarkable energy savings.

#### **Ductless Fan System for Basement Car Park System**

Most of the car park system in Singapore is using the conventional ducted system which requires a lot of galvanised steel material for the ventilation duct work. Due to the minimum clear height requirements for the basement, the structural work will need to be increased in order to meet this requirement. Our concept removes all duct work by using localised fan to circulate the air with the help of computational fluid dynamic study. This not only saves on installation time/ material but also on the structural costs for increasing the basement height.

Congratulations to the Xilinx project team! Further information can be obtained from Fong See Chet at [seechet.fong@ap.bovislendlease.com](mailto:seechet.fong@ap.bovislendlease.com)

