

correctional facility case study: Changi Prison Complex, Singapore



Background

Changi Prison was constructed by the British administration of the Straits Settlements as a civilian prison, in 1936. In 2000, the prison was demolished and the Redevelopment of Changi Prison Complex (CPC) project began.

The project encompasses the construction of 4 clusters of institutions, support facilities and Prison HQ, which will be implemented in phases. Each Cluster comprises 5 institutions with a mixture of maximum-security institution, medium security institutions and low-medium security prisons.

With the inclusion of the existing Tanah Merah Prison and Changi Women's Prison, the entire complex when completed will have the capacity to accommodate 23,000 inmates.

The main lighting requirements for the streets and fence area of the new cluster at Changi Prison included reduced maintenance, lighting control and energy saving capabilities.

Metrolight's 250w SmartHID™ electronic ballast, together with Menolinx's lighting control and monitoring system, was chosen to provide the complete solution.

Snapshot

Energy Savings
44%

Maintenance Cost

Decreased Maintenance Costs (~50%)
Up to double lamp life

Lamp Power

250w set at 40% constant dimming

Automatic Lighting Control

Photocells, cameras and motion detectors; One central monitoring station

Simple Payback Period

2.8 years

The Result

The three main requirements for Changi Prison's lighting system included:

- Energy efficiency
 - Achieved 44% energy savings
 - Lamps are programmed to operate with 40% dimming as the default setting. In case of an event, such as fence tampering, lamps are programmed to increase to full power.
- Reduced maintenance costs
 - Reduction in maintenance costs estimated at approximately 50% mainly due to double lamp life
 - Improved quality of light
- Full control and dimming capabilities
 - One central monitoring station
 - Central lighting management - LEMS (Lighting Energy Management Software) - from Menolinx
 - Grouping - group lamps into areas for group control
 - Automatic lighting control with photocells, cameras, sensors and motion detectors
 - Two way communication: send commands and receive ballast parameters and lamp information including end of life alerts (decrease maintenance costs), lamp failure alerts, event alerts and energy consumption
 - Automatic scheduling
 - Communication: Ethernet



Technology Partner:
Menolinx

Menolinx Systems
Remote Lighting Control Solutions

www.menolinx.com

Menolinx Systems specializes in the development, manufacturing and distribution of remote lighting control and monitoring systems. Our eco-friendly, solutions ensure smooth and reliable performance of lighting devices together with substantial energy savings and low maintenance costs. The technology combines smart RF, Cellular and line communication, a cost effective and reliable hardware, a user friendly GUI and strong control capabilities. For more information, please visit www.menolinx.com

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