

Westlite Accommodation Mandai

Green Mark 2021 Super Low Energy (SLE)



Westlite Accommodation’s newly developed dormitory block in Mandai has been officially awarded the **Green Mark 2021 Super Low Energy (SLE)** certification by Singapore’s Building and Construction Authority (BCA). This is the third dormitory by Westlite Accommodation to achieve this rating following Westlite Toh Guan and Westlite Ubi.¹ The Mandai facility, with a gross floor area (GFA) of 29,312.6 sqm, comprises a newly completed 22-storey residential tower alongside three existing 12-storey blocks. The redevelopment has expanded the total housing capacity from 6,290 to 8,006 workers, enhancing the facility’s contribution to Singapore’s workforce infrastructure within the Sungei Kadut Planning Area.

Key Green Features & Performance Highlights

High-Efficiency Appliances

All installed electrical appliances meet the top-tier energy ratings as defined by Singapore’s National Environment Agency (NEA) – each reflecting optimal energy efficiency.

Category	Highest tick-rating
Refrigerators (with or without freezer)	4 ticks
Clothes Dryers	5 ticks
Televisions	5 ticks
Lamps	3 ticks

Smart Lighting Systems

LED lighting has been installed across all light points, with zoning control in common areas and motion sensors deployed in toilets and staircases to activate lighting when needed. This significantly reduces energy consumption, achieving energy savings of **522,116 kWh/year** - **60% savings** from the baseline.

Efficient Mechanical Ventilation (MV) Fans

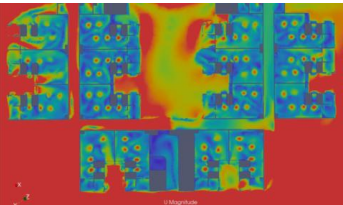
The dormitory employs highly efficient mechanical ventilation fans with efficiency of **0.18 W/CMH**, significantly outperforming the **Green Mark SLE requirement of 0.25 W/CMH**. This results in an annual energy savings of **11,489.97 kWh/year**, or a **66% reduction** in energy use compared to baseline.

Efficient Air Conditioning System

The offices and isolation rooms of the dormitory are equipped with an air conditioning system operating at an efficiency of **0.7 kW/RT**. The system includes both single-phase and three-phase VRF air-conditioners, achieving the highest **5-tick rating** under NEA’s energy efficiency labeling scheme. This delivers **energy savings of 11,181.69 kWh/year** or a **23% reduction** compared to the baseline.

Thermal Comfort and Enhanced Ventilation

The living quarters are designed to ensure thermal comfort and good indoor air quality through a combination of passive and mechanical ventilation strategies. All rooms are mechanically ventilated and supplemented by natural airflow design features, significantly reducing reliance on artificial air-conditioned cooling. This approach promotes better indoor air quality and supports resident health. The space achieves a **PMV of +0.46 to +0.54**, which falls within the **acceptable comfort range**, indicating that occupants are likely to feel thermally comfortable.



Overall Estimated Energy Savings & Energy Use Intensity (EUI)

The dormitory’s integrated energy-efficient strategies have resulted in annual energy savings for the building of **544,787.69 kWh**. These reductions contribute significantly to the reduction of CO₂ emissions of approximately **272.39 tCO₂ annually**.

Through the implementation of these green features, the building achieves an impressive Energy Use Intensity (EUI) of **63.01 kWh/m²/year**, demonstrating high operational efficiency relative to its floor area for a dormitory.

Conclusion

Westlite Accommodation Mandai stands as a leading example of how residential developments can integrate sustainability without compromising functionality or occupant well-being. From smart lighting and high-efficiency air conditioning to enhanced ventilation and thermal comfort monitoring, the dormitory exemplifies a holistic approach to sustainable living. It sets a new benchmark for worker accommodation and illustrates how residential buildings can actively contribute to Singapore’s green transition and long-term carbon reduction goals.

Developer - Centurion Corporation Limited

Architect - 3P Ecotecture Pte Ltd

M&E - Rankine & Hill (S) Pte Ltd

Main Contractor - MILLENNIUM INTERNATIONAL BUILDERS PTE LTD

Quality Surveyor - Northcroft Lim Consultants Pte Ltd

Sustainability Consultant - GreenA Consultants Pte Ltd

¹ Building and Construction Authority, “Super Low Energy Buildings (SLEB),” BCA SLEB Smart Hub, accessed June 13, 2025, <https://www.sleb.sg>.