

# KEY FEATURES

## PASSIVE

- Reduce Solar Heat Gain (ETTV 38.47W/m<sup>2</sup>)
- Enhance Natural Ventilation & Daylighting
- Mitigate Wind Driven Rain
- Renewable energy 529,037 kWh/yr (onsite BIPV + offsite PV)
- Mitigate External Glare from BIPV panels

## ACTIVE

- High Efficiency Chiller Plant (0.502kW/RT)
- Electronically Commutative (EC) Fans for PAHUs + PDVs/FCUs
- Efficient LED with demand control
- Daylight Harvesting with Photocell Sensor
- VVVF Lift with sleep mode & regenerative features

## RESILIENCE

Access to nature  
Rooftop garden for restorative practices

Waste Recycling Bins

Smart IDD / Digital Twin Platform  
for data analytics & equipment control

Smart IAQ Sensors and  
Occupancy Sensors

## SMART

SGBC 3-Tick concrete & Structural Steel (CUI 0.32)

Auto Irrigation

Rainwater Harvesting

Water Efficient Fittings (100% WELS 3-Tick)

## RESOURCES



# CARBON FOOTPRINT REDUCTION

Estimated total renewable yield:

## 529,037 kWh/yr

Onsite BIPV + Offsite PV (Solar Leasing within DC site)

Each year this can:



Power approximately

### 122

4-room HDB flats<sup>1</sup>



Avoid approximately

### 215,847

kgCO<sub>2</sub> emissions<sup>2</sup>



Be equivalent to planting

### 8,633

trees<sup>3</sup>



## Onsite BIPV

Location : North-West Façade & Roof  
System Capacity : 207.8kWp

## Offsite PV (Solar Leasing)

Location : Dulwich College Junior School,  
Performing Arts, Senior School, Gym  
System Capacity : 301.9kWp

**Embodied Carbon: 16% savings  
from GM2021 reference**  
SGBC 3-Tick concrete (CUI 0.32)  
Structural Steel 59.5% CFA

<sup>1</sup>: Average Monthly Household Electricity Consumption by Dwelling Type

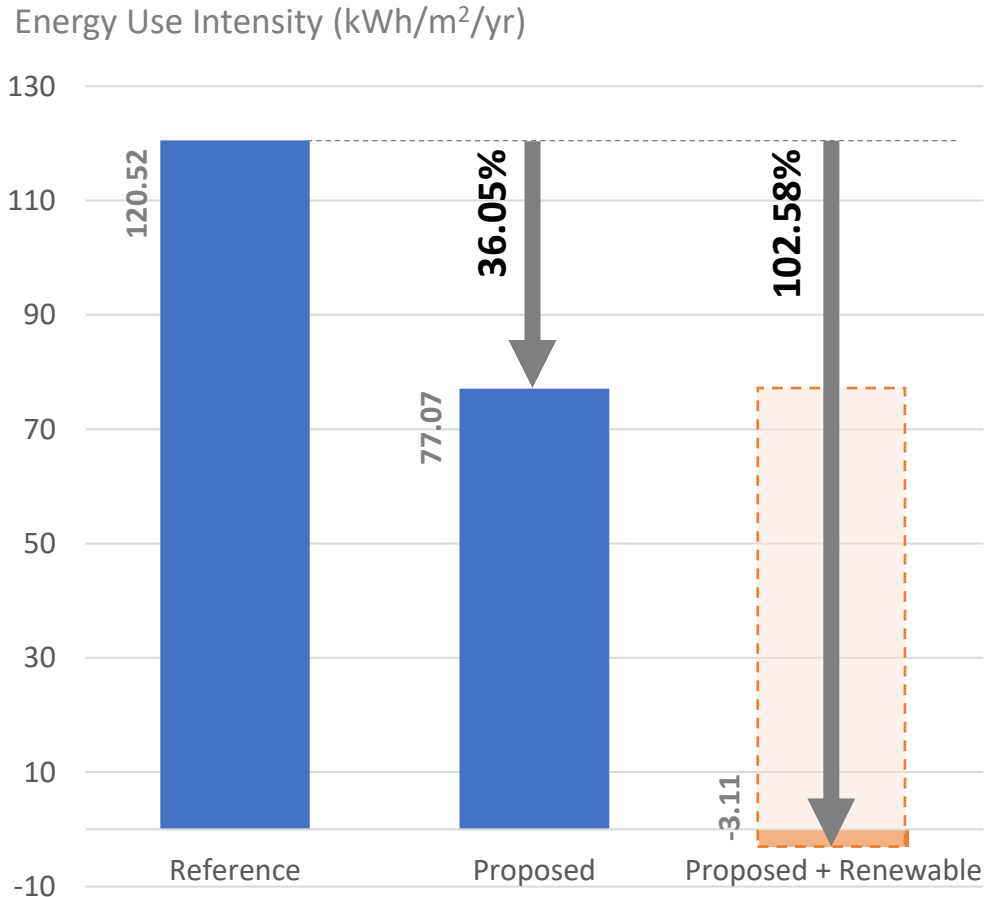
<sup>2</sup>: Energy Market Authority Electricity Grid Emission Factor

<sup>3</sup>: <https://ecotree.green/>

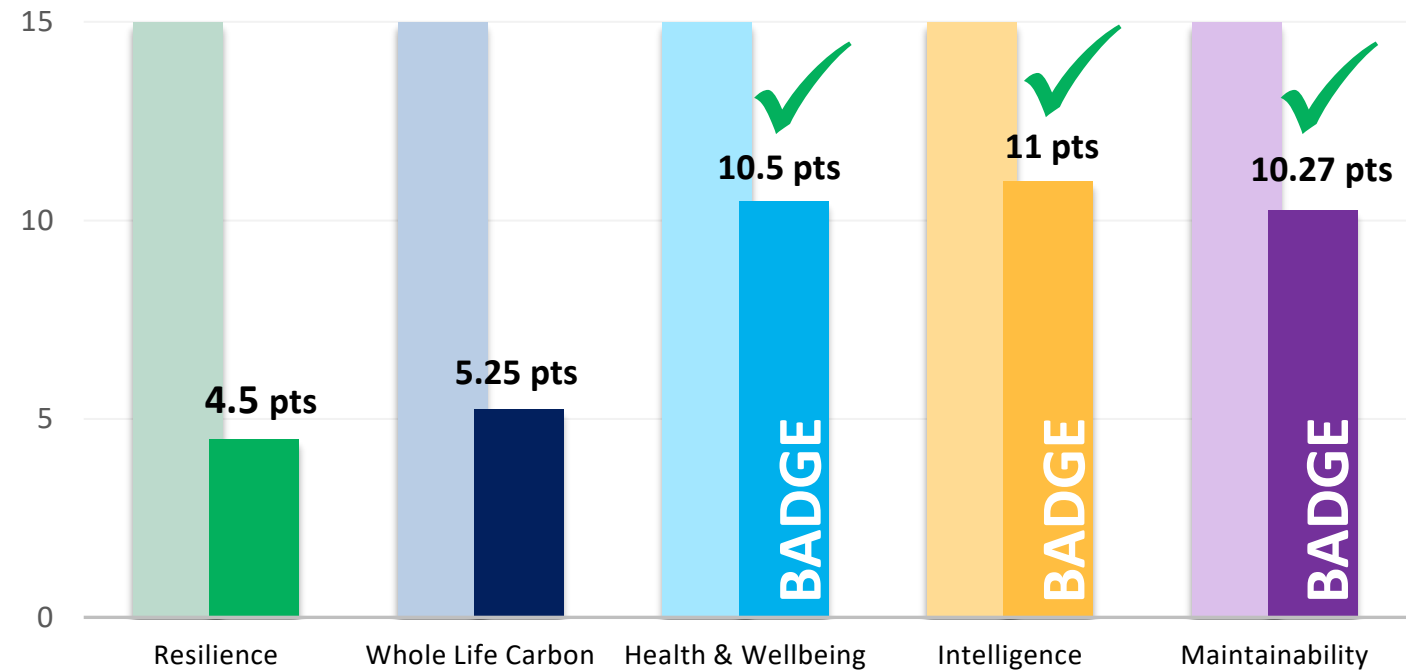
# GM2021 PLATINUM-ZEB TARGET SCORING

Dulwich College (Phase 3) targets to achieve Platinum-Zero Energy Building rating with Health & Wellbeing, Intelligence & Maintainability Badge.

Energy Savings (Pathway 3): **102.58%**

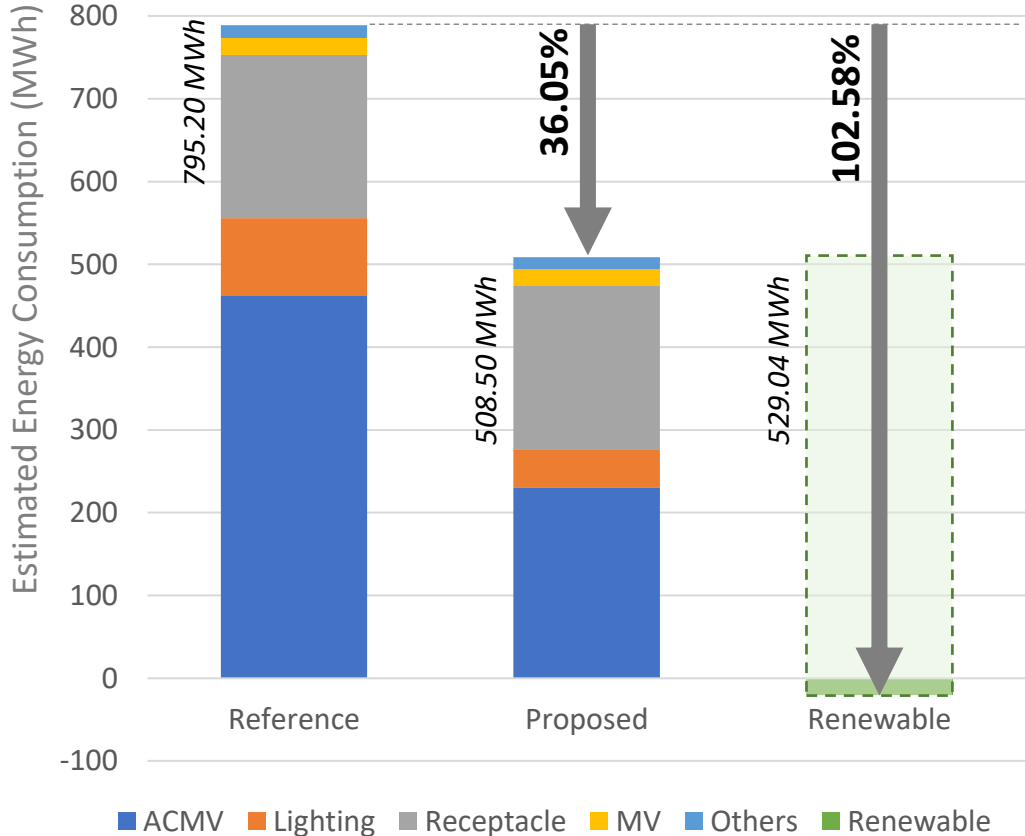


Sustainable Sections Target Scoring: **41.52 points**



# ENERGY EFFICIENCY

	Without Renewables	With Renewables (BIPV + PV)
Overall Energy Savings	<b>36.05%</b> (286.7 MWh/year)	<b>102.58%</b>
Energy Use Index (EUI)	<b>77.07 kWh/m<sup>2</sup>/yr</b> (56% lower than the average EUI of private schools in 2021 <sup>1</sup> )	<b>-3.11 kWh/m<sup>2</sup>/yr</b>



High Efficiency Chiller Plant (2x300RT)  
**(0.502kW/RT)**



EC Fans for PAHUs + use of PDVs  
**(0.099kW/RT)**



Efficient LED with demand control using  
Occupancy Sensors



Daylight Harvesting with  
Photocell Sensor



VVVF Lift with sleep mode  
+ Regenerative Features



Demand Control Fresh Air Intake using  
IAQ Sensor's CO2 readings



Building Performance Optimization using  
Smart IDD / Digital Twin Platform

**AC TSE : 0.601kW/RT**

**Lighting : 49.7% savings**

<sup>1</sup>: BCA Building Energy Benchmarking Report 2021