

# Building design guide

**Building type - Type 1**

**Design number - 4**

**Design case ID - 21**

**Building design propriety - Daylight performance**

**Thermal performance - 4 kWh/m<sup>2</sup>**

**Daylight performance - 98 %**

**Climate zone - Adaptively Hot Zone**



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Figure 1. Adaptive climate zones of Kerala. The selected location is outlined.

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## Thermal performance

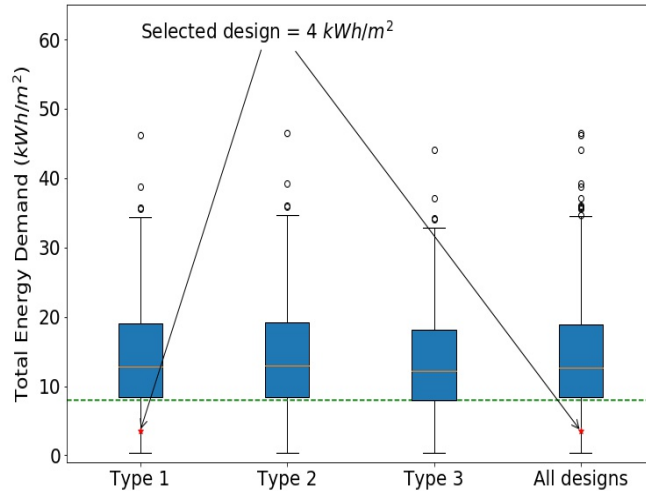


Figure 2. shows the thermal performance of the selected building design (Building type - Type 1) relative to other designs. The bars show the 25th- 75th percentile of hourly data for that month and the whiskers are at 1.5 times interquartile range. The circles show the outliers. The green dotted line represents the threshold performance value.

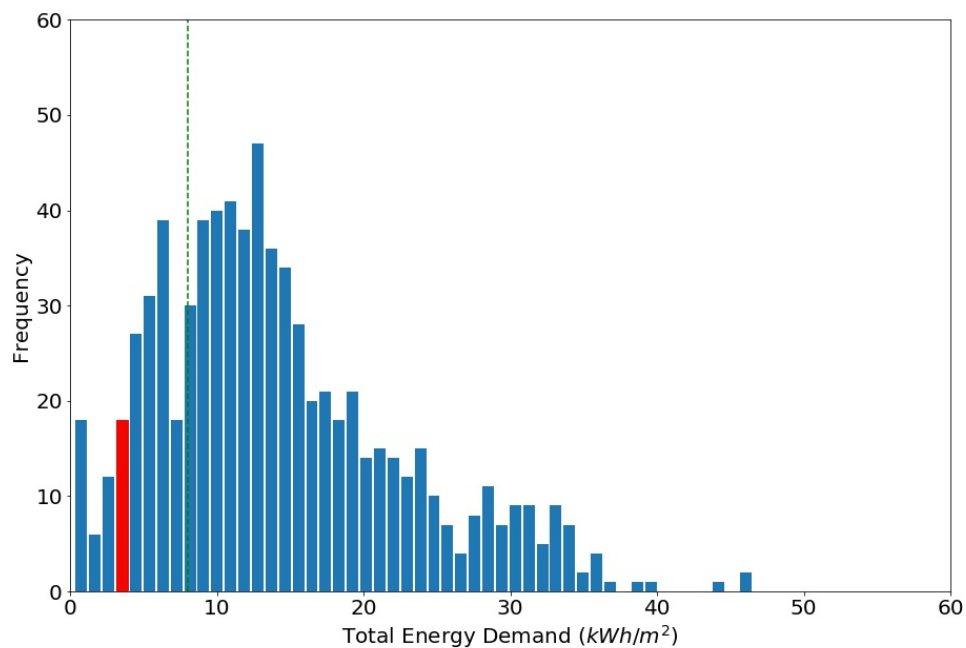


Figure 3. shows the frequency distribution of thermal performance of the building designs when located in the adaptively hot climate zone. The bar corresponding to the selected design is marked in red. The green dotted line represents the threshold performance value.

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## Daylight performance

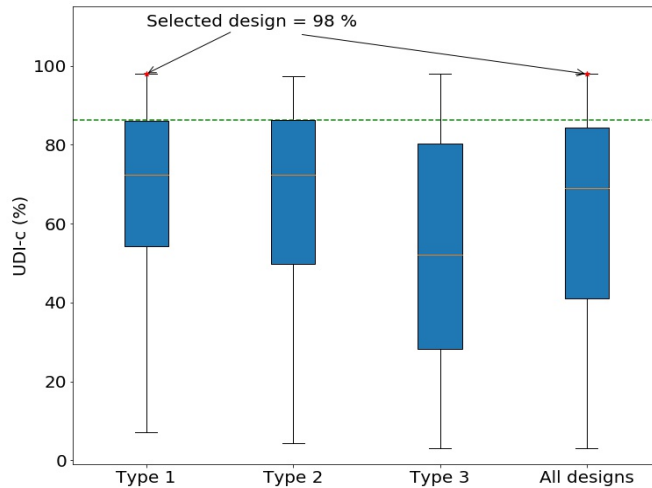


Figure 4. shows the daylight performance of the selected building design (Building type - Type 1) relative to other designs. The bars show the 25th- 75th percentile of hourly data for that month and the whiskers are interquartile range. The circles show the outliers. The green dotted line represents the threshold performance value.

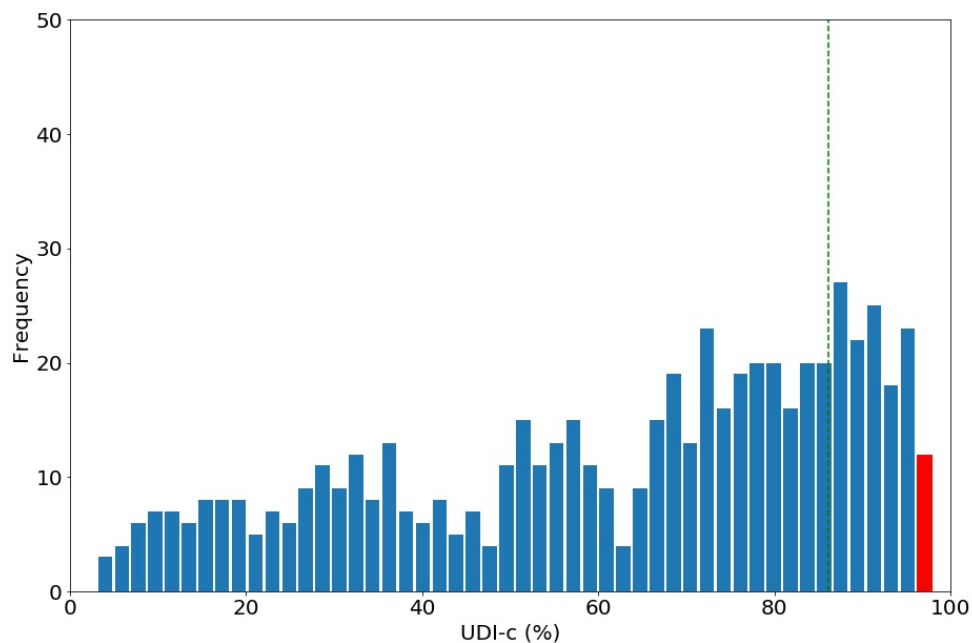


Figure 5. shows the frequency distribution of daylight performance of the building designs when located in the adaptively hot climate zone. The bar corresponding to the selected design is marked in red. The green dotted line represents the threshold performance value.

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## Building design parameter

| Parameters           | Units              | Values |
|----------------------|--------------------|--------|
| Wall A U value       | W/m <sup>2</sup> K | 2.23   |
| Wall D U value       | W/m <sup>2</sup> K | 0.87   |
| Floor U value        | W/m <sup>2</sup> K | 2.78   |
| Roof u value         | W/m <sup>2</sup> K | 2.28   |
| WWR Wall A           | %                  | 0.18   |
| WWR Wall B           | %                  | 0.27   |
| WWR Wall C           | %                  | 0.15   |
| WWR Wall D           | %                  | 0.11   |
| Ground reflectance   | -                  | 0.12   |
| Wall reflectance     | -                  | 0.83   |
| Window transmittance | -                  | 0.82   |
| Ceiling reflectance  | -                  | 0.52   |