

轻型屋顶绿化的节电效果

Effect of Light Roof Greening on Saving Electric Power Consumption

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摘要:研究表明:有屋顶绿化的比没有屋顶绿化的房间用电量减少 $0.1066\text{kWh}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$ 或 $0.0555\text{kWh}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$, 白天减少 20.9%, 夜间减少 15.3%, 全天减少 18.4%。室外温度越高, 屋顶绿化的节电效果越大, 两者呈显著直线关系。按上海市区高温时段 100d, 上海市现有屋顶绿化面积 $40\times 10^4\text{m}^2$ 估计, 节约用电量 $426.4\times 10^4\text{kWh}$, 相当于一座日发电 $16\times 10^4\text{kWh}$ 的小型发电厂 26.7 天发电量; 假设上海市平屋顶面积 2 亿 m^2 的 1% ($200\times 10^4\text{m}^2$) 推广屋顶绿化, 可以节约用电量 $2152\times 10^4\text{kWh}$, 相当于上海市每年购进外来电量的 2.92 倍。

Abstract: An experiment of light roof greening was carried out in order to study the effect on saving electric power consumption during summer. The results showed that compared with bare roof, greening roof could effectively reduce indoor electric power consumption by $0.1066\text{kWh}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$ or $0.0555\text{kWh}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$, 20.9% in the daytime, 15.3% at night, and 18.4% all day. The higher the outdoor air temperature, the greater the electric power saved by roof greening.

关键词: 屋顶绿化 节约电量

Key words: Roof greening; Saving electric power consumption

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