

عنوان مقاله:

Frequency Selective Based Energy Saving Glass in Modern Smart Buildings Architecture

محل انتشار:

سومین همایش ملی پژوهش‌های نوین دانشگاهی در هنر، معماری و عمران (سال: 1398)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

In this paper, a novel type of energy saving glass (ESG) is proposed for energy consumption management and mobile communication quality enhancement in modern buildings architectures. A typical ESG, which has full coating on one side, although has a direct effect on the IR wave (۱۲۰۰-۱۷۰۰ nano meter wavelength) transfer decrement, but simultaneously has destructive effects on mobile signal penetration in ۰.۸-۶ GHz range, yielding a poor mobile communication. The proposed ESG adopts some kind of slots, namely frequency selective surface (FSS) on its coated layer, acting as a filter. Adoption of such a structure both controls the heat energy transfer by IR wave, and also significantly enhances the mobile communication quality. The FSS unit cell is a ۲۰×۲۰ mm^۲ configuration and on its coated layer a cross shaped slot is removed. The proposed design increases the IR wave transmission ۹% with respect to a full coated ESG, but enhances the mobile communication quality significantly

کلمات کلیدی:

Energy saving glass, modern buildings architecture, Frequency selective surfaces, IR wave attenuation, Mobile communication enhancement

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<https://civilica.com/doc/1255193>

