

Observational study on perimeterless HVAC system integrated with building envelope system

This paper presents effects of perimeterless air conditioning system on indoor thermal environment and energy conservation in the office building by long-term actual measurement. It is verified that the high-performance window system including automatic external venetian blind and glass with heating layer enables perimeterless environment through all seasons, and advanced air conditioning system including low-temperature air supply applying Sock filter and VAV system realize comfortable indoor environment and energy conservation. It is also shown that tuning and refining of the system based on measurement and verification in the actual condition contribute greatly to the effective operation.

In this study, multiple aspects of the building facility system and indoor environment are evaluated and verified. This procedure contributes schematization of the facade engineering. In addition, showed findings have possible application to Asian regions where the office buildings are estimated to increase rapidly. Therefore, this research can contribute to global energy saving and reduction of carbon dioxide emissions.