

## Study on Cooling Performance of Ceiling Radiant Cooling Panel System with Perimeter Chilled Beam

Sei ITO, Institute of Technology, Shimizu Corporation

The ceiling radiant cooling system is one of the most effective technologies for achieving a net zero-energy building. A radiant ceiling cooling panel system is energy conservation technology which affords high efficiency, since it uses moderately cold water and does not require energy to propel a fan to remove the cooling load. However, because few ceiling radiant cooling panel systems have been constructed in Japan, there is limited data about the cooling performance of such system. For this reason, it is important to determine their cooling performance. On the other hand, ceiling radiant panels have limited cooling performance, so it is necessary to consider a special system for removing the perimeter load. This paper presents the results of a study on the cooling performance of a ceiling radiant cooling system panel that the authors developed. The system comprises of a ceiling radiant panel and HVAC system to remove the perimeter-cooling load. The paper describes the system's effectiveness in removing the cooling load in an actual building.