

CONCLUSION

In this paper, an innovative insulation style of interior insulation is proposed and investigated. A calculation of heat loss in three types of insulated units demonstrated the mechanism of heat loss through Heat Bridge, and the advantage of interior insulation. Heat Bridge in outside and inside insulation units is distinctly effect to the building thermal performance, and the heat loss through Heat Bridge is avoided by interior insulation implement. Subsequently, AC load and thermal comfort of apartment unit with three insulation types are compared and discussed with numerical simulation. In both of heating and cooling seasons, indoor air temperature of outside insulation unit is the most stable. In cooling season, indoor temperature of the interior insulation unit is the lowest in three insulation type units when the cooling is not in use. Look at the AC load, it is various in different cities and seasons. Compare to outside and inside insulation units, annual AC load of interior insulation unit is the lowest in all of the conditions.

In terms of indoor thermal environment, outside insulation is the best to stabilize room temperature. However, in winter, the temperature of indoor wall surfaces in outside insulation unit is much lower than that in interior insulated unit. This leads to an uncomfortable indoor environment and high heating energy consumption.

Finally, as we discussed about the features of the three insulation styles, the advantage of new proposed interior insulation is demonstrated, and the advantages and disadvantages of these three insulation styles are verified and expounded. Various factors should be considered such as regional characteristics, insulation efficiency levels and design conditions, before the building will be built.

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