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**Compression of felt-type thermal insulation layer for underfloor  
heating system and floor impact sound**

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In Korea, almost every house uses underfloor heating, which has advantages of thermal comfort and energy efficiency. However, when it is constructed for high-rise apartment houses, it yields a problem in floor impact sound insulation. It accounts for the fact that a foam-type thermal insulator sandwiched between structural slab and heating floor functions as a spring and easily transmits impacts on the floor to the slab. In that case, the system's transmissibility is determined by dynamic stiffness of the thermal insulation layer and the lower the dynamic stiffness is, the more the floor impact is isolated. For that reason, apartments construction companies are attempting to lower the dynamic stiffness of the thermal insulation layer for impact sound reduction. As part of the attempt, felt-type materials with relatively low dynamic stiffness such as glass wool or polyester felt are considered as a substitution for the foam-type thermal insulator. However, there is a possibility that compression of the felt-type materials would increase the dynamic stiffness and the impact sound insulation effect at early stage might be weakened in the long term. This paper investigates the correlation between gradual compression of the felt-type thermal insulation layer and the impact sound variation.