Computing program SOCS to optimize heat supply and the state

Derived from optimal control theory of state-space method

Evaluation function＝

＋Thermal comfort

Wc・(Deviation between core temp and 37℃)^2

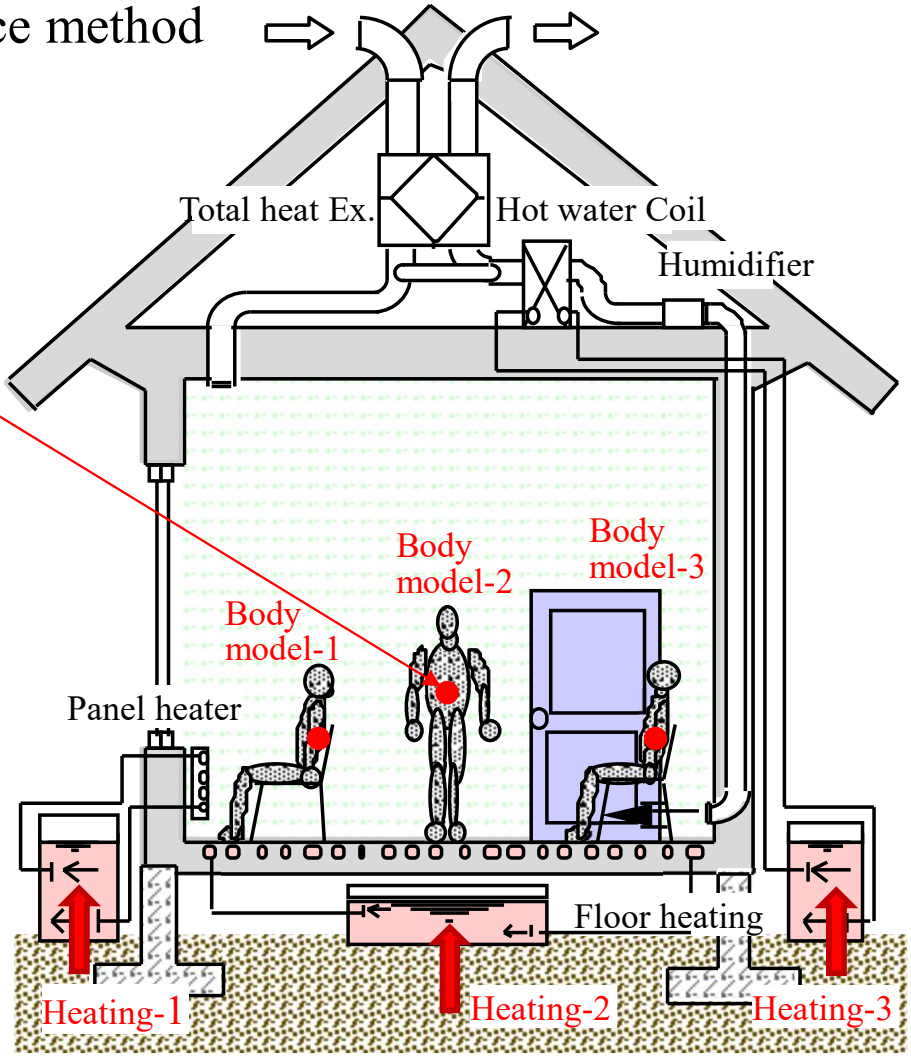
＋Energy efficiency

We・(Input heat deviation between 0 W)^2

＋Low quality energy

Wx・(Deviation between water and outside air temp)^2

A solution was derived which minimize this evaluation function using the Lagrange multiplier method.



Natural energy can be used effectively if the heat is close to the outside temperature.

A steady-state solution for the optimal design was derived from the original unsteady optimal control method.

The control system can be represented by the state space equation using the thermal network, and the optimal regulator control method can be executed in discrete time (papers [25], [27], [30], etc.).

In order to utilize these as an optimal design method, the water vapor network was coupled and a steady-state solution was derived (papers [33], [34], [36], [39], [40], [42], etc.).