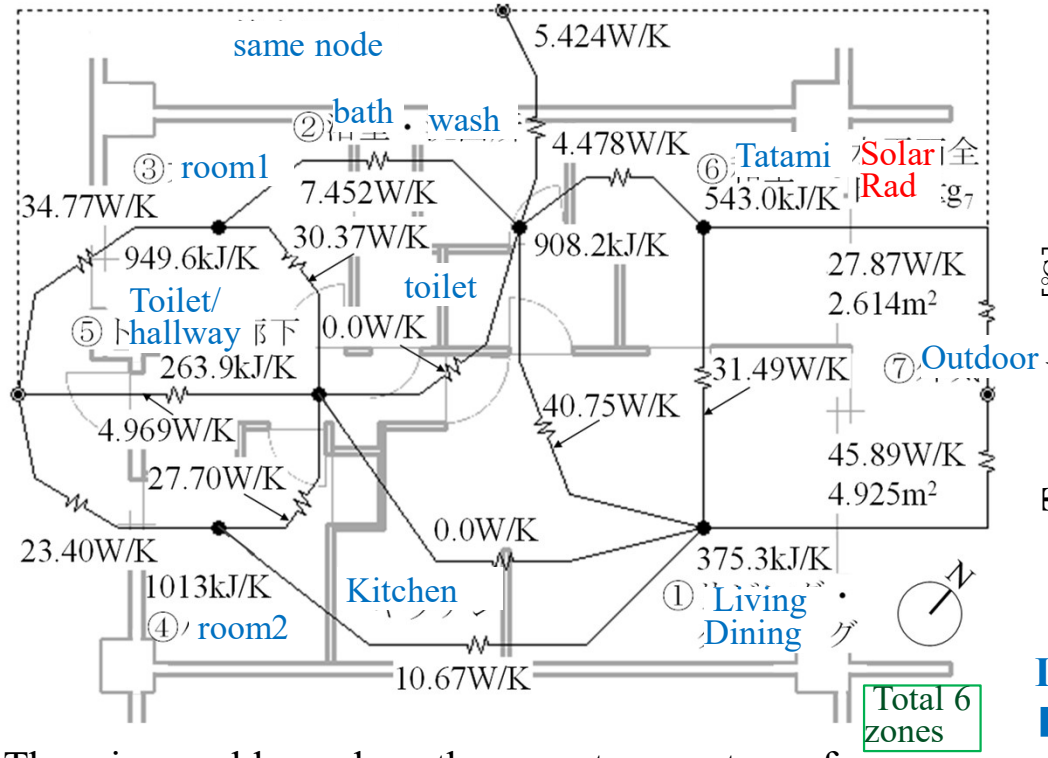
Experimental results of multi-chamber thermal performance measurement system

Identified generalized thermal conductance and equivalent heat capacity



There is a problem where the room temperature of neighboring units (top, bottom, left and right) cannot be measured and is treated as outside temperature.

detected discrepancy

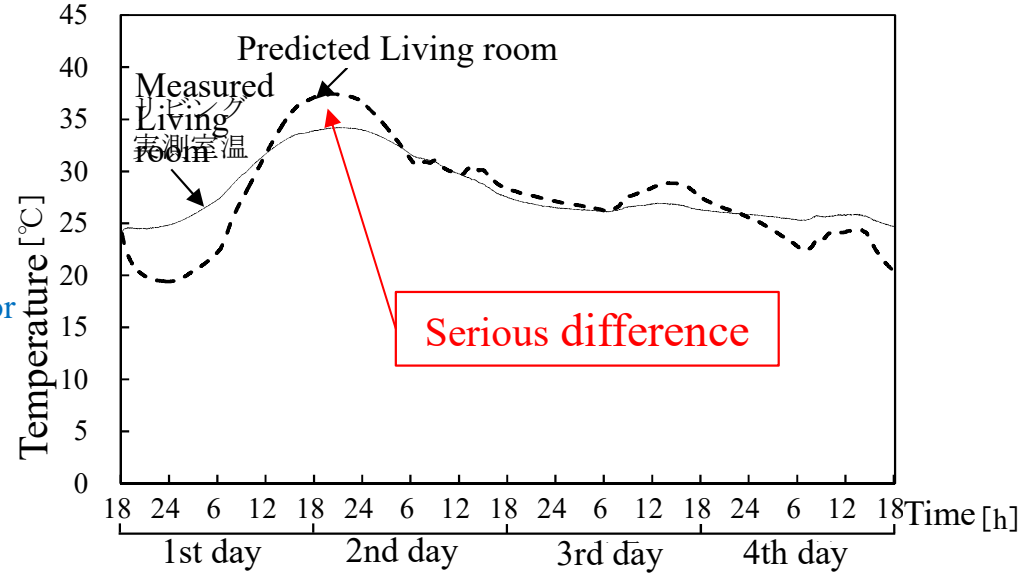
Solar radiation absorption coefficient $r_{i,j}$ [m²] and reliability evaluation indices

$r(1,7)$	$r(6,7)$	β	COD
4.925	2.614	1.460	0.957

Electric heat generation in rooms 1 to 6 is g_1 to g_6, and g_7 is the horizontal total solar radiation.

$r_{1,7}$ is the solar radiation acquisition coefficient for the living room, and $r_{6,7}$ is the solar radiation absorption coefficient for the Japanese-Tatami room.

The measured heater input and outside temperature were fed into the identified thermal network model, and changes in room temperature were compared.



Identified issues and future research topics:

■It is necessary to generate heat in adjacent dwelling units above, below, on the left and right, and to generate temperature differences and temperature changes from the target room.

■Since the generalized thermal conductance between the adjacent room and the outside air to be identified includes heat flow due to air flow, it must be identified separately from the thermal penetration conductance of the wall.

Therefore, it is necessary to measure the airflow between the room and the outside air in parallel.

■Electric heat generation does not have sufficient heating capacity for actual houses. Therefore, other equipment is required, such as a kerosene heater.