

Fig. 1

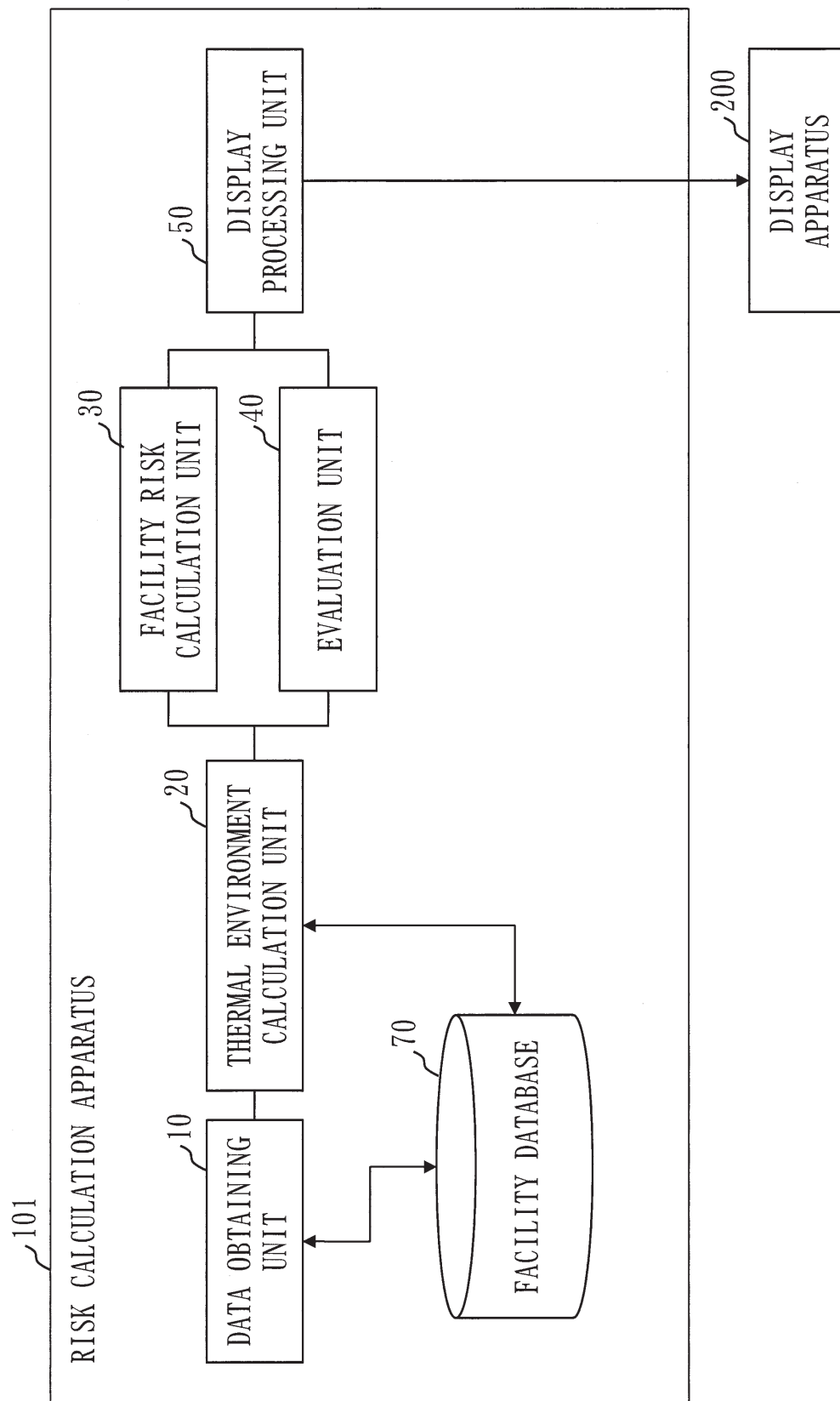


Fig. 2

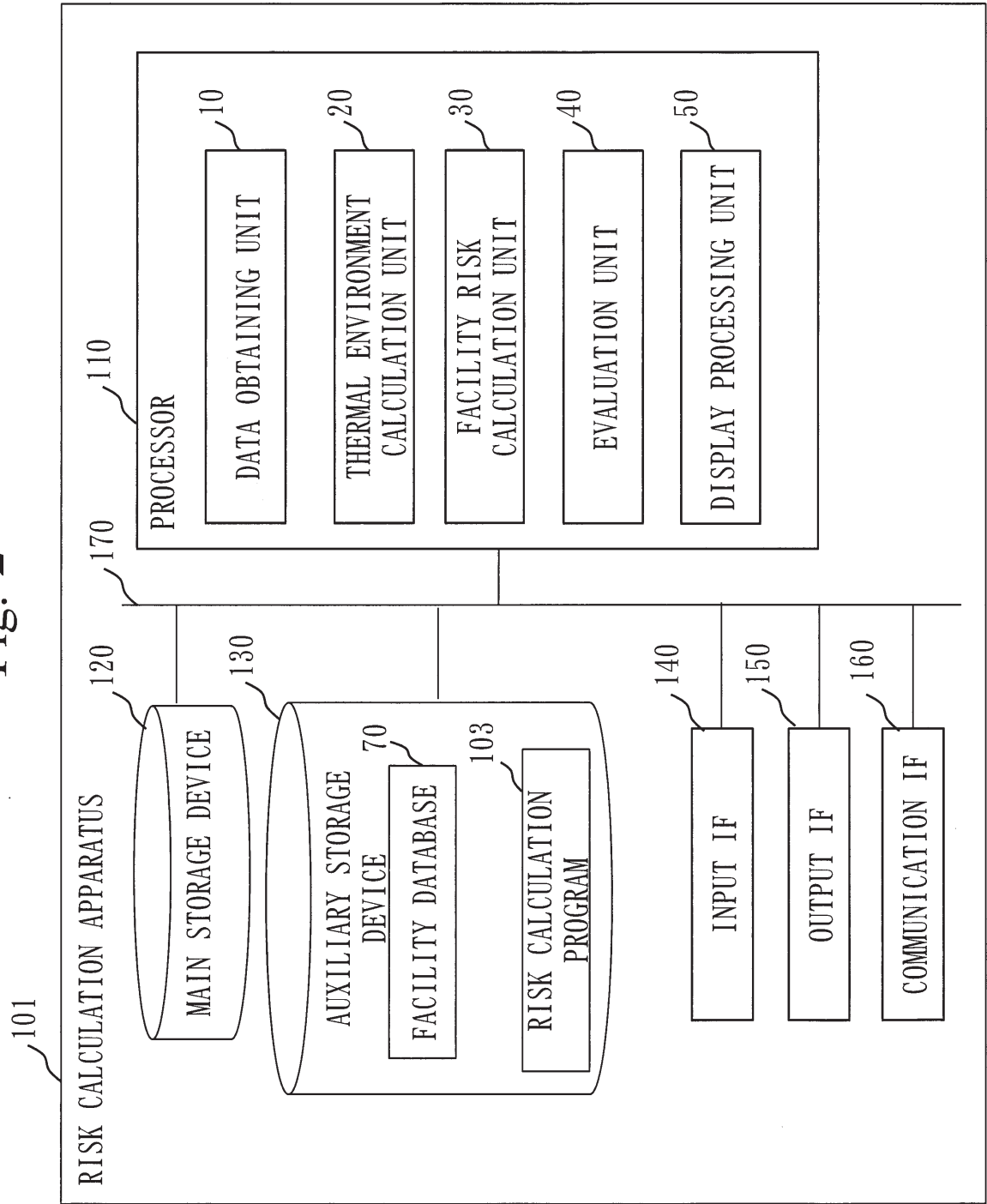


Fig. 3

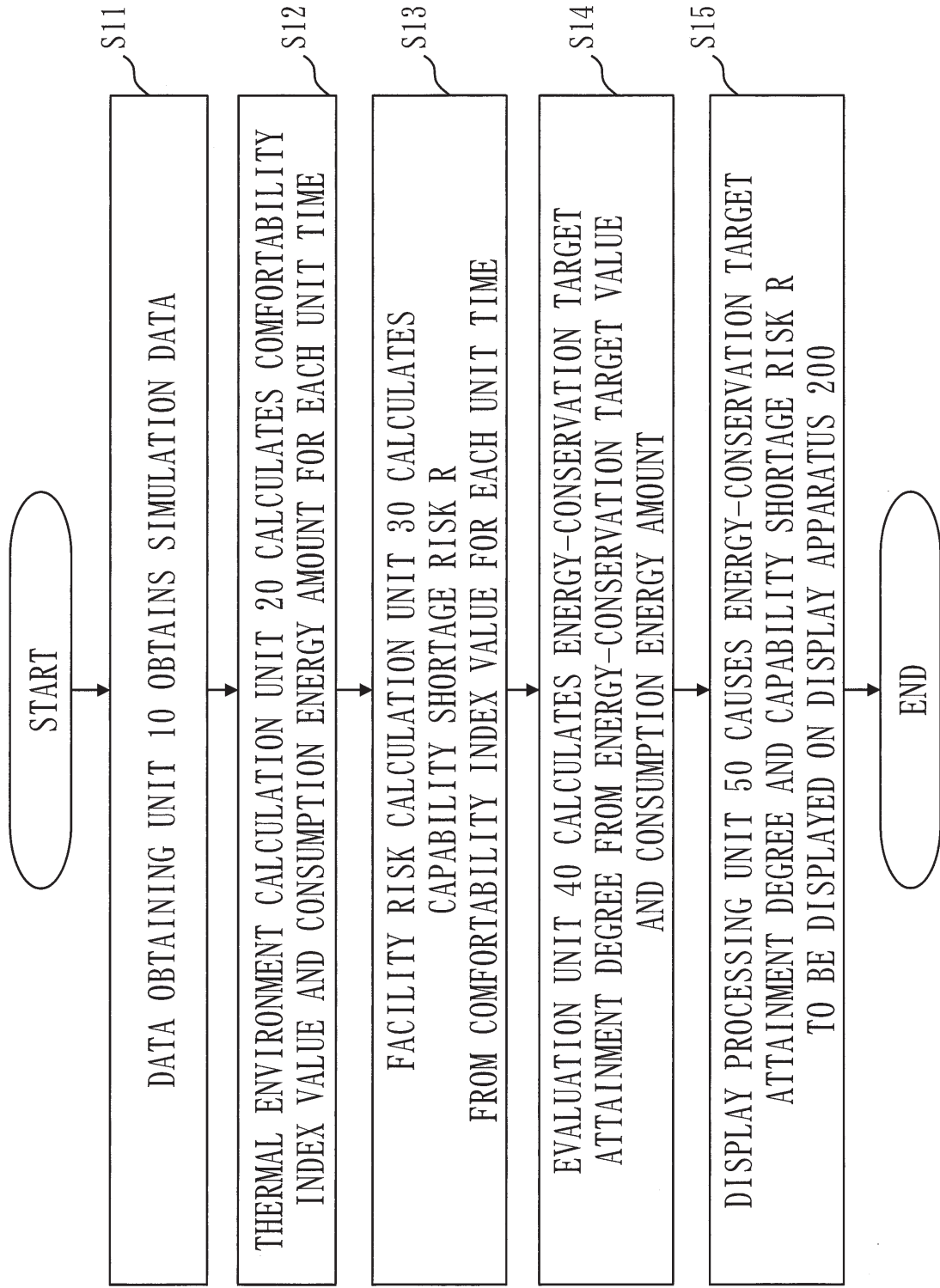


Fig. 4

DESIGN DATA: AT LEAST INCLUDES THE FOLLOWING

(1) BUILDING SKELETON DATA: WALL'S POSITION/AREA/THERMAL TRANSMITTANCE,
WINDOW'S POSITION/AREA/THERMAL TRANSMITTANCE

(2) FACILITY DATA: INFORMATION ABOUT FACILITY'S MACHINE-TYPE IDENTIFICATION
NUMBER/POSITION/CONNECTING RELATION AMONG COMPONENTS OF AIR-CONDITIONING FACILITY

(3) NUMBER OF PERSONS PER UNIT TIME FOR EACH ROOM

(4) WEATHER DATA (TEMPERATURE, HUMIDITY, AMOUNT OF SOLAR RADIATION, AND THE LIKE)

(5) ENERGY-CONSERVATION TARGET VALUE (EXAMPLE: TARGET

VALUE OF BEI (BUILDING ENERGY INDEX) DEFINED IN ACT ON THE IMPROVEMENT OF ENERGY
CONSUMPTION PERFORMANCE OF BUILDINGS, OR THE LIKE)

(6) TARGET VALUE OF COMFORTABILITY INDEX

Fig. 5

i : STEP COUNT ($1 \leq i \leq N$) WHERE N IS STEP COUNT AT TIME OF COMPLETION OF SIMULATION

C_i : COMFORTABILITY INDEX AT i -TH STEP

S_i : SET VALUE OF COMFORTABILITY INDEX AT i -TH STEP

a, b, k : ANY COEFFICIENT EQUAL TO OR LARGER THAN 0

T_α, T_β : ANY THRESHOLD EQUAL TO OR LARGER THAN 0

$$f(x, T) = \begin{cases} 0 & (\text{WHEN } x \leq T) \\ x - T & (\text{WHEN } x > T) \end{cases}$$

$$g(x_{i-1}, x_i) = \begin{cases} 0 & (i = 1) \\ x_i & (x_i = 0 \vee x_{i-1} = 0) \\ x_i + k \cdot x_{i-1} & (x_i \neq 0 \wedge x_{i-1} \neq 0) \end{cases}$$

$$\alpha_i = f(|C_i - S_i|, T_\alpha)$$

$$\beta_i = \begin{cases} 0 & (\text{WHEN } i = 1) \\ f(|C_{i-1} - C_i|, T_\beta) & (\text{WHEN } i > 1) \end{cases}$$

CAPABILITY SHORTAGE RISK INDEX r_i AT i -TH STEP $= a \cdot g(\alpha_{i-1}, \alpha_i) + b \cdot g(\beta_{i-1}, \beta_i)$

Fig. 6

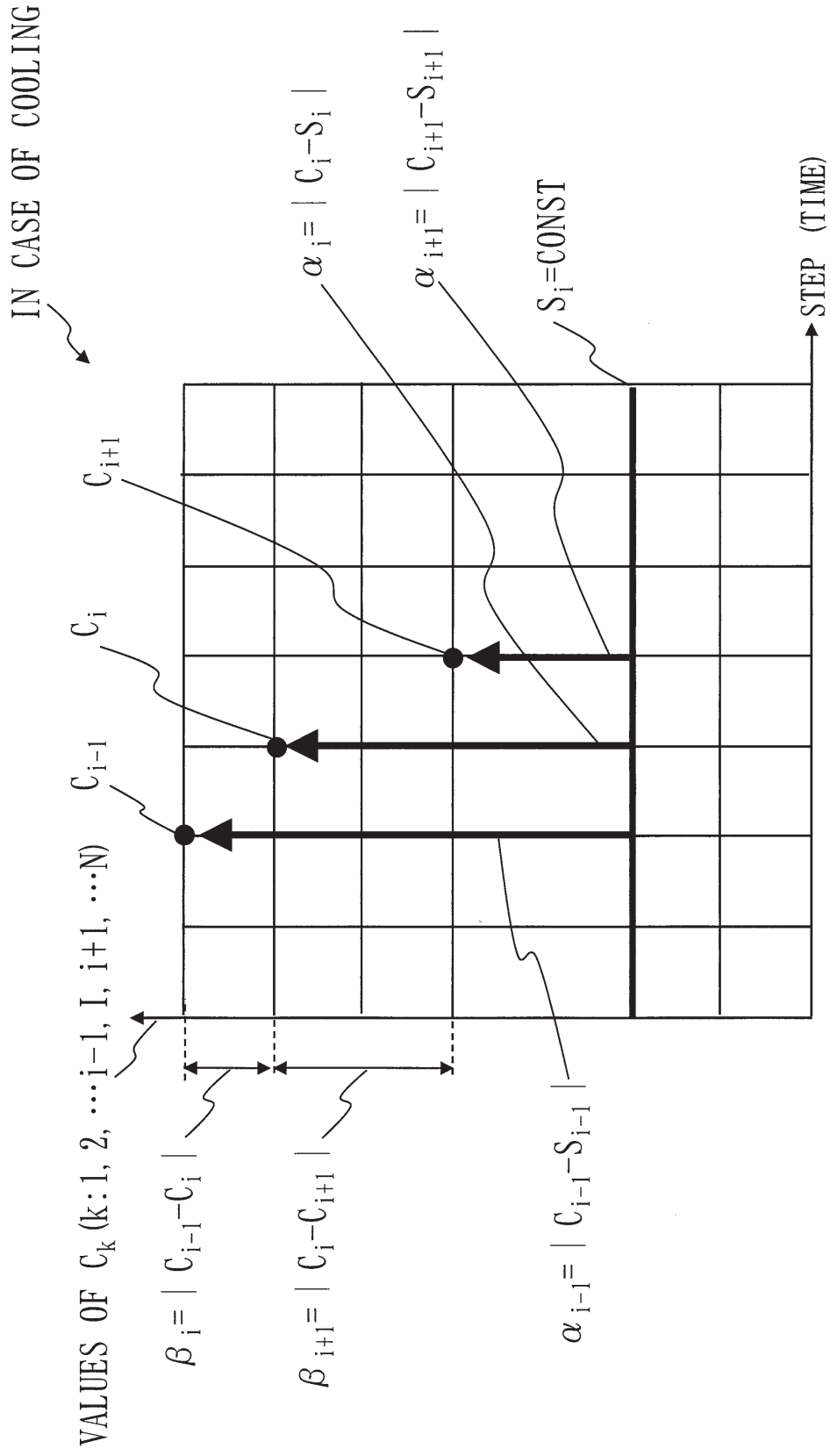


Fig. 7

$$R_{MAX}: \text{ALLOWABLE MAXIMUM VALUE OF CAPABILITY SHORTAGE RISK INDEX}$$

$$\text{FACILITY RISK } R = \begin{cases} \frac{\text{MAX}(r_1, r_2, \dots, r_N)}{R_{MAX}} \times 100 & (\text{WHEN } \text{MAX}(r_1, r_2, \dots, r_N) < R_{MAX}) \\ 100 & (\text{WHEN } \text{MAX}(r_1, r_2, \dots, r_N) \geq R_{MAX}) \end{cases}$$

WHERE MAX IS FUNCTION WHICH TAKES MAXIMUM VALUE AMONG PLURALITY OF VARIABLES

Fig. 8

ENERGY-CONSERVATION TARGET ATTAINMENT DEGREE		
100%		

FLOOR	ROOM NAME	RISK VALUE R
1	ROOM A	20%
1	ROOM B	10%

FLOOR	ROOM NAME	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₆	R ₇	R ₈	R ₉	R ₁₀	R ₁₁	R ₁₂
1	ROOM A	9%	20%	13%	1%	0%	0%	0%	2%	4%	0%	0%	0%	2%
1	ROOM B	0%	0%	0%	0%	0%	0%	1%	6%	10%	0%	0%	0%	0%

Fig. 9

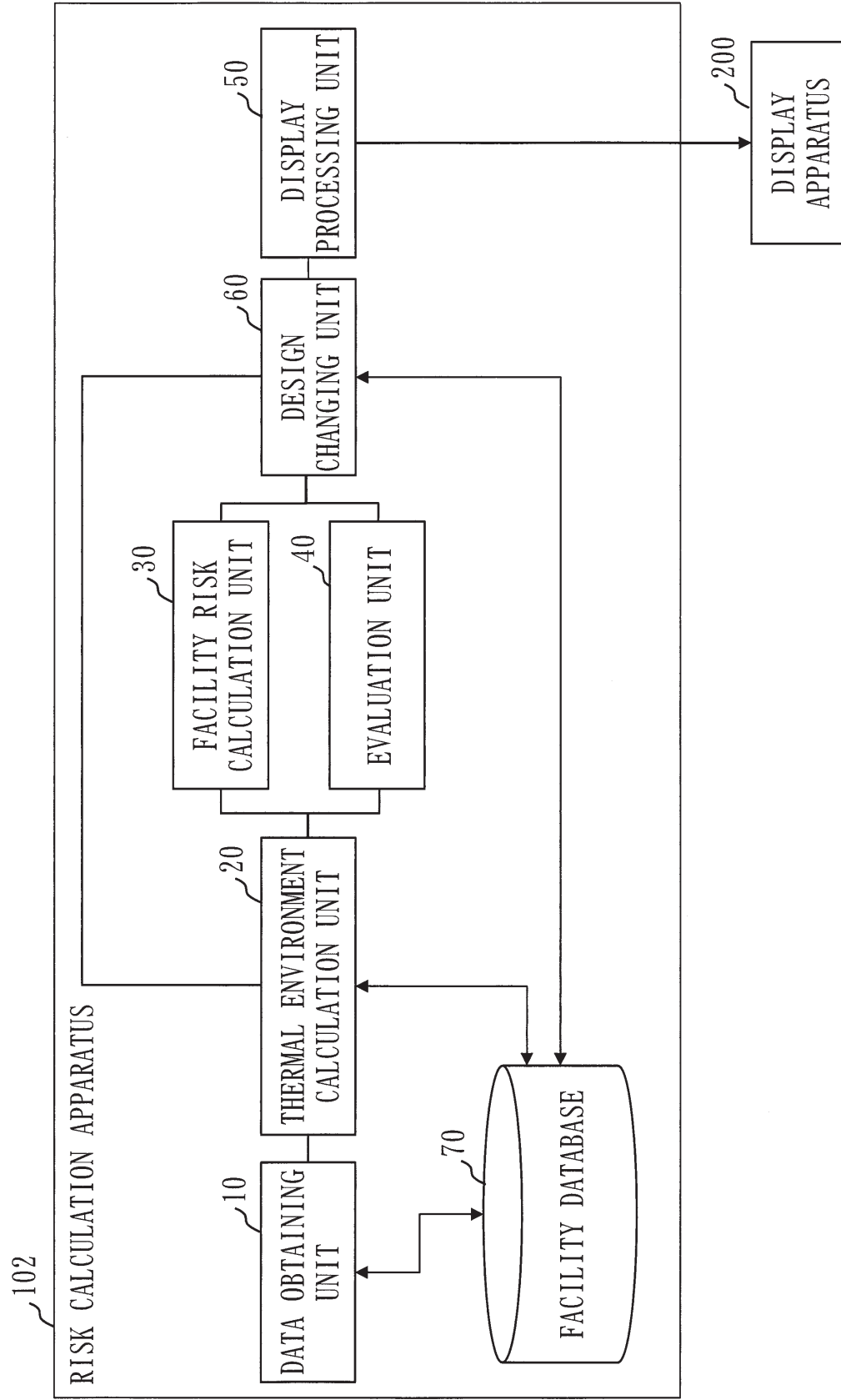


Fig. 10

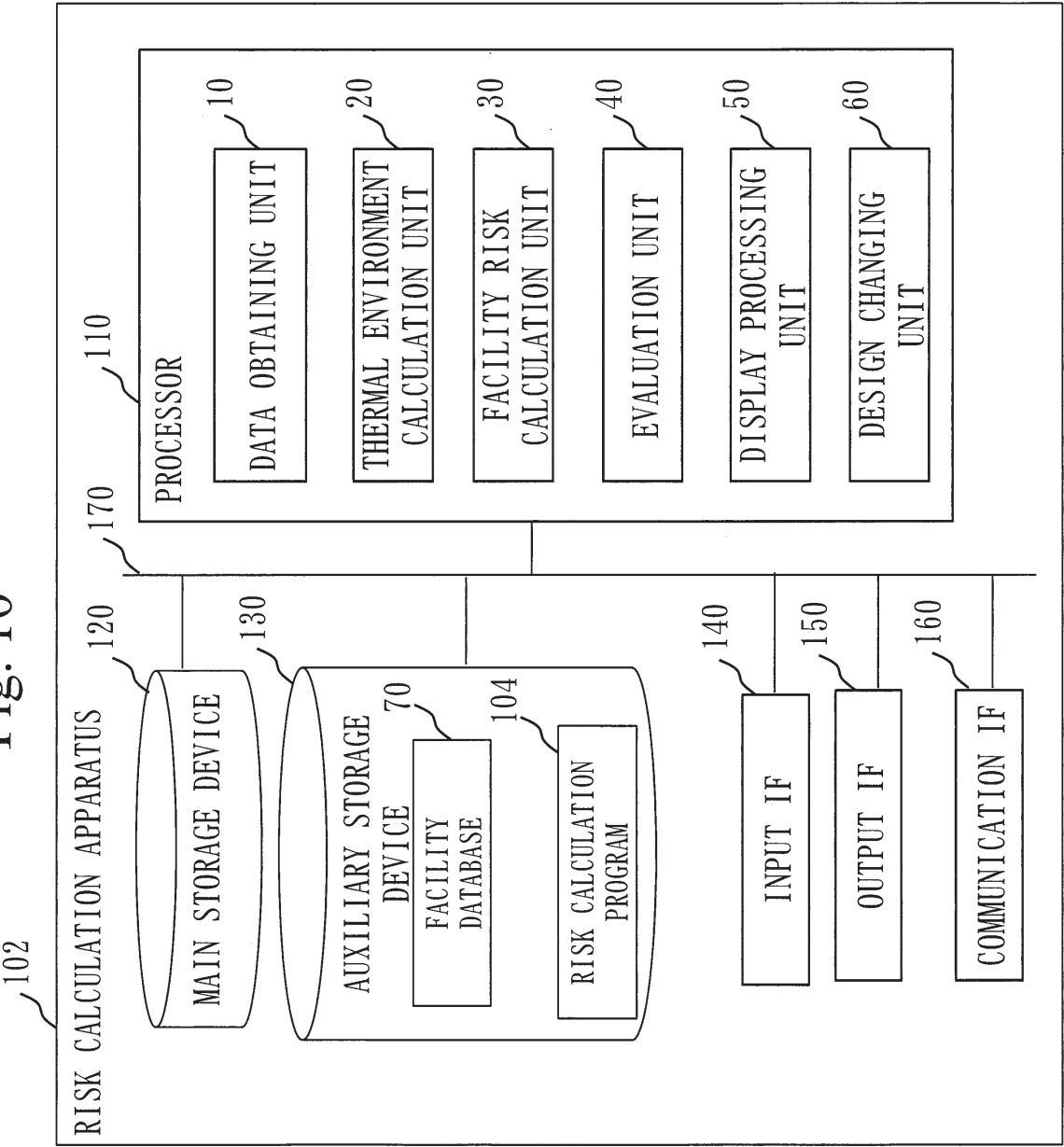


Fig.11

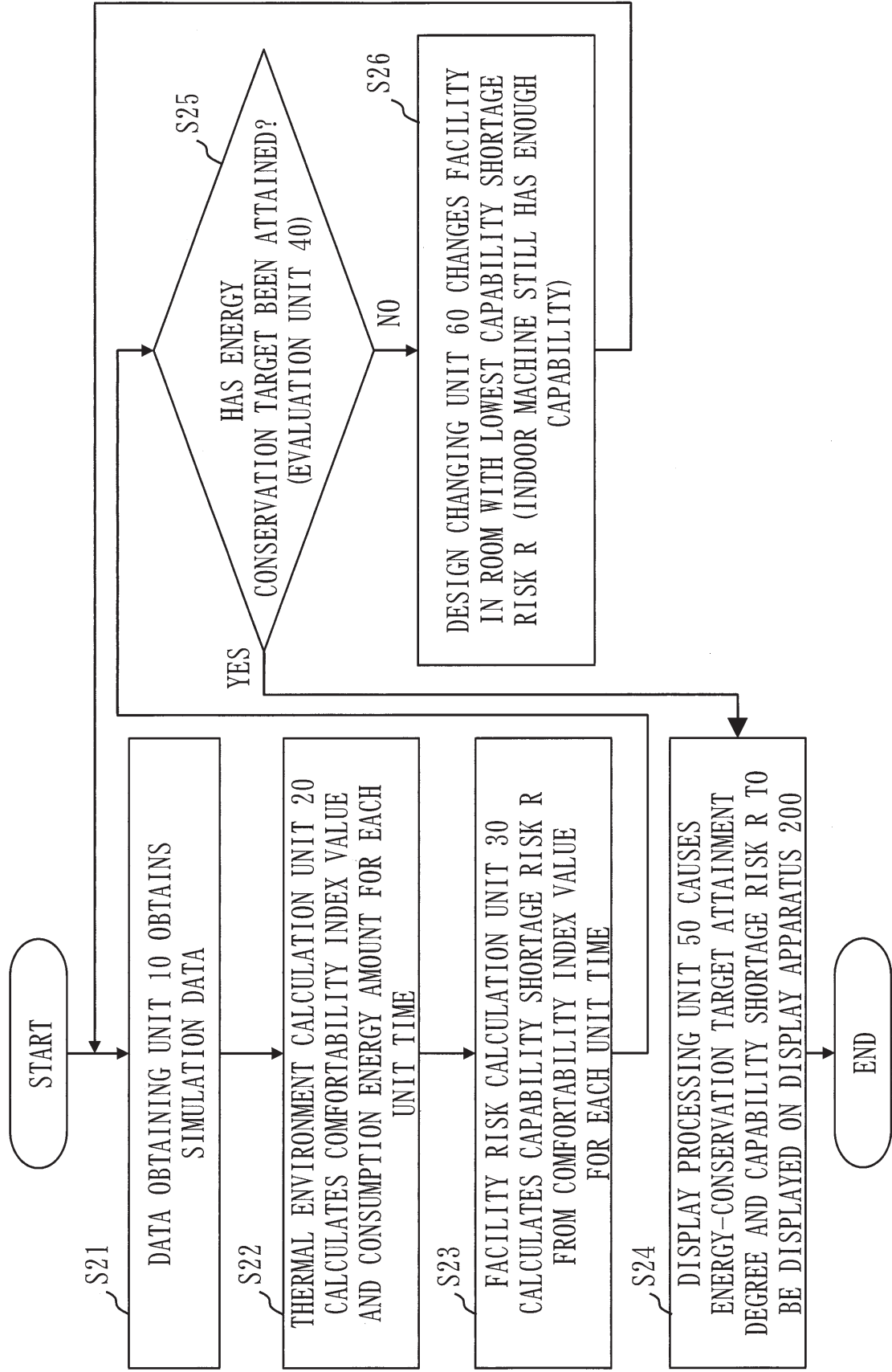


Fig.12

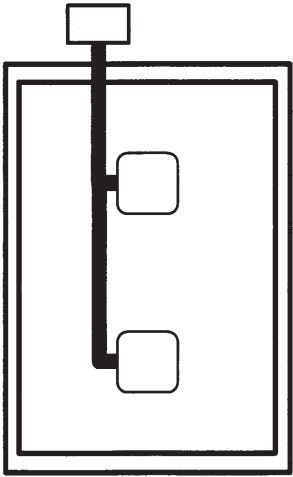
ROOM A			
	BEFORE CHANGE	MODEL 10 (RATED CAPACITY 100)	RISK: +3% ENERGY-CONSERVATION TARGET ATTAINMENT DEGREE: +1.4%
	AFTER CHANGE	MODEL 8 (RATED CAPACITY 80)	

Fig.13

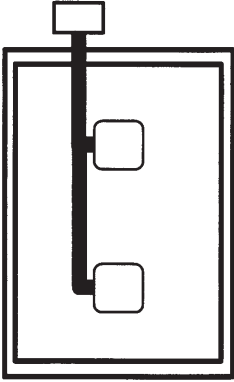
ROOM A				
	BEFORE CHANGE	MODEL 10 (RATED CAPACITY 100)	RISK: +3% ENERGY-CONSERVATION TARGET ATTAINMENT DEGREE: +1.4%	APPROVE DISAPPROVE
	AFTER CHANGE	MODEL 8 (RATED CAPACITY 80)		

Fig. 14

