

Block DYNDGL

The DYNDGL calculates the heating consumption of a building via the numerical solved Differential Equation of a resistant-capacity element. Heat flux through basement is solved with a balance methode.



DYNDGL

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Function	bs0018
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Inputs

- 1 Second of the year [sec]
- 2 External ambient temperature [$^{\circ}\text{C}$]
- 3 Total irradiation on vertical surface north direction [W/m^2]
- 4 Total irradiation on vertical surface east direction [W/m^2]
- 5 Total irradiation on vertical surface south direction [W/m^2]
- 6 Total irradiation on vertical surface west direction [W/m^2]
- 7 Total irradiation on horizontal surface [W/m^2]
- 8 Total thermal resistance outside - zone 1 [K/W]
- 9 Useable heat capacity zone 1 [h]
- 10 Factor $\text{FF} \cdot \text{g} \cdot \text{A}(\text{windows})$ north zone 1
- 11 Factor $\text{FF} \cdot \text{g} \cdot \text{A}(\text{windows})$ east zone 1
- 12 Factor $\text{FF} \cdot \text{g} \cdot \text{A}(\text{windows})$ south zone 1
- 13 Factor $\text{FF} \cdot \text{g} \cdot \text{A}(\text{windows})$ west zone 1
- 14 Factor $\text{FF} \cdot \text{g} \cdot \text{A}(\text{windows})$ horizontal zone 1
- 15 Target temperature zone 1 [$^{\circ}\text{C}$]
- 16 Internal gains zone 1 [W]

17	Total thermal resistance outside - zone 2 [K/W]
18	Useable heat capacity zone 2 [h]
19	Factor $FF \cdot g \cdot A$ (windows) north zone 2
20	Factor $FF \cdot g \cdot A$ (windows) east zone 2
21	Factor $FF \cdot g \cdot A$ (windows) south zone 2
22	Factor $FF \cdot g \cdot A$ (windows) west zone 2
23	Factor $FF \cdot g \cdot A$ (windows) horizontal zone 2
24	Target temperature zone 2 [$^{\circ}\text{C}$]
25	Internal gains zone 2 [W]
26	Total thermal resistance zone 1 - zone 2 [K/W]
27	Dynamic conductance via basement floor [W/K]
28	Dynamic conductance via basement wall [W/K]
29	Static conductance [W/K]
30	Phase shift because of basement [mth.]

Outputs

1	Heating energy demand per timestep zone 1 [kWh]
2	Cooling energy demand per timestep zone 1 [kWh]
3	Temperature in zone 1 [$^{\circ}\text{C}$]
4	Heating energy demand per timestep zone 2 [kWh]
5	Cooling energy demand per timestep zone 2 [kWh]
6	Temperature in zone 2 [$^{\circ}\text{C}$]
7	Heating energy demand per timestep cellar [kWh]
8	???

Parameters

1	Floor area [m^2]
2	Total ceiling wall area [m^2]
3	Cellar winter setpoint temperature [$^{\circ}\text{C}$]
4	Cellar summer setpoint temperature [$^{\circ}\text{C}$]
5	Annual average temperature [$^{\circ}\text{C}$]

Strings

None
