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## NOMENCLATURE

$a_{sol}$	solar absorption coefficient of external surfaces
$A_{eli}$	surface area of the i-th building element, m <sup>2</sup>
$A_{tot}$	surface area of the total envelope, m <sup>2</sup>

<b>A</b>	matrix of coefficients
<b>b</b>	vector of known terms
$C_{int}$	thermal capacity of internal air, J.K <sup>-1</sup>
<b>E</b>	set of all building elements
$f_{HC}$	convective fraction of the HC flux
$f_{int}$	convective fraction of internal gains
$f_{sol}$	convective fraction of solar gains
$F_{sh}$	shading reduction factor
$h_{ci,eli}$	internal surface convective heat transfer coefficient, W.m <sup>-2</sup> .K <sup>-1</sup>
$h_{eli}$	wall conductive heat transfer coefficient, W.m <sup>-2</sup> .K <sup>-1</sup>
$h_{se,eli}$	external surface heat transfer coefficient, W.m <sup>-2</sup> .K <sup>-1</sup>
$H_{ve}$	overall ventilation heat transfer coefficient, W.K <sup>-1</sup>
$H_{tb}$	overall thermal bridges heat transfer coefficient, W.K <sup>-1</sup>
$k_{eli}$	internal areal heat capacity of the i-th building element, J.m <sup>-2</sup> .K <sup>-1</sup>
$I_{diff,eli,t}$	diffuse part of solar irradiation on the i-th element, W.m <sup>-2</sup>
$I_{dir,eli,t}$	direct part of solar irradiation on the i-th element, W.m <sup>-2</sup>
$U$	thermal transmittance, W.m <sup>-2</sup> .K <sup>-1</sup>
<b>x</b>	vector of unknown variables

## Greek symbols

$\Delta t$	time step, h
$\varphi_{sky,eli}$	radiative heat flux to the sky, W.m <sup>-2</sup>
$\Phi_{HC}$	total heating/cooling load, W
$\Phi_{int}$	total internal heat gain, W
$\Phi_{sol}$	directly transmitted heat gain, W
$\theta_{a,t}$	internal air temperature, K
$\theta_{e,t}$	external (ambient) air temperature, K
$\theta_{ext,eli,t}$	i-th building element external surface temperature, K
$\theta_{int,eli,t}$	i-th building element internal surface temperature, K

## Subscripts

eli	i-th building element
t	evaluated at time step t
HC	heating and/or cooling