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## NOMENCLATURE

A	area, m <sup>2</sup>
c	mole fraction of water vapor, mol/m <sup>3</sup>
CFD	computation fluid dynamics
C <sub>p</sub>	specific heat capacity at constant pressure, J/kg/K
D	diffusion of water vapor, m <sup>2</sup> /s
h	height of channel, m
h <sub>evp</sub>	enthalpy of vaporization, J/kg
HDH	humidification and dehumidification
HH	heating and humidification
k	thermal conductivity
K	evaporation rate, m/s
L	channel length, m
$\dot{m}$	mass flow rate, kg/s
$m''$	mass flux, kg/m <sup>2</sup> s
M <sub>v</sub>	molar mass, g/mol
p	pressure, Pa
Q	heat source, W/m <sup>3</sup>
Q <sub>evp</sub>	heat of vaporization, W
R	universal gas constant, J/K/mol
SAH	solar air humidifier
T	temperature, °C
t	time, s
<b>u</b>	velocity vector, m/s
U	inlet velocity, m/s

## Greek symbols

$\varepsilon$	effectiveness of the system
$\eta$	efficiency of the fan
$\mu$	dynamics viscosity, Pa.s
$\phi$	relative humidity
$\rho$	density, kg/m <sup>3</sup>
$\omega$	absolute humidity, kg water vapor/kg dry air

## Subscripts

A	air channel
dew	dew point
evp	evaporation
In	inlet
out	outlet
sat	saturation condition