

[33] Buonomo B, Cascetta F, Diana A, Manca O, Nardini S. (2019). Numerical investigation on thermal and fluid dynamic analysis of a solar chimney integrated in a building façade. ASME 2019 Summer Heat Transfer Conference.

h_y local heat transfer coefficient, $W/m^2 \cdot K$
 k kinetic energy of turbulence
 \dot{m} mass flow rate, kg/s
 Nu_y local Nusselt number
 \dot{q} heat flux, W/m^2
 Pr_t turbulent Prandtl number
 T_o ambient temperature, K
 T_s channel wall (surface) temperature, K

NOMENCLATURE

I radiation intensity, W/m^2
 L channel high, m
 H ground distance, m
 W channel width, m
 C_p specific heat at constant pressure, $J/Kg \cdot K$
 $C_{\varepsilon 1}, C_{\varepsilon 2}, C_{\mu}$ empirical constants in the k- ε turbulence model
 D extra term in Eq. 5
 E roughness parameter
 f_1, f_2, f_{μ} wall damping function
 G_b production of turbulent kinetic energy due to buoyancy
 G_k production of turbulent kinetic energy due to buoyancy

Greek symbols

α absorption coefficient, m^2/s
 β thermal expansion coefficient, K^{-1}
 η efficiency, %
 κ thermal conductivity, $W/m \cdot K$
 μ laminar viscosity, $Pa \cdot s$
 μ_t turbulent viscosity, $Pa \cdot s$
 ν molecular kinematic viscosity, m^2/s^{-1}
 σ Stefan-Boltzmann constant, $W/m^2 \cdot K^4$
 σ_k Prandtl number for k
 σ_{ε} Prandtl number for ε