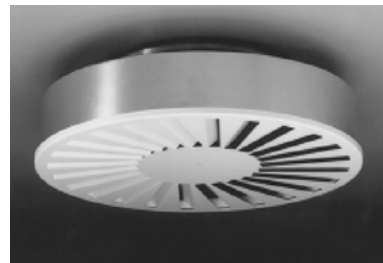
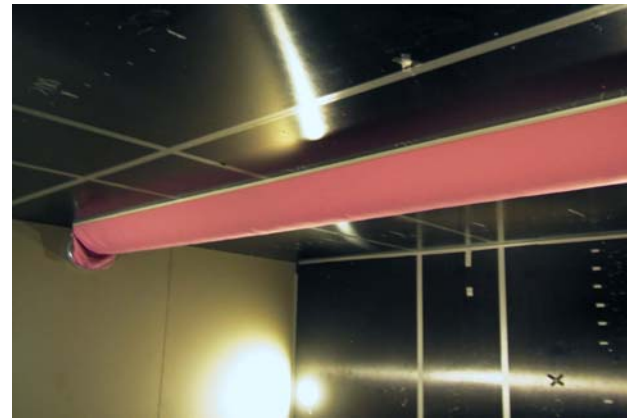


The Performance of Diffuse Ceiling Inlet and Vertical Ventilation

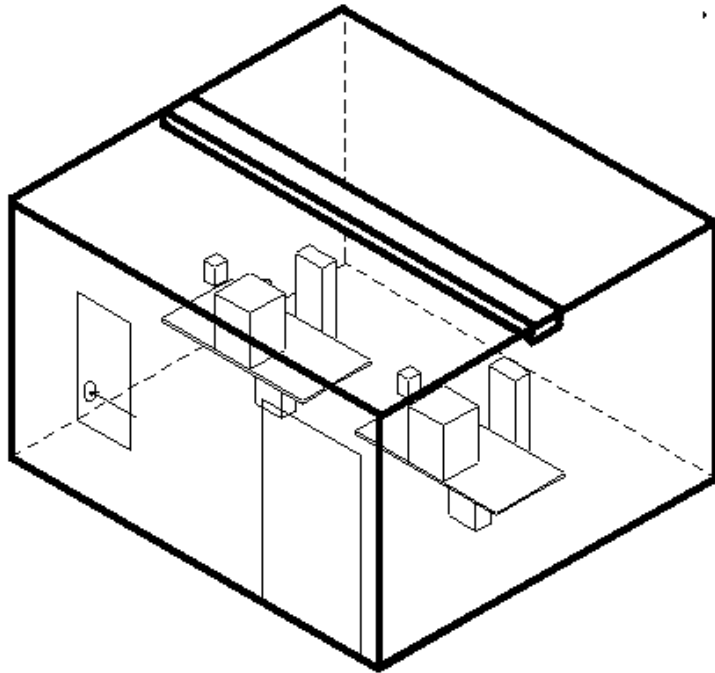
Peter V. Nielsen

Six Different Air Distribution Systems

-Tested in the same geometry and with the same load



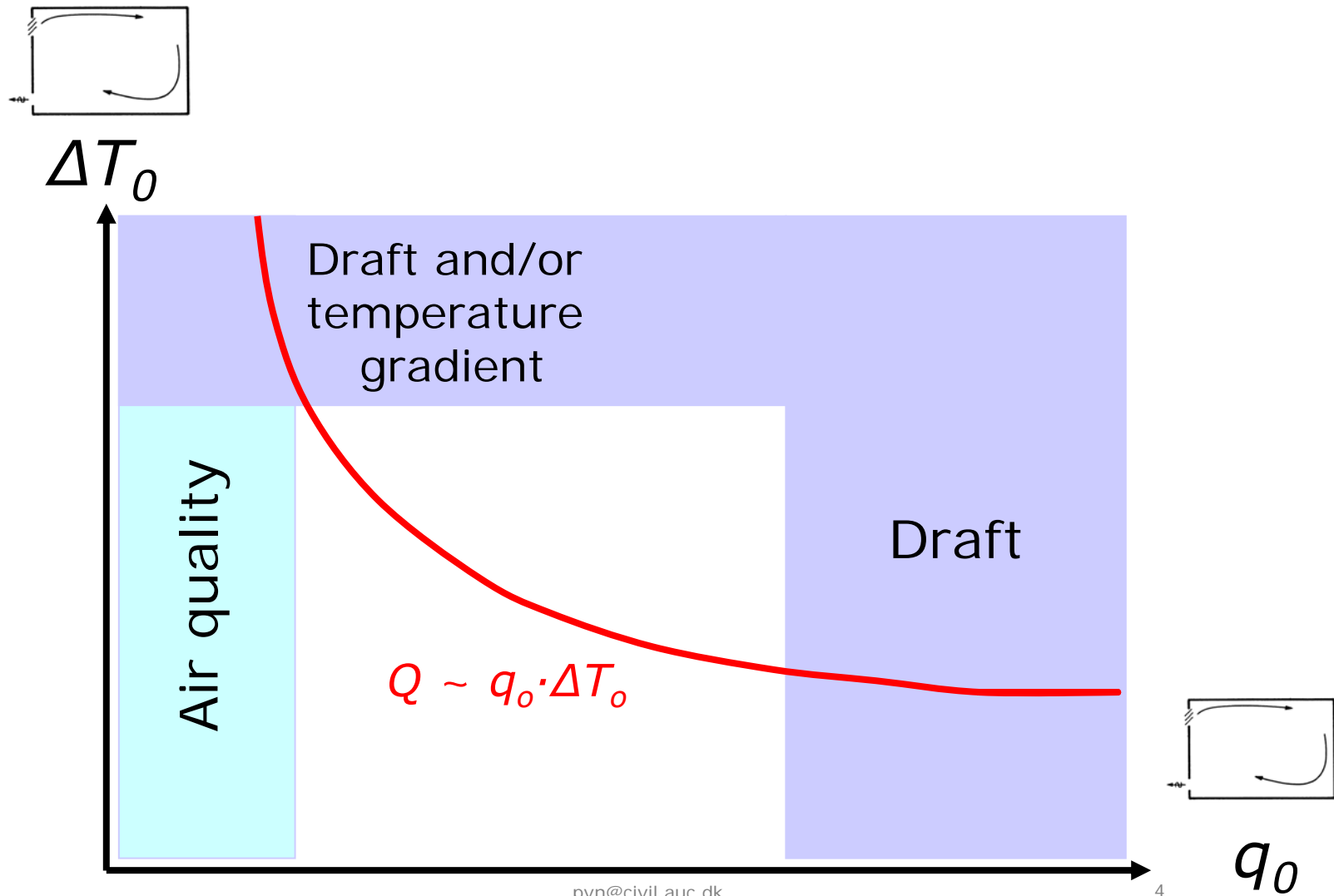
The Test Room with Two Persons



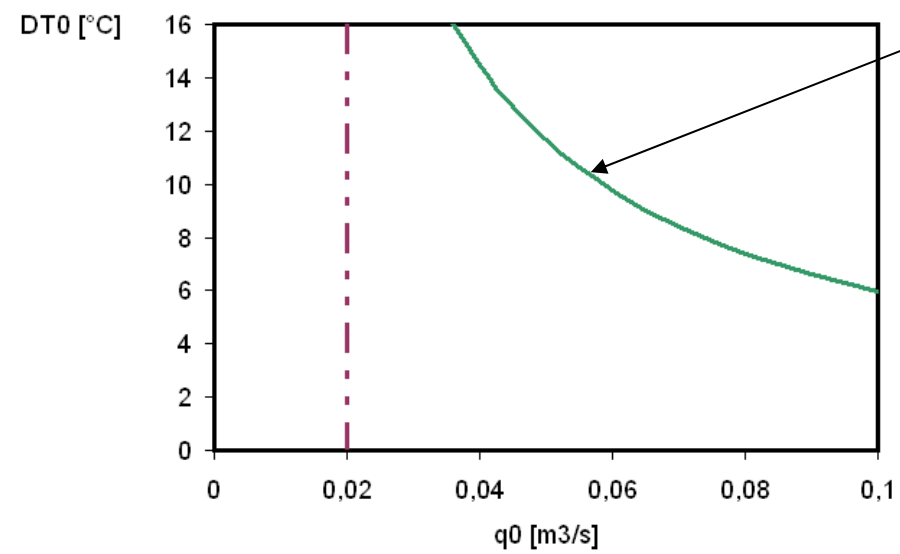
The test room is the IEA Annex 20 room with length, width and height equal to 4.2 m, 3.6 m and 2.5 m.

The heat load consists of two PCs, two desk lamps and two manikins producing a total heat load of 480 W.

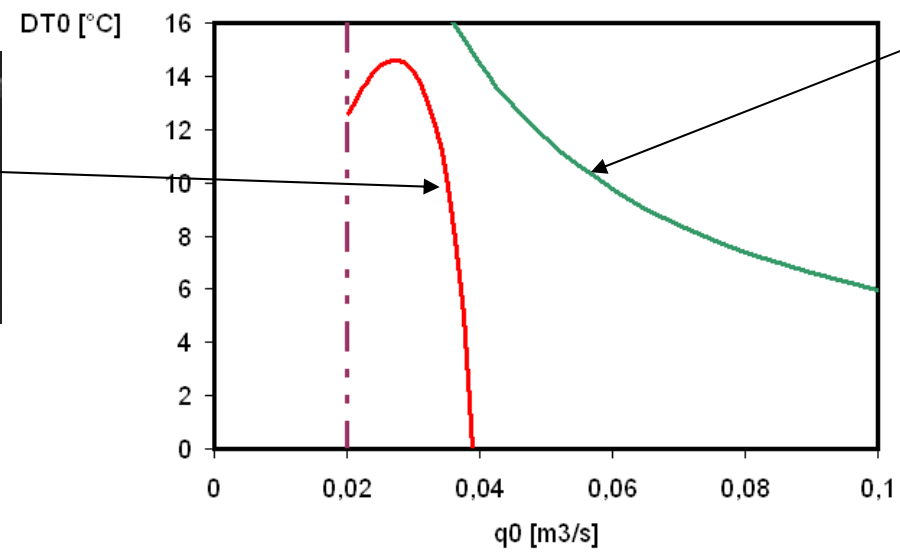
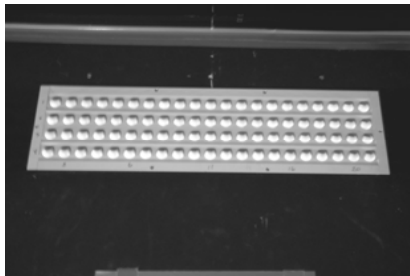
The q_o - ΔT_o Design Chart



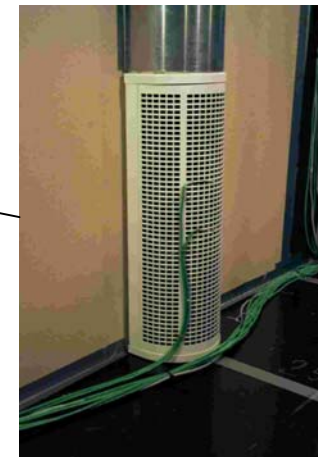
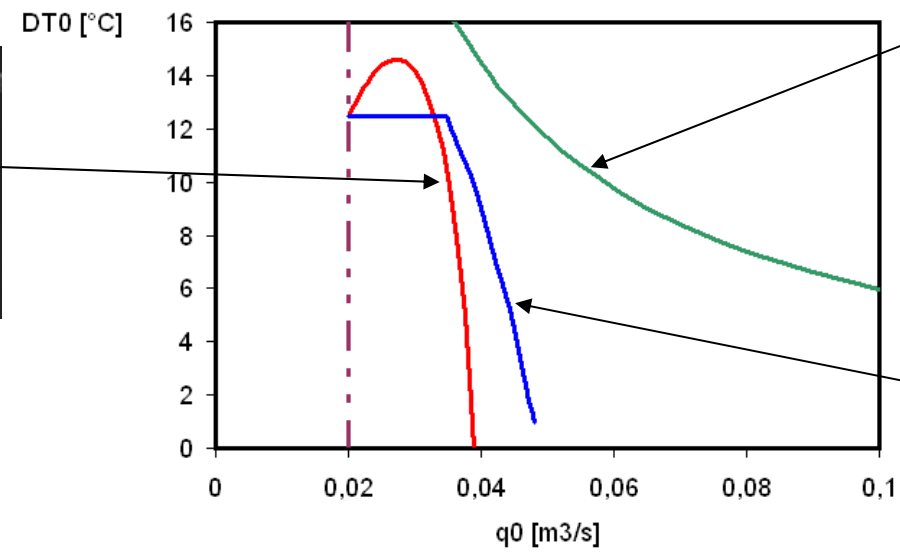
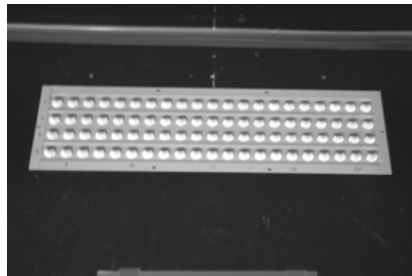
Design Chart



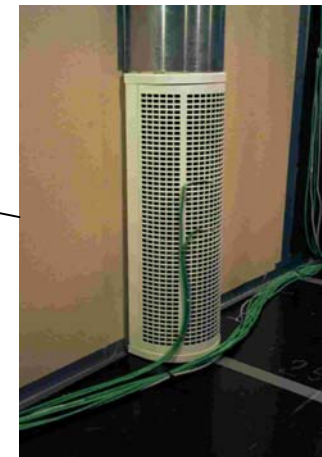
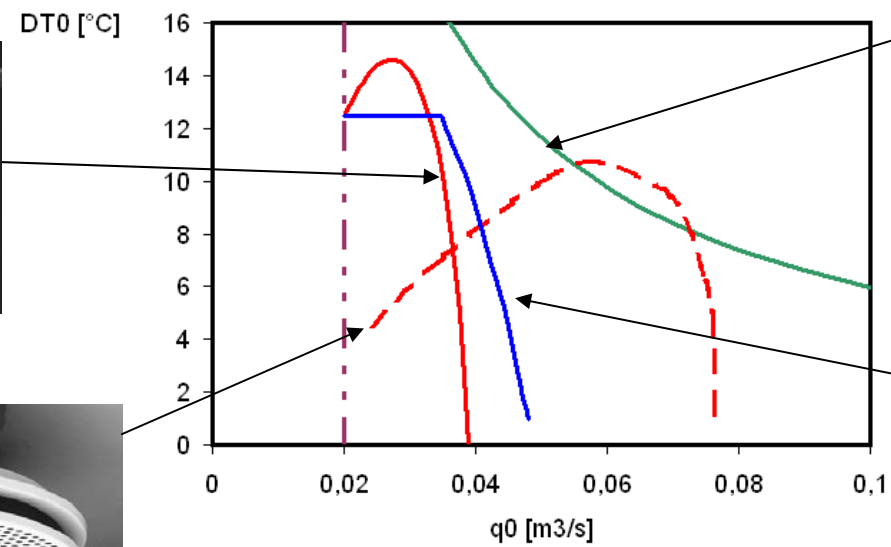
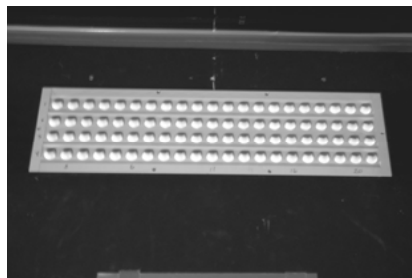
Design Chart



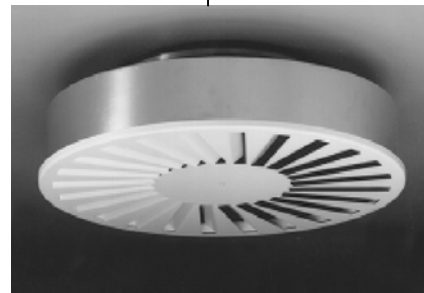
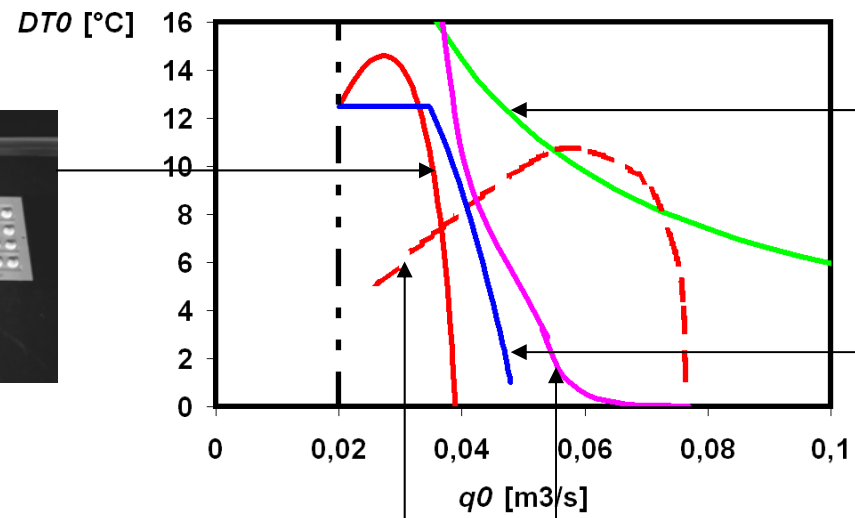
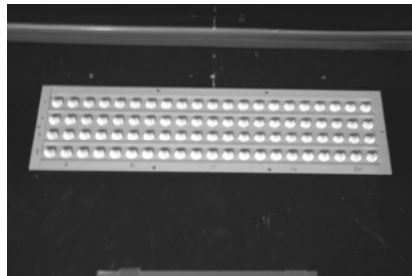
Design Chart



Design Chart



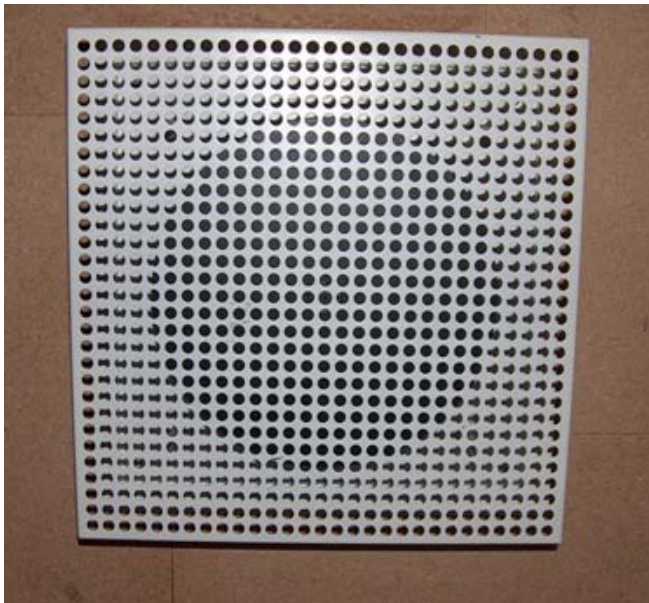
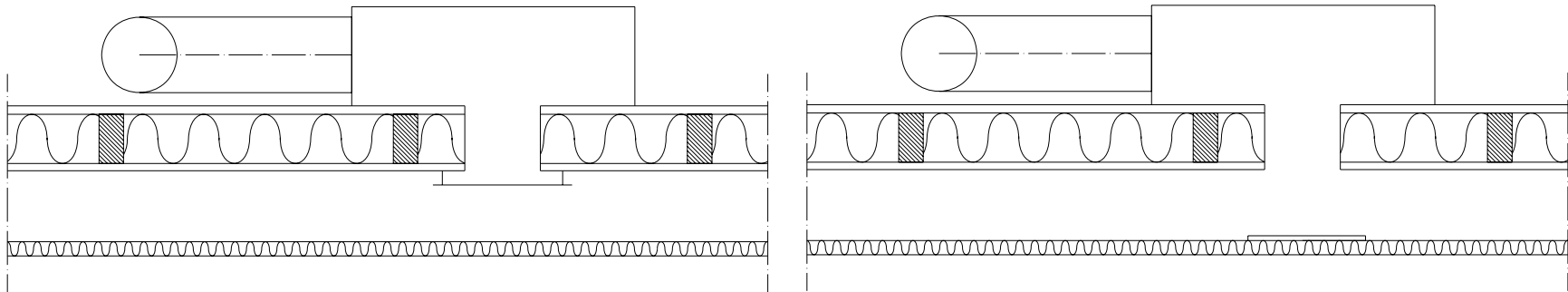
Design Chart



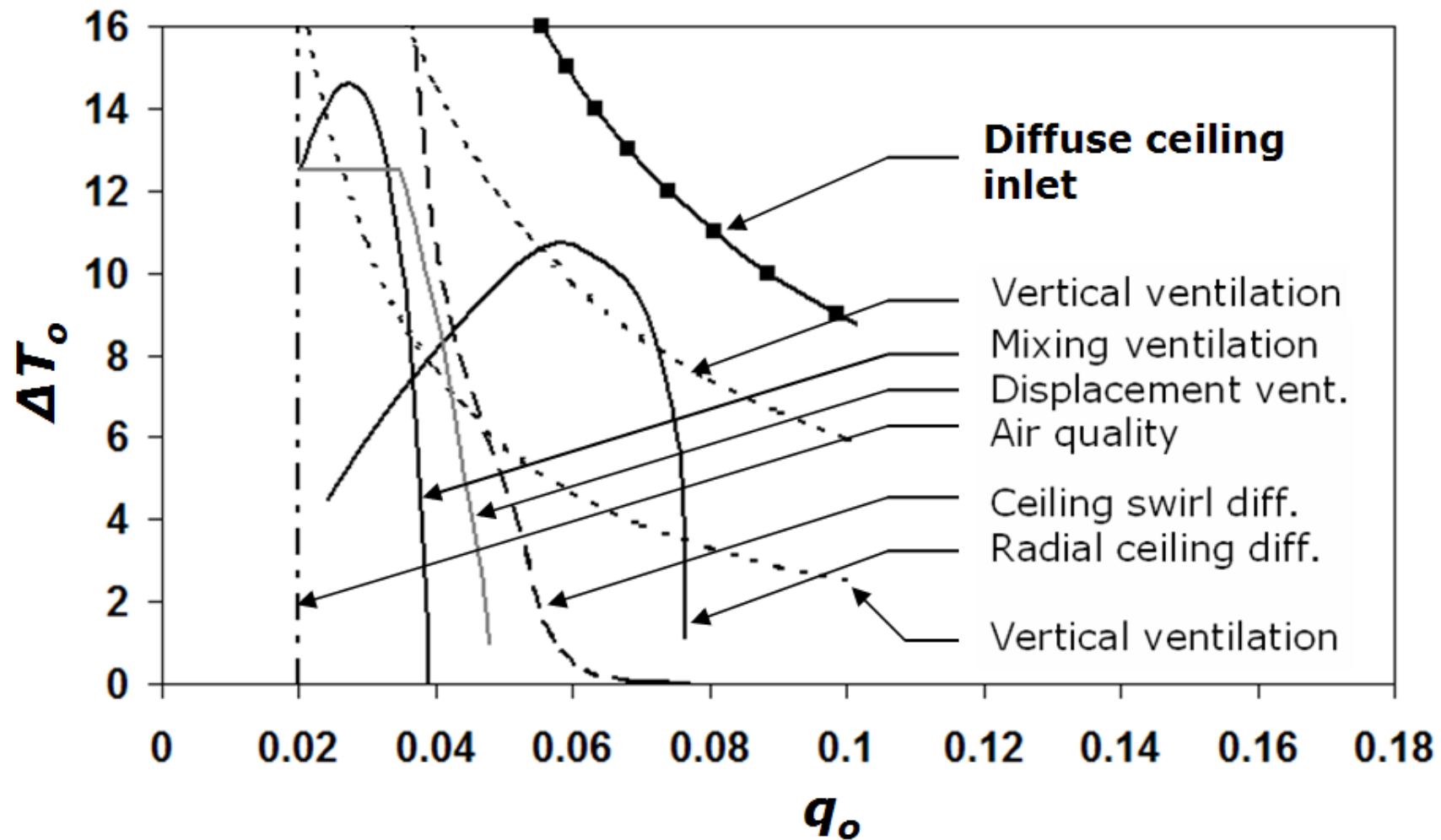
Diffuse Ceiling Inlet



Types of Diffuser



$q_o - \Delta T_o$ Design Chart



The Fluid Mechanics of the Air Distribution

Thermal flow from heat sources

Momentum
flow from
supply openings

0.0

0.15

0.20

0.25

0.30 m/s



The Fluid Mechanics of the Air Distribution

