Ductless personalized ventilation with local air cleaning

An experiment with 28 human subjects was performed to examine effects of using a local air cleaning device combined with ductless personalized ventilation (DPV) on perceived air quality. Experiments were performed in a test room with displacement ventilation. The DPV at one of two desks was equipped with an activated carbon filter installed at the air intake, while the DPV at the second desk was without such a filter. The air temperature in the occupied zone (1.1 m above the floor) was 29 °C. The pollution load in the room was simulated by PVC floor covering. The subjects assessed acceptability of air quality, odour intensity and air freshness at both desks in random order. Lower odour intensity and higher air freshness was reported at the desk with DPV with the activated carbon filter. The results suggest that using local air cleaning devices integrated with DPV may improve perceived air quality.