

KITCHEN VENTILATION REPORT

Ceiling Plenum Boxes for Hood Perimeter Make-up Air

Design and Application

Ceiling Plenum Boxes were originally developed for make-up air plenum applications in hotels, hospitals, institutions and restaurants.

Ceiling plenums are now recommended for all types of exhaust hood systems to introduce make-up air along the hood perimeter assuring the correct air volume and the proper discharge velocity at the proper distance from the ventilator.

Plenum boxes are located in front of the hood. See figure 1. They must be mounted at a minimum of 18" above the lower front edge. On back to back cooking island applications a plenum box would be located on both sides and in large island applications on all four sides. See figure 3.

Benefits:

- Quiet operation (key advantage for Culinary classes)
- Low Profile with duct connects on the top or either side.
- Low velocity discharge with even distribution around the hood perimeter causing no drafts and maintaining hood capture and containment.

Design features to provide efficient operation:

Supply air collars should be installed on 4' centers for equal air flow across the plenum box. See figure 1.

Each supply air collar should have a perforated diffuser panel to evenly distribute the air across the boxes interior. See figure 2.

The plenum box should be sized to discharge air at a velocity of 200 FPM maximum. The plenum box width should be 12' to 18" wide to accomplish this. See figure 3.

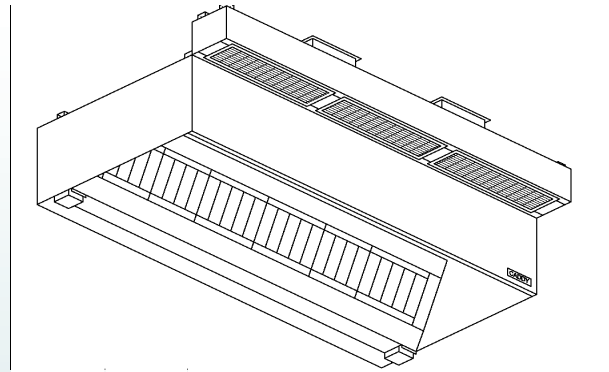


Figure 1. Ceiling Plenum Box Mounting

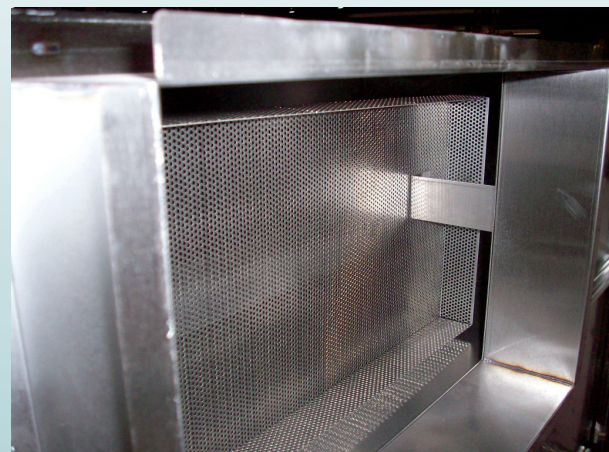


Figure 2. Supply-air collar diffuser



Figure 3. Project installation

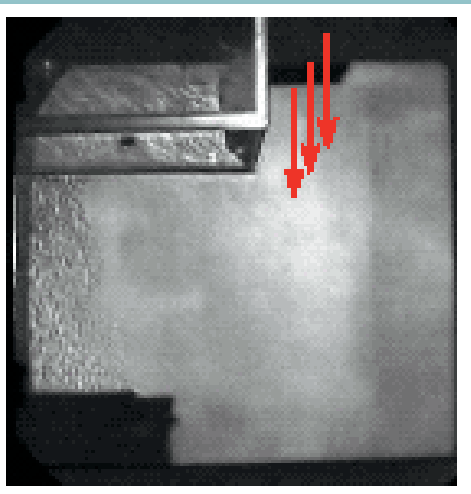


Figure 4.

Total capture and containment using the ceiling plenum box