

AIRFLOW & ZONE CONTROLS HCG Humidity-Controlled Grilles

INSTALLATION OPERATION MAINTENANCE

## **READ AND SAVE THESE INSTRUCTIONS**



## GENERAL

Model HCG humidity-controlled grille is a variable airflow exhaust terminal that automatically adjusts the airflow rate according to the relative humidity of the space. Designed for mechanical exhaust systems in residential and institutional applications, this grille provides airflow directly proportionate to the presence of and activity level of occupants in the space.

This control of the airflow rate permits ventilation when and where it is necessary, responds to the health and comfort requirements of the occupants, reduces moisture damage, and reduces energy costs by avoiding unnecessary ventilation.

Fresh air in a complete humidity-controlled ventilation system is provided in each main living space, bedroom offices, etc., by fresh air inlets, or a separate supply ventilation system. Transfer grilles permit air circulation from the main living areas to the rooms with specific pollutants (bathrooms, kitchens, laundry rooms, etc.).

Stale air is exhausted from rooms with specific pollutants through the exhaust grilles (HCG) by means of a central exhaust fan.

**NOTE:** Special consideration should be given when installing HCG grilles in rooms heated and cooled by a central forced-air system, since the humidity level in the specific room, e.g., bathroom, would be lowered to the general level of the main living areas, and the specific pollutants would be recirculated back to the main living area, rather than exhausted to the outdoors.

## DUCTING

Ducting, sizing and fan selection must be appropriate to provide a duct pressure behind the grille of 70 to 150 Pascals (0.3 to 0.6 in. wg). Rated airflows

are based on 0.4" wg. (100 Pa) At 70 Pa, the airflow is 14% lower than rated. At 150 Pa, the airflow is 22% higher than rated. As a matter of effectiveness in removing humidity, a lower flow will cause the unit to remain open longer; at higher pressures, the humidity will be controlled earlier, and the damper will close sooner. On small systems, this may be achieved economically using fans with a flat pressure/airflow characteristic curve, and variablespeed motors or dampers adjusted for constant static pressure on large systems.

The duct system and fan must be selected to permit the maximum airflow likely to be obtained in actual use. This design airflow condition occurs in summer, the season in which the fresh outdoor air admitted to the building contains the highest level of absolute humidity, on the order of 60% to 65%, depending on climatic zone. This consideration is necessary so as to obtain the required duct pressures at the grilles when all are open to the maximum setting.

## **INSTALLATION**

The HCG may be installed in a ceiling assembly, suspended ceiling, or on a partition wall. It may be connected to rigid duct or flexible duct with a metal sleeve in 3" (75 mm) or 5" (125 mm) diameter, depending on the model. Model HCG+ (P/N: 17 373) has a 5" round duct connector with a brush seal. All other models must be secured by screws to the mounting surface. A gasket provides a tight seal. Follow **Steps 1-6** for more information.



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