

Preventing Health Care Related Infections: Improved Ventilation Protects Patients, Maple Grove Hospital, *Maple Grove, MN*



Located in Maple Grove MN, this 330,000-square-foot hospital is ranked as one of the region's best hospitals by U.S. News and World Report and has been named one of the Nation's 100 Top Hospitals® by Truven Health Analytics™.

A significant portion of the hospital's patients have depressed immune systems which increases their susceptibility to building-related illnesses and exposure to airborne microorganisms which poses a unique set of conditions related to indoor air quality that requires special attention from the facility maintenance team.

The hospital's comprehensive filtering and ventilation systems help protect patients from contracting infections via the airborne route by reducing microbial, viral, and fungal contaminants to safe levels. Dilution ventilation is used to control infectious particles by introducing filtered outdoor air and maintaining a positive building pressure ensures proper humidity levels.

When the hospital began experiencing moisture and condensation problems associated with high humidity levels the facility maintenance team began investigating the hospital's ventilation system. With the high cost of troubleshooting, they discovered that the thermal dispersion airflow sensors installed in outside air intakes and in the supply and return fans of the ventilation system were attracting and accumulated airborne particulates.

The accumulation of particulates degraded the sensor performance which were therefore not controlling to the correct outside air quantity; vastly reducing the amount of dilution ventilation. The airflow offset between the supply and return fan used to maintain building pressurization was also inaccurate which led to improper pressurization resulting in the high humidity levels.

The thermal dispersion sensors required frequent manual cleaning, typically resulting in damage to the sensors; the glass that covered sensors broke easily and since the meters were installed in difficult-to-reach locations, many would often crack during cleaning and need to be replaced. Maintenance was costly in both man hours and expenses for replacing damaged sensors.

If the volume of outside air and the building pressure couldn't be accurately controlled, the hospital environment could become vulnerable to poor indoor air quality presenting a risk for patient health. The facility maintenance team started aggressively looking for a new airflow measurement solution; Paragon was given the opportunity to supply pitot-type airflow measurement systems to replace some of the broken thermal dispersion airflow sensors for a comparison study. Based on the proven results from the study, the facility maintenance team replaced all of the thermal dispersion airflow sensors with Paragon airflow measurement systems.

"The accuracy of the Paragon airflow measurement systems was as promised; there was no degradation of signal due to particulates or anything else. We were so pleased with the results that we are having Paragon replace all of our thermal dispersion meters and have already committed to them for our planned new addition."

*- Allen Fenderson, Facility Manager,
Maple Grove Hospital*

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