



White Paper
**High Temperature
Overhead Heating
Versus Air Turnover**



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In the business of commercial and industrial design, accurate and understandable information is essential. Applied Air keeps you informed.

Since 1975, Applied Air has been providing cost-effective, reliable solutions for large, open spaces. Using proven Computational Fluid Dynamics modeling we can now add sophisticated analysis to our tools for assisting designers and owners in their decision making process.

This White Paper uses CFD and information from well-known sources in the air distribution industry to compare the performance of overhead heating systems to air turnover systems.

The White Paper includes:

- Overhead Heating Techniques — A description of the typical air distribution types used to supply air in high-bay, open, spaces.
- Air Turnover Characteristics — A description of the inherent airflow characteristics of the "high sidewall supply/low sidewall return" application according to ASHRAE.

If you have questions, please contact Applied Air's Marketing Department at 214-638-6010. We'll be glad to help.

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The premise of this White Paper is that all units can produce enough BTUs to heat or cool a space...it is the air distribution system that determines how effective they will be.

Air Turnover is one of the more difficult concepts to explain to an owner or engineer. Sizing of air turnover in the past has been based upon "rule of thumb" factors with little solid engineering analysis to back it up.

Applied Air has performed over 2 dozen studies over the past two years to predict the impact of discharge temperatures and air turnover rates on building space temperature profiles.

One of the most critical elements of CFD modeling is verification of the model. Applied Air has compared its CFD model predictions with actual building measurements.

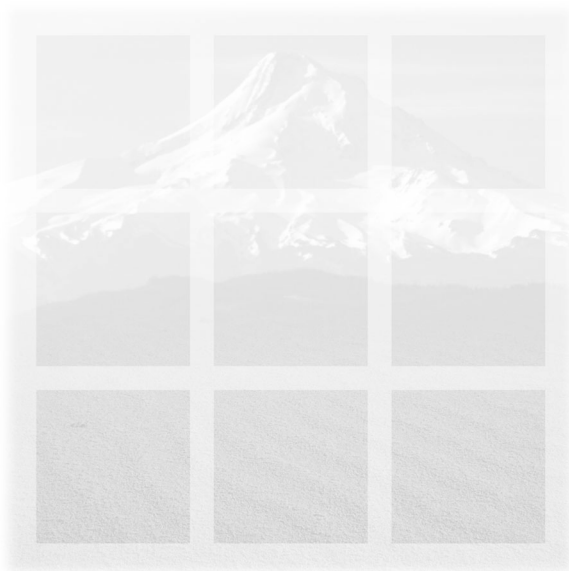
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Applied Air White Paper Studies

- Accurate, visual representations of air temperature and accurate, visual representations of air velocity profiles
- Reduce uncertainty in equipment layout
- Improve confidence in equipment selection
- Computationally intensive solutions

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