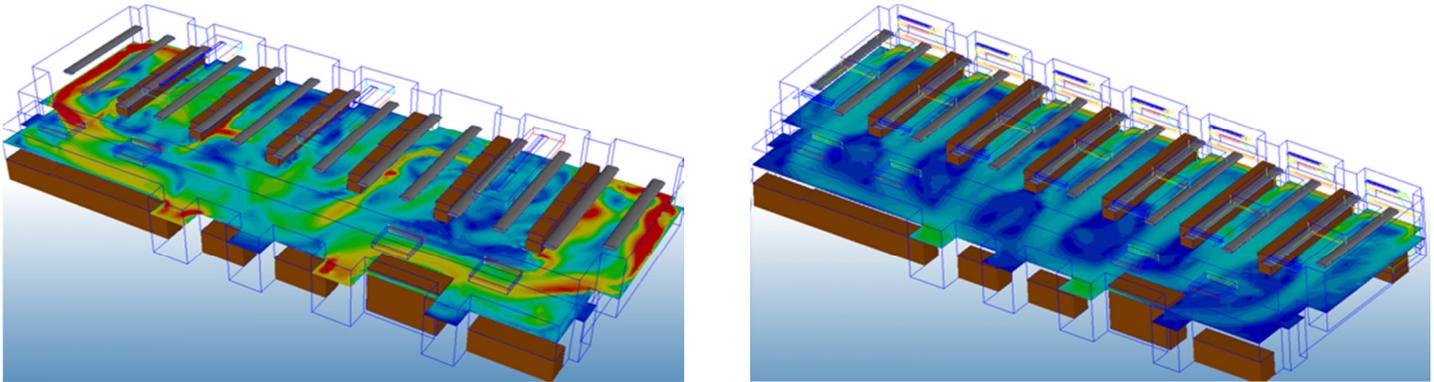


# Factory Energy Management

## Energy and process savings realized with insight from CFD Simulation



Global manufacturing leaders the world over have made strong commitments to reduce their energy usage and greenhouse gas emissions. These commitments are good for the bottom line as they also reduce operating expenses and mitigate risk from rising energy costs and future regulatory penalties. When leading automotive and industrial companies want to reduce their corporate energy and carbon footprint, a major focus of these efforts is on the factory operations themselves. But how does a Factory Manager achieve more energy savings after the lighting has been upgraded and higher efficiency equipment installed? What if the perfect balance could be struck between human comfort, critical machinery temperature tolerances and fan speeds? What if the results of factory HVAC upgrades or building retrofit options could be fully evaluated and cost-justified prior to any work being done?

Advancements in the capabilities and ease of use of Computational Fluid Dynamics (CFD) make understanding airflow in the factory a powerful and cost-effective way to optimize HVAC systems to avoid downtime and scrap due to thermal expansion, reduce energy costs, and ensure highest ROI on plant renovations and HVAC upgrades. As critical and complex as it is, investigations using CFD simulations to optimize HVAC layout has demonstrated up to 68% electricity savings at a consumer goods plant and more than \$100,000/year in a 1-million square foot US automotive plant. A detailed factory model and CFD simulation gave the facility team insight on how to optimize diffuser and ductwork design, and select, size and layout the right equipment. While decreasing energy consumption per unit production, a CFD study can also improve worker comfort, machine function, and prevent cross-contamination of particulates which could be harmful to people or products.

Autodesk is a global leader in delivering sustainable solutions that reduce the annual energy costs of manufacturing plants and prevent production downtime and scrap by controlling the thermal environment around sensitive areas of the manufacturing processes. Autodesk leverages its Building Information Modeling tools to build 3-D models of new or existing plants. These virtual models are then used in Computational Fluid Dynamics (CFD) simulations to uncover cost effective modifications to the HVAC system and building envelope to deliver energy savings and better control of manufacturing processes. The result is a safer, more productive and more highly efficient plant.

### For More Information

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