

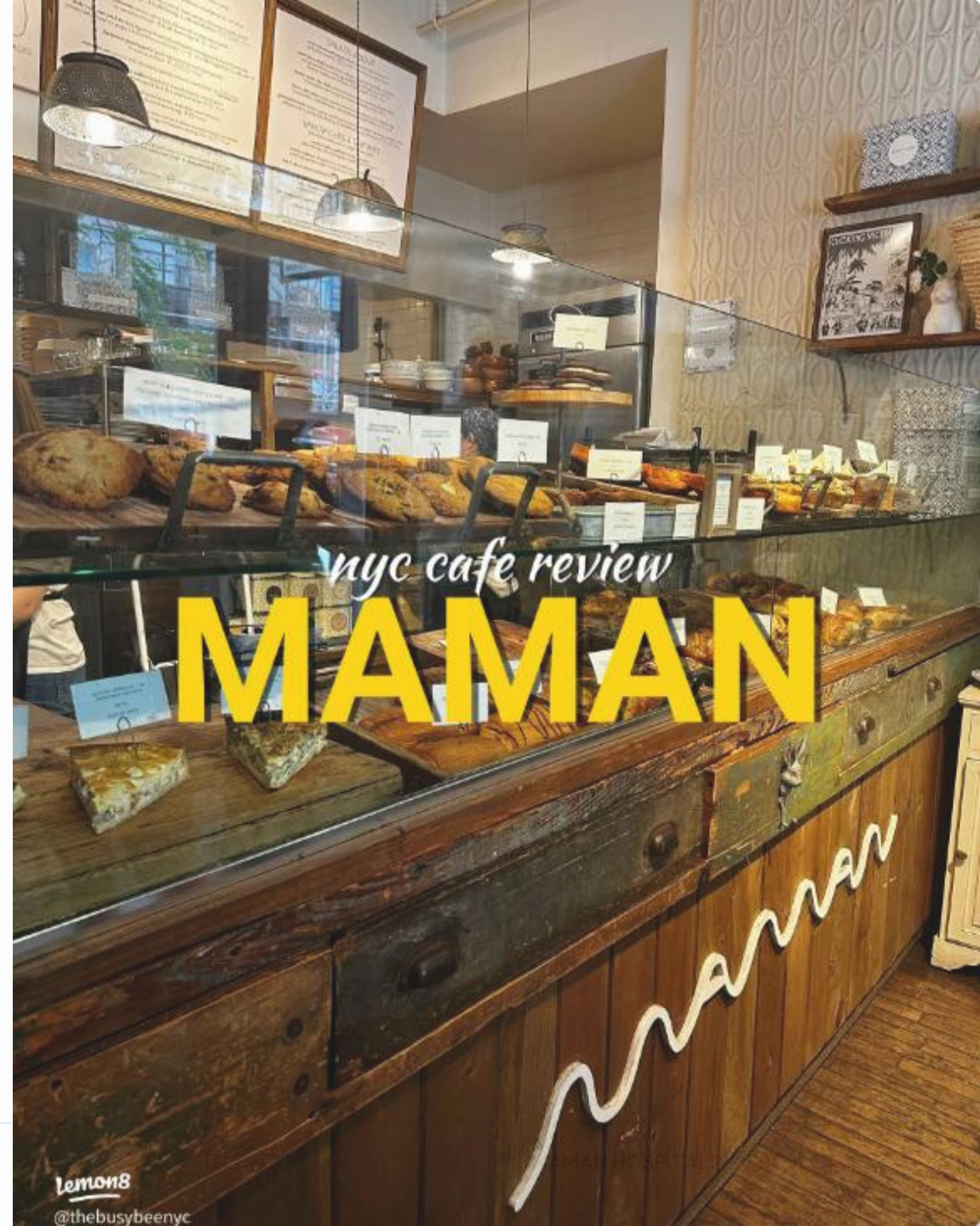
MECHANICAL ENGINEERING PORTFOLIO

MAMAN Café & Bakery

Hospitality Mechanical Systems Engineering &
High-Performance Design

A luxury French-inspired concept requiring sophisticated HVAC solutions to balance rustic aesthetics with high-occupancy comfort and air quality.

MECHANICAL DESIGN ENGINEER PORTFOLIO



nyc cafe review
MAMAN

lemon8
@thebusybeeny

Engineering Design Strategy

🎯 Key Design Objectives

- Maintain precise thermal comfort in dining areas
- Ensure high-rate IAQ for dense occupancy
- Efficient kitchen exhaust & grease management
- Preservation of "Toile" rustic aesthetics
- ASHRAE & NFPA code compliance

⚠️ Technical Challenges

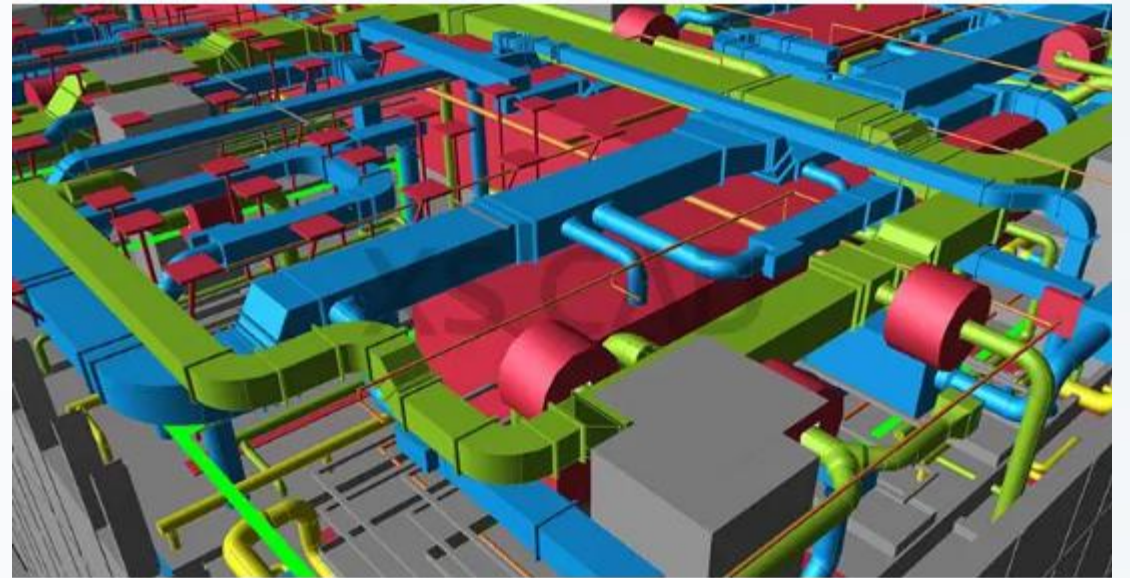
- Significant load fluctuations (Peak/Off-peak)
- Intense heat loads from bakery operations
- Extremely limited ceiling plenum zones
- Strict acoustic requirements for luxury dining
- Coordination with complex interior millwork

HVAC Engineering Design

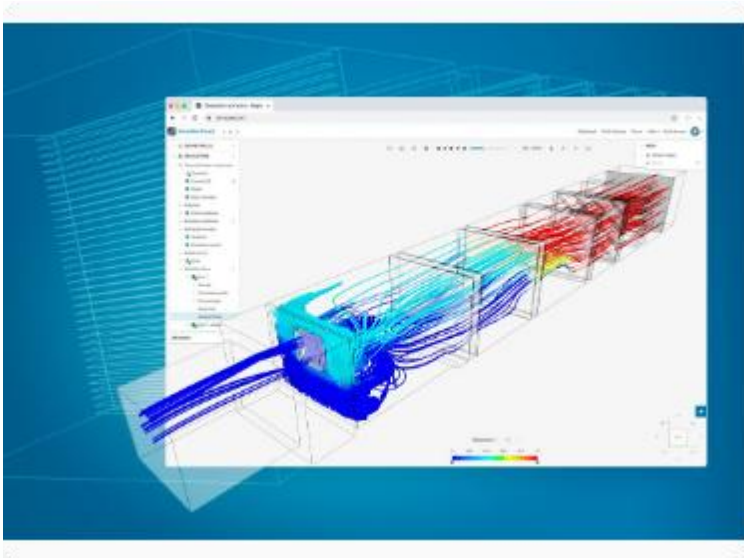
Scope of Engineering Activities

Implemented a robust cooling and ventilation strategy tailored for high-end retail/hospitality environments.

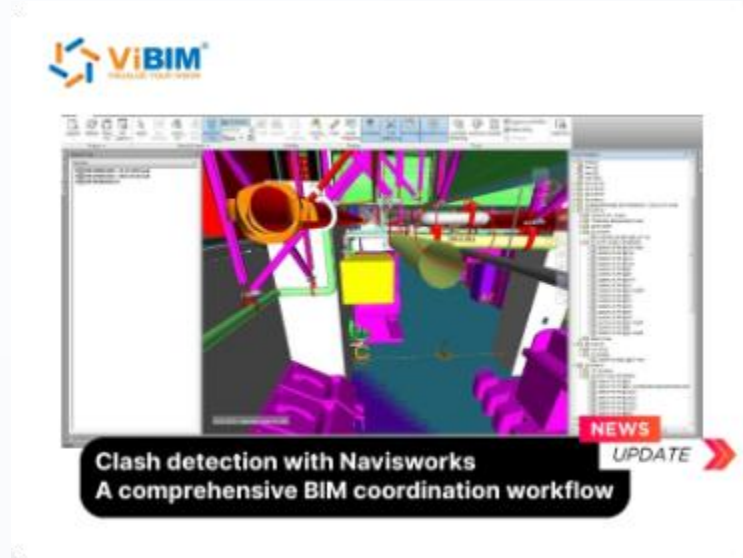
- **Cooling Load:** Detailed solar & internal heat gain analysis
- **Air Distribution:** Static pressure & duct sizing optimization
- **Ventilation:** Fresh air calculations per ASHRAE 62.1
- **Software:** Revit MEP, SolidWorks, HAP



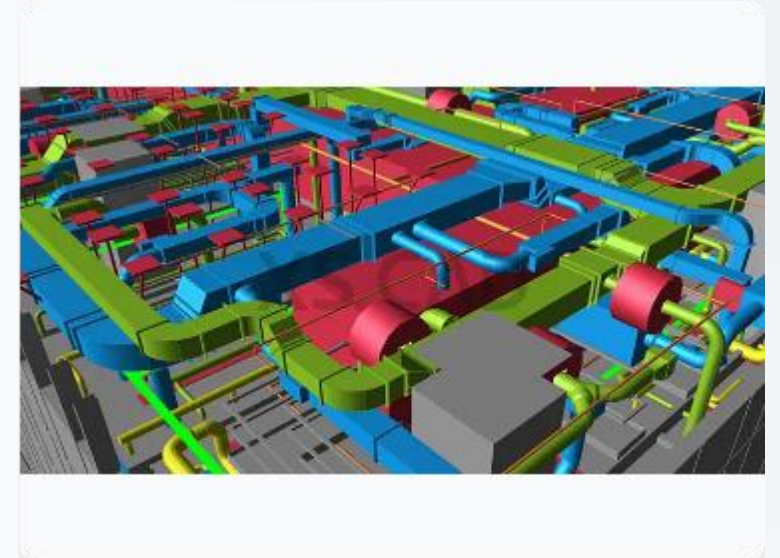
BIM Coordination & MEP Integration



Airflow Performance Analysis



Navisworks Clash Resolution

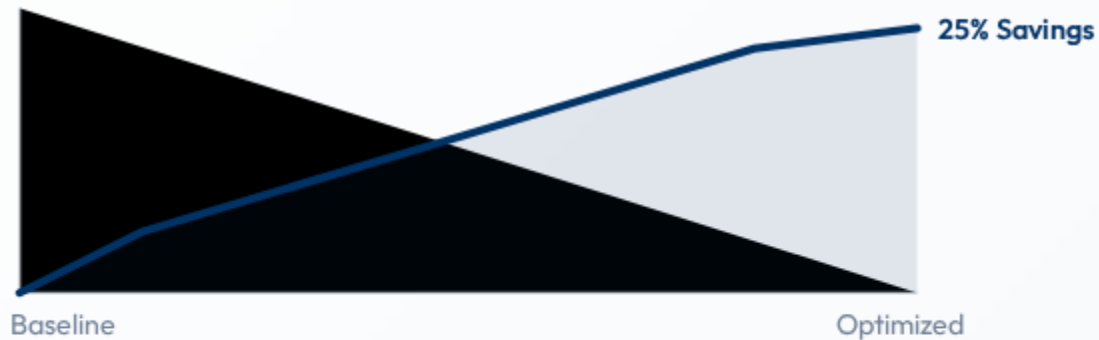


Detailed Mechanical Routing

Leveraging LOD 350 BIM models to ensure seamless multidisciplinary integration between HVAC, piping, and structural elements.

High-Performance Mechanical Design

Projected Energy Savings Analysis (%)



Sustainability Strategies

Optimized Airflow: Demand-controlled ventilation reduced fan energy consumption.

Smart Controls: Integration of BMS for real-time monitoring of kitchen exhaust loads.

High-Efficiency Equipment: Selection of premium SEER-rated units to lower OpEx.

Project Impact & Engineering Delivery

Full Compliance Achieved Optimized mechanical systems meeting ASHRAE, ASME, and NFPA standards.

Optimized HVAC Performance Seamless indoor comfort even during peak high-occupancy bakery hours.

Sustainable Infrastructure Lowered carbon footprint through intelligent equipment selection and smart controls.

"Delivering innovative mechanical engineering solutions that combine performance, sustainability, and exceptional occupant experience."

