

Wakefield Thermal - C/A Design Inc.

A Case Study on the Manufacturing & Office Facility – New Headquarters



At A Glance

Challenges

- Mechanical – The project involved specialized, proprietary equipment and processes, requiring added coordination and refinement as work progressed.
- Electrical – The owner sought to avoid an electrical service upgrade - Up front studies were done to make sure the existing service would be sufficient, in order to avoid long lead and large expense of a new electrical service.
- Project Management – Close collaboration with owner, architect, specialized equipment vendors was required, as well as documenting decisions and communicating / managing information.

Benefits

- Avoided costly electrical service upgrade through detailed load studies and strategic reuse of the existing electrical service. Project was being done during, and right after, covid when lead times were extraordinarily long for larger electrical equipment; therefore upfront cost as well as cost of delay was critically important to avoid.
- Right-sized HVAC systems enabled by early alignment of envelope upgrades and environmental criteria, reducing first cost and improving energy inefficiencies.
- Maximized reuse of existing infrastructure (electrical, air compressors, HVAC rooftop units) where suitable for the new facility.
- Flexible, future-ready facility design with systems sized and zoned to support future expansion and a planned future 40,000 SF manufacturing fit-out.



108,000 SF
Renovation & Expanded
Facility

60,000 SF
Manufacturing
Renovation

40,000 SF
High-Bay Expansion

2024
Project Completion

Objectives

Fitzmeyer & Tocci served as the MEPFP engineer for the renovation and expansion of C/A Design / Wakefield Thermal's advanced manufacturing facility in Exeter, New Hampshire. Completed in 2024, the project consolidated two facilities into one modernized location designed to support the company's aerospace and defense manufacturing operations. The work included a 68,000-square-foot renovation of an outdated manufacturing building and a 40,000-square-foot high-bay expansion.

F&T's engineering scope supported major infrastructure upgrades, including new HVAC and electrical systems, equipment coordination, energy-efficiency improvements, and building systems designed to meet current and future production needs. The upgraded facility now includes expanded manufacturing areas, improved office and employee spaces, and increased capacity for Wakefield Thermal's production and management operations.

For specialized manufacturing facilities, close collaboration with the owner is critical. While we bring expertise in MEPFP engineering, building design, and construction, we rely on the owner to define and clarify process-specific requirements. It is also important to establish and communicate a clear line between owner responsibilities (process definition, equipment requirements, operational criteria) and engineer responsibilities (building systems design and code compliance). Successful outcomes depend on early alignment, transparent coordination, and well-defined roles.

Solutions

- Establishing temperature / humidity criteria early in design informed the equipment selections.
- Coordination with the architect to define envelope upgrades early on allowed HVAC equipment to be "right sized".
- High efficiency, all electric VRF heat pumps provide heating and cooling for the office space, with Energy Recovery Ventilators (ERV's) providing fresh air ventilation.
- For the high bay manufacturing area, HVAC systems were selected to maximize air distribution and comfort without intruding into the manufacturing space.



Results

- Reduced upfront capital costs by avoiding major infrastructure upgrades (electrical service, generator downsizing, selective electrical system reuse).
- Enhanced employee comfort and productivity with improved thermal comfort, ventilation, and upgraded office/support spaces.
- Future scalability without major reinvestment due to infrastructure planning that accommodates additional equipment, expansion, and evolving manufacturing needs.