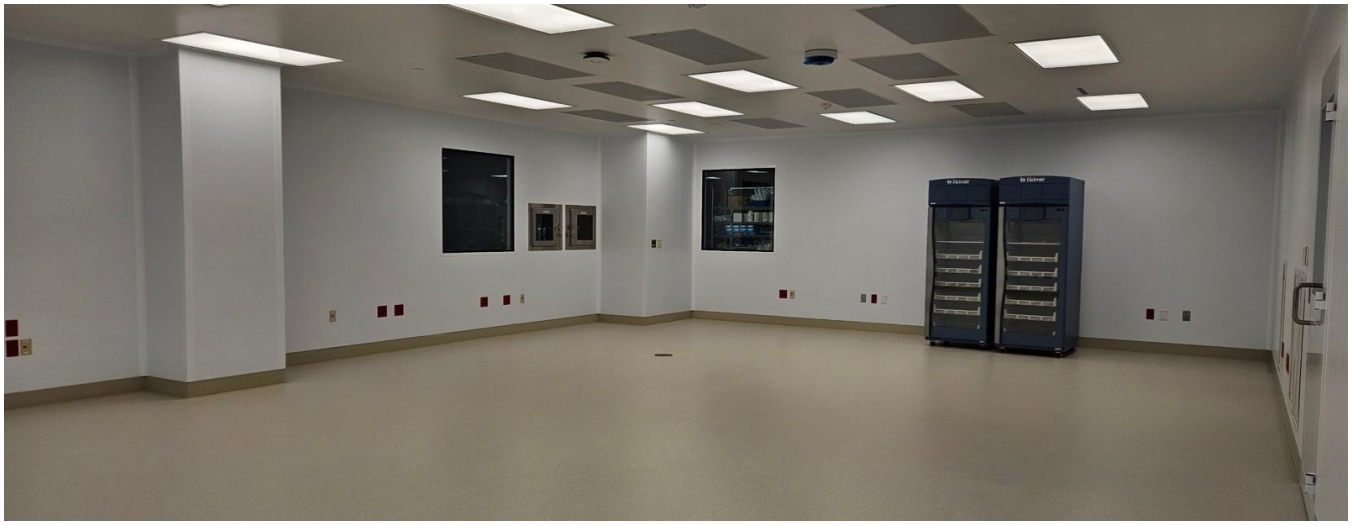
CASE STUDY

Critical Environment Construction

Twice the Scope, First-Time Pass

Marshfield Medical Center's USP 797/800 Compounding Suite

When Marshfield Medical Center set out to build a new sterile compounding suite, the goal was clear: a compliant space for Category 2 compounded sterile preparations (CSPs). Then the vision grew. Midway through design, the hospital chose to consolidate multiple pharmacy departments into the new suite, and the footprint nearly doubled. Aero Performance Group's Critical Environment Division carried the expanded project from site evaluation through move-in and delivered a first-time pass to USP 797/800 requirements.



PROJECT SNAPSHOT

Client	Marshfield Medical Center, Marshfield Clinic Health System
Location	Marshfield, WI
Space	USP 797/800 sterile compounding suite, ISO 7
Size	1,735 sq ft; 3 classified rooms
Hoods	3 hazardous BSCs; 7 non-hazardous BSCs and LAFWs
Delivery	Design-build, Aero Performance Group's Critical Environment Division
Timeline	December 2025 to October 2026
Outcome	First-time pass; State Board of Pharmacy approval

THE CHALLENGE: A COMPOUNDING SUITE THAT KEPT GROWING

Sterile compounding sits at the center of patient care. IV medications and other CSPs depend on a space that meets USP 797, and USP 800 when hazardous drugs are involved. For Marshfield Medical Center, a compliant facility meant the pharmacy could keep serving patients with confidence.

The original plan called for a focused compounding suite. During design, hospital leadership saw a larger opportunity: bring several departments together in one state-of-the-art space. That decision nearly doubled the facility's footprint and added hazardous drug receiving, storage, and non-sterile hazardous compounding to the program. Every element of the plan, from airflow to room layout to the move-in sequence, had to scale with it.

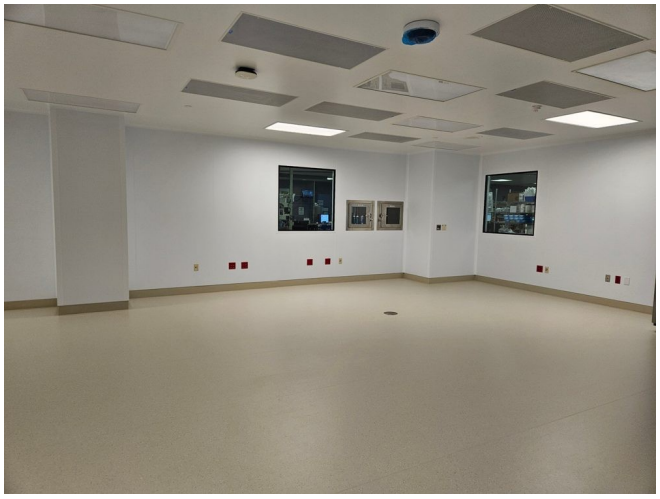
OUR APPROACH: ONE TEAM FROM SITE EVALUATION TO MOVE-IN

As the design-build partner, our Critical Environment Division carried a single line of accountability across every phase.

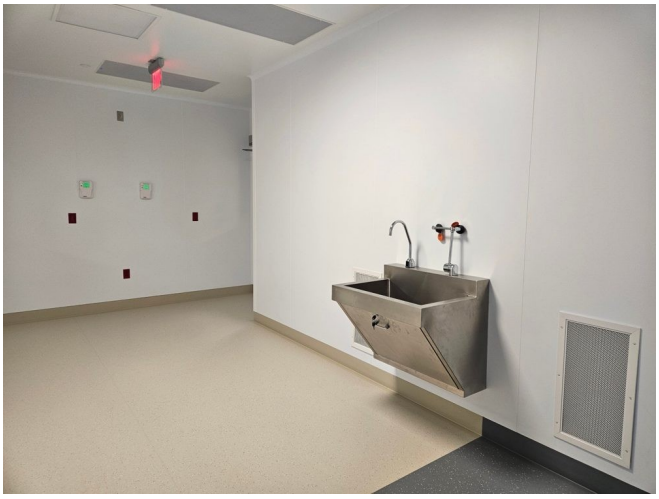
Planning and design. We started with an evaluation of the existing site, then planned the full compounding suite, including HD receiving and storage and non-sterile HD compounding. We developed the project specifications and provided mechanical design consulting, including the airflow diagram, critical component selection, and submittal review. Components included air valves, HEPA fan filter units, hand-wash sinks, pass-throughs, and the cleanroom wall system.

A smarter path for air changes. The airflow diagram revealed an important opportunity. HEPA fan filter units provide localized recirculation inside the suite, delivering the required air changes while the existing mechanical systems stay in service. The hospital kept its air handlers and put its budget into the space itself.

Details that protect the aseptic environment. Smooth, crevice-free finishes support a cleaner aseptic environment and make daily cleaning faster. Hood placement and mobility shape how well staff can meet USP 797 cleaning requirements, so we planned both around the pharmacy team's workflow.



The finished compounding suite, ready for hood placement.



Smooth, crevice-free finishes and a stainless hand-wash station support aseptic cleaning.

Construction and integration. We built the entire cleanroom suite, including walls, doors, windows, and pass-throughs. We provided and started up the HEPA fan filter units with BACnet integration into the building automation system and supported the BAS contractor during air valve startup. A pharmacy display monitor now shows staff live room pressure, temperature, humidity, and air changes, along with fan filter unit status and refrigerator and freezer temperatures.

A move-in plan built around patient care. Consolidating departments meant the pharmacy had to keep compounding throughout the transition. We developed an occupancy plan that sequenced punchlist completion, test and balance, sterile cleaning, certification testing, and move-in. We also recommended purchasing new hazardous drug BSCs so the new suite could open ahead of decommissioning, relocating, balancing, and

certifying the existing hoods. That single decision shortened the transition and effectively eliminated relocation downtime. Our team then supported the relocation of the existing non-hazardous hoods into the new suite.

THE RESULTS

- **First-time pass** to USP 797/800 requirements
- **ISO 7 classification** with more than 35 air changes per hour
- **State Board of Pharmacy approval** for use
- **Downtime effectively eliminated** during the departmental move
- **A repeat client:** the second compounding suite Aero has delivered for Marshfield Clinic Health System

Room conditions at handover

Room	Pressure (in. w.c.)	Air changes per hour
Ante room	+0.03	35
Non-hazardous buffer room	+0.04	35
Hazardous drug buffer room	−0.02	42
Hazardous drug receiving room	−0.02	15

Today, Marshfield Medical Center runs multiple compounding operations from one consolidated suite, with the efficiency and oversight that comes with a single, purpose-built space.

> *"Thank you Mike for your expertise and professionalism with this project. You and your team brought a surplus of value to ensure this complex process went smoothly."*
> **Robert Dubiel, CHFM, CHC** | Head of Construction, Design and Construction, Marshfield Clinic Health System

THE TEAM

- **Michael Kosinski**, Project Executive and Senior Consultant, Aero Performance Group
- **Caleb Kosinski**, Service and Integration Specialist, Aero Performance Group
- **Architect:** Berners-Schober
- **General contractor:** Miron Construction

WHERE TO START

Planning a new compounding suite, expanding an existing one, or preparing for a USP 797/800 inspection? Our **critical environment specialty contracting** team guides healthcare pharmacies from first sketch to Board approval.

Contact Aero Performance Group →