

Greenheck Project Profile

Aspirus Wausau Hospital

Medical Surgical ICU Remodeling

Wausau, WI

- **Engineering Firm:**
Henneman Engineering
Madison, WI
- **General Contractor:**
Miron Construction
Neenah, WI
- **Mechanical Contractor:**
August Winter & Sons
Appleton, WI
- **Greenheck Representative:**
Vyron Corporation
Green Bay, WI



Aspirus Wausau Hospital, Wausau, WI

The Challenge

- **Reduce operational costs by installing new energy-efficient exhaust fans and low leakage dampers in a new 16-room Intensive Care Unit.**
- **Help control positive and negative pressures as required in patient rooms and the entire ICU to ensure that contaminated air and pathogens are properly exhausted.**
- **Match ventilation turndown and staging capabilities to meet demand of patient census without significant temperature swings.**
- **Minimize sound levels for patient comfort.**

Construction of a new 14,000-square-foot, 16-room Medical Surgical Intensive Care Unit (MSICU) within the existing structure of Aspirus Wausau Hospital in Wausau, Wisconsin began in February, 2017. The project was completed in July, 2017. To aid with patient care, hospital administrators required that the new ICU units have access to daylight even though the MSICU would be located in an area of the hospital where there were no windows. Each of the 16 MSICU rooms includes a private restroom and private access to an adjoining Serenity Room with skylights so patients can have access to daylight and family members have a comfortable area to gather.



Greenheck's Solution

- **(21) Exhaust Fans (Models G, GB, CUE and CUBE).**
- **(8) Vari-Green® Control Drives (VGD-100)**
- **(51) Volume Control, Fire and Fire/Smoke Dampers (Models VCDR, VCD, DFD and FSD)**

To maintain adequate pressure control and a healthy ventilation environment in each ICU room — free from contaminated air and pathogens — 21 exhaust fans were installed. Models CUBE, CUE, G and GB exhaust fans feature aluminum, backward-inclined, non-overloading centrifugal wheels for high efficiency operation and minimal sound. All models are licensed to bear the AMCA seal for Sound and Air Performance. Nine of the direct drive exhaust fans included energy-efficient, low maintenance Vari-Green EC motors that offer 20%-70% energy savings compared to a traditional direct drive permanent



Greenheck's Vari-Green drives are factory-mounted and preprogrammed to optimize energy savings and efficiency.

split capacitor (PSC) motor. Eight of the exhaust fans included Vari-Green drives (Model VGD-100). These factory-mounted, prewired and preprogrammed variable frequency drives reduce installation time and help control fan speed. The exhaust fans with Vari-Green drives were needed for several isolation ICU rooms where air pressures have to be carefully monitored and controlled. Vari-Green drives also can reduce energy costs significantly by turning down fan speeds in unoccupied rooms when ventilation demand is reduced. The drives also can

control damper actuators as needed to help maintain proper room pressures and temperature control while outdoor fresh air exchanges are taking place. Forty-nine volume control dampers (Models VCDR and VCD) were installed to assist with pressure control by sealing off air from the VAV box. Greenheck volume control dampers reduce energy consumption by maximizing free area for lower pressure drop and minimizing air leakage. Greenheck fire and fire/smoke dampers (Models DFD and FSD) were needed to meet life-safety requirements.

The Results

Mechanical Engineer Jason Allen, Henneman Engineering, was pleased with how quietly the Vari-Green drives and Vari-Green motors perform. “They are really quiet, which is important in the

hospital ICU environment,” he said. “And I like the controllability and energy efficiency.” Facility Project Manager Rene Gorski stated that although it's too early to measure precise

reductions in energy costs, he expects that the use of Vari-Green motors and Vari-Green drives will produce significant energy savings and require less maintenance in the future.

