



UNC Woollen Gym - Chapel Hill, NC

Custom Air Handling Units

PROJECT SUMMARY

- **No. of Units:** 2
- **Total Air Volume:** 60,000 CFM
- **Application:** University Gym
- **Type:** Custom Design For Building Renovation
- **Client:** UNC Chapel Hill
- **Engineer:** Engineered Designs Inc., Cary, NC
- **Rep:** Brady Services - Raleigh, NC

Unit Features

- ▶ 2.25" thick polyester-coated galvanized steel casings with pressure injected foam insulation & No Thru Metal construction
- ▶ Custom aspect ratio with staggered & stacked coils
- ▶ 90 micron coated plenum fans with premium efficiency Baldor Super - E Motors
- ▶ Motor removal rail
- ▶ The AHUs were factory tested with 0.5% leakage rate at 8" static
- ▶ Drive Wedge quick field assembly of shipping splits ensures leak-tight installation
- ▶ SS drain pans with low-point drains (designed to meet ASHRAE 62.1 IAQ standards)

About

The renovation of UNC's Woollen Gymnasium, originally built in 1938 and serving as the campus's historic basketball arena, presented a unique set of challenges for the design team. A key aspect of the project involved creating a new mechanical room to house custom air handling units that would provide air conditioning for the women's basketball practice gym.



Challenge

The primary challenge was designing these air handling units to fit within the existing mechanical room's constraints, which required a high level of customization to integrate with the building's historical architecture. Compounding this complexity was the need to deliver the project on an expedited schedule, ensuring that the renovations were completed in time for the upcoming basketball season. The team had to balance modern functionality with preservation, creating a solution that met both the aesthetic and technical requirements of the project.

The Solution

To address the challenges, the custom AHUs were designed with modular shipping splits to fit through the available louvered openings in the historic building. This approach allowed the units to be carefully rotated and maneuvered into the space while preserving the integrity of the AHU structure.

The layout was also optimized to facilitate future service, ensuring easy access to key components. To maximize serviceability and efficiency, the units featured a staggered and stacked coil design, which not only improved airflow but also maintained essential service clearances. For the installation, a drive wedge quick-assembly design was utilized, which ensured a secure and airtight connection between sections without the need for extensive labor. This innovative assembly approach allowed for a seamless installation process, keeping the project on track while meeting the demands of both the expedited schedule and the historical preservation requirements.

Testing

The AHUs were leak and deflection tested for positive and negative pressures at the factory achieving the following results

- a max leakage rate of 0.25% at 8" static.
- casing deflection rating 1/240



The Result

The project team delivered a mechanical room and installation that provided a seamless integration of modern mechanical systems within the historical framework of UNC's Woollen Gymnasium. The mechanical room itself is compact, housing Klimak AHUs designed specifically to fit the constraints of the existing space.