



CASE STUDY

VANDERBILT UNIVERSITY FAN COIL RETROFIT

West Hall & North Hall (Historic Retrofit)

Owner

Vanderbilt University

Application

Student Housing

Price Sales Rep

Tom Barrow Company (TBCO)

Key Stakeholders

Randy Hurt (Vanderbilt University – Owner)

Nathan McDonald (Tom Barrow Company)

THE CHALLENGE

The West Hall and North Hall projects represented an evolution in dormitory HVAC design within 100+ year-old historic buildings. While newer dorm projects typically utilize horizontal, ceiling-mounted fan coil units, these retrofit applications required vertical fan coils due to existing building constraints.

Key challenges included:

- + **Historical Drawing Accuracy:** Accuracy of original drawings did not include all structural components
- + **Severe Space Constraints:** Tight envelopes that limited unit dimensions and minimized allowable building modifications
- + **System Modernization:** Converting legacy 2-pipe systems to **4-pipe configurations** within existing shafts and rooms
- + **Summer Break Turnaround:** The dormitory renovation needed to be completed during summer break for students arriving for the fall semester.

These factors required a solution that balanced performance, constructability, and preservation of historic structures.



THE SOLUTION

Price, working closely with Tom Barrow Company, addressed the challenges of the West Hall and North Hall projects through **custom-engineered fan coil solutions** tailored specifically for Vanderbilt's historic buildings.

A critical component of success was early and continuous in-person collaboration. Vanderbilt representatives visited the Price testing facility to review mockup units, while Price and TBCO supported coordination at the jobsite. From the owner's perspective, the ability to physically walk through the unit design provided clarity, trust, and confidence in understanding exactly what would be delivered.

Price Industries provided floor templates of the fan coils to help the mechanical contractors pre-pipe the dorms and streamline the installation. During this they found drawing inaccuracies. Price Industries quickly responded with customer cabinet extensions the contractors could add to the units which allow them to avoid the interfering structural components.

To support the conversion from legacy 2-pipe systems to modern 4-pipe configurations, new hot water piping had to be routed through extremely tight floor and wall penetrations. Early coordination and custom unit design enabled the team to accommodate new piping within limited space, reduce field conflicts during installation, and maintain existing room layouts with minimal disruption.

Each fan coil was built with custom dimensions by room, unit, and tag to address varying field conditions across the 100+ year-old buildings. Designs were carefully engineered to minimize building modifications while still meeting stringent sound, airflow, and heating capacity requirements, despite compact footprints.

This integrated approach allowed Vanderbilt University to modernize HVAC performance while preserving architectural integrity—demonstrating how **custom engineering, early validation, and close collaboration** can deliver successful outcomes in historic retrofit projects.

CONCLUSION

The West Hall and North Hall fan coil retrofit highlights the importance of aligning engineering flexibility, constructability, and owner engagement when upgrading HVAC systems in historic facilities. Through custom solutions, hands-on collaboration, and early coordination, Price and Tom Barrow Company helped Vanderbilt achieve **modern performance standards without compromising the character** or functionality of its historic residence halls. This project serves as a model for successfully navigating complex retrofit challenges in higher-education environments.