

**Waldrop's Role**  
Prime Contractor

**Contract Value**  
\$3,194,025

**Project Duration**  
Demolition | Construction  
15 weeks (92 days)  
May 3 – August 12 (2010)

**Preconstruction Phase**  
Preconstruction began  
Feb. 2010; started pipe  
fabrication in April 2010.

**Building Size**  
10 stories  
94,012 sf (occupied)

**New HVAC System  
and Equipment**

- 3 new air handlers
- New duct system
- 9 tons, (18,600 lbs.)  
of sheet metal and  
spiral duct
- 4 pumps
- 306 new chilled beam  
induction boxes
- 6.1 miles (320,000 lf)  
of copper tubing
- 2.4 miles (12,852 lf)  
of carbon steel pipe

**Percentage of Work  
Self-Performed**

100% of demolition work,  
installation of piping, and  
sheet metal activities.

*Subcontracted:*  
electrical, building  
automation, fire sprinkler  
and alarm, insulation,  
drywall/ceilings, painting,  
and test and balance  
activities.

**Merit Subcontracting**

Subcontractor selections  
were made *based on  
merit*, along with quality  
of the firm, in lieu of the  
lowest price.

## Section 2: Contracted Scope

Clemson University contracted Waldrop Mechanical Services to provide a turnkey mechanical renovation of Manning Hall, a high-rise dormitory on the University's main campus. Waldrop's scope of work encompassed construction of an all-new HVAC system, including demolition services as well as a complete retrofit of the basement mechanical room. The fast-track project was to be performed over the 2010 summer break with completion by mid-August — prior to the arrival of fall semester residents. The accelerated schedule posed a significant challenge for both Waldrop's construction team and the University. Waldrop was at risk for liquidated damages up to \$36,000 per day should its team not be able to complete the work by the target date; and, the University would need to be prepared to provide temporary housing for 400 students until the project was done.

Originally built in 1968, Manning Hall is a 10-story concrete structure with brick veneer, framed with metal truss walls coated with plaster. Waldrop demolished the existing 2-pipe mechanical system and replaced it with a new 4-pipe chilled water/hot water system. Original ductwork was demolished and replaced throughout the building. The mechanical system is equipped with dedicated outside air units which supply individual induction (chilled beam) boxes. These induction boxes are located in each dorm room and supply both heating and conditioned air to each resident space. Common areas on both the ground and main level are serviced by a single air handler that works in conjunction with variable air volume (VAV) boxes to condition these spaces. Modifications were also made to the electrical, fire alarm, sprinkler, interior wall systems and ceiling, and new insulation was added to the new piping and duct systems.

Prospective subcontractors for the various building packages were prequalified prior to bidding the work in order to determine the most qualified and capable firms for the fast-track, schedule driven project. As part of the selection process, along with pricing, we evaluated the contenders based on the following factors: relevant experience, understanding of the project scope of work and schedule expectations, corporate financials, proposed management team, company backlog, and depth of skilled trade resources available for the project. This process enabled Waldrop to award the various work packages — *based on merit* — to the most qualified and capable firms. Upon awarding the subcontracts, an alignment meeting was held with all of the selected subcontractors and major vendors to identify and establish the project expectations for the entire project team.