

# New Hanover County Schools - Snipes Academy of Arts

**65% Energy Reduction Compared to Baseline**  
**\$90,419 Energy Savings in 2013 Compared to Baseline**

## PROJECT DETAILS

LOCATION..... **Wilmington, NC**  
CONSTRUCTION TYPE..... **New Construction**  
BUILDING TYPE..... **K-12 School**  
OWNER..... **New Hanover County Schools**  
BUILDING AREA..... **89,850 Enclosed SF**  
BUILDING CODE OR STANDARD..... **ASHRAE 90.1-2004**

## DESIGN TEAM

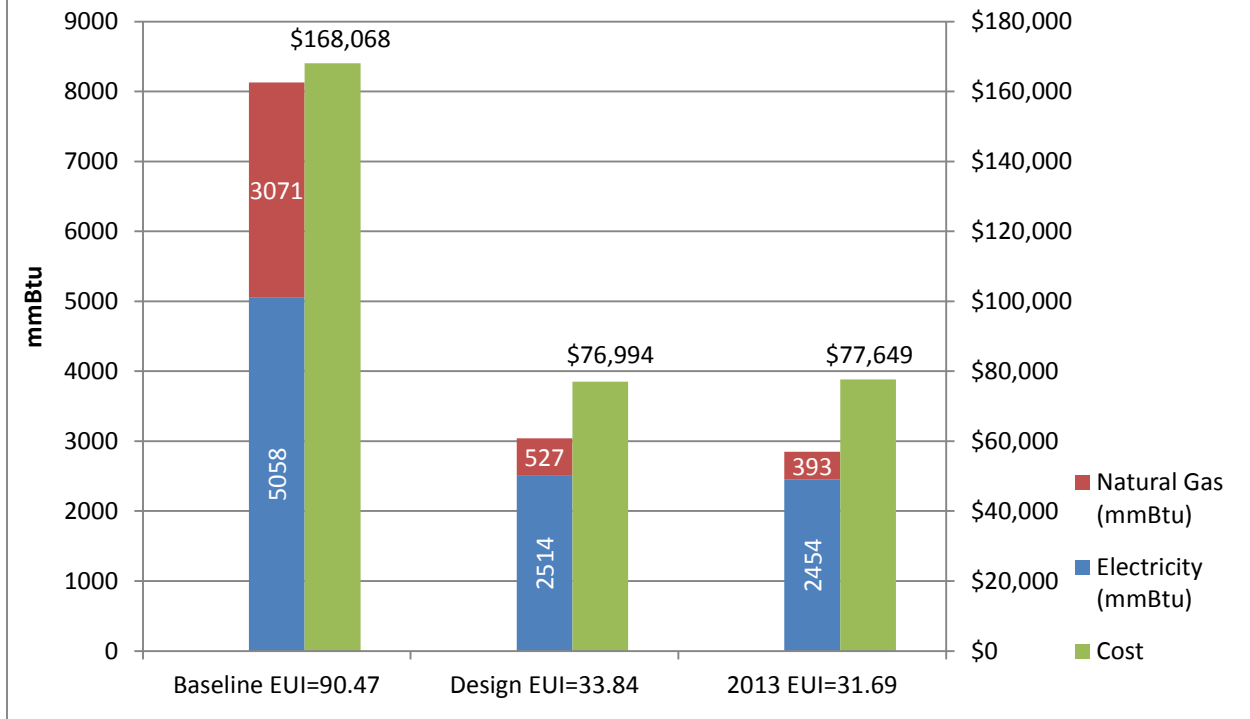
ARCHITECT..... **SfL+A**  
ENGINEER..... **MCBH Engineering**  
COMMISSIONING AGENT..... **KCI Associates**

## CONTACT

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## New Hanover County Schools Snipes Academy of Arts and Design



### Project Description

#### Mechanical Systems:

The mechanical system is a water-source heat pump (WSHP) with cooling tower and condensing boiler. It utilizes a dedicated outside air system design to decouple the latent and sensible loads in the building, providing for a minimal treatment of outside air when needed, energy recovery of all exhausted air and individual thermal comfort control of all occupied spaces.

The water-source heat pump system is designed so that each classroom has its own unit for control. The benefit of the water-source heat pump system is that it utilizes the inherent heating and cooling potential of the building itself. While south facing may require cooling, north face may require heat. The water-source heat pump system is able to “move the heat/cooling” within the building, providing thermal comfort while conserving energy. By moving internally, the boiler and chiller are not activated. In addition, the latent load supply and return of the dedicated outside air system incorporates energy recovery from all exhaust air of the facility.

Indoor air quality is monitored through CO2 sensors and provides outside air only when necessary. The Dedicated Outdoor Air System provides for dehumidification of all outside air introduced into the facility as well as heat and cooling recover from all exhausted air.

- Lighting Systems:** The lighting systems are controlled by occupancy sensors that turn off lights when spaces are vacant and control specific lighting in classrooms based on the amount of available daylight.
- Insulation:** Building Insulation is a critical element in the design of effective, high efficiency systems. This facility has a 2 ½" spray foam insulation on all exterior walls. The spray foam creates a continuous barrier and eliminates the short-circuits found in rigid insulation with taped joints. Air barrier design techniques are employed to assure adequate seals at all window and door penetrations and at roof/joist seat intersections. Six inches of polyisocynurate rigid insulation layered in two directions with staggered seams assures a good insulation barrier at the roof.
- Orientation/Daylighting:** The facility is specifically oriented so that the classroom windows face due north and south to avoid low-angle east-west exposures that create direct sunlight and glare. Daylighting and views are employed in all occupied spaces except the music room. Sunshades provide for reduced glare and minimize solar gain while glazings above the sunshades employ a "SOLERA" diffusion material to disperse light throughout the interior without glare. Sloped ceilings aid in the dispersion of equal light to achieve the proper lighting environment. Tinted glazings are employed on south facing glass while north facing glazings are clear to allow maximum ambient diffused daylight.