



ABOUT INNOVATIVE DESIGN

Since 1977 Innovative Design's mission has been to be the leader in energy-efficient, environmentally sound design, and to utilize that status to direct consumers and the architectural/engineering community to more sustainable solutions. For 32 years, Innovative Design has incorporated sustainable building practices into all of its work. Each of the firm's 4,755 energy-efficient buildings utilizes at least one solar energy system and employs as many other environmentally friendly materials and systems as is reasonable. The result is environmental and financial savings.

Cumulative peak energy savings for the firm's designs now exceed 42.5 megawatts (115 megawatts of primary energy), and since 2000, facilities designed by Innovative Design have saved over 156 million gallons of municipal water consumption. In addition, the firm's designs have decreased carbon dioxide emissions by 822,000 tons. These energy savings have reduced client energy bills by \$7.4 million annually, \$104 million to date.

While Innovative Design designs all types of buildings, its specialty is educational facilities. The firm has been involved in the design of more green educational facilities than any other firm in the country—112 facilities totaling over \$1 billion in construction value. Energy savings from these projects have resulted in financial savings for clients that total \$4.5 million annually and \$52 million to date. In addition, Innovative Design completes its projects at an average of 5% below the construction budget, resulting in additional savings for its clients.



INNOVATIVE DESIGN'S AWARDS & HONORS

In 2008, Innovative Design was inducted into the **National Environmental Hall of Fame** for its work in sustainable school design.

In 2006, ENERGY STAR® awarded Innovative Design a special recognition for **Excellence in Promoting Superior Energy Performance in Building Design**. This is the first time an architectural firm received this honor. ENERGY STAR® ratings have been issued for the design of five of our school projects: Northern Guilford Middle School (Greensboro, NC), Heritage Middle School (Wake Forest, NC), Millbrook Elementary School (Raleigh, NC), Reedy Fork Elementary School (Greensboro, NC) and Washington Montessori School (Washington, NC).

In 2005 the North Carolina State Energy Office named Innovative Design a **Sustainable Energy Champion**—North Carolina's top award for promoting energy efficiency.

Both Durant Road Middle School (Raleigh, NC) and Roy Lee Walker Elementary School (McKinney, TX) were placed on the AIA Committee on the Environment's annual list of **Top Ten Most Environmentally Sensitive Buildings in the Country**.

In 2005 Heritage Middle School was awarded the Sustainable Buildings Industry Council's **Beyond Green Award for the Nation's Top Exemplary Sustainable Building**. In 2007, Northern Guilford Middle School won the **Beyond Green Award for Best Sustainable School in the Country**.

The Illuminating Engineering Society of North America awarded Innovative Design their **2006 International Illumination Design Award of Merit**.

In 2008, the City of Raleigh awarded Innovative Design the first annual **Environmental Award for Pioneering Efforts**.

School Facility Energy Efficiency Renovations

Innovative Design would like to introduce you to our capabilities in high-performance, energy-efficient school renovation design. For over 30 years, Innovative Design has performed school facility energy efficiency renovations to reduce our clients' utility costs, extend the life of their facilities and to improve their students and staff performance by making their schools into more comfortable and healthier learning environments.

As part of North Carolina's efforts to improve the energy performance in schools and hospitals, we audited every school in Western North Carolina. We implemented energy conservation measures at forty-one of these schools on twenty-nine campuses in Graham, Johnston, McDowell, and Wilkes Counties. Additionally, we have audited and designed energy and water conservation strategies on over a hundred buildings ranging from governmental buildings to offices to health care facilities.

We can assess the state of your facilities, identify and prioritize cost-effective energy conservation measures, design the improvements and show your board and facilities staff how quickly an investment in energy efficiency improvements can be recovered. As a full service architectural firm, Innovative Design can assist your facilities staff in Bidding and Construction Administration, delivering a high performance upgrade to your school facilities that will be less expensive for you to build, save energy costs for many years and create a healthier, more productive indoor environment in which your students and staff will excel.



Innovative Design has provided energy analysis and design services to improve energy efficiency at each of the North Carolina schools listed below. In each case, the energy conservation measures paid back between two and ten years.

McDowell High School (Marion)	West Wilkes Junior High School (Millers Creek)
McDowell High School Field House (Marion)	Union Elementary School (North Wilkesboro)
East McDowell Junior High School (Marion)	East Wilkes High School (Ronda)
Glenwood Elementary School (Glenwood)	Mountain View Elementary School (Hays)
Food Service Building (Marion)	Traphill Elementary School (Traphill)
Nebo Elementary School (Nebo)	C.B. Eller Elementary School (Elkin)
North Cove Elementary School (Marion)	Roaring River Elementary School (Roaring River)
Old Fort Elementary School (Old Fort)	Selma Elementary School (Clayton)
Pleasant Gardens (Marion)	K-1 Classroom Building (Clayton)
West Marion Elementary School (Marion)	Administrative Building (Clayton)
Eastfield School (Marion)	Shop, TMH Facilities (Clayton)
West McDowell Junior High School (Marion)	Media/Classroom Building (Clayton)
Mount Pleasant Elementary School (Ferguson)	Smithfield-Selma High School Cafeteria Addition (Selma)
Fairplains Elementary School (North Wilkesboro)	Clayton High School (Clayton)
Woodward School (Wilkesboro)	Robbinsville High School (Robbinsville)
Boomer Ferguson Elementary School (Boomer)	Stecoah Elementary School (Robbinsville)
C.C. Wright Elementary School (North Wilkesboro)	The Asheville School (Asheville)
North Wilkes Junior High School (Millers Creek)	Ravenscroft School (Raleigh)
Moravian Falls Elementary School (Moravian Falls)	

NC SB 668: STATE FACILITY RENOVATIONS

In 2007, North Carolina enacted Senate Bill 668, mandating that all major facility renovations carried out by state agencies—including universities and community colleges—reduce energy consumption by 20% more than the ASHRAE 90.1 2004 standard, with a verification of energy performance required twelve months after completion.

Since 1977, Innovative Design's goal has been to meet this level of energy efficiency.

In addition to the renovation requirements, SB 668 also mandates that new state buildings use 20% less indoor potable water than required by the 2006 North Carolina Plumbing Code, and that outdoor potable water consumption be reduced by at least 50% over that consumed by conventional means.

By using rainwater harvesting for restroom flushing, potable water use in Innovative Design's recent new buildings is reduced by at least 80%. During droughts, we are able to reduce restroom flushing water use by 90% and potable water use by two-thirds. Innovative Design has also used rainwater harvesting for athletic field irrigation, most notably at Heritage Middle School in Wake Forest, NC.

To date, our most innovative strategy for reducing potable water consumption is at Northern Guilford Middle School. Rainwater harvested from Northern Guilford Middle School's rooftop is used for restroom flushing at both the middle school and the adjacent Northern Guilford High School. This process alone saves at total of 9 million gallons of potable water. Wastewater from both schools is treated through an on-site Living Machine™, and after treatment the water is used to irrigate athletic fields at both schools. The water then filters through constructed wetlands and bioswales before being reintroduced into the water cycle. Innovative Design was the first team in the country to obtain approval for this kind of system.

Innovative Design was also the first architecture firm in North Carolina to use rainwater harvesting for a school project, and to date we have utilized this strategy on over a dozen schools throughout the Southeast.



NC SB 3: SOLAR PURCHASE AGREEMENTS & RECS

With the signing of Senate Bill 3 on August 20, 2007, North Carolina became the first state in the Southeast to adopt a Renewable Energy and Energy Efficiency Portfolio Standard (REPS). Under this law, by the year 2021 investor-owned utilities in North Carolina are required to meet up to 12.5% of their annual electricity output with renewable energy. (Rural electric cooperatives and municipal electric suppliers are subject to a REPS requirement of 10%.) Investor-owned utilities must also meet incremental requirements as follows:

3% of 2011 sales by 2012 • 6% of 2014 sales by 2015 • 10% of 2017 sales by 2018 • 12.5% of 2020 sales by 2021

An electric utility can meet the REPS requirements by generating its own renewable energy, by purchasing electric power from another renewable energy facility or by purchasing Renewable Energy Certificates (RECs) from renewable energy generation sources. A Renewable Energy Certificate (REC) is a tradable financial certificate (like a stock certificate) representing the premium for a unit of renewable energy over a unit of electricity generated by a non-renewable fuel facility. There are several ways for school systems to use this law to create a green power profit center:

1. At its own expense a school system can install a renewable energy system (such as a photovoltaic (PV) or solar thermal system) then sell energy generated by the system to a utility or cooperative at a price contracted for up to twenty years.
2. A school system can contract with a private investor (or investors) to install a renewable energy system. The investor assumes all equipment and installation costs, and the school system provides installation space. Then, for a contracted period of time (typically seven years), the investor holds the rights to the energy generated by the system, either selling the energy to a utility, or providing energy to the school and selling RECs to a utility. After the contract period, the investor typically turns the system, the rights to the energy and all contracts with utilities over to the school system.
3. A school system can implement renewable energy systems or energy efficiency strategies in school buildings, then sell carbon offset credits on the Chicago Climate Exchange (or any other carbon trading entity) based on the amount of energy produced or saved.

With over thirty years of experience in the renewable energy field, Innovative Design is uniquely positioned to assist school districts with implementing these strategies. Our existing relationships with investors and utilities, as well as our experience implementing renewable energy systems in school facilities and understanding of the REC requirements, ensure the best possible results for all parties. As proof of our abilities, Innovative Design recently served as the City of Raleigh's agent in securing bids from solar developers for a megawatt size photovoltaic system. If accepted by Progress Energy for a power purchase agreement, the system will cost the City nothing to implement and result in a twenty-year positive cash flow for the City.

In addition to our experience with school facility renovations, Innovative Design has extensive experience in new school facility design, as well as energy efficiency renovations on other types of facilities. Some of that experience is listed below.

New Green Education Facilities

Haywood Community College (Clyde, NC)
 Andrew H. Wilson Elementary School (New Orleans, LA)
 Montessori at Sandy Ford (Newton, NC)
 Northern Guilford Middle School (Greensboro, NC)
 Reedy Fork Elementary School (Greensboro, NC)
 Montessori Community School (Durham, NC)
 Washington Montessori School, Phase I-II (Washington, NC)
 Heritage Middle School (Wake Forest, NC)
 Millbrook Elementary School (Raleigh, NC)
 Euzelle P. Smith Middle School (Chapel Hill, NC)
 The New Montessori School (Apex, NC)
 Dillard Drive Middle School (Raleigh, NC)
 East Clayton Elementary School (Clayton, NC)
 Sterling Montessori School, Phases I-IV (Morrisville, NC)
 Durant Road Middle School (Raleigh, NC)
 Clayton Middle School (Clayton, NC)
 Selma Middle School (Selma, NC)
 Four Oaks Elementary School (Four Oaks, NC)

University Renovations

Sullivan and Lee Dormitories, NC State University (Raleigh, NC)
 Fraternity Houses, NC State University (Raleigh, NC)
 Chi Psi Fraternity, UNC-Chapel Hill (Chapel Hill, NC)
 Nelson Hall, NC State University (Raleigh, NC)
 Reynolds Coliseum, NC State University (Raleigh, NC)
 D.H. Hill Library, NC State University (Raleigh, NC)

Religious Facility Renovations

White Memorial Presbyterian Education Building (Raleigh, NC)
 White Memorial Presbyterian Sanctuary (Raleigh, NC)
 First Baptist Education Building (Wilson, NC)

Highland United Methodist Administrative and Education Buildings, and Fellowship Hall (Raleigh, NC)
 Temple Beth Or (Raleigh, NC)
 West Raleigh Presbyterian Renovations and Additions (Raleigh, NC)
 First Baptist Educational Areas (Clayton, NC)
 First Baptist Handicapped Accessibility (Clayton, NC)
 Johnston Union Addition and Renovation (Smithfield, NC)
 St. Mary's Catholic Church (Garner, NC)

Government, Institutional & Commercial Renovations

Institutional Conservation Program (North Carolina)
 Union Depot Train Station (Selma, NC)
 Bank Mixed-Use Renovation (Selma, NC)
 Solargenix Energy (Chicago, IL)
 City of Raleigh Police Substation (Raleigh, NC)
 Springer-Carrier Factory of the Future (Porto Alegre, Brazil)
 Professional Building Renovation (Raleigh, NC)
 Selma Historic Properties Survey (Selma, NC)
 Eagle Tavern Kitchen Addition (Halifax, NC)
 Town of Selma Police/Fire Station (Selma, NC)
 El Mex Restaurant (Raleigh, NC)
 Watauga County Parks and Recreation Pool (Boone, NC)
 Chapel Hill-Carrboro YMCA Solar System (Chapel Hill, NC)
 Sampson County Memorial Hospital Orthopedic Clinic (Clinton, NC)
 Sampson Physical Therapy & Lobby Renovation (Clinton, NC)
 REM Renovations (Athens, GA)
 Wake County Courthouse Offices (Raleigh, NC)
 Wake County Office Building (Raleigh, NC)
 Sanchez Bar (Raleigh, NC)
 Equinox II Renovation (Innovative Design's Office, Raleigh, NC)

