

Third Creek Elementary School

First K-12 School in World to Earn a LEED® Gold Certification

Client:
Iredell-Statesville Schools
Statesville, North Carolina

Client Contact:
Mr. Rob Jackson
Construction Manager
704.924.2036

Capacity:
800

Area:
92,500 sq. ft.

Construction Budget:
\$10,020,000

Construction Bid:
\$9,844,594

Completion Date:
July, 2002



Photos by Spark Productions



- 1. Courtyard
- 2. Media Center
- 3. Administration
- 4. Multi-Purpose
- 5. Platform
- 6. Student Dining
- 7. Serving
- 8. Kitchen
- 9. Mechanical/Electrical
- 10. First Grade Classroom
- 11. Resource
- 12. Teacher Center
- 13. Kindergarten
- 14. Pre-Kindergarten
- 15. Fourth Grade Classroom
- 16. Fifth Grade Classroom
- 17. Fourth/Fifth Grade Classroom
- 18. Second Grade Classroom
- 19. Second/Third Grade Classroom
- 20. Third Grade Classroom
- 21. Art
- 22. Music
- 23. SC/EC

This 800 student elementary school was designed to replace the aging ADR and Wayside schools, and to accommodate the rapid growth in the central portion of the county. A design committee made up of teachers, administrators, and parents met to discuss their goals and priorities for the school. The administrative offices are located prominently at the main entrance to have good supervision of all visitors entering the facility. The grade levels are broken down into smaller "houses" each comprised of two grade levels. The gymnasium, stage, and dining room are located so they may operate after hours for community use, while the academic portion of the building is secured. With the goal of creating a high performance design, several "Green Building" techniques were incorporated. Natural daylight is featured in all classrooms. Energy efficiency, indoor air quality, and recycled content were taken into consideration in the selection of building systems and materials. There is also a constructed wetland serving as an outdoor classroom.

MOSELEYARCHITECTS
moseleyarchitects.com
601 Southlake Boulevard
Richmond, VA 23236
Phone: 804.794.7555, FAX: 804.379.8660
WWW.MOSELEYARCHITECTS.COM



Third Creek Elementary School is the first K-12 school building in the World to earn a LEED® v2.0 Gold rating from the US Green Building Council.

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What Are The Features of a “High Performance” School?

Site Planning:

Bicycle Friendly Facility, Constructed Wetland, Reduced Site Disturbance, “Heat Island” Reduction, Light Pollution Reduction

Water Use:

Water Efficient Landscaping through “xeriscaping” (use of native, drought-resistant species); Indoor Water Use Reduction through use of waterless urinals, metering faucets, low-flow faucets and showerheads

Energy Use:

Optimized Energy Performance through solar orientation of building on site; daylighting/light shelves; increased insulation; low-e glazing; efficient lighting with occupancy sensors; building commissioning; and long-term measurement and verification



Materials & Resource Use:

Construction Waste Management; Storage and Collection of Recyclables; Recycled-Content Building Materials; Locally Manufactured; Rapidly Renewable Materials; FSC-Certified Wood

Indoor Environmental Quality:

Optimized Ventilation Effectiveness; Carbon Dioxide Monitoring; Construction IAQ Management; Low-emitting Materials; Indoor Pollutant Source Control; Operable Windows; Daylight and Views

Benefits:

Witnessed energy savings of \$95,872 during first three years; Increased potential for learning and teaching; Reduced absenteeism; Uses building and surrounding site as a teaching tool; Demonstrates good stewardship of our Earth

“Third Creek Elementary School replaced ADR and Wayside Elementary schools that were two of the district’s lowest performing schools in regards to test scores and teacher retention/absence. This same group of students and teachers improved from less than 60% of students on grade level in reading and math to 80% of students on grade level in reading and math since moving into the new Third Creek Elementary School. Third Creek had the most gains in academic performance of any of the 32 schools in the school system. We feel that the sustainable approach to this project has had very positive results.”

Terry Holliday
Superintendent
Iredell-Statesville Schools

Since Third Creek Elementary School opened in 2002, we have worked hard to track and document any energy savings that are a direct result of incorporating high performance design elements. We have also monitored how the design has affected the students that use the facility. The following data was obtained during the first three years of the school’s operation.

Third Creek Elementary was designed to exceed ASHRAE 90.1 Energy Cost Budget by 20-25 percent. The school met this goal during the first year of operation, exceeding the baseline model by 22.89 percent and has continued to see energy cost reductions since.

School Year	Electric Bills	Gas Bills	Total	Total Savings
Model	N/A	N/A	\$86,446	22.89%
2002-2003	\$65,560	\$17,663	\$83,223	25.76%
2003-2004	\$65,981	\$16,637	\$82,618	26.30%
2004-2005	\$58,392	\$16,222	\$74,614	33.5%

A number of studies have repeatedly established that an influential relationship exists between a school’s physical condition and students’ performance. During the first three years of operation, students significantly improved their test scores.

School Year	Test Scores
1996-1997	51.9%
1997-1998	68.6%
1998-1999	64.5%
1999-2000	64.5%
2000-2001	61.5%
2001-2002	64.5%
2002-2003	79.8%
2003-2004	79.7%
2004-2005	80.9%

These figures are perhaps the most interesting and encouraging to teachers and parents. Comparing Third Creek Elementary students’ test scores to ADR Elementary and Wayside Elementary schools, reveals a significant improvement. This data suggests that a distinct correlation exists between improving a student’s learning environment by incorporating sustainable elements into the design of a school and the positive effect it has on his or her performance.

“On each of the things we’ve done in this project, we’ve learned things that made me ask why we don’t do it on every project. Some of it is just common-sense things we ought to do on every one.”

Mary Bruce McKenzie Serene
Member of the Iredell-Statesville School Board and Mother

“The teachers are just amazed. They are integrating it into the standard course of study [for] ecology issues, recycling issues, or garden issues.”

Rob Jackson
Construction Manager
Iredell/Statesville Schools