



Saving Energy for Cypress Grove Montessori School

The Louisiana State University Industrial Training and Assessment Center (LSU-ITAC) is committed to helping local facilities take the next steps to energy efficiency and sustainability. Cypress Grove Montessori School (CGMS) partnered with LSU-ITAC for an assessment of their campus. The students' findings are detailed below.

Assessment Benefits

- The report identified a total cost saving of **\$21,431** per year.
- The total implementation cost was **\$3,809** leading to an average payback period of **0.18** years.
- The implementations of our team's recommendations would reduce their carbon dioxide emissions by **24.65%**.

Summary

The Louisiana State University Industrial Training and Assessment Center (LSU-ITAC) performed an assessment of a local school in need of energy savings. The assessment took place in Litcher, Louisiana on March 6th, 2025. Five recommendations were finalized in the report estimating a total cost savings of \$21,431 per year. An annual reduction of 65 tons/year was estimated for the recommended changes. By working with CGMS, student engineers were able to help a local school save money and go green! This school is sponsored by Occidental Chemical Corporation. They generously provided this school with the funds to implement our recommendations.



Cypress Grove Montessori School – Litcher, Louisiana

Group attendants left to right: Amelie Echeverria, Jared Browning, Anna Bohannon, CGMS facility representative, Brandon Crandall, and Asif Chowdhury.

Cypress Grove Montessori School

Cypress Grove Montessori School Provides an environment that supports individuality and compassion for all. The school uses a knowledge rich, child-centered educational approach, valuing the development of the whole child – physically, socially, emotionally, and cognitively. The 60 employees keep this 61,506 square foot school running efficiently. The LSU-ITAC team found that the school employs a good practice including redundant system chillers, pumps on VFD's and fans on chillers, partial implementation of LED lights as well as the partial implementation of occupancy sensors.

Evaluation Approach

The LSU-ITAC team consisted of seven students and three assistant directors. Once on site, the team worked with the Principal, Linda Lowman, to tour the facility and identify areas of possible recommendations. After a brief meeting, students revisited potential recommendations to collect data for the final report process. The assistant directors worked with plant management on identifying areas of concern for additional recommendations. The team had a final meeting with the Principal about the

Facility Highlights

- An authentic Montessori learning environment with hands-on, child-centered education designed to support independence and critical thinking.
- Operates 8:00 am to 3:30 pm, Monday through Friday.
- The academy located in St. James Parish School System originated in the 2018-2019 school year.
- Facility had already successfully began implementing LED lights and occupancy sensors.

findings and returned to campus to conduct further research and calculations. The LSU team finalized and submitted the report on April 30th, 2025.

Reduce Heat Gain by Window Tinting

The LSU-ITAC team discovered that the Cypress Grove Montessori School could save \$9,960 annually by using solar window film to prevent harsh ultraviolet rays from the sunlight reaching the classrooms. By insulating the sun-facing windows with the solar control window film, the heat reaching through the windows is reduced and cuts back the cooling load of the building, saving on utility bills. At maximum capacity, window tinting can

reduce up to 85% of the heat from the sun, give 99% rejection of ultraviolet light, and reduce 95% of the glare. Installing the solar control window film made tremendous economic sense and resulted in energy savings due to the high ratio of cooling loads to heating loads. This recommendation has a payback period of only 0.17 years making it an easy cost-saving implementation.

Other Recommendations

Our team found four other recommendations, and when combined with the savings from the Reduce Heat Gain by Window Tinting, they would save the company 24.83% in total annual utility costs! AR-1 was to adjust the chill water temperature to the highest possible value. AR-2 was to reduce space conditioning during the holidays. AR-3 was to reduce heat gain by window tinting. AR-4 was to install occupancy sensors. AR-5 was to utilize higher efficiency lamps and/or ballasts

ITAC Recommendations that were Implemented at the Facility

Assessment Recommendations	Annual Resource Savings (kWh/MMBTU/gallons/etc.)	Total Annual Savings	Implementation Cost	Simple Payback
Adjust the Chill Water Temperature to the Highest Value Possible	48,427 kWh	\$6,053	\$250	0.04 yrs.
Reduce Space Conditioning During the Holidays	18,312 kWh	\$2,289	\$175	0.08 yrs.
Utilize Higher Efficiency Lamps and/or Ballast	14,852 kWh	\$1,856	\$1,224	0.66 yrs.
Total:	81,591 kWh	\$10,198	\$1,649	0.26 yrs. (avg.)