

SMALL COMMERCIAL LIGHTING PROGRAM — CASE STUDY

“The staff and patients enjoy the bright, comfortable atmosphere our lighting system creates, while we appreciate the energy savings.”

Bonnie Sharp,
Business Manager

Project Profile

Type of Space

Medical Offices

Square Footage

5,311 of office, laboratory, and examination rooms

Project Objective

A bright, comfortable atmosphere for the patients, good lighting for the dentist and staff, and low utility costs.

Project Benefits

Satisfied patients
Good working conditions for staff
Lower utility bills

The Adirondack Dental Implant Center in Queensbury was founded in 1999 by Dr. Robert Sharp for the express purpose of concentrating on advanced restorative treatment requiring bone grafting, dental implants, and advanced prosthodontics. Or, as Dr. Sharp puts it, “Beautiful smiles are our business.” When his growing practice needed more space, Dr. Sharp decided to build a new energy-efficient building that would provide the staff with state-of-the-art equipment, good working conditions, and a comfortable atmosphere for the patients. After the Town Planning Board approved the building plans, Dr. Sharp contacted his electrician, Bob Murtha of Murtha Electric, an Ally Contractor in the New York Energy SmartSM Small Commercial Lighting Program (SCLP).

Recognizing that good lighting is important because of the fine-detail dental work Dr. Sharp performs, Bob showed him how good lighting would also reduce energy costs—an effective, energy-efficient lighting design that would benefit staff and patients.

A Variety of Spaces

The new building incorporates a variety of space types, including examination and treatment rooms, laboratories, a nurses’ station, offices and conference rooms, a medical library, storage areas, and a break-room, each requiring its own lighting solution. Bob suggested that certain values be maintained for all spaces. For instance, high color-rendering lamps were to be used, especially in the laboratory and exam rooms where matching colors was important. Glare controlled fixtures were to be used for patient comfort in the exam rooms and to create comfortable working conditions for the dentist and staff. Light levels were to be sufficient for the intricate work being done, without being too bright or wasting energy. The lighting system that Bob installed incorporated these values, resulting in a solution that provides quality lighting that meets the needs of the practice at only 1.16 Watts per square foot.

High color-rendering, two-lamp T-8 fluorescent fixtures light the examination and treatment rooms. The rooms are bright and cheerful due to large windows that take advantage of natural light. In the evening and on overcast days the low-glare lensed fixtures also provide a high level of light. Low-glare fixtures maintain visual comfort for the patients, even when they have to look at the ceiling for long periods of time.



An attractive exterior houses an effective, energy-efficient lighting design for the Adirondack Dental Implant Center

Supplemental medical task lighting provides additional light in the examination rooms. Occupancy sensors in the laboratories and storage areas further reduce energy costs by turning off lights when the spaces are unoccupied.

Two-lamp T-8 18-cell parabolic fixtures with high color-rendering lamps were used in the library and office spaces, providing good light levels (30 to 50 footcandles). Since very low-glare parabolic fixtures were installed in these spaces, staff can view computer screens without annoying reflections, providing a very comfortable work atmosphere. The staff prefers the new lighting to the four-lamp lensed fixtures in their old offices, and Dr. Sharp appreciates that they use less than half the energy while providing proper, effective light.

In addition to effective, energy-efficient lighting for the work areas of the office, thought also was given to the patients’ comfort. A combination of downlights and accent lighting provide a “home-like” setting throughout the patient waiting areas and lobby.



Examination room lighting is low-glare, while providing adequate illumination for treatment.

Dr. Sharp's office lighting provides a comfortable atmosphere for patient consultations.

The Bottom Line

Lighting energy use for the medical building is well below the maximum allowed by the Energy Conservation Construction Code of New York State. General lighting is provided with only 1.04W/sf, and accent lighting is accomplished with only 0.12W/sf. Including the additional savings from occupancy sensors, energy cost savings will exceed \$1,400 per year compared to similar spaces.

At a cost of less than \$3 per square foot for lighting materials, this can be considered a very affordable project. Using two-lamp instead of three-lamp fixtures not only can provide more than adequate light levels, but also reduces fixture first cost and recurring energy costs. With additional energy cost savings realized by incorporation of occupancy sensors, the energy savings will pay for this entire new lighting project in less than seven years. Equally important, the staff and patients at Adirondack Dental Implant Center are enjoying the benefits of an effective, energy-efficient lighting system.



For More Information

The New York State Energy Research and Development Authority (NYSERDA) offers businesses energy-saving opportunities through the New York Energy SmartSM Small Commercial Lighting Program. Additional programs can help businesses reduce utility costs, including the New York Energy SmartSM Smart Equipment Choices Program, which offers financial incentives to businesses for energy-efficient lighting equipment and a variety of other electric-efficiency measures. Low interest rate financing may be available through the New York Energy SmartSM Loan Fund Program.

To learn more about these incentives and to make your lighting more effective and efficient, visit www.nyserdera.org/scfp or call toll-free 1-866-NYSERDA (1-866-697-3732).

Tech Specs

- Eight different low-glare fixture types
- High color-rendering fluorescent lamps
- Halogen down lights
- Occupancy sensors in infrequently used spaces
- 1.16 installed Watts per square foot for lighting
- Estimated annual kilowatt-hours saved compared to typical medical offices: 14,685kWh
- Estimated annual energy savings compared to a typical medical office: \$1,468*

*Savings based on \$0.10 per kWh, 2,340 operating hours per year, and reduced operating time from occupancy sensors.