

## Final Conclusions

The redesign of architectural engineering elements in the Franklin Care Center provide an environmentally friendly building while creating a comfortable home and functional medical institution. Redesigned lighting for the Main Entrance Lobby, Chapel, Physical Therapy Suite and Exterior Courtyard meet the design criteria set for each separate space while maintaining power densities below ASHRAE 90.1. On average the power density for each space was 7% below ASHRAE. Considering the increased illumination levels required in these spaces and the conditions limiting the use of direct lighting, this is a significant energy savings. Since the Franklin Care Center is an existing building this energy savings will help to earn at least 1 Point for LEED Energy and Atmosphere Credit 1, Optimizing Energy. Additional energy savings will be obtained through the use of the building's DALI control system, dimming, photosensors and occupancy sensors. The design for this control system was further explored in the LEED breadth. The addition of operable windows also performed in the LEED breadth will give more flexibility to the perimeter of the building and make the occupants more comfortable. An increased number of air controls will reduce wasting energy by overheating or overcooling a space. As a result, LEED Indoor Environmental Quality Credits 6.1 and 6.2 will also be earned.

While the redesigned electrical system does not result in direct energy savings, the use of smaller wires and conduits will reduce the amount of materials needed for the system. The new system also saves a notable amount of money at the expense of space that is already available.

In conclusion, redesigning the architectural engineering systems in the Franklin Care Center presented many challenges. Each space included in the lighting redesign presented individual challenges that were confronted with comprehensive solutions. By redesigning systems for a LEED certified building environmental concerns were a priority throughout the various designs and influenced various decisions. The redesigned systems provide an energy efficient building that will still be awarded with LEED certification.