

Executive Summary

The building and plant energy analysis for the Miller Children’s Hospital Pediatric Inpatient Addition is comprised of several parts: LEED-NC analysis, ASHRAE Standard 90.1-2004 compliance, lost rentable space and first cost, design load estimation, and building energy consumption. The LEED-NC assessment results in 19 secured points with the possibility of grasping several more in Indoor Environmental Quality upon completion of construction. An additional 7 points will result in LEED Certification with a minimum of 26.

In order to comply with ASHRAE Standard 90.1–2004, the building must meet certain requirements regarding building envelope, HVAC systems, and power and lighting systems. The results are listed below in Table 1. The systems comply with the exception of lighting, which has higher than acceptable values for energy usage.

Table 1: ASHRAE Standard 90.1-2004 Compliance Summary

	Building Envelope			HVAC Systems				Power & Lighting	
	Roof Insulation	Wall Insulation	Glass U-Value	Chiller COP	Boiler Efficiency	Cooling Tower	Pipe Insulation	Voltage Drop	Lighting
Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

The mechanical systems, including equipment and vertical air shafts, covers 2,200 sq. ft. of the total building floor area. This results in a loss of approximately 2% of rentable space. The mechanical bid awarded for the Pediatric Inpatient Addition was \$2.1 million, resulting in a first cost per sq. ft. of \$16.59.

The design load estimation used Trane’s Trace 700 software program to calculate the building loads and design air flow rates. The result is similar supply air flow rates to those designed by the mechanical engineer. Only one of the seven air handling units has a calculated supply air flow rate that is higher than what was designed. A cost estimate of the mechanical, power, and lighting systems results in an annual operation cost of approximately \$320,000. The HVAC system comprises 60% of that cost.