

Case Study

Commercial Case Study

Two Social Security buildings located in similar climate zones were used to compare the energy usage and the effectiveness of BioBased 501w® insulation and fiberglass insulation in commercial buildings.

Both buildings were new construction. The building insulated with BioBased 501w® was in Miami, Oklahoma and totaled 5,500 square feet. The building insulated with fiberglass was in Blytheville, Arkansas and totaled 3,920 square feet.

Throughout the course of a year the electricity usage for the two buildings was tracked and evaluated. At the end of the year, the results were reviewed and the following findings were identified.

The building insulated with BioBased 501w® used 28% less energy per square foot than the building insulated with fiberglass, even though the fiberglass-insulated building was 1,600 square feet smaller.

During the coldest months of the year, the BioBased Insulation® building was even more efficient than the smaller, fiberglass-insulated building and used 45% less energy.

During the months February, March and April, the building insulated with BioBased Insulation® used fewer kilowatts per hour than the smaller, fiberglass-insulated building, peaking at 74% more efficient during the month of March.

The building insulated with BioBased Insulation® used significantly less energy per square foot over the course of a year than the fiberglass-insulated building. The BioBased Insulation® building outperformed the fiberglass-insulated building over the course of the year because the tight building envelope created by BioBased Insulation® prevented air infiltration and exfiltration, the number one cause of energy loss in a structure. The inability of the fiberglass insulation to seal the building envelope causes the heating and cooling system to work harder to maintain a stable temperature, which increases utility bills.

In addition to significantly lower utility bills, a building insulated with BioBased Insulation® is healthier and more comfortable. Indoor air quality is improved because outside air, which contains pollens and pollutants as well as mold-causing moisture, is not allowed in the structure. Also, because air is not allowed to move through the walls, drafts are virtually eliminated, creating a more comfortable working environment.



Blytheville, AR



Miami, OK

Case Study (continued)

KWH Comparison
Miami, OK Blytheville, AR
Social Security Buildings

Project Information	Insulation	Sq. Ft.	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	Total	Average
Blytheville, AR Building	Fiberglass Batt Insulation	4,214														
Miami, OK Building	Soy-Based Spray Foam	5,806														
KW Hours Used																
	Blytheville		7,120	7,280	6,640	7,920	6,080	8,560	6,080	8,560	13,040	16,720	11,440	8,160	107,600	8,967
	Miami		8,000	9,200	8,800	8,960	7,200	8,000	8,032	9,324	12,612	13,245	10,045	10,680	114,098	9,508
KW Per Square Foot																
	Blytheville		1.69	1.73	1.58	1.88	1.44	2.03	1.44	2.03	3.09	3.97	2.71	1.94	25.53	2.13
	Miami		1.38	1.58	1.52	1.54	1.24	1.38	1.38	1.61	2.17	2.28	1.73	1.84	19.65	1.64
	Difference		0.31	0.14	0.06	0.34	0.20	0.65	0.06	0.43	0.92	1.69	0.98	0.10	5.88	0.49
Percent Less KW Hours			22.6%	9.0%	4.0%	21.8%	16.3%	47.4%	4.3%	26.5%	42.5%	73.9%	56.9%	5.3%		28%

