

University of South Carolina Columbia, SC



USC Year Over Year Overview

The Boiler System and Setting

The Colonial Life Arena, Athletic Practice Facility, and McMaster College were fitted with M2Gs

The Colonial Life Arena is a sports facility used for basketball games, concerts, and graduations. The arena has 329,000 sq. ft. of floor space and uses two Parker boilers to provide heating and reheat for the building. Each Parker boiler is 5,440,000 BTU/hr in capacity.

The Athletic Practice Facility is used by the volleyball and basketball teams and some space is also used for offices. The practice facility has 30,000 sq. ft. of floor space and makes use of a Peerless Boiler with a capacity of 1,176,000 BTU/hr.

The McMaster College building consists of classroom and office space used by USC's Art School. For space heating, this 43,500 sq. ft. building uses a RayPak boiler with a capacity of 1,825,600 BTU/hr.

The Results

M2G reduces energy consumption by 13.1%

The M2G boiler optimization control unit was installed on July 12, 2011. A year over year energy analysis was performed for the three facilities equipped with the M2G using USC's actual billing data. An average gas consumption baseline was established using two years' worth of billing data prior to the M2Gs' installation. The baseline was then compared to the gas consumption during the first year after the M2Gs' installation. The consumption was normalized using heating degree days (HDD) to account for weather variation.

The results found in the table below show that the three buildings averaged a 13.1% energy savings with a return on investment of two years.



Colonial Life Arena



Athletic Practice Facility



| Building | Building Size | Boiler Make | Boiler Output | Energy Savings | ROI |
|----------------------------|-----------------|-------------|------------------|----------------|------------------|
| Athletic Practice Facility | 30,000 sq. ft. | Peerless | 1,176,000 Btu/hr | 12.7% | 3.4 years |
| McMaster College | 43,500 sq. ft. | RayPak | 1,825,600 Btu/hr | 9.9% | 1.9 years |
| Colonial Life Arena | 329,000 sq. ft. | (2) Parker | 5,440,000 Btu/hr | 16.6% | 0.7 years |
| | | | Average | 13.1% | 2.0 years |



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