Energy Efficiency in Multifamily Affordable Housing: How can precedents of high performance affordable housing inform energy efficient building practices in this sector?

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Executive Summary:

Twelve multifamily affordable housing buildings in New York City were surveyed and an analysis of their energy performance was performed. Data was obtained through field visits and analysis of utility records. Two of the buildings were constructed with high energy performance goals in mind, and achieved the ENERGY STAR for Homes label. It was found that the ENERGY STAR buildings used 26% less energy than the control group average, and in return paid 30% less in utility costs over the course of 2008. The energy savings of this building were found to have come from a variety of measures, the most common theme among them being that a third party worked with a hands-on owner to verify appropriate design and installation of the building's envelope and mechanical systems. Some buildings in the control group performed more efficiently than the control group, but the ENERGY STAR buildings were among the most efficient buildings by every metric. There was a great disparity in the energy use per square foot between buildings. One building used 122 kBTU/SF per year, while another used 60 kBTU/SF per year – less than half. The building with the smallest heating density performed at 3.9 BTU/SF/HDD, while the greatest heating density was 12.78 BTU/SF/HDD – a ratio greater than 3:1. It is concluded that many high-performance energy measures can be implemented within the budget of an affordable housing project and provide a substantial return on investment.