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**Energy Audit Summary  
Department of Housing and  
Urban Development**

**Housing Authority of the  
City of La Crosse  
La Crosse, WI**

**Michael's No.: H3406AAN  
November 2006**

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## **1. Introduction**

The Housing Authority of the City of La Crosse retained Michaels Engineering to complete energy audits for its seven high-rise facilities, four low-rise developments, a preschool, and the Housing Authority Administration building. These energy audits meet the federal Housing and Urban Development requirements for periodic energy audits. This report contains a summary of the individual building reports.

The individual building reports (attached) also include rough cost and savings estimates for the identified measures. These estimates were generated using rules of thumb, experience with similar projects in other facilities and engineering judgment. The analysis is not investment grade.

The intent of these estimates is to provide a magnitude of savings potential and approximate costs to achieve the savings. The estimates are at best accurate to one significant figure. The estimates will help the Housing Authority to decide whether to pursue certain projects and to plan for future facility upgrades. Select projects can be analyzed in detail as part of a separate effort if further project development or investment-grade financial information is needed to support the decision making process.

Potential incentives from Wisconsin's Focus on Energy program are included as well. These incentives are estimates only.

## 2. Energy Star Ratings

The US Environmental Protection Agency (EPA) provides a means for benchmarking the energy use of buildings through the Energy Star program. A building is given a rank between 0 and 100 that corresponds to the percentage of similar buildings that it outperforms in energy use. The energy records and building specific information for the high rise apartments, Margaret Annett Center, and the Administration building were evaluated. The results follow.

### La Crosse Housing Authority

November 14, 2006

Total Buildings: 9

Facility Name	Current Rating (1-100)	Total Floor Space (Sq. Ft.)	Current Energy Period Ending Date	Qualify for the ENERGY STAR?
Administration Building	96	6,390	7/31/2006	Qualifies
Becker Plaza	81	55,000	4/30/2006	Qualifies
Forest Park	65	55,000	4/30/2006	Does Not Qualify: Rating must be 75 or above
Margaret Annett Center	30	6,470	9/30/2006	Does Not Qualify: Rating must be 75 or above
Ping Manor	78	50,000	4/30/2006	Qualifies
Sauber Manor	80	73,500	4/30/2006	Qualifies
Solberg Heights	89	66,156	4/30/2006	Qualifies
Stoffel Court	80	61,000	4/30/2006	Qualifies
Stokke Tower	58	55,800	4/30/2006	Does Not Qualify: Rating must be 75 or above
<b>Group Total</b>		<b>429,316</b>		

Since tenants are responsible for energy bills in the low rise family homes, energy records were not available. Energy Star ratings were not determined for the low rise family homes.

### 3. Opportunity Matrix for All Buildings

Table 1 shows the project identified and recommended for each of the buildings looked at for the La Crosse Housing Authority. Refer to each building's specific report for details.

**Table 1: Opportunity Matrix**

Opportunity	Building												
	Administration Building	Becker Plaza	Forest Park	Grover Estates	Huber Homes	Margaret Annett Center	Mullen Homes	Ping Manor	Sauber Manor	Shuh Homes	Solberg Heights	Stoffel Court	Stokke Tower
Install Condensing Boilers*		X	X						X		X	X	X
Install Condensing Furnaces*										X			
Install Heating Water Pump VFD		X	X						X		X	X	X
Retrofit Fluorescent Lighting	X	X	X			X		X	X	X	X	X	X
Install LED Exit Signs		X											
Install High Efficiency Water Heaters*		X	X			X			X		X	X	X
Install DHW Pump Timeclock									X				
Install Additional Roof Insulation*									X				
Convert to Gas Clothing Dryers		X	X						X		X	X	X
Install Vending Miser		X	X					X	X		X	X	X
Install Water Heater Blanket				X	X		X			X			
Install DHW Pipe Insulation				X	X		X			X			

\*These opportunities are recommended for implementation at the end of the existing equipment's useful life. This is also specified within individual reports.

#### 4. Individual Building Opportunity Cost and Savings Summary

Table 2 shows the energy savings and cost estimate total for each individual building. Note that these are preliminary estimates only and should not be treated as investment grade material.

Table 2: Cost and Savings Summary

Building	kWh Savings	Therm Savings	Gallon Savings	Dollar Savings	Cost Estimate	Simple Payback Years
Administration Building	284	-	-	\$ 104	\$ 1,203	11.6
Becker Plaza	46,717	2,975	-	\$ 5,919	\$ 36,481	6.2
Forest Park	42,625	3,560	-	\$ 8,432	\$ 57,539	6.8
Grover Estates	8,580	-	-	\$ 492	\$ 390	0.8
Huber Homes	-	1,360	-	\$ 1,442	\$ 520	0.4
Margaret Annett Center	8,351	109	-	\$ 846	\$ 4,865	5.8
Mullen Homes	16,874	-	-	\$ 969	\$ 767	0.8
Ping Manor	7,926	-	-	\$ 442	\$ 2,250	5.1
Sauber Manor	39,815	7,290	-	\$ 10,584	\$ 52,949	5.0
Shuh Homes	24,850	7,881	-	\$ 9,536	\$ 39,026	4.1
Solberg Heights	30,258	1,887	-	\$ 3,945	\$ 31,114	7.9
Stoffel Court	24,445	3,341	-	\$ 5,564	\$ 41,071	7.4
Stokke Tower	45,211	4,350	-	\$ 7,231	\$ 33,296	4.6
<b>Total</b>	<b>295,935</b>	<b>32,753</b>	<b>-</b>	<b>\$ 55,506</b>	<b>\$ 301,471</b>	<b>5.4</b>

## **5. Closing Comments**

The buildings audited for the La Crosse Housing Authority are very well maintained and in good operating condition. Most of the energy saving opportunities identified involve updating technology such as lighting, boilers, or water heaters.

There were fewer opportunities identified for the family homes and smaller buildings (Margaret Annett Center and Administration Building) for several reasons. The first is that the Housing Authority has done a good job in bringing the building envelope such as windows and roof insulation up to levels consistent with or better than current energy codes. The second reason is that these buildings are less complex than the high rise buildings and have fewer energy using systems.

Through the energy audits performed for the La Crosse Housing Authority energy opportunities were identified that have the potential to save more than \$55,000 in annual energy costs. Implementation of these projects is estimated to cost approximately \$301,000 resulting in a simple payback of 5.4 years for the entire set of projects.