

AGENDA

County Facilities
February 1, 2011 – 11:00 am

- 1.) CALL MEETING TO ORDER.....Ch. Frank McCoy
Approval of Minutes – December 17th, 2010

- 2.) OLD BUSINESS
 - A.) Elevator Repair (Capital Project – H291).....Frank Morehouse
Rescind - Resolution 582 of 2008 – Elevator Repair

 - B.) Density Testing – Annex Building #10Frank Morehouse
Amend Resolution 741 of 2010 from \$1,106 - \$1,598

 - C.) Update on department moves.....Frank Morehouse

- 3.) NEW BUSINESS
 - A.) Energy Performance Contract – Performance Assurance ReportSiemens

- 4.) PRIVILEGE OF THE FLOOR.....Ch. Frank McCoy

- 5.) ADJOURNMENTCh. Frank McCoy

RESOLUTION REQUEST FORM NO. 4

Request for Extending, Rescinding or Amending Existing Contract

DEPARTMENT NAME: BUILDINGS & GROUNDS

DATE: 2/1/11

- (a) Purpose of Contract Change: RE-BID - EXPIRATION OF PRICING
- (b) Resolution Number, or Numbers if Amended, which Authorized the Original Contract: RESOLUTION 582 OF 2008
- (c) Name of Contractor: _____
- (d) Address of Contractor: _____
- (e) Contractor's Contact Person and Telephone Number: _____

- (f) Commencement Date of Extension: _____
- (g) Termination Date of Extension: _____
- (h) Payment Provisions:
 - i) lump sum amount _____
 - ii) hourly rate amount _____
 - iii) total amount not to exceed _____
 - iv) how will payments be made (i.e. monthly, quarterly, upon completion of the project, etc.

- (i) Where are the Funds for this Contract? List Budget Code, (with title), Object Code (with title), and Amount **OR** Capital Project **OR** Capital Reserve Project Number and Title and Amount: H 291 - ELEVATOR REPAIR

RESOLUTION REQUEST FORM NO. 20

MISCELLANEOUS

****Please List All Other Requests Not Covered by Previous Resolution Request Forms Here.
Please attach any backup information available and be as detailed as possible.***

DEPARTMENT NAME: County Facilities

DATE: 2/1/2011

- (a) Purpose of Request: To Amend Resolution No. 741 of 2010 to reflect actual cost of In-Place Density Testing at the former Social Services Building.

- (b) Details: Original quote to provide the service was an estimated cost of \$1,106. Actual costs were invoiced for \$1,598. Quote states that, "only those services actually provided will be invoiced."

- (c) Previous Resolution Number: 741 of 2010

- (d) Where are the Funds (if required)? List Budget Code, Object Code, Full Title* and Amount: H315.9550 280 Abatement & Demolition of Co Annex - Capital Projects - Amount \$1,598.

Sample: A.8021 470 Planning & Community Development – Contract

* as listed in budget and LOGOS

REFERRALS - FEBRUARY 2011

COUNTY FACILITIES:

- 1) Mr. Lamy to provide an update on the status of reports on lead and asbestos abatement in the old Jail and Sheriff's wing of the Municipal Center Building. (03.03.09)
- 2) County Attorney's Office to research whether the \$10,000 threshold set by the New York State Building Codes Law could be divided into different components such as electrical, plumbing, etc. (04.14.09)
- 3) Committee to investigate the feasibility of proceeding with the concept of converting the old jail into temporary housing units and the availability of State or Federal funding to cover the cost of rehabilitations. (05.26.09)
- 4) Committee decided to continue to investigate the possibility of completing the asbestos removal and lead abatement of the old Jail using grant funding, if possible. (06.03.10)
- 5) Committee decided to complete an internal investigation pertaining to the requirements and costs associated with renovating the old Jail into a housing facility, including code compliance and square footage and staffing requirements. (06.03.10)
- 6) Mr. Morehouse to provide information relative to a former study performed respective to the need for replacement roofing on County Annex Building #10. (09.01.10)
- 7) Referral from Public Safety Committee (Office of Emergency Services) - discussion on winter storage and construction of a car port for the EMS vehicles. (09.27.10)

SIEMENS

ENERGY PERFORMANCE CONTRACT PERFORMANCE ASSURANCE REPORT

Warren County Municipal Center



Report Period:
Performance Year 2: October 1, 2009 – September 30, 2010

Siemens Industry, Inc.

Latham, NY

PERFORMANCE SOLUTIONS AGREEMENT OVERVIEW

Client:	Warren County Municipal Center
Contact:	Paul Dusek, County Attorney
Contract Date:	April 20, 2007
Performance Period:	October 2008 – September 2023
Contract Term:	15 Years
Performance Assurance Specialist:	William P. Casey
Service Specialist:	Bob St. John

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1. Executive Summary

Your Energy Performance Contract with Siemens guaranteed **\$229,851** in total annual savings for Year 2 of the Performance Period (Table 1). Verified savings for Year 2 were **\$246,967**, resulting in an excess savings of **\$17,116**. Through the end of the second performance period, the Warren County Municipal Center has realized \$485,218 in accumulated realized savings, which is \$33,639 in excess of the guarantee.

Table 1. Summary of annual guaranteed and verified savings.

Performance Year	Measured & Verified Savings	Stipulated Operational Savings	Total Verified Savings	Annual Guaranteed Savings	Deviation From Plan
1	\$ 156,633	\$ 81,617	\$ 238,250	\$ 221,728	\$ 16,522
2	\$ 162,901	\$ 84,066	\$ 246,967	\$ 229,851	\$ 17,116
3				\$ 238,277	
4				\$ 247,018	
5				\$ 256,086	
6				\$ 265,493	
7				\$ 275,252	
8				\$ 285,377	
9				\$ 295,880	
10				\$ 306,778	
11				\$ 318,084	
12				\$ 329,815	
13				\$ 341,986	
14				\$ 354,615	
15				\$ 367,718	
YTD TOTALS	\$ 319,535	\$ 165,683	\$ 485,218	\$ 1,733,705	\$ 33,639

2. Performance Assurance Overview

2.1. Measurement and Verification Methods

Realized savings were calculated using the methodology described in Exhibit C of the energy performance contract between Warren County Municipal Center and Siemens. There are four guarantee options to measure and verify savings: Option A - Measured Capacity, Option B - Measured Consumption, Option C - Main Meter Comparison, and Option D - Stipulated.

Option A - Measured Capacity. This approach is intended for Facility Improvement Measures where a one-time measurement for specific equipment or systems instantaneous baseline energy use, and a one-time measurement for specific equipment or systems instantaneous post-implementation (Post) energy use can be measured. Baseline and Post energy consumption is calculated by multiplying the measured end use instantaneous capacity (i.e. – kW, Gal/hr, BTU/hr) by stipulated hours of operation for each mode of operation (i.e. – hours, week, month). The calculations for energy consumption will be defined in the Measurement and Verification article of this Exhibit C. The work sequence required for data collection, evaluation, and reporting will be defined in the Measurement and Verification article of this Exhibit A.

Option B - Measured Consumption. This approach is intended for Facility Improvement Measures where continuous periodic measurements for specific equipment or systems baseline energy use, and continuous periodic measurements for that equipment or systems post-implementation (Post) energy use can be measured. The calculations for energy consumption will be defined in the Measurement and Verification article of this Exhibit C. Periodic inspections and consumption measurements of the equipment or systems will be necessary to verify the on-going efficient operation of the equipment and saving attainment. The predetermined schedule for data collection, evaluation, and reporting will be defined in the Performance Assurance Technical Support Program article of this Exhibit A.

Option C - Main Meter Comparison. This approach is intended for measurements of the whole-facility or specific meter baseline energy use, and measurements of whole-facility or specific meter post-implementation (Post) energy use can be measured. The methodology to establish baseline and Post parameter identification, modeling approach and baseline or model adjustments will be defined in the Measurement and Verification article of this Exhibit C. Periodic inspections of baseline energy usage, operating practices, and facility and equipment, and meter measurements of the will be necessary to verify the on-going efficient operation of the equipment, systems, practices and facility, and saving attainment. The predetermined schedule for data collection, evaluation, and reporting will be defined in the Performance Assurance Technical Support Program article of this Exhibit A.

Option D - Stipulated. This approach is intended for Facility Improvement Measures where the end use capacity or operational efficiency; demand, energy consumption or power level; or manufacturer's measurements, industry standard efficiencies or operating hours are known in advance, and used in a calculation or analysis method that will stipulate the outcome. Both CLIENT and SIEMENS agree to the stipulated inputs and outcome(s) of the analysis methodology. Based on the established analytical methodology the savings stipulated will be achieved upon completion of the Facility Improvement Measures Work and that no further measurements or calculations will need to be performed. The methodology and calculations to establish savings value will be defined in the Measurement and Verification article of this Exhibit C.

2.2. Guaranteed Savings

Guaranteed energy cost savings are escalated at 4% annually and avoided cost savings are escalated at 3% annually (Table 2). Guaranteed energy units are not escalated and are shown below in Table 3.

Table 2. Total Guaranteed Energy Savings Dollars.

Year	Energy/ Utility Savings	Maintenance Savings	Avoided Annual Chemical Cost	Avoided Heat Pump & Cooling Tower Cost	Total Savings
1	\$140,111	\$33,950	\$5,000	\$42,667	\$221,728
2	\$145,785	\$43,947	\$5,150	\$34,969	\$229,851
3	\$151,690	\$45,265	\$5,305	\$36,018	\$238,277
4	\$157,833	\$46,623	\$5,464	\$37,098	\$247,018
5	\$164,225	\$48,022	\$5,628	\$38,211	\$256,086
6	\$170,877	\$49,463	\$5,796	\$39,357	\$265,493
7	\$177,797	\$50,947	\$5,970	\$40,538	\$275,252
8	\$184,998	\$52,475	\$6,149	\$41,754	\$285,377
9	\$192,490	\$54,049	\$6,334	\$43,007	\$295,880
10	\$200,286	\$55,671	\$6,524	\$44,297	\$306,778
11	\$208,398	\$57,341	\$6,720	\$45,626	\$318,084
12	\$216,838	\$59,061	\$6,921	\$46,995	\$329,815
13	\$225,620	\$60,833	\$7,129	\$48,405	\$341,986
14	\$234,757	\$62,658	\$7,343	\$49,857	\$354,615
15	\$244,265	\$64,538	\$7,563	\$51,352	\$367,718

Table 3. Total Guaranteed Energy Savings Units.

	Electric Energy Saved (kWh)	Natural Gas Saved (Therms)
Annual Quantity	693,540	29,936

Table 4. Guaranteed cost savings by facility improvement measure for the current performance year.

	Escalated Guaranteed Savings											
	Energy or Utility Savings					Operational Savings						
	Guarantee Type Options					Guarantee Types						
	A	B	C	D	Total	B	D	Total	B	D	Total	
	Measured Capacity	Measured Consumption	Main Meter Comparison	Stipulated		Measured Consumption	Stipulated		Measured Consumption	Stipulated		
FIM												
Lighting Retrofit	\$ 34,919				\$ 34,919						\$ -	
Geothermal Heat Pump	\$ 64,929				\$ 64,929						\$ -	
Maintenance Savings										\$ 43,947	\$ 43,947	
EMS Night Set Back and Shutdown		\$ 43,198			\$ 43,198						\$ -	
Vending Machine Control			\$ 997		\$ 997						\$ -	
Domestic Hot Water Boiler Replacement	\$ 1,742				\$ 1,742						\$ -	
Heat Pump Deferred Maintenance									\$ 34,969		\$ 34,969	
Avoided Annual Chemical Cost									\$ 5,150		\$ 5,150	
								\$ 145,785			\$ 84,066	\$ 84,066

2.3. Contracted Baseline Data

Table 5. Contracted baseline utility data.

Units	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Electric kWh	177,600	166,800	167,600	144,800	113,600	127,600	165,600	142,800	141,200	142,800	112,000	126,800
Electric kW	408	404	396	364	356	284	324	312	320	304	276	388
N. Gas Therm	576	507	580	501	2,035	5,063	8,248	6,852	7,947	5,095	2,012	1,169

2.4. Utility Rate Structures and Escalation Rates

Utility Rates are escalated by 4% annually as detailed in the performance contract.

Table 5. Escalated utility rates for the 1-year performance period.

Year	\$/kWh	\$/kW	\$/Therm
Baseline	\$0.1480	\$14.97	\$1.25
1	\$0.1539	\$15.57	\$1.30
2	\$0.1601	\$16.19	\$1.35
3	\$0.1665	\$16.84	\$1.41
4	\$0.1731	\$17.51	\$1.46
5	\$0.1801	\$18.21	\$1.52
6	\$0.1873	\$18.94	\$1.58
7	\$0.1948	\$19.70	\$1.64
8	\$0.2025	\$20.49	\$1.71
9	\$0.2107	\$21.31	\$1.78
10	\$0.2191	\$22.16	\$1.85
11	\$0.2278	\$23.05	\$1.92
12	\$0.2370	\$23.97	\$2.00
13	\$0.2464	\$24.93	\$2.08
14	\$0.2563	\$25.92	\$2.16
15	\$0.2665	\$26.96	\$2.25

2.5. Baseline Operating Parameters

The baseline operating parameters agreed upon in the performance contract are as follows:

The facility is occupied approximately 60 hours per week (52 weeks per year) for consideration of the setback schedule.

The operating occupied schedule will be:

Monday through Friday from 6:30 am to 6:30 pm

The facility will be in unoccupied mode for the remainder of the time.

Proposed Unoccupied Temperatures

Summer - 78 degrees Fahrenheit

Winter - 55 degrees Fahrenheit

Proposed Occupied Temperatures

Summer - 72 degrees Fahrenheit

Winter - 69 degrees Fahrenheit

3. Performance Assurance Results

3.1. Summary of Guaranteed and Verified Energy Savings

	Guaranteed Savings	Verified Savings
Lighting Retrofit	\$ 34,919	\$ 45,775
Geothermal Heat Pump System	\$ 64,929	\$ 72,880
Energy Management System	\$ 43,198	\$ 42,274
Vending Machine Control	\$ 997	\$ 1,039
DHW Boiler Replacement	\$ 1,742	\$ 934
Operational Savings	\$ 84,066	\$ 84,066
Total Savings	\$ 229,851	\$ 246,967

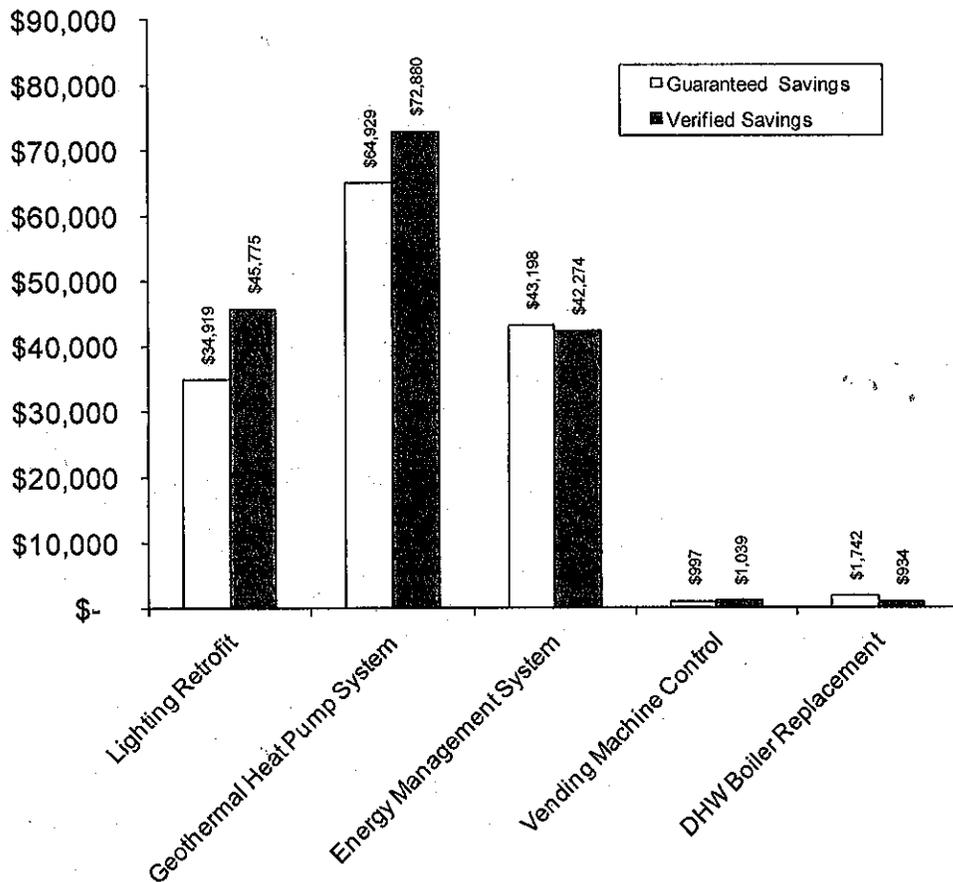


Figure 1. Guaranteed and verified cost savings per facility improvement measure for current performance year.

3.2. Option A Savings

Lighting Retrofit

Lighting upgrades included conversion to energy efficient technologies including lamps, ballasts, and/or the installation of secular reflectors and occupancy sensors, while maintaining or elevating to prescribed illumination levels.

Lighting		
Total kWh Savings	238,695	
Cost per kWh	\$0.1601	
kWh Cost Savings	\$38,210	
Total kW	467.27	
Cost per kW	\$16.19	
kW Cost Savings	\$7,566	
Total Cost Savings	45,775	

Domestic Hot Water Boiler Replacement

Siemens replaced the existing domestic hot water boiler with two tankless on-demand water heaters to satisfy the facilities domestic hot water needs.

Domestic Water Boiler Replacement		
Total Gas Savings Adjusted	691	
Cost per Therm	\$1.35	
Gas Cost Savings	\$934	
Total Cost Savings	\$934	

Geothermal Heat Pump System

Siemens replaced the existing water-source heat pump system and installed a full geothermal heat pump system. The existing cooling tower was also eliminated. A new high-efficiency condensing boiler and two existing boilers are used to supplement heat needed to maintain supply water temperature in the heat pump loop.

Geothermal System Savings	
Circulation Pump kWh Savings	73,146
Cost per kWh	\$0.1601
Circulation Pump kWh Savings	\$11,709
Total kW Savings	166
Cost per kW	\$16.19
Circulation Pump kW Savings	\$2,689
Year 1 Boiler Therms Saved	24,036
Cost per Therm	\$1.35
Total Boiler Gas Cost Savings	\$32,497
Geothermal Heat Pump kWh Savings	162,325
Cost per kWh	\$0.1601
Total Circulation Pump Savings	\$25,985
Total Cost Savings	\$72,880

Energy Management System Upgrades

Siemens installed an Energy Management System (EMS) to perform occupied and unoccupied scheduling and temperature setback for the heat pump system in the Municipal Center. Although schedules have been maintained in accordance with the performance contract, occupied and unoccupied room setpoints have not. Summer occupied and unoccupied setpoints were to be maintained at 72 °F and 78 °F, respectively. Actual average summer setpoints were 74.1 and 74.3 °F during occupied and unoccupied periods, respectively (see table below and Figure 2). Winter occupied and unoccupied setpoints were to be maintained at 69 °F and 55 °F, respectively. Actual average winter setpoints were 72.1 and 71.8 for occupied and unoccupied periods, respectively.

Warren County Municipal Center is responsible for scheduling and setpoint adjustments through the EMS. Trend data show the gradual adjustment of occupied and unoccupied setpoints in favor of comfort during the winter, but at the expense of additional energy use. During the summer, the average room setpoint is increased during the daytime, suggesting the existing programmed setpoints may be lower than necessary for occupant comfort, which again results in unnecessary energy consumption. Until the setback controls are reset to their original schedule, the savings associated with this FIM will be stipulated at the full guaranteed value.

Energy Management System	
Total kWh Savings Adjusted	226,197
Cost per kWh	\$0.1601
kWh Cost Savings	\$36,209
Total Gas Savings Therms	4,486
Cost per Therm	\$1.35
Gas Cost Savings	\$6,065
Total Cost Savings	\$42,274

	Average Winter Rm Temp (°F)	Average Winter Temp Setpoint (°F)	Average Summer Rm Temp (°F)	Average Summer Temp Setpoint (°F)
Occupied Hours				
Actual	72.4	72.1	74.3	74.1
Contract		69.0		74.0
Variation	3.4	3.1	0.3	0.1
Unoccupied Hours				
Actual	71.9	71.8	74.0	74.3
Contract		55.0		78.0
Variation	16.9	16.8	-4.0	-3.7

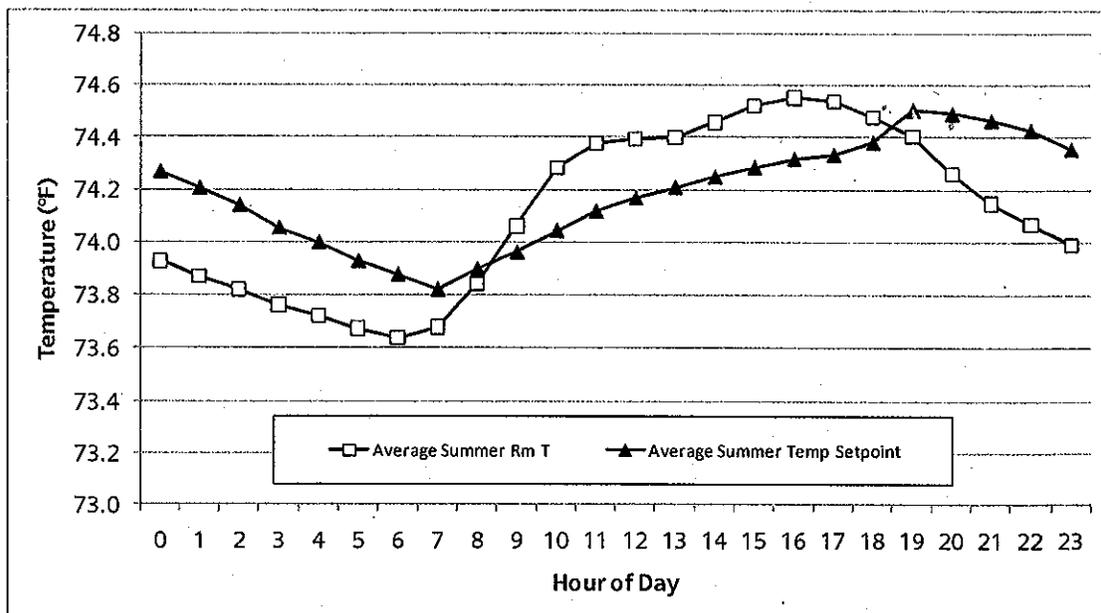
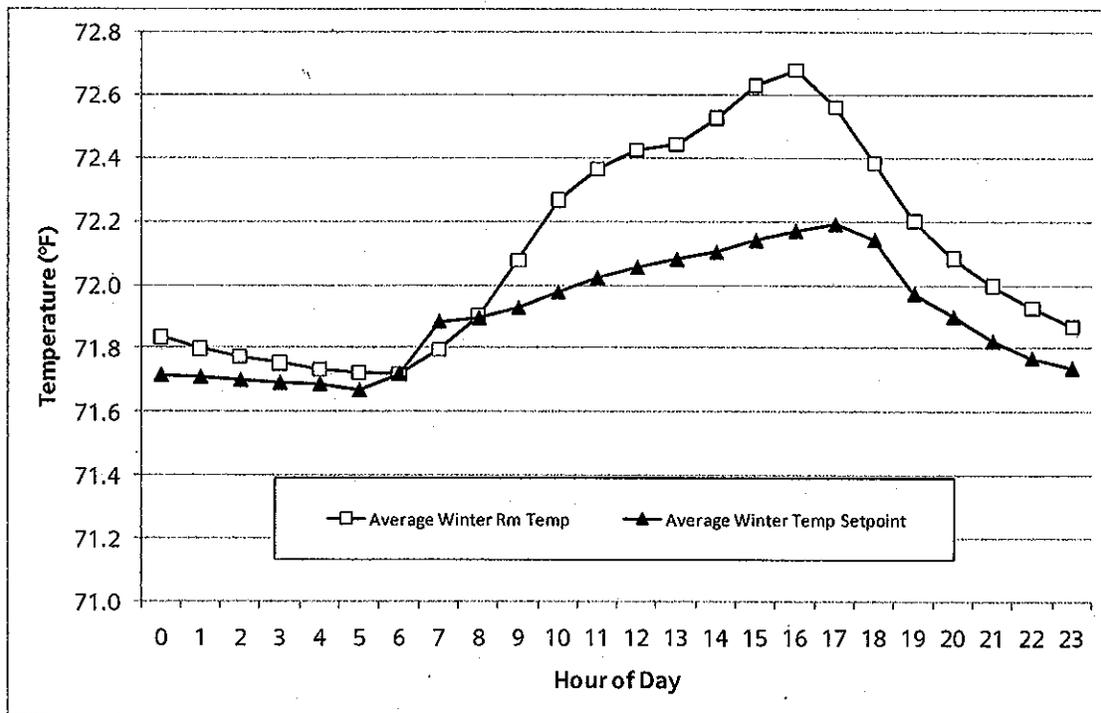


Figure 2. Hourly profiles of average winter (top) and summer (bottom) room temperatures and control setpoints.

3.4. Option D Savings

Total Option D savings were \$85,105 and resulted from avoided maintenance and avoided annual chemical costs as well as the savings from the vending machine controls measure described below.

Vending Machine Controls

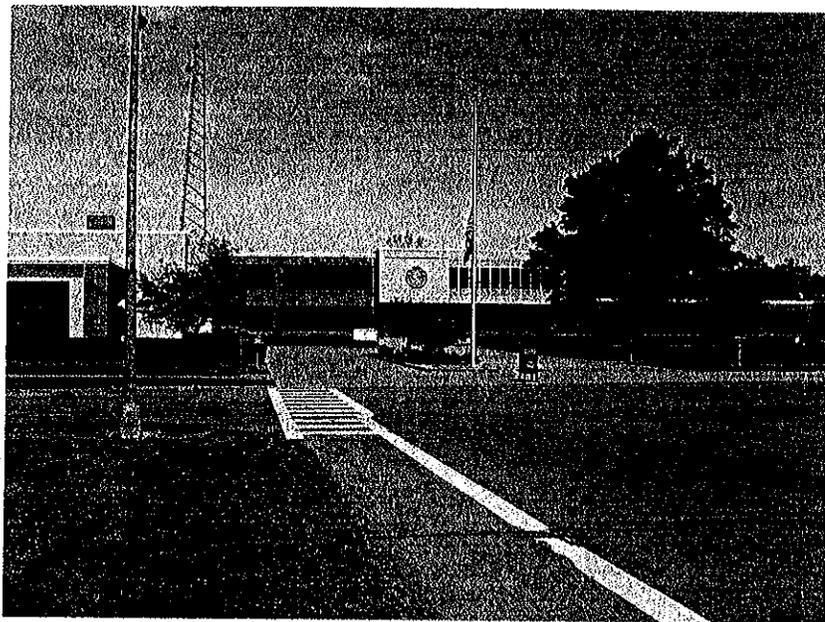
The vending miser installation significantly reduces electrical consumption by vending machines. The annual savings for this measure has been stipulated as agreed upon by the Warren County Municipal Center and Siemens. The annual stipulated cost savings for this measure are based on the engineering calculations used to estimate these savings in the detailed energy audit (DEA) performed by Siemens as part of the development of this performance contract.

Vending Machine Controls	
Total kWh Savings Adjusted	6,488
Cost per kWh	\$0.1601
kWh Cost Savings	\$1,039
Total Cost Savings	\$1,039

SIEMENS

ENERGY PERFORMANCE CONTRACT PERFORMANCE ASSURANCE REPORT

Warren County Municipal Center



Report Period:
Performance Year 1: October 1, 2008 – September 30, 2009

Siemens Industry, Inc.

Latham, NY

PERFORMANCE SOLUTIONS AGREEMENT OVERVIEW

Client:	Warren County Municipal Center
Contact:	William H. Thomas, Chairman Board of Supervisors
Contract Date:	April 20, 2007
Performance Period:	October 2008 – September 2023
Contract Term:	15 Years
Performance Assurance Specialist:	William P. Casey
Service Specialist:	Bob St. John

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3.4. Option D Savings	

Executive Summary

Your Energy Performance Contract with Siemens guaranteed \$221,728 in total annual savings for Year 1 of the Performance Period (Table 1). Verified savings for Year 1 were \$238,250, resulting in an excess savings of \$16,522.

Table 1. Summary of annual guaranteed and verified savings.

Performance Year	Measured & Verified Savings	Stipulated Operational Savings	Total Verified Savings	Annual Guaranteed Savings	Deviation From Plan
1	\$ 156,633	\$ 81,617	\$ 238,250	\$ 221,728	\$ 16,522
2				\$ 229,851	
3				\$ 238,277	
4				\$ 247,018	
5				\$ 256,086	
6				\$ 265,493	
7				\$ 275,252	
8				\$ 285,377	
9				\$ 295,880	
10				\$ 306,778	
11				\$ 318,084	
12				\$ 329,815	
13				\$ 341,986	
14				\$ 354,615	
15				\$ 367,718	
YTD TOTALS	\$ 156,633	\$ 81,617	\$ 238,250	\$ 1,733,705	\$ 16,522

Performance Assurance Overview

2.1. Measurement and Verification Methods

Realized savings were calculated using the methodology described in Exhibit C of the energy performance contract between Warren County Municipal Center and Siemens. There are four guarantee options to measure and verify savings: Option A - Measured Capacity, Option B - Measured Consumption, Option C - Main Meter Comparison, and Option D - Stipulated.

Option A - Measured Capacity. This approach is intended for Facility Improvement Measures where a one-time measurement for specific equipment or systems instantaneous baseline energy use, and a one-time measurement for specific equipment or systems instantaneous post-implementation (Post) energy use can be measured. Baseline and Post energy consumption is calculated by multiplying the measured end use instantaneous capacity (i.e. – kW, Gal/hr, BTU/hr) by stipulated hours of operation for each mode of operation (i.e. – hours, week, month). The calculations for energy consumption will be defined in the Measurement and Verification article of this Exhibit C. The work sequence required for data collection, evaluation, and reporting will be defined in the Measurement and Verification article of this Exhibit A.

Option B - Measured Consumption. This approach is intended for Facility Improvement Measures where continuous periodic measurements for specific equipment or systems baseline energy use, and continuous periodic measurements for that equipment or systems post-implementation (Post) energy use can be measured. The calculations for energy consumption will be defined in the Measurement and Verification article of this Exhibit C. Periodic inspections and consumption measurements of the equipment or systems will be necessary to verify the on-going efficient operation of the equipment and saving attainment. The predetermined schedule for data collection, evaluation, and reporting will be defined in the Performance Assurance Technical Support Program article of this Exhibit A.

Option C - Main Meter Comparison. This approach is intended for measurements of the whole-facility or specific meter baseline energy use, and measurements of whole-facility or specific meter post-implementation (Post) energy use can be measured. The methodology to establish baseline and Post parameter identification, modeling approach and baseline or model adjustments will be defined in the Measurement and Verification article of this Exhibit C. Periodic inspections of baseline energy usage, operating practices, and facility and equipment, and meter measurements of the will be necessary to verify the on-going efficient operation of the equipment, systems, practices and facility, and saving attainment. The predetermined schedule for data collection, evaluation, and reporting will be defined in the Performance Assurance Technical Support Program article of this Exhibit A.

Option D - Stipulated. This approach is intended for Facility Improvement Measures where the end use capacity or operational efficiency; demand, energy consumption or power level; or manufacturer's measurements, industry standard efficiencies or operating hours are known in advance, and used in a calculation or analysis method that will stipulate the outcome. Both CLIENT and SIEMENS agree to the stipulated inputs and outcome(s) of the analysis methodology. Based on the established analytical methodology the savings stipulated will be achieved upon completion of the Facility Improvement Measures Work and that no further measurements or calculations will need to be performed. The methodology and calculations to establish savings value will be defined in the Measurement and Verification article of this Exhibit C.

2.2. Guaranteed Savings

Guaranteed energy cost savings are escalated at 4% annually and avoided cost savings are escalated at 3% annually (Table 2). Guaranteed energy units are not escalated and are shown below in Table 3.

Table 2. Total Guaranteed Energy Savings Dollars:

Year	Energy/ Utility Savings	Maintenance Savings	Avoided Annual Chemical Cost	Avoided Heat Pump & Cooling Tower Cost	Total Savings
1	\$140,111	\$33,950	\$5,000	\$42,667	\$221,728
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3	\$151,690	\$45,265	\$5,305	\$36,018	\$238,277
4	\$157,833	\$46,623	\$5,464	\$37,098	\$247,018
5	\$164,225	\$48,022	\$5,628	\$38,211	\$256,086
6	\$170,877	\$49,463	\$5,796	\$39,357	\$265,493
7	\$177,797	\$50,947	\$5,970	\$40,538	\$275,252
8	\$184,998	\$52,475	\$6,149	\$41,754	\$285,377
9	\$192,490	\$54,049	\$6,334	\$43,007	\$295,880
10	\$200,286	\$55,671	\$6,524	\$44,297	\$306,778
11	\$208,398	\$57,341	\$6,720	\$45,626	\$318,084
12	\$216,838	\$59,061	\$6,921	\$46,995	\$329,815
13	\$225,620	\$60,833	\$7,129	\$48,405	\$341,986
14	\$234,757	\$62,658	\$7,343	\$49,857	\$354,615
15	\$244,265	\$64,538	\$7,563	\$51,352	\$367,718

**Table 3. Total Guaranteed
Energy Savings Units.**

	Electric Energy Saved (kWh)	Natural Gas Saved (Therms)
Annual Quantity	693,540	29,936

Table 4. Guaranteed cost savings by facility improvement measure for the current performance year.

	Escalated Guaranteed Savings							Operational Savings			
	Energy or Utility Savings							Guarantee Types			
	Guarantee Type Options							Guarantee Types			
	A	B	C	D	Total	B	D	Total	B	D	Total
	Measured Capacity	Measured Consumption	Main Meter Comparison	Stipulated		Measured Consumption	Stipulated		Measured Consumption	Stipulated	
FIM											
Lighting Retrofit	\$ 33,560				\$ 33,560						\$ -
Geothermal Heat Pump	\$ 62,402				\$ 62,402						\$ -
Maintenance Savings											
EMS Night Set Back and Shutdown		\$ 41,517			\$ 41,517			\$ 33,950			\$ 33,950
Vending Machine Control				\$ 958	\$ 958						\$ -
Domestic Hot Water Boiler Replacement	\$ 1,674				\$ 1,674						\$ -
Heat Pump Deferred Maintenance									\$ 42,667		\$ 42,667
Avoided Annual Chemical Cost									\$ 5,000		\$ 5,000
								\$ 140,111			\$ 81,617
											\$ 81,617

2.3. Contracted Baseline Data

Table 5. Contracted baseline utility data.

Units	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Electric kWh	177,600	166,800	167,600	144,800	113,600	127,600	165,600	142,800	141,200	142,800	112,000	126,800
Electric kW	408	404	396	364	356	284	324	312	320	304	276	388
N.Gas Therm	576	507	580	501	2,035	5,063	8,248	6,852	7,947	5,095	2,012	1,169

2.4. Utility Rate Structures and Escalation Rates

Utility Rates are escalated by 4% annually as detailed in the performance contract.

Table 5. Escalated utility rates for the 15-year performance period.

Year	\$/kWh	\$/kW	\$/Therm
Baseline	\$0.1480	\$14.97	\$1.25
1	\$0.1539	\$15.57	\$1.30
2	\$0.1601	\$16.19	\$1.35
3	\$0.1665	\$16.84	\$1.41
4	\$0.1731	\$17.51	\$1.46
5	\$0.1801	\$18.21	\$1.52
6	\$0.1873	\$18.94	\$1.58
7	\$0.1948	\$19.70	\$1.64
8	\$0.2025	\$20.49	\$1.71
9	\$0.2107	\$21.31	\$1.78
10	\$0.2191	\$22.16	\$1.85
11	\$0.2278	\$23.05	\$1.92
12	\$0.2370	\$23.97	\$2.00
13	\$0.2464	\$24.93	\$2.08
14	\$0.2563	\$25.92	\$2.16
15	\$0.2665	\$26.96	\$2.25

2.5. Baseline Operating Parameters

The baseline operating parameters agreed upon in the performance contract are as follows:

The facility is occupied approximately 60 hours per week (52 weeks per year) for consideration of the setback schedule.

The operating occupied schedule will be:

Monday through Friday from 6:30 am to 6:30 pm

The facility will be in unoccupied mode for the remainder of the time.

Proposed Unoccupied Temperatures

Summer - 78 degrees Fahrenheit

Winter - 55 degrees Fahrenheit

Proposed Occupied Temperatures

Summer - 72 degrees Fahrenheit

Winter - 69 degrees Fahrenheit

Performance Assurance Results

3.1. Summary of Guaranteed and Verified Energy Savings

	Guaranteed Savings	Verified Savings
Lighting Retrofit	\$ 33,560	\$ 44,015
Geothermal Heat Pump System	\$ 62,402	\$ 70,077
Energy Management System	\$ 41,517	\$ 40,648
Vending Machine Control	\$ 958	\$ 996
DHW Boiler Replacement	\$ 1,674	\$ 898
Operational Savings	\$ 81,617	\$ 81,617
Total Savings	\$ 221,728	\$ 238,250

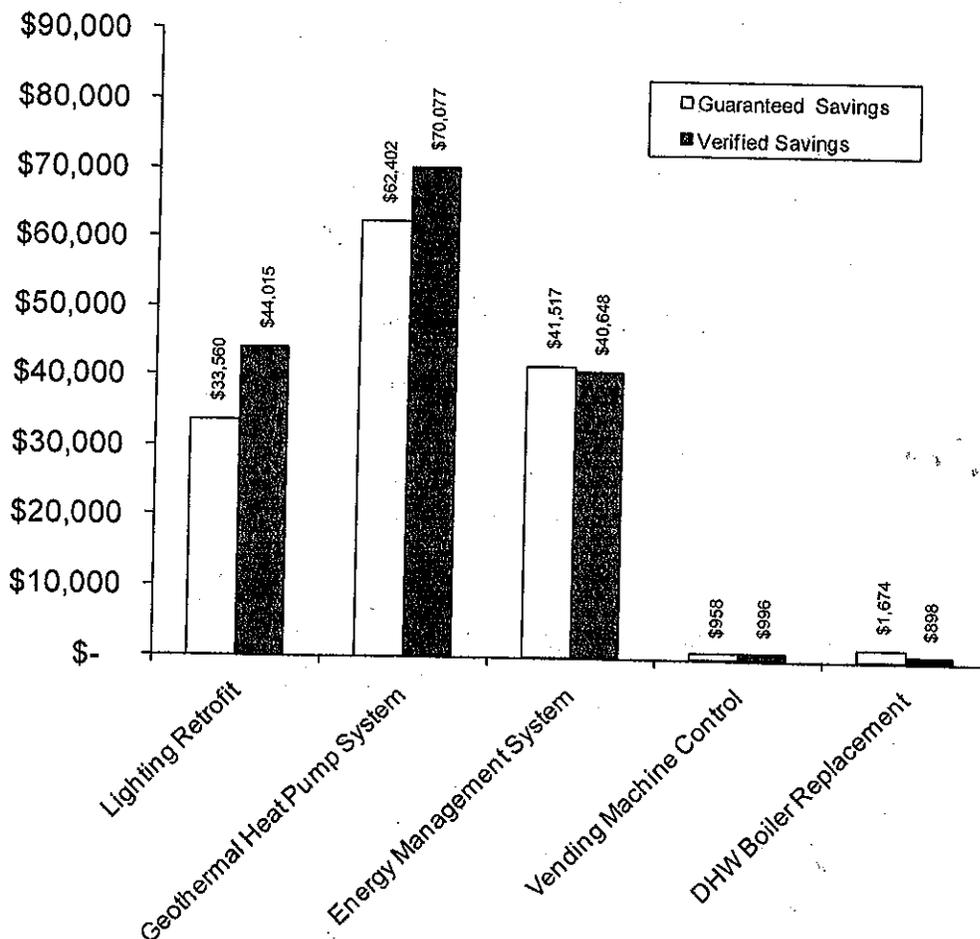


Figure 1. Guaranteed and verified cost savings per facility improvement measure for current performance year.

3.2. Option A Savings

Lighting Retrofit

Lighting upgrades included conversion to energy efficient technologies including lamps, ballasts, and/or the installation of secular reflectors and occupancy sensors, while maintaining or elevating to prescribed illumination levels.

Lighting		
Total kWh Savings		238,695
Cost per kWh		\$0.1539
kWh Cost Savings		\$36,740
Total kW		467.27
Cost per kW		\$15.57
kW Cost Savings		\$7,275
Total Cost Savings		\$44,015

Domestic Hot Water Boiler Replacement

Siemens replaced the existing domestic hot water boiler with two tankless on-demand water heaters to satisfy the facilities domestic hot water needs.

Domestic Water Boiler Replacement	
Total Gas Savings Adjusted	691
Cost per Therm	\$1.30
Gas Cost Savings	\$898
Total Cost Savings	\$898

Geothermal Heat Pump System

Siemens replaced the existing water-source heat pump system and installed a full geothermal heat pump system. The existing cooling tower was also eliminated. A new high-efficiency condensing boiler and two existing boilers are used to supplement heat needed to maintain supply water temperature in the heat pump loop.

Geothermal System Savings	
Circulation Pump kWh Savings	73,146
Cost per kWh	\$0.1539
Circulation Pump kWh Savings	\$11,259
Total kW Savings	166
Cost per kW	\$15.57
Circulation Pump kW Savings	\$2,586
Year 1 Boiler Therms Saved	24,036
Cost per Therm	\$1.30
Total Boiler Gas Cost Savings	\$31,247
Geothermal Heat Pump kWh Savings	162,325
Cost per kWh	\$0.1539
Total Circulation Pump Savings	\$24,985
Total Cost Savings	\$70,077

3.3. Option B Savings

Energy Management System Upgrades

Siemens installed an Energy Management System (EMS) to perform occupied and unoccupied scheduling and temperature setback. Whereas schedules have been maintained according to the parameters agreed upon in the performance contract, occupied and unoccupied room setpoints have not. Summer occupied and unoccupied setpoints were to be maintained at 72 °F and 78 °F, respectively. Actual average summer setpoints were 74.4 °F during occupied and unoccupied periods (Figure 2). Winter occupied and unoccupied setpoints were to be maintained at 69 °F and 55 °F, respectively. Actual average winter setpoints were 71.1 and 70.6 for occupied and unoccupied periods, respectively.

Warren County Municipal Center is responsible for scheduling and setpoint adjustments through the EMS. Trend data show the gradual adjustment of occupied and unoccupied setpoints in favor of comfort, but at the expense of additional energy use. Until the setback controls are reset to their original schedule, the savings associated with this FIM will be stipulated at its full guaranteed value.

Energy Management System	
Total kWh Savings Adjusted	226,197
Cost per kWh	\$0.1539
kWh Cost Savings	\$34,816
Total Gas Savings Therms	4,486
Cost per Therm	\$1.30
Gas Cost Savings	\$5,832
Total Cost Savings	\$40,648

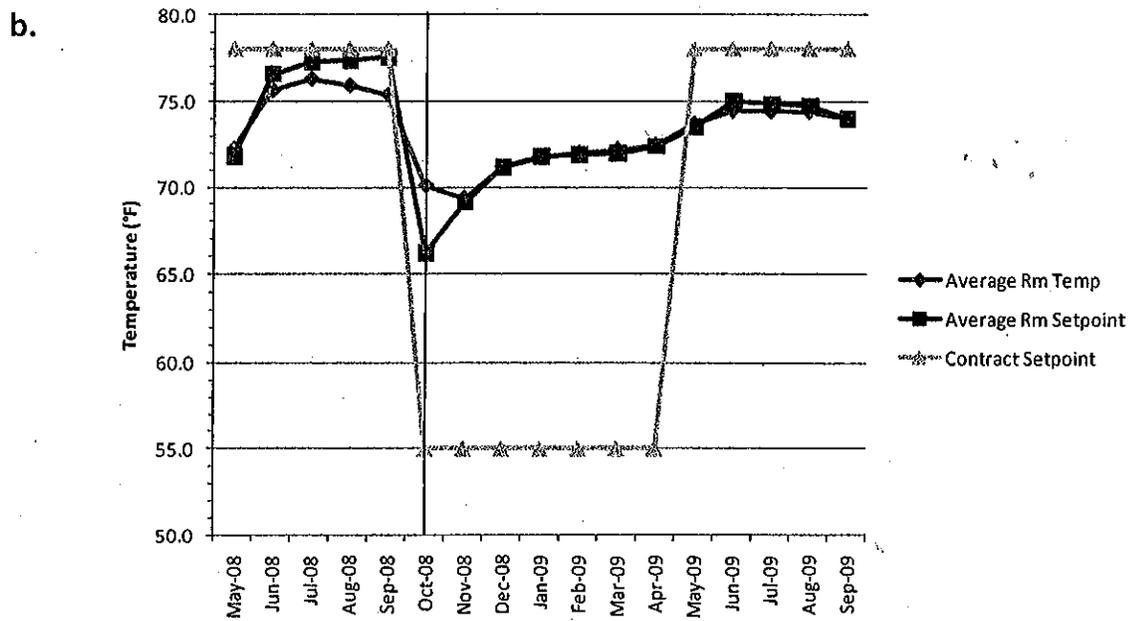
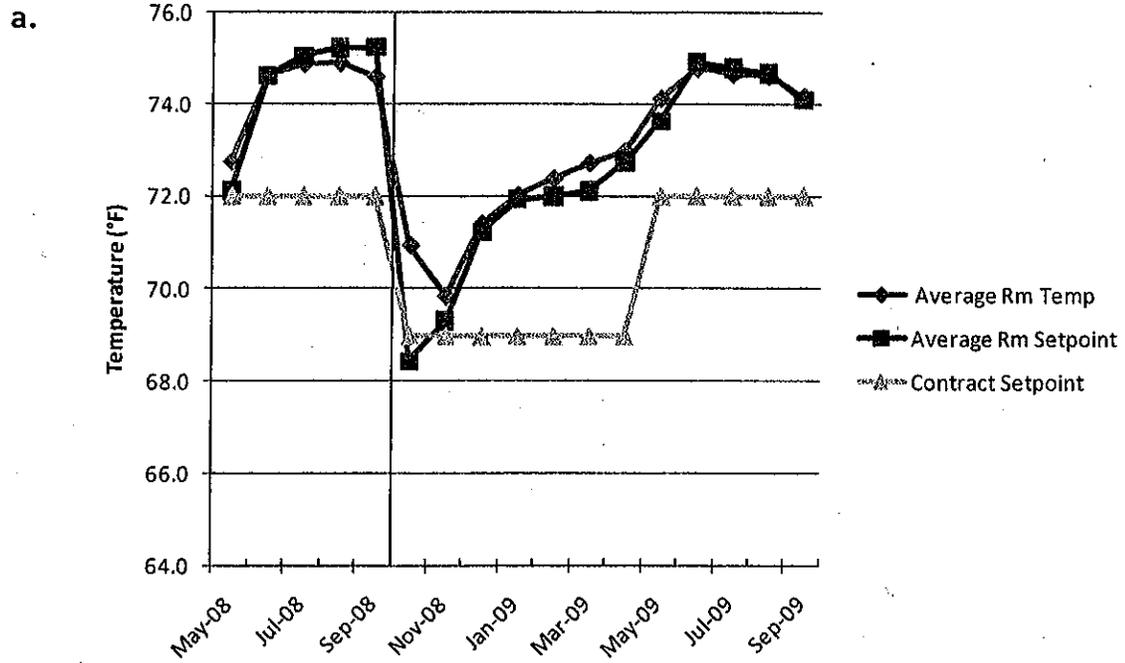


Figure 2. Average occupied (a) and unoccupied (b) room setpoint and temperature compared to contracted occupied room setpoint. Performance period began on October 1, 2008.

3.4. Option D Savings

Total Option D savings were \$81,617 and resulted from avoided maintenance and avoided annual chemical costs as well as the savings from the vending machine controls measure described below.

Vending Machine Controls

The vending miser installation significantly reduces electrical consumption by vending machines. The annual savings for this measure has been stipulated as agreed upon by the Warren County Municipal Center and Siemens. The annual stipulated cost savings for this measure are based on the engineering calculations used to estimate these savings in the detailed energy audit (DEA) performed by Siemens as part of the development of this performance contract.

Vending Machine Controls	
Total kWh Savings Adjusted	6,488
Cost per kWh	\$0.1539
kWh Cost Savings	\$999
Total Cost Savings	\$999