



Via Christi Regional Medical Center

ENERGY CONSERVATION



Kansas State University
H2E Pollution Prevention

Introduction



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- May 2010



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- May 2009



Presentation Outline



- **Company Background**
- **Projects**
 - Light Audit
 - Energy Audit
 - Energy Usage Reduction Analysis
 - Air Audit Follow-Up
 - Computer Power Management Program
 - Employee Energy Awareness Program
- **Conclusion**

Company Background



**Via Christi is a non-profit Catholic healthcare organization.
Consists of 4 major facilities in Wichita, KS**

- St. Francis (1927)
 - ✦ 1.45 million sq. ft.
 - ✦ 850 licensed beds
- Good Shepherd (1984)
 - ✦ Behavioral Health Campus
 - ✦ 57,071 sq. ft.
- St. Joseph (1941)
 - ✦ 464,000 sq. ft.
 - ✦ 250 licensed beds
- Our Lady of Lourdes (1991)
 - ✦ Rehabilitation Hospital
 - ✦ 64,041 sq. ft.

Light Audit: De-lamping



- De-lamping is the process of removing lamps and ballasts from areas that are over-lit according to the Illumination Engineering Society of North America Lighting Handbook.



Light Audit: De-lamping



PROJECT	LABOR	MATERIAL	ENERGY SAVINGS/YR	ANNUAL SAVINGS	STATUS
SFC	\$ 1,100	\$ 3,250	278,085 KWH	\$ 20,022	Complete
SJC	\$ 295	\$ 871	77,746 KWH	\$ 5,597	Complete
OLOL	-	-	27,177 KWH	\$ 1,956	Complete

Light Audit: Timers



- Astronomical timers were used in areas that were naturally lit during the day with sunlight.
- Timers capable of manual override.



PROJECT	LABOR	MATERIAL	ENERGY SAVINGS	ANNUAL SAVINGS	STATUS
SJC Timers	\$ 22	\$ 144	7,525 KWH	\$ 542	Rec.
SFCTimers	\$ 33	\$ 216	45,725 KWH	\$ 3,292	Done

Light Audit: Time Clocks



Mezzanine Level

- An office floor in SFC would use the timer just shown to shut off lights during non working hours. These areas are locked at night to prevent entry.

848 Building

- The 848 building is an office building that would use time clocks and contactors to shut off the lights during non working hours. Time clocks and contactors cut power at the electrical panels.

Light Audit: Time Clocks



Time Clock



Contactor

PROJECT	LABOR	MATERIAL	ENERGY SAVINGS	ANNUAL SAVINGS	STATUS
Mezz. Level	\$ 138	\$ 900	75,076 KWH	\$ 5,405	Rec.
848 Building	\$ 1408	\$ 2,836	314,907 KWH	\$ 19,692	Rec.

Light Audit: Fixture Replacement



- In the SFC distribution room, more light available than actually displaced.
- At SJC, 2 by 2 U-bent fixtures instead of 4 by 2 T8's.

PROJECT	LABOR	MATERIAL	ENERGY SAVINGS	ANNUAL SAVINGS	STATUS
Distribution	\$ 1,980	\$ 3,200	28,730 KWH	\$ 2,069	In Process
SJC U-Bent Cafeteria	\$ 990	\$ 2,150	9,682 KWH	\$697 in energy \$1107 in lamps	In Process
U-Bent Replacement	\$ 5,577	\$ 16,900	1 for 1 SWAP	\$ 6,037	Rec.
SJC Storage Building	\$ 255	\$ 870	15,481 KWH	\$ 1,114	Rec.

Energy Audit



Energy Star Screen Shot

Facility Name	Current Rating (1-100)	Current Source Energy Intensity (kBtu/Sq. Ft.)	Baseline Rating (1-100)	Current Site Energy Intensity (kBtu/Sq. Ft.)	Current Total Site Energy Use (kBtu (thousand Btu))	Annual Energy Cost (US Dollars (\$))	Total Energy per Sq. Dollar
Good Shepherd	77	394.2	84	139.1	7,937,774.88	\$119,994.76	\$2.10
Our Lady of Lourdes	59	414.0	72	197.0	12,096,654.40	\$141,696.00	\$2.31
St. Francis	29	527.9	33	272.5	395,184,857.76	\$4,575,673.76	\$3.16
St. Joseph	3	929.8	5	554.2	257,125,969.71	\$1,912,566.24	\$4.12

Industry Average of energy use per sq. ft is \$2.26 (eia.doe.gov)
Integrus now updates Energy Star Portfolio for Via Christi.

Energy Audit



Campus	Address	Account Number	Ave. Monthly Bill
St. Francis	1000 N Broadway	6246771573	\$10
	928 St. Francis	6273378971	\$400
	410 E Murdock	6367473814	\$125
MRI Trailer	712 N St Francis	6407123457	\$270
	817 N St Francis	6407154210	\$1600
	959 N St Francis	7083376306	\$80
St. Joseph	3420 E Grand	0337730346	\$10
	3400 E Grand	5109165769	\$30

Annual Savings from non-existent meters would be \$11,100.

Energy Usage Reduction Analysis



Explanation

- Investigations of SJC and SFC Energy Centers
- Obvious forms of improvement
 - Energy star ratings lowest
 - Energy per square foot costs highest

Methods

- Interviewing knowledgeable employees
- Tours with leads
- Private Investigation
 - Watching energy centers
 - Data analysis
- Questioning Management

Energy Usage Reduction Analysis: List



- **In-efficient Boilers**

- SJC \$3.04/s.f natural gas
- SFC \$1.93/s.f. natural gas

- **Chillers**

- VFD's

- **Cooling Towers**

- Balancing and gap

- **Air Handlers**

- VFD's maxed out/units combined

- **Manual Thermostats**

- **Metering**

- BCS quote

- **Steam Traps**

- **SFC de-coupler**



Air Audit Follow Up



- UE Systems Ultra probe 9000 Kit with extension probe purchased.
- Steam Traps fixed due to previous intern recommendation.

PROJECT	LABOR	MATERIAL	ENERGY SAVINGS	ANNUAL SAVINGS	STATUS
Steam Traps 1	\$ 5,607	\$ 2,138	69.72 THERMS	\$ 83,669	Complete
Steam Traps 2	\$ 2,803	\$ 1,069	36.72 THERMS	\$ 44,068	In process

Computer Power Management



- Activate sleep settings like sleep mode and hibernate mode
- Meeting with IT staff
- Low Carbon IT Campaign Pledge and letter of recognition = Free conference call

Summary of Results:

My total annual energy savings:

1,532,250.4 kWh

My total annual dollar savings:

\$110,475

Employee Energy Awareness Program



- **Power Point Developed for Employee Orientation**
 - Implemented
 - Includes contacts for
 - ✦ requesting timers
 - ✦ sensors
 - ✦ posters
- **Savings of \$30,000 to \$76,000 per year according to Energy Star**

Conclusion: Summary of Savings



- **Total CO2 Diverted in Standard Tons: 2,584**
 - Equivalent to:
 - ✦ Annual greenhouse gas emissions from **429** passenger vehicles
 - ✦ CO2 emissions from **265,897** gallons of gasoline consumed
 - ✦ CO2 emission from the *energy* use of **207** homes for one year

Totals/ YR	Labor	Material	Therms Saved	KWH Saved	Dollars Saved
TOTALS	\$ 24,708	\$ 40,539	109.75	3,012,384	\$ 350,613

Conclusion



Thank you
Questions

