



## MINI AUDIT

FOR THE

# CITY OF BLOOMINGTON



rieke carroll muller associates inc

architects engineers land surveyors planners OCTOBER 1980

RCM JOB NO. 801704



## CITY HALL

## **CREEKSIDE CENTER**

## PUBLIC WORKS ENGINEERING

PUBLIC WORKS GARAGE

PUBLIC WORKS - WESTERN MAINTENANCE GARAGE

RYAN BUILDING

**RESCUE STATION** 

ART CENTER

HISTORICAL MUSEUM

FIRE STATION # 1

FIRE STATION # 2

FIRE STATION # 3

FIRE STATION # 4

FIRE STATION # 5

FIRE STATION # 6

**COMMUNITY ICE GARDEN** 

DWAN GOLF COURSE - CLUB HOUSE

DWAN GOLF COURSE MAINTENANCE BUILDING

HYLAND GREENS GOLF COURSE - CLUB HOUSE

WATER TREATMENT PLANT

WATER RESERVOIR - PUMP HOUSE

**PUMPING STATION** 

		MINI-AUDIT	REPORT	FORM NO. MIN-0
_	BUILDING NAME		NAME OF ORGANIZATION	DATE
7			City of Bloomingto	
	City Hall BUILDING ADDRESS		ADDRESS	511   5 17 00
-		٠	2215 West Old Shall	kanaa Paad
	2215 West Old Shakopee Roa		CITY WEST OIG SHA	
		ZIP CODE 55431	Bloomington, MN	ZIP CODE 55431
•	Bloomington, MN PERSON COMPLETING FORM		CONTACT PERSON	TELEPHONE
DATA	1	TELEPHONE (612) 935-6901		(612) 881-581
	Randy Smith	(p12) 333-0301	A char censen	
3	Instructions: For blocks 1 and 2 check the box describes the building type and then within the			
	1. OWNERSHIP TYPE X Public (PUB) Non-Profit Association (NAP)	3a. SCHOOLS □Elementary □Secondary □Coll. or Un	(SCHL-SECD)	CAL GOVERNMENT Office (LOCG-OFFC Storage (LOCG-SERV LOCG-LBRY (LOCG-LBRY
CODE	2. ULTIMATE OWNER  County (CNTY)  XCity (CITY)  Township (TOWN)	□Vocational □Education □Administra □OTHER	Agency (SCHL-ADMN) XA lion (SCHL-ADMN) ☐ (SCHL-OTHR) ☐	Police (LOCG-PLCE Fire (LOCG-FIRE) OTHER (LOCG-OTHF
ELIGIBILITY CODE	☐ State (STAT) ☐ Public School (PUSC) ☐ Private School (PRSC) ☐ Non-Profit Association (NPAP) ☐ Indian Tribe (INDN)	b. PUBLIC CAR UNursing Ho ULong Term URehab. Fac UPublic Hea	ome (PBCR-NURS) []( Care (PBCR-TERM) []- iility (PBCR-RHAB) []( Ith Ctr. (PBCR-HCTR)	OSPITALS General (HOSP-GENL Tuberculosis (HOSP-TUBR OTHER (HOSP-OTHR
3	Instructions: With reference to page 23 entitle just Federal funding, then answer the question of the properties of the	ns correctly for the situal  7	ion. This section must be signed and da	r both Federal and State funding or ited by the head of the organization.
	Name:		_	
	Signature:			

MINI-AUDIT FUNDING REQUEST

Name: \_\_\_\_\_\_Signature: \_\_\_\_\_

D	Check the type of energy report which was completed and submitted prior	to this mini-audit report.
EPORT	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)  XX Existing Building Energy Report (Form No. EN-00041-01)	
ENERGY REPORT CHECK-OFF	If an energy report has not been completed previous to this mini-audit repovocational schools should use form ED-00444-02 or form ED-00445-02, dependently energy report, form EN-00041-01.	ort, one must be included with this report. Elementary, secondary, and inding on building complexity. All other buildings should use the existing
E	Instructions: This section is to be completed and signed by a registered procompleted the State of Minnesota's Mini-Audit Procedures Course. This section are completed. All blanks must be filled in.	ofessional engineer or by a certified mini-auditor who has successfully on should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for this but corrected any misinformation on the energy report which will be resubmitted.	uilding. I found all information contained therein to be correct <i>OR</i> I have led with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this building	being audited.
	I have fully disclosed my financial interests relating to this mini-audit and	any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendation maintenance changes, and low cost energy conservation measures, which	
	I have made a rough estimate, in section G, of the range of savings which m listed in section I. I am not responsible if the actual savings resulting from	nay result from the implementation of all of the mini-audit opportunities this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and maintenant 20% of the building's energy consumption as specified in section I.	ice procedures listed in section K <u>did not</u> save at least (did, did not)
	Based upon സ്റ്റ observation of the physical characteristics of this building	and the building's major energy using systems, I recommend that this
:	STOUTO be the subject of a maxi-audit. (should, should not)  I realize that this is not a final judgement, that the State reserves the right to m	nake the maxi-audit funding determination based on this mini-audit report
	and other criteria.	
	Based upon the information in section E and the information referred to in se	
	undergo further solar conversion analysis, and/orShould_no wind, wood. (Circle proper resources) (should, should no	undergo further analysis of the renewable resources — waste.
	time, mode, (once proper resources)	
	In my judgement, as a mini-auditor, all of the above statements are true a	na correct.
		Witnessed by:
	Randy Smith	
-	Mini-Additor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Sidnature 206	Signature
	Rieke Carroll Muller Assoc., Inc.	Signature
	Firm Name (if none, enter none)	Date
	PO Box 130 Hopkins, MN 55343	ş.
	Address	
	(612) 935-6901	
	5-17-80	
ļ	Date	
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MINI-AUDIT STATEMENTS		
I-AU		
N A L		
	1	

F	NAME	POSITION	ORGANIZATION
	8.		
İ	Randy Smith	Certified Mini Auditor	Rieke Carroll Muller Assoc., Inc.
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc., Inc.
	Scott Hutchins	Electrical Designer	Rieke Carroll Muller Assoc., Inc.
F	Reinert Ege	Maintenance Foreman	City of Bloomington
AUDIT			
G	BRIEF DESCRIPTION OF GEN GOOd, Offices	ERAL BUILDING CONDITION (i.e. type, and fu	inction)
	MAJOR CHANGES PLANNED	WITHIN NEXT 15 YEARS (i.e. demolition, rehal	pilitation, conversion from one building type to another)
BUILDING INFORMATION	None STRUCTURAL COMPONENTS	OF ROOF (i.e. metal beams, wooden rafters, c	pacrete)
MAR	Concrete	The first metal beams, wooden rations, e	5101010)
96	ROOFING MATERIAL (i.e. tar	and gravel, shingles, tile)	
25	Tar and Gravel		
H	INSTRUCTIONS: Correctly ans	wer the following questions for the building be	ing mini-audited.
	Is there open land adjacent to	the building?	
	Solar collectors need to be locat 3 p.m.?	ed in an unshaded area. Is the roof of the building	and the south facing wall unshaded between the hours of 9 a.m. and
	Roof: XXX Yes ☐ No South facing Wall: ☐ Yes X	XXX No	
	If the roof or wall are partly shows of roof unshaded % of south facing wall unsha	aded, what percentage of the surface is unshad $\frac{\%}{60}$ %	ed?
	What is the overall shape of the square X 20 rectangle	e building? I H-shaped □ E-shaped □ other (specify) _	
	Is the roof of the building flat o	or pitched?	
	If pitched, what is the compass	orientation of the ridgeline?	
	If pitched, what is the angle the	at the roof makes with horizontal?	<u>•</u> .
	Are there large obstructions or XX Yes   No		ical equipment, ventilating units, water towers, etc?
	What is the exterior facing mat	erial for the south facing wall? Fac	e Brick
	What percentage of the south	facing wall is glass?%	
	Is the building's space heating XX Yes □ No	equipment located within or on the building? (.	A no answer indicates the equipment is in a separate building)
3	If the space heating equipmen ☐ Ground Floor XX Basem	t is inside the building, where is it located? ient □ Roof □ Other (specify)	
POTENTIAL MATION	Is the building's water heating XX Yes □ No	equipment located within the building? (A no a	nswer indicates the equipment is in a separate building.)
POT	If the water heating equipment ☐ Ground Floor XX Basem	is inside the building, where is it located? nent  Other (specify)	_

Is the water heating system a central system, does it consist of multiple units, or is it a combination of the central and multiple units?

Central 

Multiple 

Combination

	which the data applies. Helef to p	ages 7 and 15 for a c	omplete explana	tion of this sect	tion.	a iiito btu s. c	,	er the fiscal years of				
F		Processor of the contract of t	BASE PER	IIOD YEAR	<del></del>	T	Fiscal Year					
	ENERGY TYPE	ENERGY	JSAGE	CONVE	RSION FA	CTOR	8	TU USAGE				
	Electricity											
	Fuel 1											
	Fuel 2				,		,					
	TOTAL											
	20% SAVINGS YEAR Fiscal Year											
	ENERGY TYPE	ENERGY (	JSAGE	CONVE	RSION FA	CTOR		STU USAGE				
	Electricity					,						
,	Fuel 1											
DATA	Fuel 2											
DATA	TOTAL											
	Instructions: This section is to be a state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric	of the percent of total dies listed in section t	electrical and fue Secondly, calc	consumption was	hich would of energy	be saved resu	lting from the	implementation of all				
	Check two boxes in each categor	у —						:				
ŀ	Range of Electrical Savings $-\chi$		□ 10%	□ 15% C	20%	□ 25%	Other (sp	ecify)				
	Range of Fuel Savings —	□ 0% XQ 5%	XX 10%	D 15% C	20%	☐ 25%	Other (sp	ecify)				
2	Calculate ranges of energy and c	ost savings —										
ŀ			Range of Ele	etrical Savings								
	% Range	Annual Electrical Consumption 1179600 kwh	Range of I Savin	gs % Rs	•	Annual Electron Dollars Sp. 39421	ent	Range of Electrical Dollars Savings				
	lower bound % x	11/9000 kwh		KWII,	% х	\$ 3347.1	<u> 54</u> =	\$ <u> </u>				
	to upper bound 5 % x	1 <u>179600</u> kwh	= 58980	) kwh, 5	% х	\$ <u>39421</u>	1.94 =	\$ 1971.10				
3			Range of	Fuel Savings								
	% Range	Annual Fuel Consumption	Range o Savir	gs %R	ange	Annual F Dollars S		Range of Fuel Dollars Savings				
	lower bound 5 % x	$18.2 \times 10^{\circ}$ Btu	$= 91.2 \times 10^{-1}$	) <sup>6</sup> Btu,5_	% x	<u> \$15,53</u>	<u>37.</u> 23 <sub>=</sub>	<u>\$ 776.86</u>				
	lower bound% x	monthly and the company of the compa										

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

OPTIONAL: OPTIONAL CLASSIFICATION **ENERGY ENERGY** ITEM DATE OF IMPLEMENTATION PAST ENERGY CONSERVATION ACTIONS COST MAJOR SAVINGS NO SUB SAVINGS CLASS CLASS May, 1979 Air conditioning - installed a 3 3 1 chemical feeder on the condensers and water tower to prevent slime and scale build-up, thus getting better heat transfer and reducing the head pressure on the compressor. 2 Air conditioning - check daily to April, 1979 3 3 Routine Maintensee that all spray nozzels on the ance Schedule water tower are open. April, 1979 Air cooled condensers - kept the 3 3 3 Routine Maintencondensers clean; clean them at least once a week. ance Schedule Use outside air for cooling as April, 1979 4 3 3 much as possible. April, 1979 Do not run the compressors more than necessary. Most of the time they are all shut off at night, using outside air for cooling the police area. All ventilating fans are shut off April, 1979 3 3 6 when the areas are not occupied. April, 1979 Start up of compressors is staggered. 7 1 3 Thermostats are set at 750. Some July, 1979 8 of the warmer areas in the building at times got up to 78° and a few times a little more but we try to keep the warmest area at no higher than 78°.

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

				OPTIONAL:					
ITEM CLASSIFI NO. MAJOR			PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION			
NO.	CLASS	SUB CLASS		SAVINGS	SAVINGS				
9	3	3	When the temperature is hot, we			April, 1979			
			take a minimum of outside air.						
10	3	3	Heating - boilers are being kept clean by using chemicals.			October, 1979			
11	3	3	Combustion is being checked period- ically with a Bacharach Flue Gas Analizer.			October, 1979			
12	3	1	Outside air is cut down to about			October, 1979			
13	3	1	Heat generated by lights and people and by not taking is so much outsid air. This is almost enough to heat the building when the temperature is 30° and above.	e		October, 1979			
14	3	1	Boiler is shut off at night when the temperature is moderate.			October, 1979			
15	3	1	All blowers except police area are turned off at night. When there are meetings, blowers are left on in those areas.			October, 1979			
16	3	3	Efficiency of both boilers is better than 81%			October, 1979			
17	3	1	Only one boiler is being run at a time and then for one (1) month each	:h.		October, 1979			
18	3	1	The thermostats are set at 65°.  Some areas are warmer and very seldom are any areas any colder than 65° when they are occupied.			October, 1979			

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

OPTIONAL: OPTIONAL CLASSIFICATION **ENERGY** ITEM **ENERGY** DATE OF IMPLEMENTATION PAST ENERGY CONSERVATION ACTIONS COST SAVINGS MAJOR NO. SUB SAVINGS CLASS CLASS May, 1979 Cut down on the large amount of outside air that is taken in. 19 Hot water temperature is set at 1050, hot water pumps are turned October, 1979 20 6 off at night. 21 4 4 Low wattage flourescent tubes are June, 1980 being used. 22 3 All exhaust fans turned off when October, 1979 not needed. December, 1979. 23 4 High efficiency ballasts installed 24 Storm windows installed - council July, 1980 10 chambers.

NEW OPPORTINITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

SSIFICATION NO. IOR SUB ASS CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
ASS CLASS		SAVINGS	SAVINGS	
	Keep all controls free of dust.			<b>\</b>
ļ	11000			February, 1979
2	Eliminate excessive motor vibration.			RMS - April,
	Where it is impractical to replace			1979
2	motors which have low loads and			
				Over 90% since
				April 1979
	power factor to 90%.			
	Check power factors and make			RMS
3				April, 1979
	Shade outdoor transformer banks			
4	from solar radiation.			
	t ·			1.5"
$\frac{1}{1}$				June, 1979
.   1	Add insulation above suspended			
	Caulk around all nines louvers			
. 6	or other openings on the roof			
	Caulk all cracks in walls that allow		1	
8	1	1		
			**************************************	RMS
1	cooling system, including control			April. 1979
	valves and dampers.			
	Check the calibration of all con			I RMS
3   1				April, 1979
	settings and operations.			1,51113 1373
	Adjust automatic timers or add time			D
1				Done manually
	operation.	<u> </u>		
				May, 1979
<del></del>			-	
	Lower the supply air (or hot water)			
3   1	temperature for heating to the			October, 1979
	lowest point necessary to provide			-
	minimum required heating.	1		
,				
3   1		-	<u> </u>	October, 1979
	Control humidity			
) l 1		i	1	1
3 1	65°E mayimum occupied 60°E mayi	<b></b>		
	to a maximum of 30%/. 50%.  65 F maximum occupied, 60 F maximum unoccupied during the heating s	da son		October 1979
3 1	65°F maximum occupied, 60°F maxi- mum unoccupied during the heating s	eason.		October, 1979
	3 4 1 1 6 8 1 3 1	power factors, use capacitors at motor terminals to correct the power factor to 90%.  Check power factors and make adjustments to correct equipment.  Shade outdoor transformer banks from solar radiation.  Check the amount of insulation in the ceiling.  Add insulation above suspended ceilings if needed.  Caulk around all pipes, louvers, or other openings on the roof.  Caulk all cracks in walls that allow air and moisture into the building.  Check operation of entire heating/cooling system, including control valves and dampers.  Check the calibration of all controllers and devices for proper settings and operations.  Adjust automatic timers or add time clocks to automatically set back temperature for night and weekend operation.  Raise the supply air (or chilled water) temperature for cooling to the highest point necessary to provide minimum required cooling.  Lower the supply air (or hot water) temperature for heating to the lowest point necessary to provide minimum required heating.  Turn off all humidifiers at night and during unoccupied cycles.	power factors, use capacitors at motor terminals to correct the power factor to 90%.  Check power factors and make adjustments to correct equipment. Shade outdoor transformer banks from solar radiation. Check the amount of insulation in the ceiling. Add insulation above suspended ceilings if needed. Caulk around all pipes, louvers, or other openings on the roof. Caulk all cracks in walls that allow air and moisture into the building. Check operation of entire heating/cooling system, including control valves and dampers.  Check the calibration of all controllers and devices for proper settings and operations.  Adjust automatic timers or add time clocks to automatically set back temperature for night and weekend operation. Raise the supply air (or chilled water) temperature for cooling to the highest point necessary to provide minimum required cooling. Lower the supply air (or hot water) temperature for heating to the lowest point necessary to provide minimum required heating. Turn off all humidifiers at night and during unoccupied cycles.	power factors, use capacitors at motor terminals to correct the power factor to 90%.  Check power factors and make adjustments to correct equipment.  Shade outdoor transformer banks from solar radiation.  Check the amount of insulation in the ceiling.  Add insulation above suspended ceilings if needed.  Caulk around all pipes, louvers, or or other openings on the roof.  Caulk all cracks in walls that allow air and moisture into the building.  Check operation of entire heating/ cooling system, including control valves and dampers.  Check the calibration of all controllers and devices for proper settings and operations.  Adjust automatic timers or add time clocks to automatically set back temperature for night and weekend operation.  Raise the supply air (or chilled water) temperature for heating to the lowest point necessary to provide minimum required cooling Lower the supply air (or hot water) temperature for heating to the lowest point necessary to provide minimum required heating.  Turn off all humidifiers at night and during unoccupied cycles.

Note 1. Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

NEW
OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine to suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit leam during the building walk-through.

TEM NO		ICATION I	, , , , ,			
NO.			NO NEW MINI-AUDIT OPPORTUNITIES		ENERGY COST	DATE OF IMPLEMENTATION
140	MAJOR CLASS	SUB CLASS	į	SAVINGS	SAVINGS	
	CLASS	CLASS	Keep radiators free from blockage.	***************************************		
10	2	2	A one foot clearance in front of			
18	3		A one foot creataine in front of	name and the same of the same		
			convectors, radiators, or registers			
			is desirable.			
			Vent all hot water radiators and			
19	3	2	convectors to assure that water will			November, 1979
			completely fill the interior			
			passages.			
			In the public spaces of all building	S		
20	3	2	such as lobbies, corridors, stair-			October, 1979
			wells, vestibuiles, and lounges,	***************************************		
			conserve energy by turning off			
	<del> </del>		conserve energy by turning or			
			unitary terminal units and removing			
	-		handles from control valves. If	·	ļ	
			balancing cocks are included, turn			
			them to the off position. In each			
			stairwell of multi-level buildings,			
			shut off all but the unit located			l
	,		at the bottom. Turn off heat in			
			vestibules and fovers.			
			Keep condenser coil face clean		<b></b>	RMS
21	3	3	to permit proper air flow.			April, 1979
<u> </u>					<u> </u>	Api 11, 12/3
		2	Inspect ductwork for air leakage.			
22	3	3	Seal all leaks by taping or caulking			DMC
			Inpsect hot and chilled water			RMS
_23_	3	3	piping strainers. Clean when requir	ed.		April, 1979
			Inspect steam traps to assure that			RMS
24	3	3	they are passing only condensate,			April, 1979
			not steam. Repair as necessary.			
	Ì		Inspect all pressure reducing and			
			regulating valves and related			
			equipment. Adjust, repair or re-			
	<del>                                     </del>				<del> </del>	
	į	l	place as necessary.			
	<del> </del>	<del> </del>	Inspect damper blades and linkages.			DMC
25		1			1	RMS 1070
25	3	3	Clean, oil and adjust.			April, 1979
0.0		1	Take special note of fresh air			RMS
26	3	3	dampers making sure that they close		ļ	April, 1979
	1		tightly and be sure to repair, re-			
			place or provide blade edge gaskets			
			and gasketing at the end of			
			blades.			
	1	1	Check the timer settings and	t	<del>                                     </del>	RMS
27	3	3	mechanism on the automatic filter.			April, 1979
	1 -	1 3	If the automatic filters are	<del> </del>	+	
20	1	1 2	1			RMS
28	3	3	advanced according to pressure	<b>}</b>	<del> </del>	April, 1979
			requirements, check this control			
	1	1	for proper functioning.		1	1
	+	<del></del>		-		

Note 1 Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

VEW OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine: suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

	T CL ADOLE	10.171.011		OPTIONAL:		
ITEM NO	CLASSIF NO MAJOR		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION
140	CLASS	CLASS		SAVINGS	SAVINGS	
			Instruct occupants and maintenance			
29	4	1	personnel to switch off all lights			
			when they are not needed.			
. 1			Consider variable level			
30	4	1	light switches.			
			Locate tasks that need the best			
31	4	2	illumination closest to the windows,			
			with the task-viewing angle parallel			
			to the windows.	<b></b>	ļ	
00			To reduce glare, rearrange work			
32	4	2	stations so that side wall daylight	<u> </u>	<u> </u>	
1			crosses perpendicular to the lines			
	<del></del>		of vision.			
00			Clean fixtures and			RMS
33	4	3	lamps regularly.	<b>}</b>		April, 1979
34		3	Replace lamps in groups before they			
34	4	3	burn out to maintain higher average light output per fixture.	<del> </del>		
			right output per rixture.			
			When repainting, use light colored			
35	4	3	paint on ceiling, walls and floors	ļ		
	1		but avoid objectionable specular			
			reflections from glass finishes.			
36	4	4	Remove unnecessary lamps, fixtures, and balasts.			
	+ -	<b>-</b>	Reduce outside lighting in parking	<del> </del>	<del> </del>	
37	4	4	lots and at building signs and			January, 1979
	7		entrances to the minimum.		<b>†</b>	Odinary, 1373
• •		_	Use lower wattage lamps to provide			1,000
38	44_	4	the necessary illumination.	<b></b>	<u> </u>	June, 1980
30		١.	Allow part of a lighting system			
39	4	4	to be turned off, while maintaining	<del> </del>	<del> </del>	
			the necessary light.			
40	4	5	Substitute samil table or floor-			
40	+ 4	- 3	mounted lamps in lounge areas or waiting rooms and turn off modular	<b> </b>	<b></b>	
			ceiling fixtures.			
	_	<del> </del>	Provide desk or table lamps in task		<del> </del>	
41	4	5	localized areas.	`		
41	+ 4	3	Site lighting on building. Change	<del></del>	ļ	
42	4	6	to higher efficiency type fixtures.			1070
44	+ 4	0	Keep records of the operating	<del> </del>	+	January, 1979
43	5	1	schedule, monthly energy consumption	oh.		August, 1979
40	, 1 3	╁╌╧╌	and purchase of any new equipment	7'	<del>                                     </del>	11494309 1373
			that affects energy consumption of	1		
~~ <u>~</u> ~~~	<del>-  </del>	<b>†</b>	efficiency of the building. These	+	<del> </del>	
			records will indiacte the impact of	_	1	1

Note 1 Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Annesota Energy Agency before the "Date of Implementation" has been completed.

VEW PPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine is suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

	LOLAGOIS	CATION	The state of the s	PTIONAL:	OPTIONAL		
TEM	CLASSIFICATION NO			ENERGY	ENERGY COST	DATE OF IMPLEMENTATION	
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	An an acceptance of the state o	
			energy conservation measures.				
	<b>———</b>		Review the record book				
44	5	1	on a regular basis.			August, 1979	
			Adjust water supply to 100°F for				
45	6	1	all except special requirements			May, 1979	
٠			(dishwasher supply units, etc.)				
	<del>                                     </del>		The burner system of fossil-fuel			RMS	
46	6	2	water heaters should be kept			April, 1979	
1			clean and in good operating				
			condition.				
			Check for a defective relieve valve			RMS 1070	
47	6	2	from the water heater.	erangyezethe Americanyaliyak		April, 1979	
		•	Periodically drain and remove the	•	<b>[</b>	RMS	
48	6	2	sediment from the water heater.			April, 1979	
			Maintain the lowest possible hot			May 1070	
49	7_	4	water temperature which will meet		<u> </u>	May, 1979	
			space or domestic hot water needs.		-		
	1		Maintain water level or pressure				
50	7	4	to radiators or coils on the highest			October, 1979	
; ;			level of the building.				
i	<del> </del>		Maintain the lowest possible steam				
51	7	4	pressure suitable for supplying			October, 1979	
			radiation or coils.				
-	<b>†</b>	<b>†</b>	Check cooling tower fan by listening		<u> </u>	RMS	
52	7	4	for any unusual noise or vibration.			April, 1979	
			Inspect condition of V-belt(s) and				
1			drive. Align fan and motor as				
•			necessary.				
	<b>+</b> • • • • • • • • • • • • • • • • • • •	<del> </del>	Keep the cooling tower clean to min-			RMS	
53	7_	4	imize both air and water pressure dr	op.	ļ	April, 1979	
	1		Clean cooling tower		1	RMS	
54	1_7_	4	inlet strainer.			April, 1979	
	_	_	Inspect spray filled or distributed			RMS	
55	1 7	4	cooling towers for proper nozzle		-	April, 1979	
			performance. Clean nozzles as				
		<del> </del>	necessary.		-	DMC	
	7		Analyze cooling tower water and			RMS	
56	+	8	maintain acceptable water quality.			April, 1979	
<u>:</u>					-		
		-			<b></b>		
	İ			1	1	į.	

## MINI-AUDIT REPORT

A	BUILDING NAME		NAME OF ORGANIZATION	DATE			
	Creekside Center		City of Bloomington 6-2-8				
1	BUILDING ADDRESS	· · · · · · · · · · · · · · · · · · ·	ADDRESS				
	9801 Penn Avenue South		2215 West Old Shakopee Road				
-	CITY	ZIP CODE	CITY	ZIP CODE			
AC	Bloomington, MN	55431	Bloomington, MN	55431			
CONTACT	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE			
ပီစီ	Paul Martinsen	612) 935-6901	ArthurJensen	612) 881-5811			

В		structions: For blocks 1 and 2 escribes the building type and							our categories
	1.	OWNERSHIP TYPE  X Public (F  Non-Profit Association	PUB) (NAP)	3a.	SCHOOLS  □Elementary □Secondary □Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT Office Storage XXService	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
ODE	2.	ULTIMATE OWNER County XXICity	(CNTY) (CITY)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire  POTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY CODE		☐Township☐State☐Public School☐Private School☐Non-Profit Association☐Indian Tribe	(PUSC) (PRSC)	b.	PUBLIC CARE Nursing Home Long Term Care Rehab. Facility Public Health Ctr. Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State fu just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the orga	nding or inization.
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? Have you previously applied for mini-audit funding? Do you wish to apply for mini-audit funding? Yayes No	
	Date:	
	Name:	
	Signature:	
	If eligible for Federal funding only: Have you received a mini-audit grant before?	1
	The service of the service forms from Come additional sheets in necessary.)	
		,
		ū
ST		
OUE	Date:	
20	Name:	
MINI-AUDII	Signature:	
₹2		

D	Check the type of energy report which was completed and submitted price	or to this mini-audit report.
EPORT FF	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)  XXX Existing Building Energy Report (Form No. EN-00041-01)	
ENERGY REPORT	If an energy report has not been completed previous to this mini-audit re vocational schools should use form ED-00444-02 or form ED-00445-02, depuilding energy report, form EN-00041-01.	port, one must be included with this report. Elementary, secondary, and bending on building complexity. All other buildings should use the existing
E	Instructions: This section is to be completed and signed by a registered procedure of the State of Minnesota's Mini-Audit Procedures Course. This searce completed. All blanks must be filled in.	professional engineer or by a certified mini-auditor who has successfully ction should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for this corrected any misinformation on the energy report which will be resubm	building. I found all information contained therein to be correct OR I have itted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this building	g being audited.
	I have fully disclosed my financial interests relating to this mini-audit and	d any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendation maintenance changes, and low cost energy conservation measures, which	
	I have made a rough estimate, in section G, of the range of savings which listed in section I. I am not responsible if the actual savings resulting fro	
	Based on actual records, the energy conservation operating and maintenation of the building's energy consumption as specified in section I.	ance procedures listed in section K did not save at least (did, did not)
	Based upon my observation of the physical characteristics of this building Should be the subject of a maxi-audit.	ng and the building's major energy using systems, I recommend that this
		make the maxi-audit funding determination based on this mini-audit report
	Based upon the information in section E and the information referred to in	section F, I recommend that this building Should not (should, should not)
	undergo further solar conversion analysis, and/or Should not wind, wood (Circle proper resources) (should, should resources)	undergo further analysis of the renewable resources — waste,
	wind, wood, (oncid proper resource),	
	In my judgement, as a mini-auditor, all of the above statements are true	and correct.
		Witnessed by:
	Paul Martinsen Myni-Auditor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Raul Be Martinean P. E. 9597	Building Organizational Authority (Print or Type)
	Signature	Signature
	Rieke Carroll Muller Assoc. Inc.	Date
	P.O. Box 130 Hopkins, MN 55343	
	(612) 935-6901	
	Phone 6-2-80	
	Date	
		1
1		
MINI-AUDIT STATEMENTS		
TAT		
<b>≥</b> 0		

F	NAME	POSITION Machanian 3 Fragina and	ORGANIZATION
	Paul Martisen	Mechanical Engineer	Rieka Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
AUDIT			
AE T			
		(-	
G	Good Condtion -		Health Offices, Nursery School
_	MAJOR CHANGES PLANNED W. None	THIN NEXT 15 YEARS (i.e. demolition, rehab	litation, conversion from one building type to another)
BUILDING INFORMATION	STRUCTURAL COMPONENTS O	F ROOF (i.e. metal beams, wooden rafters, co	ncrete)
0 K	Bar Joist ROOFING MATERIAL (i.e. tar and	d gravel shingles tile)	
28 PF	Tar and Gravel	J graver, simigres, the)	
	Idi did di deci		
Н	INSTRUCTIONS: Correctly answer	er the following questions for the building being	ng mini-audited.
	Is there open land adjacent to the	building?	
	Solar collectors need to be located	in an unshaded area. Is the roof of the building	and the south facing wall unshaded between the hours of 9 a.m. and
	3 p.m.?  Roof: XXYes □ No South facing Wall: XXYes □	l No	
	If the roof or wall are party chad % of roof unshaded % of south facing wall unshade	ed, what percentage of the surface is unshade	d?
	What is the overall shape of the boundary Square XS rectangle □ H	ouilding? shaped	
	Is the roof of the building flat or What pitched	pitched?	
	If pitched, what is the compass o	rientation of the ridgeline?	
	If pitched, what is the angle that	the roof makes with horizontal?	a -
	Are there large obstructions on the Yes XX No	he roof such as chimneys, rooms for mechanic	cal equipment, ventilating units, water towers, etc?
		ial for the south facing wall? Block a	nd brick
		sing wall is glass?50%	
	Is the building's space heating ed ☑ Wes ☐ No	quipment located within or on the building? (A	no answer indicates the equipment is in a separate building.)
	If the space heating equipment is	s inside the building, where is it located? it \$\square\$ Roof \$\square\$ Other (specify)	
N I A			nswer indicates the equipment is in a separate building.)
OLAR POTENTIAL	If the water heating equipment is Ground Floor DBasemen	inside the building, where is it located?	
NFOR		ntral system, does it consist of multiple units	or is it a combination of the central and multiple units?

L		- Topac and the same of the same		BASE	PERIOD YEA	AR		Fiscal Y	ear
	ENERGY TYPE		ENERGY	USAGE		CONVERSION	FACTOR		BTU USAGE
	Electricity								
	Fuel 1			yanda daga da da kasa kana da kasa kana kana kana kana kana kana kan		anni de till av sense til till gjenne til til gjeng til til fre ste gjenne til til gjenne til til til ste gjen	alternative company and a second		
	Fuel 2			and Migratin Daniel Williams in agreemen		garicile (Squarter 49-19-19-19-19-19-19-19-19-19-19-19-19-19			
	TOTAL								
				20% SA	VINGS YEA	.R		Fiscal Y	ear
_	ENERGY TYPE		ENERGY	USAGE		CONVERSION	FACTOR		BTU USAGE
_	Electricity								_
_	Fuel 1								
-	Fuel 2								
-	TOTAL	1							
Γ	Instructions: This section is to he	completed	by the min	i-cuditor after	the welk-thr	·· nortion of the	- mini-qudit Fi	ret chack the	appropriate hoxes which
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect	je of the perce nities listed i trical and fu	ent of total n section l	electrical and L. Secondly, (	fuel consum calculate the	ption which we e range of end	ould be saved r	esulting from	the implementation of a
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor	e of the percenties listed in trical and functions and functions are selected as the contract of the contract	ent of total n section I el consum	electrical and L. Secondly, option data on	fuel consum calculate the	ption which we e range of end	ould be saved r	esulting from savings by m	the implementation of a nultiplying the estimate
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor Range of Electrical Savings —	e of the percenties listed in trical and function ory —	ent of total n section I el consum XXX5%	electrical and L. Secondly, option data on	fuel consum calculate the the energy	ption which we range of end report.	ould be saved regy and cost	esulting from savings by m	the implementation of a nultiplying the estimate (specify)
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings —	e of the percentiles listed in trical and function ory —	ent of total n section I el consum  XX5%	electrical and L. Secondly, option data on	fuel consum calculate the the energy	ption which we e range of end report.	ould be saved r ergy and cost	esulting from savings by m	the implementation of a nultiplying the estimate
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor Range of Electrical Savings —	e of the percentiles listed in trical and function ory —	ent of total n section I el consum  XX5%	electrical and L. Secondly, option data on  10%	fuel consum calculate the the energy	ption which we range of end report.	ould be saved regy and cost	esulting from savings by m	the implementation of a nultiplying the estimate (specify)
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and	e of the percenties listed in trical and function ory — XX 0% — 0% — cost savings	AX5%  XX5%  AXCOM	electrical and L. Secondly, option data on  10% XX10%  Range of	fuel consum calculate the the energy 15% 15% Electrical S	ption which we range of end report.	ould be saved rergy and cost  ☐ 25% ☐ 25% ☐ 25%	esulting from savings by m  other other	the implementation of a nultiplying the estimate (specify)  (specify)  Range of Electrical
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings —	e of the percenties listed in trical and fundamental endings.  Annual E Consum	AX5%  XX5%  XXion  Incorporate the consumption	electrical and L. Secondly, option data on  10% XX10%  Range of	fuel consum calculate the the energy  15% 15% Electrical \$	ption which we range of end report.	□ 25% □ 25% □ Dollar	esulting from savings by m	the implementation of a nultiplying the estimate (specify)
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and	e of the percenties listed in trical and furory —  XX 0%  0%  cost savings  Annual E  Consun  268,48	AX5%  XX5%  XXIV5%  AXIV5%  AX	electrical and L. Secondly, option data on  10% XX10%  Range of Range Sa	fuel consum calculate the the energy 15% 15%  Electrical Sof Energy vings  Market Market 15 Mark	ption which we range of end report.  20% 20% 20% Avings % Range 0 %	and cost or series of the cost	other other of spent of the sector of the se	the implementation of a nultiplying the estimate (specify)  (specify)  Range of Electric Dollars Savings  = \$ 0
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and  \$\frac{\pi}{2} \text{Range}\$  lower bound \$\sum_{\text{0}} \pi \text{x}  to	e of the percenties listed in trical and furory —  XX 0%  0%  cost savings  Annual E  Consum	AX5%  XX5%  XXIV5%  Bectrical aption  0 kwh	electrical and L. Secondly, option data on  10%  AX10%  Range of Range Sa  =  13.	tuel consumple the energy 15% 15% Electrical Sof Energy vings 0 kwh, 100 424 kwh, 100 424 kwh, 100 24 24 kwh, 1	ption which we range of energy continues a vings  We Range  O  to  5  %	□ 25% □ 25% □ Dollar	esulting from savings by m  other other steedtrical steedtrical	the implementation of a nultiplying the estimate (specify)  (specify)  Range of Electric Dollars Savings  = \$ 0
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and	e of the percenties listed in trical and furory—  XX(0%)  0%  cost savings  Annual E  Consun  268,48	AX5%  XX5%  XX5%  XX 5%  Consumption  Consum	electrical and L. Secondly, option data on  10% XX10%  Range of Range Sa  = 13, Range Range	tuel consumplication and the energy 15% 15% Electrical Sof Energy vings 0 kwh, 100 k	ption which we range of energy continues and the second continues are second continues as a second continue continues are second continues as a second continue continues are second continues as a second continue continue continue continues are second continues as a second continue continue continue continues are second continues as a second continue continue continue continues are second continues as a second continue continues are second continues as a second continue continues are second continues as a second continue continues are second continues as a second continue continues are second continues as a second continue continues are second continues as a second continue continues are second continues as a second continue continues as a second continue continues are second continues as a second continue continues are second continues as a second continue continues as a second continue continues as a second continue continues as a second continue continues as a second continue continues as a second continue continue continues as a second continue continue continue continue continues as a second continue continue continue continues as a second continue continue continue continues as a second continue continue continue continue continue continues as a second continue continue continue continues as a second continue continue continue continue continues as a second continue continue continue continues as a second continue continue continue continues as a second continue conti	Dollar x \$10.	esulting from savings by m  other other  spent 915.28  915.28	the implementation of a nultiplying the estimate (specify)  (specify)  Range of Electric Dollars Savings  = \$ 0  to  = \$ 545.76
	state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each categor Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and	e of the percenties listed in trical and furiory—  \times	AX5%  AX5%  AX5%  AX5%  Consumption  AX5%  AX5%  Consumption  AX5%  AX5%  Consumption  AX5%  AX5%  Consumption  Consumption  Consumption  Consumption  Consumption  Consumption  Consumption  Consumption  Consumption	electrical and L. Secondly, option data on  10%  AX10%  Range of Range Sa  =  Range Flange Si	tuel consumplication and the energy 15% 15% Electrical Sof Energy vings 0 kwh, 10 424 kwh, 10 of Fuel Sat	ption which we range of energy continues a vings  We Range  O  to  5  %	Annual Dollar x \$10.	esulting from savings by m  other other  selectrical sepent  915.28	the implementation of a nultiplying the estimate (specify)  (specify)  Range of Electric Dollars Savings  = \$

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

:		ICATION		OPTIONAL:	ENERGY	
NO.	MAJOR CLASS	O. SUB CLASS	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
1	3	1	Outside air closed off for unit			Summer 79.
			Ventilators in rooms		·	
2	2	10	Storm windows added			Summer 79.
_3	4	3	High efficiency ballast intalled			December, 1979
4	4	4	Low wattage fluorescent lamps installed.			December 1979
5	3	3	Air conditioning - cleaned when needed.			RMS April, 1979
6	3	3:	Do not run the compressor any more than necessary.			April, 1979
7	3	1	Thermostats were not set too low.			July, 1979
8	3	1	If air conditioning was needed on weekends, it was turned on and off when it was not used.			July, 1979
9	2	10	Storm windows were installed on all windows.			November, 1979
10	2	10	Window air conditioners were remove			November, 1979
11	3	1	Thermostats in most rooms set at 71 Variance granted.			October, 1979
12	3	1	The amount of outside air taken in was cut down. When thermostats wer satisfied the fans would keep running and outside dampers would open, this has changed.	e		June, 1979

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

		ICATION O.		ENERO:	ENERGY	
NO.	MAJOR CLASS	SUB CLASS	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
13	3	_ 3	The flue gas on the boiler is also			October, 1979
			The flue gas on the boiler is also being checked with the Bacharach.			
14	6	2	Hot water circulating pumps are turned off at night.			October, 1979
		_	turned off at night.			
15	6	2	Domestic hot water heater set at 105°. Kitchen hot water left at 180°.			October, 1979
			180°.			
	}					
A						
		-				
					-	
						-
	1	1	•	1	1	

NEW PPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

				OPTIONAL:	OPTIONAL	
ITEM NO	CLASSIF NO MAJOR	SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
1	CLASS	CLASS	Keep all controls free of dust.			February, 1979
2	1	2	Lubricate motors to reduce wear and excessive torque.			RMS April, 1979
3	1	2	Keep motors clean to make cooling eas	ier.		RMS April, 1979
4	1	2	Check power factors and make adjustmento correct equipment. Where it is	nts		Over 90% since April, 1979
			impractical to replace motors which have low loads and power factors, use			
			capacitors at motor terminals to correct the power factor to 90%			·
5	1	5	Tighten and clean all electrical connections from the circuit breaker			
			back through the transformers, to the main switch gear. NOTE: Have this do	ļ		,
			at least once a year by a qualified electrician when the building power			
			shut off. This is not only a precau- but it can also reduce electrical los	tian		
6	2	1	Check the amount of insulation in the ceiling and add if needed.			
7	2	2	Weatherstrip all exterior doors inclugarage or delivery doors.	ding		
8	2	3	Clean Windows so more sunlight shine through them during the heating season			RMS October, 1979
9	2	3	When the winter sun is not shining through the windows, draw the drapes			
······································			or blinds to reduce effective heat losses.			
10	2	3	South and west facing windows should be fitted with solar shading devices			
			(i.e. overhangs, fins, trellises, awnings, interior drapes) to reduce			
			heat gain.			i i
11	2	7	Inspect the vestibule exterior and interior surfaces and seal all crack	<b>\$</b> .		May, 1979
12	2	7	Insulate the vestibule walls and roof.			
13	2	8	Insulate walls with rigid insulation on inside and/or outside surfaces, o			
	ļ	-	place loose fill insulation in wall cavities.			,
14	2	9	Weatherstrip and caulk around door f	rames		
15	2	9	Weatherstrip and caulk around window frames.			November, 1979
16	2	11	Replace windows on the north side of the building with insulation wall pa			

Note 1° Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

NEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation to found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

1				OPTIONAL:	OPTIONAL	:
ITEM NO	CLASSIF NO MAJOR	O. SU <b>B</b>	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
17	CLASS 2	CLASS	Reduce amount of glass on other walls			
18	3	1	Check operation of entire heating/ cooling control system, including			RMS April, 1979
·			control valves and dampers.			
19	3	1	Check the calibration of all control and devices for proper settings and	lers		RMS April, 1979
			operations.			
20	3	1	Adjust automatic timers or add time clocks to automatically set back			Done Manually
	-		temperature for night and weekend operation. Raise the chilled water temperature			
21	3	1	for colling to the highest point necessary to provide minimum require			June, 1979
	ļ		heating.			
22	3	11	Lower the hot water temperature for heating to the lowest point necessar	y		October, 1979
			to provide minimum required heating.			
23	3	1	Open windows in lieu of operating ventilating system for outdoor air			May, 1979
			cooling, when feasible. Be sure to consider acoustical, odor and dust			
			conditions.			
24	3	1	Operate without fresh air ventilation when the building is unoccupied.	1		October, 1979
25	3	1	Reduce the amount of infiltration a outdoor air ventilation to provide	nd		October, 1979
			only the minimum required.			
26	3	1	Inspect outlet air filter system on controls of air compressor for prop	er		RMS April, 1979
	,		removal of oil, moisture and dirt.			
27	3	2	Clean the air side of all direct radiators, fin tube convectors and			RMS April, 1979
			coils to inhance heat transfer.			
28	3	3	Make sure that all fans, frequently inoperative in unit heaters, fan co	/    1		RMS April, 1979
			units, and unit ventilators are running normally to increase the			
			heat transfer rate from heating coils.			
29	3	3	Keep condenser coil face clean to permit proper air flow.			RMS April, 1979

EW EW

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

				OPTIONAL:	OPTIONAL	
	CLASSIF			ENERGY.	ENERGY	
NO NO	MAJOR	SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATIO
	CLASS	CLASS		0,,,,,,,	SAVINGS	
			Check pumps for packing wear which			RMS
30	3	3	can cause excessive leakage. Repack	. •		April, 1979
			to avoid excessive water was tage and			
			shaft erosion.			
	1	V	Inspect strainers. Clean when require	d.		
31	3	3	inspect strainers, orean when require			RMS
3T	1 3	<u> </u>	Inspect damper blades and linkages.			
20		2				RMS -
32	3	_3	Clean, oil and adjust.	,		MIS
			Clean or replace filters periodically			DMC
33	3	_3	or when indicated by filter gauges.		<del></del>	RMS ·
			If there are no gauges, consider			
***************************************	<del> </del>		installing them. Clean transfer surface periodically			
0.4		_				
34	3	3	inside and outside.			RMS
		_	Instruct occupants and maintenance			
35	4	1	personnel to switch off all lights			
			when they are not needed.			
		İ	Consider variable level switches.			·
36	4	1			·	
			In the winter, open blinds and drape	\$		
37	4	2	even if space mildly overheats.			
<u> </u>		- <del>-</del>	Clean fixtures and lamps regularly.		<del> </del>	
38	4	3	orean rixed es and ramps regarding			March, 1979
	<del> </del>	<u> </u>	Replace lamps in groups before they	<del>                                     </del>	<b></b>	
39	4	3	burn out to maintain higher average			
33	+ -	<del>                                     </del>	light output per fixture.	<u> </u>	-	
			Tight output per lixture.			
		-	Demous unnessessmy lamps fixtumes	<del> </del>	<del> </del>	
40			Remove unnecessary lamps, fixtures,			
40_	4	4	and ballasts.	<u> </u>	<del> </del>	
			Use lower wattage lamps to provide t	ne		Docombon 1070
41	4	4	necessary illumination.	-		December, 1979
			Keep records of the operating schedu	ψle,		1070
42_	<u> </u>		monthly energy consumption and purch	nase		August, 1979
			of any new equipment that affects			*
	ļ		l energy consumption of efficiency of	the		
			building. These records will indicate	te		
			the impact of energy conservation			
			measures.			
	1					
		-	Review the record books on a regula	d		
43	5	1	hasis			August, 1979
			Establish a specific maintenance			RMS
44	5	2	schedule for each building to ensur	e		April, 1979
		1	that all components of the specific	1	1	
			building operate at maximum efficie	ncv.		
	<b>†</b>	<b>†</b>	Consult manufacturers literature fo	ri - J	+	
			quidance in establishing a maintena			
	+	<del> </del>	schedule.	1	-	Carlos and Carlos and
	1	1	Schedule:	1	1	1

Note 1 Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

NEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

OPTIONAL: OPTIONAL:

				OPTIONAL:	<b>OPTIONAL</b>	
ITEM NO	CLASSIF NO MAJOR CLASS	CATION O. SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
45	6	1	Adjust water heater supply to 100°F for all except special requirements			May, 1979
			(dishwasher supply units, etc.).			
46	6	2	The burner system of fossil-fuel water heaters should be kept clean			RMS
			and in good operating condition.			
47	6	2	Periodically drain and remove the sediment from water heater.			
48	6	3	Turn off unused coffee pots and food warmers.			-
49	6	6	Check sewage ejector float operation	1.		,
50	7	3	Adjust oil burner efficiencies to proper stack temperature, CO <sub>2</sub> conter	nt		October, 1979
			and excess air settings. Adjust set to a maximum of 400°-500°F of stack	ting		
·			temperature and a minimum of 10% CO. at full load conditions. Excess air	N .		
			through a boiler can waste 10% to			,
	<del> </del>		30% of the fuel. Accurate testing is essential for the correct burner			
	-		adjustment for maximum efficiency. Use appropriate instruments and test	<u> </u>		
	<del> </del>		combustion as part of a planned gene maintenance program.	ral		
	ļ				ļ	
51	7	3	Check stack temperature and keep a weekly log. An increase in stack			October, 1979
			temperature usually means accumulat of soot or scale are reducing the	ions		
			rate of heat transfer.			
52	7	4	Maintain the lowest possible hot water temperature which will meet			May, 1979
			space or domestic hot water needs.			
	1 7	8	Clean water chiller water-sides, remove built-up scale.			RMS
53	<del>                                     </del>		Check water chiller with the feed-		<b>†</b>	
54	1-7-	8	water treatment supplier or consultant to prevent scale formati	on .	<u> </u>	August, 1979
			Carefully follow recommendations concerning amounts of methods of		<del> </del>	3 ,
******		<del>                                     </del>	feed-water treatment and blowdown.			
	+					

#### **MINI-AUDIT REPORT**

NAME OF ORGANIZATION	DATE
City of Bloomington	6-3-80
ADDRESS	
2215 West Old Shakope	e Road
CITY	ZIP CODE
Bloomington, MN	55431
CONTACT PERSON	TELEPHONE
001   Arthur Jensen	(612) 881-5811
-	City of Bloomington ADDRESS  2215 West Old Shakoper CITY Bloomington, MN CONTACT PERSON

Instructions: For blocks 1 and 2 check the box which best fits the building ownership conditions. For block 3 determine which of the four categories describes the building type and then within the category check off the sub category befitting the building function.

ODE	1. QWNERSHIP TYPE  XII Public (PUB)  Non-Profit Association (NAP)  2. ULTIMATE OWNER  County (CNTY)  XII City (CITY)  Township (TOWN)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ. □ Vocational □ Education Agency □ Administration □ OTHER	(SCHL-ELM) (SCHL-SECD) (SCHL-POST) (SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)	Ç.	LOCAL GOVERNMENT  Confice Storage Service Clibrary Police Fire There	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV) (LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY CODE	□ Township (TOWN) □ State (STAT) □ Public School (PUSC) □ Private School (PRSC) □ Non-Profit Association (NPAP) □ Indian Tribe (INDN)	b.	PUBLIC CARE Nursing Home Long Term Care Rehab. Facility Public Health Ctr. Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)
C	Instructions: With reference to page 23 entitle just Federal funding, then answer the question	ed Fundi	ng Information, determine	if the facilities are	eligil	ble for both Federal and S	tate funding or
	If eligible for both Federal and State Funding Have you received a mini-audit grant before Have you previously applied for mini-audit Do you wish to apply for mini-audit funding Date:  Name:  Signature:  If eligible for Federal funding only: Have you received a mini-audit grant before Have you previously applied for mini-audit Do you wish to apply for mini-audit funding	e? Y	es XX No				
	The 50% match for Federal funds will come	a from: (L	Jse additional sheets if ne	cessary.)			Y
MINI-AUDIT FUNDING REQUEST	Date: Name: Signature:						

1	Check the type of energy report which was completed and submitted pr	ior to this mini-audit report.
ENERGY REPORT	Elementary School Energy Report (Form No. ED-00444-02) Secondary School Energy Report (Form No. ED-00445-02) XXX Existing Building Energy Report (Form No. EN-00041-01)	eport, one must be included with this report. Elementary, secondary, and
CHECK	vocational schools should use form ED-00444-02 or form ED-00445-02, de building energy report, form EN-00041-01.	pending on building complexity. All other buildings should use the existing
E	Instructions: This section is to be completed and signed by a registered completed the State of Minnesota's Mini-Audit Procedures Course. This seare completed. All blanks must be filled in.	professional engineer or by a certified mini-auditor who has successfully ection should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for this corrected any misinformation on the energy report which will be resub-	s building. I found all information contained therein to be correct OR I have nitted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this buildi	ng being audited.
	I have fully disclosed my financial interests relating to this mini-audit ar	
1	I have walked through this building and have found the recommendati maintenance changes, and low cost energy conservation measures, whi	ons listed in section I of this mini-audit report to be the operations and ich would reduce energy consumption in this building.
	I have made a rough estimate, in section G, of the range of savings which listed in section I. I am not responsible if the actual savings resulting from	
	Based on actual records, the energy conservation operating and mainter 20% of the building's energy consumption as specified in section I.	(did, did not)
	(should, should not)	ing and the building's major energy using systems, I recommend that this o make the maxi-audit funding determination based on this mini-audit report
	and other criteria.	
	Based upon the information in section E and the information referred to in	section Elecommend that this building Should not
	Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/or Should not	(snould, snould not)  undergo further analysis of the renewable resources — waste,
	undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should	undergo further analysis of the renewable resources — waste, not)
	undergo further solar conversion analysis, and/orShould_no	undergo further analysis of the renewable resources — waste, not)
	undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should	undergo further analysis of the renewable resources — waste, not)
	undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should	undergo further analysis of the renewable resources — waste, not)
	undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen P.E. 9597	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:
	undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)	undergo further analysis of the renewable resources — waste, not) e and correct.
	undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen P.E. 9597	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:
	undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen  P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature
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	Paul Martinsen  Paul Martinsen  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Associates, Inc. Firm Name (if none, enter none)  P. 0. Box 130 Hopkins, MN 55343  Address  (612) 935-6901	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature
	Paul Martinsen  Paul Martinsen  Wind-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Associates, Inc. Firm Name (if none, enter none)  P. 0. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature
	Paul Martinsen  Paul Martinsen  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Associates, Inc. Firm Name (if none, enter none)  P. 0. Box 130 Hopkins, MN 55343  Address  (612) 935-6901	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature
	undergo further solar conversion analysis, and/orShould_notwind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen  P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Associates, Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  6-3-80	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature
	undergo further solar conversion analysis, and/orShould_notwind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen  P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Associates, Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  6-3-80	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature
	undergo further solar conversion analysis, and/orShould_notwind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen  P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Associates, Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  6-3-80	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature
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11 4TS	undergo further solar conversion analysis, and/orShould_notwind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true.  Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Associates, Inc Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address (612) 935-6901  Phone 6-3-80  Date	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature
AUDIT	undergo further solar conversion analysis, and/orShould_notwind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true.  Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Associates, Inc Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address (612) 935-6901  Phone 6-3-80  Date	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature
MINI-AUDIT STATEMENTS	undergo further solar conversion analysis, and/orShould_notwind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true.  Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Associates, Inc Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address (612) 935-6901  Phone 6-3-80  Date	undergo further analysis of the renewable resources — waste, not) e and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature

F	NAME	POSITION	ORGANIZATION
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc., Inc.
	i da i hai cingen	comunical Engineer	
	Reinert Ege	Maintenanc <u>e Engineer</u>	City of Bloomington
		•	
AUDIT			
<b>AF</b>			
G	Good - Office	RAL BUILDING CONDITION (i.e. type, and fur	nction)
		/ITHIN NEXT 15 YEARS (i.e. demolition, rehab	ilitation, conversion from one building type to another)
z	· · · · · · · · · · · · · · · · · · ·	- Building being remodeled	
BUILDING INFORMATION	STRUCTURAL COMPONENTS	OF ROOF (i.e. metal beams, wooden rafters, co	ncrete)
MA	Bar Joists		:
120	ROOFING MATERIAL (i.e. tar an	nd gravel, shingles, tile)	
ωž	Tar and Gravel.		
r 1			
H	INSTRUCTIONS: Correctly answ	ver the following questions for the building bei	ng mini-audited.
	Is there open and adjacent to the	e building?	
			and the south facing wall unshaded between the hours of 9 a.m. and
	3 p.m.? Roof: XX Yes □ No		
	South facing Wall: Yes	<del>y</del> No	
	If the roof or wall are partly shad	ded, what percentage of the surface is unshade	id?
	% of roof unshaded % of south facing wall unshad	% ed %	
	What is the overall shape of the square Xxrectangle	building? H-shaped 🛘 E-shaped 🗘 other (specify)	
	Is the roof of the building flat or	pitched?	
	AA flat ☐ pitched		
	If pitched, what is the compass of	orientation of the ridgeline?	
	If pitched, what is the angle that	the roof makes with horizontal?	•
	Are there large obstructions on Yes XXNo	the roof such as chimneys, rooms for mechani	cal equipment, ventilating units, water towers, etc?
	What is the exterior facing mate	rial for the south facing wall? Brick	(
	What percentage of the south fa		
	Is the building's space heating e		no answer indicates the equipment is in a separate building.)
	XXYes □ No		
	If the space heating equipment XXGround Floor Dasseme	is inside the building, where is it located? int D Roof D Other (specify)	
SOLAR POTENTIAL	Is the building's water heating e	equipment located within the building? (A no a	nswer indicates the equipment is in a separate building )
R POT	If the water heating equipment Ground Floor D Baseme	is inside the building, where is it located? ent Other (specify)	
SOLA	Is the water heating system a co	entral system, does it consist of multiple units, Combination	or is it a combination of the central and multiple units?

L				BASE F	PERIOD YEA	R	,	Fiscal Yea	1
	ENERGY TYPE		ENERGY	USAGE	С	ONVERSION F	ACTOR		BTU USAGE
	Electricity								
	Fuel 1								
	Fuel 2				<i>i</i>				
	TOTAL								
				20% SA	VINGS YEAR	R		Fiscal Yea	ar
	ENERGY TYPE		ENERGY	USAGE	C	ONVERSION I	ACTOR		BTU USAGE
	Electricity			The control of the co					
	Fuel 1						eric P. St. A. Managering and an entitle of a con-		
	Fuel 2					esser 1934 op To Principal op 1944 1844 1944 1944 1944 1944 1944 1944			
e  -								1	
DATA	TOTAL								
	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual elements.	nge of the pe unities lister	rcent of total in section	electrical and t	fuel consump calculate the	otion which wou range of energ	ild be saved re	sulting from the	e implementation of al
<u> </u>	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electric check two boxes in each cate	nge of the pe unities listed ectrical and egory —	rcent of total d in section fuel consum	electrical and t L. Secondly, o ption data on	fuel consump calculate the the energy r	otion which wou range of energ	ild be saved re	esulting from the eavings by mul	e implementation of al tiplying the estimated
<u> </u>	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical Savings —	nge of the pe unities listed ectrical and egory —	rcent of total d in section fuel consum XX5%	electrical and to the secondly, of the prior data on the second s	fuel consump calculate the the energy r	range of energeport.	uld be saved regy and cost s	sulting from the savings by mul	e implementation of al tiplying the estimated pecify)
	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical Savings — Range of Fuel Savings —	nge of the pe unities lister ectrical and egory — - XX 0%	TECHT Of total in section fuel consum  XX5%	electrical and t L. Secondly, o ption data on	fuel consump calculate the the energy r	otion which wou range of ener eport.	ald be saved regy and cost s	sulting from the savings by mul	e implementation of al tiplying the estimated pecify)
	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical Savings —	nge of the pe unities lister ectrical and egory — - XX 0%	TECHT Of total in section fuel consum  XX5%	electrical and the L. Secondly, of ption data on 10%	fuel consump calculate the the energy r	otion which wou range of energeport.	uld be saved regy and cost s	sulting from the savings by mul	e implementation of al
	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical savings — Range of Electrical Savings — Calculate ranges of energy and	nge of the peunities listerectrical and egory —  - XX 0%  0%  Annual	XX5%  Electrical	electrical and to L. Secondly, of ption data on 10%  LX10%  Range of Range	uel consump calculate the the energy research 15% 15% Electrical Sa of Energy	avings	□ 25% □ 25%	osulting from the cavings by multiple of the cavings by multiple of the caving of the	e implementation of al tiplying the estimated pecify)  pecify)  Range of Electrica
	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy are Range	egory —  - XX0%  0 0%  Annual Cons	Teent of total d in section fuel consum  XX5%  XX5%  Description  Electrical umption	electrical and the secondly, of ption data on 10%  AX10%  Range of Range	fuel consumption in the energy results to the energy results to the energy results to the energy results to the energy results to the energy vings	avings  % Range	□ 25% □ 25% □ Dollars	osulting from the lavings by multiple of the control of the contro	pecify)  Range of Electrica  Dollars Savings
	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical section is a section of the section of the section is to state the roughly estimated and section is t	egory —  - XX0%  0 0%  Annual Cons	XX5%  Electrical	electrical and to L. Secondly, of ption data on 10%  LX10%  Range of Range Sa  = 0	fuel consumption in the consumpt	20% 20% 20% Range WRange	25% Annual E	osulting from the lavings by multiple of the control of the contro	e implementation of al tiplying the estimated pecify)  pecify)  Range of Electrica Dollars Savings
	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy are Range	egory —  - XX0%  0 0%  Annual Cons	AXX5%  AXX5%  AXX5%  Electrical umption  580 kwh	electrical and to L. Secondly, of ption data on 10%  LX10%  Range of Range Sa  = 0	fuel consumption in the energy received the energy received in the energy received in the energy received in the energy vings and the energy vings with the energy vings and the energy vings are the energy vings and the energy vings are the energy vings and the energy vings are the	avings  % Range	□ 25% □ 25% □ 25% ■ Dollars \$ 536	osulting from the lavings by multiple of the control of the contro	pecify)  Range of Electrica  Dollars Savings
	Instructions: This section is to state the roughly estimated ran of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy are section with the result of the resul	egory —  - XX 0%  - 0%  Annual Cons	AX5%  AX5%  AX5%  Electrical umption	electrical and the L. Secondly, of ption data on 10%  CXX10%  Range of Range = 0  = 6934	fuel consumptaiculate the the energy results of the energy results of the energy vings to the energy vings	20% 20% 20% 4 Range 0 %	□ 25% □ 25% □ 25% ■ Dollars \$ 536	osulting from the lavings by multiple of the control of the contro	e implementation of al tiplying the estimated pecify)  pecify)  Range of Electrica Dollars Savings  \$ 0  to
	Instructions: This section is to state the roughly estimated ran of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy are section with the control of	egory —  - XX 0%  - 0%  Annual Cons  x 138 6	AX5%  AX5%  AX5%  Electrical umption	electrical and the L. Secondly, of ption data on 10%  EXX10%  Range of Range of Sa  = 0  Range Range Range	ruel consumpraiculate the the energy ruel 15%  15%  Electrical Satisfied Sat	20% 20% 20% 4 Range 0 %	□ 25% □ 25% □ 25% □ 25% Annual E Dollars \$ 536	osulting from the lavings by multiple of the control of the contro	e implementation of altiplying the estimated pecify)  pecify)  Range of Electrica Dollars Savings  \$
	Instructions: This section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical section is to state the roughly estimated rar of the new mini-audit opport percentages by the annual electrical section is a section of the section of the section of the section is to state the roughly estimated and section is to state the roughly estimated a	Annual Cons  Annual Cons  Annual Cons  Annual Cons	TELECTRICAL Umption  580 kwh	electrical and the control of the co	Lectrical Sa of Energy vings kwh, kwh, ef Fuel Savie	tion which wou range of energeport.  20% 20% 20% 4 vings 4 Range 5 % Range	□ 25% □ 25% □ 25% □ 25%  Annual E Dollars  \$ 536	osulting from the lavings by multiple of the control of the contro	e implementation of altiplying the estimated pecify)  Pecify)  Range of Electrica Dollars Savings  \$ 0  to \$ 268.22

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

OPTIONAL: OPTIONAL CLASSIFICATION ENERGY ITEM NO. **ENERGY** DATE OF IMPLEMENTATION PAST ENERGY CONSERVATION ACTIONS COST MAJOR NO. SAVINGS SAVINGS **CLASS** CLASS December, 1979 High efficiency ballasts installed. 1 Low wattage fluorescent bulbs installed December, 1979 2 4 4 Thermostats set at 680 in winter and May, 1979 3 1 75 in summer. Outside air reduced in winter. October, 1979 4 3 1 May, 1979 5 3 Outside air used for cooling as 1 much as possible in the summer. Thermostats set down to 550 at October, 1979 6 3 night and weekends.

IEW
OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

				OPTIONAL:	<b>OPTIONAL</b>	
ITEM NO	CLASSIF NO MAJOR CLASS		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
1	1	1	Keep all controls free of dust.			RMS
2	1	2	Lubricate motors to reduce wear and excessive torque.			RMS
3	1	2	Keep motors clean to make cooling easier.			RMS
4	] 1	2	Where it is impractical to replace motors which have low loads and power			Over 90% since
			factors, use capacitors at motor terminals to correct the power factor			July, 1979
			to 90%.			
5	2	1	Check the amount of insulation in the ceiling and add if required.			
6	2	2	Weatherstrip all exterior doors including garage or delivery doors.			
7	2	3	Clean windows so more sunlight shine through them during the heating seas			RMS
88	2	3	When the winter sun is not shining through the windows, draw the drapes or blinds to reduce effective heat losses.			
9	2	6	Insulate the roof areas.			
10	2	7	Inspect the vestibule exterior and interior surfaces and seal all crack	<b>.</b>		RMS
_11_	2	7	Insulate the vestibule walls and roo			
12	2	8	Insulate walls with rigid insulation inside and/or outside surfaces, or place loose fill insulation in wall	on		
13	2	9	cavities Weatherstrip and caulk around door			
14	2	9	frames. Weatherstrip and caulk around window frames.			
15	2	11	Replace windows on the north side of the building with insulation wall panels.			
16	3	1	Check operation of entire heating/cooling control system, including control valves and dampers.			RMS
17	3	1	Check the calibration of all control and devices for proper settings and operations.	lers		RMS
18	3	1	Adjust automatic timers or add time clocks to automatically set back			

Note 1: Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed

IEW PPORTUNITIES Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

OPTIONAL: OPTIONAL:

				OPTIONAL:	OPTIONAL	
ITEM NO	CLASSIF NO MAJOR CLASS		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	OLAGG	OLASS	temperature for night and weekend operation.			
19	3	1	Raise the supply air temperature for cooling to the highest point necessal to provide minimum required cooling.			May, 1979
20	3	7	Lower the supply air temperature for			October, 1979
20	3		heating to the lowest point necessary to provide minimum required heating.			0000001 , 1373
21	3	2	Clean and remove obstructions from all room air outlets and inlets (difregisters and grilles). They should	fusers,		
			be kept clean and free of all dirt a foreign materials.			
22	3	3	Inspect drive belts. Adjust or repl as necessary to ensure proper operat	ion.		RMS
23	3	3	Keep condensing unit coil face clean permit proper air flow.	to		RMS
24	3	_3	Inspect ductwork for air leakage.  Seal all leaks by taping or caulking Inspect ductwork insulation.			
25	3	3	Inspect damper blades and linkages.			DMC
26	3	3	Clean, oil and adjust. Clean or replace filters periodicall	y.		RMS
27 28	3 4	31	Instruct occupants and maintenance		<b></b>	NI IS
			personnel to switch off all lights when they are not needed.			
29	4	1	Consider variable level switches.			
30	4	3	Clean fixtures and lamps regularly.			
31	4	3	Replace lamps in groups before they burn out to maintain higher average light output per fixture.			
32	4	3	When repainting, use light colored paint on ceilings, walls and floors but avoid objectionable specular			
33	4	4	reflections from glass finishes. Remove unnecessary lamps, fixtures, and ballasts.			
34	4	4	Use lower wattage lamps to provide the necessary illumination.			December, 1979

NEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation to found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ZO			tion of the mini-audit report should be completed by the mini-audit t	OPTIONAL:	-	<del>-</del>
ITEM	CLASSIF	0.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
35	4	4	Allow part of a lighting system to be turned off, while maintaining the			
			necessary light.			
36	4	5	Rearrange lighting fixtures for task localized use.			
37	4	5	Direct security lighting where it is most required, such as at windows an	1		August, 1980
			entrances and reduce it where the security problems are minimal.			
38	5	1	Keep records of the operating schedul monthly energy consumption and purch	ase		August, 1979
	ļ		of any new equipment that affects en consumption of efficiency of the bui	lding.		
			These records will indicate the impa of energy conservation measures.	ct		
39	5	1	Review the record books on a regular	basis.		August, 1979
40	5	2	Establish a specific maintenance schedule for each building to ensure	Market To the Control of the Control		April, 1979
			that all components of the specific building operate at maximum efficien	су.		
			Consult manufacturers literature for guidance in establishing a maintenan schedule.			
41	6	1	Adjust domestic water supply to 100° for all except special requirements	F		June, 1979
			(dishwasher supply units, etc.).			oune, 1979
42	6	2	All electric heating equipment shoul be checked for corroded elements and	<u> </u>		
			loose connections and repaired as re	quirea		
43	6	2	Periodically drain and remove the sediment from the water heater.			
44	6	5	Install toilet flush valve kits that reduce water usage.	•	-	
45	6	5	Install flow restrictors.	drane	<del> </del>	
46	7	3	Clean air-sides, remove soot, and so scale in forced warm air and hot ai furnaces.			RMS
47	7	4	Operate exhaust fans only during occupied periods.	+		April, 1979
						<del> </del>
		1				

Note 1 Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

### **MINI-AUDIT REPORT**

	· · · · · · · · · · · · · · · · · · ·			
A	BUILDING NAME Public Works Garage		NAME OF ORGANIZATION  City of Bloomington	6-3-80
	BUILDING ADDRESS 9930 Logan Avenue South	ı	ADDRESS 2215 West Old Shakopee Roa	ıd
ACT	CITY	ZIP CODE	CITY	ZIP CODE
ĕ	Bloomington, MN	55431	Bloomington, MN	55431
CONT	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
ပို့ရှိ	Paul Martinsen (	612) 935-6901	Arthur Jensen (	612) 881-5811

OWNERSHIP TYPE  ZPublic (PUB)  □Non-Profit Association (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ. □ Vocational	(SCHL-ELM) (SCHL-SECD) (SCHL-POST) (SCHL-VOCL)	C.	LOCAL GOVERNMENT  Office  Storage  Service  Utilitrary	(LOCG-OFF) (LOCG-STR) (LOCG-SER) (LOCG-LBR)
ULTIMATE OWNER	b.	☐ Education Agency ☐ Administration ☐ OTHER  PUBLIC CARE ☐ Nursing Home	(SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR) (PBCR-NURS)	d.	□ Police □ Fire □ DOTHER  HOSPITALS □ General	(LOCG-PLCI (LOCG-FIRE (LOCG-OTH
☐ Private School (PRSC) ☐ Non-Profit Association (NPAP) ☐ Indian Tribe (INDN)		□ Long Term Care □ Rehab. Facility □ Public Health Ctr. □ Res. Child Care Ctr.	(PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)		□Tuberculosis □OTHER	(HOSP-TUBI (HOSP-OTH
Instructions: With reference to page 23 entitlijust Federal funding, then answer the questio	ed Fundi	ng Information, determine	if the facilities are	eligil	ole for both Federal and S	tate funding or
If eligible for both Federal and State Funding	l:		ection must be sign			e organization.
Have you received a mini-audit grant befor Have you previously applied for mini-audit Do you wish to apply for mini-audit fundin	e? [] Y funding? g? [] Y	es XX No es XX No				
Date:						
Name:	With a second and the second and the second					
Signature:						
If eligible for Federal funding only:		ann an thirt and go ann ann an the go and an an an an an an an an an an an an an				
Have you received a mini-audit grant befor Have you previously applied for mini-audit Do you wish to apply for mini-audit fundir	funding?	Yes No	cassary )			
	o 110111. (C	30 additional sheets if he	cessary.)			
						* ;
Date:		THE - PM - PM confusion of the state of the				
Name:						
	ULTIMATE OWNER   County (CNTY)   Township (TOWN)   State (STAT)   Public School (PUSC)   Private School (PRSC)   Non-Profit Association (NPAP)   Indian Tribe (INDN)   Indian Tr	ULTIMATE OWNER	Non-Profit Association (NAP)	Non-Profit Association	Non-Profit Association	Secondary   SCHL-SECD  Storage   Scorage   Coll. or Univ.   SCHL-POST]   Service   Coll. or Univ.   SCHL-ADMN    Coll. or Univ.   SCHL

	Check the type of energy report which was completed and submitted prior to this m	ini-audit report.
OH O	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)	
CHECK-OFF	If an energy report has not been completed previous to this mini-audit report, one my vocational schools should use form ED-00444-02 or form ED-00445-02, depending on building energy report, form EN-00041-01.	
35	bulloting energy report, form EN-00041-01.	
	Instructions: This section is to be completed and signed by a registered professional completed the State of Minnesota's Mini-Audit Procedures Course. This section should are completed. All blanks must be filled in.	
	I have reviewed the energy report and/or the energy report results for this building. I for corrected any misinformation on the energy report which will be resubmitted with t	ound all information contained therein to be correct OR I have nis mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this building being au	dited.
	I have fully disclosed my financial interests relating to this mini-audit and any energ	y conservation measures considered by this audit.
	I have walked through this building and have found the recommendations listed in maintenance changes, and low cost energy conservation measures, which would re	
	I have made a rough estimate, in section G, of the range of savings which may result listed in section I. I am not responsible if the actual savings resulting from this mini	-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and maintenance procedure 20% of the building's energy consumption as specified in section I.	dures listed in section K <u>did not</u> save at least (did, did not)
	Based upon my observation of the physical characteristics of this building and the Should be the subject of a maxi-audit.  (should should not)	building's major energy using systems, I recommend that this
	I realize that this is not a final judgement, that the State reserves the right to make the mand other criteria.	
	Based upon the information in section E and the information referred to in section F, I	recommend that this building Should not (should, should not)
1		
	undergo further solar conversion analysis, and/orShould not	(snould, snould not) Indergo further analysis of the renewable resources — waste.
	undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should not)	(should, should not) Indergo further analysis of the renewable resources — waste,
	undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should not)  In my judgement, as a mini-auditor, all of the above statements are true and correct	indergo further analysis of the renewable resources — waste,
	wind, wood. (Circle proper resources) (should, should not)	indergo further analysis of the renewable resources — waste,
	wind, wood. (Circle proper resources) (should, should not)  In my judgement, as a mini-auditor, all of the above statements are true and correct	indergo further analysis of the renewable resources — waste, it.
	wind, wood. (Circle proper resources) (should, should not)  In my judgement, as a mini-auditor, all of the above statements are true and correct  Witness	indergo further analysis of the renewable resources — waste, it.
	wind, wood. (Circle proper resources) (should, should not)  In my judgement, as a mini-auditor, all of the above statements are true and correct  Witness  Paul Martinsen  P.E. 9597	indergo further analysis of the renewable resources — waste, it.
	wind, wood. (Circle proper resources) (should, should not)  In my judgement, as a mini-auditor, all of the above statements are true and correct  Witness  Paul Martinsen  P.E. 9597	indergo further analysis of the renewable resources — waste, it.
	wind, wood. (Circle proper resources) (should, should not)  In my judgement, as a mini-auditor, all of the above statements are true and correct  Witness:  Paul Martinsen  P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Signature	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
	Paul Martinsen Mini-Auditor's Name (Print or Type)  Signature  Picke Carroll Muller Assoc., Inc.	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
	Paul Martinsen  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  (should, should not)  Witness  P.E. 9597  Buildin  Signature  Signature  Charter (should, should not)  Witness  Witness  Signature  Signature  Signature  Date	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
	Paul Martinsen Mini-Auditor's Name (Print or Type)  Signature  Picke Carroll Muller Assoc., Inc.	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
	Witness  Paul Martinsen  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P. 0. Box 130 Hopkins, MN 55343  Address  (612) 935-6901	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
	wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true and correct witness.  Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
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	Witness  Paul Martinsen  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P. 0. Box 130 Hopkins, MN 55343  Address  (612) 935-6901	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
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	wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true and correct witness.  Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
I.T.S	wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true and correct witness.  Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
AUDIT	wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true and correct witness.  Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)
MINI-AUDIT STATEMENTS	wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true and correct witness.  Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	indergo further analysis of the renewable resources — waste, it.  sed by:  g Organizational Authority (Print or Type)

F	NAME	POSITION	and an establish and the first of the first of the control of the	ORGANIZATION
	Paul Martinsen	Mechanical Eng	gineer	Rieke Carroll Muller Assoc.
	Reinert Ege	Maintenance [	Engineer	City of Bloomington
			- The sale of the same of the sale of the sale of the sale of the sale of the sale of the sale of the sale of	
AUDIT				
G	BRIEF DESCRIPTION OF GENERAL BU GOOd - Maintainence		d function)	
Z	MAJOR CHANGES PLANNED WITHIN N One half will be rer	EXT 15 YEARS (i.e. demolition, renodled within one year)	ear	version from one building type to another)
BUILDING	STRUCTURAL COMPONENTS OF ROOF  Bar Joist  ROOFING MATERIAL (i.e. tar and grave)		s, concrete)	
BUIL	Tar and Gravel	, similyies, tile)		
H	INSTRUCTIONS: Correctly answer the fo	ollowing questions for the building	being mini-audit	ed.
	Is there open land adjacent to the building Yes XXNo	g?		
	Solar collectors need to be located in an ui 3 p.m.? Roof: ☐ Yes KOXNo South facing Wall: ☐ Yes XXNo	nshaded area. Is the roof of the build	ding and the south	facing wall unshaded between the hours of 9 a.m. and
	If the roof or wall are partly shaded, wha % of roof unshaded% % of south facing wall unshaded		haded?	
	What is the overall shape of the building ☐ square XX rectangle ☐ H-shape	? d DE-shaped Dother (specify	v)	
	Is the roof of the building flat or pitched'		, ,	
	If pitched, what is the compass orientation	on of the ridgeline?	Migrado Nygymatha a a shi na andigaan (1964) a shi na d	
	If pitched, what is the angle that the root	makes with horizontal?	0	
	Are there large obstructions on the roof ☐ Yes X → No	such as chimneys, rooms for mec	hanical equipmer	nt, ventilating units, water towers, etc?
	What is the exterior facing material for the	ne south facing wall? Garag	je doors	
	What percentage of the south facing wal	l is glass?		
	Is the building's space heating equipmer  XYes □ No	nt located within or on the building	g? (A no answer i	ndicates the equipment is in a separate building)
	If the space heating equipment is inside	the building, where is it located?		
SOLAR POTENTIAL	Is the building's water heating equipmer	it located within the building? (A r	no answer indicat	es the equipment is in a separate building.)
POT	If the water heating equipment is inside	the building, where is it located? Other (specify)	and hope-participally and program and reference to the consequence of the consequence of the consequence of the	
SOLAF	Is the water heating system a central sy:	stem, does it consist of multiple un tion	nits, or is it a com	abination of the central and multiple units?

				BASE	PERIOD YE	AR		Fiscal Year	
	ENERGY TYPE		ENERGY	USAGE		CONVERSION	FACTOR	8	TU USAGE
	Electricity			- The state of the					and the second of the second section of the second section of the second of the second of the second of the sec
	Fuel 1					**************************************			and the second second second second second second second second second second second second second second seco
	Fuel 2		1	Mer Mineral Indian and American State Community of the Co	1-		rkantini gyyrd o 1990 y y y far i Mangyyyyyyy y ra yyr yffar		
	TOTAL			erenter distance of market will approprie					
				20% S	AVINGS YEA	NR.		Fiscal Year	
	ENERGY TYPE		ENERGY	USAGE		CONVERSION	FACTOR		BTU USAGE
	Electricity						· · · · · · · · · · · · · · · · · · ·		
	Fuel 1						***************************************		and the second s
r	F 1.0							1	
ı	Fuel 2	İ			1				•
	TOTAL  Instructions: This section is to I state the roughly estimated ran	ige of the pe	rcent of total	electrical and	fuel consum	ption which wo	uid be saved re	sulting from the	implementation of all
	Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate Range of Electrical Savings —	nge of the pe unities liste ectrical and gory —	rcent of total d in section fuel consum XX 5%	electrical and L. Secondly, option data on	fuel consum calculate the the energy	ption which wo e range of ener report.	uld be saved regy and cost s	sulting from the avings by multi	implementation of all plying the estimated ecify)
	Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate:  Range of Electrical Savings —  Range of Fuel Savings —	age of the per unities lister potrical and gory — XXX 0%	XX 5%	electrical and L. Secondly, ption data on	fuel consum calculate the the energy	ption which wo e range of ener report.	uld be saved re rgy and cost s	sulting from the avings by multi	implementation of all plying the estimated
	Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate Range of Electrical Savings —	age of the per unities lister potrical and gory — XXX 0%	XX 5%	electrical and L. Secondly, option data on 10%	fuel consum calculate the the energy	ption which wo a range of ener report.	uld be saved regy and cost s	sulting from the avings by multi	implementation of all plying the estimated ecify)
	Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate:  Range of Electrical Savings —  Range of Fuel Savings —	ge of the peunities listerical and gory —  XX 0%  □ 0%  d cost savin  Annual Cons	XX 5%	electrical and L. Secondly, ption data on  10% 10% Range o	fuel consum calculate the the energy 15% 15% I Electrical S of Energy avings	ption which wo a range of energe report.  20% 20% 20% Avings % Range	uid be saved regy and cost s  25% 25% Annual E Dollars	aulting from the avings by multi	implementation of all plying the estimated estimated escity)
	Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy an % Range lower bound — 0 % %	ge of the period the period in the period i	xxx 5% xxx 5% xxx 5% ngs —	electrical and L. Secondly, ption data on  10%  10%  Range o  Range	del consum calculate the the energy 15% 15% I Electrical S of Energy avings kwh, to	ption which wo a range of energe report.  20% 20% 20%  avings % Range 0 %	□ 25% □ 25% □ Dollars	other (sp. other (sp.	ecify)  Range of Electrical Dollars Savings
	Instructions: This section is to it state the roughly estimated ran of the new mini-audit opportupercentages by the annual electrical Savings — Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy an % Range	ge of the period the period in the period i	XXX 5% XX 5% Angs —	electrical and L. Secondly, ption data on  10%  Range o  Range =	duel consum calculate the the energy 15% 15% I Electrical 8 of Energy avings kwh, 150 232 kwh, 1	ption which wo a range of energe report.  20% 20% 20% 4vings 4 Range 0 4 to	uid be saved regy and cost s  ☐ 25% ☐ 25% ☐ 25% Annual E Dollars x \$ 800	aulting from the avings by multi	ecify)  Range of Electrical Dollars Savings
	Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate: Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy an % Range lower bound — 0 % % to upper bound — 5 % %	ge of the period the period in the period i	xxx 5% xx 5% xx 5% xx 5% xxx 5	electrical and L. Secondly, ption data on  10%  10%  Range o  Range  = 11.2  Range Range	decircles so the conference of Energy sivings kwh, and to e of Fuel Sange of Fuel Sange of Fuel	ption which wo a range of energe report.  20% 20% 20%  avings  Range 0 % to 5 %	uid be saved regy and cost s  25% 25% Annual E Dollars x \$ 800	other (sp other	ecify)  Range of Electrical Dollars Savings  to  \$ 403.32
	Instructions: This section is to state the roughly estimated ran of the new mini-audit opportupercentages by the annual electrical Savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy an to upper bound — 0 % % Range	age of the period the period in the period i	xxx 5% xxx 5% xxx 5% angs —  I Electrical sumption x440 kwh	electrical and L. Secondly, ption data on  10%  Range o  Range  Range  Range  Range  Range	del consum calculate the the energy 15% 15% 15% 15% 15% 15% 15% 15% 15% 15%	ption which wo a range of energe report.  20% 20% 20% 4 range 5 % 4 Range 6 % 7 Range 7 % 8 Range 8 Range 9 % 8 Range 1 %	uid be saved regy and cost s  25% 25% 25% Annual E Dollars x \$ 800 Annual Dollars	other (sp other	ecify)  Range of Electrical Dollars Savings  to  \$ 403.32

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

OPTIONAL: OPTIONAL CLASSIFICATION **ENERGY** ITEM NO. **ENERGY** DATE OF IMPLEMENTATION PAST ENERGY CONSERVATION ACTIONS COST SAVINGS MAJOR SUB **SAVINGS** CLASS CLASS December, 1979 Night set back thermostat - lunch rm 3 1 1 July, 1979 Temps. set per fed. regulations 2 3 1 Hot Water heater set at 105°. October, 1979 3 6 2 April, 1979 4 4 Low wattage fluorescent tubes installed. 4 High efficient ballasts installed. October, 1979 5 4 3 2 Storm windows installed - lunch July, 1979 6 10 room and locker room.

JEW JEW

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine this suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only by completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

	Y			OPTIONAL:	OPTIONAL	
ITEM ,	CLASSIF NO MAJOR		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION
110	CLASS	CLASS		SAVINGS	SAVINGS	
1	1	1	Keep all controls free of dust.			RMS
2	1	2	Lubricate motors to reduce wear and excessive torque.			RMS
3	1	2	Keep motors clean to make cooling			RMS
4	1	2	Where it is impractical to replace motors which have low loads and	,		Over 90% except
			power factors, use capacitors at motor terminals to correct the			for December, 19 since July, 1979
			power factor to 90%.			(87.88%)
5	2	1	Check the amount of insulation in the ceiling and add if required.	2		
6	2	2	Weatherstrip all exterior doors including garage or delivery doors			
7	2	2	Replace an existing doors with one of higher R- value.	Wagangara and Managara		
8	2	6	Insulate the roof areas.			
9	2	8	Insulate walls with rigid insulation on inside and/or outside surfaces, or			
			place loose fill insulation in wall cavities.			,
10	2	9	Weatherstrip and caulk around door frames.			
11	2	9	Weatherstrip and caulk around window frames.			
12	2	10	Replace single glazed windows with double glazed thermopanes.			
13	3	1	Check operation of entire heating/ cooling control system, including			RMS
			control valves and dampers.			
14	3	1	Check the calibration of all control and devices for proper settings and	lers		RMS
			operations.			
15_	3	1	Adjust automatic timers or add time clocks to automatically set back			
			temperature for night and weekend			
16	3	1	Raise the supply air temperature for cooling to the highest point			May, 1979
			necessary to provide minimum require			
17	3	1	Lower the supply air temperature for heating to the lowest point			October, 1979
			necessary to provide minimum require heating.	þ		

Note 1 Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

IEW PPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

	CLASSIE	ICATION		OPTIONAL:		
NO	MAJOR CLASS		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
18	3	2	Clean and remove obstructions from all room air outlets and inlets	-		
			(diffusers, registers and grillers). They should be kept clean and free			
			of all dirt and foreign materials.			
19	3	3	Inspect drive belts. Adjust or replace as necessary to ensure proper operation.	*		RMS
				20 yaya - 100 - 20 yayan 200 - 20 yayan 200		
20	3	3	Keep condensing unit coil face clean to permit proper air flow. Inspect ductwork for air leakage.			RMS
21	3	3	Inspect ductwork for air leakage.  Seal all leaks by taping or caulking			
22	3	3	Inspect ductwork insulation.			
23	3	3	Clean or replace filters periodically.			RMS
24	3	3	Check compressor belt tension and alignment.			RMS
25	3	3	Inspect air compressor intake filter pads and clean or replace			
			as necessary.			
26	3	3	Check the compressor's			
27	3	3	Periodically drain the moisture from storage tank of the compressor.			
28	3	3	Clean evaporator and condenser coils of window air conditioner.			
29	4	1	Instruct occupants and maintenance personnel to switch off all lights			
-			when they are not needed.			
30	4	2	Clean windows and skylights.			RMS
31	4	3	Clean fixtures and lamps regularly.			September, 1979
32	4	3	Replace lamps in groups before they burn out to maintain higher average light output per fixture.			
33	4	3	When repainting, use light colored paint on ceilings, walls, and floor	s		
			but avoid objectionable specular reflections from glass finishes.			
34	4	4	Remove unnecessary lamps, fixtures, and ballasts.			
35	4	4	Use lower wattage lamps to provide necessary illumination.			April, 1980

NEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ITEM	CLASSIF			ENERGY	OPTIONAL ENERGY	
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	COST	DATE OF IMPLEMENTATION
36	4	4	Allow part of a lighting system to be turned off while maintaining the			
			necessary light.			
37	4	5	Rearrange lighting fixtures for task localized use. Maintain hazard and			
			exit lighting at all times as required by building and fire codes.	No main (1999), many ji Alba (1994) an 19		
			Direct security lighting where it is			
_38	4	5	most required, such as at windows and		- The state of the	July, 1980
			entrances and reduce it where the			
	<b>_</b>		security problems are minimal.		<b></b>	-
39	5	1	Keep records of the operating schedu	le		August, 1979
	<del>  ~</del>	<u> </u>	monthly energy consumption and			August, 1979
			purchase of any new equipment that			
	<del> </del>		affects energy consumption of efficiency of the building. These		<del> </del>	
			records will indicate the impact of	-		
			energy conservation measures.			
40	5	1	Review the record books on a regular			August, 1979
	_		1			
41	5	2	Establish a specific maintenance schedule for each building to ensure			April, 1979
			that all components of the specific			
	<del> </del>		building operate at maximum efficien	су.	<b></b>	
			Consult manufacturers literature			1
	+		for guidance in establishing a maintenance schedule.		<del> </del>	
42	6	1	Adjust domestic water supply to 100°	F		
'-	ļ <del>-</del>	<u> </u>	for all except special requirements		-	June, 1979
			(dishwasher supply units, etc.).			
43	6	2	The burner system of fossil-fuel			DMC
	<del> </del>	<del>  -</del>	water heaters should be kept clean	-	<del> </del>	RMS
	ļ		and in good operating condition.			
44	6	2	Periodically drain and remove the sediment from the water heater.			
45	6	5	Install toilet flush valve kits that			
46	6	5	reduce water usage. Install flow restrictors.	<u> </u>		
	+	<del> </del>	Clean air-sides, remove soot, and	-	<b> </b>	
47	7	3	scrape scale in forced warm air			RMS
			and hot air furnaces.		1	
48	7	4	Turn off gas pilots for furnaces,			
70	1		boilers, and space heaters during		<u></u>	RMS

Note 1. Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

Note 2. Reproduce this page as pages an

NEW OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20			mon of the mini-audit report should be completed by the mini-audit	OPTIONAL:	OPTIONAL	:
ITEM	I N	ICATION O.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
			the non-heating months and during lor unoccupied periods. Keep all heat exchanger surfaces clea Check air-to-fuel ratio and adjust as	g		
49	7	4	Keep all heat exchanger surfaces clear Check air-to-fuel ratio and adjust as	n		RMS
			necessary.			
·						
M. 17.					·	
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Note 1. Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

A	BUILDING NAME Public Works - Western Ma	int. Garage	NAME OF ORGANIZATION City of Bloomington	6-3-80
	BUILDING ADDRESS 10500 Hampshire Avenue Sc	outh	ADDRESS 2215 West Old Shakopee Road	j
ACT	CITY Bloomington, MN	ZIP CODE 55431	CITY Bloomington, MN	ZIP CODE 55431
CONT	PERSON COMPLETING FORM Paul Martinsen	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen	TELEPHONE 612) 881-5811

-	CITY	ZIP C	ODE	CITY				ZIP COI	
N V	Bloomington, MN	55	5431	Bloomir	igton,	MN		55	431
ZZ	PERSON COMPLETING FORM	TELEF	HONE	CONTACT PE				TELEPH	ONE
CONTACT	Paul Martinsen		935-6901	ſ			(	612)	881-5811
L		1012	300 0301	- All Ollar	<del>UCHOCH</del>	· <del></del>		10/_	
			_						
B	Instructions: For blocks 1 and 2 check the box describes the building type and then within the							of the fou	r categories
1	1. OWNERSHIP TYPE	3a.	SCHOOLS			C.	LOCAL GOVERN	IMENT	
1	XX Public (PUB)		☐ Elementary		L-ELM)		Office		LOCG-OFFC)
	Non-Profit Association (NAP)		□Secondary □Coll. or Univ.		L-SECD) L-POST)		□Storage XXService		LOCG-STRG) LOCG-SERV)
1			Uvocational		L-VOCL)		Library		LOCG-LBRY)
	2. ULTIMATE OWNER		□Education Ag	ency (SCH	L-ADMN)		Police		LOCG-PLCE)
l w	☐County (CNTY)		□Administratio	n (SCH	L-ADMN)		□Fire		LOCG-FIRE)
8	XXCity (CITY)		DOTHER	(SCH	L-OTHR)		THER	(	LOCG-OTHR)
0	☐ Township (TOWN) ☐ State (STAT)	b.	PUBLIC CARE			d.	HOSPITALS		
UE	Public School (PUSC)		Nursing Hom		R-NURS)	u.	□General	(	HOSP-GENL)
2 2	Private School (PRSC)		□Long Term C □Rehab. Facili		R-TERM)		□ Tuberculosis		HOSP-TUBR)
125	□Non-Profit Association (NPAP) □Indian Tribe (INDN)		OPublic Health		R-RHAB) R-HCTR)		OTHER	(	HOSP-OTHR)
BUILDING ELIGIBILITY CODE	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		□Res. Child Ca						
	Instructions: With reference to page 23 entitle just Federal funding, then answer the question  If eligible for both Federal and State Funding: Have you received a mini-audit grant before Have you previously applied for mini-audit f Do you wish to apply for mini-audit funding Date:  Name:  Signature:  If eligible for Federal funding only: Have you received a mini-audit grant before Have you previously applied for mini-audit f Do you wish to apply for mini-audit funding The 50% match for Federal funds will come	? Yunding?? Y	es TNO NO  NO  Pes NO  Pes NO  Pes NO	n. This section	must be sig	eligit	ole for both Federal	and State	e funding or organization.
					,				• }

MINI-AUDIT FUNDING REQUEST

)	Check the type of energy report which was completed and submitted	prior to this mini-audit report.	
	☐ Elementary School Energy Report (Form No. ED-00444-02)		
CHECK-OFF	Secondary School Energy Report (Form No. ED-00445-02)  XM Existing Building Energy Report (Form No. EN-00041-01)		
9	If an energy report has not been completed previous to this mini-audit		
	vocational schools should use form ED-00444-02 or form ED-00445-02, obuilding energy report, form EN-00041-01.	depending on building complexity. All other buildings should use t	he existing
3		. )	
			<del></del>
	Instructions: This section is to be completed and signed by a registere completed the State of Minnesota's Mini-Audit Procedures Course. This are completed. All blanks must be filled in.	od professional engineer or by a certified mini-auditor who has su section should be completed after this mini-audit report and an en-	uccessfully ergy repor
	I have reviewed the energy report and/or the energy report results for the corrected any misinformation on the energy report which will be result	nis building. I found all information contained therein to be correct bmitted with this mini-audit report to the Minnesota Energy Age	t OR I hav
	I am not directly responsible for the day to day operations of this buil	ding being audited.	
	I have fully disclosed my financial interests relating to this mini-audit	and any energy conservation measures considered by this audi	t.
	I have walked through this building and have found the recommends maintenance changes, and low cost energy conservation measures, w	ations listed in section I of this mini-audit report to be the oper thich would reduce energy consumption in this building.	rations an
	I have made a rough estimate, in section G, of the range of savings whi	ich may result from the implementation of all of the mini-audit op	portunitie
	listed in section I. I am not responsible if the actual savings resulting  Based on actual records, the energy conservation operating and maint	did not	save at lea
	20% of the building's energy consumption as specified in section I.	(did, did not)	, a v o a c roo
	Based upon my observation of the physical characteristics of this buil	lding and the building's major energy using systems, I recomme	end that th
	(should, should not) I realize that this is not a final judgement, that the State reserves the right	tto make the mayi, sudit funding determination based on this mini	audit ran
	and other criteria.		
1	Based upon the information in section E and the information referred to		
1	based upon the mormation in section 2 and the mormation referred to	in section F, I recommend that this building(should_should	not.
	undergo further solar conversion analysis, and/orShould_ng	(snould, snould)  t undergo further analysis of the renewable resource	
	undergo further solar conversion analysis, and/or should no wind, wood. (Circle proper resources) (should, should	ot undergo further analysis of the renewable resourced not)	
	undergo further solar conversion analysis, and/orShould_ng	ot undergo further analysis of the renewable resourced not)	
	undergo further solar conversion analysis, and/or should no wind, wood. (Circle proper resources) (should, should	ot undergo further analysis of the renewable resourced not)	
	undergo further solar conversion analysis, and/or should no wind, wood. (Circle proper resources) (should, should	ot undergo further analysis of the renewable resourced not)	
	undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources) (should, should in my judgement, as a mini-auditor, all of the above statements are tr	ot undergo further analysis of the renewable resource d not)  rue and correct.	
	undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources) (should, should not my judgement, as a mini-auditor, all of the above statements are transcript Martinsen Mini-Auditors Name (Print or Type)	ot undergo further analysis of the renewable resource d not)  rue and correct.	
	undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources) (should, should not may judgement, as a mini-auditor, all of the above statements are transported in the short of t	undergo further analysis of the renewable resourced not)  rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	
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	undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources) (should, should not may judgement, as a mini-auditor, all of the above statements are transported in the short of t	undergo further analysis of the renewable resourced not)  rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	
	undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are tropy in the statement of the shows are tropy.  Paul Martinsen Mini-Auditor's Name (Print or Type)  Ram Martinsen Signature  Rieke Carroll Muller Assoc, Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343	undergo further analysis of the renewable resourced not) rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	
	undergo further solar conversion analysis, and/or Should nowind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statement are transported by the statemen	undergo further analysis of the renewable resourced not) rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	
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	undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are tropy in the statement of the shows are tropy.  Paul Martinsen Mini-Auditor's Name (Print or Type)  Paul Martinsen Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc, Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901 Phone 6-3-80	undergo further analysis of the renewable resourced not) rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	
	undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are tropy in the statement of the shows are tropy.  Paul Martinsen Mini-Auditor's Name (Print or Type)  Paul Martinsen Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc, Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901 Phone 6-3-80	undergo further analysis of the renewable resourced not) rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	
	undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are tropy in the statement of the shows are tropy.  Paul Martinsen Mini-Auditor's Name (Print or Type)  Paul Martinsen Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc, Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901 Phone 6-3-80	undergo further analysis of the renewable resourced not) rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	
	undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are tropy in the statement of the shows are tropy.  Paul Martinsen Mini-Auditor's Name (Print or Type)  Paul Martinsen Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc, Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901 Phone 6-3-80	undergo further analysis of the renewable resourced not) rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	
4TS	undergo further solar conversion analysis, and/or Should nowind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are to the manual manu	undergo further analysis of the renewable resourced not) rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	
STATEMENTS	undergo further solar conversion analysis, and/or Should nowind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are to the manual manu	undergo further analysis of the renewable resourced not) rue and correct.  Witnessed by:  Building Organizational Authority (Print or Type)	

F	NAME	POSITION	ORGANIZATION
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
<u>- 5</u>			
AUDIT			
,,		:11	
G		AL BUILDING CONDITION (i.e. type, and fun	ction)
i i	MAJOR CHANGES PLANNED WIT	e Garage and Office HIN NEXT 15 YEARS (i.e. demolition, rehabil	itation, conversion from one building type to another)
N O	None	ROOF (i.e. metal beams, wooden rafters, cor	
BUILDING	Bar Joists.	HOOF (i.e. metal beams, wooden ratters, cor	crete)
FOR	ROOFING MATERIAL (i.e. tar and	gravel, shingles, tile)	
25	Tar and Gravel		
	MICTRICATIONS O		
H		the following questions for the building bein	g mini-audited.
	Is there open land adjacent to the	building?	
	Solar collectors need to be located in 3 p.m.?	n an unshaded area. Is the roof of the building a	nd the south facing wall unshaded between the hours of 9 a.m. and
	Roof: XXYes □ No South facing Wall: XX Yes □	No .	
		d, what percentage of the surface is unshade	?
	% of roof unshaded % of south facing wall unshaded	%	
	What is the overall shape of the bu □ square XX rectangle □ H-	ilding? shaped □ E-shaped □ other (specify)	
	Is the roof of the building flat or pi XXflat □ pitched	tched?	
	If pitched, what is the compass ori	entation of the ridgeline?	
	If pitched, what is the angle that th	e roof makes with horizontal?	
	Are there large obstructions on the	e roof such as chimneys, rooms for mechanic	al equipment, ventilating units, water towers, etc?
	What is the exterior facing materia	I for the south facing wall?Con	crete Block
	What percentage of the south facil	ng wall is glass?%	
	Is the building's space heating equ XXYes □ No	ipment located within or on the building? (A	no answer indicates the equipment is in a separate building.)
	If the space heating equipment is AXGround Floor Basement	inside the building, where is it located?  Roof Other (specify)	2nd Floor
NTIAL	Is the building's water heating equ XXYes □ No	ipment located within the building? (A no an	swer indicates the equipment is in a separate building.)
SOLAR POTENTIAL	If the water heating equipment is XXGround Floor   Basement	nside the building, where is it located?  Other (specify)	
SOLA	Is the water heating system a cent    XX   Central   Multiple   Co	ral system, does it consist of multiple units, o	r is it a combination of the central and multiple units?

			-	BA	SE PERIOD Y	EAR		·	Fiscal Y	Fiscal Year			
	ENERGY TYPE		ENERGY	USAGE		CONVERSION FACTOR				SAGE			
	Electricity					and the state of t							
	Fuel 1												
	Fuel 2				r								
	TOTAL		0.000009-1-10-1-200000-1-1-1-1-1-1-1-1-1-1-1-1-1	ani - 11 Papa an and 11 Papa and 11 Papa and 11 Papa and 11 Papa and 11 Papa and 11 Papa and 11 Papa and 11 Pa									
				20%	SAVINGS Y	AR	-		Fiscal	Year			
	ENERGY TYPE		ENERGY	USAGE		CONVERSIO	N FA	CTOR		вти и	SAGE		
	Electricity		ere										
	Fuel 1					nanana an air Mary in 1980 (1994), a manaila fing							
	Fuel 2												
	TOTAL							**************************************					
T	Instructions: This section is to be	20.00mplete			4		<b>.</b>	ai audia Ein	at aback the	annanaria	to hoves which		
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportupercentages by the annual elec	ge of the pe nities lister	rcent of total	l electrical L. Second	and fuel consulty, calculate t	mption which	would	be saved re	sulting from	the imple	mentation of al		
	state the roughly estimated rang of the new mini-audit opportu	ge of the pe nities listed ctrical and	rcent of total	l electrical L. Second	and fuel consulty, calculate t	mption which	would	be saved re	sulting from	the imple	mentation of a		
	state the roughly estimated rang of the new mini-audit opportu percentages by the annual elec	ge of the pe nities listed ctrical and gory —	rcent of total	l electrical L. Second	and fuel consulty, calculate f	mption which he range of e y report.	would	be saved re	esulting from savings by n	the implei nultiplying	mentation of a		
	state the roughly estimated range of the new mini-audit opportunger percentages by the annual electric check two boxes in each category.	ge of the pe nities listed ctrical and gory —	rcent of tota d in section fuel consum	l electrical  L. Second  ption data	and fuel consulty, calculate to on the energ	mption which he range of e y report.	would	ibesavedre and costs	esulting from savings by n	the imple nultiplying (specify)	mentation of a		
	state the roughly estimated range of the new mini-audit opportunger percentages by the annual electrical two boxes in each category.  Range of Electrical Savings —	ge of the penities listed ctrical and gory —	rcent of tota d in section fuel consum XX5%	lelectrical L. Second aption data	and fuel consulty, calculate to on the energ	mption which he range of e y report.	would	d be saved revalued and cost s	esulting from savings by n	the imple nultiplying (specify)	mentation of a		
	state the roughly estimated range of the new mini-audit opportunger percentages by the annual electrical two boxes in each category.  Range of Electrical Savings —  Range of Fuel Savings —	ge of the penities lister ctrical and gory —  XX0%  XX0%	rcent of tota d in section fuel consum  XX5%  XX5%	l electrical L. Second aption data	and fuel consulty, calculate to on the energ	mption which he range of e y report.  20%	would	and cost s	osulting from savings by n	the impler nultiplying r (specify) r (specify)	mentation of a		
	state the roughly estimated range of the new mini-audit opportunger percentages by the annual electrical two boxes in each category.  Range of Electrical Savings —  Range of Fuel Savings —	ge of the penities listerctrical and gory —  XX0%  d cost savin	rcent of tota d in section fuel consum XX5%	l electrical L. Second ption data  109 . 109	and fuel consulty, calculate (con the energy)  6	mption which he range of e y report.  20%	would	d be saved revalued and cost s	esulting from savings by n other	the implemental interpretation (specify)  r (specify)  Rang	mentation of a		
	state the roughly estimated rang of the new mini-audit opportunger percentages by the annual electrical Savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and	ge of the penities listerctrical and gory —  XX 0%  XX 0%  Annual Cons	TX5%  XX5%  Electrical	l electrical L. Second ption data  109 . 109	and fuel consulty, calculate (con the energy)  15% 15% 15% 15% 15% 15% 15% 15% 15% 15	mption which he range of e y report.  20% 20% Savings % Range	would	25%  Annual E	esulting from savings by n other	the implemental interpretation (specify)  r (specify)  Rang	mentation of a the estimate		
	state the roughly estimated rang of the new mini-audit opportung percentages by the annual electronic contents of the state of the stat	ge of the penities listerctrical and gory —  XX 0%  XX 0%  Annual Cons	TAX5%  TAX5%  TAX5%  TAX5%  TAX5%	l electrical L. Second ption data  109 . 109	and fuel consulty, calculate (con the energy)  6	mption which he range of ey report.  20% 20% Savings  Range 0 %	would	25%  Annual E	osulting from savings by n  other  other	r (specify) r (specify) Rang	mentation of a the estimate		
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	state the roughly estimated rang of the new mini-audit opportune percentages by the annual electrical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and   Range  Note to E	ge of the penities lister ctrical and gory — XX0% do cost savin Annual Cons	TAX5%  TA	Rang  =  -	and fuel consulty, calculate (con the energy)  6	mption which he range of ey report.  20% 20% Savings Range 0 40 55 %	would nergy	25% 25% Annual E	osulting from savings by n other oth	r (specify)  Rang Do = \$	ge of Electrica		
	state the roughly estimated rang of the new mini-audit opportune percentages by the annual electrical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and   Range  Note to E	ge of the penities lister ctrical and gory — XX0% d cost savir Annual Cons 34, 2	TAX5%  TA	Rang = - Rang	and fuel consulty, calculate (con the energy)  6 159  6 159  9 of Electrical ange of Energy Savings  0 kwh	mption which he range of ey report.  20% 20% Savings Range 0 40 55 %	would nergy	Dollars  1 31	osulting from savings by n other oth	r (specify)  Rang Do  = \$	ge of Electrica		
	state the roughly estimated rang of the new mini-audit opportune percentages by the annual electrical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and	ge of the penities lister ctrical and gory — XX0% d cost savin Annual Cons 34, 2	TOTAL CONTROL OF THE PROPERTY	Rang = - Rang	and fuel consulty, calculate to on the energy of Electrical ange of Energy Savings     Okay kwhange of Fuel Sange	mption which he range of ey report.  20% 20% Savings Range to 5 % savings	would nergy	Dollars  Annual E  Dollars	osulting from savings by n other other other other of the other of the other o	r (specify)  Rang Do  = \$	ge of Electricallars Savings  to  65.43		
	state the roughly estimated rang of the new mini-audit opportunce	ge of the penities lister ctrical and gory — XX0% d cost savir Annual Cons 34, 2 Annual Cons 1.58	TAX5%  TA	Rang  Rang  Rang  Rang	and fuel consulty, calculate (con the energy function) and the energy function of Electrical ange of Energy Savings  Okwhole to 1.710 kwhole function fuel Savings	mption which he range of ey report.  20% 20% Savings % Range 0 % to 5 % Savings % Range	would nergy x	Annual E Dollars  1 130  Annual E 40	osulting from savings by n other other other other other of spent of the second of the	r (specify)  Rang Do  = \$  R Do	ge of Electric clars Savings to 65.42 ange of Fuel		

K

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

OPTIONAL: OPTIONAL CLASSIFICATION ENERGY ITEM NO. **ENERGY** DATE OF IMPLEMENTATION PAST ENERGY CONSERVATION ACTIONS COST MAJOR SAVINGS SUB SAVINGS CLASS CLASS Fall 79 1 3 1 Outside air closed off on make-up air unit. Exhaust fans run as needed. Fall 1979 2 3 1 3 3 Night set back thermostat - lunch rm December, 1979 1 4 1 Thermostats set to fed. reg. September, 1979 Hot water heater set @ 105°. 2 5 6 September, 1979 6 4 Low wattage fluorescent tubes installed. September, 1979 September, 1979 7 4 3 High efficiency ballasts installed.

	TIES	
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W III	OPPOR	

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ZŌ	CLASSIF		tion of the mini-audit report should be completed by the mini-audit	_	OPTIONAL	
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	COST	DATE OF IMPLEMENTATION
1	1	1	Keep all controls free of dust.			RMS
2	1	2	Lubricate motors to reduce wear and excessive torque.			RMS
	<del>                                     </del>		Where it is impractical to replace			
3	] ]	2	motors which have low loads and power	<b>.</b>		Not metered
			factors, use capacitors at motor			
	+	ļ	terminals to correct the power factor to 90%.	f		
		1	1 CO 90%.			
			Check the amount of insulation in the			
4	2	1	ceiling and add if required.			
5	2	2	Weatherstrip all exterior doors incl	lding		
<u> </u>	+ -	-	garage or delivery doors. Insulate walls with rigid insulation			
6	2	8	on inside and/or outside surfaces, or	-		
			place loose fill insulation in wall			
	-	ļ	cavities.	<u> </u>	ļ	
7	2	9	Weatherstrip and caulk around door frames.			
	1-	3-	Check operation of entire heating/			
8	3		cooling control system, including			RMS
			control valves and dampers.			
^	1	<b>.</b>	Check the calibration of all control	ers		RMS
9	3	<u> </u>	and devices for proper settings and operations.			כויוא
		ļ				
10	3	] ,	Lower the supply air temperature for			October, 1979
10	13-	<del>                                     </del>	heating to the lowest point necessar to provide minimum required heating.		<b> </b>	October, 1575
11	3	3	Clean or replace filters periodicall	¥		
	+	<del>                                     </del>	or when indicated by filter gauges.  If there are no gauges, consider	ļ		RMS
		İ	installing them.			
		1	Inspect air compressor intake filter			
12	3	3	pads and clean or replace as			
			necessary.			·
10			Check the air compressor's oil level	<b>†</b>		
13	3	3	Instruct occupants and maintenance	+	+	
14	4	1	personnel to switch off all lights			
			when they are not needed.			
			Clean fixtures and lamps regularly.	<del> </del>		
15	4	3				
16	4	3	   Keep walls, ceiling and floors clear			RMS
	and the second second second	and the second second	THE RESERVE THE PROPERTY OF TH			

Note 1 Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

EW PPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ZO	implemente	a. Inis sec	tion of the mini-audit report should be completed by the mini-audit team. OPTI		he building OPTIONAL	
ITEM	CLASSIF	ICATION O.			ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS			SAVINGS	DATE OF IMPLEMENTATION
17	4	3	When repainting, use light colored			
1 /		3	paint on ceilings, walls and floors			
		ļ	but avoid objectionable specular			
			reflections from glass finishes.			
			Remove unnecessary lamps, fixtures,			
18	4	4	and ballasts.			
			Use lower wattage lamps to provide the			
19	4	4	necessary illumination.			September, 1979
			Allow part of a lighting system to	1		
20	4	4	be turned off while maintaining the			,
			necessary light.			
			, and the second			v
			Rearrange lighting fixtures for task			
21	4	_5	localized use.			
			Direct security lighting where it is			,
22	4	5	most required, such as at windows and			
			entrances and reduce it where the			
			security problems are minimal.			
			Keep records of the operating			
23	5	1	scheldule, monthly energy consumption			August, 1979
			and purchase of any new equipment that			
			affects energy consumption of efficienc	cy		
			of the building. These records will			·
			indicate the impact of energy conservat	tion		'
			measures.			
24	5	1	Review the record books on a regular ba	asis		August, 1979
	1		Establish a specific maintenance			/iagaro, zoro
25	5	2	schedule for each building to ensure	1		April, 1979
		<del></del>	that all components of the specific			, , , , , , , , , , , , , , , , , , ,
			building operate at maximum efficiency	.		
			Consult manufacturers literature for	·		
			guidance in establishing a maintenance	.		
			schedule.			
26	+ -	1	Adjust water heater supply to 100°F for all except special requirements.			
26	6	1	Check the operation of the temperature			September, 1979
27		1	controller so overheating does not	-		
27	6	'	occur.			RMS
		ļ	Domindically dwain and wemove the			
20		2	Periodically drain and remove the			
28	6	+	sediment from water heaters.	202		
00	-		Keep all furnace heat exchanger surface	res		-
29	7	4	clean. Check air-to-fuel ratio and			RMS
			adjust as necessary.			
	-	<del> </del>	Townships for sin tolly and sold			
~ ~	-		Inspect casing for air leaks and seal			
30		4	as necessary.			1,

A	BUILDING NAME		NAME OF ORGANIZATION	DATE			
	Ryan Building		City of Bloomington 6-3-				
	BUILDING ADDRESS		ADDRESS				
	9750 James Avenue South		2215 West Old Shakopee Road				
_	CITY	ZIP CODE	CITY	ZIP CODE			
CONTACT DATA	Bloomington, MN	55431	Bloomington, MN	55431			
TA	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE			
ပိစီ	Paul Martinsen	612) 935-6901	Arthur J <del>e</del> nsen	(612) 881-5811			

В	Instructions: For blocks 1 and 2 check the box w describes the building type and then within the						ne four categories
BUILDING ELIGIBILITY CODE	1. OWNERSHIP TYPE XDPublic (PUB)  Non-Profit Association (NAP)  2. ULTIMATE OWNER  County (CNTY)  Township (TOWN)  State (STAT)  Public School (PUSC)  Private School (PRSC)  Non-Profit Association (NPAP)  Indian Tribe (INDN)	3a. b.	SCHOOLS  □Elementary □Secondary □Coll. or Univ. □Vocational □Education Agency □Administration □OTHER  PUBLIC CARE □Nursing Home □Long Term Care □Rehab. Facility □Public Health Ctr. □Res. Child Care Ctr.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST) (SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)  (PBCR-NURS) (PBCR-TERM) (PBCR-RAB) (PBCR-RCCC)	d. 1	OCAL GOVERNMENT DOTTICE Storage Aservice Library Police Fire OTHER HOSPITALS General Tuberculosis	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV) (LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR) (HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)
C	Instructions: With reference to page 23 entitled just Federal funding, then answer the questions	Fundin	ng Information, determine tly for the situation. This s	if the facilities are ection must be sign	eligible ed and	for both Federal and dated by the head of	State funding or the organization.
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? Have you previously applied for mini-audit fu Do you wish to apply for mini-audit funding?  Date:  Name:  Signature:  If eligible for Federal funding only: Have you received a mini-audit grant before? Have you previously applied for mini-audit fu Do you wish to apply for mini-audit funding. The 50% match for Federal funds will come for	inding?	es No	cessary.)			
			,				
MINI-AUDIT FUNDING REQUEST	Date:						Ĺ
NDING I	Name:	····					3
10	Signature:						

	Check the type of energy report which was completed and submitted price	or to this mini-audit report.
	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)	
	XX Existing Building Energy Report (Form No. EN-00041-01)	i i i i i i i i i i i i i i i i i i i
	If an energy report has not been completed previous to this mini-audit re vocational schools should use form ED-00444-02 or form ED-00445-02, dep building energy report, form EN-00041-01.	port, one must be included with this report. Elementary, secondary, and pending on building complexity. All other buildings should use the existing
	Instructions: This section is to be completed and signed by a registered procedures the State of Minnesota's Mini-Audit Procedures Course. This section completed. All blanks must be filled in.	professional engineer or by a certified mini-auditor who has successfully ction should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for this corrected any misinformation on the energy report which will be resubm	building. I found all information contained therein to be correct OR I have itted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this building	ng being audited.
	I have fully disclosed my financial interests relating to this mini-audit and	d any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendation maintenance changes, and low cost energy conservation measures, which	
	I have made a rough estimate, in section G, of the range of savings which listed in section I. I am not responsible if the actual savings resulting fro	m this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and maintenance 20% of the building's energy consumption as specified in section I.	ance procedures listed in section K <u>Q1Q NOT</u> save at least (did, did not)
	Based upon my observation of the physical characteristics of this buildin	ng and the building's major energy using systems, I recommend that th
	(should, should not)	
	I realize that this is not a final judgement, that the State reserves the right to	make the maxi-audit funding determination based on this mini-audit repo
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.	
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in	section F, I recommend that this building should not (should, should not)
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.	section F, I recommend that this building should not (should, should not) undergo further analysis of the renewable resources — wast
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/orShould_not	section F, I recommend that this building Should not (should, should not) undergo further analysis of the renewable resources — wast
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/orShould_not_wind, wood. (Circle proper resources) (should, should referred to in the state of the s	section F, I recommend that this building Should not (should, should not) undergo further analysis of the renewable resources — wast
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/orShould_not_wind, wood. (Circle proper resources) (should, should referred to in the state of the s	section F, I recommend that this building should_not (should, should not) undergo further analysis of the renewable resources — wast
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/orShould_not_wind, wood. (Circle proper resources) (should, should round in my judgement, as a mini-auditor, all of the above statements are true	section F, I recommend that this building <u>should not</u> (should, should not)  undergo further analysis of the renewable resources — wast not)  and correct.
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should r In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen  Mini-Auditor's Name (Print or Type)	section F, I recommend that this building <u>should not</u> (should, should not)  undergo further analysis of the renewable resources — wast not)  and correct.
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/orShould_not_wind, wood. (Circle proper resources) (should, should r In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen  Mini-Auditor's Name (Print or Type)	section F, I recommend that this building should_not (should, should not) undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/orShould_not_wind, wood. (Circle proper resources) (should, should r In my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen  Mini-Auditor's Name (Print or Type)  Signature	section F, I recommend that this building should_not (should, should not) undergo further analysis of the renewable resources — wast oot) and correct.  Witnessed by:
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/orShould_not_wind, wood. (Circle proper resources) (should, should round in my judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)	section F, I recommend that this building should_not (should, should not) undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Paul Martinsen Mini-Auditor's Name (Print or Type) Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  Paul Based Carroll Muller Assoc., MN 55343	section F, I recommend that this building
	Paul Martinsen Mini-Auditor's Name (Print or Type) Signature  Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address	section F, I recommend that this building
	I realize that this is not a final judgement, that the State reserves the right to and other criteria.  Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should rownind, wood. (Circle proper resources) (should, should rowning judgement, as a mini-auditor, all of the above statements are true  Paul Martinsen  Mini-Auditor's Name (Print or Type)  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	section F, I recommend that this building
	Paul Martinsen  Mini-Auditor's Name (Print or Type)  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	section F, I recommend that this building
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	Paul Martinsen  Mini-Auditor's Name (Print or Type)  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	section F, I recommend that this building should_not (should, should not) undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Paul Martinsen  Mini-Auditor's Name (Print or Type)  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	section F, I recommend that this building Should not (should, should not) undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
0.7.EME-1.C.D	Paul Martinsen  Mini-Auditor's Name (Print or Type)  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	section F, I recommend that this building Should not (should, should not) undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)

F	NAME	POSITION	ORGANIZATION	
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc., In	nc.
	Reinert Ege	Maintenence Engineer	City of Bloomington	
AUDIT				·
<b></b>		rentante de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition del		
G	BRIEF DESCRIPTION OF GENER	AL BUILDING CONDITION (i.e. type, and fun	ction)	
	Good - Office Bu	ilding	litation, conversion from one building type to another)	
z	Remodeling for m		nation, conversion from one building type to another)	
ÖL		F ROOF (i.e. metal beams, wooden rafters, cor	ncrete)	
BUILDING	Bar Joist ROOFING MATERIAL (i.e. tar and	gravel shingles tile)		
BCIL NFO	Tar and Gravel	gravei, smingles, tile)		
	Tat and arayer			~
H	INSTRUCTIONS: Correctly answer	r the following questions for the building being	g mini-audited.	
	Is there open land adjacent to the XXX Yes □ No	building?		
	Solar collectors need to be located	in an unshaded area. Is the roof of the building a	and the south facing wall unshaded between the hours of 9 a.m. a	and
	3 p.m.? Roof: XXY Yes □ No South facing Wall: XXY Yes □	No		
	If the roof or wall are partly shade % of roof unshaded 95 % of south facing wall unshade	ed, what percentage of the surface is unshaded % d%	19	
	What is the overall shape of the b □ square XXrectangle □ H	uilding? -shaped		
	Is the roof of the building flat or p	pitched?		
	If pitched, what is the compass or	ientation of the ridgeline?		
	If pitched, what is the angle that t	he roof makes with horizontal?		
	Are there large obstructions on the	e roof such as chimneys, rooms for mechanic	al equipment, ventilating units water towers, etc?	
	What is the exterior facing materi	al for the south facing well? LUNCLELE	Block	
	What percentage of the south fac	ing wall is glass? $\frac{15}{}$ %		
	Is the building's space heating eq	uipment located within or on the building? (A	no answer indicates the equipment is in a separate building.)	.)
	If the space heating equipment is AAA Ground Floor   Basemen	inside the building, where is it located?  DRoof □ Other (specify)		
SOLAR POTENTIAL INFORMATION			swer indicates the equipment is in a separate building.)	
R POTI	If the water heating equipment is Cround Floor Basemen	inside the building, where is it located? t  Other (specify)		
SOLA	Is the water heating system a cer XXX Central □ Multiple □ C	tral system, does it consist of multiple units, o	or is it a combination of the central and multiple units?	*

BASE PERIOD YEAR Fiscal Year											
	ENERGY TYPE	ENERG	Y USAGE	cc	ONVERSION F	ERSION FACTOR BTU USA					
	Electricity				paranega com autority autority autority autority autority autority autority autority autority autority autority			-			
	Fuel 1		nd a marinda de Principa de Principa de Principa de Aguação de Marinda de Aguação			ngan na sangang ngan kanalanan kanan					
	Fuel 2			,							
	TOTAL				degaarigeen een gevoorde een belgevoorde een ook een soorde gevoorde	tean telepanen er en en en egyentige gudd genet					
	20% SAVINGS YEAR Fiscal Year										
	ENERGY TYPE	ENERG	Y USAGE	CC	ONVERSION F	ACTOR		BTU USAGE			
	Electricity							,			
Γ	Fuel 1										
-	Fuel 2					kannada, endik kirandikangan bayan dibener		1			
	TOTAL				gan di Siggian di Rigaria da Rigaria di Rigaria di Rigaria di Rigaria di Rigaria di Rigaria di Rigaria di Rigar	And the second s					
,											
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr	of the percent of to ties listed in section	tal electrical and on L. Secondly, o	fuel consumpt calculate the	tion which wou range of energ	ild be saved re	esulting from th	ne implementation of all			
	state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr Check two boxes in each categor	of the percent of to ties listed in sectic ical and fuel consi y —	tal electrical and on L. Secondly, o umption data on	fuel consumpt calculate the	tion which wou range of energ	ild be saved re	esulting from th	ne implementation of all			
	state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr.  Check two boxes in each categor Range of Electrical Savings —	of the percent of to ties listed in sectic ical and fuel consu y —	tal electrical and on L. Secondly, our prior data on 10%	fuel consumpt calculate the i the energy re	tion which wou range of energe port.	Id be saved regy and cost s	esulting from the savings by mu	ne implementation of all litiplying the estimated			
	state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr.  Check two boxes in each categor Range of Electrical Savings — X	of the percent of to clies listed in sectic ical and fuel consumy —  (Y) —  (X) 0%  (X) 5%	tal electrical and on L. Secondly, our prior data on 10%	fuel consumpt calculate the i the energy re	tion which wou range of energe port.	ild be saved regy and cost s	esulting from the savings by mu	ne implementation of all litiplying the estimated			
	state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr.  Check two boxes in each categor Range of Electrical Savings —	of the percent of to clies listed in sectic ical and fuel consumy —  (Y) —  (X) 0%  (X) 5%	tal electrical and in L. Secondly, our parties data on 10%	fuel consumptical culate the inthe energy re	ion which wou range of energe sport. 20%	Id be saved regy and cost s	esulting from the savings by mu	ne implementation of all litiplying the estimated specify)			
	state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr.  Check two boxes in each categor Range of Electrical Savings — X	of the percent of to clies listed in sectic ical and fuel consumy —  (Y) —  (X) 0%  (X) 5%	tal electrical and in L. Secondly, our prior data on 10%  XX 10%  Range of Range Sa	fuel consumptical culate the inthe energy re  15% 15% 15% Electrical San of Energy vings	ion which wou range of energe sport. 20%	25% Annual E	esulting from the savings by mu  □ other ( □ other (	ne implementation of all litiplying the estimated			
	state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr.  Check two boxes in each categor Range of Electrical Savings — X Range of Fuel Savings — Calculate ranges of energy and compared to the same of the savings — X Range	of the percent of to ties listed in sectic ical and fuel consury —  (Y) —  (X) 0%  (X) 5%  (S) 0%  (S) 5%  (S) 5%  (S) 5%  (S) 5%  (S) 6%  (S) 6%  (S) 7%  (S)	tal electrical and on L. Secondly, comption data on 10%  XX 10%  Range of Range Sa	fuel consumptical culate the inthe energy re  15% 15% Interpretable the inthe energy re interpretable the energy r	ion which wour range of energing of energi	25%  Annual E Dollars	osulting from the savings by mu  other ( other (	specify)  Range of Electrical Dollars Savings			
	state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr.  Check two boxes in each categor Range of Electrical Savings — X  Range of Fuel Savings — Calculate ranges of energy and compared to the same of	of the percent of to ties listed in secticical and fuel consulty —  (X) 0% (X) 5%  (X)	tal electrical and on L. Secondly, comption data on 10%  XX 10%  Range of Range of Sa  n = 12.74	fuel consumptical culate the inthe energy re  15% 15% 15% Electrical Savor of Energy vings kwh,	vings  Range  0 % x  to  5 % x	25%  Annual E Dollars	other (	specify)  Range of Electrical Dollars Savings  \$			
	state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr.  Check two boxes in each categor Range of Electrical Savings — X  Range of Fuel Savings — Calculate ranges of energy and compared to the same of	of the percent of to ties listed in secticical and fuel consulty —  (X) 0% (X) 5%  (X)	tal electrical and tal electrica	fuel consumptical culture the energy retherenced the energy retherenced to the energy retherenced to the energy vings to kwh,	ion which wour range of energing of energi	Annual E Dollars \$ 11.	other (	Range of Electrical Dollars Savings  \$ 579.12  Range of Fuel Dollars Savings			

K

Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

CLASSIFICATION			OP ICATION I			T
ITEM NO	MAJOR	O. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION
	CLASS	CLASS			SAVINGS	
			Occupancy - Fall, 1980			
			occupancy - rarr, 1900			
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EW PPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building welk-through.

ZÖ	impiemente	id. This sec	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	l N	The second second second second second	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS	33	SAVINGS	SAVINGS	
1	1	1	Keep all controls free of dust.			
		2	Lubricate motors to reduce wear and excessive torque.			
3	1	2	Keep motors clean to make cooling easier.			
4			Where it is impractical to replace			
4		2	motors which have low loads and powe factors, use capacitors at moter terminals to correct the power facto			
			to 90%.			
5	2	1	Check the amount of insulation in th ceiling and add if required.			
6	2	2	Weatherstrip all exterior doors incl garage or delivery doors.			
7	2	2	Replace an existing door with one of a higher R-value.			
8	2	3	Clean windows so more sunlight shine through them during the heating seas			
9	2	6	Insulate the roof areas.			
10	2	7	Inspect the vestibule exterior and interior surfaces and seal all crack		,	
11	2	8	Insulate walls with rigid insulation on inside and/or outside surfaces, or place loose fill insulation in wall			
12	2	9	cavities. Weatherstrip and caulk around door frames.			
13	2	9	Weatherstrip and caulk around window frames.			
14	3	1	window frames. Check operation of entire heating/ cooling control system, including			
	ļ		control valves and dampers.			
15	3	1	Check the calibration of all control and devices for proper settings and operations.	lers		
16	3	1	Raise the supply air temperature for cooling to the highest point necessar to provide minimum required cooling	ary		
17	3	1	Lower the supply air temperature for heating to the lowest point necessar to provide minimum required heating	c v		
18	3		Operate without fresh air ventilation when the building is unoccupied.	on		

Note 1 Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed

PPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

				OPTIONAL:	OPTIONAL	
ITEM NO	CLASSIF NO MAJOR CLASS		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
19	3	1	Reduce the amount of infiltration and outdoor air ventilation to provide or		to contragation in the position of the contract	
			the minimum required.			
20	3	1	Consider regulating the fresh air dampers with enthalpy control so that			
			the building can be cooled with outdoor air when this saves energy.			
_21	3	_2	Clean and remove obstructions from all room air outlets and inlets			
			(diffusers, registers and grillers). They should be kept clean and free			:
			of all dirt and foreign materials.  Inspect drive belts. Adjust or			
22	3	3	replace as necessary to ensure prope operation.	<u></u>		
			Make sure that all fans, frequently			-
23	3	3	inoperative in unit heaters, fan coil units, and unit ventilators are			
			running normally to increase the heat transfer rate from heating coil	S.		5
24	3	3	Keep condenser coil face clean to permit proper air flow.			
25	3	3	Inspect ductwork for air leakage. Seal all leaks by taping or caulking			
26	3	3	Inspect damper blades and linkages. Clean, oil and adjust.			
27	3	3	Clean or replace filters periodical or when indicated by filter gauges.  If there are no gauges, consider	lly 		
			installing them. Check compressor belt tension and		<u> </u>	
28	3	3	alignment. Inspect air compressor intake filte	1		
_29	3	3	pads and clean or replace as necess	ary.		
30	3	3	Check the compressor's oil level. Periodically drain the moisture fro	m		
31	3	3	Storage tank.  Consider different heating system		<b> </b>	
32	4	1	for garage area with high ceilings. Instruct occupants and maintenance personnel to switch off all lights			
			when they are not needed.			
34	4	3	Clean fixtures and lamps regularly.			

Note 1. Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

NEW POPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

implemente	d. This sec					
CLASSIFICATION NO.		NO. NEW MINI-AUDIT OPPORTUNITIES		ENERGY	DATE OF IMPLEMENTATION	
MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	SAVINGS	DATE OF IMPLEMENTATION	
4	3	In dirty areas enclose fixtures to reduce dirt collection.				
1	3	Replace lamps in groups before they				
4	3	light output per fixture.				
4	3	Keep walls, ceiling and floors clean.				
1	3	When repainting, use light colored			·	
7	3	but avoid objectionable specular				
1	3	When recarpeting or retiling, put in				
4		Change exterior lighting to a	!			
4	4	Remove unnecessary lamps, fixtures, and ballasts.	:			
4	4	the necessary illumination.				
4	4	be turned off while maintaining the				
4	5	Rearrange lighting fixtures for task				
<u> </u>		Direct security lighting where it is				
4	5	entrances and reduce it where the	Na .			
5	1	Keep records of the operating schedule, monthly energy consumption	1		·	
		records will indicate the impact of				
					<u> </u>	
5	1	regular basis.				
5	2	schedule for each building to ensure that all components of the specific				
		Consult manufacturers literature fo	r			
		schedule.				
6	1	for all except special requirements	JTF			
		(arshwasher supply and as, ecc.).			:	
	CLASSIF N. MAJOR CLASS 4 4 4 4 4 4 4 5 5 5 5	CLASSIFICATION NO.  MAJOR SUB CLASS  4 3  4 3  4 3  4 3  4 4  4 4  4 4  4	CLASSIFICATION NO  MAJOR SUB CLASS CLASS  In dirty areas enclose fixtures to reduce dirt collection.  Replace lamps in groups before they burn out to maintain higher average light output per fixture.  Keep walls, ceiling and floors cleans are light on ceilings, walls and floors but avoid objectionable specular reflections from glass finishes.  When recarpeting or retiling, put in lighter colored carpets or tiles.  Change exterior lighting to a higher efficiency source.  Remove unnecessary lamps, fixtures, and ballasts.  Use lower wattage lamps to provide the necessary lilumination.  Allow part of a lighting system to be turned off while maintaining the necessary light.  Rearrange lighting fixtures for task localized use.  Direct security lighting where it is most required, such as at windows are entrances and reduce it where the security problems are minimal.  Keep officiency of the building. These records will indicate the impact of energy conservation measures.  Review the record books on a regular basis.  Establish a specific maintenance schedule for each building to ensur that all components of the specific building operate at maximum efficie Consult manufacturers literature for guidance in establishing a maintena schedule.  Adjust domestic water supply to 100.	CLASSIFICATION NO NEW MINI-AUDIT OPPORTUNITIES  MAJOR SUB CLASS  In dirty areas enclose fixtures to reduce dirt collection.  Replace lamps in groups before they burn out to maintain higher average light output per fixture.  When repainting, use light colored paint on ceilings, walls and floors but avoid objectionable specular reflections from glass finishes.  When recarpeting or retiling, put in lighter colored carpets or tiles.  Change exterior lighting to a higher efficiency source.  Remove unnecessary lamps, fixtures, and ballasts.  Use lower wattage lamps to provide the necessary illumination.  Allow part of a lighting system to be turned off while maintaining the necessary light.  Rearrange lighting fixtures for task localized use.  Direct security lighting where it is most required, such as at windows and entrances and reduce it where the security problems are minimal.  Keep records will indicate the impact of energy conservation measures.  Review the record books on a regular basis.  Establish a specific maintenance schedule, measure for guidance in establishing a maintenance schedule.  Adjust domestic water supply to 100 F for all except special requirements	NO NEW MINI-AUDIT OPPORTUNITIES  A 3 In dirty areas enclose fixtures to reduce dirt collection.  Replace lamps in groups before they burn out to maintain higher average light output per fixture.  A 3 Keep walls, ceiling and floors clean.  When repainting, use light colored paint on ceilings, walls and floors but avoid objectionable specular reflections from glass finishes.  When recarpeting or retiling, put in lighter colored carpets or tiles.  Change exterior lighting to a higher efficiency source.  Remove unnecessary lamps, fixtures, and ballasts.  Use lower wattage lamps to provide the necessary illumination.  Allow part of a lighting system to be turned off while maintaining the necessary light.  A 5 Rearrange lighting fixtures for task localized use.  Direct security lighting where it is most required, such as at windows and entrances and reduce it where the security problems are minimal.  September of the building. These records will indicate the impact of energy conservation measures.  5 1 Review the record books on a regular basis.  Establish a specific maintenance schedule for each building to ensure that all components of the specific building operate at maximum efficiency. Consult manufacturers literature for guidance in establishing a maintenance schedule.  6 1 Adjust domestic water supply to 100 F for all except special requirements	

Note 1. Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be aubmitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

EW PPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

	T 61 45015164516					OPTIONAL: OPTIONAL:			
ITEM NO	CLASSIF NO MAJOR CLASS	SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION			
	CLASS	CLASS	The burner system of fossil-fuel water	·					
50	6	2	heaters should be kept clean and in	ľ					
			good operating condition.						
			good operacing conditions						
			Periodically drain and remove the						
51	6	2	sediment from the water heater.	:					
	1-9		Consider heat recovery from paint						
52	6	4	booth exhaust.						
			Install toilet flush valve kits						
53	6	5	that reduce water usage.						
54	6	5	Install flow restrictors.						
			Seal all air leaks into combustion						
55	7	3	chamber, especially around doors,						
			frames and inspection ports.	ĺ					
	ļ								
56	7	4	Turn off gas pilots for furnaces,		]				
	+-'		boilers, and space heaters during th	е	<u></u>				
			non-heating months and during long						
	<del> </del>		unoccupied periods.		<u> </u>				
57	7	4	Keep all heat exchanger surfaces		1				
37	\	7	clean. Check air-to-fuel ratio and						
			adjust as necessary.						
	<del> </del>								
					l				
F	<del> </del>				<del> </del>				
	<b>†</b>	<b></b>		<b></b>	<del></del>				
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	1								
	<b>†</b>	<del> </del>		+	+				
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	1	†		<del> </del>	<del> </del>	<del>                                     </del>			
		1							
	1	1		<b>†</b>		_			
			L						

Note 1. Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

A	BUILDING NAME		NAME OF ORGANIZATION	DATE			
	Rescue Station		City of Bloomington	5-23-80			
	BUILDING ADDRESS		ADDRESS				
	2315 West 102nd St.		2215 West Old Shakopee Road				
_	CITY	ZIP CODE	CITY	ZIP CODE			
ACT	Bloomington, Mn	55431	Bloomington, MN	55431			
CONT	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE			
őã	Randy Smith (	612) 935-6901	Arthur Jensen	612) 881-5811			

B	Instructions: For blocks 1 and 2 check the box describes the building type and then within th	which b	est fits the building owners ory check off the sub cate	ship conditions. Fo gory befitting the	r bloc build	ck 3 determine which of t ing function.	he four categories
	1. OWNERSHIP TYPE XXXPublic (PUB) UNon-Profit Association (NAP)	За.	SCHOOLS  Elementary  Secondary  Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNME Office Storage Service	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
CODE	2. ULTIMATE OWNER  □ County (CNTY)  XQCity (CITY) □ Township (TOWN)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire XIPOTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY CODE	☐ State (STAT) ☐ Public School (PUSC) ☐ Private School (PRSC) ☐ Non-Profit Association (NPAP) ☐ Indian Tribe (INDN)	b.	PUBLIC CARE  Nursing Home  Long Term Care  Rehab. Facility  Public Health Ctr.  Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)
C	Instructions: With reference to page 23 entitle just Federal funding, then answer the question	d Fundi	ng Information, determine	if the facilities are	e elig	ible for both Federal and	d State funding or the organization.
E Y va	If eligible for both Federal and State Funding: Have you received a mini-audit grant before Have you previously applied for mini-audit f Do you wish to apply for mini-audit funding	? (C. Y undina?	es XXI No XXX Yes □ No es XXX No				
	Date:		,				
	Name:	***************************************	·				
	Signature:						
	If eligible for Federal funding only: Have you received a mini-audit grant before Have you previously applied for mini-audit f Do you wish to apply for mini-audit funding	unding?	☐ Yes ☐ No (es ☐ No				
	The 50% match for Federal funds will come	from: (l	Jse additional sheets if ne	cessary.)			
							é
			,				
							!
							F
T							
COUES	Date:	****					
NG RE	Name:	The same of the sa					r
MINI-AUDIT FUNDING REQUEST	Signature:	<del></del>					

D	Check the type of energy report which was completed	d and submitted prior to this mini-audit report
EPORT	☐ Elementary School Energy Report (Form No. ED-0 ☐ Secondary School Energy Report (Form No. ED-0  XX Existing Building Energy Report (Form No. EN-00	00444-02) 04445-02)
ENERGY REPORT	If an energy report has not been completed previous	to this mini-audit report, one must be included with this report. Elementary, secondary, and rm ED-00445-02, depending on building complexity. All other buildings should use the existing
	Instructions: This section is to be completed and sign completed the State of Minnesota's Mini-Audit Proceduare completed. All blanks must be filled in.	ned by a registered professional engineer or by a certified mini-auditor who has successfully ures Course. This section should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy re corrected any misinformation on the energy report w	eport results for this building. I found all information contained therein to be correct <i>OR</i> I have thich will be resubmitted with this mini-audit report to the Minnesota Energy Agency.
}	I am not directly responsible for the day to day opera	ations of this building being audited.
. }		o this mini-audit and any energy conservation measures considered by this audit.
	I have walked through this building and have found maintenance changes, and low cost energy conserva	the recommendations listed in section I of this mini-audit report to be the operations and tion measures, which would reduce energy consumption in this building.
	I have made a rough estimate, in section G, of the rangisted in section I. I am not responsible if the actual s	ige of savings which may result from the implementation of all of the mini-audit opportunities savings resulting from this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation ope 20% of the building's energy consumption as specific	erating and maintenance procedures listed in section K <u>did not</u> save at least ed in section I. (did, did not)
	Based upon my observation of the physical character SNOULD NOL be the subject of a mit (should, should not)	ristics of this building and the building's major energy using systems, I recommend that this axi-audit.
	I realize that this is not a final judgement, that the State and other criteria.	e reserves the right to make the maxi-audit funding determination based on this mini-audit report
		mation referred to in section F, I recommend that this building Should not (should, should not)
	undergo further solar conversion analysis, and/or wind, wood. (Circle proper resources)	Should not undergo further analysis of the renewable resources — waste.
	In my judgement, as a mini-auditor, all of the above	
		Witnessed by:
	Dandy Cuitt	Wallossed by.
	Randy Smith Mini-Auditor's Name (Prigt or Type)	Building Organizational Authority (Print or Type)
	Comoly Subt	206 Signature
	Signature // Rieke Carroll Muller Assoc	
	Firm Name (if none, enter none)	Date
	P.O. Box 130 Hopkins, MN	55343
	(612) 935-6901 Phone	·
	<u>5-23-80</u> Date	
S		
MINI-AUDIT STATEMENTS		3
1 4 m		
Ī₹		

	NAME	POSITION	ORGANIZATION
=	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
1			
<u>-</u> =			
AUDIT			
4 F			
G	BRIEF DESCRIPTION OF G	ENERAL BUILDING CONDITION (i.e. type, and	function)
	Good, Storage	of Rescue Vehicles	
	MAJOR CHANGES PLANN	ED WITHIN NEXT 15 YEARS (i.e. demolition, reh	abilitation, conversion from one building type to another)
Z O	None		
BUILDING		ITS OF ROOF (i.e. metal beams, wooden rafters,	concrete)
O.E.	Metal Beams		
크리	ROOFING MATERIAL (i.e. t		
∞ <u>≤</u>	Tar and Grave		
,,			
H	INSTRUCTIONS: Correctly	answer the following questions for the building b	eing mini-audited.
	Is there open land adjacent	to the building?	
	☐ Yes XXNo	to the banding.	
	Solar collectors need to be lo	cated in an unshaded area. Is the roof of the buildi	ng and the south facing wall unshaded between the hours of 9 a.m. and
j	3 p.m.? Roof: XOX(Yes □ No		
	South facing Wall: Ye	s XXNo	
	If the roof or wall are partly	shaded, what percentage of the surface is unsha	ded?
	% of roof unshaded % of south facing wall un	* 20	
	What is the overall shape of	the building?	
ĺ		☐ H-shaped ☐ E-shaped ☐ other (specify)	
	Is the roof of the building fl.  XX flat D pitched	at or pitched?	*
1			
	if pitched, what is the comp	ass orientation of the ridgeline?	
1	If pitched, what is the angle	that the roof makes with horizontal?	0
	Are there large obstructions  O Yes WNo	on the roof such as chimneys, rooms for mecha	nical equipment, ventilating units, water towers, etc?
	What is the exterior facing	material for the south facing wall? Stucc	0
	What percentage of the sou	th facing wall is glass?	
	is the building's space heat	ing equipment located within or on the building?	(A no answer indicates the equipment is in a separate building.)
	XIO Yes D No	g., ,	(A no answer indicates the equipment is in a separate building.)
	If the space heating equipm	ent is inside the building, where is it located?	
SOLAR POTENTIAL INFORMATION	Is the building's water heati		answer indicates the equipment is in a separate building.)
NO	VM ses no		
POT	If the water heating equipm	ent is inside the building, where is it located? sement   Other (specify)	
AR			
일하	Is the water heating system  X  Central □ Multiple	a central system, does it consist of multiple unit	s, or is it a combination of the central and multiple units?
ω= [	VV Central - Multiple	- Combination	

L				BASE	PERIOD YEA	R		Fisc	al Year	
	ENERGY TYPE		ENERGY	USAGE	C	ONVERSION	FACTOR		вти	USAGE
	Electricity									
	Fuel 1									
	Fuel 2				,					
	TOTAL			en terretainen erikainen erikainen erikainen erikainen erikainen erikainen erikainen erikainen erikainen erika		entro escalado do especial de la como esta de	and the second s		and Milesania (1920) Anced (1929)	
				20% SA	VINGS YEAF	3		Fis	cal Year _	
	ENERGY TYPE		ENERGY	USAGE	С	ONVERSION	FACTOR		ВТО	USAGE
	Electricity									
	Fuel 1									
	Fuel 2									
Γ				**************************************						
L	TOTAL Instructions: This section is to be	o complete	ad by the min	i auditor often	Ah a wally Aharr	nortion of the	mini audit f	isal abad	the approp	rinto hoves which
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportuner percentages by the annual electric state of the section is to be stated in the section in the section in the section is to be set of the section in the section in the section is to be set of the section in the section is to be set of the section in the section is to be set of the section is to be set of the section in the section is to be set of the section in the section is to be set of the section in the section is to be set of the section in the section in the section is to be set of the section in the section in the section in the section is to be set of the section in	je of the pe nities listed	rcent of total in section	electrical and L. Secondly,	fuel consump calculate the	tion which we	ould be saved	resulting f	rom the imp	elementation of a
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportunercentages by the annual election of the two boxes in each categorial care in the section of the categorial care in the section of th	ge of the pe nities listed strical and ory —	rcent of total d in section fuel consum	electrical and L. Secondly, ption data on	fuel consump calculate the	tion which we	ould be saved	resulting f	rom the imp	elementation of a
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportu percentages by the annual elec	ge of the pe nities listed strical and ory —	rcent of total d in section fuel consum XX5%	electrical and L. Secondly, ption data on ————————————————————————————————————	fuel consump calculate the	tion which we	ould be saved	resulting f t savings t	rom the imp by multiplyi	olementation of a ing the estimate
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportunercentages by the annual election of the two boxes in each categorial care in the section of the categorial care in the section of th	ge of the pe nities listed strical and ory —	rcent of total d in section fuel consum	electrical and L. Secondly, ption data on	fuel consump calculate the the energy re	ition which we range of ene eport.	ould be saved ergy and cos	resulting f t savings t	rom the impoy multiplyi	olementation of a ing the estimate
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportur percentages by the annual electorical two boxes in each category.  Range of Electrical Savings —	ge of the penities listed strical and cory —	rcent of total d in section fuel consum  XX5%	electrical and L. Secondly, ption data on ————————————————————————————————————	fuel consump calculate the the energy re	etion which we range of ene	ould be saved ergy and cos	resulting f t savings t	rom the impoy multiplyi	olementation of a ing the estimate
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportungercentages by the annual electron check two boxes in each category Range of Electrical Savings—  Range of Fuel Savings—	ge of the penities listed strical and cory —	rcent of total d in section fuel consum  XX5%	electrical and L. Secondly, ption data on 10%	fuel consump calculate the the energy re	tion which we range of energy apport.	ould be saved ergy and cos	resulting f t savings t	rom the impoy multiplyi	olementation of a ing the estimate
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportung percentages by the annual election of the control of the	ge of the penities lister itrical and ory — XX0% □ 0% □ cost savin	xXX5%  XX5%  XXS%	electrical and L. Secondly, option data on  10% Xiii 10%  Range of Range	fuel consump calculate the the energy re  15% 15% Electrical Sa of Energy	avings	□ 25%	resulting f	rom the important multiplying their (specifither (specifi	olementation of a ling the estimate (y) (y) (y) (y) (y) (y) (y) (y) (y) (y)
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportungercentages by the annual electorical Savings — Range of Electrical Savings — Calculate ranges of energy and Range	pe of the penities listed ctrical and ory —  XX0%  0%  cost savin  Annual Cons	XX5%  XX5%  XX5%  Electrical umption	electrical and L. Secondly, option data on  10%  XX 10%  Range of  Range	fuel consump calculate the the energy re 15%  15%  Electrical Sa of Energy virings	etion which we range of energy approx.  □ 20% □ 20% □ 20%	25% Annua Dolla	resulting f	rom the important multiplying their (specifither (specifi	fy)
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportung percentages by the annual election of the two boxes in each categoral Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and ———————————————————————————————————	ge of the penities lister itrical and ory — XX0% □ 0% □ cost savin	AX5%  AX5%  AX5%  Description of the consumment	electrical and L. Secondly, option data on  10% XX 10%  Range of Range Sa	fuel consumption calculate the the energy results. In the energy results to the energy r	otion which we range of enember	Duld be saved and cost and cos	resulting fit savings to a constant of the con	rom the important multiplying their (specifither (specifi	ange of Electrica Dollars Savings
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportungercentages by the annual electorical Savings — Range of Electrical Savings — Calculate ranges of energy and Range	pe of the penities listed ctrical and ory —  XX0%  0%  cost savin  Annual Cons	xXX5%  XXX5%  XXX5%  Electrical umption	electrical and L. Secondly, option data on  10%  XX 10%  Range of  Range	fuel consumption calculate the the energy results. In the energy results and the energy results and the energy vings.  Line Electrical Salos of Energy vings.  Line Electrical Salos of Energy vings.	etion which we range of energy approx.  □ 20% □ 20% □ 20%	Dulid be saved and cos	resulting fit savings to a constant of the con	rom the important multiplying their (specifither (specifi	fy)  ange of Electrica Dollars Savings
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportung percentages by the annual elector of the two boxes in each categor of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and ———————————————————————————————————	ge of the penities listed citrical and ory — XX0% □ 0% □ cost savin Annual Cons 837	XX5%  XX5%  XX5%  XX5%  XX5%  XX5%  XX5%	electrical and L. Secondly, ption data on  10%  XXX 10%  Range of  Range Sa  418.	fuel consump calculate the the energy re  15% 15% Electrical Sa of Energy vings kwh,	vings  % Range 0 % to 5 %	Dulld be saved and cost of the saved and cos	Description of the savings to the sa	ther (specification)	ange of Electrica Dollars Savings   10
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportung percentages by the annual election of the new mini-audit opportung percentages by the annual election of the new mini-audit opportung percentages by the annual election of the new mini-audit opportung electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy and which was a second of the new mini-audit opportung and with the new mini-audit opportung electrical Savings —  When the new mini-audit opportung elec	ee of the penities lister ctrical and cory — XXX0% □ 0% □ cost savin Cons ■ 837 ■ 837	Control of total of in section fuel consum fuel consum fuel consum fuel consum fuel consum fuel consum fuel consum fuel consumption fuel consumption fuel consumption	electrical and L. Secondly, ption data on  10%  XXX 10%  Range of  Range Sa  418.  Range Range Range	fuel consumption calculate the the energy results to the energy re	vings  % Range 0 % to 5 %	Annua  Annua  Annua	Description of the savings to the sa	ther (specification)	ange of Electrica Dollars Savings  10 10 10 10 10 10 10 10 10 10 10 10 10
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportung percentages by the annual election of the new mini-audit opportung percentages by the annual election of the new mini-audit opportung percentages by the annual election of the new mini-audit opportung electrical Savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and with the new mini-audit opportung in	ee of the penities lister ctrical and cory — XXX0% □ 0% □ cost savin Cons ■ 837 ■ 837	ACM5%  AC	electrical and L. Secondly, ption data on  10%  XXX 10%  Range of  Range Sa  418.  Range Range Range	fuel consumption calculate the the energy results to the energy re	vings  % Range  0  %  to  5  %  https://doi.org/10.0000/10.000000000000000000000000000	Annua Dolla  X  Annua  Annua  Annua	Description of the savings of the sa	ther (specification)	ange of Electrica Dollars Savings  10 10 10 10 10 10 10 10 10 10 10 10 10

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Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

					OPTIONAL:	
ITEM NO.	MAJOR	ICATION IO. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
1	CLASS 6	CLASS 2	Set water temp @ 105 <sup>0</sup> .			September, 1979
2	2	2	Repaired garage doors for tighter f	+		
<b>-</b>			Repaired garage doors for cigniter t	[ ι.		September, 1979
			·			
	-					
					-	
						-
						<del> </del>
				<b>_</b>		
				<b>+</b>		
	<del></del>	+		<del>                                     </del>		
				-	+	

NEW OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine this suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

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Note 1: Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

NEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examined a suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

	CLASSIF			OPTIONAL:	ENERGY	
NO NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
			Allow part of a lighting system to			
19	4	4	be turned off, while maintaining the necessary light.			
			the necessary right.			
00	_	4	Keep records of the operating			August, 1979
20	5	1	schedule, monthly energy consumption			August, 1979
			and purchase of any new equipment that affects energy consumption			
			of efficiency of the building.		<u> </u>	
		i	These records will indicate the			
,			impact of energy conservation			
			measures.			-
			Review the record			
21	5	1	books on a regular basis. The burner system of fossil-fuel			August, 1979
		_	The burner system of fossil-fuel			
22	6	2	water heaters should be kept clean			
			and in good operating			
	<del> </del>		condition.	<b>}</b>	<b>}</b>	
00	,	_	Clean air-sides, remove soot, and			
23	<del>                                     </del>	3	scrape scale in forced warm air	<del> </del>		
			furnaces.			
_ 1		_	Maintain the lowest possible hot			
24	<del>  7</del> _	4	water temperatures which will			
3			meet domestic hot water needs.			
			Clean fileters regularly in			
25	7	4	forced warm air units to reduce the			
			operating time of the furnace.			
<del></del>	1		Turn off gas pilots for furnaces			
26	7	4	boilers and space heaters during			
			the non-heating months and during			
			long unoccupied periods.	<u> </u>		
0.7	_		Keep all heat exchanger surfaces			
27	<del>                                     </del>	4	clean. Check air-to-fuel ratio and	<del> </del>	<u> </u>	
			adjust as necessary on unit heaters.	•		
			Follow guidelines suggested for fan			
28	7_	4	land motor maintenance.	<u> </u>		
			Inspect casing for air leaks and			,
29	1 7	4	seal as necessary on unit heaters.	<del> </del>	<del> </del>	
	<b>†</b>					
· · · · · · · · · · · · · · · · · · ·	-	<del> </del>			-	
		Contract to the second				and the same of the same of the same of the same of the same of the same of the same of the same of the same of

A	BUILDING NAME		NAME OF ORGANIZATION	DATE
	Art Center		City of Bloomington	5-23-80
1	BUILDING ADDRESS		ADDRESS	
1	10206 Penn Avenue South		2215 West Old Shakopee Road	
-	CITY	ZIP CODE	CITY	ZIP CODE
CONTACT	Bloomington, MN	55431	Bloomington, MN	55431
Z Y	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
08	Randy Smith	612) 935-6901	Arthur Jensen	612) 881-5811

В		structions: For blocks 1 and 2 escribes the building type and							our categories
	1.	OWNERSHIP TYPE XMPublic (F □Non-Profit Association	PUB) (NAP)	За.	SCHOOLS □Elementary □Secondary □Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT □Office □Storage □Service	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
ODE	2.	ULTIMATE OWNER  County  City	(CNTY) (CITY)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire XXPOTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY C		☐ Township ☐ State ☐ Public School ☐ Private School ☐ Non-Profit Association ☐ Indian Tribe	(TOWN) (STAT) (PUSC) (PRSC) (NPAP) (INDN)	b.	PUBLIC CARE  □ Nursing Home  □ Long Term Care  □ Rehab. Facility  □ Public Health Ctr.  □ Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and SI just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the	tate funding or e organization.
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? It Yes XX No Have you previously applied for mini-audit funding? XX Yes  No Do you wish to apply for mini-audit funding?  Yes XX No	
	Date:	
	Name:	
	Signature:	
	If eligible for Federal funding only: Have you received a mini-audit grant before?  Yes No Have you previously applied for mini-audit funding?  Yes No Do you wish to apply for mini-audit funding?  Yes No The 50% match for Federal funds will come from: (Use additional sheets if necessary.)	
		•
		v.
15		
OUE	Date:	
JOIT IG RE	Name:	
MINI-AUDIT FUNDING REQUEST	Signature:	

)	Check the type of energy report which was completed and submitted pr	ior to this mini-audit report.
	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)	
	XExisting Building Energy Report (Form No. EN-00041-01)	
	If an energy report has not been completed previous to this mini-audit revocational schools should use form ED-00444-02 or form ED-00445-02, de	report, one must be included with this report. Elementary, secondary, and epending on building complexity. All other buildings should use the existing
	building energy report, form EN-00041-01.	
_		
	Instructions: This section is to be completed and signed by a registered completed the State of Minnesota's Mini-Audit Procedures Course. This seare completed. All blanks must be filled in.	professional engineer or by a certified mini-auditor who has successfully action should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for this corrected any misinformation on the energy report which will be resubr	s building. I found all information contained therein to be correct <i>OR</i> I have nitted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this building	ing being audited.
	I have fully disclosed my financial interests relating to this mini-audit at	nd any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendati maintenance changes, and low cost energy conservation measures, wh	ions listed in section I of this mini-audit report to be the operations and ich would reduce energy consumption in this building.
	listed in section I. I am not responsible if the actual savings resulting fr	h may result from the implementation of all of the mini-audit opportunitie om this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and mainter 20% of the building's energy consumption as specified in section I.	nance procedures listed in section K <u>did not</u> save at leas (did, did not)
	Based upon my observation of the physical characteristics of this build Should not. be the subject of a maxi-audit.	ing and the building's major energy using systems, I recommend that thi
	(should, should not) I realize that this is not a final judgement, that the State reserves the right t	o make the maxi-audit funding determination based on this mini-audit repo
	and other criteria.	
	Based upon the information in section E and the information referred to it	n section F, I recommend that this buildingshould_not(should, should not)
	undergo further solar conversion analysis, and/or should no wind, wood. (Circle proper resources) (should, should	ot undergo further analysis of the renewable resources — wast not)
	In my judgement, as a mini-auditor, all of the above statements are tru	e and correct.
	· · ·	
		Witnessed by:
		Williams by
	Randy Smith Mini-Auditor's Name (Grint or Type)	Building Organizational Authority (Print or Type)
	(much Suite 206	John St. Type,
	Signature	Signature
	Rieke Carroll Muller Assoc., Inc.	Date
	P.O. Box 130 Hopkins, MN 55343	
	Address	
	Address (612) 935-6901 Phone	
	Address (612) 935-6901 Phone 5-23-80	
	Address (612) 935-6901 Phone	
	Address (612) 935-6901 Phone 5-23-80	
	Address (612) 935-6901 Phone 5-23-80	
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	Address (612) 935-6901 Phone 5-23-80	
	Address (612) 935-6901 Phone 5-23-80	
	Address (612) 935-6901 Phone 5-23-80	

F	NAME	POSITION	ORGANIZATION
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
	/		
AUDIT			
G	BRIEF DESCRIPTION OF GENI	ERAL BUILDING CONDITION (i.e. type, and funct	tion)
N O	MAJOR CHANGES PLANNED None	WITHIN NEXT 15 YEARS (i.e. demolition, rehabilit	tation, conversion from one building type to another)
BUILDING	Wooden Rafters  ROOFING MATERIAL (i.e. tar a		:rete)
S I	Tar and Gravel	1	
H	INSTRUCTIONS: Correctly ans	wer the following questions for the building being	mini-audited.
	Is there open land adjacent to t  XX Yes □ No	he building?	
	Solar collectors need to be located 3 p.m.?  Roof: XXY Yes  No South facing Wall: Yes Y		nd the south facing wall unshaded between the hours of 9 a.m. and
		aded, what percentage of the surface is unshaded?	7
	What is the overall shape of the		
	Is the roof of the building flat o	r pitched?	
	If pitched, what is the compass	orientation of the ridgeline?	
	_	at the roof makes with horizontal?	
	Are there large obstructions on Yes XXNo	n the roof such as chimneys, rooms for mechanica	il equipment, ventilating units, water towers, etc?
	What is the exterior facing mat	erial for the south facing wall?Concre	ete Bolck
	What percentage of the south f	facing wall is glass?%	
	Is the building's space heating XX Yes □ No	equipment located within or on the building? (A r	no answer indicates the equipment is in a separate building.).
	If the space heating equipment	t is inside the building, where is it located? lent □ Roof □ Other (specify)	
NTIAL	Is the building's water heating X∏X Yes □ No	equipment located within the building? (A no ans-	wer indicates the equipment is in a separate building.)
SOLAR POTENTIAL	If the water heating equipment XX Ground Floor D Basem	t is inside the building, where is it located? nent □ Other (specify)	
SOLA	Is the water heating system a c X→X Central □ Multiple □	central system, does it consist of multiple units, or Combination	r is it a combination of the central and multiple units?

		······································	BASE	PERIOD YEA	NR		Fiscal Ye	ear	
ENERGY TYPE		ENERGY	USAGE	c	CONVERSION	FACTOR		BTU US	AGE
Electricity									
Fuel 1									
Fuel 2									
TOTAL		Page 1			and the second s				
			20% SA	VINGS YEA	R		Fiscal Y	ear	
 ENERGY TYPE		ENERGY	USAGE	C	CONVERSION	FACTOR		BTU US	AGE
Electricity									
Fuel 1									
 Fuel 2		and the second s							
 TOTAL									
 Instructions: This section is to b	ne complete	ed by the mir	ni-auditor after	the walk-thru	portion of the	mini-audit. Fir	st, check the	appropriat	e boxes whic
Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele	ige of the pe unities liste	rcent of tota d in section	l electrical and L. Secondly,	fuel consump calculate the	ption which wo range of ene	ould be saved re	sulting from	the implem	entation of a
state the roughly estimated ran of the new mini-audit opportu percentages by the annual ele- Check two boxes in each cate	ge of the pe unities lister ectrical and gory —	rcent of tota d in section fuel consum	l electrical and L. Secondly, on ption data on	fuel consump calculate the the energy r	ption which wo range of ene report.	ould be saved regy and cost	esulting from savings by m	the implem ultiplying	nentation of a
state the roughly estimated ran of the new mini-audit opportu percentages by the annual ele Check two boxes in each cate Range of Electrical Savings —	ge of the pe unities listed ectrical and gory —	rcent of tota d in section fuel consum	l electrical and L. Secondly, on ption data on	fuel consump calculate the the energy r	ption which wo range of ene report.	ould be saved regy and cost	esulting from savings by m	the implem ultiplying (specify)	nentation of a
state the roughly estimated ran of the new mini-audit opportu percentages by the annual ele- Check two boxes in each cate	ge of the pe unities listed ectrical and gory — XX 0%	creent of total d in section fuel consum  XX 5%	l electrical and L. Secondly, on ption data on	fuel consump calculate the the energy r	ption which wo range of ene report.	ould be saved regy and cost	esulting from savings by m	the implem ultiplying (specify)	nentation of a
 state the roughly estimated ran of the new mini-audit opportu percentages by the annual ele  Check two boxes in each cate Range of Electrical Savings —  Range of Fuel Savings —	ge of the pe unities listed ectrical and gory — XX 0%	creent of total d in section fuel consum  XX 5%	l electrical and L. Secondly, on option data on 10%	fuel consump calculate the the energy r	ption which wo range of energe port.	ould be saved regy and cost	esulting from savings by m	the implem ultiplying (specify)	nentation of a
state the roughly estimated ran of the new mini-audit opportu percentages by the annual ele Check two boxes in each cate Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and	ge of the peunities lister ctrical and gory — XX 0% □ 0% □ d cost savin	xxx 5%  xxx 5%  Electrical	l electrical and L. Secondly, on ption data on 10% XX10%  Range of Range	fuel consumpalculate the the energy r 15%	ption which wo range of energe port.	□ 25% □ 25% Annual E	osulting from savings by m  other other	the implem ultiplying (specify) (specify)	entation of a
state the roughly estimated ran of the new mini-audit opportune percentages by the annual electrical savings —  Range of Electrical Savings —  Calculate ranges of energy and Range	ge of the pe unities lister ctrical and gory — XY 0% — 0% d cost savin Annual Cons	recent of total d in section fuel consum  XX 5%  XX 5%  mgs —  Electrical umption	l electrical and L. Secondly, on ption data on 10% XX10%  Range of Range	fuel consumpalculate the the energy r 15% 15%  Electrical Second Energy vings	ption which we range of energy arrange of energy	25% 25% Dollars	osulting from savings by m  other other steectrical	(specify) (specify) Range	entation of a
state the roughly estimated ran of the new mini-audit opportupercentages by the annual electhical savings —  Range of Electrical Savings —  Calculate ranges of energy and   % Range lower bound % x	ge of the pe unities lister ctrical and gory — XY 0% — 0% d cost savin Annual Cons	xxx 5%  xxx 5%  Electrical	l electrical and L. Secondly, on ption data on  10% XX10%  Range of Range Sa	fuel consumpalculate the the energy r 15%  15%  Electrical Satisfies of Energy vings  kwh,	ption which wo range of energe report.  20% 20% 20%  Avings  Range 0 %	Dulid be saved regrey and cost :  25% 25% Annual E	osulting from savings by m  other other spent	the implem ultiplying (specify) (specify)	e of Electricalers Savings
state the roughly estimated ran of the new mini-audit opportune percentages by the annual electrical savings —  Range of Electrical Savings —  Calculate ranges of energy and Range	ger of the per unities lister ictrical and gory — XX 0% — 0% d cost savir Annual Cons	recent of total d in section fuel consum  XX 5%  XX 5%  mgs —  Electrical umption	l electrical and L. Secondly, on ption data on  10% XX10%  Range of Range Sa	fuel consumpalculate the the energy r 15%  15%  15%  Electrical Sator Energy vings  kwh,	ption which we range of energy arrange of energy	Dulid be saved reingy and cost starting and cost	osulting from savings by m  other other steectrical	(specify) (specify) Range	e of Electricalers Savings
state the roughly estimated ran of the new mini-audit opportupercentages by the annual electhical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and —  % Range —  lower bound —  % Range —  to —  to	ger of the per unities lister ictrical and gory — XX 0% — 0% d cost savir Annual Cons	xxx5%  xxx5%	lelectrical and L. Secondly, on ption data on 10% XX10%  Range of Range = 00	fuel consumpalculate the the energy r 15%  15%  Electrical Sa of Energy vings kwh, to	ption which we range of energe report.  20% 20% 20%  **Range* 0 % to 5 %	Dulid be saved regrey and cost starting and cost	osulting from savings by m other other other spent of the savings by m	(specify) (specify) Range	e of Electricalers Savings
state the roughly estimated ran of the new mini-audit opportupercentages by the annual electrical Savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and ———————————————————————————————————	ge of the perinties lister ictrical and gory — XX 0% — 0% d cost savir — Annual Cons — 613	Telectrical umption 380 kwh	l electrical and L. Secondly, on ption data on 10%  XXX10%  Range of Range Sa  = 3069  Range Range	fuel consumpalculate the the energy r  15% 15% 15% Electrical Sale of Energy vings kwh, to kwh, of Fuel Save e of Fuel	ption which wo range of energe report.  20% 20% 20% 4 range 0 % to 5 %	Annual E Dollars	osulting from savings by m  other other spent 8,66	the implem ultiplying (specify) (specify)  Range Doll  = \$ _	e of Electrical lars Savings 0 to 168.43
state the roughly estimated ran of the new mini-audit opportupercentages by the annual electhical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and —  % Range —  lower bound —  % Range —  to —  to	ge of the perinties lister ictrical and gory — XX 0% — 0% d cost savir — Annual Cons — 613	Telectrical umption 380 kwh	l electrical and L. Secondly, on ption data on 10%  XXX10%  Range of Range Sa  = 3069  Range Range	fuel consumpalculate the the energy relation 15%  15%  Electrical Savings kwh,	ption which we range of energe report.  20% 20% 20%  **Range* 0 % to 5 %	Annual E Dollars  x \$336	other other spent services of the services of	the implem ultiplying (specify) (specify)  Range Doll  = \$ _	e of Electricalars Savings 0 to 168.43

K

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

OPTIONAL: OPTIONAL: CLASSIFICATION **ENERGY** ITEM NO. **ENERGY** DATE OF IMPLEMENTATION PAST ENERGY CONSERVATION ACTIONS COST SAVINGS NO. MAJOR SUB SAVINGS CLASS CLASS 3 Install night set back thermostat. December, 1979 1 2 4 December, 1979 1 Reviewed lighting system for selective control. Hot water heater set at 1050. 3 6 July, 1979 4 Low wattage fluorescent tubes installed. October, 1979 5 4 High efficiency ballasts installed. October, 1979

NEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

				OPTIONAL:	OPTIONAL		
ITEM NO	MAJOR SUB			ENERGY COST SAVINGS		DATE OF IMPLEMENTATION	
1	1	CLASS 1	Keep all controls free of dust.			RMS	
	ļ <u> </u>	1				כויוז	
2	2	1	Check the amount of insulation in the ceiling.				
	-		Add insulation above the				
3	2	1	ceilings if needed.				
	+ ==		Weatherstrip all exterior doors				
4	2	2	including garage or delivery doors.				
			Replace an existing door with one				
5	2	2	of a higher R-value.		<u>l</u>		
			Caulk all cracks that allow air				
6	2	8	and moisture into the building.				
			Inspect window closing and locking				
7	2	10	devices to insure a tight window.				
			Replace single glazed windows with				
_8	1 2	10	double glazed thermopanes.	<u> </u>			
_			Check the calibration of all			DMC	
9	3	1	controllers and devices for proper	<b></b>	<u> </u>	RMS	
			settings and operations.				
10		1	Raise the supply air temperature			July, 1979	
10	3	1	for cooling to the highest point		<b></b>	oury, 1979	
			necessary to provide minimum				
		<b></b>	required cooling. Lower the supply air temperature	-			
- 11	3	1	for heating to the lowest point			October, 1979	
11	+	<del>├ -</del>	for heating to the lowest point necessary to provide minimum re-		<del>                                     </del>	000020, , 10.0	
			required heating.				
	<del>                                     </del>	<u> </u>	65°F maximum occupied, 60°F maximum		-		
12	3	1	unoccupied during the heating season	1.		May, 1979	
*-	<b>—</b>	<del></del>	78°F minimum when occupied and no	<u>T</u>			
13	3	1	cooling when unoccupied during the				
			cooling season.				
			Clean and remove obstructions from				
14	3	2	all room air outlets and inlets			RMS	
			(diffusers, registers and grillers)				
		<u> </u>	They should be kept clean and free				
			of all dirt and foreign materials.				
	<u> </u>	<u> </u>	Check for excessive noise and				
15	3	3	vibration in fans. Determine			RMS	
			cause and correct as necessary.			,	
	1	<u> </u>	Inspect and lubricate bearings of				
16	3	3	fan motors.	<del> </del>	<b></b>	RMS	
			Inspect fans for				
<u>17</u>	3	3	normal operation.			RMS	
1.0			Keep condenser coil face clean to			,	
18	3	3	permit proper air flow.	ļ		l RMS	

Note 1. Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the Minnesota Energy Agency before the "Date of Implementation" has been completed.

W. W. TROOM

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

				OPTIONAL:	OPTIONAL	•
ITEM NO	CLASSIF NO MAJOR CLASS	SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	CLASS	CLASS	Inspect ductwork for air leakage.			
19	3	3	Seal all leaks by taping or caulking		1	RMS
13	+	3	Inspect damper blades and linkages,			
20	3	3	Clean, oil and adjust.			RMS .
_20	+ -3	J	Clean or	<u> </u>		1010
21	3	3	replace filters periodically.			RMS
21	<del>                                     </del>	3	Instruct occupants and maintenance			MIS
22	4	1	personnel to switch off all lights			
	+ +	1	when they are not needed.			
			when they are not needed.			
	+		Clean fixtures	1		
22	Α	2				
23	4	3	and lamps regularly.	<b></b>	<u> </u>	
0.4	1	,	Use lower wattage lamps to provide			October, 1979
24	4	4	the necessary illumination.		<b></b>	Occober, 1979
0.5	١ ,		Allow part of a lighting system			·
25	4	4	to be turned off, while maintaining	ļ	<b></b>	
			the necessary light.			
			Keep records of the operating			
_26	5	1	schedule, monthly energy consumption		<u> </u>	August, 1979
			and purchase of any new equipment			
			that affects energy consumption	<u> </u>		
			of efficiency of the building. Thes	;e		
			records will indicate the impact			
			of energy conservation measures.			
			Review			1070
_27	5	1	the record books on a regular basis		<b></b>	August, 1979
			All electric heating equipment	l		If
28	6	2	should be checked for corroded	ļ	<b></b>	
			elements and loose connections and			
	<del></del>	<b>ļ.</b>	repaired as required.	ļ	<b></b>	<u> </u>
	_	_	Clean air-sides, remove soot, and			
_29	<del></del>	3	scrape scale in forced warm air			RMS
			furnaces.			
			If the firing rate of gas or oil			
30	7	3	burners is too high, it causes	<u> </u>		RMS
			short cycling and excessive fule			
		1	consumption. Too low a rate requir	es		
			constant operating and delivers			
			inadequate heat to the spaces.			
-			Maintain the lowest possible hot			- 7
31	7	4	water temperature which will meet			July, 1979
			domestic hot water needs.			
	+	<del>                                     </del>	Turn off gas pilots for furnaces,	<del> </del>		
_ 32	7	4	boilers, and space heaters during	1		RMS
			the non-heating months and during			
		1	long unoccupied periods.		l	

A	BUILDING NAME Historical Museum		NAME OF ORGANIZATION City of Bloomington	5-23-80
	BUILDING ADDRESS 10200 Penn Avenue South		ADDRESS 2215 West Old Shakopee Dri	ve
ACT	CITY Bloomington, MN	ZIP CODE 55431	CITY Bloomington, MN	ZIP CODE 55431
CONT.	PERSON COMPLETING FORM Randy Smith (	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen	TELEPHONE 612) 881-5811

В		istructions: For blocks 1 and 2 escribes the building type and							our categories
	1.	OWNERSHIP TYPE		3a.	SCHOOLS		C.	LOCAL GOVERNMENT	
		XXX Public (F	PUB)		☐ Elementary	(SCHL-ELM)		☐Office	(LOCG-OFFC)
		□Non-Profit Association (NAP)			☐ Secondary	(SCHL-SECD)		□Storage	(LOCG-STRG)
			' '		□Coll. or Univ.	(SCHL-POST)		☐Service	(LOCG-SERV)
				1	□ Vocational	(SCHL-VOCL)		Library	(LOCG-LBRY)
	2.	ULTIMATE OWNER			☐Education Agency	(SCHL-ADMN)		Police	(LOCG-PLCE)
w		County	(CNTY)	1	☐ Administration	(SCHL-ADMN)		,, <b>只</b> Fire	(LOCG-FIRE)
CODE		Χ⊠City	(CITY)		DOTHER	(SCHL-OTHR)		XXIOTHER	(LOCG-OTHR)
		☐Township ☐State	(TOWN) (STAT)	b.	PUBLIC CARE □Nursing Home	(PBCR-NURS)	d.	HOSPITALS	
BUILDING		□Public School	(PUSC)	1	DLong Term Care	(PBCR-TERM)		□General	(HOSP-GENL)
2 = 1		□Private School	(PRSC)	i	☐Rehab. Facility	(PBCR-RHAB)		☐Tuberculosis	(HOSP-TUBR)
35		□Non-Profit Association	(NPAP)	1	Public Health Ctr.	(PBCR-HCTR)		DOTHER	(HOSP-OTHR)
55		□Indian Tribe	(INDN)		DRes. Child Care Ctr.	(PBCR-RCCC)			
<b>60 W</b>				1	unes. Child Care Ctr.	(FBCH-NCCC)			
				-					
		estructions: With reference to a	00		- 1 - 4 4 4 - 4 - 4 - 4	id Abra da alliai an an			

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization.
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? 几乎 Yes XX No Have you previously applied for mini-audit funding? 汉文 Ses □ No Do you wish to apply for mini-audit funding? □ Yes XX No
	Date:
	Name:
,	Signature:
·	If eligible for Federal funding only. Have you received a mini-audit grant before?   Yes No Have you previously applied for mini-audit funding?  Yes No Do you wish to apply for mini-audit funding?  Yes No The 50% match for Federal funds will come from: (Use additional sheets if necessary.)
	1
	1
ST	
OUE	Date
TIOI G RE	Name
MINI-AUDIT	Signature:
30	Signature.

D	Check the type of energy report which was completed and submitted p	prior to this mini-audit report.						
REPORT	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)  XX Existing Building Energy Report (Form No. EN-00041-01)	,						
ENERGY REPORT		report, one must be included with this report. Elementary, secondary, and lepending on building complexity. All other buildings should use the existing						
T								
		d professional engineer or by a certified mini-auditor who has successfully section should be completed after this mini-audit report and an energy report						
	I have reviewed the energy report and/or the energy report results for the corrected any misinformation on the energy report which will be result	is building. I found all information contained therein to be correct <i>OR</i> I have smitted with this mini-audit report to the Minnesota Energy Agency.						
	I am not directly responsible for the day to day operations of this build	ding being audited.						
	I have fully disclosed my financial interests relating to this mini-audit a	and any energy conservation measures considered by this audit						
	I have walked through this building and have found the recommenda maintenance changes, and low cost energy conservation measures, wi	tions listed in section I of this mini-audit report to be the operations and hich would reduce energy consumption in this building.						
	I have made a rough estimate, in section G, of the range of savings white listed in section I. I am not responsible if the actual savings resulting f	ch may result from the implementation of all of the mini-audit opportunities rom this mini-audit do not fall within the estimated range.						
	Based on actual records, the energy conservation operating and mainted 20% of the building's energy consumption as specified in section I.	enance procedures listed in section K <u>did not</u> save at least (did, did not)						
	(should, should not)	ding and the building's major energy using systems, I recommend that this						
	I realize that this is not a final judgement, that the State reserves the right to make the maxi-audit funding determination based on this mini-audit report and other criteria.							
	Based upon the information in section E and the information referred to in section F, I recommend that this building  Should not (should, should not)							
	undergo further solar conversion analysis, and/or Should not undergo further analysis of the renewable resources — waste, wind, wood. (Circle proper resources) (should, should not)							
	In my judgement, as a mini-auditor, all of the above statements are true	· ·						
	,, ,							
		Witnessed by:						
	Dondy, Cuith							
	Randy Smith Mini-Jouditor's Name (Print or Type)	Building Organizational Authority (Print or Type)						
	Signature 206	Signature						
	Rieke Carroll Muller Assoc Inc.							
	Firm Name (if none, enter none)	Date						
	P.O. Box 130 Hopkins MN 55343 Address							
	(612) 935-6901 Phone							
	5-23-80							
	Date							
1 771								
AENT								
MINI-AUDIT STATEMENTS								

F	NAME	POSITION	ORGANIZATION	
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller	Assoc., Inc
	Reinert Ege	Maintenance Engineer	City of Bloomington	
<b>L</b> _				
TEAM		Prilitari vilitari il 1900 il monto di Armonia di Ambolia di Ambolia di Ambolia di Ambolia di Ambolia di Ambolia		
G	BRIEF DESCRIPTION OF GI	ENERAL BUILDING CONDITION (i.e. type, and fu	inction)	CONTRACTOR OF THE PROPERTY OF
Z		D WITHIN NEXT 15 YEARS (i.e. demolition, rehal	pilitation, conversion from one building type	to another)
BUILDING	Wooden Rafter:		oncrete)	
BUIL INFO	Tar and Grave			
Н	INSTRUCTIONS: Correctly a	inswer the following questions for the building be	ing mini-audited.	
•	Is there open land adjacent t ☐ Yes ※※ No	o the building?		focus accessors with the second secon
	3 p.m.?  Roof: □XX es □ No South facing Wall: □ Yet	shaded, what percentage of the surface is unshad	·	the hours of 9 a m. and
	% of roof unshaded % of south facing wall uns What is the overall shape of	the building?		
	Is the roof of the building fla	☐ H-shaped ☐ E-shaped ☐ other (specify) _ t or pitched?		
	,	ass orientation of the ridgeline? North - 9	South	
		that the roof makes with horizontal?70		
		on the roof such as chimneys, rooms for mechan		ers, etc?
	What is the exterior facing m	naterial for the south facing wall?	)	,
	What percentage of the sout	h facing wall is glass?%		
	Is the building's space heatin XXX Yes □ No	ng equipment located within or en the building? (	A no answer indicates the equipment is in a	separate building)
	If the space heating equipmed ☐ Ground Floor X 🛱 Base	ent is inside the building, where is it located? ement   Roof  Other (specify)		
SNTIAL	Is the building's water heating XX Yes No	ng equipment located within the building? (A no a	nswer indicates the equipment is in a separ	ate building.)
SOLAR POTENTIAL	If the water heating equipme Ground Floor XXBas	ent is inside the building, where is it located? ement   Other (specify)		
SOLA	Is the water heating system  XX Central  Multiple	a central system, does it consist of multiple units,	or is it a combination of the central and m	ultiple units?

L				BASE F	ERIOD YEA	AR		,	Fiscal	Year	
	ENERGY TYPE		ENERGY	USAGE	c	CONVERSION	FAC	ROT		BTU	JSAGE
	Electricity										
	Fuel 1										
	Fuel 2				,						,
	TOTAL										
			and the second second second second second second second second second second second second second second seco	20% SA	VINGS YEAR	P			Fiscal	Year	
	ENERGY TYPE		ENERGY	USAGE	C	CONVERSION	FAC	CTOR		BTU	USAGE
	Electricity					The state of the s					
	Fuel 1										
	Fuel 2		garan menendikanggan menendaranggan api teruma men					et e de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della c			
	TOTAL										
_	Instructions: This section is to b	ue complete	ed by the mir	ni-auditor after t	he walk-thru	, nortion of the	a mini	i-audit First	checkth	e appropri	iate boxes which
_	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportu percentages by the annual elec	ge of the pe nities liste	ercent of total	l electrical and f L. Secondly, c	uel consump alculate the	ption which we range of end	ould t	be saved res	ulting from	m the imple	ementation of a
	state the roughly estimated rang of the new mini-audit opportu	ge of the pe nities liste ctrical and gory —	ercent of total d in section fuel consum	l electrical and f L. Secondly, c aption data on	uel consump alculate the	ption which we range of end	ould t	be saved res	ulting from	m the imple	ementation of a
	state the roughly estimated rang of the new mini-audit opportu percentages by the annual elec	ge of the pe nities liste ctrical and gory —	ercent of total d in section fuel consum	l electrical and f L. Secondly, c aption data on t	uel consump alculate the the energy r	ption which we range of end report.	ould t	be saved res	ulting from	m the imple	ementation of a
_	state the roughly estimated rang of the new mini-audit opportu percentages by the annual elec Check two boxes in each category	ge of the pe nities liste ctrical and gory —	ercent of total d in section fuel consum	l electrical and f L. Secondly, c aption data on	uel consump alculate the the energy r	ption which we range of end report.	ould t	be saved res and cost sa	ulting from	m the implemultiplyin	ementation of a
-	state the roughly estimated rang of the new mini-audit opportu percentages by the annual elec Check two boxes in each categ Range of Electrical Savings —	ge of the penities liste ctrical and gory —  図》  図 0%	ACA 5%	l electrical and f L. Secondly, c aption data on 10%	uel consump alculate the the energy r	ption which we range of end report.	ould t	be saved resigned and cost sa	ulting from	m the implemultiplyin	ementation of a
	state the roughly estimated rang of the new mini-audit opportung percentages by the annual electrical two boxes in each category.  Range of Electrical Savings —  Range of Fuel Savings —	ge of the penities liste ctrical and gory — 以為% □ 0% □ cost savie	ercent of total d in section fuel consum  XX 5%  XX 5%	lelectrical and f L. Secondly, c aption data on  10%  10%  Range of	uel consump alculate the the energy r 15% 15%	ption which we range of end report.	ould t	De saved resi and cost sa	ulting from	m the implemultiplying a constant of the implementation of the imp	ementation of a
	state the roughly estimated rang of the new mini-audit opportung percentages by the annual electrical two boxes in each category.  Range of Electrical Savings —  Range of Fuel Savings —	ge of the penities liste ctrical and gory — 以及% □ 0% □ cost savid	ACA 5%	lelectrical and f L. Secondly, c aption data on t 10% \( \)\( \)\( \)\( \)\( \)\( \)\( \)	uel consump alculate the the energy r	ption which we range of end report.	ould t	be saved resigned and cost sa	othe	m the implemultiplying ar (specify specify Rar	ementation of a
	state the roughly estimated rang of the new mini-audit opportu percentages by the annual elec Check two boxes in each categ Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and	ge of the penities liste ctrical and gory — \$\infty\$ 0% d cost savid Cons	orcent of total d in section fuel consum  XX 5%  XX 5%  I Electrical sumption	lelectrical and f L. Secondly, c aption data on t 10% \( \)\( \)\( \)\( \)\( \)\( \)\( \)	uel consump alculate the the energy r 15% 15% Electrical Sa of Energy rings	ption which we range of end report.	ould t	De saved resigned cost sa	othe	m the implemultiplying ar (specify specify Rar	ementation of a g the estimate
	state the roughly estimated rang of the new mini-audit opportu percentages by the annual electrical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and which is a second saving and savi	ge of the penities liste ctrical and gory — \$\infty\$ 0% d cost savid Cons	xXX 5% XXX 5% XXX 5% I Electrical sumption	Range of Sau	uel consump alculate the the energy r 15% 15% Electrical Sa of Energy rings kwh, _	ption which we range of end report.	a v	Desaved researed cost said	other other of the control of the co	n the implemultiplyin  or (specify  Rar  D	ementation of a g the estimate  a)  nge of Electric ollars Savings  to
	state the roughly estimated rang of the new mini-audit opportune percentages by the annual electron check two boxes in each categoral Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and Range  We Range  lower bound — 0 % x	ge of the penities liste ctrical and gory — 以及。 □ 0% □ cost savid	ACT 5%  XCT 5%  XCT 5%  ACT 5%  I Electrical sumption	lelectrical and f L. Secondly, c aption data on t  10%  10%  Range of Range of San  1011	uel consump alculate the the energy r 15% 15% Electrical Sa of Energy rings ) kwh, _	ption which we range of end report.	ould t	Desaved resigned and cost said cost	other other of the control of the co	m the implemultiplying ar (specify ar (specify Rar D	ementation of a g the estimate  t)  nge of Electrica ollars Savings
	state the roughly estimated rang of the new mini-audit opportu percentages by the annual electrical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and which is a second saving and savi	ge of the penities liste ctrical and gory — MX%  Good own of the cost savidation of the cos	ACC 5%  XC 5%  XC 5%  XC 5%  I Electrical sumption  234 kwh	Range of Range	uel consump alculate the the energy r 15% 15% Electrical Sa of Energy rings ) kwh, to 1.7 kwh,	ption which we range of end report.	a v	Desaved resigned and cost said cost	other other of the other of the other othe	nthe implemultiplying repectify represented as a second representation of the second representation of	ementation of a g the estimate of the estimate
	state the roughly estimated rang of the new mini-audit opportu percentages by the annual electrical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and which is a second saving and savi	ge of the penities liste ctrical and gory — (A) % % (B) % (B	ACM 5%  XCM 5%  XCM 5%  XCM 5%  I Electrical sumption 234 kwh	Range of  Range of  Range of  Range Range  Range Range	uel consumpalculate the she energy rule 15%  15%  15%  Electrical Saprings  kwh, to  7 kwh, of Fuel Sav	ption which we range of end report.	a v	Desaved resigned cost said	other other of the other of the other othe	n the implemultiplyin  or (specify  Rar  D  =   (	ementation of a g the estimate of the estimate
	state the roughly estimated rang of the new mini-audit opportune percentages by the annual electrical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and which is a second saving of the saving o	ge of the penities liste ctrical and gory — 以為% □ 0% □ 0% □ cost savid	ACM 5%  XCM 5%  XCM 5%  XCM 5%  I Electrical sumption 234 kwh	Range of Range	uel consumpalculate the she energy rule 15%  15%  15%  Electrical Saprings  kwh, to  7 kwh, of Fuel Sav	ption which we range of end report.  20% 20% 20% 4 20% 4 to 5 %	a v	Desaved resigned cost said	other other of the other of the other othe	n the implemultiplyin  or (specify  Rar  D  =   (	ementation of a g the estimate of the estimate
	state the roughly estimated rang of the new mini-audit opportune percentages by the annual electron category and the state of the state	ge of the penities liste ctrical and gory — (A) % % (B) % (B	xXX 5%  XXX 5%  XXX 5%  I Electrical sumption 234 kwh  and Fuel sumption 5x 10 Btu	Range of  Range of  Range of  Range Range  Range Range	uel consumpalculate the she energy rule 15%  15%  15%  Electrical Sale of Energy rings  kwh, to of Fuel Sav e of Fuel Sav to Bull brings  105  Btu, to to  Btu, to	ption which we range of end report.  20% 20% 20% 4 20% 4 to 5 % 4 rings 4 Range	x	Desaved resigned cost said	other other of the other of the other othe	n the implemultiplyin  or (specify  Rar  D  =   (	ementation of a g the estimate and the e

K

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification number. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

	-			OPTIONAL:	OPTIONAL:	
ITEM NO.	CLASSIF N MAJOR CLASS	SUB CLASS	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
1	2	1	Added insulation in attic spaces.			Fall 1979
2	3	3	Chemical compound used in boiler.		. 3	Fall, 1979
3_	3	1	Thermostats set per fed. reg.			May, 1979
4	6	2	Hot water heater set at 105 <sup>0</sup> .			June, 1979
	<b> </b>					
						-
			,			
	-					-

NEW
OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20			Ton or the mini-addit report should be completed by the mini-addit	OPTIONAL:		
ITEM	CLASSIF No	0.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
1	1	1	Keep all controls free of dust.		!	RMS
			Keep all doors between unheated			17.10
2	2	2	corridors and heated spaces closed.			,
			Caulk all cracks that allow air	200		
3	2	8	and moisture into the building.			,
		<del>                                     </del>	Inspect window closing and locking			
4	2	10	devices to insure a tight window.			
······································	<del>                                     </del>		Check operation of entire heating/			
5	3	1 1	cooling control system, including			RMS.
			control valves and dampers.			ININ
	1	<b>†</b>	Check the calibration of all			
6	3	1 1	controllers and devices for proper			RMS
			settings and operations.			
			Reduce the hours of occupancy to			
7	3	1	the greatest extent possible			
			during periods of severely cold			
			weather.		ĺ	
			Raise the supply air temperature			
8	3	1	for cooling to the highest point			May, 1979
			necessary to provide minimum			
			required cooling.			
			Lower the hot water temperature			
9	3	1	for heating to the lowest point		l	October, 1979
			necessary to provide minimum			
,			required heating.	1		
			65°F maximum occupied, 60°F maxi-			
10	3	1	mum unoccupied during the heating			October, 1979
			season.			
			78 <sup>0</sup> F minimum when occupied and			
_11	3	1_1	no cooling when unoccupied during			May, 1979
			the cooling season.			
		<u> </u>	•	ļ	<b></b>	
4.0		.	Provide atmospheric cooling			
12	3	<u> </u>	as long as possible.			RMS
10			Keep radiators free from blockage.			
13	3	2	a one foot clearance in front of			
			convectors, radiators, or registers	3	1	
		<b></b>	is desirable. Heating systems,		-	
			particularly hot water of electric			
		+	baseboard radiators and low level	-	<u> </u>	<del> </del>
			warm air supply registers, work			
		<del> </del>	more efficiently if they are not	<del> </del>	<del> </del>	
			blocked by furniture. Keep all			
		<del></del>	books or other impediments from	<del> </del>	<del> </del>	
			blocking heat or air delivery from			
			the top of horizontal shelves or		1	

NEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on tiellist may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

OPTIONAL: OPTIONAL CLASSIFICATION **ENERGY ENERGY** ITEM NO DATE OF IMPLEMENTATION **NEW MINI-AUDIT OPPORTUNITIES** COST MAJOR SAVINGS SUB SAVINGS CLASS CLASS cabinets which enclose radiators, fan coils, unit ventilators or induction units. Vent all hot water radiators and RMS 14 3 2 convectors to assure that water will completely fill the interior passages. Clean and remove obstructions from 15 3 all room air outlets and inlets (diffusers, registers and grillers). They should be kept clean and free of all dirt and foreign materials. Inspect fans for 16 3 RMS 3 normal operation. Keep condenser coil face clean 17 3 3 **RMS** to permit proper air flow. Inspect ductwork for air leakage. 18 3 Seal all leaks by taping or caulking Inspect damper blades and linkages. 19 Clean, oil and adjust. Take special note of fresh air 20 3 dampers making sure that they close tightly and be sure to repair, replace or provide blade edge gaskets and gasketing at the end of blades. Clean or replace filters 21 3 3 RMS periodically. Instruct occupants and maintenance 22 personnel to switch off all lights when they are not needed. Clean fixtures 23 4 and lamps regularly. Use lower wattage lamps to provide 24 the necessary illumination. Allow part of a lighting system to be turned off, while maintaining 25 4 the necessary light. Keep records of the operating August, 1979 26 schedule, monthly energy consumption and purchase of any new equipment that affects energy consumption of efficiency of the building. These records will indicate the impact of energy conservation measures.

IEW PPORTUNITIES Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

Zō	implemente	d. This sec	tion of the mini-audit report should be completed by the mini-audit	team during OPTIONAL:		
ITEM		0.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR	SUB CLASS		SAVINGS	SAVINGS	
			Review the record	<del></del>		
27	5	1	books on a regular basis.			August, 1979
00			All electric heating equipment should			
28	6	2	be checked for corroded elements	· · · · · · · · · · · · · · · · · · ·		
			and loose connections and repaired			
			as required.			
29	7	3	If the firing rate of gas or oil			RMS
29	<del></del>	3	burners is too high, it causes short cycling and excessive fuel	<u> </u>	<b></b>	1415
			consumption. Too low a rate requires			
		<u> </u>	constant operating and delivers			
			inadequate heat to the spaces. If			
			the boiler is oversized, adjust the			
			firing rate to the building load,			
			not the boiler.			
			Schedule boiler blowdown on an as-			
30		4	needed basis rather than on a fixed	<u> </u>		RMS
			timetable. Smaller, more frequent			
			blowdown is preferable to larger,	<u> </u>		
			less frequent blowdown.			
			Maintain the lowest possible hot			1.070
31	1_7_	4	water temperature which will meet	<del> </del>	<del> </del>	June, 1979
			space or domestic hot water needs.			
			If there are no indoor-outdoor mod-			
32		4	ulating controls, raise or lower		<del> </del>	
			the operating temperature of hot			
		<del> </del>	water systems to conform to outdoor	-	<del> </del>	<del> </del>
			conditions. For example, operate			
		1	a boiler at 120°F with outdoor temperature at 60°F, and raise the		<del> </del>	,
		1	level to $160^{\circ}$ F when it is $20^{\circ}$ F outdo	ors.		
			level to 160°F when it is 20°F outdo Maintain water level or pressure to			
33	7	4	radiators or coils on the highest			RMS
			level of the building.			
	_	<b>.</b>	Turn off gas pilots for furnaces,		<b>†</b>	DMC
34	7	4	boilers, and space heaters during			RMS
			the non-heating months and during			
		+	long unoccupied periods.	<del>                                     </del>	<del>                                     </del>	
		-				

## **MINI-AUDIT REPORT**

A	BUILDING NAME Fire Station #1		NAME OF ORGANIZATION City of Bloomington	5-17-80
	BUILDING ADDRESS 600 West 95th Street		ADDRESS 2215 West Old Shakopee R	oad
ACT	CITY Bloomington, MN	ZIP CODE 55420	CITY Bloomington, MN	ZIP CODE 55431
CONTACT DATA	PERSON COMPLETING FORM	TELEPHONE 512) 935-6901	CONTACT PERSON Arthur Jensen (	TELEPHONE 512) 881-5811

1.	OWNERSHIP TYPE	3a.	SCHOOLS		C.	LOCAL GOVERNMENT	
	XPublic (PUB)	1	☐Elementary ☐Secondary ☐Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	<b>U</b> .	□Office □Storage □Service	(LOCG-OF
2.	<b>XP</b> City (c	NTY)	□Vocational □Education Agency □Administratien □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police XBFire □OTHER	(LOCG-LBI (LOCG-PLO (LOCG-FIR (LOCG-OT
	☐ State (S'☐ Public School (Pl☐ Private School (Pl☐ Non-Profit Association (N	OWN) TAT) USC) RSC) IPAP) NDN)	PUBLIC CARE  Nursing Home  Long Term Care  Rehab. Facility  Public Health Ctr.  Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS □General □Tuberculosis □OTHER	(HOSP-GEI (HOSP-TUI (HOSP-OTI

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding	
	just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organizat	on.
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? `JYesXMNo Have you previously applied for mini-audit funding? ХД Уеѕ □ No Do you wish to apply for mini-audit funding? □ Yes XД No	
	Date:	
	Name:	
	Signature:	
	If eligible for Federal funding only: Have you received a mini-audit grant before?  Yes No Have you previously applied for mini-audit funding?  Yes No Do you wish to apply for mini-audit funding?  Yes No	
	The 50% match for Federal funds will come from: (Use additional sheets if necessary.)	
_		
DUES	Date	
MINI-AUDIT FUNDING REQUEST		
NIGP	Name.	
2 T	Signature:	

EPORT X	Check the type of energy report which was completed and submitted pr	ior to this mini-audit report.
	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02) ∰ Existing Building Energy Report (Form No. EN-00041-01)	
RGY RI	If an energy report has not been completed previous to this mini-audit r	eport, one must be included with this report. Elementary, secondary, and pending on building complexity. All other buildings should use the existing
c	nstructions: This section is to be completed and signed by a registered completed the State of Minnesota's Mini-Audit Procedures Course. This again completed. All blanks must be filled in.	professional engineer or by a certified mini-auditor who has successfully action should be completed after this mini-audit report and an energy report
l c	have reviewed the energy report and/or the energy report results for this corrected any misinformation on the energy report which will be resubr	s building. I found all information contained therein to be correct <i>OR</i> I have nitted with this mini-audit report to the Minnesota Energy Agency.
1	am not directly responsible for the day to day operations of this buildi	ng being audited.
[	have fully disclosed my financial interests relating to this mini-audit at	· · · · · ·
l l	I have walked through this building and have found the recommendati maintenance changes, and low cost energy conservation measures, wh	ons listed in section I of this mini-audit report to be the operations and ich would reduce energy consumption in this building.
	I have made a rough estimate, in section G, of the range of savings whic listed in section I. I am not responsible if the actual savings resulting fr	
E	Based on actual records, the energy conservation operating and mainter 20% of the building's energy consumption as specified in section I.	nance procedures listed in section K did not save at least (did, did not)
-	Should not be the subject of a maxi-audit. (should, should not)	ing and the building's major energy using systems, I recommend that this o make the maxi-audit funding determination based on this mini-audit report
6	and other criteria.	
(	Based upon the information in section E and the information referred to it	n section F, I recommend that this building Should not (should, should not)
	undergo further solar conversion analysis, and/or Should nowind, wood. (Circle proper resources) (should, should	(should, should not)  undergo further analysis of the renewable resources — waste. not)
1 1	In my judgement, as a mini-auditor, all of the above statements are tru	
		Witnessed by:
	D 1 6 111	· ·
	Randy Smith Mini-Applitor's Name (Print or Type)	
1 1	(.) a. X (A	Building Organizational Authority (Print or Type)
	Kandy Sut 206	· .
	Signature	Building Organizational Authority (Print or Type) Signature
	Rieke Carroll Muller Assoc. Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343 Address	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343 Address  (612) 935-6901 Phone	Signature
	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343 Address  (612) 935-6901	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343 Address  (612) 935-6901 Phone  5-17-80	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343 Address  (612) 935-6901 Phone  5-17-80	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343 Address  (612) 935-6901 Phone  5-17-80	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343 Address  (612) 935-6901 Phone  5-17-80	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343 Address  (612) 935-6901 Phone  5-17-80	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343 Address  (612) 935-6901 Phone  5-17-80	Signature

	<b>-</b>		
F	NAME	POSITION	ORGANIZATION
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Foreman	City of Bloomington
AUDIT			
			en de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della com
G		ENERAL BUILDING CONDITION (i.e. type, and and storage of fire vehicle	
7			habilitation, conversion from one building type to another)
BUILDING INFORMATION	STRUCTURAL COMPONEN	TS OF ROOF (i.e. metal beams, wooden rafters	, concrete)
ORM	Metal Trusses ROOFING MATERIAL (i.e. ti	ar and gravel, shingles, tile)	
28	Tar and Grave		
H	INSTRUCTIONS: Correctly	answer the following questions for the building	being mini-audited.
	Is there open land adjacent ☐ Yes XX No	to the building?	
	Solar collectors need to be lo 3 p.m.? Roof: XXYes Dyo South facing Wall: X& Ye		ling and the south facing wall unshaded between the hours of 9 a.m. and
	If the roof or wall are partly % of roof unshaded % of south facing wall uns	shaded, what percentage of the surface is unsh	naded?
	What is the overall shape of X  square □ rectangle	the building? ☐ H-shaped ☐ E-shaped ☐ other (specify	)
	Is the roof of the building fla	at or pitched?	
		ass orientation of the ridgeline?	
	If pitched, what is the angle	that the roof makes with horizontal?	•
	Are there large obstructions XXV Yes □ No	on the roof such as chimneys, rooms for mech	nanical equipment, ventilating units, water towers, etc?
	What is the exterior facing i	material for the south facing wall?	Face brick
	What percentage of the sou	th facing wall is glass?	
	Is the building's space heati	ing equipment located within or on the building	? (A no answer indicates the equipment is in a separate building.)
	If the space heating equipm  Ground Floor XX Bas	nent is inside the building, where is it located? sement XX Roof	
NTIAL			o answer indicates the equipment is in a separate building.)
SOLAR POTENTIAL	If the water heating equipm XX Ground Floor □ Bas	ent is inside the building, where is it located? sement   Other (specify)	
SOLAF	Is the water heating system XX Central □ Multiple	a central system, does it consist of multiple un Combination	its, or is it a combination of the central and multiple units?

			,	BASE P	ERIOD YEA	R	× .	Fiscal Y	ear	
	ENERGY TYPE	E	NERGY US	AGE	С	ONVERSION	FACTOR		BTU US	AGE
	Electricity						aggarinamente d'Austrian en antique material e 1994 y			
	Fuel 1									
	Fuel 2						ing and a site of the site of			
	TOTAL									
				20% SAV	INGS YEAR	1		Fiscal	rear	
	ENERGY TYPE	E	NERGY US	AGE	С	ONVERSION	FACTOR		вти и	SAGE
	Electricity									
	Fuel 1					and a letter age to the letter and an entire term and an entire term and an entire term and an entire term and	**************************************			
	Fuel 2									
-	TOTAL							1		
_										·
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electr	of the percenties listed in sical and fuel	t of total election L. S	ctrical and fu secondly, ca	iel consump alculate the	tion which wor range of ener	uid be saved re	sulting from	the impler	nentation of all
	state the roughly estimated range of the new mini-audit opportuni percentages by the annual electr Check two boxes in each categor	of the percenties listed in ities and fuel rical and fuel	t of total election L. Sconsumptio	ctrical and fu secondly, ca in data on the	uel consump alculate the he energy re	tion which wor range of ener aport.	uld be saved regy and cost s	esulting from savings by m	the impler nultiplying	nentation of all the estimated
	state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each category Range of Electrical Savings	of the percenties listed in size and fuel ry —	t of total election L. Sconsumptio	etrical and fusion data on the	uel consump alculate the he energy re	tion which wor range of ener aport.	uid be saved regy and cost :	esulting from savings by m	the impler nultiplying (specify)	nentation of all the estimated
	state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each category Range of Electrical Savings	of the percenties listed in rical and fuel ry —	t of total election L. Sconsumptio	ctrical and fu secondly, ca in data on the	uel consump alculate the he energy re	tion which wor range of ener aport.	uld be saved regy and cost s	esulting from savings by m	the impler nultiplying (specify)	nentation of all the estimated
	state the roughly estimated range of the new mini-audit opportuni percentages by the annual electricheck two boxes in each categor Range of Electrical Savings — Range of Fuel Savings —	of the percenties listed in rical and fuel ry —	t of total election L. Sconsumptio	ctrical and fusion data on the state of the	uel consump alculate the he energy re	tion which wor range of ener aport.  20% 20%	uid be saved regy and cost :	esulting from savings by m	the impler nultiplying (specify)	nentation of all the estimated
	state the roughly estimated range of the new mini-audit opportuni percentages by the annual electricheck two boxes in each categor Range of Electrical Savings — Range of Fuel Savings —	of the percenties listed in rical and fuel ry —	t of total election L. Sconsumptio	Tange of E	uel consump alculate the he energy re 15% 15%	tion which worrange of energeport.  20% 20% vings	□ 25% □ 25% Annual E	esulting from savings by m	the implemental the implementa	nentation of all the estimated
	state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and co	of the percenties listed in rical and fuel ry —  (X 0% X)  0% X  cost savings -  Annual Electronsump	X5%  Strical	Pange of E  Range of E  Range of E	lel consump alculate the the energy re 15% 15%	vings  Range  to	□ 25% □ 25% □ 25%  Annual E	esulting from savings by m  other  other	(specify) (specify)  Rang Dol  **The control of the	nentation of all the estimated
	state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each categor Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and compared to the same of the savings and compared to the same of the same o	cofthe percenties listed in inical and fuel ry — (X 0% X)  cost savings — Annual Electronsump 87120	t of total election L. Sconsumption  5.45%  5.45%  ctrical tion  kwh =	Range of E Range of E 4356	el consump alculate the he energy re 15% 15% Electrical Sa f Energy ings kwh,	vings  % Range  to  5  % **  **  **  **  **  **  **  **  **	uld be saved regy and cost s  □ 25% □ 25%  Annual E Dollars x \$ 318	osulting from savings by many other other other spent spent strain of the savings	(specify) (specify)  Rang Dol  **The control of the	nentation of all the estimated estim
	state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each categor Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and compared to the same of the savings of the same of the savings of the same of the savings of the savi	cofthe percenties listed in inical and fuel ry — (X 0% X)  cost savings — Annual Electronsump 87120	toftotal election L. Sconsumption  X5%  Ctrical tion  kwh =  kwh =	Range of Range Range	el consump alculate the he energy re 15% 15% 15% Electrical Sa f Energy ings kwh, o kwh, of Fuel Savi	vings  % Range  to  5  % **  **  **  **  **  **  **  **  **	uld be saved regy and cost s  □ 25% □ 25% □ 25%  Annual E Dollars x \$ 318  Annu Dollars	osulting from savings by many other other other spent spent strain of the savings	the implemental the implementa	nentation of all the estimated estim

Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have

already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

	CLASSIF	ICATION IO.			OPTIONAL: ENERGY	
NO.	MAJOR CLASS	SUB CLASS	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
1	3	1	Reduced outside air to minimum			
			during heating season.			October, 1979
2	3	1	Maximize outside air for summer cool	ing.		July, 1979
and the same of the same of						
			·			
		1				

NEW
OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

OPTIONAL: OPTIONAL CLASSIFICATION **ENERGY** ITEM NO **NEW MINI-AUDIT OPPORTUNITIES ENERGY** DATE OF IMPLEMENTATION COST MAJOR NO SUB SAVINGS SAVINGS CLASS CLASS 1 1 1 Keep all controls free of dust. Check the amount of insulation in 2 1 1 the ceiling. Add insulation above suspended 3 2 1 ceilings if needed. Weatherstrip all exterior doors 4 2 2 including garage doors. Inspect the roof and seal all cracks 5 2 6 that allow outdoor air and water to enter. Insulate walls with rigid insula-2 6 tion on inside surfaces. Inspect window closing and locking 7 2 10 devices to insure a tight window. Repair broken or cracked windows. 2 8 10 Replace with standard or tempered glass of proper thickness, according to building code requirements. Replace single glazed windows with 9 10 double glazed thermopanes. Replace some windows with insula-2 10 11 tion wall panels. Replace some skylights with insula-11 11 ting ceiling or roof materials. Check operation of entire heating/ 12 3 cooling control system, including control valves and dampers. Check the calibration of all con-13 3 1 trollers and devices for proper settings and operations. When buildings are used after hours 14 3 1 for meetings, conferences, cleaning or scattered activities, reduce the number of spaces occupied and, to the extent possible, consolidate them in the same section of the building. Reduce the temperature in all other parts of the building. Raise the supply air temperature 15 3 for cooling to the highest point necessary to provide minimum required cooling. Lower the supply air temperature 16 3 for heating to the lowest point necessary to provide minimum required heating.

VEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As yo go alor is record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

**OPTIONAL: OPTIONAL** CLASSIFICATION **ENERGY** ITEM **ENERGY** COST DATE OF IMPLEMENTATION **NEW MINI-AUDIT OPPORTUNITIES** MAJOR SAVINGS CLASS CLASS Consider regulating the fresh air 17 3 1 dampers with enthalpy control so that the building can be cooled with outdoor air when this saves energy. 65°F maximum occupied, 60°F maximum unoccupied during the heating season 18 78°F minimum when occupied and no 19 3 cooling when unoccupied during the cooling season. Clean and remove obstructions from 20 all room air outlets and inlets (diffusers, registers and grillers). They should be kept clean and free of all dirt and foreign materials. Inspect and lubricate bearings 3 21 3 of fan motors. Inpsect drive belts. Adjust or re-22 3 3 place as necessary to ensure proper operation. Inspect fans 23 3 3 for normal operation. **RMS** Keep condenser coil face clean 24 to permit proper air flow. 3 3 **RMS** Inspect ductwork for air leakage. 25 3 3 Seal all leaks by taping or caulking Inspect damper blades and linkages. 26 3 Clean, oil and adjust. RMS Take special note of fresh air 27 3 dampers making sure that they close tightly and be sure to repair. replace or provide blade edge gaskets and gasketing at the end of Check belt tension and alignment RMS 28 3 3 on the air compressor. Inspect air compressor intake 29 3 3 filter pads and clean or replace as necessary. Check the compressor's 30 3 oil level. Periodically drain the 31 3 moisture from storage tank. Clean evaporator and condenser **RMS** 32 coils of air conditioning units. Keep air intake louvers, filters and controls clear of air cond. units.

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Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

L_	CLASSIFICATION				OPTIONAL ENERGY		
NO.	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION	
	1 527.55	OLAGO	Keep air flow				
34	3	3	from units unrestricted.				
			Caulk openings between unit and				
35	3	3	window or wall frames.				
26			Insulate all				
36	3	6	piping and ductwork.				
37	1	1	Instruct occupants and maintenance				
3/	4	1	personnel to switch off all lights when they are not needed.				
20			Clean windows	,			
38	4	2	and skylights.		ļ		
39		1	Clean fixtures				
7.3	4	3	and lamps regularly.		<del>                                     </del>		
40	4	3	Replace lamps in groups before they			,	
	<u> </u>		burn out to maintain higher average light output per fixture.		<del>                                     </del>		
			right output per rixture.			P	
			Use lower wattage lamps to provide				
41	4	4	the necessary illumination.				
	_	_	Keep records of the operating				
42	5	1	schedule, monthly energy consumption			August, 1979	
			and purchase of any new equipment				
		<b></b>	that affects energy consumption of		ļ		
			efficiency of the building. These			·	
			records will indicate the impact of energy conservation measures.	<u> </u>	<del> </del>		
		1	or energy conservation measures.				
		1	Review the record				
43	5	1	books on a regular basis.			August, 1979	
			All insulation applied to a hot	,			
44	6	2	water system should be kept in		<b></b>		
		į	good condition.			,	
			All electric heating equipment				
45	6	2	should be checked for corroded				
			elements and loose connections				
			and repaired as required.			<u> </u>	
• -	_		Periodically drain and remove				
46	6	2	the sediment from the water heater.	<b></b>			
17	_		Clean air-sides, remove soot, and				
47	7	3	scrape scale in forced warm-air furnaces.	-	<del>                                     </del>		
			Tui liuces.				
			If the firing rate of gas or oil			DMC	
48		3	burners is too high, it causes	<b></b>	<b> </b>	RMS	
			short cycling and excessive fuel				
		<b>-</b>	consumption. Too low a rate require	<u> </u>	-		
			constant operating and delivers in-				
			adequate heat to the spaces.	ļ			

IEW PPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

Zō	implemente	d. This sec	tion of the mini-audit report should be completed by the mini-audit	team during OPTIONAL:		
ITEM	N	SIFICATION NO. NEW MINI-AUDIT OPPORTUNITIES		ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
49	7	4	Maintain the lowest possible hot water temperature which will meet			
			domestic hot water needs.			
50	7	Δ.	Clean filters regularly in forced			RMS
_au_		4	warm air units to reduce the operating time of the furnace.			
51	7	4	Keep all heat exchanger surfaces clean. Check air-to-fuel ratio	<del> </del>		RMS
		-	and adjust as necessary.			
52	7	4	Inspect casing for air leaks and			-
53	7	4	Follow guidelines suggested for fan and motor maintenance.			
<u>55</u>	7	4	Turn off gas pilots for furnaces, boilers, and space heaters, during	<del>                                     </del>		RMS
<u> </u>	1-		the non-heating months and during long unoccupied periods.			
			rong unoccupied periods.	<u> </u>	<u> </u>	
				<u> </u>		
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## **MINI-AUDIT REPORT**

A	BUILDING NAME Fire Station #2		NAME OF ORGANIZATION City of Bloomington DATE 5-17-80		
	BUILDING ADDRESS 10601 Xerxes Avenue So	uth	ADDRESS 2215 West Old Shakopee Ro	ad	
ACT	Bloomington, MN	ZIP CODE 55431	CITY Bloomington, MN	ZIP CODE 55431	
CONT	PERSON COMPLETING FORM Randy Smith (	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen	TELEPHONE 612) 881-5811	

B		estructions: For blocks 1 and 2 escribes the building type and							our categories
	1.	OWNERSHIP TYPE  X Public (F  DNon-Profit Association	PUB) (NAP)	3a.	SCHOOLS ☐ Elementary ☐ Secondary ☐ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT Office Storage Service	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
ODE	2.	ULTIMATE OWNER  County  City	(CNTY) (CITY)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police DAtire □OTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY C		↑ Township  State  Public School  Private School  Non-Profit Association  Indian Tribe	(TOWN) (STAT) (PUSC) (PRSC) (NPAP) (INDN)	b.	PUBLIC CARE □Nursing Home □Long Term Care □Rehab. Facility □Public Health Ctr. □Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)
	L			<u> </u>					

	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? [. Yes XX No Have you previously applied for mini-audit funding? XX Yes No Do you wish to apply for mini-audit funding? Yes XX No
	Date:
	Name:
	Signature:
	If eligible for Federal funding only: Have you received a mini-audit grant before? ☐ Yes☐ No Have you previously applied for mini-audit funding? ☐ Yes☐ No Do you wish to apply for mini-audit funding? ☐ Yes☐ No The 50% match for Federal funds will come from: (Use additional sheets if necessary.)
	,,,
- 1	
EGUESI	Date
TONDING NEGOES!	Date

D	Check the type of energy report which was completed and submitted p	rior to this mini-audit report
EPORT FF	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)  XX Existing Building Energy Report (Form No. EN-00041-01)	
ENERGY REPORT CHECK-OFF	If an energy report has not been completed previous to this mini-audit vocational schools should use form ED-00444-02 or form ED-00445-02, dibuilding energy report, form EN-00041-01.	report, one must be included with this report. Elementary, secondary, and spending on building complexity. All other buildings should use the existing
	Instructions: This section is to be completed and signed by a registered completed the State of Minnesota's Mini-Audit Procedures Course. This a are completed. All blanks must be filled in.	professional engineer or by a certified mini-auditor who has successfully ection should be completed after this mini-audit report and an energy report
•	I have reviewed the energy report and/or the energy report results for thi corrected any misinformation on the energy report which will be resub	s building. I found all information contained therein to be correct OR I have
	I am not directly responsible for the day to day operations of this build	ing being audited.
	I have fully disclosed my financial interests relating to this mini-audit a	nd any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendat maintenance changes, and low cost energy conservation measures, where the contract of the c	ions listed in section I of this mini-audit report to be the operations and ich would reduce energy consumption in this building.
	listed in section I. I am not responsible if the actual savings resulting for	
	Based on actual records, the energy conservation operating and mainte 20% of the building's energy consumption as specified in section I.	nance procedures listed in section K <u>did not</u> save at least (did, did not)
	should not be the subject of a maxi-audit.  (should, should not)	ling and the building's major energy using systems, I recommend that this
	I realize that this is not a final judgement, that the State reserves the right and other criteria.	o make the maxi-audit funding determination based on this mini-audit report
	Based upon the information in section E and the information referred to I	n section F, I recommend that this building <u>should not</u>
	undergo further solar conversion analysis, and/orShould	not undergo further analysis of the renewable resources — waste.
	wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true.	
	Willy jougonous, as a mini accitor, an or the above statements are the	e and contect.
		Witnessed by:
		Witnessed by:
	Randy Smith Mini-Auditor's Name (Printyor Type)	Building Organizational Authority (Print or Type)
	Randy Sult 206	Containing or gamma months may to mit on trypo,
	Signature //	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)	
1	Firm Name (if none, enter none)	Date
	P.O. Box 130 Hopkins, MN 55343	Date
	P.O. Box 130 Hopkins, MN 55343	Date
	P.O. Box 130 Hopkins, MN 55343 Address (612) 935-6901 Phone	Date
	P.O. Box 130 Hopkins, MN 55343	Date
	P.O. Box 130 Hopkins, MN 55343 Address (612) 935-6901 Phone	Date
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	P.O. Box 130 Hopkins, MN 55343 Address (612) 935-6901 Phone	Date
20	P.O. Box 130 Hopkins, MN 55343  Address (612) 935-6901  Phone 5-17-80  Date	Date
DIT	P.O. Box 130 Hopkins, MN 55343  Address (612) 935-6901  Phone 5-17-80  Date	Date
MINI-AUDIT STATEMENTS	P.O. Box 130 Hopkins, MN 55343  Address (612) 935-6901  Phone 5-17-80  Date	Date

gma	NAME
F	NAME POSITION ORGANIZATION  Dandy Smith Contified Mini Auditon Dicks Cannoll Mullon Assoc Inc.
	Randy Smith Certified Mini-Auditor Rieke Carroll Muller Assoc., Inc.
!	Rienert Ege Maintenance Engineer City of Bloomington
	Krener t Lye Marintenance Lingtheer City of Broomington
_	
AUDIT	
4F	
	,
G	BRIEF DESCRIPTION OF GENERAL BUILDING CONDITION (i.e. type, and function)
	Good, Offices and Storage of fire vehicles
	MAJOR CHANGES PLANNED WITHIN NEXT 15 YEARS (i.e. demolition, rehabilitation, conversion from one building type to another)
N O	None STRUCTURAL COMPONENTS OF ROOF (i.e. metal beams, wooden rafters, concrete)
PAG	
BUILDING INFORMATION	Concrete Plank ROOFING MATERIAL (i.e. tar and gravel, shingles, tile)
P. P.	Tar and Gravel
لت	tat and draver
	WOTDLOTOUS Services of the service o
H	INSTRUCTIONS: Correctly answer the following questions for the building being mini-audited.
	Is there open land adjacent to the building? ☐ Yes XXNo
	Solar collectors need to be located in an unshaded area. Is the roof of the building and the south facing wall unshaded between the hours of 9 a m and
	3 p.m.?
	Roof: XOX Yes □ No South facing Wall: XOX Yes □ No
	·
	If the roof or wall are partly shaded, what percentage of the surface is unshaded? % of roof unshaded%
	% of south facing wall unshaded%
	What is the overall shape of the building?
	XX square D rectangle D H-shaped D E-shaped D other (specify)
	ls the roof of the building flat or pitched?  XX flat □ pitched
	If pitched, what is the compass orientation of the ridgeline?
	If pitched, what is the angle that the roof makes with horizontal?
	Are there large obstructions on the roof such as chimneys, rooms for mechanical equipment, ventilating units, water towers, etc?  Yes XXNo
-	What is the exterior facing material for the south facing wall? Face brick and wood
	What percentage of the south facing wall is glass?%
	Is the building's space heating equipment located within or on the building? (A no answer indicates the equipment is in a separate building.)
	Yes No
	If the space heating equipment is inside the building, where is it located?  XX Ground Floor  Basement  Roof  Other (specify)
NTIAL	Is the building's water heating equipment located within the building? (A no answer indicates the equipment is in a separate building.)
POTE	If the water heating equipment is inside the building, where is it located?  XX Ground Floor  Basement  Other (specify)
SOLAR POTENTIAL	Is the water heating system a central system, does it consist of multiple units, or is it a combination of the central and multiple units?  \( \frac{1}{2} \text{Central}  \text{D} \text{Multiple}  \text{Combination} \)
L	AA

	Instructions. Enter the total energy unit of measure. Enter the appropri which the data applies. Refer to pa	iate conversion fact	or from Append	ix B to cor	nvert energy us			
			BASE PE	RIOD YEA	R		Fiscal Year	
[	ENERGY TYPE	ENERGY	USAGE	С	ONVERSION F	ACTOR	8	TU USAGE
	Electricity				ann ta ghill an da an da an an an an an an an an an an an an an		·	
	Fuel 1				engelief für geschen Heilen der State von der Ausberachten Problem er			
	Fuel 2			,				
	TOTAL	an ann air Mhannach Ann an Aige ann an Air Air an Aire Ann an Aire Ann an Aire Ann an Aire Ann ann an Aire Ann						
			20% SAV	INGS YEAR	3		Fiscal Year	
	ENERGY TYPE	ENERGY	USAGE	c	ONVERSION F	ACTOR		BTU USAGE
	Electricity		то стой объябанторов на рошейна на применения в применения в применения в применения в применения в применения					
S	Fuel 1		The state of the s					
SAVINGS	Fuel 2							,
20% S DATA	TOTAL	The second secon				en en en en en en en en en en en en en e		
J	Instructions: This section is to be co state the roughly estimated range of of the new mini-audit opportunitie percentages by the annual electric	f the percent of total es listed in section l al and fuel consum	electrical and fu L. Secondly, ca	el consump Iculate the	tion which wou range of energ	ld be saved res	ulting from the	implementation of all
1	Check two boxes in each category							
	Range of Electrical Savings — XX	144	□ 10% XX 10%	☐ 15%	20%	25%		ecify)
2	Range of Fuel Savings —   Calculate ranges of energy and co		A-A 10%	15%	20%	25%	Other (sp	ecity)
	, and the same of		Range of E	lectrical Sa	aluda			
	% Range	Annual Electrical Consumption 36297 kwh	Range of Savi		% Range	Annual Ele Dollars S \$ 1462	Spent	Range of Electrical Dollars Savings
	to upper bound <u>5</u> % x	36297 kwh	= 1 <u>814.9</u>		to <u>5</u> % x	<u> </u>	2.61 =	\$ <u>73.13</u>
3			Range	of Fuel Savi	ings			range and the second of the se
	% Range	Annual Fuel Consumption 58.0x10 Btu		of Fuel ings 05 Btu, _	% Range 5 %	Annual Dollars \$153		Range of Fuel Dollars Savings \$ 76.95
SAVINGS ESTIMATION	to upper bound 10 % x	58 <u>.0x10<sup>6</sup> Btu</u>	= 68.0x1	05 Btu, _	10 %	, <u>153</u>	39.03	\$ 153.90
SAVIN	The mini-auditor is not responsible not fall between the roughly estim			implement	ation of the ene	rgy conservation	on opportunitie	s listed in section I do

100000000000000000000000000000000000000	<	

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

TEM	CLASSIFICATION NO.		DAGT ENERGY CONCEDUATION ACTIONS		OPTIONAL: OPTIONAL:  ENERGY ENERGY DATE OF IMPLEME		
NO	MAJOR CLASS	SUB CLASS	PAST ENERGY CONSERVATION ACTIONS	SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION	
	027.00	OLAGG					
	<u> </u>						
			or over the second of the seco				
	-						
	<del> </del>						
					<u> </u>		
					<del> </del>		
	<del> </del>						
	<u> </u>						
					<b></b>		
					<b>†</b>		
	+	<del>                                     </del>			<del> </del>		
	+	++					

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Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20			tion of the min-addit report should be completed by the min-addit	OPTIONAL:		
ITEM		ICATION O.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB CLASS	NEW MINI-AGDIT OF ONTONITIES	SAVINGS	SAVINGS	DATE OF THE CEMENTATION
1	1	1	Keep all controls free of dust.			
······································			Weatherstrip all exterior doors			
2	2	2	including garage doors.			
			Inpsect the roof and seal all cracks			
3	2	6	that allow outdoor air and water to			
			enter.			
	1		Caulk the insulation on			
4_	2	6	the roof.			
	į		Insulate the roof areas			İ
5	2	6	if needed.		<u> </u>	
_			Insulate walls with rigid insula-			
6_	2	8	tion on inside surfaces, or place			
	}		loose fill insulation in wall			
	<del></del>		cavaties.			
_			Replace single glazed windows with			
	2	10	double glazed thermopanes.	<u> </u>	<u> </u>	
0			Check operation of entire heating/			RMS .
8	3		cooling control system, including		<del> </del>	1113
			control valves and dampers.			
			Check the calibration of all con-			RMS
9	3	1	trollers and devices for proper		<b></b>	NIIS
			settings and operations.			
	1		Raise the supply air temperature			(
_10_	3	1_1	for cooling to the highest point			
			necessary to provide minimum			
	<del></del>	ļ	required cooling.		-	<u> </u>
			Lower the supply air temperature			
_11_	3	1	for heating to the lowest point		<u> </u>	
			necessary to provide minimum		}	
		<del> </del>	required heating 65°F maximum occupied, 60°F maximum		-	
12	3	1	by the maximum occupied, of a maximum to the hearting conserve	J		
14	+	<del>                                     </del>	ungccupied during the heating seasor 78 F minimum when occupied and no	1.	<del></del>	
13	3	1	cooling when unoccupied during the			
		<del>  -</del>	cooling season.			
	<del> </del>	<del> </del>	Keep fan blades		<u> </u>	
14	3	3	clear.			RMS
1 🗆	3		Inspect and lubricate bearings of	1		RMS
15	+ 3	3	fan motors.	<del> </del>	<del> </del>	NIIS
16	3	3	Inspect drive belts. Adjust or			RMS
10	13	13	replace as necessary to ensure proper operation.	<u> </u>	<b> </b>	IVIO
	-	-		-		
17	3	3	Inspect fans for normal operation.			RMS
		-			-A	

NEW OPPORTUNITIES Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examinating suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As younge in represent the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20	premente	d. 71113 300	tion of the mini-addit report should be completed by the mini-addit	OPTIONAL:		
ITEM	CLASSIF		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB CLASS	MEN MINI NODIN GIT GITTOM NEG	SAVINGS	SAVINGS	
			Keep condenser coil face clean to			
18	3	3	permit proper air flow.			RMS
19	3	3	Inspect damper blades and linkages.			RMS
	<del>                                     </del>		Clean, oil and adjust. Take special note of fresh air			CIII
20	3	3	dampers making sure that they close			·
			tightly and be sure to repair, re-			
			place or provide blade edge gaskets			
			and gasketing at the end of blades.			
			Instruct occupants and maintenance			
21	4	1	personnel to switch off all lights			
			when they are not needed.			
	1					
22_	4	2	Clean windows and skylights.			
0.0			Clean fixtures			
23_	4	3	and lamps regularly.	<del> </del>		
24	4	4	Use lower wattage lamps to provide the necessary illumination.			
	1		Allow part of a lighting system to			
25	4	4	be turned off, while maintaining			
			the necessary light.			
			Keep records of the operating	<u> </u>		1070
26	5	11	schedule, monthly energy consumption		,	August, 1979
			and purchase of any new equipment			
	<del>                                     </del>		that affects energy consumption of	<del></del>		
			efficiency of the building. These records will indicate the impact of			
			energy conservation measures.			v
	+					
27	6	2	All insulation applied to a hot			
	<u> </u>		water system should be kept in good condition.	<u> </u>		
20			The burner system of fossil-fuel			DMC
28	6	2	water heaters should be kept clean and in good operating condition.	-		RMS
			and in good operating condition.			
			All electric heating equipment shoul	<del>a</del>		
29	6	2	be checked for corroded elements	ļ		
			and loose connections and repaired as required.			
	<del> </del>	<b>†</b>	Periodically drain and remove	1	+	
30	6	2	the sediment from the water heater.			
			Clean air-sides, remove soot, and			
31	7	3	scrape scale in forced warm air		ļ	RMS
		1	furnaces.			
		1	1	1	1	

EW PPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ZO			tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM		<b>)</b> .	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
20	_	0	If the firing rate of gas or oil			DMO
32	7	3	burners is too hig, it causes short			RMS
			cycling and excessive fuel consumption. Too low a rate requires con-			
	<del></del>		stant operating and delivers in-			
			adequate heat to the spaces.			
			Maintain the lowest possible hot			
33	7	4	water temperature which will meet			
			domestic hot water needs.			
			Clean filters regularly in forced			
34	7	4	warm air units to reduce the operati	hg		RMS
			time of the furnace.			
35	7	1	Turn off gas pilots for furnaces,			DMC
		4	boilers, and space heaters during	<del> </del>	<b></b>	RMS
			non-heating months and during long unoccupied periods.			.4
			Keep all heat exchanger surfaces	<del> </del>		
36	7	4	clean. Check air-to-fule ratio			RMS
			and adjust as necessary.			1415
			Inspect casing for air leaks and			
37_	7	4	seal as necessary.			
20	_		Follow guidelines suggested for fan			
38	7	4	and motor maintenance of unit heater	<u>`\$.</u>		
					<b>.</b>	
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				+	-	
-		<b> </b>				-
		<u> </u>				

## MINI-AUDIT REPORT

A	BUILDING NAME Fire Station #3		NAME OF ORGANIZATION City of Bloomington	5-17-80
	BUILDING ADDRESS 2050 East 86th Street		ADDRESS 2215 West Old Shakopee Roa	d
ACT	CITY Bloomington, MN	ZIP CODE 55420	CITY Bloomington, MN	ZIP CODE 55431
CONT	PERSON COMPLETING FORM	TELEPHONE (612) 935-6901	CONTACT PERSON Arthur Jensen (	telephone 512) 881-5811

1.	OWNERSHIP TYPE		3a.	SCHOOLS		C.	LOCAL GOVERNMENT	
**	\ F34-	PUB)		□Elementary	(SCHL-ELM)	-	Office	(LOCG-OF
	□Non-Profit Association	(NAP)		Secondary	(SCHL-SECD)		Storage	(LOCG-STI
			1	Coll. or Univ.	(SCHL-POST)		□Service □Library	(LOCG-SEI
2.	LU TIMATE OWNED			□Vocational □Education Agency	(SCHL-VOCL) (SCHL-ADMN)		□ Library □ □ Police	(LOCG-PL
2.	ULTIMATE OWNER  □ County	(CNTY)	1	□Administration	(SCHL-ADMN)		XOFire	(LOCG-FIR
	XACity	(CITY)	1	DOTHER	(SCHL-OTHR)		OTHER	(LOCG-OT
	☐ Township ☐ State ☐ Public School ☐ Private School ☐ Non-Profit Association ☐ Indian Tribe	(TOWN) (STAT) (PUSC) (PRSC) (NPAP) (INDN)	b.	PUBLIC CARE  Nursing Home  Long Term Care  Rehab. Facility  Public Health Ctr.  Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GEI (HOSP-TUI (HOSP-OTI

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization.
ř	If eligible for both Federal and State Funding: Have you received a mini-audit grant before?Yes No Have you previously applied for mini-audit funding? Yes XX No Do you wish to apply for mini-audit funding? Yes XX No
	Date
	Name:
	Signature:
	If eligible for Federal funding only: Have you received a mini-audit grant before? ☐ Yes☐ No Have you previously applied for mini-audit funding? ☐ Yes☐ No Do you wish to apply for mini-audit funding? ☐ Yes☐ No The 50% match for Federal funds will come from: (Use additional sheets if necessary.)
	The control of the co
ST	
EQUE	Date
MINI-AUDIT.	Name.
A-INI	Signature:
311	

D	Check the type of energy report which was completed and submitted pr	ior to this mini-audit report.
EPORT	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02) XX Existing Building Energy Report (Form No. EN-00041-01)	
CHECK-OFF	If an energy report has not been completed previous to this mini-audit r vocational schools should use form ED-00444-02 or form ED-00445-02, debuilding energy report, form EN-00041-01.	eport, one must be included with this report. Elementary, secondary, and pending on building complexity. All other buildings should use the existing
E	Instructions: This section is to be completed and signed by a registered completed the State of Minnesota's Mini-Audit Procedures Course. This searce completed. All blanks must be filled in.	professional engineer or by a certified mini-auditor who has successfully action should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for this corrected any misinformation on the energy report which will be resubn	s building. I found all information contained therein to be correct OR I have nitted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this buildi	ng being audited.
	I have fully disclosed my financial interests relating to this mini-audit ar	
	I have walked through this building and have found the recommendati maintenance changes, and low cost energy conservation measures, whi	ons listed in section I of this mini-audit report to be the operations and ich would reduce energy consumption in this building.
	I have made a rough estimate, in section G, of the range of savings which listed in section I. I am not responsible if the actual savings resulting from	h may result from the implementation of all of the mini-audit opportunities om this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and mainter 20% of the building's energy consumption as specified in section I.	nance procedures listed in section K did not save at least (did, did not)
	Should not, be the subject of a maxi-audit. (should, should not)	ing and the building's major energy using systems, I recommend that this or make the maxi-audit funding determination based on this mini-audit report
}	and other criteria.	o make the maxing additioning determination passed on this minima according to
	Based upon the information in section E and the information referred to in	(Snould, Snould not)
	undergo further solar conversion analysis, and/or should n wind, wood. (Circle proper resources) (should, should	undergo further analysis of the renewable resources — waste, not)
	In my judgement, as a mini-auditor, all of the above statements are true	e and correct.
		Witnessed by:
	Randy Smith	·
1	Mini-Auditor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Signature 206	Signature
	Rieke Carroll Muller Assoc., Inc.	
	PO Box 130 Hopkins, MN 55343	Date
	Address	
	(612) 935-6901	
	5-17-80	
	Date	
		•
NTS		
MINI-AUDIT		
NE		

F	NAME	POSITION	ORGANIZATION
	Randy Smitl	n Certified Mini Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ego	e Maintenance Foreman	City of Bloomington
AUDIT		e-manufald mently visit of the side out to all the size of the siz	
		,	
G		GENERAL BUILDING CONDITION (i.e. type, and	·
	Good, Offi MAJOR CHANGES PLAN	ces and Storage of Fire Vehi	cles abilitation, conversion from one building type to another)
Z	None		
BUILDING	STRUCTURAL COMPONE  Concrete	NTS OF ROOF (i.e. metal beams, wooden rafters,	concrete)
FOR		tar and gravel, shingles, tile)	
ωZ	Tar and Gr	avel	
H	INSTRUCTIONS: Correctly	y answer the following questions for the building b	neing mini-audited
	Is there open land adjacer		eng mm-addied.
	3 p.m.?		ng and the south facing wall unshaded between the hours of 9 a.m. and
	Roof: XXX Yes ☐ No South facing Wall: XX	∕es □ No	
	% of roof unshaded	y shaded, what percentage of the surface is unsha 	ded?
	What is the overall shape of the square XX rectangle	of the building? □ □ H-shaped □ E-shaped □ other (specify)	
	Is the roof of the building  XX flat  pitched		
	If pitched, what is the com	pass orientation of the ridgeline?	
	If pitched, what is the ang	le that the roof makes with horizontal?	•
2	Are there large obstruction  Yes XX No	ns on the roof such as chimneys, rooms for mecha	nical equipment, ventilating units, water towers, etc?
	What is the exterior facing	material for the south facing wall?	e brick
		outh facing wall is glass?%	
	is the building's space head XXX Yes □ No	ating equipment located within or on the building?	(A no answer indicates the equipment is in a separate building)
	If the space heating equip  XXX Ground Floor □ B	ment is inside the building, where is it located? asement	
SOLAR POTENTIAL	Is the building's water hea XXX Yes □ No	iting equipment located within the building? (A no	answer indicates the equipment is in a separate building.)
R POTE	If the water heating equip	ment is inside the building, where is it located? asement   Other (specify)	
SOLA		m a central system, does it consist of multiple unit	ts, or is it a combination of the central and multiple units?

						BASE PE	RIOD YEAR	R		•	Fiscal	l Year		
	ENERGY TYPE		ENERGY USAGE			Ε	C	ONVERSION	FAC	CTOR	BTU USAGE			
	Electricity													
	Fuel 1													
	Fuel 2						,							
	TOTAL			T THE STATE OF THE						***************************************				
			<u> </u>		Milinipy, regenter myte	20% SAVI	INGS YEAR	3		- Otto Militaria de Militaria de Composito d	Fisca	al Year		
	ENERGY TYPE			ENERGY	USAG	E	С	ONVERSION	V FAC	CTOR		8	ITU USA	GE
	Electricity													
	Fuel 1													
	Fuel 2				-									
	TOTAL  Instructions: This section is to state the roughly estimated ra													
	Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual el	ange rtunit lectr tegoi	of the perce ties listed in rical and fun- ry —	ent of total n section el consum	electri L. Sec ption (	cal and fu ondly, ca data on th	el consump iculate the ne energy re	ntion which w range of en- eport.	ould i	be saved res	sulting fro avings by	om the i	impleme plying th	ntation of all
	Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual el	ange rtunit lectr tegor	of the perce ties listed in rical and fun- ry —	ent of total n section	electri L. Sec ption o	cal and fu ondly, ca	el consump Iculate the	ition which w	ould i	be saved res	sulting fro avings by	om the i multip	impleme plying th ————————————————————————————————————	ntation of al
-	Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual el Check two boxes in each cate Range of Electrical Savings -	ange tunit lectr tegor	of the perceities listed in its list listed in its listed in its listed in its listed in its listed	ent of total n section el consum  XX5%	electri L. Sec ption o	cal and fur ondly, ca data on th 10%	el consump lculate the ne energy re	etion which wrange of enga	ould i	be saved resand cost sa	sulting fro avings by	om the i multip	impleme plying th ————————————————————————————————————	ntation of al
-	Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual elements of the cate two boxes in each cate. Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and state that the cate of the cate o	ange tunit lectr tegor	of the perceties listed in itical and fue ry — XX0% □ 0% Cost savings	PX5%  DX6%  Bectrical	electri L. Sec ption o	cal and funding, caldata on the 10% 10% ange of E	el consump louiate the see energy re 15% 15% lectrical Sa	ution which w range of engage of eng	ould i	□ 25% □ 25%	ulting fro avings by	om the i multip	ecify)	ntation of all
	Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy as Range	etuniti	of the perceties listed in its	EXS%	electri L. Sec ption o	cal and funding, caldata on the 10% 10% ange of E	el consump loulate the se energy re  15% 15% Inchrical Sa	etion which wrange of enga	ould I	25% Annual El	ulting fro avings by  the other of the other of the other ot	em the in multiple mu	ecify) ecify) Bange c	ntation of a
	Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual elements of the work of the section of the section of the roughly expected of the section of the	ange tunit lectr tegor	of the perceties listed in itical and fue ry — XX0% □ 0% Cost savings	ent of total n section el consum  (以5%  (以5%  (以5%)  (以5%)  (以5%)	electri L. Sec ption o	cal and fur ondly, cal data on the 10% ange of E Range of Savis	el consump loulate the se energy re  15% 15% 15% lectrical Sa Energy ngs kwh,	vings  % Range	ould i	□ 25% □ 25%	ulting fro avings by  the other of the other of the other ot	om the i multip	ecify) ecify) Bange c	of Electrica Savings
	Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual elements of the cate that the cate th	etuniti	of the perceties listed in its	Ent of total n section el consum  EXX5%  EXX6%  B —  Rectrical aption  4 kwh	electri L. Sec ption c  XXX	cal and fur ondly, cal data on th  10%  10%  Range of E  Range of Savin	el consump louiate the se energy re 15% 15% lectrical Sa Energy ngs kwh,	vings  % Range  0 %	ould I	25% Annual El	oth control co	em the in multiple mu	ecify) ecify) Dollar	of Electrica Savings
	Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual elements of the new mini-audit opport percentages by the annual elements of the annual elements of the savings of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and the savings of the saving	etuniti	Annual E Consum 6187	EXS%  Excertical applion  A kwh	electri L. Sec ption c  XXX	cal and fundly, caldata on the second	el consump louiate the se energy re 15% 15% lectrical Sa Energy ngs kwh,	vings  % Range  0 % to 5 %	ould I	□ 25% □ 25% □ 25% Annual El Dollars:	oth control co	em the in multiple mu	ecify) ecify) Dollar	of Electrica s Savings
	Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual elements of the new mini-audit opport percentages by the annual elements of the annual elements of the savings of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and the savings of the saving	etuniti	Annual E Consum 6187	Post of total n section el consum  Post section el con	electri L. Sec ption c  XXX	cal and fundly, caldata on the second	el consumpliculate the late energy re 15%  15%  15%  lectrical Sa Energy re 27 kwh, of Fuel Savior Fuel lings_	vings  % Range  0 % to 5 %	ould I	Desaved research cost sides and cost sides and cost sides are cost sides and cost sides are cost and cost sides are cost and cost are cost and cost are cost and cost are cost and cost are cost are cost and cost are cost are cost and cost are cost are cost and cost are cost	outing fro avings by other oth	em the in multiple mu	Range of Dollar \$	of Electrica s Savings

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Instructions. Read through the lieu of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location with the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

	CLASSIFICATION CLASSI								
ITEM NO	CLASSIF NAJOR	FICATION IO. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION			
	CLASS	CLASS		J.,,,,,,,	SAVINGS				
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EW PPORTHINITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine this suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ZO	impiemente	a. Inis sec	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	CLASSIF		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OF FORTUNITIES	SAVINGS	SAVINGS	DATE OF IMPREDICTION
1	1	1	Keep all controls free of dust.			
2	2	2	Weatherstrip all exterior doors.			
3	2	2	Replace an existing door with one of a higher R-value.			·
4	2	6	Inspect the roof and seal all cracks that allow outdoor air and			
			water to enter.			
5	2	6	Check the insulation on the roof.			
- 6	2	6	Insulate the roof areas if needed.			
7	2	8	Insulate walls with rigid insulation on inside surfaces, or place loose			
			fill insulation in wall cavaties.			
8	2	10	Replace single glazed windows with double glazed thermopanes.			
9	3	1	Check operation of entire heating/ cooling control system, including			RMS
			control valves and dampers.			
10	3	1	Check the calibration of all con- trollers and devices for proper			
			settings and operations.			
11	3	1	Raise the supply air temperature for cooling to the highest point			
			necessary to provide minimum required cooling.			
12	3	1	Lower the supply air temperature for heating to the lowest point			
			necessary to provide minimum reguired heating.			·
13	3	1	65°F maximum occupied, 60°F maximum unoccupied during the heating season			
14	3	1	78°F minimum when occupied and no cooling when unoccupied during the			
			cooling season.			
15	3	2	Clean and remove obstructions from all room air outlets and inlets			
			(diffusers, registers and grillers). They should be kept clean and			
			free of all dirt and foreign			
16	3	3	Inspect and Tubricate bearings of fan motors.			RMS

NEW COPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Exametic suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

OPTIONAL: OPTIONAL:

	<del>,</del>	······································		OPTIONAL:	OPTIONAL	
ITEM NO	CLASSIF NO MAJOR	SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATIO
<del></del>	CLASS	CLASS	Inspect drive belts. Adjust or			
17	3	3	replace as necessary to ensure			None
1/			proper operation.			
			Inspect fans for			
18	3	3	normal operation.			RMS
19	3	3	Make sure that all fans frequently inoperative in unit heaters, fan			RMS
			coil units, and unit ventilators			
			are running normally to increase the		ļ	
			heat transfer rate from heating coils.			
			Keep condenser coil face clean to			
20	3	3	permit proper air flow.			,
			Inspect damper blades and linages.			
21	3	3	Clean, oil and adjust. Take special note of fresh air			
20			lake special note of fresh air			
22	3	3	dampers making sure that they close tightly and be sure to repair, re-	<b></b>	ļ	
	1		place or provide blade edge gaskets			
			and gasketing at the end of blades.			
			Clean evaporator and condenser			
_23	3	3	coils of the air conditioning units.			
			Caulk openings between unit and			
24	3_	3	window or wall frames.			
			Instruct occupants and maintenance			
_25_	4	1	personnel to switch off all lights	<b> </b>	<b></b>	
			when they are not needed.			·
26		2	Clean fixtures			
26	4	3	and lamps regularly. Use lower wattage lamps to provide	ļ		
27	4	4	the necessary illumination.			
			Allow part of a lighting system to	<del>                                     </del>	<b>†</b>	
_28_	4	4	be turned off, while maintaining			
			the necessary light.			
29	5	1	Keep records of the operating			
29	3	1	schedule, monthly energy consumptio	7	<b></b>	August, 1979
			and purchase of any new equipment			
	<del> </del>	<del> </del>	that affects energy consumption of efficiency of the building. These	<del>}</del>	<del> </del>	
			records will indicate the impact			
		1	of energy conservation measures.		<u> </u>	
	<del> </del>		Review the record	<del> </del>		
30	5	1	books on a regular basis.			August, 1979
				1	T	

NEW POPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examinating suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit learn during the building walk-through.

CLASSIFI NO MAJOR CLASS	)	NEW MINI-AUDIT OPPORTUNITIES	OPTIONAL:	ENERGY	
	0115		CHENGI	COST	DATE OF IMPLEMENTATION
	SUB CLASS	NEW WINT AGENT OF FORTING	SAVINGS	SAVINGS	5.112 G. IIII 22.112.11
6	2	The burner system of fossil-fuel			RMS
0		and in good operating condition.			MIO
		All electric heating equipment should	l		
6	2	and loose connections and repaired			
6	2	as required Clean air-sides, remove soot, and scrape scale in forced warm air			None
	<u> </u>	furnaces.			Notic
7	3	If the firing rate of gas or oil burners is too high, it causes short			None
		tion. Too low a rate requires con-			
		equate heat to the spaces.			
7	4	water temperature which will meet domestic hot water needs.			
7	4	Clean filters regularly in forced warm air units to reduce the oper-			None
7	1	Turn off gas pilots for furnaces,			RMS
	4	the non-heating months and during long unoccupied periods.			
7	4	Keep all heat exchanger surfaces clean. Check air-to-fuel ratio and adjust as necessary.			,
7	4	Inspect casing for air leaks and			
7	4	Follow guidelines suggested for fan and motor maintenance.			
			<b></b>		
	7	6 2 7 3 7 4 7 4 7 4 7 4	6 2 water heaters should be kept clean and in good operating condition.  All electric heating equipment should be checked for corroded elements and loose connections and repaired as required. Clean air-sides, remove soot, and scrape scale in forced warm air furnaces.  If the firing rate of gas or oil burners is too high, it causes short cycling and excessive fuel consumption. Too low a rate requires constant operating and deliver inadequate heat to the spaces.  Maintain the lowest possible hot water temperature which will meet domestic hot water needs.  Clean filters regularly in forced warm air units to reduce the operating time of the furnace.  Turn off gas pilots for furnaces, boilers, and space heaters during the non-heating months and during long unoccupied periods.  Keep all heat exchanger surfaces clean. Check air-to-fuel ratio and adjust as necessary.  Inspect casing for air leaks and seal as necessary.  Follow guidelines suggested for fan	6 2 water heaters should be kept clean and in good operating condition.  All electric heating equipment should be checked for corroded elements and loose connections and repaired as required. Clean air-sides, remove soot, and scrape scale in forced warm air furnaces.  If the firing rate of gas or oil burners is too high, it causes short cycling and excessive fuel consumption. Too low a rate requires constant operating and deliver inadequate heat to the spaces.  Maintain the lowest possible hot water temperature which will meet domestic hot water needs.  Clean filters regularly in forced warm air units to reduce the operating time of the furnace.  Turn off gas pilots for furnaces, boilers, and space heaters during the non-heating months and during long unoccupied periods. Keep all heat exchanger surfaces clean. Check air-to-fuel ratio and adjust as necessary.  Inspect casing for air leaks and seal as necessary.  Inspect casing for air leaks and seal as necessary.  Follow guidelines suggested for fan	6 2 water heaters should be kept clean and in good operating condition.  All electric heating equipment should be checked for corroded elements and loose connections and repaired as required. Clean air-sides, remove soot, and clean air-sides, remove soot, and scrape scale in forced warm air furnaces.  If the firing rate of gas or oil burners is too high, it causes short cycling and excessive fuel consumption. Too low a rate requires constant operating and deliver inadequate heat to the spaces.  Maintain the lowest possible hot water temperature which will meet domestic hot water needs.  Clean filters regularly in forced warm air units to reduce the operating time of the furnace.  Turn off gas pilots for furnaces, boilers, and space heaters during the non-heating months and during long unoccupied periods.  Keep all heat exchanger surfaces clean. Check air-to-fuel ratio and adjust as necessary.  Inspect casing for air leaks and seal as necessary.  Follow guidelines suggested for fan

## MINI-AUDIT REPORT

A	BUILDING NAME Fire Station #4	na e ar e sentre e i i i i i i i i i i i i i i i i i i	NAME OF ORGANIZATION City of Bloomington	5-17-80
	BUILDING ADDRESS 4203 West 84th Street		ADDRESS 2215 West Old Shakopee Roa	d
ACT	CITY Bloomington, MN	ZIP CODE 55437	CITY Bloomington, MN	ZIP CODE 55431
CONTACT DATA	PERSON COMPLETING FORM	TELEPHONE 612) 935-6901	contact person Arthur Jensen	TELEPHONE 612) 881-5811

OWNERSHIP TYPE  Prublic (PUB)  UNon-Profit Association (NAP)	3a.	SCHOOLS  DElementary  Secondary  Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	□Office □Storage □Service	(LOCG-OF (LOCG-ST (LOCG-SE (LOCG-LB
<u>⊠</u> &ity (CITY	) N)	□Education Agency □Administration □OTHER	(SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□ Police    District	(LOCG-PL (LOCG-FII (LOCG-O
☐ State (STAT☐ Public School (PUSC☐ Private School (PRSC☐ Non-Profit Association (NPA	T) b. C) C) P)	PUBLIC CARE  Nursing Home  Long Term Care  Rehab. Facility  Public Health Ctr.  Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GE (HOSP-TL (HOSP-OT
eligible for both Federal and State Ful	nding:	as XOI No		***************************************		
Have you received a mini-audit grant Have you previously applied for mini- Do you wish to apply for mini-audit fu	audit funding? unding? Dy	MAYes DNo			·	
ate:						
ame:	·					
gnature:	agreement of the second of the second of the second of the second of the second of the second of the second of					
Have you previously applied for mini- Do you wish to apply for mini-audit f	audit funding?	Yes No	ncessary.)			
		·				
Date						
Date						
•	ULTIMATE OWNER    County (CNT')   County (CNT'	ULTIMATE OWNER    County (CNTY) (CITY)     Township (TOWN)     State (STAT)     Public School (PUSC)     Private School (PRSC)     Non-Profit Association (NPAP)     Indian Tribe (INDN)     Structions: With reference to page 23 entitled Funding St Federal funding. then answer the questions correctly the service of the se	Coll. or Univ.   Secondary   Coll. or Univ.   Vocational   Education Agency   Coll. or Univ.   Vocational   Education Agency   Coll. or Univ.   Vocational   Education Agency   Administration   Coll. or Univ.   Vocational   Education Agency   Administration   Coll. or Univ.   Vocational   Education Agency   Administration   Coll. or Univ.   Vocational   Education Agency   Administration   Coll. or Univ.   Vocational   Education Agency   Administration   Coll. or Univ.   Coll.	County (CNTY)   COUNTING   COUN	County (CNTY)   County (SCHL-ELM)	County (CITY)   CITY

	Check the type of energy report which was completed and submitted price	or to this mini-audit report.
CHECK-OFF	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)	
	XIP Existing Building Energy Report (Form No. EN-00041-01)	
	If an energy report has not been completed previous to this mini-audit re- vocational schools should use form ED-00444-02 or form ED-00445-92, dep huilding energy report, form EN-00041-01.	
	Instructions: This section is to be completed and signed by a registered p completed the State of Minnesota's Mini-Audit Procedures Course. This sec are completed. All blanks must be filled in.	
	I have reviewed the energy report and/or the energy report results for this to corrected any misinformation on the energy report which will be resubmit	
	I am not directly responsible for the day to day operations of this building	g being audited.
	I have fully disclosed my financial interests relating to this mini-audit and	any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendation maintenance changes, and low cost energy conservation measures, whic	
	I have made a rough estimate, in section G, of the range of savings which listed in section I. I am not responsible if the actual savings resulting from	m this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and maintena 20% of the building's energy consumption as specified in section I.	nnce procedures listed in section K <u>did not</u> save at lea (did, did not)
	Based upon my observation of the physical characteristics of this buildin	ig and the building's major energy using systems, I recommend that the
	Should NOT be the subject of a maxi-audit. (should, should not)  I realize that this is not a final judgement, that the State reserves the right to	
1	i rounce that this is not a midifuodement, that the State (asal Asath all lift)	
	and other criteria.	
	and other criteria.  Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or should not	section F, I recommend that this building Should not (should, should not) undergo further analysis of the renewable resources — was
	and other criteria.	section F, I recommend that this building Should not (should, should not) undergo further analysis of the renewable resources — was
	and other criteria.  Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or should not	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was ot)
	and other criteria.  Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should not proper resources)	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was ot)
	and other criteria.  Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should not proper resources)	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was ot)
	and other criteria.  Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should not in my judgement, as a mini-auditor, all of the above statements are true	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was ot)  and correct.
	and other criteria.  Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should not my judgement, as a mini-auditor, all of the above statements are true  Randy Smith Mini-Auditor's Name (Print or Type)	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was ot)  and correct.
	and other criteria.  Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith Mini-Auditor's Name (Print or Type)	section F, I recommend that this building Should not (should, should not) undergo further analysis of the renewable resources — was and correct.  Witnessed by: Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should not in my judgement, as a mini-auditor, all of the above statements are true  Randy Smith Mini-Auditor's Name (Print or Type)  Signature  206	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was and correct.  Witnessed by:
	and other criteria.  Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or should not wind, wood. (Circle proper resources) (should, should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith Mini-Auditor's Name (Print or Type)	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to interest undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should in my judgement, as a mini-auditor, all of the above statements are true  Randy Smith Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to interest undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should not wind, wood. (Circle proper resources) (should, should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to interest undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should not wind, wood. (Circle proper resources) (should, should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to instruction for the information in section E and the information referred to instruct undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to interest undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources) (should, should not wind, wood. (Circle proper resources) (should, should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — was and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to in a undergo further solar conversion analysis, and/or Should not wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true  Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  P.O. Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to instruction of the information in section E and the information referred to instruction of the information of the informa	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
	Based upon the information in section E and the information referred to instruction of the information in section E and the information referred to instruction of the information of the informa	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)
TAIEMEN'S	Based upon the information in section E and the information referred to instruction of the information in section E and the information referred to instruction of the information of the informa	section F, I recommend that this building Should not (should, should not)  undergo further analysis of the renewable resources — wast and correct.  Witnessed by:  Building Organizational Authority (Print or Type)

F	NAME POSITION ORGANIZATION
	Randy Smith Certified Mini-Auditor Rieke Carroll Muller Assoc., Inc.
	Reinert Ege Maintenance Foreman City of Bloomington
<u>L</u> 2	
AUDIT	
	PRICE DESCRIPTION OF STATE AND DATE OF STATE AND DATE OF STATE OF
G	BRIEF DESCRIPTION OF GENERAL BUILDING CONDITION (i.e. type, and function)  Good, Offices and storage of fire vehicles
_	MAJOR CHANGES PLANNED WITHIN NEXT 15 YEARS (i.e. demolition, rehabilitation, conversion from one building type to another)
BUILDING	None STRUCTURAL COMPONENTS OF ROOF (i.e. metal beams, wooden rafters, concrete)
DING	Concrete Plank  ROOFING MATERIAL (i.e. tar and gravel, shingles, tile)
BUIL	Tar & Gravel
, ,	
H	INSTRUCTIONS: Correctly answer the following questions for the building being mini-audited.
	Is there open land adjacent to the building? □ Yes XXNo
	Solar collectors need to be located in an unshaded area. Is the roof of the building and the south facing wall unshaded between the hours of 9 a.m. and 3 p.m.?
	Roaf XIX Yes □ No South facing Wall: XIX Yes □ No
1	If the roof or wall are partly shaded, what percentage of the surface is unshaded?  % of roof unshaded%  % of south facing wall unshaded%
	What is the overall shape of the building?  XX square □ rectangle □ H-shaped □ E-shaped □ other (specify)
	Is the roof of the building flat or pitched?
	If pitched, what is the compass orientation of the ridgeline?
	If pitched, what is the angle that the roof makes with horizontal?
3	Are there large obstructions on the roof such as chimneys, rooms for mechanical equipment, ventilating units, water towers, etc?  Yes XX(No
	What is the exterior facing material for the south facing wall? Face brick and wood.
	What percentage of the south facing wall is glass?
	Is the building's space heating equipment located within or on the building? (A no answer indicates the equipment is in a separate building)
	If the space heating equipment is inside the building, where is it located?  XX Ground Floor  Basement  Or Roof  Other (specify)
SOLAR POTENTIAL INFORMATION	Is the building's water heating equipment located within the building? (A no answer indicates the equipment is in a separate building )
R POTI	If the water heating equipment is inside the building, where is it located?  XX Ground Floor    Basement    Other (specify)
SOLA	Is the water heating system a central system, does it consist of multiple units, or is it a combination of the central and multiple units?  XX Central  Multiple  Combination

L			BASE P	ERIOD YEAR			Fiscal Ye	par
	ENERGY TYPE	ENERG	USAGE	co	NVERSION F	ACTOR		BTU USAGE
	Electricity							
	Fuel 1		Program April 1997 (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997)	artioning and the second second second second second second second second second second second second second se		od og SP governe og selter velytiggetyne sår i 1999		
	Fuel 2		Programme and the second secon	,	y gygynydd ddife ddygyggyn en argainth y gyf a fyr y g			
	TOTAL							and the state of the state of the state of the state of the state of the state of the state of the state of the
			20% SA	VINGS YEAR			Fiscal Y	ear
	ENERGY TYPE	ENERG	USAGE	co	ONVERSION F	ACTOR		BTU USAGE
	Electricity					·		
	Fuel 1	gagan dan san san san san san san san san san s						
-	Fuel 2							
r							<b>†</b>	
L	TOTAL  Instructions: This section is to be state the roughly estimated range.							
		e of the percent of tota lities listed in section trical and fuel consul	al electrical and for L. Secondly, c	uel consumpti alculate the r	ion which wou	ld be saved re	sulting from t	he implementation of a
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportur percentages by the annual elect	e of the percent of tota lities listed in section trical and fuel consul- pory —	al electrical and for L. Secondly, c	uel consumpti alculate the r	ion which wou	ld be saved re	sulting from t avings by mu	he implementation of a ultiplying the estimate
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportun percentages by the annual election.  Check two boxes in each category.	e of the percent of tota lities listed in section trical and fuel consul- ory —	al electrical and find . Secondly, comption data on t	uel consumpti alculate the ra the energy rep	ion which wou ange of energ port.	Id be saved regy and cost s	sulting from t avings by mu	he implementation of a
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportun percentages by the annual elect Check two boxes in each category.  Range of Electrical Savings — 2	e of the percent of totalities listed in section trical and fuel consulory —  (17) 0% X7 5%	al electrical and fi 1. Secondly, comption data on to 10%	uel consumpti alculate the r. the energy rep 15%	on which wou ange of energe port.	Id be saved regy and cost s	sulting from t avings by mu	heimplementation of a situate using the estimate specify)
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportun percentages by the annual electrical savings — X Range of Fuel Savings —	e of the percent of total ities listed in section trical and fuel consulory —  (X) 0% XX 5%  0% XX 5%  cost savings —	al electrical and fi L. Secondly, comption data on to 10% 10% Range of	uel consumpti alculate the ri he energy rep 15% 15%	on which wou ange of energe port.	Id be saved regy and cost s	sulting from t avings by mu	heimplementation of a sittinglying the estimate (specify)
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportun percentages by the annual electrical savings — X Range of Fuel Savings —	e of the percent of totalities listed in section trical and fuel consulory —  (17) 0% X7 5%	al electrical and find. Secondly, comption data on the secondly of the second se	uel consumpti alculate the ri the energy rep  15% 15% Electrical Savi	on which wou ange of energe port.	Id be saved regy and cost s	ulting from tavings by mu	heimplementation of a sittinglying the estimated (specify)
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	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportun percentages by the annual election of the new mini-audit opportunes of the annual election of the section of the percent of total ities listed in section trical and fuel consultry — (17) 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% (17) 5% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	al electrical and find. Secondly, comption data on the secondly of the second s	uel consumpti alculate the r. the energy rep  15%  15%  Electrical Savi of Energy rings  kwh,	ion which wou ange of energe port.  20% 20% ings  Range 0 % x	25% Dollars \$ 2054	other (	Range of Electrica Dollars Savings	
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	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportun percentages by the annual election of the new mini-audit opportunes of the annual election of the section of the percent of total cities listed in section trical and fuel consultry — (IX) 0% (IX) 5% Down (IX) 5% D	Range of Save = 2292	uel consumpti alculate the r. the energy rep  15%  15%  Electrical Savior of Energy rings  kwh,  of Fuel Savin	ion which wou ange of energe port.  20% 20% 20% ings Kange 0 % x	Id be saved regy and cost a  25% 25% Annual El Dollars \$ 2054	other (	Range of Electrica Dollars Savings  \$ 0  102.75	
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportungercentages by the annual electrical section of the new mini-audit opportungercentages by the annual electrical section of the secti	e of the percent of total ities listed in section trical and fuel consultry — (17 0% 17 5% 0% 0% 17 5% 0% 0% 17 5% 0% 0% 17 5% 0% 17 5% 0% 17 5% 0% 17 5% 0% 17 5% 0% 17 5% 0% 17 5% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	el electrical and find. Secondly, comption data on to the second	uel consumpti alculate the r. the energy rep  15%  15%  Electrical Savi of Energy rings  kwh,  of Fuel Savin e of Fuel	ion which wou ange of energe port.  20% 20% 20% ings Kange 0 % x to 5 % x	Id be saved regy and cost s  25% 25% Annual El Dollars \$ 2054	other (	Range of Electrica Dollars Savings  \$ 102.75
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportungercentages by the annual electrical section is to be state the roughly estimated range of the annual electrical section is to be stated to the state of the section in the section is to be stated in the state of the section is to be stated in the state of t	e of the percent of totalities listed in section trical and fuel consultry — (17 0% 17 5% 0% 0% 17 5% 0% 0% 17 5% 0% 0% 17 5% 0%	Range of Save Page Range Range Range Range Range Range Range Range Range Range Range Range Range Range Range Range Range Range	uel consumpti alculate the r. the energy rep  15%  15%  Electrical Savi of Energy rings  kwh,  of Fuel Savin e of Fuel	ion which wou ange of energe port.  20% 20% 20% ings Kange 0 % x	Id be saved regy and cost s  25% 25% Annual El Dollars \$ 2054 Annual El Dollars	other (	Range of Electrica Dollars Savings  \$ 102.75

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Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific busing legation where the recommendation applies, if applicable, Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

OPTIONAL: OPTIONAL: CLASSIFICATION **ENERGY** ITEM NO. **ENERGY** DATE OF IMPLEMENTATION PAST ENERGY CONSERVATION ACTIONS COST NO. MAJOR SUB SAVINGS SAVINGS CLASS CLASS

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Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

OPTIONAL: OPTIONAL:

				OPTIONAL:	OPTIONAL	:
ITEM NO	CLASSIF NO MAJOR	SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	CLASS	CLASS				
1	1	1	Keep all controls free of dust.			
			Weatherstrip all exterior doors			
2	2	2	including garage doors.			
_			Inspect the roof and seal all			•
3	2	6	cracks that allow air and water			
			to enter.			
	†		Check the insulation			
4	2	6	on the roof.			
			Insulate the roof areas			
5	2	6	if needed.			
			Insulate walls with rigid insula-			
6	2	8	tion on inside surfaces, or place		İ	
			loose fill insulation in wall			
	1		cavaties.	1		
			Replace single glazed windows	1		
7	2	10	with double glazed thermopanes.	ł		RMS
			Check operation of entire heating/			
8	3	1 1	cooling control system, including			
			valves and dampers.			
	l		varves and dampers.	1		RMS
			Check the calibration of all	<u> </u>		· · · · · · · · · · · · · · · · · · ·
9	3	1 1	controllers and devices for proper			
	1	1	settings and operations.	<del></del>	<del>                                     </del>	
			or a constant of an archange	1		
	1		Raise the supply air temperature	<del> </del>	<del>                                     </del>	
10	3	1 1	for cooling to the highest point		)	·
	1.		necessary to provide minimum		<del> </del>	
			required cooling.		1	
			Lower the supply air temperature	<del>                                     </del>	<del> </del>	
11	3	1	for heating to the lowest point	1		
	1	*	necessary to provide minimum	†		,
	1.		required heating.			
	1	<del> </del>	65°F maximum occupied, 60°F		<b>†</b>	
12	3	1	maximum unoccupied during the			
		<del>                                     </del>	heating season.	<del> </del>	<del>                                     </del>	
			nearing season.			1
			78°F minimum when occupied and no	<del> </del>	<del>                                     </del>	
13	3	1	cooling when unoccupied during			
	<del>                                     </del>	<b>+</b> -	the cooling season.	<del> </del>	<del>                                     </del>	<del>                                     </del>
			the cooring season.			
	<b>—</b>	<b>†</b>	Keep fan blades	<del> </del>	+	
14	3	3	clear.	1		RMS
<b></b>	1-	1 -	Inspect and lubricate bearings	<u> </u>	<u> </u>	11110
15	3	2	of fan motors.			RMS
1	<del>                                     </del>	1-3-	Inspect drive belts. Adjust or	+	<del>                                     </del>	11117
_16	3	3				RMS
1	<del>                                     </del>	1 -	replace as necessary to ensure proper operation.	<del></del>	<del>                                     </del>	11113
			proper operacion.			
L					1	1

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Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Example suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go alor of record, the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ITEM	CLASSIF		MEWANNIA AUDIT OPPORTUNITIES	OPTIONAL:	ENERGY	
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
<u> 17</u>	3	3	Inspect fans for normal operation.		:	RMS
10			Keep condenser coil face clean to			DMC
18	3	3	permit proper air flow.	<u> </u>		RMS
19	3	3	Insepct damper blades and linkages. Clean, oil and adjust.			
19	- 3	3	Take special note of fresh air damper	ļ		
20	3	3	making sure that they close tightly	3		
	1	<u> </u>	and be sure to repair, replace or	<del> </del>		
			provide blade edge gaskets and gasket	ling		
			at the end of blades.			
01	1		Instruct occupants and mainteance			·
21	4	1	personnel to switch off all lights	<del> </del>		
			when they are not needed.			
22	4	2	Clean windows and skylights.			
			Clean fixtures			
23	4	3	and lamps regularly.			
			Use lower wattage lamps to provide			
24	4	4	the necessary illumination.	<b>↓</b>	L	
٥.			Allow part of a lighting system			
25	4	4	to be turned off, while maintaining the necessary light.	<del> </del>		
	<del> </del>		Keep records of the operating schedu	le,		
26	5	1	monthly energy consumption and pur-			August, 1979
			chase of any new equipment that	1		
			affects energy consumption of			
			efficiency of the building. These			
		ļ	records will indicate the impact	ļ		
			of energy conservation measures.			
			All insulation applied to a hot			
27	6	2	water system should be kept in good			
			condition.			
			The burner system of fossil-fuel	1		
28	6	2	water heaters should be kept in			
			good condtition.			
29	6	2	All electric heating equipment should be checked for corroded			
29	+ 0	+	elements and loose connections and	<del> </del>	<del> </del>	
			repaired as required.			
	<b>-</b>	†	Periodically drain and remove the	<del> </del>	<del> </del>	
30	6	2	sediment from the water heater.			
	1	T	Clean air-sides, remove soot, and	1	1	
31	7	4	scrape scale in forced warm air furi	naces.		

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NEW.	PPORT	

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20	implemente	d This sec	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	CLASSIF	ICATION O	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
110	MAJOR CLASS	SUB CLASS	NEW MINISAGEN STYCKTONINES	SAVINGS	SAVINGS	DATE OF THE CEMENTATION
32	7	3	If the firing rate of gas or oil burners is too high, it causes short			RMS
			cycling and excessive fuel consump-	<u> </u>		
			tion. Too low a rate requires			
			constant operating and delivers			
			inadequate heat to the spaces. Maintain the lowest possible hot	ļ		
22	7		water temperature which will meet			
33	1	4	domestic hot water needs.	<b></b>		
			Clean filters regularly in forced	<u> </u>		
34	7	4	warm air units to reduce the operat			RMS
			ing time of the furnace.			,
	<del> </del>		Turn off gas pilots for furnaces,		<del> </del>	
_35	7	4	boilers, and space heaters during			RMS
			non-heating months and during long			
			unoccupied periods.	<b> </b>		
26	_		Keep all heat exchanger surfaces			DMC
_36	1	4	clean. Check air-to-fuel ratio	<del> </del>		RMS
			and adjust as necessary.			
			Inspect casing for air leaks and	<u> </u>		
37	7	4	seal as necessary.			
	_		Follow guidelines suggested for fan			
38	<del>  7</del>	4	and motor maintenance of unit heater	<b>'S</b> .		
				ļ	ļ	
		+		-	<del> </del>	
		+		-	<del> </del>	
						<b>_</b>
				4		1

## **MINI-AUDIT REPORT**

A	BUILDING NAME Fire Station #5		NAME OF ORGANIZATION City of Bloomington	DATE 5-17-80
	BUILDING ADDRESS 10540 Bush Lake Road		ADDRESS 2215 West Old Shakopee Ro	ad
ACT	CITY Bloomington, MN	ZIP CODE 55438	CITY Bloomington, MN	ZIP CODE 55431
CONT	PERSON COMPLETING FORM	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen (	telephone 612) 881-5811

В		structions: For blocks 1 and 2 scribes the building type and							our categories
	1.	OWNERSHIP TYPE  Comparison (I)  Ownership Type  (I)  Ownership Type  (I)	PUB) (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT Office Storage Service	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
ODE	2.	ULTIMATE OWNER  County Otity	(CNTY) (CITY)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police y⊟Fire 12 OTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY CO		☐ Township ☐ State ☐ Public School ☐ Private School ☐ Non-Profit Association ☐ Indian Tribe	(TOWN) (STAT) (PUSC) (PRSC) (NPAP) (INDN)	b.	PUBLIC CARE Nursing Home Long Term Care Rehab. Facility Public Health Ctr. Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? □ Yes □ No Have you previously applied for mini-audit funding? ○ Yes □ No Do you wish to apply for mini-audit funding? □ Yes □ No
	Date
	Name:
	Signature:
	If eligible for Federal funding only: Have you received a mini-audit grant before?  Yes No Have you previously applied for mini-audit funding?  Yes No Do you wish to apply for mini-audit funding?  Yes No The 50% match for Federal funds will come from: (Use additional sheets if necessary.)
:	
UEST	
REO	Date
MINI-AUDIT	Name:
N S	Signature:

U	Che kittle type of energy report which was completed and submitted pri	ior to thi <b>s</b> mini-audit report.
EPORT	☐ Elementary School Energy Heport (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)  XX Existing Building Energy Report (Form No. EN-00041-01)	
ENERGY REPORT	If an energy report has not been completed previous to this mini-audit revocational schools should use form ED-00444-02 or form ED-00445-02, debuilding energy report, form EN-00041-01.	
E	Instructions: This section is to be completed and signed by a registered completed the State of Minnesota's Mini-Audit Procedures Course. This se are completed. All blanks must be filled in.	professional engineer or by a certified mini-auditor who has successfully action should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for this corrected any misinformation on the energy report which will be resubm	building. I found all information contained therein to be correct OR I have nitted with this mini-audit report to the Minnesota Energy Agency.
-	I am not directly responsible for the day to day operations of this building	ng being audited.
	I have fully disclosed my financial interests relating to this mini-audit an	id any energy conservation measures considered by this audit.
		ons listed in section I of this mini-audit report to be the operations and
	maintenance changes, and low cost energy conservation measures, whi	
	I have made a rough estimate, in section G, of the range of savings which listed in section I. I am not responsible if the actual savings resulting fro	n may result from the implementation of all of the mini-audit opportunities om this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and mainten 20% of the building's energy consumption as specified in section I.	nance procedures listed in section K did not save at least (did, did not)
	Based upon my observation of the physical characteristics of this buildi	ing and the building's major energy using systems, I recommend that this
.	Should not be the subject of a maxi-audit.  (should, should not)  I realize that this is not a final judgement, that the State reserves the right to	o make the maxi-audit funding determination based on this mini-audit report
	and other criteria.	
	Based upon the information in section E and the information referred to in	section F, I recommend that this building Should not (should, should not)
	undergo further solar conversion analysis, and/or Should n	ot undergo further analysis of the renewable resources waste.
	, and a consideration of the constant of the c	·
	In my judgement, as a mini-auditor, all of the above statements are true .	s and correct.
		Witnessed by:
	Randy Smith	
	Mini-Auditor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Romely Sulta 206	Signature
	Rieke Carroll Muller Assoc. Inc.	
	Firm Name (if none, enter none)	Date
	PO Box 130 Hopkins, MN 55343	
	(612) 935-6901	
	Phone	
	5-17-80 Date	
1		
	D'ate	
S		
DIT		
MINI-AUDIT STATEMENTS		

F	NAME	POSITION	ORGANIZATION
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Foreman	City of Bloomington
AUDIT			
	COURT DECORIOR OF CO	,	
G	Good	ENERAL BUILDING CONDITION (i.e. type, and fun	ction)
Z	None		litation, conversion from one building type to another)
BUILDING	STRUCTURAL COMPONENT	TS OF ROOF (i.e. metal beams, wooden rafters, cor	ncrete)
UILD	ROOFING MATERIAL (i.e. ta		
m =	Tar and Grave	1	
Н	INSTRUCTIONS Correctly a	inswer the following questions for the building bein	g mini-audited.
	Is there open land adjacent t XXI Yes □ No	o the building?	
	Solar collectors need to be locally m? Roof: XXX Yes No South facing Wall: XXX Yes	-	and the south facing wall unshaded between the hours of 9 a.m. and
		shaded, what percentage of the surface is unshaded %	d?
		the building?  ☐ H-shaped ☐ E-shaped ☐ other (specify)	·
	Is the roof of the building fla		
	If pitched, what is the compa	ass orientation of the ridgeline?	
	If pitched, what is the angle	that the roof makes with horizontal?	
	Are there large obstructions XXX yes \( \sigma \) No	on the roof such as chimneys, rooms for mechanic	cal equipment, ventilating units, water towers, etc?
	What is the exterior facing n	naterial for the south facing wall?fac	e brick
		th facing wall is glass?	
	Is the building's space heati	ng equipment located within or on the building? (A	no answer indicates the equipment is in a separate building)
	If the space heating equipm	ent is inside the building, where is it located? ement □ Roof □ Other (specify)	
NTIAL	Is the building's water heatin XXX Yes □ No	ng equipment located within the building? (A no an	swer indicates the equipment is in a separate building.)
SOLAR POTENTIAL	If the water heating equipmon XXX Ground Floor D Bas	ent is inside the building, where is it located? ement Other (specify)	
SOLAF	Is the water heating system XXX Central □ Multiple	a central system, does it consist of multiple units, o	or is it a combination of the central and multiple units?

				BASE	PERIOD YEA	AR		Fiscal Y	•81
	ENERGY TYPE		ENERGY	USAGE	c	CONVERSION	FACTOR		BTU USAGE
ř.	Electricity								
	Fuel 1					and have the management of the second of the second of the second of the second of the second of the second of			
	Fuel 2				,	And the second of the second o			
Ī	TOTAL								
4				20% SA	VINGS YEA	R		Fiscal	/ear
	ENERGY TYPE		ENERGY	USAGE		CONVERSION	FACTOR		BTU USAGE
	Electricity						,		
	Fuel 1								
<b>4</b>	Fuel 2								
DATA	TOTAL						<del></del>		
		l l			1			I	
				and the same of th					
	Instructions: This section is to state the roughly estimated rai of the new mini-audit opport percentages by the annual ele	nge of the pe unities listed	rcent of total	electrical and f	uel consump alculate the	ption which wo	uld be saved re	sulting from	the implementation of all
	state the roughly estimated rail of the new mini-audit opport	nge of the pe unities listed ectrical and	rcent of total	electrical and f	uel consump alculate the	ption which wo	uld be saved re	sulting from	the implementation of all
	state the roughly estimated rai of the new mini-audit opport percentages by the annual ele	nge of the pe unities listed ectrical and agory —	rcent of total	electrical and f	uel consump alculate the	ption which wo	uld be saved re	sulting from avings by m	the implementation of all
1	state the roughly estimated rai of the new mini-audit opport percentages by the annual ele Check two boxes in each cate	nge of the pe unities listed ectrical and agory —	rcent of total d in section fuel consum	electrical and f L. Secondly, c ption data on	uel consump alculate the the energy r	ption which wo range of ener report.	uld be saved regy and cost s	sulting from avings by m	the implementation of all ultiplying the estimated
	state the roughly estimated rai of the new mini-audit opport percentages by the annual ele Check two boxes in each cate Range of Electrical Savings —	nge of the pe unities listed ectrical and egory — - XX0%	rcent of total d in section fuel consum XX5% XX5%	electrical and f L. Secondly, c ption data on ————————————————————————————————————	uel consump alculate the the energy r	ption which wo range of ener report.	uld be saved regy and cost s	sulting from avings by m	the implementation of all pultiplying the estimated (specify)
1	state the roughly estimated rai of the new mini-audit opport percentages by the annual ele Check two boxes in each cate Range of Electrical Savings — Range of Fuel Savings —	nge of the pe unities listed ectrical and egory — - XX0%	rcent of total d in section fuel consum XX5% XX5%	electrical and f L. Secondly, o ption data on 10%	uel consump alculate the the energy r	ption which wo range of ener eport.	uld be saved regy and cost s	sulting from avings by m	the implementation of all pultiplying the estimated (specify)
1	state the roughly estimated rai of the new mini-audit opport percentages by the annual ele Check two boxes in each cate Range of Electrical Savings — Range of Fuel Savings —	nge of the peunities listerectrical and agory —  - XX 0%  0%  d cost savin	rcent of total d in section fuel consum XX5% XX5%	electrical and fi L. Secondly, o ption data on  10%  XX10%  Range of Range	uel consum; alculate the the energy r	ption which wo range of ener eport.	uld be saved regy and cost s	ulting from avings by m  other other	the implementation of all pultiplying the estimated (specify)
1	state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy are Range	nge of the peunities listerectrical and agory —  - XX 0%  0%  d cost savin	TAX5%  TAX5%  TAX5%  TAX5%  TAX5%  TAX5%	electrical and fi L. Secondly, o ption data on  10%  XX10%  Range of Range	uel consum; alculate the the energy r  15% 15% Electrical Sa of Energy rings	ption which wo prange of energe eport.  20% 20% 20% Range	uld be saved regy and cost s  □ 25% □ 25% Annual E	ulting from avings by m  other other	(specify)  Range of Electrical-
1	state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  to Electrical Savings —	nge of the peunities listerectrical and agory — - XXX0% - 0% - 0% - Annual Cons	CK5%  CK5%	electrical and fi L. Secondly, of ption data on 10%  MX10%  Range of San =	uel consum; alculate the the energy r  15% 15% Electrical Si of Energy rings kwh,	ption which wo range of energe eport.  20% 20% 20%  wings  Range 0 %	uld be saved regy and cost s  □ 25% □ 25% □ 25%  Annual E Dollars  \$ 173	ulting from avings by m  other other cother	the implementation of all sultiplying the estimated (specify) (specify)  Range of Electrical Dollars Savings  \$ 0  to
J 1	state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  % Range of Electrical Savings —  to 5	nge of the peunities listerectrical and agory —  - XX 0%  - 0%  Annual Cons	CK5%  CK5%	electrical and file. Secondly, option data on 10% MX10%  Range of Range of San = 2038	uel consum; alculate the the energy r  15% 15% Electrical Si of Energy rings kwh, to kwh,	ption which wo range of energe eport.  20% 20% 20%  Name of energe eport.	uld be saved regy and cost s  25% 25% Annual E Dollars	ulting from avings by m  other other cother	the implementation of all pultiplying the estimated  (specify)  (specify)  Range of Electrical Dollars Savings
1	state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  Calculate ranges of energy are with the sample of Electrical Savings —  to Electrical Savings —	Annual Cons	CK5%  CK5%  CK5%  CK5%  CK6%	electrical and file. Secondly, option data on 10% MX10%  Range of Range of Sar =	uel consum; alculate the the energy r  15% 15% Electrical Sate of Energy rings kwh, to kwh, of Fuel Sav	ption which wo range of energe eport.  20% 20% 20%  Name of energe eport.	ald be saved regy and cost s  25% 25% Dollars \$ 173	other other spent 88.43	the implementation of all pultiplying the estimated (specify)  (specify)  Range of Electrical Dollars Savings  \$ 0  to  \$ 86.92
J 1	state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical state. Check two boxes in each cate. Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy are to see the see that the see thad the see that the see that the see that the see that the see th	Annual Cons	CRS%  CRS%	electrical and file. Secondly, control data on 10% MAX10%  Range of Range of Sair = (0.2003)  Range Range Range Range Sair = 2038	uel consum; alculate the the energy r  15% 15% Electrical Sate of Energy rings kwh, to kwh, of Fuel Save of Fuel vings	ption which wo range of energe of en	uld be saved regy and cost s  25% 25% Annual E Dollars \$ 173 Annual Dollars	ulting from avings by m other other other spent 8.43	the implementation of all sultiplying the estimated (specify) (specify)  Range of Electrical Dollars Savings  \$ 0
J 1	state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical Savings —  Range of Electrical Savings —  Calculate ranges of energy are some some some some some some some som	Annual Cons	CRS%  CRS%	electrical and file. Secondly, control of the secondly of the	uel consum; alculate the the energy r  15% 15% Electrical Sate of Energy rings kwh, to kwh, of Fuel Save of Fuel vings	ption which wo range of energe port.  20% 20% 20%  4 Range 5 %  Ings  Range 5	uld be saved regy and cost s  25% 25% Annual E Dollars \$ 173 Annual Dollars	ulting from avings by m other other other	the implementation of all sultiplying the estimated (specify)  (specify)  Range of Electrical Dollars Savings  \$ 0  to \$ 86.92

K

Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific facility and items which have been endertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the minimal additional provided by building personnel prior to the walk-through by the minimal dior.

CLAS		SSIFICATION			OPTIONAL: OPTIONAL		
ITEM NO.	MAJOR	O. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION	
	CLASS	CLASS			SAVINGS		
			,				
		<b></b>					
	ļ						
	-						
	<u> </u>				<u> </u>		
					}		
	<del> </del>	-					
	<del> </del>						
	<del>                                     </del>				<del>                                     </del>		
	<del> </del>	-			<del>}</del>		
	-						
	1	+			<del> </del>		
	-				<del> </del> -		
	<b>†</b>	+			1		
	-	-			+		
				1	1		

NEW OPPORTUINITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20	<b>'</b>		non of the mini-addit report should be completed by the mini-addit	OPTIONAL:		
ITEM	CLASSIF	0.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
1	1	1	Keep all controls free of dust.			
			Weatherstrip all exterior doors in-			
2	2	2	cluding garage doors.			
			Inspect the roof and seal all cracks			
3	2	6	that allow outdoor air and water to			
			enter.			
	+		Check insulation on			
4	2	6	the roof.			
	1 -		Insulate the	***************************************		
5	2	6	roof areas.		}	
		<u> </u>	Replace single glazed windows with			
6	2	10	double glazed thermopanes.			
	1	1	Check operation of entire heating/			
7	3	1	cooling control system, including			RMS
	<u> </u>	<del></del>	control valves and dampers.			
	<del></del>	-	Check the calibration of all con-			
8	3	1	trollers and devices for proper			RMS
	+ -	<del> </del>	settings and operations.			
			securings and operactions.			
	+		Raise the supply air temperature			
9	3	1	for cooling to the highest point			
	<del>                                     </del>	<del></del>	necessary to provide minimum	<del> </del>		· · · · · · · · · · · · · · · · · · ·
			required cooling.	ł		
		<del> </del>	Lower the supply air temperature		<del> </del>	
10	3	1	for heating to the lowest point			
10	<del>                                     </del>	<del> </del>	necessary to provide minimum	<del></del>	<del> </del>	
			required heating.	l		1
	<del></del>	<del> </del>	Consider regulating the fresh air	<del> </del>	<del> </del>	<del> </del>
11	3	1	dampers with enthalpy control so			
	+ -	<del> </del> -	that the building can be cooled	<del>                                     </del>	<del> </del>	
			with outdoor air when this saves ene	acav.	İ	
		+	65°F maximum occupied, 60°F maximum	97.	<del> </del>	
12	3	1	unoccupied during the heating seasor		}	
16	<del>                                     </del>	+	78°F minimum when occupied and no	<u> </u>	<del> </del>	<del>                                     </del>
13	3	1	cooling when unoccupied during the			
_1/_	1 -	1	cooling season.		<b>†</b>	
			Provide atmospheric cooling			
14_	3	1_1_	as long as possible.	1	1	
						,
	-	<del> </del>	Clean and remove obstructions from	<del>                                     </del>	+	
15	3	2	all room air outlets and inlets			
		<del>                                     </del>	(diffusers, registers and grillers)	.†	<b>†</b>	
			They should be kept clean and free			
	+	+	of all dirt and foreign materials.	1	<del>                                     </del>	
		1	1		1	
		<u> </u>		<del></del>	<u> </u>	

NEW POPTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Example suggested mainty rance and operational changes, and any other low cost energy conservation may account to the facility. As you go along record the item immensions of the recommendation, and the new many audit opportunity. The description of the minimation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the minimal report should be completed by the minimal team during the building walk-through.

20			tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM NO	CLASSIF NO MAJOR		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
110	CLASS	CLASS		SAVINGS	SAVINGS	
			Clean and remove obstructions from			
16	3	2	all room air outlets (diffusers,			
			registers and grillers). They			
			should be kept clean and free of all			
			dirt and foreign materials.			
			Inspect and lubricate			DMC
17	3	3	bearings of fans.			RMS
		_	Inpsect drive belts. Adjust or			DMC
18	3	3	replace as necessary to ensure			RMS
			proper operation.			
		_	Inspect fans for			DMC
19	3	3	normal operation.		<b></b>	RMS
		_	Make sure that all fans, frequently			DMC
20	3	3	inoperative in unit heaters, fan			RMS
			coil units, and unit ventilators			
			are running normally to increase			
			the heat transfer rate from		]	
_			heating coils.			
		İ	Keep condenser coil face clean to			
21	3	3	permit proper air flow.			RMS
			Inspect ductwork for air leakage.			
22	3	3	Seal all leaks by taping or caulking			
			Inspect ductwork			
23	3	3	insulation.			
			Inspect damper blades and linkages.		1	
24	3	3	Clean, oil and adjust.			
-	1		Take special note of fresh air			
25	3	3	dampers making sure that they			
			close tightly and be sure to	<b></b>	<del>†                                    </del>	
			repair, replace or provide blade			
	<u> </u>		edge gaskets and gasketing at the	<del> </del>	<del> </del>	
			end of blades.			
			Instruct occupants and maintenance		<u> </u>	
26	4	1	personnel to switch off all lights			
			when they are not needed.	<u> </u>		
	+				-	
27_	4	3	Clean fixtures and lamps regularly.			
			Use lower wattage lamps to provide			
28	4	4	the necessary illumination.			
			Allow part of a lighting system to			
29	4	4	be turned off, while maintaining			
			the necessary light.			*
**************************************			Keep records of the operating	<b>†</b>		
30	5	1	schedule, monthly energy consumptio	n	<u> </u>	August, 1979
			and purchase of any new equipment			
			that affects energy consumption of	1	1	

EW EW PORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. There walk the light in building with the list. Exert suggested maintenance and operational changes, and any other low cost energy conservation interaction. That pertain to the facility. As you go a low, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ITEM	CLASSIF			ENERGY	OPTIONAL	
110	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
			efficiency of the builing. These	***************************************		
			records will indicate the impact			
			of energy conservation measures.			
	_	_	Review the record books			
31	5	1	on a regular basis.			August, 1979
20			All insulation applied to a hot			
32	6	2	water system should be kept in good condition.			
	+		All electric heating equipment choul	H		
33	6	2	All electric heating equipment shoul be checked for corroded elements	ļ		
رر	+		and loose connections and repaired			
			as required.			
	1		If the firing rate of gas burners	<b></b>		
34	7	3	is too high, it causes short cycling			RMS
	1-1		and excessive fuel consumption.		l	N'IS
			Too low a rate requires constant			
			operating and delivers inadequate			
			heat to the spaces.			
			Maintain the lowest possible hot			
35	7	Δ	water temperature which will meet			· ·
			domestic hot water needs.			
			Clean filters regularly in forced			
36	7	4	warm air units to reduce the operat-			RMS
			ing time of the furnace.			
	_		Turn off gas pilots for furnaces,			DMC
_37	1 7	4	boilers, and space heaters during	ļ	ļ	RMS
			the non-heating months and during			
		<del> </del>	long unoccupied periods.	<del> </del>		
20	7		Keep all heat exchanger surfaces			RMS
_38_	+-/	4	clean. Check air-to-fuel ratio		<del> </del>	MINO
Viliage State of			and adjust as necessary.			
39	7	4	Inpsect casing for air leaks and			
_39_	<del></del>	<del>  4</del>	seal as necessary. Follow guidelines suggested for	-	<b></b>	
40	7	4	fan and motor maintenance.			
40	+ ′	<b>+</b>	Tan and motor matricenance.			
		-				
					<del> </del>	
				-	ļ	

## **MINI-AUDIT REPORT**

A	BUILDING NAME Fire Station #6		NAME OF ORGANIZATION City of Bloomington	5-17-80
	BUILDING ADDRESS  8601 Lakeview Road		ADDRESS 2215 West Old Shakopee Roa	d
CONTACT	CITY Bloomington, MN	ZIP CODE 55438	CITY Bloomington, MN	ZIP CODE 55431
TA Y	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
ပိုင်	Randy Smith	(612) 935-6901	Arthur Jensen (	612) 881-5811

B		estructions: For blocks 1 and 2 escribes the building type and							our categories
	1.	OWNERSHIP TYPE X 知Public (I ロNon-Profit Association	PUB) (NAP)	3a.	SCHOOLS  □Elementary □Secondary □Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT  Office  Storage Service	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
ODE	2.	ULTIMATE OWNER  County  City	(CNTY) (CITY)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police XDFire □OTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY C		☐ Township ☐ State ☐ Public School ☐ Private School ☐ Non-Profit Association ☐ Indian Tribe	(TOWN) (STAT) (PUSC) (PRSC) (NPAP) (INDN)	b.	PUBLIC CARE Nursing Home Long Term Care Rehab. Facility Public Health Ctr. Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization.
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? !! I Yes XX No Have you previously applied for mini-audit funding? XXII Yes No Do you wish to apply for mini-audit funding?
	Date:
	Name:
	Signature:
	If eligible for Federal funding only: Have you received a mini-audit grant before?
	· ·
JEST	
REOL	Date
MINI-AUDIT FUNDING REQUEST	Name:
A DIN	Signature:

D	Check the type of energy report which was completed and submitted prior	o this mini-audit report.
ОВТ	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)	
REP OFF	XX Existing Building Energy Report (Form No. EN-00041-01)	the secondary and
ENERGY REPO	If an energy report has not been completed previous to this mini-audit repo vocational schools should use form ED-00444-02 or form ED-00445-02, dependuilding energy report, form EN-00041-01.	
E	Instructions: This section is to be completed and signed by a registered procompleted the State of Minnesota's Mini-Audit Procedures Course. This section are completed. All blanks must be filled in.	lessional engineer or by a certified mini-auditor who has successfully in should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for this bu corrected any misinformation on the energy report which will be resubmitted	
	I am not directly responsible for the day to day operations of this building	
	I have fully disclosed my financial interests relating to this mini-audit and a	
	I have walked through this building and have found the recommendations maintenance changes, and low cost energy conservation measures, which	
	I have made a rough estimate, in section G, of the range of savings which me listed in section I. I am not responsible if the actual savings resulting from	
	Based on actual records, the energy conservation operating and maintenant 20% of the building's energy consumption as specified in section I.	e procedures listed in section K did not save at least (did, did not)
	Based upon my abservation of the physical characteristics of this building 500 to 6 the subject of a maxi-audit.	and the building's major energy using systems, I recommend that this
	I realize that this is not a final judgement, that the State reserves the right to ma and other criteria.	ke the maxi-audit funding determination based on this mini-audit report
	Based upon the information in section E and the information referred to in se	stion F, I recommend that this building should not
	undergo further solar conversion analysis, and/or should not wind wood (Circle proper resources) (should, should not	(should, should not)  undergo further analysis of the renewable resources — waste,
	wind, wood (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true an	
	and the an	0.001.000.
		Witnessed by:
	Randy Smith	
	Mini-Auditor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Signature 206	Signature
	Rieke Carroll Muller Assoc., Inc.	
	Firm Name (if none, enter none) PO Box 130 Hopkins, MN 55343	Date
	Address	
	(612) 935-6901	
	<u>5-17-80</u>	
	Date	t .
	·	
TIO.		
MINI-AUDIT STATEMENTS		
MIN.		

F	NAME	POSITION	ORGANIZATION
!			
	Randy Smith	Certified Mini Auditor	Rieke Carroll Muller Associates, Inc.
	Reinert Ege	Maintenance Foreman	City of Bloomington
AUDIT			
<u> </u>			
G		NERAL BUILDING CONDITION (i.e. type, and full general building Condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and full general building condition (i.e. type, and turn general building condition (i.e.	nction)
			ilitation, conversion from one building type to another)
BUILDING	STRUCTURAL COMPONENTS	S OF ROOF (i.e. metal beams, wooden rafters, co	ncrete)
DIN	Concrete ROOFING MATERIAL (i.e. tar	and gravel shingles tile)	
BUIL	Tar and Gra		
H	INSTRUCTIONS Correctly an	swer the following questions for the building bei	ng mini-audited.
	Is there open land adjacent to XXX Yes □ No	the building?	
	Solar collectors need to be loca 3 p.m.? Roof: \\X\X\\ es \\D\No South facing Wall: \X\X\\ Yes	·	and the south facing wall unshaded between the hours of 9 a.m. and
		aded, what percentage of the surface is unshade	d?
	What is the overall shape of th		
	Is the roof of the building flat  XX flat □ pitched		
	****	s orientation of the ridgeline?	
	If pitched, what is the angle th	at the roof makes with horizontal?	•
	Are there large obstructions o ☐ Yes XX No	n the roof such as chimneys, rooms for mechani	cal equipment, ventilating units, water towers, etc?
	What is the exterior facing ma	terial for the south facing wall?	ace brick
	What percentage of the south	facing wall is glass?	
	Is the building's space heating XX Yes No	g equipment located within or on the building? (A	no answer indicates the equipment is in a separate building).
	χίΩ Ground Floor □ Baser	nt is inside the building, where is it located? nent □ Roof □ Other (specify)	
NTIAL	Is the building's water heating	equipment located within the building? (A no a	nswer indicates the equipment is in a separate building)
POTE	If the water heating equipmen XXX Ground Floor D Baser	it is inside the building, where is it located? nent  Other (specify)	
SOLAR POTENTIAL	is the water heating system a	central system, does it consist of multiple units.	or is it a combination of the central and multiple units?

			BASE	PERIOD YEA	AR		Fiscal '	Year
	ENERGY TYPE	ENERG	Y USAGE		CONVERSION	FACTOR		BTU USAGE
	Electricity		e de l'anne est e d'Allen e ment de la mande de l'Allen de l'anne de l'anne de l'anne de l'anne de l'anne de l		Balline erralinas de libre en arra anticapazaren garane			
	Fuel 1							
	Fuel 2		e-1900 - 1900 - e-1900 - e-1900 - e-1900 - e-1900 - e-1900 - e-1900 - e-1900 - e-1900 - e-1900 - e-1900 - e-19	,				
	TOTAL							
			20% S	AVINGS YEA	R	,	Fiscal	Year
	ENERGY TYPE	ENERG	Y USAGE		CONVERSION	N FACTOR		BTU USAGE
	Electricity							
	Fuel 1		t ett til til til ett en en ett til en en ett ett en ett ett en en en en en en en en en en en en en		and the second of the second o			
-	Fuel 2		and for the Contraction of the State of the					
	TOTAL							
<b>-</b> -	Instructions: This section is to be	a completed by the mi				aniai andia Cha		
	Instructions: This section is to be state the roughly estimated rang of the new mini-audit opportur percentages by the annual election of the two boxes in each category.	e of the percent of totalities listed in section trical and fuel consultations with the consultation of th	al electrical and n L. Secondly, mption data on ————————————————————————————————————	data (n	ption which we range of endreport.  ew build	ould be saved re ergy and cost s ding)	sulting from savings by n	nthe implementation of a nultiplying the estimate
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec  Check two boxes in each categor  Range of Electrical Savings —	e of the percent of total ities listed in section trical and fuel consultance or Not	al electrical and n L. Secondly, mption data on enough	data (n	ption which we range of en- report.	ould be saved re ergy and cost s	sulting from savings by n	nthe implementation of a nultiplying the estimate
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elect Check two boxes in each category	e of the percent of totalities listed in section trical and fuel consultations with the consultation of th	al electrical and n L. Secondly, mption data on ————————————————————————————————————	data (n	ption which we range of endreport.  ew build	ould be saved re ergy and cost s ding)	esulting from the savings by n	n the implementation of a nultiplying the estimate r (specify)
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec  Check two boxes in each categor  Range of Electrical Savings —	e of the percent of total trices listed in section trices and fuel consumory — Not	electrical and a L. Secondly, mption data on enough 10%	data (n	ew build	ould be saved reergy and cost so	esulting from the savings by n	nthe implementation of a nultiplying the estimate r (specify)
	of the new mini-audit opportur percentages by the annual elect Check two boxes in each category Range of Electrical Savings — Range of Fuel Savings —	e of the percent of total trices listed in section tricel and fuel consultory — Not □ 0% □ 5% □ 0% □ 5% □ cost savings —	enough  10%  Range o	data (n	ew build	ould be saved re ergy and cost s ding) 25%	osulting from avings by n	r (specify)
	of the new mini-audit opportur percentages by the annual elect Check two boxes in each category Range of Electrical Savings — Range of Fuel Savings —	e of the percent of total trices listed in section trices and fuel consumory — Not	enough  10%  Range of	data (n	ew build	ould be saved reergy and cost so	outling from lavings by n	nthe implementation of a nultiplying the estimate r (apecify)  r (apecify)  Range of Electricis
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and	e of the percent of totalities listed in section trical and fuel consulory — Not □ 0% □ 5% □ 0% □ 5% □ 0% □ 5% □ Annual Electrical	enough  10%  Range of	data (n 15% 15%	ew build 20% 20% 20% Range	ould be saved re ergy and cost s  ding)  25%  25%	outling from lavings by n	nthe implementation of a nultiplying the estimate r (specify)
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and % Range	e of the percent of total titles listed in section trical and fuel consultory — Not □ 0% □ 5% □ 0% □ 5% □ cost savings —   Annual Electrical Consumption	enough  number of the state of	data (n 15% 15% 15% 15% 15% 15% 15% 15% 15% 15%	ew build 20% 20% 20% Range	ould be saved reargy and cost s ding) 25% 25% Dollars	outling from lavings by n	nthe implementation of a nultiplying the estimate r (specify)
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and  % Range	e of the percent of total titles listed in section trical and fuel consultory — Not □ 0% □ 5% □ 0% □ 5% □ cost savings —   Annual Electrical Consumption	enough  number of the state of	data (n 15% 15% 15% 15% kelectrical Servings kelectrical Servings	ew build 20% 20% 20% Range	ould be saved reargy and cost s ding) 25% 25% Dollars	other	r (specify)  Range of Electrica Dollars Savings
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual electory check two boxes in each category. Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and	e of the percent of totalities listed in sectior trical and fuel consultory — Not ON ON ON ON ON ON ON ON ON ON ON ON ON	enough  number of the second o	data (n 15% 15% 15% 15% kelectrical Servings kelectrical Servings	ew build 20%  avings  % Range to	ould be saved reargy and cost statements of th	other	r (specify)  Range of Electrica Dollars Savings
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual electory check two boxes in each category. Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and	e of the percent of totalities listed in sectior trical and fuel consultory — Not ON ON ON ON ON ON ON ON ON ON ON ON ON	al electrical and a L. Secondly, mption data on Enough 10%  Range of Range	data (n 15% 15% 15% 15% 15% 15% 15% 15% 15% 15%	ew build 20%  avings  % Range to	ould be saved reergy and cost statements of the saved reergy and cost statements are considered.  ding)  25%  Annual E  Dollars  x \$  Annual Annual E	other	Range of Electrica Dollars Savings  to  Range of Fuel
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual electory check two boxes in each category. Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and	e of the percent of totalities listed in sectior trical and fuel consultrical and fuel consultrical and fuel consultrical and fuel consultrical consultrical consumption kwh	al electrical and a L. Secondly, mption data on Enough 10%  Range of Range	data (n 15% 15% 15% 16 Electrical Seven kwh lo _ kwh e of Fuel Savings	ew build 20% 20% 20% 4 Range	ould be saved reergy and cost statements of the saved reergy and cost statements are considered.  ding)  25%  Annual E  Dollars  x \$  Annual Annual E	eulting from lavings by n other other	Range of Fuel  Range of Fuel
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual electorical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and	e of the percent of totalities listed in sectior trical and fuel consultrical and fuel consultrical and fuel consultrical and fuel consultrical consultrical consumption kwh	al electrical and a L. Secondly, mption data on Enough 10% 10% Range of Range of Range State Sta	data (n 15% 15% 15% 16 Electrical Seven kwh lo _ kwh e of Fuel Savings	ption which we range of end report.  @W build 20%  20%  20%  **Range*  **Range*  **Range*  **Range*  **Range*  **Range*  **Range*	ould be saved reargy and cost statements of th	eulting from lavings by n other other	Range of Electrica Dollars Savings  Range of Fuel Dollars Savings

Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your famility. The description of the past energy conservation action should contain the specific building location where the recommendation implies if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been untertaken and are not on the list provided should also be included along with their appropriate classification numbers should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor. OPTIONAL: OPTIONAL CLASSIFICATION ENERGY NO. ITEM **ENERGY** DATE OF IMPLEMENTATION PAST ENERGY CONSERVATION ACTIONS COST MAJOR SAVINGS SUB SAVINGS CLASS CLASS

Note Reproduce this page as necessary

JEW JODGO TIINITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ITEM	CLASSIF			OPTIONAL:	ENERGY	
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
1	1	1	Keep all controls free of dust.			•
		-	Check the insulation			
2	1 2	6	on the roof			
			Insulate			
3	2	6	the roof areas.			
			Replace single glazed			
_4	2	10	windows with double glazed thermopan	es.		
			windows with double glazed thermopan Check operation of entire heating/			DMC
5	3	1	cooling control system, including			RMS
			control valves and dampers.			
			Check the calibration of all con-			RMS
6	3	1	trollers and devices for proper			IVIIO
			settings and operations.			
-			Raise the supply air temperature			
_7	3	<del>                                     </del>	for cooling to the highest point	<b></b>		
			necessary to provide minimum re-			
		<del> </del>	quired cooling.		<u> </u>	
0			Lower the supply air temperature			
88	3_	╁	for heating to the lowest point	<del> </del>		
			necessary to provide minimum		1	
			required heating. 65 F maximum occupied, 60 F maximum		<del> </del>	
9	3	1	unoccupied during the heating season			
	<del>                                     </del>	<del>  -</del>	78°F minimum when occupied and no	<b>†</b>	<del> </del>	
10-	3	1	cooling when unoccupied during the			
• •	1	<u> </u>	cooling season.	<b>—</b>		
			Clean and remove obstructions from	<b>-</b>	<b></b>	
11	3	2	all room air outlets and inlets			
			(diffusers, registers and grillers).			
			They should be kept clean and free			
÷			of all dirt and foreign materials.			
12	3	3	Inspect and Tubricate bearings of fans.		1	RMS
14	<del>                                     </del>	1 3	Inspect drive belts. Adjust or		<u> </u>	CI'IS
13	3	3	replace as necessary to ensure	}	1	RMS
10	1 -	-	proper operation.	<u> </u>		INIO
			Inspect fans for normal			
14	3	3	operation.		<u> </u>	RMS
15	3	3	Make sure that all fans, frequently inoperative in unit heaters, fan			RMS
	+	<del>                                     </del>	coil units, and unit ventilators	+	<del> </del>	1/1/15
			are running normally to increase	1		
		1	the heat transfer rate from	<u> </u>		
			heating coils.			

NEW POPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine suggested maintenance and operational changes, and any other low cost energy conservation measures, that periain to the facility. As you go air the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the first may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

			OPTIONA	L: OPTIONAL	
ITEM NO	CLASSIF NO MAJOR	SUB	NEW MINI-AUDIT OPPORTUNITIES ENERGY SAVING:		DATE OF IMPLEMENTATION
	CLASS	CLASS	//		
16	3	3	Keep condenser coil face clean		RMS
	+		to permit proper air flow. Inspect ductwork for air leakage.		100
17	3	3	Seal all leaks by taping or caulking.		
1/	<del>  3</del>	3	Seal all leaks by caping of cauthing		
18	3	3	Inspect ductwork insulation.		
			Inspect damper blades and linkages.		
19	3	3	Clean, oil and adjust.		
			Take special note of fresh air		
20	3	3	dampers making sure that they close		
			tightly and be sure to repair,		
	1		replace or provide blade edge		
			gaskets and gasketing at the		
<u>.                                    </u>			end of blades.		
			Instruct occupants and maintenance		
21	4	1	personnel to switch off all lights		
			when they are not needed.		
			Clean fixtures	<del> </del>	
22	4	3	and lamps regularly.		
			Use lower wattage lamps to provide		
23	4	4	the necessary illumination.		
			Allow part of a lighting system to		
24	4	4	be turned off, while maintaining		
			the necessary light.		
	+	<del> </del>	Keep records of the operating	<del> </del>	<del> </del>
25	5	1	schedule, monthly energy consumption		August, 1979
	<b>—</b>	<del>                                     </del>	and purchase of any new equipment	<del>-  </del>	August, 1575
			that affects energy consumption		
			of efficiency of the building.		
			These records will indicate the		
			impact of energy conservation	+	
			measures		
			Review the record		
26	5	1	books on a regular basis.		August, 1979
			All electric heating equipment	1	Augusta 1979
27	6	2	should be checked for corroded		
		1	elements and loose connections and	1	
			repaired as required.		
			Clean air-sides, remove soot, and		
28	7	3	scrape scale in forced warm air furnaces.		RMS.
		1	If the firing rate of gas or oil		
29	7	3	burners is too high, it causes short		RMS
		1	cycling and excessive fuel consump-		
			tion. Too low a rate nequires		
		1	constant operation and delivers		
			inadequate heat to the spaces.	İ	
		-			

NEW OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you quallong record, the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ZO	implemente	d. This sec	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	CLASSIFICATION NO NEW MINI-AUDIT OPPORTUNITIES		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	SATE OF MIN ELIMENTATION
30	7	4	Maintain the lowest possible hot			
30	+-′-	4	water temperature which will meet domestic hot water needs.			Announce of the control of the contr
	<del> </del>		Clean filters regularly in forced			
31	7	4	warm air units to reduce the operat-			RMS
			ing time of the furnace.			
20	<b>—</b>	4	Turn off gas pilots for furnaces,			DMC
32	7	4	boilers, and space heaters during	<b>_</b>	<u></u>	RMS
			the non-heating months and during long unoccupied periods.			
			Keep all heat exchanger surfaces			DMC
33	7	4	clean. Check air-to-fuel ratio		-	RMS
			and adjust as necessary.			
			Inspect casing for air leaks and			**************************************
34	7	4	seal as necessary.	<u> </u>		
35	7	4	Follow guidelines suggested for fan and motor maintenance.			
	<b></b>	<del>                                     </del>	and motor marricenance.	<b>†</b>	<b>†</b>	
		ļ		<u> </u>		
		<del> </del>		<del>                                     </del>	<u> </u>	
<del>. , .</del>		ļ		<b></b>	<u> </u>	
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		<del> </del>		1	<del>                                     </del>	
**************************************		-		-		
- 1		-		-	<u> </u>	
					1	

A	BUILDING NAME Community lee Garden		NAME OF ORGANIZATION  City of Bloomington	5-21-80
	BUILDING ADDRESS 3600 West 98th Street		ADDRESS 2215 West Old Shakopee Road	1
CONTACT DATA	CITY Bloomington, MN	ZIP CODE 55431	Bloomington, MN	ZIP CODE 55431
ATA	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
۵۵	Paul Martinsen	<b>(</b> 612 <b>)</b> 935-6901	Arthur Jensen	(612) 881-5811

1.	OWNERSHIP TYPE		3a.	SCHOOLS		С.	LOCAL GOVERNMENT	
•	\/RB	PUB) (NAP)	Ja.	☐ Elementary ☐ Secondary ☐ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	□ Office □ Storage □ Service	(LOCG-OFF (LOCG-STR (LOCG-SER
2	ULTIMATE OWNER County XXXCity	(CNTY) (CITY)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire DOTHER	(LOCG-LBR (LOCG-PLC (LOCG-FIRE (LOCG-OTH
	☐ Township ☐ State ☐ Public School ☐ Private School ☐ Non-Profit Association ☐ Indian Tribe	(TOWN) (STAT) (PUSC) (PRSC) (NPAP) (INDN)	b.	PUBLIC CARE  □ Nursing Home  □ Long Term Care  □ Rehab. Facility  □ Public Health Ctr.  □ Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS □General □Tuberculosis □OTHER	(HOSP-GEN (HOSP-TUB (HOSP-OTH

,	
C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization.
	If eligible for both Federal and State Funding:  Have you received a mini-audit grant before?  Yes Dixlo Have you previously applied for mini-audit funding?  One you wish to apply for mini-audit funding?  Yes Do you wish to apply for mini-audit funding?
	Date:
	Name:
	Signature:
	If eligible for Federal funding only: Have you received a mini-audit grant before?  Have you previously applied for mini-audit funding?  Yes  No Do you wish to apply for mini-audit funding?  Yes  No The 50% match for Federal funds will come from: (Use additional sheets if necessary.)
ST	
EQUE	Date:
UDIT NG R	Name <sup>-</sup>
MINI-AUDIT FUNDING REQUEST	Signature:

D	Check the type of energy report which was completed and submitted p	rior to this mini-audit report
PORT	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)  XX Existing Building Energy Report (Form No. EN-00041-01)	
ENERGY REPORT	If an energy report has not been completed previous to this mini-audit	report, one must be included with this report. Elementary, secondary, and epending on building complexity. All other buildings should use the existing
1		
E	Instructions: This section is to be completed and signed by a registered completed the State of Minnesota's Mini-Audit Procedures Course. This are completed. All blanks must be filled in.	d professional engineer or by a certified mini-auditor who has successfully section should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for the corrected any misinformation on the energy report which will be resub	is building. I found all information contained therein to be correct <i>OR</i> I have mitted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this build	ling being audited.
	I have fully disclosed my financial interests relating to this mini-audit a	
	I have walked through this building and have found the recommendal maintenance changes, and low cost energy conservation measures, when the control is the comment of the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control in the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control is the control in the control in the control in the control in the control is the control in the	tions listed in section I of this mini-audit report to be the operations and nich would reduce energy consumption in this building.
	I have made a rough estimate, in section G, of the range of savings which listed in section I. I am not responsible if the actual savings resulting for	ch may result from the implementation of all of the mini-audit opportunities rom this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and mainte 20% of the building's energy consumption as specified in section I.	enance procedures listed in section K <u>did not</u> save at least (did, did not)
	(should, should not)	ding and the building's major energy using systems, I recommend that this to make the maxi-audit funding determination based on this mini-audit report
	Based upon the information in section E and the information referred to	in section F, I recommend that this building Should not (should, should not)
	undergo further solar conversion analysis, and/orshould_r	(should, should not)  10 t undergo further analysis of the renewable resources — waste,
	wind, wood. (Circle proper resources) (should, should	d not)
	In my judgement, as a mini-auditor, all of the above statements are tru	ue and correct.
		Witnessed by:
'	Paul Martinsen Mini-Auditor's Name (Print or Type)	Building Organizational Authority (Print or Type)
ĺ	Signature P.E. 9597	Signature
		Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)	Date
	P.O. Box 130 Hopkins, MN 55343 Address	
	(612) 935-6901	
	5-27 - 80	
	Date	
y		
MINI-AUDIT		
N-AL		
STS		

F	NAME	POSITION	ORGANIZATION
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
	Andy Raltgalvis	Bldg. Maint. Chief	City of Bloomington
	Andy baregulvis	Diag. Paritt. Offici	City of Produington
AUDIT			
AU TE			
	BRIEF DESCRIPTION OF CENE	FRAL BUILDING CONDITION (i.e. type and	function
G	Good Condition,		
		VITHIN NEXT 15 YEARS (i.e. demolition, reh	abilitation, conversion from one building type to another)
NO I	None STRUCTURAL COMPONENTS	OF ROOF (i.e. metal beams, wooden rafters,	concrete)
BUILDING	Metal Beams ROOFING MATERIAL (i.e. tar a	nd group! chingles tile)	
BUIL	Tar & Gravel	nu graver, simigres, me,	
H	INSTRUCTIONS: Correctly answ	wer the following questions for the building b	eing mini-audited.
	Is there open land adjacent to the	ne building?	
	Solar collectors need to be locate 3 p.m.? Roof: XXX Yes □ No South facing Wall: XXX Yes		ng and the south facing wall unshaded between the hours of 9 a.m. and
		ded, what percentage of the surface is unsha	ded?
	What is the overall shape of the XX square □ rectangle □	building? H-shaped □ E-shaped □ other (specify)	
	Is the roof of the building flat or	pitched?	
	If pitched, what is the compass	orientation of the ridgeline?	
	If pitched, what is the angle tha	t the roof makes with horizontal?	•
	Are there large obstructions on ☐ Yes XXNo	the roof such as chimneys, rooms for mecha	inical equipment, ventilating units, water towers, etc?
1	What is the exterior facing mate	erial for the south facing wall? Concr	ete Block
	What percentage of the south fa	acing wall is glass?%	
	Is the building's space heating ( XX'Yes' D No	equipment located within or on the building?	(A no answer indicates the equipment is in a separate building)
	If the space heating equipment  Ground Floor  Baseme	is inside the building, where is it located? ant XXRoof □ Other (specify)	
NTIAL	Is the building's water heating € XX Yes □ No	equipment located within the building? (A no	answer indicates the equipment is in a separate building.)
SOLAR POTENTIAL	If the water heating equipment XX Ground Floor  Baseme	is inside the building, where is it located? ent   Other (specify)	
SOLAF	Is the water heating system a c	entral system, does it consist of multiple unit Combination	is, or is it a combination of the central and multiple units?

			BASE	PERIOD YEAR	R		Fiscal Ye	ear
ENERGY TYPE		ENERGY	USAGE	C	ONVERSION I	FACTOR		BTU USAGE
Electricity					Mineral School & Chroso Andrew Chroso (Chroso			
Fuel 1								
Fuel 2				,				
TOTAL								
			20% SA	VINGS YEAR	3		Fiscal Y	ear
 ENERGY TYPE		ENERGY	USAGE	C	ONVERSION	FACTOR		BTU USAGE
 Electricity			on the state of th					· · · · · · · · · · · · · · · · · · ·
Fuel 1		**************************************						
 Fuel 2			AND AND AND AND AND AND AND AND AND AND		The state of the s	and the second of the second o	<b>†</b>	
	1			[			1	
TOTAL  Instructions: This section is to								
	nge of the pe tunities liste ectrical and	rcent of total d in section	electrical and L. Secondly, of	fuel consump calculate the	tion which wou range of ener	ild be saved re	sulting from t	he implementation of al
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual el	nge of the pe tunities liste ectrical and egory —	rcent of total d in section	electrical and L. Secondly, of	fuel consump calculate the	tion which wou range of ener	ild be saved re	sulting from t avings by mi	he implementation of al
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual el Check two boxes in each cate	nge of the pe tunities liste ectrical and egory —	rcent of total d in section fuel consum	electrical and L. Secondly, option data on	fuel consump calculate the the energy re	tion which wou range of ener eport.	ald be saved regy and cost s	sulting from t avings by mu	he implementation of all ultiplying the estimated (specify)
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual el Check two boxes in each cate Range of Electrical Savings –	nge of the petunities liste ectrical and egory —  — XIX 0%	XXX 5%	electrical and L. Secondly, option data on	fuel consump calculate the the energy re	tion which wou range of ener- eport.	uld be saved regy and cost s	sulting from t avings by mu	he implementation of all ultiplying the estimated (specify)
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual el Check two boxes in each cate Range of Electrical Savings —	nge of the petunities liste ectrical and egory —  — XIX 0%  — 0%  — nd cost savii	XXX 5% XXX 5%	electrical and L. Secondly, option data on  10%  10%	fuel consump calculate the the energy re	ition which wou range of ener eport	25%	oulting from to avings by mu	he implementation of all ultiplying the estimated (specify)(specify)
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual el Check two boxes in each cate Range of Electrical Savings —	nge of the petunities liste ectrical and egory —  — XIX 0%  — 0%  Annual	XXX 5%	electrical and L. Secondly, of ption data on  10%  10%  Range of Range	fuel consump palculate the the energy re	ition which wou range of ener eport	uld be saved regy and cost s	ulting from to avings by mu	he implementation of all ultiplying the estimated (specify)(specify)
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual elementages by the annual elementages of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and state of the section of t	nge of the petunities liste ectrical and egory —  — XIX 0%  — 0%  Annual	XXX 5% XXX 5% XXX 5%  I Electrical umption	electrical and L. Secondly, o ption data on  10% XX 10%  Range of Range Sa	luel consump calculate the the energy re 15%  15% Electrical Sa of Energy	20%	25% 25% Annual E	ulting from to avings by mu	he implementation of all ultiplying the estimated (specify)  (specify)  Range of Electrica Dollars Savings
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual el Check two boxes in each cate Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy at % Range	nge of the petunities liste ectrical and egory —  — XIX 0%  — 0%  Indicast savii	XXX 5% XXX 5% XXX 5%  I Electrical umption  106 kwh	electrical and L. Secondly, o ption data on  10% XX 10%  Range of Range Sa	Luci consump calculate the the energy re 15%  15%  Electrical Sa of Energy vings  Market Mark	20% 20% Range	25% 25% Dollars 39	outting from to avings by mu	he implementation of all ultiplying the estimated (specify)  (specify)  Range of Electrica Dollars Savings  \$
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual elementages by the annual elementages of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and ———————————————————————————————————	nge of the petunities liste ectrical and egory —  — XIX 0%  — 0%  Annual Cons	XXX 5% XXX 5% XXX 5%  Angs —  Lelectrical umption 1.06	electrical and L. Secondly, option data on 10%  10%  Range of Range = 6.6x1	luel consump palculate the the energy re 15%  15% Electrical Sa of Energy vings  0 kwh,	vings  Range  0  4  5  4  5  6  6  6  6  6  6  6  6  6  6  6  6	25% 25% Dollars 39	other of other lectrical spent 126.18 =	he implementation of all ultiplying the estimated (specify)  (specify)  Range of Electrica Dollars Savings  \$
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual elementages by the annual elementages of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and ———————————————————————————————————	nge of the petunities liste ectrical and egory —  — XIX 0%  — 0%  Annual Cons x 1.3x	XXX 5% XXX 5% XXX 5%  Angs —  Lelectrical umption 1.06	electrical and L. Secondly, option data on  10%  10%  Range of Range  = 6.6x1  Range Range	Luci consumposiculate the the energy re 15%  15%  Electrical Sa of Energy vings  () kwh,  to kwh,  of Fuel Savine of Fuel	vings  Range  0  4  5  4  5  6  6  6  6  6  6  6  6  6  6  6  6	25% 25% Dollars 39	other of other 126.18 =	he implementation of all ultiplying the estimated (specify)  (specify)  Range of Electrica Dollars Savings  \$
Instructions: This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual elementages by the annual elementages by the annual elementages of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy at the section of the section o	Annual Cons	XXX 5%  XXX 5%  XXX 5%  Apple 1 Electrical umption  106 kwh	electrical and L. Secondly, option data on  10%  10%  Range of Range  = 6.6x1  Range Range	Lied consumposiculate the the energy re 15%  Liectrical Sa of Energy vings  kwh,  to kwh,  of Fuel Savings	vings  % Range  to  5  % Range	Annual E Dollars  \$ 39.  Annual E Dollars	other of other 126.18 =	Range of Electrica Dollars Savings  Range of Fuel Dollars Savings

K

Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification number. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

	CLASSIFICATION OPTIONAL:					
ITEM NO	MAJOR	SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION
	CLASS	CLASS	Heat recovery added to refrigeration equipment.		SAVINGS	Summer of '78
1	1	1	refrigeration equipment.			(Approx.)
			,			
			The second secon			
	<b></b>					
						-
					<b> </b>	
	-					
	-				<del>                                     </del>	
	-	-				
	-	-				
****						

NEW OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20			ion of the mini-addit report should be completed by the mini-addit	OPTIONAL:	OPTIONAL	
ITEM			NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION
NO	CLASS	CLASS		SAVINGS	SAVINGS	
1	1	1	Keep all controls free of dust.			
			Lubricate motors to reduce			
2	1	2	wear and excessive torque.			
			Where it is impractical to replace			
3	1	2	motors which have low loads and powe	r		
			factors, use capacitors at motor			
			terminals to correct the power factor	r		
			to 90%.			
	1		Check power factors and make			
4	1	3	adjustments to correct equipment.			
			Replace single glazed windows with			
5	2	10	double glazed thermopanes in lobby.			
			Check operation of entire heating/			İ
6	3	1	cooling control system, including			
			control valves and dampers.			
			Check the calibration of all con-		<del> </del>	
_7	3	1	trollers and devices for proper			
			settings and operations.			
			Reduce the amount of infiltration			
_8_	3	1	and outdoor air ventilation to			
			provide only the minimum required.			
			Consider regulating the fresh air			
9_	3	1	dampers with enthalpy control so			
			that the building can be cooled			
		<b>_</b>	with outdoor air when this saves	<u> </u>	<u> </u>	
			energy.			
			Clean the air side of all direct			
10	3	2	radiators, fin tube convectors			
			and coils to enhance heat transfer.			
11			Clean and remove obstructions from			
11	3	2	all room air outlets and inlets	<del> </del>		
			(diffusers, registers and grillers)	1		
		-	They should be kept clean and free		-	
			of all dirt and foreign materials.			
10			Keep condenser coil face clean to			
12	3	3	permit proper air flow.	+	+	<u> </u>
10			Check fresh air damper control and			
13	3	3_	operator for tight closing and for	-	<del> </del>	
			correct column of minimum fresh		1	
		<del>                                     </del>	air supply as per code requirements	4	+	
1 //	) 2	) ,	Inspect mixing dampers for proper		1	
14	3	3	operation. Adjust as necessary.		1	1

NEW POPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenan is and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

				OPTIONAL:	OPTIONAL	:
ITEM NO	1	ICATION O. SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION
140	CLASS	CLASS		SAVINGS	SAVINGS	
			Clean or replace filters periodicall	V		
15	3	3	or when indicated by filter gauges.	,		
	<u> </u>	-	If there are not gauges, consider			
	Į.					
		<del> </del>	installing them.			
			Add heat recovery from refrig-			
16	1 3	5	eration equipment to Rink #2.			
	1		Add insulation to condensing unit			
_17	' 3	6	suction line from #2 rink east unit.			
			Clean fixtures and lamps			
18	3 4	3	regularly.			
			In dirty areas enclose			
19	) 4	3	fixtures to reduce dirt collection.			
			Replace lamps in groups before			
_20	1 4	3	they burn out to maintain higher			
	4-4-	-3				<del></del>
			average light output per fixture.			
		<b></b>	1/		<u> </u>	
	.   .		Keep walls, ceiling and			
21	1 4	3	floors clean.		ļ	
	1		Use higher efficiency lamps for			
22	2 4	3	parking lot lighting.			
			Turn off display case internal			
_23	3 4	4	lighting, when premises are unoccup	led.		}
	<u> </u>	1	Remove unnecessary lamps, fixtures,		<del>                                     </del>	
24	1 4	4		]		
	+ 4	4	and ballasts.	<b> </b>	<del>}</del>	
~ .	-		Reduce outside lighting in parking			
2	5 4	4	lots and at building signs and			1
			entrances to the minimum.			
			Allow part of a lighting system	<u> </u>	<del>                                     </del>	
21	6 4	4	to be turned off, while maintaining			
	<del></del>	†	the necessary light.	<u> </u>	<del> </del>	<del>                                     </del>
			l the necessary right.	l		
		<del> </del>	Use lower wattage lamps to provide	<del> </del>	<del> </del>	
2	7 1 1					1
	7 + 4	4	the necessary illumination.	ļ	<del> </del>	
0			Keep records of the operating			1070
	8 5	+	schedule, monthly energy consumption	<u>n</u>	ļ	August, 1979
			and purchase of any new equipment		-	
			that affects energy consumption	<u> </u>		
	l	1	of efficiency of the building.			
	1		These records will indicate the	1		
			impact of energy conservation	<u> </u>	<b>†</b>	
			measures.		1	
		<del> </del>	Review the record books	<del>                                     </del>	<del>                                     </del>	
29	5	1	on a regular basis.			August, 1979
د ع	- J	+	Establish a specific maintenance	<del> </del>	+	1.090000, 1070
20						
30	5	2	schedule for each building to	<b></b>	4	
			ensure that all components of			
		4	the specific building operate at		1	
			maximum efficiency.			

VEW OPPORTUNITIES Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20	mpiemente	u 11113 300	non of the mini-augh report should be completed by the mini-augh	OPTIONAL:	-	<del>-</del>
ITEM	CLASSIF		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
	_	_	Consult manufacturers literature			
31	5	2	for guidance in establishing a			
			maintenance schedule.			
			Adjust water supply to 100°F for all			
32_	6_	11	except special requirements (dish-			
			washer supply units, etc.).			
			Check the operation of the tempera-			
33_	6	11	ture controller so overheating does			
			not occur.			
			Periodically drain and			·
34	6	2	remove the sediment.		ļ	
		_	Reduce the water flow of showers,			
35	6	5	faucets, and toilets to minimum	ļ		
			requirements.	ł		
			Provide an automatic draft damper			
36	1 7	3	control to reduce the heat loss			
			through the breeching (smoke pipe)			
		-	when the gas burner is not in oper-	ļ	<b></b> -	
			ation. Adjust draft-control with			
	-	<del>                                     </del>	combustion testing equipment to		<del> </del>	
			match the firing rate.			
			Maintain the lowest possible hot		1	
37	7	4	water temperature which will meet			
			space or domestic hot water needs.			
1		<u> </u>	Check cooling tower fan by listenin	<del>-</del>		
38	7	4	for any unusual noise or vibration.			
			Inspect condition of V-belt (s) and			
			drive. Align fan and motor as			
			necessary.			
			Keep the cooling tower clean to			
39	1	4	minimize both air and water pressur	<u> </u>	ļ	
			drop.		Ì	
			Determine if there is air bypass		<b>†</b>	
40	7	4	from the cooling tower outlet		<b></b>	
			back to inlet.			
	-	<del> </del>		<del> </del>	<del> </del>	
		1				1

	1			
A	BUILDING NAME		NAME OF ORGANIZATION	DATE
A	Dwan Golf Course - Club	House	City of Bloomington	5-23-80
l	BUILDING ADDRESS		ADDRESS	
	3301 West 110th Street		2215 West Old Shakopee	Road
	CITY	ZIP CODE	CITY	ZIP CODE
Ş	Bloomington, MN	55431	Bloomington, MN	55431
Ž	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
CONTACT DATA		(612) 935-6901		(612) 881-5811
	Randy Smith	#0151 332-030I	Arthur Jensen	(012) 001-3011
B BUILDING ELIGIBILITY CODE	describes the building type and then within the describes the building type and then within the describes the building type and then within the describes the building type and then within the describes the building of the	as SCHOOLS   Elementary   Secondary   Coll. or Univ   Vocational   Education Al   Administration   OTHER	(SCHL-ELM)  (SCHL-SECD)  (SCHL-POST)  (SCHL-VOCL)  (SCHL-VOCL)  (SCHL-ADMN)  (SCHL-ADMN)  (SCHL-ADMN)  (SCHL-ADMN)  (SCHL-OTHR)  The (PBCR-NURS)  Care (PBCR-TERM)  Inty (PBCR-HAB)  Into (PBCR-HCTR)  The Ctr. (PBCR-HCTR)  The Ctr. (PBCR-RCCC)   The section must be signed and dated by the control of the con	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV) (LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)  (HOSP-GENL) sis (HOSP-TUBR) (HOSP-OTHR)

Name: \_\_

Signature: \_\_\_

	Check the type of energy report which was completed	d and submitted prior	r to this mini-audit report.
	☐ Elementary School Energy Report (Form No. ED-	00445-02)	
)	XX Existing Building Energy Report (Form No. EN-00		
	If an energy report has not been completed previous vocational schools should use form ED-00444-02 or for building energy report, form EN-00041-01.	to this mini-audit rep rm ED-00445-02, depe	ort, one must be included with this report. Elementary, secondary, an ending on building complexity. All other buildings should use the existin
	Instructions: This section is to be completed and sign completed the State of Minnesota's Mini-Audit Procedure completed. All blanks must be filled in.	ned by a registered pr ures Course. This sect	ofessional engineer or by a certified mini-auditor who has successfull tion should be completed after this mini-audit report and an energy report.
			uilding. I found all information contained therein to be correct <i>OR</i> I have ted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day opera	ations of this building	being audited.
	I have fully disclosed my financial interests relating to	o this mini-audit and	any energy conservation measures considered by this audit.
	I have walked through this building and have found maintenance changes, and low cost energy conserva	the recommendation ition measures, which	is listed in section I of this mini-audit report to be the operations and would reduce energy consumption in this building.
	I have made a rough estimate, in section G, of the ran listed in section I. I am not responsible if the actual s	ge of savings which n savings resulting from	may result from the implementation of all of the mini-audit opportuniti n this mini-audit do not fall within the estimated range.
			1 • 1 •
	Based on actual records, the energy conservation ope 20% of the building's energy consumption as specific	erating and maintenared in section I.	nce procedures listed in section K <u>did n0t</u> save at lea (did, did not)
	20% of the building's energy consumption as specific	ed in section I.	
	Based upon my observation of the physical characte (should, should not)	ed in section I. ristics of this building axi-audit.	g and the building's major energy using systems, I recommend that th
	Based upon my observation of the physical characte (should, should not)	ed in section I. ristics of this building axi-audit.	g and the building's major energy using systems, I recommend that th
	Based upon my observation of the physical characte (should, should not) I realize that this is not a final judgement, that the State and other criteria.	ed in section I. ristics of this building axi-audit. reserves the right to n	g and the building's major energy using systems, I recommend that the maxi-audit funding determination based on this mini-audit rep
	Based upon my observation of the physical characte (should, should not) I realize that this is not a final judgement, that the State and other criteria.  Based upon the information in section E and the information	ed in section I.  ristics of this building axi-audit.  reserves the right to numerical referred to in section 1.5	and the building's major energy using systems, I recommend that the maxi-audit funding determination based on this mini-audit representation F, I recommend that this building   Should not (should, should not)
	Based upon my observation of the physical characte (should, should not) I realize that this is not a final judgement, that the State and other criteria.	ed in section I.  ristics of this building axi-audit.  ereserves the right to not should in a should not shoul	and the building's major energy using systems, I recommend that the maxi-audit funding determination based on this mini-audit representation F, I recommend that this building   Should not (should, should not)
	Based upon my observation of the physical characte (should, should not) I realize that this is not a final judgement, that the State and other criteria.  Based upon the information in section E and the informundergo further solar conversion analysis, and/or	ed in section I.  ristics of this building axi-audit.  reserves the right to not a mation referred to in section in the should not a should, should not a mation refered to in sections.	g and the building's major energy using systems, I recommend that the maxi-audit funding determination based on this mini-audit replection F, I recommend that this building
	Based upon my observation of the physical characte (should, should not) I realize that this is not a final judgement, that the State and other criteria.  Based upon the information in section E and the informundergo further solar conversion analysis, and/orwind, wood. (Circle proper resources)	ed in section I.  ristics of this building axi-audit.  reserves the right to not a mation referred to in section in the should not a should, should not a mation refered to in sections.	g and the building's major energy using systems, I recommend that the maxi-audit funding determination based on this mini-audit representation F, I recommend that this building
	Based upon my observation of the physical characte (should, should not) I realize that this is not a final judgement, that the State and other criteria.  Based upon the information in section E and the informundergo further solar conversion analysis, and/orwind, wood. (Circle proper resources)	ed in section I.  ristics of this building axi-audit.  reserves the right to not a mation referred to in section in the should not a should, should not a mation refered to in sections.	g and the building's major energy using systems, I recommend that the maxi-audit funding determination based on this mini-audit replection F, I recommend that this building
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	Based upon my observation of the physical characte (should, should not) I realize that this is not a final judgement, that the State and other criteria.  Based upon the information in section E and the informundergo further solar conversion analysis, and/orwind, wood. (Circle proper resources)	ed in section I.  ristics of this building axi-audit.  reserves the right to not a mation referred to in section in the should not a should, should not a mation refered to in sections.	g and the building's major energy using systems, I recommend that the maxi-audit funding determination based on this mini-audit replection F, I recommend that this building Should not (should, should not) undergo further analysis of the renewable resources — was and correct.  Witnessed by:
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MINI-AUDIT STATEMENTS

F	NAME	POSITION	ORGANIZATION
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
T M			
AUDIT			
		,	
G	Good, Clubho	NERAL BUILDING CONDITION (i.e. type, and ful	nction)
	MAJOR CHANGES PLANNED	WITHIN NEXT 15 YEARS (i.e. demolition, rehab	litation, conversion from one building type to another)
Z O	None STRUCTURAL COMPONENT	S OF ROOF (i.e. metal beams, wooden rafters, co	noroto)
MAA	Wooden Rafter		ncrete)
BUILDING	ROOFING MATERIAL (i.e. tar	and gravel, shingles, tile)	
m Z	Tar and Grave	el	
	INSTRUCTIONS: Correctly or	and the following suppliers for the building being	and the standard
H	Is there open land adjacent to	nswer the following questions for the building being	g mini-audited
	XXYes No	, the bulluling:	
	3 p.m.?	ated in an unshaded area. Is the roof of the building	and the south facing wall unshaded between the hours of 9 a m and
	Roof: XXYes □ No South facing Wall: XXYes	□No	
		naded, what percentage of the surface is unshade	d?
	% of roof unshaded % of south facing wall unsh	aded%	
	What is the overall shape of the Square ₩ Yectangle	ne building? □ H-shaped □ E-shaped □ other (specify)	
	Is the roof of the building flat		
		ss orientation of the ridgeline?	
		nat the roof makes with horizontal?	•
			eal equipment, ventilating units, water towers, etc?
	What is the exterior facing ma	aterial for the south facing wall? Wood Si	dîng
	What percentage of the south	facing wall is glass?60%	
	Is the building's space heatin	g equipment located within or on the building? (A	no answer indicates the equipment is in a separate building.)
	If the space heating equipme  XX Ground Floor ☐ Base	nt is inside the building, where is it located? ment □ Roof □ Other (specify)	
SOLAR POTENTIAL INFORMATION			swer indicates the equipment is in a separate building.)
POTE	If the water heating equipmen XX Ground Floor  Base	nt is inside the building, where is it located? ment   Other (specify)	
SOLA	Is the water heating system a	central system, does it consist of multiple units, Combination	or is it a combination of the central and multiple units?

				BASE PERIOD YEAR					Fiscal Year		
	ENERGY TYPE		ENERGY	USAGE	C	CONVERSION FACTOR			BTU USAGE		
	Electricity						and the second s		4.0		
	Fuel 1			Physical Control of the Control of t		Period and the second and the second	a ann an aig an air an air agus an an Air ann an 1900 an air an air an air an air an air an air an air an Air				
Ī	Fuel 2				1						
	TOTAL		and of the Control of	Man sand to his look that a statistic to the company and a						and the second second second second second second second second second second second second second second seco	
				20% SA	VINGS YEA	R		Fiscal Y	ear		
	ENERGY TYPE		ENERGY	USAGE		CONVERSION	FACTOR		вти и	SAGE	
	Electricity					T-111,					
	Fuel 1						***************************************			<u>.</u>	
	Fuel 2						**************************************				
	TOTAL	1				<del></del>		<del>                                     </del>			
il T		pe complete	ed by the mir	ní-auditor after	the walk-thru	portion of the	mini-audit Firs	t chack the	appropria	te box <b>e</b> s which	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportupercentages by the annual elec	ge of the pe inities liste ctrical and	rcent of total d in section	lelectrical and L. Secondly, o	luel consum calculate the	otion which wo range of ener	uld be saved res	sulting from	the impler	nentation of all	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportupercentages by the annual electric check two boxes in each cate	ge of the pe inities liste ctrical and gory —	rcent of total d in section fuel consum	l electrical and L. Secondly, on ption data on	fuel consump calculate the the energy r	otion which wo range of enei eport.	uld be saved rea rgy and cost sa	sulting from avings by m	the impler ultiplying	nentation of all the estimated	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportuner of the new mini-audit opportuner centages by the annual electhical through the content of the conten	ge of the perinties lister ctrical and gory —	ercent of total d in section fuel consum	l electrical and L. Secondly, on option data on	tuel consumple alculate the the energy r	otion which wo range of energeport.	uld be saved reargy and cost sa	sulting from avings by m	the impler fultiplying (specify)	nentation of all the estimated	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportupercentages by the annual electric check two boxes in each cate	ge of the pe inities liste ctrical and gory — XX 0%	ACK 5%	l electrical and L. Secondly, on ption data on	fuel consump calculate the the energy r	otion which wo range of enei eport.	uld be saved rea rgy and cost sa	sulting from avings by m	the impler fultiplying (specify)	nentation of all the estimated	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportungercentages by the annual electrical Savings — Range of Fuel Savings —	ge of the pe inities liste ctrical and gory — XX 0%	ACK 5%	electrical and L. Secondly, on prior data on 10%	tuel consumple alculate the the energy r	otion which wo range of energe port.	uld be saved reargy and cost sa	sulting from avings by m	the impler fultiplying (specify)	nentation of all the estimated	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportungercentages by the annual electrical Savings — Range of Fuel Savings —	ge of the penities liste ctrical and gory — XX 0% □ 0% □ 0% □ Annual Cons	XX 5%  XX 5%  XX 5%  A Section fuel consum  XX 5%  XX 5%	L Secondly, on the second seco	uel consumplication and the energy r	20% 20% Range	uld be saved reargy and cost sa	oulting from avings by m  other  other  ectrical Spent	(specify)	nentation of all the estimated	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportune percentages by the annual electorical Savings — Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and Range	ge of the penities liste ctrical and gory — XX 0% □ 0% □ 0% □ cost savid Cons 6323	xxx5%  xxx5%  xxx5%  ags —  I Electrical sumption  37 kwh	L Secondly, on the second seco	Lectrical Seconds with the energy response to	20% 20% 20% Range to	□ 25% □ .25% Annual El Dollars	other other spent	(specify) (specify) Rang Do	nentation of all the estimated	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportune percentages by the annual electorical Savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and to to Electrical Savings —	ge of the perinities liste etrical and gory — XX 0% — 0% d cost savid Cons 6323	xxx5%  xxx5%  xxx5%  ags —  I Electrical sumption  37 kwh	electrical and L. Secondly, on philon data on 10% XX10%  Range of Range = 0  = 3161.	Lectrical Seconds with the energy response to	avings  Range  to  5  %	□ 25% □ .25% Annual El Dollars x \$ 245	other other spent	(specify) (specify) Rang Do	nentation of all the estimated  estimated  estimated  file of Electrical llars Savings  O  to	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportune percentages by the annual electorical Savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and to to Electrical Savings —	ge of the perinities liste ctrical and gory — XX 0%   0%   d cost savin   Annual Cons   6323	XX 5%  XX 5%  XX 5%  A Sector of the local consumption of the local con	electrical and L. Secondly, on prior data on 10% XX10%  Range of Range Sa 0  = 3161.  Range Range Sa	Lectrical Solution of Fuel Save of Fuel Ivings	avings  Range  to  5  %	uld be saved resrgy and cost saved resrgy an	other other	(specify) (specify)  Rang Do  R R	nentation of all the estimated the estimated of Electrical liars Savings 0 to 122.59	
	Instructions: This section is to be state the roughly estimated ran of the new mini-audit opportune percentages by the annual electrical state. Check two boxes in each cate. Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and to to upper bound — 6 % x x x x x x x x x x x x x x x x x x	ge of the perinities liste ctrical and gory — XX 0% □ 0% □ 0% □ 6323 □ 6323 □ Annual Cons	XX5%  XX5%  XX5%  XX5%  XX5%  Al Electrical sumption  37 kwh  and kwh  and Fuel sumption  x106 Btu	electrical and L. Secondly, on prior data on 10% XX10%  Range of Range Sa 0  = 3161.  Range Range Sa	Lectrical Solution of Fuel Save of Fuel Save of Fuel Save calculate the the energy of	avings  % Range 0 %  to 5 %	uld be saved resrry and cost saved resrry an	other other	(specify) (specify)  Rang Do  R R	nentation of all the estimated the estimated of Electrical llars Savings 0 to 122,59	

K

Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommeridation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

OPTIONAL: OPTIONAL: CLASSIFICATION **ENERGY** NO. **ENERGY** DATE OF IMPLEMENTATION ITEM PAST ENERGY CONSERVATION ACTIONS COST SAVINGS NO MAJOR SUB **SAVINGS** CLASS CLASS

L	UNITIES	
NEW	OPPORT	

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

	CLASSIFICATION NO.				OPTIONAL ENERGY	1	
NO.	MAJOR CLASS	O. SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION	
1	1	1	Keep all controls free of dust.				
2	2	1	Check the amount of insulation in the ceiling.				
3	2	1	Add insultation above suspended ceilings if needed.				
	+ -		Weatherstrip				
4	2	2	all exterior doors.				
_5	2	2	Replace an existing door with one of a higher R-value.				
_			Add or modify window drapes, blinds				
6	2	3	and shutters to resist temperature d	ifferen	ce.		
7	2	3	Plant deciduous trees for summer shading.				
	<del> </del>		South and west facing windows should		-		
88	2	3	be fitted with solar shading devices				
			(i e. overhangs fins, trellises,				
			awnings, interior drapes) to reduce				
			heat gain.				
			Replace single glazed windows with				
9	2	10	double glazed thermopanes.		}		
			Check operation of entire heating/				
10	3	1	cooling control system, including				
			control valves and dampers.				
	<del>                                     </del>		Check the calibration of all con-	<del> </del>	<del> </del>		
11	3	1	trollers and devices for proper			·	
			settings and operations.				
			Raise the supply air temperature	<b>†</b>			
12	3	1	for cooling to the highest point			<b>.</b>	
			necessary to provide minimum			·	
		<del> </del>	required cooling.  Lower the supply air temperature	<del> </del>	<del> </del>		
13	3	1	for heating to the lowest point				
	1	*******	necessary to provide minimum		1		
			required heating				
		1	65°F maximum occupied, 60°F maximum				
14	3	1_1_	unoccupied during the heating seasor	վ	<b></b>		
1 [			78°F minimum when occupied and no				
15	3	┼─┷─	cooling when unoccupied during the	<del> </del>	<del> </del>		
			cooling season.		1		
			Clean and remove obstructions from		1		
16	3	2	all room air outlets and inlets				
			(diffusers, registers, and grillers	<b>가</b>		,	
·		+	They should be kept clean and free of all dirt and foreign materials.	-	+		
			or arr airc and foreign materials.				

NEW OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the intenaumber the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20			tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	CLASSIF	<b>)</b> .	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	*
			Inspect fans			
17	3	3	for normal operation.			
			Keep condenser coil face clean			
18	3	3	to permit proper air flow.			
10			Inspect ductwork for air leakage.			·
19	3	3	Seal all leaks by taping or caulking.		_	
20	3	3	Inspect			
20	1 3	3	ductwork insulation.		<del> </del>	
21	3	3	Inspect damper blades and linkages. Clean, oil and adjust.			
	<del>  3</del>	3	Take special note of fresh air			
22	3	3	dampers making sure that they close			
	<del>                                     </del>	<u> </u>	tightly and be sure to repair, re-	<del>                                     </del>		
			place or provide blade edge gaskets			
			and gasketing at the end of blades.			
			January and one one or a reserve			*
			Clean or			
23	3	3	replace filters periodically.			
			Instruct occupants and maintenance			
24	4	11	personnel to switch off all lights			
			when they are not needed.			
			Clean fixtures and	<u> </u>		:
_25_	4	3	lamps regularly.			
0.6			Use lower wattage lamps to			
26	4	4	provide the necessary illumination.			,
0.7			Allow part of a lighting system to			
27	4	4	be turned off, while maintaining	<del> </del>	<del>                                     </del>	
			the necessary light.			
		<del> </del>	Keep records of the operating	<del> </del>	<b>†</b>	1070
28	5	1	schedule, monthly energy consumption			August, 1979
			of efficiency of the building. These			
			records will indicate the impact		<u> </u>	
			of energy conservation measures.			
			Review the record books			August 1070
29	5	1_	on a regular basis.			August, 1979
0.0			The burner system of fossil-fuel		1	·
30	6	2	water heaters should be kept clean	<del></del>	<del> </del>	
			and in good operating condition.			
			Clean air-sides, remove soot, and			
31		3	scrape scale in forced warm air	1		
			furnaces.			
		<b>†</b>	If the firing rate of gas or oil		<del> </del>	
_32_	7_	3	burners is too high, it causes	<b></b>		
			short cycling and excessive fuel cor	1+		
			Isumption. Too low a rate requires			

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Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As very an energy record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list opportunity should contain the specific building location, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20	mpicmente	u. 11113 360	tion of the mini-addit report should be completed by the mini-add	OPTIONAL		
ITEM	CLASSIFICATION NO.		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
		027.00	constant operating and delivers			
			inadequate heat to the spaces.  Maintain the lowest possible hot			
22		١,	Maintain the lowest possible hot			
33	7	4	water temperature which will meet domestic hot water needs.		ļ	
			domestic not water needs.			
	+	<u> </u>	Turn off gas pilots for furnaces,			
34	7	4	boilers, and space heaters during the non-heating months and during			
			the non-heating months and during			
		ļ	long unoccupied periods.		<b></b>	
	<del> </del>			_	<del> </del>	
		<del> </del>			<u> </u>	
		<b>†</b>			<del>                                     </del>	
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					<b></b>	<b></b>
	+	<del>                                     </del>			<u> </u>	
		ļ			<u> </u>	
	+	<del> </del>			<del> </del>	
-		<b></b>				
		+			+	
		1				•

A	BUILDING NAME  Dwan Golf Course Mainter	nance Ruilding	NAME OF ORGANIZATION  City of Bloomington	DATE 5-23-80
	BUILDING ADDRESS  3651 West 110th Street	lance burraing	ADDRESS 2215 West Old Shakopee F	load
ACT	Bloomington, MN	ZIP CODE 55431	Bloomington, MN	ZIP CODE 55431
CONT	PERSON COMPLETING FORM	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen	TELEPHONE 612) 881-5811

B		structions: For blocks 1 and 2 escribes the building type and							our categories
	1.	OWNERSHIP TYPE  X Public (I  Non-Profit Association	PUB) (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT Office Ostorage Oservice	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
ODE	2.	ULTIMATE OWNER □County 文優City	(CNTY) (CITY)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire XIPOTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY CO		☐ Township ☐ State ☐ Public School ☐ Private School ☐ Non-Profit Association ☐ Indian Tribe	(TOWN) (STAT) (PUSC) (PRSC) (NPAP) (INDN)	b.	PUBLIC CARE Nursing Home Long Term Care Rehab. Facility Public Health Ctr. Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)

Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization.
If eligible for both Federal and State Funding: Have you received a mini-audit grant before? I Yes XIII No Have you previously applied for mini-audit funding? XIII Yes I No Do you wish to apply for mini-audit funding? I Yes XIII No
Date
Name:
Signature:
If eligible for Federal funding only: Have you received a mini-audit grant before?  Yes No Have you previously applied for mini-audit funding?  Yes No Do you wish to apply for mini-audit funding?  Yes No The 50% match for Federal funds will come from: (Use additional sheets if necessary.)
4
Date
Name
Signature.
Signature.

U	Check the type of energy report which was completed and submitted p	prior to this mini-audit report.
F.	☐ Elementary School Energy Report (Form No. ED-00444-02)	
ENERGY REPORT	☐ Secondary School Energy Report (Form No. ED-00445-02)  XX Existing Building Energy Report (Form No. EN-00041-01)	
Y R	If an energy report has not been completed previous to this mini-audit	report, one must be included with this report. Elementary, secondary, and
EC.	vocational schools should use form ED-00444-02 or form ED-00445-02, d building energy report, form EN-00041-01.	epending on building complexity. All other buildings should use the existing
<b>m</b> 0		
Ē	Instructions: This section is to be completed and signed by a registered completed the State of Minnesota's Mini-Audit Procedures Course. This are completed. All blanks must be filled in.	d professional engineer or by a certified mini-auditor who has successfully section should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for the corrected any misinformation on the energy report which will be result	is building. I found all information contained therein to be correct OR I have
	I am not directly responsible for the day to day operations of this build	
.	I have fully disclosed my financial interests relating to this mini-audit a	and any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommenda maintenance changes, and low cost energy conservation measures, wi	tions listed in section I of this mini-audit report to be the operations and nich would reduce energy consumption in this building.
4		ch may result from the implementation of all of the mini-audit opportunities
	Based on actual records, the energy conservation operating and mainte	عمما لدفاد
	<b>3 3 3 3 3 3 3 3 3 3</b>	ding and the building's major energy using systems, I recommend that this
	(should, should not)	to make the maxi-audit funding determination based on this mini-audit report
	and other criteria.	
	Based upon the information in section E and the information referred to	in section F, I recommend that this building Should not (should, should not)
	undergo further solar conversion analysis, and/orshould	not undergo further analysis of the renewable resources — waste.
	wind, wood. (Circle proper resources) (should, should	a not)
	In my judgement, as a mini-auditor, all of the above statements are tri	ue and correct.
		Witnessed by:
	Dandy Cmith	
	Randy Smith Mini-Augitor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Rowld Sull 206	
	Signature /	Signature
	Rieke Carroll Muller Assoc., Inc.	
1 1	P.O. Box 130 Hopkins, MN 55343	Date
		Date
	Address	Date
		Date
	Address (612) 935-6901 Phone 5-23-80	Date
	Address (612) 935-6901 Phone	Date
	Address (612) 935-6901 Phone 5-23-80	Date
	Address (612) 935-6901 Phone 5-23-80	Date
	Address (612) 935-6901 Phone 5-23-80	Date
	Address (612) 935-6901 Phone 5-23-80	Date
T 4TS	Address (612) 935-6901 Phone 5-23-80 Date	Date
NUDIT	Address (612) 935-6901 Phone 5-23-80 Date	Date
MINI-AUDIT Statements	Address (612) 935-6901 Phone 5-23-80 Date	Date

F	NAME	POSITION	ORGANIZATION
-	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
!	Reinert Ege	Maintenance Engineer	City of Bloomington
	Rether Ege	Matricenance Engineer	CTCY OF Brooming con
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AUDIT	The state of the s		
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G	BRIEF DESCRIPTION OF GE	NERAL BUILDING CONDITION (i.e. type, an	d function)
<b>\</b>	Good, Repair a	nd Storage	
		) WITHIN NEXT 15 YEARS (i.e. demolition, re	shabilitation, conversion from one building type to another)
N O	None STRUCTURAL COMPONENT	S OF ROOF (i.e. metal beams, wooden rafter	s concrete)
BUILDING INFORMATION	Wooden Rafters		
9.5	ROOFING MATERIAL (i.e. tar		
BZ	Tar and Gravel		
i			
Н	INSTRUCTIONS: Correctly ar	nswer the following questions for the building	being mini-audited.
	Is there open land adjacent to	the building?	
	XXX Yes □ No		dia a sa daha a sa dah fa sisa su ali washa da da akusa sa dha hawa a 10 a ma and
	3 p m ?		ding and the south facing wall unshaded between the hours of 9 a.m. and
	Roof: XX Yes □ No South facing Wall: XX Yes	□No	
		haded, what percentage of the surface is uns	hadad?
İ	% of roof unshaded	%	
	% of south facing wall unsh		
	What is the overall shape of t	he building? □ H-shaped  □ E-shaped  □ other (specif	y)
	Is the roof of the building flat		
	XX flat  pitched		
	If pitched, what is the compa	ss orientation of the ridgeline?	
	If pitched, what is the angle t	hat the roof makes with horizontal?	0
;	Are there large obstructions o	on the roof such as chimneys, rooms for med	hanical equipment, ventilating units, water towers, etc?
	What is the exterior facing m	aterial for the south facing wall? WOO	d siding
,		facing wall is glass?5%	•
1		-	g? (A no answer indicates the equipment is in a separate building)
	XX Yes □ No		, , , , , , , , , , , , , , , , , , , ,
	If the space heating equipme XXX Ground Floor Dase	nt is inside the building, where is it located? ment □ Roof □ Other (specify)	
SOLAR POTENTIAL INFORMATION	Is the building's water heatin XX Yes □ No	g equipment located within the building? (A r	no answer indicates the equipment is in a separate building.)
POTE	If the water heating equipme	nt is inside the building, where is it located?	
SOLA	Is the water heating system a	ı central system, does it consist of multiple u □ Combination	nits, or is it a combination of the central and multiple units?

			BASE PERIOD YEAR				Fiscal Ye	Fiscal Year	
	ENERGY TYPE	ENERGY			CONVERSION	N FACTOR		BTU USAGE	
	Electricity					لىدى يا قاد ئىسى يەلىك ئېرىيان كالاردىيە يېرىيىنى <u>بىرى</u>			
	Fuel 1				AND AND AND AND AND AND AND AND AND AND				
	Fuel 2								
	TOTAL	and the second of the second o						igyddyn y eith chwyg maeth arth ym cennedd gynd tae Arllynin yr a fell flycol (CAP Pa	
			20% SA	VINGS YEA	R	CONTRACTOR AND AND AND AND AND AND AND AND AND AND	Fiscal Y	ear	
	ENERGY TYPE	ENERGY	USAGE		CONVERSION	N FACTOR		BTU USAGE	
	Electricity								
	Fuel 1								
	Fuel 2		And a second section of the section of the section						
ł		I		1					
	TOTAL					erken hillige gener 1800 fråde skrivere och er ynge geste som hilligen vik d			
	TOTAL								
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr	of the percent of total ties listed in section	l electrical and L. Secondly,	fuel consump calculate the	ption which we range of en	ould be saved r	esulting from t	he implementation of all	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit	of the percent of total ties listed in section rical and fuel consum	l electrical and L. Secondly,	fuel consump calculate the	ption which we range of en	ould be saved r	esulting from t	he implementation of all	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electr	of the percent of total ties listed in section rical and fuel consum ry —	l electrical and L. Secondly,	fuel consump calculate the	ption which we range of en	ould be saved r	esulting from t savings by mu	he implementation of al	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI	of the percent of total ties listed in section rical and fuel consum ry —	l electrical and L. Secondly, option data on	fuel consum calculate the the energy r	ption which was range of endreport.	ould be saved r ergy and cost	esulting from t savings by mu	he implementation of all ultiplying the estimated	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI	of the percent of total ties listed in section rical and fuel consummery—  XX 0%  XXX 5%	l electrical and L. Secondly, option data on	fuel consum calculate the the energy r	ption which we range of energe report.	ould be saved rergy and cost	esulting from t savings by mu	he implementation of al ultiplying the estimated specify)	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI Range of Fuel Savings —	of the percent of total ties listed in section rical and fuel consummery—  XX 0%  XXX 5%	l electrical and L. Secondly, option data on 10%	fuel consum calculate the the energy r	ption which we range of endreport.	ould be saved rergy and cost	esulting from t savings by mu	he implementation of all all tiplying the estimated specify)	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and continuous control of the control	of the percent of total ties listed in section rical and fuel consumny — MA 5% — 0% MA 5% — cost savings —	lelectrical and L. Secondly, aption data on  10% XX 10%  Range of	fuel consumple calculate the the energy response to the energy respo	ption which we range of end report.	ould be saved rergy and cost  25% 25% Annual	osulting from the savings by must be savings by mus	he implementation of all ultiplying the estimated specify)  specify)  Range of Electrical	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI Range of Fuel Savings —	of the percent of total ties listed in section rical and fuel consummy  WA 0% XX 5%  0% XX 5%  cost savings —	lelectrical and L. Secondly, aption data on  10% XX 10%  Range of Range Sa	fuel consumption of the energy results the energy results 15%	ption which we range of endreport.	Ould be saved rergy and cost  25% 25% Dollars	osulting from t	he implementation of all altiplying the estimated specify)  specify)	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and compare the same of the same of the savings in the same of the savings in the same of the savings in the same of the savings in the same of the savings in the savings i	of the percent of total ties listed in section rical and fuel consum ry — 2010 0% 2015% — 0% 2015% — Cost savings — Annual Electrical Consumption	lelectrical and L. Secondly, aption data on  10% XX 10%  Range of Range Sa	fuel consumption of the energy	ption which we range of energy arrange of energy arrange 20%  20%  20%  20%  Avings	□ 25% □ 25% □ Dollars	osulting from the savings by must be savings by must be savings by must be savings by must be savings by the savings by the savings between the savings by t	he implementation of all illiplying the estimated specify)  specify)  Range of Electrica	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and compare the sample of th	of the percent of total ties listed in section rical and fuel consum ry — 2010 0% 2015% — 0% 2015% — Cost savings — Annual Electrical Consumption	lelectrical and L. Secondly, aption data on  10% XX 10%  Range of Range Sa	fuel consumple calculate the the energy of t	ption which we range of energe report.  20% 20% 20%  avings  Range 0 %	Ould be saved rergy and cost  25% 25% Dollars x \$ 10	osulting from the savings by must be savings by must be savings by must be savings by must be savings by the savings by the savings between the savings by t	specify)  Range of Electrica Dollars Savings  \$	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and constitution of the Range lower bound — 0 % x to 5	of the percent of total ties listed in section rical and fuel consum ry — (A) 0% (A) 5% — (A)	lelectrical and L. Secondly, aption data on 10%  XX 10%  Range of Range = 1149	fuel consumption of the energy	ption which we range of energe report.  20% 20% 20%  **Range 0 %  to 5 %	Ould be saved rergy and cost  25%  25%  Annual I  Dollar:  x \$ 10	other (	specify)  Range of Electrical Dollars Savings  \$ 0  to	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and constitution of the Range lower bound — 0 % x to 5	of the percent of total ties listed in section rical and fuel consum ry — (24 0% XCX 5% — 0% XCX 5% — cost savings — Annual Electrical Consumption 22988 kwh  Annual Fuel Consumption	lelectrical and L. Secondly, inption data on  10% XX 10%  Range of Range Sa  = 1149  Range Range Si	fuel consumple calculate the the energy of t	ption which we range of energe report.  20% 20% 20% 4 range 5 % Fings  Range 7 % Fings	ould be saved rergy and cost  25%  25%  Annual Dollars  x \$ 10	other (	specify)  Range of Electrical Dollars Savings  \$ 0  to	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and compare the section of the sectio	of the percent of total ties listed in section rical and fuel consum ry — MA 5% Down MA 5% Down savings — Annual Electrical Consumption 22988 kwh Annual Fuel	lelectrical and L. Secondly, inption data on  10% XX 10%  Range of Range Sa  = 1149  Range Range Si	fuel consumple calculate the the energy of t	ption which we range of energe report.  20% 20% 20% 4 range 5 % Fings  Range 7 % Fings	ould be saved rergy and cost  25% 25% Annual Dollars  x \$ 10  Annual Dollars	esulting from t savings by mu  other ( other ( other ( spent) 04.85 = 04.85 =	Range of Electrical Dollars Savings  \$	

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Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below the sections which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific of drag location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

OPTIONAL: OPTIONAL CLASSIFICATION ENERGY COST SAVINGS DATE OF IMPLEMENTATION ITEM NO. **ENERGY** PAST ENERGY CONSERVATION ACTIONS MAJOR SUB SAVINGS CLASS CLASS

Note: Reproduce this page as necessary

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Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

žö	implemente	d This sect	ion of the mini-audit report should be completed by the mini-audit	team during OPTIONAL:		
ITEM	CLASSIF	)	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
1	1	1	Keep all controls free of dust.			-
			Check the amount of insulation			
2	2	1	in the ceiling. Add insulation in			The second secon
3	2	1	attic spaces if needed.			
	<del> </del>	-	Weatherstrip all exterior doors		***************************************	
4	2	2	including garage or delivery doors.			
			Replace an existing door with			
5	2	2	one of a higher R-value.			
_			Insulate walls with rigid insula-			·
6	2	8	tion on inside surfaces, or place loose fill insulation in wall			
			cavaties.			
	<del>                                     </del>		Inspect window closing and locking			
<b>7</b> :	2	10	devices to insure a tight window.			
!	1		Replace single glazed windows with			The second secon
8	2	10	double glazed thermopanes.			
_			Check the calibration of all			
9	3	$\begin{vmatrix} 1 \end{vmatrix}$	controllers and devices for	<u> </u>	<u> </u>	
			proper settings and operations.			
			Lower the supply air temperature			
10	3	1	for heating to the lowest point			<u> </u>
			necessary to provide minimum			
····	+		reguired heating. 65°F maximum occupied, 60°F maxi-			
11	3	1	mum unoccupied during the heating			
	† –	1	season.			
			Clean and remove obstructions from			
12	3	2	all room air outlets and inlets			
-			(diffusers, registers and grillers)			
			They should be kept clean and free			
÷			of all dirt and foreign materials.			
	_		Inspect and lubricate bearings		<u> </u>	
_13	3	3	of fans.	<del> </del>	ļ	
1 /	2		Inspect fans for			
14	3	3	normal operation.	-	+	
15	3	3	Inspect ductwork for air leakage.  Seal all leaks by taping or caulking	nd		
	1		Inspect	<b>†</b>	1	
_16	3	3	ductwork insulation.			
			Clean or replace			
17_	3	3	filters periodically.	<b>_</b>	<del></del>	
10	1	1	Instruct occupants and maintenance			
18	4	+	personnel to switch off all lights when they are not needed.	<del> </del>	<del>                                     </del>	
			when they are not needed.			
				and the second	1	1

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Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ZÖ	implemented. This section of the mini-audit report should be completed by the min		tion of the mini-audit report should be completed by the mini-audit	OPTIONAL: OPTIONAL:			
ITEM	1	SIFICATION NO NEW MINI-AUDIT OPPORTUNITIES		ENERGY	ENERGY COST	DATE OF IMPLEMENTATION	
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	SAVINGS	DATE OF IMPLEMENTATION	
19	4	2	Clean windows.			·	
	_	_	Clean fixtures and				
20	4	3	lamps regularly.				
21	4	4	Use lower wattage lamps to provide the necessary illumination.		,		
	<del>                                     </del>	<u> </u>	Allow part of a lighting system to				
22	4	4	be turned off, while maintaining				
			the necessary light.				
			Keep records of the operating				
23	5	1	schedule, monthly energy consumption	<u> </u>		August, 1979	
			and purchase of any new equipment that affects energy consumption of				
	<u> </u>	<b></b>	efficiency of the building. These				
			records will indicate the impact of				
	·		energy conservation measures.				
			Review the record		-		
24	5	1_1_	books on a regular basis.	<u> </u>		August, 1979	
25			The burner system of fossil-fuel				
25_	6	2	water heaters should be kept clean and in good operating condition.			1	
			Clean air-sides, remove soot, and				
26	7	3	scrape scale in forced warm air				
			furnaces.				
			Maintain the lowest possible hot				
27	77	4	water temperature which will meet	ļ	ļ	ļ	
			domestic hot water needs.			c.	
20	7		Turn off gas pilots for furnaces,				
28	+-/-	4	boilers, and space heaters during the non-heating months and during	ļ	+		
			long unoccupied periods.				
			Keep all heat exchanger surfaces			·	
29	7	4	clean. Check air-to-fuel ratio and		<u> </u>		
			adjust as necessary.				
20	7	Λ.	Follow guidelines suggested for fan				
30	+-'-	4	and motor maintenance.	+		The state of the s	
			,				
				-			
				-			

## **MINI-AUDIT REPORT**

A	BUILDING NAME Hyland Greens Golf Cours	e-Club House	NAME OF ORGANIZATION City of Bloomington	DATE 5-23-80	
!	BUILDING ADDRESS 10100 Normandale Bouleva		ADDRESS 2215 West Old Shakopee Road		
ACT	CITY Bloomington, MN	ZIP CODE 55437	CITY Bloomington, MN	ZIP CODE 55431	
CONTACT	PERSON COMPLETING FORM	TELEPHONE 612) 935-6901	CONTACT PERSON	TELEPHONE 612) 881-5811	

B	Instructions: For blocks 1 and 2 check the describes the building type and then with						our categories
!	1. OWNERSHIP TYPE XIP Public (PUB) ONon-Profit Association (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT Office Storage Service	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
ODE	2. ULTIMATE OWNER  County (CNTY XXCity (CITY)		□Vocational (SCHL-V □Education Agency (SCHL-A □Administration (SCHL-A □OTHER (SCHL-C		•	□Library □Police □Fire XXOTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY C	☐ State (STAT	) ) ) ))	PUBLIC CARE Nursing Home Long Term Care Rehab. Facility Public Health Ctr. Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organiz	ng or ation.
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? ☐ Yes XX No Have you previously applied for mini-audit funding?	-
	Date:	
	Name:	¥
	Signature:	
	If eligible for Federal funding only: Have you received a mini-audit grant before?   Yes No Have you previously applied for mini-audit funding?  Yes No Do you wish to apply for mini-audit funding?  Yes No The 50% match for Federal funds will come from: (Use additional sheets if necessary.)	· · · · · · · · · · · · · · · · · · ·
	•	;
		C.
-		
DUES	Date	
G RE(	Name	ŧ
MINI-AUDIT	Signature	
\$ D	Signature	

n		
D	Check the type of energy report which was completed and submitted pr	rior to this mini-audit report.
EPORT FF	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02) XX Existing Building Energy Report (Form No. EN-00041-01)	
ENERGY REPORT	If an energy report has not been completed previous to this mini-audit is vocational schools should use form ED-00444-02 or form ED-00445-02, debuilding energy report, form EN-00041-01.	report, one must be included with this report. Elementary, secondary, and spending on building complexity. All other buildings should use the existing
E	Instructions: This section is to be completed and signed by a registered completed the State of Minnesota's Mini-Audit Procedures Course. This are completed. All blanks must be filled in.	professional engineer or by a certified mini-auditor who has successfully ection should be completed after this mini-audit report and an energy report
	I have reviewed the energy report and/or the energy report results for this corrected any misinformation on the energy report which will be results	s building. I found all information contained therein to be correct OR I have mitted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this build	ing being audited.
	I have fully disclosed my financial interests relating to this mini-audit a	nd any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendat maintenance changes, and low cost energy conservation measures, wh	ions listed in section I of this mini-audit report to be the operations and ich would reduce energy consumption in this building.
1	I have made a rough estimate, in section G, of the range of savings whic listed in section I. I am not responsible if the actual savings resulting fr	· · · · ·
	Based on actual records, the energy conservation operating and mainted 20% of the building's energy consumption as specified in section I.	nance procedures listed in section K did not save at least (did, did not)
	Based upon my observation of the physical characteristics of this build Should not be the subject of a maxi-audit. (should, should not)	ing and the building's major energy using systems, I recommend that this
	I realize that this is not a final judgement, that the State reserves the right t and other criteria.	o make the maxi-audit funding determination based on this mini-audit report
	Based upon the information in section E and the information referred to i	n section F, I recommend that this building <u>Should not</u> (should, should not)
	undergo further solar conversion analysis, and/orShould	not undergo further analysis of the renewable resources - waste.
,	wind, wood. (Circle proper resources) (should, should	not)
	In my judgement, as a mini-auditor, all of the above statements are tru	e and correct.
1		Witnessed by:
,	Randy Smith	
	Mini-Auditor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Signature 206	Signature
	Rieke Carroll Muller Assoc., Inc.	
	Firm Name (if none, enter none)	Date
	P.O. Box 130 Hopkins, MN 55343	
	(612) 935-6901	
	Phone 5-23-80	
	Date	1
	•	
T ST		
MINI-AUDIT		
A-INI-A		
₹ L		

F	NAME	POSITION	ORGANIZATION						
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Mull	er Assoc., Inc.					
	Reinert Ege	Maintenance Engineer	City of Bloomingto	n					
AUDIT									
G	Good, Clubhouse	NERAL BUILDING CONDITION (i.e. type, and	·						
7	None	O WITHIN NEXT 15 YEARS (i.e. demolition, reh	abilitation, conversion from one building	type to another)					
TIO		S OF ROOF (i.e. metal beams, wooden rafters,	concrete)	Oquation 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1					
BUILDING	Wooden Rafters ROOFING MATERIAL (i.e. tar	and gravel, shingles, tile)		The second secon					
o z	Shingles								
0 0									
H	and the second s	nswer the following questions for the building b	peing mini-audited.						
	Is there open land adjacent to XXX Yes □ No	the building?							
	Solar collectors need to be local 3 p.m.?  Roof: \$\fomale \fom	ated in an unshaded area. Is the roof of the buildi	ng and the south facing wall unshaded bet	ween the hours of 9 a.m. and					
	If the roof or wall are partly s % of roof unshaded % of south facing wall unsh	haded, what percentage of the surface is unsha % aded	aded?						
	What is the overall shape of ti								
	Is the roof of the building flat	or pitched?							
		ss orientation of the ridgeline? North	th-South						
	,	hat the roof makes with horizontal? 45							
		on the roof such as chimneys, rooms for mecha	anical equipment, ventilating units, water	towers, etc?					
	What is the exterior facing m	aterial for the south facing wall?	od Siding						
3	What percentage of the south	<b>F</b> 0							
r	Is the building's space heating equipment located within or on the building? (A no answer indicates the equipment is in a separate building.)								
	If the space heating equipme ☐ Ground Floor XXBase	nt is inside the building, where is it located? ment DRoof DOther (specify)							
NTIAL	Is the building's water heating equipment located within the building? (A no answer indicates the equipment is in a separate building.)								
SOLAR POTENTIAL	If the water heating equipme Ground Floor XXBase	nt is inside the building, where is it located?		engaganika selapanyak kepita dalah dalah dalah 190 kepitak dalah dalah kepitak dalah k					
SOLA	Is the water heating system a	a central system, does it consist of multiple unit □ Combination	ts, or is it a combination of the central a	nd multiple units?					

			BASE P	ERIOD YEAR	3		Fiscal	Year	
ENERGY TYPE		ENERGY	USAGE	cc	ONVERSION I	ACTOR		BTU U	SAGE
Electricity									
Fuel 1		оргоновического под Македон и в Монедон и	eren ersonen de ertin genedicht billingsgemeinde geb		And the second s				
Fuel 2									
TOTAL						nacionalista (maria appromisionalista)			
		and the second of the second of the second	20% SA\	INGS YEAR		Parameters (Maries Parameters)	Fisca	i Year	
ENERGY TYPE		ENERGY	USAGE	CC	ONVERSION	FACTOR		вти и	SAGE
Electricity						·			
Fuel 1									
Fuel 2						Aggregation of the same of the same of the same of the same of the same of the same of the same of the same of			
	i			1			1		
TOTAL Instructions: This section is to I	be complete	ed by the min	i-auditor after t	ne walk-thru	portion of the	nini-audit. Fir	rst, check th	ne appropris	ite boxes which
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele	ge of the pe unities liste ctrical and gory —	ercent of total d in section fuel consum	electrical and for L. Secondly, co	iel consumpt liculate the i	tion which wou range of ener	ild be saved re	esulting from	m the imple	mentation of
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate.  Range of Electrical Savings —	ge of the per unities listed ctrical and gory —	ercent of total d in section fuel consum XX 5%	electrical and fi L. Secondly, ci ption data on t	iel consumpt siculate the s he energy re	ion which wol range of ener port.	uld be saved regy and cost :	esulting from savings by	m the imple multiplying er (specify)	mentation of a
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cater Range of Electrical Savings — Range of Fuel Savings —	ge of the pe unities liste ctrical and gory — XX 0%	ACX 5%	electrical and fi L. Secondly, c ption data on t	iel consumpt liculate the i	tion which wou range of ener port.	ald be saved reggy and cost	esulting from savings by	m the imple multiplying er (specify)	mentation of a the estimate
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate.  Range of Electrical Savings —	ge of the pe unities liste ctrical and gory — XX 0%	ACX 5%	electrical and fi L. Secondly, c ption data on t	el consumpt liculate the r ne energy re	ion which wourange of ener port.	uld be saved regy and cost :	esulting from	m the imple multiplying er (specify)	mentation of particular the estimate
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cater Range of Electrical Savings — Range of Fuel Savings —	ge of the perinties liste ctrical and gory —  XX 0%  0%  d cost savi	arcent of total d in section fuel consum  XX 5%  XX 5%	electrical and fit. Secondly, ciption data on t	el consumpticulate the interest of the energy re  15% 15%	ion which wourange of ener port.	□ 25%	esulting from	m the imple multiplying er (specify) er (specify)	mentation of the estimate
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cater Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy an % Range	ge of the perinties liste ctrical and gory —  XX 0%  0%  d cost savi	arcent of total d in section fuel consum  XX 5%  XX 5%  I Electrical sumption	electrical and fit. Secondly, ciption data on t  10%  (10%  Range of I	el consumpticulate the she energy re  15% 15% Sectrical San	ion which wourange of ener port.  20% 20% Ings	□ 25% □ 25% Annual E	osulting from savings by	m the imple multiplying er (specify) er (specify)	mentation of the estimate
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate.  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy an	ge of the perinties liste ctrical and gory — XXX 0% — 0% d cost savi	arcent of total d in section fuel consum  XX 5%  XX 5%  I Electrical sumption	electrical and fit. Secondly, coption data on t  10%  Range of I	el consumpticulate the rine energy re  15% 15% Sectrical San	ion which woll range of ener port.  20% 20%	25% 25% Dollars	osulting from savings by	m the imple multiplying er (specify) er (specify)	mentation of the estimate of t
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate. Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy an % Range	ge of the perinties liste ctrical and gory —  XXX 0%  0%  d cost savi	ACM 5%  ACM 5%  ACM 5%  ACM 5%  I Electrical sumption  SO kwh	electrical and fit. Secondly, coption data on to the second secon	el consumpticulate the she energy re  15% 15% 15% Electrical San f Energy	ion which wourange of ener port.  20% 20% Range	25% 25% Dollars 31	osulting from savings by	m the imple multiplying er (specify) er (specify) Rang	mentation of the estimate
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate.  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy an   % Range lower bound — ① %   to	ge of the perinties liste ctrical and gory —  XXX 0%  0%  d cost savi	ACX 5%  XCX 5%  XCX 5%  ACX 5%  I Electrical sumption  50 kwh	electrical and fit. Secondly, ciption data on to the second secon	el consumpticulate the she energy re  15% 15% 15% Electrical San f Energy ings kwh,	ion which woll range of ener port.  20% 20% 20% Ings Kange 0 %	25% 25% Dollars 31	osulting from savings by other other other other other other of the spent of the sp	mthe imple multiplying er (specify) er (specify)  Rang Do = \$	mentation of it the estimate of the estimate o
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate. Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy an % Range lower bound % Pange lower bound % pange to % pange lower bound % p	ge of the perinties liste ctrical and gory —  XX 0%  0%  d cost savi  Annua Cons 4956	ACX 5%  XCX 5%  XCX 5%  ACX 5%  I Electrical sumption  50 kwh	electrical and fit. Secondly, ciption data on t  10%  Range of I  Range c  247  Range  Range	iel consumpticulate the she energy re  15% 15% 15% Electrical San f Energy lings kwh, of Fuel Savir	ion which woll range of ener port.  20% 20% 20% Ings to 5 %	D 25% D 25% Dollars 31 Annual 8	osulting from savings by  other other spent 16.55	m the imple multiplying er (specify) er (specify)  Rang Do = \$	ge of Electric
Instructions: This section is to I state the roughly estimated ran of the new mini-audit opportupercentages by the annual ele Check two boxes in each cate. Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy an    ### Range lower bound ### Range to upper bound ### Range #### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### Range ### ### Range ### Range ### Range ### Range ### Range ### Range ### ### Range ### Range ### ### ### ### ### ### ### ### ### #	ge of the perinties liste ctrical and gory —  XXX 0%  0%  d cost savi  Annua Cons 4956	arcent of total d in section fuel consum  XX 5%  XX 5%  XX 5%  I Electrical sumption 50 kwh	electrical and fit. Secondly, ciption data on t  10%  Range of I  Range c  247  Range  Range	iel consumpticulate the repert of Fuel rings	ion which woll range of ener port.  20% 20% 20% 10 20% 10 5 % 10 5 % 10 9	D 25% D 25% D 25% Annual E Dollars \$ 31	osulting from savings by	m the imple multiplying er (specify) er (specify)  Rang Do = \$	ge of Electric

K Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor. OPTIONAL: OPTIONAL: CLASSIFICATION **ENERGY** ITEM NO. **ENERGY** DATE OF IMPLEMENTATION PAST ENERGY CONSERVATION ACTIONS COST SAVINGS NO MAJOR SUB SAVINGS CLASS CLASS

Note Reproduce this page as necessary

NEW OPPORTUNITIES Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location wherethe recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

**OPTIONAL: OPTIONAL** CLASSIFICATION **ENERGY** ENERGY NO ITEM DATE OF IMPLEMENTATION **NEW MINI-AUDIT OPPORTUNITIES** COST MAJOR SAVINGS SUB SAVINGS CLASS CLASS Keep all controls free of dust. Check the amount of insulation 2 in the ceiling. Add insulation in attic spaces if needed. Weatherstrip all 2 <u>exterior doors.</u> Replace an existing door with one 5 2 of a higher R-value. Add or modify drapes, blinds, and 3 6 2 shutters to resist temperature changes more effectively. Plant deciduous trees for summer 2 3 shading. South and west facing windows should 8 2 3 be fitted with solar shading devices (i.e. overhangs, fins, trellises, awnings, interior drapes) to reduce heat gain. Add insulation around the perimeter 9 2 4 or rim joist area of the building. Insulate walls with rigid insula-10 2 tion on inside surfaces, or place loose fill insulation in wall cavaties. Replace single glazed windows with 11 10 double glazed thermopanes. Check operation of entire heating/ 12 3 cooling control system, including control valves and dampers. Check the calibration of all con-13 trollers and devices for proper settings and operations. Raise the supply air temperature 14 3 1 for cooling to the highest point necessary to provide minimum required cooling. Lower the supply air temperature 3 15 for heating to the lowes point necessary to provide minimum required heating. 65°F maximum occupied, 65°F maximum 16 3 1 unoccupied during the heating season

VEW SPOODTINITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20	mplemente	d. This sec	tion of the mini-addit report should be completed by the mini-addit		OPTIONAL	
ITEM	No	ASSIFICATION NO. NEW MINI-AUDIT OPPORTUNITIES		ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR	SUB CLASS		SAVINGS	SAVINGS	
	- CENGO	OLAGO	78°F minimum when occupied and no	·····		
17	3	1	cooling when unoccupied during the			
			cooling season.	Jacobs Commission and Advisor		
			Provide atmospheric cooling			
18	3	1	as long as possible.			
			Clean and remove obstructions from			
19	3	2	all room air outlets and inlets			
			(diffusers, registers, and grillers).			
		<u> </u>	They should be kept clean and free			
			of all dirt and foreign materials.			
			Inspect fans for normal			
20	3	3	operation.		ļ	
			Keep condenser coil face clean			
21	3	3	to permit proper air flow.		<u> </u>	
			Inspect ductwork for air leakage.			
22	3	3	Seal all leaks by taping or caulking. Inspect ductwork			
23	3	3	linsulation.			,
23		1 3	Inspect damper blades and linkages.	ļ		
24	3	3	Clean, oil and adjust.			
		-	Take special note of fresh air	-	ļ	
25	3	3	dampers making sure that they close	1		
23		-	tightly and be sure to repair, re-	<b></b>		
			place or provide blade edge gaskets			
-		<del> </del>	and gasketing at the end of blades.			
}			and gaskeering at the that of brades.			,
,			Clean or			
26	3	3	replace filters periodically.			
			Instruct occupants and maintenance			
27	4	1_1_	personnel to switch off all lights			
			when they are not needed.			
						·
28	4	2	Clean windows.	<del> </del>	<del> </del>	
0.0			Clean fixtures			
29	4	3	and lamps regularly.	<del> </del>	<del> </del>	
20	Α.	1	Use lower wattage lamps to provide			
30	4	+ 4	the necessary illumination.	<del> </del>	<del> </del>	
31	4	1	Allow part of a lighting system to			
<u> </u>		4_4_	be turned off, while maintaining	<del> </del>	<del></del>	
		1	the necessary light.		1	
		<del>                                     </del>	Keep records of the operating	<b>†</b>		
32	5	1	schedule, monthly energy consumption			August, 1979
		<del>                                     </del>	and purchase of any new equipment	1	<del>                                     </del>	·
			that affects energy consumption			
		1	of efficiency of the building. Thes	d		
			records will indicate the impact			
				-	and the same of th	

L	CHILLY
	1
>	OR
Ē	ğ

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

žο	implemente	a. Inis sec	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	MAJOR SUB		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO		SUB CLASS	NEW MINI-AUDIT OFFORTUNITIES	SAVINGS	SAVINGS	DATE OF TWIFTE INC.
			of energy conservation measures.			
			Review the record			
33	5	1	books on a regular basis.			August, 1979
			The burner system of fossil-fuel			
34	6	2	water heaters should be kept clean			
			and in good operating condition.			
			Clean air-sides, remove soot, and			
<u>35</u>	7	3	scrape scale in forced warm air			
			furnaces.			
26	-		If the firing rate of gas or oil			and the second s
36	7_	3	burners is too high, it causes			
			short cycling and excessive fuel			
			consumption. Too low a rate re-			
			quires constant operating and	1.		
		<del></del>	delivers inadequate heat to the space	<b>4</b> S.	<del> </del>	
37	7	4	Maintain the lowest possible hot			
3/	<del></del>	+-4-	water temperature which will meet			
			domestic hot water needs.			
38	7	4	Turn off gas pilots for furnaces, boilers, and space heaters during			
JO		+ 4 -	the non-heating months and during	<del> </del>	<del> </del>	
			long unoccupied periods.			i
		<u> </u>				
				ļ		
						,
					<del>                                     </del>	
			·	<b> </b>	<del> </del>	
					-	
		+			-	
	-	}				

## MINI-AUDIT REPORT

A	BUILDING NAME Water Treatment Plant		NAME OF ORGANIZATION City of Bloomington	5-17-80
	BUILDING ADDRESS 9304 Poplar Bridge Road		ADDRESS 2215 West Old Shakopee Roa	d
ACT	CITY Bloomington, MN	ZIP CODE 55437	CITY Bloomington, MN	ZIP CODE 55437
CONTACT	PERSON COMPLETING FORM	TELEPHONE 612) 935-6901	CONTACT PERSON	TELEPHONE 612) 881-5811

1.	OWNERSHIP TYPE	···	3a.	SCHOOLS		C.	LOCAL GOVERNMENT	
١.	V-V	PUB)	Ja.	□ Elementary	(SCHL-ELM)	O.	Doffice	(LOCG-OFF
	Non-Profit Association	(NAP)	1	Secondary	(SCHL-SECD)		□Storage	(LOCG-STR
	- 11011 1 TOTA ASSOCIATION	(IAVL)	1	Coll. or Univ.	(SCHL-POST)		☐ Service	(LOCG-SER
			-	□Vocational	(SCHL-VOCL)		Library	(LOCG-LBR
2	ULTIMATE OWNER		1	□Education Agency	(SCHL-ADMN)		Police	(LOCG-PLC
-	☐County	(CNTY)		□ Administration	(SCHL-ADMN)		,∏Fire	(LOCG-FIRE
	XXCity	(CITY)	l	DOTHER	(SCHL-OTHR)		XIXOTHER .	(LOCG-OTH
	Township	(TOWN)	b.	PUBLIC CARE				
	State	(STAT)	J 0.	□Nursing Home	(PBCR-NURS)	d.	HOSPITALS	WOSE CEN
	Public School	(PUSC)	1	Long Term Care	(PBCR-TERM)		□General □	(HOSP-GEN
	☐Private School	(PRSC)	1	☐Rehab. Facility	(PBCR-RHAB)		☐ Tuberculosis	(HOSP-TUB
	Non-Profit Association	(NPAP)	1	Public Health Ctr.	(PBCR-HCTR)		OTHER	(HOSP-OTH
	□Indian Tribe	(INDN)	l	□Res. Child Care Ctr.	(PBCR-RCCC)			

	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? '1 Yes XID No Have you previously applied for mini-audit funding? XID Yes ID No Do you wish to apply for mini-audit funding? ID Yes XID No
	Date:
	Name:
	Signature:
	If eligible for Federal funding only. Have you received a mini-audit grant before?  Yes No Have you previously applied for mini-audit funding?  Yes No Do you wish to apply for mini-audit funding?  Yes No The 50% match for Federal funds will come from: (Use additional sheets if necessary.)
l	
	Date
	Name:
	Signature:

D	Check the type of energy report which was completed and submitted prior to this mini-audit report.
REPORT	Elementary School Energy Report (Form No. ED-00444-02)  Secondary School Energy Report (Form No. ED-00445-02)  Existing Building Energy Report (Form No. EN-00041-01)
CHECK-OFF	If an energy report has not been completed previous to this mini-audit report, one must be included with this report. Elementary, secondary, and vocational schools should use form ED-00444-02 or form ED-00445-02, depending on building complexity. All other buildings should use the existing building energy report, form EN-00041-01.
	Instructions: This section is to be completed and signed by a registered professional engineer or by a certified mini-auditor who has successfully completed the State of Minnesota's Mini-Audit Procedures Course. This section should be completed after this mini-audit report and an energy report are completed. All blanks must be filled in.
	I have reviewed the energy report and/or the energy report results for this building. I found all information contained therein to be correct OR I have corrected any misinformation on the energy report which will be resubmitted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this building being audited.
	I have fully disclosed my financial interests relating to this mini-audit and any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendations listed in section I of this mini-audit report to be the operations and maintenance changes, and low cost energy conservation measures, which would reduce energy consumption in this building.
	I have made a rough estimate, in section G, of the range of savings which may result from the implementation of all of the mini-audit opportunities listed in section I. I am not responsible if the actual savings resulting from this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and maintenance procedures listed in section K did not save at least 20% of the building's energy consumption as specified in section I. (did, did not)
	Based upon my observation of the physical characteristics of this building and the building's major energy using systems, I recommend that this be the subject of a maxi-audit. (should, should not)  I realize that this is not a final judgement, that the State reserves the right to make the maxi-audit funding determination based on this mini-audit report
	and other criteria.
	Based upon the information in section E and the information referred to in section F, I recommend that this building Should not (should, should not)
	undergo further solar conversion analysis, and/or Should not undergo further analysis of the renewable resources waste, wind, wood. (Circle proper resources) (should should not)
	In my judgement, as a mini-auditor, all of the above statements are true and correct.
	Witnessed by:
	Randy Smith
	Mini-Auditor's Name (Print or Type)  Building Organizational Authority (Print or Type)
	Signature Signature
	Rieke Carroll Muller Assoc., Inc.
	Firm Name (if none, enter none)  Date  Date
	P.O. Box 130 Hopkins, MN 55343 Address
	(612) 935-6901
	5-17-80
	Date
LS	
MENTS	· · · · · · · · · · · · · · · · · · ·
MINI- AUDIT	; }

F	Name	POSITION	ORGANIZATION							
<u> </u>	Randy Smith	Certified Mini Auditor	Rieke Carroll Muller Assoc., Inc.							
	Paul Kaeding	Electrical Engineer	Rieke Carroll Muller Assoc., Inc.							
 	Bill Lloyd	Superintendent	City of Bloomington							
TEAM	Craig Hoffman	Plant Manager	City of Bloomington							
		,								
G	BRIEF DESCRIPTION OF GE Good, Water Tr	NERAL BUILDING CONDITION (i.e. type, and featment	inction)							
	MAJOR CHANGES PLANNED None	WITHIN NEXT 15 YEARS (i.e. demolition, reha	bilitation, conversion from one building type to another)							
BUILDING	STRUCTURAL COMPONENT	3 OF ROOF (i.e. metal beams, wooden rafters, o	oncrete)							
D'B'N	Concrete ROOFING MATERIAL (i.e. tar	and gravel, shingles, tile)								
IN IN	Metal									
	Is there open land adjacent to XIM Yes No Solar collectors need to be locally pm? Roof XIM Yes No South facing Wall: Yes If the roof or wall are partly si	xited in an unshaded area. Is the roof of the buildin X凶 No naded, what percentage of the surface is unshad	g and the south facing wall unshaded between the hours of 9 a.m. and							
	% of south facing wall unsh What is the overall shape of t XX square ☐ rectangle	ne building? □ H-shaped □ E-shaped □ other (specify)								
	Is the roof of the building flat									
	If pitched, what is the compa-	s orientation of the ridgeline? <u>East-We</u>	st							
-,		nat the roof makes with horizontal? 40								
	Are there large obstructions of Yes XX No	on the roof such as chimneys, rooms for mechai	ical equipment, ventilating units, water towers, etc?							
	What is the exterior facing m	What is the exterior facing material for the south facing wall? Face brick								
2	What percentage of the south facing wall is glass?									
	Is the building's space heatin	g equipment located within or on the building?	A no answer indicates the equipment is in a separate building.)							
	If the space heating equipme	nt is inside the building, where is it located? ment    Roof   Other (specify)								
NTIAL	Is the building's water heatin XX Yes □ No	g equipment located within the building? (A no	answer indicates the equipment is in a separate building.)							
POTENTIAL MATION	If the water heating equipme  XX Ground Floor □ Base	nt is inside the building, where is it located? ment  Other (specify)								

-		Next		na a gradu a distributa di Artica di Mandala di Artica d					
-			BASE P	ERIOD YEAR	3	,	Fiscal Year		
	ENERGY TYPE	ENERGY	USAGE	co	ONVERSION	FACTOR		BTU USAGE	
	Electricity				<del></del>				
	Fuel 1				***************************************				
	Fuel 2			7	,				
	TOTAL								
			20% SA	VINGS YEAR			Fiscal Y	ear	
	ENERGY TYPE	ENERGY	USAGE	C	ONVERSION	FACTOR		BTU USAGE	
	Electricity					٠			
, [	Fuel 1								
DATA	Fuel 2								
2									
ă	TOTAL			<u> </u>					
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric state.	of the percent of total ities listed in section	electrical and for L. Secondly, c	uel consumpt alculate the	tion which wo	ould be saved re	sulting from t	he implementation of all	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni	of the percent of total ities listed in section rical and fuel consum	electrical and for L. Secondly, c	uel consumpt alculate the	tion which wo	ould be saved re	sulting from t	he implementation of all	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electi	of the percent of total ities listed in section rical and fuel consum ory —	electrical and for L. Secondly, c	uel consumpt alculate the	tion which wo	ould be saved re	esulting from to savings by m	he implementation of all	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each catego Range of Electrical Savings — X	of the percent of total ities listed in section rical and fuel consum ory —	electrical and f L. Secondly, c ption data on t	uel consumpt alculate the he energy re	tion which wo range of ene port.	ould be saved re orgy and cost to	esulting from to savings by mo	he implementation of all ultiplying the estimated	
Outline Committee	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each catego Range of Electrical Savings — X	e of the percent of total lities listed in section rical and fuel consum  ory —  100% XX 5%	electrical and fi L. Secondly, c ption data on t 10%	uel consumpi alculate the he energy re 15%	ion which wo range of ene port.	ould be saved regy and cost s	esulting from to savings by mo	he implementation of all ultiplying the estimated	
Outline Committee	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each catego Range of Electrical Savings — X	e of the percent of total tites listed in section rical and fuel consum by — 数 0% X数 5% □ 0% X数 5% cost savings —	electrical and fi L. Secondly, c ption data on t 10% XX 10%	uel consumpi alculate the he energy re 15% 15%	ion which wo range of ene port.	□ 25%	osulting from to savings by mi	he implementation of all ultiplying the estimated  (specify)  (specify)	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each catego Range of Electrical Savings — X	a of the percent of total tites listed in section rical and fuel consumbly —    \$\times 0 \times \times 5 \times 5 \times 6 \times 5 \times 6 \times 5 \times 6 \time	electrical and fi L. Secondly, c ption data on t 10% XIX 10% Range of I	uel consumpi alculate the the energy re 15% 15%	ion which wo range of ene port.	ould be saved regy and cost s	osulting from to savings by mi	he implementation of all ultiplying the estimated	
Olivica Control	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each catego Range of Electrical Savings — X Range of Fuel Savings — Calculate ranges of energy and other states of the states	of the percent of total lities listed in section rical and fuel consum rry — 以如 5% 口 0% 以如 5% cost savings —	electrical and fi L. Secondly, c ption data on t 10% XIX 10% Range of I	uel consumpi alculate the the energy re 15% 15%	ion which wo range of ene port.  20% 20%	□ 25% □ 25% □ Dollars	osulting from to savings by mi	he implementation of all ultiplying the estimated  (specify)  (specify)  Range of Electrical Dollars Savings	
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electrical Savings — X.  Range of Electrical Savings — Calculate ranges of energy and other sections.  Range  Range  Newer bound — 0 % x  to  To	a of the percent of total tites listed in section rical and fuel consumbly —    \$\times 0 \times \times 5 \times 5 \times 6 \times 5 \times 6 \times 5 \times 6 \time	electrical and fit. Secondly, control of the second	uel consumption alculate the the energy re  15% 15% 15% Electrical Sate of Energy rings kwh,	20% 20% Range	Dulid be saved regrey and cost statement of the cost o	osulting from the savings by mines and the savings by mines and the savings by mines and the savings by the savings between the savings between the savings between the savings between the savings between the savings between the savings between the savings between the savings between the savings between the savings between the savings between the savings between the savings between the savings by mines and the savings by mines are savings by mines and the savings by mines are savings by mines and the savings by mines are savings by mines and the savings by mines are savi	he implementation of all ultiplying the estimated  (specify)  (specify)  Range of Electrical Dollars Savings  \$	
2	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electrical Savings — X.  Range of Electrical Savings — Calculate ranges of energy and other sections.  Range of Fuel Savings — Calculate ranges of energy and other sections.	of the percent of total lities listed in section rical and fuel consum.  Try —  MO 0% XXX 5%  O% XXX 5%  Cost savings —  Annual Electrical Consumption  34.9x10 <sup>5</sup> kwh	electrical and fit. Secondly, c ption data on t  10% XXX 10%  Range of Range of Sav  = 0	uel consumple alculate the inhe energy re 15%  15%  15%  Electrical Satisfies a series with a series	20% 20% 20% 4 Range 0 % to 5 %	Dulid be saved regrey and cost statement of the cost o	osulting from the savings by mines and other other other spent 49.09	he implementation of all ultiplying the estimated  (specify)  (specify)  Range of Electrical Dollars Savings  \$	
2	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electrical Savings — X.  Range of Electrical Savings — Calculate ranges of energy and other sections.  Range  Range  Newer bound — 0 % x  to  To	of the percent of total lities listed in section rical and fuel consum.  Try —  MO 0% XXX 5%  O% XXX 5%  Cost savings —  Annual Electrical Consumption  34.9x10 <sup>5</sup> kwh	electrical and fit. Secondly, control and at a on the second seco	uel consumpi alculate the inhe energy re 15% 15% 15% Electrical Set of Energy rings kwh, to 4 kwh, of Fuel Savie	20% 20% 20% 4 Range 0 % to 5 %	Dulid be saved regy and cost states of the cost sta	osulting from the savings by mineral other other other spent 49.09 =	he implementation of all ultiplying the estimated  (specify)  (specify)  Range of Electrical Dollars Savings  \$	
J 1 2	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electric Check two boxes in each catego Range of Electrical Savings — X Range of Fuel Savings — Calculate ranges of energy and a section of the Range lower bound — 0 % x to supper bound — 5 % x	and the percent of total lities listed in section rical and fuel consum.  Ty —  \$\tilde{\Delta} 0\% \tilde{\Delta} 5\%  \$\to 0\% \tilde{\Delta} 5\%  Cost savings —  Annual Electrical Consumption  \$\frac{34.9x10^5}{2}\$ kwh  Annual Fuel	electrical and fit. Secondly, control of the secondly of the second seco	uel consumple loulate the inhe energy re  15% 15% 15% Electrical Sate of Energy rings kwh,	lion which working of energy of ener	Annual E Dollars  x \$814  Annual Dollars	osulting from the savings by mines as a substant of the savings by mines as a substant of the savings by mines as a substant of the savings as a substant of the	he implementation of all ultiplying the estimated (specify)  (specify)  Range of Electrical Dollars Savings  \$ 0  to  \$ 4072.45	

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Instructions: Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the spec. Inc building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

	CLASSIFICATION			OPTIONAL:	OPTIONAL:		
ITEM NO.	MAJOR	O. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION	
	CLASS	CLASS					
	ļ						
				<u> </u>			
				<u> </u>			
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				<b>†</b>	<b> </b>		
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	<b>-</b>	<b> </b>					

NEW OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ZO	mplemente	u. IIIIS SOC	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	CLASSIF N		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
1	1	1	Keep all controls free of dust.			
			Look for loose connections and bad			
2	1	2	contacts on a regular basis.			
3	1	2	Eliminate excessive vibration.			
		_	Lubricate motors to reduce wear			
4	11	2	and excessive torque.			
5	1_1	2	Replace worn bearings.			
			Keep motors clean to make			
6	11	2	cooling easier.			
7	1	2	Balance three-phase power sources			,
			to motors. Check for over-voltage conditions			
8	1	2	on motors.			
		<b></b>	Check alignment of motors to driven			
9	1_1_	2	equipment, align and tighten as			
			necessary.			
			Replace worn or defective motors			
10	1	2	with motors that are sized as close			
			to the load as possible and use the			
		ļ	highest efficiency motors available.			
4 4			Where it is impractical to replace			
11	1	2	motors which have low loads and power	r		
			factors, use capacitors at motor			
	+	<b></b>	terminals to correct the power factor to 90%.	-	<del></del>	
			14000 00 30%.			
10			Check power factors and make			
12	$\perp$	3	adjustments to correct equipment.	-	ļ	
13		2	Weatherstrip all exterior doors			
13	2	2	including garage or delivery doors. Keep all doors between unheated			
14	2	2	corridors and heated spaces closed.			
-	1	<del> </del>	Replace an existing door with one			
15	2	2	of a higher R-value.	1		
			Add or modify window drapes, blinds			
16	2	3	and shutters to resist temperature			
			changes more effectively.			
		<del>                                     </del>	Inspect the roof and seal all cracks	s		
17	2	6	that allow outdoor air and water to			
			enter.			
· · · · · · · · · · · · · · · · · · ·		<b>†</b>	Check roof insulation for damage	1		
_18_	2	7	due to roof leakage.			
	_		Caulk all cracks that allow air			
19	2	8	and moisture into the building.			

VEW OPPORTUNITIES Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Exames suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record, the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20			tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:			
ITEM	CLASSIFICATION NO MAJOR SUB		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION	
,10	CLASS	SUB CLASS		SAVINGS	SAVINGS		
			Caulk around all pipes, louvers,				
20	2	8	and other openings in the walls.				
			Consider insulating walls with				
21	2	8	rigid insulation on inside.				
			Repair broken or cracked windows.				
22	2	10	Replace with standard or tempered				
			glass of proper thickness, according	,	]		
	+	<u> </u>	to building code requirements.				
			Consider replacing some windows on				
_23	1 2	11	the north side of the building with				
			insulation wall panels.				
	+		Consider installing insulation	-	<u> </u>		
24	2	6	panels in the metal panel areas	ļ	ĺ		
	+	<del>                                     </del>	between windows and above doors.		<del> </del>		
			Between windows and above assets				
	<b>—</b>	<b></b>	Check operation of entire heating/	<del> </del>			
25	3	1	cooling control system, including			64	
	1 2		control valves and dampers.		<u> </u>		
			Control varyes and dampers.	1			
			Check the calibration of all cont-				
26	3	1	rollers and devices for proper		ĺ		
,			settings and operations.				
_27	3	1_1_	65°F maximum occupied.				
			Consider reducing temperature in	]	]		
28	3	1_1	rooms with open tanks. This will				
			prevent heat loss to the water				
	<del></del>	<del> </del>	that is being treated.	ļ	<b>}</b>		
29	2	1	700E minimum when occupied				
	+-3	<del>                                     </del>	78 <sup>0</sup> F minimum when occupied Clean the air side of all direct	<del> </del>	<del> </del>		
30	3	2	radiators, fin tube convectors and				
			coils to enhance heat transfer.	<del>                                     </del>	<del>                                     </del>		
					1		
			Vent all hot water radiators and		1		
31	3	2	convectors to assure that water				
			will completely fill the interior				
		1	passages.				
			Clean and remove obstructions from				
32	3	2	all room outlets and inlets (diffus	ers,	<u> </u>		
			registers and grillers). They shou	d			
		+	be kept clean and free of all dirt	}	+		
			and foreign materials.			*	
3.2	3	2	Voor fan blades clean			·	
_33_	3	3	Keep fan blades clear. Inspect and lubricate	<del> </del>	<del> </del>		
34	3	3	bearings of fans.				
<u> 54</u>		7 3	I near mys or rans.				

EW EW

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list Examine suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

DATE OF IMPLEMENTATION
,
1
<b></b>

EW EW

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

	7			OPTIONAL:	OPTIONAL	
ITEM NO	CLASSIF NO MAJOR CLASS		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	JULAGO	CLASS	Garage area - This area is presently			
48	4	4	lit with fluorescent lighting.			
<del></del>	† <u>-</u> -	<u> </u>	Consider sodium lighting or enclosed			Company of the Compan
			fluorescent lighting. This will			
	<del> </del>		provide a higher output from a bette	<del> </del>		
			maintenace factor and may result			
			in fewer fixtures being required.	-		
			The rever triver as being required			
			Use lower wattage lamps to provide	1		
49	4	4	the necessary illumination.			
			Allow part of a lighting system to			
50	4	4	be turned off, while maintaining			
			the necessary light.			
			3			
			Provide desk or table lamps in			
51	4	4	task localized areas.			"
			Keep records of the operating			
_52	55	11	schedule, monthly energy consumption			August, 1979
			and purchase of any new equipment			
·		ļ	that affects energy consumption			
			of efficiency of the building. Thes	ė	ļ	
			records will indicate the impact		<u> </u>	
			of energy conservation measures.			
				ļ	-	
<b></b>	_		Review the record			1070
53	5	1 1	books on a regular basis.	<b>↓</b>	ļ	August, 1979
r- A	-		All insulation applied to a hot			
54	5	2	water system should be kept in		-	
		ļ	good condition.			
	<u> </u>	<del> </del>	All electric heating equipment	+	<del> </del>	
55	5	2	should be checked for corroded			
	<del>                                     </del>	<del>                                     </del>	elements and loose connections and	<del> </del>	<del> </del>	<del> </del>
			repaired as required.		1	
	<b></b>	<b>-</b>	Periodically drain and remove	-		<u> </u>
56	5	2	the sediment from water heater.			
		1	If the firing rate of gas or oil	<del> </del>	<del> </del>	
57	7	3	burners is too high, it causes			
		1	short cycling and excessive fuel			
			consumption. Too low a rate			
			requires constant operating and	<b></b>		
			delivers inadequate heat to the			
			spaces. If the boiler is oversized	,	1	
			adjust the firing rate to the			
			building load, not the boiler.			
		1				
			Schedule boiler blowdown on an as-			
58	7	3	needed basis rather than on a fixed	<u> </u>		
			timetable. Smaller, more frequent			
			blowdown is preferable to larger,			

EW PPORTUNITIES

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**OPTIONAL: OPTIONAL** CLASSIFICATION ENERGY NO ITEM **ENERGY** DATE OF IMPLEMENTATION **NEW MINI-AUDIT OPPORTUNITIES** COST MAJOR NO SUB SAVINGS SAVINGS CLASS CLASS less frequent blowdown. Maintain the lowest possible hot water temperature which will meet 59 7 4 space or domestic hot water needs. If there are no indoor-outdoor 60 modulating controls, raise or lower the operating temperature of hot water systems to conform to outdoor conditions. For example, operate a boiler at 120°F with outdoor temperature at 60°F, and raise the level to 160°F when it is 20°F outdoors. Clean filters regularly in forced 61 warn air units to reduce the operating time of the furnace. Maintain water level or pressure to 7 4 62 radiators or coils on the highest level of the building. Turn off gas pilots for furnaces 63 boilers, and space heaters during the non-heating months and during long unoccupied periods. Keep all heat exchanger surfaces clean. Check air-to-fuel ratio and 7 64 4 adjust as necessary. Inspect casing for air leaks 65 4 and seal as necessary. 66 4 Clean the unit heaters. Balance the make-up air to equal 67 or slightly exceed exhaust.

## **MINI-AUDIT REPORT**

A	BUILDING NAME	1	NAME OF ORGANIZATION	DATE
	Water Reservoir - Pump Ho	ouse	City of Bloomington	6-11-80
	BUILDING ADDRESS		ADDRESS	
	2200 West 82nd Street		2215 West Old Shakopee Road	
_	CITY	ZIP CODE	CITY	ZIP CODE
ACT	Bloomington, MN	55431	Bloomington, MN	55431
CONTA	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
ပ္မရ	Randy Smith (	<b>\$</b> 12) 935-6901)	Arthur Jensen	612) 881-5811

B	Ins de	structions: For blocks 1 and 2 of scribes the building type and	check the box then within th	which b	est fits the building owners ory check off the sub cate	hip conditions. Fo gory befitting the	r bloc buildi	k 3 determine which of the f ng function.	our categories
	1.	OWNERSHIP TYPE XYPublic (F UNon-Profit Association	PUB) (NAP)	За.	SCHOOLS  □Elementary □Secondary □Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT Office Storage Service	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
CODE	2.	ULTIMATE OWNER County XXCity	(CNTY) (CITY)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire X₩OTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY C		☐Township ☐State ☐Public School ☐Private School ☐Non-Profit Association ☐Indian Tribe	(TOWN) (STAT) (PUSC) (PRSC) (NPAP) (INDN)	b.	PUBLIC CARE Nursing Home Long Term Care Rehab. Facility Public Health Ctr. Res. Child Care Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d.	HOSPITALS □General □Tuberculosis □OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization.
	If eligible for both Federal and State Funding: Have you received a mini-audit grant before?  Have you previously applied for mini-audit funding?  No Do you wish to apply for mini-audit funding?
	Date
	Name:
	Signature:
	If eligible for Federal funding only:  Have you received a mini-audit grant before?   Yes No  Have you previously applied for mini-audit funding?   Yes No  Do you wish to apply for mini-audit funding?   Yes No  The 50% match for Federal funds will come from: (Use additional sheets if necessary.)
	·
EST	
EOUE	Date:
NG R	Name:
MINI-AUDIT FUNDING REQUEST	Signature:
- W	

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Check the type of energy report which was completed and submitted prior to this mini-audit report.

☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02) XXExisting Building Energy Report (Form No. EN-00041-01)

If an energy report has not been completed previous to this mini-audit report, one must be included with this report. Elementary, secondary, and vocational schools should use form ED-00444-02 or form ED-00445-02, depending on building complexity. All other buildings should use the existing building energy report, form EN-00041-01.

E	Instructions: This section is to be completed and signed by a registered professional engineer or by a certified mini-auditor who has successfully completed the State of Minnesota's Mini-Audit Procedures Course. This section should be completed after this mini-audit report and an energy report are completed. All blanks must be filled in.
	I have reviewed the energy report and/or the energy report results for this building. I found all information contained therein to be correct OR I have corrected any misinformation on the energy report which will be resubmitted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this building being audited.
1	I have fully disclosed my financial interests relating to this mini-audit and any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendations listed in section I of this mini-audit report to be the operations and maintenance changes, and low cost energy conservation measures, which would reduce energy consumption in this building.
	I have made a rough estimate, in section G, of the range of savings which may result from the implementation of all of the mini-audit opportunities listed in section I. I am not responsible if the actual savings resulting from this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and maintenance procedures listed in section K did not save at least 20% of the building's energy consumption as specified in section I.
	Based upon my observation of the physical characteristics of this building and the building's major energy using systems, I recommend that this should not)  I realize that this is not a final judgement, that the State reserves the right to make the maxi-audit funding determination based on this mini-audit report
	and other criteria.
	Based upon the information in section E and the information referred to in section F, I recommend that this building (should, should not)
	undergo further solar conversion analysis, and/or should not undergo further analysis of the renewable resources — waste, wind, wood. (Circle proper resources) (should, should not)
	In my judgement, as a mini-auditor, all of the above statements are true and correct.
	Witnessed by:
	Randy Smith
	Mini-Auditor's Name (Print or Type)  Building Organizational Authority (Print or Type)
	Fandy Sulf 206
	Signature Signature
	Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  Date

MINI-AUDIT STATEMENTS

P.O. Box 130

(612) 935-6901 Phone

Address

Date

Hopkins, MN 55343

F	Navi	POSITION	ORGANIZATION
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Craig Hoffman	Plant Manager	City of Bloomington
AUDIT			· · · · · · · · · · · · · · · · · · ·
G	BRIEF DESCRIPTION OF GEN  GOOd, Pumping	ERAL BUILDING CONDITION (i.e. type, and fu	unction)
	MAJOR CHANGES PLANNED	WITHIN NEXT 15 YEARS (i.e. demolition, rehat	pilitation, conversion from one building type to another)
NO.	None STRUCTURAL COMPONENTS	OF ROOF (i.e. metal beams, wooden rafters, co	Oncrete)
BUILDING	Concrete		
NFOR	ROOFING MATERIAL (i.e. tar 8	and gravel, shingles, tile)	
	iai a diavei		
H	INSTRUCTIONS: Correctly ans	wer the following questions for the building bei	ing mini-audited.
	Is there open land adjacent to t	the building?	
			g and the south facing wall unshaded between the hours of 9 a.m. and
	If the roof or wall are partly shown of roof unshaded on of south facing wall unsha	aded, what percentage of the surface is unshadeded $\frac{80}{}$ %	ed?
	What is the overall shape of the	e building? I H-shaped □ E-shaped □ other (specify) _	
	Is the roof of the building flat o	proprieted?	
	If pitched what is the compass	orientation of the ridgeline?	The annual content of the annual content of
	If pitched, what is the angle th	at the roof makes with horizontal?	<u>•</u>
	Are there large obstructions or Yes XXNo	the roof such as chimneys, rooms for mechan	ical equipment, ventilating units, water towers, etc?
	What is the exterior facing mal	erial for the south facing wall? Face	Brick
	What percentage of the south	facing wall is glass?%	
	Is the building's space heating	equipment located within or on the building? (	A no answer indicates the equipment is in a separate building )
	If the space heating equipmen XXC round Floor - Baserr	t is inside the building, where is it located? lent:   Roof: Other (specify)	
TEN TIAL		equipment located within the building? (A no a	inswer indicates the equipment is in a separate building.)
POTE		is inside the building, where is it located? nent Other (specify)	
SOLAR POTE	1	central system, does it consist of multiple units	or is it a combination of the central and multiple units?
SS	☐ Central ☐ Multiple ☐	Combination	

						BASE	PERIOD Y	EAR		7	Fiscal Y	ear		
	ENERGY TYPE			ENERGY	USAC	GE .		CONVERSIO	N FA	CTOR	BTU USAGE			
	Electricity					***************************************		organisma feethallii (1990) vuun vii 10 vaana 1990 (1990 (1990) vaanaanaks				****	and the second s	
	Fuel 1				Oliman gazza, garang, qanan				MORTHUM MINES					
-	Fuel 2				######################################	-		glang gener ekkirin kalang pangan akunah kawa ya san	Browning and resident			engunder et de direkteur		
	TOTAL					**************************************								
						20% SA	VINGS YE	AR			Fiscal Y	ear		
-	ENERGY TYPE		ENERGY USAGE					CONVERSION FACTOR				BTU USAGE		
	Electricity									·				
	Fuel 1													
Fuel 2														
	TOTAL							gy paparamonanting - 4 complete constraining as on me						
	state the roughly estimated ra of the new mini-audit opport percentages by the annual el Check two boxes in each cat	ectri	es listed cal and	in section	L. Se	condly, o	calculate th	ne range of er	nergy vould	and cost sav	rings by m	ultiplying	the estimated	
	Range of Electrical Savings -	- XC	<b>%</b> 0%	<b>X</b> ₹5%		10%	□ 15%	□ 20%		□ 25%	O other	(specify)		
	Range of Fuel Savings —		J 0%	XX 5%	X	X <sub>10%</sub>	☐ 15%	□ 20%		□ 25 <b>%</b>	O other	(specify)		
	Calculate ranges of energy and cost savings —													
					F	_	Electrical	Savings						
	% Range			Electrical umption			of Energy vings	% Range		Annual Elec Dollars S			je of Electrica Ilars Savings	
	lower bound0_ %	×	5136	<u>00</u> kwh	1.0	0	kwh,	0_%	х	<u> 1784</u>	<u>7.2</u> 8	\$	0	
	to						to	to					to	
	upper bound5_ %	x	5136	00 kwh	72	2568	30 kwh,	5%	x	\$ <u>1784</u>	17.28	= \$	892.36	
						Range	of Fuel S	avings						
	% Range		Cons	ual Fuel sumption		Sa	e of Fuel avings	% Range		Annual I Dollars S	pent		ange of Fuel	
	lower bound5 %	¥	43.7	<u>X10 Btu</u>	-2	21.9	<u>x10 Btu.</u>	5%	×	s 1002	<u> </u>	<u> </u>	50.15	

K

Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which have already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location where the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving items which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

	CLASSIFICATION		**************************************		OPTIONAL: OPTIONAL:			
NO.	MAJOR SUB CLASS CLASS		PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION		
	CLASS	CLASS						
			·					
					<b></b>			
_					<del> </del>			
<del></del>								
	<u> </u>				1			
	-							
					<del>                                     </del>			
		-			-			
	ļ							

Note Reproduce this page as necessary

NEW OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examinating suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

	·			OPTIONAL:	OPTIONAL	
ITEM	CLASSIF		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB	NEW MINI-AUDIT OFFORTUNITIES	SAVINGS	SAVINGS	DATE OF IMPLEMENTATION
	CEASS	CLASS				
1.	1	1	Keep all controls free of dust.			
4	<u> </u>		Look for loose connections and	Daniel Company of the State of		
2	1	2	bad contacts on a regular basis.			
<del></del>			Lubricate motors to reduce wear	***************************************		
3	1	2	and excessive torque.			
	<del>                                     </del>		Balance three-phase power			
4	1	2	sources to motors.			
			Check for over-voltage	***************************************		
5	1	2	conditions on motors.			
			Replace worn or defective motors			
6	1	2	with motors that are sized as close			
			to the load as possible and use the			
			highest efficiency motors available. Check the amount of			
7	2	1	insulation in the ceiling.			·
8	2	1	Add insulation, if needed.			
	į		Weatherstrip			
9	2	1	all exterior doors.		ļ	
			Inspect the roof and seal all			
10	2	6	cracks that allow outdoor air and			
			water to enter.	}		
	<del> </del>	<b></b>		ļ	ļ	<u> </u>
			Modify roof openings with			
11	2_	6	insulation panels.	ļ	<u> </u>	
1.0			Insulate walls with rigid			
12	2	8	insulation on inside surfaces.		<u> </u>	
10		10	Replace single glazed windows			
13_	2	10	with double glazed thermopanes.	<del> </del>		
14	3	1	Check the calibration of all			
14_	+ -3	<del>                                     </del>	controllers and devices for proper	<del>                                     </del>	-	<del></del>
			settings and operations.			
	<del> </del>	<u> </u>	65°F maximum occupied, 60°F maximum	<del> </del>	<del> </del>	
15	3	1	unoccupied during the heating season	ا		
	1	† <del>*</del> –	Overhead heaters should	<del> </del>	<del>                                     </del>	
16	3	2	direct heat to floors.			
			Inspect and lubricate	1		
17	3	3	brarings on fans.			
			Inspect drive belts on fans. Adjust	:	†	
18	3	3	or replace as necessary to ensure		İ	
			proper operation.			
		+	Make sure that all fans, frequently		<del> </del>	
. 19	3	3	inoperative in unit heaters, fan			
		1	coil units, and unit ventilators	1	†	
			are running normally to increase			
-	·		the heat transfer rate from heating	1		
			coils.	1		

Note 1. Date of Implementation should only be completed as the recommendation is implemented. The mini-audit report may be submitted to the innesota Energy Agency before the "Date of Implementation" has been completed.

NEW OPPORTUNITIES

Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the Euclity. As you go along, record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

OPTIONAL: OPTIONAL:

				OPTIONAL:	OPTIONAL	
ITEM NO	CLASSIF NO MAJOR CLASS		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	027.00	OLAGO				
_20	3	3	Clean or replace filters periodicall	٧.		9
		- it	Check belt tension and alignment	Maria de la companya della companya	Salahara (Antara) and an and an an an an an an an an an an an an an	
21	3	3	on air compressor.			
			Inspect air compressor intake filter			
22	3	3	pads and clean or replace as necessa	ry.		
			Check the compressor's			
23	3	3	oil level.			
			Periodically drain the moisture			
24	3	3	from storage tank. Use lower wattage lamps to provide			
0.5			Use lower wattage lamps to provide			
25	4	4	the necessary illumination.			
0.5			Allow part of a lighting system to			
26	4	4	be turned off, while maintaining			
	1		the necessary light.		}	
	<del> </del>					
0.7	_	1	Keep records of the operating			August, 1979
27	5	1 1	schedule, monthly energy consump-		ļ	Mugust, 1979
			tion of efficiency of the building.			
	+	<b> </b>	These records will indicate the		<del> </del>	
			impact of energy conservation			
		<b>-</b>	measures.			
20	1 -	,	Review the record			August, 1979
28	5	<del>                                     </del>	books on a regular basis.  If the firing rate of gas burners			7,4494509 1275
29	7	3	is too high, it causes short cyclin	h		,
	1-	3	and excessive fuel consumption.	<u> </u>	<del></del>	
			Too low a rate requires constant			ř
-	<b>†</b>	<del>                                     </del>	operating and delivers inadequate		<del> </del>	4
			heat to the spaces.			
1			Keep all heat exchanger surfaces	<u> </u>		
30	7	4	clean. Check air-to-fuel ratio			
			and adjust as necessary.			
			Follow guidelines suggested for far			
31_	1_7_	4	and motor maintenance.			
			,,,			
		<b></b>				
		1				
· e		-		<del> </del>	<del> </del>	<b> </b>
	<b>-</b>	<del> </del>		<del> </del>	<del> </del>	
	+	<b>+</b>		+	<del> </del>	
<b>—</b>	+	<del>                                     </del>		+	<del> </del>	-
1	<del>                                     </del>			<del>                                     </del>		
						<u> </u>

## **MINI-AUDIT REPORT**

A	BUILDING NAME Pumping Station		NAME OF ORGANIZATION City of Bloomington	5-23-80
	BUILDING ADDRESS 9310 Poplar Bridge Road		ADDRESS 2215 West Old Shakopee Roa	nd
ACT	Bloomington, MN	ZIP CODE 55437	CITY Bloomington, MN	ZIP CODE 55437
CONT	PERSON COMPLETING FORM Randy Smith	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen	TELEPHONE 612) 881-5811

υď	Randy Smith	(612)	935-6901	Arthur Jense	n		(612)	881-5811
В	Instructions: For blocks 1 and 2 check the box	x which b	est fits the building own	ership conditions. Fo	bloc	ck 3 determine which	of the fo	ur categories
BUILDING ELIGIBILITY CODE	describes the building type and then within the describes the building type and then within the describes the building type and then within the describes the building type and then within the describes the building type and then within the describes the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and then within the building type and the building type	3a.	SCHOOLS  SCHOOLS  Elementary Secondary Coll. or Univ. Vocational Education Agency Administration OTHER  PUBLIC CARE Nursing Home Long Term Care Rehab. Facility Public Health Ctr. Res. Child Care C	(SCHL-ELM) (SCHL-SECD) (SCHL-POST) (SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)  (PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR)	c.	LOCAL GOVERN Offlice Storage Service Library Police Fire XXOTHER HOSPITALS General Tuberculosis		(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV) (LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR) (HOSP-GENL) (HOSP-TUBR)
C	Instructions: With reference to page 23 entitle just Federal funding, then answer the question of the following state funding the formula was a mini-audit grant befor the formula was gou previously applied for mini-audit.	ns corrections cor	ng Information, determity for the situation. The	ine if the facilities are	elig ned a	ible for both Federal and dated by the hea	and Stated	e funding or organization.

C	Instructions: With reference to page 23 entitled Funding Information, determine if the facilities are eligible for both Federal and State funding or
4	just Federal funding, then answer the questions correctly for the situation. This section must be signed and dated by the head of the organization.
e de la companya de l	If eligible for both Federal and State Funding:  Have you received a mini-audit grant before?   Yes XX No  Have you previously applied for mini-audit funding?   No  Do you wish to apply for mini-audit funding?  Yes XX No
	Date:
	Name:
	Signature:
AS 1	If eligible for Federal funding only:  Have you received a mini-audit grant before? □ Yes□ No  Have you previously applied for mini-audit funding? □ Yes□ No  Do you wish to apply for mini-audit funding? □ Yes□ No
à	The 50% match for Federal funds will come from: (Use additional sheets if necessary.)
i.	
1	
ST	
EQUE	Date:
NG R	Name
MINI-AUDIT FUNDING REQUEST	Signature:
3 II.	

D	Check the type of energy report which was completed and submitted prior to this mini-audit report.
EPORT	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)  (XX Existing Building Energy Report (Form No. EN-00041-01)
ENERGY REPORT CHECK-OFF	If an energy report has not been completed previous to this mini-audit report, one must be included with this report. Elementary, secondary, and vocational schools should use form ED-00444-02 or form ED-00445-02, depending on building complexity. All other buildings should use the existing building energy report, form EN-00041-01.
L	
E	Instructions: This section is to be completed and signed by a registered professional engineer or by a certified mini-auditor who has successfully completed the State of Minnesota's Mini-Audit Procedures Course. This section should be completed after this mini-audit report and an energy report are completed. All blanks must be filled in.
	I have reviewed the energy report and/or the energy report results for this building. I found all information contained therein to be correct OR I have corrected any misinformation on the energy report which will be resubmitted with this mini-audit report to the Minnesota Energy Agency.
	I am not directly responsible for the day to day operations of this building being audited.
	I have fully disclosed my financial interests relating to this mini-audit and any energy conservation measures considered by this audit.
	I have walked through this building and have found the recommendations listed in section I of this mini-audit report to be the operations and maintenance changes, and low cost energy conservation measures, which would reduce energy consumption in this building.
	I have made a rough estimate, in section G, of the range of savings which may result from the implementation of all of the mini-audit opportunities listed in section I. I am not responsible if the actual savings resulting from this mini-audit do not fall within the estimated range.
	Based on actual records, the energy conservation operating and maintenance procedures listed in section K did not save at least 20% of the building's energy consumption as specified in section I. (did, did not)
	Based upon my observation of the physical characteristics of this building and the building's major energy using systems, I recommend that thisShould_Not be the subject of a maxi-audit.
	(should, should not) I realize that this is not a final judgement, that the State reserves the right to make the maxi-audit funding determination based on this mini-audit report and other criteria.
	Based upon the information in section E and the information referred to in section F, I recommend that this building Should not (should, should not)
	undergo further solar conversion analysis, and/or SNOUIG NOT undergo further analysis of the renewable resources — waste,
	wind, wood. (Circle proper resources) (should, should not)
	In my judgement, as a mini-auditor, all of the above statements are true and correct.
	Witnessed by:
	Randy Smith
	Mini-Additor's Name (Print or Type)  Building Organizational Authority (Print or Type)
	Signature Signature
	Rieke Carroll Muller Assoc. Inc.
	Firm Name (if none, enter none)  Date
	P.O. Box 130 Hopkins, MN 55343
	(612) 935-6901
	Phone 5-23-80
	Date
S	
MINI-AUDIT	
II-AL	
N N N	

F	NAME	POSITION	ORGANIZATION
	David Corib	County Count March Building	Diale Coursil Muller Asses Inc
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
		e te en recussionale de Celente agrecia de terrorio de Celente de	
AUDIT			
4F			
G		IERAL BUILDING CONDITION (i.e. type, and funct	ion)
	Good, Pumping		
7	None None	WITHIN NEXT 15 YEARS (i.e. demolition, renabilit	ation, conversion from one building type to another)
BUILDING		OF ROOF (i.e. metal beams, wooden rafters, conc	rete)
DIN	Wooden Rafter		
BUIL	ROOFING MATERIAL (i.e. tar Shingles	and gravel, shingles, tile)	
	Siringres		
H	INSTRUCTIONS: Correctly an	swer the following questions for the building being	mini-audited.
	is there open land adjacent to XX Yes □ No	the building?	
	3 p.m.?  Roof: XIXI Vas. FI No.		d the south facing wall unshaded between the hours of 9 a.m. and
	South facing Wall: Yes	K⊠ No	
	If the roof or wall are partly sh % of roof unshaded % of south facing wall unsha	aded, what percentage of the surface is unshaded? $\frac{\%}{1000}$ %	
	What is the overall shape of th		
	Is the roof of the building flat	or pitched?	
	If pitched, what is the compas	s orientation of the ridgeline? East -	West
	If pitched, what is the angle th	at the roof makes with horizontal? 30 °	
	Are there large obstructions o	n the roof such as chimneys, rooms for mechanical	equipment, ventilating units, water towers, etc?
		terial for the south facing wall? Face b	rick
	What percentage of the south	10	
			o answer indicates the equipment is in a separate building)
4	If the space heating equipmen XXX Ground Floor D Basen	t is inside the building, where is it located? nent □ Roof □ Other (specify)	
NTIAL	Is the building's water heating XX Yes □ No	equipment located within the building? (A no answ	ver indicates the equipment is in a separate building.)
SOLAR POTENTIAL	If the water heating equipmen XX Ground Floor □ Baser	t is inside the building, where is it located? nent   Other (specify)	
SOLAF	Is the water heating system a	central system, does it consist of multiple units, or I Combination	is it a combination of the central and multiple units?

				BASE	PERIOD YE	AR			Fiscal	Year	
	ENERGY TYPE		ENERGY	USAGE		CONVERSION	N FAC	TOR		вти (	JSAGE
	Electricity					Milliografia - Nove (Alleino pure alpeiro) <u>us</u> proposito d					
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_	ENERGY TYPE		ENERGY	USAGE		CONVERSION	N FẠC	TOR		BTU	USAGE
_	Electricity					e egyppe e general kan en en en en en en en en en en en en en					
_	Fuel 1						To The Address of The Control of				
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	Instructions. This section is to be state the roughly estimated rang of the new mini-audit opportupercentages by the annual elec	ge of the pe nities liste- ctrical and	rcent of total d in section	l electrical and L. Secondly,	fuel consum calculate the	ption which we range of end	ould be	e saved res	sulting from	n the impl	ementation of a
	Instructions. This section is to be state the roughly estimated rang of the new mini-audit opportupercentages by the annual electric check two boxes in each category.	ge of the pe nities liste ctrical and gory —	rcent of total d in section fuel consum	l electrical and L. Secondly, ption data on	fuel consum calculate the the energy	ption which we e range of end report.	ould be	e saved res	sulting from	n the impl multiplyir	ementation of a ig the estimate
	Instructions. This section is to be state the roughly estimated rang of the new mini-audit opportupercentages by the annual elec	ge of the pe nities liste ctrical and gory —	rcent of total d in section	l electrical and L. Secondly,	fuel consum calculate the	ption which we range of end	ould be	e saved res	sulting from	n the impl multiplyir er (specify	ementation of a
-	Instructions. This section is to be state the roughly estimated rang of the new mini-audit opportupercentages by the annual election of the company of the c	ge of the penities listed ctrical and gory —	ACX 5%	l electrical and L. Secondly, aption data on	fuel consum calculate the the energy	ption which we range of end report.	ould be	e saved res	sulting from	n the impl multiplyir er (specify	ementation of a
	Instructions This section is to be state the roughly estimated range of the new mini-audit opportung percentages by the annual electrical through the sample of Electrical Savings —  Range of Fuel Savings —	ge of the penities listed ctrical and gory —	ACX 5%	l electrical and L. Secondly, aption data on 10% XX10%	fuel consum calculate the the energy	ption which we range of end report.	ould be	e saved res	sulting from	n the impl multiplyir er (specify	ementation of a
	Instructions This section is to be state the roughly estimated range of the new mini-audit opportung percentages by the annual electrical through the sample of Electrical Savings —  Range of Fuel Savings —	ge of the penities listerctrical and gory —  XIN 0%  Close to the control of the	ACX 5%	L Secondly, aption data on 10%  XX10%  Range of Range	fuel consum calculate the the energy	ption which we range of end report.	ould be ergy a	e saved res	oulting from	n the impl multiplyin or (specify or (specify	ementation of a
	Instructions This section is to be state the roughly estimated rang of the new mini-audit opportupercentages by the annual electrical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and	ge of the penities listerctrical and gory —  XIN 0%  Close to the control of the	ircent of total d in section fuel consum  XX 5%  XX 5%  Ings —	L Secondly, aption data on 10%  XX10%  Range of Range	fuel consum calculate the the energy  15% 15% I Electrical Soft Energy avings	ption which we range of energy report.  20% 20% avings	ould be ergy a	⊇ 25% □ 25% Annual El	oulting from avings by	n the impl multiplyin or (specify or (specify	ementation of a g the estimater of the e
	Instructions This section is to be state the roughly estimated rang of the new mini-audit opporture. The percentages by the annual electrical section of the new mini-audit opporture. The percentages by the annual electrical section of the section	ge of the penities listerctrical and gory —  XX 0%  0 0%  d cost savin	modern of total din section fuel consum  XX 5%  XX 5%  I Electrical sumption  538 kwh	l electrical and L. Secondly, ption data on  10%  XX10%  Range of	fuel consum calculate the the energy  15% 15% I Electrical S of Energy avings kwh, _	ption which we range of energy cont.  20% 20% 20% Avings % Range	ould be ergy a	25% 25% Annual El	oulting from a vings by  other  other  other  other  other  other  other  other  other  other  other  other  other  other  other	n the implemultiplying or (specify Pacify Rain D	ementation of a g the estimate (2)
	Instructions. This section is to be state the roughly estimated rang of the new mini-audit opportupercentages by the annual election of the new mini-audit opportupercentages by the annual election of the control of t	ge of the penities listerctrical and gory —  XX 0%  0%  1 cost savin  Annual  Cons  1686	xxx 5%  XX 5%  XX 5%  XX 5%  Belectrical sumption  538 kwh	Range of Bange = 8431.	fuel consum calculate the the energy  15% 15% Electrical S of Energy avings kwh,	pition which we range of end report.  20% 20% 20%  Avings  Range 0 % to 5 %	could be ergy a	25%  Annual El Dollars:	oulting from a vings by  other  other  other  other  other  other  other  other  other  other  other  other  other  other  other	n the implemultiplying or (specify Pacify Rain D	ementation of a g the estimater  (1)
	Instructions. This section is to be state the roughly estimated rang of the new mini-audit opportupercentages by the annual election of the new mini-audit opportupercentages by the annual election of the control of t	ge of the penities listerctrical and gory —  XY 0%  0%  d cost savin  Annual Cons  1686	ACX 5%  XCX 5%  XCX 5%  XCX 5%  ACX 5%	Range of Range Standard Range	fuel consum calculate the the energy 15% 15% 15% 15% 15% 15% 15% 15% 15% 15%	pition which we range of end report.  20% 20% 20%  Avings  Range 0 % to 5 %	could be ergy a	25%  Annual El Dollars: \$ 460  Annual Dollars	other of the spent	n the implemultiplying or (specify Rain D	nge of Electrica ollars Savings  to 230.03
	Instructions This section is to be state the roughly estimated rang of the new mini-audit opportupercentages by the annual electrical savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and which is a section of the savings —  When the savings	ge of the penities listerctrical and gory —  XY 0%  0%  d cost savin  Annual Cons  1686	ACX 5%  XCX 5%  XCX 5%  XCX 5%  ACX 5%	Range of Range Standard Range	fuel consum calculate the the energy  15% 15% 15% 1electrical S of Energy avings kwh, _ to kwh, _ e of Fuel Sav	pition which we range of energy 20%  20% 20% Avings 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	could be ergy a	25%  Annual El Dollars: \$ 460  Annual Dollars	other of the last	n the implemultiplying or (specify Rain D	ementation of a g the estimater of the e

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Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below those items which his earlies already been undertaken in your facility. The description of the past energy conservation action should contain the specific building location when the recommendation applies, if applicable. Indicate the date of implementation of each item and its classification number. Energy conserving the 15 which have been undertaken and are not on the list provided should also be included along with their appropriate classification numbers. The classification number should be taken from the classification scheme for energy conservation opportunities listed on pages 25 through 37. This section of the mini-audit report should be completed by building personnel prior to the walk-through by the mini-auditor.

CLASSIFICATION		ICATION		OPTIONAL: OPTIONAL:		
ITEM NO	MAJOR	SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	COST	DATE OF IMPLEMENTATION
	CLASS	CLASS			SAVINGS	
				~	<del>                                     </del>	
					<del> </del>	
	<del> </del>				<del>                                     </del>	
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all the same attack an annual section					†	
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Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along, record the item number the classification number of the recommendation, and the new mini-audit opportunity. The lists purion of the mini-along opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation scheme for the classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

ZO	implemente	a inis sec	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	CLASSIF N		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
1	1	1	   Keep all controls free of dust.			
			Look for loose connections and bad			3
2	1	2	contacts on a regular basis.			
			Check for over-voltage conditions			
3	1	2	on motors.			
			Check alignment of motors to			
4	1	2	driven equipment, align and tighten			
			as necessary.			
			Where it is impractical to replace	<del> </del>	<u> </u>	
5	1 1	2	motors which have low loads and			
			power factors, use capacitors at			
			motor terminals to correct the			
			power factor to 90%.			
	<del> </del>		Check power factors and make	<del> </del>	<del></del>	Andrewski produce of the control of
6	1	3	adjustments to correct equipment.			
			Check the amount of			
7	2	1	insulation in the ceiling.			
		ļ	Add insulation in			
8	2	1	attic spaces if needed.			
			Weatherstrip all exterior doors			
9	2	2	including garage or delivery doors.			
1			Replace an existing door with			
10	2	2	one of a higher R-value.			
			Insulate walls with rigid insula-			
<u> 11</u>	2	8	tion on inside surfaces.	<u> </u>	ļ	
1.0			Check operation of entire heating/			
12	3	1_1	cooling control system, including	<b></b>		
			control valves and dampers.			
			Check the calibration of all	1		A CONTRACT OF THE PROPERTY OF
13	3	1_1_	controllers and devices for proper	<u> </u>		
,	Ì		settings and operations.			
		1	Raise the supply air temperature for			
14	3	1_1_	cooling to the highest point		<u> </u>	
			necessary to provide minimum			
		<del> </del>	required cooling.	-	<u> </u>	
			Lower the supply air temperature			
15	3	<del>  1</del>	for heating to the lowest point	<del> </del>	<b></b>	
			necessary to provide minimum			
	+	+	required heating. 65 F maximum occupied, 60 F maximum		<del></del>	
16	) 2	1				
16	3	1	unoccupied during the heating seaso	<u> </u>	<del> </del>	<del> </del>
17	3	2	Clean and remove obstructions from			
	+ -		all room air outlets and inlets	+	+	
			(diffusers, registers and grillers)	•	1	1
		1	They should be kept clean and			

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Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go along record the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

20			non of the mini-addit report should be completed by the mini-addit	OPTIONAL:		<del>-</del>
ITEM NO.	CLASSIF	<u>)</u> .	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	MAJOR CLASS	SUB CLASS				
	1	GENGO	free of all dirt			
			and foreign material.			
			Inspect fans			
18	3	3	for normal operation.			
			Inspect ductwork for air leakage.			
19	3	3	Seal all leaks by taping or caulking.			
			Inspect		and the second s	
20	3	3	ductwork insulation.			
			Inspect damper blades and linkages.			
21	3	3	Clean, oil and adjust.	l		
			Clean or			
22	3	3	replace filters periodically.			
			replace filters periodically. Instruct occupants and maintenance			
23	4	1	personnel to switch off all lights.			
24	4	2	Clean windows.			
			Clean fixtures and			
25	4	3	lamps regularly.			
			Use lower wattage lamps to provide			
26	4	4	the necessary illumination.			
			Allow part of a lighting system			
27	4	4	to be turned off, while maintaining			
			the necessary light.			
			Keep records of the operating	<del> </del>	<b></b>	
28	5	1	schedule, monthly energy consumption			August, 1979
			and purchase of any new equipment	1		
			that affects energy consumption of			
			efficiency of the building. These	<b>†</b>	1	
			records will indicate the impact of			
			energy conservation measures.			
		<del> </del>	Review the record			
29	5	1	books on a regular basis.			August, 1979
		1	All electric heating equipment	<del>                                     </del>	1	/10/30003 20/0
30	6	2	should be checked for corroded ele-			
	T = ===	1	ments and loose connections and re-	1		
			paired as required.	}	}	
,			Clean air-sides, remove soot, and	1		
31	⊥_ 7	3	scrape scale in forced warm air			
			furnaces.			
	<del> </del>		If the fining mate of and on all	<b></b>	<b> </b>	
32	7	3	If the firing rate of gas or oil			
JL	+ '	1 3	burners is too high, it causes short	<del> </del>	+	
			cycling and excessive fuel consump-	1		
	+	<del> </del>	tion. Too low a rate requires	<b></b>	4	
			constant operating and delivers	}		
	+	<del> </del>	inadequate heat to the spaces."	<del></del>	<del> </del>	
				1		
		1				1

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Instructions. Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine the suggested maintenance and operational changes, and any other low cost energy conservation measures, that pertain to the facility. As you go using record, the item number, the classification number of the recommendation, and the new mini-audit opportunity. The description of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation not found on the list may also be included. For those other recommendations, assign an appropriate classification number from the classification scheme for energy conservation opportunities listed on pages 25 through 37. The date of implementation should only be completed as the recommendation is implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

žō '	mpiemente	d. This sec	ction of the mini-audit report should be completed by the mini-aud	it team during OPTIONAL:		
ITEM NO.	CLASSIFICATION NO.		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
33	7	4	Maintain the lowest possible hot water temperature which will meet			
			water temperature which will meet domestic hot water needs.			
24		4	Turn off gas pilots for furnaces,			agyaya ina menganan nagapa ng mana didda dan sagar ga ana a didda dan sagar ga ana ang aga an da dan sagar da d
34	7	4	boilers, and space heaters during the non-heating months and during			
			long unoccupied periods.			
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