

2 copies HERB FREYE

# MINI AUDIT

FOR THE

## CITY OF BLOOMINGTON



rieke carroll muller associates inc

architects engineers land surveyors planners MAY, 1980

**RCM JOB NO. 801704** 

Minitex

Minnesota Library
Access Center

## CITY HALL

**CREEKSIDE CENTER** 

**PUBLIC WORKS ENGINEERING** 

(2) REHAB PUBLIC WORKS GARAGE (2) BAYS to OFFICE SPACE

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

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** 

Q. RECONSTRUCTED Roof to and other as recommended

De Remodeled Walls - Added insulation

Be painted inside ceiling as recommended

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

A	BUILDING NAME		NAME OF ORGANIZATION	DATE			
	Citv Hall		City of Bloomington 5-17-8				
	BUILDING ADDRESS		ADDRESS				
	2215 West Old Shakopee Roa	d	2215 West Old Shakopee Road				
_	CITY	ZIP CODE	CITY	ZIP CODE			
AC.	Bloomington, MN	55431	Bloomington, MN	55431			
TA	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE			
22	Randy Smith (	612) 935-6901	Arthur Jensen (	612) 881-5811			

0 A	Randy Smith	(612)	935-6901	Arthur Jense	en	(612)	881-5811
B	Instructions: For blocks 1 and 2 check the bo describes the building type and then within						our categories
	1. OWNERSHIP TYPE X Public (PUB) ONOn-Profit Association (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT  Doffice  Storage  Service	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
CODE	2. ULTIMATE OWNER  County (CNTY)  City (CITY)  Township (TOWN)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		OLibrary OPolice OFire OTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
ELIGIBILITY C	□State (STAT) □Public School (PUSC) □Private School (PRSC) □Non-Profit Association (NPAP) □Indian Tribe (INDN)	<b>b</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 entit just Federal funding, then answer the question	led Fundi ons correc	ng Information, determin tly for the situation. This	e if the facilities are section must be sig	eligib ned ar	ele for both Federal and Stand dated by the head of the	ate funding or organization.
	If eligible for both Federal and State Funding Have you received a mini-audit grant befo Have you previously applied for mini-audit Do you wish to apply for mini-audit fundir	re?   Y	es XXI No XXI Yes □ No es XXI No	:			

If eligible for both Federal and S Have you received a mini-audi Have you previously applied for Do you wish to apply for mini-	t grant before? ☐ Yes, XXX or mini-audit funding? XXX Ye	s ∐ No		
Date:				
Name:				
Signature:				
If eligible for Federal funding on Have you received a mini-aud Have you previously applied for Do you wish to apply for min The 50% match for Federal fu	it grant before?	s □ No No	y.)	
	# -			
		•		
	·			
Date:	:			

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)  an energy report has not been completed previous to this mini-audit reocational schools should use form ED-00444-02 or form ED-00445-02, deputiding energy report, form EN-00041-01.							
an energy report has not been completed previous to this mini-audit re ocational schools should use form ED-00444-02 or form ED-00445-02, dep							
	port, one must be included with this report. Elementary, secondary, and bending on building complexity. All other buildings should use the existing						
nstructions: This section is to be completed and signed by a registered prompleted the State of Minnesota's Mini-Audit Procedures Course. This sector 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						
have reviewed the energy report and/or the energy report results for this orrected any misinformation on the energy report which will be resubm							
am not directly responsible for the day to day operations of this buildin	g being audited.						
have fully disclosed my financial interests relating to this mini-audit and	d any energy conservation measures considered by this audit.						
have walked through this building and have found the recommendationaintenance changes, and low cost energy conservation measures, which							
have made a rough estimate, in section G, of the range of savings which sted in section I. I am not responsible if the actual savings resulting fro	may result from the implementation of all of the mini-audit opportunities mithis mini-audit do not fall within the estimated range.						
ased on actual records, the energy conservation operating and maintena 0% of the building's energy consumption as specified in section I.	ance 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 building and the building's major energy using systems, I recommend that this SNOU I Q be the subject of a maximudit							
(should, should not)							
realize that this is not a final judgement, that the State reserves the right to and other criteria.	make the maxi-audit funding determination based on this mini-audit repor						
Based upon the information in section E and the information referred to in section F, I recommend that this building							
sased upon the information in section E and the information referred to in	ot (should, should not)						
undergo further solar conversion analysis, and/or STOUTU III vind, wood. (Circle proper resources) (should, should n	Glideldo iditilei aliaivsis di tile lellewable lesodices - waste						
n 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)						
Mini-Auditor's Name (Print or Type)  Namely Suit 206  Signature	Building Organizational Authority (Print or Type) Signature						
Mini-Auditor's Name (Print or Type)							
Mini-Augitor's Name (Print of Type)  Namely Suit 206  Signature  Rieke Carroll Muller Assoc., Inc.	Signature						
Mini-Auditor's Name (Print or Type)  Landy Suit 206  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address	Signature						
Mini-Auditor's Name (Print or Type)  Landy Suit 206  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901	Signature						
Mini-Auditor's Name (Print or Type)  Canaly Suit 206  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	Signature						
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F	NAME	POSITION	ORGANIZATION						
	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.						
Ľ.≅	Reinert Ege	Maintenance Foreman	City of Bloomington						
AUDIT TEAM									
G	Good, Offices	ERAL BUILDING CONDITION (i.e. type, and fu							
z	MAJOR CHANGES PLANNED None	WITHIN NEXT 15 YEARS (i.e. demolition, rehab	ilitation, conversion from one building type to another)						
BUILDING		OF ROOF (i.e. metal beams, wooden rafters, co	oncrete)						
N W	Concrete ROOFING MATERIAL (i.e. tar a	and gravel, shingles, tile)							
PR	Tar and Gravel	, , , , , , , , , , , , , , , , , , , ,							
H	INSTRUCTIONS: Correctly ans	wer the following questions for the building bei	ng mini-audited.						
	Is there open land adjacent to	he 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: XIX Yes □ No South facing Wall: □ Yes	(X) No							
	If the roof or wall are partly shaded, what percentage of the surface is unshaded? % of roof unshaded								
	What is the overall shape of the building?  square X arectangle H-shaped Se-shaped other (specify)  Is 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 the	at the roof makes with horizontal?	<u>•</u> .						
	Are there large obstructions or XX Yes □ No		cal equipment, ventilating units, water towers, etc?						
	What is the exterior facing material for the south facing wall? Face Brick								
	What percentage of the south	acing wall is glass? %							
	Is the building's space heating	equipment located within or on the building? (A	A no answer indicates the equipment is in a separate building.)						
	If the space heating equipmen  Ground Floor XXX Basem	is inside the building, where is it located?							
POTENTIAL IATION	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.)						
AT10	If the water heating equipment	is inside the building, where is it located?							

	Instructions: Enter the total energy used of ea unit of measure. Enter the appropriate conv which the data applies. Refer to pages 7 and	ersion factor from Append	dix B to convert energy t							
		Fiscal Year								
	ENERGY TYPE	ENERGY USAGE	CONVERSION	FACTOR	BTU USAGE					
	Electricity									
	Fuel 1									
	Fuel 2			(						
	TOTAL									
		20% SAV	INGS YEAR	أديه والمحمد و	Fiscal Year					
	ENERGY TYPE	ENERGY USAGE	CONVERSION	FACTOR	BTU USAGE					
	Electricity									
s	Fuel 1									
20% SAVINGS DATA	Fuel 2									
20% S DATA	TOTAL									
J	Instructions: This section is to be completed state the roughly estimated range of the percondition of the new mini-audit opportunities listed in percentages by the annual electrical and furnitions.	ent of total electrical and fu n_section_L. Secondly. ca	el consumption which wo	uld be saved resu	ulting from the implementation of all					
1	Check two boxes in each category —									
		XOX 5% □ 10% XOX 5% XOX 10%	□ 15% □ 20% □ 15% □ 20%	□ 25% □ 25%	other (specify)					
2	-				Other (specify)					
	Range of Electrical Savings									
	Annual El % Range Consun	nption Savi	ngs % Range	Annual Ele Dollars S	pent Dollars Savings					
	lower bound0 % x 117960	$\frac{0}{0}$ kwh = $\frac{0}{0}$	kwh,0%	x \$ <u>3942</u>	1.94 = \$					
	upper bound5 _ % _ x _ 117960			× \$ 3942						
3		Range	of Fuel Savings							
	Annua % Range Consur	nption Savi	ings % Range	Annual Dollars S	Spent Dollars Savings					
N O	lower bound 5 % x 18.2x1	Ω t	°07 10	^ +	37.23 = \$ 776.86 37.23 - \$ 1553.72					
SAVINGS ESTIMATION	upper bound 10 % x 10.2X1	B(U =	Btu,%	^ -	= \$					
SA	The mini-auditor is not responsible if actual savings resulting from the implementation of the energy conservation opportunities listed in section I do not fall between the roughly estimated ranges which are specified.									

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:

	CLASSIF	ICATION		OPTIONAL:				
ITEM NO.	MAJOR	0.	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION		
110.	CLASS	SUB CLASS		SAVINGS	SAVINGS			
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Note. Reproduce this page as necessary

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.

implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.

OPTIONAL: OPTIONAL:

CLASSIFICATION
NO. NEW MINI-AUDIT OPPORTUNITIES

ENERGY
COST
DATE OF IMPLEMENTATION

NO CLASS CLASS CLASS CLASS SAVINGS SAVINGS  1 1 1 1 Keep all controls free of dust.  2 1 2 Eliminate excessive motor vibration.  Where it is impractical to replace motors which have low loads and 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 all racks 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 right and weekend operation.  Raise the supply air (or chilled water) temperature for cooling to the highest point necessary to provide minimum required cooling.  Adjust provide minimum required cooling to the highest point necessary to provide minimum required cooling.  Turn off all humidifiers at night and during unnoccupied cycles.  Control humidity to a maximum of 30%.  65°F maximum occupied, 60°F maxi-	17514	CLASSIF			ENERGY	ENERGY	
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7 2 1 ceilings if needed. Caulk around all pipes, louvers, or other openings on the roof.  Caulk all cracks in walls that allow a air and moisture into the building.  Check operation of entire heating/ cooling system, including control valves and dampers.  Check the calibration of all controlers 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.  Control humidity to a maximum of 30%. 65°F maximum occupied, 60°F maxi-	6	2	1	in the ceiling.			
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10 3 1 cooling system, including control valves and dampers.  Check the calibration of all control trollers 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. Control humidity to a maximum of 30%. 65°F maximum occupied, 60°F maxi-	 9	2	8				
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11 3 1 trollers 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. Control humidity 16 3 1 to a maximum of 30%. 65°F maximum occupied, 60°F maxi-							
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12 3 1 clocks to automatically set back temperature for night and weekend operation.  Raise the supply air (or chilled  13 3 1 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.  Control humidity to a maximum of 30%.  65°F maximum occupied, 60°F maxi-							
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13 3 1 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 15 3 1 and during unoccupied cycles.  Control humidity 16 3 1 to a maximum of 30%.  65 F maximum occupied, 60 F maxi-				operation.			
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.  Control humidity  16 3 1 to a maximum of 30%.  65 F maximum occupied, 60 F maxi-	_13	3	1_1_				
Lower the supply air (or hot water)  14 3 1 temperature for heating to the  lowest point necessary to provide minimum required heating.  Turn off all humidifiers at night and during unoccupied cycles.  Control humidity  16 3 1 to a maximum of 30%.  65 F maximum occupied, 60 F maxi-				the highest point necessary to provide minimum required cooling.			
minimum required heating.  Turn off all humidifiers at night  15 3 1 and during unoccupied cycles.  Control humidity  16 3 1 to a maximum of 30%.  65 F maximum occupied, 60 F maxi-	14	3	1	temperature for heating to the			
15 3 1 and during unoccupied cycles.  Control humidity 16 3 1 to a maximum of 30%.  65 F maximum occupied, 60 F maxi-				minimum required heating.			
16 3 1 to a maximum of 30%. 65°F maximum occupied, 60°F maxi-	15	3	1	and during unoccupied cycles.			
65°F maximum occupied, 60°F maxi-	16	3	1	to a maximum of 30%.			
17 3 1 mum unoccupied during the heating season.	_17	3	1	65°F maximum occupied, 60°F maxi-	ason.		
				,			

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine in 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 ENERGY **NEW MINI-AUDIT OPPORTUNITIES** DATE OF IMPLEMENTATION COST MAJOR SUB **SAVINGS** SAVINGS CLASS **CLASS** Keep radiators free from blockage. A one foot clearance in front of 18 convectors, radiators, or registers is desirable. Vent all hot water radiators and convectors to assure that water will 19 3 completely fill the interior passages. In the public spaces of all buildings such as lobbies, corridors, stair-20 wells, vestibuiles, and lounges, conserve energy by turning off unitary terminal units and removing handles from control valves. If balancing cocks are included, turn them to the off position. In each stairwell of multi-level buildings, shut off all but the unit located at the bottom. Turn off heat in vestibules and foyers. Keep condenser coil face clean 21 3 to permit proper air flow. 3 Inspect ductwork for air leakage. Seal all leaks by taping or caulking. 22 3 3 Inpsect hot and chilled water 3 piping strainers. Clean when required. 23 Inspect steam traps to assure that 24 3 they are passing only condensate, not steam. Repair as necessary. Inspect all pressure reducing and regulating valves and related equipment. Adjust, repair or replace as necessary. Inspect damper blades and linkages. Clean, oil and adjust. 25 3 Take special note of fresh air 3 dampers making sure that they close 26 3 tightly and be sure to repair, replace or provide blade edge gaskets and gasketing at the end of blades. Check the timer settings and 27 mechanism on the automatic filter. 3 If the automatic filters are 28 3 advanced according to pressure 3 requirements, check this control for proper functioning.

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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.

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

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 team during the building walk-through.

				OPTIONAL:	OPTIONAL	:
ITEM NO	CLASSIF MAJOR CLASS	SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	CLASS	CLASS				
			energy conservation measures.			
			Review the record book		.,	
44	5	1	on a regular basis.			
			Adjust water supply to 100°F for			
_45	6	1	all except special requirements			
			(dishwasher supply units, etc.)			
			The burner system of fossil-fuel			
_46_	6	2	water heaters should be kept			
			clean and in good operating condition.			
			Check for a defective relieve valve	<u> </u>		
47	6	2	from the water heater.			
			Periodically drain and remove the			
48	6	2	sediment from the water heater.			
			Maintain the lowest possible hot			
49	7	4	water temperature which will meet			
			space or domestic hot water needs.			
			Maintain water level or pressure			
50	7	4	to radiators or coils on the highest			
			level of the building.			
		<b> </b>	Maintain the lowest possible steam			
51	7	4	pressure suitable for supplying			
			radiation or coils.			
			Check cooling tower fan by listening			
52	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 min			
53	<del>  7</del>	4	imize both air and water pressure d	rop.	ļ	
r- 1			Clean cooling tower			
54	77	4	inlet strainer.	<del> </del>	<b> </b>	
	-		Inspect spray filled or distributed			
55	7	4	cooling towers for proper nozzle			
			performance. Clean nozzles as			
	<del> </del>	<del> </del>	necessary.	ļ	<del> </del>	<u> </u>
EG	7		Analyze cooling tower water and			
56	'-	88	maintain acceptable water quality.			
	-				<u> </u>	
	-	-		ļ	-	

A	BUILDING NAME		NAME OF ORGANIZATION	DATE
	Creekside Center		City of Bloomington	6-2-80
1	BUILDING ADDRESS		ADDRESS	
	9801 Penn Avenue South		2215 West Old Shakopee Ro	oad
-	CITY	ZIP CODE	CITY	ZIP CODE
AC	Bloomington, MN	55431	Bloomington, MN	55431
CONTACT	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
ŏã	Paul Martinsen	612) 935-6901	Athur Jensen	<u>612) 881-5811</u>

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 t	ine catego	ory check on the sub-cate	gory bentting the	builai	ng function.	
1. OWNERSHIP TYPE X以Public (PUB) DNon-Profit Association (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNME Office Storage XService	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
2. ULTIMATE OWNER  County (CNTY)  XXICity (CITY)  Township (TOWN)		□Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire <b>(P)</b> OTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
☐ 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)
			•			
Instructions: With reference to page 23 entitlipust Federal funding, then answer the question	ed Fundir ns correc	ng Information, determine otly for the situation. This s	if the facilities are section must be sig	eligii ned a	ble for both Federal and dated by the head o	d State funding or f the organization.
Have you received a mini-audit grant befor 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 befor	e? Y funding? g? Y	es XX No			·	N
Do you wish to apply for mini-audit fundir	na? 🗗 Y	res 🗆 No	cessary.)			
			ş			
		•				
Date:						
	1. OWNERSHIP TYPE	1. OWNERSHIP TYPE (PUB)   3a.	1. OWNERSHIP TYPE   Y@Public	1. OWNERSHIP TYPE   YPublic	1. OWNERSHIP TYPE   XMPublic	Elementary (SCHL-EkD)   Ostroge   Storage   Secondary (SCHL-SECD)   Storage   Secondary (SCHL-SECD)   Storage   Secondary (SCHL-SECD)   Storage   Storage   Vocational (SCHL-VOCL)   Uconty (CITY)   Uconty (CITY)   Uconty (CITY)   Ucontship (TOWN)   State (STAT)   Uconty (STAT)   Uconty (SCHL-ADMN)   Ostroge   State   Uconty (SCHL-ADMN)   Ostroge   Uconty (SCHL-ADMN)   Uconty (SCHL-ADMN)   Ostroge   Uconty (SCHL-ADMN)   Ostroge   Uconty (SCHL-ADMN)   Uconty (S

D	Check the type of energy report which was completed and submitted pri	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 CHECK-OFF	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.	
T		
	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.	
	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	
	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	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, 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 from	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.	ance procedures listed in section K <u>did not</u> save at least (did, did not)
	Based upon my observation of the physical characteristics of this buildi Should (should, should not)	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/orshould_no-wind, wood. (Circle proper resources) (should, should i	undergo further analysis of the renewable resources — waste
	In my judgement, as a mini-auditor, all of the above statements are true	and correct.
		Witnessed by:
	Paul Martinsen	
	Mini-Auditor's Name (Print or Type)	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	
ENTS		
MINI-AUDIT STATEMENTS		
STA		

	NAME	POSITION	ORGANIZATION
	Paul Martisen	Mechanical Engineer	Rieke Carroll Muller Assoc., Inc.
	<b>D</b>	Maintanana Engineen	City of Planmington
	Reinert Ege	Maintenance Engineer	City of Bloomington
AUDIT			
₹F			
		T)	
G	BRIEF DESCRIPTION OF GENER	RAL BUILDING CONDITION (i.e. type, and fur	Health Offices, Nursery School
-			litation, conversion from one building type to another)
_	None	THIN NEXT 15 YEARS (i.e. demontion, renab	mation, conversion from one building type to another)
ŏ.		F ROOF (i.e. metal beams, wooden rafters, co	ncrete)
BUILDING INFORMATION	Bar Joist	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
95	ROOFING MATERIAL (i.e. tar and	gravel, shingles, tile)	
교호	Tar and Gravel		
H	INSTRUCTIONS: Correctly answer	er the following questions for the building being	ng mini-audited.
	Is there open land adjacent to the	building?	
	XXYes No		
		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: XX Yes	No	
1	If the roof or wall are partly shade	ed, what percentage of the surface is unshade %	d?
	% of roof unshaded 90 % of south facing wall unshade		
	What is the overall shape of the b		
	☐ square XX rectangle ☐ H	-shaped □ E-shaped □ other (specify)	
	Is the roof of the building flat or p	pitched?	
	ØXilat □ pitched		
	If pitched, what is the compass of	rientation of the ridgeline?	
	If pitched, what is the angle that	the roof makes with horizontal?	
	Are there large obstructions on the Yes XX No	ne roof such as chimneys, rooms for mechanic	cal equipment, ventilating units, water towers, etc?
	What is the exterior facing materi	al for the south facing wall? Block a	nd brick
	What percentage of the south fac	ing wall is glass?50%	
	Is the building's space heating equal of the building's space heating equal of the building is the building in the building is the building in the building is space heating equal of the building is space heating in the building is space heating in the building is space and the building is space heating in the building is space heating in the building is space heating in the building is space and the buil	uipment located within or on the building? (A	no answer indicates the equipment is in a separate building.)
	If the space heating equipment is  Ground Floor  XXBasemen	inside the building, where is it located? t □ Roof □ Other (specify)	
NTIAL			swer indicates the equipment is in a separate building.)
SOLAR POTENTIAL INFORMATION	If the water heating equipment is Ground Floor WyBasemen	inside the building, where is it located? t  Other (specify)	
SOLAR	****	stral system, does it consist of multiple units	or is it a combination of the central and multiple units?

L			BASE PERIOD YEAR						Fiscal Year		
	ENERGY TYPE	E	ENERGY USAGE CONVERSION FACTOR				DR BTU USAGE				
	Electricity										
	Fuel 1						annon en 177 des				
	Fuel 2				11						
	TOTAL										
				20% SAV	INGS YEA	AR.			Fiscal Ye	ar	
	ENERGY TYPE	Ef	NERGY US	AGE		CONVERSIO	N FACT	OR		вти и:	SAGE
	Electricity										
	Fuel 1										
	Fuel 2		A CONTRACTOR OF THE STATE OF TH								
	TOTAL										
Ī	Instructions: This section is to b	pe completed by	the mini-a	uditor after th	ne walk-thr	u portion of th	e mini-a	audit. Firs	st, check the a	ppropria	e boxes whic
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportupercentages by the annual electric control of the section	ge of the percent inities listed in s ctrical and fuel	oftotal ele section L.	etrical and fu Secondly, ca	uel consum alculate the	ption which we range of en	ould be	saved re	sulting from th	ne impler	nentation of a
	state the roughly estimated range of the new mini-audit opportung percentages by the annual electric check two boxes in each category.	ge of the percent inities listed in s ctrical and fuel gory —	of total ele section L. consumpti	etrical and fu Secondly, ca on data on the	uel consum alculate the he energy	ption which we range of en report.	ould be ergy ar	saved re	sulting from the avings by mu	ne impler Iltiplying	nentation of a the estimate
	state the roughly estimated range of the new mini-audit opportungercentages by the annual electronic two boxes in each category.  Range of Electrical Savings —	ge of the percent inities listed in s ctrical and fuel gory —	t of total ele section L. consumption	ectrical and fu Secondly, ca on data on the	uel consum alculate the he energy	ption which we range of en report.	vould be ergy ar	saved read cost s	sulting from the avings by mu	ne impler iltiplying specify)	nentation of a
	state the roughly estimated range of the new mini-audit opportungercentages by the annual electrical Savings —  Range of Electrical Savings —  Range of Fuel Savings —	ge of the percent inities listed in scrical and fuel grow —	t of total ele section L. consumption	etrical and fu Secondly, ca on data on the	uel consum alculate the he energy	ption which we range of en report.	vould be ergy ar	saved re	sulting from the avings by mu	ne impler iltiplying specify)	nentation of a
	state the roughly estimated range of the new mini-audit opportungercentages by the annual electronic two boxes in each category.  Range of Electrical Savings —	ge of the percent inities listed in scrical and fuel grow —	t of total ele section L. consumption	ectrical and fu Secondly, ca on data on the	uel consum alculate the he energy  15%	ption which we range of en report.	vould be ergy ar	saved read cost s	sulting from the avings by mu	ne impler iltiplying specify)	nentation of a
	state the roughly estimated range of the new mini-audit opportungercentages by the annual electrical Savings —  Range of Electrical Savings —  Range of Fuel Savings —	ge of the percent inities listed in scrical and fuel grow —	of total elesection L. consumption  X5%  X5%	certical and fix Secondly, can data on the second s	uel consum alculate the he energy  15%	ption which we range of en report.	vould be	saved read cost s	sulting from the avings by mu	ne impler Itiplying specify) specify)	nentation of a
	state the roughly estimated rang of the new mini-audit opportung percentages by the annual electrical Savings —  Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and —  % Range	ge of the percent inities listed in sctrical and fuel gory —  XX 0% X  0% X  d cost savings —  Annual Electronsump	X5%  X5%  -  trical	certical and fusecondly, can data on the condition of the	□ 15% □ 15% □ 15% □ 15% □ 15%  Electrical S f Energy ings ○ kwh, □	ption which we range of en report.  20% 20%  avings  Range 0 %	vould be	25% 25% Dollars	sulting from the avings by mu	ne impler Itiplying specify) specify)	e of Electric lars Savings
	state the roughly estimated range of the new mini-audit opportung percentages by the annual electronic contents of the category of the contents of the category of the categor	ge of the percent inities listed in strict and fuel grow —  XX 0% X    0% X    d cost savings —  Annual Electronsumpt 268,480	toftotal elesection L. consumption  X5%  X5%  ctrical tion  kwh =	ctrical and fusecondly, con data on the condition of the	uel consumalculate the he energy  15% 15% 5lectrical S f Energy ings	ption which we range of en report.  20% 20% 20% Range	vould beergy an	25% Description of the content of th	osulting from the avings by mu	ne impler Itiplying specify) specify) Rang Doi	e of Electric
	state the roughly estimated rang of the new mini-audit opportunction opp	ge of the percent inities listed in sctrical and fuel gory —  XX0% X  0% X  d cost savings —  Annual Electronsumpt  268,480	toftotal elesection L. consumption  X5%  X5%  ctrical tion  kwh =	Range of E Range of E Range of E	uel consumalculate the he energy  15% 15% 15% Electrical S f Energy ings 0 kwh, _	ption which we range of en report.  20% 20% 20%  avings  Range 0 % to 5 %	vould beergy an	25% Description of the content of th	osulting from the lavings by mu  other (in oth	ne impler Itiplying specify) specify) Rang Doi	e of Electric lars Savings  0
	state the roughly estimated rang of the new mini-audit opportunction opp	ge of the percent inities listed in sctrical and fuel gory —  XX 0% X 0	trical tion = kwh =	Range of E Range Range Range Range Range Range Range Range	Ilectrical S  f Energy  which is the energy  15%  15%  15%  15%  Filectrical S  f Energy  ings  kwh, _  of Fuel San  of Fuel san	ption which we range of en report.  20% 20% 20%  avings  Range 0 % to 5 %	vould beergy an	25% 25% 25% 25% Annual E Dollars \$10.9	osulting from the lavings by mu  other (continue)  lectrical Spent  015.28 =	ne impler Itiplying specify) specify) Rang Dol \$ .	e of Electric lars Savings  0
	state the roughly estimated range 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 which is a second saving with the same second saving with the saving sav	ge of the percent inities listed in sctrical and fuel groy —  XX/0% X — 0% X  d cost savings —  Annual Electronsumpt  268,480  Annual F	trical tion = kwh =	Range of E Range of E Range Sav	lel consumate laculate the he energy 15% 15% 15% Electrical State of Energy ings 0 kwh, - of Fuel Sate of Fuel	ption which we range of en report.  20% 20%  avings  Range 0 % to 5 %	vould beergy an	25% 25% 25% 25% Annual E Dollars \$10.5	osulting from the lavings by mu  other (solution)  lectrical Spent  015.28 = 015.28 =	ne impler Itiplying specify) specify) Rang Dol \$ .	e of Electric lars Savings 0 to 545.76

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:	
ITEM NO.	MAJOR SUB CLASS CLASS		PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY	DATE OF IMPLEMENTATION
					SAVINGS	. 70
1	3	1	Outside air closed off for unit			Summer 79.
			Ventilators in rooms			
2	2	10	Storm windows added			Summer 79.
						<u> </u>
					<b></b>	
			•			

IEW PORTHINITIES

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			OPTIONAL:	<b>OPTIONAL</b>	
MAJOR	O. SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
1	1	Keep all controls free of dust.			
1	2	Lubricate motors to reduce wear and excessive torque.			
1	2		ier.		
1	2	Check power factors and make adjustmento correct equipment. Where it is	nts		
		have low loads and power factors, use			
		capacitors at motor terminals to correct the power factor to 90%			
1	5	connections from the circuit breaker			
		<u>  main switch gear. NOTE: Have this do</u>	e		
		electrician when the building power			
				:	
2	1	Check the amount of insulation in the			
2	2	Weatherstrip all exterior doors incl	ding		
2	3	Clean Windows so more sunlight shine			
2	3	When the winter sun is not shining			·
		or blinds to reduce effective heat			
2	3	South and west facing windows should			
		(i.e. overhangs, fins, trellises,			
		heat gain.			
2	7	interior surfaces and seal all crack	ş		
2	7	roof.			
2	8	on inside and/or outside surfaces, o	r		
		place loose fill insulation in wall cavities.			
2	9	Weatherstrip and caulk around door f	rames		
5 2	9	window frames.			
5 2	11				
	New MAJOR CLASS	CLASS   CLASS   1	CLASSIFICATION NOW NEW MINI-AUDIT OPPORTUNITIES  1 1	CLASS   CLAS	NO NAJOR SUB CLASS CLASS  1

W. PORTUNITIES 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		CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
17	2	11	Reduce amount of glass on other wall	\$.		
18	3	1	Check operation of entire heating/ cooling control system, including control valves and dampers.			
19	3	1	Check the calibration of all control and devices for proper settings and	lers		
			operations.			
20	3	1	Adjust automatic timers or add time clocks to automatically set back temperature for night and weekend			
21	3	1	operation. Raise the chilled water temperature for colling to the highest point		·	
			necessary to provide minimum require heating.			
22	3	1	Lower the hot water temperature for heating to the lowest point necessar to provide minimum required heating.	ty .		
23	3	1	Open windows in lieu of operating ventilating system for outdoor air cooling, when feasible. Be sure to			
			consider acoustical, odor and dust conditions.			
24	3	1	Operate without fresh air ventilati when the building is unoccupied.			
25	3	1	Reduce the amount of infiltration a outdoor air ventilation to provide only the minimum required.	nd ————		
26	3	1	Inspect outlet air filter system on controls of air compressor for propremoval of oil, moisture and dirt.	er		
27	3	2	Clean the air side of all direct radiators, fin tube convectors and coils to inhance heat transfer.			
28	3	3	Make sure that all fans, frequently inoperative in unit heaters, fan counits, 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.			

*	ORTUNITIES
NEW	OPP(

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		a. 11110 000	tion of the mini-about report should be completed by the mini-about	OPTIONAL:		=
ITEM			NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
			Check pumps for packing wear which			
30	3	3	can cause excessive leakage. Repack			
			to avoid excessive water wastage and			
	-		shaft erosion.	<u> </u>		
			Inspect strainers. Clean when requir	<b>e</b> d.		
31	3	3		<b></b>		
			Inspect damper blades and linkages.			
32	3	3	Clean, oil and adjust.	<u> </u>		
			Clean or replace filters periodicall	¥		
33	3	_3	or when indicated by filter gauges.	ļ	<u> </u>	
			If there are no gauges, consider	1	İ	
	<b>_</b>		installing them. Clean transfer surface periodically	<u> </u>		
0.4						
34	3	3	inside and outside.	ļ		
		_	Instruct occupants and maintenance			
35	4	1	personnel to switch off all lights	<u> </u>		
			when they are not needed.			
			Consider variable level switches.	<del>                                     </del>		
36	4	1				
			In the winter, open blinds and drape	25		·
37	4	2	even if space mildly overheats.			
			Clean fixtures and lamps regularly.			
38	4	3				
			Replace lamps in groups before they			
39	4	3	burn out to maintain higher average			ч
			light output per fixture.			
			Remove unnecessary lamps, fixtures,			
40	4	4	and ballasts.			
			Use lower wattage lamps to provide	the		
41	4	4	necessary illumination.			
			Keep records of the operating sched	ule,		
42	5	1 1	monthly energy consumption and purc	hase		
			of any new equipment that affects			
			energy consumption of efficiency of	the		
			building. These records will indic	ate .		
			the impact of energy conservation			
			measures.			
	+	_	Review the record books on a regula	n	<del>                                     </del>	
43	5	1	hacie			
	_		Establish a specific maintenance			
44	5	2	schedule for each building to ensur	<u>'</u> e		
			that all components of the specific	:		
			building operate at maximum efficie	ncy.		
			Consult manufacturers literature for	r		
			quidance in establishing a maintena	rice		
			schedule.			
		1			<u> </u>	
		1				1

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	MAJOR	SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
45	CLASS	CLASS	Adjust water heater supply to 100°F			
45	6	1	for all except special requirements			
			(dishwasher supply units, etc.).			, · · · ·
			The burner system of fossil-fuel			
46	6	2	water heaters should be kept clean			·
			and in good operating condition.			
47	6	2	Periodically drain and remove the			·
		<del></del>	sediment from water heater.		<del> </del>	
40		1	Turn off unused coffee pots and food			
48	6	3	warmers.			
49	6	6	Check sewage ejector float operation			
			Adjust oil burner efficiencies to			
50	7	3	proper stack temperature, CO <sub>2</sub> conten	it.		
			and excess air settings. Adjust set to a maximum of 400°-500°F of stack	ting		
			to a maximum of 400°-500°F of stack			
			temperature and a minimum of 10% CO	2		
	ļ		at full load conditions. Excess air	<u> </u>		
	İ	İ	through a boiler can waste 10% to			
	ļ		30% of the fuel. Accurate testing		<u></u>	
			is essential for the correct burner			
	<u> </u>	ļ	adjustment for maximum efficiency.		ļ	
			Use appropriate instruments and test	1,007	ļ	
	<del> </del>		combustion as part of a planned gene	ra i	<b> </b>	
			maintenance program.			
	<b>—</b>		Check stack temperature and keep a			
51	7	3	weekly log. An increase in stack	ions		
	1		temperature usually means accumulat	10115		
	+	<b>-</b>	of soot or scale are reducing the rate of heat transfer.	<del> </del>	<del> </del>	
	_		Maintain the lowest possible hot			
52	1 7	44	water temperature which will meet		<del> </del>	
			space or domestic hot water needs.			
			Clean water chiller water-sides,			
53	1_1_	8	remove built-up scale.	<del> </del>	<del> </del>	
- 4	_		Check water chiller with the feed-			
54_	<del>                                     </del>	8	water treatment supplier or	<del>                                     </del>	<del> </del>	
			consultant to prevent scale formati	ΨΠ .		
		<del>                                     </del>	Carefully follow recommendations	<del> </del>	<del>                                     </del>	
			concerning amounts of methods of feed-water treatment and blowdown.			
	<b>†</b>	<b>†</b>	reen-water treatment and prowdown.		1	
	ļ	<b></b>			<u> </u>	
		1	should only be completed as the recommendation is implemented.	<u> </u>		1

### **MINI-AUDIT REPORT**

Λ	BUILDING NAME		NAME OF ORGANIZATION	DATE
A	Public Works Engineering		City of Bloomington	6-3-80
l	BUILDING ADDRESS		ADDRESS	
	10000 Logan Avenue South		2215 West Old Shakopee Road	i
_	CITY	ZIP CODE	CITY	ZIP CODE
CONTACT	Bloomington, MN	55431	Bloomington, MN	55431
ZZ	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
8₫	Paul Martinsen (6	12) 935-6901	Arthur Jensen	612) 881-5811

DAT	PERSON COMPLETING FORM	ILELER		CONTA				1	
<u> </u>	Paul Martinsen	(\$12)	935-6901	Art	hur Jensen			(612)	881-581
T	Instructions: For blocks 1 and 2 check the bodescribes the building type and then within							h of the fo	ur categories
	1. OWNERSHIP TYPE XM Public (PUB) □Non-Profit Association (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary		(SCHL-ELM) (SCHL-SECD)	XE	OCAL GOVER Office Storage		(LOCG-OFF
	2. ULTIMATE OWNER  County (CNTY)  City (CITY)  Township (TOWN)		□Coll. or Univ. □Vocational □Education Ag □Administratio □OTHER	gency	(SCHL-POST) (SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)	. [	Service Library Police Fire THER	(	LOCG-SERV LOCG-LBRV LOCG-PLCE LOCG-FIRE LOCG-OTH
	□ Township (TOWN) □ State (STAT) □ Public School (PUSC) □ Private School (PRSC) □ Non-Profit Association (NPAP) □ Indian Tribe (INDN)	b.	PUBLIC CARE  □Nursing Hom □Long Term C □Rehab. Facili □Public Health □Res. Child Ca	care ity n Ctr.	(PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	d. H	OSPITALS General Tuberculosis OTHER	(	(HOSP-GEN (HOSP-TUBF (HOSP-OTHI
	Instructions: With reference to page 23 entit just Federal funding, then answer the question.  If eligible for both Federal and State Funding	ons correc	ng Information, de tly for the situation	etermine n. This s	if the facilities are ection must be sig	eligible f ned and c	or both Federa	al and State and of the c	e funding or organization.
	Instructions: With reference to page 23 entit just Federal funding, then answer the question of the federal and State Funding. Have you received a mini-audit grant beform you previously applied for mini-audit Do you wish to apply for mini-audit funding.	ons corrections co	es ZWNo	n. This s	if the facilities are ection must be sig 	eligible f ned and c	or both Federa	al and State and of the c	e funding or organization.
	just Federal funding, then answer the question  If eligible for both Federal and State Funding Have you received a mini-audit grant before	ons corrections co	es ZWNo	n. This s	if the facilities are ection must be sig	eligible f ned and c	or both Federa	al and Stat	e tunding or organization.
	ist Federal funding, then answer the question  If eligible for both Federal and State Funding Have you received a mini-audit grant beform the properties of	re? Y funding?	es ZX No No	n. This s	if the facilities are ection must be sig	eligible f	or both Federa	al and Stat	e funding or organization
	ist Federal funding, then answer the question  If eligible for both Federal and State Funding Have you received a mini-audit grant beform the properties of	g: re? Y funding?	es WNo No	n. This s	if the facilities are ection must be sig	eligible f	or both Federa	al and Stat	e funding or organization
	ist Federal funding, then answer the question  If eligible for both Federal and State Funding Have you received a mini-audit grant befor Have you previously applied for mini-audit Do you wish to apply for mini-audit funding Date:  Name:	re? Y	es  No  No	n. This s	ection must be sig	eligible f	or both Federa	al and Stat	e funding or organization
	If eligible for both Federal and State Funding Have you received a mini-audit grant befo 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 befo Have you previously applied for mini-audit Do you wish to apply for mini-audit funding Do yo	re? Y	es  No  No	n. This s	ection must be sig	eligible f	or both Federa	al and Stat	e funding or organization
	If eligible for both Federal and State Funding Have you received a mini-audit grant befo 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 befo Have you previously applied for mini-audit Do you wish to apply for mini-audit funding Do yo	re? Y	es  No  No	n. This s	ection must be sig	eligible f	or both Federa	al and Stat	e funding or organization
	If eligible for both Federal and State Funding Have you received a mini-audit grant befo 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 befo Have you previously applied for mini-audit Do you wish to apply for mini-audit funding Do yo	re? Y	es  No  No	n. This s	ection must be sig	eligible f	or both Federa	al and Stat	e funding or organization.
	If eligible for both Federal and State Funding Have you received a mini-audit grant befo 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 befo Have you previously applied for mini-audit Do you wish to apply for mini-audit funding Do yo	re? Y	es  No  No	n. This s	ection must be sig	eligible f	or both Federa	al and Stat	e funding or organization.
	If eligible for both Federal and State Funding Have you received a mini-audit grant befo 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 befo Have you previously applied for mini-audit Do you wish to apply for mini-audit funding Do yo	re? Y	es  No  No	n. This s	ection must be sig	eligible f	or both Federa	al and Stat	e funding or organization.

MINI-AUDIT FUNDING REQUEST

Signature: \_

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) X  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 revocational 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 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 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 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 buildi	ng being audited.
	I have fully disclosed my financial interests relating to this mini-audit ar	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, 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) I realize that this is not a final judgement, that the State reserves the right to	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	(snould, snould not)
	undergo further solar conversion analysis, and/or <u>Should no</u> wind, wood. (Circle proper resources) (should, should	
	In my judgement, as a mini-auditor, all of the above statements are true	e and correct.
		Witnessed by:
	Paul Martinsen P.E. 9597  Mini-Auditor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Signature Signature	Signature
	Rieke Carroll Muller Associates, Inc. Firm Name (if ngne, enter none)	Date
	P.O. Box 130 Hopkins, MN 55343	
	Address (612) 935-6901	
	Phone	
	6-3-80 Date	
1		
MINI-AUDIT STATEMENTS		
A-PA		
STA		

F	NAME	POSITION	ORGANIZATION
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenanc <u>e Engineer</u>	City of Bloomington
L _			
AUDIT			
		·	
G	Good - Office	RAL BUILDING CONDITION (i.e. type, and fu	
z		TTHIN NEXT 15 YEARS (i.e. demolition, rehab - Building being remodeled	ilitation, conversion from one building type to another)  •
ATIO	STRUCTURAL COMPONENTS C	PF ROOF (i.e. metal beams, wooden rafters, co	
BUILDING	Bar Joists ROOFING MATERIAL (i.e. tar an	d gravel, shingles, tile)	
B <sub>R</sub>	Tar and Gravel.		
	INSTRUCTIONS: Correctly answ	er the following questions for the building bei	ng mini-audited.
	Is there open land adjacent to the Yes MNo	e building?	
	Solar collectors need to be located 3 p.m.?	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: XX Yes □ No South facing Wall: □ Yes X	<b>∤</b> No	
	If the roof or wall are partly shad % of roof unshaded % of south facing wall unshade	ed, what percentage of the surface is unshade	od?
	What is the overall shape of the l		
	Is the roof of the building flat or		
	If pitched, what is the compass of	rientation of the ridgeline?	
	If pitched, what is the angle that	the roof makes with horizontal?	•
	Are there large obstructions on t ☐ Yes XXNo	he roof such as chimneys, rooms for mechani	cal equipment, ventilating units, water towers, etc?
	What is the exterior facing mater	ial for the south facing wall? Brick	
	What percentage of the south fac	cing wall is glass? <u>50</u> %	
	Is the building's space heating e XXYes □ No	quipment located within or on the building? (A	no answer indicates the equipment is in a separate building.)
	If the space heating equipment i	s inside the building, where is it located? nt D Roof D Other (specify)	
NTIAL	Is the building's water heating ed	quipment located within the building? (A no a	nswer indicates the equipment is in a separate building)
SOLAR POTENTIAL	If the water heating equipment is Ground Floor Baseme	s inside the building, where is it located? nt D Other (specify)	
SOLAF	****	ntral system, does it consist of multiple units	or is it a combination of the central and multiple units?

	Instructions: Enter the total energy us unit of measure. Enter the appropriat which the data applies. Refer to page	e conversion factor	from Appendi	x B to co	nvert energy u			
			BASE PE	RIOD YEA	AR.		Fiscal Year	
	ENERGY TYPE	ENERGY US	AGE	0	CONVERSION	FACTOR	В.	TU USAGE
	Electricity							
	Fuel 1							
	Fuel 2			F				
	TOTAL							
-		-	20% SAVII	NGS YFA	R		Fiscal Year	
-	ENERGY TYPE	ENERGY US			CONVERSION	FACTOR		TU USAGE
-			AGE	-				10 00/102
-	Electricity							
S	Fuel 1							
SAVINGS	Fuel 2							
20% S DATA	TOTAL							
				<u> </u>				
J	Instructions: This section is to be com state the roughly estimated range of th of the new mini-audit opportunities percentages by the annual electrical	ne percent of total ele listed in section L.	ctrical and fue Secondly, cal	l consum culate the	ption which wo range of ene	uld be saved res	ulting from the	mplementation of all
1	Check two boxes in each category -							
	Range of Electrical Savings — XX0	% <b>XX</b> 5%	□ 10%	□ 15%	□ 20%	□ 25%	other (sp	ecify)
_	Range of Fuel Savings — 0	% <b>XX</b> 5%	<b>X</b> X10%	□ 15%	□ 20%	□ 25%	Oother (sp	ecify)
2	Calculate ranges of energy and cost	savings —						
			Range of Ele		avings			
		nual Electrical Consumption	Range of Savin		% Range	Annual El Dollars		Range of Electrical Dollars Savings
	lower bound $0 \% \times 13$	8,680 kwh =	0	kwh, _	0_%	× \$5364	<u>.31</u> =	\$ <u>0</u>
	to		to		to	•		to
	upper bound $\underline{5}$ % x $13$	8,680 kwh =	6934	kwh, _	5_%	× \$ 5364	<u>.31</u> =	\$ <u>268.22</u>
3			Range of	Fuel Sav	ings			
	% Range	Annual Fuel Consumption	Range o Savir		% Range	Annual Dollars		Range of Fuel Dollars Savings
	lower bound $\frac{5}{}$ % x 9.	<u>7x10<sup>8</sup> Btu</u> ≡	4 <u>.9x1</u> 0	<u>) /</u> Btu, _	5_%	× \$ 24	<u>191.</u> 97 =	\$ <u>124.60</u>
SAVINGS ESTIMATION	upper bound $\frac{10}{9}$ % x 9.	7x10 <sup>8</sup> Btu =	to 9 <u>.7x1</u>	2 <sup>7</sup> Btu, _	10 %	× \$24	<u>191.</u> 97 <sub>=</sub>	\$ 249.20
SAVIN	The mini-auditor is not responsible if not fall between the roughly estimat	actual savings resulted ranges which are	ting from the i		ation of the en	ergy conservati	on opportunitie	s listed in section I do

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

Note Reproduce this page as necessary

EW FOORTUNITIES

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				OPTIONAL	OPTIONAL	
ITEM NO	CLASSIF NI MAJOR		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	CLASS	CLASS			SAVINGS	
1	1	1	Keep all controls free of dust.			
2	1	2	Lubricate motors to reduce wear and excessive torque.			
3	1	2	Keep motors clean to make cooling easier.			
4	1	2	Where it is impractical to replace motors which have low loads and power	•		
			factors, use capacitors at motor terminals to correct the power factor			
			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.			
. <u> </u>	2		Clean windows so more sunlight shine			
		3	through them during the heating season When the winter sun is not shining			
8	2	3	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	s.		
11	2	7	Insulate the vestibule walls and roo			
12	2	8	Insulate walls with rigid insulation inside and/or outside surfaces, or			
		0	place loose fill insulation in wall cavities			
13	2	9	Weatherstrip and caulk around door frames.			
14	2	9	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.			
17	3	1	Check the calibration of all control and devices for proper settings and	lers		
			operations.			
18	3	1	Adjust automatic timers or add time clocks to automatically set back			

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 mini-addit report should be completed by the mini-addit	OPTIONAL:		
ITEM	CLASSIF No		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS	NEW MINI-ROBIT OF FORTONTIES	SAVINGS	SAVINGS	BAYE OF IMPERIMENTATION
		GENOS	temperature for night and weekend			
			operation.			
10		,	Raise the supply air temperature for			
19	3	1	cooling to the highest point necessa to provide minimum required cooling.	ry		
			to provide minimum required cooring.			
	<b>†</b>		Lower the supply air temperature for	<b> </b>		
20	3	1	heating to the lowest point necessar	<u> </u>		
			to provide minimum required heating.			
21	3	2	Clean and remove obstructions from			
	J		all room air outlets and inlets (dif	fusers,		
			registers and grilles). They shoul			
	+		be kept clean and free of all dirt a foreign materials.	na		
			Toreign materials.			
22	3	3	Inspect drive belts. Adjust or repl			
			as necessary to ensure proper operat	ion.	ļ	
00		2	Keep condensing unit coil face clean	to		
_23_	3	_3	permit proper air flow. Inspect ductwork for air leakage.	<del> </del>		
24	3	3	Seal all leaks by taping or caulking			
<u> </u>	<u> </u>		Inspect ductwork insulation.			
25	3	3	Thispeed addwork Thisaracteria	<u> </u>		
			Inspect damper blades and linkages.			
_26_	3	3	Clean, oil and adjust.	ļ	<b> </b>	
07			Clean or replace filters periodicall	<b>y</b> .		
_27_	3	_3	Instruct occupants and maintenance			
28	4	1	personnel to switch off all lights			
			when they are not needed.			
20	1	,	Consider variable level switches.			
29	4	'			-	
30	4	3	Clean fixtures and lamps regularly.			
31	4	3	Replace lamps in groups before they	<b>†</b>	<b>†</b>	
٦١	+ +		burn out to maintain higher average	<u> </u>		
			light output per fixture.			
32	4	3	When repainting, use light colored			
<u> </u>	<u> </u>	ļ	paint on ceilings, walls and floors	-	<b></b>	
			but avoid objectionable specular reflections from glass finishes.			
33	4	4	Remove unnecessary lamps, fixtures,			
- 33	+ -	-	and ballasts.	+	<del>                                     </del>	
			Use lower wattage lamps to provide	<del> </del>	1	
34	4	4	the necessary illumination.	1		

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	u. Tills sec	nion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	CLASSIF		NEW AND A DECEMBER OF THE PROPERTY OF THE PROP	ENERGY	ENERGY	
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
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			
			entrances and reduce it where the security problems are minimal.			
38	5	1	Keep records of the operating schedu monthly energy consumption and purch	le ase		
			of any new equipment that affects en consumption of efficiency of the bui	ergy		
			These records will indicate the impa of energy conservation measures.	ct		
39	5	1	Review the record books on a regular	basis.		
40	5	2	Establish a specific maintenance schedule for each building to ensure that all components of the specific			
			building operate at maximum efficier  Consult manufacturers literature for	су.		
**************************************			guidance in establishing a maintenar schedule.	се		
			Adjust domestic water supply to 100°	F		
41	6	1	for all except special requirements (dishwasher supply units, etc.).			
42	6	2	All electric heating equipment shou	ld		
·-		_	be checked for corroded elements and loose connections and repaired as re	1		
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.	t .		
45	6	5	Install flow restrictors.			
46	7	3	Clean air-sides, remove soot, and s scale in forced warm air and hot ai furnaces.	¢rape r		
47	7	4	Operate exhaust fans only during occupied periods.	<del>                                     </del>		

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

AMPublic (PUB)	B		structions: For blocks 1 and 2 of secribes the building type and			ory check off the sub cate				our categories
2. ULTIMATE OWNER  County  CONTY)  COUNTY  COU		1.	X₫ Public (F		3a.	Secondary	(SCHL-SECD)	C.	□ Office □ Storage <b>V</b> ☑ Service	(LOCG-OFFC (LOCG-STRG (LOCG-SERV)
O D TOWNSRIP (TOWN) b. PUBLIC CARE d HOSPITALS	0	2.	□ County X <b>X</b> City	(CITY)		☐Education Agency ☐Administration	(SCHL-ADMN) (SCHL-ADMN)		□Police □Fire	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR
□ Res. Child Care Ctr. (PBCR-RCCC)	BUILDING ELIGIBILITY CO		☐ State ☐ Public School ☐ Private School	(STAT) (PUSC) (PRSC)	b.	□Nursing Home □Long Term Care □Rehab. Facility □Public Health Ctr.	(PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR)	d.	□General □Tuberculosis	(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? The No Have you previously applied for mini-audit funding? The No Do you wish to apply for mini-audit funding? Yes Yes No
	Date:
	Name:
	Signature:
	If eligible for Federal funding only: Have you received a mini-audit grant before?
	en en en en en en en en en en en en en e
UEST	
REO	Date:
NG N	Name:
MINI-AUDIT FUNDING REQUEST	Signature:

D	Check the type of energy report which was completed and submitted prior to this mini-audit report.
OH.	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)
1	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 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.
0	
159	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.
	Based upon my observation of the physical characteristics of this building and the building's major energy using systems, I recommend that thisShould 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 reporand other criteria.
	about the second
	Based upon the information in section E and the information referred to in section F, I recommend that this building  Should, should not)  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:
	, , , , , , , , , , , , , , , , , , ,
	Paul Martinsen P.E. 9597 Mini-Auditor's Name (Print or Type) Building Organizational Authority (Print or Type)
	Raul & Martinear
	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
	6-3-80
-	Date
2	
STATEMENTS	
(m)	
1	

F	NAME	POSITION	ORGANIZATION
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
AUDIT			
A F		F* .	
G	BRIEF DESCRIPTION OF GENERAL BUIL GOOD - Maintainence	LDING CONDITION (i.e. type, and function) Garage	
Z	One half will be rem	EXT 15 YEARS (i.e. demolition, rehabilitation, cont odled within one year	version from one building type to another)
BUILDING	Bar Joist	(i.e. metal beams, wooden rafters, concrete)	
BUILD	ROOFING MATERIAL (i.e. tar and gravel,  Tar and Gravel	shingles, tile)	
H	INSTRUCTIONS: Correctly answer the fol	llowing questions for the building being mini-audit	ed.
	Is there open land adjacent to the building ☐ Yes ĀXNo	g?	
	Solar collectors need to be located in an un 3 p.m.? Roof: ☐ Yes XXNo South facing Wall: ☐ Yes XXNo	shaded area. Is the roof of the building and the south	facing wall unshaded between the hours of 9 a.m. and
	If the roof or wall are partly shaded, what % of roof unshaded	percentage of the surface is unshaded?	
	What is the overall shape of the building? □ square 火火 rectangle □ H-shaped	☐ E-shaped ☐ other (specify)	
	Is the roof of the building flat or pitched?		
	If pitched, what is the compass orientation	n of the ridgeline?	
	If pitched, what is the angle that the roof	makes with horizontal?	
	Are there large obstructions on the roof s ☐ Yes X No	uch as chimneys, rooms for mechanical equipmen	it, ventilating units, water towers, etc?
	What is the exterior facing material for th	e south facing wall? <u>Garage doors</u>	
	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 i	ndicates the equipment is in a separate building.)
		he building, where is it located? pof D Other (specify)	
SOLAR POTENTIAL	Is the building's water heating equipment	located within the building? (A no answer indicat	es the equipment is in a separate building.)
R POT	If the water heating equipment is inside to XXGround Floor Basement DO	he building, where is it located? ther (specify)	
SOLA	Is the water heating system a central syst  XXCentral   Multiple   Combinat	em, does it consist of multiple units, or is it a comion	ibination of the central and multiple units?

		Wilders and the APAN Property and the property of the APAN Property and the Property of the APAN Property of the A	BASE I	PERIOD YE	AR		Fiscal Year	
	ENERGY TYPE	Er	NERGY USAGE		CONVERSION	FACTOR	В	TU USAGE
	Electricity	The state of the s						
Ī	Fuel 1							
	Fuel 2			To.				
	TOTAL							
			20% SA	VINGS YEA	\R		Fiscal Year	
ľ	ENERGY TYPE	EN	IERGY USAGE		CONVERSION	FACTOR	I	BTU USAGE
	Electricity							
	Fuel 1							
٨	Fuel 2							
DATA	TOTAL							
	Instructions: This section is to be							
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elect Check two boxes in each category	ge of the percent nities listed in s strical and fuel o	section L. Secondly, o	uel consum alculate the	ption which wou e range of ener			implementation of all
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec-	ge of the percent nities listed in s strical and fuel of nory —	ection L. Secondly, consumption data on	uel consum alculate the	ption which wou e range of ener		avings by multi	implementation of all
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec  Check two boxes in each category	ge of the percent nities listed in s strical and fuel of nory —	section L. Secondly, coconsumption data on	uel consum calculate the the energy	ption which wou e range of energe report.	gy and cost s	avings by multi	implementation of all plying the estimated
	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 —	ge of the percent nities listed in setrical and fuel colory —	ection L. Secondly, consumption data on  5%  10%  5%  10%	uel consum alculate th the energy	ption which would range of energic report.	gy and cost s	avings by multi	implementation of all plying the estimated ecify)
	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 —	ge of the percent nities listed in setrical and fuel colory —	Range of trical Range of Sa	duel consum calculate the the energy	ption which would range of energic report.	25% 25% Annual E	other (sp other (sp other sp	ecify)  Range of Electrical Dollars Savings
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual electrical Savings — Calculate ranges of energy and  Range of Fuel Savings — Range of Fuel Savings — Range of Electrical Savings — Calculate ranges of energy and	ge of the percent nities listed in strical and fuel coory —  XX 0% XX  0% XX  cost savings —  Annual Elec	Range of trical Range of Sau Okwh = 0	uel consum alculate the the energy  15% 15% Electrical S of Energy vings kwh,	e range of energence of energen	25% 25% 25% Annual E	other (sp	ecify)  Range of Electrical Dollars Savings
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elect Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and % Range	ge of the percent nities listed in strical and fuel coory —  XX 0% XX 0% XX 1 cost savings —  Annual Electorsumpt	Renge of trical Range of Sav	uel consum alculate the the energy  15%  15%  Electrical S of Energy vings	ption which would range of energic report.	25% 25% 25% Annual E Dollars \$	other (sp other (sp other sp	ecify)  Range of Electrical Dollars Savings  \$
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual electrical Savings — Mange of Electrical Savings — Calculate ranges of energy and ———————————————————————————————————	pe of the percent nities listed in strical and fuel coory —  XX 0% XX 0% XX 1 cost savings —  Annual Electorsumpt 224,644	Range of trical condition on Sauch Skwh = 11.2	uel consumation alculate the the energy  15% 15% Electrical S of Energy vings kwh.	e range of energe report.  20% 20% 20%  Avings  Range 0 4 to 5 4	25% 25% 25% Annual E Dollars \$	other (sp other	ecify)  Range of Electrical Dollars Savings  to
2	state the roughly estimated rang of the new mini-audit opportur percentages by the annual electrical Savings — Check two boxes in each category Range of Electrical Savings — Range of Fuel Savings — Range of Fuel Savings — Range of Electrical Savings — Calculate ranges of energy and — Range lower bound — Range — Range — Range — Range	pe of the percent nities listed in strical and fuel corrections.  Ory — XX 0% XX 0% XX 10% XX	Range of trical Range of the consumption of the con	uel consumaliculate the the energy  15% 15% 15% Electrical S of Energy vings kwh, _ to 32_ kwh, _ of Fuel Sav	ption which would range of energy report.  20% 20% 20% 4vings  Range 0 % x to 5 % xings	Annual E Dollars  \$ 800  Annual E Dollars	other (sp other	ecify)  Range of Electrical Dollars Savings  \$ 403.32  Range of Fuel Dollars Savings
2	state the roughly estimated rang of the new mini-audit opportur percentages by the annual electrical Savings — (Check two boxes in each categoral Range of Electrical Savings — (Range of Fuel Savings — Calculate ranges of energy and — % Range lower bound — % x to — wpper bound — 5 % x	e of the percent nities listed in strical and fuel of ory — XX 0% XX 0% XX 1 cost savings — Annual Electronsumpt 224,640  Annual F Consumpt 4,2x10	Range of Sange well tion Sange	uel consumaliculate the the energy  15% 15% 15% Electrical Sof Energy vings kwh, - to 32 kwh, - of Fuel Save of Fuel vings 10 Btu, -	ption which would range of energian report.  20% 20% 20% 4 Range 0 % × 4 to × 4 rings	Annual E Dollars \$ 800 Annual E Dollars \$ 10	other (sp other	ecify)  Range of Electrical Dollars Savings  \$ 0  to  \$ 403.32

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.

	CLASSIF	CATION		OF THORNE		
NO.	MAJOR	O. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	CLASS	CLASS				
			· · · · · · · · · · · · · · · · · · ·			
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Note. Reproduce this page as necessary

JEW WEW

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	promon	ca. Tina acc	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEN	A	FICATION 10.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS				
1	1	1	Keep all controls free of dust.			
2	1	2	Lubricate motors to reduce wear and excessive torque.			
_3_		2	Keep motors clean to make cooling easier.		Market State of the State of th	
4	1_1_	2	Where it is impractical to replace motors which have low loads and			
			power factors, use capacitors at motor terminals to correct the			
			power factor to 90%.			
5	2	1	Check the amount of insulation in th ceiling and add if required	<b>2</b>		
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.			
8	2	6	Insulate the roof areas.			
9	2	8	Insulate walls with rigid insulation on inside and/or outside surfaces, o 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			
			control valves and dampers.			
14	3	1	Check the calibration of all control and devices for proper settings and	lers		
			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 necessary to provide minimum require	<u></u>	-	
			cooling.  Lower the supply air temperature	<del> </del>		
17	3	1	for heating to the lowest point necessary to provide minimum require	Н		
		<u></u>	heating.	<u> </u>		

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 ITEM **ENERGY NEW MINI-AUDIT OPPORTUNITIES** DATE OF IMPLEMENTATION COST MAJOR NO SUB SAVINGS SAVINGS CLASS CLASS 3 18 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 19 3 3 replace as necessary to ensure proper operation. Keep condensing unit coil face clean 20 3 3 to permit proper air flow. Inspect ductwork for air leakage. 21 3 Seal all leaks by taping or caulking Inspect ductwork insulation. 3 22 3 Clean or replace filters 3 23 periodically. Check compressor belt tension and 24 3 3 alignment. Inspect air compressor intake 25 3 3 filter pads and clean or replace as necessary. Check the compressor's 26 3 oil level. Periodically drain the moisture 3 3 27 from storage tank of the compressor. Clean evaporator and condenser 3 28 coils of window air conditioner. Instruct occupants and maintenance 29 1 personnel to switch off all lights when they are not needed. 30 2 Clean windows and skylights. Clean fixtures and lamps regularly. 31 4 3 Replace lamps in groups before they 32 burn out to maintain higher average light output per fixture. When repainting, use light colored 3 33 4 paint on ceilings, walls, and floors but avoid objectionable specular reflections from glass finishes. Remove unnecessary lamps, fixtures, 4 34 4 and ballasts. Use lower wattage lamps to provide 35 necessary illumination

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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.

ZO	mplemente	u. IIIIS SEC	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	CLASSIFICATION 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
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.			
_38_	Δ	5	Direct security lighting where it is most required, such as at windows and			
<u>.</u>	4		entrances and reduce it where the security problems are minimal.			
39	5	1	Keep records of the operating schedu monthly energy consumption and	ie		
			purchase of any new equipment that affects energy consumption of	1		
			efficiency of the building. These records will indicate the impact of			·
			energy conservation measures.			41.0
40	5	1	Review the record books on a regular			
41	5	2	Establish a specific maintenance schedule for each building to ensure			
			that all components of the specific building operate at maximum efficien			
			Consult manufacturers literature for quidance in establishing a			
			maintenance schedule.			
42	6	1	Adjust domestic water supply to 100 for all except special requirements	F		
			(dishwasher supply units, etc.).			
43	6	2	The burner system of fossil-fuel water heaters should be kept clean			ī
			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 reduce water usage.			
46	6	5	Install flow restrictors.			
47	7	3	Clean air-sides, remove soot, and scrape scale in forced warm air and hot air furnaces.			
48	7	4	Turn off gas pilots for furnaces, boilers, and space heaters during			

	VITIES
	PATC
NEW	OPPC

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			To the first all the first and the first all	OPTIONAL: OPTIONAL:					
ITEM	NO MAJOR SUB		NO. NEW MINI-AUDIT OPPORTUNITIES		ENERGY COST	DATE OF IMPLEMENTATION			
NO ———	CLASS	SUB CLASS		SAVINGS	SAVINGS				
			the non-heating months and during lor	g					
	_		unoccupied periods.  Keen all heat exchanger surfaces clea	n					
49	7	4	unoccupied periods. Keep all heat exchanger surfaces clea Check air-to-fuel ratio and adjust as						
			necessary.						
				-					
**************************************				<del> </del>	1				
						:			
	-			<b> </b>	<u> </u>				
						·			
				<del>                                     </del>					
				<del> </del>	<u> </u>	<b> </b>			
	1			<del>                                     </del>					
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		<del> </del>		<u> </u>					

## **MINI-AUDIT REPORT**

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

B	Instructions: For blocks 1 and 2 check the box with describes the building type and then within the						four categories	
	1. OWNERSHIP TYPE XXX Public (PUB) □Non-Profit Association (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT Office Storage	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)	
ODE	2. ULTIMATE OWNER  County (CNTY)  City (CITY)  Township (TOWN)		. □ Vocational □ Education Agency □ Administration □ OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire □THER	(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)	
	Instructions: With reference to page 23 entitled	Eundi	ng Information determine	if the facilities are	-11-11	ale for both Fodoral and S	toto funding or	
	just Federal funding, then answer the questions	correc	ctly for the situation. This s	section must be sig	ned a	nd dated by the head of th	ne 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?	ndina?	∕es ÆNο > XXVès □ Nο es XX Nο					
	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 f	nding?	P □ Yes □ No Yes □ No	cessary.)				
			•					
ST								
MINI-AUDIT UNDING REQUEST	Date:							
AUDIT ING R	Name:							
- NO	Signature:							

D	Check the true of energy reset which was a selected and selected	or to this mini guidit report
-	Check the type of energy report which was completed and submitted pri  Elementary School Energy Report (Form No. ED-00444-02)	or to this mini-audit report.
REPOR	Secondary School Energy Report (Form No. ED-00445-02)	
ENERGY REPORT CHECK-OFF	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, de- building 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 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
	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 an	
	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	may result from the implementation of all of the mini-audit opportunities m 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.	ance procedures listed in section K
	Based upon my observation of the physical characteristics of this building Should (should, should not)	ng 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 and other criteria.	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 a	undergo further analysis of the renewable resources — waste,
	In my judgement, as a mini-auditor, all of the above statements are true	and correct.
		Witnessed by:
	Paul Martinsen Mini-Auditors Name (Print or Type)	Building Organizational Authority (Print or Type)
	You Marlimen P.E. 9597 Signature	Signature
	Rieke Carroll Muller Assoc., Inc.	Date
	P.O. Box 130 Hopkins, MN 55343	Date
	(612) 935-6901	
	Phone	
	6-3-80 Date	
ဖွ		
MINI-AUDIT STATEMENTS		
INI-A		
SE		

F	NAME	POSITION	ORGANIZATION
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
AUDIT			
		·12	
G		AL BUILDING CONDITION (i.e. type, and fu	action)
	MAJOR CHANGES PLANNED WIT	e Garage and Office HIN NEXT 15 YEARS (i.e. demolition, rehab	litation, conversion from one building type to another)
z	None	The terms (i.e. demonition) to the	, and the second
BUILDING		ROOF (i.e. metal beams, wooden rafters, co	ncrete)
NA MA	Bar Joists.		
P.F.	ROOFING MATERIAL (i.e. tar and	gravei, shingles, tile)	
	Tar and Gravel		
H		the following questions for the building being	g mini-audited.
	Is there open land adjacent to the	building?	
		n 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 □	No	
	If the roof or wall are partly shade	d, what percentage of the surface is unshade	d?
	% of roof unshaded % of south facing wall unshaded	%	
	What is the overall shape of the bu □ square XW 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 the	e roof makes with horizontal?	
	Are there large obstructions on the ☐ Yes XIO No	e roof such as chimneys, rooms for mechani	cal equipment, ventilating units, water towers, etc?
	What is the exterior facing materia	I for the south facing wall?CO	ncrete Block
	What percentage of the south facil	^	
	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 XXGround Floor	nside the building, where is it located?  Roof Other (specify)	2nd Floor
R POTENTIAL	Is the building's water heating equ XXYes □ No	ipment located within the building? (A no ar	iswer indicates the equipment is in a separate building.)
R POT	If the water heating equipment is i	nside the building, where is it located?  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 D Multiple D Combination\*\*

r		Fiscal Year							
ı	ENERGY TYPE	ENERGY	ENERGY USAGE CONVERSION FACTOR				R BTU USAGE		
	Electricity				· · · · · · · · · · · · · · · · · · ·				
	Fuel 1						,		
	Fuel 2			f ss					
	TOTAL					****			
			20% SAV	NGS YEAR			Fiscal Year		
	ENERGY TYPE	ENERGY	USAGE	CON	VERSION F	ACTOR		BTU USAGE	
	Electricity								
	Fuel 1								
	Fuel 2						,		
_	TOTAL								
	Instructions: This section is to be state the roughly estimated range of the new mini-audit opportuni percentages by the annual electr	e of the percent of tota ities listed in section	l electrical and fue L. Secondly, ca	el consumption Iculate the ran	n which wou	d be saved res	ulting from the	implementation of al	
	Check two boxes in each catego	•							
	Range of Electrical Savings — )		□ 10%	□ 15%	□ 20%	□ 25%	Other (sp	ecify)	
		₩X <sup>0</sup> % <b>XX</b> 5%	. 10%	□ 15%	20%	25%	other (sp	ecify)	
_	Calculate ranges of energy and o	cost savings —							
			Hange of E	lectrical Savin	gs	Annual Ele	-1-1-1	Range of Electrica	
_		A Classical	0	C				Dollars Savings	
	% Range	Annual Electrical Consumption	Range of Savii	Energy ngs %	Range	Dollars S	pent		
	% Range			ngs %	Range ) % x		•	\$0	
	lower bound % x	Consumption 34,200 kwh	Savir	ngs % kwh,(	)% ×	Dollars S \$ <u>1308</u>	<u>3.62</u> =	\$	
	lower bound0 % x	Consumption	Savir	ngs % kwh,(	<u>)</u> % ×	Dollars S	<u>3.62</u> =		
	lower bound0 % x	Consumption 34,200 kwh	Savir = 0 to = 1.7	ngs % kwh,(	)	Dollars S \$ <u>1308</u>	<u>3.62</u> =	\$0 to \$65.43	
	lower bound0 % x	Consumption  34,200 kwh  34,200 kwh  Annual Fuel Consumption	Savir = 0 to = 1.7	kwh,	)	\$ 1308 \$ 1308 \$ 1308 Annual	3.62 =  8.62 =  Fuel Spent		
	lower bound0 % x  to upper bound5 % x	Consumption 34,200 kwh 34,200 kwh	Savin  = 0 to  = 1.7  Range of	kwh,	)	\$ 1308 \$ 1308 \$ 1308 Annual Dollars \$	3.62 =  8.62 =  Fuel Spent	\$ 65.43  Range of Fuel	

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:			
NO.	MAJOR CLASS	O. SUB CLASS	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION	
	3	1	Outside air closed off on make-up air unit.			Fall 79	
			arr unic.			,	
						·	

Note Reproduce this page as necessary

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

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.

ASS C	SUB CLASS	When repainting, use light colored paint on ceilings, walls and floors	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
ASS C	CLASS	When repainting, use light colored	SAVINGS	SAVINGS	
	3	When repainting, use light colored			
	3	naint on coilings walls and floors			
		parity off certifies, warrs and froots			*
	- 1	but avoid objectionable specular			
		reflections from glass finishes.			-
-		Remove unnecessary lamps, fixtures,			
	4	and ballasts.			
		Use lower wattage lamps to provide the	ne		
	4	necessary illumination.			
		Allow part of a lighting system to			
<u> </u>	4	be turned off while maintaining the			
	-=				
		necessary right.			
		Posmango lighting fixtures for tack			
,	_				
<b>-</b>	-2	Direct security lighting where it is			
ı	5	most required, such as at windows an	d		
	<del>-</del> -	entrances and reduce it where the			
	.				
-	,	scholdula monthly energy consumntia	h		
<del>}                                    </del>	-	and numbers of any new confirment th	) <del> </del>		
		and purchase of any new equipment on	nncv		
		affects energy consumption of effici	ency		
	1	of the building. These records will	lation		,
			vacion		
		measures.			
	,	Douglass the precord books on a popular	hacic		
9		Review the record books on a regular	Da313.		
-		establish a specific maintenance			
5	_	schedule for each building to ensure			
		that all components of the specific	]		
		building operate at maximum erricler	су.		
		Consult manufacturers literature for			
		<u>guidance in establishing a maintenar</u>	ce		
		schedule.			
		Adjust water heater supply to $100^{0}$ F	<b></b>		
6	1	for all except special requirements.			
-		Check the operation of the temperati	lre	<u> </u>	<del></del>
6	ווו	controller so overheating does not	1		
	'	occur.			
	***************************************	Periodically drain and remove the			
6	2	sediment from water heaters.			
			aces		
7	4				
			1	1	
		• • • • • • • • • • • • • • • • • • •			
		Inspect casing for air leaks and se	aT .		
7	Δ	-	1		
	7	5 1 5 5 5 1 5 5 1 5 5 1 6 1 6 1 6 2 7 4	Direct security lighting where it is most required, such as at windows an entrances and reduce it where the security problems are minimal.  Keep records of the operating scheldule, monthly energy consumptio and purchase of any new equipment th affects energy consumption of effici of the building. These records will indicate the impact of energy consermeasures.  Review the record books on a regular Establish a specific maintenance schedule for each building to ensure that all components of the specific building operate at maximum efficier Consult manufacturers literature for guidance in establishing a maintenar schedule.  Adjust water heater supply to 100°F for all except special requirements. Check the operation of the temperati controller so overheating does not occur.  Periodically drain and remove the sediment from water heaters.  Keep all furnace heat exchanger sur clean. Check air-to-fuel ratio and adjust as necessary.  Inspect casing for air leaks and se	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 of the operating scheldule, 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.  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.  Adjust water heater supply to 100°F for all except special requirements. Check the operation of the temperature controller so overheating does not occur.  Periodically drain and remove the sediment from water heaters.  Keep all furnace heat exchanger surfaces clean. Check air-to-fuel ratio and adjust as necessary.  Inspect casing for air leaks and seal	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 of the operating scheldule, 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.  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.  Adjust water heater supply to 100°F for all except special requirements. Check the operation of the temperature controller so overheating does not occur.  Periodically drain and remove the sediment from water heaters.  Keep all furnace heat exchanger surfaces clean. Check air-to-fuel ratio and adjust as necessary.  Inspect casing for air leaks and seal

## **MINI-AUDIT REPORT**

A	BUILDING NAME Ryan Building		NAME OF ORGANIZATION City of Bloomington  Carrier Date 6-3-80				
	BUILDING ADDRESS 9750 James Avenue South		ADDRESS 2215 West Old Shakopee Road				
ICT	CITY Bloomington, MN	ZIP CODE 55431	CITY Bloomington, MN	ZIP CODE 55431			
CONTACT	PERSON COMPLETING FORM Paul Martinsen	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen	TELEPHONE 612) 881-5811			

В	Instructions: For blocks 1 and 2 check the box w describes the building type and then within the						he four categories
	OWNERSHIP TYPE     XQPublic (PUB)     □Non-Profit Association (NAP)	За.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNME MOOffice Storage XXService	(LOCG-STRG) (LOCG-SERV)
CODE	2. ULTIMATE OWNER  ☐County (CNTY)  ACity (CITY) ☐Township (TOWN)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □ <u>F</u> ire ∴)THER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY (	☐ 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 entitled just Federal funding, then answer the questions	Fundii	ng Information, determine	if the facilities are	eligi	ble for both Federal an	d State funding or
e de de de de de de de de de de de de de	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? Have you previously applied for mini-audit fur 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 fur Do you wish to apply for mini-audit funding? The 50% match for Federal funds will come for	nding?	es No No Yes No	cessary.)			
MINI-AUDIT FUNDING REQUEST	Date:						
MINI-AU FUNDIN	Signature:						

U	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)  XX Existing Building Energy Report (Form No. EN-00041-01)						
Ö	If an energy report has not been completed previous to this mini-audit report, one must be included with this report. Elementary, secon	dary, and					
E	vocational schools should use form ED-00444-02 or form ED-00445-02, depending on building complexity. All other buildings should use the building energy report, form EN-00041-01.	e existini					
O							
. 1	<u></u>						
	Instructions: This section is to be completed and signed by a registered professional engineer or by a certified mini-auditor who has succompleted the State of Minnesota's Mini-Audit Procedures Course. This section should be completed after this mini-audit report and an energy are completed. All blanks must be filled in.	ccessfully rgy repor					
	I have reviewed the energy report and/or the energy report results for this building. I found all information contained therein to be correct corrected any misinformation on the energy report which will be resubmitted with this mini-audit report to the Minnesota Energy Agen	OR I hav					
		icy.					
	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 opera maintenance changes, and low cost energy conservation measures, which would reduce energy consumption in this building.	itions an					
	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 opplisted in section I. I am not responsible if the actual savings resulting from this mini-audit do not fall within the estimated range.	ortunitie					
	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 recommen	d 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-a and other criteria.	udit repo					
	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-a	ot					
	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-a and other criteria.  Based upon the information in section E and the information referred to in section F, I recommend that this building Should_n (should, should rundergo further solar conversion analysis, and/or Should_not undergo further analysis of the renewable resources	ot 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-a and other criteria.  Based upon the information in section E and the information referred to in section F, I recommend that this building Should n (should, should rundergo further solar conversion analysis, and/or Should not, undergo further analysis of the renewable resources wind, wood. (Circle proper resources)	ot 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-a and other criteria.  Based upon the information in section E and the information referred to in section F, I recommend that this building Should_n (should, should rundergo further solar conversion analysis, and/or Should_not undergo further analysis of the renewable resources	ot 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-a and other criteria.  Based upon the information in section E and the information referred to in section F, I recommend that this building Should n (should, should rundergo further solar conversion analysis, and/or Should not, undergo further analysis of the renewable resources wind, wood. (Circle proper resources)	ot 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-a and other criteria.  Based upon the information in section E and the information referred to in section F, I recommend that this building Should n (should, should rundergo further solar conversion analysis, and/or Should not, undergo further analysis of the renewable resources wind, wood. (Circle proper resources)	ot 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-a and other criteria.  Based upon the information in section E and the information referred to in section F, I recommend that this building Should n (should, should r undergo further solar conversion analysis, and/or Should not undergo further analysis of the renewable resources 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:	ot not)					
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IENTS	Trealize that this is not a final judgement, that the State reserves the right to make the maxi-audit funding determination based on this mini-a and other criteria.    Based upon the information in section E and the information referred to in section F, I recommend that this building	ot not)					
STATEMENTS	Trealize that this is not a final judgement, that the State reserves the right to make the maxi-audit funding determination based on this mini-a and other criteria.    Based upon the information in section E and the information referred to in section F, I recommend that this building	ot not)					

F	NAME	POSITION	ORGANIZATION						
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc., Inc.						
	Reinert Ege	Maintenence Engineer	City of Bloomington						
L W									
AUDIT									
G	BRIEF DESCRIPTION OF GENER	AL BUILDING CONDITION (i.e. type, and fun	stion)						
<b>\</b>	Good - Office Bu	ilding	tation, conversion from one building type to another)						
			tation, conversion from one building type to another)						
Z	Remodeling for m								
PA T		FROOF (i.e. metal beams, wooden rafters, cor	crete)						
BUILDING INFORMATION	Bar Joist ROOFING MATERIAL (i.e. tar and	gravel chingles tile)							
12 F	Tar and Gravel	graver, simigres, the)							
	Tar and draver								
[ <u>-</u> -									
$ \mathbf{H} $	INSTRUCTIONS: Correctly answe	r the following questions for the building bein	g mini-audited.						
	Is there open land adjacent to the XX Yes □ No	building?							
		in an unshaded area. Is the roof of the building a	nd the south facing wall unshaded between the hours of 9 a.m. and						
	3 p.m.? Roof: XXY Yes □ No South facing Wall: XXY Yes □	No							
	If the roof or wall are partly shade	ed, what percentage of the surface is unshaded	?						
	% of roof unshaded <u>95</u> % of south facing wall unshaded	<u></u>							
	****	-shaped 🗆 E-shaped 🗅 other (specify)							
	Is the roof of the building flat or pitched?  All flat  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 materia	al for the south facing well? LONCIELE	Block						
1 1	What is the exterior facing material for the south facing well: LONCIELE Block  What percentage of the south facing wall is glass? 15 %								
			no answer indicates the equipment is in a separate building.)						
	If the space heating equipment is XX Ground Floor    Basement	inside the building, where is it located?							
MTIAL			wer indicates the equipment is in a separate building.)						
POTENTIAL MATION	If the water heating equipment is inside the building, where is it located?  XX Ground Floor  Basement  Other (specify)								

(Instanting Control	Instructions: Enter the total energy used of each fuel type for the base period and the year when there was a 20% or greater energy savings. Indicate the unit of measure. Enter the appropriate conversion factor from Appendix B to convert energy usage into Btu's. Be sure to enter the fiscal years of which the data applies. Refer to pages 7 and 15 for a complete explanation of this section.								
			Fiscal Year						
	ENERGY TYPE	ENERGY	USAGE	CONVERSIO	ON FACTOR	В	U USAGE		
	Electricity								
	Fuel 1								
	Fuel 2			r					
-	TOTAL				-				
Ì			20% SAVIN	IGS YEAR		Fiscal Year			
	ENERGY TYPE	ENERGY	USAGE	CONVERSION	ON FACTOR	В	TU USAGE		
.	Electricity								
,	Fuel 1								
20% SAVINGS DATA	Fuel 2				· · · · · · · · · · · · · · · · · · ·				
20% S DATA	TOTAL								
J	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 fuel L. Secondly, calc	consumption which ulate the range of e	would be saved res	ulting from the i	mplementation of all		
1	Check two boxes in each categor	ry —	<u> </u>						
	Range of Electrical Savings — )	<b>(X</b> ) 0% <b>(X</b> ) 15%	□ 10%	□ 15% □ 20%	6 □ 25%	other (spe	ecify)		
	Range of Fuel Savings —	□ 0% <b>)</b> X5%	χ <b>Ω</b> 10%	□ 15% □ 20%	6 □ 25%	Other (spe	ecify)		
2	Calculate ranges of energy and cost savings —								
			_	ctrical Savings			Decree of Florida		
	% Range	Annual Electrical Consumption 254,800kwh	Range of E Saving = 0	gs % Range	Annual Ele Dollars S		Range of Electrical Dollars Savings		
	lower bound0	204,000kwh	= <u>U</u>	_ kwh,0% to	× \$ 119 \( \text{!}	02.30 =	\$		
	upper bound5 % x	254,800 <sub>kwh</sub>	= 12,740	kwh,5	× \$11.5	<u> 82.</u> 36 =	\$ <u>579.12</u>		
3			Range of	Fuel Savings			And the second s		
	% Range	Annual Fuel Consumption	Range o Savin	gs % Range	Annual Dollars		Range of Fuel Dollars Savings		
	lower bound5% x	1. <u>0x10<sup>10</sup></u> Btu	$= 5x10^8$	Btu, <u>5</u> %	× \$ 27.	<u>18</u> 8.68₌	\$ <u>1,359.</u> 43		
SAVINGS	upper bound $\frac{10}{}$ % x	1.0x10 <sup>10</sup> Btu	$= 1.0 \times 10^{-10}$	Btu, 10 %	× \$_27_	188.68=	to \$ <u>2,718.</u> 87		
SAVIN	The mini-auditor is not responsib not fall between the roughly esti			nplementation of the	energy conservation	on opportunities	listed in section I do		

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:			
ITEM NO.	MAJOR	ICATION O. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION	
	CLASS	CLASS		GAVIIIGO	SAVINGS		
				<b>-</b>			
				<b>†</b>			
					ļ		
	<u> </u>						
				1			
-							

Note. Reproduce this page as necessary

VEW POPUNITIES

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 or the mini about report should be completed by the mini-addit	OPTIONAL:		
ITEM	CLASSIF	0.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
l	1	1	Keep all controls free of dust.	-		
2	1	2	Lubricate motors to reduce wear and excessive torque.			
3	1	2	Keep motors clean to make cooling easier.			
4	1	2	Where it is impractical to replace motors which have low loads and powe	2		
			factors, use capacitors at moter terminals to correct the power factor			
			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	s on.		
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, o			
			place loose fill insulation in wall cavities.			
12	2	9	Weatherstrip and caulk around door frames.			
13	2	9	Weatherstrip and caulk around window frames.			
14	3	1	Check operation of entire heating/ cooling control system, including control valves and dampers.			
	1		Check the calibration of all control	lers		
15	3	1	and devices for proper settings and operations.			
16	3	1	Raise the supply air temperature for cooling to the highest point necessa	ry		
			to provide minimum required cooling.	ļ		
17	3	1_1_	Lower the supply air temperature for heating to the lowest point necessar to provide minimum required heating.	·\		
18	3		Operate without fresh air ventilation when the building is unoccupied.	on .		

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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 CLASSIFICATION **ENERGY** ITEM ENERGY **NEW MINI-AUDIT OPPORTUNITIES** DATE OF IMPLEMENTATION COST MAJOR SUB NO SAVINGS SAVINGS CLASS CLASS Reduce the amount of infiltration and 19 3 1 outdoor air ventilation to provide only the minimum required. Consider regulating the fresh air dampers with enthalpy control so that 20 the building can be cooled with outdoor air when this saves energy. Clean and remove obstructions from 3 all room air outlets and inlets 21 (diffusers, registers and grillers). They should be kept clean and free of all dirt and foreign materials. Inspect drive belts. Adjust or replace as necessary to ensure proper 22 3 3 operation. Make sure that all fans, frequently inoperative in unit heaters, fan 3 23 3 coil units, and unit ventilators are running normally to increase the heat transfer rate from heating coils. Keep condenser coil face clean to permit proper air flow. Inspect ductwork for air leakage. 24 3 3 25 3 Seal all leaks by taping or caulking Inspect damper blades and linkages. Clean, oil and adjust. 26 Clean or replace filters periodically or when indicated by filter gauges. 27 3 If there are no gauges, consider installing them. Check compressor belt tension and 28 3 3 alignment. Inspect air compressor intake filter pads and clean or replace as necessary. 29 Check the compressor's oil level. 3 3 30 Periodically drain the moisture from 3 storage tank. 31 Consider different heating system for garage area with high ceilings. Instruct occupants and maintenance 3 32 personnel to switch off all lights 1 33 when they are not needed. Clean fixtures and lamps regularly. 34

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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 mini-addit report should be completed by the mini-addit	OPTIONAL:		
ITEM	CLASSIFICATION NO.		NO. NEW MINI-AUDIT OPPORTUNITIES		ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR	SUB CLASS		SAVINGS	SAVINGS	
			In dirty areas enclose fixtures to			
35	4	3	reduce dirt collection.			
			Replace lamps in groups before they			
36	4	3	burn out to maintain higher average			·
			light output per fixture.			
27	1	3	Keep walls, ceiling and floors clean	<del>                                     </del>		
37	4	3	When manainting use light colored	<del> </del>		
38	4	3	When repainting, use light colored paint on ceilings, walls and floors			
30	<del></del>	<u> </u>	but avoid objectionable specular	<del> </del>	<u> </u>	
			but avoid objectionable specular			
			reflections from glass finishes.	ļ	<u> </u>	
			When recarpeting or retiling, put in			
39	4	3	lighter colored carpets or tiles.		<b></b>	
			Change exterior lighting to a	1		
40	4	3	higher efficiency source. Remove unnecessary lamps, fixtures,			
41	4	4	and ballasts.			,
			Use lower wattage lamps to provide			
42	4	4	the necessary illumination.	<u> </u>		
			Allow part of a lighting system to			
43	4	4	be turned off while maintaining the			
			necessary light.			
	<u> </u>		Rearrange lighting fixtures for task	d		
44	4	5	localized use.			
	1		Direct security lighting where it is	S		
45	4	5	most required, such as at windows a	nd	Ì	
	1		entrances and reduce it where the	<b>†</b>		
			security problems are minimal.			
		<del> </del>	Keep records of the operating schedule, monthly energy consumptio	<del>                                     </del>	<del> </del>	
46.	5	1	schedule, monthly energy consumption	Ŋ		·
	+		of efficiency of the building. Thes	<b>e</b>	<b> </b>	
			records will indicate the impact of	1	İ	
		<del>                                     </del>	energy conservation measures.	<del>                                     </del>	<del> </del>	<del>                                     </del>
					1	
	1	<del>                                     </del>	Review the record books on a	<del>                                     </del>	<del>                                     </del>	
47	5	1	regular basis.			
	+	<b>†</b>	Establish a specific maintenance	1	<b>†</b>	
48	5	2	schedule for each building to ensur	·d		
4Ö_	1 3	-	that all components of the specific	<del>. ]</del>	<del> </del>	<del>                                     </del>
			building operate at maximum efficie	ncv		
		<del> </del>	Consult manufacturers literature for	)h	<del> </del>	
			duidance in establishing a maintens	ince		
	+	<u> </u>	guidance in establishing a maintena schedule.	Times	<del> </del>	
			Adjust domestic water supply to 100	) F		
49	6	1	for all except special requirements	5		
			(dishwasher supply units, etc.).			
					<u></u>	

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.

ZÖ	implemente	d. This sec	tion of the mini-audit report should be completed by the mini-audit	team during OPTIONAL:		
ITEM	CLASSIF	ICATION O.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
50	6	2	The burner system of fossil-fuel wate heaters should be kept clean and in	r		
			good operating condition.			
	<del></del>		Periodically drain and remove the	<b> </b>		
51	6	2	sediment from the water heater.			
52	6	4	Consider heat recovery from paint booth exhaust. Install toilet flush valve kits			
53	6	5	Install toilet flush valve kits 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.	<u> </u>	<u> </u>	
56	7	4	Turn off gas pilots for furnaces,			
30	+ '-	-	boilers, and space heaters during the non-heating months and during long	ile		
	+		unoccupied periods.	ļ	<u> </u>	
57	7	4	Keep all heat exchanger surfaces clean. Check air-to-fuel ratio and			
			adjust as necessary.			
			·			
				1		
-		<u> </u>				
				1		

## **MINI-AUDIT REPORT**

A	BUILDING NAME		NAME OF ORGANIZATION	DATE
A	Rescue Station		City of Bloomington	5-23-80
	BUILDING ADDRESS		ADDRESS	
1	2315 West 102nd St.		2215 West Old Shakopee Roa	ad
_	CITY	ZIP CODE	CITY	ZIP CODE
AC.	Bloomington, Mn	55431	Bloomington, MN	55431
CONTACT	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
80	Randy Smith	(612) 935-6901	Arthur Jensen	(612) 881-5811

ZF	PERSON COMPLETING FORM	TELER	PHONE (	CONTACT PERSON		TELEPHONE
CON DAT	Randy Smith	(612)	935-6901	Arthur Jense	n	(612) 881-5811
B	Instructions: For blocks 1 and 2 check the bo describes the building type and then within					n of the four categories
	1. OWNERSHIP TYPE XXX Public (PUB)  Non-Profit Association (NAP)	За.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	c. LOCAL GOVERI Office Storage Service Library	NMENT (LOCG-OFFC) (LOCG-STRG) (LOCG-SERV) (LOCG-LBRY)
ODE	2. ULTIMATE OWNER  □County (CNTY)  XXICity (CITY) □Township (TOWN)		□Vocational □Education Age □Administration □OTHER		□Police □Fire X <b>X</b> OTHER	(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>b</b> .	PUBLIC CARE  Nursing Home  Long Term Ca  Rehab. Facility  Public Health (  Res. Child Car	re (PBCR-TERM) (PBCR-RHAB) (Ctr. (PBCR-HCTR)	d. HOSPITALS  General  Tuberculosis  OTHER	(HOSP-GENL) (HOSP-TUBR) (HOSP-OTHR)
C	Instructions: With reference to page 23 entit just Federal funding, then answer the questi					
	If eligible for both Federal and State Fundin Have you received a mini-audit grant befo Have you previously applied for mini-audi Do you wish to apply for mini-audit fundi	re? 17 y t funding?	YXXYes □ No			
	Date:					
	Name:	***************************************		de service de la constante de		
	Signature:					

Date:	
Name:	4
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 she	

PUNDIADITA DIAGRAM DIA

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U	Check the type of energy report which was completed and submitted p	rior to this mini-audit report.
EPORT F	☐ 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, debuilding energy report, form EN-00041-01.	report, one must be included with this report. Elementary, secondary, and epending 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 sare completed. All blanks must be filled in.	d professional engineer or by a certified mini-auditor who has successfully lection should be completed after this mini-audit report and an energy report
	corrected any misinformation on the energy report which will be resub	
	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	
	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 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.	nance procedures listed in section K did not save at least (did, did 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
	and other criteria.	should not
	Based upon the information in section E and the information referred to in undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources) (should, should	undergo further analysis of the renewable resources — waste,
	In my judgement, as a mini-auditor, all of the above statements are tru	,
	, ,	
		Witnessed by:
	B 1 2 1 1 1	Williessed by.
	Randy Smith Mini-Auditor's Name (Prigt or Type)	Building Organizational Authority (Print or Type)
	Candy Sulte 206	
	Signature	Signature
	Rieke Carroll Muller Assoc., Inc.	Date
	P.O. Box 130 Hopkins, MN 55343	54.0
	(612) 935-6901	
	Phone 5-23-80	
	<u>5-23-80</u> Date	
T.		
Ex	i e e e e e e e e e e e e e e e e e e e	
MINI-AUDIT STATEMENTS		

<del></del>	
	NAME POSITION ORGANIZATION
"	Randy Smith Certified Mini-Auditor Rieke Carroll Muller Assoc., Inc.
1	The state of the s
1	Reinert Ege Maintenance Engineer City of Bloomington
1	Kerner Ege Particelance Engineer City of Broomington
1	
Es	
AUDIT	
	· · · · · · · · · · · · · · · · · · ·
G	BRIEF DESCRIPTION OF GENERAL BUILDING CONDITION (i.e. type, and function)
	Good. Storage of Rescue Vehicles  MAJOR CHANGES PLANNED WITHIN NEXT 15 YEARS (i.e. demolition, rehabilitation, conversion from one building type to another)
	MAJOR CHANGES PLANNED WITHIN NEXT 15 YEARS (i.e. demolition, rehabilitation, conversion from one building type to another)
Z	None
BUILDING INFORMATION	STRUCTURAL COMPONENTS OF ROOF (i.e. metal beams, wooden rafters, concrete)
ZX	Metal Beams
를입	ROOFING MATERIAL (i.e. tar and gravel, shingles, tile)
ã≧	Tar and Gravel
	INSTRUCTIONS: Correctly answer the following questions for the building being mini-audited.
$ \mathbf{H} $	
	Is there open land adjacent to the building? ☐ Yes ★#No
	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.?
1 1	Roof: XAXYes □ No
1 1	South facing Wall: Yes XXNo
	If the roof or wall are partly shaded, what percentage of the surface is unshaded?
1 1	% of roof unshaded % 20 %
1 1	70 of South Facility Wall utistiaded
	What is the overall shape of the building?  ☐ square XX rectangle ☐ H-shaped ☐ E-shaped ☐ other (specify)
1	Is the roof of the building flat or pitched?  X ♥ flat □ pitched
1	
	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 KDXNo
	What is the exterior facing material for the south facing wall? Stucco
	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.)  XD Yes   No
	If the space heating equipment is inside the huilding where is the sead of
	If the space heating equipment is inside the building, where is it located?  XX Ground Floor Basement Roof Other (specify)
A	Is the building's water heating equipment located within the building? (A no answer indicates the equipment is in a separate building.)
Ez	XX Yes No
	If the water heating equipment is inside the building, where is it located?
SOLAR POTENTIAL INFORMATION	XX Ground Floor Basement Other (specify)
155	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?
1751	19 the water healthy system a central system, does it consist of multiple units or is it a combination of the central and multiple units?

1	Instructions: Enter the total energy used of each fuel type for the base period and the year when there was a 20% or greater energy savings. Indicate the unit of measure. Enter the appropriate conversion factor from Appendix B to convert energy usage into Btu's. Be sure to enter the fiscal years of which the data applies. Refer to pages 7 and 15 for a complete explanation of this section.							
			BASE PERI	OD YEAR		Fiscal Year _		
	ENERGY TYPE	ENERGY USAGE		CONVERSION FACTOR		BTU USAGE		
-	Electricity			_				
	Fuel 1							
	Fuel 2		-	,				
	TOTAL							
			20% SAVING	GS YEAR		Fiscal Year _		
	ENERGY TYPE	ENERGY USAGE		CONVERSION FACTOR		BTU USAGE		
	Electricity							
Si	Fuel 1							
20% SAVINGS DATA	Fuel 2							
20% S	TOTAL							
J	Instructions: This section is to be co state the roughly estimated range of of the new mini-audit opportunitie percentages by the annual electrica	fthe percent of total e es listed in section L	lectrical and fuel o . Secondly, calcu	consumption which we late the range of ene	ould be saved resu	ulting from the im	plementation of all	
1	Check two boxes in each category							
	Range of Electrical Savings — XX  Range of Fuel Savings —		V.)4	□ 15% □ 20% □ 20% □ 20%	□ 25% □ 25%	• •	fy)	
2	Calculate ranges of energy and cos		7,4 10/0		25%	- other (spec	(iy)	
			Range of Elec	trical Savings				
	% Range	Annual Electrical Consumption	Range of Er Savings		Annual Ele Dollars S		ange of Electrical Dollars Savings	
	lower bound % x	8370 kwh	= 0	. kwh,%	× \$ 392	•	\$ <u>0</u>	
	to		to	to			to	
	upper bound % x	8370_ kwh	= 418.5	_kwh,5%	× \$ 392	<u>.87</u> =	\$ <u>19.64</u>	
3			Range of F	uel Savings				
	% Range	Annual Fuel Consumption	Range of Saving	s % Range	Annual Dollars S	Spent	Range of Fuel Dollars Savings	
	lower bound5 % x 2	25 <u>.2x10<sup>0</sup> Btu</u>	= 12 <u>.0X10</u>	_Btu,%	× \$ 594	<u>.51</u> =	\$ <u>29.73</u>	
SAVINGS	upper bound 10 % x 2	25 <u>.2x10<sup>6</sup> Btu</u>	= 25 <u>.6x10</u>	5 to to 8 Hu, 10 %	× \$_594	.51 =	\$ <u>59.45</u>	
SAVI	The mini-auditor is not responsible not fall between the roughly estimates			olementation of the er	ergy conservatio	n opportunities li	sted in section I do	

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.

CLASS   CLAS				OPTIONAL: OPTIONAL:					
CLASS CLASS	ITEM	_ N	10.	PAST ENERGY CONSERVATION ACTIONS	ENERGY	I COST	DATE OF IMPLEMENTATION		
		CLASS	CLASS		SAVINGS	SAVINGS			
					<del> </del>				
	······································								
					<del> </del>				
					<b>†</b>				
	****								
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			ļ						
			<b>†</b>			<b>†</b>			
						<del> </del>			
				•					
					-	<del> </del>			

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IEW IEW

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	implemented. This section of the mini-audit report should be completed by the mini-audit		OPTIONAL: OPTIONAL:			
ITEM	1 L N	SIFICATION NO. NEW MINI-AUDIT OPPORTUNITIES	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 above the			
3	2	1	ceilings if needed.			
			Insulate walls with rigid insulation			
4	2	8	on inside surfaces, or place loose			
			fill insulation in wall cavaties.			
			Inspect window closing and locing			
5	2	10	devices to insure a tight window.	ļ	<u> </u>	
c	2	10	Replace single glazed windows with			
6		10	double glazed thermopanes.			
7	3	1	Check the calibration of all con-			
	3	1	trollers and devices for proper settings and operations.			
<del></del>			Lower the supply air temperature			
8	3	1	for heating to the lowest point			, and the second
			necessary to provide minimum require	H		
			heating.	ľ	ĺ	•
			65°F maximum occupied, 60°F maximum			
9	3	1	unoccupied during the heating season			
			Inspect and lubricate			
10	3	3	bearings of fans.			
			Inspect fans for normal			
11	3	3	operation.	<u> </u>		
			Make sure that all fans, frequently			·
12	33	3	inoperative in unit heaters, fan			1
			coil units, and unit ventilators			
		<b> </b>	are running normally to increase			
			the heat transfer rate from heating			
		<b> </b>	Coils.	<del> </del>	-	<u> </u>
13	3	3	Inspect ductwork for air leakage. Seal all leaks by taping or caulking			
13	<del>  3</del>	-3-	Clean evaporator and condenser	<del>!                                    </del>	-	
14	3	3	coils of air conditioning units.			
<u> </u>		<u> </u>	Keep air intake louvers, filters	<u> </u>	<del> </del>	
15	3	3	and controls clear of air condition-	}		·
			ing units.			
			Instruct occupants and maintenance	<del>                                     </del>	<u> </u>	
16	4	11	personnel to switch off all lights			
			when they are not needed.			
			Clean fixtures	<b>†</b>		
_17_	4	3	and lamps regularly.	<del> </del>	<del> </del>	
10		_	Use lower wattage lamps to provide			
18	4_	4	the necessary illumination.	<u> </u>		

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.

20	implemented. This section of the mini-audit report should be completed by the mini-audit		OPTIONAL: OPTIONAL:			
ITEM	CLASSIFICATION NO		CLASSIFICATION NO NEW MINI-ALIDIT OPPORTUNITIES		ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS	NEW MINI-RODIT OFFORTUNITIES	ENERGY SAVINGS	SAVINGS	DATE OF IMPERIMENTATION
			Allow part of a lighting system to			
19	4	4	be turned off, while maintaining			
			the necessary light.			
	_		Keep records of the operating			
20	5	1	schedule, monthly energy consumption			
			and purchase of any new equipment that affects energy consumption			
			of efficiency of the building.	<del> </del>		,
			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			
		_	The burner system of fossil-fuel			
22	6	2	water heaters should be kept clean			
			and in good operating			
	-		Class six sides remove seet and	<b> </b>		` .
23	7	3	Clean air-sides, remove soot, and scrape scale in forced warm air	1		
	1	_ 3	furnaces.			
			Maintain the lowest possible hot			
24	7	4	water temperatures which will			
	1	4	meet domestic hot water needs.	<del>                                     </del>	<b></b>	
			meet domestre not water needs.			
			Clean fileters regularly in			
25	7	4	forced warm air units to reduce the			
			operating time of the furnace.			
	1		Turn off gas pilots for furnaces	<u> </u>		
26	7	4	boilers and space heaters during			
	1		the non-heating months and during			
			long unoccupied periods.	<u> </u>		
27	,	1	Keep all heat exchanger surfaces			
27	+	4	clean. Check air-to-fuel ratio and adjust as necessary on unit heaters.	<del> </del>	<del> </del>	
			dajust as necessary on unit heaters.			
•	_		Follow guidelines suggested for fan			
_28	<del>  7</del>	4	and motor maintenance.	<b></b>	ļ	
20	-	1	Inspect casing for air leaks and			
29		4	seal as necessary on unit heaters.			
				-		
				<b>†</b>		
		<u> </u>				

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

	1. OWNERSHIP TYPE X₩Public (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)
CODE	2. ULTIMATE OWNER  County City Township	(CNTY) (CITY) (TOWN)		□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)
ELIGIBILITY C	☐ State ☐ Public School ☐ Private School ☐ Non-Profit Association ☐ Indian Tribe	(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? III Yes XXX No Have you previously applied for mini-audit funding? XXX Yes  No Do you wish to apply for mini-audit funding?  YXX 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.)
ĺ	
JEST	
REGI	Date:
MINI-AUDIT FUNDING REQUEST	Name:
N N	Signature:

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.						
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.						
Based upon my observation of the physical characteristics of this building and the building's major energy using systems, I recommend that thiShould_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 buildingShould_not (should, should not)						
undergo further solar conversion analysis, and/or <u>Should not</u> 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 (Frint or Type)  Building Organizational Authority (Print or Type)  206						
Signature Signature						
Rieke Carroll Muller Assoc., Inc.						
P.O. Box 130 Hopkins, MN 55343 Address						
(612) 935-6901						
5-23-80						
Date						

	NAME	POSITION	ORGANIZATION
		. 5551	
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
<b>-</b> -		·	
AUDIT			
G	BRIEF DESCRIPTION OF GENE	RAL BUILDING CONDITION (i.e. type, and funct	ion)
	Good, Art Scho		ation, conversion from one building type to another)
z	None	WITHIN NEXT 15 TEARS (i.e. demontion, reliability	ation, conversion from one building type to another)
BUILDING INFORMATION	STRUCTURAL COMPONENTS	OF ROOF (i.e. metal beams, wooden rafters, conc	rete)
DEN	Wooden Rafters ROOFING MATERIAL (i.e. tar ar		
BUI	Tar and Gravel	-	
H	INSTRUCTIONS: Correctly answ	ver the following questions for the building being	mini-audited.
	Is there open land adjacent to the XXYes □ No	ne building?	
	Solar collectors need to be locate	d in an unshaded area. Is the roof of the building and	d the south facing wall unshaded between the hours of 9 a.m. and
	3 p.m.? Roof: XCX Yes □ No South facing Wall: □ Yes X	X No	
	If the roof or wall are partly shad	ded, what percentage of the surface is unshaded?	
	% of roof unshaded % of south facing wall unshad	ed%	
	What is the overall shape of the □ square \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	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?	
		t the roof makes with horizontal?	
:		the roof such as chimneys, rooms for mechanical	equipment, ventilating units, water towers, etc?
'	What is the exterior facing mate	rial for the south facing wall? Concre	te Bolck
	What percentage of the south fa	icing wall is glass? %	
	Is the building's space heating €	equipment located within or on the building? (A ne	o answer indicates the equipment is in a separate building.)
	If the space heating equipment XX Ground Floor ☐ Baseme	is inside the building, where is it located? ent □ Roof □ Other (specify)	
SOLAR POTENTIAL INFORMATION	Is the building's water heating e	equipment located within the building? (A no answ	ver indicates the equipment is in a separate building.)
R POTI	If the water heating equipment i	is inside the building, where is it located? ent DOther (specify)	
SOLA	Is the water heating system a ce XX Central ☐ Multiple ☐ (	entral system, does it consist of multiple units, or Combination	is it a combination of the central and multiple units?

	unit of measure. Enter the appropr	used of each fuel type for the base perioc riate conversion factor from Appendix I ages 7 and 15 for a complete explanation	B to convert energy usage into Btu's.	
		BASE PERIO	OD YEAR	Fiscal Year
;	ENERGY TYPE	ENERGY USAGE	CONVERSION FACTOR	BTU USAGE
	Electricity			
	Fuel 1			
	Fuel 2		,	
	TOTAL			
		20% SAVING	GS YEAR	Fiscal Year
	ENERGY TYPE	ENERGY USAGE	CONVERSION FACTOR	BTU USAGE
	Electricity			
	Fuel 1			
SAVINGS	Fuel 2	,		
20% S	TOTAL			
J 1	state the roughly estimated range o of the new mini-audit opportunitie	<b>(</b> 0% <b>)</b> 5% □ 10% □	onsumption which would be saved resulate the range of energy and cost say	ulting from the implementation of all
	Range of Fuel Savings —	J 0% XX 5% XX 10% □	15% 20% 25%	Oother (specify)
2	Calculate ranges of energy and co	st savings —		
		Range of Elect	trical Savings	
	% Range	Annual Electrical Range of En Consumption Savings		
	lower bound % x	61380 kwh = 0	kwh,0 % x \$3368	•
	to	to	to	to
	upper bound $\frac{5}{}$ % x	$\underline{61380}_{\text{kwh}} = \underline{3069}$	kwh, 5 % x \$3368	<u>.66</u> = \$ <u>168.43</u>
3		Range of Fo	uel Savings	
	% Range	Annual Fuel Range of F Savings $59.3 \times 10^{6}$ Btu = $34.7 \times 10^{5}$		Spent Dollars Savings
GS	upper bound $\frac{10}{0}$ % x	$69.3 \times 10^6$ Btu = $69.3 \times 10^5$	5 Btu, 10 % x \$ 164	8.04 = \$\frac{164.80}{200}

The mini-auditor is not responsible if actual savings resulting from the implementation of the energy conservation opportunities listed in section I do not fall between the roughly estimated ranges which are specified.

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

Note Reproduce this page as necessary

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7	a

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 opportunity should be commendation, 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	CLASSIFICATION				OPTIONAL	
ITEM NO.	MAJOR	O. SUB	NEW MINI-AUDIT OPPORTUNITIES		ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	CLASS	CLASS			<u> </u>	
1	1	1	Keep all controls free of dust.			
2	2	1	Check the amount of insulation			
2	2	1	in the ceiling.		<u> </u>	
3	2	1	Add insulation above the			
		<del>} -</del> -	ceilings if needed.		<del></del>	
4	2	2	Weatherstrip all exterior doors including garage or delivery doors.			
	<b></b>		Replace an existing door with one			
5	2	2	of a higher R-value.			
			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.		<u> </u>	
			Replace single glazed windows with			
_8	2	10	double glazed thermopanes.			
_	_		Check the calibration of all			
9_	3	1	controllers and devices for proper			
			settings and operations.			
10			Raise the supply air temperature			
10	3	1	for cooling to the highest point	ļ		
			necessary to provide minimum			
		<del>                                     </del>	required cooling.	<u> </u>	<del> </del>	
11	3	1	Lower the supply air temperature for heating to the lowest point			
	<del>                                     </del>	┝╼╧──	necessary to provide minimum re-	<del> </del>		
			reguired heating.			
	+	<u> </u>	65°F maximum occupied, 60°F maximum	<del>                                     </del>	<del>                                     </del>	
12	3	1	unoccupied during the heating season			
	1	<b>1</b>	78°F minimum when occupied and no	•		
13	3	1_1	cooling when unoccupied during the			
			cooling season.			
				<u> </u>		
			Clean and remove obstructions from			
14	3	2	all room air outlets and inlets			<u> </u>
	}		(diffusers, registers and grillers).	,		
		<del> </del>	They should be kept clean and free		<b> </b>	
			of all dirt and foreign materials.			
			Check for excessive noise and		<u> </u>	
15	3	3	vibration in fans. Determine			
			cause and correct as necessary.			
	1		Inspect and lubricate bearings of			
_16_	3	3	fan motors.	<u> </u>		
			Inspect fans for			
_17	3	3	normal operation.	<b></b>	<b></b>	
10			Keep condenser coil face clean to			
18	3	3	permit proper air flow.		<u></u>	

NEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine and 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-addit report should be completed by the mini-addit		ONAL: OPTIONAL:			
ITEM	CLASSIFICATION NO		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY	DATE OF IMPLEMENTATION		
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS			
	1 02/100	OLAGO	Inspect ductwork for air leakage.					
19	3	3	Seal all leaks by taping or caulking	}				
			Inspect damper blades and linkages,		······································			
20	3	3	Clean, oil and adjust.					
			Clean or					
21	3	3	replace filters periodically.					
00	1.		Instruct occupants and maintenance					
22	4	1	personnel to switch off all lights	ļ				
			when they are not needed.					
			Clean fixtures					
23	4	3	and lamps regularly.					
			Use lower wattage lamps to provide					
24	4	4	the necessary illumination.		<b></b>			
0.5	١.		Allow part of a lighting system	Ì				
25	4	4	to be turned off, while maintaining					
		}	the necessary light.					
			Keep records of the operating	<b>†</b>				
_26	5	1	schedule, monthly energy consumption					
			and purchase of any new equipment					
			that affects energy consumption	<u> </u>				
			of efficiency of the building. Thes	i <b>e</b>				
			records will indicate the impact	-				
			of energy conservation measures.					
			Review					
27	5	11	the record books on a regular basis.		<u> </u>			
2.0			All electric heating equipment					
_28	6	2	should be checked for corroded	<del> </del>	<b></b>			
			elements and loose connections and					
		<del> </del>	repaired as required. Clean air-sides, remove soot, and	1	<del> </del>			
29	7	٦	scrape scale in forced warm air					
	1 /		furnaces.	<u> </u>				
	-			<b></b>	ļ			
30	7	3	If the firing rate of gas or oil burners is too high, it causes					
30	+-'	- 3	short cycling and excessive fule	<del> </del>	<del>                                     </del>			
			consumption. Too low a rate require	es				
	1		constant operating and delivers	<del>                                     </del>	<u> </u>			
			inadequate heat to the spaces.					
			Maintain the lowest possible hot	†	1			
31	7	4	water temperature which will meet					
			domestic hot water needs.					
		-	Turn off gas pilots for furnaces,	-	<del> </del>			
32	7	4	boilers, and space heaters during					
<u></u> 	<del>                                     </del>	<del>                                     </del>	the non-heating months and during	<del>                                     </del>	<del> </del>			
			long unoccupied periods.					
<b></b>			1 1 2 2 1111 1 1 1 1 1 1 1 1 1 1 1 1 1		4	<u> </u>		

## MINI-AUDIT REPORT

A	BUILDING NAME Historical Museum		name of organization City of Bloomington	DATE 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, DATA	PERSON COMPLETING FORM Randy Smith (	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen	TELEPHONE 612) 881-5811

	1. OWNERSHIP TYPE  X Public (PUB)  Non-Profit Association (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	c. LOCAL GOVERNI Office Ostorage Oservice	(LOCG-OFFC (LOCG-STRG (LOCG-SERV
- 1	2. ULTIMATE OWNER  County (CNTY)  City (CITY)  Township (TOWN)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)	□Library □Police □Fire XXIOTHER	(LOCG-LBRY (LOCG-PLCE (LOCG-FIRE) (LOCG-OTHF
ELIGIBILI I 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
,	Instructions: With reference to page 23 enti just Federal funding, then answer the questi	led Fundir	ng Information, determin	e if the facilities are section must be sign	eligible for both Federal	and State funding or
	If eligible for both Federal and State Fundin Have you received a mini-audit grant befo	re? [1] V	<sub>ез</sub> <u>Х</u> Х No			
	Have you received a mini-audit grant before Have you previously applied for mini-aud Do you wish to apply for mini-audit funding Date:  Name:  Signature:	re?	XIX Yes □ No			
	Have you received a mini-audit grant before Have you previously applied for mini-aud Do you wish to apply for mini-audit fundi	re? [] Y t funding? ng?  Y	es No No	ecessary.)		
	Have you received a mini-audit grant before Have you previously applied for mini-audit Do you wish to apply for mini-audit fundit 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 fundit fundits.	re? [] Y t funding? ng?  Y	es No No	ecessary.)		
	Have you received a mini-audit grant before Have you previously applied for mini-audit Do you wish to apply for mini-audit fundit 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 fundit fundits.	re? [] Y t funding? ng?  Y re?  Y refunding? ng?  Y	es No No			

	Check the type of energy report which was completed and submitted p	prior to this mini-audit report.						
REPORT FF	☐ 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)							
ENERGY REPORT		report, one must be included with this report. Elementary, secondary, and lepending on building complexity. All other buildings should use the existing						
E		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						
	ive 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 rected 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 build	ling being audited.						
l	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 recommendal maintenance changes, and low cost energy conservation measures, where the contract of the c	tions listed in section I of this mini-audit report to be the operations and nich would reduce energy consumption in this building.						
	listed in section I. I am not responsible if the actual savings resulting f							
	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)						
	Based upon my observation of the physical characteristics of this build	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						
	Based upon the information in section E and the information referred to	in section F, I recommend that this buildingShould_not						
	undergo further solar conversion analysis and/or Should	not (should, should not)						
	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:						
	Randy Smith							
	Mini-Juditor's Name (Psint or Type)	Building Organizational Authority (Print or Type)						
	Signature 206	Signature						
		Signature						
	Rieke Carroll Muller Assoc., Inc.	Date						
	P.O. Box 130 Hopkins MN 55343							
	Address (612) 935_6001							
	(612) 935-6901 Phone							
	5-23-80							
	Date							
1 S 1 S 1								
MINI-AUDIT STATEMENTS								
ATE								
≥ N								

	T								
F	NAME	POSITION	ORGANIZATION						
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Mu	ller Assoc., Inc					
	Reinert Ege	Maintenance Engineer	City of Blooming	con					
T M									
AUDIT									
	BRIEF DESCRIPTION OF OF	NERAL RUIL DING CONDITION (i.e. have and fe							
G	Good	NERAL BUILDING CONDITION (i.e. type, and fu							
Z O	None	D WITHIN NEXT 15 YEARS (i.e. demolition, rehab		ing type to another)					
BUILDING INFORMATION	Wooden Rafters		oncrete)						
BUILD	ROOFING MATERIAL (i.e. tail		·						
Н	INSTRUCTIONS: Correctly a	nswer the following questions for the building bei	ng mini-audited.						
	Is there open land adjacent to ☐ Yes XX No	s there open land adjacent to the building?  □ Yes XX No							
	3 p.m.?	ated in an unshaded area. Is the roof of the building	and the south facing wall unshaded t	between the hours of 9 a.m. and					
	Roof: ∑X X es ☐ No South facing Wall: ☐ Yes	XX No							
	If the roof or wall are partly s % of roof unshaded % of south facing wall unsh	haded, what percentage of the surface is unshadonaded $\frac{\%}{1000}$ %	ed?						
	What is the overall shape of t □ square XX rectangle	he building? □ H-shaped □ E-shaped □ other (specify) _							
	Is the roof of the building flat	or pitched?							
	If pitched, what is the compa	ss orientation of the ridgeline? <u>North</u> - S	South						
	If pitched, what is the angle t	hat the roof makes with horizontal?70	•						
	Are there large obstructions o ☐ Yes XX No	on the roof such as chimneys, rooms for mechani		ter towers, etc?					
	What is the exterior facing m	aterial for the south facing wall?Stucce	)						
	What percentage of the south	facing wall is glass?%							
	Is the building's space heatin XXX Yes □ No	g equipment located within or on the building? (A	A no answer indicates the equipmen	nt is in a separate building)					
	If the space heating equipme ☐ Ground Floor XX Base	nt is inside the building, where is it located? ment □ Roof □ Other (specify)							
ENTIAL	Is the building's water heatin XXX Yes □ No	g equipment located within the building? (A no a	nswer 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? 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 centra	and multiple units?					

	Instructions: Enter the total energy used of each fuel type for the base period and the year when there was a 20% or greater energy savings. Indicate the unit of measure. Enter the appropriate conversion factor from Appendix B to convert energy usage into Btu's. Be sure to enter the fiscal years of which the data applies. Refer to pages 7 and 15 for a complete explanation of this section.									
		Fiscal Year								
	ENERGY TYPE	ENERGY	USAGE	CONVERSIO	N FACTOR	BTU USAGE				
	Electricity									
	Fuel 1				·					
	Fuel 2			;						
	TOTAL									
			20% SAVIN	IGS YEAR		Fiscal Year				
	ENERGY TYPE	ENERGY	USAGE	CONVERSIO	N FACTOR	BTU USAGE				
Ī	Electricity									
s	Fuel 1									
SAVINGS	Fuel 2									
20% S DATA	TOTAL									
J	Instructions: This section is to be completed by the mini-auditor after the walk-thru portion of the mini-audit. First, check the appropriate boxes will state the roughly estimated range of the percent of total electrical and fuel consumption which would be saved resulting from the implementation of the new mini-audit opportunities listed in section L. Secondly, calculate the range of energy and cost savings by multiplying the estimate percentages by the annual electrical and fuel consumption data on the energy report.									
1	Check two boxes in each categor	ry —								
,	Range of Electrical Savings —	<b>Ø</b> X <b>%</b> X <b>Ø</b> 5%	□ 10%	□ 15% □ <b>20</b> %	□ 25%	other (specify)				
	Range of Fuel Savings —	□ 0% XQ 5%	X <del>X</del> 10%	□ 15% □ 20%	□ 25% ————————————————————————————————————	other (specify)				
2	Calculate ranges of energy and cost savings —									
			Range of Ele	ctrical Savings						
	% Range	Annual Electrical Consumption	Range of E Saving	ys % Range	Annual Ele Dollars S	Spent Dollars Savings				
	lower bound $\frac{0}{x}$ %	20234 kwh	=	_ kwh,0 %	x \$ 833					
	upper bound $\frac{5}{}$ % x	20234 kwh	= 1011.	7 kwh,5_%	× \$ 833	.46 = \$ 41.67				
3			Range of	Fuel Savings						
	% Range	Annual Fuel Consumption	Range of Savin $_{\pm}$ $32.7 \times 10$		Annual Dollars S	Spent Dollars Savings				
	lower bound5 % x	65.5x10 Btu	<sub>=</sub> 32. <u>7x10</u>		× \$1454	<u>.63</u> = \$ <u>72.73</u>				
SAVINGS ESTIMATION	upper bound 10 % x	65.5x10 <sup>6</sup>	=65.6x10	5 to 10 %	× \$\frac{1454}{}	.63 = \$\frac{145.46}{145.46}				
SAVIA	The mini-auditor is not responsib not fall between the roughly esti			nplementation of the	energy conservation	on opportunities listed in section I do				

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 PAST ENERGY CONSERVATION ACTIONS DATE OF IMPLEMENTATION COST NO. MAJOR SAVINGS SUB SAVINGS CLASS CLASS Fall 1979 2 Added insulation in attic spaces. 1 1

Note Reproduce this page as necessary

NEW COPPORTINITIES

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			The first addit report should be completed by the first addit	OPTIONAL:		
ITEM	CLASSIF No		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.			
			Keep all doors between unheated			
2	2	2	corridors and heated spaces closed.			,
			Caulk all cracks that allow air			
3	2	8	and moisture into the building.			
			Inspect window closing and locking			
4	2	10	devices to insure a tight window.			
			Check operation of entire heating/			
5	3	1	cooling control system, including			
			control valves and dampers.			
			Check the calibration of all			
6	3	1	controllers and devices for proper			
			settings and operations.			
			Reduce the hours of occupancy to			
7	3	1	the greatest extent possible			
			during periods of severely cold			
			weather.			
			Raise the supply air temperature			
8	3	1 1	for cooling to the highest point			
			necessary to provide minimum			
			required cooling.			
			Lower the hot water temperature			
9	3	1	for heating to the lowest point			
			necessary to provide minimum			
			reguired heating.			
			65°F maximum occupied, 60°F maxi-			
10	3	1 1	mum unoccupied during the heating			
			season.			
			78°F minimum when occupied and			
11	3	1	no cooling when unoccupied during			
			the cooling season.			
			Provide atmospheric cooling			
12	3	1	as long as possible.			
			Keep radiators free from blockage.			
13	3	2	a one foot clearance in front of			
			convectors, radiators, or registers			
			is desirable. Heating systems,			
			particularly hot water of electric			
			baseboard radiators and low level	<u> </u>		
			warm air supply registers, work			
			more efficiently if they are not			
			blocked by furniture. Keep all			
		<u> </u>	books or other impediments from	<u> </u>		
			blocking heat or air delivery from			
			the top of horizontal shelves or			

NEW ODDO

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				OPTIONAL ENERGY	
NO.	MAJOR	NO. NEW MINI-AUDIT OPPORTUNITIES  CLASS CLASS		ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
	OLASS	CLASS	cabinets which enclose radiators,			
	1		fan coils, unit ventilators or			
			induction units.			
1.4	1		Vent all hot water radiators and			
14	3	2	convectors to assure that water will completely fill the interior			
			passages.			
			Clean and remove obstructions from	<b> </b>		
15	3	2	all room air outlets and inlets			
		<u>-</u>	(diffusers, registers and grillers).			
			They should be kept clean and free			
			of all dirt and foreign materials.			
1.0		2	Inspect fans for			
16	3	3	normal operation. Keep condenser coil face clean	<del> </del>		
17	3	3	to permit proper air flow.			
	1 3	<u> </u>	Inspect ductwork for air leakage.		<u> </u>	
18	3	3	Seal all leaks by taping or caulking			
	-		Inspect damper blades and linkages.	1		
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, re-			
			place or provide blade edge gaskets	<u> </u>		
			and gasketing at the end of blades.			
21	3	3	Clean or replace filters periodically.			
	1 3	3	Instruct occupants and maintenance	<u> </u>	<del> </del>	
22	4	1	personnel to switch off all lights			
			when they are not needed.			
00			Clean fixtures			
23	4	3	and lamps regularly. Use lower wattage lamps to provide	<b>-</b>	ļ	
24	4	4	the necessary illumination.			
<u> </u>	+		Allow part of a lighting system to	<del> </del>		
25	4	4	be turned off, while maintaining			
		<u>'</u>	the necessary light.			
			Keep records of the operating			
26	5	1	schedule, monthly energy consumption		<u> </u>	
			and purchase of any new equipment			
	-	<b> </b>	that affects energy consumption of	<b> </b>	<u> </u>	
	1		efficiency of the building. These			
<del></del>		<del> </del>	records will indicate the impact of	-	<b></b>	
			energy conservation measures.		1	

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¥	PPORTU

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.

N O			optional: Optional:			
ITEM	CLASSIFICATION NO. NEW MINI-AUDIT OPPORTUNITIES		ENERGY	ENERGY COST	DATE OF IMPLEMENTATION	
NO.	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
27		1	Review the record			
27	5	1	books on a regular basis.			
28	6	2	All electric heating equipment should			
20	- 0		be checked for corroded elements			
		'	and loose connections and repaired	}		
	<u> </u>	ļ	as required.		×	
29	7	3	If the firing rate of gas or oil burners is too high, it causes			
23	+-'-	3	short cycling and excessive fuel	<del> </del>		
			consumption. Too low a rate requires			
<del></del>			constant operating and delivers	<b>†</b>		
			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	7	4	needed basis rather than on a fixed			
	<del>  '-'-</del>	<del></del>	timetable. Smaller, more frequent	<del>                                     </del>		
			blowdown is preferable to larger,			
			less frequent blowdown.			
			Maintain the lowest possible hot			
31	7	4	water temperature which will meet		ļ	
			space or domestic hot water needs.	<b>†</b>		
			space of domestro not water needs.			
22	7	,	If there are no indoor-outdoor mod-			
32	+-/	4	ulating controls, raise or lower	<del> </del>	ļ	
			the operating temperature of hot			
			water systems to conform to outdoor			
			a hoiler at 1200 F with outdoor			
			conditions. For example, operate a boiler at 120°F with outdoor temperature at 60°F, and raise the			
_		1	level to 160°F when it is 20°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			
			level of the building.			
			Turn off gas pilots for furnaces,		<del> </del>	
34	7	4	boilers, and space heaters during		<u> </u>	
			the non-heating months and during			
	<del></del>		long unoccupied periods.		ļ	
,						
				<del>                                     </del>		

# **MINI-AUDIT REPORT**

A	BUILDING NAME Fire Station #1	and the second second second second second second second second second second second second second second seco	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	PERSON COMPLETING FORM Randy Smith	TELEPHONE (612) 935-6901	contact person Arthur Jensen (	TELEPHONE 612) 881-5811

В	Instructions: For blocks 1 and 2 check the box v describes the building type and then within the						ne four categories	
	1. OWNERSHIP TYPE  XXPublic (PUB)  □Non-Profit Association (NAP)	За.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ. □ Vocational	(SCHL-ELM) (SCHL-SECD) (SCHL-POST) (SCHL-VOCL)	C.	LOCAL GOVERNMEN  Office Ostorage Service Ulibrary	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV) (LOCG-LBRY)	
CODE	2. ULTIMATE OWNER  □County (CNTY)  (CITY) □Township (TOWN)	b.	□Education Agency □Administration □OTHER  PUBLIC CARE	(SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		Police XFire DOTHER	(LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)	
BUILDING ELIGIBILITY CODE	□State (STAT) □Public School (PUSC) □Private School (PRSC) □Non-Profit Association (NPAP) □Indian Tribe (INDN)	U.	□ 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 just Federal funding, then answer the questions	Fundi	ng Information, determine ctly for the situation. This s	if the facilities are section must be sig	eligil ned a	ole for both Federal and 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:	nding?	<sup>γ</sup> Λ⊠,yes □No					
	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 f	nding?	Yes No	cessary.)				
EST								
EOL	Date.							
NG R	Name:							
MINI-AUDIT FUNDING REQUEST	Signature:							
2 11								

D	Check the type of energy report which was completed and submitted pr	rior to this mini-audit report.
1	☐ Elementary School Energy Report (Form No. ED-00444-02)	
FPO	☐ Secondary School Energy Report (Form No. ED-00445-02)  XX Existing Building Energy Report (Form No. EN-00041-01)	
ENERGY REPORT CHECK-OFF		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 sare 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 resub-	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 buildi	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	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	
	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)
		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)	and the canding of major one gy as mg cystems.
	I realize that this is not a final judgement, that the State reserves the right to 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 in	n section F, I recommend that this building Should not (should, should not)
	undergo further solar conversion analysis, and/or should no	(should, should not)  Otundergo 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.
		Witnessed by:
	B 1 0 111	······································
	Randy Smith Mini-Applitor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Canaly Suits 206	
	Signature /	Signature
	Rieke Carroll Muller Assoc., Inc.	Date
	P.O. Box 130 Hopkins, MN 55343	Date
	Address	
	(612) 935-6901	
	Phone 5-17-80	
		1
		<i>i</i> <i>i</i>
TS		
MINI-AUDIT STATEMENTS		

F	NAME	POSITION	ORGANIZATION
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Randy Siliton	certified Mini-Additor	Rieke Carrott Mutter Assoc., Inc.
	Reinert Ege	Maintenance Foreman	City of Bloomington
AUDIT			
AE			
			,
G		ENERAL BUILDING CONDITION (i.e. type, and	
-		and storage of fire vehicl	es habilitation, conversion from one building type to another)
_	None	D WITHIN NEXT TO TEXTIO (I.e. demontor, for	abilitation, conversion from one ballating type to another)
BUILDING INFORMATION		TS OF ROOF (i.e. metal beams, wooden rafters,	concrete)
MA	Metal Trusses		
FOL	ROOFING MATERIAL (i.e. ta	- · · · · ·	
∞ ≥	Tar and Gravel		
H	INSTRUCTIONS: Correctly a	answer the following questions for the building t	being mini-audited.
	Is there open land adjacent t ☐ Yes X 🕅 No	o the building?	
	****	cated in an unshaded area. Is the roof of the buildi	ing and the south facing wall unshaded between the hours of 9 a.m. and
	3 p.m.?		
	Roof: XXYes Q No South facing Wall: XX Yes	s 🗆 No	
	If the roof or wall are partly	shaded, what percentage of the surface is unsha	aded?
	% of roof unshaded % of south facing wall uns	% haded %	
	What is the overall shape of		
	XX square □ rectangle	☐ H-shaped ☐ E-shaped ☐ other (specify)	)
	Is the roof of the building fla  X  In the roof of the building fla  X  In the roof of the building fla	t or pitched?	
		ass orientation of the ridgeline?	
	_	that the roof makes with horizontal?	
	Are there large obstructions XX Yes □ No	on the roof such as chimneys, rooms for mecha-	anical equipment, ventilating units, water towers, etc?
	What is the exterior facing m	naterial for the south facing wall?	Face brick
	What percentage of the sout	h facing wall is glass?%	
	Is the building's space heating	ng equipment located within or on the building?	? (A no answer indicates the equipment is in a separate building.)
		-	
	If the space heating equipmed Ground Floor A Base	ent is inside the building, where is it located? ement XX Roof DOther (specify)	
NTIAL	ls the building's water heatin XIX Yes □ No	ng equipment located within the building? (A no	o-answer indicates the equipment is in a separate building.)
SOLAR POTENTIAL INFORMATION	If the water heating equipme	ent is inside the building, where is it located? ement D Other (specify)	
SOLA	Is the water heating system X ♥ Central □ Multiple	a central system, does it consist of multiple uni	ts, or is it a combination of the central and multiple units?

ŀ	which the data applies. Refer to pa		BASE PE	RIOD YEA	AR		Fiscal Year	
ŀ	ENERGY TYPE	ENERGY		T	CONVERSION F	ACTOR		TU USAGE
-	Electricity	,						
	Fuel 1							
Ī	Fuel 2			1				
ľ	TOTAL	······································	4.0					
			20% SAV	INGS YEA	R		Fiscal Yea	
	ENERGY TYPE	ENERGY	USAGE		CONVERSION F	ACTOR		BTU USAGE
	Electricity							
s	Fuel 1							
20% SAVINGS DATA	Fuel 2							
20% S DATA	TOTAL							
J 1	Instructions: This section is to be constate the roughly estimated range of the new mini-audit opportunities percentages by the annual electrical Check two boxes in each category Range of Electrical Savings — Range of Fuel Savings —	of the percent of total es listed in section l cal and fuel consum / —	electrical and fu L. Secondly, ca	el consum lculate the	ption which wou e range of energ	ld be saved res	ulting from the vings by multi	implementation of all
2	Calculate ranges of energy and co	ost savings —						
			Range of E		avings			<b>_</b>
	% Range lower bound $\frac{0}{x}$ % x	Annual Electrical Consumption 87120 kwh	Range of Savi		% Range	Annual Ele Dollars S \$ 3187	Spent	Pange of Electrical Dollars Savings
	upper bound 5 % x	87120 kwh	= <u>4356</u>	o kwh, _	5 % x	\$ 3187	<del>7.93</del> =	\$ 159.40
3			Range	of Fuel Sav	rings			
	% Range lower bound $\frac{5}{6}$ x $\frac{16}{6}$	Annual Fuel Consumption 8.6x10 Btu		of Fuel ings LO <sup>5</sup> Btu,	% Range 	Annual Dollars \$_41		Range of Fuel Dollars Savings \$\frac{207.93}{}\$
GS ATION	to to upper bound 10 % x 10	8.6x10 <sup>7</sup>	= 18 <u>.6x</u>	°_6	10 to	// 1/	58.57	to 415.86

The mini-auditor is not responsible if actual savings resulting from the implementation of the energy conservation opportunities listed in section I do not fall between the roughly estimated ranges which are specified.

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: OPTIONAL:			
ITEM NO.	N	Ю.	PAST ENERGY CONSERVATION ACTIONS	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION	
NO.	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS		
				<u> </u>			
	<b>_</b>						
				<del> </del>			
				<del> </del>			
				<u> </u>	<del> </del>		
				1			
				1			
	<u> </u>			<u> </u>			
		<u> </u>		<b>+</b>			
	1	1					

Note. Reproduce this page as necessary

# VEW DPDORTHNITIES

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	CLASSIF				ENERGY	
NO.	MAJOR	SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	COST	DATE OF IMPLEMENTATION
	CLASS	CLASS			0	
1	1	-	Voor all controls from of dust			1
1	<u> </u>	1	Keep all controls free of dust.			
2	1	1	Check the amount of insulation in			
	1	1	the ceiling.			
2			Add insulation above suspended			·
3	2	1	ceilings if needed.			
4		_	Weatherstrip all exterior doors			
4	2	2	including garage doors.			
E		_	Inspect the roof and seal all cracks			
5	2	6	that allow outdoor air and water to			
			enter.	,		·
	<b>+</b>		Insulate walls with rigid insula-			
6	2	8	tion on inside surfaces.			
<u>_</u> _	<del> </del>		Inspect window closing and locking		<del>                                     </del>	
7	2	10	devices to insure a tight window.	·		
<del></del>	<del>  -</del>	10	Repair broken or cracked windows.	<u> </u>		
8	2	10	Replace with standard or tempered			
	<u> </u>	10	glass of proper thickness, according	<u> </u>	1	
			to building code requirements.	1		
	<u> </u>		Replace single glazed windows with			
9	2	10	double glazed thermopanes.			
	<del>                                     </del>	10	Replace some windows with insula-		<del>                                     </del>	<del> </del>
10	2	11	tion wall panels.			
	<del></del>	**	Replace some skylights with insula-			
11	2	11	ting ceiling or roof materials.			
	1 -	_ <del></del>	Check operation of entire heating/	<b>-</b>		
12	3	1	cooling control system, including			
			control valves and dampers.	<b>†</b>		
			•			
			Check the calibration of all con-			
13	3	1	trollers and devices for proper			
			settings and operations.			
	<del></del>	<b></b>	When buildings are used after hours	<u> </u>		
14	3	1	for meetings, conferences, cleaning			1
	+ -	<del>  -</del>	or scattered activities, reduce	<del> </del>	<del>                                     </del>	
			the number of spaces occupied and,			
	1	<del> </del>	to the extent possible, consolidate	<u> </u>	<del> </del>	
			them in the same section of the			
	1		building. Reduce the temperature	<b>†</b>	<b>†</b>	
			in all other parts of the building.			
			Raise the supply air temperature	1	1	
15	3	1	for cooling to the highest point			
			necessary to provide minimum re-			
			quired cooling.			
			Lower the supply air temperature	1		
16	3	1	for heating to the lowest point			
			necessary to provide minimum	1		
			required heating.			
				-		

<b>E</b> 9	UNITIES
¥ W Z	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 youngo 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 N MAJOR		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION
140.	CLASS	CLASS		SAVINGS	SAVINGS	
			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			
18	3	1 1	ungccupied during the heating season			
	† <u> </u>		78°F minimum when occupied and no			
19	3	1	cooling when unoccupied during the			
	1		cooling season.			
			coofing scason.			
	<u> </u>		Clean and remove obstructions from			
20	3	2	all room air outlets and inlets			
	1 3					
			(diffusers, registers and grillers).			
	<del> </del>		They should be kept clean and free			
			of all dirt and foreign materials.			
	<u> </u>		Inspect and lubricate bearings			
21	3	3	of fan motors.			
	1 3	3	Inpsect drive belts. Adjust or re-	<b></b>	<u> </u>	
22	3	3				
	3	3	place as necessary to ensure proper			
			operation.			
			Inspect fans			
23	3	3	for normal operation.			
			Keep condenser coil face clean			
24	3 .	3	to permit proper air flow.			
			Inspect ductwork for air leakage.			
25	3	3	Seal all leaks by taping or caulking			
			Inspect damper blades and linkages.			
26	3	3	Clean, oil and adjust.			
			Take special note of fresh air			
27	3	3	damper's making sure that they close			
			tightly and be sure to repair,			
			replace or provide blade edge			
			gaskets and gasketing at the end of	1		
			blades.			
			Check belt tension and alignment		T	
28	3	3	on the air compressor.			
	I		Inspect air compressor intake		1	
29	3	3	filter pads and clean or replace			
			as necessary.	<b>†</b>		
	<b>†</b>	1	Check the compressor's	<b>†</b>	<del> </del>	
30	٦ ٦	3	oil level.			
	1	1	Periodically drain the		<u> </u>	
31	3	3	moisture from storage tank.			
JI	1 3	J	Clean evaporator and condenser	<del>                                     </del>	<u> </u>	
32	3	3				
34_	$+$ $^{-}$	+ 3	coils of air conditioning units.	1	<del> </del>	
22			Keep air intake louvers, filters and	4		
33	<u>        3                            </u>	3	<u>controls clear of air cond. units.</u>			1

EW EW

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Ζō	implemente	ea. I his sec	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:	-	-
ITEM		ICATION O.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB	NEW MINI-AUDIT OFFORTUNITIES	SAVINGS	SAVINGS	DATE OF IMPLEMENTATION
			Keep air flow			
34	3	3	from units unrestricted.			
٥.			Caulk openings between unit and			
35	3	3	window or wall frames.		ļ	
36		_	Insulate all			
30	3	6	piping and ductwork.			
37	4	1	Instruct occupants and maintenance			
- 37	+	┼-≛	personnel to switch off all lights when they are not needed.			
			when they are not heeded.			
			Clean windows			
38	4	2	and skylights.			
			Clean fixtures			
_39_	4	3	and lamps regularly.			
40			Replace lamps in groups before they			
40	4	3	burn out to maintain higher average			
			light output per fixture.			
		<u> </u>	Use lower wattage lamps to provide			
41	4	4	the necessary illumination.			
-11	+ -	<del>                                     </del>	Keep records of the operating		<b>-</b>	
42	5	1	schedule, monthly energy consumption			
	<del>                                     </del>	+ -	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.			
			Review the record			
43	5	1	books on a regular basis.			
			All insulation applied to a hot			
44	6	2	water system should be kept in			
			good condition.			·
			All electric heating equipment		<u> </u>	
45	6	2	should be checked for corroded	ļ	<u> </u>	
			elements and loose connections			
		<u> </u>	and repaired as required.		<u> </u>	ļ
11.0			Periodically drain and remove			
46	6	2	the sediment from the water heater.	<del> </del>	1	
47	7	3	Clean air-sides, remove soot, and			
<del>- 4</del> /		3	scrape scale in forced warm-air furnaces.			
			If the firing rate of gas or oil			
48	7	3	burners is too high, it causes			
		1	short cycling and excessive fuel	1	<b>†</b>	
			consumption. Too low a rate require	e b		
			constant operating and delivers in-			
			adequate heat to the spaces.			

EW EW

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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	
40	_		Maintain the lowest possible hot			
49	7	4	water temperature which will meet			
			domestic hot water needs.			
			Clean filters regularly in forced			, in the second
50	7	4	warm air units to reduce the oper-			
			ating time of the furnace.			•
		_	Keep all heat exchanger surfaces			
51	7	4	clean. Check air-to-fuel ratio			
			and adjust as necessary.		-	
		-	Inspect casing for air leaks and	<u> </u>		
52	7	4	seal as necessary.			
53	7	4	Follow guidelines suggested for fan and motor maintenance.			
	<u> </u>	<del></del>	Turn off gas pilots for furnaces,	<del> </del>		
54	7	4	boilers, and space heaters, during			
		· ·	the non-heating months and during	1		
			long unoccupied periods.			
				<u> </u>		
	<u> </u>					
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	<del> </del>					
			·		<u></u>	

### **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	Bloomington, MN	ZIP CODE 55431
CONTACT	PERSON COMPLETING FORM Randy Smith (	TELEPHONE 612) 935-6901	contact person Arthur Jensen (	TELEPHONE 612) 881-5811

1. OWNERSHIP TYPE X Public (PUB) Onon-Profit Association (NAP)	За.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ. □ Vocational	(SCHL-ELM) (SCHL-SECD) (SCHL-POST) (SCHL-VOCL)	C.	LOCAL GOVERNME ☐ Office ☐ Storage ☐ Service ☐ Library	(LOCG-OFF (LOCG-STRI (LOCG-SERV (LOCG-LBRY
2. ULTIMATE OWNER  □County (CNTY)  XMCity (CITY)  □Township (TOWN)		□Education Agency □Administration □OTHER	(SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Police Dirire □OTHER	(LOCG-PLCI (LOCG-FIRE (LOCG-OTH
☐ 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-GEN (HOSP-TUBI (HOSP-OTH
Instructions: With reference to page 23 entitle just Federal funding, then answer the question						
If eligible for both Federal and State Funding:					The dated by the nead o	T the organization.
Have you received a mini-audit grant before Have you previously applied for mini-audit to Do you wish to apply for mini-audit funding	o? [. y lunding?  ? □ Y	es XX No XX Yes □ No es XX No				
Date:	<del></del>					
Name:						
Cinnatura						
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 fundin The 50% match for Federal funds will come	funding? g? 🔲 \	Yes No	cessary.)			
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 fundin	funding? g? 🔲 \	Yes No	cessary.)			
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 fundin	funding? g? 🔲 \	Yes No	cessary.)			
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 fundin	funding? g? 🔲 \	Yes No	cessary.)			
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 fundin	funding? g? 🔲 \	Yes No	cessary.)			
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 fundin	funding? g? 🔲 \	Yes No	cessary.)			
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 fundin The 50% match for Federal funds will come	funding? g? 🔲 \	Yes No	cessary.)			
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 fundin	funding? g? 🔲 \	Yes No	cessary.)			

D	Check the type of energy report which was completed and submitted prior to this mini-audit report.
EPORT F	☐ 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.
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.
	Based upon my observation of the physical characteristics of this building and the building's major energy using systems, I recommend that this bould 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 <u>should not</u> (should, should not)  undergo further solar conversion analysis, and/or <u>should not</u> 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
	Witnessed by:
	Randy Smith Mini-Auditor's Name (Printyor Type) Building Organizational Authority (Print or Type)
	Randy Lutt 206
	Signature Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  Date
	P.O. Box 130 Hopkins, MN 55343
	(612) 935-6901
	5-17-80
	Date
TIC	
MINI-AUDIT STATEMENTS	
MIN	

	NAME	POSITION	ORGANIZATION
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Rienert Ege	Maintenance Engineer	City of Bloomington
AUDIT			
			F
G		ENERAL BUILDING CONDITION (i.e. type, a	
		s and Storage of fire vehi	CTES rehabilitation, conversion from one building type to another)
z	None	TO WITHIN NEXT TO TEXT (i.e. demonion,	tonabilitation, convolution from one building type to anothery
ATIO		ITS OF ROOF (i.e. metal beams, wooden rafte	ers, concrete)
BUILDING	Concrete Plar ROOFING MATERIAL (i.e. t	1K ar and gravel, shingles, tile)	
S N	Tar and Grave	- · · · · · · · · · · · · · · · · · · ·	
H	INSTRUCTIONS: Correctly	answer the following questions for the building	g being mini-audited.
	Is there open land adjacent  Yes XXNo	to the building?	
	Solar collectors need to be lo 3 p.m.? Roof: XX Yes \square No South facing Wall: XX Ye		ilding and the south facing wall unshaded between the hours of 9 a.m. and
		shaded, what percentage of the surface is un	shaded?
	What is the overall shape of XX square ☐ rectangle	the building?  ☐ H-shaped ☐ E-shaped ☐ other (spec	ify)
	Is the roof of the building fl XX flat □ pitched		
	If pitched, what is the comp	pass orientation of the ridgeline?	
	If pitched, what is the angle	that the roof makes with horizontal?	<u> </u>
	Are there large obstructions  Yes XXNo	s on the roof such as chimneys, rooms for me	chanical equipment, ventilating units, water towers, etc?
	What is the exterior facing	material for the south facing wall? Fac	e brick and wood
	What percentage of the sou	th facing wall is glass?%	
	Is the building's space heat XXYes □ No	ing equipment located within or on the building	ng? (A no answer indicates the equipment is in a separate building.)
	If the space heating equipm	nent is inside the building, where is it located? sement	
SOLAR POTENTIAL	Is the building's water heat XXYes □ No	ing equipment located within the building? (A	no answer indicates the equipment is in a separate building.)
R POTE	If the water heating equipm	nent is inside the building, where is it located? sement Other (specify)	
SOLA	Is the water heating system Central Multiple	a central system, does it consist of multiple of Combination	units, or is it a combination of the central and multiple units?

L				PERIOD YEA	AR		Fiscal Year			
	ENERGY TYPE	ENERGY USAGE			C	CONVERSION	FACTOR	BTU USAGE		
	Electricity						AND THE RESIDENCE OF THE PARTY			
	Fuel 1									
	Fuel 2				. ,					
	TOTAL					THE RESERVE THE PROPERTY OF THE PARTY OF THE	· · · · · · · · · · · · · · · · · · ·			
				20% SA	VINGS YEAR	R		Fiscal Ye	ar	
	ENERGY TYPE		ENERGY	USAGE		CONVERSION	FACTOR		BTU USAGE	
	Electricity					**************************************				
	Fuel 1		-							
	Fuel 2									
	TOTAL									
T	Instructions: This section is to be									
	state the roughly estimated range of the new mini-audit opportun percentages by the annual elect	of the perce ities listed in rical and fue	nt of tota	l electrical and f L. Secondly, c	uel consump alculate the	otion which wou range of ener	uld be saved res	sulting from th	e implementation of al	
	state the roughly estimated range of the new mini-audit opportun percentages by the annual elect Check two boxes in each category	of the perce ities listed in rical and fue ory —	ent of tota n section el consum	l electrical and f L. Secondly, c aption data on f	uel consump alculate the the energy r	otion which wou range of ener eport.	uld be saved res gy and cost sa	sulting from th avings by mul	e implementation of a ltiplying the estimated	
	state the roughly estimated range of the new mini-audit opportun percentages by the annual elect  Check two boxes in each categore  Range of Electrical Savings —	of the perce ities listed in rical and fue ory —	ent of tota n section el consum	l electrical and f L. Secondly, c aption data on f	uel consump alculate the the energy r	otion which wou range of ener eport.	uld be saved res gy and cost sa 25%	sulting from the avings by multings by multings by multings by multings by multings by the control of the contr	e implementation of a ltiplying the estimate specify)	
	state the roughly estimated range 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 perce ities listed in rical and fue ory — (Q) 0%	ent of total section all consum	l electrical and f L. Secondly, c aption data on f	uel consump alculate the the energy r	otion which wou range of ener eport.	uld be saved res gy and cost sa	sulting from the avings by multings by multings by multings by multings by multings by the control of the contr	e implementation of a ltiplying the estimate specify)	
	state the roughly estimated range of the new mini-audit opportun percentages by the annual elect  Check two boxes in each categore  Range of Electrical Savings —	e of the perce ities listed in rical and fue ory — (Q) 0%	ent of total section all consum	l electrical and f L. Secondly, c aption data on t 10%	uel consump alculate the the energy r	otion which would range of energeport.	uld be saved res gy and cost sa 25%	sulting from the avings by multings by multings by multings by multings by multings by the control of the contr	e implementation of a ltiplying the estimate	
	state the roughly estimated range 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 perce ities listed in rical and fue ory — (Q) 0%	nt of totan section all consum  XX 5%  XX 5%  ectrical	l electrical and f L. Secondly, c aption data on t  10% XX 10%  Range of Range of	uel consump alculate the the energy r	otion which would range of energeport.	□ 25% □ 25% □ Dollars	oulting from the avings by multiple of the control	e implementation of a ltiplying the estimate est	
	state the roughly estimated range 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 perceities listed in rical and fue ory —  (Q) 0%  0%  cost savings  Annual El Consum	nnt of totan a section of consum  XXX 5%  XXX 5%  ectrical iption	l electrical and f L. Secondly, c aption data on t  10%  XX 10%  Range of Range of Sav  = 0	uel consump alculate the the energy r 15% 15% Electrical Sa of Energy vings kwh,	20% 20% 20% Range	□ 25% □ 25% □ 25% □ 1462	other (s	e implementation of a litiplying the estimate specify)  specify)  Range of Electrica Dollars Savings	
	state the roughly estimated range of the new mini-audit opportun percentages by the annual elect.  Check two boxes in each category. Range of Electrical Savings — A Range of Fuel Savings — Calculate ranges of energy and — Range —	e of the perceities listed in rical and fue ory — (© 0% — 0% — cost savings — Annual Ei Consum — 36297	nnt of total as section all consum  XXX 5%  XXX 5%  ectrical aption kwh	l electrical and f L. Secondly, c aption data on t  10%  XX 10%  Range of Range of Sax  = 0  = 1814.	uel consumpalculate the the energy r  15% 15% 15% Electrical Sa of Energy rings kwh,	20% 20% 20% 4 Range to 5 %	□ 25% □ 25% □ 25% □ 1462	other (s	Range of Electrica Dollars Savings	
	state the roughly estimated range of the new mini-audit opportun percentages by the annual elect.  Check two boxes in each category. Range of Electrical Savings — A Range of Fuel Savings — Calculate ranges of energy and — Range —	e of the perceities listed in rical and fue ory — (© 0% — 0% — cost savings — Annual Ei Consum — 36297	AXX 5%  ACX 5%	electrical and f   L. Secondly, control data on the secondly of the secondly of the secondly of the secondly of the second of	uel consumpalculate the the energy rules 15%  15%  Electrical Sappar Energy rules 15%  kwh,	orion which would range of energe of	uld be saved res gy and cost sa  □ 25% □ 25% □ 25%  Annual Eli Dollars s 1462  Annual Dollars	other (s  control  co	Range of Electrica 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.

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

Note: Reproduce this page as necessary

VEW NEW NEW

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				OPTIONAL:	OPTIONAL	:
ITEM	CLASSIF	ICATION O.	NEW MINI ALIDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	SAVINGS	DATE OF IMPLEMENTATION
1	1	1	Keep all controls free of dust.			
_			Weatherstrip all exterior doors			
2	2	2	including garage doors.			
3	2	6	Inpsect the roof and seal all cracks that allow outdoor air and water to			
			enter.			
ļ						
4	2	6	Caulk the insulation on the roof.			
7	1	0	Insulate the roof areas			
5	2	6	if needed.			
			Insulate walls with rigid insula-			
6_	2	8	tion on inside surfaces, or place			
			loose fill insulation in wall			· · · · ·
			cavaties. Replace single glazed windows with	<b> </b>	<b></b>	
7	2	10	double glazed thermopanes.			
			Check operation of entire heating/			
8	3	11	cooling control system, including			
1			control valves and dampers.			•
1			Check the calibration of all con-			
9	3	1	trollers and devices for proper	ļ	<u> </u>	
			settings and operations.			
			Raise the supply air temperature	1		
10	3	11	for cooling to the highest point	ļ	ļ	
			necessary to provide minimum			
<u> </u>		<u> </u>	required cooling. Lower the supply air temperature	<u> </u>	<del> </del> -	
11	3	1	for heating to the lowest point			
			necessary to provide minimum			
		-	required heating.	ļ		
12	3	1	65°F maximum occupied, 60°F maximum ungccupied during the heating season			
	<del>                                     </del>	<del>                                     </del>	78 F minimum when occupied and no	<del> </del>	<b>†</b>	
13	3	1	cooling when unoccupied during the			
			cooling season.			
		<b>}</b>	Keep fan blades	<b>_</b>		
14	3	3	clear.			
15	3	3	Inspect and lubricate bearings of			
13	13	ا ا	fan motors. Inspect drive belts. Adjust or	<del>                                     </del>	<del> </del>	
16	3	3	replace as necessary to ensure			
			proper operation.			
1		<del> </del>	Inspect fans for		<u> </u>	
17	3	3	normal operation.		1	

IEW DOOD

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		NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
·····	CLASS	CLASS				
		_	Keep condenser coil face clean to			
18	3	3	permit proper air flow.			
			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, re-			
			place or provide blade edge gaskets			
			and gasketing at the end of blades.			7
0.1		-	Instruct occupants and maintenance			
21	4	11	personnel to switch off all lights			
			when they are not needed.			
22	Л	c				
	4	2	Clean windows and skylights.			
00	,	_	Clean fixtures			
_23	4	3	and lamps regularly.			
0.4			Use lower wattage lamps to provide			
24	4	4	the necessary illumination.			
	_		Allow part of a lighting system to			
25	44	4	be turned off, while maintaining			
			the necessary light.			
			Keep records of the operating			
26	5	1	schedule, monthly energy consumption			ļ
	<del>                                     </del>		and purchase of any new equipment		<b></b>	
						·
	<del> </del>		that affects energy consumption of		<b> </b>	
			efficiency of the building. These			
	<del> </del>		records will indicate the impact of			
			energy conservation measures.			
	<u> </u>		All insulation applied to a hot			
27	6	2	water system should be kept in good			
	-		condition.			
			The burner system of fossil-fuel			
28	6	2	water heaters should be kept clean			
			and in good operating condition.			
	<del> </del>	<b> </b>	All electric heating equipment shoul	<del> </del>	<del> </del>	
29	6	2	be checked for corroded elements	Γ	·	
	† <u> </u>	<del>-</del>	and loose connections and repaired	<del>                                     </del>	<del> </del>	
			as required.			
	†	<u> </u>	Periodically drain and remove		<b>†</b>	
30	6	2	the sediment from the water heater.			
50	+ -	<del>                                     </del>		<b>+</b>	<del> </del>	
31	7	3	Clean air-sides, remove soot, and			
<u> 1</u>	+	<del>                                     </del>	scrape scale in forced warm air	<del> </del>	+	
			furnaces.			
		<u> </u>		<u> </u>	<u></u>	

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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	implemente	d. This sec	tion of the mini-audit report should be completed by the mini-audit	team during OPTIONAL:		
ITEM	CLASSIF	ICATION O.	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
			If the firing rate of gas or oil			
32	7	3	burners is too hig, it causes short			
			cycling and excessive fuel consump-			
	ļ		tion. Too low a rate requires con-	<b></b>		
			stant operating and delivers in- adequate heat to the spaces.			
	-		Maintain the lowest possible hot	<del> </del>		
33	7	4	water temperature which will meet			
	<del>'</del>	Т	domestic hot water needs.	<del> </del>		
			domestre not water needs.			
			Clean filters regularly in forced			
34	7	4	warm air units to reduce the operati	ng		
			time of the furnace.	1		
			·			
			Turn off gas pilots for furnaces,			
_35_	7	4	boilers, and space heaters during	<u></u>		
			non-heating months and during long			
	<del> </del>		unoccupied periods.		ļ	
0.5		_	Keep all heat exchanger surfaces			
_36	<del>                                     </del>	4	clean. Check air-to-fule ratio	<del> </del>		
			and adjust as necessary.			
	<del>                                     </del>		Inspect casing for air leaks and	<del> </del>		
_37	7	4	seal as necessary.			
			Follow guidelines suggested for fan			
_38_	7	4	and motor maintenance of unit heater	's	<u> </u>	
	-			<del> </del>		
	<del> </del>			ļ		
	<del> </del>	<u> </u>		<del> </del>		
	+			<b></b>		
					-	
	1			-	<del> </del>	
		<u> </u>				

# MINI-AUDIT REPORT

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

B		structions: For blocks 1 and 2 scribes the building type and							our categories
	1.	OWNERSHIP TYPE  APublic (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 XXFire □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)

Instructions: With refe just Federal funding, th	ence to page 23 entitled Funding Inform en answer the questions correctly for the	eation, determine if the facilities are eligi e situation. This section must be signed a	ible for both Federal and State funding and dated by the head of the organization.
Have you received a Have you previously	eral and State Funding: mini-audit grant before? Yes X N applied for mini-audit funding? Yes of for mini-audit funding? Yes X N N	XXX No	
Date:			
Name:		makelegating and the colorages	
Signature:			
If eligible for Federal f Have you received a	mini-audit grant before?	П.,	
Do you wish to app	applied for mini-audit funding? ☐ Yes y for mini-audit funding? ☐ Yes ☐ N ederal funds will come from: (Use additi	No	
Do you wish to app	y for mini-audit funding? Yes N	No	
Do you wish to app	y for mini-audit funding? Yes N	No	
Do you wish to app	y for mini-audit funding? Yes N	No	
Do you wish to app	y for mini-audit funding? Yes N	No	
Do you wish to app	y for mini-audit funding? Yes N	No	
Do you wish to app	y for mini-audit funding? Yes N	No	
Do you wish to app	y for mini-audit funding? Yes N	No	
Do you wish to app The 50% match for f	y for mini-audit funding? ☐ Yes ☐ N ederal funds will come from: (Use additi	No onal sheets if necessary.)	
Do you wish to app The 50% match for f	y for mini-audit funding? Yes N	No onal sheets if necessary.)	

D	Check the type of energy report which was completed and submitted prior	r to this mini-audit report.
PORT	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02) (A) 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 vocational schools should use form ED-00444-02 or form ED-00445-02, depolution of the 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.	rofessional engineer or by a certified mini-auditor who has successfully tion 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 be 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, which	
	I have made a rough estimate, in section G, of the range of savings which is listed in section I. I am not responsible if the actual savings resulting from	
	Based on actual records, the energy conservation operating and maintena 20% of the building's energy consumption as specified in section I.	nce procedures 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 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 recommendation.	• • • • • • • • • • • • • • • • • • • •
	and other criteria.	nake the maxi-audit funding determination based on this mini-audit report
	Based upon the information in section E and the information referred to in s	ection F, I recommend that this building should not
	undergo further solar conversion analysis, and/orShould_no	(should, should not)
	wind, wood. (Circle proper resources) (should, should no	
1	In my judgement, as a mini-auditor, all of the above statements are true a	and correct.
		Witnessed by:
	Randy Smith Mini-Auditor's Name (Prigt or Type)	
	Mini-Auditor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Signature 2016	Signature
	Rieke Carroll Muller Assoc., Inc.	Signature
	Firm Name (if none, enter none)	Date
	PO Box 130 Hopkins, MN 55343	
	Address	
	(612) 935-6901	
	5-17-80	
1 1	Date	
	·	
(0)		
MINI-AUDIT STATEMENTS		
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F	NAME	POSITION	ORGANIZATION
	Randy Smith	Certified Mini Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Foreman	City of Bloomington
	Kerner trege	The first that the fi	
AUDIT		· · · · · · · · · · · · · · · · · · ·	
G	BRIEF DESCRIPTION OF G	ENERAL BUILDING CONDITION (i.e. type, and fun	ction)
	Good, Offic	es and Storage of Fire Vehic	es litation, conversion from one building type to another)
7	None	ED WITHIN NEXT 15 YEARS (i.e. demonition, renadi	intation, conversion from one building type to another)
BUILDING		TS OF ROOF (i.e. metal beams, wooden rafters, con	ncrete)
OB	ROOFING MATERIAL (i.e. t		
BE	Tar and Gra	vel	
H	INSTRUCTIONS: Correctly	answer the following questions for the building bein	g mini-audited.
	Is there open land adjacent ☐ Yes XXX No	to the building?	
		cated in an unshaded area. Is the roof of the building a	and the south facing wall unshaded between the hours of 9 a.m. and
	3 p.m.? Roof: XXX Yes □ No South facing Wall: XXX Ye	s 🗆 No	
	If the roof or wall are partly % of roof unshaded % of south facing wall uns		d?
	What is the overall shape of □ square ★ rectangle	the building? ☐ H-shaped ☐ E-shaped ☐ other (specify)	
	Is the roof of the building flax ☐ pitched		
	If pitched, what is the comp	ass orientation of the ridgeline?	
	If pitched, what is the angle	that the roof makes with horizontal?	,
	Are there large obstructions ☐ Yes XXX No	on the roof such as chimneys, rooms for mechanic	al equipment, ventilating units, water towers, etc?
		naterial for the south facing wall? Face	brick
	What percentage of the sou	th facing wall is glass?%	
	Is the building's space heat XXX Yes □ No	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	
NTIAL	Is the building's water heati	ng equipment located within the building? (A no an	swer indicates the equipment is in a separate building.)
SOLAR POTENTIAL	If the water heating equipm	ent is inside the building, where is it located? ement Other (specify)	
SOLAR		a central system, does it consist of multiple units.	or is it a combination of the central and multiple units?

H			BASE PER	RIOD YEAR		Fiscal Year	
	ENERGY TYPE	ENERGY	USAGE	CONVERSION FA	ACTOR	BTU USAGE	
	Electricity						
	Fuel 1						
	Fuel 2			į.			
	TOTAL				TO THE PARTY OF TH		
	1		20% SAVII	NGS YEAR	**************************************	Fiscal Year	
	ENERGY TYPE	ENERGY (	JSAGE	CONVERSION FA	ACTOR	BTU USAGE	
	Electricity				·		
	Fuel 1						
DATA	Fuel 2						
DATA	TOTAL						
				<u> </u>			
	state the roughly estimated range	of the percent of total dies listed in section L	electrical and fue L. Secondly, calc	I consumption which would culate the range of energy	d be saved resu	check the appropriate boxes which ilting from the implementation of all rings by multiplying the estimated	
	Check two boxes in each categor	у —					
	Range of Electrical Savings — )	<b>₹</b> )X0% <b>\$</b> ? X5%	□ 10%	□ 15% □ 20%	□ 25%	other (specify)	
	Range of Fuel Savings —	□ 0% <b>X</b> X5%	XX 10%	□ 15% □ 20%	□ 25%	Other (specify)	
2	Calculate ranges of energy and c	ost savings —					
			Range of Ele	ectrical Savings			
	% Range	Annual Electrical Consumption	Range of I Savin		Annual Ele Dollars S		
	lower bound0 _ % x	61874 kwh	= 0	kwh,0% x	<u>\$ 2423</u>	<u>8.84</u> = \$ <u>0</u>	
	to		to	to		to	
	upper bound5 % x	61874 kwh	= 3093.7	kwh,5	<u>\$ 2423</u>	3.84 = \$\frac{121.19}{}	
			Range of	Fuel Savings			
3		Annual Fuel	Range o		Annual ( Dollars S		
3	% Range	Consumption 6	Savir 38.9x1	n <sup>5</sup> 5		8 68 88 18	
ESTIMATION 3	% Range lower bound5	77.8x10 Btu	= 38.9x1	0 <sup>5</sup> Btu, 5 % x		3.68 = \$\frac{88.18}{100}	

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

Note: Reproduce this page as necessary

Way Way

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	ITEM NO. MAJOR SUB CLASS CLASS		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
			NEW MINI-ROBIT OFFORTUNITIES	SAVINGS	SAVINGS	DATE OF IMPLEMENTATION
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.		<u> </u>	
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			
		*	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 <sup>o</sup> 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			
	<u> </u>		(diffusers, registers and grillers). They should be kept clean and			
			free of all dirt and foreign materials.			
16	3	3	Inspect and Tubricate bearings of fan motors.			

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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.

				OPTIONAL:	OPTIONAL	
ITEM NO	CLASSIF NI MAJOR	ICATION O SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	CLASS	CLASS		GAVIII	SAVINGS	
			Inspect drive belts. Adjust or			
17	3	3	replace as necessary to ensure			
			proper operation.			
			Inspect fans for			
18	3	3	normal operation.	İ		
			Make sure that all fans frequently			
19	3	3	inoperative in unit heaters, fan			
			coil units, and unit ventilators			
	1	}	are running normally to increase the			
			heat transfer rate from heating			
			coils.			
			Keep condenser coil face clean to			
_20	3	3	permit proper air flow.	}	<b>\</b>	
		<del>                                     </del>	Inspect damper blades and linages.		<u> </u>	
21	3	3	Clean, oil and adjust.			
	- 3	<u> </u>	Take special note of fresh air			
22	3	3	dampers making sure that they close			
46	<del>  3</del>	<del>                                     </del>	tightly and be sure to repair, re-	<b> </b>	<del> </del>	
	<del> </del>	<b></b>	place or provide blade edge gaskets		<u> </u>	ļ
			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_1_	personnel to switch off all lights			
			when they are not needed.			
			Clean fixtures			
26	4	3	and lamps regularly.		<u> </u>	
			Use lower wattage lamps to provide		ļ	
27	4	4	the necessary illumination.			
		1	Allow part of a lighting system to			
28	4	4	be turned off, while maintaining			
			the necessary light.			
		1	Keep records of the operating			
29	5	1	schedule, monthly energy consumption	1)		
			and purchase of any new equipment			
	L		that affects energy consumption of			
			efficiency of the building. These			
	1		records will indicate the impact			
			of energy conservation measures.			
	<del>                                     </del>		Review the record			
30	5	1	books on a regular basis.			
					<u></u>	

NEW OPPORTUNITIES

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine in 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-addit report should be completed by the mini-addit	OPTIONAL:		
ITEM	MAJOR SUB CLASS CLASS		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY	DATE OF IMPLEMENTATION
NO			NEW MINI AGENT OF TOTAL TIES	SAVINGS	SAVINGS	DATE OF THE CENTER TANGE
31	6	2	The burner system of fossil-fuel			
			water heaters should be kept clean and in good operating condition.			
32	6	2	All electric heating equipment should be checked for corroded elements	d		
			and loose connections and repaired			
33	6	2	as required. Clean air-sides, remove soot, and scrape scale in forced warm air furnaces.			
_			If the firing rate of gas or oil			
34_	7	3	burners is too high, it causes short cycling and excessive fuel consumption. Too low a rate requires con-			
			stant operating and deliver inad- equate heat to the spaces.			
35	7	4	Maintain the lowest possible hot water temperature which will meet domestic hot water needs.			
36	7	4	Clean filters regularly in forced warm air units to reduce the oper-			
		•	ating time of the furnace.			
37	7	4	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			
38	7_	4	clean. Check air-to-fuel ratio and adjust as necessary.			
39	7	4	Inspect casing for air leaks and seal as necessary.			
40	7_	4	Follow guidelines suggested for fan and motor maintenance.			
-						

# **MINI-AUDIT REPORT**

A	BUILDING NAME Fire Station #4		NAME OF ORGANIZATION City of Bloomington	DATE 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
CONT, DATA	PERSON COMPLETING FORM	TELEPHONE (612) 935-6901	CONTACT PERSON Arthur Jensen	TELEPHONE 612) 881-5811

B	Instructions: For blocks 1 and 2 check the box describes the building type and then within th	which b e catego	est fits the building o ory check off the sul	wners! b categ	hip conditions. Fo pory befitting the	r bloci buil <b>d</b> ii	k 3 determine which of the state of the stat	ne four categories
BUILDING ELIGIBILITY CODE	1. OWNERSHIP TYPE  Public (PUB)  Non-Profit Association (NAP)  2. ULTIMATE OWNER  County (CNTY)  Acity (CITY)  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 Ager   Administration   OTHER   PUBLIC CARE   Nursing Home   Long Term Car   Rehab. Facility   Public Health Cores	e Str.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST) (SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)  (PBCR-NURS) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR) (PBCR-RCCC)	c.	LOCAL GOVERNMEN Office Storage Service Library Police Wrire OTHER HOSPITALS General CTuberculosis OTHER	(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 entitle just Federal funding, then answer the question	d Fundir	ng Information, dete	rmine	if the facilities are	eligit	ole for both Federal and	State 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 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	? □ Y unding? ? □ Y  unding?	es XXI No X Yes					
MINI-AUDIT FUNDING REQUEST	Date			•				
MINI-AU FUNDING	Name:							

n							
	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)  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 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 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/orshould_notundergo further analysis of the renewable resources — waste,						
	mild, model (all the proper resources)						
	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)						
	Ramol A with 206						
	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						
	<u>5-17-80</u> Date						
18							
MINI-AUDIT STATEMENTS							
NI-A							
₹ L							

F	NAME	POSITION	ORGANIZATION						
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.						
	Reinert Ege	Maintenance Foreman	City of Bloomington						
T.W	·								
AUDIT									
	BRISE DECORPOSION OF O								
G		ENERAL BUILDING CONDITION (i.e. type, and s and storage of fire vehi-							
			nabilitation, conversion from one building type to another)						
N N	None STRUCTURAL COMPONENT	TS OF ROOF (i.e. metal beams, wooden rafters,	concrete)						
MAT	Concrete Pla		· ·						
BUILDING	ROOFING MATERIAL (i.e. ta	ar and gravel, shingles, tile)							
ωZ	Tar & Gravel								
Н	INSTRUCTIONS: Correctly a	answer the following questions for the building	peing mini-audited.						
	Is there open land adjacent to								
	☐ 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: XXYes ☐ No. South facing Wall: XXYes ☐ 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 □ rectangle □ H-shaped □ E-shaped □ other (specify)								
	Is 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 ☐ Yes XXNo	on the roof such as chimneys, rooms for mecha	anical equipment, ventilating units, water towers, etc?						
	What is the exterior facing n	naterial for the south facing wall? Face b	rick 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 □ Roof □ Other (specify)								
N TI AL									
SOLAR POTENTIAL	If the water heating equipment is inside the building, where is it located?  XX Ground Floor  Basement  Other (specify)								
SOLAE	ls the water heating system XX Central □ Multiple	a central system, does it consist of multiple uni □ Combination	ts, or is it a combination of the central and multiple units?						

-	unit of measure. Enter the appropriate which the data applies. Refer to p			tanifi ang ang Palitin Stranga ya na ang ang Palitin Stranga ya na ang ang ang ang ang ang ang ang ang				- All house graphs are not only and the first are stated as the second are
L			Fiscal Year					
	ENERGY TYPE	ENERGY	ENERGY USAGE CONVERSION FACTO		ACTOR	R BTU USAGE		
	Electricity							
	Fuel 1							
	Fuel 2			,				
	TOTAL							enterprise de la companya de la companya de la companya de la companya de la companya de la companya de la comp
Ī		in the second second second second second second second second second second second second second second second	20% SAV	INGS YEAR			Fiscal Year	
	ENERGY TYPE	ENERGY	USAGE	со	NVERSION F	ACTOR	В	TU USAGE
	Electricity		a da a marina da 1960 de a marina de parte de la composição de la composição de la composição de la composição			The state of the s		and the second s
,	Fuel 1							
SAVINGS	Fuel 2					_		
20% S	TOTAL					MC4-04-0		
J	Instructions: This section is to be state the roughly estimated range			e walk-thru po				
	of the new mini-audit opportunit percentages by the annual electr	ties listed in section	L. Secondly, ca	el consumption	nge of energ			
4	of the new mini-audit opportunit	ties listed in section ical and fuel consur	L. Secondly, ca	el consumption	nge of energ			
1	of the new mini-audit opportunit percentages by the annual electr	ties listed in section ical and fuel consur 	L. Secondly, ca	el consumption	nge of energ		vings by multip	
1	of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI	ties listed in section ical and fuel consur 	L. Secondly, ca nption data on th	el consumption lculate the rate energy rep	nge of energ	y and cost sa	other (spe	olying the estimated
	of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categor Range of Electrical Savings — XI	ties listed in section ical and fuel consum  ry —  XX 0% XXX 5%  D 0% XXX 5%	L. Secondly, canption data on th	el consumption in con	nge of energort.	y and cost sa ☐ 25%	other (spe	ecify)
1	of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categoriange of Electrical Savings — XI Range of Fuel Savings —	ties listed in section ical and fuel consum  ry —  XX 0% XXX 5%  D 0% XXX 5%	L. Secondly, canption data on the	el consumption in con	nge of energort.	y and cost sa ☐ 25%	other (spe	ecify)
	of the new mini-audit opportunit percentages by the annual electric Check two boxes in each categoriange of Electrical Savings — XI Range of Fuel Savings —	ties listed in section ical and fuel consum  ry —  XX 0% XXX 5%  D 0% XXX 5%	L. Secondly, canption data on the	el consumption loulate the ra e energy rep  15% 15% 15% Energy	nge of energort.	y and cost sa ☐ 25%	other (spe	ecify)
	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 control of the category and control of the category and control of the category and control of the category and control of the category and control of the category and control of the category and control of the category and control of the category and control of the category and control of the category and control of the category and control of the category and control of the category and category and control of the category and	ties listed in section ical and fuel consum  Ty —  TO 0% XTM 5%  TO 0% XTM 5%  Cost savings —  Annual Electrical	L. Secondly, canption data on the 10%   10%   Range of E	el consumption con	nge of energort.  20% 20%	□ 25% □ 25% Annual Ele	other (spe	ecify)
	of the new mini-audit opportunit percentages by the annual electrical Savings — XI Range of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and compare to the savings — XI Range of Electrical Savings — XI Range of Electrical Savings — XI Range of Fuel Savings — XI Range of Electrical Savings — XI Range	ties listed in section ical and fuel consuming.  Y — XX 5%  0% XX 5%  cost savings — Annual Electrical Consumption  45842 kwh	Range of E  Range of E  Range of Savii	el consumption loulate the rate elements represented to the rate e	nge of energort.  20% 20% 20% Range 0 % x	□ 25% □ 25% □ 25% Annual Ele Dollars S \$ 2054	other (spectrical spent = 97 =	Pange of Electrical Dollars Savings  \$  to
2	of the new mini-audit opportunit percentages by the annual electr.  Check two boxes in each categor Range of Electrical Savings — XI Range of Fuel Savings — I Calculate ranges of energy and co	Ty — XX 5%  O% XX 5%  O% XX 5%  Cost savings —  Annual Electrical Consumption	Range of E  Range of E  2292.	el consumption culate the rate energy republication of the consumption	nge of energort.  20% 20% 20% Range 3 % x	□ 25% □ 25% □ Dollars S	other (spectrical spent = 97 =	Pange of Electrical Dollars Savings
	of the new mini-audit opportunit percentages by the annual electrical Savings — XI Range of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and compare to the savings — XI Range of Electrical Savings — XI Range of Electrical Savings — XI Range of Fuel Savings — XI Range of Electrical Savings — XI Range	ties listed in section ical and fuel consumry —  WY 0% XVX 5%  0% XVX 5%  cost savings —  Annual Electrical Consumption  45842 kwh	Range of E  2292.  Range of Ra	el consumption culate the rate energy republication of the consumption	nge of energort.  20% 20% 20% Range 3 % x	□ 25% □ 25% □ 25%  Annual Ele Dollars S \$ 2054	other (spectrical Spent - 97 =	Range of Electrical Dollars Savings  \$ 0  to  \$ 102.75
2	of the new mini-audit opportunit percentages by the annual electrical Section of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and compared to the section of	ties listed in section ical and fuel consumry  79 0% XXI 5%  10 0% XXI 5	Range of E  Range of E  2292.	el consumption con	nge of energort.  20% 20% 20%  Range 3 x to 5 % x	and cost sa  25% 25% Annual Ele Dollars S \$ 2054 \$ 2054 Annual Dollars S	other (special spent)	Pange of Electrical Dollars Savings  \$  to
2	of the new mini-audit opportunit percentages by the annual electrical Savings — XI Range of Electrical Savings — XI Range of Fuel Savings — Calculate ranges of energy and control of the savings — To the same of the savings — To	ties listed in section ical and fuel consumpty—  W 0% XX 5%  0% XX 5%  cost savings—  Annual Electrical Consumption  45842 kwh  Annual Fuel Consumption  80.7×10 <sup>6</sup> Btu	Range of E  = 2292.  Range of E  Range of E  40.3x1	el consumption con	nge of energort.  20% 20% 20%  Range 3 x  to 6 Range 5 % x	and cost sa  25% 25% Annual Ele Dollars S \$ 2054  \$ 2054  Annual Dollars S \$ 182	other (special spent97 =	Range of Electrical Dollars Savings  \$ \frac{102.75}{\text{Pange of Fuel Dollars Savings}} \frac{91.44}{\text{to}}
2	of the new mini-audit opportunit percentages by the annual electrical Section of Electrical Savings — XI Range of Fuel Savings — I Calculate ranges of energy and compared to the section of the section	ties listed in section ical and fuel consumptory—  W 0% XX 5%  0% XX 5%  cost savings—  Annual Electrical Consumption  45842 kwh  Annual Fuel Consumption  80.7x106 Btu	Range of E  Range of E  Range of E  Range of E  Range of E  Ange of E  Range of E  Range of E  80.7x1	el consumption con	nge of energort.  20% 20% 20%  Range 3	25% 25% 25% Annual Ele Dollars S \$ 2054 \$ 2054  Annual Dollars S \$ 182	other (spectrical Spent - 97 =	Range of Fuel Dollars Savings  \$ 102.75  Range of Fuel Dollars Savings  \$ 182.87

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 NO. SAVINGS MAJOR SUB **SAVINGS** CLASS CLASS

Note Reproduce this page as necessary

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.

		ASSIFICATION	OPTIONAL:	OPTIONAL		
NO.	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
1	1	1	Keep all controls free of dust.			
2	2	2	Weatherstrip all exterior doors including garage doors.	-		
	<del></del>		Inspect the roof and seal all	<u> </u>	<u> </u>	
3	2	6	cracks that allow air and water			
			to enter.			
	1		Check the insulation			
4	2	6	on the roof. Insulate the roof areas	<u> </u>		
5	2	6	if needed.			
_		_	Insulate walls with rigid insula-			
6	2	8	tion on inside surfaces, or place			
	ŀ		loose fill insulation in wall cavaties.			
	<u> </u>		Replace single glazed windows	<u> </u>		
7	2	10	with double glazed thermopanes.	<u> </u>		
•			Check operation of entire heating/			
8	3	1	cooling control system, including	<del> </del>	<u> </u>	
			valves and dampers.			
-			Check the calibration of all			
9	3	1	controllers and devices for proper		<b></b>	
			settings and operations.			
			Raise the supply air temperature		<u> </u>	
10	3	1	for cooling to the highest point	<b></b>	<u> </u>	
			necessary to provide minimum required cooling.			
			Lower the supply air temperature	1		
11_	3	1	for heating to the lowest point	ļ		
			necessary to provide minimum			
		<u> </u>	required heating. 65°F maximum occupied, 60°F	<del> </del>		
_12	3	1	maximum unoccupied during the			,
			heating season.			
			78°F minimum when occupied and no			
13	3	1	cooling when unoccupied during	<u> </u>		
			the cooling season.			
1 /			Keep fan blades			
_14_	3	3	clear.	<del> </del>	<b> </b>	
15	3	3	Inspect and lubricate bearings of fan motors.			
	<u> </u>	<u> </u>	Inspect drive belts. Adjust or			
16	3	3	replace as necessary to ensure	<b>_</b>		
			proper operation.			

NEW POPODETIMITIES

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: OPTION						AL:		
ITEM	CLASSIFICATION NO.		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION		
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS			
17			Increase for normal operation					
17	3	3	Inspect fans for normal operation. Keep condenser coil face clean to	<b></b>				
18	3	3	permit proper air flow.	i 				
10	† <u> </u>	<u> </u>	Insepct damper blades and linkages.	<b></b>				
19	3	3	Clean, oil and adjust.					
			Take special note of fresh air damper	s				
20_	3	3	making sure that they close tightly					
			and be sure to repair, replace or					
			provide blade edge gaskets and gaske	ing				
			at the end of blades.					
	1		Instruct occupants and mainteance					
21	4	11	personnel to switch off all lights					
			when they are not needed.					
	<del>                                     </del>					· · · · · · · · · · · · · · · · · · ·		
22	4	2	Clean windows and skylights.					
			Clean fixtures					
23	4	3	and lamps regularly.	ļ				
0.4	1		Use lower wattage lamps to provide					
_24_	4	4	the necessary illumination. Allow part of a lighting system		<b></b>			
25	4	4	to be turned off, while maintaining					
	+	<del></del>	the necessary light.	<u> </u>	<b>†</b>			
			one necessary rights					
			Keep records of the operating schedu	e,				
26	5	1	monthly energy consumption and pur-					
			chase of any new equipment that		1			
		<u> </u>	affects energy consumption of	<u> </u>	<b>_</b>			
			efficiency of the building. These			`		
		<u> </u>	records will indicate the impact of energy conservation measures.	<u> </u>	<del> </del>			
			or 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					
28	6	2	water heaters should be kept in					
			good condtition.					
		<del>                                     </del>	All electric heating equipment	-	<b>†</b>			
29	6	2	should be checked for corroded		<b></b>			
			elements and loose connections and					
		<b>_</b>	repaired as required.		<b></b>			
00			Periodically drain and remove the					
30	6	2	sediment from the water heater.	<del> </del>				
31	7	4	Clean air-sides, remove soot, and	naces				
71	/	1 4	scrape scale in forced warm air fur	iaces.	<u> </u>	1		

	UNITIES
NEW	OPPORT

Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine 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.

žÖ	implemente	d. This sec	tion of the mini-audit report should be completed by the mini-audit	team during OPTIONAL:	_	·
ITEM			NO NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
32	7	3	If the firing rate of gas or oil burners is too high, it causes short			
			cycling and excessive fuel consump-			
	<b>†</b>		tion. Too low a rate requires constant operating and delivers			
	<del> </del>	ļ	inadequate heat to the spaces. Maintain the lowest possible hot			
33	7	4	water temperature which will meet			
			domestic hot water needs.			
24	7		Clean filters regularly in forced warm air units to reduce the operat			
34	7	4	ing time of the furnace.			
	<del> </del>		Turn off gas pilots for furnaces,	ļ		
35	7	4	boilers, and space heaters during			
			non-heating months and during long unoccupied periods.			
0.6	1 ,		Keep all heat exchanger surfaces			
_36	+-/-	44	clean. Check air-to-fuel ratio and adjust as necessary.	<b></b>		
			Inspect casing for air leaks and			
_37	7	4	seal as necessary. Follow guidelines suggested for fan			
38	7	4	and motor maintenance of unit heater	\$.		
						·
	<u> </u>					
				1		
				-	<u> </u>	
	+			-		
					ļ	

## **MINI-AUDIT REPORT**

A	BUILDING NAME Fire Station #5		NAME OF ORGANIZATION City of Bloomington	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
CONTACT	PERSON COMPLETING FORM	TELEPHONE 612) 935-6901	contact person Arthur Jensen (	TELEPHONE 612) 881-5811

άŭ	Randy Smith	(þ12) 935-6901 <u> </u>	Arthur Jensen	(612) 881-5811
В	Instructions: For blocks 1 and 2 check the bodescribes the building type and then within t			
	1. OWNERSHIP TYPE  XPublic (PUB)  UNon-Profit Association (NAP)	3a. SCHOOLS □Elementary □Secondary □Coll. or Univ.	(SCHL-ELM) □Off (SCHL-SECD) □Sto (SCHL-POST) □Ser	orage (LOCG-STRG) rvice (LOCG-SERV)
CODE	2. ULTIMATE OWNER    County (CNTY)   City (CITY)   Township (TOWN)	□Vocational □Education Age □Administration □OTHER	ency (SCHL-ADMN) □Pol SCHL-ADMN) ∰Fin (SCHL-OTHR) L'OT	lice (LOCG-PLCE) e (LOCG-FIRE) HER (LOCG-OTHR)
BUILDING ELIGIBILITY CODE	☐ State (STAT) ☐ Public School (PUSC) ☐ Private School (PRSC) ☐ Non-Profit Association (NPAP) ☐ Indian Tribe (INDN)	b. PUBLIC CARE  ONursing Home  Clong Term Ca  Rehab. Facility  Public Health  Res. Child Cai	D (PBCR-NURS) □ Ge Ire (PBCR-TERM) □ Tul / (PBCR-RHAB) □ OT Ctr. (PBCR-HCTR)	berculosis (HOSP-TUBR)
C	Instructions: With reference to page 23 entitl just Federal funding, then answer the questio	ed Funding Information, det ns correctly for the situation	ermine if the facilities are eligible for b . This section must be signed and dated	oth Federal and State funding or d by the head of the organization.
	If eligible for both Federal and State Funding Have you received a mini-audit grant befor Have you previously applied for mini-audit Do you wish to apply for mini-audit fundin Date:	e? Tyes TWNo funding? XO Wes I No 1? Yes XO No		
	Signature:			
	If eligible for Federal funding only: Have you received a mini-audit grant befor Have you previously applied for mini-audit Do you wish to apply for mini-audit fundir The 50% match for Federal funds will com-	e? ☐ Yes☐ No funding? ☐ Yes ☐ No g? ☐ Yes ☐ No	ts if necessary.)	
				,

60

MINI-AUDIT FUNDING REQUEST

Date: \_\_

Signature: \_\_

(	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 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 epending on building complexity. All other buildings should use the existing
		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 result.	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.
	listed in section I. I am not responsible if the actual savings resulting fr	لعرب المرائل
	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
	Based upon my observation of the physical characteristics of this build Should NOL 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 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_r	
	wind, wood. (Circle proper resources) (should, should	
	In my judgement, as a mini-auditor, all of the above statements are tru	e and correct.
		Witnessed by:
	Randy Smith	
	Mariay Silit Cit	
	Mini-Auditor's Name (Printyor Type)	Building Organizational Authority (Print or Type)
	Mini-Auditor's Name (Print or Type)  206	Building Organizational Authority (Print or Type)
	Romey Sulta 206	
	Signature 206 Rieke Carroll Muller Assoc. Inc.	Building Organizational Authority (Print or Type)  Signature
	Signature 206  Rieke Carroll Muller Assoc. Inc.  Firm Name (if none, enter none)	Building Organizational Authority (Print or Type)
	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none) PO Box 130 Hopkins, MN 55343 Address	Building Organizational Authority (Print or Type)  Signature
	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901	Building Organizational Authority (Print or Type)  Signature
	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	Building Organizational Authority (Print or Type)  Signature
	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	Building Organizational Authority (Print or Type)  Signature
	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone	Building Organizational Authority (Print or Type)  Signature
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	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	Building Organizational Authority (Print or Type)  Signature
	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	Building Organizational Authority (Print or Type)  Signature
T ITS	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	Building Organizational Authority (Print or Type)  Signature
UDIT	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	Building Organizational Authority (Print or Type)  Signature
MINI-AUDIT STATEMENTS	Rieke Carroll Muller Assoc. Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80	Building Organizational Authority (Print or Type)  Signature

F	NAME	POSITION	ORGANIZATION						
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.						
	Reinert Ege	Maintenance Foreman	City of Bloomington						
Ŀs.									
AUDIT									
		r							
G	Good	ENERAL BUILDING CONDITION (i.e. type, and fur							
z	major changes planne None	D WITHIN NEXT 15 YEARS (i.e. demolition, rehabi	litation, conversion from one building type to another)						
ATIO		TS OF ROOF (i.e. metal beams, wooden rafters, co	ncrete)						
STRUCTURAL COMPONENTS OF ROOF (i.e. metal beams, wooden rafters, concrete)  Concrete  ROOFING MATERIAL (i.e. tar and gravel, shingles, tile)  Tar and Grave1									
BE	Tar and Gravel								
H		answer the following questions for the building bein	g mini-audited.						
	Is there open land adjacent to the building? XXX Yes □ No								
	Solar collectors need to be locally by m.?  Roof: XX Yes No South facing Wall: XX Ye		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 unshaded%	1?						
	What is the overall shape of □ square ADT rectangle	the building? ☐ H-shaped ☐ E-shaped ☐ other (specify)							
	Is the roof of the building fla	at or pitched?							
	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 □ No	on the roof such as chimneys, rooms for mechanic	al equipment, ventilating units, water towers, etc?						
	What is the exterior facing r	naterial for the south facing wall?fac	e brick						
	What percentage of the sout	th facing wall is glass?5%							
	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 equipm XXX Ground Floor	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 heati XXX Yes □ No	ng equipment located within the building? (A no an	swer indicates the equipment is in a separate building.)						
POTE	If the water heating equipme XXX Ground Floor □ Bas	ent is inside the building, where is it located? ement   Other (specify)							
SOLAR POTENTIAL INFORMATION		a central system, does it consist of multiple units of	or is it a combination of the central and multiple units?						

			BASE P	BASE PERIOD YEAR			Fiscal Year	Fiscal Year	
	ENERGY TYPE	ENERGY	USAGE	cc	ONVERSION F	ACTOR	BTU USA	GE	
	Electricity								
	Fuel 1								
	Fuel 2			,					
	TOTAL	·							
			20% SAV	INGS YEAR			Fiscal Year		
	ENERGY TYPE	ENERGY	USAGE	co	ONVERSION F	ACTOR	BTU US	AGE	
	Electricity					·			
	Fuel 1								
	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 Check two boxes in each category	of the percent of total ties listed in section ical and fuel consum	electrical and fu L. Secondly, ca	el consumpti lculate the r	ion which wou ange of energ	ld be saved res	ulting from the impleme	entation of all	
	Range of Electrical Savings — X	CX 0% XXX5%	□ 10%	□ 15%	□ 20%	□ 25%	other (specify)		
	Range of Fuel Savings —	□ 0% XX5%	851X <sub>10%</sub>	□ 15%	□ 20%	□ 25%	other (specify)		
	Calculate ranges of energy and c	ost savings —	Range of E	lectrical Sav	ings				
- 1	% Range	Annual Electrical Consumption	Range of Savi		% Range	Annual Ele		of Electrical	
	lower bound $\underline{0}$ % x	40760 kwh	= 0	kwh,	_0_% x	\$ 1738	•	0	
			to	•	to	170	2.40	to	
	to upper bound <u>5</u> % x	40760 kwh	_ 2038	kwh,	<u>5</u> <sub>%</sub> ×	<u>s 173</u>	$\frac{3.43}{2} = \frac{5.43}{2}$	86.92	
3	۲.	40760 kwh		kwh,	70 A	\$ <u>1/38</u>	$\frac{8.43}{} = \frac{8.8}{}$	36.92	

The mini-auditor is not responsible if actual savings resulting from the implementation of the energy conservation opportunities listed in section I do not fall between the roughly estimated ranges which are specified.

K

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

Z O	implemented. This section of the mini-audit report should be completed by the mini-audit team during the building walk-through.  OPTIONAL: OPTIONAL:						
ITEM		ICATION O.		ENERGY	ENERGY COST	DATE OF IMPLEMENTATION	
NO.	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OFFORTUNITIES	SAVINGS	SAVINGS	DATE OF IMPLEMENTATION	
1	1	1	Keep all controls free of dust.				
_			Weatherstrip all exterior doors in-	THE PERSON NAMED OF THE PE			
2	2	2	cluding garage doors. Inspect the roof and seal all cracks				
3	2	6	that allow outdoor air and water to	·			
			enter.				
	1		Check insulation on				
_4	2	6	Insulate the				
5	2	6	roof areas.				
6	2	10	Replace single glazed windows with double glazed thermopanes.				
		1	Check operation of entire heating/				
_7	3	1	cooling control system, including				
			control valves and dampers.				
			Check the calibration of all con-				
88	3	$\frac{1}{1}$	trollers and devices for proper settings and operations.				
			sectings and operations.		]	,	
9	3	1	Raise the supply air temperature for cooling to the highest point				
9	13	+	necessary to provide minimum		<b></b>		
			required cooling.				
10			Lower the supply air temperature				
10	3	<del>  1</del>	for heating to the lowest point necessary to provide minimum				
			required heating.				
			Consider regulating the fresh air				
11	3	1	dampers with enthalpy control so	ļ	ļ		
			that the building can be cooled with outdoor air when this saves ene	rav			
	<del></del>		65°F maximum occupied, 60°F maximum	95.	<del> </del> -		
12	3	1_1_	unoccupied during the heating season	l			
4.0			78°F minimum when occupied and no				
13	3_	-1	cooling when unoccupied during the cooling season.				
			cooring season.				
1 /	3	1	Provide atmospheric cooling	1			
14	3	1	as long as possible.				
15	3	2	Clean and remove obstructions from		<b>-</b>		
12	- 3	+ 4	all room air outlets and inlets (diffusers, registers and grillers).		1		
			They should be kept clean and free				
			of all dirt and foreign materials.				
						<u> </u>	

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Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine: 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.

ZO	mpiememe	d. 77775 500	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
ITEM	CLASSIF	_	NEW MINI-AUDIT OPPORTUNITIES		ENERGY COST	DATE OF IMPLEMENTATION
МО	MAJOR CLASS	SUB CLASS			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			
17	3	3	bearings of fans.			
		_	Inpsect drive belts. Adjust or			
18	3	3	replace as necessary to ensure			
			proper operation.			
10			Inspect fans for			
19	3	3	normal operation.			
00		1	Make sure that all fans, frequently			
20	3	3	inoperative in unit heaters, fan	ļ		
			coil units, and unit ventilators			
	_	<b> </b>	are running normally to increase			
			the heat transfer rate from			
		<u> </u>	heating coils.			
			Keep condenser coil face clean to			
21	3	3	permit proper air flow.			
			Inspect ductwork for air leakage.			
22	3	3	Seal all leaks by taping or caulking		ļ	
			Inspect ductwork			
_23_	3	3	insulation.			
			Inspect damper blades and linkages.			
24	3	3	Clean, oil and adjust. Take special note of fresh air			
25	٦		damage making cure that they			
25	3	3	dampers making sure that they	ļ	<u> </u>	
			close tightly and be sure to repair, replace or provide blade			
		<del> </del>	edge gaskets and gasketing at the	ļ	ļ	
		ļ-	end of blades. Instruct occupants and maintenance	<b></b>	<u> </u>	
20	1	1	personnel to switch off all lights			
26	4	1	when they are not needed.	<del> </del>		
			when they are not needed.			
27	4	3	Clean fixtures and lamps regularly.			
	1	† <u> </u>	Use lower wattage lamps to provide	<b>†</b>		
28	4	4	the necessary illumination.			
	<del>-   - '</del>	<u> </u>	Allow part of a lighting system to			
29	4	4	be turned off, while maintaining			
			the necessary light.			
			Keep records of the operating			
30	5	1	schedule, monthly energy consumptio	n	<u> </u>	
			and purchase of any new equipment			
			that affects energy consumption of			

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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	picinente		tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:	-	-
ITEM	CLASSIF		NEW MINI-AUDIT OPPORTUNITIES		ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OFFORTUNITIES	ENERGY SAVINGS	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.			
20	1		All insulation applied to a hot			
32	6	2	water system should be kept in good condition.			
			condition.			
			All electric heating equipment shoul	Д		
33	6	2	be checked for corroded elements			
			and loose connections and repaired			
			as required.  If the firing rate of gas burners			
34	7	3	is too high, it causes short cycling			
<u> </u>	<del>                                     </del>	-	and excessive fuel consumption.			
			Too low a rate requires constant			
			operating and delivers inadequate			
			heat to the spaces.			
			Maintain the lowest possible hot			
35	7	4	water temperature which will meet			
			domestic hot water needs.			
		<b> </b>	Clean filters regularly in forced			
36	7	4	warm air units to reduce the operat-			
			ing time of the furnace.			
		<del> </del>	Turn off gas pilots for furnaces,		<u> </u>	
37		4	boilers, and space heaters during			
			the non-heating months and during			
	1		long unoccupied periods.			
			Keep all heat exchanger surfaces			
_38	7	4	clean. Check air-to-fuel ratio	ļ	ļ	
,			and adjust as necessary.			
<del></del>			Inpsect casing for air leaks and	<del>                                     </del>	<del> </del>	
39	7	4	seal as necessary.	ļ		
40	7	4	Follow guidelines suggested for fan and motor maintenance.			
- 40	<b>-</b>	-	Tall and motor marricenance.	<del>                                     </del>		
	-	<u> </u>			<b></b>	
	<del></del>	-				

## **MINI-AUDIT REPORT**

A	UILDING NAME  Fire Station #6  NAME OF ORGANIZATION  City of Blooming		NAME OF ORGANIZATION City of Bloomington	5-17-80
	BUILDING ADDRESS  8601 Lakeview Road		ADDRESS 2215 West Old Shakopee Roa	d
ACT	CITY Bloomington, MN	ZIP CODE 55438	CITY Bloomington, MN	ZIP CODE 55431
CONT/ DATA	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
SS	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  X Public (F  ONon-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 X⊠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)
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 XX No Have you previously applied for mini-audit funding? XXI Yes □ No □ you wish to apply for mini-audit funding? □ Yes XXI 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.)
EST	
EQUI	Date
NGDI	Name:
MINI-AUDIT FUNDING REQUEST	Signature:

The completed in the type of energy report which was completed and submitted prior to this mini-audit report.    Secondary School Energy Report (Form No. ED-0044-00)   Acceptancy School Energy Report (Form No. ED-0044-00)   Acceptancy School Energy Report (Form No. ED-0044-00)   Acceptancy School Energy Report (Form No. ED-0044-00)   Acceptancy Report (Form ED-0044-0044-0044-0044-0044-0044-0044-00		
Secondary School Energy Report (Form No. ED-0044-02)    Reserved Reserved Report (Form No. ED-0044-02)   Reserved Reserv		Check the type of energy report which was completed and submitted prior to this mini-audit report.
Instructions: This section is to be completed and signed by a registered professional engineer or by a certified mini-audit report and an energy report are completed. All binds must be filled in.  I have reviewed the sheepy report and/or the energy report results for this building. I found all information contained therein to be corrected any misnformation on the energy report which will be restabilited with this mini-audit report to the Minimacota 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 1 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, 0.1 he range of savings which may result from the implementation of all of the mini-audit opportunities issed in section 1.1 am not responsible if the actual savings resulting from this mini-audit on tell within the estimated range.  Based on actual records, the energy conservation operating and maintenance procedures listed in section 1.  Based upon the building's energy consumption as specified in section 1.  Based upon the undergoted procedures are section 1.  Based upon the information in section E and the information referred to in section F. I recommend that this building and be provided to a maxis-audit for a maxis-audit funding sense energy using systems, I recommend that this building and the funding sense of the relevable resources — waste.  Relec Carroll Mullier Assoc., Inc.  Firm Name (I none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935–6901  Phone  5-17-80  Date	EPORT	☐ Secondary School Energy Report (Form No. ED-00445-02)
completed the State of Minnesota's Mini-Audit Procedures Course. This section invold 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 exists 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 creduce 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 or portunities listed in section I. and or tesponsible if the actual savings resulting from this mini-audit on portunities listed in section I. and a final within the estimated area.  Based upon in creating the energy consumption as specified in section I.  Saving appart of the physical characteristics of this building and the building's major energy using systems, I recommend that this capacity of the subject of a maxi-audit.  Saving appart of the physical characteristics of this building and the building's major energy using systems, I recommend that this capacity of the subject of a maxi-audit.  Saving appart of the physical characteristics of this building and the building's major energy using systems, I recommend that this capacity of the subject of a maxi-audit.  Saving appart of the physical characteristics of this building of the physical characteristics of this building of the physical characteristics of the phys	ENERGY R	vocational schools should use form ED-00444-02 or form ED-00445-02, depending on building complexity. All other buildings should use the existing
completed the State of Minnesotis Mini-Audit Procedures Courses. This section involdes 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 Minnesotis 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 read reduce energy consumption the 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 doportunities listed in section I. and of the mini-audit doportunities listed in section I. and it of the mini-audit doportunities listed in section I. and it of the mini-audit doportunities listed in section I. and it is the subject of a maxi-audit.  Based upon I records, the energy consumption as specified in section I.  Glouds, should not)  I realize that this is not a finally udgement, that the State reserves the right to make the maxi-audit funding determination based on this mini-audit report and audit report and an energy report and an energy report and an energy report and an energy report and an energy report and an energy report and the information referred to in section F. I recommend that this building (should, should not)  In my judgement, as a mini-audit or, all of the above statements are true and correct.  Witnessed by:  Witnessed by:  Witnessed by:  Building Organizational Authority (Print or Type)  Sign		
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 6, of the range of savings which may result from the implementation of all of the mini-audit opportunities listed in section 1. 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. I did. old to 1.  Based upon my absentation of the physical characteristics of this building and the building's major energy using systems, I recommend that this capability of the physical characteristics of this building and the building's major energy using systems, I recommend that this capability of the physical characteristics of this building and the building 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 undergo further solar conversion analysis, and/or Should not (should, should not) undergo further solar conversion analysis, and/or Should not (should, should not) undergo further solar conversion analysis, and/or Should not)  In my judgement, as a mini-auditor, all of the above statements are true and correct.  Witnessed by:  Building Organizational Authority (Print or Type)  Signature  Date  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Finance Report Control of the control of the control of the control of the control of the control of the control of the control of the control of	E	completed the State of Minnesota's Mini-Audit Procedures Course. This section should be completed after this mini-audit report and an energy report
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I have made a rough estimate, in section 6, of the range of savings which would reduce energy consumption in this building. I have made a rough estimate, in section 6, of the range of savings which may result from the implementation of all of the mini-audit opportunities listed in section 1. 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		I have fully disclosed my financial interests relating to this mini-audit and any energy conservation measures considered by this audit.
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 using the section of the physical characteristics of this building and the building's major energy using systems, I recommend that this (should, 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 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) undergo further solar conversion analysis, and/or should not) undergo further solar conversion analysis, and/or should not).  In my judgement, as a mini-auditor, all of the above statements are true and correct.    Randy Smith   Mini-Auditor's Name (Print or Type)   Signature		
Based upon my absentation of the physical characteristics of this building and the building's major energy using systems, I recommend that this better 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 wind, wood. (Circle proper resources)  In my judgement, as a mini-auditor, all of the above statements are true and correct.  Randy Smith  Mini-Augitor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80  Date		listed in section I. I am not responsible if the actual savings resulting from this mini-audit do not fall within the estimated range.
(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)  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)  Signature  Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80  Date		based on actual records, the energy conservation operating and maintenance procedures instea in section N
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 (should, 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)  Signature  Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80  Date		Based upon my observation of the physical characteristics of this building and the building's major energy using systems, I recommend that this should, should not)  (should, should not)
undergo further solar conversion analysis, and/or		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.
undergo further solar conversion analysis, and/or		Based upon the information in section E and the information referred to in section F, I recommend that this building should not
In my judgement, as a mini-auditor, all of the above statements are true and correct.    Randy Smith		undergo further solar conversion analysis, and/orshould_notundergo further analysis of the renewable resources — waste,
Randy Smith Mini-Augitor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901 Phone  5-17-80  Date		wind, wood. (Circle proper resources) (should, should not)
Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80  Date		In my judgement, as a mini-auditor, all of the above statements are true and correct.
Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80  Date		
Randy Smith  Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80  Date		Warner of the
Mini-Auditor's Name (Print or Type)  Signature  Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901 Phone  5-17-80  Date		Witnessed by:
Signature  Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80  Date		Randy Smith
Signature  Rieke Carroll Muller Assoc., Inc.  Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80  Date		
Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)  PO Box 130 Hopkins, MN 55343  Address  (612) 935-6901  Phone  5-17-80  Date		Signature Signature
PO Box 130 Hopkins, MN 55343  (612) 935-6901  Phone  5-17-80  Date		
(612) 935-6901 Phone 5-17-80 Date		Firm Name (if none, enter none)  Date
(612) 935-6901 Phone 5-17-80 Date		
5-17-80 Date		
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F	NAME	POSITION	ORGANIZATION	
	Randy Smith	Certified Mini Auditor	Rieke Carroll Muller Associate	es, Inc
	Reinert Ege	Maintenance Foreman	City of Bloomington	
AUDIT		,		
	PRIES DESCRIPTION OF OR	THERAL BUILDING CONDITION (**	Alan	
G		ENERAL BUILDING CONDITION (i.e. type, and t age of Fire Vehicles	unction)	
		D WITHIN NEXT 15 YEARS (i.e. demolition, reha	bilitation, conversion from one building type to another)	
N O	None STRUCTURAL COMPONENT	TS OF ROOF (i.e. metal beams, wooden rafters,	oncrete)	
BUILDING INFORMATION	Concrete	The second secon	` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `	
FOR	ROOFING MATERIAL (i.e. ta			
25	Tar and Gra	avel		
8.8				
H		nswer the following questions for the building be	ing mini-audited.	
	Is there open land adjacent to XIX Yes □ No	-		
	3 p.m.?		g and the south facing wall unshaded between the hours of 9 a.r	m. and
	Roof: ⊠Xyes □ No South facing Wall: X⊠ Yes	s □ No		
	If the roof or wall are partly s % of roof unshaded	shaded, what percentage of the surface is unsha-	led?	
	% of south facing wall uns	haded %		
	What is the overall shape of t XX square □ rectangle	the building? □ H-shaped □ E-shaped □ other (specify)		
	Is the roof of the building flax XX flat □ pitched	t or pitched?		
	If pitched, what is the compa	ss orientation of the ridgeline?		
	If pitched, what is the angle	that the roof makes with horizontal?		
	Are there large obstructions ☐ Yes XXX No	on the roof such as chimneys, rooms for mecha	ical equipment, ventilating units, water towers, etc?	
	What is the exterior facing m	naterial for the south facing wall?	Face brick	war-na-munaa
	What percentage of the sout	h facing wall is glass?5%		
	Is the building's space heatin XXX Yes □ No	ng equipment located within or on the building?	A no answer indicates the equipment is in a separate building	ng)
		ent is inside the building, where is it located? ement   Roof  Other (specify)		
R POTENTIAL	ls the building's water heatir χΩ Yes □ No	ng equipment located within the building? (A no	answer indicates the equipment is in a separate building.)	
A POTI	If the water heating equipme	ent is inside the building, where is it located? ement   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

	Instructions: Enter the total energy	used of each fuel type for the base period	d and the year when there was a 20% or	greater energy savings. Indicate the
		riate conversion factor from Appendix ages 7 and 15 for a complete explanati		. De sure to enter the listal years of
		BASE PERI	OD YEAR	Fiscal Year
	ENERGY TYPE	ENERGY USAGE	CONVERSION FACTOR	BTU USAGE
Ī	Electricity			·
	Fuel 1			
	Fuel 2		•	
	TOTAL			
		20% SAVING	GS YEAR	Fiscal Year
	ENERGY TYPE	ENERGY USAGE	CONVERSION FACTOR	BTU USAGE
	Electricity			
,	Fuel 1			
DATA	Fuel 2	·		
DATA	TOTAL			
a I				
J	state the roughly estimated range o of the new mini-audit opportunition	ompleted by the mini-auditor after the w of the percent of total electrical and fuel of es listed in section L. Secondly, calcu cal and fuel consumption data on the of	consumption which would be saved resulate the range of energy and cost sa	ulting from the implementation of all
1	Check two boxes in each category	Not enough dat	a (new building)	
	Range of Electrical Savings —	] 0% □ 5% □ 10% □	□ 15% □ 20% □ 25%	Other (specify)
	Range of Fuel Savings —	] 0%	15% 20% 25%	Other (specify)
2	Calculate ranges of energy and co			
		Range of Elec	-	Burner of Physician
	% Range	Annual Electrical Range of Er Consumption Savings		
	lower bound % x	kwh =	_ kwh,% x \$	= \$
.	to	to	to	to
	upper bound % x	kwh =	_kwh,% x \$	= \$
3		Range of F	uel Savings	
	% Range	Annual Fuel Range of Consumption Saving		
	lower bound% x	Btu =	Btu,% x \$	= \$
z	to	to	to	to
IGS	upper bound% x	Btu =	Btu,% x \$	= \$

The mini-auditor is not responsible if actual savings resulting from the implementation of the energy conservation opportunities listed in section I do not fall between the roughly estimated ranges which are specified.

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 NO. MAJOR SUB SAVINGS 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 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 NO. **ENERGY** ITEM DATE OF IMPLEMENTATION **NEW MINI-AUDIT OPPORTUNITIES** COST MAJOR SUB SAVINGS **SAVINGS** CLASS CLASS Keep all controls free of dust. Check the insulation on the roof Insulate 3 the roof areas. Replace single glazed 2 windows with double glazed thermopanes. 4 10 Check operation of entire heating/ cooling control system, including control valves and dampers. Check the calibration of all controllers and devices for proper settings and operations. Raise the supply air temperature for cooling to the highest point necessary to provide minimum required cooling. Lower the supply air temperature for heating to the lowest point necessary to provide minimum required heating.
65 F maximum occupied, 60 F maximum 9 3 unoccupied during the heating season 78°F minimum when occupied and no cooling when unoccupied during the 10 cooling season. Clean and remove obstructions from 11 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 12 bearings of fans. 3 3 Inspect drive belts. Adjust or 13 3 3 replace as necessary to ensure proper operation. Inspect fans for normal 14 3 operation. Make sure that all fans, frequently 15 3 inoperative in unit heaters, fan coil units, and unit ventilators are running normally to increase the heat transfer rate from heating coils.

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Instructions: Read through the energy conservation recommendation list provided. Then walk through the building with the list. Examine and 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. Tills sec	non of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
CLASSIFICATION NO MAJOR SUB			NEW MINI-AUDIT OPPORTUNITIES		ENERGY	
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION
			Keep condenser coil face clean			
16	3	3	to permit proper air flow. Inspect ductwork for air leakage.			
			Inspect ductwork for air leakage.			
17	_ 3	3	Seal all leaks by taping or caulking			
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,			
			replace or provide blade edge			
~ ··			gaskets and gasketing at the			
			end of blades.			
			Instruct occupants and maintenance			
21	4	11	personnel to switch off all lights	<b></b>	ļ	
			when they are not needed.			
			Clean fixtures			
22	4	3	and lamps regularly.	ļ		
			Use lower wattage lamps to provide	)		
_23_	4	4	the necessary illumination.			
		_	Allow part of a lighting system to be turned off, while maintaining			
24	4_	4	be turned off, while maintaining			
			the necessary light.			
			Keep records of the operating		1	
25	5	11_	schedule, monthly energy consumption			
			and purchase of any new equipment			
			that affects energy consumption			
			of efficiency of the building.			
-		<u> </u>	These records will indicate the			
			impact of energy conservation			
		<b>-</b>	measures. Review the record	<del> </del>	<del> </del>	
26	5	1	books on a regular basis.			
	— <del>       </del>	<del>                                     </del>	All electric heating equipment	<del> </del>	<del> </del>	
27	6	2	should be checked for corroded			
		†	elements and loose connections and		<del> </del>	
			repaired as required.			
	1	<b>†</b>	Clean air-sides, remove soot, and	<del>                                     </del>	<b>†</b>	
28	7	3	scrape scale in forced warm air fur	daces.		
	1	† – <u> </u>	If the firing rate of gas or oil	1		
29	7	3	burners is too high, it causes shor	tl		
			cycling and excessive fuel consump-			
-			tion. Too low a rate requires			
			constant operation and delivers	1		
			inadequate heat to the spaces.			
		<u> </u>				

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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.

ZO	implemente	d. This sec	tion of the mini-audit report should be completed by the mini-audit	team during OPTIONAL:		
ITEM		ICATION	NEW WILLIAM AND TO DEPORT WITTE	ENERGY	ENERGY	
NO	· -	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	COST	DATE OF IMPLEMENTATION
	_		Maintain the lowest possible hot			
30	7	4	water temperature which will meet			
			domestic hot water needs.			
		<del> </del>	Clean filters regularly in forced			
31_	7	4	warm air units to reduce the operat-			
	-		ing time of the furnace.			
			Turn off gas pilots for furnaces,			
32	7	4	boilers, and space heaters during	<u> </u>		
			the non-heating months and during			
			long unoccupied periods.	<u> </u>		
22	-	_	Keep all heat exchanger surfaces			
33	7	4	clean. Check air-to-fuel ratio	<del>                                     </del>	<u> </u>	
			and adjust as necessary.			
24	7	,	Inspect casing for air leaks and			
34	7	4	seal as necessary.		<del> </del>	
35	7	4	Follow guidelines suggested for fan and motor maintenance.	1		
33	+	4	and motor maintenance.			
				-		
				<u> </u>		,
				<del> </del>	<u> </u>	
				-		
				-		
					<del> </del>	
		-		<b></b>		
						•

A	BUILDING NAME Community Ice Garden		NAME OF ORGANIZATION City of Bloomington	5-27-80
	BUILDING ADDRESS 3600 West 98th Street		ADDRESS 2215 West Old Shakopee Road	
ACT	CITY Bloomington, MN	ZIP CODE 55431	CITY Bloomington, MN	ZIP CODE 55431
CONTACT DATA	PERSON COMPLETING FORM Paul Martînsen	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen (	TELEPHONE 612) 881-5811

В		structions: For blocks 1 and 2 escribes the building type and							our categories
	1.	OWNERSHIP TYPE XXX Public (F DNon-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 Township	(CNTY) (CITY)		□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire DOTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
BUILDING ELIGIBILITY C		☐ Township☐ State☐ Prublic 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 refere just Federal funding. the	en answer the question	d Funding Inform  as correctly for th	nation, determine if the situation. This section	e facilities are eligon must be signed	and dated by the	eral and State fund head of the organia	lin za
Have you previously a	eral and State Funding: mini-audit grant before applied for mini-audit for for mini-audit funding	e? [Yes 【XXX funding? XXX Yes	s 🗆 No	·			
Date:			***************************************				
Name:			Manada Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna				
Signature:							
If eligible for Federal fu Have you received a r	mini-audit grant before	funding? U Yes	s 🗆 No				
Have you previously a Do you wish to apply The 50% match for Fe	y for mini-audit funding ederal funds will come	a? □Yes □I	No ional sheets if necess	ary.)			
Do you wish to apply	y for mini-audit funding	a? □Yes □I	No ional sheets if necess	ary.)			
Do you wish to apply	y for mini-audit funding	a? □Yes □I	No ional sheets if necess	ary.)			
Do you wish to apply	y for mini-audit funding	a? □Yes □I	No ional sheets if necess	ary.)			
Do you wish to apply	y for mini-audit funding	a? □Yes □I	No ional sheets if necess	ary.)			
Do you wish to apply	y for mini-audit funding	a? □Yes □I	No ional sheets if necess	ary.)			
Do you wish to apply	y for mini-audit funding	a? □Yes □I	No ional sheets if necess	ary.)			
Do you wish to apply The 50% match for Fe	y for mini-audit funding ederal funds will come	g? □Yes □ r from: (Use addit	ional sheets if necess	ary.)			
Do you wish to apply	y for mini-audit funding ederal funds will come	g?	ional sheets if necess	ary.)			

וש	Check the type of energy report which was completed and submitted pr	ior to this mini-audit report.
; ; ; u	☐ 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		eport, one must be included with this report. Elementary, secondary, and pending on building complexity. All other buildings should use the existing
		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 resubn	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 buildi	ng being audited.
	I have fully disclosed my financial interests relating to this mini-audit ar	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, whi	ons listed in section I of this mini-audit report to be the operations and ch would reduce energy consumption in this building.
	listed in section I. I am not responsible if the actual savings resulting from	11.1
	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 least (did, did not)
	(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
	Based upon the information in section E and the information referred to in	n section F, I recommend that this buildingShould_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 true	e and correct.
		Witnessed by:
	Paul Martinsen Mini-Auditor's Name (Print or Type)	Building Organizational Authority (Print or Type)
	Paul BN outine P.E. 9597	building Organizational Authority (Finit of Type)
ļ	Signature	Signature
	Rieke Carroll Muller Assoc., Inc. Firm Name (if none, enter none)	Date
	P.O. Box 130 Hopkins, MN 55343	
	Address (612) 025 6001	
l	(612) 935-6901 Phone	
l	5-27-80	
	Date	
FINE		
-AU		
MINI-AUDIT STATEMENTS		

F	NAME	POSITION	ORGANIZATION
	Paul Martinsen	Mechanical Engineer	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
	Andy Baltgalvis	Bldg. Maint. Chief	City of Bloomington
F-			
AUDIT			
		, r	
G	BRIEF DESCRIPTION OF GENE Good Condition,	RAL BUILDING CONDITION (i.e. type, and Ice Arena	function)
z			abilitation, conversion from one building type to another)
BUILDING		OF ROOF (i.e. metal beams, wooden rafters,	concrete)
FORM	ROOFING MATERIAL (i.e. tar an	d gravel, shingles, tile)	
ωZ	Tar & Gravel		
Н	INSTRUCTIONS: Correctly answ	er the following questions for the building b	eing mini-audited.
	Is there open land adjacent to the XX Yes □ No	e building?	
			g and the south facing wall unshaded between the hours of 9 a.m. and
		led, what percentage of the surface is unsha	ded?
	What is the overall shape of the XX square □ rectangle □ h	building? H-shaped □ E-shaped □ other (specify).	
	Is the roof of the building flat or XX flat  pitched		
	If pitched, what is the compass of	prientation of the ridgeline?	
	If pitched, what is the angle that	the roof makes with horizontal?	
	Are there large obstructions on t ☐ Yes XXNo	he roof such as chimneys, rooms for mecha	nical equipment, ventilating units, water towers, etc?
	What is the exterior facing mate	rial for the south facing wall?CONCTO	ete Block
	What percentage of the south fa	cing wall is glass?0%	
	Is the building's space heating e XXYes □ No	quipment located within or on the building?	(A no answer indicates the equipment is in a separate building.)
	If the space heating equipment i	s inside the building, where is it located? nt XXRoof □ Other (specify)	
NTIAL	Is the building's water heating e XX Yes □ No	quipment located within the building? (A no	answer indicates the equipment is in a separate building.)
POTE	If the water heating equipment i	s inside the building, where is it located? nt Dother (specify)	
SOLAR POTENTIAL	Is the water heating system a ce	ntral system, does it consist of multiple units	a, or is it a combination of the central and multiple units?

	Instructions: Enter the total energy to unit of measure. Enter the appropriation which the data applies. Refer to pa	iate conversion fact	or from Appendix	B to convert energy	nere was a 20% or ç usage into Btu's.	greater energy savings. Be sure to enter the fis	Indicate the scal years of
			BASE PER	IOD YEAR		Fiscal Year	
	ENERGY TYPE	ENERGY	USAGE	CONVERSION	FACTOR	BTU USA	GE
	Electricity			-			
	Fuel 1						
	Fuel 2			r.			
	TOTAL	75.6 Mary 1. M			A de comitante de la companyo de la companyo de la companyo de la companyo de la companyo de la companyo de la		
			20% SAVIN	GS YEAR		Fiscal Year	
	ENERGY TYPE	ENERGY	USAGE	CONVERSION	N FACTOR	BTU USA	\GE
	Electricity						
s	Fuel 1			-			
20% SAVINGS DATA	Fuel 2						
20% S DATA	TOTAL					·	
J	Instructions: This section is to be co state the roughly estimated range o of the new mini-audit opportunitie percentages by the annual electric	f the percent of total es listed in section al and fuel consum	electrical and fuel L. Secondly, calcu	consumption which w	ould be saved resu	ulting from the impleme	ntation of all
	Check two boxes in each category				_	_	
	Range of Electrical Savings — XXX Range of Fuel Savings — □	0% XIX 5%		□ 15% □ 20% □ 20% □ 20%	□ 25% □ 25%	other (specify) _	
2	Calculate ranges of energy and co						
			Range of Elec	trical Savings			
	% Range	Annual Electrical Consumption	Range of E Saving		Annual Ele Dollars S		of Electrical rs Savings
	lower bound0 % x 1	.3x10 <sup>0</sup> kwh	= 0	_ kwh,0_%	x \$39.1	<u> 26.1</u> 8 = \$_	0
	upper bound $\frac{5}{5}$ % $\times$ 1	.3x10 <sup>6</sup> kwh	$= 6.6 \times 10^{4}$	to _ kwh,5_%	x \$39,1	26.18 <sub>=</sub> \$ 19	956.31
3			Range of I	Fuel Savings			
	% Range	Annual Fuel Consumption	Range of Saving Q	Fuel s %Range	Annual I Dollars S		ge of Fuel irs Savings
	lower bound <u>5</u> % x 5	. <u>2х10<sup>9</sup></u> вtu	$= 2.6 \times 10^{\circ}$	Btu, <u>5</u> _%	× \$13,0	<u>76.83</u> = \$_	<u>653.84</u>
SAVINGS ESTIMATION	to upper bound 10 % x 5		$= 5.2 \times 10^{8}$	Btu,%	× \$13,0	76.83 <sub>=</sub> \$1	,307.68
SAVI	The mini-auditor is not responsible not fall between the roughly estim			plementation of the er	nergy conservatio	n opportunities listed in	section I do

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 **SAVINGS** SUB CLASS CLASS Summer of '78 Heat recovery added to 1 1 1 (Approx.) refrigeration equipment.

Note: Reproduce this page as necessary

VEW

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.

		ICATION		OPTIONAL:	OPTIONAL ENERGY	
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	1	2	Lubricate motors to reduce wear and excessive torque.			
			Where it is impractical to replace			
3	1	2	motors which have low loads and powe factors, use capacitors at motor	r		
			terminals to correct the power facto	r		
			to 90%.			
		_	Check power factors and make			
4	1	3	adjustments to correct equipment. Replace single glazed windows with		<u> </u>	
5	2	10	double glazed thermopanes in lobby.			
6	3	4	Check operation of entire heating/			
0	3	1	cooling control system, including control valves and dampers.			
			Check the calibration of all con-			
7	3	1	trollers and devices for proper		ļ	
			settings and operations.			
8		1	Reduce the amount of infiltration			
0	3		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			
			energy.			
10			Clean the air side of all direct			
10	3		radiators, fin tube convectors and coils to enhance heat transfer.	<u> </u>		
	ļ		Clean and remove obstructions from			
11	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.			
	-	<u> </u>	Keep condenser coil face clean to			
12	3	3	permit proper air flow.			
13	3	3	Check fresh air damper control and operator for tight closing and for			
· · · · · · · · · · · · · · · · · · ·			correct column of minimum fresh			
	<del> </del>	<del> </del>	air supply as per code requirements Inspect mixing dampers for proper			
14	3	3	operation. Adjust 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 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-audit report should be completed by the mini-audit	OPTIONAL:		<del>-</del>
ITEM			NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS	THE WINNER ASSIT OF TOMOTHER	SAVINGS	SAVINGS	DATE OF THIS ELIMENT TOTAL
		027.00	Clean or replace filters periodicall	V		
15	3	3	or when indicated by filter gauges.	ľ	·	
			If there are not gauges, consider			
			installing them.			
			Add heat recovery from refrig-			·
16	3	5	eration equipment to Rink #2.			
			Add insulation to condensing unit			
_17	3	6	suction line from #2 rink east unit.			
			Clean fixtures and lamps			
18	4	3	regularly.			
			In dirty areas enclose			
19	4	3	fixtures to reduce dirt collection.			
			Replace lamps in groups before			'
20	4	3	they burn out to maintain higher			
			average light output per fixture.			
			Keep walls, ceiling and	<del>                                     </del>		
21	.   4	3	floors clean.			
			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	ed.		
			Remove unnecessary lamps, fixtures,			
24	4	4	and ballasts.			
			Reduce outside lighting in parking			
25	5 4	4	lots and at building signs and			
			entrances to the minimum.			
			Allow part of a lighting system			
26	5 4	4	to be turned off, while maintaining			
			the necessary light.			
			Use lower wattage lamps to provide	<b></b>		
27	7 4	Δ	the necessary illumination.			
			Keep records of the operating	<b>†</b>		
28	3 5	1	schedule, monthly energy consumptio	n		
			and purchase of any new equipment	<u> </u>		
			that affects energy consumption			
			of efficiency of the building.			
			These records will indicate the			
			impact of energy conservation			
			measures.	<b></b>		
0.0	_		Review the record books			
29	5	$+$ $\frac{1}{}$	on a regular basis.	<b>_</b>	ļ	
~~	_		Establish a specific maintenance			
30	5	2	schedule for each building to		<b></b>	
	1		ensure that all components of			
			the specific building operate at	-	<b> </b>	
			maximum efficiency.			
		<u> </u>		<u> </u>	<u> </u>	

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.

žö	im	nplemente	d. This sec	tion of the mini-audit report should be completed by the mini-audit	team during OPTIONAL:		
ITE	м	CLASSIF		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NC	)	MAJOR CLASS	SUB CLASS	NEW WINT AGENT OF THE NAME OF	SAVINGS	SAVINGS	
3	1	5	2	Consult manufacturers literature for quidance in establishing a			-
<u>.</u>				maintenance schedule.			
	2	6	1	Adjust water supply to 100 <sup>0</sup> F for all except special requirements (dish-			
3		0		washer supply units, etc.).			
	3	6	1	Check the operation of the tempera- ture controller so overheating does			
د	3	D	<b>.</b>	not occur.			
			0	Periodically drain and			
	34	6	2	remove the sediment. Reduce the water flow of showers,			
3	35	6	5	faucets, and toilets to minimum requirements.			
		_		Provide an automatic draft damper			
3	36		3	control to reduce the heat loss through the breeching (smoke pipe)			
	-			when the gas burner is not in oper- ation. Adjust draft-control with			
				combustion testing equipment to match the firing rate.			
	37	7	4	Maintain the lowest possible hot water temperature which will meet			
	,,	•		space or domestic hot water needs.			
	38	7	4	Check cooling tower fan by listening for any unusual noise or vibration.			
				Inspect condition of V-belt (s) and drive. Align fan and motor as			
				necessary.			
	39	7	4	Keep the cooling tower clean to minimize both air and water pressur	e		
				drop.			·
	40	7	4	Determine if there is air bypass from the cooling tower outlet			
				back to inlet.			
-							
			<del></del>			<del></del>	A

## MINI-AUDIT REPORT

A	BUILDING NAME		NAME OF ORGANIZATION	DATE 5-23-80
-	<u>Dwan Golf Course - Club</u>	House	City of Bloomington	5-23-60
	BUILDING ADDRESS		ADDRESS	
	3301 West 110th Street		2215 West Old Shakopee Roa	ad
<u>_</u>	CITY	ZIP CODE	CITY	ZIP CODE
CONTACT	Bloomington, MN	55431	Bloomington, MN	55431
TAY.	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE
ပြီ	Randy Smith	612) 935-6901	Arthur Jensen	612) 881-5811

	Instructions: For blocks 1 and 2 check describes the building type and then w						four categories
1	1. OWNERSHIP TYPE XI Public (PUB) □Non-Profit Association (NAI	3a. P)	SCHOOLS □Elementary □Secondary □Coll. or Univ.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMENT  Office  Ostorage  Service	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
2000	2. ULTIMATE OWNER  County (CN' XXII City (CIT	Y)	□Vocational □Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Library □Police □Fire XXDOTHER	(LOCG-LBRY) (LOCG-PLCE) (LOCG-FIRE) (LOCG-OTHR)
	☐ Township (TO¹ ☐ State (STA☐ ☐ Public School (PUS) ☐ Private School (PRIVATE SCHOOL) ☐ Non-Profit Association (NP☐ ☐ Indian Tribe (IND	AT) b. SC) SC) AP)	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	Lentitled Fundi	ng Information, determine	if the facilities are	elia	nible for both Federal and S	tate funding or

	al funding, then answe				
Have vo	for both Federal and S ou received a mini-audit ou previously applied for wish to apply for mini-	tate Funding: t grant before? 「☐ Yes or mini-audit funding? audit funding? ☐ Yes	sXXXINo XXXIVes □ No sXXIINo		
Name:					
Signature					
Have you Have you Do you	ou previously applied for wish to apply for mini-	t grant before?	☐ Yes ☐ No		
	6 match for Federal fun	nds will come from: (Us	e additional sheets if n	ecessary.)	
	6 match for Féderal fur	nds will come from: (Us	e additional sheets if n	ecessary.)	
, , , o o o	6 match for Féderal fur	nds will come from: (Us	e additional sheets if n	ecessary.)	
	6 match for Féderal fur	nds will come from: (Us	e additional sheets if n	acessary.)	
	6 match for Féderal fur	nds will come from: (Us	e additional sheets if n	ecessary.)	
	6 match for Féderal fur	nds will come from: (Us	e additional sheets if n	ecessary.)	
	6 match for Féderal fur	nds will come from: (Us	e additional sheets if n	ecessary.)	
	6 match for Federal fur		e additional sheets if n	ecessary.)	
Date:	6 match for Federal fur	nds will come from: (Us	e additional sheets if n	ecessary.)	

D	Check the type of energy report which was completed and submitted p	prior 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 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 epending on building complexity. All other buildings should use the existing
		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 th 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	and 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	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 did not save at least (did, did not)
	Based upon my observation of the physical characteristics of this build not be the subject of a maxi-audit.  (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 and other criteria.	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 a undergo further solar conversion analysis, and/or Should n wind, wood. (Circle proper resources) (should, should	(should, should not) undergo further analysis of the renewable resources — waste.
	In my judgement, as a mini-auditor, all of the above statements are tru	ue and correct
	,, , ,	<i>P</i>
		Witnessed by:
	Randy Smith	
	Mini-Auditor's Name (Print or Type)  206	Building Organizational Authority (Print or Type)
	Signature 200	Signature
	Rieke Carroll Muller Assoc., Inc.	
	Firm Name (if none, enter none) P.O. Box 130 Hopkins, MN 55343	Date
	Address	
	(612) 935-6901	
	5-23-80	
	Date	
		1
FIN		
MINI-AUDIT STATEMENTS		
HINI-		
es 07		

F	NAME	POSITION	ORGANIZATION	
	Dandy Smith	Contified Mini Auditon	Dioko Cappoll Mullon Assoc	Inc
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc.	, Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington	
AUDIT TEAM	79-100-100 <sub>0-100</sub> -100-100-100-100-100-100-100-100-1			
AE TE				
		r ,		
G	Good, Clubhou	NERAL BUILDING CONDITION (i.e. type, and fun	ction)	
	MAJOR CHANGES PLANNED	WITHIN NEXT 15 YEARS (i.e. demolition, rehabi	itation, conversion from one building type to another)	
Z 0	None			
ATI		S OF ROOF (i.e. metal beams, wooden rafters, co	ocrete)	
BUILDING INFORMATION	Wooden Rafter ROOFING MATERIAL (i.e. tar			
SE	Tar and Grave	2]		
H	INSTRUCTIONS: Correctly an	swer the following questions for the building bein	g mini-audited.	
	Is there open land adjacent to	the building?		
		ated in an unshaded area. Is the roof of the building a	nd the south facing wall unshaded between the hours of	9 a.m. and
	3 p.m.?  Roof: XX Yes □ No.  South facing Wall: XX Yes	□ No		
	If the roof or wall are partly sh % of roof unshaded % of south facing wall unsh	naded, what percentage of the surface is unshaded add%	1?	
	What is the overall shape of th	ne building? □ H-shaped □ E-shaped □ other (specify)		
	Is the roof of the building flat XX flat □ pitched	or pitched?		
	If pitched, what is the compas	s orientation of the ridgeline?		
	If pitched, what is the angle the	nat the roof makes with horizontal?		
	Are there large obstructions o		al equipment, ventilating units, water towers, etc?	
	What is the exterior facing ma	aterial for the south facing wall? Wood Si	ding	
	What percentage of the south	facing wall is glass? <u>60</u> %		
	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 by	uilding.)
	If the space heating equipmen XX Ground Floor  Baser	nt is inside the building, where is it located? ment Boof Other (specify)		
SOLAR POTENTIAL	Is the building's water heating	g equipment located within the building? (A no an	swer indicates the equipment is in a separate building	.)
R POTI	If the water heating equipmer	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, of Combination	r is it a combination of the central and multiple units?	•

L				BASE	PERIOD YEA	.R		Fiscal Year	
	ENERGY TYPE		ENERGY	USAGE	c	ONVERSION	FACTOR	В	TU USAGE
	Electricity								
	Fuel 1						<u>, , , , , , , , , , , , , , , , , , , </u>		
	Fuel 2				<b>,</b>				
	TOTAL						·····		
				20% SA	VINGS YEAI	R		Fiscal Year	
	ENERGY TYPE		ENERGY	USAGE	c	ONVERSION	FACTOR	В	TU USAGE
	Electricity		**************************************						
	Fuel 1								
	Fuel 2								
	TOTAL					<del></del>			
_	Instructions: This section is to b	e completed	by the mir	ni-auditor after	the walk-thru	portion of the	mini-audit Fir	st, check the app	ropriate boxes which
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportul percentages by the annual electric contents of the section of the sectio	ge of the perc nities listed strical and fu	ent of tota in section	l electrical and L. Secondly, o	fuel consump calculate the	tion which wo range of ene	uld be saved re	sulting from the i	implementation of al
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec Check two boxes in each categ	ge of the perc nities listed strical and fu mory —	cent of tota in section rel consun	al electrical and L. Secondly, on ption data on	fuel consump calculate the the energy r	otion which wo range of ener eport.	uld be saved re rgy and cost s	esulting from the is avings by multip	implementation of all olying the estimated
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec	ge of the perc nities listed strical and fu mory —	ent of tota in section	l electrical and L. Secondly, o	fuel consump calculate the	tion which wo range of ene	uld be saved re	esulting from the is avings by multipude the savings by multipude the savings by	implementation of all blying the estimated est
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec Check two boxes in each categ Range of Electrical Savings —	ge of the peronities listed and functional and functions —	xXX5%	al electrical and L. Secondly, on ption data on	fuel consump calculate the the energy re	otion which wo range of energeport.	uld be saved rergy and cost s	esulting from the is avings by multipude the savings by multipude the savings by	implementation of all blying the estimated
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec Check two boxes in each categ Range of Electrical Savings — Range of Fuel Savings —	ge of the peronities listed and functional and functions —	xXX5%	ll electrical and L. Secondly, on phion data on ☐ 10%	fuel consump calculate the the energy re	eport.  20% 20%	uld be saved rergy and cost s	esulting from the is avings by multipude the savings by multipude the savings by	implementation of all blying the estimated
	state the roughly estimated rang of the new mini-audit opportur percentages by the annual elec Check two boxes in each categ Range of Electrical Savings — Range of Fuel Savings —	ge of the peronities listed and functional and functions —	XX5% XX5%  Electrical mption	al electrical and L. Secondly, on phion data on 10%  XX10%  Range of Range	fuel consump calculate the the energy re 15%	20% 20% 20% Revings	□ 25% □ 25% □ Dollars	caulting from the isavings by multiput other (specifical	ecify)
	state the roughly estimated rang of the new mini-audit opporture percentages by the annual electorical Savings —  Range of Electrical Savings —  Calculate ranges of energy and	ge of the percentiles listed strical and furory —  XAX 0%  0%  cost saving  Annual E	XX5% XX5%  SS —  Electrical mption  / kwh	Range of Range =	fuel consumpalculate the the energy relation 15%  15%  15%  Electrical Sator Energy vings  kwh,	evings  Range  to	□ 25% □ 25% □ 25% □ 27% □ 25%	osulting from the isavings by multiput other (specifical Spent 51.17 =	ecify)  Range of Electrical Dollars Savings
	state the roughly estimated rang of the new mini-audit opporture percentages by the annual electron category and the state of the state	ee of the perchities listed strical and furory —  XX 0%  0%  cost saving  Annual E  Consuit 63237	XX 5% XX 5%  Electrical mption  where the second of the se	Range of Sa = 3161.	fuel consumpalculate the the energy relation 15%  15%  15%  Electrical Sator Energy vings  kwh,	vings  Range  O  to  5  %	25% 25% Dollars x \$ 24!	osulting from the isavings by multiput other (specifical Spent 51.17 =	ecify)  Range of Electrical Dollars Savings  \$
	state the roughly estimated rang of the new mini-audit opporture percentages by the annual electron category and the state of the state	e of the perchities listed strical and furory — XFX 0% □ 0% □ cost saving 63237 63236	XXX5% XXX5% XXX5%  IS —  Electrical mption  Manual Fuel mption	Range  and Sange  Range  Range  Range  Range  Range  Range  Range  Range	to e of Fuel Savie	vings  Range  O  to  5  %	and be saved regy and cost s  25% 25% Annual E Dollars x \$ 24! x Annual	osulting from the isavings by multiput other (specifical Spent 51.17 =	Range of Electrical Dollars Savings  \$ 122.59  Range of Fuel Dollars Savings
	state the roughly estimated rang of the new mini-audit opportunger the new mini-audit opportunger the new mini-audit opportunger the new mini-audit opportunger the new mini-audit opportunger the new mini-audit opportunger the new mini-audit opportunger that the new mini-audit opportunger that new mini-audit opportung	e of the perchities listed strical and furory —  XXX 0%  00%  1 cost saving  63237  63236  Annual E Consu Consu	XX5% XX5% XX5%  S=  Electrical mption    kwh	Range  and Sange  Range  Range  Range  Range  Range  Range  Range  Range	toel consumpalculate the the energy relation 15%    15%   15%   15%   Electrical Satisfies Satis	evings  Range  Which wo range of energeport.	and be saved regy and cost s  25% 25% Annual E Dollars x \$ 24! x Annual	osulting from the isavings by multiput other (specifical spent)  51.17 =	Range of Electrical 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.

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

implemented. This section of the mini-audit report should be completed by the mini-audit team OPT				DPTIONAL: OPTIONAL:			
ITEM	CLASSIFICATION NO.		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION	
NO.	MAJOR CLASS	SUB CLASS	NEW MINIPAGENT OF TONTONTIES		SAVINGS		
1 1 1 Keep all controls free of dust.							
			Check the amount of insulation in				
2	2	11	the ceiling.				
			Add insultation above	-		·	
_3	2	1	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.				
	1-6-		Add or modify window drapes, blinds				
6	2	3	and shutters to resist temperature d	fferen	ce.	·	
			Plant deciduous trees for summer				
_7	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.				
			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.				
			Check the calibration of all con-	<b></b>			
11	3	1	trollers and devices for proper				
			settings and operations.				
			Raise the supply air temperature				
12	3	1	for cooling to the highest point				
			necessary to provide minimum				
	_		required cooling.				
13	3	1	Lower the supply air temperature for heating to the lowest point				
13	- 3	<b>.</b>	necessary to provide minimum	<b>†</b>	<u> </u>		
			required heating				
			65°F maximum occupied, 60°F maximum				
14	3	1	unoccupied during the heating season	ı .			
			78°F minimum when occupied and no				
15	3	1	cooling when unoccupied during the				
			cooling season.				
16	2	2	Clean and remove obstructions from				
16	3	2	all room air outlets and inlets (diffusers, registers, and grillers		<b>_</b>		
			They should be kept clean and free	<b>'</b>  •			
· · · · · · · · · · · · · · · · · · ·	_	<del> </del>	of all dirt and foreign materials.	<del> </del>	<del> </del>		
			or arr arre and roleign materials.				

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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.

Ζō	implemente	a. Inis sec	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:			
ITEM	CLASSIF	ICATION O.	NEW MINI-AUDIT OPPORTUNITIES		ENERGY	DATE OF IMPLEMENTATION	
NO	MAJOR CLASS				SAVINGS	DATE OF INFEEMENTATION	
17	2	2	Inspect fans				
17	3	3	for normal operation.	ļ			
10			Keep condenser coil face clean				
18	3	3	to permit proper air flow.	ļ	<u> </u>		
19	3	3	Inspect ductwork for air leakage.				
19			Seal all leaks by taping or caulking.  Inspect				
20	3	3	ductwork insulation.				
	<del>                                     </del>	— <u> </u>	Inspect damper blades and linkages.				
21	3	3	Clean, oil and adjust.				
			Take special note of fresh air				
22	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.				
			Clean or				
23	3	3	replace filters periodically.				
			Instruct occupants and maintenance				
24	4	11	personnel to switch off all lights	<u> </u>			
			when they are not needed.				
			Clean fixtures and				
25	4	3	lamps regularly.				
			Use lower wattage lamps to				
26	4	4	provide the necessary illumination.				
			Allow part of a lighting system to				
27	4	4	be turned off, while maintaining	<u> </u>			
			the necessary light.				
			Keep records of the operating				
28	5	1_1_	schedule, monthly energy consumption		<u> </u>		
			of efficiency of the building. These				
			records will indicate the impact		ļ		
			of energy conservation measures.				
	_		Review the record books				
29	5	$+$ $\frac{1}{1}$	on a regular basis.	<del> </del>	-		
20		2	The burner system of fossil-fuel				
30	6	2	water heaters should be kept clean		<del> </del>		
			and in good operating condition.				
			Clean air-sides, remove soot, and				
_31	7	3	scrape scale in forced warm air	ļ	<b>_</b>	<u> </u>	
			furnaces.				
			If the firing rate of gas or oil				
_32		3	burners is too high, it causes				
			short cycling and excessive fuel con	+			
			sumption. Too low a rate requires				

JEW 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 are long, 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.	MAJOR SUB CLASS CLASS		NEW MINI-AUDIT OPPORTUNITIES		COST SAVINGS	DATE OF IMPLEMENTATIO
	027.00	OLAGO	constant operating and delivers			
			inadequate heat to the spaces. Maintain the lowest possible hot	<del></del>		
33	7	4	water temperature which will meet			
	,	•	domestic hot water needs.			
		***************************************	Turn off gas pilots for furnaces,			
34	7	4	boilers, and space heaters during the non-heating months and during			
			long unoccupied periods.			
				<u> </u>		
art — ar ar ar ar ar ar ar ar ar ar ar ar ar						
	<u> </u>					
	1					

## MINI-AUDIT REPORT

Δ	BUILDING NAME		NAME OF ORGANIZATION	DATE	
<i>-</i>	Dwan Golf Course Mainten	ance Building	City of Bloomington 5-23-80		
	BUILDING ADDRESS		ADDRESS		
	3651 West 110th Street		2215 West Old Shakopee Road		
_	CITY	ZIP CODE	CITY	ZIP CODE	
ACT	Bloomington, MN	55431	Bloomington, MN	55431	
CONT, DATA	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE	
S S S	Randy Smith (	612) 935-6901	Arthur Jensen (	612) 881-5811	

B		structions: For blocks 1 and 2 escribes the building type and							our categories
	1.	OWNERSHIP TYPE  X Public (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  Township	(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 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? ↓ Yes X₩ No Have you previously applied for mini-audit funding? XX Yes □ No Do you wish to apply for mini-audit funding? □ Yes X₩ No
	Date:
	Name:
	Signature:
	If eligible for Federal funding only: Have you received a mini-audit grant before?
ST	
EQUE	Date:
NODIT	Name:
MINI-AUDIT FUNDING REQUEST	Signature:

D	Check the type of energy report which was completed and submitted	prior 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 CHECK-OFF		it report, one must be included with this report. Elementary, secondary, and depending on building complexity. All other buildings should use the existing
LL		1
	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.	ed 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 resu	his building. I found all information contained therein to be correct <i>OR</i> I have bmitted with this mini-audit report to the Minnesota Energy Agency.
	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 audit.
	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 operations and which would reduce energy consumption in this building.
	listed in section I. I am not responsible if the actual savings resulting	
	Based on actual records, the energy conservation operating and maint 20% of the building's energy consumption as specified in section I.	tenance procedures listed in section K did not save at least (did, did not)
	(should, should not)	ilding and the building's major energy using systems, I recommend that this tto make the maxi-audit funding determination based on this mini-audit report
	undergo further solar conversion analysis, and/orShould wind, wood. (Circle proper resources) (should, should in my judgement, as a mini-auditor, all of the above statements are transfer or the statement in the statement	
		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	Date
	Address	•
	(612) 935-6901	•
	5-23-80	
	Date	•
S		
IDIT		
MINI-AUDIT STATEMENTS		

F	NAME	POSITION	ORGANIZATION
"	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
!	Doinout Fac	Maintenance Engineer	City of Planmington
	Reinert Ege	Maintenance Engineer	City of Bloomington
ĻΣ			
AUDIT			
L		1	
	BRIEF DESCRIPTION OF GE	NERAL BUILDING CONDITION (i.e. type, and fund	ction)
G	Good, Repair a		,
	MAJOR CHANGES PLANNED	WITHIN NEXT 15 YEARS (i.e. demolition, rehabil	itation, conversion from one building type to another)
Z	None		
BUILDING INFORMATION		S OF ROOF (i.e. metal beams, wooden rafters, con	crete)
28	Wooden Rafters ROOFING MATERIAL (i.e. tar		
INF.	Tar and Gravel		
	141 4114 414701		
Н	INSTRUCTIONS: Correctly an	nswer the following questions for the building being	a mini-audited.
	Is there open land adjacent to		
	XX Yes No	the building?	
		ated in an unshaded area. Is the roof of the building a	nd the south facing wall unshaded between the hours of 9 a.m. and
	3 p.m.? Roof: XXX Yes □ N.Q		
	South facing Wall: XX Yes	□ No	
	If the roof or wall are partly sh	haded, what percentage of the surface is unshaded	?
	% of roof unshaded % of south facing wall unsh	aded%	
	What is the overall shape of th	ne building?	
	□ square XX rectangle [	☐ H-shaped ☐ E-shaped ☐ other (specify)	
	Is the roof of the building flat	or pitched?	
		es orientation of the ridgeline?	
		ss orientation of the ridgeline?	
		hat the roof makes with horizontal?°	
	Are there large obstructions of Yes XX No	on the roof such as chimneys, rooms for mechanica	al equipment, ventilating units, water towers, etc?
		aterial for the south facing wall? Wood S	iding
	_	facing wall is glass? %	
			A Louisian
	Yes No	g equipment located within or on the building? (A	no answer indicates the equipment is in a separate building)
	If the space heating equipmen	nt is inside the building, where is it located?	
	XX Ground Floor □ Baser	ment Roof Other (specify)	
IA	Is the building's water heating $X Y$ Yes $\square$ No	g equipment located within the building? (A no ans	swer indicates the equipment is in a separate building.)
JEN ON	****		
SOLAR POTENTIA	Ground Floor D Base	nt is inside the building, where is it located? ment Dother (specify)	
LAR	Is the water heating system a	central system, does it consist of multiple units, o	r is it a combination of the central and multiple units?
SZ	XX Central Multiple D	Combination Combination	

	unit of measure. Enter the appropr	used of each fuel type for the base peri- riate conversion factor from Appendia ages 7 and 15 for a complete explana	B to convert energy usage into	20% or greater energy savings. Indicate the o Btu's. Be sure to enter the fiscal years of
		Fiscal Year		
	ENERGY TYPE	ENERGY USAGE	CONVERSION FACTOR	R BTU USAGE
	Electricity			
	Fuel 1			
	Fuel 2			
	TOTAL			
		20% SAVIN	IGS YEAR	Fiscal Year
	ENERGY TYPE	ENERGY USAGE	CONVERSION FACTOR	R BTU USAGE
	Electricity			
s	Fuel 1			
AVING	Fuel 2			
20% SAVINGS DATA	TOTAL			
		K		
J	state the roughly estimated range of the new mini-audit opportunities	of the percent of total electrical and fuel	consumption which would be salulate the range of energy and	dit. First, check the appropriate boxes which wed resulting from the implementation of all cost savings by multiplying the estimated
1	Check two boxes in each category	/		
	Range of Electrical Savings — XX	10% XX 5% □ 10%	□ 15% □ 20% □ 25	5% Other (specify)
	Range of Fuel Savings —	□ 0% XCX 5% XCX 10%	□ 15% □ 20% □ 29	5% Other (specify)
2	Calculate ranges of energy and co	ost savings —		
		Range of Ele	ctrical Savings	
	% Range	Annual Electrical Range of E Consumption Saving		nual Electrical Range of Electrical ollars Spent Dollars Savings
	lower bound0 % x	22988 kwh = 0	kwh,0_	<u>1004.85</u> = \$ 0
	to	to	to	to
	upper bound5 % x	22988 kwh = $1149.4$	kwh,5_% × \$.	<u>1004.85</u> = \$ <u>50.24</u>
3		Range of	Fuel Savings	
	% Range	Annual Fuel Range of Consumption Savin	gs % Range D	Annual Fuel Range of Fuel collars Spent Dollars Savings
	lower bound5% x 5	51 <u>.6x10<sup>6</sup> Btu = 25.9x10</u>	<u>5</u> вtu, <u>5</u> % х <b>\$</b> .	<u>1181.4</u> 0 = \$ <u>59.07</u>
SI	to upper bound 10 % x 5	to 51 <u>.6x10<sup>6</sup> Btu = 51.6x10</u>	5 to 10 % x \$	1181.40 <sub>=</sub> \$ 118.14

The mini-auditor is not responsible if actual savings resulting from the implementation of the energy conservation opportunities listed in section I do not fall between the roughly estimated ranges which are specified.

K

Instructions. Read through the list of energy conservation opportunities provided. As you read through the items, list below to be 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					
ITEM NO.	CLASSIF N MAJOR	FICATION IO. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION		
	CLASS	CLASS		SAVINGS	SAVINGS			
				<u> </u>				
	ļ			<del> </del>				
	<del> </del>							
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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.

NO	implemente	a. Inis sec	tion of the mini-audit report should be completed by the mini-audit	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.			
2	2	1	Check the amount of insulation in the ceiling.			
	<del>-  </del>	1	Add insulation in			
3	2	1	attic spaces if needed.			
4	2	2	Weatherstrip all exterior doors including garage or delivery doors.			
5	2	2	Replace an existing door with			,
			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.			
			Inspect window closing and locking			
7	2	10	devices to insure a tight window.	<u> </u>		
8	2	10	Replace single glazed windows with double glazed thermopanes.		-	
			Check the calibration of all			
9	3	1	controllers and devices for proper settings and operations.	ļ		
10	3	1	Lower the supply air temperature for heating to the lowest point			
			necessary to provide minimum			
			reguired heating. 65°F maximum occupied, 60°F maxi-	<u> </u>		
11	3	1	mum unoccupied during the heating			
١			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.			
1.0			Inspect and lubricate bearings	<u> </u>	<u> </u>	
13	3	3	of fans. Inspect fans for	<del> </del>	<u> </u>	
14	3	3	normal operation.		1	
1.5	1	1	Inspect ductwork for air leakage.			
15_	3	3	Seal all leaks by taping or caulking Inspect	ng.		
16_	3	3	ductwork insulation.		<u> </u>	
17	3	3	Clean or replace filters periodically.			
			Instruct occupants and maintenance			
18	4	1 1	personnel to switch off all lights when they are not needed.	+	<u> </u>	
			when they are not needed.			

IEW IEW

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	N	ASSIFICATION NO. NEW MINI-AUDIT OPPORTUNITIES		ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO.	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	
19	4	2	Clean windows.			
			Clean fixtures and			
20	4	3	lamps regularly.			
			Use lower wattage lamps to provide			
21	4	4	the necessary illumination.			
	_		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			
			and purchase of any new equipment			
			that affects energy consumption of	<u> </u>		
			efficiency of the building. These			
<del></del>			records will indicate the impact of	ļ		
			energy conservation measures.			
0.4	_	_	Review the record			
24	5	11	books on a regular basis.			
0.5			The burner system of fossil-fuel			
25	6	2	water heaters should be kept clean	ļ		
			and in good operating condition.			
			Clean air-sides, remove soot, and			
26	<del>  7</del>	3	scrape scale in forced warm air furnaces.	ļ		
			Turnaces.		·	
07	7	,	Maintain the lowest possible hot			
27	7	4	water temperature which will meet			
			domestic hot water needs.			
•			Turn off gas pilots for furnaces,			
28	7	4	boilers, and space heaters during	ļ	ļ	
	t.		the non-heating months and during			
		<u> </u>	long unoccupied periods. Keep all heat exchanger surfaces	<b> </b>	<del> </del>	
29	7	4	clean. Check air-to-fuel ratio and			
	,	<u> </u>	adjust as necessary.			
			Follow quidolines average of few few			
30	7	4	Follow guidelines suggested for fan and motor maintenance.			
30	<del>'</del>	+ 4	and motor maintenance.	<u> </u>		
				-		
		<u> </u>		1		

## **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	ZIP CODE 55437	CITY Bloomington, MN	ZIP CODE 55431	
CONTACT DATA	PERSON COMPLETING FORM Randy Smith (	TELEPHONE 612) 935-6901	CONTACT PERSON	TELEPHONE 612) 881-5811	

	Randy Smith (612) 933-6901 Archur densen (612) 661-3611
В	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.
	1. OWNERSHIP TYPE X Public (PUB) Secondary (SCHL-SECD) Service (LOCG-SERV) COCG-SERV)
CODE	County   CITY   CONTRICT
BUILDING ELIGIBILITY CODE	□ State (STAT) □ Public School (PUSC) □ Private School (PRSC) □ Non-Profit Association (INDN) □ Indian Tribe □ State (STAT) □ Public CARE □ Nursing Home (PBCR-NURS) □ Long Term Care (PBCR-TERM) □ Long Term Care (PBCR-TERM) □ Public Health Ctr. (PBCR-RHAB) □ Public Health Ctr. (PBCR-HCTR) □ Res. Child Care Ctr. (PBCR-RCCC) □ CARE □ Nursing Home (PBCR-NURS) □ General (HOSP-GENL) □ Tuberculosis (HOSP-TUBR) □ OTHER (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.
	Have you received a mini-audit grant before?
b	
NDING REQUEST	Date
G RE	Name:
A-PA-	Signature

$ \mathbf{D} $	Check the type of energy report which was completed and submitted	prior to this mini-audit report.
EPORT F	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)  X ☐ Existing Building Energy Report (Form No. EN-00041-01)	
ENERGY REPORT		t report, one must be included with this report. Elementary, secondary, and depending on building complexity. All other buildings should use the existing
E	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.	ed 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 resulted.	his building. I found all information contained therein to be correct <i>OR</i> I have bmitted with this mini-audit report to the Minnesota Energy Agency.
	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 audit.
	I have walked through this building and have found the recommenda maintenance changes, and low cost energy conservation measures, w	ations listed in section I of this mini-audit report to be the operations and which would reduce energy consumption in this building.
	listed in section I. I am not responsible if the actual savings resulting	
	Based on actual records, the energy conservation operating and maint 20% of the building's energy consumption as specified in section I.	enance procedures listed in section K <u>Q1Q NOT</u> save at least (did, did not)
	(should, should not)	Iding 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
	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/orShoule	not 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 tr	rue and correct.
		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	
	·	
Ş		
MINI-AUDIT STATEMENTS		
A-A		
ST		

F	NAME	POSITION	ORGANIZATION	
4				
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller	Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington	
AUDIT TEAM				are the second s
٣-1				
G		NERAL BUILDING CONDITION (i.e. type, and fu	nction)	
Ì	Good, Clubhouse	WITHIN NEXT 15 YEARS (i.e. demolition, rehab	ilitation, conversion from one building type	e to another)
NO	None STRUCTURAL COMPONENT	S OF ROOF (i.e. metal beams, wooden rafters, co	norote)	
MAA	Wooden Rafters		nicrete)	
BUILDING	ROOFING MATERIAL (i.e. tar	and gravel, shingles, tile)		
<u> </u>	Shingles			
Н	INSTRUCTIONS: Correctly ar	nswer the following questions for the building being	ng mini-audited.	
	Is there open land adjacent to XXX Yes □ No	the building?		
	Solar collectors need to be loca 3 p.m.?	ated in an unshaded area. Is the roof of the building	and the south facing wall unshaded betweer	the hours of 9 a.m. and
	Roof: ⊠XYes □ No South facing Wall: ØXYes	□ No		
	If the roof or wall are partly si	haded, 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 XX rectangle	ne building? □ H-shaped □ E-shaped □ other (specify)		tarangan di pagagan pada dan Atabah dan dan bahada dan dan dan dan dan dan dan dan dan
	Is the roof of the building flat	or pitched?		
			-South	
	If pitched, what is the angle to	hat the roof makes with horizontal? 45	o -	
	Are there large obstructions o	on the roof such as chimneys, rooms for mechani	cal equipment, ventilating units, water tow	ers, etc?
	What is the exterior facing ma	aterial for the south facing wall?	Siding	
	What percentage of the south	facing wall is glass?%		
	Is the building's space heatin XXX Yes □ No	g equipment located within or on the building? (A	no answer indicates the equipment is in a	a separate building.)
	If the space heating equipme  Ground Floor XXBase	nt is inside the building, where is it located? ment □ Roof □ Other (specify)		
A Z		g equipment located within the building? (A no ar	nswer indicates the equipment is in a separ	rate building.)
MATIO	If the water heating equipmen	nt is inside the building, where is it located? ment		
SOLAR POTENTIAL	^^	central system, does it consist of multiple units	or is it a combination of the central and m	ultiple units?

				BASE I	PERIOD YEA	\R		Fiscal Y	ear
	ENERGY TYPE		ENERGY	USAGE		ONVERSION	FACTOR		BTU USAGE
	Electricity								
	Fuel 1								
	Fuel 2								
	TOTAL								
				20% SA	VINGS YEA	R		Fiscal \	/ear
	ENERGY TYPE		ENERGY	USAGE		CONVERSION	FACTOR		BTU USAGE
	Electricity								
	Fuel 1								
W 1 W 1	Fuel 2								
۲								<del></del>	
5	TOTAL  Instructions: This section is to b	e completed	by the min	i-auditor after	the walk-thru	portion of the	mini-audit. Fir	st, check the	appropriate boxes which
NO.		ge of the percentiles listed etrical and functions are given by the percentiles are given by the given by the percentiles are given by the percentiles are given by the percentiles are given by the given by t	ent of total in section	electrical and t L. Secondly, o	fuel consump calculate the	otion which wo range of ene	uld be saved re	sulting from avings by m	the implementation of all
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportur percentages by the annual election of the two boxes in each category.	ge of the percentiles listed etrical and functions are given by the percentiles are given by the given by the percentiles are given by the percentiles are given by the percentiles are given by the given by t	ent of total in section el consum	electrical and t L. Secondly, c ption data on	fuel consump calculate the the energy r	otion which wo range of ene eport.	uld be saved re rgy and cost s	sulting from avings by m	the implementation of all ultiplying the estimated
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportur percentages by the annual electhoday the control of the c	ge of the percentiles listed strical and function with the strical and function with the strice of t	ent of total in section el consum XX 5% XX 5%	electrical and the L. Secondly, of ption data on 10%	fuel consump salculate the the energy r	otion which wo range of ene eport.	uld be saved re rgy and cost s	sulting from avings by m	the implementation of all ultiplying the estimated
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportur percentages by the annual election Check two boxes in each categ Range of Electrical Savings — Range of Fuel Savings —	ge of the percentiles listed ctrical and furlion with the percentiles and the percentiles and furlion with the percentiles and furlion with the percentiles and furlion with the percentiles and furlion with the percentiles and furlion with the percentiles and furli	xxx 5% xxx 5% xxx 5%	electrical and the L. Secondly, of ption data on 10%  10%  Range of	fuel consump salculate the the energy r	otion which wo range of ene eport.	□ 25%	sulting from avings by m	the implementation of all ultiplying the estimated  (specify)  (specify)
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportur percentages by the annual election Check two boxes in each categ Range of Electrical Savings — Range of Fuel Savings —	ge of the percentiles listed strical and function with the strical and function with the strice of t	xxx 5% xxx 5% xxx 5% s —	electrical and to L. Secondly, option data on 10%  \text{\tin}\text{\tetx{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texicl{\text{\text{\texicl{\text{\texi}\text{\texit{\texi\texit{\text{\text{\text{\texit{\texi{\texi{\text{\texi{\tet	fuel consump salculate the the energy r	otion which wo range of ene eport.  20% 20% 20% Range	□ 25% □ 25% □ Dilars	sulting from avings by m  other other	the implementation of all ultiplying the estimated
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportur percentages by the annual elector Check two boxes in each categor Range of Electrical Savings — Range of Fuel Savings — Calculate ranges of energy and Range	ge of the percentiles listed ctrical and furory —  XX 0%  0%  I cost saving  Annual E  Consur	xxx 5% xxx 5% xxx 5% s — Electrical mption	electrical and the L. Secondly, of ption data on 10%  \text{\tiny{\text{\tinit}\text{\text{\text{\text{\text{\text{\text{\text{\tex{\tex	fuel consumpalculate the the energy relation 15%  15%  15%  Electrical Sator Energy vings  kwh,	otion which wo range of ene eport.  20% 20% 20% 4 vings 4 Range 0 % to 5	□ 25% □ 25% □ 25%  Annual E Dollars  x \$ 31.	sulting from avings by m	the implementation of all ultiplying the estimated (specify) (specify)  Range of Electrical Dollars Savings
NO.	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportur percentages by the annual elector Check two boxes in each categor Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and   Range lower bound — 0 % x	ge of the percentiles listed strical and fur ory — XX 0% 0% I cost saving Annual E Consur 49560	xXX 5%  XXX 5%  XXX 5%  xXX 5%  xXX 5%	electrical and the L. Secondly, of ption data on 10%  The Range of Range of Sa  = 0  = 24	fuel consumpalculate the the energy related to the energy related to the energy related to the energy vings to 7.8	brion which wo range of ene eport.  20% 20% 20% 4 Range 0 % to 5 %	25% 25% Annual E Dollars x \$ 31	ulting from avings by m	the implementation of all ultiplying the estimated (specify)  (specify)  Range of Electrical Dollars Savings  \$
	Instructions: This section is to b state the roughly estimated rang of the new mini-audit opportur percentages by the annual elector Check two boxes in each categor Range of Electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy and   Range lower bound — 0 % x	e of the percentiles listed ctrical and fur ory — XX 0% 0% I cost saving Annual E Consur 49560	xXX 5% xXX 5% xXX 5% s — Electrical enption kwh kwh	electrical and the secondly, of ption data on the secondly of	Lectrical Savings kwh, to 78 kwh, to 75 Fuel Savings	brion which wo range of ene eport.  20% 20% 20% 4 Range 0 % to 5 %	and cost s  25% 25% Deliars  x  Annual E Dollars  x  Annual Dollars	ulting from avings by m other other other lectrical Spent 16.55	the implementation of all ultiplying the estimated (specify)  (specify)  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 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	CATION		OPTIONAL:		
NO.	MAJOR CLASS	O. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST SAVINGS	DATE OF IMPLEMENTATION
	CLASS	CLASS				
				-		
				+		
					<del> </del>	
						-
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			•			
					<del> </del>	

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.

ZO	implemente	ed. This sec	tion of the mini-audit report should be completed by the mini-audit	team during OPTIONAL:	_	=
ITEM	CLASSIF	ICATION O.		ENERGY	ENERGY COST	DATÉ OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES		SAVINGS	SATE OF IMPERIOR
1	1	1	Keep all controls free of dust.			
		<del></del>	Check the amount of insulation	**************************************		
2	2	1_1	in the ceiling.			
			Add insulation in			
3	2	11	attic spaces if needed.			
			Weatherstrip all			
4	2	2	exterior doors.			
5	2	2	Replace an existing door with one			
	+	1-6-	of a higher R-value. Add or modify drapes, blinds, and			
6	2	3	shutters to resist temperature			
			changes more effectively.			
	<b>†</b>		Plant deciduous trees for summer			
7	2	3	shading.			
0			South and west facing windows should			
88	2	3	be fitted with solar shading devices		<u> </u>	
			(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-	1		
10	2	8	tion on inside surfaces, or place			
			loose fill insulation in wall			
			cavaties.	ļ		
		1.0	Replace single glazed windows with			
11	2	10	double glazed thermopanes.			
12	3	1	Check operation of entire heating/			
14		<del>                                     </del>	cooling control system, including control valves and dampers.		<del>                                     </del>	
			control varves and dampers.			
			Check the calibration of all con-			
13	3	1_1_	trollers and devices for proper			
			settings and operations.			
1 /		1	Raise the supply air temperature			
14	3	1 1	for cooling to the highest point		ļ	
			necessary to provide minimum require cooling.	ea 		
1 [	1	1	Lower the supply air temperature			
15	3	<del>  1</del>	for heating to the lowes point	<b> </b>	<b>}</b>	
		1	necessary to provide minimum			
		<del> </del>	reguired heating. 65°F maximum occupied, 65°F maximum	<b> </b>	<del> </del>	
16	3	1	unoccupied during the heating season	√.		
	1	† <del>-</del> -	200000000000000000000000000000000000000	Ť	<b>†</b>	
		<u> </u>				

JEW DPORTUNITIES

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.		ICATION O. SUB	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION		
140.	CLASS	CLASS		SAVIIVOS	SAVINGS			
			78°F minimum when occupied and no					
17	3	1	cooling when unoccupied during the					
			cooling season.					
			Provide atmospheric cooling					
18	3	1	as long as possible.					
		<u> </u>	Clean and remove obstructions from					
19	3	2	all room air outlets and inlets					
	<u> </u>	<u>-</u>	(diffusers, registers, and grillers).					
			They should be kept clean and free					
			of all dirt and foreign materials.					
			Inchest fore for normal					
20	3	1	Inspect fans for normal					
		3	operation.					
0.1			Keep condenser coil face clean					
21	3	3	to permit proper air flow.					
0.0			Inspect ductwork for air leakage.					
_22	3	3	Seal all leaks by taping or caulking. Inspect ductwork		ļ	· · · · · · · · · · · · · · · · · · ·		
23	3	,						
	3	3	insulation.					
24			Inspect damper blades and linkages.					
24	3	3	Clean, oil and adjust.					
0.5			Take special note of fresh air					
25	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.					
			Clean or		· · · · · · · · · · · · · · · · · · ·			
26	3	3	replace filters periodically.			•		
			Instruct occupants and maintenance					
27	4	1	personnel to switch off all lights					
			when they are not needed.					
28	4	2	Clean windows.					
			Clean fixtures					
29	4	3	and lamps regularly.					
		1	Use lower wattage lamps to provide					
30	4	4	the necessary illumination.					
			Allow part of a lighting system to					
31	4	4	be turned off, while maintaining	L				
			the necessary light.					
_			Keep records of the operating		<u> </u>			
32	5	1	schedule, monthly energy consumption					
			and purchase of any new equipment					
			that affects energy consumption					
			of efficiency of the building. These		1			
			records will indicate the impact					
·		+		<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.

			OPTIONAL:	<b>OPTIONAL</b>	:
CLASSIFICATION NO.			ENERGY		DATE OF IMPLEMENTATION
MAJOR CLASS	SUB CLASS	NEW MINISTERS TO THE MINISTERS	SAVINGS	SAVINGS	DATE OF HIM ELIMENT THE
		of energy conservation measures.			
		Review the record			
5	1	books on a regular basis.			
		The burner system of fossil-fuel			
6	2	water heaters should be kept clean			
		and in good operating condition.	i		
		Clean air-sides, remove soot, and			
7	3				
		furnaces.			
-		If the firing rate of gas or oil			
	3	burners is too high, it causes			
		snort cycling and excessive fuel			
	<b> </b>	quires constant operating and			
			3.		
7	4				
		domestic hot water needs.			
		Turn off gas pilots for furnaces,			
7	4	boilers, and space heaters during			
	<del> </del>	long unoccupied periods.	<u> </u>		
			<u> </u>		
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	<del> </del>				
				<del> </del>	
				<del> </del>	
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			:		
	5 6 7	NO.   MAJOR   SUB   CLASS   CLASS   CLASS   CLASS   CLASS	CLASSIFICATION NO.  MAJOR CLASS  Of energy conservation measures.  Review the record books on a regular basis.  The burner system of fossil-fuel water heaters should be kept clean and in good operating condition.  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 delivers inadequate heat to the space Maintain the lowest possible hot water temperature which will meet domestic hot water needs.  Turn off gas pilots for furnaces,	CLASSIFICATION NO.  MAJOR SUB CLASS  Of energy conservation measures.  Review the record books on a regular basis.  The burner system of fossil-fuel water heaters should be kept clean and in good operating condition.  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 delivers inadequate heat to the spaces.  Maintain the lowest possible hot water temperature which will meet domestic hot water needs.  Turn off gas pilots for furnaces, boilers, and space heaters during the non-heating months and during	NO.    MAJOR   SUB   CLASS   C

## **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
CONT.	PERSON COMPLETING FORM	TELEPHONE 512) 935-6901	CONTACT PERSON Arthur Jensen (	TELEPHONE 612) 881-5811

CON	Randy Smith (	512)	935-6901	I	iur Jensei	n	(	612)	881-5811
	Kanay Sinten	PIC)	300 0301	711 01	iai ociioci	-		<u> </u>	
B	Instructions: For blocks 1 and 2 check the box describes the building type and then within th							n of the fo	our categories
	1. OWNERSHIP TYPE  AJPublic (PUB)  □ Non-Profit Association (NAP)	За.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ.	į	SCHL-ELM) SCHL-SECD) SCHL-POST)	C.	LOCAL GOVERN Office Ostorage Oservice	NMENT	(LOCG-OFFC) (LOCG-STRG) (LOCG-SERV)
ODE	2. ULTIMATE OWNER  County (CNTY)  City (CITY)		□Vocational □Education Ag □Administratio □OTHER	gency ( on (	SCHL-VOCL) SCHL-ADMN) SCHL-ADMN) SCHL-OTHR)		□Library □Police □Fire □OTHER		(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 Hom Long Term C Rehab. Facili Public Health	Care ( ity ( n 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								
	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	unding?	es XX No XX yes □ No es XX 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 The 50% match for Federal funds will come	unding?	Yes No		ssary.)				

Date \_\_\_\_\_

Signature: \_\_

D								
	Check the type of energy report which was completed and submitted prior to this mini-audit report.							
REPORT 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 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.							
,								
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 this should 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-Aughor's Name (Print on Type) Building Organizational Authority (Print or Type)							
	Mini-Auditor's Name (Print or Type)  Building Organizational Authority (Print or Type)  206							
	Signature Signature							
	Rieke Carroll Muller Assoc., Inc.							
	P.O. Box 130 Hopkins, MN 55343							
	Address (612) 935-6901							
	Phone							
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MIN!-AUDIT STATEMENTS								
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F	NAME	POSITION	ORGANIZATION					
	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					
AUDIT TEAM	Craig Hoffman	Plant Manager	City of Bloomington					
AP								
G	BRIEF DESCRIPTION OF GEN Good, Water Tre	NERAL BUILDING CONDITION (i.e. type, and ea tment	function)					
z	major changes planned None	WITHIN NEXT 15 YEARS (i.e. demolition, rel	habilitation, conversion from one building type to another)					
BUILDING	STRUCTURAL COMPONENTS Concrete	S OF ROOF (i.e. metal beams, wooden rafters	, concrete)					
BUILD	ROOFING MATERIAL (i.e. tar	and gravel, shingles, tile)						
H	INSTRUCTIONS: Correctly and	swer the following questions for the building	being mini-audited.					
	Is there open land adjacent to XXX Yes □ No	the building?						
	3 p.m.?	ted in an unshaded area. Is the roof of the build	ing and the south facing wall unshaded between the hours of 9 a.m. an	ıd				
	Roof: XXX Yes ☐ No South facing Wall: ☐ Yes	XM No						
	If the roof or wall are partly sh % of roof unshaded % of south facing wall unsha	laded, what percentage of the surface is unshaded ${20}$ %	aded?					
	What is the overall shape of th XX square □ rectangle □	e building? ] H-shaped □ E-shaped □ other (specify	)	_				
	Is the roof of the building flat	or pitched?						
	If pitched, what is the compas-	s orientation of the ridgeline?East-W	est					
	If pitched, what is the angle th	at the roof makes with horizontal? 40	<u>•</u>					
	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 ma	terial for the south facing wall? Face	brick					
	What percentage of the south	facing wall is glass?5%						
	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	it is inside the building, where is it located? ment   Roof   Other (specify)						
POTENTIAL MATION	Is the building's water heating	equipment located within the building? (A n	o answer indicates the equipment is in a separate building.)					
POTE	If the water heating equipmen XX Ground Floor □ Baser	t 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?

XX Central 

Multiple 

Combination

	unit of measure. Enter the appropr	used of each fuel type for the base perio riate conversion factor from Appendix ages 7 and 15 for a complete explanat	B to convert energy usage into Btu's	r greater energy savings. Indicate the s. Be sure to enter the fiscal years of
		BASE PERI	OD YEAR	Fiscal Year
	ENERGY TYPE	ENERGY USAGE	CONVERSION FACTOR	BTU USAGE
	Electricity		·	
	Fuel 1		·	
	Fuel 2		<i>t.</i>	
	TOTAL			
		20% SAVIN	GS YEAR	Fiscal Year
	ENERGY TYPE	ENERGY USAGE	CONVERSION FACTOR	BTU USAGE
	Electricity		·	
s	Fuel 1			
20% SAVINGS DATA	Fuel 2			
20% S DATA	TOTAL			
J	state the roughly estimated range of the new mini-audit opportuniti	ompleted by the mini-auditor after the volthe percent of total electrical and fuel of estilisted in section L. Secondly, calcuted and fuel consumption data on the	consumption which would be saved re plate the range of energy and cost s	sulting from the implementation of all
1	Check two boxes in each category	1 —		
	Range of Electrical Savings — XX	] <sub>0%</sub> XX 5% □ 10% [	□ 15% □ 20% □ 25%	other (specify)
	Range of Fuel Savings —	]0% XXX 5% XXX 10% [	□ 15% □ 20% □ 25%	Other (specify)
2	Calculate ranges of energy and co	ost savings —		
		Range of Elec	ctrical Savings	
	% Range	Annual Electrical Range of E Consumption Savings		•
	lower bound0 % x 3	$4.9 \times 10^{5}$ kwh = 0	_kwh, _0 % x \$8144	19.09 = \$ <u>0</u>
	to	5 to /	to	to
	upper bound 5 % x 3	$34.9 \times 10^5$ kwh = $17.5 \times 10^2$	t kwh, 5 % x \$8144	<u>19.09</u> = \$ <u>4072.45</u>
3			Fuel Savings	
-	% Range	Annual Fuel Range of Consumption Saving $0.4 \times 10^8$ Btu = $51.9 \times 10^8$	is % Range Dollars	Spent Dollars Savings
IGS	<u>.</u>	$10.4 \times 10^8$ Btu = $10.4 \times 10^8$	7 to	to

The mini-auditor is not responsible if actual savings resulting from the implementation of the energy conservation opportunities listed in section I do not fall between the roughly estimated ranges which are specified.

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.

	1 0: 10015:015:01		OPTIONAL:						
ITEM NO.	N	ICATION IO. SUB	PAST ENERGY CONSERVATION ACTIONS	ENERGY SAVINGS	ENERGY COST	DATE OF IMPLEMENTATION			
	MAJOR CLASS	CLASS		JAVIIIGS	SAVINGS				
				<del> </del>					
	<del> </del>			<u> </u>					
				<b> </b>					
				<b>-</b>					
	<u> </u>								
				<u> </u>					
			•		}				
		<u> </u>		<del> </del>					
<u> </u>					<b>_</b>				
					1				
		<u> </u>							
	-			<del> </del>	<del> </del>				
			·						
				1	<u> </u>				

Note Reproduce this page as necessary

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.

			OPTIONAL:	<b>OPTIONAL</b>	g walk-through. :
CLASSIFICATION NO.		NEW MINI-ALIDIT OPPORTLINITIES		ENERGY	DATE OF IMPLEMENTATION
MAJOR CLASS	SUB CLASS	NEW MINITAGOTI OFFORTONITIES	SAVINGS	SAVINGS	DATE OF IMPLEMENTATION
1	1	Keep all controls free of dust.			
	0				
1 1		contacts on a regular basis.			
1	2	Eliminate excessive vibration.		ég:	
		Lubricate motors to reduce wear			
<del>                                     </del>		and excessive torque.			
1	2	Replace worn bearings.			
		Keep motors clean to make			
┼╌┸	2				
1_1	2	to motors.			
_		Check for over-voltage conditions			
<del>  1</del>	2				
1	2	Check alignment of motors to driven   equipment, align and tighten as			
		necessary.			
<u> </u>		Replace worn or defective motors			
1	2				
<del> </del>					
1	2	motors which have low loads and powe	r		
1					
		140001 00 30%.			
		Check power factors and make			
1 1	3		<del> </del>		
2	2				
		Keep all doors between unheated			
2	2	corridors and heated spaces closed.		ļ	
2	2				
2	3	and shutters to resist temperature			
		changes more effectively.			
			5		
2	6				
<u> </u>			<b></b>		
2	7	Check roof insulation for damage due to roof leakage.			
		Caulk all cracks that allow air	1		
	No MAJOR CLASS  1 1 1 1 1 1 1 1 1 2 2 2 2 2	NO MAJOR SUB CLASS  1	CLASS   CLAS   CLAS   CLAS   CLAS   CLAS   CLAS   CLAS   CLAS   CLAS   CLAS   CLAS   CLAS   CLAS   CLAS   CL	CLASSIFICATION   NEW MINI-AUDIT OPPORTUNITIES   ENERGY SAVINGS     1	NO. NEW MINI-AUDIT OPPORTUNITIES    NEW MINI-AUDIT OPPORTUNITIES   COST SAVINGS

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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	ed. This sec	tion of the mini-audit report should be completed by the mini-audit	_	the building OPTIONAL	_
ITEM	CLASSIF	CATION	NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
ИО	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS	DATE OF IMPLEMENTATION
20	2	8	Caulk around all pipes, louvers, and other openings in the walls.			
21	2	8	Consider insulating walls with rigid insulation on inside.			
			Repair broken or cracked windows.			
22	2	10	Replace with standard or tempered			
			glass of proper thickness, according to building code requirements.			
			Consider replacing some windows on			
_23	2	11	the north side of the building with insulation wall panels.			
			Insulation wall paners.			
			Consider installing insulation			
24	2	6	panels in the metal panel areas			
			between windows and above doors.			
			Check operation of entire heating/			
25	3	1_1	cooling control system, including			
			control valves and dampers.			
_			Check the calibration of all cont-			
_26	3	1_1	rollers and devices for proper			
			settings and operations.			
			0			
27	3	1	65°F maximum occupied.	<u> </u>	<b> </b>	
28	3	1	Consider reducing temperature in rooms with open tanks. This will			
48	13	<del>├</del> ─┻	prevent heat loss to the water			
			that is being treated.			
29	3	1	78 <sup>0</sup> F minimum when occupied			
		1	78 <sup>0</sup> F minimum when occupied Clean the air side of all direct			
30	3	2	radiators, fin tube convectors and			
			coils to enhance heat transfer.			
0-	1_		Vent all hot water radiators and	<del>                                     </del>		
31	3	2	convectors to assure that water	<del> </del>	ļ	
		}	will completely fill the interior			
	<del> </del>	<del> </del>	passages. Clean and remove obstructions from	<u> </u>		
32	3	2	all room outlets and inlets (diffus	ars.		
<u> </u>	<u> </u>		registers and grillers). They shou	ld ,	<b>†</b>	
			be kept clean and free of all dirt			-
			and foreign materials.			
2.2			Vary fam bladag slave			
33_	3	3	Keep fan blades clear.	<del>                                     </del>	<del> </del>	
34	3	3	Inspect and lubricate bearings of fans.			
<u> </u>		1 -	I near this or rails.		<u> </u>	1

NEW OPPORTUNITIES

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20	- This section of the mini-addit report should be completed to		and the man data report enedle to complete by the man data	OPTIONAL: OPTIONAL:			
ITEM	CLASSIF		NEW AND AUGUS OPPORTUNITIES	ENERGY	ENERGY		
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	COST SAVINGS	DATE OF IMPLEMENTATION	
			Inspect drive belts. Adjust or				
35	3	3	replace as necessary to ensure				
			proper operation.				
			Inspect inlet and discharge screens				
36	, 3	3	of fans. They should be kept free	<u> </u>			
			of dirt and debris at all times.				
			Inspect fans for				
_37	3	3	normal operation.	ļ			
	_		Check for packing wear which can				
38	3	3	cause excessive leakage. Repack				
			to avoid excessive water wastage and shaft erosion.				
			Inspect damper blades and linkages.	1			
39	3	3	Clean, oil and adjust.				
			Take special note of fresh air dampe	ers			
40	3	3	making sure that they close tightly				
			and be sure to repair, replace or				
			provide blade edge gaskets and				
			gasketing at the end of blades.				
			Check fresh air damper control and	<u> </u>			
41	3	3	operator for tight closing and for	1			
			correct column of minimum				
			fresh air supply as per code requir	ements.			
42	3	3	Clean or replace filters periodical	1y.			
			Instruct occupants and maintenance	T			
43	4	1	personnel to switch off all lights				
			when they are not needed.				
			Consider double switching in the	<del> </del>			
44	4	1	conference room.				
			Rooms that are presently double				
45	4	11	switched, consider disconnecting				
			a number of fixtures or recircuitin	g			
			to reduce the lighting on hte minim	ı <b>u</b> m			
			step.				
			Clean fixtures and lamps				
46	4	3	regularly.				
			Consider replacement of incandescer	14			
47_	4	3	light fixtures with enclosed high				
			pressure sodium fixtures or fluor-				
		ļ	escent fixtures in the following	<del> </del>	<del> </del>		
			ares: ammonia room, chlorine				
		<del> </del>	room, polymer room, room below lime	:	<u> </u>	<b> </b>	
			slaker, sludge pump room.				
	1	i	1	1	1	1	

EW FEW

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OPTIONAL: OPTIONAL CLASSIFICATION ENERGY ITEM NO **ENERGY NEW MINI-AUDIT OPPORTUNITIES** DATE OF IMPLEMENTATION COST MAJOR SUB SAVINGS SAVINGS CLASS CLASS Garage area - This area is presently lit with fluorescent lighting. 48 4 4 Consider sodium lighting or enclosed fluorescent lighting. This will provide a higher output from a better maintenace factor and may result in fewer fixtures being required. Use lower wattage lamps to provide the necessary illumination. 49 4 Allow part of a lighting system to be turned off, while maintaining 50 4 the necessary light. Provide desk or table lamps in 51 4 task localized areas. Keep records of the operating 52 5 schedule, monthly energy consumption and purchase of any new equipment that affects energy consumption of efficiency of the building. records will indicate the impact of energy conservation measures. Review the record 5 53 1 books on a regular basis. All insulation applied to a hot 54 5 water system should be kept in good condition. All electric heating equipment 5 55 should be checked for corroded elements and loose connections and repaired as required. Periodically drain and remove 5 the sediment from water heater. 56 If the firing rate of gas or oil 3 57 7 burners is too high, it causes short cycling and excessive fuel consumption. Too low a rate requires constant operating and delivers inadequate heat to the If the boiler is oversized, spaces. adjust the firing rate to the building load, not the boiler. Schedule boiler blowdown on an as-58 7 3 needed basis rather than on a fixed timetable. Smaller, more frequent blowdown is preferable to larger,

NEW OPPORTUNITIES

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20	CLASSIFICATION		tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:		
NO NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	ENERGY SAVINGS	COST	DATE OF IMPLEMENTATION
			less frequent blowdown.			
			Maintain the lowest possible hot			
59	7	4	water temperature which will meet			
			space or domestic hot water needs.			
	_		If there are no indoor-outdoor			
60	7	4	modulating controls, raise or lower			
			the operating temperature of hot	ļ		
	<del> </del>		water systems to conform to outdoor	<del> </del>		
			conditions. For example, operate a			
	<b>†</b>		boiler at 120°F with outdoor temper-			
			ature at 60°F, and raise the level to 160°F when it is 20°F outdoors.			
			Clean filters regularly in forced			
61	7	4	warn air units to reduce the opera-			
			ting time of the furnace.			
62	7	4	Maintain water level or pressure to			
02	<del>  '</del>	4	radiators or coils on the highest			
			level of the building.		·	
63	7	4	Turn off gas pilots for furnaces boilers, and space heaters during			
03	+-'	T	the non-heating months and during	<b> </b>		
			long unoccupied periods.			
	<b>†</b>		Keep all heat exchanger surfaces			
64	7	4	clean. Check air-to-fuel ratio and			
			adjust as necessary.			
	<u> </u>		Inspect casing for air leaks			
65	7	4	and seal as necessary.	<u> </u>		
66	7	4	Clean the unit heaters.			
c =			Balance the make-up air to equal			
67	7	4	or slightly exceed exhaust.			
				ļ		
				+		

## MINI-AUDIT REPORT

A	BUILDING NAME		NAME OF ORGANIZATION	DATE C 11 00	
-	<u> Water Reservoir - Pump Ho</u>	ouse	City of Bloomington	6-11-80	
	BUILDING ADDRESS		ADDRESS		
	2200 West 82nd Street		2215 West Old Shakopee Road		
<b>-</b>	CITY	ZIP CODE	CITY	ZIP CODE	
ACT	Bloomington, MN	55431	Bloomington, MN	55431	
CONTA	PERSON COMPLETING FORM	TELEPHONE	CONTACT PERSON	TELEPHONE	
CO	Randy Smith (6	12) 935-6901)	Arthur Jensen	612) 881-5811	

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 t	the categ	ory check off the sub cate	gory befitting the b	uildi	ng function.	
	1. OWNERSHIP TYPE XX Public (PUB)  Non-Profit Association (NAP)	3a.	SCHOOLS  □ Elementary □ Secondary □ Coll. or Univ. □ Vocational	(SCHL-ELM) (SCHL-SECD) (SCHL-POST)	C.	LOCAL GOVERNMEN  Office Storage Service Library	T (LOCG-OFFC) (LOCG-STRG) (LOCG-SERV) (LOCG-LBRY)
CODE	2. ULTIMATE OWNER  County (CNTY) City (CITY) Township (TOWN)		□Education Agency □Administration □OTHER	(SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR)		□Police □Fire  XXOTHER	(LOCG-EBRY) (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 entitl just Federal funding, then answer the question	ed Fundi	ng Information, determine otly for the situation. This s	if the facilities are section must be sign	eligil ied a	ole for both Federal and and dated by the head of t	State funding or he organization.
	If eligible for both Federal and State Funding 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 fundina?	esy XXVNo D Xyes □ No es XX No				
	Date:						
	Name:						
	Signature:						
	If eligible for Federal funding only: Have you received a mini-audit grant befor Have you previously applied for mini-audit Do you wish to apply for mini-audit funding The 50% match for Federal funds will com-	funding?	Yes □ No	cessary.)			
			,				
				į.			
TS							
EQUE	Date:						
T G S	Name:						
MINI-AUDIT FUNDING REQUEST	Signature:						
,							

6000a		
D	Check the type of energy report which was completed and submitted p	orior to this mini-audit report.
ERGY 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)	
ENERGY F		report, one must be included with this report. Elementary, secondary, and lepending on building complexity. All other buildings should use the existing
E		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 omitted 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, wl	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 whi 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 from 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 did not save at least (did, did not)
	should be the subject of a maxi-audit. (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 undergo further solar conversion analysis, and/or Should no wind, wood. (Circle proper resources) (should, should	(should, should not)  undergo further analysis of the renewable resources — waste
	In my judgement, as a mini-auditor, all of the above statements are tru	ue and correct.
		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 C. 11 00	
	6-11-80 Date	
		· ·
1 1		

MINI-AUDIT STATEMENTS

F	Viv.t	POSITION	ORGANIZATION
!	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Craig Hoffman	Plant Manager	City of Bloomington
TEAM			
<b>£</b>		ERAL BUILDING CONDITION (i.e. type, and fun	ction)
_		Station WITHIN NEXT 15 YEARS (i.e. demolition, rehabil	litation, conversion from one building type to another)
INFORMATION	None STRUCTURAL COMPONENTS Concrete	OF ROOF (i.e. metal beams, wooden rafters, cor	ncrete)
N CH	ROOFING MATERIAL (i.e. tar a	nd gravel, shingles, tile)	
	INSTRUCTIONS: Correctly ans	wer the following questions for the building bein	g mini-audited.
	Is there open land adjacent to t  XXYes □ No	he building?	
	Solar collectors need to be locate 3 p.m.?  Roof: XXYes \square No South facing Wall: \square Yes		and the south facing wall unshaded between the hours of 9 a.m. and
	If the roof or wall are partly sha % of roof unshaded % of south facing wall unshad	ded, what percentage of the surface is unshaded $\frac{1}{2}$	1?
	What is the overall shape of the Square XX rectangle	building? H-shaped DE-shaped Dother (specify)	
	Is the roof of the building flat o XXI flat □ pitched	r pitched?	
	If pitched what is the compass	orientation of the ridgeline?	
	If pitched, what is the angle that	at the roof makes with horizontal?	
	Are there large obstructions on Yes XXNo	the roof such as chimneys, rooms for mechanic	al equipment, ventilating units, water towers, etc?
	What is the exterior facing mate	erial for the south facing wall? Face	Brick
İ	What percentage of the south f	acing wall is glass?%	
	Is the building's space heating XXYes . 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 XXG round Floor D Basem	is inside the building, where is it located? ent   Roof Other (specify)	
2	Is the building's water heating Tyes Dino None	•	swer indicates the equipment is in a separate building.)
PORMATION	If the water heating equipment	is inside the building, where is it located? ent Other (specify)	
FOR	Is the water heating system a c	central system, does it consist of multiple units, o	or is it a combination of the central and multiple units?

L				BASE	PERIOD YEA	AR		Fiscal Y	ear	
	ENERGY TYPE		ENERGY	'USAGE		CONVERSION	FACTOR		BTU US/	<b>A</b> GE
	Electricity									
	Fuel 1			TANAN TERRETAK						
	Fuel 2									
	TOTAL									
		<u> </u>		20% S	AVINGS YEA	<b>I</b> R		Fiscal Y	ear	
	ENERGY TYPE		ENERGY	USAGE	(	CONVERSION	FACTOR		BTU US	AGE
	Electricity									
	Fuel 1									
	Fuel 2					- Marie Andrews	- Ad Philippin - Commission of the Land of			
		i			1			1		
	TOTAL  Instructions: This section is to									
	Instructions. This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual ele	nge of the pe tunities liste ectrical and	rcent of tota d in section	l electrical and L. Secondly,	fuel consum calculate the	ption which wo a range of ene	uld be saved re	sulting from	the implem	entation of al
	Instructions. This section is to state the roughly estimated rai of the new mini-audit opport percentages by the annual elements of the control of the contr	nge of the pe tunities liste ectrical and egory —	rcent of tota d in section fuel consum	l electrical and L. Secondly,	fuel consum calculate the	ption which wo a range of ene	uld be saved re	sulting from takings by m	the implem ultiplying t	entation of a he estimated
	Instructions. This section is to state the roughly estimated ra of the new mini-audit opport percentages by the annual ele	nge of the pe tunities liste ectrical and egory —	rcent of tota d in section	l electrical and L. Secondly, aption data on	fuel consum calculate the the energy i	ption which wo e range of ene report.	uld be saved re rgy and cost s	sulting from avings by m	the implement ultiplying to	entation of a
	Instructions. This section is to state the roughly estimated rai of the new mini-audit opport percentages by the annual elementages by the annual elementages of Electrical Savings —	nge of the pertunities liste ectrical and egory — \frac{13}{3} 0%	XX 5%	l electrical and L. Secondly, aption data on ————————————————————————————————————	fuel consum calculate the the energy i	ption which wo	uld be saved rergy and cost s	sulting from avings by m	the implement ultiplying to	entation of a
	Instructions. This section is to state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical savings — Range of Fuel Savings —	nge of the pertunities liste ectrical and egory — \frac{13}{3} 0%	XX 5%	l electrical and L. Secondly, nption data on 10%	fuel consum calculate the the energy i	ption which wo a range of energe report.	uld be saved rergy and cost s	sulting from avings by m	the implement ultiplying to	entation of all
	Instructions. This section is to state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical savings — Range of Fuel Savings —	nge of the petunities liste ectrical and egory — — XIX 0% — 0% — Manual	XX 5%	l electrical and L. Secondly, aption data on  10% XX10%  Range o	fuel consum calculate the the energy i	ption which wo a range of energe report.	uld be saved rergy and cost s	sulting from the avings by m  other other	the implemental triangle (specify) (specify) Range	entation of a
	Instructions. This section is to state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical savings — Range of Flectrical Savings — Calculate ranges of energy and state of the savings of the savings — Calculate ranges of energy and state of the savings — Calculate ranges of energy and state of the savings — Calculate ranges of energy and state of the savings — Calculate ranges of energy and state of the savings — Calculate ranges of energy and state of the savings — Calculate ranges of energy and state of the savings — Calculate ranges of energy and state of the savings — Calculate ranges of energy and state of the savings — Calculate ranges of energy and state of the savings — Calculate ranges of energy and savings — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ranges — Calculate ran	nge of the petunities liste ectrical and egory — — XIX 0% — 0% — Manual	recent of tota d in section fuel consum  XX 5%  XX 5%  mgs —	l electrical and L. Secondly, aption data on  10% XX10%  Range o	fuel consum calculate the the energy is 15% 15% Electrical S. of Energy	ption which wo a range of energe report.  20% 20% 20% Avings	□ 25% □ 25% □ Dollars	sulting from the avings by m  other other	the implemental triangle (specify) (specify) Range	entation of all he estimated the estimated of Electrica
	Instructions. This section is to state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical Savings —  Range of Fuel Savings —  Calculate ranges of energy are services.	nge of the pertunities liste ectrical and egory — 0% 0% nd cost saviii Cons	recent of tota d in section fuel consum  XX 5%  XX 5%  ngs —	l electrical and L. Secondly, aption data on  10% XX10%  Range o	tuel consum calculate the the energy is 15%  15%  15%  telectrical S. of Energy avings	ption which wo a range of energe report.  20% 20% 20% Avings	25% 25% Annual El Dollars	sulting from the avings by m  other other ectrical Spent	(specify)  Range Dolla	of Electrica ars Savings 0
	Instructions. This section is to 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 same of Electrical Savings —  Calculate ranges of energy are with the same of Electrical Savings —  Calculate ranges of energy are with the same of Electrical Savings —  Mange of Electrical Savings —  Calculate ranges of energy are with the same of Electrical Savings —  We have the same of Electrical Savings —  Calculate ranges of energy are savings —  We have the same of Electrical Savings —  Calculate ranges of energy are savings —  We have the same of Electrical Savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  We have the savings —  Calculate ranges of energy are savings —  We have the savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges —	nge of the pertunities liste ectrical and egory — 0% 0% nd cost saviii Cons	The section of the se	l electrical and L. Secondly, aption data on  10% XX10%  Range o	fuel consum calculate the the energy is the energy of the energy of the energy of the energy are to the energy are to the energy are to the energy are to the energy of the energy are the	ption which wo a range of energe report.  20% 20% 20%  avings  Range 0 %	25% 25% Annual El Dollars	sulting from the avings by m  other other ectrical Spent	(specify)  Range Dolla	of Electrica ars Savings
	Instructions. This section is to 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 same of Electrical Savings —  Calculate ranges of energy are with the same of Electrical Savings —  Calculate ranges of energy are with the same of Electrical Savings —  Mange of Electrical Savings —  Calculate ranges of energy are with the same of Electrical Savings —  We have the same of Electrical Savings —  Calculate ranges of energy are savings —  We have the same of Electrical Savings —  Calculate ranges of energy are savings —  We have the same of Electrical Savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  We have the savings —  Calculate ranges of energy are savings —  We have the savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges —	nge of the perturbed in	Telectrical cumption 600 kwh	l electrical and L. Secondly, aption data on 10%  XX10%  Range o  Range = 0	fuel consum calculate the the energy is the energy of the energy of the energy of the energy are seen as the energ	ption which wo a range of energe report.  20% 20% 20%  avings  Range 0 % to 5 %	25% 25% Annual El Dollars x \$ 178	other other other	(specify)  Range Dolla	of Electrica ars Savings 0
	Instructions. This section is to 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 same of Electrical Savings —  Calculate ranges of energy are with the same of Electrical Savings —  Calculate ranges of energy are with the same of Electrical Savings —  Mange of Electrical Savings —  Calculate ranges of energy are with the same of Electrical Savings —  We have the same of Electrical Savings —  Calculate ranges of energy are savings —  We have the same of Electrical Savings —  Calculate ranges of energy are savings —  We have the same of Electrical Savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  We have the savings —  Calculate ranges of energy are savings —  We have the savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges of energy are savings —  Calculate ranges —	Annual Cons	ACX 5%  XX 5%  XX 5%  Mags —  I Electrical umption  00 kwh  aual Fuel sumption	l electrical and L. Secondly, option data on  10% XX10%  Range o Range 256  Rang	fuel consum calculate the the energy is the energy of the energy of the energy are some some some some some some some som	ption which wo a range of energe report.  20% 20% 20%  avings  Range 0 % to 5 %	and de saved rergy and cost s  25% 25% Annual El Dollars x \$\frac{178}{Annual Dollars}	other other	the implement of the im	of Electrica ars Savings 0 to 892.36
	Instructions. This section is to state the roughly estimated rai of the new mini-audit opport percentages by the annual electrical savings. —  Check two boxes in each cate. Range of Electrical Savings. —  Range of Fuel Savings. —  Calculate ranges of energy are savings. —  % Range. lower bound. — 0 %  to. — 5 %	Annual Cons	Telectrical umption .00 kwh	l electrical and L. Secondly, option data on  10% XX10%  Range o Range 256  Rang	tuel consum calculate the the energy is the energy of the energy of the energy average with the energy average. The energy even to the energy even to the energy even to the energy even to the energy even to the energy even to the energy even to the energy even to the energy even to the energy even to the energy even to the energy even to the energy even to the energy even to the energy even the	ption which wo a range of energe report.  20% 20% 20% 4vings 4 Range 5 % 4 Range	and cost s  25% 25% Annual El Dollars  x \$ 178  Annual Dollars	ectrical Spent	the implement of the im	of Electrica ars Savings 0 to 892.36

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** NO. DATE OF IMPLEMENTATION ITEM **ENERGY** PAST ENERGY CONSERVATION ACTIONS COST NO. MAJOR SUB SAVINGS **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. Examination 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 t		OPTIONAL	
ITEM	CLASSIF		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
NO	MAJOR CLASS	SUB CLASS	NEW MINI-AUDIT OPPORTUNITIES	SAVINGS	SAVINGS	DATE OF IMPLEMENTATION
1	1	1	Keep all controls free of dust.			
	+		Look for loose connections and			mage die 44 versystem <u>merckalansankania delektronyste</u> r (ks. 14 apresentation)
2	1	2	bad contacts on a regular basis.			
	+	<u> </u>	Lubricate motors to reduce wear	Nga - 12-12-12-12-12-12-12-12-12-12-12-12-12-1	<b> </b>	
3	1 1	2	and excessive torque.			
<u> </u>	<del>                                     </del>		Balance three-phase power		<b></b>	
4		2	sources to motors.			•
- 4	+		Check for over-voltage			
5	1	2	conditions on motors.			
	+		Replace worn or defective motors		<del> </del>	
6	1	2				
0	+		with motors that are sized as close to the load as possible and use the		<b></b>	
			to the road as possible and use the			
	<del>                                     </del>		highest efficiency motors available. Check the amount of		<u> </u>	
7	2	1	insulation in the ceiling.			
	<del></del>	1	insulation in the certing.		<b></b>	
8	2	1	Add insulation, if needed.			
	<del></del>	<b>-</b>	Weatherstrip			
9	2	1	all exterior doors.			,
	1		Inspect the roof and seal all	ļ	<del>                                     </del>	
10	2	6	cracks that allow outdoor air and			
10	-	0	water to enter.	ļ		
			water to enter.			
	<u> </u>		Modify roof openings with			
11	2	6	insulation panels.		İ	
	1	<u> </u>	Insulate walls with rigid	<b></b>	<u> </u>	
12	2	8	insulation on inside surfaces.			
	T		Replace single glazed windows	<del>                                     </del>	<b>†</b>	
13	2	10	with double glazed thermopanes.			
	<b></b>		Check the calibration of all	<u> </u>		
14	3	1	controllers and devices for proper			
		1	settings and operations.	<b>†</b>	<b> </b>	
			, , , , , , , , , , , , , , , , , , ,			
			65°F maximum occupied, 60°F maximum			
15	3	11	unoccupied during the heating season			
			Overhead heaters should			
16	3	2	direct heat to floors.	<u> </u>		
			Inspect and lubricate			
1.7_	3	3	brarings on fans.			
			Inspect drive belts on fans. Adjust			
18	3	3	or replace as necessary to ensure	<u> </u>		
			proper operation.			
			Make sure that all fans, frequently	<u> </u>	+	
19_	3	3	inoperative in unit heaters, fan			
			coil units, and unit ventilators			
			are running normally to increase			
	•		the heat transfer rate from heating			
		1	coils.		1	

L	SHI
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	ORT
EΨ	ddo

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.

CLASSIFI NO MAJOR CLASS		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION
		NEW MARK PROBLEM OF FORT CHARLES			
3			SAVINGS	SAVINGS	
+	3	Clean or replace filters periodicall	V		
1 1	_ 3	Check belt tension and alignment	у.		And the second s
3	3	on air compressor.			
		Inspect air compressor intake filter			
3	3	pads and clean or replace as necessary	lry.		
			<u> </u>		
3	3				1
		Periodically drain the moisture			
3	3				
		Use lower wattage lamps to provide			
4	4	the necessary illumination.			
4	4	be turned off, while maintaining			
		the necessary light.			
		Keep records of the operating			
5	11	schedule, monthly energy consump-			
		tion of efficiency of the building.			
		impact of energy conservation			
		measures.			
5	1	books on a regular basis.			
_		If the firing rate of gas burners			
+ $-$	3	is too high, it causes short cyclin	9		
				<del> </del>	
		Keen all heat exchanger surfaces	<u> </u>		
7	4				
	<u> </u>	and adjust as necessary.			
		Follow guidelines suggested for fan			
7	Δ				
		and motor marriagnances		<del> </del>	
	-		<b> </b>	<u> </u>	
	3 4 4	3 3 3 3 4 4 4 4 5 1	Check the compressor's oil level.  Periodically drain the moisture from storage tank. Use lower wattage lamps to provide the necessary illumination. Allow part of a lighting system to be turned off, while maintaining the necessary light.  Keep records of the operating schedule, monthly energy consumption of efficiency of the building. These records will indicate the impact of energy conservation measures. Review the record books on a regular basis. If the firing rate of gas burners is too high, it causes short cyclin and excessive fuel consumption. Too low a rate requires constant operating and delivers inadequate heat to the spaces. Keep all heat exchanger surfaces clean. Check air-to-fuel ratio and adjust as necessary.  Follow guidelines suggested for fan	Check the compressor's oil level.  Periodically drain the moisture from storage tank. Use lower wattage lamps to provide the necessary illumination. Allow part of a lighting system to be turned off, while maintaining the necessary light.  Keep records of the operating schedule, monthly energy consumption of efficiency of the building. These records will indicate the impact of energy conservation measures. Review the record books on a regular basis. If the firing rate of gas burners is too high, it causes short cycling and excessive fuel consumption. Too low a rate requires constant operating and delivers inadequate heat to the spaces. Keep all heat exchanger surfaces clean. Check air-to-fuel ratio and adjust as necessary.  Follow guidelines suggested for fan	Check the compressor's oil level. Periodically drain the moisture from storage tank. Use lower wattage lamps to provide the necessary illumination. Allow part of a lighting system to be turned off, while maintaining the necessary light.  Keep records of the operating schedule, monthly energy consumption of efficiency of the building. These records will indicate the impact of energy conservation measures. Review the record books on a regular basis. If the firing rate of gas burners is too high, it causes short cycling and excessive fuel consumption. Too low a rate requires constant operating and delivers inadequate heat to the spaces. Keep all heat exchanger surfaces clean. Check air-to-fuel ratio and adjust as necessary.  Follow guidelines suggested for fan

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	ad
ACT	CITY Bloomington, MN	ZIP CODE 55437	CITY Bloomington, MN	ZIP CODE 55437
CONTA	PERSON COMPLETING FORM Randy Smith	TELEPHONE 612) 935-6901	CONTACT PERSON Arthur Jensen	TELEPHONE 612) 881-5811

B	Instructions: For blocks 1 and 2 check the box w describes the building type and then within the						f the four categories
BUILDING ELIGIBILITY CODE	1. OWNERSHIP TYPE  XXI Public (PUB)  Non-Profit Association (NAP)  2. ULTIMATE OWNER  County (CNTY)  XXCity (CITY)  Township (TOWN)  State (STAT)  Public School (PUSC)  Private School (PRSC)  Non-Profit Association (NPAP)  Indian Tribe (INDN)	b. P(	CHOOLS Elementary Secondary Coll. or Univ. Vocational Education Agency Administration OTHER JBLIC CARE Nursing Home Long Term Care IRehab. Facility Public Health Ctr. Res. Child Care Ctr.	(SCHL-ELM) (SCHL-SECD) (SCHL-POST) (SCHL-VOCL) (SCHL-ADMN) (SCHL-ADMN) (SCHL-OTHR) (PBCR-NURS) (PBCR-TERM) (PBCR-TERM) (PBCR-RHAB) (PBCR-HCTR)	c.	LOCAL GOVERNM Office Storage Service Library Police Fire XMOTHER HOSPITALS General Tuberculosis OTHER	(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	Funding Ir	nformation, determine or the situation. This s	if the facilities are ection must be sig	eligi ned a	ble for both Federal a and dated by the head	nd State funding or of the organization.
MINI-AUDIT FUNDING REQUEST	If eligible for both Federal and State Funding: Have you received a mini-audit grant before? Have you previously applied for mini-audit fun 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 fun Do you wish to apply for mini-audit funding? The 50% match for Federal funds will come for  Date:  Name:  Signature:	nding? ∭ ☐ Yes ☐	No No	cessary.)			

D	Check the type of energy report which was completed and submitted pr	ior to this mini-audit report.					
EPORT F	☐ Elementary School Energy Report (Form No. ED-00444-02) ☐ Secondary School Energy Report (Form No. ED-00445-02)  ☐ Elementary School Energy Report (Form No. EN-00041-01)						
ENERGY REPORT CHECK-OFF		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 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 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 buildi	ng being audited.					
	I have fully disclosed my financial interests relating to this mini-audit ar	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, whi	ons 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 from						
	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>d1d not</u> save at least (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 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 make the maxi-audit funding determination based on this mini-audit report						
	and other criteria.	should not					
	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	(should, should not)  undergo further analysis of the renewable resources — waste					
	In my judgement, as a mini-auditor, all of the above statements are true	e and correct.					
		Witnessed by:					
	Randy Smith						
	Mini-Additor's Name (Print or Type)	Building Organizational Authority (Print or Type)					
	Skinature 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						
		•					
DIT							
0							

F	NAME	POSITION	ORGANIZATION
	Randy Smith	Certified Mini-Auditor	Rieke Carroll Muller Assoc., Inc.
	Reinert Ege	Maintenance Engineer	City of Bloomington
AUDIT			
G		NERAL BUILDING CONDITION (i.e. type, and funct	ion)
	Good, Pumping		ation, conversion from one building type to another)
z	None	,	· · · · · · · · · · · · · · · · · · ·
BUILDING		OF ROOF (i.e. metal beams, wooden rafters, conc	rete)
N.W.	Wooden Rafter ROOFING MATERIAL (i.e. tar		
FF	Shingles	and graver, shingles, the)	
	311119103		
H	INSTRUCTIONS: Correctly an	swer the following questions for the building being	mini-audited.
	Is there open land adjacent to		
	XX Yes □ No	e zanem <b>g</b> .	•
	Solar collectors need to be loca 3 p.m.?	ted in an unshaded area. Is the roof of the building and	d the south facing wall unshaded between the hours of 9 a.m. and
	Roof: XXX Yes □ No South facing Wall: □ Yes	XX 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? aded%80%	
	What is the overall shape of th □ square XX rectangle	e building? ] H-shaped □ E-shaped □ other (specify)	
	Is the roof of the building flat	or pitched?	
	If pitched, what is the compas	s orientation of the ridgeline? <u>East</u> -	West
	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 mechanical	equipment, ventilating units, water towers, etc?
	What is the exterior facing ma	terial for the south facing wall? Face b	rick
	What percentage of the south	facing wall is glass?10%	
	· -		o answer indicates the equipment is in a separate building.)
	If the space heating equipmer XXX Ground Floor	it is inside the building, where is it located? nent □ Roof □ Other (specify)	
R POTENTIAL MATION	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.)
NATIO	If the water heating equipmen XXX Ground Floor □ Baser	t 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?

XX Central 

Multiple 

Combination

COMMEN	Instructions: Enter the total energy unit of measure. Enter the approp which the data applies. Refer to provide the control of	riate conversion fact	or from Append	lix B to cor	nvert energy u				
			BASE PE	RIOD YEA	R		Fiscal Year		
	ENERGY TYPE	ENERGY	USAGE CONVERSION FACTOR		FACTOR	BTU USAGE			
	Electricity		**************************************						
	Fuel 1								
	Fuel 2			,					
	TOTAL								
			20% SAV	INGS YEAR	<b>a</b>		Fiscal Ye	ar	
	ENERGY TYPE	ENERGY USAGE		C	CONVERSION FACTOR		BTU USAGE		
	Electricity					·			
s	Fuel 1								
20% SAVINGS DATA	Fuel 2								
20% S DATA	TOTAL								
J	Instructions: This section is to be constate the roughly estimated range of the new mini-audit opportunities percentages by the annual electric check two boxes in each category.	of the percent of total ies listed in section I cal and fuel consum	electrical and fue L. Secondly, cal	el consump Iculate the	tion which wo range of ene	uld be saved res	sulting from th	e implementation of all	
	Range of Electrical Savings — X		□ 10%	□ 15%	□ 20%	□ 25%	Onther (s	pecify)	
		7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7	XX 10%	□ 15%	□ 20%	25%		pecify)	
2	Calculate ranges of energy and co	ost savings —							
			Range of E	lectrical Sa	vings				
	% Range	Annual Electrical Range of Consumption Savin					ectrical Spent	Range of Electrical Dollars Savings	
	lower bound0 % x	168638 kwh	= 0	kwh,	0_%	× \$ 460	00.50 =	<b>s</b> 0	
	to upper bound % x	168638 kwh	= 8 <u>431.9</u>	kwh,	to 5_%	× \$ 460	0.50 =	\$ 230.03	
3			Range o	f Fuel Savi	ings				
	% Range	Annual Fuel Consumption	Range Savi		% Range	Annual Dollars		Range of Fuel Dollars Savings	
	lower bound5% x	36 <u>.7х10<sup>6</sup> в</u> tu	= 18 <u>.4x1</u>	0 <sup>3</sup> Btu, _	5 %	× \$ 884	1.72	s <u>44.24</u>	
NOIT	upper bound 10 % x	36 <u>.7x10<sup>6</sup> <sub>Btu</sub></u>	= 36.7x1	05 Btu, _	10 %	× \$ 994	4.72	\$ 88.47	

The mini-auditor is not responsible if actual savings resulting from the implementation of the energy conservation opportunities listed in section I do not fall between the roughly estimated ranges which are specified.

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

Note: Reproduce this ; age as necessary

EW PORTHINITIES

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 designation of the mini-audit opportunity should contain the specific building location where the recommendation applies, if applicable. Any recommendation on total 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   NEW MINI-AUDIT OPPORTUNITIES   ENERGY COST SAVINGS   CLASS	ZO	implemente	a inis sec	tion of the mini-audit report should be completed by the mini-audit	OPTIONAL:			
MAJOR   SUB   CLASS	ITEM			9.		ENERGY	γ	
2 1 2 contacts on a regular basis.  3 1 2 check for over-voltage conditions on motors. Check alignment of motors to driven equipment, align and tighten as necessary.  Where it is impractical to replace motors which have low loads and power factors, use capacitors at motor terminals to correct the power factor to 90%.  Check power factors and make adjustments to correct equipment. Check the amount of insulation in the ceiling.  Add insulation in attic spaces if needed. Weatherstrip all exterior doors Replace an existing door with one of a higher R-value. Insulate walls with rigid insula- tion on inside surfaces. Check operation of entire heating/ cooling control system, including control valves and dampers.  Raise the supply air temperature for cooling to the highest point necessary to provide minimum required cooling. Lower the supply air temperature for heating to the lowest point necessary to provide minimum required cooling, Clean and remove obstructions from Clean and remove obstructions from Clean and remove obstructions from		MAJOR	SUB	NEW MINI-AUDIT OPPORTUNITIES			DATE OF IMPLEMENTATION	
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				Clean and remove obstructions from	<del></del>	1		
1/ 3   2   all room air outlets and injets	17	3	2	all room air outlets and inlets				
(diffusers, registers and grillers).	THE RESIDENCE			(diffusers, registers and grillers).	1	1		
They should be kept clean and								

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.

OPTIONAL: OPTIONAL CLASSIFICATION **ENERGY** ITEM **ENERGY** NO **NEW MINI-AUDIT OPPORTUNITIES** DATE OF IMPLEMENTATION COST SAVINGS MAJOR SUB SAVINGS CLASS 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 20 3 3 ductwork insulation. Inspect damper blades and linkages. 21 3 Clean, oil and adjust. Clean or 22 3 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 lamps regularly. Use lower wattage lamps to provide 26 the necessary illumination. Allow part of a lighting system 27 4 to be turned off, while maintaining the necessary light. Keep records of the operating 28 5 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. Review the record 29 5 books on a regular basis. All electric heating equipment 30 6 should be checked for corroded elements and loose connections and repaired as required. Clean air-sides, remove soot, and 31 scrape scale in forced warm air furnaces. If the firing rate of gas or oil 32 7 burners is too high, it causes short cycling and excessive fuel consumption. Too low a rate requires constant operating and delivers inadequate heat to the spaces.

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ITEM	CLASSIFICATION NO.		NEW MINI-AUDIT OPPORTUNITIES	ENERGY	ENERGY COST	DATE OF IMPLEMENTATION		
NO.	MAJOR CLASS	SUB CLASS		SAVINGS	SAVINGS			
33	7	4	Maintain the lowest possible hot water temperature which will meet domestic hot water needs.					
			domestic hot water needs.					
34	7	4	Turn off gas pilots for furnaces, boilers, and space heaters during					
			boilers, and space heaters during the non-heating months and during long unoccupied periods.					
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