

# Materials Available From RERC

There's lots more information, prices, and on-line ordering at ([www.rerc.org](http://www.rerc.org))

## ENERGY MANAGEMENT MATERIALS:



**Sizing and Selecting Your Standby Generator** - This booklet clearly explains the correct method to size a generator for homes, farms or businesses. Starting with background information on both engine-driven and tractor driven generators, the guide then offers a step-by-step method to accurately size the generator according to the loads it will serve. Examples are provided in this 20-page book to clarify key concepts. Separate chapters discuss installation methods, emphasizing the need for a double-throw switch and safe connections.



**Farmstead Electricity Use** - This pocket-size booklet lists the typical electricity use for over 40 types of equipment found on farms. These kilowatt-hour consumption figures help you compare energy use on a particular farm, or analyze monthly utility bills. The brochure includes typical loads found on dairy, swine, poultry and grain farms. One table offers estimates of power usage for motors from 1/4 to 15 horsepower. The 8-page brochure also fits in a #10 envelope for easy mailing.



**Agricultural Ventilation Fans: Selection and Maintenance** - Learn how to cut energy waste, and save hundreds of dollars by using efficient ventilation fans. Geared to poultry, swine and dairy producers, this booklet describes what makes one fan more efficient than another, and how to compare different models on the market. Because existing fans can also be made more efficient, this 8-page (8 1/2" x 11") guide also describes the correct cleaning procedures to increase airflow with less power.



**Agricultural Ventilation Fans: Performance and Efficiencies** - This one-of-a-kind reference lists the airflow and efficiency ratings for over 400 different fans on the market. These measured values are the only way to determine if a fan is moving air efficiently, or wasting energy. The 145-page book includes manufacturer names, contact information, and model numbers.



**Low Cost/No Cost Energy Management Practices On Farms** - Here is a quick list of ways to improve energy use on the farm. Packed full of helpful suggestions, this brochure offers a checklist for lighting, motor use, heating, and crop drying applications. Its handy size fits in a shirt pocket or a #10 envelope.



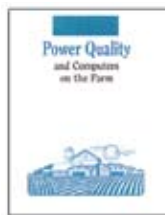
**Outdoor Lighting for Safety and Productivity** - Properly illuminating outside work areas, building entrances, and parking lots can add safety and improve security. This bulletin describes each different light source, then explains mounting heights, and how to combine all-night floodlights with motion-sensor illumination. The 4-page (8 1/2" x 11") brochure applies to rural homes, and offers tips for farms and commercial businesses. A table lists the amount of electricity used by four common light sources, and their annual operating cost (\$) using three electricity rates.



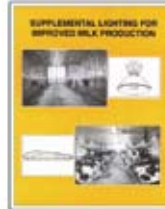
**Electric Motors Packet** (for loan only) This 3-ring binder contains a 21-minute videotape that explains basic motor operation, supplemented with articles and other materials on motor efficiency. It offers a self-paced training packet to expand your knowledge of motor fundamentals, and the key concepts of high efficiency motors.



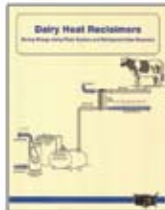
**Energy Efficient Swine Lighting** - Selecting the right fluorescent lighting option in swine buildings can reduce energy costs, while improving light levels. Using actual on-farm studies, this brochure lists the electricity used, and annual operating costs (\$) within farrowing, breeding and nursery buildings. Recommendations are provided for both tube fluorescents, and compact screw-in fluorescent lamps.



**Power Quality and Computers On The Farm** - With more devices on the farm using sensitive microprocessors, it's important to understand electrical disturbances and how to deal with them. This 8-page booklet from the Midwest Rural Energy Council describes different types of power quality disturbances, and explains corrective techniques.



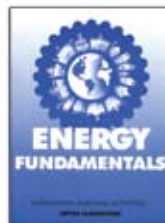
**Supplemental Lighting for Improved Milk Production** - A guide for dairy producers and those that advise them, this booklet describes how to design a "long day lighting" system. The book explains each type of light source, and the fixture styles that are appropriate for different dairy building designs. Also provided are sample lighting layouts, and estimates of income and expenses for farms with extended lighting programs.



**Dairy Heat Reclaimers** - This publication explains both refrigerant heat reclaimers for milk cooling tanks, as well as plate coolers. It helps readers understand the dramatic energy savings that are possible with heat reclaimers. The 8-page booklet also reviews installation options available, using illustrations and a handy sizing worksheet.



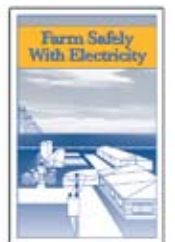
**Livestock Waterers: Selection and Use** - Here is a useful guide for selecting a water fountain to serve cattle, swine, horses or other livestock. This consumer-oriented booklet includes helpful photos of different waterer types, along with tips and drawings for proper installation. The 20-page guide also provides estimates of electricity consumption, and techniques to improve energy efficiency.



**Energy Fundamentals** - A valuable tool for anyone teaching students about energy, this book also comes with a CD, containing a wealth of supplementary materials. The book itself offers 28 "learning activities" with demonstrations of each energy source, and how we use it. These student exercises can add fun to learning about energy. The 114-page book and CD make a great reference for your curriculum.

## SAFETY and PROPER ELECTRICAL WIRING:

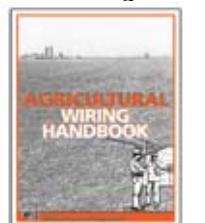
**Farm Safely With Electricity** - This two-color brochure uses vivid illustrations to identify the most common hazards associated with overhead power lines and tall farm equipment. The easy-to-read text covers harvesting equipment, grain augers, hay stackers, irrigation pipe, and other tall machinery. Even without reading the 8-page pamphlet, youth and adult audiences quickly get the message about power line safety.



**Farm Safely With Electricity** (Display) - This eye-catching display consists of four large laminated sheets with color illustrations. Each sheet is 5 ft. long by 2 ft. wide. At a glance, viewers see on-farm situations that could invite an electrical accident. Mount the sheets on a wall, attach them to your own Velcro display panels, or use the metal frame that we supply.

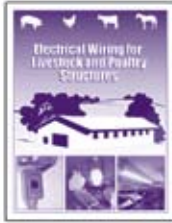


**Agricultural Wiring Handbook** - This guide to farm wiring and electrical distribution explains the latest National Electrical Code requirements. In addition to wiring plans for poultry buildings, grain bins, and several types of livestock barns, it explains how to properly size electrical services and on-farm distribution circuits. The 37 wire sizing tables make it easy to select the accurate wire size for service drops and feeders. With 34 chapters, this 14th edition helps you avoid costly Code violations.



### **Electrical Wiring for Livestock and Poultry Structures**

Recently updated, the photographs and descriptions in this book clearly explain the unique wiring needs of enclosed animal buildings. Separate chapters cover: (1) electrical service panels, (2) cable & conduit, (3) boxes, switches & receptacles, (4) light fixtures & heat lamps, (5) grounding, (6) electric motors, and (7) standby power. In addition to the photos, a list of wiring products that are compliant with National Electrical Code requirements is included (electrical boxes, lights, etc.). Supplier names and Web address are listed.



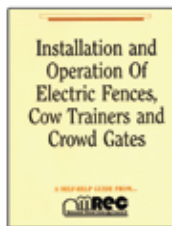
### **Planning Electrical Needs for Crop Drying and Storage**

This guide explains the most important electrical considerations for grain storage facilities. A key consideration is the distance between bins and adjacent power lines, as required by law and determined by bin height. Clearance distances are provided, along with recommendations for wiring at the bin (electric service location, and 3-phase vs. single-phase). This 8-page book can prevent costly changes by educating farmers and bin installers *before* the bin is erected.



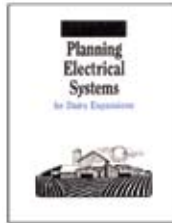
### **Installation and Operation of Electric Fences, Cow Trainers and Crowd Gates**

This is an 18-page guide that helps farmers understand installation and selection of electric fences and related devices. Authored by the Midwest Rural Energy Council, the booklet pertains to not only dairy cows, but electric fences for horses, beef cattle and other livestock. Ample illustrations clarify key installation requirements.

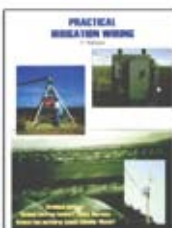


### **Planning Electrical Systems for Dairy Expansions**

Developed by the Midwest Rural Energy Council, this 10-page booklet reviews proper sizing and location of electric services for modern dairies. Standby generator needs, costs for three-phase power, and recommended wiring configurations are also addressed.



**Practical Irrigation Wiring** - To avoid costly Code violations, safety hazards and possible liability claims, you need an easy-to-follow reference. This book explains all aspects of bringing electricity to an irrigation system, and selecting the approved materials to wire it right. Containing multiple photos and drawings, this 99-page book was jointly authored by expert Larry Smith and RERC. It also includes Code references and test questions.



**Soares Book on Grounding** - Good grounding can solve many problems. This book is a comprehensive guide to creating better grounding, from both the utility side and customer side of the meter. The 390-page book contains descriptive explanations, color visuals, code references, and test questions.



**Safety Stickers** - This two-color sticker not only provides a unique handout at consumer events, fairs, and safety presentations, but can be placed on farm equipment to remind operators about power line hazards. Made of sturdy vinyl with fade-resistant inks, this 3" wide x 5" tall sticker will get the message across, and is only available from RERC.



### **Safe Electrical Wiring Techniques** (CD)

- This is a colorful and highly interactive learning tool, in CD-ROM format. It allows users to learn the basics of electrical wiring first, then expand their knowledge with point-and-click assembly of lighting circuits, receptacle outlets and service panels. The CD contains over 17 different exercises, using dozens of full color graphics. A great resource for high schools and vocational classes.



## STRAY VOLTAGE EDUCATION:

**Fundamentals of Stray Voltage** (videotape) - This 55-minute video offers pre-packaged training on stray voltage basics. An introductory segment (5 min.) is followed by a live demonstration, showing causes for on-farm voltage changes. Produced by Michigan State University and Consumers Energy, this video is valuable for both power suppliers and customers, and is only available through RERC.



**Understanding Neutral-to-Earth and Stray Voltage** - This concise



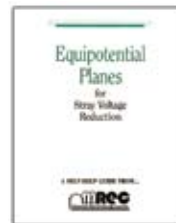
book answers common questions about stray voltage, using easy-to-read text and 18 different illustrations. It begins by describing how stray voltage is created, then explains ways to correct it and prevent future problems. Developed by Consumers Energy and Michigan State University, this 21-page booklet is distributed solely by the RERC.

**Understanding Neutral-to-Earth Voltage** (videotape) - Using



on-farm comments from farmers, electricians and others, this video explains what stray voltage is, and how it can occur. Illustrations help explain possible sources, and show why dairy cows are particularly susceptible. It offers a great introduction to the subject for rural consumers. Produced by Detroit Edison and Michigan State Extension, this video is made available only through RERC.

**Equipotential Planes for Stray Voltage Reduction** - An equipotential



plane is a grounded concrete floor, with specific design elements and electrical connections. The National Electrical Code requires this type of floor construction on nearly every type of livestock building. This includes cattle, swine, horses, sheep, goats, etc. (poultry buildings are exempt). This 15-page booklet from the Midwest Rural Energy Council, explains how to construct this type of floor, with an emphasis on dairy buildings.



*"Helping our power supplier members serve their rural and agricultural customers"*

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