Minnesota History
Interpreter

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In this issue

On track

Kandiyohi County museum upgrades lighting system

A conservation assessment in 1999 gave the Kandiyohi County Historical Society a blueprint for the care of its collections. The assessor's report offered recommendations for many aspects of the museum's operation, from collections policies and procedures to storage and exhibition conditions. KCHS staff members are just wrapping up one of the last projects on their to-do list from that assessment – revamping museum lighting.

A need for change

The old lighting system dated to 1969 when the museum facility was built. Over the years, fluorescent lights had subjected displayed objects to fading. And homemade modifications of the lighting fixtures had created electrical hazards. It was clear to all that the collections, the museum and its visitors were at risk.

Help came in the form of a grant from the Institute of Museum and Library Services. With $18,602 from the IMLS Conservation Project Support program, matched by funds raised locally, the KCHS got what it needed – a new track lighting system that will protect the collections from damage and give visitors a safer, better-lit museum experience.

Putting the pieces together

The project started with the purchase of a light meter to take readings of light levels in the main exhibition space. Then the pieces of the new system were put into place. Old, too-bright lights gave way to a more flexible, easy-to-control system of track lighting. Incandescent bulbs with UV filters now illuminate the exhibits. Dimmers allow lighting to be adjusted for brightness in different areas of the museum. And motion-activated sensors mean that the lights shut off when no one is viewing the exhibits.

Guiding the project were two consultants – Bob Herskovitz, outreach conservator at the Minnesota Historical Society, and Neil Cockerline, director of preservation services for the Midwest Art Conservation Center. Once the lighting track was in place, Herskovitz returned to the museum to advise the staff on light placement and settings. His goals: maximum protection for the objects displayed and a pleasing ambient light with no stark contrasts.

Kandiyohi County Historical Society

A lineup of switches and dimmers (inset) controls 12 circuits of new track lighting at the Kandiyohi County Historical Society. Old fluorescent fixtures will be removed.

Fine-tuning the system

"We're still doing fine-tuning on positioning and adjusting the lights," says KCHS executive director Mona Nelson. "Because the museum isn't as bright as it used to be, we're finding we also need to redo some of our labels in larger type."

On track continued on page 2

Expansion plans

Challenge grant jumpstarts Winona County Society's fundraising

Big plans call for big money. Plenty of both were in evidence this fall when the Winona County Historical Society announced a $3 million capital campaign to finance major expansion of its facility in downtown Winona. Seeding the campaign is the largest grant ever given to a county historical society in Minnesota – a $1.5 million challenge grant from the Laird Norton Company of Seattle.

Family ties

Laird Norton ties to Winona go back to 1855, when the company opened its first sawmill in the city. Family members have been contributing to the Winona community ever since. In fact, the company purchased and donated to the WCHS the old National Guard Armory building that now houses the society's museum, library and archives. Current WCHS president Laurie Lucas is a Laird Norton Company board member.

Paving the way

Plans for the expansion were laid during a year-long series of facilitated strategic-planning sessions that identified the society's most critical needs. The proposed 15,000-square-foot addition will make room for more collections storage, artifact conservation work, new exhibit galleries and program space for 200 people.

The expansion, which will nearly double the society's existing space, is proposed for a parking lot adjacent to the present museum. Negotiations are underway to acquire the property.

The WCHS has until June 30, 2008, to raise $1.5 million in matching funds. The opening of the expansion, slated for June 2010, will coincide with the 75th anniversary of the society's founding. For more information on this groundbreaking project, call Mark Peterson, WCHS executive director, at 507-454-2723, ext. 1.

Around the State continued on page 7

Winona County Historical Society

Executive director Mark Peterson looks over plans for expansion of the Winona County Historical Museum onto an adjacent parking lot in the heart of downtown Winona.

On track – continued

The newly lit museum did seem dark at first to both the staff and the public, Nelson reports. "But the important thing is not to harm the items on display. Now we're getting good light-level readings on the meter. From now on, we'll take readings every time we change exhibits."

One thing remains to be done – UV filters for windows in the front of the building, where staff offices are located. "We decided to improve the lighting in our work space, too," says Nelson. "We also ordered roller shades for our other site, the historic Sperry House. Once we got going on our lighting project, we just kept going."

Need advice?

See the Tech Talk in this issue (pages 3-6) for guidance on lighting museum exhibits.

Outreach conservator Bob Herskovitz, coauthor of the Tech Talk, is available for consultation on lighting projects and other conservation matters. He can be reached through the MHS Conservation Outreach Program. Call 651-297-1867 or 1-800-657-3773, or e-mail conservationhelp@mnhs.org.

For more information on the Kandiyohi County Historical Society's lighting project, call Mona Nelson at 320-235-1881 or e-mail kandhist@msn.com.

To learn more about IMLS Conservation Project Support grants, go to www.imls.gov/applicants/grants/conservProject.shtm. You'll find a program overview, contacts, application guidelines and grant deadlines.

Track Lighting in Museums

Part 1: Selection and Design

by Bob Herskovitz and Rich Rummel

Introduction

Light is arguably the single greatest cause of deterioration in museum collections. Several factors contribute to its damaging effects: the materials from which objects are made, the type and intensity of light they are exposed to and the duration of the exposure.

Especially sensitive to light are objects made of organic material – documents and letters, photographs, works of art on paper, textiles, clothing and accessories. Yet these items, when featured in museum exhibits, spend a great deal of time exposed to light. And because exhibits take so much time and money to develop, displays often remain up for years – far longer than is ideal for the preservation of the items exhibited. The result can be irreparable damage to museum artifacts – damage that is cumulative over the life of the objects and usually irreversible.

This two-part Tech Talk will help you understand the nature of light and its damaging effects and offers guidance for the safe lighting of museum collections. Part 1 discusses the decisions you'll need to make when planning a lighting system. Part 2, to appear in the January-February 2007 issue of the Interpreter, will discuss how to control museum lighting.

Understanding light

The light to which museum collections are exposed is made up of three parts: ultraviolet (UV) radiation at one end of the spectrum, visible light in the middle and infrared radiation at the other end.

A common misconception is that eliminating UV light solves the problem of deterioration. But all light, wherever it falls on the spectrum, is energy. And it is energy that drives the chemical reactions that result in damage to objects from fading (fig. 1), yellowing and embrittlement.

High-energy UV light falls outside the range of human vision and so is not necessary for viewing a museum exhibit. It can be removed using filters (to be discussed in Part 2). At the other end of the spectrum is infrared light, which produces heat (think of the infrared bulbs used in restaurants to keep food warm). Damage from infrared light can be minimized or largely eliminated by ensuring that there is sufficient distance between the light source and the object being lit.

Track lighting: The museum standard

Our challenge in museums is to use only as much light of the right type as is necessary to make exhibits comfortably visible for visitors while protecting the collections from damage. One of the most common and effective ways of lighting museum exhibits is with track lighting.

Minnesota Historical Society photos

Fig. 1: A look at the back of this silk banner reveals how the front has faded from years of exposure to light.

Because it is so versatile, track lighting has become the standard for museums. Track lights are available in a variety of fixtures and lamps to suit a wide range of applications. Track lighting systems are also highly flexible: the lights can easily be moved, added or removed as changing exhibits warrant. Whereas overhead fluorescent fixtures bathe an entire room in an even, flat light (see fig. 2), track lighting can be used to highlight discrete areas such as signage or a featured artifact (see fig. 3).

What are the factors to consider when planning track lighting for your museum? The purchase of any system should take into account the following:

- quality of the product,
- number of circuits used to power the track,
- location or layout of the track,
- type of lamps and fixtures used, and
- control of the circuits.

Buy museum-quality systems

The phrase "museum quality" means something when it comes to track lighting. Track of standard commercial grade – usually a static system designed for one-time installation – is not well suited to museum use. The fixtures and fittings, designed to last only about five years, do not hold up under the repeated installation and relocation required for changing exhibits.

Four brands of track lighting are generally considered to be museum-quality grade:

- Edison Price Lighting
- ERCO
- Lighting Services Inc. (LSI)
- Lightolier: ProSpec Track

Each manufacturer makes durable, two-circuit track and a variety of fixtures designed for long-term museum lighting. They must be special-ordered; work with a local manufacturer's representative to view samples, then arrange orders through your electrical contractor or supply house. These brands are more expensive than standard commercial track or retail-grade track, but you get the quality you pay for. For contact information, go to www.mnhs.org/techtalkresources.

Fig. 2: Overhead fluorescent fixtures create a flat, even light. The track lighting used here provides more light but adds little visual impact.

Fig. 3: Used effectively, track lighting creates visual interest by varying light levels throughout the exhibit.

Create lighting zones

To light your museum exhibits most effectively, it's helpful to divide your exhibition space into lighting zones. The number of zones will depend on the size of your exhibit area but a good starting point for planning is four to six zones.

In museum lighting, the number of electrical circuits required is based on light control rather than load. Each zone should be fed by two circuits, one for artifact lighting and the other for general lighting. Those dual controls will enable you to limit light exposure for displayed artifacts and, at the same time, maintain a comfortable viewing environment for visitors.

Determine proper location of tracks

Proper location of the lighting track is key to ensuring your visitors a pleasant museum experience. To light objects, interpretive panels and text mounted on a wall, install track around the perimeter of your exhibition space. Prevent glare and shadows by determining the best angle for each light fixture.

The optimum angle for lighting flat displays on vertical surfaces is 30 degrees. This angle produces a minimum amount of glare and allows visitors to view the artwork or artifact closely without casting a shadow (see fig. 4). Lights should not be positioned at angles greater than 45 degrees. Light from fixtures angled between 45 and 90 degrees will shine into the eyes of visitors, either directly or as a reflection off a display case or frame. Fig. 5 illustrates the optimum distances from a wall to mount lighting track for various ceiling heights.

If you are designing a new exhibit space, consider installing a ceiling grid of track to maximize lighting possibilities. This way, lights can be not only mounted around the perimeter of the room, as described above, but also suspended from the ceiling in the middle of the room. Such a grid system enables you to light artifact cases or platforms anywhere on the floor of the exhibit gallery without shadows or glare.

Fig. 4: When light fixtures are angled improperly, museum visitors cast shadows on the displays.

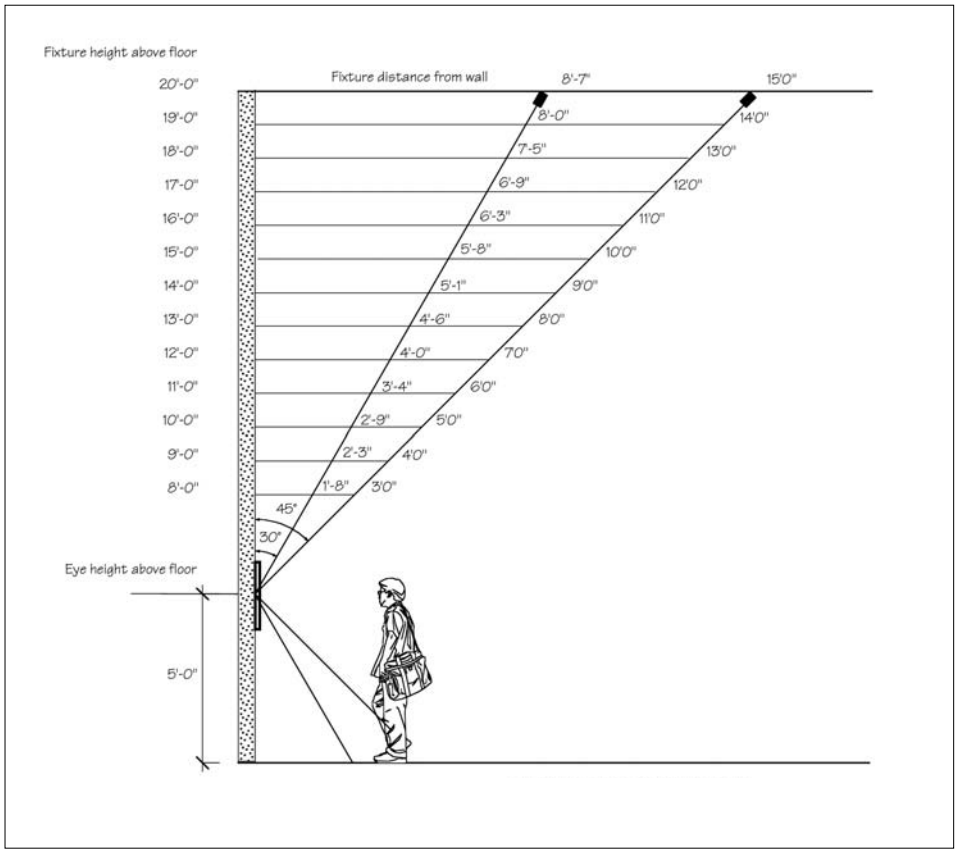


Fig. 5: The optimum distance from a wall for mounting track lights depends on ceiling height. To avoid glare and shadows, angle lights between 30 and 45 degrees.

Select the right lamps

Lamps (bulbs) come in a variety of types, sizes and intensities. The most common lamp types used in museum lighting are R40, PAR20, PAR30, PAR38, MR16 and MR11. This combination of letters and numbers represents the kind of reflector the lamp has – basic reflector (R), multifaceted reflector (MR) or parabolic aluminized reflector (PAR) – and its size, measured across the face of the bulb and expressed in multiples of one-eighth of an inch. Thus, a PAR20 is a lamp with a parabolic aluminized reflector measuring 2 1/2 inches across.

In general, PAR lamps are the best choice for exhibit lighting. To select the proper bulb for your situation, first determine the size you'll need, using the ceiling height of your exhibit space to guide you. As ceiling height increases, so should bulb size. For example, use a PAR20 lamp for ceiling heights under 8 feet, a PAR30 lamp for ceilings 8 to 10 feet, and a PAR38 lamp for heights over 10 feet.

Next, select a beam spread that suits the area you wish to light. The most common are spots (with a 12 degree beam spread), floods (30 degree beam spread) and wide floods (50 degree beam spread). In most cases, you'll want to choose a flood or wide flood lamp to light your exhibit.

Finally, select wattage. For a PAR 20, start with 35 watts; for a PAR30, start with 50 watts; and for a PAR38, start with 45 watts. Install the bulb, positioning the fixture on the track at an angle between 30 and 45 degrees as described above. Now use a light meter to check the intensity of light on the object. Part 2 will discuss in more detail how to measure and control light exposure. **Note:** Minnesota museums that do not have a light meter may borrow one at no charge through the Minnesota Historical Society Conservation Outreach Program.

A word on low-voltage lamps, such as the MR16: Generally, these are not recommended for museum exhibits because of their higher cost (low-voltage fixtures require a transformer) and because their light output often exceeds the amount for safe illumination of museum artifacts (usually 50 to 200 lux). If you have low-voltage lamps in your galleries, verify the light output of your fixtures to make sure that the light levels are safe for your collections.

Choose the right fixtures

The primary task of the fixture is to hold the lamp and provide connection to the lighting track. In commercial applications, the light fixtures may be part of the "look" of the place. In a museum setting, light fixtures should not call attention to themselves. You want to focus visitors' attention on your displays, not the exhibit furniture and hardware.

For each type of lamp described above, there are a number of fixture options. Those most commonly used for museum lighting are round-back and flat-back cylinders. Make sure that the fixture you choose accepts accessories such as UV filters, light-blocking screens, spread lenses and louvers. Also, in order to eliminate glare, make sure that the lamp fits completely inside the fixture.

Remember to evaluate the track and fixtures you're considering for workmanship, materials and durability. Try dropping the fixture from waist height to make sure it will not break. Insert the fixture into the track and remove it five to 10 times to make sure that the connection between the track and fixture will hold up through repeated installations. With museum budgets under increasing pressure, it is important that the equipment you purchase lasts a long time.

More to come

For many reasons, track lighting has proven itself a popular choice for museum exhibits. Done right, it is flexible and versatile, accommodating multiple lighting zones and different types of fixtures. That flexibility enables museum staff to change the lighting setup every time exhibits change. Such customized lighting adds visual interest to exhibits and gives visitors a satisfying museum experience. Best of all, with a good track lighting system, there is minimal cost after the initial investment of hardware and installation.

Watch for Part 2 of "Track Lighting in Museums" in the next issue of the Interpreter. We'll discuss how to control lighting in museum exhibits to minimize exposure of artifacts to light without compromising viewing conditions.

Tech Talk offers technical assistance on conservation, historic preservation and museum management issues that affect historical organizations and museums of all sizes. This Tech Talk comes from Bob Herskovitz, outreach conservator for the Minnesota Historical Society, and Rich Rummel, the Society's lighting designer for exhibits. If you have questions, call the MHS Conservation Outreach Program at 651-297-1867 or 1-800-657-3773; fax 651-296-9961; or e-mail conservationhelp@mnhs.org.

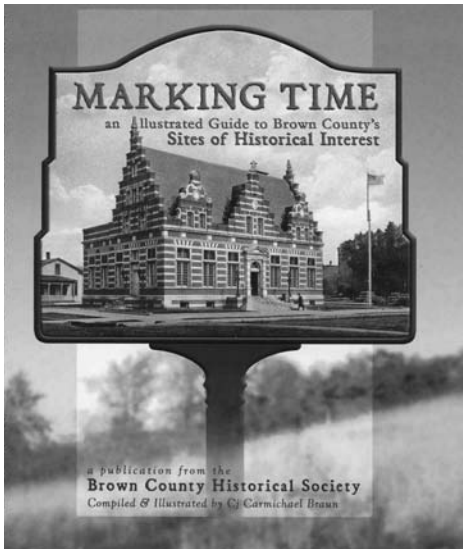
New book surveys Brown County sites

Dedicated funds support society's publishing program

More than 100 historical sites in Brown County are cataloged in "Marking Time: An Illustrated Guide to Brown County's Sites of Historical Interest." Compiled and designed by Cj Carmichael Braun, the book was published in July to coincide with the county's sesquicentennial.

"Marking Time" is the fifth book published or reprinted by the Brown County Historical Society since it initiated a publishing program in 2003. "We used a bequest from a longtime supporter, Bessie G. Church, to establish a publication fund," explains BCHS director Bob Burgess. "That fund provides the seed money for each book. Then we raise about half of what we need for the program every year through our annual used book sale. The rest comes from grants and other gifts."

Copies of each book are donated to area libraries and junior and senior high schools as well as to historical societies in adjacent counties. For more information about "Marking Time" ($14.95) and the publishing program, call Burgess at 507-233-2616. For a list of other BCHS publications, go to www.BrownCountyHistoryMNUSA.org.



"Marking Time: An Illustrated Guide to Brown County's Sites of Historical Interest" by Cj Carmichael Braun

A sign of the times

When a recent storm destroyed the wooden sign in front of the Otter Tail County Historical Society, it gave the staff a clean slate. "We rethought what we needed – something more visible and durable to compete with all the commercial signs near us," says OTCHS director Chris Schuelke. Their solution: a locally crafted structure with fieldstone supports and an electronic message center that sports a changing array of messages and graphics. A local artist created wildlife-themed decorative metalwork to embellish the sign.

"It was expensive," admits Schuelke about the project's $35,000 price tag, "but it's an effective communication tool. We made our case for the sign in a pamphlet we sent to prospective donors." Funds, including one good-sized matching gift, came in from 75 individuals and businesses.

"Now we're the envy of other organizations in town," says Schuelke. "After we got a lot of requests to use our sign for their messages, we made it a policy to promote only our own programs." For more information on this conversion to electronic signage, call Schuelke at 218-736-6038.

Otter Tail County Historical Society

Changing messages on this eye-catching roadside sign tell passersby of events at the Otter Tail County Museum.

Bulletin Board

Update your mail list

A few minutes spent on newsletter mailing lists ensures that word of your organization's activities reaches the right audiences. That goes for this newsletter, too.

The Interpreter is one of the primary vehicles we use to communicate with you about local history programs, resources and issues. So ask yourself a few questions:

- Do we have your correct address?
- Does the Interpreter go to the right people at your organization?
- Are you receiving duplicates?

Let us know about any corrections we should make on our Interpreter mailing list. You may fax your mailing labels, with corrections noted, to 651-296-2374; mail your changes to Michele Decker at the address below; phone them in to Decker at 651-296-5434; or e-mail her at michele.decker@mnhs.org.

Make sure that the following two MHS departments receive your newsletter. Mail to each at the address below.

- Local History Services. We use your news to help us plan our programs and services.
- Serials. This copy becomes part of the periodical collection in the MHS Library.

2007 workshops

Promise yourself now to attend one of these local history workshops in 2007. The theme: "Raising the Bar: Pursuing Excellence in All You Do." You'll come away with great ideas for fundraising, collecting business records, caring for archaeological collections and more.

The venues:

March 23: Becker, Sherburne County
April 13: Worthington, Nobles County
April 27: St. Peter, Nicollet County
May 11: Chisholm, St. Louis County
May 21: Roseau, Roseau County

Watch for more information in the January-February 2007 Interpreter.

About this publication

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For address corrections, e-mail michele.decker@mnhs.org or call 651-296-5434. For other matters, call Tim Glines at 651-296-5460 or e-mail timothy.glines@mnhs.org.

Britta Bloomberg, Head, Historic Preservation Department
Tim Glines, Manager, Outreach Services
David Grabitske, Grants and Field Programs Associate
Mary Ann Nord, Editor

www.mnhs.org

Minnesota Historical Society
345 Kellogg Blvd. W.
St. Paul, MN 55102-1906

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