

# STATE FACILITIES QUARTERLY

*"Provide and protect public assets"*

Official Newsletter of the National Association of State Facilities Administrators  
An organization of planning, development, operations and maintenance officials

## Washington Building Commissioning Case Study

### State Museum Shows Advantage of Bringing Professionals On Board Early in the Process

By Roger Wigfield, P.E.

Source: Washington Department of General Administration, "Shop Talk," Spring 1998

There are a myriad of factors to consider when constructing a public building. Functionally, monumental design and wise use of taxpayers' dollars are important considerations. Energy efficiencies, energy life-cycle cost principles, resource conversion and maintainability must also be incorporated; not only to set the example, but to reflect budget economies in the future. Commissioning helps tie all of these together so the owner receives a building that functions as intended.

The decision to commission the Washington State History Museum turned out to be a true winning solution. The owner chose to integrate commissioning into this project because of the museum's environmental requirements for strict control of temperature and humidity and the complexity of the building. With this decision, the Washington State History Museum became one of the first major public buildings in the state to be commissioned during the building process.

Larry Storset, of L.N. Storset and Associates, was hired as the commissioning agent and brought on board at the beginning of construction. At this stage, the design intent had already been established and the facility design was completed. The commissioning agent's insights and previous professional experience with complex mechanical projects helped in developing appropriate building systems for the museum. During the commissioning process, a number of problems were identified and corrected.

**Water Pumps:** Two primary heating water pumps did not operate as specified. Several approaches were tried to get the pumps to operate per factory specifications, none of which worked. Finally, the manufacturer was convinced to set up the pumps at the factory to evaluate their performance. The result was that the supplied pumps could not operate at their catalogued performance. The pumps were modified at the factory and reinstalled; the required performance was then achieved.

**Boiler Operation:** Single boiler operation was satisfactory

when building loads were low. However, as the heating requirement increased and both boilers were needed, one boiler would periodically trip out from low gas pressure. Investigation of the problem found that the gas regulator had inadequate capacity to meet peak load. The regulator was changed and full fire was achieved. Additional boiler deficiencies were also uncovered on the flame sensors; these were changed and proper boiler operation was achieved.

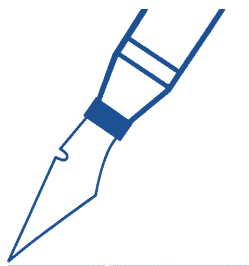
**Chillers:** It was found that starting up the chillers with a warm chilled water loop or during periods when the chiller demand was just slightly above that available from one chiller would activate both chillers. The chillers would then proceed to unload with the second chiller shutting down about 15 minutes after it started. Because of the large mass of the building, it was found that the demand for the second chiller could be delayed for 60 minutes without impacting the building temperature and saving many chiller start/stop cycles.

**Main Air Handling System:** When return-air entered the mixing box ahead of the bag filters, it created a swirl condition that violently whipped the filters, threatening to eventually destroy them. Air flow and air pattern measurements were taken and perforated baffles were designed and installed to eliminate the air turbulence. "The mechanical contractor was so pleased with the process that they now recommend it for other projects in which they are involved," said Storset. "Commissioning delivered a building that operates as designed."

The primary reason the mechanical contractor recommended building commissioning is that it results in fewer customer callbacks to fix problems in the building. During the museum project, the commissioning process provided the building staff

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# PRESIDENT'S LETTER

Those associated with NASFA are well aware of the benefits our organization provides to its members. Almost daily, administrators from across the country provide solutions for, contribute information to, and share experiences about facilities. This information is extremely valuable to organizations that deal with the unique challenges and opportunities that the public sector presents. To build upon this important foundation, NASFA will continue to occupy a leadership position and expand its relationship with other organizations during the next year.

One of the greatest benefits of this association is the forum that it creates for discussions of important issues related to facilities. This forum needs to be expanded to bring groups with common interests together. For example, those who work with correction facilities face similar situations. Likewise, natural resource administrators share common challenges. NASFA has the opportunity to bring these groups together to share information and make individual state agencies and institutions more effective problem solvers. The process is already in place for this type of alliance, it merely needs to be expanded to encompass more groups of individuals.

Together we can also address issues that have important implications for all NASFA members. Topics such as "operations and maintenance" and "commissioning" must be defined. As generally accepted definitions are identified,

individual state administrators can be more effective in communicating their needs to other agencies and their respective state legislatures. Common definitions facilitate discussion of these important issues. NASFA committees will play a vital role in creating these definitions and identifying the strategic planning that accompanies their development.

NASFA also has unique opportunities to reach out and build relationships with important entities that carry out similar responsibilities. Partnering with other state agencies, vendors and the private sector to promote a nationwide arena in which to discuss and address facilities issues. Building bridges between these groups increases the opportunities for discussion, networking and innovation.

During the next 12 months we will continue to build on NASFA's past strengths – leadership and relationship building. A focus on this two-pronged effort benefits our individual agencies and states, and helps each of us become more efficient administrators.

A handwritten signature in dark ink, appearing to read "Jack Quintana". The signature is fluid and cursive, written over a light blue horizontal line.

Jack Quintana (UT)  
NASFA President



## NASFA CALENDAR OF EVENTS

(Visit the association's web site at <http://www.csg.org/nasfa.html> for more information.)

### Great Plains Regional Conference

September 27-29, 1998  
Topeka West Holiday Inn, Topeka Kansas  
Contact: Barbara Schilling, (785) 233-9367, ext. 224,  
Fax (785) 233-9398

### Understanding Microbial and Chemical Contaminants in Buildings

October 5-6, 1998  
Cobb Galleria Center, Atlanta, GA  
Contact: Air Quality Sciences, Inc., (770) 933-0638

### Southeast Regional Meeting

October 15-6, 1998  
Holiday Inn Hotels & Suites, Gulf Shores, AL  
Sponsor contact: Stedmann McCollough, (334) 242-4082,  
Fax (334) 242-4182

### Western Regional Fall Conference

October 28-30, 1998  
Hardman House & Ormsby House, Carson City, NV  
Contact: Yvonne Benson, (702) 687-4870, Fax (702) 687-3981

### CSG Annual Meeting and State Leadership Forum

December 4-8, 1998  
Marriott Rivercenter, San Antonio, TX  
Contact: CSG Infoline, (606) 244-8098

### NASFA 12th Annual Conference & Trade Show

June 12-16, 1999  
Snow King Resort, Jackson Hole, WY  
Contact: Marcia Stone, (606) 244-8181, Fax (606) 244-8001,  
E-mail <[mstone@csg.org](mailto:mstone@csg.org)>

# STATE NEWS

## NASFA Becomes an Energy Star Buildings Endorser

By Shannon Richardson, ICF Incorporated

Improving the “bottom line” is important for your organization, and improving the environment is important for everyone. That’s why the National Association of State Facilities Administrators (NASFA) has recently endorsed Energy Star Buildings, a voluntary initiative of the U.S. Environmental Protection Agency (EPA) designed to help associations promote the benefits of energy-efficiency to their members.

NASFA decided to become an Energy Star Buildings Endorser because it is convinced that using an energy-efficiency strategy will save money, and that such strategies are essential for reducing pollution. The more organizations that join Energy Star Buildings, the greater the benefits, so NASFA has pledged its support for this innovative partnership.

As an ENERGY STAR Buildings Endorser, NASFA will be able to share with you ways to save money, improve employee productivity and increase occupancy comfort in your buildings. With energy cost savings of at least 30% a year, it’s easy to see why this partnership is an excellent idea.

The ENERGY STAR Building Partnership is a voluntary initiative designed to promote efficient use of energy in buildings and improve the environment by reducing pollution. Participants in ENERGY STAR Buildings agree to implement building wide energy-efficiency technologies only where profitable and where workplace comfort is maintained or improved.

By adopting the ENERGY STAR Buildings strategy, organizations can reduce the energy consumption in their buildings on average from 30 - 50%.

According to the EPA, a typical office building of 100,000 square feet could save \$66,000 per year in ENERGY STAR Buildings.

If you choose to become an ENERGY STAR Buildings Partner, EPA can offer you a variety of benefits including:

- Unbiased information on technologies and services
- Communications support to generate public recognition for your efforts through planning marketing strategies, media events, press releases and editorial coverage.
- No-cost tools, including software for planning and managing upgrades, a customer support team to answer questions and a toll free hotline.
- Publications that provide program updates and technical and financing information.

NASFA encourages you to consider joining this excellent program. Not only will you improve your bottom line, you will also earn recognition as an environmental champion. To find out more, just call the toll-free ENERGY STAR Buildings Hotline: 1-800-STAR-YES (1-888-782-7937).

## South Carolina General Services To Save State \$145,000 Annually

Source: South Carolina Energy Office, “The Energy Connection,” Summer 1998

The state of South Carolina will save \$145,000 annually in electricity costs as a result of a lighting retrofit of seven buildings in Columbia, operated by the Office of General Services of the State Budget and Control Board.

The state has selected Parke Industries, a division of Strategic Resource Solutions (SRS), to install energy-efficient lighting systems in this intensive upgrade project. The installation project will provide high-quality, high-performance low energy use lamps, ballasts, and LED (light emitting diode) exit signs in approximately 848,000 square feet of office space and parking garages.

The Office of General Services expects reduction in electrical consumption of 2,580,305 kilowatt hours annually. The \$765,000 project will pay for itself through utility bill savings in less than five years, and the state will net over \$700,000 in total cost savings over the life cycle of the project.

Included in the state’s project is the replacement of more than 28,700 34-watt and 40-watt T-12 lamps with new T-8 lamps and electronic ballasts. Also included will be the installation of 503 LED exit signs.

The lighting upgrade solution was customized for each facility to meet or exceed the system performance criteria specified in the Request for Proposals (RFP). Strategies employed covered the full spectrum of energy savings techniques and technologies. These included custom designed optical reflectors, T-8 lamps, electronic ballasts, custom designed lamp socket brackets to position the lamps correctly and optimize fixture efficiency, replacement of exit signs with new, energy efficient LED exit signs and the use of tandem wiring.

*For more information on this project, contact Dan Marlow, South Carolina Office of General Services, at (803) 734-3491.*



# NA SFA

## 11th Annual Conference & Trade Show June 27 - July 1, 1998 Scottsdale, Arizona



*"Sorry sir, no ties allowed." Luther Lewis (GA) partakes in customary tie cutting tactics during the Awards Dinner.*



*Nothing but smiles from the evening's event sponsors, Facilities Resource Mgmt. Co. (L-R) Lucinda Embersits, Steve Joren, Jack Embersits, Florence Brassler and Frank Mendicino.*



*Dancing, dancing, dancing . . . Michael Bocchicchio (CA) and Janet Jones show us some pretty fancy dance steps.*



*C.B. Baize (KY) and wife Missy enjoy the evening's activities.*



*Father and son duo, Kyle and Ed Bybee of Missouri.*



*Quietly passing the Torch!! Outgoing president Luther Lewis (GA)-left congratulates incoming president Jack Quintana (UT).*





**11th Annual Conference & Trade Show  
June 27 - July 1, 1998  
Scottsdale, Arizona**



Attendees get all fired up during the keynote address.



Innovations chair, Gary Grimes (KS) proudly announces the Innovations Award winner.



Innovations winner and honorable mentions. (L-R) Bill Phillips (WA)-honorable mention, Bill Scaringe (FL)-winner, Charlie Effinger (OK)-honorable mention and Henry Shirley (VA)-honorable mention.



Jack Quintana (UT) reminds attendees to turn in their topic surveys.



Showing the smiles that made them the consummate hosts, the Arizona host state staff. (R-L) Tim Brand, Armond Brooks, Delores Habre, Joanne Brooks and Jack Jones. Not pictured Linda Zwagerman.



We are not worthy! Mark Sauchuk (OK) celebrates a hole-in-one at the Tournament Players Club, Stadium Course. Way to go Mark!!

## Kansas Process Control Center

*Continued on page 7*

*Source: Kansas Department of Administration News & Views, May 1998*

At the beginning of this year, the Division of Facilities Management (DFM) began operation of its Process Control Center (PCC). According to Joe Fritton, deputy director of DFM, the PCC was developed to centralize all functions associated with DFM's work flow process. The PCC is a "one stop shop" generating work orders, preparing estimates, scheduling, tracking and billing work. Prior to the development of the PCC, these tasks were scattered among different groups located in different locations of the Capitol Complex.

The PCC is located in the Docking State Office Building near the central maintenance crews. Lew Carpenter, central maintenance supervisor, stated, "We selected the location in order to increase efficiencies by moving the control center to the work center."

The PCC has already made an impact on services provided by DFM. The time required to generate a work order has been reduced from three to two days. Customers are now contacted prior to starting work to determine the scope of service to be performed. Billing for work orders have been reduced from a six month cycle to a monthly billing cycle. In addition, management trending reports have been developed. Several changes are also planned for the future of PCC.

Future plans include the following: implementation of a computerized scheduling program, development of a comprehensive schedule of maintenance activities, and development of a preventive maintenance schedule for both maintenance and housekeeping in order to reduce the unexpected cost of equipment failure.

*For more information contact Joe Fritton, deputy director, Kansas Division of Facilities Management, at (785) 291-3587.*

## Georgia Keeps an Eye to the Sky

*Source: Georgia Building Authority News, May 1998.*

As part of a statewide program to improve communications of dangerous weather conditions, a Data Transmission Network (DTN) system has been installed in the Georgia Bureau of Administration Communications Center in the basement of the Floyd Building. Funded by the Georgia Emergency Management Agency (GEMA), the DTN system is a stand alone information system that continuously monitors weather conditions and provides updated information on severe weather conditions in the Atlanta area.

The system is satellite driven and can receive timely and reliable information regardless of whether cable and telephone services are impaired. It is also capable of detecting second weather systems even after land based communications have been interrupted. Unlike The Weather Channel, which provides updates every 10 minutes, the DTN system continuously monitors the weather conditions.

The Georgia Building Authority has in place an emergency plan and communications procedures to notify tenants of serious weather conditions. Each agency has employees who have been designated emergency coordinators. These coordinators are the first point of contact and are responsible for notifying department employees of these conditions.

*For more information, contact the Georgia Building Authority at (404) 656-6557.*

## Washington Creates Year 2000 Resource Office

Washington state agency directors and elected state officials are quickly learning about the Year 2000 embedded chip problem and the potential for disruption to their vital services. Vital services are those that might affect public health and safety, payment of benefits, or accountability for public resources.

The newly-created General Administration (GA) Year 2000 Program Office recently asked all state agencies to identify their vital services and focus their efforts on mitigating any date change problems with the systems and equipment that support these services. Each agency must assess their vital services and prepare plans to mitigate any possible disruption. Other agency services may be mission critical or supportive and need attention, too.

The GA Year 2000 Program Office has pilot projects underway now to test program methodologies and approaches. Experiences from these pilot projects will contribute to a workbook that will guide state agencies through the process of identifying vital services and systems and equipment necessary to deliver those services. Embedded chip risk assessments will then be conducted in the fall.

Other divisions at GA are identifying contractors to provide a variety of Year 2000 related services quickly and easily to all agencies. For instance, the Office of State Procurement is creating a master list of firms interested and capable of providing services in year 2000 audit, assessment and testing. The Division of Engineering and Architectural Services is augmenting its master list of vendors by identifying those capable of providing remediation services (design and construction) for public works projects that result from the risk assessments and plans.

"Washington state plans to make a smooth transition to the year 2000 by focusing first on the most important things to be done," said Julie Boyer, Y2K embedded chip program manager. "With these things accomplished, the millennium date change should not affect vital services that we all take for granted in our state."

*For more information contact Julie Boyer, at (360) 664-2197 or Greg Lee, at (360) 664-2164, or at GA Year 2000 Program Office, 1063 Capital Way, Suite 210, P.O. Box 41019, Olympia, WA 98504. Fax (360) 664-2172. E-mail <Jboyer@ga.wa.gov> or <Glee@ga.wa.gov>.*



## Committee Chair's Corner

The upcoming year promises to be a banner one for NASFA and I am honored to serve the membership as chair of the Communications Committee. Many thanks to Lamar Holland for his superb work last year as chair. The newsletter and website, besides complementing the progressive initiatives of President Jack Quintana and the executive committee, support active exchange and professional discourse. I hope you will see both media as valuable forums that deserve your input and critical review.

We are a diverse association, spanning maintenance, property management, operations, construction, architecture, engineering and many related areas. Reflecting all of these areas, our communications keep us alive and thinking. Articles are the guts of the newsletter. Articles to the newsletter need not be slick or thesis-material. They need only be useful, informational or intriguing to certain segments of our association. Give your organization the recognition and notice they deserve by regularly submitting material!

We will critically review the website for practicality and proprietary benefit purposes. While we want to encourage

nonmembers to take a look at us, we are exploring software packages that allow password protection and “string:” capability for on-going electronic discussions. Certain products should only be available to active members, so we’ll segment portions of the site for those purposes. Again, if you have an interest or an idea to share in on-line media, please give me a call (360) 902-7257 or e-mail <bmacken@ga.wa.gov>.

Finally, we need to court more of our professional peers with the goal of facility administrators of many stripes participating in NASFA activities. Fish and Wildlife, Corrections, Military Departments, Transportation, Natural Resources and many more would benefit from the association’s charter and would enhance us all with their input. Please join me in making this goal a reality by next year’s conference in Jackson Hole, Wyoming!



**Bob MacKenzie (WA)**  
NASFA  
Communications  
Committee Chair

## Building Commissioning Case Study

*Continued from page 1*

with good training and documentation. “The staff knew how to operate the building when we took possession,” said Richard Siegle, museum facilities services director. “Proper training, building documents and involvement throughout the design and commissioning phases of the project enabled the two person maintenance staff to bring this complex building back into operation after a major power failure without calling the mechanical contractor.”

From a building operation standpoint, this project was a success. However, from an energy standpoint it was less than satisfying. Museum officials are concerned with the building’s high energy bills. So, if the commissioning of the building was a success, why is the energy consumption so high? Because energy optimization was not part of the initial design, maintaining the building’s environmental conditions was the only consideration. It is not too late to affect the energy usage!

“With the trend log capabilities of the building monitoring system, the operation of the building can be evaluated and energy saved,” Storset said. “The museum also has a high outside air load and an air-to-air heat recovery system is another option to reduce energy consumption.”

What has been learned from the building commissioning process for the state museum?

- 1) For building commissioning to successfully impact the building operating conditions, start it at the very beginning of the design process.

- 2) Include energy optimization in the design intent.
- 3) Commissioning does not end with the owner accepting the building, but should continue through the first couple years of occupancy so the building can be fine-tuned.
- 4) Build enough time into the construction schedule to perform proper commissioning.
- 5) Carefully define the systems that need to be commissioned.

“Not every sprinkler head needs to be checked, but the overall fire suppression system should be commissioned,” said Storset. “Don’t duplicate efforts. If system components are being checked by a code official, then the commissioning agent should only look at the overall system.”

The building commissioning process at the Washington State History Museum was, in the final analysis, a success. It identified problems that otherwise may not have been discovered. It provided training to the building operators, and good operation and maintenance manuals, resulting in a building that operates as designed. The process could have been improved, certainly. By learning from the commissioning process used for this building, Washington can make future buildings more energy efficient. The state can make sure that energy, maintenance and other long-term cost considerations are included in the design and save the taxpayers their hard-earned dollars.

*For more information, contact Roger Wigfield, energy engineer in the Division of Engineering and Architectural Services, Washington State Department of General Administration, at (360) 902-7198.*

## 1998-1999 NASFA EXECUTIVE COMMITTEE

President	Jack Quintana (UT)
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Past President	Luther C. Lewis, Jr. (GA)
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## 1998-1999 NASFA COMMITTEE CHAIRS

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Nominating	Lamar Holland (GA), Chair
Strategic Planning (ad hoc)	

## State Facilities Quarterly

**Jack Quintana**, NASFA President  
**Bob MacKenzie**, NASFA Newsletter Chair  
**Marcia Stone**, Association Director  
**Pam Johnson**, Design & Layout

*The objective of the State Facilities Quarterly newsletter is to provide a broad perspective on issues affecting all aspects of state facilities management. Your ideas and topic suggestions are welcome at all times and will be invaluable to other state facilities managers. Please send information about studies, new projects, legislation, etc. to:*

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<http://www.csg.org/nasfa.html>



The National Association of State Facilities Administrators is an organization which brings together state officials involved in the planning, development, operations and maintenance of state facilities. The association was formed in 1987 to provide a forum for sharing information on effective facility administration, as well as for the sharing of problems and solutions with peers on a national level.

Any state is eligible for membership in NASFA. Annual dues entitles your state to select the individuals you want to be involved with the association. All facility administration personnel can access the information network, receive the newsletter and other mailings, and attend the association's annual meeting. Many states have elected to divide the membership fee among several departments interested in active membership.

If you are interested in obtaining more information about NASFA, contact NASFA Staff, The Council of State Governments, 2760 Research Park Drive, P.O. Box 11910, Lexington, KY 40578-1910, (606) 244-8181

## Attention States!!

Share your good ideas with your colleagues in the fall issue of *State Facilities Quarterly*.

**The deadline is October 16, 1998.**

Contact Marcia Stone at (606) 244-8181 or e-mail her at [mstone@csg.org](mailto:mstone@csg.org) for more details.

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