

Maintenance & Operations Workshop November 1, 2011



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Who are we?

- Director of Buildings and Grounds
- Director of Operations
- Director of Maintenance
- Supervisor of Maintenance
- Facilities Director
- Facilities Manager
- Director of Physical Plant – Plant services
- Technology
- Food Service
- Transportation

Leaders for change

- New programs and procedures
- Does district staff know who you are
- Does your BOE know who you are and what you want for the district

What will you deal with?

- OSHA
- MIOSHA
- AHERA
- IPM
- IAQ
 - Mold
- ADA
- Confined Space

More

- Right to Know
- Lockout/Tag out
- PPE
- Safe Drinking Water
- UST
- Ergonomics
- Playground Safety
- Facility Closing

More?

- Building Maintenance
 - Preventive Maintenance
 - Routine Maintenance
- Custodial
 - Processes
 - Chemicals
 - Equipment
- Grounds
 - General Turf Management
 - Athletic Field Management
- Security
- Construction

Compliance

MSBO and SET/SEG have partnered with Safe Schools:

Provides online training for all school personnel.

www.safeschools.com

Facility Management

A profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology.

International Facility Management Assoc.
(IFMA)

As School Business Officials....

We strive daily to operate well-maintained schools that are conducive to learning. A quality maintenance program supports these endeavors by keeping schools in good repair in a cost-effective manner. A quality maintenance program will help schools avoid costs, protect assets, and increase productivity of students, teachers, and staff.

Todd Bell & Don Hebler

Problems with Current Practices



- NCEF's \$268 Billion to repair or upgrade.
- NEA's \$332 Billion to fix or modernize.
- **GAO's \$112 Billion to repair or upgrade.**
- 14 million students attend schools needing extensive repair.
- 75% of existing facilities are inadequate for education.
- GAO's \$112 Billion to repair or upgrade.
- 30% of the nations schools require extensive repairs.
- 40% of schools need replacement of at least one major building component.

American Society of Civil Engineers

Research Shows... .

- "A positive relationship exists between school conditions and both student achievement and behavior."
- "Students who attend schools in poor condition score 11% below students who attend schools in excellent condition."
- "Physical conditions has a direct effect on teacher morale, sense of personal safety, and feelings of effectiveness in the classroom."

Widening Gap of Resources & Needs



- Increasing responsibility of custodians and grounds workers.

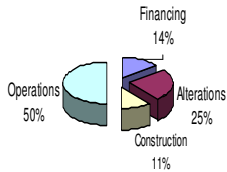
- Decreasing % of budgets allocated to preserve and run facilities (7.7%).

- Urban districts 3.5% of budget for facilities, of this, 85% emergency repairs.



-American School and University

Lifecycle Cost of School



-American School and University

A well designed and constructed school can save energy usage, maintenance, and operations allowing districts to recoup added initial costs over a 40 year lifecycle.

Equipment Service Life e.g.

<u>Equipment Item</u>	<u>Median Years</u>
A/C Window Unit	10
Steel Water-Tube Boiler	24
Wood Cooling Tower	20
Lighting Ballasts	7
Emergency Battery	5
Carpet	12

Districts should complete facility and infrastructure audits to inventory current status and plan future needs.

School Facility Construction

- Bond Issue
 - Major construction, renovations and/or additions
 - ADA, fire code compliances
 - “Curb” appeal

Building and Site Sinking Funds

- Ease on general fund
- Energy upgrades DDC controls
- Cosmetic (carpet, paint, roofs, LED lighting)
- Building security (door access controls, Camera systems)
- Boiler systems (energy efficient)

Proactive Training Programs

- Financial and functional effects.
- Productivity, quality, and retention.
- Technical skills through computer-based programs.
- Professional development courses.
- 3rd party, partners, colleges.

Updated maintenance strategies must:

Identify district goals and understand facility's impact on them.

Analyze and prioritize facility and system areas that serve goals.

Match each system and component with most appropriate service approach.



Four approaches to effective O&M

- Run-to-Fail
- Task-Based Maintenance
- Predictive Maintenance
- Preventive Maintenance

Most school districts use some combination of these four approaches.

Run-to-Fail

This approach allows the equipment or part to run until it breaks down or wears out beyond repair.

Small, inexpensive, longwearing items are good candidates for this application but it is not appropriate for all equipment.

Task-Based Maintenance

- This work-order based approach addresses lists of broken items or equipment/parts nearing the end of their life cycle.
- This approach is reactive and focuses on short-term plans.
- Managers are unable to schedule emergency based repairs.
- Emergency based repairs require more resources and labor.
- It leaves the organization with the probability of system failure that could cause school closures.

Predictive Maintenance

Changing the task-based maintenance approach and focusing on predictive maintenance improves the outcome.

Predictive maintenance is the process for monitoring selected performance data for equipment, against a baseline reference to identify and predict impending failures for just-in-time maintenance attention.

Preventive Maintenance

Preventive maintenance is the process of performing *scheduled* equipment inspection, testing and repair services. Activities are performed on a scheduled basis annually, or more frequently, that identifies additional maintenance and/or systems testing that is code required.

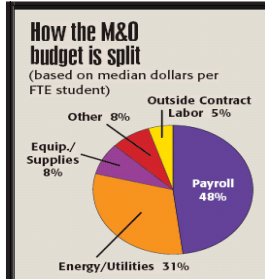
Examples include replacement of filters and belts, lubrication, vibration analysis, tightening of fasteners and connections, infrared analysis of equipment, debris removal, tube inspection, fire alarm, and emergency generator testing.

Financial Benefits of Preventive Maintenance



- Reducing breakdowns and unexpected failures.
- Initiating energy-saving solutions that reduce utility bills.
- Having an outsourced staff that implements the latest in technology and efficient strategies.
- Utilizing Computerized Maintenance Management Systems and Building Automation Systems to optimize efficiencies.

M&O Budget



Key management tools for O&M

- **Audits**
- **Benchmarking**
- **Commissioning**
- **Recommissioning**
- **Retro-commissioning**

Audits

Energy or facility audits are a comprehensive review of the total energy using systems, policies and procedures of new or existing facilities, by commissioning, benchmarking and assessing each area and piece of equipment, making appropriate changes to enhance or upgrade each to increase efficiency, reduce waste and save money.

The objective of an energy audit is to minimize energy costs by reducing losses and creating an energy efficient environment.

Energy or facility audits are proven methods for gaining accurate baseline information.

Benchmarking

Benchmarking is comparing and charting activities, standards, levels of performance and other factors against:

- The facility's past history
- Similar school districts
- Published building usage data

Common elements of benchmarking:

- continuous improvement
- measuring and analyzing
- comparing of performance levels
- attaining accurate baseline information
- adoption of superior practices

The importance of benchmarking

- Long-term planning initiatives and improved policy and financial decisions can only be attained through accurate baseline information on the condition of the facilities for both *physical conditions* and *functional ability* to meet program requirements and projections, based upon proven models and established benchmarks.

Benchmarking as a resource

Benchmarking is a process to keep a check and balance of the number of staff required to carry out the O&M management plan schedule.

- (Custodial surveys: MSBO-27,933 per sq. ft. and AS&U-25,173 per sq. ft. median levels)
- (Maintenance surveys: MSBO-159,402 per sq. ft. and AS&U- 100,700 per sq. ft. median levels)
- (Grounds Surveys: MSBO-84 acres and AS&U-40 acres at median levels)

Commissioning

Commissioning is making sure the building meets all of the demands and design criteria that it was intended to meet and to run the building through its paces BEFORE the building is occupied.

When commissioning identify the:

- Systems being controlled
- Logic behind those controls
- Systems usage over a period of time

The difference between commissioning and maintenance.

Commissioning:

- A problem *finding* activity
- Focuses mainly on the systems *performance*

Maintenance:

- A problem *solving* endeavor
- Tends to concentrate mainly on components.

Recommissioning

Recommissioning applies to buildings that have previously been commissioned.

It involves *revisiting* the systems regularly and checking/retesting equipment, using the original checklists and test procedures.

Retro-Commissioning

Retro-commissioning is performed on *existing* buildings that have never been commissioned.

With this approach you can reduce energy consumption, IAQ, and improve temperature control.

Retro-commissioning is a must for systems whose design intent has changed or their systems were upgraded since they were originally constructed.

Maintenance with a HOLISTIC approach

Facility directors should plan and develop current and future facility strategies and best practices that *meet the needs and goals of the school district*.

Administrators need to reflect on how their facilities meet the educational needs of their students, teachers and community as well as how their varied systems work together with each other to increase building operation efficiency.

Directors should continually analyze and prioritize all areas within the facility and the systems that serve those areas, matching each system and component with the most appropriate service approach to impact education.

Technology

- Virtual High School (Kent ISD)
- I phones – I pads
- Wireless buildings
- Changing traditional classrooms to computer rooms

Maintenance Management Systems

- CMMS - Computerized Maintenance Management System
- IMMS - Internet Maintenance Management System

What does the Maintenance Management System need to have at a minimum?

- The date the request was approved.
- A job tracking number.
- Job status
- Job priority
- Job location
- Contact person
- The date the request was received.
- Supervisor and craftsman assigned to the job
- Supply and labor cost for the job
- Job completion date and time

Computerized Maintenance Management System

- Streamline the work order system
- Minimize the number of people involved in work order delivery, approval, and completion

The Formal Maintenance Management System

- Work order received
- Worker completed
- Current work order backlog
- Use of time, including absenteeism, vacations, training
- Costs for each work order, e.g. labor and material

What does a better Maintenance Management System offer?

- Acknowledges the receipt of the work order
- Allows the maintenance department to establish work priorities
- Allows the requesting party to verify that the work has been completed
- Allows the requesting party to provide feedback
- Allows for preventative maintenance work orders
- Allows for queries of labor and parts cost

Schooldude – Online Services

CommunityDirect
CommunityDirect membership for districts.

FSDirect
Your online solution for facility and event scheduling. Maximize your after-hours facility usage while managing and recovering costs - all online, all the time.

InventoryDirect
Your online tool for requesting, ordering, and managing inventory.

Schooldude – Online Services

ITDirect

Your powerful, online help desk management tool that streamlines the entire technology workflow process from incident request to completion.

MaintenanceDirect

Finally! an Internet Maintenance Management System (IMMS) built exclusively for school facility management - even small schools!

MaintenanceDirect Global

This optional tool can be used with MaintenanceDirect to aggregate two or more educational organizations maintenance information into a state level or organization-wide view for analysis and reporting.

Schooldude – Online Services

PlanningDirect

The new online capital planning and budgeting tool from SchoolDude that simplifies strategic planning for your educational institution's future capital needs.

PlanningDirect Global

This optional tool can be used with PlanningDirect to aggregate individual capital plan information into a state level or organization-wide view for analysis and reporting.

PMDirect

A powerful, online preventive maintenance tool designed for school facility professionals – and it's fully integrated with MaintenanceDirect!

UtilityDirect

Your online utility management and reporting tool that audits, tracks and analyzes utility consumption and costs to identify savings opportunities.

SafeSchools

• Benefits of Online Training

- Less time needed to train
- Increase in retention rates
- Consistency
- Increased employee satisfaction

• Course List

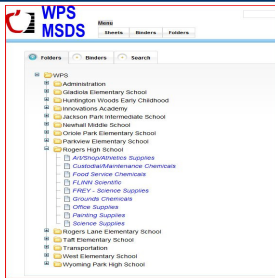
- Human Resources
- Security
- Transportation
- Nutrition Service
- Spanish
- Environmental
- Emergency Operations Management
- Social & Behavioral
- Health

www.safeschools.com

MRSA – H1N1

- Are you ready?
- Do you have a plan?
- What should you be doing?

MSDS online



MSDS folders

The screenshot shows the WPS MSDS software interface with a table of Office Supplies. The table has columns for Item, Manufacturer, and Effective Date.

Item	Manufacturer	Effective Date
Abolition	Emergenze	Feb 4, 2010
Cheerios Dust, 50lb	Office Depot	Feb 10, 2010
Clorox	Crayola	Feb 3, 2010
Chem-Dek Soap	Proctor And Gamble	Feb 8, 2010
De-Lite Soap	Safe Cleaners	Feb 14, 2010
Disinfectant 10000	Clorox	Feb 9, 2010
Disinfectant 10000	Lysol	Feb 9, 2010
Facelace 10000 Disinfectant	Santiflex	Feb 3, 2010
Hand Sanitizer (Santiflex)	Santiflex	Feb 3, 2010
Hand Sanitizer (Lysol)		Feb 3, 2010
Ice Packs, Contact		Feb 14, 2010

Scheduling and Staffing

- Build the scheduling and staffing plan
- Be part of the solution
- Benchmarking as a resource
- Creative scheduling
- Daily work schedule requirements
- Mission statement

Build the scheduling and staffing plan

To begin the process, the facility manager should start by taking the individual and personal needs of the facilities staff and traditional scheduling techniques out of the equation. In other words, start with a clean slate!

Review the educational programs, building needs, budget constraints and community and district culture to build your model.

Hiring Practices

- Appli Track for educators
 - Kent County Consortium
- PESG \ METS
- Word of mouth
- District E-mail
- Newspaper - online

Be part of the solution

- Start or join a building usage team that is made up of key administrators and after-school-hours users from the district.
- The facility manager's job is to be a leader on this team and have a reputation as being an open-minded problem solver.

Creative Scheduling

Schedules should be created for all situations with the schedules and duties varying from period to period (School vacations, snow days, worker compensation, light-duty, in-service days, reassignments, etc).

Other possibilities to maximize the production of your staff are initiating:

- Tuesday through Saturday working days
- Staggered starting times
- Part-time personnel for special situations
- Out-sourcing, not staffing for the exception
- 44 week employees

Daily work schedule requirements

Daily work schedules need to be set up by time, work description and duration for each and every assigned area. Part of any good scheduling and job description process is periodic inspection and performance reviews.

Job descriptions and schedules need to be reviewed with the person performing the duties at least yearly and those documents posted in the respective custodial closet/maintenance work area.

Daily work schedule requirements

Maintenance staff should be assigned by zone and be cross-trained to cover other assignments. All work-orders should be recorded and a record of back-logs and issues tracked.

Maintenance personnel should also keep a daily log to track their individual working hours.

Increase productivity for O&M

Increase O&M by over 25% by scheduling maintenance and head-custodial time with emphasis on preventive maintenance in the beginning of the summer period.

To develop the summer schedule, establish the last day of work required to complete the job and then work backward to develop the summer schedule start date.

Establish dates within the schedule, indicating the level of completion and schedule intermediate targeted walk-through dates with the employee to review their job performance.

Increase Productivity for O&M

Coordination of the educational calendar, non-educational calendar, summer events, construction and repair schedules is vital so that personnel know what is happening in their building as well as in the entire district. Use written up-dates throughout the period to minimize conflicting schedules and events.

Vacation for most personnel should be scheduled in the summer months encouraging time around July 4th, when the school calendar is slow.

No vacations should be allowed during the last two weeks of the summer.

The facility manager's impact on attitudes.

Administrators should visit every building so staff members know that their needs and issues are heard and that their job is important enough to warrant personal time by the manager.

Ask for their input and suggestions, they will help if they are given the opportunity. This is essential in team building.

Know your personnel e.g. their personalities, their families and their aspirations.

Be a mentor! Encourage learning and professional development so they are ready for advancement when the time presents itself.

If you invest time in your staff, they will in turn, give results that support and increase the educational mission.

Find something your employee is doing **right** and tell them.

Mission Statement

Have a written mission and a written vision for your department.

Know the facilities mission and vision and preach it to your personnel.

Become a cheerleader for your department that shows your staff and the educators that you support the mission of education in your district.

Transportation

- Bus purchasing or Leasing plan
- Managing district routes and stops
- Student management
- Driver management
- Service and repair schedules and expectations

Co-Sourcing

Combines skills of district and service vendor staff.

Ranking process helps determine responsibility of each party.

Example: building specialist or project manager on site.

Outsourcing

- Nearly **1,500 public districts outsource** food service and/or facility management. Non-core activities.
- National School Board Association indicates most districts that outsource **improve efficiency and lower operating costs.**

Outsourcing

- More Michigan public school districts contracted out in 2011 for at least one of the three main support services – food, custodial or transportation – according to the Mackinac Center for Public Policy's annual privatization survey. Some 246 of the state's 551 districts, or 44.6 percent, contract with private companies for one or more of those support services, up from 42.4 percent a year ago. The Mackinac Center has surveyed Michigan school districts since 2001, when 31 percent of districts contracted out for one of the "big three" noninstructional services. The survey found that 20.1 percent of districts contract for custodial service. That is more than double the 2005 total of 9.1 percent. Custodial service gained the most in 2009, with 16 additional districts contracting out for this service, and 2011 with nearly 100 districts outsourcing.
- www.mackinac.org

Outsourcing Myths and Blunders!

Opposing Myths:
 Outsourcing is a sort of doom and gloom approach to management that always results in the loss of jobs, poor quality service and higher costs.

Outsourcing is the panacea to all our quality, cost and service problems.

Myths

- Outsourcing is a fad and ultimately will go away.
- The rationale behind outsourcing isn't important.
- Outsourcing results in reduced costs.
- Quality of service always suffers with outsourcing.
- Managing an external service contractor is easy.

Blunders

- **Don't get entangled in a long-term contract.**
- **Letting your responsibilities collide with those of the contractor.**
- **Measure success or failure.**
- **The manager can't be a control freak.**
- **Don't bet on a dark horse.**

School Facility Closing

- Michigan Schools = Declining Enrollment
 Facility managers expected to make recommendations:
 - Close and moth-ball or sell and/or demolish
- Items to Consider:
 - HVAC, electrical units
 - Insurance
 - Inventory

Change Recommendations

- Share philosophies with staff so all are working toward the same goal.
- Analyze existing O&M efforts and rank facility/equipment needs.
- Investigate O&M options such as training, co-sourcing, or outsourcing.
- Integrate those options into Bond Issues that best fit needs, capabilities, and goals.
- Continue to assess O&M status/needs and make appropriate changes.
- Be part of an operations group.
- Find a mentor or someone you can ask questions and advice.

You Can Make a Difference

We encourage you to realize the positive impact an improved operations and maintenance plan has on the district's ability to provide an exceptional educational environment for students, teachers, and staff.

End

References/Resources

- School Specific Information
 - ASBO Publications (www.asbointl.org)
 - APPA Publications (www.appa.org/k12)
 - American School & University Magazine (<http://www.asumag.com/>)
 - Michigan School Business Officials (www.msbo.org)
 - School Planning and Management Magazine (<http://www.peterli.com/spm/>)
 - National Clearinghouse for Educational Facilities (www.edfacilities.org)
 - Planning Guide for Maintaining School Facilities
- Today's Facility Manager (<http://www.facilitycity.com/tfm/>)
- Commissioning and O & M resources (<http://www.peci.org/cx/index.html>)
- Facilities Net (<http://www.facilitiesnet.com/>)
- FMLink (<http://www.fmlink.com>)
