PLANNING GUIDE for MAINTAINING SCHOOL FACILITIES

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CHAPTER 6
EFFECTIVELY MANAGING STAFF AND CONTRACTORS

GOALS:

- ✓ **To communicate the necessity of good human resources practices as a pre-condition for effective facilities maintenance management**
- ✓ **To describe best practice strategies for effectively managing staff**

Why bother to put energy into managing your staff? Because they are the people who make the day-to-day decisions that determine how your facilities work. Their preparation and support will determine whether or not facilities are run properly, efficiently, and safely.

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HIRING STAFF

Times are changing. It used to be that maintenance and custodial work was categorized as "basic labor." Today, however, most maintenance jobs demand specialized skills and training. For example, staff working in a modern boiler room need to be trained in computer use to operate the building's heating and cooling systems. This change in the expectations requires a corresponding change in the selection and training of maintenance personnel. Selecting the right staff requires that time and energy be put into identifying the needs of the organization, developing accurate job descriptions, envisioning the characteristics of "ideal" employees, and verifying each applicant's qualifications.

> Someone on the hiring team must have command of the technical aspects of the position. The superintendent can't accurately evaluate whether a candidate knows a great deal about HVAC repair, or just a little more than the hiring committee knows. Unless a committee member can verify expertise, the organization won't find out how much (or little) the candidate knows until the person is already on the job!

Job Descriptions

See Appendix F for a model job description for a custodial worker.

A good job description accurately identifies the knowledge, skills, and abilities needed by an individual to meet the expectations of the job. It also describes the type of person the organization wants to hire into its ranks.

THE TALE OF THE UNHAPPY "GROUNDSKEEPER"

Jack enjoyed being outdoors. He'd always liked picnics and parks, so it didn't surprise him when he realized that an office job just wasn't his cup of tea. He was surprised, however, when he didn't even like his job as a "groundskeeper" at the local high school. Jack had thought that he'd love the job—he had visions of working in the sun, cutting grass, maintaining gardens, trimming trees. Instead he found he had to spend most of his time in the shop tinkering with mowers, leaf blowers, and power saws—while his "field personnel" got to use (and break) the equipment out under the sun. Shouldn't someone have told him in advance what a groundskeeper's job was in the school district? He probably wouldn't have accepted the position but, at least then, he wouldn't hate his job.

Components of an effective job description include:

✓ *Duties and responsibilities.* If the organization needs someone to run a leaf blower for 40 hours a week, it shouldn't advertise a position that would stir the interest of someone who wants to be a gardener. The aspiring gardener will likely resent the misunderstanding every time he or she has to ask the real gardener to step aside in order to clear the grounds of leaves. As this resentment builds and the employee either quits the job or begins to perform in a lackluster manner, both the employee and employer will likely regret the miscommunication.

✓ *Working conditions.* What are the days and hours of employment? Where, and under what conditions, will the work be accomplished? Are there exceptions to these conditions? For example, will a custodian be expected to arrive at school early on winter mornings to shovel snow? If so, the job description needs to state clearly that the job requires travel in inclement weather.

✓ *Physical requirements.* Many maintenance and custodial tasks require considerable physical strength (e.g., one might reasonably be expected to lift 50 pounds to waist level in order to dispose of the trash). The requirements of the job must be documented and included in the job description so as to meet the requirements of federal, state, and local laws designed to protect the employment opportunities of physically challenged applicants.

To comply with equal opportunity laws*, the hiring process (including advertising job openings) may neither intentionally nor inadvertently screen out disabled or minority applicants. Thus, employment standards must relate to the actual job assignments, not to beliefs, desires, or prejudices about the job. The following guidelines can help in making employment decisions.

✓ All employment requirements must be related to the duties actually required of a person in the position.

✓ Hiring standards should not automatically eliminate applicants whose speech, dress, personal habits, or lifestyle differ from those of the predominant group.

✓ Education and other requirements (e.g., licenses or certificates) must be justified by objective assessments of their relatedness to performing the job.

*Visit *http://www.eeoc.gov* for more information about the U.S. Equal Employment Opportunity Commission and employment laws.

No matter how much forethought goes into the preparation of a job description, the text must allow some flexibility for the organization to adapt to changing circumstance. One way of accomplishing this is by including standard language in all job descriptions that reads, for example, "and other duties as may be assigned." This leaves the organization much needed flexibility in adapting staff responsibilities to meet the ongoing (and potentially changing) needs of the organization.

- ✓ *Educational requirements.* Some positions demand knowledge and skills that are best verified by the completion of certain academic work (e.g., a degree in accounting might be a job requirement for the manager of the maintenance department's budgeting and accounting).
- ✓ *Credentials and licensure.* Licenses are required to operate certain pieces of equipment (e.g., a bus driver needs a commercial drivers license), while other tasks and duties might require licensure or credentialing that is independent of equipment used (e.g., electricians).
- ✓ *Equipment used.* Some equipment works better when it is handled skillfully (e.g., a floor sweeper), whereas other equipment is dangerous to the user and others when it is not handled properly (e.g., power saws, forklifts, and chemical dispensers). Employees should be made aware of these risks and be required to demonstrate expertise before being permitted to use potentially dangerous pieces of equipment. "Demonstrating expertise" may require a license or other credential, or the employing organization may provide the required training. Even if a tool isn't particularly dangerous, the organization benefits if it is used properly so that the task gets accomplished effectively.
- ✓ *At-will versus unionized position.* Depending upon local conditions (e.g., state laws, labor agreements, and the size of the organization), some positions may be limited to personnel who either belong or do not belong to a union. If an employee does not belong to a union, he or she may be designated as an "at-will" staff member–a person who has no expectation of continued employment and may be dismissed at any time without cause or reason. The terms of employment must be spelled out clearly at the onset of the hiring process.
- ✓ *Channels of authority.* You want to know who your boss is, right? Well so does your staff. Employees should always know whom they report to and who has the authority to direct their efforts. A clear channel of authority starts with an accurate job description and an unambiguous organizational chart.
- ✓ *Evaluation mechanisms.* Just as everyone wants to know who the boss is, most people want to know how their performance will be measured. For example, will custodial staff performance be measured by spot checks of their work, by school staff customer service surveys, or some other process? The organization should clearly communicate to employees what evaluation mechanism will be used.

Selecting the Right People

The qualities of an "ideal" staff member should be identified before the interview process begins. Doing so requires an accurate assessment of the culture of the organization and the personalities of the people with whom

CONSIDERATIONS WHEN INTERVIEWING AN APPLICANT

Personal Characteristics
- ✓ eye contact
- ✓ demeanor
- ✓ interpersonal skills
- ✓ appropriateness of dress
- ✓ work ethic

Special Qualifications
- ✓ work history
- ✓ educational background
- ✓ certifications and licenses
- ✓ professional affiliations
- ✓ professional interests

Technology Use
- ✓ energy management
- ✓ electronic work order system
- ✓ inventorying (portable devices)
- ✓ use of e-mail
- ✓ other computer skills

Leadership Potential
- ✓ articulated vision
- ✓ goal orientation
- ✓ consensus building
- ✓ communication skills
- ✓ personnel management

Job Growth Possibilities
- ✓ supervisory experience
- ✓ budgeting experience
- ✓ organized work schedules
- ✓ resource management
- ✓ staff selection

Appendix G includes a list of specific interview questions that have proven useful to school district personnel as they interview potential employees.

MAPPING: THE ART OF USING YOUR ENTIRE BRAIN IN THE STAFF SELECTION PROCESS

Mapping is a concept that combines left and right brain perspectives on managing. The goal of mapping is to focus on the desired traits of the new employee throughout the interview process. Here's how it plays out. Say your district is interviewing for a supervisor of maintenance. Before candidates are interviewed, write down the specific characteristics that the new supervisor of maintenance should demonstrate. Share this with the selection committee and see if they have traits or characteristics to add or delete. This process will help each member of the selection committee to develop a clearer idea of the profile that best matches the "ideal" candidate. Next, prepare an interview worksheet that lists the ideal characteristics. During the interviews for the position, each committee member can take notes about whether (or to what degree) the applicant exhibits the ideal characteristics. The results might very well help to inform your decision-making regarding the selection process.

See Appendix H for an example of how mapping can be used to identify knowledge, skills, and abilities that a supervisor of maintenance should possess.

the newly hired person must interact. Some general qualities of effective employees are described below, but many more can be developed. From a practical perspective, it may be helpful to take notes during the interview about how well the applicant matches the various qualities that have been identified as desirable in the position.

Dotting Your I's and Crossing Your T's

Once a person has been identified during the interview process as the preferred candidate for a position, additional screening is required before an offer of employment can be extended. These essential tasks include:

- ✓ *Reviewing references.* While there is no need to talk to all former employers (for most positions), an applicant's most recent employment should be verified. In addition to providing information about a person's job performance, references can verify information provided by the applicant on resumes, employment applications, and during interviews. Some applicants may choose to supply character reference; these can be valuable, but should be accepted in lieu of a reference from past employers only if the person does not have prior (or recent) work experience.
- ✓ *Performing a background check.* While contacting an applicant's references is one form of checking a person's background, performing a "background check" has a very specific meaning for people who will work with or in the vicinity of children. Background checks are conducted by local, state, and national authorities to determine whether an individual has been convicted of a criminal offense. Several states require that all prospective employees in schools and school districts undergo a fingerprint-driven criminal history check. Thus, hiring committees should work with the district's Human Resources Department to ensure that all required procedures are followed in accordance with best practices and/or state and local laws as applicable.

VERIFYING AN APPLICANT'S RIGHT TO WORK IN THE UNITED STATES

Employers may not specify which documents they will accept from a job applicant. However, the Immigration and Naturalization Service (INS) requires that documents establish both the applicant's identity and employment eligibility. The INS recommends either ONE document that establishes both identity and employment eligibility from List A below OR ONE of the documents that establishes identity in List B AND ONE of the documents that establishes employment eligibility in List C.

List A (documents that establish both identity and employment eligibility)

1. U.S. Passport (unexpired or expired)
2. Certificate of U.S. Citizenship (INS Form N-560 or N-561)
3. Certificate of Naturalization (INS Form N-550 or N-570)
4. Unexpired foreign passport (with I-551 stamp or attached INS Form I-94 indicating unexpired employment authorization)
5. Alien Registration Receipt Card with photograph (INS Form I-151 or I-551)
6. Unexpired Temporary Resident Card (INS Form I-688)
7. Unexpired Employment Authorization Card (INS Form I-688A)
8. Unexpired Re-entry Permit (INS Form I-327)
9. Unexpired Refugee Travel Document (INS Form I-571)
10. Unexpired Employment Authorization Document with photograph (INS Form I-688B)

List B (documents that establish identity only and must be matched to a document from List C)

1. Driver's license or ID card issued by a state or outlying possession of the U.S. provided it contains a photograph or information such as name, birth date, sex, height, eye color, and address
2. ID card issued by federal, state, or local government agencies or entities provided it contains a photograph or information such as name, date of birth, sex, height, eye color, and address
3. School ID card with photograph
4. Voter's registration card
5. U.S. military card or draft record
6. Military dependent's ID card
7. U.S. Coast Guard Merchant Marine card
8. Native American tribal document
9. Driver's license issued by a Canadian government authority

List C (documents that establish employment eligibility only and must be matched to a document from List B)

1. U.S. social security card issued by the Social Security Administration (other than a card stating it is not valid for employment)
2. Certification of Birth Abroad issued by the Dept. of State (Form FS-545 or Form DS-1350)
3. Original or certified copy of a birth certificate issued by a state, county, municipal authority or outlying possession of the U.S. bearing an official seal
4. Native American tribal document
5. U.S. Citizen ID Card (INS Form I-197)
6. ID Card for Use of Resident Citizen in the U.S. (INS Form I-179)
7. Unexpired employment authorization document issued by the INS (other than those listed in List A)

Visit *http://www.ins.gov/* for more information about the Immigration and Naturalization Service.

WHEN CHECKING REFERENCES

Recommended actions:

✓ Verify position title and dates of employment.
✓ Verify candidate's reasons for leaving.
✓ Ask whether candidate is eligible for rehiring.

Optional actions:

✓ Ask about candidate's attendance record.
✓ Ask about job performance specific to the position for which candidate is applying.

Prohibited actions:

✓ Do not ask questions requiring value judgments (e.g., did she have a good attitude?).
✓ Do not ask questions about an applicant's personal life (e.g., what about his family commitments?).

Due diligence must be demanded by board policies and met during the day-to-day hiring process.

✓ *Verifying Employment Status.* Under the Federal Immigration Reform and Control Act of 1986, it is unlawful for employers to recruit, hire, or continue to employ illegal immigrants to the United States. At the same time, it is illegal to discriminate against work-eligible individuals solely because of their country of origin. The employer must take three steps when a job applicant is hired: 1) verify the applicant's right to work in this country (within three business days of the initial date of employment); 2) attest that written proof of the right to work has been presented (by completing INS Form I-9); and 3) maintain records of steps 1 and 2.

Only after the selected candidate has satisfied all pre-hiring requirements should an offer of employment be made. However, the new employee still must provide certain additional information to the employer, including the following:

✓ *Personnel records.* The employee must provide emergency medical information, emergency contact information, home contact information, and other personal information.

✓ *Payroll records.* The employee must provide a permanent mailing address, bank account routing numbers (for automatic deposit of paychecks), tax instructions (e.g., number of deductions, applicable taxing authority, etc.), beneficiary information for insurance policies, and participant information for joining medical, dental, and other insurance plans as applicable.

✓ *Immunization Records.* Newly hired employees may also be required to provide an immunization record and medical history to verify that they are free from certain communicable diseases. Since details of these requirements vary from state to state (and even school district to school district), be sure to consult your Human Resources staff about this topic prior to initiating the hiring process.

POLICIES MUST SUPPORT STAFF DEVELOPMENT

✓ New employees must be trained when they join the organization.
✓ Current employees must be trained on an ongoing basis as a means of improving their job satisfaction and performance.

WHO PROVIDES TRAINING?

- ✓ Other staff who have demonstrated expertise with the equipment or performing the task
- ✓ Managers who will supervise and evaluate the work
- ✓ District trainers (in large organizations)
- ✓ Product vendors and equipment manufacturers
- ✓ Vocational education staff

TRAINING STAFF

Newly Hired Employees

People who are new to an organization have special training needs. They need to know how to complete a time sheet, the procedure for lodging a complaint and, for that matter, where to find the bathroom–and that doesn't even take into consideration what they need to know to accomplish the task they have been hired to perform. Consequently, newly hired personnel should receive the following types of training as soon as possible after joining the organization:

- ✓ *Orientation (or tour) of the organization's facilities* – including the payroll division (where timecards are punched and submitted), emergency locations (such as the nurse's office), the cafeteria, and the supervisor's office.
- ✓ *Orientation (or tour) of the person's work area* – including the primary location where he or she reports to work and all areas where he or she might be expected to perform job-related tasks (e.g., a plumber should be shown the organization's plumbing headquarters and all campuses he or she will be servicing).
- ✓ *Equipment instructions* – including an introduction to all tools, machinery, and vehicles the individual will be expected to use (e.g., industrial floor sweepers, lawn cutting equipment, power tools, and district trucks).
- ✓ *Task-oriented lessons* – including instructions on how to best perform the individual's work tasks (e.g., how to clean a carpet, repair a roof, or service a school bus).
- ✓ *Expectations* – including a clear description of precisely what the individual must do to meet the requirements of the job (what, where, when, and to what extent).
- ✓ *Evaluation information* – including an explanation of all criteria on which the individual will be evaluated, such as the tasks that will be evaluated, all relevant performance standards and expectations, who will do the evaluating, what mechanisms will be used to perform the evaluations (e.g., random checks or daily assessments), and the potential ramifications of the evaluations.

A NOTE ABOUT TRAINING NEW STAFF MEMBERS

It might be 10 or 20 years since you've ridden a bike–still, you likely remember how to do so. But do you recall how many times you fell off of your first bike while trying to master the skill? It is much the same for staff members who have to learn new skills for their jobs, except that they have the added burden of knowing that their paycheck depends upon their performance! So be patient and supportive when training new staff. Mastering a new task takes time and practice, especially if you are worried about making a good impression on your new boss.

THE PURPOSE OF STAFF TRAINING MAY BE TO:

- ✓ ensure that your staff stay safe (e.g., OSHA training)
- ✓ teach staff how to deal with changing needs (e.g., caring for newly installed floors)
- ✓ provide a stimulating experience to people who perform repetitive tasks (thereby improving staff morale and retention rates)
- ✓ prepare staff for future promotions

School districts can't treat their employees like full-time students; nonetheless, preparing staff to get their work done properly, efficiently, and safely is cost-effective in the long run—and managers need to have the wisdom to balance the competing concerns.

Ongoing Training and Professional Development

Skills tend to get rusty unless they are used on a regular basis (who among us can jump rope like we did when we were kids?). The fact that a person has been taught how to perform a specialized task doesn't mean that he or she will be able to perform the task in the future, especially if the task is not a regular part of his or her routine.

Admittedly, there is a trade-off between the benefits of staff training and the costs of lost work time during training. School districts can't simply treat their employees like full-time students; nonetheless, preparing staff to get their work done properly, efficiently, and safely is cost-effective in the long run–and managers need to have the wisdom to balance the competing concerns. Planners should also be open to considering the benefits of developing "general" skills in their staff. For example, should a custodian be able to spend one hour per month learning about computer use with other staff? This professional development activity may seem unrelated to a custodian's job, but custodial work may someday (soon) require e-mail skills for communicating with centralized supervisors. Moreover, in light of their overall mission, school districts may be uniquely motivated to provide educational opportunities to their personnel.

Managers must think creatively about how to provide high-quality training opportunities in the face of time and budget constraints. Proven methods include:

- ✓ Sharing training costs with other organizations on a collaborative basis (e.g., training may be sponsored by several neighboring school districts or jointly by the school facilities department and the public works department in the same community).
- ✓ Hiring expert staff or consultants to provide on-site supervision during which they actively help staff improve their skills while still on-the-job.
- ✓ Developing training facilities, such as a custodial training room in which equipment (e.g., vacuums) and techniques (e.g., mopping) can be demonstrated and practiced. Providing this type of training will pay for itself in more efficient and better work from the trainee. Larger school districts, which are more likely to find such specialized facilities to be worth the investment, can do a good deed (and generate goodwill) by hosting training events for smaller districts in the area.

All staff training sessions should be documented. Videotaped sessions can be used in future training activities.

"Staff training" refers to learning opportunities designed specifically to help an employee do his or her job better. "Professional Development" has a broader meaning, which includes expanding participants' knowledge and awareness to areas outside their specific job duties, yet still related to the overall well-being of the organization. Such topics might include:

- ✓ asbestos awareness
- ✓ biohazard disposal
- ✓ energy systems
- ✓ technology use
- ✓ building knowledge
- ✓ universal precautions
- ✓ first aid
- ✓ Right-to-Know
- ✓ emergency response

- ✓ Offering tuition reimbursement programs which provide educational opportunities to staff who might not otherwise be motivated to improve their knowledge and skills.
- ✓ Building training into contracts so that vendors are obligated to provide training at either an on-site or off-site training center as a condition of the purchase of their products.

The "Moment of Truth" Chart

Training staff to not just do their jobs, but to do them well, can be a difficult task. One proven method for accomplishing this challenging task is the "Moment of Truth" chart. To begin, a trainer asks the employees to think of a task that is a routine part of their work. They are then asked to think of the minimum standards that must be met to accomplish this task. Finally, they are asked to consider what would be required of them to exceed that minimally acceptable performance. The results should be recorded in a tabular format, as shown in the accompanying chart.

EVALUATING STAFF

Managing a school district effectively requires that two vital tasks be navigated successfully. First, district leadership must institute policies that direct the organization's efforts toward desired goals and objectives. Second, the organization's employees must act on those policies on a daily basis so as to meet the goals and objectives the organization has set. Thus, if policies lead the organization in the wrong direction, "good" workers will only take it there more efficiently. On the other hand, good policies aren't worth the paper on which they are written if staff aren't getting their jobs done properly. To ensure that staff are doing their part to meet an organization's goals and objectives, employee performance must be evaluated on a regular basis.

To assess staff productivity, the organization (through its managers and supervisors) must establish performance standards and evaluation criteria. For example, a custodian's performance might be measured by the amount of floor space or number of rooms serviced, the cleanliness of those facilities, and his or her attendance

The goal of staff evaluations is the ongoing positive growth of staff members. Although shortcomings in performance must be addressed, evaluations should not be viewed as disciplinary events and should never be the venue for unexpected criticism. Employees who are under-performing should be told so as soon as it is recognized (not just during their formal evaluations).

TRAINING: FOCUSING GOOD INTENTIONS INTO PRODUCTIVE ACTIVITIES

Hal couldn't figure out why the school's ventilator fan kept turning off overnight. He'd verified that it was running before he left the office at 6 p.m. the evening before, but it was off again by 8 a.m. the next morning. He spent the day checking fuses and switches, but everything appeared to be working fine. He was about to go home very perplexed when the night shift custodian arrived. "Linda," he asked, "did you see anyone in the ventilator room last night?" "No," she answered, "why?" "Well," Hal explained, "the ventilator keeps switching off at night and I can't figure out why." "Oh," Linda said openly, "I started turning it off during my rounds." Hal looked incredulous. "Why would you do that, Linda?" "Because you told me to make sure that all lights, fans, and computers get turned off every night so that we stop wasting so much energy around here," she replied. "Well, yeah, I did say that, but I didn't mean…" Linda interrupted him again. "My job isn't to guess what you mean, Hal. I get paid to do what you tell me." She had a point, and Hal knew it. He had to do a better job of communicating what he wanted Linda to do (and not do).

"MOMENT OF TRUTH" CHART

A Girl Scout troop meets every Thursday night at James Elementary School, where Steve is the custodian. Following is the "Moment of Truth" chart Steve created at a staff development meeting:

On Thursday nights…

BELOW STANDARD	STANDARD TO BE MET	OPPORTUNITY TO EXCEED
✗ Outside doors locked	✓ Outside doors unlocked	✓✓ Exterior and lobby lights turned on; Scouts greeted as they arrive
✗ Room door locked	✓ Room door unlocked	✓✓ Room lights turned on; signs pointing to the meeting room
✗ Meeting area unprepared	✓ Meeting area prepared (e.g., temperature checked, room straightened)	✓✓ Closest bathroom unlocked, lit, cleaned, and supplied; introduce self to troop leader; tell troop leader to call if they need any other help; reappear at end of meeting to escort the troop out of the building and lock the doors behind them

How did the "Moment of Truth" chart inform Steve's actions?

Because Steve knew that the Girl Scouts would be arriving at 7 p.m., he planned his work schedule so that he would be in the lobby area to welcome them. He opened the door and greeted Mrs. Jones, the troop leader, two parents, and the scouts as they entered the building. Steve told them that he had checked their room, and that the lights were on, the temperature was comfortable, and the bathrooms on that corridor were open and supplied. He also mentioned that he would be working down the hall in the cafeteria in case they needed him for anything. When the meeting was over, Steve walked the guests out of the building and locked up behind them.

The next day Steve got summoned to the main office where the principal asked him what in the world he had done to Mrs. Jones! The troop leader had called the principal that morning for the sole purpose of recognizing Steve's hospitality and efficiency the previous evening. The principal was pleased to pass along the thanks to Steve, adding that she was proud of him for leaving such a positive impression on the school's guests.

And what were things like before Steve constructed his "Moment of Truth" chart?

Steve was cleaning the gymnasium floor when he heard pounding on the windows down the corridor. He opened the front doors and found Mrs. Jones and the girls standing in the dark and the cold. Mrs. Jones explained that two parents had walked around to the back of the building to look for an open door. Steve went to look for them. When he returned, he found Mrs. Jones and the troop waiting outside the locked meeting room. When he opened the door and turned on the lights, he found the room in a state of disarray. Mrs. Jones grimaced and said that the girls would straighten it if Steve could get some heat into the room. Forty minutes later, he heard someone calling through the dark halls for "Mr. Janitor." He was asked not only to open the bathroom, but also to bring a mop since one of the young girls had not been able to wait. The next day Steve got called to the office by the principal, who had just received an angry phone call from the troop leader.

Conclusions

Would you rather work in a school district that hears praises or complaints about the custodial staff? Most people would rather be helpful when possible—and one of the keys to good leadership is helping staff to see that doing a good job is not only possible, but preferable. The Moment of Truth Chart is a technique for accomplishing this objective. It shows that doing an exceptional job doesn't require that much more work, just that the work be done more efficiently. In the example above, Steve had to open the doors, turn on the lights, heat the rooms, and supply the bathrooms anyway. The Moment of Truth Chart just reminded him that he should plan to reorganize his schedule on Thursday nights so that he performed these tasks before the guests arrived!

GUIDELINES FOR DEVELOPING PERFORMANCE STANDARDS

Management must:

- ✓ Establish goals
- ✓ Create an evaluation instrument (e.g., a checklist)
- ✓ Be as detailed and specific as possible
- ✓ Define the performance scale (e.g., 0 = poor to 5 = excellent)
- ✓ Be flexible (i.e., acknowledge extraordinary circumstances when they arise)
- ✓ Convey expectations to affected staff people
- ✓ Review the performance standards on a regular basis (e.g., annually)

history. The custodian's work likely will be assessed by his or her immediate supervisor and the principal of the school. Self-evaluations can also be useful personnel management tools–i.e., ask the staff member to rate his or her own work and then discuss the outcomes relative to the supervisor's opinion.

Determining performance standards may be best accomplished as a joint endeavor between the individual and his or her supervisor. Although some supervisors may be reluctant to share this authority, joint decision-making with the staff member has two very positive features: 1) the staff member can communicate atypical features of his or her working conditions that warrant modification of "normal" performance standards (e.g., the vinyl tile floor in the work area requires additional time to clean properly); and 2) the supervisor will know that the staff member is fully aware of the jointly developed expectations.

A "desk audit" is a good place to begin establishing performance standards: ask employees to write down how they spend each day (i.e., what are their current duties and responsibilities?).

Assessing how an employee measures up to performance standards is an uncomfortable task for many supervisors. To avoid unpleasantness, the supervisor must maintain his or her composure, objectivity, and professionalism–otherwise one risks inciting staff morale issues and, perhaps, personnel complaints or even legal issues. To avoid these problems, evaluators must be careful to:

- ✓ Be objective and not allow personalities to influence the assessment
- ✓ Document evidence that supports the assessment
- ✓ Encourage improvement rather than fixate on shortcomings

Does it seem like an employee is consistently absent on Fridays and Mondays? If so, personnel records should verify this before the issue is brought up as a concern during a staff evaluation.

An evaluation system that fails to discriminate between performance levels is failing the organization. For example, a system is flawed when every staff member is rated "above average" in every facet of his or her performance. After all, by definition, "above average" means better than half of one's peers!

WHAT KEEPS GOOD PEOPLE ON THE JOB?

✓ good pay ✓ good benefits ✓ a sense that they are respected ✓ a feeling that their work is valued ✓ opportunity for advancement

MAINTAINING STAFF

A great deal of time, energy, and money goes into hiring good employees and providing them with worthwhile staff training opportunities. Thus, it is an expensive proposition to replace good staff who leave prematurely. Moreover, when a position is unfilled, the work either doesn't get accomplished or morale is hurt when existing staff are expected to work harder or longer to pick up the slack. Therefore it should not be surprising that retaining good staff is an essential aspect of effective management.

The first step to retaining staff is to determine the current staff turnover rate. If it is high, does this reflect how personnel are treated, either because of policies (e.g., poor compensation or benefits) or organizational culture (e.g., do staff feel undervalued)? And how might these data inform organizational policies and practices? For starters, staff retention can be affected by changes in policies. If turnover is costing the organization too much money and affecting the amount of work that is getting done, it may be time to introduce financial incentives for staff who stay on the job. For example, a one-year anniversary bonus equal to 5 percent of a person's annual salary might be a very effective tool for retaining staff for a full 12 months.

Consider allowing staff to vote on award recipients—it shows that their opinions are valued and may help to eliminate controversial decisions on the part of management.

Staff retention efforts might also take the form of staff appreciation awards, parties, and gifts. After all, nothing says "we value your work" like an end-of-the-year picnic (paid for by the district) where the facilities manager and superintendent pass out performance awards to maintenance and custodial staff who might otherwise not receive very much recognition for their work.

INCENTIVES IDEAS INCLUDE:

- ✓ on-the-spot awards
- ✓ annual cash bonuses
- ✓ hats or shirts with the department logo
- ✓ plaques
- ✓ gift certificates (to restaurants, movies, etc.)
- ✓ tickets to sporting events or musical concerts
- ✓ employee-of-the-month announcements
- ✓ picnics or banquets
- ✓ tuition reimbursement
- ✓ special privileges (e.g., coffee and doughnut parties)

AND THE AWARD FOR "BEST ATTITUDE" GOES TO…

It was Henry's favorite day of work each year—the facilities department picnic! Every May, he and his family would meet his co-workers (and their families) at the outdoor swimming pool for an afternoon of food and fun. The facilities department would roast a pig, fry fish, bake potatoes, boil corn, invite the ice cream vendor, and pick up the tab!

This year, when Mr. Davis stood up to recognize his staff, the day got even better for Henry, as he was recognized for having the best attendance rate in the department over the past 12 months. Henry was proud to shake Mr. Davis's hand at the podium, but even happier to receive a $50 gift certificate to a local seafood restaurant. His friend Samantha also received an award—a plaque that read "Most Conscientious Employee"—that everyone in the department had voted on.

It was a day of family fun and pride. Henry's kids enjoyed the day as much as he did (which was part of why he liked the picnic so much), and Henry knew that his department valued the job he did throughout the school year!

MANAGING CONTRACTED STAFF AND PRIVATIZED ACTIVITIES

Some school districts hire outside agencies to handle certain maintenance and custodial tasks – that is, they use "privatized" or "contracted" services. Why would an organization want to pay a third party enough money to perform a service and make a profit? There are many reasons for outsourcing jobs. Perhaps in-house staff are constantly being bombarded with "special" projects and emergencies that take priority over their daily duties. Maybe a small school district may not be able to afford to keep specialized personnel on the staff. Or a large district may need to cut back on the number of permanent staff.

While there may be financial benefits to privatizing certain activities in a school system, the effects on an organization's work culture must also be considered.

Whatever the reason, privatizing is not just a question of the school district writing a check to pay for services. School staff must still put considerable energy into managing privatized endeavors. For example, when contracted staff are hired, precise specifications must be drawn up for the procurement, including an objective standard for measuring performance. Moreover, depending on the complexity of the task, a member of the in-house staff may still need to serve as project manager. To be effective, the project manager should have expertise in maintenance and operations, a thorough understanding of the contractor's scope of work, the skills to evaluate the contractor's performance, and the authority to assign supplemental support tasks to in-house staff.

Where on the organizational chart does one draw the line when privatizing maintenance responsibilities? The short answer is that at least the "manager" should be a school district employee.

Opportunities for in-house staff to work alongside outside contractors should never be ignored if schedules allow for such interaction. This type of cooperation can provide valuable (albeit informal) training for the district's maintenance and operations staff. At the same time, outside contractors can pick up valuable information about the practical applications of their work. Including in-house staff in all aspects of the maintenance program may have the added bonus of building support for the privatization program from within the organization.

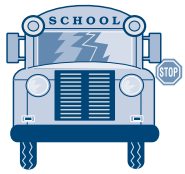
COMMONLY ASKED QUESTIONS

How does "training" apply to maintenance and custodial staff?
Caring for a school facility requires considerable expertise. While the organization may prefer to hire maintenance and custodial staff who possess this expertise, this is not always possible. Sometimes "hiring" experts is just too expensive. In other cases, existing staff need training to meet changing facility needs. No matter the circumstances, developing staff expertise is a necessary and cost-effective component of getting the job done–and "developing" expertise is simply another way of saying "training." Staff training provides employees with the knowledge, skills, and experience (through practice) to accomplish their jobs effectively.

How does one justify professional development versus time-on-task?
Staff do not get hired to be students–they are hired to accomplish a job. Nonetheless, effective managers understand that helping employees improve their knowledge and skills also helps them to become better employees. Professional development can also be an effective tool for boosting or maintaining staff morale. After all, nothing conveys that an organization values and respects its workers like its willingness to invest in them.

What types of reward and incentive programs are effective?
Reward and incentive programs should be tailored to the needs and wants of the staff and the best interests of the organization. Staff might appreciate creativity when conceiving incentive programs, but planners should ensure that the incentives are things that the staff (and not the planners) would want. Examples include: on-the-spot awards, annual cash bonuses, gift certificates (e.g., to restaurants, movies, and stores), tickets to sporting events or musical concerts, hats or shirts with the department logo, plaques, employee-of-the-month announcements in the newspaper, picnics and banquets, tuition reimbursement, and special privileges (e.g., bonus time for coffee breaks or free doughnuts during breaks).

ADDITIONAL RESOURCES



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Association of Higher Education Facilities Officers (APPA)
http://www.appa.org/
An international association that maintains, protects, and promotes the quality of educational facilities. APPA serves and assists facilities officers and physical plant administrators, conducts research and educational programs, produces publications, and develops guidelines.

Cleaning & Maintenance Management Online
http://www.cmmonline.com/Home.asp
The online home of Cleaning & Maintenance Management Magazine, which features articles, buyers guides, key topics, and a calendar.

Custodial Staffing Guidelines for Educational Facilities
http://www.appa.org/resources/publications/pubs.cfm?Category_ID=2
A guide about custodial staffing in educational facilities that addresses custodial evaluation, special considerations, staff development tools, and case studies. Appendices include information about custodial requirements, space classification, standard space category matrices, standard activity lists, and audit forms. APPA (1998) The Association of Higher Education Facilities Officers, Alexandria, VA, 266pp.

Custodial Standards
http://ehs.brevard.k12.fl.us/PDF%20files/custodial_standards_03.pdf
Guidelines that detail cleaning requirements for each area of a school, including classrooms, restrooms, cafeterias, gymnasiums, locker rooms, and corridors. Samples of assessment forms include emergency lighting, fire extinguisher inspection, air conditioner maintenance/service log sheets, and monthly custodial preventive maintenance forms. Office of Plant Operations and Maintenance (1998) Brevard Public Schools, Rockledge, FL, 44pp.

FacilitiesNet
http://www.facilitiesnet.com/
A commercial web site for facilities professionals sponsored by Trade Press Publishing Corporation and developed by the editors of Building Operating Management and Maintenance Solutions magazines. It includes a chat room on educational facilities.

Facility Management
http://www.facilitymanagement.com/
The online home of American School and Hospital Maintenance Magazine. This site is intended to help facility managers stay informed about current issues and the latest products.

International Facility Management Association (IFMA)
http://www.ifma.org/
The web site of a group that is dedicated to promoting excellence in the management of facilities. IFMA identifies trends, conducts research, provides educational programs, and assists corporate and organizational facility managers in developing strategies to manage human, facility, and real estate resources.

National Clearinghouse for Educational Facilities (NCEF)
http://www.edfacilities.org
A web site that includes reviews of and links to cutting-edge education facilities news; a calendar of conferences, workshops, and other facilities management-related events; a gallery of photos showing off innovative and provocative building design and construction from real schools across the nation; categorized and abstracted resource lists with links to full length, online, publications; and pointers to other organizations that provide online and off-line resources about education facilities management. NCEF can also be reached toll free at 888-552-0624.

National School Plant Management Association (NSPMA)
http://www.nspma.com/
A membership organization that facilitates the exchange of information about school plant management, maintenance and care.

Occupational Safety and Health Administration (OSHA)

http://www.osha.gov/

The web site of OSHA, which has as its core mission to save lives, prevent injuries, and protect the health of America's workers. To accomplish this, federal and state governments work in partnership with the more than 100 million working men and women and their 6.5 million employers who are covered by the Occupational Safety and Health Act of 1970.

Plant Operations Support Program

http://www.ga.wa.gov/plant

A self-sustaining consortium comprised of facility managers from Washington state agencies, educational facilities, municipalities, and port districts. This web site includes a library of practices, policies, research studies, and other references on subjects including emergency preparedness, energy savings, maintenance management, IAQ, and accessibility.

SchoolDude

http://www.schooldude.com/

A site that connects school facility professionals with each other to solve problems, share best practices, and improve learning environments. This includes tools for work management, information, and resources, as well as online procurement for equipment and school supplies. Some sections are accessible only to fee-paying members.

SchoolFacilities.com

http://www.schoolfacilities.com

A professional support network for school facility administrators and support personnel that provides school-related news, products, resources, and facility management tools.

SchoolHouse Plant Operation & Maintenance Resource Center: School House Library

http://faststart.com/cps/Library.html

An online library containing reports dealing with various aspects of plant operation and maintenance that relate to the operation of school buildings.

U.S. Equal Employment Opportunity Commission

http://www.eeoc.gov

The web site of the EEOC, which is charged with enforcing numerous employment-related federal statutes.

U.S. Immigration and Naturalization Service (INS)

http://www.ins.gov/

The web site of the INS, which is responsible for enforcing the laws regulating the admission of foreign-born persons (i.e., aliens) to the United States and for administering various immigration benefits, including the naturalization of qualified applicants for U.S. citizenship.

MANAGING STAFF AND CONTRACTORS CHECKLIST

More information about accomplishing checklist points can be found on the page listed in the right-hand column.

ACCOMPLISHED		CHECKPOINTS	PAGE
YES	NO		
		Have job descriptions been developed for all maintenance and operations positions?	105
		Do job descriptions describe "duties and responsibilities" accurately and in detail?	106
		Do job descriptions accurately describe working conditions?	106
		Do job descriptions accurately describe the physical requirements of the position?	106
		Do job descriptions comply with equal opportunity laws?	106
		Do job descriptions accurately describe the educational requirements of the position?	107
		Do job descriptions accurately describe the credential and licensure requirements of the position?	107
		Do job descriptions accurately describe equipment used in the position?	107
		Do job descriptions accurately describe at-will versus unionized requirements of the position?	107
		Do job descriptions accurately describe channels of authority for the position?	107
		Do job descriptions accurately describe evaluation mechanisms for the position?	107
		Do job descriptions include the phrase "and other duties as assigned"?	107
		Before interviewing candidates, have the characteristics of the "ideal" candidate been identified?	108
		After selecting the preferred candidate, but before extending an offer of employment, have the applicant's references been contacted?	108
		After selecting the preferred candidate, but before extending an offer of employment, has a criminal background check been performed on the applicant?	108
		After selecting the preferred candidate, but before extending an offer of employment, has the applicant provided evidence of employment eligibility?	110
		After extending an offer of employment, has the applicant provided all information needed to complete a personnel record?	110

		After extending an offer of employment, has the applicant provided all information needed to satisfy payroll needs?	110
		After selecting the preferred candidate, but before extending an offer of employment, has the applicant provided required medical and health records?	110
		Do all newly hired employees undergo staff training upon initially joining the organization?	111
		Does training for new staff include an orientation to key district sites (e.g., emergency locations) and all sites at which the individual will work?	111
		Does training for new staff include an introduction to all equipment the individual will be expected to use?	111
		Does training for new staff include instructions about how to best perform the individual's work tasks?	111
		Does training for new staff include a clear description of precisely what the individual must accomplish in order to meet the expectations of the job?	111
		Does training for new staff include an explanation of all criteria on which the individual will be evaluated?	111
		Is ongoing training provided to existing staff?	112
		Is professional development offered to all staff on an ongoing basis?	112
		Are all training and professional development activities documented on videotape so that they can be showed to other staff and at later times?	112
		Have cost-sharing and cost-minimizing methods for training programs and facilities been considered by management?	112
		Have staff been trained to create and use a "Moment of Truth" chart?	113
		Have performance standards and evaluation criteria been established for all staff positions?	113
		Have performance standards and evaluation criteria been adequately explained to all staff?	115
		Have managers been trained on how to perform fair, objective, accurate, and well-documented evaluations?	115
		Have staff turnover rates been determined and analyzed?	116
		Have the organization's personnel policies been adjusted to increase staff retention rates?	116
		Have rewards and incentives been introduced to improve staff morale and retention?	116
		Do privatization procurements include precise specifications for measuring performance?	117
		Has an in-house staff member been assigned the duties of "project manager" for each privatization contract?	117

CHAPTER 7
EVALUATING FACILITIES MAINTENANCE EFFORTS

GOALS:

- ✓ **To communicate the importance of regular facilities maintenance program evaluation**
- ✓ **To recommend best practice strategies for evaluating facilities maintenance efforts**

Program evaluation allows planners to see which initiatives are working, which are not working, and which strategies need to be reconsidered. There is simply no substitute for good data when making evaluation and program decisions.

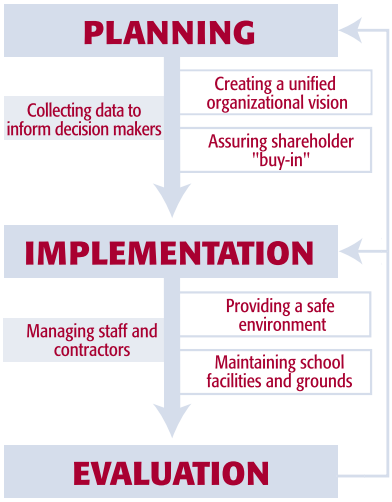
Table of Contents:

WHEN THE GOING GETS TOUGH, THE TOUGH GET EVALUATING

Nick had pretty much staked his reputation, and perhaps his job, on a preventive maintenance program. He'd championed the idea, recommending it in no uncertain terms to the superintendent and school board. So when the money was earmarked for a preventive maintenance program, everyone congratulated him. But Nick knew that getting the money and implementing the initiative was only the start of the job. He had to show that the program was working–or at least find out where it wasn't working and then reassess his strategy as needed.

When the next year's budget cuts came down from the top, the assistant superintendent tried to reassure Nick that the maintenance program would survive the cut. "Look, Nick, you could make up nearly a third of the cut if you just reassign your program evaluation funds back into the maintenance budget." Nick looked at his boss with surprise. "Ted, in ten years of working together, I've never heard such a bad idea come out of your mouth." Ted was taken aback by the reply, "But Nick, I just want to make sure that you're getting the biggest bang for your buck out of the budget." Nick laughed, "So do I, and that's why we've got to evaluate our work. Otherwise, we'll have no way of knowing what the 'buck' is really buying us. We won't know what we're doing right, or doing wrong, or where we needed to improve our performance. I'm telling you, Ted, when the budget gets lean–that's when we really need to stay serious about evaluating our work so that we can determine our priorities and allocate those tight dollars." Ted scratched his head, "I hadn't thought of it that way, Nick. I bet the same is true in the rest of the district as well, huh?" Nick cracked a smile, "I bet it is."

EVALUATING YOUR MAINTENANCE PROGRAM



This *Planning Guide* provides a framework for proactively developing a comprehensive, district-wide facility maintenance plan. The preceding chapters address the primary elements of maintenance planning, including recognizing the need for effective maintenance programs, planning maintenance programs, performing facilities audits (i.e., data collections), ensuring environmental safety, maintaining grounds and facilities, and managing staff and contractors. One other vital component of adequate school facilities maintenance is periodic evaluation to assess the success of these efforts at a program level.

To realize the full potential of a comprehensive preventive maintenance system, school staff, the school board, and town planners must incorporate maintenance priorities into all modernization goals, objectives, and budgets. However, it is also fair for stakeholders to expect the maintenance program to yield results–namely: clean, orderly, safe, cost-effective, and instructionally supportive school facilities that enhance the educational experience of all students. But stakeholders also need to demonstrate patience because the only thing that takes more time than implementing changes to a maintenance program is waiting to see the improvements bear fruit.

Reasons for evaluating the facilities maintenance program include:

- ✓ *internal management control*
- ✓ *school board requests*
- ✓ *state reporting mandates*
- ✓ *regulatory inspections (e.g., EPA)*

CONSIDERATIONS WHEN PLANNING PROGRAM EVALUATIONS

Evaluation doesn't have to mean more dollars and more surveys. Many of the day-to-day activities or systems used to plan and operate a maintenance program also generate the types of information needed to evaluate the program's effectiveness. These can include:

- ✓ *Physical inspections:* Records of physical inspections are good evaluative material. To care for buildings and grounds, staff must observe and assess their condition on a regular basis. Inspections should be both visual (i.e., how things look) and operational (i.e., how things work), and should result in work orders for items requiring service or repair.
- ✓ *Work order systems:* An effective work order system, as explained in Chapter 5, is a good tool for identifying, monitoring, and projecting future maintenance needs. All maintenance work should be recorded on work orders, which then provide valuable quantitative information for evaluations.
- ✓ *User feedback/customer satisfaction surveys:* There are many ways to gather information from users/customers (i.e., the people who benefit from the maintenance activities), including collecting satisfaction surveys and convening advisory committees of stakeholders. The value of user perception should not be overlooked as an evaluation tool. Appendix I provides a sample customer survey form used to request feedback relating to custodial and maintenance work.

Program success can only be evaluated relative to program objectives. In other words, measuring "success" means answering the question: Are we reaching our goals and objectives?

- ✓ *Audits:* Performance audits, commissioning, retro-commissioning, comparisons with peer organizations, benchmarking, and annual reviews of accomplishments provide important data for the facility plan and ensuing evaluation.
- ✓ *Alternative resources:* Maintenance staff need not reinvent the wheel when it comes to evaluations. Maintenance and operations manuals, vendor expertise, warranties, and other resources (e.g., Web sites) can be sources of benchmarking data or evaluation standards.
- ✓ *Regulatory activities:* Appropriately trained staff or contractors must be assigned to determine whether applicable public safety and environmental regulations are followed. These staff must be responsible for documenting inspection activities and reports, notifying appropriate oversight organizations of deficiencies, developing strategies for remedying deficiencies, and verifying compliance to applicable laws and regulations. Documentation of these activities can be used in program evaluation.

A NOTE ABOUT BUDGETS

Even with the best planning, budget cutbacks are sometimes unavoidable. This may force planners to reprioritize their operational objectives—which can affect the goals of an evaluation effort as well. For example, under shortfall conditions, evaluators might be asked to assess whether budget cutbacks have prevented the department from reaching one or more of its goals. Or the evaluation effort might be used to identify mission-critical components of the maintenance plan in the event of ongoing program cuts.

QUESTIONS TO DRIVE EVALUATION EFFORTS

A simple evaluation program can be implemented by answering these four questions:

Step 1:
What is the purpose of the evaluation? That is, what decisions need to be made and by whom?

Example: The facilities maintenance director and the school business official want to know whether the new work order system is worth the money that was invested in its purchase, installation, and staff training.

Step 2:
What questions need to be answered to make an informed decision, as identified in Step 1?

Example: Is the new work order system accomplishing all that we had hoped it would?
Is the new work order system running more efficiently than the old system?

Step 3:
What information needs to be available to answer the questions identified in Step 2?

Example: What was the total cost for purchasing and installing the work order system?
What was the total cost to train staff to use the work order system?
Are staff time and materials accounted for in the work order system?
Does the system maintain historical data about maintenance at each site?
Does the system track all purchases, from ordering through delivery, installation, and storage?
Does the system document all preventive maintenance activities?
Has the response time for work order requests decreased? If so, by how much?
Has the number of work orders accomplished increased? If so, by how much?

Step 4:
What is the best way to capture the information needs identified in Step 3?

Example: Accounting and management audits, work order system user surveys, current work order system reports, and data from previous work order requests.

The only thing worse than no data is misplaced confidence in bad data. Decisions are bound to be bad if the data used to inform them are of poor quality.

COLLECTING DATA TO INFORM A COMPREHENSIVE EVALUATION

To evaluate a facilities management program, the district must collect and maintain accurate, timely, and comprehensive data about its facilities. After all, responsible decision-making requires good data and documentation. Before assessing maintenance improvements, it is necessary to identify the baseline against which progress will be measured (see Chapter 3). In other words, will the organization compare its current status against its previous status, against peer organizations, or relative to commonly accepted norms and best-practice standards?

The graph shows the number of days it took for a work order to get completed in a school district before and after the process was streamlined. Although the amount of time it takes for the actual work to be accomplished has not changed, two significant time-saving approaches have been adopted: 1) the number of people handling the work order has been cut, and 2) the parts and materials procurement system has been linked to the work order system. This type of streamlining not only increases efficiency with respect to getting work accomplished, but also decreases unnecessary administrative costs.

Collecting data may require substantial effort, but it is a necessary task all the same. Proven sources of information about the condition of school facilities and the impact of a facility maintenance program include:

- ✓ number of work orders completed
- ✓ changes in maintenance costs
- ✓ major incident reviews (e.g., number of school shutdowns, safety events, etc.)

Document all "lessons learned" to keep a record of things that didn't work as planned so that mistakes can be avoided the next time around.

PITFALLS TO AVOID WHEN INTERPRETING MAINTENANCE EVALUATIONS

Stakeholders should not assume that improvements to a maintenance program will always yield cost savings in real dollars. To obtain an accurate assessment of maintenance initiatives, evaluators must also look for:

- ✓ Cost avoidance rather than direct savings (e.g., well-maintained equipment tends not to wear out or need to be replaced as quickly as poorly maintained equipment)
- ✓ Fewer service interruptions resulting from better maintained, and better performing, equipment.

Moreover, improving facilities maintenance requires patience. A comprehensive, proactive program takes resources, energy, and time to initiate–and even more time before results are realized.

- ✓ "customer" feedback (e.g., the opinions of principals and other occupants)
- ✓ visual inspections by supervisors and managers
- ✓ comprehensive management audits
- ✓ performance audits
- ✓ organizational studies
- ✓ annual snapshots (e.g., maintenance/operations cost per square foot or per student)
- ✓ facility report cards or other summaries
- ✓ comparisons with "peer" organizations
- ✓ benchmark performance
- ✓ trend analysis (e.g., progress toward the organization's long-range plans)
- ✓ external audits/peer reviews
- ✓ weekly foreman's meetings
- ✓ staff turnover rates
- ✓ public opinion (e.g., newspaper articles, etc.)

EXAMPLES OF GOOD EVALUATION QUESTIONS

Over the years, experienced facilities maintenance planners have learned to ask some very good evaluation questions, some of which are listed below. Some questions may not apply to every school district, but the list illustrates the types of questions that facilities maintenance planners can ask to meet the information needs of their evaluation efforts.

Work Orders

- ✓ Does the work order system account for all maintenance staff time and materials?
- ✓ Does the work order system produce data about the history of all maintenance activities at each site?
- ✓ Does the work order system track all purchases, from ordering through delivery, storage, and installation?

- ✓ Does the work order system document all preventive maintenance activities?
- ✓ Is priority recognition available to differentiate between emergency, routine, and preventive maintenance?
- ✓ Do preventive maintenance activities outnumber emergency responses in the work order system logs?
- ✓ Is user feedback documented through work orders, surveys, or minutes of stakeholder meetings?

Needs Assessment

- ✓ Does the needs assessment include a mechanism for collecting, analyzing, and prioritizing input from users?
- ✓ Does the needs assessment include data from the work order system?
- ✓ Are stakeholders (e.g., maintenance staff, educators, users) included in needs assessment and capital planning activities?
- ✓ Does the needs assessment include information from the work order system?
- ✓ Does the needs assessment include information from site and equipment inspections?
- ✓ Does the needs assessment include data from performance and systems audits?
- ✓ Does the needs assessment include commissioning and retro-commissioning results?
- ✓ Does the needs assessment include comparisons with peer organizations?
- ✓ Does the needs assessment reflect outstanding regulatory or compliance issues?
- ✓ Are safety checks based on documentation and incident reports?
- ✓ Is an annual facility plan created from the needs assessment?

Site Inspections

- ✓ Are inspectors adequately trained for their task?
- ✓ Are there clear standards for inspections?
- ✓ Are inspections conducted with both property needs and maintenance capacity in mind?
- ✓ Are all inspection results documented?

Data Management Systems

- ✓ Does the data management system document the current status of the major systems and components in every school building?
- ✓ Does the data management system document the capital and maintenance needs of every school building?

- ✓ Does the data management system document the short- and long-term needs of the district?

Budgeting

- ✓ Does the budget request accurately reflect the needs of the annual facility plan?
- ✓ Are there both short- and long-term budget objectives?
- ✓ Are maintenance staff involved in developing the budget?
- ✓ Does the annual budget reflect the inevitability of unplanned emergency maintenance issues?
- ✓ Are there contingency plans in the budget?
- ✓ Are industry standards used to estimate costs?
- ✓ Does the budget include funds for new hires, contracting, and equipment and supply purchases?
- ✓ Is the financing plan for long-term capital needs separate from the maintenance budget?

Staffing

- ✓ Does the personnel policy include maintenance and contracted staff?
- ✓ Do job descriptions reflect the identified needs of the organization?
- ✓ Do job descriptions outline the necessary qualifications to perform the work?
- ✓ Does the organizational chart accurately delineate reporting responsibilities?
- ✓ Are training opportunities available and relevant to the duties of the staff?
- ✓ Are all tradespeople fully licensed for their work?
- ✓ Are industry guidelines used to determine custodial staffing needs?
- ✓ Are cost-benefit analyses conducted to determine staff/contracting needs?
- ✓ Is cost-benefit analysis based on numbers of available staff, skill levels or training needs of existing staff, and the type of job?

Staff Evaluations

- ✓ Are staff performance evaluations performed on a regular schedule?
- ✓ Do data drive staff performance evaluations?
- ✓ Is there follow-up to staff performance evaluations that includes additional training opportunities, reassignment of staff, changes in job duties, contracting out duties, and hiring of additional staff?
- ✓ Are staff accomplishments reviewed and documented on an annual basis?

- ✓ Are staff accomplishments measured in part by comparing budget estimates to actual expenditures?
- ✓ Are staff accomplishments measured in part on the basis of work order system records?
- ✓ Are staff accomplishments measured in part by personnel evaluations?

Facility Plan

- ✓ Does the facility plan provide for periodic reports of staff accomplishments to stakeholders?
- ✓ Are staff accomplishments related to the objectives stated in the annual facility plan?
- ✓ Were all facility plan objectives met?
- ✓ Was reprioritization of objectives needed to meet goals?
- ✓ When goals and objectives were not met, was the reason for this failure substantiated?
- ✓ Were cost estimates sufficient to meet the objectives?
- ✓ Were other aspects of the budget negatively affected to meet maintenance objectives?
- ✓ Were staffing levels sufficient to meet the objectives?
- ✓ Are the goals and objectives of the facility plan reprioritized based on actual budgets received, number of emergencies, school shutdowns, complaints, safety issues, school days lost or sick days increased, negative inspection reports, loss of accreditation, compliance, regulatory or legal action, impact on capital plan or long-term plan, staff overtime, staff turnover, or the impact on other planned projects?
- ✓ Are unmet goals and objectives documented?
- ✓ Are unmet goals and objectives included in the next planning cycle?

COMMONLY ASKED QUESTIONS

Doesn't "evaluation" take precious resources from actually maintaining facilities?

Absolutely. However, without earmarking funds for evaluation, there is no way of knowing whether the money, time, and energy going into facilities maintenance efforts are producing worthwhile results. After all, the only thing worse than "wasting" part of the maintenance budget on evaluation is wasting the entire maintenance budget on activities that aren't really working.

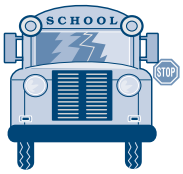
What tools are available for maintenance program evaluation activities?

An "evaluation tool" is any means by which an organization can get accurate and timely information about the status of its facilities, and any improvements that are a result of the maintenance program. In addition to the services of outside evaluation consultants, potential tools available to a school district include: work order records, major incident reviews (e.g., the number of school shutdowns, safety events, etc.), "customer" feedback

from building principals and other stakeholders, weekly foremen's meetings, visual inspections by supervisors and managers, comprehensive management audits, focused operational reviews, performance audits, organizational studies, reengineering projects, annual snapshots (e.g., cost per square foot or per student), facility report cards, comparisons with "peer" organizations, benchmarks, measured progress toward the organization's long-range plans, external audits and peer reviews, staff turnover rates, and public opinion (e.g., newspaper articles).

Who is in charge of evaluating the facilities maintenance program?
Program evaluation is the responsibility of the facilities manager. However, because facilities are such a key aspect of an organization's overall budget and mission, other senior staff should be included in evaluation oversight as appropriate to ensure sound management and planning. Moreover, many school districts employ in-house staff with considerable expertise in program evaluation who may also be able to contribute to the process.

ADDITIONAL RESOURCES



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APPA Custodial Operation Self-Analysis Program
http://www.appa.org/pdffiles/AllCustodialAnalysis.pdf
A survey and self-analysis tool designed to identify many of the variables that influence institutional custodial operations. It also establishes standardized benchmarks for the industry. APPA (1998) The Association of Higher Education Facilities Officers, Alexandria, VA, 15pp.

FMEP: Facilities Management Evaluation Program
http://www.appa.org/FMEP/
A program to provide the chief facilities officer at APPA member institutions with the opportunity to receive an evaluation by a team of APPA members from organizations with similar educational, financial, and physical characteristics. This document is designed to help an institution assess the value of this program and the commitment required to conduct such an evaluation.

EVALUATING FACILITIES MAINTENANCE PROGRAMS CHECKLIST

More information about accomplishing checklist points can be found on the page listed in the right-hand column.

ACCOMPLISHED		CHECKPOINTS	PAGE
YES	NO		
		Do stakeholders realize that it will take time (months to years) before they will be able to see improvements in a maintenance program?	124
		Is progress toward attaining the goals and objectives of the maintenance department being explicitly assessed?	124
		Does the evaluation program incorporate physical inspections?	124
		Does the evaluation program incorporate work order systems?	124
		Does the evaluation program incorporate user and user/customer feedback?	124
		Does the evaluation program incorporate audits?	125
		Does the evaluation program incorporate alternative resources?	125
		Does the evaluation program incorporate regulatory concerns?	125
		Have evaluators answered the question “What is the purpose of the evaluation?”	125
		Have evaluators answered the question “What questions need to be answered to make an informed decision during this evaluation?”	125
		Have evaluators answered the question “What information needs to be available to answer the pertinent questions in this evaluation?”	125
		Have evaluators answered the question “What is the best way to capture the information needs of this evaluation?”	125
		Have evaluators decided whether the organization hopes to measure its performance against past performance, peer organizations, or other norms or standards?	126
		Do decision-makers recognize that the value of maintenance activities is not always measurable in terms of simple “dollars saved”?	127

APPENDIX A
CHAPTER CHECKLISTS

The following is a list of all checklists included in this *Planning Guide.* More information about accomplishing checklist points can be found on the pages listed in the right-hand column.

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	NO	PAGE
CHAPTER 1				
Are top-level decision-makers aware that school facilities maintenance affects the instructional and financial well-being of the organization?				1
Are top-level decision-makers aware that the occurrence of facilities problems (and lack thereof) is most closely associated with organizationally controlled issues such as staffing levels, staff training, and other management practices?				1
Are top-level decision-makers aware that having a coordinated and comprehensive maintenance plan is the first and most important step in exercising control over the destiny of the organization's facilities?				2
Has facilities maintenance been given priority status within the organization, as evidenced by top-level decision-makers' commitment to read this *Planning Guide* and refer to these guidelines while planning and coordinating facilities maintenance?				2
Do the organization's facilities maintenance decision-makers include school administrators, facilities/custodial representatives, teachers, parents, students, and community members?				4
CHAPTER 2				
Is there a facilities maintenance plan?				13
Is facilities maintenance planning a component of overall organizational planning?				13
Does the facilities maintenance plan include long- and short-term objectives, budgets, and timelines?				13
Have potential stakeholders in the facilities maintenance planning process been identified?				15
Have appropriate avenues for publicizing the facilities maintenance planning process to staff and community stakeholders been investigated and undertaken?				15
Have representative members of stakeholder groups been invited to participate in the facilities maintenance planning process?				15
Have representative members of stakeholder groups been selected fairly for participation in the facilities maintenance planning process?				15

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	ACCOMPLISHED NO	PAGE
CHAPTER 2 *continued*				
Have individual views and opinions been a welcomed aspect of the consensus-building process?				15
Have stakeholders been included in follow up efforts to document and implement decisions?				15
Has a vision statement for school facilities maintenance been constructed?				16
Is the vision statement for school facilities maintenance aligned with the vision and plans of the rest of the organization?				16
Is the vision statement closely related to the day-to-day operations of the facilities maintenance staff?				16
Have comprehensive, accurate, and timely school facilities data been used to inform the planning process (see also Chapter 3)?				19
CHAPTER 3				
Have district planners scheduled a facility audit?				27
Has a chief auditor been selected (based on expertise, perspective, experience, and availability)?				27
Has a qualified auditing team been assembled?				28
Has the scope of work been identified for the audit (i.e., how detailed and comprehensive should the audit be)?				28
Has a data collection system (e.g., collection forms) been selected for the facilities audit?				31
Has an automated data input system been selected as resources allow?				31
Have audit findings been submitted in an electronic format that can be manipulated by district users?				31
Have audit findings been reviewed by facilities managers for accuracy and quality?				31
Are the findings from the facilities audit being stored securely as valuable organizational assets (e.g., redundantly)?				33
Has an automated document imaging system been implemented as resources allow?				33
Has a Computerized Maintenance Management System been installed in any organization that has more than 500,000 ft^2 of facilities to manage?				34

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	ACCOMPLISHED NO	PAGE
CHAPTER 3 *continued*				
Are facilities data being used to inform policy-making, short- and long-term planning, and day-to-day operations as appropriate?				34
Have facilities been commissioned, re-commissioned, or retro-commissioned as necessary?				35
Have commissioning, re-commissioning, and retro-commissioning been planned to include seasonal analysis of systems?				36
Have commissioning, re-commissioning, and retro-commissioning been planned according to the Energy Smart Schools recommendations?				37
Have facilities audit findings been used to establish benchmarks for measuring equipment life and maintenance progress?				39
CHAPTER 4				
Do facilities planners recognize that occupant safety is always their overarching priority?				43
Has the organization contacted regulatory agencies (e.g., the EPA), the U.S. Department of Education, its state department of education, professional associations, and peer institutions to obtain information about applicable environmental regulations?				43
Does the organization have a plan for responsibly managing indoor air quality?				44
Does the organization have a plan for responsibly managing asbestos?				48
Does the organization have a plan for responsibly managing water quality and use?				49
Does the organization have a plan for responsibly managing waste handling and disposal?				50
Does the organization have a plan for responsibly managing CFCs and HCFCs?				53
Does the organization have a plan for responsibly managing emergency power systems?				53
Does the organization have a plan for responsibly managing hazardous materials?				53
Does the organization have a plan for responsibly managing integrated pest management?				54
Does the organization have a plan for responsibly managing lead paint?				56
Does the organization have a plan for responsibly managing mercury?				56

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	ACCOMPLISHED NO	PAGE
CHAPTER 4 *continued*				
Does the organization have a plan for responsibly managing personal protective equipment?				57
Does the organization have a plan for responsibly managing PCBs?				57
Does the organization have a plan for responsibly managing radon?				57
Does the organization have a plan for responsibly managing playgrounds?				58
Does the organization have a plan for responsibly managing storm water runoff?				60
Does the organization have a plan for responsibly managing underground storage tanks?				60
Does the organization have a plan for introducing environmentally friendly school concepts to new construction and renovation projects?				61
Does the organization have a plan for responsibly managing locking systems?				62
Does the organization have a plan for protecting equipment?				62
Does the organization have a plan for ensuring pedestrian and vehicle visibility?				63
Does the organization have a plan for policing/securing facilities?				63
Does the organization have a plan for responsibly managing fire protection?				63
Does the organization have a plan for protecting communications systems?				63
Does the organization have a plan for responsibly dealing with potential crises and disasters?				63
CHAPTER 5				
Do district planners recognize the four major components of an effective facilities maintenance program: emergency (responsive) maintenance, routine maintenance, preventive maintenance, and predictive maintenance?				74
Do district planners recognize that preventive maintenance is the most effective approach to sound school facility maintenance?				74
Has a comprehensive facilities audit (see Chapter 3) been performed before instituting a preventive maintenance program?				74

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	NO	PAGE
CHAPTER 5 *continued*				
For districts that are instituting preventive maintenance for the first time, has an appropriate system (e.g., heating or cooling systems) been identified for piloting before commencing with a full-scale, district-wide program?				74
Have manufacturer supplied user manuals been examined for guidance on preventive maintenance strategies for each targeted piece of equipment?				75
Are records of preventive maintenance efforts maintained?				75
Has the schedule for preventive maintenance activities been coordinated with the routine maintenance schedule so as to minimize service interruptions?				75
Does the organization have a plan for responsibly managing access control?				75
Does the organization have a plan for responsibly managing boilers?				76
Does the organization have a plan for responsibly managing electrical systems?				76
Does the organization have a plan for responsibly managing energy use?				77
Does the organization have a plan for responsibly managing fire alarms?				78
Does the organization have a plan for responsibly managing floor coverings?				78
Does the organization have a plan for responsibly managing gym floors?				79
Does the organization have a plan for responsibly managing HVAC Systems?				79
Does the organization have a plan for responsibly managing hot water heaters?				80
Does the organization have a plan for responsibly managing kitchens?				80
Does the organization have a plan for responsibly managing painting projects?				80
Does the organization have a plan for responsibly managing plumbing?				80
Does the organization have a plan for responsibly managing public address systems and intercoms?				81
Does the organization have a plan for responsibly managing roof repairs?				81
Does the organization have a plan for responsibly managing water softener systems?				81

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	NO	PAGE
CHAPTER 5 *continued*				
Has organization management determined its expectations for custodial services?				82
Have facilities managers staffed the custodial workforce at a level that can meet the organization's expectations for its custodial service?				82
Has a chain of command for custodial staff been determined?				82
Has a suitable approach to custodial services (e.g., area cleaning versus team cleaning) been selected to meet the organization's expectations for custodial service?				82
When planning grounds management, have grounds been defined as "corner pin to corner pin" for all property, including school sites, remote locations, the central office, and other administrative or support facilities?				83
Have areas of special concern (e.g., wetlands, caves, mine shafts, sinkholes, sewage plants, historically significant sites and other environmentally sensitive areas) been identified and duly considered for grounds management?				84
Does the organization have a plan for responsibly managing fertilizer and herbicide use?				84
Does the organization have a plan for responsibly managing watering and sprinkler systems (e.g., the use of recycled water/gray water for plumbing, watering fields)?				84
Does the organization have a plan for responsibly managing drainage systems?				84
Does the organization have a plan for responsibly managing "rest time" for fields/outdoor areas?				84
Does the organization have a plan for responsibly managing the costs and benefits of flowerbeds?				84
Does the organization have a plan for responsibly managing the use of the grounds as a classroom (e.g., "science courtyards" and field laboratories)?				84
Is the Maintenance & Operations Department organized and administered to best meet the needs of the maintenance plan?				85
Does the maintenance and operations staff take time to market its efforts and successes to the rest of the organization?				85
Are facilities managers proactive with their communications to and management of community groups (e.g., PTAs, booster clubs)?				86
Has an automated work order system (e.g., a Computerized Maintenance Management System or CMMS as discussed in Chapter 3) been instituted within the organization?				86
Does the CMMS incorporate the basic features of a "best practice" system?				87

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	ACCOMPLISHED NO	PAGE
CHAPTER 5 *continued*				
Do staff in every building and campus in a district know the procedures for initiating a work order request?				88
Is the ability to officially submit a work order limited to a single person at each site (who can evaluate the need for work prior to sending it)?				88
Does a supervisor evaluate (either by random personal assessment or customer feedback) whether the quality of work meets or exceeds departmental standards before "closing out" a work order?				88
Is all information about a completed work order maintained in a database for future historical and analytical use upon its completion?				88
Is the work order system streamlined so as to minimize the number of people involved in work order delivery, approval, and completion as is reasonable for managing the process?				88
Has an automated building use scheduling system been instituted within the organization?				90
Has the organization investigated the use of a "consignment cabinet" as a tool for storing supplies and parts in a cost-effective manner?				91
Has the organization investigated the use of "open purchase orders" as a tool for purchasing supplies and parts in a cost-effective manner?				91
Have appropriate control checks been placed on supply storage and purchasing systems?				91
Have planners considered the costs and benefits of both local and central site storage for supplies and parts?				91
Has equipment selection been standardized throughout the district (as possible and necessary) in order to save on storage space and costs associated with increased staff training for servicing multiple brands?				91
Are chemical dispensers used to automatically mix and conserve cleaning agents?				91
Have performance-based specifications been introduced to procurement contracts for the purpose of standardizing equipment purchasing?				92
Have planners considered the costs and benefits of both the item-by-item (building block) and top-down approaches to renovation and construction planning?				92
When selecting an architect to help plan a renovation or construction project, have planners considered the firm's experience designing environmentally-friendly schools?				92

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	ACCOMPLISHED NO	PAGE
CHAPTER 5 *continued*				
Has a qualified, yet experientially diverse, project team be identified, including business personnel, maintenance staff, principals, teachers, construction professionals, architects, engineers, and general contractors?				92
Does the project team meet to review all plans, construction documents, and decisions throughout development (e.g., at 25, 50, 75 and 100 percent complete)?				92
Do members of the maintenance and operations department (or locally hired and trusted plumbers, electricians, etc.) visit the construction site on a routine basis to observe the quality of the work, monitor the placement of valves and switches, and verify the overall progress of the project?				93
Do the chief project officer and the project architect, general contractor, and subcontractors meet on a weekly basis to discuss project progress and obstacles?				93
Are the results of all renovation/construction meetings well documented and archived?				93
Upon the renovation or construction project being designated "substantially complete," did the architect prepare a "punch list" to identify components that are not yet complete (or which do not meet the quality standards)?				93
Has the organization retained the last of its payments to the contractor in order to ensure that the balance of work on the "punch list" is completed in a timely manner?				94
Has the renovated or newly constructed facility been commissioned by a third-party specialist?				94
CHAPTER 6				
Have job descriptions been developed for all maintenance and operations positions?				105
Do job descriptions describe "duties and responsibilities" accurately and in detail?				106
Do job descriptions accurately describe working conditions?				106
Do job descriptions accurately describe the physical requirements of the position?				106
Do job descriptions comply with equal opportunity laws?				106
Do job descriptions accurately describe the educational requirements of the position?				107
Do job descriptions accurately describe the credential and licensure requirements of the position?				107

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	NO	PAGE
CHAPTER 6 *continued*				
Do job descriptions accurately describe equipment used in the position?				107
Do job descriptions accurately describe at-will versus unionized requirements of the position?				107
Do job descriptions accurately describe channels of authority for the position?				107
Do job descriptions accurately describe evaluation mechanisms for the position?				107
Do job descriptions include the phrase “and other duties as assigned”?				107
Before interviewing candidates, have the characteristics of the “ideal” candidate been identified?				108
After selecting the preferred candidate, but before extending an offer of employment, have the applicant’s references been contacted?				108
After selecting the preferred candidate, but before extending an offer of employment, has a criminal background check been performed on the applicant?				108
After selecting the preferred candidate, but before extending an offer of employment, has the applicant provided evidence of employment eligibility?				110
After extending an offer of employment, has the applicant provided all information needed to complete a personnel record?				110
After extending an offer of employment, has the applicant provided all information needed to satisfy payroll needs?				110
After selecting the preferred candidate, but before extending an offer of employment, has the applicant provided required medical and health records?				110
Do all newly hired employees undergo staff training upon initially joining the organization?				111
Does training for new staff include an orientation to key district sites (e.g., emergency locations) and all sites at which the individual will work?				111
Does training for new staff include an introduction to all equipment the individual will be expected to use?				111
Does training for new staff include instructions about how to best perform the individual’s work tasks?				111
Does training for new staff include a clear description of precisely what the individual must accomplish in order to meet the expectations of the job?				111
Does training for new staff include an explanation of all criteria on which the individual will be evaluated?				111

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	NO	PAGE
CHAPTER 6 *continued*				
Is ongoing training provided to existing staff?				112
Is professional development offered to all staff on an ongoing basis?				112
Are all training and professional development activities documented on videotape so that they can be showed to other staff and at later times?				112
Have cost-sharing and cost-minimizing methods for training programs and facilities been considered by management?				112
Have staff been trained to create and use a “Moment of Truth” chart?				113
Have performance standards and evaluation criteria been established for all staff positions?				113
Have performance standards and evaluation criteria been adequately explained to all staff?				115
Have managers been trained on how to perform fair, objective, accurate, and well-documented evaluations?				115
Have staff turnover rates been determined and analyzed?				116
Have the organization’s personnel policies been adjusted to increase staff retention rates?				116
Have rewards and incentives been introduced to improve staff morale and retention?				116
Do privatization procurements include precise specifications for measuring performance?				117
Has an in-house staff member been assigned the duties of “project manager” for each privatization contract?				117
CHAPTER 7				
Do stakeholders realize that it will take time (months to years) before they will be able to see improvements in a maintenance program?				124
Is progress toward attaining the goals and objectives of the maintenance department being explicitly assessed?				124
Does the evaluation program incorporate physical inspections?				124
Does the evaluation program incorporate work order systems?				124
Does the evaluation program incorporate user and user/customer feedback?				124

CHECKPOINTS	PERSON ASSIGNED	ACCOMPLISHED YES	ACCOMPLISHED NO	PAGE
CHAPTER 7 *continued*				
Does the evaluation program incorporate audits?				125
Does the evaluation program incorporate alternative resources?				125
Does the evaluation program incorporate regulatory concerns?				125
Have evaluators answered the question "What is the purpose of the evaluation?"				125
Have evaluators answered the question "What questions need to be answered to make an informed decision during this evaluation?"				125
Have evaluators answered the question "What information needs to be available to answer the pertinent questions in this evaluation?"				125
Have evaluators answered the question "What is the best way to capture the information needs of this evaluation?"				125
Have evaluators decided whether the organization hopes to measure its performance against past performance, peer organizations, or other norms or standards?				126
Do decision-makers recognize that the value of maintenance activities is not always measurable in terms of simple "dollars saved"?				127

APPENDIX B
ADDITIONAL RESOURCES

The following is an alphabetical list of all Additional Resources included in this Guide.

Every effort has been made to verify the accuracy of all URLs listed in this Guide at the time of publication. If a URL is no longer working, try using the root directory to search for a page that may have moved. For example, if the link to http://www.epa.gov/iaq/schools/performance.html is not working, try *http://www.epa.gov/* and search for "IAQ."

American School and University Annual Maintenance and Operations Cost Study
http://images.asumag.com/files/134/mo%20school.pdf
An annual survey that reports median national statistics for various maintenance and operations costs, including salary/payroll, gas, electricity, utilities, maintenance and grounds equipment and supplies, outside contract labor, and other costs.

APPA Custodial Operation Self-Analysis Program
http://www.appa.org/pdffiles/AllCustodialAnalysis.pdf
A survey and self-analysis tool designed to identify many of the variables that influence institutional custodial operations. It also establishes standardized benchmarks for the industry. APPA (1998) The Association of Higher Education Facilities Officers, Alexandria, VA, 15pp.

Asbestos
http://www.edfacilities.org/rl/asbestos.cfm
A list of links, books, and journal articles about how asbestos abatement and management is conducted in school buildings, and how schools should comply with federal regulations. National Clearinghouse for Educational Facilities, Washington, DC.

Association of Higher Education Facilities Officers (APPA)
http://www.appa.org/
An international association that maintains, protects, and promotes the quality of educational facilities. APPA serves and assists facilities officers and physical plant administrators, conducts research and educational programs, produces publications, and develops guidelines.

Basic Data Elements for Elementary and Secondary Education Information Systems
http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=97531
A document providing a set of basic student and staff data elements that serve as a common language for promoting the collection and reporting of comparable education data to guide policy and assist in the administration of state and local education systems. Core Data Task Force of the National Forum on Education Statistics (1997) National Center for Education Statistics, Washington, DC.

Beyond Pesticides
http://www.beyondpesticides.org
A nonprofit membership organization formed to serve as a national network committed to pesticide safety and the adoption of alternative pest management strategies.

Budgeting for Facilities Maintenance and Repair Activities
http://www.nap.edu/books/NI000085/html/index.html
An online publication that focuses on how to estimate future facility maintenance and repair needs. Federal Facilities Council, Standing Committee on Operations and Maintenance, National Research Council (1996) National Academy Press, Washington, DC.

Building Commissioning
http://www.edfacilities.org/rl/commissioning.cfm
A list of links, books, and journal articles about building commissioning. National Clearinghouse for Educational Facilities, Washington, DC.

Building Commissioning Association
http://www.bcxa.org
A professional association dedicated to the promotion of high standards for building commissioning practices.

Building Commissioning Handbook

http://www.appa.org/resources/publications

A book that focuses on building commissioning, including the roles of the consultant, contractor, test engineer, commissioning agent, and owner; the process of equipment and systems performance testing; testing checklists; commissioning terms; and guidance with regard to hiring a commissioning agent. Heinz, J.A. and Casault, R. (1996) The Association of Higher Education Facilities Officers, Alexandria, VA, 311pp.

Building Evaluation Techniques

Step-by-step techniques for conducting an effective building assessment, including the evaluation of overall structural performance, spatial comfort, noise control, air quality, and energy consumption. Includes sample forms and checklists tailored to specific building types. George Baird, et al. (1995) McGraw Hill, 207pp.

California Collaborative for High Performance Schools (ChiPS)

http://www.chps.net/

A group that aims to increase the energy efficiency of public schools in California by marketing information, service, and incentive programs directly to school districts and designers. The goal is to facilitate the design of high-performance schools–environments that are not only energy efficient, but also healthy, comfortable, well lit, and contain the amenities needed for a quality education.

Carpet and Rug Institute (CRI)

http://www.carpet-rug.com/

The web site of the national trade association representing the carpet and rug industry. It is a source of extensive information about carpets for consumers, writers, interior designers, facility managers, architects, builders, and building owners and managers, installation contractors, and retailers. CRI also publishes the web site "Carpet in Schools" *(http://www.carpet-schools.com/)* to address topics such as indoor air quality, allergies, and carpet selection, installation, and care.

Children's Environmental Health Network

http://www.cehn.org

A national multidisciplinary project dedicated to promoting a healthy environment and protecting children from environmental hazards. The site presents a variety of useful publications and materials.

Cleaning & Maintenance Management Online

http://www.cmmonline.com/Home.asp

The online home of Cleaning & Maintenance Management magazine, which features articles, buyers guides, key topics, and a calendar.

Cleaning and Maintenance Practices

http://www.edfacilities.org/rl/cleaning.cfm

A list of links, books, and journal articles about custodial standards and procedures, equipment, safety, and product directories for the cleaning and maintenance of schools and colleges.

Community Participation in Planning

http://www.edfacilities.org/rl/community_participation.cfm

A list of links, books, and journal articles about how community members can become involved in the planning and design of school buildings and grounds. National Clearinghouse for Educational Facilities, Washington, DC.

Creating a Vision

http://www.nsba.org/sbot/toolkit/cav.html

An online toolkit from the National School Boards Association for creating a vision in school organizations.

Creating Safe Learning Zones: The ABC's of Healthy Schools

http://www.childproofing.org/ABC.pdf

A primer prepared by the Healthy Buildings Committee of the Child Proofing Our Communities campaign to offer guidance about constructing, maintaining, and renovating healthy schools.

Custodial Methods and Procedures Manual

http://asbointl.org/Publications/PublicationCatalog/index.asp?s=0&cf=3&i=139

A manual that discusses school facility cleaning and maintenance from the perspective of work management, physical assets management, and resource management. A reference section contains guidelines and forms for custodial equipment storage and care, as well as safety measures and employee management forms. Johnson, Donald R. (2000) Association of School Business Officials International, Reston, VA, 96pp.

Custodial Staffing Guidelines for Educational Facilities
http://www.appa.org/resources/publications/pubs.cfm?Category_ID=2
A guide about custodial staffing in educational facilities that addresses custodial evaluation, special considerations, staff development tools, and case studies. Appendices include information about custodial requirements, space classification, standard space category matrices, standard activity lists, and audit forms. APPA (1998) The Association of Higher Education Facilities Officers, Alexandria, VA, 266pp.

Custodial Standards
http://ehs.brevard.k12.fl.us/PDF%20files/custodial_standards_03.pdf
Guidelines that detail cleaning requirements for each area of a school, including classrooms, restrooms, cafeterias, gymnasiums, locker rooms, and corridors. Samples of assessment forms include emergency lighting, fire extinguisher inspection, air conditioner maintenance/service log sheets, and monthly custodial preventive maintenance forms. Office of Plant Operations and Maintenance (1998) Brevard Public Schools, Rockledge, FL, 44pp.

Deteriorating School Facilities and Student Learning
http://www.ed.gov/databases/ERIC_Digests/ed356564.html
A report documenting that many facilities in American public schools are in disrepaira situation with implications on the morale, health, and learning of students and teachers. Frazier, Linda M. (1993) ERIC Clearinghouse for Educational Management, Eugene, OR.

Disaster Planning and Response
http://www.edfacilities.org/rl/disaster.cfm
A list of links, books, and journal articles about building or retrofitting schools to withstand natural disasters and terrorism, developing emergency preparedness plans, and using school buildings to shelter community members during emergencies. National Clearinghouse for Educational Facilities, Washington, DC.

Educational Performance, Environmental Management, and Cleaning Effectiveness in School Environments
http://www.carpet-rug.com/pdf_word_docs/0104_school_environments.pdf
A report demonstrating how effective cleaning programs enhance school and student self-image, and may promote higher academic attendance and performance. Berry, Michael A. (2001) Carpet and Rug Institute, Dalton, GA.

Energy Design Guidelines for High Performance Schools
http://www.eren.doe.gov/energysmartschools/order.html
A manual written by the U.S. Department of Energy to help architects and engineers design or retrofit schools in an environmentally friendly manner. U.S. Department of Energy, Washington, DC.

Energy Savings
http://www.edfacilities.org/rl/energy.cfm
A list of links, books, and journal articles providing extensive resources on various methods of heating, cooling, and maintaining new and retrofitted K-12 school buildings and grounds. National Clearinghouse for Educational Facilities, Washington, DC.

Energy Smart Schools
http://www.eren.doe.gov/energysmartschools/
An initiative by the U.S. Department of Energy to provide detailed information about how to increase school building energy efficiency and improve the learning environment. Includes a discussion of school facility commissioning.

Facilities Audit: A Process for Improving Facilities Conditions
A handbook presenting a step-by-step approach to all phases of facility inspection. It is designed to help a facility manager assess the functional performance of school buildings and infrastructure and provides information about how to quantify maintenance deficiencies, summarize inspection results, and present audit findings for capital renewal funding. Kaiser, Harvey (1993) APPA, The Association of Higher Education Facilities Officers, Washington, DC, 102pp.

Facilities Assessment
http://www.edfacilities.org/rl/facility_assessment.cfm
A list of links, books, and journal articles about methods for assessing school buildings and building elements for planning and management purposes. National Clearinghouse for Educational Facilities, Washington, DC.

Facilities Evaluation Handbook: Safety, Fire Protection, and Environmental Compliance, 2nd Edition
A guide to help plant and facilities managers conduct inspections and evaluations of their facilities in order to identify and address problems in the areas of maintenance, safety, energy efficiency, and environmental compliance. Petrocelly, K. L. and Thumann, Albert (1999) Fairmont Press, Lilburn, GA, 200pp.

Facilities Information Management: A Guide for State and Local School Districts
http://nces.ed.gov/forum/publications.asp
A publication that defines a set of data elements that are critical to answering basic policy questions related to elementary and secondary school facility management. Facilities Maintenance Task Force, National Forum on Education Statistics (2003) National Center for Education Statistics, Washington, DC.

Facilities Management: A Manual for Plant Administration
http://www.appa.org/resources/publications/pubs.cfm?Category_ID=1
A four-book publication about managing the physical plant of campuses. Its 67 chapters cover general administration and management, maintenance and operation of buildings and grounds, energy and utility systems, and facilities planning, design and construction. Middleton, William, Ed. (1997) APPA: Assn. of Higher Education Facilities Officers, Alexandria, VA.

Facilities Management Software
http://www.edfacilities.org/rl/software.cfm
A resource list of links, books, and journal articles describing and evaluating computer-aided facilities maintenance management systems for handling priorities, backlogs, and improvements to school buildings. National Clearinghouse for Educational Facilities, Washington, DC.

FacilitiesNet
http://www.facilitiesnet.com/
A commercial web site for facilities professionals sponsored by Trade Press Publishing Corporation and developed by the editors of Building Operating Management and Maintenance Solutions magazines. It includes a chat room on educational facilities.

Facility Management
http://www.facilitymanagement.com/
The online home of American School and Hospital Maintenance Magazine. This site is intended to help facility managers stay informed about current issues and the latest products.

Floor Care
http://www.edfacilities.org/rl/floor_care.cfm
A list of links, books, and journal articles about the maintenance of a variety of floor coverings in K-12 school classrooms, gymnasiums, science labs, hallways, and stairs. National Clearinghouse for Educational Facilities, Washington, DC.

FMEP: Facilities Management Evaluation Program
http://www.appa.org/FMEP/
A program to provide the chief facilities officer at APPA member institutions with the opportunity to receive an evaluation by a team of APPA members from organizations with similar educational, financial, and physical characteristics. This document is designed to help an institution assess the value of this program and the commitment required to conduct such an evaluation.

Good School Maintenance: A Manual of Programs and Procedures for Buildings, Grounds and Equipment
http://www.iasb.com/shop/details.cfm?Item_Num=GSM
A manual that describes the fundamentals of good school maintenance, including managing the program and staying informed about environmental issues. Procedures for maintaining school grounds are detailed, as are steps for maintaining mechanical equipment, including heating and air-conditioning systems, sanitary systems and fixtures, sewage treatment plants, and electrical systems. Harroun, Jack (1996) Illinois Association of School Boards, Springfield, IL, 272pp.

Green Schools
http://www.ase.org/greenschools/
A comprehensive program designed for K-12 schools to create energy awareness, enhance experiential learning, and save schools money on energy costs.

Grounds Maintenance
http://www.edfacilities.org/rl/grounds_maintenance.cfm
A resource list of links, books, and journal articles about managing and maintaining K-12 school and college campus grounds and athletic fields. National Clearinghouse for Educational Facilities, Washington, DC.

Guide for School Facility Appraisal
A guide that provides a comprehensive method for measuring the quality and educational effectiveness of school facilities. It can be used to perform a post-occupancy review, formulate a formal record, highlight specific appraisal needs, examine the need for new facilities or renovations, or serve as an instructional tool. Hawkins, Harold L. and Lilley, H. Edward (1998) Council for Educational Facility Planners International, Scottsdale, AZ, 52pp.

Guide to School Renovation and Construction: What You Need to Know to Protect Child and Adult Environmental Health
A guide that presents cautionary tips for protecting children's health during school renovation and construction projects. It includes a checklist of uniform New York state safety standards during school renovations and construction, and several examples of the potential negative consequences of disregarding the risks of renovation and construction on occupant health. (2000) Healthy Schools Network, Inc., Albany, NY, 6pp.

Hazardous Materials
http://www.edfacilities.org/rl/hazardous_materials.cfm
A list of links, books, and journal articles about the identification, treatment, storage, and removal of hazardous materials found in school buildings and grounds. National Clearinghouse for Educational Facilities, Washington, DC.

Healthier Cleaning & Maintenance: Practices and Products for Schools
A paper that provides guidance to schools with regard to selecting, purchasing, and using environmentally preferable cleaning products. Healthy Schools Network, Inc. (1999) New York State Association for Superintendents of School Buildings and Grounds, Albany, NY, 8pp.

Healthy School Handbook: Conquering the Sick Building Syndrome and Other Environmental Hazards In and Around Your School
A compilation of 22 articles concerning "sick building syndrome" in educational facilities, with attention given to determining whether a school is sick, assessing causes, initiating treatment, and developing interventions. Miller, Norma L., Ed. (1995) National Education Association, Alexandria, VA, 446pp.

Healthy Schools Network, Inc.
http://www.healthyschools.org/
A not-for-profit education and research organization dedicated to securing policies and actions that will create schools that are environmentally responsible for children, staff, and communities.

High Performance School Buildings
http://www.edfacilities.org/rl/high_performance.cfm
A resource list of links and journal articles describing "green design," a sustainable approach to school building design, engineering, materials selection, energy efficiency, lighting, and waste management strategies. National Clearinghouse for Educational Facilities, Washington, DC.

HVAC Systems
http://www.edfacilities.org/rl/hvac.cfm
A resource list of links, books, and journal articles about HVAC systems in school buildings, including geothermal heating systems. National Clearinghouse for Educational Facilities, Washington, DC.

IAQ Overview in Schools and Preliminary Design Guide
http://www.healthybuildings.com/s2/Schools%20-%20IAQ%20Design%20Guide%2001.01.pdf
An educational tool and reference manual for school building design, engineering, and maintenance staff. Healthy Buildings International, Inc. (1999) Healthy Buildings International, Inc., Fairfax, VA.

Impact of Facilities on Learning
http://www.edfacilities.org/rl/impact_learning.cfm
A list of links, books, and journal articles examining the association between student achievement and the physical environment of school buildings and grounds. The National Clearinghouse for Educational Facilities, Washington, DC.

Indoor Air Quality (IAQ)
http://www.edfacilities.org/rl/iaq.cfm
A list of links, books, and journal articles about indoor air quality issues in K-12 school buildings, including building materials, maintenance practices, renovation procedures, and ventilation systems. National Clearinghouse for Educational Facilities, Washington, DC.

Indoor Air Quality and Student Performance
http://www.epa.gov/iaq/schools/performance.html
A report examining how indoor air quality (IAQ) affects a child's ability to learn, including case studies of schools that successfully addressed their indoor air problems, lessons learned, and long-term practices and policies that have emerged. Indoor Environments Division, U.S. Environmental Protection Agency (2000) U.S. Environmental Protection Agency, Washington, DC.

Indoor Air Quality (IAQ) Tools for Schools

http://www.epa.gov/iaq/schools/

A U.S. Environmental Protection Agency kit showing schools how to carry out a practical plan for improving indoor air problems at little or no cost by using straightforward activities and in-house staff. The kit includes checklists for school employees, an IAQ problem-solving wheel, a fact sheet on indoor air pollution issues, and sample policies and memos.

Integrated Pest Management

http://www.edfacilities.org/rl/pests.cfm

A list of links, books, and journal articles about integrated pest management guidelines, the use of pesticides, staff training, and program implementation and management in school buildings and grounds. National Clearinghouse for Educational Facilities, Washington, DC.

International Facility Management Association (IFMA)

http://www.ifma.org/

The web site of a group that is dedicated to promoting excellence in the management of facilities. IFMA identifies trends, conducts research, provides educational programs, and assists corporate and organizational facility managers in developing strategies to manage human, facility, and real estate resources.

Janitorial Products: Pollution Prevention Project

http://www.westp2net.org/Janitorial/jp4.htm

A site sponsored by the U.S. Environmental Protection Agency that includes fact sheets, product sample kits, purchasing specifications, and other materials to advise users on the health, safety, and environmental consequences of janitorial products.

Keep Schools Safe

http://www.keepschoolssafe.org

A site resulting from a partnership between the National Association of Attorneys General and the National School Boards Association to address the subject of school violence. A bibliography on school violence resources is provided, as is information specific to school security, environmental design, crisis management, and law enforcement partnerships.

Lead-Safe Schools

http://socrates.berkeley.edu/~lohp/Projects/Lead-Safe_Schools/lead-safe_schools.html

A site established by the Labor Occupational Health Program at the University of California at Berkeley to house publications about lead-safe schools, provide training to school maintenance staff, and offer a telephone hotline to school districts and staff.

LEED™ Rating System

http://www.usgbc.org/

A self-assessing system designed for rating new and existing commercial, institutional, and high-rise residential buildings. It evaluates environmental performance over a building's life cycle and provides a definitive standard for what constitutes a "green" building. LEED is based on accepted energy and environmental principles and strikes a balance between known effective practices and emerging concepts.

Maintenance & Operations Costs

http://www.edfacilities.org/rl/mo_costs.cfm

A list of links, books, and journal articles citing national and regional maintenance and operations cost statistics and cost-reduction measures for the upkeep of school buildings and grounds. National Clearinghouse for Educational Facilities, Washington, DC.

Maintenance & Operations Solutions: Meeting the Challenge of Improving School Facilities

http://www.asbointl.org/Publications/

An examination of the impact current maintenance and operations (M&O) practices have on U.S. school performance and possible avenues for improvement through the judicious use of technology and improved methodology. Facilities Project Team, Association of School Business Officials International (2000) Association of School Business Officials International, Reston, VA.

Maintenance Planning, Scheduling and Coordination

A book focusing on the preparatory tasks that lead to effective utilization and application of maintenance resources: planning, parts acquisition, work measurement, coordination and scheduling. Nyman, Don and Levitt, Joel (2001) Industrial Press, New York, NY, 320pp.

Mercury
http://www.epa.gov/mercury/index.html
A web site of the U.S. EPA intended to provide information about reducing the amount of mercury in the environment. It includes both general and technical information about mercury and mercury-reduction strategies.

Mercury in Schools and Communities
http://www.newmoa.org/newmoa/htdocs/prevention/mercury/schools/
Information from the Northeast Waste Management Officials' Association (NEWMOA), which was funded by the Massachusetts Department of Environmental Protection and the Massachusetts Executive Office of Environmental Affairs, to assist in identifying and removing elemental mercury and products containing mercury from schools and homes.

National Best Practices Manual for Building High Performance Schools
http://www.eren.doe.gov/energysmartschools/order.html
A manual by the U.S. Department of Energy to help architects and engineers design or retrofit schools in an environmentally friendly manner. U.S. Department of Energy, Washington, DC.

National Clearinghouse for Educational Facilities (NCEF)
http://www.edfacilities.org
A web site that includes reviews of and links to cutting-edge education facilities news; a calendar of conferences, workshops, and other facilities management-related events; a gallery of photos showing off innovative and provocative building design and construction from real schools across the nation; categorized and abstracted resource lists with links to full length, online, publications; and pointers to other organizations that provide online and off-line resources about education facilities management. NCEF can also be reached toll free at 888-552-0624.

National Program for Playground Safety
http://www.uni.edu/playground/about.html
A site that describes playground safety issues, safety tips and FAQs, statistics and additional resources, and action plans for improving playground safety.

National School Plant Management Association (NSPMA)
http://www.nspma.com/
A membership organization that facilitates the exchange of information about school plant management, maintenance and care.

National School Safety Center
http://www.nssc1.org/
An internationally recognized resource for school safety information, training, and violence prevention. The web site contains valuable summaries of school safety research, including contact information for locating the studies.

Occupational Safety and Health Administration (OSHA)
http://www.osha.gov/
The web site of OSHA, which has as its core mission to save lives, prevent injuries, and protect the health of America's workers. To accomplish this, federal and state governments works in partnership with the more than 100 million working men and women and their 6.5 million employers who are covered by the Occupational Safety and Health Act of 1970.

Operation and Maintenance Assessments: A Best Practice for Energy-Efficient Building Operations
http://www.peci.org/om/assess.pdf
A publication that describes what an operations and maintenance assessment is, who should perform it, the benefits of an assessment, what it costs, and the process of performing an assessment. Includes a glossary of terms, sample site-assessment forms, a request for proposal checklist, sample procedures and plan, and a sample master log of findings. (1999) Portland Energy Conservation, Inc. Portland, OR, 54pp.

Operational Guidelines for Grounds Management
http://www.appa.org/resources/publications/pubs.cfm?Category_ID=2
A comprehensive guide to maintaining and managing grounds and landscaping operations. Chapters discuss environmental stewardship, broadcast and zone maintenance, grounds staffing guidelines, contracted services, position descriptions, benchmarking, and environmental issues and laws. Feliciani, et al. (2001) APPA: Assn. of Higher Education Facilities Officers, Alexandria, VA, 159pp.

Plant Operations Support Program
http://www.ga.wa.gov/plant
A self-sustaining consortium comprised of facility managers from Washington state agencies, educational facilities, municipalities, and port districts. This web site includes a library of practices, policies, research studies, and other references on subjects including emergency preparedness, energy savings, maintenance management, IAQ, and accessibility.

Playgrounds
http://www.edfacilities.org/rl/playgrounds.cfm
A list of links, books, and journal articles about playground design for varying age levels, including resources on safety, accessibility, equipment, surfaces, and maintenance. National Clearinghouse for Educational Facilities, Washington, DC.

Poisoned Schools: Invisible Threats, Visible Actions
http://www.childproofing.org/poisonedschoolsmain.html
A report that includes more than two dozen case studies of schools built on or near contaminated sites or where children have otherwise been exposed to pesticide use in and around school buildings. Gibbs, Lois (2001) Center for Health, Environment and Justice, Child Proofing Our Communities Campaign, Falls Church, VA, 80pp.

Portland Energy Conservation, Inc. (PECI)
http://www.peci.org/
Provides information about commissioning conferences, case studies, procedural guidelines, specifications, functional tests, and the model commission plan and guide specifications.

Practical Guide for Commissioning Existing Buildings
http://www.ornl.gov/~webworks/cppr/y2001/rpt/101847.pdf
A document that describes commissioning terminology, the costs and benefits of commissioning, retro-commissioning, steps to effective commissioning, and the roles of team members in the commissioning process. Haasl, T. and Sharp, T. (1999) U.S. Department of Energy, Washington, DC.

Principal's Guide to On-Site School Construction
http://www.edfacilities.org/pubs/construction.html
A publication that explores what school principals should know when construction takes place in or near a school while it is in session. It covers pre-construction preparation, including how to work with architects/engineers and other school staff; actions to take during construction, including proper information dissemination and student and property protection; and post-construction activities, including custodial and maintenance staff training and post-occupancy evaluations. Brenner, William A. (2000) National Clearinghouse for Educational Facilities, Washington, DC, 5pp.

PECI Model Commissioning Plan and Guide Specifications
http://www.peci.org/cx/mcpgs.html
A resource that details the commissioning process for new equipment during both the design and construction phases. It goes beyond commissioning guidelines by providing boilerplate language, content, format, and forms for specifying and executing commissioning.

Preventive Maintenance
http://www.edfacilities.org/rl/maintenance.cfm
A resource list of links, books, and journal articles about how to maximize the useful life of school buildings through preventive maintenance, including periodic inspection and seasonal care. National Clearinghouse for Educational Facilities, Washington, DC.

Preventive Maintenance Guidelines for School Facilities K-12
http://www.rsmeans.com/index.asp
A five-part manual that is intended to increase the integrity and support the longevity of school facilities by providing easy-to-use preventive maintenance system guidelines. It includes a book, wall chart, and electronic forms designed to help maintenance professionals identify, assess, and address equipment and material deficiencies before they become costly malfunctions. Maciha, John C, et al. (2001) R.S. Means Company, Inc., Kingston, MA, 232pp.

Project Management
http://www.edfacilities.org/rl/project_management.cfm
A list of links, books, and journal articles about the management of school construction projects by school administrators, business officials, board members, and principles. National Clearinghouse for Educational Facilities, Washington, DC.

Radon Prevention in the Design and Construction of Schools and Other Large Buildings
http://www.epa.gov/ordntrnt/ORD/NRMRL/Pubs/1992/625R92016.pdf
A report outlining ways in which to ameliorate the presence of radon in schools buildings. The document presents the underlying principles (suitable for a general audience) and also provides more technical details for use by architects, engineers, and builders. U.S. Environmental Protection Agency (1994), Washington, DC, 51pp.

Roof Maintenance and Repair
http://www.edfacilities.org/rl/roof_maintenance.cfm
A list of links, books, and journal articles about maximizing the life-cycle performance of school roofs. Roof inspection strategies, scheduling, documentation, and repair resources are also addressed. National Clearinghouse for Educational Facilities, Washington, DC.

The Rural and Community Trust
http://www.ruraledu.org/facilities.html
The web site of the Rural and Community Trust, which works with many small towns and counties in which the school remains the center of the community. The Rural and Community Trust provides a network for people who are working to improve school-community facilities, increase community participation in the facilities design process, and expand the stakeholders these public resources can serve.

Safe and Drug-Free Schools Program
http://www.ed.gov/offices/OESE/SDFS
A program dedicated to reducing drug use, crime, and violence in U.S. schools. The web site contains many full-text publications on school safety and violence prevention.

Safeguarding Your Technology
http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=98297
Guidelines to help educational administrators and staff understand how to effectively secure an organization's sensitive information, critical systems, computer equipment, and network access. Technology Security Task Force, National Forum on Education Statistics (1998) National Center for Education Statistics, Washington, DC.

Safety and Security Design
http://www.edfacilities.org/rl/safety_security.cfm
A list of links, books, and journal articles about designing safer schools, conducting safety assessments, implementing security technologies, and preventing crime through environmental design. National Clearinghouse for Educational Facilities, Washington, DC.

Safety in Numbers: Collecting and Using Crime, Violence, and Discipline Incident Data to Make a Difference in Schools
http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2002312
Guidelines for use by school, district, and state staff to improve the effectiveness of disciplinary-incident data collection and use in schools. It provides recommendations on what types of data to collect and how the data can be used to improve school safety. Crime, Violence and Discipline Task Force, National Forum on Education Statistics (1998) National Center for Education Statistics, Washington, DC.

School Design Primer: A How-To Manual for the 21st Century
http://www.edfacilities.org/pubs/li/little.html
A resource that describes the school planning and design process for decision-makers (e.g., superintendents, planning committee members, architects, and educators) who are new to school construction and renovation projects.

SchoolDude
http://www.schooldude.com/
A site that connects school facility professionals with each other to solve problems, share best practices, and improve learning environments. This includes tools for work management, information, and resources, as well as online procurement for equipment and school supplies. Some sections are accessible only to fee-paying members.

SchoolFacilities.com
http://www.schoolfacilities.com
A professional support network for school facility administrators and support personnel that provides school-related news, products, resources, and facility management tools.

SchoolHouse Plant Operation & Maintenance Resource Center: School House Library
http://faststart.com/cps/Library.html
An online library containing reports dealing with various aspects of plant operation and maintenance that relate to the operation of school buildings.

Schools as Centers of Community: A Citizen's Guide for Planning and Design
http://www.cefpi.org/pdf/schools.pdf
This guide provides parents and other citizens with ten examples of innovative school designs, and outlines a step-by-step process about how parents, citizens and community groups can get involved in designing new schools. Bingler, Stephen and Quinn, Linda (2000) U.S. Department of Education.

Software for Facilities Management
http://www.edfacilities.org/rl/software.cfm
A resource list of links, books, and journal articles about computer-aided facilities maintenance management systems for handling priorities, backlogs, and improvements to school buildings. National Clearinghouse for Educational Facilities, Washington, DC.

Storm Water Runoff
http://www.epa.gov/fedsite/cd/stormwater.html
A list of Storm Water Management Regulatory Requirements provided by the U.S. EPA.

THOMAS Legislative Information on the Internet
http://thomas.loc.gov
A site maintained by the U.S. Congress to provide status reports on proposed legislation.

Underground Fuel Storage Tanks
http://www.cefpi.org/issue4.html
A briefing paper about the responsibilities associated with owning and securing an underground fuel storage tank. McGovern, Matthew (1996) Council of Educational Facility Planners, International, Scottsdale, AZ, 5 pp.

U.S. Environmental Protection Agency (EPA)
http://www.epa.gov/
The main web site of the EPA, whose mission is to protect human health and safeguard the natural environment – air, water, and land – upon which life depends. The EPA works with other federal agencies, state and local governments, and Indian tribes to develop and enforce regulations under existing environmental laws. The web site includes an alphabetical index of topical issues available at http://www.epa.gov/ebtpages/alphabet.html. EPA Regional Office and Linked State Environmental Departments can be found at http://www.epa.gov/epapages/statelocal/envrolst.htm.

U.S. Equal Employment Opportunity Commission (EEOC)
http://www.eeoc.gov
The web site of the EEOC, which is charged with enforcing numerous employment-related federal statutes.

U.S. Green Building Council
http://www.usgbc.org
A web site intended to facilitate interaction among leaders in every sector of business, industry, government, and academia with respect to emerging trends, policies, and products affecting “green building” practices in the United States.

U.S. Immigration and Naturalization Service (INS)
http://www.ins.gov/
The web site of the INS, which is responsible for enforcing the laws regulating the admission of foreign-born persons (i.e., aliens) to the United States and for administering various immigration benefits, including the naturalization of qualified applicants for U.S. citizenship.

A Visioning Process for Designing Responsive Schools
http://www.edfacilities.org/pubs/sanoffvision.pdf
A guide for helping stakeholders establish the groundwork for designing and building responsive, effective community school facilities, including an explanation of the benefits of community participation and how to go about the process of strategic planning, goal setting, articulating a vision, design generation, and strategy selection. Sanoff, Henry (2001) National Clearinghouse for Educational Facilities, Washington, DC, 18pp.

APPENDIX C
STATE SCHOOL FACILITIES WEB SITES

The following list is provided as a resource, but is not intended to be an exhaustive list of all facilities web sites available from states and state departments of education.

Every effort has been made to verify the accuracy of all URLs listed in this Guide at the time of publication. If a URL is no longer working, try using the root directory to search for a page that may have moved. For example, if the link to *http://www.epa.gov/iaq/schools/performance.html* is not working, try *http://www.epa.gov/* and search for "IAQ."

Alabama State Department of Education: School Architect & School Facilities
www.alsde.edu/text/sections/section_detail.asp?section=86&menu=sections&footer=sections

Alaska Department of Education & Early Development: Facilities
http://www.eed.state.ak.us/facilities/home.html

Arizona School Facilities Board
http://www.sfb.state.az.us/

Arkansas Department of Education: Public School Finance & Administration
http://arkedu.state.ar.us/directory/publicschool_finance.html

California Department of General Services: Office of Public School Construction
http://www.opsc.dgs.ca.gov/

Connecticut State Department of Education, Division of Grants Management: School Construction
http://www.state.ct.us/sde/dgm/sfu/index.htm

Delaware Department of Education: Facility Assessment System
http://sitenet.doe.state.de.us/sitenet/welcome.htm

Florida Department of Education: Office of Educational Facilities
http://www.firn.edu/doe/bin00012/home0012.htm

Georgia Department of Education: Facilities Services
http://www.doe.k12.ga.us/facilities/facilities.asp

Hawaii Department of Education: Facilities and Support Services
http://fssb.k12.hi.us

Illinois School Construction Grant Program
http://www.cdb.state.il.us/schools/school1.htm

Illinois State Board of Education: School Business and Support Services Division
http://www.isbe.state.il.us/construction/default.htm

Indiana State Board of Education: School Facility Guidelines
http://www.board-of-education.state.in.us/constguide.html

Iowa Department of Education: School Infrastructure
http://www.state.ia.us/educate/ecese/asis/si/sr/index.html

Kentucky Department of Education: Division of Facilities Management
http://www.kde.state.ky.us/odss/facility/default.asp

Maine Department of Education: School Facilities Services and Transportation
http://www.state.me.us/education/const/homepage.htm

Maryland Public School Construction Program
http://www.pscp.state.md.us/

Massachusetts Department of Education: School Building Assistance
http://finance1.doe.mass.edu/sbuilding/1_sbuilding.html

Minnesota Department of Children, Families and Learning: Facilities / Organization
http://cfl.state.mn.us/FACILIT/facilit.htm

Mississippi Department of Education: Office of School Building
http://www.mde.k12.ms.us/lead/osos/webpage.htm

Missouri Department of Elementary and Secondary Education: School Governance and Facilities
http://www.dese.state.mo.us/divadm/govern/

New Hampshire Department of Education: Office of School Building Aid
http://www.ed.state.nh.us/buildingAid/building.htm

New Jersey Department of Education: School Facilities
http://www.state.nj.us/njded/facilities/index.html

New Mexico Public School Capital Outlay
http://www.nmschoolbuildings.org/index.html

New York State Education Department: Office of Facilities Planning
http://www.emsc.nysed.gov/facplan/

North Carolina Department of Public Instruction: School Planning
http://www.schoolclearinghouse.org/

North Dakota Department of Public Instruction: School Finance and Organization
http://www.dpi.state.nd.us/finance/index.shtm

Ohio School Facilities Commission
http://www.osfc.state.oh.us

Pennsylvania Department of Education: School Construction and Facilities
http://www.pde.state.pa.us/constr_facil/site/default.asp

Rhode Island Department of Education: Federal and State Funding, School Construction Aid
http://www.ridoe.net/funding/construction/schoolconstruction.htm

South Carolina Department of Education: Office of School Facilities
http://www.myscschools.com/offices/sf

Texas Education Agency: Facility Funding and Standards
http://www.tea.state.tx.us/school.finance/facilities/index.html

Vermont Department of Education: Programs and Services/ School Construction
http://www.state.vt.us/educ/new/html/pgm_construction.html

Virginia Department of Education: Facility Services
http://www.pen.k12.va.us/VDOE/Finance/Facilities/

Washington State Board of Education: School Construction Assistance Program
http://www.k12.wa.us/facilities/

West Virginia School Building Authority
http://www.state.wv.us/wvsba/default.htm

Wisconsin Department of Public Instruction: School Management Services
http://www.dpi.state.wi.us/dpi/dfm/sms/index.html

Following is a list of state-specific web sites that are not directly affiliated with state departments of education.

Florida School Plant Management Association
http://www.fspma.com

Iowa School Buildings and Grounds Association
http://www.isbga.org/

Kentucky School Plant Management Association
http://www.kspma.org/

Minnesota Association of School Maintenance Supervisors
http://www.masms.org/

Missouri School Plant Managers Association
http://www.mspma.com/

New Jersey School Buildings and Grounds Association
http://www.njsbga.org/

New York State Association for Superintendents of School Buildings and Grounds
http://sbga.org/

Oklahoma School Plant Management Association
http://www.ospma.org/

Tennessee School Plant Management Association
http://www.tspma.com/

Washington Association of Maintenance and Operations Administrators
http://www.wamoa.org/

APPENDIX D
AUDIT FORM TEMPLATE

The following is a sample facility audit form that an education organization can refer to as it develops its own auditing materials. This checklist was provided by Edward H. Brzezowski, P.E., Facility Energy Services, Inc., Chester, NJ 07930 *(http://www.fes-nj.com)*. Not all items will be applicable to all school facilities. Moreover, this audit form does not represent a standard or agreed-upon convention.

SCHOOL BUILDING FACILITY MANAGEMENT CHECKLIST

EXTERIOR ENVELOPE

Exterior Walls
- ❑ Curtainwall
- ❑ Finishes–Ceilings
- ❑ Masonry

Roof
- ❑ Roofing
- ❑ Skylights

Doors
- ❑ Doors/ Hardware-Exterior

Windows
- ❑ Windows

Misc.
- ❑ Other Exterior

Notes:

INTERIOR ENVELOPE

Classrooms
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Casework
- ❑ Chalkboards & Markerbds
- ❑ Bulletin Boards

Offices
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Music Room
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Casework
- ❑ Chalkboards & Markerbrds
- ❑ Bulletin Boards

Auditorium
- ❑ Auditorium Seating
- ❑ Stage Curtain
- ❑ Handicapped Access
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Media Center
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Art Room
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Casework
- ❑ Chalkboards & Markerbds
- ❑ Bulletin Boards

Science Room
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Casework
- ❑ Chalkboards & Markerbds
- ❑ Bulletin Boards

Life Skill/Home Ec
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Casework
- ❑ Chalkboards & Markerbds
- ❑ Bulletin Boards

Teachers Room
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Technology Ed
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Casework
- ❑ Chalkboards & Markerbds
- ❑ Bulletin Boards

Small Group
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Casework
- ❑ Chalkboards & Markerbds
- ❑ Bulletin Boards

Gymnasium
- ❑ Bleachers
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Gym Partitions

Cafeteria/MP Room
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Kitchen
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors

Nurse
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Toilet Room Finishes
- ❑ Toilet Partitions
- ❑ Handicapped Access
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Mechanical Room
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Janitor Closet
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Casework

Storage
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Stairs
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls
- ❑ Railings
- ❑ Guard Rails
- ❑ Stair Treads
- ❑ Stairs
- ❑ Chalkboards & Markerbds

Corridors
- ❑ Finishes–Ceilings
- ❑ Finishes– Floors
- ❑ Finishes–Walls
- ❑ Lockers
- ❑ Finishes–Walls

Handicapped Access
- ❑ Handicapped Access
- ❑ Ramps–Interior
- ❑ Railings

Doors
- ❑ Doors/ Hardware-Exterior
- ❑ Doors/ Hardware-Interior

Elevators/Lifts
- ❑ Elevator

Structural Issues
- ❑ Structural

Misc.
- ❑ Other–Interior
- ❑ Sump Pump
- ❑ Swimming Pool

Other
- ❑ Finishes–Ceilings
- ❑ Finishes–Floors
- ❑ Finishes–Walls

Notes:

DISCIPLINE: ELECTRICAL SYSTEMS

Power & Distribution System
- ❑ Electrical–Service
- ❑ Electrical–Distribution
- ❑ Electrical–Wiring
- ❑ Electrical–Receptacles
- ❑ Electrical–Transformer

Communication Systems
- ❑ Cable TV System
- ❑ Clocks & Program
- ❑ Local Area Network
- ❑ Public Address System
- ❑ Security System

Lighting Systems
- ❑ Lighting–Exterior
- ❑ Lighting–Interior
- ❑ Lighting–Theatrical

Emergency and Exit Systems
- ❑ Egress Lighting
- ❑ Emergency Generator
- ❑ Exit Signs

Fire Alarm Systems
- ❑ Fire Alarm–Entire System
- ❑ Fire Alarm–Main Panel
- ❑ Fire Alarm–Remote

Annunciator
- ❑ Fire Alarm–Detection System
- ❑ Fire Alarm–Audible Alarms

Notes:

DISCIPLINE: NEW CONSTRUCTION

- ❑ Addition
- ❑ Alteration
- ❑ Building Demolition

Notes:

DISCIPLINE: PLUMBING SYSTEMS

Piping
- ❑ Piping–Domestic Water
- ❑ Piping–Sanitary
- ❑ Piping–Storm

Pipe Insulation
- ❑ Pipe Insulation

Fixtures
- ❑ Sinks
- ❑ Toilets
- ❑ Urinals
- ❑ Water Fountains

Hot Water System
- ❑ Hot Water System

Drains
- ❑ Floor Drains
- ❑ Roof Drains

Pumps
- ❑ Pumps–Plumbing

Misc. Plumbing
- ❑ Backflow Preventors
- ❑ Grease Traps
- ❑ Sewage Ejectors

Fire Suppression
- ❑ Fire Suppression–Kitchen Hood
- ❑ Fire Suppression–Limited Area Sprinkler
- ❑ Fire Suppression–Sprinklers-Add System
- ❑ Fire Suppression–Fire Pump
- ❑ Fire Suppression–Standpipes

Notes:

DISCIPLINE: MECHANICAL SYSTEMS

Heating Plant
- ❑ Boiler
- ❑ Boiler Burners

Cooling Plant
- ❑ Air Conditioning System-Add
- ❑ Chiller
- ❑ Cooling Tower

Piping
- ❑ Piping-HVAC-Hot Water
- ❑ Piping-HVAC-Steam
- ❑ Piping-HVAC-Chilled Water
- ❑ Piping-HVAC-Condensate

Terminal Units
- ❑ Radiators
- ❑ Unit Ventilators
- ❑ Exhaust Fan
- ❑ Terminal HVAC Units

Pumps
- ❑ Pumps-HVAC

ATC System
- ❑ Automatic Temperature Controls
- ❑ Automatic Temperature Controls Air Compressors

Return
- ❑ Steam Traps

Exhaust System
- ❑ Exhaust Systems

Ventilation System
- ❑ Ventilation Systems

Miscellaneous
- ❑ Dust Collection System

Notes:

DISCIPLINE: SITE

Exterior Paving/Walks/Stairs
- ❑ Paving/Walks
- ❑ Stairs-Exterior

Handicapped Access
- ❑ Ramps-Exterior

Landscaping
- ❑ Landscaping
- ❑ Fencing

Site Drainage
- ❑ Drywell

Play Areas
- ❑ Play Fields
- ❑ Play Equipment

Notes:

DISCIPLINE: LIFE SAFETY

- ❑ Life Safety

Notes:

DISCIPLINE: CHANGE OF USE

- ❑ Maximum Renovation
- ❑ Minimum Renovation
- ❑ Moderate Renovation

Notes:

APPENDIX E
RECORD LAYOUT FOR A COMPUTERIZED WORK ORDER SYSTEM

Following is a listing of the basic data elements for the work order system described in Chapter 5.

Work Order Master File Record:

Data Element	Data Properties
Job Number	Numeric, Unique, Auto-generated
Entry Date	CCYYMMDD Format
Location	Building Location Code List
Room Number	Alphanumeric
Status Code	O (Open), A (Assigned), C (Completed), R (Reopened), D (Deferred)
Entry User	Auto-generated user ID of person making request
Contact Name	Alpha
Contact Phone	Numeric
Contact Email	Email
Work Requested	Alphanumeric 60 characters
Urgent (Y/N)	Y (Yes) or N (No), defined by requestor
Requested Date of Completion	CCYYMMDD Format
Received Date	CCYYMMDD Auto-generated
Assigned To (Workperson)	Alpha, Worker's name or ID
Scheduled Date	CCYYMMDD Format
Work Order Priority	Priority level code list (e.g., urgent, routine, preventive)

Optional Time Record:

Job Number	Indexed to the main file
Sequence	Numeric, 4 digits within request queue
Workperson	Alpha, Worker's name or ID
Begin date	CCYYMMDD
End Date	CCYYMMDD
Hours Worked	Numeric

Optional Materials Record:

Job Number	Indexed to the main file
Sequence	Numeric, 4 digits within request queue
Item Description	Code or Alpha Description (60 characters)
Quantity	Numeric
Unit Cost	Numeric
Extended Cost	Quantity * Unit Cost

APPENDIX F
MODEL JOB DESCRIPTION FOR A CUSTODIAL WORKER

The following is a model job description for a custodial worker that an education organization can refer to as it develops its own job descriptions. Some of the duties and responsibilities listed may not be applicable to all education organizations. This list is presented only as a resource, and does not represent a standard or agreed-upon convention.

GENERAL RESPONSIBILITY

The Custodian is responsible for keeping assigned building(s) clean, safe, functional, and secure in accordance with prescribed codes and established district policies and standards. A custodial worker must maintain all assigned building(s) in a state of operational excellence such that they present no interruptions, distractions, or obstacles to the education program.

Essential Duties and Responsibilities

- ✓ Perform regular custodial duties in assigned area(s) of building(s).
- ✓ Accept instructions from head custodian/supervisor verbally or in writing.
- ✓ Provide services as necessary to support curricular and extracurricular events and activities.
- ✓ Maintain inventory of custodial/maintenance supplies and equipment.
- ✓ Restock disposable custodial/maintenance items and provide head custodian/supervisor with inventory usage data.
- ✓ Clean and preserve designated spaces, equipment, furniture, etc. in the building(s).
- ✓ Assist visiting members of the public who are utilizing the facilities.
- ✓ Maintain work related records and prepare work reports as directed.
- ✓ Project a positive image for the schools district with his/her team, whenever the public, guests, or visitors are in the building.
- ✓ Work closely with the head custodian/supervisor and/or building administrator(s) to be prepared for scheduled evening activities and unscheduled events as needed.
- ✓ Shovel snow and salts walks as needed.
- ✓ Maintain building and grounds security by opening/closing the building each school day and during special events as directed.
- ✓ Work on call as needed at any time for emergency repairs, equipment monitoring, overtime, or special needs falling outside of normal working hours.
- ✓ Identify and schedule work to be performed during summer, winter, and spring break.
- ✓ Accept other duties as assigned by the Director of Facilities/Administration or his/her designee.

Daily Duties

- ✓ Check daily activities schedule to see if any special equipment must be set up.
- ✓ Perform general cleanup–any and all incidents as they arise.
- ✓ Removal snow (as needed) from sidewalks. Note that snow should be removed as it is falls rather than after it falls. It should be removed to the bare cement.
- ✓ Inspect entrances and sidewalks for damage, clutter/dirt, malfunction, or other hazards.
- ✓ Vacuum all entrance mats, outside mats, and clean sidewalk up to 10 feet from entrance.
- ✓ Wet mop inside of entrances if wet or in bad condition.
- ✓ Sweep all stairways.

- ✓ Machine vacuum all carpeted corridors, walkways, and 10 feet in from doorway of each room.
- ✓ Clip all carpet sprigs as necessary.
- ✓ Remove all spots from carpet.
- ✓ Extract soiled areas on carpets as needed.
- ✓ Remove gum from floors.
- ✓ Dust mop and sweep corners of all tiled classrooms and adjacent rooms. Wet mop if needed.
- ✓ Spot vacuum all classrooms, offices, and other carpeted areas. Pick up any paper left on floor.
- ✓ Make sure rooms appear orderly.
- ✓ Empty all trash cans (rinse or wash if needed).
- ✓ Put all trash in dumpsters.
- ✓ Remove all marks from walls and lockers nightly.
- ✓ Replace defective light bulbs as needed.
- ✓ Wash all main entrance windows.
- ✓ Thoroughly clean all surfaces in restrooms.
- ✓ Clean all drinking fountains.
- ✓ Lock all doors as directed by the director of facilities/administration or his/her designee and lock all outside doors as soon as daily activities are over.
- ✓ Close and lock windows.
- ✓ Clean all equipment after use (e.g., mop buckets and custodian's service sink).
- ✓ Hang up brooms, dust mops, and wet mops. Do not stand them against wall.
- ✓ Clean and straighten janitor's closet.
- ✓ Keep shelves and supplies in neat order and stocked with supplies.
- ✓ Turn in any items or articles found to the Lost and Found Department.
- ✓ Check entire area for vandalism and report to the director of facilities/administration or his/her designee.
- ✓ Assist other employees with cleanup after large activities (e.g., after a basketball game).
- ✓ Accept other duties as assigned.

Weekly Duties

- ✓ Sweep under all entrance mats (both inside and outside).
- ✓ Dust mop and sweep out corners of all the tiled areas that are not covered under daily routines.
- ✓ Vacuum all carpets thoroughly in all classrooms and work areas according to schedule.
- ✓ Wet mop tiled areas. Wax, if needed.
- ✓ Wash all desktops, chairs, and furniture according to schedule.
- ✓ Dust everything in rooms and corridors according to schedule.
- ✓ Make sure all lockers are dusted and marks removed.
- ✓ Wash all hallway door windows.
- ✓ Clean cove molding and edges thoroughly.
- ✓ Vacuum blackboard erasers.
- ✓ Wash all blackboards, chalkboard rails, and marker boards according to schedule.

✓ Wash display case glass, if needed.

✓ Check the furniture once a week for breakage and either repair it or report it to the head custodian/supervisor.

✓ Check all playground equipment for damage or unsafe conditions and inform Plant Service of repair needs.

✓ Accept other duties as assigned.

Monthly Duties

✓ Vacuum or clean all intakes and exhaust ventilating louvers in ceiling of every room.

✓ Clean out all storage rooms.

✓ Accept other duties as assigned.

Winter and Spring Break Duties

✓ Light-scrub and re-wax all hard tile floors. Strip, if needed.

✓ Extract carpeted rooms as needed.

✓ Extract entrance mats.

✓ Lightly dust all rooms.

✓ Wash all desktops.

✓ Wash inside of all windows.

✓ Scrub floors and clean all walls and partitions in restrooms.

✓ Make sure all sinks, urinals, and stools are cleaned (in, under, and around).

✓ Accept other duties as assigned.

Summer Duties

✓ Wash all windows inside and out.

✓ Wash all desks (including teachers') inside and out.

✓ Wash all walls as needed.

✓ Remove all dirt from lights and high-dust everything.

✓ Wash all doors and frames. Pay special attention around lock assembly.

✓ Scrub all floors and re-wax, strip if needed.

✓ Thoroughly vacuum all carpeted areas and extract.

✓ Completely clean all fixtures, furniture, ceiling, walls and floors.

✓ Accept other duties as assigned.

Working Conditions

The work environment characteristics described here are representative of those that a custodian encounters while performing the essential functions of the job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee regularly works indoors and will occasionally work outdoors, including during both hot and cold weather. The employee will work near or with moving mechanical equipment. The employee may occasionally work with toxic or caustic chemicals such as petroleum products, degreasers, and sprays. The employee must be able to meet deadlines with severe time constraints. The noise level in the work environment is usually moderate. Some evening and weekend work can be expected on a regular basis (i.e., more than twice per month).

There is a high probability that contact with blood-borne materials will occur within daily duties. All duties and procedures are to be performed within health safety standards as established by local and state OSHA and school district emergency procedures.

Equipment Used

The custodian should expect to move, operate, and clean various manually powered brooms, mops, vacuums, dusting tools, and snow shovels as well as mechanically powered waxing and buffing equipment. He/she will be expected to climb and work from ladders as necessary. The custodian will also handle and apply chemical cleaning agents, some of which may be toxic if handled improperly. All custodial staff will undergo training with regard to equipment and chemical use.

General Qualifications

To be eligible for employment as a custodian, a person shall demonstrate the knowledge, skills, and experience necessary to complete the assigned work efficiently. The person must be able to operate, maintain, and make adjustments to various types of equipment, as needed. He/she must also have the ability to pass a written and physical test, as well as establish and maintain effective working relationships with students, staff, and the community. He/she is required to perform duties within the expectations of all district requirements and board of education policies. He/she must understand proper procedures, handbook rules, school schedules, (i.e., practice times, game times–both home and away) and maintain confidentiality with regard to students and staff. He/she must also be available for duties on some Saturdays, Sundays, and evenings as assigned.

Moreover, the individual must be adaptable to working around children and possess skills for maintaining school buildings in a manner acceptable to the general health and safety standards of school buildings. He/she must also develop a basic understanding of the following areas: board of education policies and administrative regulations, school public relations, the role and function of public schools in the community, safe operation of mechanical equipment, and the importance of developing constructive working relationships with supervisors, fellow workers, students, the general public, and visitors to the school.

Educational Requirements, Credentials, and Licenses

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skills, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

- ✓ High school diploma or general education degree (GED). Two years or equivalent experience in the custodial field. Prior leadership experience. Basic computer knowledge; knowledge of building layouts, systems, and controls.
- ✓ Ability to read and interpret documents such as safety rules, operating and maintenance instructions, and procedure manuals. Ability to write routine reports and correspondence. Ability to speak effectively before groups of customers or employees of the organization.
- ✓ Ability to add, subtract, multiply, and divide in all units of measure, using whole numbers, common fractions, and decimals. Ability to compute rate, ratio, and percent, and interpret bar graphs.
- ✓ Ability to apply common-sense understanding to carry out instructions furnished in written, oral, or diagram form. Ability to deal with problems involving several concrete variables in standard situations.

Physical Requirements

The physical demands described here are representative of those requirements that must be met by a custodian to successfully perform the essential functions of the job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to stand; walk; use hands and fingers to handle or feel objects, tools, or controls; and give and receive oral and written instructions. The employee frequently is required to reach with hands and arms. The employee is occasionally required to sit. The employee frequently must squat, stoop, or kneel, reach above the head, and reach forward. The employee frequently uses hand strength to grasp tools and rungs of ladders. The employee will frequently bend or twist at the neck and trunk more than the average person while performing the duties of this job.

The employee must frequently lift and/or move up to 50 pounds, including cleaning supplies, pails, and bags/boxes. Occasionally the employee will lift or move up to 80 pounds, including bags of salt and furniture. The employee will sometimes push or pull items such as tables, bleachers, scrubbing machines, etc. This job requires close vision, color vision, peripheral vision, depth perception, and the ability to adjust focus.

Physical Performance Required to Perform the Job

The custodial position requires that an individual be able to perform the following tasks at the physical levels indicated in order to carry out the essential functions of the job.

	RARELY (1-10% shift)	OCCASIONALLY (11-32% shift)	FREQUENTLY (33-66% of shift)	CONSTANTLY (67-100% of shift)
LIFTING TASKS				
FLOOR TO WAIST LIFTING	100 lbs	80 lbs	50 lbs	– lbs
WAIST TO SHOULDER LIFTING	40 lbs	25 lbs	17 lbs	– lbs
OVERHEAD LIFTING	– lbs	10 lbs	– lbs	– lbs
HORIZONTAL LIFTING	80 lbs	35 lbs	17 lbs	7 lbs
CARRYING: Front Carry	30 lbs	25 lbs	12.5 lbs	– lbs
PUSHING: Horizontal tractive force	40 lbs	30 lbs	25 lbs	12.5 lbs
PULLING: Horizontal tractive force	30 lbs	25 lbs	12.5 lbs	10 lbs
POWER GRIPPING: Right Left	19 lbs 19 lbs	16 lbs 16 lbs	10 lbs 10 lbs	5 lbs 5 lbs

	RARELY (1-10% shift)	OCCASIONALLY (11-32% shift)	FREQUENTLY (33-66% of shift)	CONSTANTLY (67-100% of shift)
MOVEMENT TASKS				
REACH: Overhead Right Left Lateral			✓ ✓ ✓ ✓	
SQUAT: Sustained Repetitive			✓ ✓	
BEND				✓
HEAD/NECK: Flexion Rotation Static flexed position			✓ ✓ ✓	

Channels of Authority/Organizational Relationships

The Custodian is responsible and accountable to the head custodian/supervisor and director of facilities.

Evaluation Mechanisms

The custodian undergoes an annual formal written evaluation by the head custodian/supervisor and semiannual face-to-face evaluation meetings.

Position Status

The position of custodian is categorized as at-will within the school district.

The information contained in this job description is for compliance with the Americans with Disabilities Act (ADA) and is not an exhaustive list of the duties performed for this position. The individuals currently holding this position perform additional duties, and additional duties may be assigned.

APPENDIX G
USEFUL INTERVIEW QUESTIONS

Following is a list of questions that have proven useful to school district personnel as they interview potential employees. Specific questions may not be applicable for all positions or in all school organizations. They are presented only as a resource and do not in any way represent a standard or an agreed-upon convention.

Warm-up Questions:

What are your interests?
What made you apply for this position?
Why do you want to work for this organization?

Work History:

How do you feel about your current job?
Why are you leaving your current job?
What are your major responsibilities in your current job?
What have done particularly well (i.e., your greatest success) in your current job?
What are some of the challenges you encounter in your current job? Which ones frustrated you the most? What do you do about them?
What aspects of your current job do you find most difficult, and why?
Are there certain aspects of your current job that you feel more confident doing than others? What are they, and why do you feel that way?
What do you want from your next job that you are not getting from your current job?
Can you describe one of the most important accomplishments in your career?
Can you describe one or two of the biggest disappointments in your career?
What is important to you in a job? Why?
What would you like to avoid in a job? Why?
What kinds of co-workers do you like to work with best? Why?
Which of all your jobs have you liked the best? The least? Why?
What would you say was the most, or least, promising job you ever had? Why?
What kind of an organization do you most prefer to work for?
What specific aspects of your work experience have prepared you for this job?

Leadership:

What kinds of supervision have you received in previous jobs?
What kinds of supervision have you used with your subordinates?
How much time do you spend supervising?
How much time do you spend doing detail work (i.e., not supervising)?
What kind of working relationship do you want to have with the person you report to?
What kind of working relationship do you want to have with a person who reports to you?
What has been your greatest risk with regard to managing staff and/or projects?
What is your experience developing and managing budgets?
What is your management style?

Education and Training:

How do you feel your education and training will relate to this job?
What areas would you most like additional training in if you got this job?
Can you give an example of a time when you felt you needed to improve your skills?

Career Goals:

Where does this job fit into your overall career plan?
Why did you choose to pursue this kind of career?
What makes you feel that is the best career path for you?
What kind of job do you see yourself holding five years from now?
How will this job help you achieve your career goals?
What would you most like to accomplish if you got this job?
What might make you leave this job?

Job Performance:

How do you think your last/current employer would describe your job performance?
How did your supervisor rate you on your most recent job evaluation? What were some of the good points and constructive criticisms of that rating?
How do you respond to constructive criticism with regard to your job performance? Give an example.
Have you ever disagreed with a supervisor about your work performance? Give an example.
What motivates you?
What are some of the techniques you use to organize your time?

Lateness and Absenteeism:

How many days of work did you miss during the last year? For what reasons?
How many times were you late for work during the last year? For what reasons?
What do you feel is a satisfactory attendance record?
How do you think problems of tardiness should be handled by a supervisor?
How do you think problems of absenteeism should be handled by a supervisor?

Self Perception:

How would your co-workers describe your job performance?
How important to you are other people's opinions of your work performance?
Can you describe yourself and your work ethic?
What are your professional strengths? Weaknesses?

Listening and Oral Communication Skills:

What do you think the role of listening is in good management?
How do you react to someone who dominates a discussion?
What is the worst communication problem you have experienced? How did you deal with it?
Do you think your co-workers perceive you as a good listener? Why?

Salary:

What is your salary history?
What are your current expectations for compensation?
What are your future (e.g., 1-3 years from now) expectations for compensation?

Closing Questions:

Why should we hire you?
What makes you think you that you might be the most qualified candidate?
What would you like to know about our organization?
Is there anything else you would like to mention that we haven't discussed?
Do you have any other questions?

Questions for Additional Scenarios:

If you could have the "perfect job," what would it be?
Can you give an example of how you handled a "problem" employee or co-worker in your last job?
Can you describe a situation in which you felt it was justified to modify standard policies and procedures?
Can you give an example of how you handled a communication problem in your last job?
What have you accomplished in your current job that you felt was creative?
Can you give an example of a quick decision you had to make that you were proud of?
Can you give an example of an important goal you had and how you worked to achieve it?
Can you give an example of how a management change affected your work for the better, or for the worse?
Can you give an example of a time when you had to "roll with the punches"?
How do you deal with deadlines and work under pressure? Give an example.
Are you overqualified for this job?

APPENDIX H
USING MAPPING DURING THE INTERVIEW PROCESS

The use of "mapping" during the interview process helps decision-makers focus on the desired traits of a candidate being interviewed for a job. The goal is to determine how well the candidate demonstrates the ideal qualities for the position sought by the hiring organization.

Mapping can be conducted as follows: Say your district is interviewing for a supervisor of maintenance. First identify the general categories of knowledge, skills, and abilities required for the position. Then list specific expertise or experience that the ideal candidate will demonstrate as evidence of these characteristics (see Figure 1). Share this with the selection committee to see if they have traits or characteristics to add or delete. As the discussion evolves, each member of the selection committee will develop a better idea of the profile that best matches the "ideal" candidate.

Next, prepare an interview worksheet that lists only the general categories of the knowledge, skills, and abilities required for the position (i.e., only the headings in the ovals) (see Figure 2). During the interview, each member of the interview team can then take notes about whether and how the applicant exhibits the related characteristics. The team members can later compare their notes to the detailed list of expertise and experience that characterizes the ideal candidate. The results of this type of exercise might very well help to inform your decision-making during the selection process.

Note that mapping is a technique that combines left and right brain perspectives on an issue. In this case, the concept is applied during the process of interviewing candidates for potential employment. However, this management approach can also be applied for other tasks as well. While it may not appeal to everyone, it is a proven method for integrating information and informing decision-making.

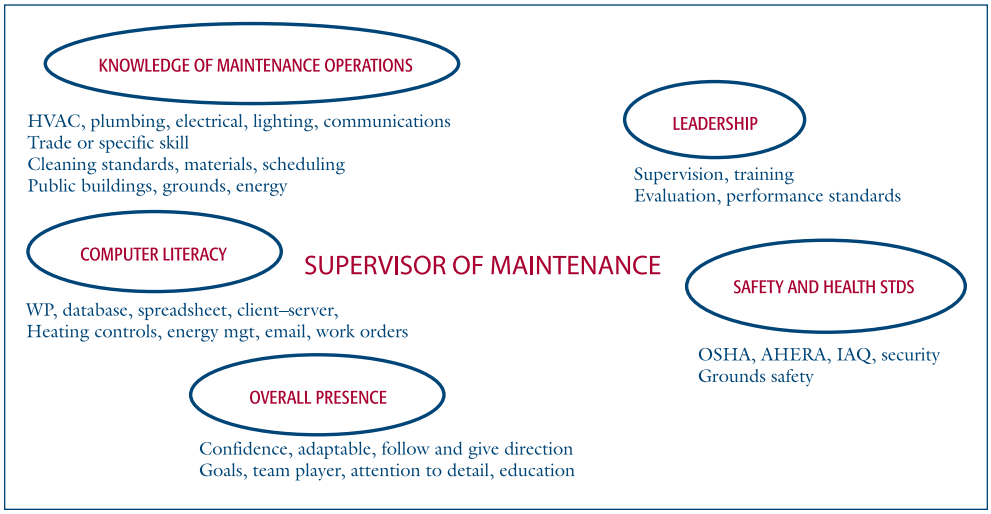

Figure 1. An example of the use of mapping while interviewing candidates for the position of Supervisor of Maintenance. The selection committee identified five basic categories of knowledge, skills, and abilities (represented by the ovals) that the ideal candidate would possess. They then listed specific traits or know-how that candidates might be expected to demonstrate.

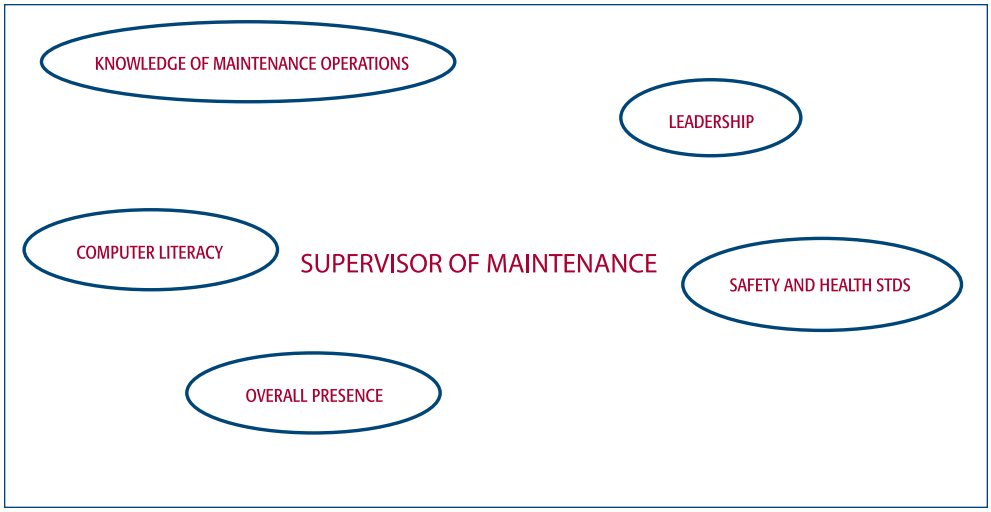

Figure 2. The "blank" mapping form on which interviewers take notes about whether and how an applicant exhibits the knowledge, skills, and abilities of the "ideal" candidate during the job interview. The members of the selection team then compare their notes to the detailed list of expertise and experience, as seen in Figure 1.

APPENDIX I
SAMPLE CUSTOMER SURVEY FORM

The following is a sample customer survey form provided by the Michigan School Business Officials (MSBO). An education organization can refer to it as it develops its own evaluation materials. However, every item may not be applicable to all school organizations. It is presented only as a resource, and does not represent a standard or an agreed-upon convention.

Custodial

1 = STRONGLY DISAGREE 2 = DISAGREE 3 = NEUTRAL 4 = AGREE 5 = STRONGLY AGREE

Measure/Rating	1	2	3	4	5
My work area is kept clean.					
Insects are rarely or never found in my work area.					
Rodents are rarely or never found in my work area.					
Floors are kept clean.					
Spills are cleaned up immediately.					
Bathrooms are kept clean.					
Bathrooms are free of graffiti.					
School grounds are kept clean.					
Graffiti is removed within 24 hours of its appearance.					
Paper, cans, and debris are cleaned up quickly.					
Snow and ice are removed quickly.					
Custodial staff are rarely seen to be wasting time.					
Custodial staff are cooperative and responsive.					
I am satisfied with custodial service in general.					
TOTALS					

Maintenance

1 = STRONGLY DISAGREE 2 = DISAGREE 3 = NEUTRAL 4 = AGREE 5 = STRONGLY AGREE

Measure/Rating	1	2	3	4	5
My work area is well maintained.					
Nonworking lights are replaced in a timely manner.					
Ceiling tiles are replaced when they are soiled or broken.					
Emergency work orders are handled in a timely manner.					
Safety related work orders are completed immediately.					
Maintenance staff use safe practices at all times.					
Maintenance staff don't disrupt students and classes.					
Maintenance staff are cooperative and responsive.					
I am satisfied with maintenance service in general.					
TOTALS					

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