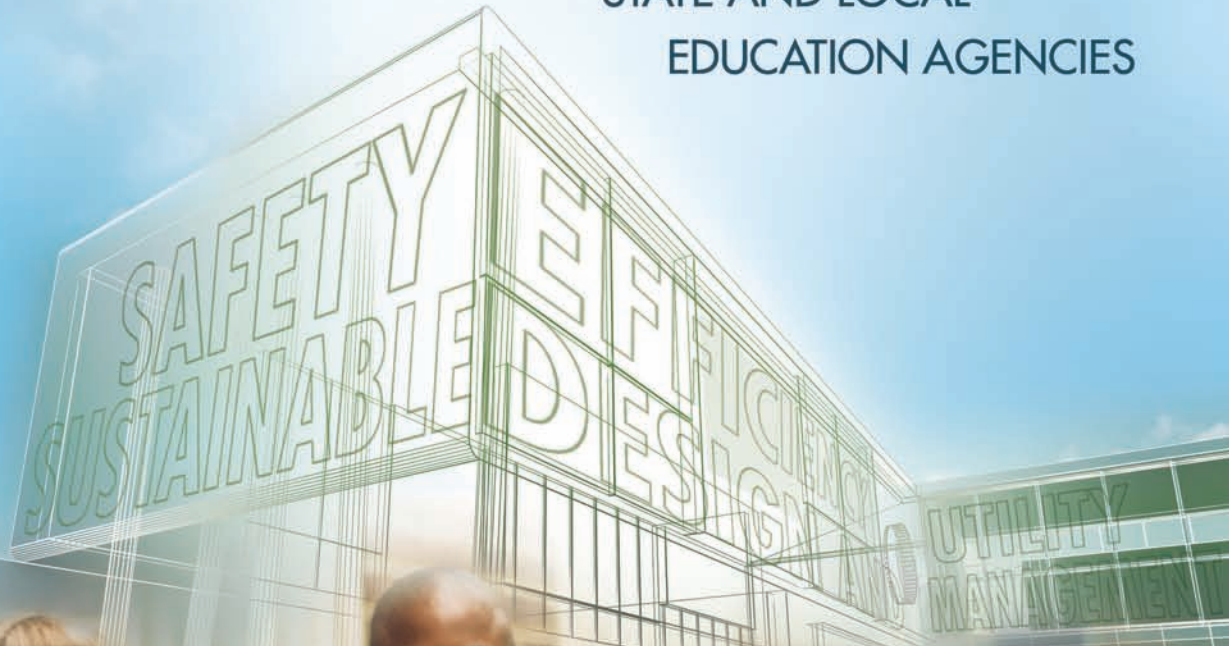


FORUM GUIDE TO

FACILITIES INFORMATION MANAGEMENT

A RESOURCE FOR
STATE AND LOCAL
EDUCATION AGENCIES

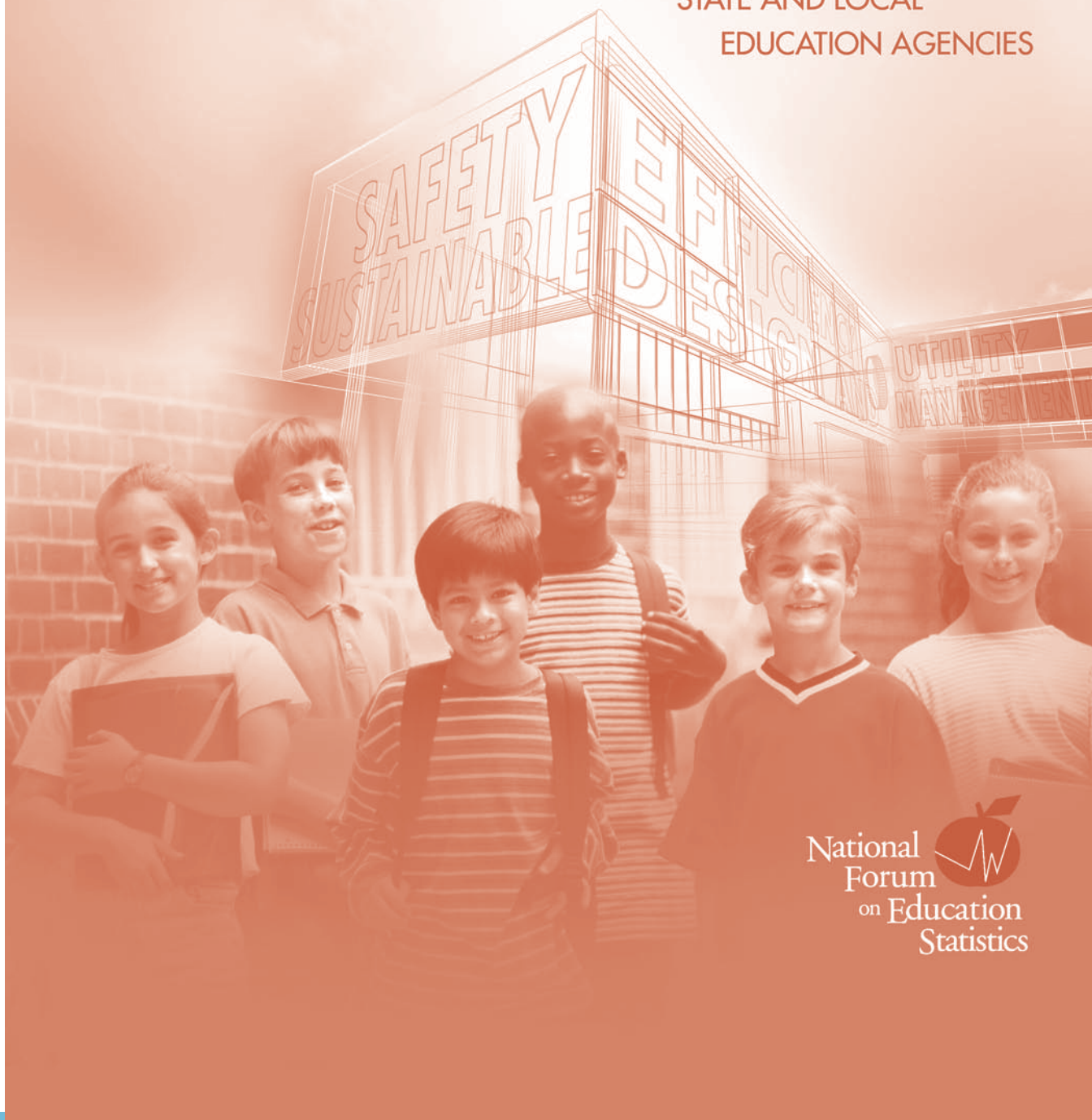


National
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National Cooperative Education Statistics System

The National Center for Education Statistics (NCES) established the National Cooperative Education Statistics System (Cooperative System) to assist in producing and maintaining comparable and uniform information and data on early childhood, elementary, and secondary education. These data are intended to be useful for policymaking at the federal, state, and local levels.

The National Forum on Education Statistics (the Forum) is an entity of the Cooperative System and, among its other activities, proposes principles of good practice to assist state and local education agencies in meeting this purpose. The Cooperative System and the Forum are supported in these endeavors by resources from NCES.

Publications of the Forum do not undergo the same formal review required for products of NCES. The information and opinions published here are those of the Forum and do not necessarily represent the policy or views of the U.S. Department of Education or NCES.

March 2012

This publication and other publications of the National Forum on Education Statistics may be found at the websites listed below.

The NCES online Home Page is <http://nces.ed.gov>

The NCES Publications and Products online address is <http://nces.ed.gov/pubsearch>

The Forum's online Home Page is <http://nces.ed.gov/forum>

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The development of this guide benefited from the participation of many interested parties, including architects, school business managers, school facilities planners, information management specialists, researchers, and advocates. The revised guide was reviewed by several state school facilities officials; their insights and perspectives helped shape the final document.

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The Creative Shop formatted and designed this publication, and Frances Erlebacher provided overall editing.

FOREWORD

The National Forum on Education Statistics (the Forum) is pleased to present the *Forum Guide to Facilities Information Management: A Resource for State and Local Education Agencies*, which updates a 2003 Forum publication, *Facilities Information Management: A Guide for State and Local Education Agencies*. One goal of the Forum is to improve the quality of education data gathered for use by policymakers and program decisionmakers. An approach to furthering this goal has been to pool the collective experiences of Forum members to produce “best practice” guides in areas of high interest to those who collect, maintain, and use data about elementary and secondary education. Establishing consistent education facilities data elements in order to promote the collection of high-quality and useful public school facility data is one of those high-interest areas.

The data elements presented in this guide are described in greater detail in the NCES *Handbooks Online* at <http://nces.ed.gov/programs/handbook>. They have been refined and expanded to meet the latest needs of facilities managers, policymakers, and other stakeholders interested in the condition of public school buildings and grounds. In particular, data elements were added or updated to support changing expectations for sustainable design and management; community use, co-location, and joint use; and budget and finance associated with private financing for public charter school facilities. In addition, the first three levels of data reflect standards from the UNIFORMAT classifications system to create a better linkage between school district facility data and information classifications in the construction industry.

The National Cooperative Education Statistics System

The work of the Forum is a key aspect of the National Cooperative Education Statistics System (Cooperative System). The Cooperative System was established to produce and maintain, with the cooperation of the states, comparable and uniform educational information and data that are useful for policymaking at the federal, state, and local levels. To assist in meeting this goal, the National Center for Education Statistics (NCES), within the U.S. Department of Education, established the Forum to improve the collection, reporting, and use of elementary and secondary education statistics. The Forum deals with issues in education data policy, sponsors innovations in data collection and reporting, and provides technical assistance to improve state and local data systems.

Development of Forum Products

Members of the Forum establish working groups and task forces to develop best practice guides in data-related areas of interest to federal, state, and local education agencies. They are assisted in this work by NCES, but the content comes from the collective experience of the state and school district task force members who review all products iteratively throughout the development process. Documents prepared, reviewed, and approved by working group members undergo a formal public review. This public review consists of focus groups with representatives of the product’s intended audience, review sessions at relevant regional or national conferences, or technical reviews by acknowledged experts in the field. In addition, all draft documents are posted on the Forum website prior to publication so that any interested individuals or organizations can provide feedback. After the working group oversees the integration of public review comments and reviews the document a final time, publications are subject to examination by members of the Forum standing committee that is sponsoring the project. Finally, the entire Forum (approximately 120 members) reviews and formally votes to approve all documents prior to publication. NCES provides final review and approval prior to publication.

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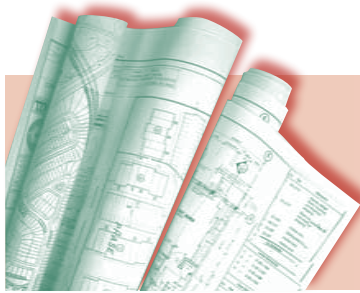
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Introduction

Safe and secure facilities that foster learning are crucial to providing quality education services, and developing and maintaining these facilities requires considerable resources and organization. Facility information systems allow education organizations to collect and manage data that can be used to inform and guide decisionmaking about the utility, efficiency, safety, and adequacy of school facilities. High-quality, timely data can be used to compare school facilities; inform decisions relating to school funding, design, renovation, and infrastructure improvements; and prioritize resources. Facilities data can also be linked with other education systems to better understand the effects of school environment on learning.

This guide is intended to provide a framework for collecting, evaluating, and maintaining education facilities data. It is written to help staff in state and local education agencies, and in public charter schools, design school facility information systems that support policy- and decisionmaking; management and operation; capital budgeting and project management; public participation in school facilities planning; and the integration of facilities data into other education and municipal data sets. Best practices are given for the design, development, implementation, and use of facilities management information systems, along with a list of standard data elements. These elements can be used to develop indicators for measuring and comparing the quality of education facilities; and, in turn, answering policy questions and informing new education policies.



While these recommendations are not a federal mandate, for comparability purposes the Working Group recommends that consistent terminology be used nationally.

In This Guide

- **Chapter 1** describes why physical facilities are critically important to education services; and how data can help districts provide more adequate, equitable, and efficient schools.
- **Chapter 2** describes how to plan and develop a facility information system within a policy framework, including how to recognize data needs, how to identify data for planning and management, and what data are most useful to elected officials and the public.
- **Chapter 3** illustrates how facility data elements can be combined to create meaningful measures of facility adequacy, equity, and efficiency.
- **Chapter 4** includes a comprehensive list of recommended facility data elements and coding options organized into six categories: inventory, condition, design, utilization, management, and budget and finance.
- **Appendix A** defines data elements and coding options proposed by the Working Group but not yet incorporated into the NCES *Handbooks Online*.
- **Appendix B** identifies related NCES and Forum publications, as well as links to other federal agencies, professional organizations in education, state facility agencies, and nonprofit groups and organizations working to support adequate and efficient public school facilities.
- **Appendix C** describes additional resources related to facilities data.





Using Data to Support High Quality Public School Facilities


Scope and Scale of Public School Facility Infrastructure

Some 48 million students, and over 5 million teachers and other staff, occupy nearly 100,000 elementary and secondary public school buildings across the United States. Many use the facilities 5 days a week and well beyond the typical 6-hour school day. While there is not a national inventory of building space or land used in elementary and secondary public education, estimates are that American PK–12 public schools account for nearly 6.6 billion square feet of interior space on more than a million acres of land (Filardo 2008).

At the district level, elementary and secondary schools often represent the largest public building investment in a community, with more structures and grounds than libraries, recreation, and local government. The Governments Division of the U.S. Census Bureau (2010) reports that in fiscal year 2008, the nation's nearly 15,000 school districts spent \$52 billion on capital outlay for land and building acquisition, construction, and facility improvements. In addition, public school districts spent approximately \$44 billion from their 2007–2008 operating budgets on facility personnel; supplies; and contracted labor for utilities, cleaning, and maintenance of buildings and grounds (Agron 2009). Nationally this translates into nearly \$100 billion per year spent on elementary and secondary public school buildings and grounds—about \$2,000 per student (21st Century School Fund 2010).

Impact of Facilities on Education, Health, and the Environment

A school's physical environment affects the welfare of its occupants. Yet, in the education setting, evaluations of education programs, services, policymakers, and staff rarely consider building utilization, condition, and design. One reason for this oversight is a lack of available facility data that can be linked to student and teacher data systems. For example, air quality in facilities is often tested by environmental health specialists, but reports are rarely given to school officials in a format that enables comparisons with other data sets even if the data might be related (e.g., health data like asthma attacks treated by the school nurse).



While most states and districts are not yet able to track the impact of facilities on education outcomes, in the last decade a broad and varied body of independent studies has examined whether and how facilities affect student achievement, teachers, and communities. These studies generally show a positive relationship between the quality of school facilities and student academic achievement (Buckley, Schneider, and Shang 2004). Additionally, a review of teacher surveys in the Chicago and Washington, DC public school systems identified a relationship between facility conditions and teachers' ability to deliver curriculum. The quality of school facilities also affected the likelihood of teachers continuing to work at a given school and even staying or leaving the field of education (Buckley, Schneider, and Shang 2005; and Earthman and Lemasters 2009).

Four key design and condition characteristics have been studied to better understand how school facilities influence teaching and learning. These studies consistently show that:

- **Acoustics:** Both students and teachers perform better in quieter classrooms, where they do not have to strain to hear or be heard.
- **Lighting:** The amount and quality of lighting in school buildings plays an important role in learning, with sufficient lighting (especially sunlight) helping to improve student energy levels, concentration, comprehension, and positive learning outcomes (Heschong, Elzeyadi, and Knecht 2002).
- **Indoor air quality:** Clean air lowers teacher and student absenteeism by reducing incidences of asthma and allergies.
- **Thermal comfort:** Comfortable temperatures help students and staff stay alert and focused (Office of Radiation and Indoor Air 2003).

School facilities are not only important to the performance and health of students and teachers; they seem to affect the “livability” of the larger community. Although still in its early stages, research is underway to assess the impact of school location on transportation, housing, and community use of schools (Vincent 2006). Preliminary findings indicate, for example, that consolidating small neighborhood schools into fewer, larger schools contributes to increased transportation costs; and results in fewer students participating in after-school and extracurricular activities. There has also been research on the relationships between school quality, school supply, the demand for public education, and neighborhood housing market indicators; findings suggest a connection between school quality and neighborhood housing prices (21st Century School Fund, The Brookings Institution, and the Urban Institute 2008).

The Need for Standardized Facility Information Systems

The scale of our public education facility infrastructure (including building, renewing, and operating costs) and its impact on student and teacher performance justify the collection of high quality facilities data. When local districts and the public do not have ready access to good data about the condition and cost of school facilities, important decisions are made without the benefit of sound, reliable information. Conversely, quality data about school facilities inform decisionmaking and improve the likelihood of desired outcomes for students, teachers, and communities. As we begin to better understand the influence of school conditions on occupant health and student performance, it becomes possible to identify settings in which school facilities are negatively affecting education; and, conversely, what types of facilities foster learning and achievement. A facility information system is a critical tool for collecting, organizing, and presenting these data.

A key component to improving data quality is the development, adoption, and use of standards. Data standards provide a common understanding of terms, establish rules for measurement, and enable comparisons of information collected at different times and locations. The data standards presented in this document reflect the experience of seasoned data experts; and content experts with in-depth knowledge of school facility operations, maintenance, and construction. These standards include precise terminology and formulas. In some cases, they also include coding structures so they can be adopted easily and efficiently by data and facilities staff in schools, districts, and state education agencies. Upon adoption, these standards can help ensure that facilities data systems will be useful, comprehensive, and comparable across organizations. Equally importantly, the data will be available when needed for critical decisionmaking related to facilities management, operations, maintenance, capital investment, and policymaking.

TWO CASE STUDIES

Washington, DC

In 2000, the District of Columbia Public Schools (DCPS) was trying to generate support for a substantial building modernization program. The DCPS had not modernized or built a school in over a generation, and citywide cooperation was needed to ensure the long-term support necessary for such an ambitious construction program. Rather than subject the initiative to haphazard, anecdote-based decisionmaking, planners developed a relational database of comparable information about each of the 169 schools in the DCPS so that decisions could be data-driven, transparent, and as apolitical as possible. From the information in this facility database, DCPS was able to apply the following criteria to select the first 8 elementary schools to be modernized:

- each political ward will have one elementary school modernized;
- priority will be given to buildings smaller than 75,000 gross square feet;
- priority will be given to buildings older than 45 years; and
- priority will be given to the most crowded facilities.

New Mexico

In 2003, New Mexico established the New Mexico Public School Facilities Authority (PSFA) and charged it with remedying inequity in the state's public school buildings (except public charter schools). The PSFA already used a relational database to manage building condition and adequacy assessment data; this system was able to rank every public school in the state. PSFA then provided funds to districts based on their publicly available rankings with the understanding that the schools in the poorest condition would be the first to be improved—a decisionmaking process that most stakeholders in the state agreed was fair and transparent.

As the Washington, DC and New Mexico examples (see box) illustrate, access to data about school facilities can be a valuable resource for school districts, states, federal agencies, education interest groups, researchers, the media, and members of the public. Policymakers with quality information about their school facilities are more likely to make better decisions about their design, management, and use. They are also more likely to allocate resources for repairs and modernization in order to support teaching and learning. Moreover, education organizations and communities with quality data are able to make a stronger case for funding to operate and improve school facilities. A thoughtfully constructed, fully populated, and regularly maintained facility information system can help support the delivery of high-quality education programs and allow more efficient use of public school facilities by the entire community.



Planning an Education Facility Information System

Planning and implementing a facility information system requires a vision for data-informed decisionmaking; dedication to collecting and providing high quality data; and, above all, commitment from stakeholders to use and support the system. As such, input from all stakeholders—including facilities planners, business managers, architects, data management staff, risk management personnel, security personnel, school administrators, school board members, and interested members of the general public—should be sought from the earliest stages of system development. The resulting sense of “ownership” will encourage system acceptance and use.

Building the Facility Data Team

After an education agency decides to pursue a facility information system, the next step is to build support for the system, and then identify a team responsible for implementation. A facility data team can provide leadership in the development and implementation of the system. This team should be comprised of representatives of stakeholder groups critical to the system’s successful development and implementation. These stakeholder groups include the following:

- **School occupants:** Those who rely on facilities for educational programs and community services, including school staff who initiate work requests; parents and students directly served by school facilities; and community members who often participate in public use of facilities and fields, or who have a financial interest in the efficient use and maintenance of public investment in school facilities.
- **Facilities staff:** Those who work in and for school facilities, including custodians, who are often the first to observe and report facilities needs; maintenance workers and managers, who inspect and maintain building systems and components; and architects and contractors involved in capital projects.
- **Administrative staff:** Those who are engaged in the day-to-day management and administration of the education enterprise, including superintendents and other senior staff charged with making routine administrative and operational decisions; business officials who supervise payment for maintenance and capital projects; principals who are responsible for the

daily operations of a facility; and architects and contractors who rely on facility data to fulfill their responsibilities.

- **Policymakers:** Those who use data to establish and refine the overarching goals of the organization, including school board members; and executive staff in the organization or local, state, and federal government.
- **Data staff:** Those who will maintain and manage a facilities database, including data entry staff, clerical personnel, and supervisors who log facility needs and work requests or who approve completed maintenance work; data managers with management responsibilities related to data quality and reporting; and information management and technical staff who operate the computers, servers, and other systems that will store, organize, or provide access to the data.
- **Research and evaluation staff:** Those who analyze data and generate reports, including staff from the district's research and evaluation division, auditors, or university or other research partners; as well as staff working with senior-level officials who will present reports to the public and to other government agencies (the mayor's office, school board, state or federal agencies, etc.).

Once a facility data team has been assembled, the perspectives, needs, and issues that are important to each member's stakeholder group can be identified. Although some stakeholders may not agree with the perspectives of others in the team, early engagement improves the likelihood that the team will develop a shared vision for its development tasks.

Building the Right Foundation

The team's first step in creating or improving an education facility information system is to clarify the system's purpose—because purpose guides design. There are many reasons to collect and manage information about public school buildings and grounds. Some data are especially useful for managing day-to-day operations, maintenance, and repairs. Other data can be used for short-term operations planning as well as long-term capital and master facility plans. Still others are more appropriate for creating accountability systems related to facility management and investment, and to ensure that funds are allocated equitably. Some are used for finding ways to decrease costs and increase efficiencies. And some data are useful for informing the community about building and field usage schedules.

Although the purpose of different systems may vary, most incorporate the following steps in their development:

- Step 1: Build the facility information system from a policy framework.
- Step 2: Evaluate current information and data processes, collections, and reports.
- Step 3: Define data needs and relationships.
- Step 4: Decide who will develop the facility information system.

Each of these steps should be undertaken collaboratively and, as is generally good practice when building consensus, all decisions and rationales should be documented in writing. This documentation will serve as the foundation for the system's user requirements as well as the functional requirement of any user interface(s) to be purchased or developed. In all cases, data system development should be driven by the information needs of management and policy specialists, data users, data providers, and other stakeholders—not by the technology that will enable the system to work. Technology staff will be critical, however, for ensuring that the facility data system aligns with other systems and data sets so that all data resources in the organization are interoperable.

STEP 1

BUILD THE FACILITY INFORMATION SYSTEM FROM A POLICY FRAMEWORK

Because data should serve a purpose, information systems should generally be based on the organization's policy framework. In the case of facility information systems, this framework should define the scope of inquiry about school facilities and provide general direction for decisionmaking related to facilities resources. When building a system from a policy framework, three tiers of information must be considered; policy goals, indicators, and data elements. *Policy goals* are statements that express the overarching accomplishments an education organization would like to achieve. They are often broad in scope, require subjective analysis and values clarification by senior management, and cannot be evaluated with data alone. In order to determine progress toward these goals, policy-makers frequently rely on *indicators*, which are prescribed combinations of data elements that provide meaningful information. *Data elements*, in contrast, are the building blocks of information. They are quantifiable and measurable; but individual elements are rarely useful without the context of indicators and policy questions.

Example of the relationship between policy goals, indicators, and data elements

Indicators link policy goals to data elements. Individually, data elements provide specific but limited information. But when combined, analyzed over time, or interpreted in the context of a body of information, data elements can be built into indicators that can be used to assess the status of policy goals.

Policy Goal 1: Provide high-quality teaching, learning, and school support service environments, which are critically important to effective teaching and learning.

Indicator (example): Is the school safe for occupancy?

Sub-indicators (example): Are fire protection measures installed and functioning?

Data elements needed to assess the indicator:

- Fire Protection System
- Compliance Status
- Facilities Management Emergency Type
- Facilities Plan Type
- Name of Response Agency

The following is an example of a set of policy goals that might provide an appropriate framework for developing a facility information system. How these policy goals get measured in terms of specific indicators and data elements is illustrated later in this chapter.

- **Policy Goal 1:** Provide high-quality teaching, learning, and school support service environments, which are critically important to effective student achievement.
- **Policy Goal 2:** Maintain school buildings that encourage and enable best educational practices, are pleasant places in which to work and learn, and are an asset to the neighborhood.
- **Policy Goal 3:** Ensure sufficient school space for changing enrollments and community use.
- **Policy Goal 4:** Manage education facilities effectively and efficiently in accordance with environmental and energy-saving best practices.
- **Policy Goal 5:** Ensure funds for school facilities are adequate and equitably allocated.

Within this framework, key questions concerning the inventory, condition, design, utilization, management, and funding of public schools can be raised. For example:

- **Inventory** How many schools are in the school district and community?
What is each school's age, size, and location?
- **Condition** Are school buildings and grounds safe and in good repair?
Are buildings and grounds properly maintained? Are they healthy settings for all occupants?
- **Design** Are school buildings designed to encourage and support best educational practices and help students achieve at high levels?
Are administrative buildings designed for efficient operations and administration?
- **Utilization** Do schools provide sufficient space to accommodate changing enrollments and community use?
Are administrative buildings fully utilized?
- **Management** Are school district facilities managed effectively and efficiently?
Are facilities managed by the school district, private contractors, or another government agency?
- **Budget and finance** Are capital budgets and operating funds for school district facilities adequate?
Are they equitably allocated and distributed?

Because these types of questions form the basis of the indicators that link policy to data, the facility data team should identify which are *most* relevant to the organization—i.e., which questions will most effectively inform whether progress is being made toward policy goals. Hundreds of data elements will likely need to be collected and analyzed before these complex questions can be answered. Accomplishing this task will require resources, but is worthwhile given the value of facilities to the education system and the costs associated with even basic facility maintenance. Moreover, once the related data elements have been identified, defined, and assembled in a relational database, they can be easily updated and used over time to evaluate indicators of adequacy, efficiency, equity, and effectiveness.

STEP 2

EVALUATE CURRENT DATA PROCESSES, COLLECTIONS, AND REPORTS

Every local school district has some sort of facility information system. Similarly, every state collects facility-related information, although it may not be directly linked to other data about buildings and grounds. The information may be held in an informal “system” that reflects the years of experience and knowledge of individual school facility managers and their school-based custodians and engineers; or a system of paper files and electronic spreadsheets with information about each facility. Depending upon the size of the district or state, it may also be a more complex information system that already includes relational databases with reporting capabilities and protocols for regular updating and quality control.

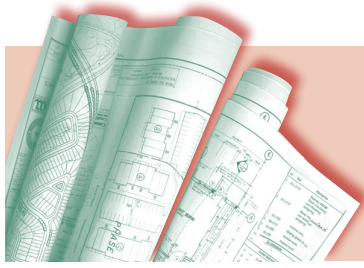
To evaluate a state or district’s existing information capacity, the facility data team should start with a spreadsheet that lists every data set related to public school facilities maintained by the organization. The spreadsheet should include information about each data set. Examples might address:

- Who “owns” the data set?
- How complete is it?
- How often is it updated?
- When was it last updated?
- What format is it in?
- Is there any standard key or naming convention that would link the data to other data about schools or buildings?
- Are there any security or privacy issues related to the use of the data?
- Are the data maintained by school organizations or at the building level?
- Is data maintained over time (longitudinally) or for just one point in time?
- Are data reports or analyses conducted and, if so, by whom?

Sometimes facility data can be found outside the district or state education system. For example, in a state that doesn’t have a state-level inventory of public school facilities, some of the most complete statewide data on the age and size of public school facilities may be available from the insurance companies the districts use to insure their buildings. Additionally, many state or county tax records have geographic data about school properties and lots.

Any paper files and other documents should be included in the inventory of data sets. These might include as-built drawings, design and construction contracts, leases and use agreements, and photos. While all of these documents may not get entered into the electronic information system, integrating them should be considered as they reflect important historical (or current) information about public school facilities. Decisions on how to handle these paper documents will have a significant effect on the cost of the system, and the team should address this during the planning process.

Once the spreadsheet of facility data and information has been developed, it can be reviewed in the form of a schematic drawing that shows who uses what information and how.



At the end of steps 1 and 2, the facility data team will have a clear idea of what information is available and how the district or state currently uses these data to manage school facilities.

STEP 3

DEFINE DATA NEEDS AND RELATIONSHIPS

Once the facility data team has a clear idea of what information is available, it is ready to link the policy framework established in step 1 to the spreadsheet of available data identified in step 2. Doing so results in a detailed matrix of existing data capacity as well as easily identifiable information gaps. In addition to informing a gap analysis, the matrix will illustrate how data elements are linked to policy questions through specific indicators.

The logic of a robust indicator system

An indicator can be defined as a measure of the status of, or change in, a system with regard to its goals. Indicators are formed by aggregating, calculating, or otherwise combining data elements, which are the lowest level of information stored in a data system.

For example, the data elements "School Type" (elementary, middle, high school, etc.) and "School Address" (street, city, state, zip code, etc.) can be used to generate the indicator "Number of High Schools in a Zip Code." Most sound indicator systems rely on a body of indicators with enough related data points to provide meaningful information in context rather than pieces of data that must be interpreted in isolation.

When developing an indicator system,

- key policy questions drive the development of sound indicator systems;
- indicators are derived from constituent data elements; and, therefore,
- the data elements in a robust system can all be mapped through indicators to key policy questions that justify the need to collect them.

Developing a detailed matrix will help the data team define what specific data to incorporate into the facility information system. The process of selecting and defining the data elements is pivotal to ensuring the collection of useful, valid, and cost-effective information. Adopting the basic facilities data elements in this document, or adapting and incorporating them in part, will help ensure the development of a sound facility data system that will provide useful and comparable data.

Before completing the matrix, facility data team members may wish to review facility reports they have used (or would like to use) in their management, planning, budgeting, and oversight responsibilities. This is also an ideal time to ask colleagues in other districts or states to share their facility reports. By reviewing existing reports and querying experienced peers, the facility data team can identify the data elements and indicators critical to more effective management of school facilities.

Table 1. Matrix aligning indicators and constituent data elements to Policy Goal 1

Policy Goal 1: Provide high-quality teaching, learning, and school support service environments, which are critically important to effective student achievement.

Indicators	Data elements and other measures
THE SCHOOL IS SAFE FOR OCCUPANCY.	
Buildings are in compliance with state building code.	Operating Authority: State Education Agency Date of Certificate of Occupancy Compliance Status
Fire protection measures are installed and functioning.	Fire Protection System Type Compliance Status Facilities Management Emergency Type Facilities Plan Type Name of Response Agency
Hazardous materials are properly stored.	Hazardous Materials Management Plan Hazardous Materials or Condition Type Operations/Maintenance Space Type (storage of hazardous materials) Location of Hazardous Materials/Condition Hazardous Components Abatement
THE SCHOOL IS SECURE.	
State regulations governing safety from human factors are followed.	Security System Condition of System or Component Compliance Status Facilities Management Emergency Type Name of Response Agency
THE SCHOOL ENVIRONMENT IS HEALTHY.	
Buildings are in compliance with federal air quality standards	Operating Authority Date of Certificate of Occupancy Compliance Status Hazardous Materials Management Plan
Buildings are in compliance with state environmental standards and regulations.	Compliance Status Operating Authority Hazardous Materials Management Plan
School buildings are clean.	Number of Custodial Staff Cleaning Standard



Indicators	Data elements and other measures
THE BUILDING AND GROUNDS ARE IN GOOD REPAIR.	
A lifecycle replacement schedule is followed, and components and systems have not exceeded their expected useful life.	Plumbing System Air Distribution System Cooling Generation System Electrical System Fire Protection System Heating Generation System Communications Management Component System Security System Compliance Status Condition of System or Component Status of Work Order Request Maintenance Standard Facility Condition Index Maintenance and Repair Expenditure per Square Foot
Maintenance and repairs are done in a timely manner.	Estimated Cost to Eliminate Deferred Maintenance Number of Outstanding Work Orders Average Work Order Completion Time Status of Work Order Request

Table 2. Matrix aligning indicators and constituent data elements to Policy Goal 2	
Policy Goal 2: Maintain school buildings that encourage and enable best educational practices, are pleasant places in which to work and learn, and are an asset to the neighborhood.	
Indicators	Data elements and other measures
SPECIALIZED INSTRUCTIONAL SPACES AND AMENITIES ARE ADEQUATE TO SUPPORT THE EDUCATION PROGRAM.	
There is an art room with amenities appropriate to the grades taught. There is a laboratory science classroom for every 125 high school students. There is a music room with amenities appropriate to the grades taught. Career and technical education laboratories are aligned with workforce demand.	Condition of System or Component Art Specialty Space Type Library/Media Center Specialty Space Type Performing Arts Specialty Space Type Science Specialty Space Type Special Education Specialty Space Type Secondary School Enrollment Capacity Elementary School Enrollment Capacity Student Enrollment Average Class Size Net Square Feet per Student
SCHOOLS CAN SUPPORT FULL INTEGRATION OF COMPUTER TECHNOLOGY FOR ADMINISTRATION AND INSTRUCTION.	
Electrical power and outlets are sufficient to support computer technology.	Condition of System or Component
There is voice, video, and data cabling to support communications, networking, and access to the Internet.	Condition of System or Component



Indicators	Data elements and other measures
FACILITIES COMPLY WITH FEDERAL OR STATE CODES AND REGULATIONS CONCERNING STUDENT ACCESS TO EDUCATION OPPORTUNITIES.	
The school complies with the Americans with Disabilities Act (ADA).	Federal Mandate Interest State or Local Mandate Interest Compliance Agency Type Compliance Status
The school complies with state codes and timetables for complying with the ADA.	Federal Mandate Interest State or Local Mandate Interest Compliance Agency Type Compliance Status
CLASSROOM AND INSTRUCTIONAL SUPPORT SPACES ARE DESIGNED TO BE AGE APPROPRIATE.	
Early childhood classrooms have adjoining bathrooms. Secondary schools are designed as "small schools" or have schools within schools	Space Design Type Furniture Equipment Specialty Instructional Space Student Support Space Type Assembly Space Type
ATHLETIC AND RECREATIONAL SITE IMPROVEMENTS ARE AGE APPROPRIATE AND ADEQUATE TO SUPPORT THE PHYSICAL EDUCATION, HEALTH, AND ATHLETIC PROGRAMS.	
Play equipment is installed outside. Athletic fields are available for girls' and boys' athletics programs. Appropriate safety measures are built into outdoor features, including lighting, surfaces, and fencing. Physical education has appropriate space.	Outdoor Athletic/Physical Education Space Type Outdoor Nonathletic Space Type Indoor Athletic/Physical Education Space Type Gross Square Feet Per Student Condition of System or Component

Table 3. Matrix aligning indicators and constituent data elements to Policy Goal 3	
Policy Goal 3: Ensure sufficient school space for changing enrollments and community use.	
Indicators	Data elements and other measures
SPACE IS SUFFICIENT FOR CURRENT ENROLLMENT.	
There is sufficient classroom space to meet local and state class-size targets.	School Use Type Student Enrollment Class size
All students are housed in permanent structures.	Space Use Type School Use Type Building Permanency
The instructional space per student meets standards.	Space Use Type Secondary School Enrollment Capacity Elementary School Enrollment Capacity Student Enrollment Net Area of Instructional Space
No students are housed in substandard space.	Gross Square Feet Per Student Number of Students in Substandard Space

Indicators	Data elements and other measures
THERE IS SUFFICIENT SPACE FOR PROJECTED ENROLLMENTS.	
The school can support its projected enrollment.	School Use Type Student Enrollment Secondary School Enrollment Capacity Elementary School Enrollment Capacity
The school can support expansion of early childhood education.	Number of Classrooms Classroom Type
SCHOOLS ARE UTILIZED AFTER NORMAL SCHOOL HOURS BY THE COMMUNITY.	
The community is encouraged to use the school.	Public Use Policy Hours of Public Use per Week Joint User Types Joint Use Rationale

Table 4. Matrix aligning indicators and constituent data elements to Policy Goal 4

Policy Goal 4: Manage education facilities effectively and efficiently in accordance with environmental and energy-saving best practices.

Indicators	Data elements and other measures
FACILITIES INFORMATION IS ACCURATE, UP-TO-DATE, AND AVAILABLE TO MANAGERS, DECISIONMAKERS, AND THE PUBLIC.	
There is a regularly maintained school facilities database. There is adequate funding, training, and technical support of information system hardware and software.	<i>Link to data elements from financial system and human resources.</i>
SCHOOLS FACILITIES ARE WELL MAINTAINED.	
There is an up-to-date maintenance plan. Operating funds for maintenance are adequate. The number of maintenance employees is adequate. There is a preventive maintenance program. There is a routine maintenance program.	Plumbing System Air Distribution System Cooling Generation System Electrical System Fire Protection System Heating Generation System Communications Management Component System Security System Compliance Status Condition of System or Component Status of Work Order Request Maintenance Standard Facility Condition Index Maintenance and Repair Expenditure per Square Foot
THERE IS REGULAR AND PARTICIPATORY PLANNING FOR LONG- AND SHORT-TERM FACILITY NEEDS.	
Facilities plans are regularly developed and updated. Facilities plans are developed with local school and community participation. Facilities plans are used to assess progress for capital improvements.	Audit Type Facility Plan Type



Indicators	Data elements and other measures
CLEAR PROCESSES AND PROCEDURES ADDRESS FACILITIES PROBLEMS, AND FACILITY NEEDS ARE HANDLED IN A SYSTEMATIC WAY.	
<p>Decisions on facilities are made public.</p> <p>There is a publicly understood process for establishing priorities for facility improvements.</p> <p>Facility needs have been identified and prioritized.</p> <p>A schedule of projects has been developed.</p> <p>Methods for addressing needs have been identified.</p>	<p>Audit Type</p> <p>Facility Plan Type</p> <p>Facility Standards</p> <p>Capital Project Start Date</p> <p>Capital Project Scheduled Completion Date</p> <p>Capital Project Delivery Methods</p>
MANAGEMENT INDICATORS.	
<p>All staff have job descriptions and pay commensurate with their level of experience and responsibility.</p> <p>Records of work completed and underway are maintained in an orderly system.</p> <p>Staffing is sufficient for the volume of work.</p> <p>The facilities staff are well trained and supported in their work.</p>	<p><i>Link to data elements from Human Resources information system.</i></p> <p>Number of Maintenance Personnel</p> <p>Number of Outstanding Work Orders</p> <p>Average Work Order Completion Time</p>

Table 5. Matrix aligning indicators and constituent data elements to Policy Goal 5

Policy Goal 5: Ensure funds for school facilities are adequate and equitably allocated.	
Indicators	Data elements and other measures
THE OPERATING BUDGET FOR SCHOOL FACILITIES IS ADEQUATE TO MAINTAIN BUILDINGS IN GOOD REPAIR.	
<p>Work order requests are filled in a timely fashion.</p> <p>Less than 15% of work order requests are for emergency repairs.</p> <p>The operating expenditures for maintenance and repair are sufficient to make progress towards reducing deficiencies in these areas.</p> <p>The operating budget for maintenance is stable or increasing as a proportion of the total operating budget.</p>	<p>Estimated Cost to Eliminate Deferred Maintenance</p> <p>Number of Outstanding Work Orders</p> <p>Average Work Order Completion Time</p> <p>Number of Emergency Repairs Completed Each Year</p> <p>Utility Expenditure per Student</p> <p>Utility Expenditure per Square Foot</p> <p>Facilities Operating Budget</p>



Indicators	Data elements and other measures
CAPITAL FUNDS ARE ADEQUATE FOR BUILDING-DESIGN IMPROVEMENTS AND MODIFICATIONS REQUIRED TO SUPPORT THE EDUCATIONAL PROGRAM.	
<p>The capital plan and budget support technology upgrades.</p> <p>The capital plan and budget support science lab improvements.</p> <p>The capital plan and budget support improvements to early childhood spaces.</p> <p>The capital plan and budget support improvements to basic classroom amenities, including communications, storage, lighting, and furniture.</p> <p>The capital plan and budget support improvement of career-technical educational facilities to meet emerging workforce needs.</p>	<p>Capital Improvement Project Type</p> <p>Capital Project Year</p> <p>Capital Project Cost</p>
CAPITAL FUNDS ARE ADEQUATE FOR NEW CONSTRUCTION TO RELIEVE OVERCROWDING.	
<p>The capital plan and budget provide for new schools to meet projected enrollments.</p> <p>Fewer than 10% of students are in substandard classrooms.</p>	<p>Student Membership</p> <p>Student Enrollment Projections</p> <p>Number of Students in Substandard Space</p> <p>Total Capital Expenditure</p>
CAPITAL FUNDS ARE ADEQUATE FOR REPLACEMENT OF OBSOLETE AND NONOPERABLE BUILDING SYSTEMS AND COMPONENTS.	
<p>The capital plan and budget include replacements of boilers, roofs, windows, and doors in accordance with the condition assessment and lifecycle replacement plan.</p> <p>The capital plan and budget include upgrades for electrical, plumbing, security, technology, and heating and cooling distribution systems in accordance with a condition assessment and lifecycle plan.</p>	<p>Facility Condition Index</p> <p>Facility Current Replacement Value</p> <p>Maintenance and Repair Expenditure per Square Foot</p> <p>Facilities Capital Budget</p> <p>Total Capital Expenditure</p>



Tables 1–5 show sample matrices built around the broad education facility-related policy goals introduced in step 1. Each matrix contains sets of indicators and related data elements, all of which are included in chapter 4. The matrices do not present an exhaustive list of data elements needed to construct each indicator or sub-indicator.

Another critical component of a facility information system is the ability to link data. Standard data keys or codes should be used to link all of the data elements across years, organizational units, and facilities. Establishing and using standard identification conventions makes it possible to link information among and between schools, buildings, and locations, as well as from multiple data systems and over time. The facility information system should include standardized building codes; site codes; or instructional space (room) codes or numbers, including, when possible, geographical codes or coordinates. The data team, working with a capable information system advisor or contractor, will need to identify any current numbering systems and develop a complementary key and protocols as soon as possible.

STEP 4

DECIDE WHO WILL DEVELOP THE FACILITY INFORMATION SYSTEM


Developing a facility information system can be time-consuming and costly, especially if the organization does not have staff with the capacity to develop such a system. To streamline the development process, the team’s technical advisors can begin exploring the system’s technical requirements while the facility data team is finalizing the basic content and user requirements.

One decision that will need to be made is whether the system interface will be entirely web-based, a PC-based system connected by the school district’s or state’s network, or a hybrid of the two. Each approach offers pros and cons, with the primary differences being accessibility; management responsibilities; and the relatively high cost of a custom, fully web-based application. Some subscription services offer web-based applications that may reduce initial costs.

If the organization chooses to contract for development or services, the facility data team can provide oversight and guidance. The upfront work done by the content experts and end users on the facility data team (steps 1–3) will put the state or district in a stronger position to develop requests for proposals (RFPs), evaluate business proposals, negotiate and secure a reasonable price from consultants, and ensure that the final product meets the needs of the various stakeholders.

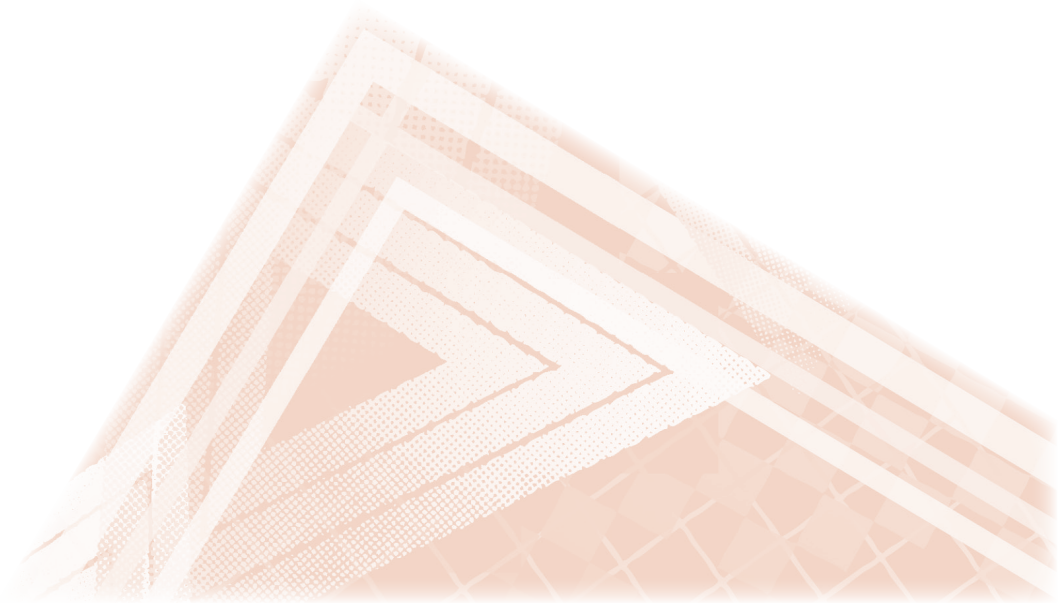
The basic functional specifications of the system that should be addressed in the final technical development plan, or RFP if the system will be developed by contractors, include the following:

- How do data get into the system? How easy is it to import data sets and various data types and formats?
- How does the interface organize and present the data? Can the end user easily navigate the interface to compare and contrast indicators over time?
- What are the quality controls on data entry? What are the protocols for changing or updating data? Are these controls and protocols viewable in the system by administrators, data stewards, or end users?
- How easy is it to get entire data sets exported for use in other systems? What reports are available? How easy or costly is it to generate new reports or revisions to existing ones?
- Is it easy for nontechnical users to do analysis, make queries, sort data, and view facility history?

- 
- What are the various levels of security and quality controls on the back-end data and administration of the system?
 - How well is the system documented? Can others use this documentation to maintain or modify the system?
 - How will the facility information system link to the other data systems in the district or state? Can the system be integrated into longitudinal data systems, or multistate and national systems?
 - Is training available for end users and system administrators? How much training will be required?

In preparing an RFP to design a facility information system, the organization will want to provide prospective consultants or contractors with the products of the planning work undertaken in steps 1–3, including relevant policy frameworks; an evaluation and description of current information and data processes; and the matrix of data elements, indicators, and their relationships to policy goals. The technical advisors to the data team can help develop the RFP based on the work carried out in steps 1–3. The IT advisor will also review the design and development aspects of the technical proposal and evaluate the bidders' ability to deliver.

Developing an efficient information system is an ongoing activity, not a one-time project. The data system should be examined periodically to determine whether new types of information are needed to address emerging state and local issues. As policymakers move in new directions, different types of information may be needed. As such, ongoing training and updates to user guides and report formats should be a regular component of managing the facility information system.



Creating Indicators for Analysis of Data Elements

Data elements—assembled into indicators that provide the information needed to answer key policy questions—are the building blocks of the information system. However, if public officials, facility managers, and planners are to make informed decisions and effectively communicate school facility needs to the public, the hundreds or even thousands of data elements in the system must be translated into usable information. By describing the inventory, condition, design, utilization, management, and funding of school facilities, measures constructed from these elements enable decisionmakers to evaluate whether their school facilities adequately meet the policy goals of the system and the aspirations of the community.

This chapter includes various indicators and measures of school facilities, including descriptions of how they are calculated and how they can be used. Like data elements, these measures should be uniformly defined to encourage standardization and comparability throughout the system. The indicators in this chapter are grouped into the following topic areas: facility conditions, design, utilization, and funding.

Facility Condition Indicators

Statistics about the condition of school buildings are used by planners, architects, engineers, facility managers, and the public to understand and compare the facilities' mechanical, structural, and environmental state. The two most commonly used indicators of overall school condition are "Age" and "Facility Condition Index" (FCI). The FCI compares the cost of correcting building deficiencies with that of replacing the facility.

BUILDING AGE

The "Age" of a building, as defined relative to the year of original construction, is a poor indicator of condition. Many of our finest education buildings are over 50 years old, and it is not uncommon to find 100-year-old schools in excellent condition and 20-year-old schools in poor condition. The initial design and quality of construction and materials, as well as basic maintenance over the years, contribute to the difference. "Functional Age" is an indicator used to address this imperfect correlation between the time since original construction and the condition of the school, which may have been altered considerably by major improvements over the years. For a school that has never been fully modernized,

functional age is the date it was built. For a school that has undergone a full modernization, functional age is measured from the date of the most recent modernization. A school is considered to be “fully modernized” when the entire program specification and design is assessed prior to replacing or upgrading specific systems and components; in other words, the building is renovated to be like new when all major building systems are corrected as necessary. When this occurs, the design of the school should fully support current educational programs and practices as appropriate (NCES 2000).

FACILITY CONDITION INDEX

The facility condition index (FCI) is a standard tool used by architects, engineers, and facility planners to compare the physical condition of one school building to another and determine whether it is more economical to fully modernize a school or replace it. The index is computed as a ratio of the total cost to remedy identified deficiencies to the current replacement value of the building, as illustrated in formula 1. This index is a nationally recognized standard that has been adopted by the National Association of College and University Business Officers (NACUBO) and APPA (formerly the Association of Higher Education Facilities Officers).

The FCI is only valuable for comparing the condition of schools if the replacement value is calculated in the same way for each building, and the deficiency estimates are conducted using comparable standards. Another difficulty is that estimates to correct deficiencies can vary substantially depending on the expertise and perspective of the estimator.

Formula 1: Facility Condition Index

$$\text{Facility condition index (FCI)} = \frac{\text{Cost to correct deficiencies}}{\text{Current facility replacement value}}$$

If the FCI of a school is greater than 1, it may be more cost-effective to replace rather than modernize it. Conversely, if the FCI is less than 1, it may be more cost effective to modernize than rebuild. For example, if the cost to fully modernize a school is estimated at \$8 million and the cost to replace it is \$12 million, then the FCI is 0.66 (\$8 million ÷ \$12 million). Such an FCI suggests that it may be more cost-effective to modernize than replace the facility.

Calculating an FCI requires the identification of a building’s deficiencies. The three major types of building deficiencies are life cycle, maintenance, and site.

Life-Cycle Deficiencies

A life-cycle deficiency exists when a system, component, finish, fixture, or piece of installed (permanent) equipment is used beyond its recommended life as established by the manufacturer or school district standards. As such, life-cycle deficiencies can occur even though the system or equipment still functions effectively. For example, until 2004, some New York City public schools were heated by coal-fired boilers; the boilers were fully functional, but nonetheless obsolete because of their poor environmental effects.

Life-cycle deficiencies can be identified using the UNIFORMAT* data elements for various building systems and components, the age of these systems or components, and a description of their condition.

Maintenance Deficiencies

A maintenance deficiency, often referred to as “deferred maintenance,” exists when a system, component, fixture, or piece of equipment is nonfunctional or operates at less than optimal levels. The equipment may require minor maintenance, extensive repairs, or replacement. The age of the equipment—that is, whether it has exceeded its recommended life cycle—is not a consideration in determining maintenance deficiencies.

Site Deficiencies

Deficiencies in school sites include both “natural” concerns and those resulting from poor site design or condition. *Natural* site deficiencies include the presence of wetlands or rocky terrain, radon, or other naturally occurring chemical pollutants, and an inability to perk. Site *design* deficiencies might include inadequate parking, no student drop-off area, a poor approach to the front entrance, no reliable city sewer or water hookups, and lack of road access. Examples of site *condition* deficiencies would include inadequate fencing or retaining walls, crumbling sidewalks, or cracked blacktop.

CALCULATION OF COST TO CORRECT DEFICIENCIES

The condition of various systems and components of facilities are typically described as “good,” “fair,” or “poor,” whereas the cost of *eliminating* deficiencies is often presented as a more quantifiable metric that permits the direct comparison of different buildings. The cost to correct deficiencies equals the estimated total costs to repair all life-cycle, maintenance, and site deficiencies; and this final estimated total is the numerator of the FCI equation.

CALCULATION OF FACILITY CURRENT REPLACEMENT VALUE (CRV)

The denominator in the FCI equation represents the facility replacement value—the estimated cost of “replacing” an existing structure with a new one of the same size at the same location. Interior design and construction materials of the existing and proposed buildings may be different. The replacement value is calculated in formula 2. Note, however, that construction costs vary by market, so FCI calculations must be market-specific and are not comparable across market regions.

Formula 2: Facility Current Replacement Value

$$\text{Facility current replacement value} = \left(\text{Gross square footage of existing building} \right) \times \left(\text{Estimated cost per square foot to design and build a new school} \right)$$

*UNIFORMAT is an ASTM (American Society for Testing and Materials) E1557 standard that provides a common structure for seamlessly linking the building program, specifications, and estimates. UNIFORMAT type classifications have been recommended by the Construction Specifications Institute/Construction Specifications Canada (CSI/CSC) to structure schematic phase specifications, and by the Design-Build Institute of America for performance specifications. For more information, visit <http://www.uniformat.com>.

OTHER FACILITY CONDITION RANKING

Even without calculating the cost to correct life-cycle, maintenance, and site deficiencies, school districts can rank the condition of their school buildings by using a numeric description for each system or component rated as good, fair, or poor. For example, if good = 1, fair = 2, and poor = 3, then it is possible to assign a number to the basic facility condition of the school and compare the condition of one school to another without making any judgment about the cost of replacement.

Design Indicators

Building design measures are used to assess the ability of a school to accommodate its educational, administrative, support, and nonschool or community activities and programs. Design indicators do not address the facility condition, but rather the size, type, and location of school spaces; and whether a building's design matches its prescribed uses. As with physical condition, design quality can be ranked if evaluative criteria are defined and applied consistently.

A design deficiency exists when a building, regardless of its condition, is unable to meet the best practice standards of the state or school district. Examples of evaluative criteria for identifying design deficiencies include

- building size—a school may be too big or too small for its educational program or enrollment;
- the ability to accommodate persons with physical disabilities;
- the presence of specialized instructional areas for programs such as early childhood education, science, career/vocational education, art, music, or physical education;
- the existence of common spaces to accommodate large groups such as a gymnasium, auditorium, cafeteria, or multi-purpose room;
- technology access in the classroom; and
- modern security technology at all entrances.

Design factors may be weighted based on their importance and ranked on a scale so that buildings and grounds are assessed for both their physical condition and their design quality. This composite index is sometimes referred to as a Facility Quality Index or Facility Adequacy Index.

Sustainability Indicators

In addition to building condition and design, another area of importance is building operation. How well a building operates in relation to its energy use is a common concern. Tracking the actual cost of utilities is one way to understand energy usage, but it may be misleading; for example, fluctuations in utility prices may cause a district's power costs to rise even if consumption is actually declining. Because of this, many school districts now measure and track actual use of gallons of water, therms of gas or oil, and kilowatts of electricity. This allows the districts to gauge the actual consumption of energy and natural resources a school uses, even as utility prices change.

With a growing concern about energy use and environmental sustainability in managing facilities, it may be useful to know a school's carbon footprint and compare schools across a district or state. A variety of online calculators are available for measuring a facility's carbon footprint. However they mostly look at carbon emissions generated by various sources, typically including waste, energy consumption, and transportation.

Calculating a building's carbon footprint requires three pieces of information:

- emissions from waste;
- emissions from energy consumption; and
- emissions from transportation.

Note: The formulas below are based on the Green-Schools: Carbon Calculator page of the Green-Schools Ireland website.

EMISSIONS FROM WASTE

(Total waste weight needs to be converted into kilograms to use these formulas: 1 ton = 907.18 kilograms)

High carbon impact waste going to landfill in kg per year x 1.5 (conversion factor)	=	_____ kg CO ₂
Moderate carbon impact waste to recycling in kg per year x 0.3 (conversion factor)	=	_____ kg CO ₂
Carbon neutral waste to compost in kg per year x 0*	=	__0__ kg CO ₂
Total CO₂ emissions from waste	=	_____ kg CO₂ per year

*Carbon-neutral waste is multiplied by zero and, by definition, contributes zero kilograms CO₂ per year in waste.

EMISSIONS FROM ENERGY CONSUMPTION

(If the building uses oil, total oil consumption needs to be converted into liters to use this formula:
1 gallon = 3.79 liters)

Electricity (kiloWatt-hours or kWh)	kWh per year x 0.6	=	_____ kg CO ₂
Natural gas (kWh)	kWh per year x 0.19	=	_____ kg CO ₂
OR			
Natural gas (therms)	therms per year x 5.5	=	_____ kg CO ₂
Oil (liters)	liters per year x 2.69	=	_____ kg CO ₂
Total CO₂ emissions from energy consumption per year		=	_____ kg CO₂

EMISSIONS FROM TRANSPORTATION

Emissions from transportation will likely be required to calculate the district's overall carbon footprint. With student-level address data and information on whether students are driven, bike or walk, or take the bus, annual estimates can be derived. Adding the emissions from these three sources yields total carbon production per year by school; or, with additional calculations, per student per year or per square foot per year for each school. These results can then be totaled to derive annual emissions for the entire district.

Miles travelled by car (high carbon impact)	miles per year x 0.36	=	_____ kg CO ₂
Miles travelled by bus (low carbon impact)	miles per year x 0.03	=	_____ kg CO ₂
Miles travelled by bike or on foot (carbon neutral)	miles per year x 0	=	__0__ kg CO ₂
Total CO₂ emissions from transport to and from school per year		=	_____ kg CO₂

Utilization Indicators

When enrollments grow, school districts should plan for construction of new schools or additions to existing facilities. If enrollments shrink, districts may need to consider reducing their school inventory by consolidating programs, leasing unused space, or even closing schools. To determine whether a district needs to build (or close) schools, however, policymakers need to know how efficiently schools are being utilized. This requires a room-by-room survey of how each space is used on an hourly basis. The results may surprise policymakers—perhaps revealing that support spaces have been turned into classrooms or, conversely, that classrooms are being used as support spaces.

SCHOOL UTILIZATION RATE

The school utilization rate allows facility planners, public officials, and the public to understand how much buildings are used by comparing a school's actual student enrollment to its enrollment capacity. For example, if a school has an enrollment of 500 and a capacity of 450, the utilization rate is 111 percent and the school is over-used. Formula 3 illustrates the calculation of the School Utilization Rate.

Formula 3: School Utilization Rate

$$\text{School utilization rate} = \frac{\text{Student enrollment}}{\text{Enrollment capacity}} \times 100\%$$

Enrollment Capacity

Utilization rates are used to determine a school's over- and under-use. Enrollment capacity, the denominator in the utilization rate (formula 3 above), is the maximum number of students a school can satisfactorily accommodate. Typically, enrollment capacity is guided by state law, provisions in teacher contracts related to class size, and the classroom assignments of the principal. Factors that determine a school's enrollment capacity include the number of classrooms and other instructional spaces in a school; as well as the number of students assignable to a classroom, which may vary by grade level and the type of instruction being offered (for example, special needs classrooms typically have fewer assignable students than regular education classrooms).

Enrollment capacity is also calculated differently in different types of schools. In a high school, for example, both basic classrooms and specialty instructional spaces such as art or music rooms are counted toward capacity because regular classrooms are not left unoccupied while students receive art or music instruction. Thus the formula for determining secondary school capacity is the sum of the capacity for each type and number of classrooms; multiplied by a utilization rate, which may range from 80 to 90 percent. This school utilization standard recognizes the impossibility of fully utilizing every classroom during every period. For example, an advanced science classroom may be able to accommodate 20 students, but there may be only 16 students enrolled in the fifth period class—meaning that the room fully accommodates the educational needs of the enrolled students even though the “space” is not full.

Secondary schools enrollment capacity

Enrollment capacity for a secondary school is the sum of the standard class size assigned to each type of classroom in the school, times the number of classrooms of each type (multiplied by the utilization standard). Thus the capacity of two identical school buildings will be different if they offer different types of programs, or are subject to different class size limitations by state law, teacher contracts, or student needs. This is especially true for special education classes. The calculation of secondary school enrollment capacity is illustrated by formula 4.

Formula 4: Secondary School Enrollment Capacity

$$\text{Secondary school enrollment capacity} = \left[\sum \left(\text{number of each type of classroom} \times \text{students assignable to that classroom enrollment capacity type} \right) \right] \times \text{utilization standard}$$

Elementary schools enrollment capacity

In an elementary school, enrollment capacity is based on the standard class size assignable to each type of *basic* classroom in the school. For example, a kindergarten room will have fewer assignable students than a sixth grade classroom, regardless of the room's actual size. This is also true for special education classes, which will have fewer students per classroom, regardless of the physical size of the classroom. Specialty instructional spaces are not counted in the calculation of elementary school capacity space because, while a class is in the art or music room, its regularly assigned space is empty. Moreover, a utilization rate is not applied. The calculation of enrollment capacity for an elementary school is illustrated by formula 5.

Formula 5: Elementary School Enrollment Capacity

$$\text{Elementary school enrollment capacity} = \text{Number of each type of basic classrooms} \times \text{Students assignable to that type of classroom}$$

Instructional spaces that generate capacity for enrollment are considered “capacity” space, while all other rooms and spaces in a school—hallways, stairwells, cafeterias, playgrounds, parking lots, teacher work areas, storage rooms, restrooms, etc.—are considered “noncapacity” or “unassigned” space. Even though noncapacity space is not counted in enrollment capacity, it cannot be ignored when assessing a facility's adequacy. For example, the size of the existing cafeteria and hallways should be considered when adding a wing with new classroom space.

DENSITY FACTOR

Calculating a school's density factor is another way to assess over- or under-utilization. While utilization rates (see formula 3) compare enrollment capacity (see formulas 4 and 5) to actual enrollment, the density factor compares the standard gross square feet of building space per student, as established by an educational specification space standard, to the actual amount of gross square feet of building space per student. There is not a single standard for how much space should be allotted for each student across all education levels and settings. Rather, standards vary to reflect the nature of the instructional program, school design, grade levels, state or local regulations, and budget.

The capacity of a school is design- and program-sensitive, which may lead to a disparity in the amount of space in one school or another, even with the same enrollment capacity. This happens because capacity and utilization rates exclude noninstructional spaces such as the cafeteria, auditorium, hallways, teacher work rooms, and administrative space, even though they affect the use of the facility. The use of the density factor is therefore recommended to assess the equity of space distribution, as unassigned areas not reflected in enrollment capacity are counted in the density factor. For example, a 1920s elementary school building may have 16 classrooms, but not an art room, music room, library, or gymnasium. It will have the same capacity as an identical, but more modern, elementary school that includes these specialty spaces in the school. In another example, one elementary school may have 12 classrooms that accommodate 25 students each, a lunchroom, and a main office. Another school has 12 classrooms of the same size (with 25 students assigned to each classroom), but also has a music room, an art room, a library/media center, a parent resource center, and a main office. Both schools have an enrollment capacity of 300, but the second school has more space and would therefore have a lower density factor. The density factor is illustrated by formula 6.

Formula 6: Density Factor

$$\text{Density factor} = \frac{\text{Standard gross square feet allocated per student}}{\text{Actual gross square feet available per student}}$$

For example, if a school district's guidelines indicate that a standard elementary school facility should allocate 115 gross square feet per student, then a school with 78 gross square feet of space per student has a density factor of 1.47 ($115 \div 78$). Another elementary school of the same size but fewer students may have 140 gross square feet per student, which would mean a density factor of .82 ($115 \div 140$). A density factor of 1 indicates that a school has the density recommended in the guidelines.

Calculation of Gross Square Feet per Student

A key measure in determining a school's density factor is the gross square feet (GSF) per student. This is a school's total square footage—including all instructional and noninstructional interior spaces—divided by the number of enrolled students. The only spaces not included are those used only by nonschool programs, such as a community health clinic or offices for central administration staff. The calculation of GSF per student is shown in formula 7.

Formula 7: Gross Square Feet per student

$$\text{Gross square feet (GSF) per student} = \frac{\text{Gross square footage of building}}{\text{Student enrollment}}$$

The GSF per student measure is extremely useful when detailed or reliable capacity information is unavailable. School districts usually know a school's gross building size and its current student enrollment. However, since schools of the same size vary tremendously in design, the density factor cannot substitute for the utilization rate. For example, a school built with an open-plan design could have the same gross square footage and the same enrollment as a school with double-loaded corridors,

small classrooms, and few support spaces (typical of the 1950s); the two schools would have the same density factor but substantially different capacities and utilization rates.

Net Square Feet per Student

Some of the problems of comparing school densities using gross square footage are avoided by using the net square feet (NSF) of instructional space or all space where there is direct instructional contact between a student and a teacher. Instructional space includes certain types of noncapacity or unassigned spaces such as elementary school art and music rooms, libraries, and student project rooms. The calculation of NSF per student is shown in formula 8.

Formula 8: Net Square Feet per Student

$$\text{Net square feet (NSF) per student} = \frac{\text{Net square footage of instructional space}}{\text{Student enrollment}}$$

Funding Indicators

School systems make facility expenditures from both their operating and capital budgets. The operating budget typically pays for cleaning, maintenance of buildings and grounds, and minor repairs. The capital budget covers major facility improvements, design, and construction. Capital funds are usually borrowed, whereas operating funds come from taxes, and state and federal allocations.

Operating and capital expenditures are often used to measure the sufficiency of a district's resources, and the fairness of their distribution. These should always be looked at both on a per-square-foot basis and on a per-student basis. In a relational database, these measures can be compiled and analyzed for a state, a school district, a region within the district, a type of school (elementary, middle, secondary), and an individual school. This has become particularly important in light of ongoing court challenges to inequities in school funding.

Operating and capital budget expenditures should be considered separately when evaluating a district's facilities funding. Formulas 9 through 11 measure these expenditure levels.

Formula 9a: Maintenance and Repair Expenditure per Student

$$\text{Maintenance and repair expenditure per student} = \frac{\text{Total operating expenditures for maintenance and repairs in local school(s)}}{\text{Student enrollment}}$$

Formula 9b: Maintenance and Repair Expenditure per Square Foot

$$\text{Maintenance and repair expenditure per square foot} = \frac{\text{Total operating expenditures for maintenance and repairs in local school(s)}}{\text{Gross square footage of building(s)}}$$

Formula 10a: Utility Expenditure per Student

$$\text{Utility expenditure per student} = \frac{\text{Total utility expenditures in local school(s)}}{\text{Student enrollment}}$$

Formula 10b: Utility Expenditure per Square Foot

$$\text{Utility expenditure per square foot} = \frac{\text{Total utility expenditures in local school(s)}}{\text{Gross square footage of building(s)}}$$

Formula 11a: Capital Expenditure per Student

$$\text{Capital expenditure per student} = \frac{\text{Total capital expenditures in local school(s)}}{\text{Student enrollment}}$$

Formula 11b: Capital Expenditure per Square Foot

$$\text{Capital expenditure per square foot} = \frac{\text{Total capital expenditures in local school(s)}}{\text{Gross square footage (GSF) of building(s)}}$$



CHAPTER 4

Recommendations for Facilities Data Elements

This section presents a catalog of facility data elements recommended for use in a facility information management system. Data elements are the basic units, the “building blocks” of information. They are generally items whose attributes can be quantified and measured; and that can be meaningfully compiled, aggregated, and compared. This chapter identifies the data elements that were determined by facilities and data professionals to be most useful in answering policy questions about school facilities. While an effort was made to be comprehensive, this list may not include every single facility data element needed by states and districts. Additional elements can be added as necessary. Similarly, additional elements and options in the NCES *Handbooks Online* (<http://nces.ed.gov/programs/handbook>) that relate to students, staff, school programs, curriculum, and services should be reviewed for possible inclusion in the facility data system.

Category 1000: Facilities Identification

Identification data elements are the core of any facilities information management system. These elements can be used to identify, classify, and inventory school facilities; and include relevant information about the name, location, age, and size of public school buildings and grounds.

Category 2000: Facilities Condition

Data elements on facility condition are an important part of a basic facility system. These elements can help describe the condition and safety of a building or site, and its various components and systems.

Category 3000: Facilities Construction

Construction data elements are used to describe the site preparation and construction of a facility.

Category 4000: Facilities Design

Design elements can be used to assess a facility’s design for purposes of education, sustainability, community use, and efficiency of operation and utilization.

Category 5000: Facilities Utilization

Utilization data elements capture information on how space is used; and help describe the actual activities undertaken in a building, regardless of its intended design.

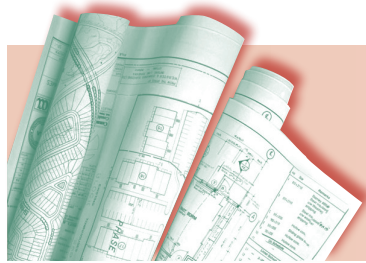
Category 6000: Facilities Management

Management data elements describe key work standards and processes in the operation and capital project management of school facilities.

Category 7000: Facilities Budget and Finance

Budget and finance data elements include many definitions from the NCES publication *Financial Accounting for Local and State School Systems: 2009 Edition* (available at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2009325>). These elements focus on revenue; operating and capital costs; public and private finance information; and other data relevant to school facilities management, operation, construction, and financing.

School and district data users will find these elements and indicators important to incorporate into their planning and management systems. At the local level, they will also be useful for day-to-day management and extended planning. Most of the data elements and indicators in this chapter are already used by school business officials; this guide will help standardize terminology associated with K-12 education facilities in the public sector.



All data elements in this chapter are available in the NCES *Handbooks Online*: <http://nces.ed.gov/programs/handbook>

NCES *Handbooks Online*

This chapter lists a unique identifying number for suggested data elements and coding options; definitions for these terms are readily available and continuously updated in the NCES *Handbooks Online* (<http://nces.ed.gov/programs/handbook>), a comprehensive and recognized standard for education terms and definitions related to students, staff, schools, local education agencies, intermediate education agencies, and state education agencies.* The *Handbooks* allow users to view and download information via an electronic table of contents, a drill-down finder, element name and first letter searches, and advanced query options. They serve as reference documents for public and private organizations, including education institutions and early childhood centers; as well as education researchers and other users of education data.

*Data elements and coding options without a number are identified as a “new,” meaning that they have not yet been incorporated into the NCES *Handbooks Online*. Definitions proposed for several of these elements and options are included in appendix A, but are subject to revision prior to inclusion in the online resource.

Data Element Format and Presentation in the Document

CATEGORY 1000

Category (used for classification)

Facilities Identification

Address Type (0025)

Data element name (data element number)

Mailing address (00123)

Shipping address (00124)

Other organization address (02382)

Physical location address (00765)

Option list (option number)

Category: Identifies a group of data elements that are all related within a given section.

Data element name: The name of a unit of data that can be defined and measured.

Data element number: Each data element has been assigned a unique “data element number” in the *NCES Handbooks Online*. The numbers are for identification purposes and do not carry any additional meaning.

Option list: Recommended alternatives or responses for a data element that requires a coded response. Options generally are illustrative, not mandatory.

Facilities Identification

Name of Institution (0187)

Address Type (0025)

Mailing address (00123)

Shipping address (00124)

Other Organization Address (02382)

Physical location address (00765)

Street Number/Name (0272)

Apartment/Room/Suite Number (0037)

Building/Site Number (0081)

City (0090)

Name of County (0186)

State Abbreviation (0267)

Zip Code (0305)

Telephone Number (0470)

Authorizing Entity Type (0076)

Regional or intermediate education agency (00214)

Other nonprofit organization (03166)

Commercial or other for-profit firm (03167)

Federal government (00797)

State agency (00860)

Local board (00862)

Private/religious (00864)

Charter board (00865)

School (00675)

Construction Year (1517)

Addition Year (1518)

Acquisition Date NEW

Functional Age of Building (1519)

Building Permanency (0878)

Permanent building (02431)

Nonpermanent building (02432)

Building Type (1520)

Church (13561)

Commercial office building (13562)

Commercial warehouse (13563)

Community center (13564)
Public school building (13565)
Other (09999)

Construction Material Type (0874)

Brick (02422)
Brick veneer (02423)
Block (02424)
Wood frame (02425)
Concrete (02426)
Prefabricated (02427)
Aluminum (02428)
Steel (02429)
Adobe (02430)

Site Area (0885)

Site Area Type (1521)

Playground (02433)
Athletic field–artificial (13566)
Athletic field–natural (02434)
Semi-permeable game area (13567)
Hardscape play area (02436)
Softscape game area (13568)
Softscape play area (13569)
Hardscape game area (02437)
Parking area (02524)
Drop-off/driveway (02438)
Septic fields (02439)
Retaining walls (02440)
Fencing enclosures (02526)
Sidewalks (02441)
Stairs and ramps (02442)
Landscaping (02443)
Water filtration system (02444)

Historic Status (0871)

Locally eligible, not yet designated (02412)
State eligible, not yet designated (02413)
Nationally eligible, not yet designated (02414)
Ineligible (02415)
Not evaluated (02416)

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

1000

Locally designated (02417)

State designated (02418)

Nationally designated (02419)

Identification Code (0146)

Identification System (0147)

School-assigned number (00495)

District-assigned number (00593)

State-assigned number (00686)

Site Descriptors (0886)

Land use (02445)

Enterprise zone (02446)

Historic district (02447)

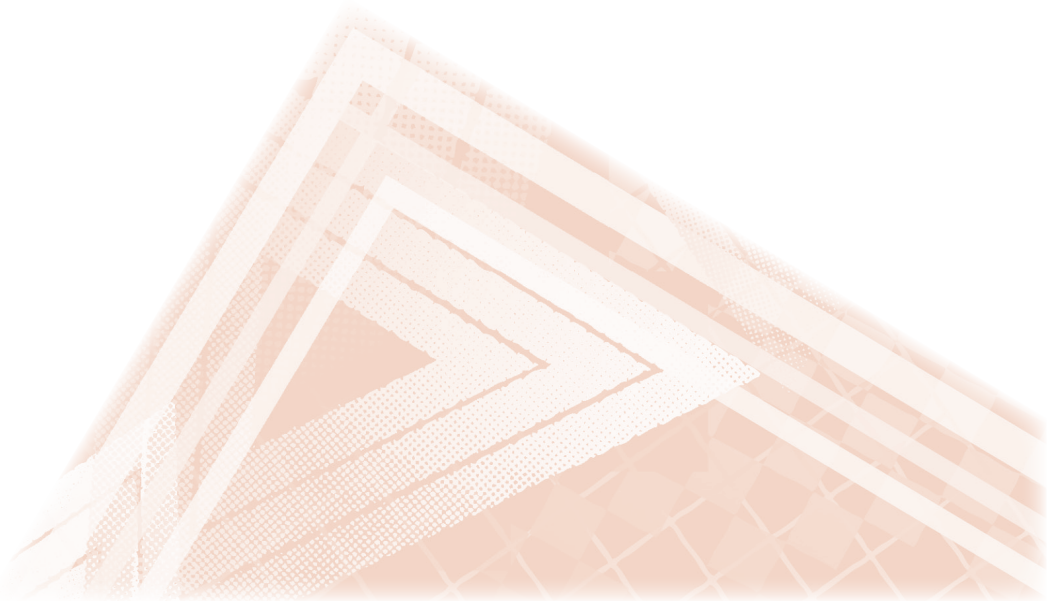
Environmental protection (02448)

Environmental contamination (02449)

Site easements (02450)

For definitions, visit

nces.ed.gov/programs/handbook/index.asp



Facilities Condition

Mechanical Conveying Systems (1539)

Elevator (02516)

Lift (13593)

Escalator (02517)

Moving walk (13594)

Other conveying system (13595)

Plumbing System (0887)

Water supply (02462)

Drains (02463)

Vents (02464)

Sewage treatment (02465)

Water source (02466)

Parcel drainage (02467)

Piping (02468)

Water softeners (02469)

Detention ponds (02470)

Filtration system (2471)

Domestic water distribution (13596)

Plumbing fixtures (13597)

Rain water drainage (13598)

Sanitary waste (13599)

Other (09999)

Air Distribution System (0891)

Air handler units (02497)

Gravity ventilation (02493)

Mechanical exhaust (02494)

Mechanical supply (02495)

Both mechanical exhaust and supply (02496)

Window ventilation (02492)

Other (09999)

Cooling Generation System (0890)

Central cooling system (02486)

Local zone cooling system (02487)

Individual (room) unit cooling system (02488)

Combination cooling systems (02489)

Ceiling fans or ventilation fans (02490)

Natural systems (02491)

None (09998)

Other (09999)

Electrical System (0888)

Electrical supply (02472)

Electrical distribution (02473)

Emergency generator (02474)

Electrical interface (02475)

Circuit breakers (02476)

Communications and security (13570)

Electrical service and distribution (13571)

Lighting and branch wiring (13572)

Other (09999)

Fire Protection System (0895)

Automatic sprinkler (02511)

Fire pump/extinguishers (02512)

Alarms (02513)

Kitchen fire suppressor system (02514)

Fire protection specialists **NEW**

Standpipes **NEW**

Other fire protection systems **NEW**

Other (09999)

Heating Generation System (0889)

Steam radiator (02477)

Hot water radiator (02478)

Heat pump (02479)

Unit ventilators (02480)

Unit heaters/baseboard heaters (02481)

Central duct system (02482)

Open plenum system (02483)

Forced air (02484)

Displacement ventilation (02485)

Other (09999)

Communications Management Component System (0892)

Voice (02498)

Video (02499)

Data (02500)

Public address system (02501)

Integrated (voice, data, video, etc.) **NEW**

For definitions, visit

nces.ed.gov/programs/handbook/index.asp

Security System (0894)

- Card access control system (02508)*
- Intrusion detection system (02507)*
- Keypad access control system (02509)*
- Metal detector (02510)*
- Video (02499)*

Compliance Status (0903)

- In compliance (02570)*
- Not in compliance (02571)*
- Planned compliance (02572)*
- Waived compliance (02573)*

Condition of System or Component (0912)

- Excellent system or component condition (02561)*
- Good system or component condition (02562)*
- Adequate system or component condition (02563)*
- Fair system or component condition (02564)*
- Poor system or component condition (02565)*
- Urgent building system or component condition (02566)*
- Emergency system or component condition (02567)*
- Nonoperable system or component condition (02983)*

Environmental or Energy Performance Rating System (1524)

- Collaborative for High Performance Schools (CHPS) (13573)*
- Energy Star National Energy Performance Rating (13574)*
- Green Globes (13575)*
- Leadership in Energy and Environmental Design (LEED) for Schools (13576)*

Commercial Equipment (1525)

Institutional Equipment (1526)

Other Equipment (1527)

Exterior Walls (0901)

- Brick (02422)*
- Wood (02523)*
- Concrete masonry unit (02538)*
- Stucco (02539)*
- Synthetic stucco (02540)*
- Adobe (02430)*
- Stone (02542)*
- Prefabricated concrete (02543)*
- Synthetic stone (02544)*
- Other (09999)*

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

2000

Exterior Windows Design Type (0898)

- Nonoperable state (02518)*
- Casement (02519)*
- Double-hung (02520)*
- Tilt-open (awning or hopper) (02521)*
- Sliding (02522)*
- Gas-filled (13577)*
- Switchable glazings (13578)*

Exterior Windows Frame Material (0899)

- Wood (02523)*
- Aluminum (02428)*
- Vinyl (02525)*
- Steel (02429)*
- Vinyl-clad wood (02527)*
- Vinyl-clad steel (02528)*
- Aluminum-clad wood (02529)*
- Other (09999)*

Federal Mandate (0906)

- Americans with Disabilities Act (ADA) (02584)*
- Individuals with Disabilities Education Act (IDEA) (02585)*
- Safe Drinking Water Act (02586)*
- Lead Contamination Control Act (02587)*
- Asbestos Hazardous Emergency Response Act (AHERA) (02588)*

Federal Mandate Interest (0905)

- Facility accessibility and usability for individuals with disabilities (02574)*
- Indoor air quality (02575)*
- Radon contamination (02576)*
- Drinking water safety (02577)*
- Lead contamination (02578)*
- Asbestos contamination (02579)*
- Hazardous materials (02580)*
- Underground storage tank (02581)*
- Material Safety Data Sheet (MSDS) (02582)*
- Integrated pest control (02583)*

Floor Construction (1528)**Foundation Type (1529)**

- Slab on grade (13582)*
- Specific special foundations (13583)*
- Specific standard foundations (13584)*

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

Fixed Furnishings (1530)

Movable Furnishings (1531)

HVAC System (1532)

- Air distribution system (13585)*
- Controls and instrumentation (13586)*
- Cooling generation system (13587)*
- Energy supply (13588)*
- Heat generation system (13589)*
- Other HVAC system and equipment (13590)*
- Systems testing and balancing (13591)*
- Terminal and package units (13592)*

Fittings (1534)

Interior Doors (1535)

Partitions (1536)

Interior Floor Finish (1537)

- Carpet (02553)*
- Ceramic tile (02560)*
- Quarry tile (02556)*
- Sealed concrete (02557)*
- Synthetic sheet good composite tile flooring (02552)*
- Terrazzo flooring (02554)*
- Vinyl asbestos tile (VAT) (02555)*
- Wood flooring (02551)*
- Other (09999)*

Interior Wall Finish (1538)

- Exposed structure-painted (02559)*
- Glazed brick or tile (02549)*
- Glazed concrete masonry unit (02548)*
- Painted concrete masonry unit (02547)*
- Painted gypsum board (02545)*
- Painted plaster (02546)*
- Vinyl asbestos tile (VAT) (02555)*
- Vinyl wall covering (02550)*
- Other (09999)*

Interior Ceiling Finish (1533)

- Acoustical tile (02558)*
- Exposed structure-painted (02559)*
- Ceramic tile (02560)*

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

2000

Roof Covering (0900)

- Metal (02530)*
- Slate (02531)*
- Asphalt shingle (02532)*
- Built-up (02533)*
- Single-ply (02534)*
- Terracotta tile (02535)*
- Membrane (02536)*
- Green roof (13600)*

Roof Construction (1540)**State or Local Mandate Interest (0907)**

- Building code (02589)*
- Fire code (02590)*
- Health code (02591)*
- Flood control (02592)*
- Design standards (02593)*
- Acreage standards (02594)*
- Standard education specifications (02595)*
- Historic preservation requirements (02596)*
- Occupational Health and Safety Code (02597)*
- Earthquake standards (02598)*
- Food safety standards (03265)*

Stair Construction (1541)**Stair Finishes (1542)**

- Carpet (02553)*
- Ceramic tile (02560)*
- Quarry tile (02556)*
- Sealed concrete (02557)*
- Synthetic sheet good composite tile flooring (02552)*
- Terrazzo flooring (02554)*
- Vinyl asbestos tile (VAT) (02555)*
- Wood flooring (02551)*
- Other (09999)*

Technology Wiring System Type (0893)

- Wire cable (02502)*
- Fiber optic cable (02503)*
- Coaxial cable (02504)*
- Wireless (02505)*
- Twisted pair (02506)*
- Other (09999)*

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

CATEGORY 3000

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

3000

Facilities Construction

Basement Excavation (1522)

Basement Walls (1523)

Building Elements Demolition NEW

Hazardous Components Abatement NEW

Site Electrical Utilities (1543)

Electrical distribution (02473)

Exterior communications and security (13601)

Exterior lighting (13602)

Other electrical utilities (13603)

Site Improvement (1544)

Landscaping (02443)

Parking lots (13604)

Pedestrian paving (13605)

Roadways (13606)

Site development (13607)

Site Preparation (1545)

Hazardous waste remediation (13608)

Site clearing (13609)

Site demolition and relocations (13610)

Site earthwork (13611)

Other Site Systems and Equipment NEW

Service and Pedestrian Tunnels NEW

Special Construction (1546)

Integrated construction (13612)

Special construction systems (13613)

Special controls and instrumentation (13614)

Special facilities (13615)

Special structures (13616)

Facilities Design

Administrative Space Type (0937)

- Principal's office (02742)*
- Vice-principal/assistant principal's office (02743)*
- Clerical areas (02744)*
- Mail room (02745)*
- Conference room (02746)*
- Attendance/reception (02747)*
- Security/police office (02749)*
- Staff lounge (02750)*
- Staff workroom (02751)*
- School store (02752)*
- School bank (02753)*
- PTO/PTA space (02754)*
- Records room/vault (02756)*
- Storage-textbook (02757)*
- Storage-resource materials (02758)*
- Storage-instructional equipment (02759)*
- Administrative office/room (02986)*
- Other (09999)*

Art Specialty Space Type (0928)

- 2-dimensional art classroom (02644)*
- 3-dimensional art classroom (02645)*
- Darkroom (02646)*
- Ceramic studio (02647)*
- Photography studio/graphic arts (02648)*
- Kiln room (02649)*

Basic Classroom Design Type (0927)

- Elementary (01304)*
- Preschool/early childhood (01981)*
- Secondary (02403)*
- Middle school (02601)*
- Skills center **NEW***

Building Design Type (0922)

- Service center building (02610)*
- Office building (02611)*

Warehouse building (02612)
Garage building (02613)
Central kitchen building (02614)
Stadium building (02615)
Field house building (02616)
Media production center building (02617)
Natatorium (02618)
Dormitory building (02619)
Gymnasium building (02620)
Assembly building (02621)
School building (03106)

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

4000

Career–Technical Education Space Type (0932)

Computer/information technology laboratory (02678)
Consumer science–food classroom (02679)
Consumer science–clothing classroom (02680)
Family and consumer science (02681)
Automotive/avionics technology shop (02682)
Electronics/engineering technology laboratory (02683)
Drafting room/CAD/CAM (02684)
Agricultural/natural resources shop (02685)
Greenhouse (02686)
Barbering and cosmetology shop (02687)
Multimedia production studio/communications (02688)
Wood shop (02689)
Dental science classroom (02690)
Aeronautical technology classroom (02691)
Building construction technology shop (02692)
Precision manufacturing laboratory/metalworking shop (02693)
Retail store/entrepreneurship laboratory (02694)
Financial services center/bank (02695)
Food services/hospitality laboratory (02696)
Business and administrative services/office management laboratory (02697)
Health occupations laboratory (02698)
Early childhood laboratory/child care center (02699)
Graphic/digital arts and design studio (02700)
Law enforcement/fire technology/protective services laboratory (02701)
Biotechnology laboratory (02702)

Circulation Space Type (0940)

- Hallway (02774)*
- Stairway (02775)*
- Lobby (02776)*
- Elevator (02516)*
- Lift (13593)*
- Escalator (02517)*
- Moving walk (13594)*
- Handicap access ramp (13619)*
- Other (09999)*

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

Environmental or Energy Performance Rating Categories (1548)

- Climate/emissions (13620)*
- Energy (13621)*
- Indoor environmental quality (13622)*
- Innovations in operations/project/environmental management (13623)*
- Leadership, education, and innovation (13624)*
- Materials and resources (13625)*
- Regional priority (13626)*
- Sustainable sites (13627)*

Facility Standard (0923)

- Design guidelines (02622)*
- Space standards (02623)*
- Master construction specifications (02624)*
- Health and safety standards (02625)*
- Energy performance standards (02626)*
- Site selection guidelines (02627)*
- Environmental standards (13628)*

Food Service Space Type (0942)

- Cafeteria (02792)*
- Cafetorium (02793)*
- Faculty dining room (02794)*
- Student dining room (02795)*
- Full-service kitchen (02796)*
- Convenience kitchen (02797)*
- Finishing/satellite kitchen (02798)*
- Dry food/nonhazardous supplies storage area (02799)*
- Food-serving area (02800)*
- Storage of tables and chairs (02801)*

Multipurpose room (02988)
Refrigerated/freezer storage area (03109)
Disb-return area (03251)
Trash disposal area (03252)
Recyclable materials area (03253)
Food-receiving area (03254)
Kitchen garden (new option)

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

4000

Indoor Athletic/Physical Education Space Type (0934)

Auxiliary gymnasium (02709)
Weight-training room (02710)
Wrestling room (02711)
Dance studio (02712)
Team room (02713)
Pool/natatorium (02714)
Locker room (02715)
Equipment storage (02716)
Press box (02717)
Multipurpose space (02718)
Health classroom (02719)
Playtorium (auditorium/gymnasium) (02720)
Gymnasium (02984)

LEED Eligibility Standards for Alterations and Additions (1549)

Maximum alterations/additions (13630)
Minimum alterations/additions (13631)

Library/Media Center Specialty Space Type (0933)

Collections room (02703)
Reading room (02704)
Distance learning lab (02705)
Copy center (02706)
Study room (02707)
Workroom (02708)
Reception/checkout desk (13632)

Operations/Maintenance Space Type (0941)

Custodian office (02777)
Custodial closet (02778)
Mechanical room (02779)
Boiler room (02780)
Fan room (02781)
Systems control room (02782)

Electrical closet (2783)
Communications closet (02784)
Server room (02785)
Storage–flammable materials (02786)
Storage–maintenance equipment (02787)
Storage–hazardous materials (02788)
Student toilet (02789)
Public toilet (02790)
Staff toilet (02791)

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

Outdoor Athletic/Physical Education Space Type (0935)

Multipurpose grassy play field (02721)
Concessions/restrooms (02722)
Track/fields (02723)
Bleacher seating (02724)
Tennis courts (02725)
Paved outdoor basketball courts (02726)
Fitness trail (02727)
Baseball field (02728)
Softball field (02729)
Football field (02730)
Soccer field (02731)
Other sports field (02732)
Field house (02985)

Outdoor/Nonathletic Space Type (1118)

Playground (02433)
Schoolyard garden (03407)
Sandbox (03409)
Outdoor classroom (13633)
Outdoor seating (13634)
Natural habitat area (13635)
Splash play area (13636)
Kitchen garden (13629)

Performing Arts Specialty Space Type (0929)

Auditorium (fixed seats) (02768)
Backstage room/green room (02772)
Balcony (13637)
Band room (02650)
Blackbox theater (02654)
Choral room (02652)

Control room (02769)
Costume storage area (02770)
Drama classroom (02653)
Green room (02771)
Keyboard laboratory (02656)
Instrument storage (02655)
Multipurpose music room (02658)
Multimedia production center (02659)
Practice room (02651)
Radio/television broadcast studios (02660)
Television studio (02657)

School Design Type (0921)

Early childhood center (02599)
Elementary school (02600)
Middle school (02601)
Junior high school (02602)
Senior high school (02603)
Career–technology education center (02604)
Adult education school (02605)
Special education school (02606)
K–8 school (02607)
6–12 school (02608)
Alternative school (02609)
Performing arts school (13638)
Science, technology, engineering, and math (STEM) school (13639)

Science Specialty Space Type (0930)

Outdoor classroom (02435)
Biology laboratory (02661)
Chemistry laboratory (02662)
Environmental science laboratory (02663)
Physics laboratory (02664)
Planetarium (02665)
Prep room (02666)
Science lecture room (02667)
Chemical storage room (02668)
Miscellaneous storage room (02669)
General science laboratory (02670)

Space Design Type (0925)

Basic classroom (02628)

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

4000

Specialty classroom (02629)

Library/media (02630)

Athletic (02631)

Student support (02632)

Administration (02633)

Assembly (02634)

Corridors (02635)

Operational support (02636)

Storage (02637)

Food service (02638)

Dormitory room (02639)

Multipurpose room (02773)

Restroom (03017)

Special Education Specialty Space Type (0931)

Occupational therapy room (02671)

Speech and hearing room (02672)

Physical therapy room (02673)

IEP conference room (02674)

Itinerant staff room (02675)

Self-contained classroom (02676)

Resource room (03107)

Student Support Space Type (0936)

In-school suspension room (02733)

Nurse's station (02734)

Health suite (02735)

Health room lavatory (02736)

Guidance/counseling room (02737)

Career center (02738)

College center (02739)

Internship center (02740)

Student club space (02741)

Facility Furnishings Type (1550)

Classroom (03014)

Administrative office (00103)

Cafeteria (02792)

Occupational therapy (00309)

Physical education (00559)

Physical therapy (00313)

For definitions, visit

nces.ed.gov/programs/handbook/index.asp

Facilities Utilization

Annual Hours of School Operation—Before school (1558)

Annual Hours of School Operation—Regular School Hours (1559)

Annual Hours of School Operation—After School (1560)

Annual Hours of School Operation—Weekend Hours (1561)

Annual Hours of School Operation—Summer Session (1562)

Current Building Use Type (0943)

Operations building (02802)

Investment (02804)

Not in use (02805)

Holding school (02806)

Administrative building (13700)

Alternative school (13699)

Grade-level school (13698)

Enrollment Projection Number (0126)

Enrollment Projection Year (0128)

Instructional Space Factor (0946)

Instructional space (02811)

Noninstructional space (02812)

Joint Use Rationale (1567)

Raise revenue (13709)

Increase programs and services for students (13710)

Increase programs and services for the community (13711)

Increase utilization of underused space (13712)

Joint Use Scheduling Type (1557)

Drop-in use (13694)

Long-term lease (13697)

One-time event use (13695)

Short-term lease (13696)

Joint User Type (1566)

Civic groups (13705)

Individuals (13704)

Other public agencies (13706)

5000

Private for-profit corporations (13708)

Private nonprofit organizations (13707)

School Use Type (0944)

Special education (02043)

Multigrade education (02807)

Career–technical education (02808)

Adult education (02809)

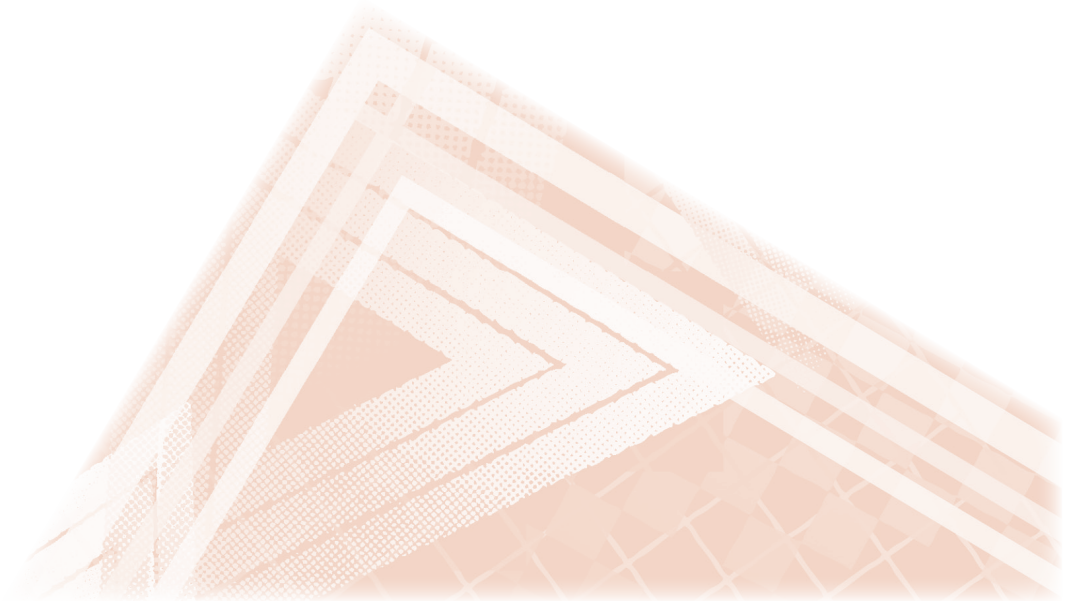
Elementary education (02810)

Early childhood education (13701)

Middle school education (13702)

High school education (13703)

For definitions, visit
nces.ed.gov/programs/handbook/index.asp



CATEGORY 6000

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

6000

Facilities Management

Capital Project Start Date (0975)

Capital Project Change Start Date (1551)

Capital Project Change Scheduled Completion Date (1552)

Capital Project Delivery Method (0972)

Design-bid-build (02917)

Construction management (02918)

Construction management at risk (02919)

General contractor method (02920)

Design-build (02921)

Fast track (02922)

Job order contracting (02923)

Capital Project Status (1553)

Architect/engineer selection (02925)

Feasibility study (02926)

Schematic design phase (02927)

Design development phase (02928)

Construction documents (02929)

Construction procurement (02930)

Demolition/site development phase (02931)

Construction phase (02932)

Beneficial occupancy (02933)

Close-out phase (02934)

Post-occupancy evaluation (02935)

Project planning phase (02993)

Site acquisition phase (02994)

Environmental clean-up (13640)

Environmental testing (13641)

Public review phase (13642)

Capital Improvement Project Type (0971)

Site acquisition (02904)

Environmental site clean-up (02905)

Planning (02906)

Design (02907)

New construction (02908)

Demolition (02909)

Remodeling of interior space (02910)
Full modernization (02911)
Renovation (02912)
Component or systems replacement (02914)
Exterior modernization (02915)
Site improvements (02916)
Landscaping (02992)
Accessibility improvements (13647)
Addition (13648)
Building replacement (13649)
Instructional upgrades (13650)
Systemic renovation (13651)

Cleaning Standard (0978)

Level 1 cleaning (02831)
Level 2 cleaning (02832)
Level 3 cleaning (02833)
Level 4 cleaning (02834)
Level 5 cleaning (02835)

Compliance Agency Type (1109)

Federal agency (13652)
Local agency (00862)
State agency (00860)
Regional or intermediate educational agency (00214)
Private/religious (00864)
Charter board (00865)

Energy Conservation Measure (ECM) (0982)

Window replacement (02846)
Installation of energy controls (02847)
HVAC replacement (02848)
Lighting replacement (02849)
Insulation improvements (02850)
Daylighting (13653)
Delamping (13654)
*Installation of solar equipment **NEW***
*Relamping **NEW***

Energy Source (0984)

Oil (02842)
Hydro power (02843)
Natural gas (02853)

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

Electricity (02854)

Solar (02855)

Wind (02856)

Geothermal (02857)

Coal (02858)

Biomass (13655)

Facilities Management Emergency Type (0969)

Fire (02878)

Theft (02879)

Bomb threat (02880)

Terrorism (02881)

Act of violence (02882)

Hostage (02883)

Hurricane and tropical storm (02884)

Thunderstorm–severe (02885)

Earthquake (02886)

Winter storm (02887)

Debris flows or mudslide (02888)

Tsunami (02889)

Volcano (02890)

Wildfire–surface, ground, or crown fire (02891)

Extreme heat (02892)

Major chemical emergency (02893)

Gas leak (02894)

Emergency shelter need (02895)

Tornado (02896)

Flood (02897)

Facilities Plan Type (0996)

Emergency response plan (02825)

Maintenance plan (02826)

Education facilities master plan (02827)

Capital improvement plan (02828)

Energy management plan (02829)

Hazardous materials management plan (02830)

Facility Capital Program Management Type (0965)

Private management (02823)

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

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Nonschool public agency management (02824)

District management (02913)

Facility Operations Management Type (0964)

School district management (02819)

Private sector management (02820)

District and private sector management (02821)

Nonschool public sector management (02822)

Hazardous Materials or Condition Type (0996)

Asbestos (02898)

Lead (02899)

Mold (02900)

Underground storage tanks (USTs) (02901)

Radon (02902)

Pesticides (02903)

Carbon monoxide (13656)

Chlorofluorocarbons (13657)

Concentrated animal feeding operations (CAFOs) (13658)

Criteria air pollutants (13659)

Drip lines (13660)

Ground-level ozone (13661)

Hazardous air pollutants (13662)

Hazardous, industrial, or municipal waste sites (13663)

Hydrochlorofluorocarbons (13664)

Mercury (13665)

Methane (13666)

Nitrogen oxides (13667)

Particulate matter (13668)

Polychlorinated biphenyls (PCBs) (13669)

Propellants (13670)

Refrigerants (13671)

Sediment, sludge, and reuse material (n13672)

Sulfur dioxide (13673)

Vapor intrusion (13674)

Volatile organic compounds (13675)

Job Type (0988)

Carpentry (02860)

Custodial (02861)

Electrical (02862)

Safety and environmental (02863)

For definitions, visit

nces.ed.gov/programs/handbook/index.asp

Glazing (02864)
Grounds (02865)
Energy management (02866)
Masonry (02867)
Painting (02868)
Plumbing (02869)
Roofing (02870)
HVAC (02871)
Electronic systems/security (13676)
Locksmith (13677)
Technology (13678)

Joint Development Type (1555)

Shared (13689)
Dedicated (13690)

Maintenance Standard (0979)

Run to fail (02836)
Routine (02837)
Preventive (02838)
Predictive (02839)
Emergency repair (02989)

Naturally Occurring Hazard Type (1554)

Arsenic (13678)
Earthquake-prone area (13679)
Floodplains (13680)
Liquifaction, landslide area (13681)
Naturally occurring asbestos (NOA) (13682)
Sinkholes, Karst terrain (13683)

Status of Work Order Request (0993)

Open (02874)
Assigned (02875)
Completed (02876)
Reopened Work Order (02877)
In progress (13684)

Utility Provider Type (0983)

Self-generated (02851)
Purchased (02852)

Utility Type (0980)

Electricity (02840)
Natural gas (02841)

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

6000

Water and sewer (02844)

Telephone (02845)

Internet service (02990)

Oil (02842)

Recycling (13685)

Waste (13686)

Work Order Priority (0990)

Regular priority (02872)

Low priority (02873)

Emergency priority (02991)

Audit Type (1033)

Management audit (02976)

Financial audit (02977)

Performance audit (02978)

Building commissioning (02979)

Fiscal audit (02980)

Process audit (02981)

Post-occupancy evaluation (13688)

Retro-commissioning (13687)

Charter School Realty Access Type (1556)

Leasehold (13691)

Ownership by charter nonprofit corporation (13692)

Third-party nonprofit ownership (13693)

Third-party public sector ownership **NEW**

For definitions, visit

nces.ed.gov/programs/handbook/index.asp

CATEGORY 7000

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

7000

Facilities Budget and Finance

Debt Financing Type (1013)

- General obligation bond (02949)*
- Municipal bond (02950)*
- Revenue bond (02951)*
- Tax increment financing (02953)*
- Advance refunding (13713)*
- Certificates of participation (02952)*
- Debt defeasance (13714)*
- Mortgage (13716)*

Facilities Capital Activity Type (1006)

- Building demolition activity (02946)*
- Environmental cleanup of building activity (02947)*
- Furniture, fixtures, and equipment (02948)*
- Management contracts activity (02982)*
- Land acquisition (02995)*
- Land improvement (02996)*
- Planning activity (2997)*
- Design activity (02998)*
- Construction activity (02999)*
- Building purchase* **NEW**
- Infrastructure* **NEW**

Facilities Operations Type (1004)

- Utilities (02936)*
- Custodial personnel services (02937)*
- Custodial other than personnel services (02938)*
- Custodial contracts (02939)*
- Maintenance/repair personnel services (02940)*
- Maintenance/repair other than personnel services (02941)*
- Maintenance/repair contracts (02942)*
- Management personnel services (02943)*
- Management other than personnel services (02944)*
- Management contracts (02945)*

Finance Options (1018)

- Public/private development partnerships (02954)*
- Energy-saving performance contract (02955)*
- Sale-lease back (02956)*

Financing Fee Type (1568)*Application fee (13717)**Legal fee (13718)**Origination fee (13719)***Lease Amount–Facilities (1570)****Lease Amount Category–Facilities (1569)***Base rent (13720)**Credits (13721)**Escalator (13722)***Lease Type–Equipment (1036)***Capital lease (02973)**Master lease (02974)**Operating lease (02975)***Lease Type–Facility (1571)***Building lease (13723)**Ground lease (13724)**Lease build to suit (13725)**Lease shell with significant leasehold improvements (13726)**Triple-net lease (13727)***Charter School Location Duration (1572)***Permanent (13728)**Temporary (13729)***Mortgage Interest Amount (1573)****Mortgage Interest Type (1574)***Add-on interest (13730)**Adjustable-rate mortgage (ARM) (13731)**Balloon mortgage (13732)**Deferred interest (13733)**Fixed payment mortgage (13734)**Fixed-rate mortgage (13735)**Floating rate (13736)**Fully amortizing mortgage (13737)**Graduated-payment mortgage (GPM) (13738)**Interest-only loan (13739)**Open-end mortgage (13740)***Mortgage Type (1575)***Junior mortgage (13741)**Second mortgage (13742)**Senior or first mortgage (13743)*

For definitions, visit

nces.ed.gov/programs/handbook/index.asp

Nontax Revenue Type (1025)

- Individual contributions (02969)*
- Corporate contributions (02970)*
- Foundation contributions (02971)*
- Payments in lieu of tax contributions (02972)*
- Capital lease proceeds (13744)*
- Cash (13745)*
- Gains or losses on the sale of capital assets (13746)*
- Loan Proceeds (13747)*
- Loans (13748)*
- Miscellaneous revenues from other local government units (13749)*
- Miscellaneous revenues from other school districts (13750)*
- Other long-term debt proceeds (13751)*
- Proceeds from the disposal of real or personal property (13752)*
- Rentals (13753)*
- Revenue for, or on behalf of, the school district from an intermediate jurisdiction (13754)*
- Revenue for, or on behalf of, the school district from the federal government jurisdiction (13755)*
- Revenue for, or on behalf of, the school district from the state (13756)*

Revenue from Community Service Activities (1577)

- Event fees (13759)*
- Lease revenue (13760)*

Other debt type (1576)

- Bridge financing or bridge loan (13757)*
- Installment debt (13758)*

Tax Revenue Type (1024)

- Federal income tax (01561)*
- Local property tax (02957)*
- City commuter income tax (02958)*
- County or city sales tax (02959)*
- State property tax (02960)*
- State sales tax (02961)*
- State personal income tax (02962)*
- State corporate income tax (02963)*
- State lottery proceeds (02964)*
- State alcohol tax (02965)*
- State cigarette tax (02966)*
- Tobacco settlement revenue (02967)*
- Developer impact fees (02968)*

For definitions, visit
nces.ed.gov/programs/handbook/index.asp

7000



APPENDIX A

Definitions of Newly Proposed Facilities-Related Data Elements and Coding Options

Data elements and coding options without a number are identified in chapter 4 as **NEW**, meaning that they have not yet been incorporated into the NCES *Handbooks Online*. Definitions proposed for several of these elements and options are presented below, but subject to revision prior to final approval and inclusion in the online resource.

Acquisition Date (new element)

The date the property/facility was acquired.

Building Elements Demolition (new element)

A description of the destruction and removal of parts of an existing building.

Hazardous Components Abatement (new element)

A description of the removal and control of hazardous materials from a construction site.

Other Site Systems and Equipment (new element) Description of additional site systems and equipment necessary for site development.

Service and Pedestrian Tunnels (new element)

A description of passageways above- and below-ground that must be completed during site development.

Kitchen garden (new option)

A garden in which plants are cultivated for use in the kitchen.

Relamping (new option)

The replacement of lamps that are not performing at peak performance.

Third-party public sector ownership (new option)

Legal title is held by a municipality or school district with responsibility to provide facilities to public charter operators.

Building purchase (new option)

Expenditures for acquiring existing buildings, including those for installment or lease payments (except interest) with a terminal date.

Infrastructure (new option)

Expenditures for purchased infrastructure assets by the school district. These items may include water/sewer systems, roads, bridges, and other assets that have significantly longer useful lives than other capital improvements.



APPENDIX B

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APPENDIX C

Resources and Connections

This appendix contains brief descriptions of resources and websites maintained by federal, state, and local education agencies; as well as professional organizations and other groups actively working to improve the quality of education facilities information management.

NATIONAL CENTER FOR EDUCATION STATISTICS

<http://nces.ed.gov>

The National Center for Education Statistics (NCES), a part of the U.S. Department of Education, is the primary federal entity for collecting and analyzing data related to education in the U.S. and other nations. It supports the National Forum on Education Statistics (the Forum, <http://nces.ed.gov/forum>), which commissioned this document.

The following resources published by NCES and the Forum can help in planning a broad-based approach to the design of education data systems in general, and facilities data systems in particular.

The NCES Handbooks Online

<http://nces.ed.gov/programs/handbook>

This web tool provides a comprehensive list of data elements and their definitions that can be used to collect data about students.

National Education Data Model

<http://nces.sifinfo.org/datamodel>

The National Education Data Model (NEDM) is a conceptual but detailed representation of the education information domain that strives to promote a shared understanding among all education stakeholders as to what information needs to be collected and managed at the local level in order to enable effective instruction of students and superior leadership of schools.

Traveling Through Time: The Forum Guide to Longitudinal Data Systems, Book I: What is an LDS?

http://nces.ed.gov/forum/pub_2010805.asp

This Forum guide, the first installment of a four-part series on longitudinal data systems (LDS), focuses on the fundamental questions of what an LDS is (and what it is not), what steps should be taken to achieve a sound system, what components make up an ideal system, and why such a system is of value in education. The full series is intended to help state and local education agencies meet the many challenges involved in building robust LDSs, populating them with quality data, and using this new information to improve the education system.

Traveling Through Time: The Forum Guide to Longitudinal Data Systems, Book II: Planning and Developing an LDS

http://nces.ed.gov/forum/pub_2011804.asp

Book two of the *Traveling through Time* series provides best practices for planning and developing an LDS. An initial discussion of the information and systems development life cycles provides useful frameworks for guiding ongoing LDS efforts. A key element discussed throughout is stakeholder engagement from initial LDS design through development, distribution, and evaluation; and the book provides useful information on garnering such support and involvement. Delving into the “nuts and bolts” of development, the guide includes best practices for assessing and defining needs, gaining buy-in and funding, working with vendors, and evaluating and refining the system.

Traveling Through Time: The Forum Guide to Longitudinal Data Systems, Book III: Effectively Managing LDS Data

http://nces.ed.gov/forum/pub_2011805.asp

Book three of the *Traveling through Time* series focuses on the ongoing work of managing an LDS, including assigning responsibility for system governance and upkeep, establishing data quality controls, implementing standards, and protecting privacy and security. Best practices contribute to a sound LDS that includes accurate, useful, and secure data. By ensuring quality through LDS management, users can confidently utilize data to improve education systems.

Forum Guide to Decision Support Systems: A Resource for Educators

http://nces.ed.gov/forum/pub_2006807.asp

This guide was developed to remedy the lack of reliable, objective information available to the education community about decision support systems. It is intended to help readers better understand what decision support systems are, how they are configured, how they operate, and how they might be developed and implemented in an education setting.

Forum Guide to Metadata: The Meaning Behind Education Data

http://nces.ed.gov/forum/pub_2009805.asp

This guide offers best practice concepts, definitions, implementation strategies, and templates/tools for an audience of data, technology, and program staff in state and local education agencies. This resource is intended to improve stakeholders’ awareness and understanding of metadata and, subsequently, the quality of the data in the systems they maintain.

Financial Accounting for Local and State Systems, 2009 Edition

<http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2009325>

This NCES handbook provides a comprehensive list of the data elements used in finance data collection, as well as their definitions. It represents a national set of standards and guidance for school system accounting and incorporates guidance from the Governmental Accounting Standards Board (GASB) Statements, through Statement 47; and was developed to help ensure that education fiscal data are reported comprehensively and uniformly.

Forum Guide to Core Finance Data Elements (NFES 2007–801)

http://nces.ed.gov/forum/pub_2007801.asp

This guide provides guidance on how to use the financial accounting data elements, and provides common finance measures and finance performance indicators.

The Forum Unified Education Technology Suite

http://nces.ed.gov/forum/pub_tech_suite.asp

This Forum online resource presents a practical, comprehensive, and tested approach to assessing, acquiring, instituting, managing, securing, and using technology in education settings. It is available to help individuals without extensive technology experience to develop a better understanding of the terminology, concepts, and fundamental issues influencing technology acquisitions and implementation decisions. This resource combines and updates four earlier NCES/Forum publications: *Safeguarding Your Technology* (1998), *Technology @ Your Fingertips, Version 2.0* (2001), *Technology in Schools* (2002), and *Weaving a Secure Web around Education* (2003).

OTHER FEDERAL AGENCIES WITH FACILITY INFORMATION

EnergySmart Schools

http://apps1.eere.energy.gov/buildings/publications/pdfs/energysmartschools/ess_overview_factsheet.pdf

This program of the U.S. Department of Energy provides information on reducing energy costs through better school design and management practices. The EnergySmart Schools website offers training workshops, publications, recognition, direct technical assistance, financing options, and a host of other resources.

E-Rate Program

<http://www2.ed.gov/about/offices/list/oii/nonpublic/erate.html>

The Schools and Libraries Universal Service Fund, a program of the U.S. Federal Communications Commission known as “E-rate,” was created to make telecommunications services affordable for every school and library. Through this fund, eligible schools and libraries receive discounts on telecommunications services, internal connections, and Internet access. Schools and libraries can use the funds they save on infrastructure to support these elements of a comprehensive technology plan. The E-rate website provides general information, publications, and training conferences on the program.

Energy Star for Schools

http://www.energystar.gov/index.cfm?c=k12_schools.bus_schoolsk12

Energy Star for Schools is a program sponsored by the U.S. Environmental Protection Agency to help schools and school districts track and manage energy use, and to evaluate facility financial performance and services for use in new school construction. Free tools and resources are available to help schools evaluate their energy performance with Portfolio Manager, learn how to teach students about becoming energy-efficient, and develop a successful energy management program.

Federal Emergency Management Agency

<http://www.fema.gov>

The Federal Emergency Management Agency (FEMA) supports citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.

General Accounting Office

<http://www.gao.gov>

The General Accounting Office (GAO) is an independent agency that works under Congress; a number of studies covering school facilities can be found on its website.

Healthy School Environments

<http://www.epa.gov/schools>

The U.S. Environmental Protection Agency (EPA) maintains a website on environmental issues relevant to school buildings. Facility-related information includes

- an assessment tool that evaluates a school's key environmental, safety, and health issues;
- how to reduce mercury in schools;
- Energy Star for K-12 School Districts;
- integrated pest management in schools through environmentally sensitive building maintenance practices;
- addressing asbestos in school buildings;
- addressing lead in school drinking water; and
- siting of school facilities resources.

Creating Healthy Indoor Environments in Schools

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

This program of the U.S. Environmental Protection Agency (EPA) provides information on improving school air quality through better design and management practices. The site provides publications and guidelines for dealing effectively with mold and moisture problems so as to protect the health of building occupants.

The U.S. Access Board

<http://www.access-board.gov>

The U.S. Access Board website provides guidelines and standards for access to facilities designed, built, altered, or leased with federal funds.

FACILITIES-RELATED INDUSTRY ORGANIZATIONS

American Institute of Architects Committee on Architecture for Education

<http://network.aia.org/committeeonarchitectureforeducation>

The American Institute of Architects' (AIA) Committee on Architecture for Education (CAE) serves architects interested in designing education facilities and helps them stay abreast of the most current



trends. This website provides up-to-date information on upcoming events, a contact list for the CAE leadership team, and case studies of school construction.

Council of Educational Facility Planners International

<http://www.cefpi.org>

The Council of Educational Facility Planners International (CEFPI) is a membership organization dedicated to improving the places where children learn. This website offers publications on school facility construction, prototypes of school designs, and guides to facility planning and renovating and reusing historic buildings.

International Code Council

<http://www.intlcode.org>

The International Code Council (ICC) aims to promote building safety and fire protection. The association develops codes and building standards used when buildings—including schools and homes—are constructed. The website offers a variety of publications including the *International Fire Code*, *International Building Code*, and *International Zoning Code*. Information on proposed code changes for school facilities is also available.

U.S. Green Building Council

<http://www.usgbc.org>

The U.S. Green Building Council (USGBC) is a nonprofit organization that aims to promote a prosperous and sustainable future through cost-effective and energy-saving green construction. The website offers an array of relevant research, litigation, and construction guidelines to secure LEED certification. It also lists events and education programs planned by USGB's Education Committee.

Collaborative for High Performance Schools

<http://www.chps.net>

The mission of the Collaborative for High Performance Schools (CHPS) is to help design, construct, and operate high performance schools; and create environments that are not only energy- and resource-efficient but also healthy, comfortable, and containing the amenities needed for a quality education. The website offers virtual school greening conferences, operation report cards, a facilities manager dashboard, a facilities questionnaire, CHPS resolutions, guidelines for CHPS certification, and more.

Green Building Initiative

<http://www.thegbi.org>

The Green Building Initiative (GBT) developed the Green Globes model to environmentally assess buildings. The website provides school facilities with Green Globes certification applications and guidelines, green building news, and case studies of newly constructed Green Globes-certified school buildings.

SCHOOL-RELATED PROFESSIONAL ORGANIZATIONS WITH FACILITY INFORMATION

American Federation of Teachers

<http://www.aft.org>

The American Federation of Teachers (AFT) offers information on state school facilities contacts, reports on school facilities gaps, tips on how to green schools, a checklist for ensuring fair and effective school facilities, and school improvement implementation plans.

APPA

<http://www.appa.org>

APPA (formerly the Association of Higher Education Facilities Officers) is engaged in the field of education facilities management, and dedicated to the ongoing evolution of its professionals into influential leaders in education.

Association of School Business Officials International

<http://www.asbointl.org>

The Association of School Business Officials (ASBO) is an organization of school district business officers. The website provides programs and services to promote the highest standards of school business management practices, professional growth, and the effective use of education resources.

National Association of College and University Business Officers

<http://www.nacubo.org>

The National Association of College and University Business Officers (NACUBO) is a resource for business and financial management of higher education, offering the following to its member institutions: professional development and staff recruitment; publications; networking and news; resources and services; and surveys, benchmarking, and research.

National Education Association

<http://www.nea.org>

The National Education Association (NEA) is America's oldest and largest organization committed to advancing the cause of public education. The website provides many articles concerning green schools and school facilities development; reports on how to repair, rehabilitate, and modernize school buildings; and statements on NEA policy positions regarding federal support for school building improvements.

National School Plant Management Association

<http://www.nspma.org>

The National School Plant Management Association (NSPMA), is a membership organization that facilitates the exchange of information on school plant management, maintenance, and care. The website offers information on legislative action on support facilities and leadership development; and stresses the importance of having the best possible education facilities for learning.

SELECTED STATE EDUCATION AGENCY FACILITIES WEBSITES

Alaska Department of Education and Early Development–Facilities

<http://www.eed.state.ak.us/facilities>

The Alaska Department of Education and Early Development’s facilities website provides information on school capital projects, school construction guidelines, bond reimbursement, grant review, and facility renewal and replacement schedules.

Alabama State Department of Education–School Architect and School Facilities

http://www.alsde.edu/html/sections/section_detail.asp?section=86

The Alabama State Department of Education’s School Architect and School Facilities website provides information on reaching the architect responsible for reviewing and approving construction projects in the state of Alabama. It also contains publications detailing school-site requirements and capital planning tutorials.

Arizona School Facilities Board

<http://www.azsfb.gov/sfb/agency/pages/home.asp>

The State of Arizona’s School Facilities Board website contains policies, facilities assessment forms and documents, school construction guidelines, district data, meeting summaries, and general information on federal grant programs.

Arkansas Division of Public Schools–Academic Facilities and Transportation

<http://arkansasfacilities.arkansas.gov>

The Arkansas Division of Public Schools’ Academic Facilities and Transportation website links to the *Arkansas School Facility Manual*, which offers information on master facility planning, standards, and guidelines for school construction. The site also provides a facilities calendar, district/school reports, and facility funding programs.

California School Facilities Planning Division

<http://www.cde.ca.gov/ls/fa>

The California Department of Education’s School Facilities Planning Division website offers facility information including school construction guidelines; contact information for field staff; a description of the plan-review process; and site evaluation, modernization and construction forms. The site also provides information on state-funded programs.

California Department of General Services–Office of Public School Construction

<http://www.opsc.dgs.ca.gov>

The California Department of General Services’ Office of Public School Construction website offers information on current and past school construction, lease–purchase arrangements, school construction guidelines, and school maintenance. Reports on the construction cost index, bond accountability information, and an overview of state school facility programs are also provided.

Colorado Department of Education—Public School Finance

http://www.cde.state.co.us/index_finance.htm

The Colorado Department of Education's Public School Finance website provides reports on school construction guidelines, payments, and facility assessments; as well as annual finance reports and listings of federal funding programs.

Delaware Department of Education—FacilityNet

<http://facilitynet.doe.k12.de.us/>

The Delaware Department of Education's school facilities website offers information on school floor plans, unit format codes, construction guidelines, and facility assessment regulations.

District of Columbia Public Schools—Office of Facilities Planning

<http://dcps.dc.gov/DCPS/About+DCPS/Office+Directory/Facilities+Planning>

The District of Columbia Public Schools' Office of Facilities Planning is responsible for overseeing and coordinating the development and implementation of master facilities plans, and providing management and strategic planning on DCPS green initiatives. The website offers staff contact information, school construction guidelines, and dates of upcoming events.

Florida Department of Education—Office of Educational Facilities

<http://www.fldoe.org/edfacil>

The Florida Department of Education's Office of Educational Facilities provides technical support and information for all issues related to education facilities planning, funding, construction, and operations throughout the state's K–20 education system. Of special interest is the Florida Inventory of School Houses (F.I.S.H.), a state-level facilities data system.

Georgia Department of Education—Finance and Business Operations, Facilities Services

http://www.doe.k12.ga.us/fbo_facilities.aspx

The Georgia Department of Education Finance and Business Operations' Facilities Services provides assistance to the state school system in developing long-range capital improvement plans, acquiring funds, providing school construction guidelines, and reviewing architectural plans.

Hawaii State Department of Education—Office of School Facilities and Support Services

<http://obs.k12.hi.us/oms.nsf>

The Hawaii State Department of Education's Office of School Facilities and Support Services website provides links to auxiliary services, applications and references for school construction work orders, and information on school construction guidelines.

Idaho State Department of Education Facilities

<http://www.sde.idaho.gov/site/facilities>

The Idaho State Department of Education's facilities website provides information on school construction guidelines; ten-year facilities plans; and a best practices manual for planning, building, and maintaining school facilities.

Illinois State Board of Education School Construction Program

<http://www.isbe.state.il.us/construction/default.htm>

The Illinois State Board of Education's school construction website focuses on the construction, expansion, renovation, and maintenance of school facilities. Information on school grant programs, school construction laws, and related rules and standards are also provided.

Illinois School Construction Program

www.cdb.state.il.us/schools/school1.htm

The Illinois School Construction Program website provides reports on best practices for school construction, contact information for relevant program staff, and a list of school grant programs.

Kentucky Department of Education—District Facilities Branch

<http://www.education.ky.gov/kde/administrative+resources/facilities>

The Kentucky Department of Education's District Facilities Branch assists school districts by reviewing and approving all sites, buildings, additions, and alterations; as well as energy-saving projects. In addition, the website provides information on school construction guidelines.

Maine Department of Education—School Facilities Services

<http://www.maine.gov/education/const/sfnt/home.htm>

The Maine Department of Education's school facilities and transportation website explains major capital school construction, school renovations, and school maintenance programs. It also provides information on school construction templates, school construction regulations, and federally funded programs.

Maryland Public School Construction Program

<http://www.pscp.state.md.us>

The Maryland Public School Construction Program website provides information on funding for public school construction projects, applications for federal school construction programs, and annual reports on capital improvement of school facilities.

Massachusetts School Building Authority

<http://www.massschoolbuildings.org>

The Massachusetts School Building Authority website offers information on current construction projects, guidelines and policies, model school programs, regulations and rules, and capital planning solutions.

Michigan Department of Treasury

http://www.michigan.gov/treasury/0,4679,7-121-1753_37611--,00.html

The State of Michigan Department of Treasury's Bond (Loan) Finance and Investments website contains information on bond resources, including federally funded school bond qualifications, and loans and public school finance programs.

Minnesota Department of Education—School Finance

<http://education.state.mn.us/MDE/SchSup/SchFin/index.html>

The Minnesota Department of Education's school finance website provides information on tax credit reports, school finance awards, and financial statements.

Mississippi Department of Education—Office of Healthy Schools

http://www.healthyschoolsms.org/healthy_school_environment/buildinggrounds.htm

The Mississippi Department of Education's Office of Healthy Schools website provides state construction submission rules and procedures, a profile of school district construction finances, records of school bond elections, roofing requirements, and department contact information.

Missouri Division of School Services—School Governance and Facilities

<http://dese.mo.gov/divadm/govern>

The Missouri Department of Elementary and Secondary Education's School Governance and Facilities website offers information on school facility guidelines, school governance and facilities, Qualified Zone Academy Bonds, and staff contacts.

Montana Office of Public Instruction

<http://opi.mt.gov>

The Montana Office of Public Instruction website offers summaries of current activities, details of current school construction programs, and information on state grant funding.

Nebraska Department of Education—Finance and Organizational Services

<http://www.education.ne.gov/fos>

The Nebraska Department of Education's Finance and Organizational Services website contains information on many different aspects of school finance, including annual finance reports per pupil and school, American Recovery and Reinvestment Act bonds, and school enrollment options.

Nevada Department of Education—Sage School Improvement

http://www.doe.nv.gov/si_sage.htm

The Nevada Department of Education's School Improvement website provides rules and procedures for school construction, school improvement plan templates, and staff contact information.

New Hampshire Department of Education—School Building Aid Program

http://www.education.nh.gov/program/school_approval/school_build.htm

The New Hampshire Department of Education's School Building Aid Program web page provides information on school construction guidelines, costs, and financing methods.

New Jersey Department of Education—School Facilities

<http://www.state.nj.us/njded/facilities>

The New Jersey Department of Education's School Building Aid and School Facilities program page offers information on state education facilities planning, as well as school construction financing and guidelines.



New Jersey School Construction Initiative

http://lwd.dol.state.nj.us/labor/employer/training/school_construction.html

The New Jersey School Construction Initiative is one of the largest school construction programs in the United States. The website provides information on design, renovation, repair, and new construction.

New Mexico Public Education Department—Capital Outlay Bureau

<http://www.ped.state.nm.us/CapitalOutlay>

The New Mexico Public Education Department's Capital Outlay Bureau website provides technical support, information on school construction project approval, and school construction guidelines.

New York State Education Department—Facilities Planning

<http://www.emsc.nysed.gov/facplan>

The New York State Education Department's Facilities Planning website offers information on planning, designing, and constructing new schools.

North Carolina—School Planning

<http://www.schoolclearinghouse.org>

North Carolina's Prototype School Design Clearinghouse website offers information on K–12 school facilities, planning assistance, workshops, and staff contacts.

North Dakota Department of Public Instruction—School Finance and School Organization

<http://www.dpi.state.nd.us/finance/construct>

The North Dakota Department of Public Instruction's School Finance and School Organization website contains staff contact information, regulations on Qualified School Construction Bonds and Qualified Zone Academy Bonds, applications for school construction approval, and regulations for school facilities construction.

Ohio School Facilities Commission

<http://www.osfc.ohio.gov>

The Ohio School Facilities Commission (OSFC) administers the state's comprehensive K–12 public school construction program. The agency helps school districts fund, plan, design, and build or renovate schools.

Oklahoma Department of Education—Capital Improvement Section

<http://www.sde.state.ok.us/schools/capitalimprove>

The Oklahoma State Department of Education's Capital Improvement website provides school district boundary maps, school facilities construction plans, and school consolidation and construction codes and regulations.

Pennsylvania Department of Education—School Construction and Facilities

http://www.portal.state.pa.us/portal/server.pt/community/school_construction_and_facilities/7457

The Pennsylvania Department of Education's School Construction and Facilities website offers staff contact information, school construction codes and regulations, school facilities information, school construction initiatives, and links to related websites.

Rhode Island Department of Education—School Construction Aid

<http://www.ride.ri.gov/finance/funding/construction>

The Rhode Island Department of Education's School Construction Aid program allows school districts that need new facilities to receive help with their needs and planning assessments, as well as assistance in determining which construction costs may be eligible for state reimbursement.

South Carolina Department of Education—Office of School Facilities

<http://ed.sc.gov/agency/os/School-Facilities/>

The South Carolina Department of Education's Office of School Facilities website provides information on building fund programs; and offers facility-related technical and educational assistance to a broad group of customers, including school architects, engineers, contractors, and subcontractors. School construction guidelines are also provided.

Texas Education Agency—Facility Funding and Standards

http://www.tea.state.tx.us/index2.aspx?id=5475&menu_id=645

The Texas Education Agency's Facility Funding and Standards website includes information on the state's Instructional Facilities Allotment (IFA) program, the federal Qualified Zone Academy Bond and Qualified School Construction Bond programs, state school facility standards, staff contacts, and school construction guidelines.

Utah State Office of Education—Facilities

<http://www.schools.utah.gov/finance/facilities.aspx>

The Utah State Office of Education School Finance's Facilities and Safety website offers school building and inspection manuals, links for current school construction projects, pre-construction checklists, and Qualified School Construction Bond and Qualified Zone Academy Bond information.

Vermont Department of Education—School Facilities and Construction

http://education.vermont.gov/new/html/pgm_construction.html

The State of Vermont Department of Education's School Facilities and Construction website offers technical support to school districts preparing for construction projects, including school construction guidelines, information and applications for Qualified School Construction Bonds, a school safety checklist, and staff contact information.

Virginia Department of Education—Facility Construction and Maintenance

http://www.doe.virginia.gov/support/facility_construction

This Virginia Department of Education's Facility Construction and Maintenance website offers guidelines for school facility planning, information on energy efficient and high performance school buildings, school construction cost data, facility conferences and training, and links to resources on funding.



Washington State Office of Public Instruction—School Construction Assistance Program

<http://www.k12.wa.us/SchFacilities/Programs/SchoolConstructionProjects.aspx>

The State of Washington Office of Superintendent of Public Instruction's School Construction Assistance Program web page provides information on funded school construction projects and funding assistance, a school facility manual, and technical support for local school district construction projects and other K–12 school facilities-related programs.

West Virginia School Building Authority

<http://www.wvsa.state.wv.us/wvsa>

The State of West Virginia's School Building Authority website provides information on state funding for the construction and maintenance of school facilities, policies and procedure manuals for school construction, staff contacts, and dates for upcoming meetings.

Wisconsin Department of Public Instruction—School Management Services

<http://dpi.wi.gov/sms/index.html>

The Wisconsin Department of Public Instruction's School Management Services website provides a contact list of school facilities resources.

NONPROFIT ORGANIZATIONS WITH SCHOOL-FACILITY INTERESTS

21st Century School Fund

<http://www.21csf.org>

The 21st Century School Fund is a nonprofit organization that builds public will and capacity to modernize urban school facilities through research, constituency building, and communications.

American Architectural Foundation

<http://www.archfoundation.org>

The American Architectural Foundation is a national nonprofit that aims to educate public leaders and the community about the power of architecture to move lives and change places where people live, learn, work, and play.

California's Coalition for Adequate School Housing

<http://www.cashnet.org>

California's Coalition for Adequate School Housing (CASH) promotes, develops, and supports the enactment of statewide and local funding alternatives for construction, maintenance, and modernization of public K–12 schools. Its web-based School Facilities Resources Center provides useful how-to materials that represent best practices in the planning, design, construction, occupancy, and maintenance of California schools.

