

INFORMATION ACCESS AND DELIVERY



Information Access and Delivery: the Heart of Effective Programs

Resources, Needs, and Choices

Making Resources Accessible

Planning and Designing Facilities for Learning

Developing Educational Specifications

Educational Specifications for School Media/
Technology Spaces

Educational Specifications for the School Library
Media Center

Educational Specifications for Furniture, Shelving,
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INFORMATION ACCESS AND DELIVERY: THE HEART OF EFFECTIVE PROGRAMS



All media and technology programs depend on one primary function: the access and delivery of information. Information access and delivery are multifaceted functions that have different meaning for different people. For example:

- For one teacher it may focus on Web-based resources that allow students to solve a problem through a carefully designed Web quest.
- For another teacher, it may be the assignment of a module from skills-building computer software to bring several of the lowest performing students up to the level of their classmates.
- For a student, it may be finding a special book for the latest book report or identifying resources for a research project.
- For the administrator, it may be the ability to access an Internet-based professional development module for graduate credit.

All of these needs rely on the ability of media and technology professionals to access and deliver specific information in a variety of formats and for a variety of reasons. Because information access and delivery are multifaceted, they often overlap with and complement program administration as well as teaching and learning.

The impact of information access and delivery on the quality and effectiveness of the school library media center, computer labs, and classrooms make them the heart of any school media and technology program. Sections in this chapter address the following main topics that are fundamental to information access and delivery in media and technology programs:

- Resources, Needs, and Choices
- Making Resources Accessible
- Planning and Designing Facilities for Learning
- Developing Educational Specifications



RESOURCES, NEEDS, AND CHOICES

RESOURCES ARE THE CORNERSTONES OF EFFECTIVE PROGRAMS.

Resources have always been the cornerstones of effective media and technology programs. Once the province of the book, with an occasional 16mm film or silent filmstrip to supplement its print format, media and technology programs today use myriad formats, reaching beyond the mere four walls of the school building to encompass local, state, national, and international resources.

ACCESS TO RESOURCES IS CRITICAL TO MEETING DIVERSE NEEDS.

The school technology and media programs support diverse needs of learners and teachers with access to high-quality resources (print, non-print, and electronic), equipment, and facilities for classroom activities and personal or professional interests.

CHANGING RESOURCES IMPACT SELECTION AND ACCESSIBILITY POLICIES.

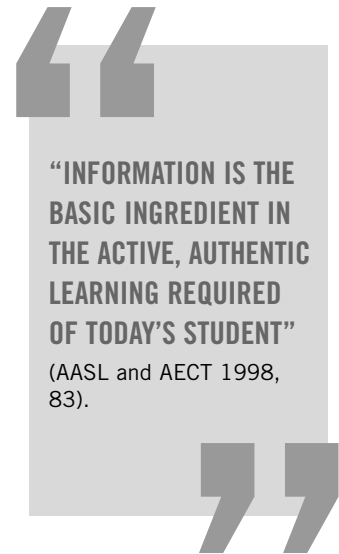
Selecting and providing access to diverse resources that meet unique requirements of individual schools and communities can no longer be determined using quantitative standards. In fact, the changing nature and expansion of school resources make these standards obsolete.

SELECTION OF AND ACCESS TO TODAY'S RESOURCES MUST:

- Be based on an analysis of many needs,
- Include information in a variety of formats,
- Be supported by equipment and evolving technology infrastructure,
- Be supported by effective policies and procedures that help ensure equity.

THE IMPACT OF CHANGING AND EXPANDING RESOURCES

- New and more appropriate forms of needs assessment have replaced quantitative standards.
- Many more resources must be supported by equipment and technology infrastructure.
- Ensuring equity of access means adding new policies and procedures as well as revising some existing ones to address changing resources.



MAKING RESOURCES ACCESSIBLE

THE ROLE OF MEDIA AND TECHNOLOGY PROFESSIONALS

To provide effective information access and delivery, the school library media and technology staff, with other members of the Media and Technology Advisory Committee, constantly:

- Examine the print, nonprint, and technology resources to make sure they meet curriculum development needs of students, teachers, and staff.
- Consult with system-level staff to ensure network compatibility of resources.
- Ensure access to information by students and staff with special needs through the use of assistive/adaptive technologies.
- Discard old, worn, or obsolete resources and equipment.
- Replace or upgrade with new, more appropriate resources and equipment.

An effective, dynamic collection requires continual evaluation and yearly inventory. Assessing faculty and student needs without carefully determining how the collection is meeting those needs gives media and technology staff only part of the information necessary for acquiring resources. Adding new resources and equipment without discarding older, less appropriate items results in resources that are difficult to use and impossible to maintain.

VITAL COMPONENTS FOR RESOURCE ACCESS AND DELIVERY

Vital components of resource access and delivery include:

- Adequate and reliable technology and infrastructure.
- Network and desktop software.
- Online resources.
- Online school library media catalogs (media automation).

ADEQUATE AND RELIABLE TECHNOLOGY AND INFRASTRUCTURE

Connectivity to the school building is only the initial link to the world. It also must extend to the classroom. This connectivity, better known as a Local Area Network, allows instructional and administrative computers to access remote databases and applications, both within the building and to the outside world.

“A COLLECTION OF RESOURCES MUST BE DYNAMIC; IT MUST CHANGE IN CONTENT AND FORMAT BECAUSE THE CURRICULUM CHANGES AND NEW FORMATS BECOME AVAILABLE”

(Alabama Department of Education, 2000).

NETWORK AND DESKTOP SOFTWARE

Electronic resources may be available over the LAN (local area network) or from the local hard drive of a computer. Some examples of these resources would include educational application software, utility software, and Internet browsers.

Installation of software on network or desktop computers is determined by a number of technical factors:

- Number of users
- Speed of the network
- Number of software licenses
- Dispersion of users (for example, lab vs. several classrooms)
- Adequate data storage space

Whether to provide access over the network or on stand-alone computers also depends on the type of software content. For example:

- Is the software text-based reference resources or multimedia, interactive programs? Text-based software is far less demanding of network infrastructure compared to multimedia software that contains sound, streaming video, or other bandwidth intensive components. Loading multimedia software on stand-alone computers relieves the network of these bandwidth demands.
- Does the software consist of programs that run under a management system or applications that do not track student progress? By maintaining student records on a network file server, educators can monitor student work without moving from computer to computer to locate information.

PROCEDURES FOR LOADING SOFTWARE

Loading software onto a computer connected to a local area network may affect both the computer and network functioning. Procedures should be in place to ensure that changes made to a stand-alone computer follow school network guidelines based on system-level policies.

ACCESS TO ONLINE RESOURCES

Today's educational environment fosters the need for global connectivity that enriches the learning environment by allowing teachers and students to access leading libraries, peruse remote information sources (databases), converse with experts in a variety of fields, and complete research using primary sources. The vision of technology resources for North Carolina's K-12 educational community is access to these resources at the point of need, whether it is in the media center, the computer lab, the classroom, the principal's office, or the home.

Technology plays a vital role in providing equitable access to a variety of resources. The goal of access to online resources is to help students become self-directed lifelong learners, complex thinkers, quality producers, collaborative workers, and community contributors. The responsible and ethical use of online resources is a significant issue surrounding access for administrators, teachers, and students.



MEDIA AUTOMATION

All school-owned materials should be organized and arranged so students and teachers can obtain any item quickly and easily. Ease of access requires that all resources in the school be readily available through an online catalog accessible from school and remotely.

Organization of the catalog includes classifying and providing entries for all materials that form the basis of the Online Public Access Catalog (OPAC). Entries in the catalog should follow standardized procedures for machine-readable cataloging (MARC). MARC records can be obtained from a variety of vendors and from Internet sites such as the *Library of Congress* (<<http://lcWeb.loc.gov/marc>>) or Florida's *Sun Link* (<<http://www.sunlink.ucf.edu>>).

School systems using MARC may implement union catalogs that represent the collections found in every school. This can foster cooperation with other libraries through interlibrary loan and resource sharing. Also, those who are new to automation may benefit from the checklist below.

GETTING STARTED WITH MEDIA AUTOMATION

- Define the district or schools' educational objectives.
- Locate resources describing elements of library automation.
- Gather support and form a planning committee.
- Prepare the library media center's collection, including weeding and inventory.
- Select an online catalog and circulation system.
- Select a retrospective conversion process or vendor.
- Convert the cataloging information to MARC records.
- Bar-code library resources.
- Select and purchase hardware for the local library Local Area Network (LAN).
- Select and purchase network operating and communications software.
- Determine layout of site.
- Select and purchase/construct library furniture.
- Plan for and install network cable, adequate electric supply, and telecommunication lines.
- Install hardware, networking software, and the automation system.
- Consider climate control and a security system.
- Purchase and distribute patron cards with barcodes.
- Receive training to use and maintain the online catalog and circulation system.
- Create an ongoing user group for sharing and training.
- Design ongoing evaluation, upgrading, and extension of system.

(Salmon, et al. 1996, 195-8)



PLANNING AND DESIGNING FACILITIES FOR LEARNING

PEOPLE AND RESPONSIBILITIES

PLANNING COMMITTEE REPRESENTATION

Designing a new or renovated facility is not a task for one person. Coordinating the ideas and expertise of a variety of individuals ensures that all aspects of media and technology are evaluated properly and incorporated into the facility design. The personnel below should be represented on the committee.

Although it may not be possible for all committee members to attend every planning session, each member should be kept informed and allowed to have input throughout the planning process.

COMMITTEE REPRESENTATION

- School library media coordinator
- Technology facilitator
- Principal
- Teacher
- Student
- Member of the school board
- System-level facilities director
- System-level media director
- System-level technology director

LEADERSHIP FOR PLANNING

Media and technology staff from both system- and building-levels should be represented on the Planning Committee for Media and Technology Facilities. Here are a few guidelines:

- For the renovation or construction of media and technology facilities, the system-level media and technology directors, in collaboration with the building-level media and technology staff, should provide leadership.
- The chair or leader of the Planning Committee for Media and Technology Facilities should be represented on the overall facility planning committee and serve as liaison with the architect, the building project coordinator, the finance department, and others involved in the building or renovation process.



PLANNING CONSULTANTS

In addition to representatives from within the school system, outside consultants may be involved in the planning process. Assistance from the Instructional Technology Division, School Planning, and other Department of Public Instruction areas can be requested at various stages of the project. In some cases, paid consultants may be employed. If this is needed, job qualifications and experience should be verified.

To be useful, an outside consultant should:

- Have a working knowledge of building- and system-level priorities.
- Have knowledge of the system-level/school technology plan.
- Be able to offer unbiased opinions, supplement the knowledge base of the Planning Committee.
- Have expertise in overall facility design and/or a specialty in the specific program area.

RESPONSIBILITIES OF THE COMMITTEE

The Planning Committee has a critical role in determining the final outcome of the building project. The responsibilities commonly assigned to the Planning Committee include those below.

COMMITTEE RESPONSIBILITIES:

- Carry out the planning process.
- Write educational specifications.
- Review blueprints throughout the design process.
- Check technology infrastructure, utilities and other special requirements.
- Select and determine arrangement of furniture.
- Determine priorities. This means listing those features that are absolutely essential to the program and features that can be modified or eliminated, if necessary.
- Make presentations and/or reports concerning the progress of the facility.

RESPONSIBILITIES OF THE COMMITTEE CHAIR

- The chair or leader of the Planning Committee should establish an atmosphere that encourages visionary thinking.
- Define responsibilities for the committee
- Create a spirit of teamwork.
- Establish a timeline for completing tasks.
- Define terminology.
- Provide resources for background reading and study.
- Keep all committee members and other key people informed of the committee's progress.
- Coordinate the development of educational specifications for media and technology facilities.
- Communicate the educational specifications for media and technology facilities to the overall planning committee.
- Interpret the educational specifications developed by the Planning Committee for Media and Technology Facilities to the overall planning committee and other involved parties (architect, the building project coordinator, and the finance department).

ROLE OF PLANNING COMMITTEE VS. ROLE OF DESIGN PROFESSIONALS

As the Planning Committee works together to design a new facility or renovate an existing one, it is helpful to remember who does what. The Planning Committee develops function descriptions and requirements for each space, but the actual design of the facility should be left to design professionals.

OVERALL FACILITY DESIGN: BASIC CONSIDERATIONS

The considerations below are fundamental to the overall design of the facility.

SPACE REQUIREMENTS AND DESIGN

1. The mission/philosophy of the school and its media and technology program
2. The curriculum, teaching methods, and learning styles
3. The quantity and format of resources and equipment
4. The number and age range of the school population
5. Special needs of diverse student populations



IMPORTANT ELEMENTS OF GOOD DESIGN

Read more about each of these important elements of design on the pages that follow.

ACCESS

A highly accessible facility can maximize services and the use of all available resources.

LOCATION

Factors such as convenience and proximity to instructional areas need to be balanced with security issues.

FACILITIES FOR EXCEPTIONAL CHILDREN

Media and technology facilities must be barrier-free and able to accommodate wheelchairs and other assistive devices.

AESTHETICS AND ATMOSPHERE

An inviting and aesthetically pleasing environment can be created with simple solutions.

ERGONOMICS

Ergonomics maximize use of a facility and can also prevent physical strain and injury.

MECHANICS AND ENGINEERING

Mechanics and engineering dramatically affect the operations within the facility.

SAFETY

Many, but not all, safety issues are addressed by building codes.

SECURITY

The goal of any approach to security should be to increase the availability and access to resources for all users.



ACCESS

Before intellectual access to information can occur, physical access must be addressed. A highly accessible facility can maximize services and the use of all available resources.

Access to computer labs, and media resources during the summer, holidays, and after the traditional school day extends the potential of the media and technology facilities for students, staff, and the community. To make this possible, these facilities must be:

- Located near an exit to the building.
- Accessible to the restrooms.
- Secure from other areas of the building not in use.
- Accessible to a public telephone.

Appropriate signs can greatly encourage independent exploration as well as speed access to materials. Here are some suggestions for designing signs for facilities:

- Identify all areas with signs.
- Label individual shelves, cabinets, drawers, and other storage units.
- Use signs for specific instructions in using various media and equipment.
- Provide signs that are clear, concise, large enough, and attractive.
- Use commercially made, computer-generated, or other homemade signs.

LOCATION

THE MEDIA CENTER SHOULD BE:

- One level.
- Located on the ground floor.
- Convenient to instructional areas without being a thoroughfare.
- Convenient to an outside entrance, restrooms, public telephone, (and an elevator if two floors) for extended hours of operation and to expedite deliveries.
- Accessible to the administrative suite.
- Designed with possibilities for future expansion.

TECHNOLOGY FACILITIES SHOULD BE:

- Located near the media center if designated as general-purpose lab.
- Located near the applicable academic areas if dedicated.
- Easily secured with as few windows and doors as possible.
- Convenient to instructional areas without being a thoroughfare.
- Convenient to an outside entrance, restrooms, public telephone, (and an elevator if two floors) for extended hours of operation and deliveries.

NOTE: Factors such as convenience and proximity need to be balanced with security issues.

FACILITIES FOR EXCEPTIONAL CHILDREN

In accordance with Public Law 101-476, Education of the Handicapped Act Amendments 1990 (revised from the P. L. 94-142), media and technology facilities must be barrier-free and able to accommodate wheelchairs and other assistive devices.

- Public Law 99-457 extends the provisions to 3-5 year olds in early intervention programs.
- Section 661 of the law refers to access to resources and the use of assistive devices.
- Section 504 of the Rehabilitation Act of 1973 concerns the civil rights of physically impaired individuals who are not learning/mentally disabled.

For more information on this topic, see Exceptional Children Facilities Planner, School Planning at <<http://www.schoolclearinghouse.org/pubs/exchild.pdf>>.

STANDARDS FOR ACCESSIBLE COMPUTER WORKSTATIONS

PHYSICAL BARRIERS

Minimum standards for adapted work stations:

- Work surface at least 30" from floor
- Clearance of 29" beneath the top to a depth of at least 20"
- Minimum width of 36" to allow leg space for seated individual
- Utility and equipment controls located within easy reach
- Clear aisle width sufficient to maneuver a wheelchair, recommend 5' diameter

WORKSTATION STANDARDS

Minimum standard workstation:

- 21-inch monitor
- Track ball
- Touchpad
- Word Prediction software
- Screen reader software
- Screen magnification software
- Sound card: use any Windows compatible Sound Card for the PC along with JAWS software; Mac is sound ready
- Voice recognition software
- Scanner/reader
- Adjustable table



RECOMMENDED STANDARD APPLICATIONS AND CONFIGURATION:

- Operating System with Accessibility options installed
- Office Suite with Voice Dictation options installed
- Adobe Acrobat Reader 6 with accessibility options activated
- Apple Quicktime with captioning turned on by default
- Audio and Media Player with captioning turned on by default

"IT Assistive Technology Support." Computer Lab Access. 2004. Oklahoma State University. 12 May. 2005 <<http://access.it.okstate.edu/standards.html>>.



AESTHETICS AND ATMOSPHERE

An inviting and aesthetically pleasing environment can be created with simple solutions that provide the following pleasing and useful characteristics:

- Display space
- Plants, terrariums or aquariums (Maintenance time and costs should be considered.)
- Cheerful decoration
- Inviting signage
- Artwork
- Aesthetic treatments (ceiling heights, color, textures and surfaces)

ERGONOMICS

Ergonomics is related to aesthetics/atmosphere, because it affects the personal comfort of the users and can prevent physical strain and injury. To maximize use of the facility, consider the following guidelines:

- Provide appropriately sized furnishings scaled for the intended users. One size does not fit all. Attempt to provide alternative sizes as needed, particularly in student work and study areas.
- Make sure that different but related activities can be performed without strain. For example: provide a computer keyboard that is within comfortable reach and a monitor that is at eye level. Computers and keyboards require lower-than-normal work surfaces. Attached peripherals should be within easy reach.
- Place screens, monitors, and other viewing devices at proper viewing angle and height. For example:
 - Desk monitors should be at eye level.
 - The most current office and school furnishings are designed to hold monitors below eye level and tilted at just the right angle for effortless viewing.
 - Wall or ceiling-mounted screens span a wider, less-obstructed view when placed at a comfortable angle to the audience.

For more information on this topic, see *Impact of Technology on School Design*, at <http://www.schoolclearinghouse.org/pubs/ImpactofTechnology.PDF>.

MECHANICS AND ENGINEERING

Because adherence to building codes for mechanical features may not be sufficient to cover the program requirements, attention to the following details will dramatically affect the operations within the facility. These features should be outlined in the educational specifications and checked throughout the blueprint review process.

LIGHTING

- Master control switch should be located conveniently near main entrance.
- Separate lighting zones will allow darkening/dimming in specific areas while other areas remain lighted. Separate controls should be located within each zone.
- Natural light controls should be provided for all areas. Blinds, draperies, shades, or other applications are needed for all openings admitting natural light.

ACOUSTICS

- Noisy activity areas such as the cafeteria, music rooms, theaters, dressing rooms, or the gym should not be adjacent to media and technology facilities.
- Acoustical treatments are needed to counter noise within and outside the facility: carpet, ceiling tiles, baffles, adequate space between areas, and wall treatments.

CLIMATE

- Heating, ventilation, and air conditioning (HVAC) controls should be on separate switches from other sections of the school.
- Moisture and temperature control is needed to preserve sensitive audiovisual resources, computer software, photographic supplies, and equipment.
- HVAC systems should adequately control humidity during periods when the building is not occupied and the cooling loads are reduced.

ELECTRICAL

- Adequate electrical service and outlets should meet the needs of technical infrastructure that supports a variety of activities.
- Surge protection is needed for computers, peripherals, and communication lines. Built-in surge protection for circuits that support media and technology activities removes the need for multiple surge individual protectors.
- Adequate number of circuits is necessary to distribute electrical load in all areas, especially in production and computer areas.

DATA, VOICE, AND VIDEO INFRASTRUCTURE

- Telephone lines should be dedicated, isolated, or direct.
- Data lines should have appropriate bandwidth for the transmission of voice, data, and video.



SAFETY

Many safety issues are addressed by building codes; however, there are additional considerations that should be addressed when writing educational specifications or when selecting furnishings and equipment to ensure maximum safety and accessibility for all users of the facility.

- Adequately ground all electrical outlets and provide built-in surge protection to circuits supporting media and technology areas or technology activities.
- Adequately protect electrical outlets, especially floor outlets.
- Avoid pits and story wells because they are inflexible, hazardous, limit the ability to move equipment, and limit accessibility for physically impaired users.
- Avoid furnishings and design features that can cause tripping.
- Avoid furniture arrangements that may inhibit traffic patterns and be potentially hazardous.
- Make sure that edges for furnishings, built-ins, and other storage pieces are smooth and rounded.
- Plan for the appropriate management and bundling of electrical cables for computer and audiovisual equipment. For example, make use of trays, fasteners to secure items to table edges, conduits, and other devices that can prevent accidents.
- Provide safety straps for equipment on rolling carts.

SECURITY

The goal of any approach to security should be to increase the availability and access to resources for all users. Attention to security as a preventive measure will eliminate the prospect of a restrictive environment. Some security features can be built into the structure if they are recognized in advance. A few are listed here:

- Limit the number of entrances/exits.
- Plan for adequate visual control throughout the facility.
- Request appropriate locks for doors and windows.
- Consider security systems and alarms for media and technology areas such as secure equipment storage areas, computer labs, and network/server head-end.
- Locking storage units may be necessary for some media. Use them sparingly because they restrict access.
- Locate the circulation area near the entrance.
- Consider providing an outside “drop” for return of materials.



DESIGN CONSIDERATIONS FOR SPACES WITHIN THE FACILITY

School facilities should accommodate numerous functions related to the support of teaching and learning. Dynamic media and technology programs directly support instruction and require space for diverse learning activities, resources, equipment, technical functions, and program services.

The intent is to construct new school facilities from the inside out and provide areas or rooms for specific activities—but budget constraints may prevent planners from allocating the square footage that is ideal for each function. Therefore, it is always a good idea to design spaces flexibly with dual or overlapping uses. Special attention to the interrelationships of the spaces is also essential to ensure efficiency and convenience for users and staff.

Below are considerations to use when allocating floor space for specific and multipurpose areas within a facility.

CONSIDERATIONS FOR MEETING SPACE REQUIREMENTS

Factors within a school include the following:

- Class size
- Number of classes/groups to be served at the same time
- Size of media and technology staff
- Age and size of users
- Amount and type of provisions needed for disabled users (For example, housing special programs for physically impaired students requires additional space)
- Degree to which spaces can serve multiple uses at different times



DESIGNING FOR GROWTH AND DEVELOPMENT

While meeting present needs for the design and construction of new and/or renovated facilities, media and technology personnel should also anticipate potential facility requirements that will occur through growth and development of the program. Because construction occurs infrequently, careful planning by a team of committed individuals is essential to ensure that all current and future possibilities are considered.

Although budget constraints can threaten to limit square footage and/or amenities, the trend toward escalating costs indicates that larger square footage allowances and inclusion of enhancement features will have long-range, cost-efficient benefits.

DESIGNING FOR THE INFUSION OF TECHNOLOGY

The infusion of technology into the instructional program influences the design and renovation of media and technology facilities in order to accommodate school-wide networks and to allow access to information sources within the library media center, as well as outside the library media center, through networking and telecommunications. Computer labs, production facilities, and multipurpose classrooms adjacent to or incorporated within the library media center can increase opportunities for the use of newer technologies.

DESIGNING FOR EXPANDED HOURS AND USE

Expanded hours of operation beyond the regular school day and year may be an outgrowth of programs that endeavor to meet the personal information needs of students and adults within the schools and the local community. To extend this opportunity, accessibility to media and technology facilities from outside the school plant is a primary consideration.

DESIGNING FOR FLEXIBLE USE

Facilities can contribute to or detract from the teaching and learning opportunities that are available to students and staff. The ability to access information through various means and formats is essential. Although the diverse activities surrounding the acquisition and use of information require special facility considerations, the challenge to maintain building flexibility continues to be important when media and technology facilities are designed.



DEVELOPING EDUCATIONAL SPECIFICATIONS

DETAILS MATTER

Educational specifications are developed to communicate the function and requirements of each space to the architects, designers, and engineers who are responsible for creating new or renovated facilities. Since educational specifications must communicate the function and requirements of each space to architects, designers, and engineers, it is essential that every effort be made to describe thoroughly each space and all the desired elements within it. This detailed description will become the foundation for all further work on the facility.

FOUR PRELIMINARY STEPS

Preliminary thought, work, and investigation are essential to the development of credible educational specifications that will translate into a functional facility design. Before writing educational specifications, the Planning Committee should complete the tasks below.

BEFORE DEVELOPING EDUCATIONAL SPECIFICATIONS:

1. **Define the program.**
2. **Examine present facilities and needs.**
3. **Conduct thorough research.**
4. **Develop a vision.**

Steps that comprise each task are outlined on the lists that follow.

1. Define the program

- Study the building- and system-level plans for media and technology, curriculum guides and plans, and other related documents.
- Review media and technology applications according to discipline and/or grade level.
- Consider future plans for restructuring instructional programs to take advantage of new and existing technologies.
- Determine goals and objectives for students and staff related to media and technology.

2. Examine present facilities and needs

- Analyze use patterns to determine possible changes for the new or renovated facility.
- Examine space and identify features to redesign, add, or keep.
- Survey students and staff regarding media and technology needs.



3. Conduct thorough research

- Read professional literature on program and facilities.
- Become acquainted with newer media and technology resources and their implications for facility design.
- Visit schools with exemplary programs as well as newer facilities; discuss programs/facility features with media and technology personnel, students, teachers, and administrators.
- Visit schools designed by the architect. Include the architect on these visits if possible.
- Seek information from School Planning (DPI) and other school systems.

4. Develop a vision

- Brainstorm functions of the program that could be offered through a state-of-the-art facility.
- Be aware of program, curriculum, and technology trends for the near future.
- Develop a well-reasoned picture of media and technology in the extended future.

COMPONENTS OF EDUCATIONAL SPECIFICATIONS

1. Discernible trends

Major trends in the field of media and technology and how they relate to the curriculum and the facility

2. Educational philosophy

Direct and concise statements of beliefs

3. Specific objectives

Observable and measurable objectives

4. Teaching methodology

Various ways students will be taught

5. Main instructional areas

Descriptors for main instructional areas include:

- Capacity. List maximum number of students/staff expected to use the area at one time.
- Student grouping. Identify group variations, including age ranges that may use the area.
- Activities. Describe the various activities that may occur in the area.
- Special environmental considerations. List lighting, acoustical, and mechanical requirements.
- Utilities required. List special utility requirements.
- Infrastructure required. List quantity and format of all materials, technology, and equipment to be used in the area.
- Storage space required. Describe all storage spaces and dimensions and indicate security needs if appropriate.
- Furniture required. List type, size, and quantity.
- Miscellaneous requirements.
- Anything not appropriate in another area.

6. Peripheral areas

Describe areas that relate to or support media and technology functions. Describe in as much detail as possible

7. Spatial relationships

Describe relationships among areas within the library media facility and also how all media and technology facilities relate to other parts of the school.

EDUCATIONAL SPECIFICATIONS FOR SCHOOL MEDIA/ TECHNOLOGY SPACES

The following recommendations list student-to-computer ratios for hardware needed to infuse media and technology spaces *throughout the school facility* to support teaching and learning.

RECOMMENDATIONS ARE MADE FOR THE FOLLOWING:

- Classrooms
- Flexibly-Accessed Computer Labs
- Distance Learning
- Technology Administration and Planning
- Conference Areas
- Work Rooms
- Auditoriums, Cafeterias, and Gymnasiums

A school-wide 3 to 1 student to computer ratio is recommended. Computers are distributed throughout the following areas:

- classrooms
- media center
- flexibly accessed computer lab
- career/technical education lab



CLASSROOMS

ACTIVITIES

Whole class, small group, and individual instruction; research; online remediation and instruction

SIZE

To support classroom technology, add 15–20 feet per computer to standard classroom space requirements.

SPATIAL RELATIONSHIPS

- Computer stations located in areas easily accessible to students and teachers
- Computer stations located away from window areas
- Monitors visible from all locations within the classroom to allow teachers to observe student use of technology
- Telephones located near teacher workstations
- Television located away from strong light sources and mounted from ceiling or wall
- Ceiling-mounted screen located away from strong light source and in location easily seen during instruction
- Floor- or ceiling-based electrical receptacles located conveniently to allow projection device(s) to be used without extension cords

FURNITURE/EQUIPMENT

- Cabinets for secure storage of software and smaller technology devices
- Tables and chairs as needed to enhance instruction
- Ergonomically designed furniture
- Filing cabinets
- Clock
- Intercom
- Telephone with internal and external access
- Workstations that meet Standards for Accessible Computer Workstations
- One networked multimedia computer teacher workstation with 200-volt UPS with surge suppression
- Six networked multimedia computers with peripherals, at least one printer (mobile computer carts may be used to provide additional computers to classrooms)
- One surge protector per instructional computer or built-in surge protection for circuits
- A minimum of eight data ports with adequate electrical outlets in locations convenient to computers and printers (wireless networks may be used in place of hardwired data ports to provide access to network services and the Internet)
- Stand-alone tables for each networked multimedia computer and printer, or built-in counters designed to be used with technology devices
- Ceiling mounted data/video projection device
- Overhead projector or document camera
- Digital camera



- Flatbed scanner
- Appropriate technology to support course content (manipulatives, probes, midi devices, etc.)
- Digital Interactive Whiteboard
- Individual student response system
- Television or large-screen monitor

FLEXIBLY ACCESSED COMPUTER LABS

The flexibly accessed computer lab provides opportunities for large group, small group or individual instruction and activities as well as independent use. A flexibly accessed computer lab must be large enough to include student stations, a teacher station, work areas, and storage space. Forty square feet should be allowed per workstation, resulting in 1200 square-foot minimum to accommodate a typical thirty-student class.

ACTIVITIES

Word processing, data management, desktop publishing, computer-assisted instruction, presentations and multimedia, online research, online courses.

SIZE

Suggested minimum for K-12: 40 sq. ft. per workstation. For example, 1200 sq. ft. is the recommended minimum for a class of 30 students, plus additional space for instruction and storage. Size varies depending on student population and needs.

SPATIAL RELATIONSHIPS

Accessible to classrooms and media center. If managed by school library media coordinator, direct physical and visual access from the media center is necessary.

FURNITURE/EQUIPMENT

- Sufficient networked multimedia computers (to accommodate the largest class)
- 3 to 1 ratio of students to computers
- Ergonomically sound and age-appropriate furniture
- Workstations that meet Standards for Accessible Computer Workstations
- Tables or counters
- Chairs
- Storage units for software and supplies
- Bookshelves
- Telephone with internal and external access
- Clock
- One surge protector per computer or built-in surge protection for circuits
- Teacher workstation with 200-volt UPS with surge suppression
- Printer
- Flatbed scanner
- Overhead projector or document camera
- Screen
- Data/video projection capability
- White boards and/or digital interactive whiteboard
- Individual student response system
- Television or large-screen monitor
- Adequate electrical outlets

DISTANCE LEARNING VIA THE N.C. INFORMATION HIGHWAY

ACTIVITIES

Viewing and participating interactively in instruction, professional development, or ad hoc meetings (two-way video, two-way audio).

SIZE

Should accommodate a minimum of 25 students with facilitator desk, file cabinet, and other equipment.

SPATIAL RELATIONSHIPS

Ideally, this classroom will be located near other classrooms. There may be security considerations for access after regular school hours. It is advisable to locate the room close to the head-end for the fiber optics cable.

FURNITURE/EQUIPMENT

- Tables and chairs for each student
- Adequate electrical outlets
- Possible acoustic changes
- Possible lighting changes

Important: The specialized equipment and facilities required for an Information Highway room must be installed or constructed by a state-approved company due to the complex wiring and audio/video standards that must be met. This equipment would include:

- Video cameras
- Microphones
- Control panel
- Codec

For more information, contact ITS Customer Support Center 1-800-441-5296

STAFF OFFICES

ACTIVITIES

Lesson plan development, one-on-one conferences, small group conferences, research, collaborative efforts with other staff members

SIZE

Varies with number of staff occupying the space and activities to be undertaken; should be large enough to accommodate personnel, technology hardware, storage of personal items, and needed workspace.

SPATIAL RELATIONSHIPS

Proximity to instructional areas

FURNITURE/EQUIPMENT

- Desk(s) and chair(s)
- Filing cabinet(s)
- Table
- Telephone(s)
- Networked multimedia computer(s) and peripherals (including flatbed scanner)
- One 200-volt UPS with surge suppression for every administrative computer
- One data port or wireless access per computer and printer
- Printer
- Television or monitor
- Workstations that meet Standards for Accessible Computer Workstations
- Adequate climate control
- Adequate electrical outlets



TECHNOLOGY ADMINISTRATION AND PLANNING

ACTIVITIES

Administrative tasks, consultation, collaborative program planning, and management functions.

SIZE

Minimum 200 sq. ft. plus 50 sq. ft. for each additional staff person

SPATIAL RELATIONSHIPS

Easily accessible to flexibly accessed computer lab, network/server head-end, and secure storage; preferably near the school library media center

FURNITURE/EQUIPMENT

- Storage for files, manuals, and supplies
- Locked storage for coats and personal items
- Desks, tables, and chairs
- Networked multimedia computer with 200-Volt UPS with surge suppression
- Multiple data ports or wireless access
- Printer
- Flat-bed scanner and other peripherals for administrative uses
- Workstations that meet Standards for Accessible Computer Workstations
- Telephone

CONFERENCE AREAS

ACTIVITIES

One-on-one conferences, small group conferences, research, collaborative efforts with other staff members and students

SIZE

Varies with number of staff occupying the space and activities to be undertaken

SPATIAL RELATIONSHIPS

Proximity to instructional areas

FURNITURE/EQUIPMENT

- Table and chairs
- Telephone
- Multiple data ports or wireless access
- Data/video projection capability
- Adequate climate control
- Adequate electrical outlets



WORKROOMS

ACTIVITIES

- Photocopying
- Producing instructional materials
- Storing supplies
- Laminating
- Computing
- Collaborative planning

(if no other space is available)

SIZE

Varies with number of staff occupying the space and activities to be undertaken

SPATIAL RELATIONSHIPS

Proximity to instructional areas

FURNITURE/EQUIPMENT

- Table and chairs
- Telephone
- Multiple data ports or wireless access
- Networked multimedia computer with 200-volt UPS with surge suppressor or built-in surge protection for circuits
- Scanner
- Fax
- Adequate climate control
- Adequate electrical circuits and outlets
- Workstations that meet Standards for Accessible Computer Workstations

AUDITORIUMS, CAFETERIAS, AND GYMNASIUMS

ACTIVITIES

Large group interaction, assembly programs, meal preparation and serving

SIZE

Varies with activities to be undertaken

SPATIAL RELATIONSHIPS

Located conveniently within the school or on the school campus

FURNITURE/EQUIPMENT

- Tables and chairs
- Telephones with internal and external access
- Networked multimedia computers and peripherals where applicable
- One surge protector per computer or built-in surge protection for circuits
- Multiple data ports or wireless access
- Data/video projection capabilities
- Large screen
- Adequate, flexible lighting control
- Adequate climate control
- Adequate electrical outlets



EDUCATIONAL SPECIFICATIONS FOR THE SCHOOL LIBRARY MEDIA CENTER

VISUALIZING USE OF SPACE

Media center facilities can include a variety of areas or rooms. In selecting the areas, each space must be justified by a close link to the program objectives that will be advanced by including these areas in the facility design.

SOME KEY DESIGN QUESTIONS

In planning and designing the school library media center, many questions must be answered, including, but not limited to, these:

1. How many square feet does a school library media center need?
2. What are the needs and requirements for each area of the center?
3. What furniture and equipment are appropriate for the various areas and what specifications should be considered for each?
4. Where and how will furniture and equipment be stored?
5. What general technology infrastructure should guide purchasing and installation decisions?

CHARTS OF RECOMMENDATIONS

The remainder of this section provides charts of recommendations for planning an effective multipurpose school library media center.



MINIMUM SQUARE FOOTAGE FOR THE SCHOOL LIBRARY MEDIA CENTER AND SUPPORT AREAS

MEETING RECOMMENDED MINIMUMS

All schools should have school library media centers no smaller than the recommended minimum square footage listed in the chart below. Since schools with enrollments below 400 must offer the same scope and variety of resources as schools with higher student enrollments, their space requirements will be similar.

MINIMUM RECOMMENDED SIZE FOR SCHOOL LIBRARY MEDIA CENTERS	
From <i>North Carolina Public Schools Facilities Guidelines</i> (revised September 2003), developed by School Planning, NCDPI, available at < http://www.schoolclearinghouse.org/pubs/FacilityGuidelines2003.pdf >	
ELEMENTARY SCHOOLS	At least 2800 sq. ft. + 1200 sq. ft. for support areas
MIDDLE SCHOOLS	At least 3400 sq. ft. + 1800 sq. ft. for support areas
HIGH SCHOOLS	At least 3600 sq. ft. + 2000 sq. ft. for support areas

PLANNING FOR MORE THAN 400 STUDENTS

Schools with more than 400 students should use guidelines in the chart below for additional space allotments.

PLANNING FOR MORE THAN 400 STUDENTS	
From <i>North Carolina Public Schools Facilities Guidelines</i> (revised September 2003), developed by School Planning, NCDPI, available at < http://www.schoolclearinghouse.org/pubs/FacilityGuidelines2003.pdf >	
ELEMENTARY SCHOOLS	4-6 sq. ft. per student for the school library media center
MIDDLE SCHOOLS	4-6 sq. ft. per student for the school library media center
HIGH SCHOOLS	4-6 sq. ft. per student for the school library media center

SUPPORT AREAS

The size and types of various support spaces needed are dependent upon the size and grade level of the school. The charts that follow list some typical support areas and their recommended sizes, including recommended square footage for office, workroom, storage, and video production areas.

RECOMMENDED SIZE FOR TYPICAL SUPPORT AREAS: OFFICE, WORKROOM, AND STORAGE	
From North Carolina Public Schools Facilities Guidelines (revised September 2003), developed by School Planning, NCDPI, available at < http://www.schoolclearinghouse.org/pubs/FacilityGuidelines2003.pdf >	
AREA	PLAN FOR:
MEDIA OFFICE AND ADMINISTRATION	200 sq. ft. + 50 sq. ft. for each additional staff member
WORKROOM	400-600 sq. ft.
PROFESSIONAL AREA	150 sq. ft.
CONFERENCE ROOM, SMALL OFFICE	150 sq. ft.
EQUIPMENT STORAGE, DISTRIBUTION, AND MAINTENANCE	175 sq. ft.
PERIODICAL STORAGE **	150-200 sq. ft.
<i>** Periodical storage may be reduced where a majority of back issues are available online</i>	

RECOMMENDED SIZE FOR TYPICAL SUPPORT AREAS: VIDEO PRODUCTION AREAS	
From North Carolina Public Schools Facilities Guidelines (revised September 2003), developed by School Planning, NCDPI, available at < http://www.schoolclearinghouse.org/pubs/FacilityGuidelines2003.pdf >	
AREA	PLAN FOR:
VIDEO STUDIO	400 sq. ft.
CONTROL AND EDITING	260 sq. ft.
EQUIPMENT STORAGE	80 sq. ft.

LARGE GROUP INSTRUCTION

ACTIVITIES

Whole class instruction, study, reference, viewing, listening, reading, browsing, professional development programs, meetings, presentations

SIZE

Large enough to accommodate the largest class. (For each 3' x 5' table and 4–6 chairs: 143 sq. ft.) Additional space for teaching station that will accommodate use of audiovisual and multimedia computer-related equipment

SPATIAL RELATIONSHIPS

Near reference area and book stacks

FURNITURE/EQUIPMENT

- Tables and chairs
- White board
- Various audiovisual and networked multimedia computer-related equipment
- Data/video projection capabilities
- One 200-volt UPS with surge suppression for every teacher computer
- One networked printer
- Workstations that meet Standards for Accessible Computer Workstations
- Two TV/monitors
- Digital interactive whiteboard
- Individual student response system
- Screen



REFERENCE

ACTIVITIES

Reading, studying, finding information in various formats, accessing electronic and print indexes, accessing back issues of periodicals, printing information, word processing, listening, viewing, photocopying

SIZE

Varies with student population, grade levels, and size of collection

SPATIAL RELATIONSHIPS

Accessible from administrative and circulation areas; ideally located near main entrance

FURNITURE/EQUIPMENT

- Tables and chairs
- Shelves
- Filing cabinets
- Carrels or individual work stations
- Specialized storage formats
- Copy machine
- Networked multimedia computers with peripherals - for research and online public access catalog (OPAC)
- 3 to 1 ratio of students to computers
- One surge protector per computer or built-in surge protection for circuits
- Workstations that meet Standards for Accessible Computer Workstations
- Printer
- VCR and/or DVD Players
- Cassette players or CD

STORY SHARING

ACTIVITIES

- Elementary: Storytelling, individual reading, reading/presenting to groups, puppetry, teaching, role-playing or acting, listening, viewing, housing everybody/picture books
- Middle and High School: Booktalking to literature discussion groups, informal reading (See **Informal Reading** section)

SIZE

- Elementary: Open floor space for seating a class of 30 (approximately 6 to 9 sq. ft. of open space per student or approximately 180 to 270 total sq. ft.)
- Middle and High School: Informal reading space is used for this purpose

SPATIAL RELATIONSHIPS

- Elementary: Away from heavy traffic flow, near easy picture books
- Middle and High School: (See **Informal Reading** section)

FURNITURE/EQUIPMENT:

ELEMENTARY

- Divided shelving for Everybody/picture books
- Rocking chair
- Stool
- Floor cushions
- Extra carpet padding
- Various audiovisual and multimedia computer equipment as needed
- Permanently-mounted white board
- Portable puppet theater
- Easel
- Flannel board
- Digital interactive whiteboard
- Data/video projection capability

FURNITURE/EQUIPMENT:

MIDDLE/HIGH SCHOOL

- Informal furniture

INDEPENDENT WORK AREAS

ACTIVITIES

Listening, viewing, computing, studying, reading

SIZE

Varies

SPATIAL RELATIONSHIPS

May be merged with other areas such as reference or conference

FURNITURE/EQUIPMENT

- Table (or carrels) and chairs for independent work
- Various audiovisual equipment as needed
- Networked multimedia computer with surge protector or built-in surge protection for circuits
- Workstations that meet Standards for Accessible Computer Workstations
- Printers
- Storage for software

SMALL GROUP ACTIVITY

ACTIVITIES

Consultations; meetings; small group reference and study; independent study, listening, viewing, and computing

SIZE

Minimum 150 sq. ft.

SPATIAL RELATIONSHIPS

Accessible with visual control from reference area

FURNITURE/EQUIPMENT

- Table and chairs
- Networked multimedia computers with one surge protector per computer or built-in surge protection for circuits
- Digital interactive whiteboard
- Data/video projection capability
- Printer
- Workstations that meet Standards for Accessible Computer Workstations
- Screen
- White board

INFORMAL READING

ACTIVITIES

Reading; browsing

SIZE

Varies

SPATIAL RELATIONSHIPS

Away from quiet study areas

FURNITURE/EQUIPMENT

- Comfortable informal seating
- Tables that complement seating arrangement
- Magazine and newspaper display unit/shelving



PRODUCTION

Various production facilities may be located throughout the building with specific functions serving the adjacent areas. The production facilities are intended to support the media and technology program as it serves the school.

ACTIVITIES

Making books, book jackets, videotapes, audiotapes, computer graphics, graphics, posters, signs, bulletin board materials, photographs, enlargements of pictures or maps; duplicating; laminating; producing video programs (such as news shows); transmitting live audio and video to classrooms.

SIZE

Varies with intended uses, 400-600 sq. ft.

SPATIAL RELATIONSHIPS

Adjacent to or incorporated in the workroom, accessible from administrative area; audio/video production area can be a por-tion of larger production space

FURNITURE/EQUIPMENT

- Water and stain-resistant tables and countertops
- Chairs
- Sink with warm and cold water
- Storage units, drawers, cabinets
- Legal-sized filing cabinets
- Flat files for oversized storage
- Bookbinding equipment

FURNITURE/EQUIPMENT

- Adequate electrical circuits and outlets
- Video camera/recorder
- Curtain or backdrop
- Tripod- dolly
- Video editing equipment
- Video graphics generating equipment
- Sound mixer
- Microphones
- Networked multimedia computer and peripherals
- One surge protector per computer or built-in surge protection for circuits
- Workstations that meet Standards for Accessible Computer Workstations
- DVD player
- CD/DVD recorder
- Data/video projection capabilities
- Digital camera with tripod
- Copy machine
- Laminator
- Overhead projector or document camera
- Opaque projector

PERIODICAL STORAGE

Periodicals are becoming increasingly more available in online format, requiring less storage space for back issues of hard copies. However, students will continue to need and prefer to have access to hard copies of certain magazines for leisure reading and browsing. For this reason, storage space for the back issues of periodicals should not be completely eliminated.

ACTIVITIES

Storage, management, and retrieval of back issues of print magazines and newspapers

SIZE

Varies with size of school and grade levels; 150-250 sq. ft. (may be reduced when a majority of back issues are available online)

SPATIAL RELATIONSHIPS

Accessible to reference area, copy machine, workroom, circulation, periodical indexes, and independent work areas with networked multimedia computer/printer

FURNITURE/EQUIPMENT

- Adjustable shelving
- Magazine files
- Kick-step stool
- Table
- Counter or other furniture for periodical processing
- Computer hardware



ADMINISTRATION AND PLANNING

ACTIVITIES

Administrative tasks, consultation, collaborative program planning, management functions, and visual control of other areas.

SIZE

Minimum 200 sq. ft. plus 50 sq. ft. for each additional staff person

SPATIAL RELATIONSHIPS

Easily accessible to circulation, reference, workroom

FURNITURE/EQUIPMENT

- Storage for files, books, and supplies
- Locked storage for coats and personal items
- Desks, tables, and chairs
- Networked multimedia computer with 200-Volt UPS with surge suppression
- Workstations that meet Standards for Accessible Computer Workstations
- Printer
- Flat-bed scanner and other peripherals for administrative uses
- Telephone

CIRCULATION

ACTIVITIES

Checking out and returning materials, processing overdues, general inquiries, visual supervision of facility

SIZE

Varies, but should be limited to bare minimum needed for activities

SPATIAL RELATIONSHIPS

Easily accessible to administrative area, workroom

FURNITURE/EQUIPMENT

- Work surfaces at appropriate height for students
- Seating for 1 or 2 personnel
- Two Networked multimedia computers with barcode readers (one computer for student checkout and one computer for school library media coordinator access)
- One surge protector per computer or built-in surge protection for circuits
- Printer
- Storage for personal items of student workers and supplies
- Files for patron barcode cards
- Security system for theft prevention (secondary only)
- Clock
- Telephone



AUTOMATED CATALOG

ACTIVITIES

Searching the index to the collection, printing bibliographies

SIZE

Varies with furniture and equipment needed to support the collection and serve the school population

SPATIAL RELATIONSHIPS

Easily accessible from reference stack areas, the main entrance, and from all networked computers in the school.

FURNITURE/EQUIPMENT

- Minimum of one networked computer station in the media center per 150 students with a printer
- One surge protector per computer or built-in surge protection for circuits
- Tables or counters (Note: furniture that requires standing to access the automated catalog may encourage faster use of the catalog)
- Workstations that meet Standards for Accessible Computer Workstations

PROFESSIONAL AREA

In some schools it may be advantageous to merge the school staff lounge area with the professional resources area. If so, the space allotment should be expanded. In addition, the space should be directly accessible to a hallway.

ACTIVITIES

Storing professional materials, planning, previewing instructional materials, doing paperwork, computing

SIZE

Minimum 150 sq. ft. (allow 60 sq. ft. per person expected to use the space at one time)

SPATIAL RELATIONSHIPS

Accessible to workroom/production areas

FURNITURE/EQUIPMENT

- Table and chairs
- Leisure furniture
- Storage cabinets
- Sink
- Refrigerator
- Variety of audiovisual equipment
- Networked multimedia computer and peripherals
- 200-volt UPS with surge suppression
- Workstations that meet Standards for Accessible Computer Workstations
- Telephone
- Shelving
- One surge protector per computer or built-in surge protection for circuits



PARENT RESOURCE AREA

The National Parent Teacher Association has recommended that every school have a parent resource area located somewhere on the campus. A logical location for this area would be the media center where relevant materials can be easily displayed and processed for circulation.

ACTIVITIES

Previewing materials related to parenting and the role of parents in supporting learning at home

SIZE

Varies with size of media center and availability of space

SPATIAL RELATIONSHIPS

Proximity to circulation desk and professional area

FURNITURE/EQUIPMENT

- Shelving
- Table and chairs (optional)
- Networked multimedia computer

WORKROOM

ACTIVITIES

Selecting, ordering, receiving, mending, and processing media resources; photocopying; producing instructional materials; storing supplies; laminating; computing

SIZE

Varies with activities: approximately 400-600 sq. ft.

SPATIAL RELATIONSHIPS

Accessible to administration, equipment storage, and overlapping with production and professional areas; visual access to instructional areas

FURNITURE/EQUIPMENT

- Cabinets with countertops
- Sink with warm and cold water
- Tables and chairs
- Stools
- Telephone
- Networked multimedia computers and peripherals
- One surge protector per computer or built-in surge protection for circuits
- Workstations that meet Standards for Accessible Computer Workstations
- TV monitors
- Laminator
- Paper cutter
- Copy machine
- Fax
- VCR/DVD Player
- Filing cabinets
- Clock
- Intercom



DISPLAY AND EXHIBIT

ACTIVITIES

Display projects or artifacts, display information

SIZE

Varies

SPATIAL RELATIONSHIPS

Varies according to purpose

FURNITURE/EQUIPMENT

- Display cases
- Shelves
- Bulletin boards
- Tables
- Data/video projection capability

SECURE EQUIPMENT STORAGE, DISTRIBUTION, AND MAINTENANCE

ACTIVITIES

Security and storage for back-up and specialized equipment, maintenance, and circulation of audiovisual equipment

SIZE

Minimum 175 sq. ft. (size varies with amount of equipment needing storage)

SPATIAL RELATIONSHIPS

Direct access to a hallway, access to workroom

FURNITURE/EQUIPMENT

- Shelving
- Storage bins
- Countertop or worktable
- Chair
- Filing cabinet
- Portable Screen
- Data/video projection capability
- Mobile lab Storage area with electrical service

EDUCATIONAL SPECIFICATIONS FOR FURNITURE, SHELVING, AND BUILT-INS

GENERAL CONSIDERATIONS

Furnishings are selected and arranged for efficient use and housing of all types of media. The facilities planning committee best determines the quantity of furnishing/shelving to purchase by calculating the housing requirements for the facility's collection, as well as the workspace requirements. A scaled furniture layout is also useful in determining furnishing/shelving needs. Below are general considerations when planning for storage and furniture needs.

- Dimensions should be scaled to physical differences and special needs of users.
- Furniture requirements should be calculated accurately to meet program needs without over-estimating furniture needs.
- Placement of furniture should adhere to fire codes and other safety requirements.
- Flexibility in arrangement of furnishings should be considered (for example, island shelving with wheels).
- Changing resources and services may alter furniture requirements.



GUIDELINES FOR SHELVING

Following are guidelines, standards, and formulas to help you select the correct amount and type of shelving.

GENERAL GUIDELINES FOR SHELVING

- Shelving should be:
 - Sturdy with adjustable shelves.
 - Wood, wood laminate, or steel.
 - Single-faced for perimeter, double-faced for freestanding.
 - Be divided shelving for elementary schools, especially for Everybody/picture books. Dividers should be 5" high, spaced 7"– 8" apart.
- The width of shelves should be determined by the size of materials to be stored on shelves.
- Quantities should be determined by the size of the collection and by anticipated growth of the collection.
- Calculate linear feet of shelving needed based on educational specifications. The chart that follows provides some helpful formulas.

FORMULAS FOR CALCULATING SHELVING NEEDS

LINEAR FEET OF STORAGE =	Number of items to be stored	$\frac{\bullet}{\bullet}$ (DIVIDED BY)	Number of items per 1 foot of shelving
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SHELVING FLEXIBILITY. Although some items can be stored on more narrow shelving than indicated, it is highly advisable to limit the number of shelf widths to be purchased in order to maximize flexibility.

TYPE OF SHELVING	CAPACITY OF 1-FOOT SHELF	DEPTH	SHELF DIVIDERS
STANDARD BOOKS	10	10" – 12"	
REFERENCE BOOKS	6 – 7	12"	
EVERYBODY/ PICTURE BOOKS*	13 – 16	12"	5" high 7" to 8" apart
PERIODICALS**	11	16" slanting	
VIDEOCASSETTES	8	12" – 16"	
CD-ROM/DVD *	3 – 8	16"	5" high 7" to 8" apart
<p>* This type shelving is highly recommended for all of the general book collection for elementary schools.</p> <p>** Specialized storage units may be used in lieu of standard shelving.</p>			

CONVERTING HEIGHT TO NUMBER OF SHELVES		
42" HIGH	=	2 or 3 shelves
48" HIGH	=	3 shelves
60" HIGH	=	4 shelves
66"-72" HIGH	=	5 shelves
84" HIGH	=	6 shelves

MAXIMUM HEIGHTS FOR DIFFERENT TYPES OF FURNITURE AND SHELVING

When selecting furniture and shelving, make sure both are an appropriate height. Use the chart below to make sure furniture and shelving are not too high or low.

FURNITURE

TABLES, CARRELS, AND COMPUTER WORKSTATIONS		
ELEMENTARY	MIDDLE	HIGH
25" - 28"	26" - 30"	29" - 30"
CHAIRS/OTHER SEATING		
14" - 17"	16" - 18"	18"

SHELVING

PERIMETER SHELVING (MAXIMUM HEIGHTS)		
ELEMENTARY	MIDDLE	HIGH
60"-66"	60"-66"	72"
FREESTANDING SHELVING		
48"	48"	48"

MORE HELPFUL TIPS ABOUT FURNITURE AND SHELVING

TIPS ABOUT TABLES AND CARRELS

- Standard 3-ft. x 5-ft. tables seat 4 comfortably with sufficient workspace.
- Standard 4-ft. round tables provide less workspace than rectangles for similar floor space.
- Workspace heights vary with activities (reading, writing, viewing, and computing) and size of users.
- Multimedia computer tables should allow a working surface that is 36–40 in. wide and have lower work surface for comfortable keyboarding with minimum of 30-in. clearance under the table.
- Carrels should be equipped with electrical outlets for maximum flexibility.
- Wheelchairs require a minimum height of 28 in. between floor and bottom of table or carrel.

TIPS ABOUT CHAIRS AND OTHER SEATING

- Use sled-type chairs for carpeted floors.
- Chairs with curved backs are more comfortable.
- Make sure seating is scaled at the appropriate height for users and is correctly scaled and positioned in relationship to work surfaces.
- For professional staff, use rolling, upholstered chairs with pneumatic and mechanical adjustment devices.
- Upholstered furniture (sofas, love seats, individual chairs) with backs, scaled to users, should be used for informal seating for all grade levels.

TIPS ABOUT EQUIPMENT STORAGE

Store equipment on shelves that are:

- Metal, wood, or wood laminate
- Adjustable, built-in, or moveable
- Sturdy enough to hold heavy pieces without bending

NOTE: Rolling carts also can be used for some storage.

TIPS ABOUT BUILT-INS

- Because built-in units lack flexibility, it is important that they be designed for the intended functions and checked throughout the blueprint review process.
- Built-in storage units are generally included in the standard contract and are usually more cost efficient than adding storage units after construction.

TIPS ABOUT OTHER FURNITURE

- **Automated catalog**

Work surfaces are needed to accommodate users who are standing, seated, or in wheelchairs.

- Built-in units, tables, carrels, or counters should have adequate space for computers, peripherals, printers, and paper. They will also need space and devices to manage power cords and connecting cables. There should be a minimum of 1 workstation per 100 students.

- **Circulation Desk**

Limit furniture to absolute necessities (a computer and peripherals, barcode reader, and printer) and scale the surface height to the size of users.

- Filing Cabinets for administration may be legal sized, vertical or lateral, with or without hanging files.
- Flat Files for storing oversized print materials (such as prints, bulletin board materials, and posters) need to be 40"H x 30"W x 3"-5" deep.
- Information File with legal-sized filing cabinets with hanging folders, either vertical or lateral may be needed. Open, hanging lateral files may also be used.
- Specialized alternatives to shelving:

Check library supply catalogs and furniture manufacturers for customized shelving for items such as:

- Audiocassette recordings
- CD-ROM/DVD
- Paperback books
- Periodicals
- Videocassettes



GENERAL TECHNOLOGY INFRASTRUCTURE FOR INSTRUCTION

NETWORK/SERVER HEAD-END AREA

ACTIVITIES

Houses the building's computer network services, telephone system infrastructure, reception, and distribution equipment for video/television programming.

SIZE

450–800 sq. ft. with adequate space for all equipment and personnel.

SPATIAL RELATIONSHIPS

Centrally located in a well-ventilated, climate-controlled environment (with a separate thermostat). Requires adequate electrical service, lighting, and security.

FURNITURE/EQUIPMENT

- Wire/equipment racks
- Cabling/wireless devices
- Connectivity (routers, switches, patch panels)
- Telephone patch panel
- Desk
- Networked multimedia computer with 200-volt UPS with surge suppression and printer
- Telephone
- Storage space
- One surge protector per computer or built-in surge protection for circuits
- HVAC systems should adequately control temperature and humidity

VIDEO WIRING CLOSET AREA

ACTIVITIES

Houses video reception and distribution equipment (distribution and connectivity hardware as well as wiring).

SIZE

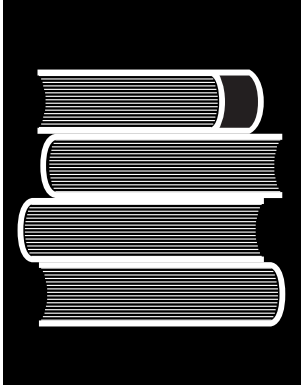
15–120 sq. ft. with adequate space for all equipment and personnel.

SPATIAL RELATIONSHIPS

Distributed throughout the campus as needed to support video services. Room should be well ventilated and have adequate electrical service, lighting, and security. This space should be accessible from the media center.

FURNITURE/EQUIPMENT

- Wire/equipment racks
- Cabling
- One surge protector per computer or built-in surge protection for circuits



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