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ABSTRACT

The Jefferson County School District (Denver, Colorado) has published this document as a model standard for the planning and designing of new middle schools and remodeling and modernizing existing schools. It describes the facility requirements to accommodate the instructional program, activities, and support functions to assist architects, school staffs, and the Design Advisory Group. Topics addressed include specifications for core and instructional areas such as administration/counseling, auditeria and performance platforms, library information centers, and physical education complexes; and support areas such as building and wiring standards, corridors, and custodial and toilet facilities. Also included are site development standards and the building square feet total. An appendix provides specifications, plans, and standards for various building features and equipment. (GR)

# Middle School Educational Specifications

## Facilities Planning Standards




Facilities Planning and Design Department
Jefferson County School District
Colorado

http://www.jeffconet.jeffco.k12.co.us/cm/specguides/edspecs1.html

# MIDDLE SCHOOL EDUCATIONAL SPECIFICATIONS

**JEFFERSON COUNTY SCHOOL DISTRICT**
**COLORADO**

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**EDITION II**
January, 1998

# INDEX

# INTRODUCTION

The Middle School Educational Specification is a Jefferson County School District model standard for planning and design of new middle schools and for additions and renovations to existing middle schools. The Educational Specification describes the facility requirements needed to accommodate the instructional program and the activities and support functions.

The document is a tool to be used to communicate basic facility design requirements and guidelines to architects, school staffs and the Design Advisory Group. It is intended to be a dynamic document that allows for amendment as required to meet educational program changes.

The educational specifications have periodically gone through a committee review and update process in the District. The last edition was written in 1990.

The members of the planning committee involved during 1997 to prepare the 1998 Middle Level Educational Specification are listed below:

| | | |
|---|---|---|
| Dan Baum | Wheat Ridge Middle School | Teacher |
| Bette Bullock | Wheat Ridge Middle School | Principal |
| Carol Civiello | Facilities Planning and Design | Architect |
| Nancy Cook | Area Administrators Office | Executive Secretary |
| Don Cross | Facilities Planning and Design | Director |
| Sarah Cunningham | Drake Middle School | Teacher |
| John Dockerty | Mandalay Middle School | Teacher |
| Rick Freeman | O'Connell Middle School | Int. Asst. Principal |
| Bridget Golden | O'Connell Middle School | Teacher |
| Ron Horn | Area Administrators Office | Area Administrator |
| Andy Michaud | O'Connell Middle School | Teacher |
| Pat Olive | Mandalay Middle School | Principal |
| Sharon Rhodes | Dunstan Middle School | Teacher |
| John Williams | Creighton Middle School | Teacher |

# JEFFERSON COUNTY SCHOOL DISTRICT R-1: STRATEGIC PLAN

**Our Mission:**
To provide a quality education that prepares all children for a successful future.

**We believe:**

- All children can learn basic skills and achieve high standards.
- Our public schools are essential institutions that reflect community values and prepare students to participate fully in our democratic society.
- We recognize that student learning is impacted by life circumstances that are beyond the control of the school district; however we are committed to all children achieving high standards and becoming successful, contributing members of society.
- Our schools, as part of a community system, must work collaboratively with families, other human service institutions, businesses and higher education to prepare students for future success.
- Schools are primarily responsible for ensuring that students learn; however, as students mature, they must assume increasingly greater responsibility for their own learning.
- Respect includes valuing differences among people, honoring people as our greatest resource, and giving people quality choices.
- Parents are responsible for working in partnership with the school and community to support, encourage and participate in their child's learning.
- We are committed to continuous improvement and lifelong learning.

**Our community requires that we:**

1. Make a commitment to all students being successful, safe, and well disciplined.
2. Deliver a high quality, consistent curriculum, designed to ensure that all students in every school master basic skills in reading, writing, mathematics, and the application of such skills to lie situations.
3. Set high standards and ensure that students can be successful in the next phase of their lives whether they go to college, attend technical school, begin an entry-level job, and/or serve as community members.
4. Measure student progress toward meeting standards and report results to students, staff, parents and the community on a regular basis.
5. Ensure that the K-12 standards are understood and supported by students, staff, parents, and community members.
6. Employ highly skilled, caring staff members who are committed to and held accountable for the success of each student.

7. Provide students and parents with quality choices.
8. Work in partnership with parents and others in the community to ensure that all students thrive.
9. Provide strong central leadership for the district's schools and assume responsibility for sound fiscal management.
10. Provide access to state-of-the-art learning, resources, including technology, which support increased student learning.

# PHILOSOPHY OF MIDDLE LEVEL EDUCATION

In 1988, the District Junior High School Improvement Project prepared a mission statement that reads as follows:

> The Jefferson County School District recognizes early adolescence as a unique period of transition with educational requirements that are specific to it. The middle level program is based upon a sound knowledge of the physiological, social-emotional, and cognitive development of the twelve to fifteen year old, an understanding of the immense changes which accompany this age, and an appreciation of the fact that the student's attitude towards self, home, life, and school are being formalized. The middle level program, differing from other levels of instruction, bridges the elementary and high school experiences through the creation of an environment organized to respond directly to the developmental and transitional issues the student is facing.
>
> The academic program at the middle level offers a balanced curriculum that provides continuing emphasis on basic skills within the core curriculum while encouraging students to explore new subject areas and employ higher level cognitive proficiencies. It is designed to facilitate movement from concrete to abstract thought and emphasize the natural relationships between disciplines and their application to the student's growing awareness of self and the world. Instructional strategies are utilized which capitalize upon the developmental needs of the student and address a variety of learning styles. Recognizing the early adolescent's propensity to be active and to seek personal meaning, lessons are generated which engage the student in an experiential learning process. Emphasis is placed upon the development of critical thinking, decision-making skills, and an ever-increasing ability on the student's part to take responsibility for oneself and one's learning.
>
> Student social-emotional needs are equally important in the middle level school, for this is a period when the student is developing an expanded sense of self. Recognizing the correlation between a positive school climate and student achievement, the middle level school offers a safe, structured, and caring environment that is designed to enhance the student's self esteem. Emphasis is placed upon individual and group guidance, parental involvement, student recognition, and the assemblage of staff members who are sensitive to and supportive of the unique qualities of the early adolescent. The program includes planned opportunities for social development and expanding the students' understanding of the rights and responsibilities of citizenship.

Overall, it is the mission of the junior high school to assist students in making a successful transition from child to adolescent, secure in the knowledge that they are well versed in the basic skills, have further discovered their strengths and proficiencies, and have developed attitudes and abilities which will foster future success.

Characteristics of exemplary middle level programs that must be supported by the educational facility:

- The program provides exploratory learning opportunities for all students.
- The program is based upon the developmental characteristics of the students served.
- The academic program provides ways for students to continue the development of basic skills, explore new areas and enhance their ability to think and learn independently.
- The curriculum is presented in ways that emphasize the relationship between disciplines.
- Teaching strategies encourage students to interact, actively participate in and build on personal experience.
- The social-emotional development of the student is an important goal of the school program.
- The program stresses participation and success for all.
- The program bridges the elementary and high school experiences while having features and purposes that is clearly its own.
- The total program is dynamic with clear goals and commitment to improvement.
- The program provides for small learning communities.
- The program encourages parent/community involvement.
- The program emphasizes lifetime sports.

# ADMINISTRATIVE/COUNSELING OFFICES

## SPACE DESCRIPTION:

Administrative/Counseling Offices contain space for personnel concerned with the day to day school operations. The area consists of three distinct component.

### A. Main Office Area:

1. General office with reception/waiting area
2. Principal's office
3. Financial Secretary office
4. Special Education and Related Services (SERS) team office
5. Workroom
6. Conference room
7. Mail room
8. Storage Room
9. Staff restrooms

### B. Attendance Office Area:

1. General office with reception/waiting area
2. Offices for two assistant principals
3. Clinic
4. Records room
5. Scheduling room

### C. Counseling Office Area:

1. General office with reception/waiting area
2. Offices for three counselors
3. Conference room

## DESIGN CRITERIA:

### A. Main Office Area:

#### 1. General Office:

The administrative office area should be located adjacent to the main building entrance. The area serves as a buffer between external and instructional functions. The administrative area requires a direct relationship to core instructional areas with proximity to non-instruction areas; particularly those used for after-hours functions.

a. The general office shall contain space for:
   1. Waiting area for six to eight people
   2. Receptionist who will handle contact with the public, faculty and students
   3. Work space for a secretary and two student aides
b. The general office should be open and flexible with good visual access to each area within the main office and to the main corridor.
c. Built-in front reception counters are not recommended because future reconfiguration is difficult. School purchased systems furniture that can easily be reconfigured and added to in the future is recommended.

d. Locate the general office area next to the workroom. Provide wall space for the school fire/security alarm panel.

**2. Principal's Office:**

a. Provide a door into the general office area and a door directly to the corridor. The main school entrance should be visible from the Principal's office for supervision.
b. The space should accommodate general office furniture and provide meeting area for groups of seven or eight people, and contain a small lockable closet.

**3. Financial Secretary Office:**

The Financial Secretary, located in the general office area, maintains the school budget and conducts necessary business transactions between the school and students. The office may also contain the school safe and require a locking door.

a. Provide a Dutch door for monetary transactions.

**4. SERS Team Office:**

The office will house up to four itinerant team members.

a. The room should have a folding partition to divide the room in half for use as a conference room. Entry to the room is through the general office and should consist of two doors, one for use when the folding partition divides the space.

**5. Workroom:**

Staff, faculty, aides and volunteers use the room.

a. The workroom should be located next to the general office area. More than one door into the room is desirable due to heavy use of the room.
b. Provide a sink with a hot and cold water supply and approximately 24 linear feet of upper and lower cabinets for storage of supplies.
c. Provide floor area and outlets for a large 208-volt copier requiring about 4'-0" by 7'-0"of floor space, printers, a fax machine, and other specialized equipment.
d. Provide a closet with pole and shelf for use by the administrative staff.

**6. Conference Room:**

a. Provide seating for 16 to 18 persons.
b. Locate near the principal's office, SERS office, and clinic.
c. The room may be divided by a folding partition to increase flexibility.

**7. Mailroom:**

a. The mailroom should be directly accessible from the main corridor and should be located adjacent to or combined with the workroom.
b. Provide open ended staff mailboxes 15"x11"x2" minimum that can be loaded from the workroom side.

**8. Storage Room:**

Provide a lockable room central to the general office area with floor to ceiling 12" deep shelving along one wall.

9. **Staff Toilet:**
   a. Provide a single occupant handicapped accessible toilet room for each sex.

**B. Attendance Office Area:**

1. **General Office:**
   The general office shall contain space for:
   a. Waiting area for four to six people.
   b. Work space for a secretary and clerk to process and file attendance and reporting documents.
      1. The general office should be open and flexible with good visual access to each area within the attendance office and to the main corridor.
      2. To increase flexibility, built-in front reception counters are not recommended. School purchased systems furniture that can easily be reconfigured and added to is recommended.
      3. Locate the attendance general office in close proximity to the clinic for shared use of the clinic restroom.
      4. Provide direct access to the main corridor or commons area to accommodate attendance procedures and an outside transaction window where 30 to 40 students can wait in line from the corridor to use it.
      5. Provide a closet with shelves to house lost and found items.
      6. Locate the general office area near the workroom.

2. **Offices for two assistant principals:**
   a. Provide space for general office furniture and equipment with seating area for at least four visitors.
   b. The offices should be adjacent to the attendance general office area.
   c. Provide time-out space immediately adjacent to the offices for up to six students seated at individual carrels. The time-out space should be visible to staff in the attendance general office but not to the visiting public or other students.

3. **Clinic:**
   a. The clinic should be easily viewed from the attendance general office area. Doors should be provided from both the main corridor and the attendance area.
   b. The clinic shall contain desk space to accommodate a nurse's aide and two beds with screening curtains on tracks.
   c. Provide locking upper and lower cabinets for medical supplies and a sink with a gooseneck faucet and blade handles with both a hot and cold water supply, and a bubblier. Provide space for an under-counter refrigerator.
   d. Provide a handicapped accessible toilet room with an out-swinging door.
   e. Provide a hand held shower mounted 48" above the floor with a single lever faucet on the wall behind the toilet, and a floor drain.

4. **Records room:**
   a. Locate a student records file room near the assistant principal offices for use by counselors and attendance staff

5. **Scheduling room:**
   a. Provide space for a computer terminal and magnetic board and for small-group meetings of six to eight people. The scheduling room may be eliminated and the square feet added to other administrative office areas.

**C. Counseling Offices:**

**1. General office:**

The counseling general office shall contain:

a. Waiting area for six to eight people.
b. Work space for a secretary.
c. The general office should be close to, but separate from, the main office and the attendance office.

**2. Offices for three counselors:**

a. Provide desk space in each office and seating area for up to four people.

**3. Conference room:**

a. Provide seating space for small group counseling of up to ten to twelve people.

**SQUARE FEET SUMMARY FOR ADMINISTRATIVE COMPLEX:**

| | | |
|---|---|---|
| **A. Main Office Area:** | | |
| General office with reception/waiting area | 425 sf | |
| Principal's office | 180 | |
| Financial Secretary office | 130 | |
| SERS Team office | 240 | |
| Workroom | 150 | |
| Conference room | 225 | |
| Mail room | 80 | |
| Storage room | 75 | |
| Staff restrooms (45 sf ea.) | 90 | |
| | --- | |
| | | 1,595 |
| **B. Attendance Office Area:** | | |
| General office with reception/waiting area | 325 | |
| Offices for two assistant principals (135 sf ea.) | 270 | |
| Clinic | 200 | |
| Records room | 115 | |
| Scheduling room | 130 | |
| | --- | |
| | | 1,040 |
| **C. Counseling Office Area:** | | |
| General office with reception/waiting area | 160 | |
| Offices for three counselors (120 sf ea.) | 360 | |
| Conference room | 190 | |
| | --- | |
| | | 710 |
| | | --- |
| **Administrative Complex Total** | | 3,345 sf |

# AUDITERIA

## SPACE DESCRIPTION:

The Auditeria is a multi-purpose room that combines the cafeteria seating area for food service operations with auditorium performance features. Activities that take place in the Auditeria are performing arts programs, musical programs, student assemblies, large group lectures, instructional films, and special programs presented after school hours.

## DESIGN CRITERIA:

Components of the space are:

A. Seating area
B. Kitchen
C. Performance platform
D. Dressing/Storage
E. Staff lounge

### A. Seating:

#### 1. General Requirements:

a. The auditeria should be designed to seat 300 persons at tables and chairs for lunch and for 600 persons in non-fixed seating for performances.
b. The space may be designed with or without a tiered floor. Tiers enhance sight lines to the performance platform for events; however, substantial additional construction cost is incurred.
c. If tiers are designed, provide four or five flat tiers to accommodate cafeteria tables and chairs.
d. Provide convenient storage for tables on the tiers when performances are scheduled.
e. Windows to the exterior are required. Minimum sill heights should not be lower than 24 inches.
f. Acoustical treatment is required to produce low reverberation times and high sound absorption.

### B. Kitchen:

#### 1. General Requirements:

a. Unless otherwise directed, provide a preparation kitchen designed to meet the District Middle School prototype kitchen plan. The facility will be used for preparation of meals for the school as well as meals that will be transported daily to other area schools.
b. Middle schools with 840 students generally serve about 420 hot meals on site per day.
c. Locate the kitchen adjacent to the cafeteria seating area and adjacent to an exterior delivery area and screened trash pickup area. An exit door 3'-6" wide by 7'-0" high must be provided directly to the exterior.
d. Provide sound control between the auditeria and the kitchen.
e. Provide one exterior keyed hose bib at the service entrance into the kitchen.

**C. Performance Platform:**

**1. General Requirements:**

a. Provide a raised performance platform area to accommodate 100 students and a conductor in symphonic musical arrangements. The platform should be at the same height as adjacent corridors, or ramps must be provided to facilitate moving of equipment.

b. Provide a 50-feet wide proscenium opening with tracks, stage curtains and cyclorama curtains. Sufficient space should be provided in front of the proscenium opening to accommodate off-stage activities such as singing or music groups supporting a stage activity.

c. The lighting system should include a basic color range, spotlights, light controls, and a dimmer system. Light controls should be located in the rear of the audience area.

d. A high fidelity sound system should contain jacks and speakers appropriate for staging of Middle School productions. Sound controls should be located in the rear of the audience seating area.

e. Door locations and widths should facilitate movement of groups and equipment, including a grand piano, on and off of the platform.

**D. Dressing/Storage:**

**1. General Requirements:**

a. Locate a dressing/storage area adjacent to the performance platform.

b. Provide large double doors for easy movement of sets and props onto the platform.

c. Provide storage for stagecraft materials, supplies and costumes.

d. Provide a sink with hot and cold water and a make up counter with lights above it.

**E. Staff Lounge:**

**1. General Requirements:**

a. Locate the staff lounge in a room near the kitchen and cafeteria seating area. The room will be furnished with tables and pull-up chairs and informal lounge seating.

b. Provide at least 18 linear feet of base and upper cabinets with a sink with hot and cold water and disposal.

c. Provide convenience outlets for vending machines and a refrigerator.

d. Provide a 4'-0" x 5'-0" phone room within the lounge, and a phone in the open lounge.

e. Windows to the exterior are required.

**SQUARE FEET SUMMARY FOR AUDITERIA:**

| | |
|---|---|
| A. Seating area (including table/chair storage) | 4,250 sf |
| B. Kitchen | 2,100 |
| C. Performance Platform | 1,500 |
| D. Storage/Dressing | 500 |
| E. Staff Lounge | 650 |
| | --- |
| **Total for Auditeria** | 9,000 sf |

# LIBRARY INFORMATION CENTER

## SPACE DESCRIPTION:

The Library Information Center (LIC) is an integral part of the school instructional program and serves as an extension to each classroom. The LIC provides space for learning resources, for use of audiovisual and computer equipment, and for support services required to assist students in achieving educational goals.

Design consultants must recognize that the LIC is a specialized teaching space for young adults. The consultant is expected to work closely with the LIC Specialist to become familiar with how the space will be used. The features of public libraries, children's libraries or college libraries cannot simply be imposed in small scale on the LIC.

The LIC is organized around two components:

**A. Instructional Component:**
1. Student use area with stacks
2. Media production center

**B. Support Component**
1. Circulation
2. Processing/learning resources
3. Media production/workroom
4. AV equipment
5. Periodicals
6. Office

## DESIGN CRITERIA:

The Library Information Center should be centrally located and easily accessible to students, teachers and visitors. The design should provide maximum flexibility in order to serve the needs of students and staff, accommodate program priorities, student population growth, information expansion and changing technologies.

Design Elements to Consider:

a. Logical circulation should be considered early in the design. Too many entries into the space bisect available floor area and make visual control difficult. Maintain 60 inches minimum clearances between furniture and shelving in traffic areas and 36 inches aisle width between stacks.
b. Peaked ceilings, skylights, and multi-level rooms may be considered; however, effective and appropriate acoustic treatment must be included in order to dampen reverberant sound. Do not use angled or vaulted ceilings without acoustical absorptive covering on all angled surfaces.
c. Large window expanses significantly cut into available wall space for shelving LIC collections.
d. Double-sided shelving units will probably be necessary in the stack areas reducing available floor space. Standard three shelf book units beneath windows require 43 inches

clear, therefore, minimum sill heights should be 44 inches. Otherwise, more expensive custom height bookshelf units are required.

e. Lighting fixtures and patterns should be designed to illuminate aisles between bookcases. Fixtures located directly over bookcases, of which many are double-sided 24" wide units, cause shadows in aisles where books are examined before checkout. Maintain a light level of 50-foot candles above reading areas. Separate lighting control is required for display cases.

**LIC Components:**

**A. Instructional Area:**

**1. Student use area with stacks:**

a. **Entrance**: The main entrance should consist of double doors and be open and inviting with wall and floor area available for both informal displays and for locking display cases. A secondary entrance is required. Sidelights beside doors should not be less than 18 inches above the floor. Provide built-in sliding glass door cases with three adjustable glass shelves and display lighting near the main entrance. Cases should be open on both sides to be visible from inside and outside the LIC. Provide a book drop location from the main corridor near the entrance. An entrance/security system is required.

b. **Instructional area**: Provide area for seating 10% of the student body. For example a standard size middle school of 850 students would require 85 students with seating at tables for two classes of 32 students each. Provide area for seating for 11 additional students in casual reading areas near the fiction section. The two class size areas should be considered teaching stations with appropriate voice, data, televisions, and white boards and tack boards. In one of the two class areas provide a ceiling mounted power projection screen.

c. **Workstations**: Include space for ten computer workstations that will accommodate the library catalog as well as other databases used for reference and research. The workstations may be arranged in one central area or spread throughout the room. The consultant is responsible for providing appropriate electrical and voice and data outlet locations to support the design. For planning purposes use nine square feet per workstation. Workstations may be stand up or sit down and at least one workstation should be wheelchair accessible.

d. **Shelving**: Provide metal shelving to accommodate a 10,000-12,000 volume collection of print material, including fiction, non-fiction, reference, magazines and newspapers. The shelving should be predominantly perimeter shelving with some interior shelving. A range should be no more than 72 inches high and have five shelves 14 inches high. A 36-inch wide shelf in a range should hold 25 volumes; a range of five shelves would hold 125 volumes. Some interior shelving of three shelves each and no higher than 48 inches may be used.

District approved metal library shelving will be purchased from the construction contract to accommodate the current collection size. The construction budget is used to purchase wall-supported perimeter shelving units only. Additional freestanding metal shelving must be purchased from the school budget. Ordering and installation of metal shelving will be coordinated by the LIC Specialist, Purchasing and the

Furnishings and Interiors Coordinator from Facilities Planning and Design. All decorative wood or plastic laminate tops and end panels for the metal shelving must be purchased from the school budget. Ordering and installation of decorative canopies and end panels will be coordinated as noted above. The design consultant is not responsible for providing a furniture plan for the LIC; however, the consultant is responsible for insuring that the design provides for all of the LIC features listed and for coordinating voice, data, power and lighting locations. It is strongly recommended that the consultant have at least one coordination meeting with the Coordinating Architect, the LIC Specialist, and the Furnishings and Interiors Coordinator. The Furnishings and Interiors Coordinator is responsible for providing a furniture plan for approval to the Coordinating Architect and to the consultant for coordination purposes.

e. **Copying**: Provide room in the student area for two coin operated copiers for student use and to support publishing which may be done at any workstation or in the Electronic Learning Center.

2. **Student Media Production Center:**
   a. Provide a room for the following activities to occur: student broadcasting, use of scanners, digital cameras, poster makers, video cameras and video editors and six computer workstations. The room should support the activities of up to 15 students. Within the room, provide a closet with locking door adequate to house props and equipment.
   b. Dual level lighting is required to provide both 50 and 20-foot candles. Provide one track of eight feet length with three adjustable spotlights on a separate circuit with switch.
   c. Provide windows to the LIC for visibility and supervision. Sill heights should not be less than 36 inches above the floor.
   d. The ceiling height should be nine feet in order to provide sufficient space for ceiling hung spotlights.
   e. Provide for two video runs, one for all school broadcasting and one for the CATV connection. Provide power and data drops for operation of cameras, production lighting, for computer workstations, three printers and three scanners.
   f. Provide 16-20 linear feet of work counters, 36 inches high by 24 inches deep, with base cabinets below and 12-inch deep upper cabinets above for storage.

**B. Support Area:**

1. Circulation:
   a. Provide space for check in/out of learning resources such as books, textbooks, audiovisual materials and equipment and space for circulation-related tasks such as computing, filing, record keeping and security encoding devices.
   b. The circulation desk and rear counter should be designed as a practical, functional piece of casework and not seen as an opportunity to create a unique, one-of-a-kind design "statement". Similarly, the circulation desk should be treated as a long-term investment that is not custom designed around one person's immediate needs but rather the needs of numerous individuals who will work at the desk in the future. Desks that are deeper than 30 inches may inhibit students reaching for materials being

handed to them. Semi-circular desks generally waste too much space behind the desk, sacrificing floor space for student use. If stand-up transaction tops are used in front of the circulation desk, the top should be 10 to 12 inches deep so that books and other items can be placed on the top. The circulation desk, under-counter book truck and rear counter are paid for from the construction budget.

2. Processing/Media Production Workroom:
   a. Provide a work area to prepare library media and textbook learning resources for inclusion into the LIC collection and preview, reserve, return and repair audio-visual materials. The room is also used as a work area for LIC personnel, staff and students performing tasks such as typing, copying, collating, publishing, dry mounting and laminating.
   b. Equipment may include a typewriter, computer station, printer, copy machine, paper cutter, letter die cutter, and bookbinding machines. A 220-volt copy machine requiring a dedicated 20-amp circuit may be located in this area.
3. AV Equipment:
   a. The room provides a centralized location for circulation, storage and retrieval of audio-visual equipment and related supplies. Provide space for testing, minor repair and return of audio-visual equipment and a holding area for pickup and delivery of equipment for repair.
4. Periodicals/Software storage:
   a. Provide area for storage and retrieval of periodicals and software.
5. Office:
   a. Provide an office large enough to accommodate a desk with a computer station and floor space to accommodate school purchased storage cabinets, bookshelves and wardrobe unit.
   b. Provide windows into the LIC for supervision. Windowsill heights should not be less than 36 inches above the floor.

**SQUARE FEET SUMMARY:**

| | |
|---|---|
| **A. Instructional Component:** | |
| 1. Student Use Area with Stacks | 3,900 sf |
| 2. Student Media Production Center | 600 |
| | 4,500 |
| **B. Management Component:** | |
| 1. Circulation | 300 |
| 2. Processing/Media Production Workroom | 575 |
| 3. AV Equipment | 250 |
| 4. Periodicals/Software | 250 |
| 5. Office | 150 |
| | 1,525 |
| **Library Information Center Total** | 6,025 |

# PHYSICAL EDUCATION COMPLEX

## SPACE DESCRIPTION:

The Physical Education (P. E.) Complex provides opportunities for a variety of physical activities for the entire student population. The six space components are:

A. Multi-purpose gym and equipment storage room
B. Fitness room
C. Girls' locker/shower/toilet room with teacher office
D. Boys' locker/shower/toilet room with teacher office
E. Exterior P. E. storage building
F. Physical education courts, fields and event areas

## DESIGN CRITERIA:

### A. Multi-purpose gym:

1. Minimum interior dimensions shall be 100'-0" by 116'-0" with a 22'-0" ceiling height.
2. Walls and floors should be flat, straight, smooth and easy to clean, with no protrusions.
3. Provide bleachers that roll out from one wall to seat 500 people. Equip the bleachers with an attached score keeper/timer bench.
4. Provide an electrically and manually operated vinyl net drop to divide the gym in half.
5. Provide access doorways at both ends of the net drop to facilitate movement from one activity area to the other.
6. Provide a scoreboard with central console and automatic time out clock. The console should be connected by an extension cable to an outlet in the wall behind the bleachers. Locate the scoreboard to be visible to both spectators and the scorekeeper.
7. Provide a public address system that will interface with the paging system.
8. Provide the following:
   a. 28 floor inserts for gym equipment.
   b. Three sets of safety suspension systems with hoists.
   c. Six electrically operated swing-up basketball backstops. Crash pads should be wall-mounted behind the four side wall backstops.
9. Gymnasium acoustics should be addressed through the use of acoustic metal deck and acoustically perforated block walls.
10. Metal switch and outlet cover plates and locking metal covers on all light switches and backstop raising switches are required.

### Equipment storage room:

1. Locate the room on the bleacher side of the divider curtain to allow large apparatus to be moved in and out of this side of the gym when the divider curtain is down.
2. The room must be directly accessible from double doors from the gymnasium to facilitate movement of large apparatus and team sports equipment. Suspended ceilings are not recommended.
3. Provide five locking 5'-0" by 10'-00" equipment cages and one locking 5'-0" by 20'-0" cage. Shelving should be provided that is appropriate to the type of equipment to be stored. Cages may be eliminated, however, perimeter shelving should still be provided.
4. Remaining room area should contain large equipment storage space.

**B. Fitness Room:**

1. Locate the room adjacent to the gym with access from a pair of metal doors to facilitate moving of equipment. A window providing good visibility from gymnasium offices is required.
2. Ceiling height should not exceed nine feet.
3. The floor material should be an interlocking rubber mat.
4. Provide an 8'-0" by 12'-0" wide non-breakable mirror.

**Girls' Locker/Shower/Toilet Room with teacher office:**

**Locker area:**

1. Provide 375 lockers 12" wide by 12" deep by 18" high with built-in locks.
2. Provide 75 athletic lockers 15" wide by 15" deep by 36" high with built-in locks.
3. Provide bench seating between locker banks.
4. Provide hair dryers, a non-breakable mirror and one drinking fountain.

**Showers:**

1. The shower room should be centrally located in the locker area with good traffic flow. Provide a 5'-0" high visual barrier wall to separate the shower room from the locker room.
2. Provide nine semi-private shower stalls, one of which is handicapped accessible, with preset tempered water. Dressing stalls and drying areas are not required.

**Toilet room:**

1. Provide three water closets and two lavatories, with one water closet and lavatory handicapped accessible.

**Teacher Office:**

1. Provide a 150 square feet office between the gymnasium and the girls' locker room with a door to the gymnasium and a visually screened door to the locker room.
2. Provide a non-breakable window 42" above floor height into the gymnasium for supervision.
3. Provide a separate area adjoining the office for P. E. staff containing:
   a. Eight 12" wide by 15" deep by 60" high lockers.
   b. Space for dressing and a handicapped accessible private shower, water closet and lavatory.

**D. Boys' Locker Room:**

**Locker area:**

1. Provide 375 lockers 12" wide by 12" deep by 18" high with built-in locks.
2. Provide 75 athletic lockers 15" wide by 15" deep by 36" high with built-in locks.
3. Provide benches between locker banks.
4. Provide hair dryers, a non-breakable mirror and one drinking fountain.

**Showers:**

1. The shower room should be centrally located in the locker area with good traffic flow. Provide a 5'-0" high visual barrier wall to separate the shower room from the locker room.
2. Provide nine semiprivate shower stalls, one of which is handicapped accessible, equipped with preset tempered water. Drying areas are not required.

**Toilet room:**

1. Provide two urinals, two water closets and two lavatories, with one of each handicapped accessible.

**Teacher Office:**

1. Provide a 150 square feet office between the gymnasium and boys' locker room with a door to the gymnasium and a visually screened door to the locker room.
2. Provide a non-breakable window 42" above floor height into the gymnasium for supervision.
3. Provide a separate area adjoining the office for:
   a. Eight 12" wide by 15" deep by 60" high lockers.
   b. Space for dressing, and a handicapped accessible private shower, water closet and lavatory.

**E. Outside P. E. Storage Building:**

1. Provide a 625 square feet noncombustible storage building near the track, football field and activity field. Two storage buildings are required if the track and football field is remote from the activity field.
2. Minimum inside length of the building should be 18 feet, with one pair of 4'-0" wide by 7'-0" feet high steel doors at one end.
3. Minimal lighting and electrical power is required. No heating is required.
4. Exterior materials should be architecturally compatible with the main building. The floor should be concrete.

**F. Physical Education Courts, Fields and Event Areas:**

1. Provide six multi-use asphalt courts striped for volleyball and half-court basketball with the following equipment for each:
   a. Provide 48" cantilever type basketball goals with chain nets.
   b. Provide volleyball standard sleeves with safety covers set in concrete.
   c. Provide a 72" high chain link fence enclosure with one limited swing 3'-0" wide by 6'-0" feet high entrance gate on each side.
2. 2.Provide two softball fields.
   a. Provide a skinned infield consisting of sand and moisture absorbing material.
   b. Backstops should be 18 feet high by 20 feet wide with 10 feet wide wings; located 20 feet back from home plate. If possible, group backstops for ease of supervision.
   c. Foul lines should be 200 feet long.
3. Provide two soccer fields sized 150 feet by 300 feet. Where possible provide a combined pair of fields 300 feet by 300 feet.

4. Provide one 400-meter clay and cinder surfaced track with concrete curbs and scuppers designed to comply with Colorado High School Activities Association Standards. Eighteen feet wide curves and backstretch with 24 feet wide straightaway are required.
5. Provide one 160 feet wide by 360 feet long multi-use field with northwest-southeast orientation within the track infield.
6. Provide one long jump and one triple jump area.
   a. Runways on each should be 4 feet wide by 150 feet long with cedar takeoff boards.
   b. Provide one redwood edged landing pit 9 feet wide by 20 feet long located 8 feet from the takeoff board.
   c. Provide one high jump pad 16 feet long by 18 feet wide with a foam pit and 50 feet radius approach pad.
7. Provide one discus area with a 60-degree throwing sector from 160 feet to 200 feet long located adjacent to the track area.
   a. Provide a 10 feet square concrete pad with 2 inch wide painted sector and center lines within a 2 inch wide painted circle with 8 feet inside diameter.
   b. Provide a chain link fence safety screen 10 feet high by 20 feet wide located 10 feet behind the concrete pad.
8. Provide one shot area located adjacent to the track area with a 10 feet square concrete pad with a 2 inch wide painted circle with 7 feet inside diameter. The stop board should be constructed from wood or fiberglass.
9. Provide two tennis courts 60 feet wide by 120 feet long with north-south orientation located side by side. Basketball goals are not permitted on courts.
   a. Provide an electrical outlet for a tennis ball-serving machine.

**SQUARE FEET SUMMARY:**

| | |
|---|---|
| A. Multi-Purpose Gymnasium with Equipment Storage | 11,600 sf |
| Equipment Storage | 600 |
| B. Fitness Room | 1,000 |
| C. Girls' Locker/Shower/ Toilet room with Teacher Office | 1,950 |
| D. Boys' Locker/Shower/Toilet room with Teacher Office | 1,950 |
| E. Outside P. E. Storage Building | 625 |
| F. P. E. Courts, Fields and Event Areas | |
| | --- |
| **Physical Education Complex Total** | 17,725 sf |

# CORE TEAM INSTRUCTIONAL SUITE

## SPACE DESCRIPTION:

The philosophy of middle school education is to create teams of teachers and students that work together to achieve academic and personal goals for students. The design of Core Team Instructional Suites enhances those goals by creating smaller, more personalized learning environments which support the team mission.

Six Core Team Instructional Suites serve a middle school program of 840 students. Each Instructional Suite is designed to provide housing for 80% of assigned students at any time. The remaining 20% of students in the group are scheduled in elective/exploratory classes.

An interdisciplinary team of four teachers provides instruction in:

a. Language arts
b. Social studies
c. Mathematics
d. Science

### Instructional Suite Components:

**A. Instructional Component:**

1. Three general purpose classrooms per suite
2. One classroom for educationally disabled students per suite
3. One science laboratory per suite
4. One science preparation room per suite
5. One science storage room per suite
6. One resource/small group workroom per suite

**Per Six Suites:**

7. Two foreign language classrooms per six suites
8. One keyboarding classroom per six suites (See Exploratory Learning)
9. One business instruction laboratory per six suites (See Exploratory Learning)

**B. Support Component:**

1. One teacher planning/conference room with time-out area for up to four students per suite
2. One storage room per suite
3. Teacher toilet room per suite

## DESIGN CRITERIA:

An Instructional Suite should be designed as an identifiable unit within the school for self-contained academic instruction. The six suites should be contiguous to each other, support technologically enhanced instruction, and provide easy access to the Library Information Center.

**A. Instructional Component**

**1. Three General Purpose Classrooms:**

a. The design should facilitate easy flow of students from one instructional area to another. The arrangement of the suite should permit casual monitoring of students by teachers.

b. Provide flexible, easily modified space to accommodate individual student needs for experiential and active learning, varied instructional techniques, and small work groups, as well as for large group instruction.
c. For flexibility of teaching, operable partitions are recommended between two of the three-general purpose classrooms. Consideration should be given to the control of sound transmission through the ceiling space above portable partitions.
d. Provide day lighting and at least one operable window per classroom for natural ventilation. Windowsill heights should be no lower than 42" above the floor.
e. If sidelights are used next to classroom doors, sill heights should not be less than 18" above the floor. For building security purposes, doors to the exterior from general classrooms are discouraged except where program requirements recommend a door or the building code occupancy requirements require a door.
f. Casework should consist of 16 to 20 linear feet of base and upper storage cabinets. Provide one 24 inch deep by 12 inch wide by 84-inch high locking wardrobe cabinet for teacher coats and personal items. Sinks are not required for general-purpose classrooms.
g. Provide white boards with marker rails and tack boards. See Room Finish Matrix in Appendix for further information.

**2. One Classroom for educationally disabled students:**

The educationally disabled program provides instruction for students with special needs and moderate to severe handicaps. Most students in the program spend part of their instructional day in the general classrooms and part in the educationally disabled student classroom receiving specialized instruction for specific disabilities. The class size is generally 8-12 students with instruction provided at tables or desks for individuals and small groups.

The classroom is comprised of a two-room suite, with an instructional resource room housed within the classroom. The resource room provides an area for student assessment, therapy, and for visiting itinerant special education teachers to work from.

**3. One Science Laboratory:**

The middle school science program is a laboratory based inquiry program with instruction in life science and physical science. Students work at two-person acid resistant tables 24 inches deep by 48 inches wide.

a. Provide locking base cabinets with water-resistant tops along two walls.
b. Space above cabinets should contain tack boards, open bookshelves and locking glass door wall cabinets.
c. Window locations should allow adequate sunlight for plant growth on top of base cabinets.
d. Provide a locking microscope cabinet for storage of 30 microscopes.
e. Provide one 10-pound dry chemical fire extinguisher. The extinguisher should be located not more than 25 feet from any point in the room if possible, but in no case more than 50 feet. It should not be placed along a traffic path where it can be knocked down.
f. Provide one centrally located hands-free eye wash station with drain not more than 25 feet from any point in the room if possible, but in no case more than 40 feet.
g. Provide one body drench station with drain not more than 25 feet from any point in the room if possible, but in no case more than 40 feet.

h. Provide wall space for a school provided first aid kit.
i. Provide wall space for a school purchased goggle cabinet.
j. Provide wall space for District provided paper towel and soap dispensers.
k. Provide the following utilities:
   1. Four sinks with gooseneck faucets, blade handles and hot and cold water. Inside sink dimensions should be 28 inches long by 16 inches wide by 7 inches deep.
   2. Continuous electrical plug mold above all counters.
   3. Electrical outlet drops above each school provided two-student work table
   4. Locate master control electrical switch in science preparation room with quick disconnect stations in the science laboratory.
   5. Provide gas jets for each six linear feet of counter space with a separate, key-locking master gas control in the preparation room. Locate jets as close to the counter back splash as possible to maximize available space. Gas service is not required at student worktables.
l. Locks for doors to science laboratories, preparation rooms and science storage rooms should allow for one common keyway for all.
m. The laboratory design should allow student tables to be oriented toward a teaching station with good visual access to the projection screen, TV/VCR monitor and whiteboard.
n. Provide floor area for a moveable demonstration table. Electrical wiring and plumbing is not required.

**4. Science Preparation Room:**

A combination preparation/workroom area should be located next to each science laboratory. If two science laboratories are adjacent to one another, one enlarged preparation/workroom may be shared.

a. Provide a large window for visual supervision of the laboratory.
b. Locate master electrical and gas controls for the laboratory in the preparation room.
c. Provide base cabinets with water and acid resistant tops and continuous electrical plug mold above.
d. Provide one gas jet near back splash on base cabinet.
e. Provide one sink with gooseneck faucet and hot and cold water in a base cabinet. The sink size should be 28 inches long by 16 inches wide by 7 inches deep.
f. Provide one mechanically vented fume hood for mixing chemicals.
g. Provide a 16-18 cubic feet upright ice making refrigerator and full size dishwasher.
h. Door hardware should be self-locking and self-closing.
i. Provide an acid resistant floor drain.

**5. Science Storage Room:**

The storage room should be located off the science preparation room. If two science laboratories are adjacent to one another, one enlarged storage room may be located between them.

a. Provide 100 linear feet of full height adjustable shelving divided equally between 18 inches deep and 24 inches deep. One third of shelving should be within locking cabinets.
b. Provide one 10-pound dry chemical fire extinguisher beside the room exit door.
c. Provide acid resistant floor drain.

d. Allow floor space and adequate ventilation air for:
   1. One fire resistant storage cabinet with flame arrestor with dimensions of 36 inches high by 36 inches wide by 24 inches deep.
   2. One non-corroding acid cabinet with dimensions of 36 inches high by 36 inches wide by 18 inches deep to store acids below eye level.
   3. Door hardware should be self-locking and self-closing.

**6. Resource/Small Group Workroom:**

The room is used for small group instruction/study, project work area, individual instruction and study, testing, and conferences. Furnishings will be tables and chairs.

a. Provide visual access for classroom supervision.
b. Provide work counter with locking base cabinets and outlets above along one wall.
c. Provide power and data outlets for computer workstations.

## Per Six Suites:

**7. Foreign Language Classrooms:**

Students in foreign language classes learn to understand and reproduce a language in model and created situations through a variety of teaching activities and technologies. The room features of the general-purpose classrooms should be provided. It is particularly important to provide sound isolation between adjacent spaces because of frequent use of audio-visual equipment, conversational role playing activities and singing.

**8. Keyboarding Classroom (See Exploratory Learning for Space Description)**

**9. Business Instruction Laboratory (See Exploratory Learning for Space Description)**

**B. Support Component:**

**1. Team Teacher Planning/Conference Room**

The room will provide meeting/conference space for teachers, parents and students and work space for the four-teacher core team and for one educationally disabled, foreign language or business teacher. Meeting space for six to eight people is required. The design may allow two teacher planning/conference rooms to share one storage room.

a. Provide counter space with locking base and upper cabinets along one wall.
b. Provide coat-hanging space.
c. Provide windows with blinds for visual supervision of classrooms within the suite.
d. Provide space for up to four students in time-out status at tables or carrels. Locate time-out space near the window to classrooms for easy supervision.

**2. Storage Room**:

The room provides storage for classroom book sets, resource books, instructional materials and audio-visual equipment on carts.

a. The room configuration should allow for maximum utilization of the space and easy access.
b. Provide full height heavy duty adjustable 12 inch deep shelving on at least two walls.

c. If the budget permits, high density rolling shelving may be considered if two or more teacher planning/conference rooms share one area.

**3. Teacher Toilet Room:**

Provide a single handicapped accessible toilet adjacent to the teaching planning/conference room for use by both sexes. Consider door hardware that contains an "Occupied" sign when the door is locked.

## SQUARE FEET SUMMARY FOR CORE TEAM INSTRUCTIONAL SUITES:

| | Square Feet Per Room | Square Feet Per Suite | Square Feet Per Six Suites |
|---|---|---|---|
| **A. Instructional Component:** | | | |
| **Per Instruction Suite:** | | | |
| Three general purpose classrooms | 900 | 2,700 | 16,200 |
| One classroom for educationally handicapped students | 500 | 500 | 3,000 |
| One science laboratory | 1,000 | 1,000 | 6,000 |
| One science preparation room | 150 | 150 | 900 |
| One science storage room | 100 | 100 | 600 |
| One resource/small group workroom | 250 | 250 | 1,500 |
| **Per six Suites:** | | | |
| Two foreign language classrooms | 900 | | 1,800 |
| One keyboarding classroom | (See Exploratory Learning) | | |
| One business instruction laboratory | (See Exploratory Learning) | | |
| **B. Teacher Support Component:** | | | |
| **Per Instructional Suite:** | | | |
| One team planning/conference room | 300 | 300 | 1,800 |
| One storage room | 100 | 100 | 600 |
| Teacher toilet room | 50 | 50 | 300 |
| **Net assigned area for six suites** | | | **32,700** |

# EXPLORATORY LEARNING AREAS

## SPACE DESCRIPTION:

The exploratory learning area provides a variety of learning experiences. The area is organized as an identifiable unit to encourage staff and students work as a team. The exploratory learning area consists of two components:

**A. Instructional component:**

1. Art
2. Business Instruction Laboratory
3. Consumer and Family Studies
4. Keyboarding Classroom
5. Music
6. Technical Education

**B. Support Component:**

1. Staff planning/conference room
2. Resource/classroom
3. Storage room

**Instructional component:**

**1. Art:**

The art area is both a workroom and a laboratory area and is sized according to the student population. A single room is adequate with an enrollment of 500 or fewer students. Separate two-dimensional and three-dimensional studio/classrooms may be designed for larger student populations. The art area should accommodate teaching of drawing, painting, printmaking, ceramics, sculpture, jewelry making, casting, paper/wood/plastic constructions, and fiber crafts. The art area consists of:

a. Studio(s)
b. Studio storage room

**2. Business Instruction Laboratory**

A business instruction laboratory is provided in conjunction with the exploratory learning area to accommodate lectures, demonstrations and computer aided student instruction.

**3. Consumer and Family Studies**

The Consumer and Family Studies area is designed to facilitate instruction in such topics as foods and nutrition, clothing and textiles, child development, interpersonal relationships, consumer education, employment skills, and human services. The consumer and family studies area consists of:

a. Food lab
b. Pantry
c. Multi-purpose exploratory laboratory
d. Storage room

**4. Keyboarding Classroom:**
The classroom is set up to provide computer aided student instruction in keyboarding, word processing and related computer exploratory programs.

**5. Music:**
Students in the Music program will be involved in singing, composing, listening, viewing, demonstrating, reading, movement and writing. The program also provides learning experiences in concerts, school exchange assemblies, musicals, solo and small ensemble work. The music area consists of:

a. Vocal music
b. Instrumental music
c. Instrumental music storage room
d. Practice/solo rooms

**6. Technical Education:**
Technology education provides a vital link in the math/science/technology triangle. The interdisciplinary nature and systems approach helps students comprehend and apply the natural sciences, social sciences and humanities. Broad content areas of study include communication, construction, manufacturing, power and transportation. The technical education area consists of:

a. Manufacturing/construction lab
b. Modular laboratory
c. Materials storage

**B. Support Component:**

**1. Staff planning/conference room:**
The room provides office work area and planning/conference space for exploratory learning teachers.

**2. Resource/classroom:**
The space is used for a variety of activities including class instruction, individual and small group instruction and study, project work area, meetings and conferences. Resources in the room include computer workstations, desktop publishing equipment, and video imaging equipment.

**3. Storage room:**
The room provides storage for instructional materials, resource books and audiovisual equipment.

# ART

## DESIGN CRITERIA:

1. **General studio requirements:**
   a. North light is recommended. At least one operable window sash is required. Sill heights should not be lower than 36 inches above the floor.
   b. Ventilation systems must safely accommodate the use of art materials, chemical techniques and resulting fumes. Other systems are required for specific equipment.
   c. Provide an adequate quantity and type of ground-fault outlets to support studio activities. All quadplex outlets should be on dedicated 20 amp circuits. Locate data outlets nearby. Plug-mold should be provided over the countertop of all base cabinets. Removable safety net electrical drop-cords are required over student worktables and pottery wheels. A 220v dedicated circuit for the kiln is required and a 110v circuit is required for the kiln's "Enviro-vent" system. Floor outlets are prohibited.
   d. Provide one double compartment stainless steel sink for every sixteen students. Sink dimensions are 84 inches long by 24 inches wide with 12-inch high back splash with basins that are 24 inches long by 21 inches wide by 12 inches deep with two 24-inch square drain boards. Sinks shall have a clay trap, single long blade lever handle, and swing-spout faucet with tamper proof aerator and hot and cold water.
   e. Provide a ceiling suspended "Unistrut" type grid system approximately 20 feet by 20 feet with track lighting and electrical outlets for display use. Provide 12 track lights for color correct flood bulbs. A minimum of 50-foot candles, maintained at the work surface, of color correct lighting is required for general lighting. Locate the general lighting room switch near the corridor door. Track lights should be independently switched.
   f. Provide display area with an eight feet length of track lighting and three track lights for highlighting still life displays, models and at drawing tables. The display area may be a room wall with a tacking surface or minimum 32 square feet of display panels.
   g. Provide 15 square feet of floor area for an etching press for printmaking.
   h. Provide space for a hinged or spring lock drying rack with mesh shelves for two-dimensional projects.
   i. Provide floor area to accommodate eight school purchased four feet by six feet student worktables and one teacher demonstration table.
   j. Provide locking glass display cases for exhibiting artwork in the corridor that open from the studio room side. Cases should contain three adjustable glass shelves and have glass on both the corridor and room side.
   k. Provide floor space for a teacher desk.

2. **General ceramics/sculpture requirements:**
   a. Pug mills are not required for middle school studios.
   b. Provide floor space for either a school purchased island or wall model combined sculpture and wedging station.
   c. Allow 18 square feet of floor space for a school purchased clay slab roller.
   d. Allow 15 square feet of floor space for eight school purchased potters' wheels. Provide electrical drop cords for their operation.
   e. Provide a glazing spray booth with ventilation fan and hood and a turntable. Supply compressed air and electrical power to operate a spray gun.

f. Provide floor space for glazing buckets and clay carts.
g. Provide eight square feet of floor area and a dust collection ventilation system for a school purchased stand or bench mounted buffer/grinder for use in ceramics and jewelry making.

**3. General kiln area requirements:**

a. Provide 60 square feet of floor area and an "Enviro-vent" ventilation system for each of two electric kilns. Sixty square feet allows for an 18-inch radiant heat border and an additional 18-inch space for loading materials and operating control switches. Kilns are purchased by the District from the construction budget and installed by the general contractor.
b. Provide floor space for four shelving units 24 inches deep by 36 inches wide by 84 inches high with adjustable washable shelves for glazeware pottery, kiln furniture cabinet, green ware cart and kiln shelf cart.

**4. General jewelry/sculpture requirements:**

a. Provide counter space with knee openings for four 24 inch deep by 30 inch wide jewelry soldering stations. Counter top shall be hard firebrick and have safety dividers between each station. Provide a natural gas manifold system with a central oxygen tank, counter height slot hood ventilation system and exhaust fan for stations.
b. Provide a locked screen wire cage for storage of mild acids used to clean metals.
c. Provide in a room corner a centrifugal casting well and exhaust hood to accommodate a school purchased centrifugal casting machine.
d. Provide floor/work space for the following school provided equipment:
    1. Nine square feet for a band saw.
    2. Six square feet for a belt sander.
    3. Nine square feet each for three flexible-shaft grinders.
    4. Eight square feet and exhaust hoods for burnout kilns. Adjacent floor base and wall material must be fireproof.

**5. Resource center area in studio:**

a. Provide open shelving to house up to 200 books and slide collections.
b. Provide floor area for projectors on carts and flat files.
c. Provide wall area for a school purchased projection screen.

**6. General storage in studio:**

a. Provide eight sections of flat storage cabinets 38 inches wide by 26 inches deep by 84 inches high with six adjustable shelves for drawings and paintings.
b. Provide five sections of open steel shelving 48 inches wide by 36 inches deep by 84 inches high with five adjustable shelves.
c. Provide three sections of vertical flat storage with non-adjustable shelves spaced at 3 inches apart. Each unit should be 48 inches wide by 36 inches deep by 84 inches high, with two levels within each unit.
d. Provide a locking wardrobe cabinet 24 inches deep by 12 inches wide by 84 inches high for teacher personal items.

e. Provide approximately 16 linear feet of 24" deep base cabinets with 12" deep upper cabinets or a combination of shelves and cabinets above.
f. Provide locking damp box storage for wet clay projects. Dimensions shall be 48 inches wide by 24 inches deep with six adjustable shelves and a one-inch deep pan to absorb water.

**7. Studio Storage Room requirements:**

a. Provide built-in shelving:
   1. Two 14 feet long by 84 inches high open shelf sections with eight adjustable shelf levels. One unit should be 42 inches deep; one unit should be 38 inches deep. Provide some vertical slotted storage for poster board.

b. Provide floor space for:
   1. Eighteen square feet for paper cutter on casters and work space.
   2. Eighteen square feet for mat cutter on casters and workspace.
   3. Eighteen square feet for etching press and work space.
   4. Two school purchased metal flat file units with metal work top 54 inches wide by 42 inches deep stacked one on top of the other.
   5. Two school-purchased locking metal cabinets 36 inches square for flammable materials storage.

c. Provide wall attached open steel shelving units 18 or 24 inches deep by 84 inches high in remaining floor space for general art storage.

## SQUARE FEET SUMMARY FOR ART:

| | |
|---|---|
| Studio | 2,100 sf |
| Studio Storage Room | 400 |
| | --- |
| **Art Area Total** | 2,500 sf |

# BUSINESS INSTRUCTION LABORATORY

## DESIGN CRITERIA:

The business instruction laboratory is a component of the exploratory learning area used for computer technology lectures and demonstrations.

**General requirements:**

1. The room configuration should not be tiered. Students are seated at continuous computer counters and the teacher circulates between rows of stations.
2. Provide floor space for computer workstations for 32 students and one teacher. For ease of reconfiguration, school purchased portable computer tables should be used in lieu of built-in counters. Other peripheral equipment located in the room may include printers, videodisc players and CD-ROM players. Provide a small, well-ventilated locking closet to house the file server.
3. Provide the following items within the computer laboratory:
   a. One eight feet long section of 24 inch deep locking base cabinets with upper wall cabinets.
   b. Power and data outlets for two over head monitors.
4. Lighting should consist of duel level switching of standard fluorescent fixtures with non-glare lens. At one level, 30-foot candles maintained 36 inches above the floor should be provided; at the second level, 50-foot candles maintained should be provided.
5. A wall switch near the teacher station should control all electrical power to student computer stations.
6. Provide electrical power to accommodate computers, printers, and other peripheral system hardware. Power should be supplied from wall mounted plug-mold for student stations from seven dedicated circuits of 20 amps, each with surge protection. Two dedicated printer outlets and two general convenience outlets should be located near the teacher station. Student computer station power should be switched at the wall near the teacher station.
7. Windows are not recommended in the computer laboratory, except to the corridor. Windows or sidelights to the corridor should not be lower than 36 inches above the floor.

## SQUARE FEET SUMMARY:

| | |
|---|---|
| Business Instruction Laboratory | 900 sf |

# CONSUMER AND FAMILY STUDIES

## DESIGN CRITERIA:

### General Requirements:

The Consumer and Family Studies area is organized around the following spaces:

A. Food Laboratory
B. Pantry
C. Multi-Purpose Exploratory Laboratory
D. Teacher Office
E. Storage Room

Each laboratory should be designed to accommodate 32 students in the food laboratory and 24 in the multi-purpose laboratory. Schools with less than 400 students require only one combined laboratory room. Locate the laboratories near a building service drive for delivery of supplies and equipment. Provide a direct exit from the Food Laboratory to the building exterior.

### A. Food Laboratory

1. Provide seven kitchen unit workstations, one of which will be used as a demonstration kitchen. Each workstation shall have:
   a. One double sink with garbage disposal.
   b. Range, or cook top and oven combination, with ventilation unit.
   c. Nine linear feet of base and upper cabinets to store:
      - Table service for six.
      - Serving dishes, cookware, groceries and cleaning supplies, towels.
      - Appliances such as can openers and mixers and mixing and measuring equipment.
   d. Provide lighting over each sink and an overhead light in each kitchen unit.
2. Locate one kitchen unit in an island configuration for use as a demonstration kitchen. Locate a tilting mirror the length of the demonstration table over the unit for visual observation of demonstrations. Adequate circulation around the island is required for student observation and movement.
3. Provide convenience outlets for three centrally located portable microwaves.
4. Provide two 36-inch wide clear openings and outlets for school purchased refrigerators. No upper cabinets should be located above refrigerator openings. Provide a copper water supply line for icemaker attachments.
5. Provide one 36-inch wide space with outlet for an upright freezer. The freezer and refrigerators are required to be on separate electrical circuits.
6. Provide one 27-inch wide centrally located space and convenience outlet between base cabinets for a school purchased dishwasher. No counter top should run over the opening.
7. Provide storage in the laboratory to accommodate reference books and cookbooks, magazines, aprons, and a utility cart.
8. Provide an opening with convenience outlets for a 27-inch wide clothes washer and a 30-inch wide electric clothes dryer. Provide a vent for the clothes dryer. Locate the area away from the main entrance. Provide storage for washing supplies and clean linen.
9. Provide floor space for tables and pull-up chairs.

**B. Pantry:**

1. Provide locking pantry storage for class supplies, food supplies, small appliances and portable equipment.

**C. Multi-Purpose Exploratory Laboratory:**

1. The laboratory is used to teach units in Personal Development and Relationships, Child Development, Housing and Home Furnishings, Consumerism, and Clothing Management. Provide floor space for tables and pull-up chairs.
2. Provide a continuous 24-inch deep counter around the room perimeter with convenience outlets above for 22 portable sewing machines.
3. Provide a locking cabinet that will hold 125 student tote trays convenient to the sewing machines.
4. Provide two built-in drop-down ironing boards, convenience outlets and storage for pressing equipment and irons.
5. Provide locking storage in the laboratory for classroom supplies, wardrobe hanging, illustration materials, textbooks, magazines and pattern books.
6. Provide locking storage space for audio-visual equipment such as projectors, screens, and transparencies. Some portion of the space should contain 12-inch deep heavy-duty full height adjustable shelving.
7. Provide a locking fitting room with a triple mirror, a closet rod with shelf above for hanging garments and a base cabinet with open shelves.

**D. Teacher Office:**

1. Provide a 120 square feet teacher office within the Food Laboratory with windows into both laboratories.

**E. Storage Room:**

1. Provide a storage room with 24 inch deep heavy-duty full height adjustable shelving around the walls.

**SQUARE FEET SUMMARY FOR CONSUMER AND FAMILY STUDIES:**

| | |
|---|---|
| A. Food Laboratory | 1,350 sf |
| B. Pantry | 80 |
| C. Multi-Purpose Exploratory Laboratory | 1,100 |
| D. (Teacher office included) | -- |
| E. Storage Room | 60 |
| **Total Consumer and Family Studies Area** | 2,590 sf |

# KEYBOARDING CLASSROOM

## DESIGN CRITERIA:

The keyboarding classroom is a component of the exploratory learning area used to teach students basic keyboard skills.

### General requirements:

1. Provide floor space for computer workstations for 32 students and one teacher. For ease of reconfiguration, school purchased portable computer tables should be used in lieu of built-in counters. Other peripheral equipment located in the room may include printers, videodisc players and CD-ROM players. Provide a small, well-ventilated locking closet for the file server.
2. Provide one eight feet section of 24 inch deep by 72-inch long locking base cabinets with upper wall cabinets.
3. Provide electrical power to accommodate computers, printers, and other peripheral system hardware. Power should be supplied from wall mounted plug-mold for student stations from seven dedicated circuits of 20 amps each with surge protection. Two dedicated printer outlets and two general convenience outlets should be located near the teacher station. Student computer station power should be switched at the wall near the teacher station.
4. Use standard fluorescent fixtures with non-glare lens. Provide a lighting pattern that avoids glare on monitor screens. Lighting should be controlled by dual level switches with one level providing 30-foot candles maintained at 36 inches above the floor, the second providing 50-foot candles maintained.
5. The computer laboratory should maintain an even temperature of approximately 68 degrees.
6. Very limited use of windows is recommended. Windows or sidelights to the corridor should be at least 36 inches above the floor.
7. Provide wall space for a 60-inch square projection screen.
8. Provide utilities for ceiling mounting of two 28-inch monitors.

## SQUARE FEET SUMMARY:

| | |
|---|---|
| Keyboarding Classroom for Exploratory Learning | 900 sf |

# MUSIC

## DESIGN CRITERIA:

General requirements:

1. Acoustic treatment should be provided which creates an appropriate reverberant environment for both vocal and instrumental music. Ceiling heights of 12 to 14 feet are preferred. Reflective parallel surfaces should be avoided and the ceiling treatment should alternate reflective and absorbent surfaces to allow sound to blend and to keep average noise levels below OSHA guidelines. Design and construction features should maximize acoustical isolation of music activities from surrounding areas.
2. Provide a uniform light level without glare. Windows are not recommended.

### A. Vocal Music:

1. Provide 20 square feet of floor space per vocalist based on 80 students.
2. Provide adequate storage for school purchased portable risers. Risers are positioned at the rear of the room in order for sound mixing to take place in front of the vocalists and for movement and choreography rehearsal. A piano will also be placed in front of the vocalists.
3. Provide adequate storage and shelving to accommodate 100-9 inch by 11-1/2 inch music folios, guitars, sheet music, books, records and tapes, and general storage.
4. Provide a drinking fountain within the room.
5. The lighting system should provide 50-foot candles maintained at 36 inches above the floor. Dual level lighting is not required.
6. A sound amplification system, independent of the public address system, is required.

### B. Instrumental Music:

1. Provide 25 square feet of floor space for each instrumentalist based on 80 students.
2. The room may be designed with a flat floor or a three-tier floor. Tiered floors are expensive to construct and cannot be reconfigured. The cost of tiered floors may require budget cutbacks in other areas. If a tiered floor is designed, tiers should not be constructed of concrete. The top riser at the back of the room should be a minimum of 120 inches deep; the remaining two other levels should be a minimum of 60 inches deep. The elevation between riser levels should be six to eight inches.
3. Musical instrument storage is required to accommodate a minimum of 100 instruments within the instrumental music room and the storage room. Miscellaneous storage is required for sheet music, tapes, records, compact discs and reference books. Provide in-room storage cabinets with locks 42 inches maximum depth by 62 inches wide by 84 inches high with doors that open not wider than 90 degrees. Shelving within cabinets should have a protective edge to avoid damage from instrument cases.
4. Provide a bubblier and deep sink with gooseneck faucet and blade handles with hot and cold water for cleaning instruments.
5. Dual level lighting is recommended to provide a low level of 50-foot candles maintained at 36 inches above the floor and a high level of 100-foot candles maintained.

**C. Instrumental Music Storage Room:**

1. Locate the storage room to provide efficient circulation and minimize moving of instruments.
2. Provide storage and shelving for a variety of instrument and equipment types. Shelving should accommodate 100 concert size music folios 12 inches by 14-1/2 inches.

**D. Practice/Solo Rooms:**

1. One 60 square feet practice room and two 140 square feet solo rooms are required. A school purchased computer synthesizer and electronic keyboard will be installed in one of the two solo rooms.
2. Locate the practice rooms between vocal and instrumental music rooms.
3. Practice rooms must provide sound isolation between vocal and instrumental rooms.
4. Provide a view windows in the walls for supervision.

**SQUARE FEET SUMMARY:**

| | |
|---|---|
| Vocal Music | 1,600 sf |
| Instrumental Music | 2,000 |
| Instrumental Music Storage | 150 |
| Practice/Solo Rooms | 400 |
| | --- |
| **Music Area Total** | 4,150 sf |

# TECHNICAL EDUCATION

Technical Education components are:

A. Modular technology laboratory
B. Manufacturing/construction laboratory
C. Materials storage

Consultants and others involved in design of the laboratories must become familiar with the equipment, teaching needs and furnishings in order to provide an efficient and flexible learning environment.

## DESIGN CRITERIA:

## A. MODULAR TECHNOLOGY LABORATORY:

The Modular Technology Laboratory should provide a learning environment that reflects the image of a professional technology oriented workplace. Learning modules include units in electricity, electronics, energy/power mechanics, applied physics, research and design, graphic communication, computer problem solving, flight technology, rocketry and space technology, transportation, robotics and automation, desk top publishing, audio broadcasting, engineering structures, computer graphics/animation and computer applications.

Middle School Technology Laboratories have generally been designed in one of three ways. Whichever method is followed, consultants are responsible for coordination of power, voice and data locations and lighting to support the configuration:

1. All work modules within the room are provided by the construction contract and permanently built in to the structure. The school purchases equipment from its budget and installs it on the casework. This method is discouraged because of the lack of flexibility for future room and equipment reconfigurations.
2. The school purchases from its budget a complete technology package consisting of all furniture, equipment and teaching modules. The construction contract provides only a base cabinet with sink and upper storage cabinets to match what is provided in general purpose classrooms.
3. The construction budget provides permanently built in work modules around the room perimeter. The school purchases from its budget equipment and freestanding portable work modules that can easily be reconfigured.

### 1. General requirements:

a. Provide work modules or room space for work modules for 32 students working in groups of two. Counter depth should be determined by the space required for equipment such as hydraulic and pneumatic trainers. Provide shelving for videotapes, headphones, supplies and student notebooks for each module. Work module wall heights should not be higher than 54 inches to permit visual supervision by teachers.
b. Provide space for a teacher station in the middle of the work module area. The station may be raised to permit good visual supervision and for ease of demonstrations.

c. Provide open storage for:
   1. Safety equipment
   2. Heavy-duty shelves in sections to accommodate 32 notebooks each.
   3. Reference books and materials, videotapes and compact discs.
d. All aisles around work modules should be a minimum of 48 inches wide.
e. Provide acoustic treatments that minimize noise levels.
f. Provide natural and artificial lighting. Light levels should be uniform and provide illumination levels consistent with safe equipment operation. Windows sill heights should not be lower than 42 inches above the floor. Large window expanses are discouraged. At least one sash should be operable.
g. Provide an eyewash station with drain and drinking fountain.
h. Provide a deep sink with gooseneck faucet and blade handles. Hot water is not required. Proximity detectors to start water flow are not recommended.

**2. Electrical requirements:**

a. Coordinate location of 120-volt single phase and 208 volt three phase convenience outlets.
b. Provide electrical distribution via overhead drop cords as necessary. Provide one 120-volt duplex outlet every eight feet of wall length or a continuous plug mold. Locate outlets and plug molds 42" above the floor. The start switch for each piece of equipment should be placed within easy reach of the operator and should be a magnetic switch.
c. Provide approximately 40 percent power reserve capacity for future equipment.
d. Locate room light control switches in the laboratories to be easily accessible to teachers. Provide a master switch near the teaching station to control outlets for all computers and the TV/VCR. Provide lighting level of 50-footcandles maintained 36 inches above the floor.

## B. MANUFACTURING/CONSTRUCTION LABORATORY:

Consultants and others involved in design of the Laboratory must become familiar with both the equipment and teaching needs in order to provide an efficient, flexible and safe learning environment. Component areas are:

1. Workbench area
2. Machines
3. Metals area
4. Plastics area
5. Construction activity area
6. Teacher office

**Laboratory:**

**General laboratory requirements:**

a. All areas of the laboratory must be visible to the instructor to monitor safe operation of equipment by students.
b. An "air lock" vestibule with doors and windows between the production and modular laboratories to reduce transfer of dust might be considered.

c. Provide a pair of doors leading from the laboratory directly outside the building to allow easy movement of construction projects, machines and equipment for repair, and delivery of materials.
d. Provide one 20 feet square exterior concrete pad adjacent to the Technical Education area for outside activities.
e. Provide a 130 square feet teacher office with good visual access to both the modular laboratory and the manufacturing/construction laboratory.
f. Provide an open ceiling in lieu of a suspended ceiling.
g. Provide 15 linear feet of base cabinets and upper wall cabinets.
h. Provide both natural and artificial lighting.
i. Provide a mechanically vented exhaust hood for paint and welding activities.
j. Provide a central dust collection system for stationary woodworking machines. Locate the collection bin on a concrete pad secured with a gated chain link fence to provide easy access for removal trucks. Interior ductwork serving the collector should not interfere with use of the space.

**Plumbing requirements:**

a. Provide an eyewash station with drain and drinking fountain.
b. Provide a deep bowl utility sink, blade handle hardware and grease trap. Provide both hot and cold water. Proximity detectors to start water flow are not recommended.
c. Provide a hose bibb.

**Electrical requirements:**

a. Provide 120-volt single phase and 208 volt three phase convenience outlets as required. Electrical distribution that is not provided in wall outlets should be provided from overhead drop cords. Provide one 120-volt duplex outlet every eight feet of wall length or a continuous plug mold. Outlets and plug molds should be located 42" above the floor. The start switch for each piece of equipment should be located within easy reach of the operator and should be a magnetic switch. 208-volt power should be available through the laboratory to increase equipment relocation flexibility.
b. Provide approximately 40 percent reserve electrical capacity for future equipment.
c. Locate the room light control switches, vents, fans and dust collectors in the laboratory near the teacher station. Provide dual level switching to maintain 50-footcandles 36 inches above the floor and a second level of 100 footcandles.
d. Lighting in the wood lathe area should be designed to eliminate the strobe effect that may be produced by fluorescent lights in combination with motor driven equipment.

**C. Material Storage Room:**

Locate the material storage room with direct access to both the modular laboratory and the manufacturing/construction laboratory. The design must accommodate movement, storage and delivery of materials.

1. Provide open rack storage for wood, metals and plastics, and supplies.

2. Provide locking storage for:
   a. Equipment such as hydraulic and pneumatic trainers, multi-meters and oscilloscopes, video cameras, computer software, plotters and scanners.
   b. Project assembly equipment and student projects such as bridges, rockets and CO2 cars.
   c. Floor area for movable equipment and freestanding locking storage cabinets

**SQUARE FEET SUMMARY FOR TECHNICAL EDUCATION**:

| | |
|---|---|
| A. Modular Laboratory | 1,000 sf |
| B. Manufacturing/Construction Laboratory (includes teacher office square feet) | 2,000 |
| C. Material Storage | 400 |
| **Technical Education Total** | 3,400 sf |

# SUPPORT AREAS

## A. Support Area Components:

1. **Staff planning/Conference Room:**
   a. The room shall provide planning space for exploratory learning teachers and meeting space for parent conferences.
   b. Windows should be provided to allow for observation of circulation space within the Exploratory Learning area.
   c. Provide locking base and upper cabinets along one wall.
2. **Resource/Classroom:**
   a. The room will be furnished with tables and chairs and be used for a variety of activities including class instruction, small group instruction/study, computer workstations, desktop publishing, video imaging, post production testing, meetings and teacher conferences.
   b. Provide a window from the room to the corridor for visual observation.
   c. Provide locking base cabinets with upper cabinets along one wall to store resource materials.
3. **Storage Room:**
   a. Provide full height heavy-duty adjustable 12 inch deep shelving along two walls for storage of instructional materials and audio-visual and computer equipment on carts.
4. **Teacher Toilet Room:**
   a. Provide a single handicapped accessible toilet adjacent to teacher planning/conference room for use by both sexes. Consider door hardware containing an "Occupied" sign that is visible when the door is locked.

## SQUARE FEET SUMMARY FOR SUPPORT SPACES:

| | |
|---|---|
| Staff planning/conference room | 300 sf |
| Resource/classroom | 700 |
| Storage room | 100 |
| Teacher toilet room | 50 |
| | --- |
| **Support Spaces Total** | 1,050 sf |

## SQUARE FEET SUMMARY FOR EXPLORATORY LEARNING:

| | |
|---|---|
| Art | 2,500 sf |
| Business Instruction Laboratory | 900 |
| Consumer and Family Studies | 2,590 |
| Keyboarding Classroom | 900 |
| Music | 4,150 |
| Technical Arts | 3,400 |
| Support Spaces | 1,150 |
| | --- |
| **Exploratory Learning Total** | **15,590** |

# BUILDING WIRING STANDARDS

**Purpose:**
The purpose of the standards listed below for wiring configurations within all school buildings is to ensure conformance with the School District Technology Plan. The standards were approved by the District Technology Committee and implemented October 11, 1996.

**General:**
Refer to the School District Data Diagram for further information. The Data Diagram is available from the Offices of Facilities Planning and Design and Construction Management. The construction contract provides design and construction of a Communications Room and for the installation of video, voice and data outlet boxes, conduits, and conduit stub-ups in the spaces listed below.

The District hires a communications contractor under separate contract and separate Technology budget to install and terminate cable for video, voice and data devices. Also included are data cabinets and electronics necessary to support the standards. Ethernet/token ring hubs, work station cables and data patch cables will be installed to support the number of computers currently in use plus a 20% growth factor at the time of installation. Additional hubs will be installed once the 20% growth factor is reached.

A school may choose to upgrade above the standards outlined below. The cost of outlet boxes, conduits, conduit stub ups, cable and cable terminations must be paid for from the school budget.

**A. Video Standards:**

Video Outlet Locations:

1. One per classroom
2. Two in the Library Information Center
3. One drop each in the gymnasium, cafeteria and or assembly area (Auditeria)*
4. One drop in high school auditorium*
5. One in each multi-teacher workroom (up to a limit of five)
6. One in administrative office
7. One in the Principal's office or administrative conference room.

*If area is to be used for school TV broadcast studio, increase to two video drops. Locate one at 84" above floor for monitor and one at approximately 18" above floor to accommodate video camera.

**B. Voice Standards: ****

Voice (telephone) Outlet Locations:

1. One per classroom
2. One per Library Information Center
3. One per library office or library media production area
4. Two per administrative office support staff
5. One for school FAX machine
6. One for gymnasium
7. One in cafeteria
8. One in teacher workrooms
9. One per Administrator or full time staff
10. One per Special Program

**When two-piece wiremold strips are required for installation, the wiremold must meet shielding requirements for Category 5 data cable. Duplex backboxes are required for use with wiremold.

**C. Data Standards: ****

Data Outlet Standards:

1. Three* per classroom, except temporary classrooms. One data outlet should be located near or below the video outlet for use with video camera. (*Revised from 5 outlets 10/99.)
2. One per administrator and/or in each room in office area
3. One in Building Engineer office
4. One in the elementary school cafeteria; two in secondary school cafeterias (auditerias). Coordinate location with Food Services representative.
5. Library Information Centers:
   a. Two for circulation desk
   b. One for Library Information Specialists office
   c. Five locations within library
6. One in gymnasium near or below video outlet for use with video camera
7. One in cafeteria near or below video outlet for use with video camera
8. One in assembly area (auditerias)
9. One in high school auditorium
10. Fifteen to thirty drops for rooms used as computer labs

**If two-piece wiremold strips are required for installation, the wiremold must meet shielding requirements for Category 5 data cable. Duplex backboxes are required for use with wiremold.

**D. Temporary Building Wiring Requirements:**

1. One video outlet
2. Three data outlets and three telephone outlets located in same backbox.
3. One wall telephone outlet located near entrance door.

# CORRIDORS

## DESIGN CRITERIA:

Design and material selections should provide corridors that are durable, easily maintainable, attractive and non-institutional in appearance. The corridor layout should provide a direct, simple and logical pathway through the building.

1. Air lock type vestibules are required at high use building entrances. Heavy-duty entrance mats are required in vestibules.
2. Carpet is preferred as the corridor floor material; however, main entrance lobbies may be hard surfaces.
3. The preferred corridor wall finish is 48-inch high masonry wainscot veneer with gypsum board above with a heavy mil thickness multi-color vinyl paint. An optional corridor wall system may be 48-inch high impact gypsum board with standard gypsum wallboard above. Heavy mil thickness multi-color vinyl paint is recommended.
4. Exterior corners of all corridors should have full height high-impact corner guards.
5. Low ceilings are discouraged. Acoustical treatment is necessary to minimize reverberation. Angled or vaulted ceilings must contain full acoustical material to cover the angles or vaults.
6. Corridor windows into classrooms are not recommended except for room door sidelights. Sidelights should not have sill heights of less than 18" above the floor.
7. Within the corridor system, provide lockable security separations to isolate building areas that may be used after hours by the public such as the gymnasium, auditeria and music room, and library information center.
8. Provide built-in locking general-purpose lighted display cases in the main lobby, art area and near the gymnasium.
9. Approximately 150 square feet of tack boards should be provided at three or four prominent locations in the main corridor.
10. General-purpose 110-volt electrical receptacles should be provided at 50-foot intervals throughout the corridor system.
11. Corridor lighting shall be 30 foot-candles at 36 inches above the floor maintained.
12. Signs: Provide directional signs in the lobby to the main areas of the building. Provide a sign plaque with room name and number at each doorway. The plaque should contain a replaceable teacher name strip at classrooms only. Provide a dedication plaque to be hung in the main lobby. Design standards will be provided by Coordinating Architect for Facilities Planning and Design. All signs must meet ADA requirements.

# CUSTODIAL AREAS

## SPACE DESCRIPTION:

### A. Custodial Spaces:

1. Building Engineer Office
2. Custodial Closets
3. Custodial Storage Room

## DESIGN CRITERIA:

### A. Custodial Spaces:

1. **Building Engineer Office:**
   a. Provide roof access hatch with vertical ladder.
   b. A suspended ceiling is optional.
   c. Provide wall area and blocking for school purchased heavy-duty shelving.
   d. Locate building automatic irrigation controller in office.
2. **Custodial Closets:**
   a. Provide one per instructional suite
   b. Provide one for commons areas, including gymnasium, auditeria and core areas if located more than 200 feet from instructional areas.
   c. Provide one in the kitchen area.
   d. Provide in each custodial closet:
      1. One floor mounted 24" by 24" service sink with maximum 6" high lip and heavy-duty braced faucet with hot and cold water.
      2. 48-inch high wainscots of reinforced fiber panel (RFP) around service sinks.
      3. Twenty lineal feet of 12" deep heavy duty adjustable shelving
3. **Custodial Storage Room:**
   a. Provide space to store indoor floor cleaning equipment such as extractors, vacuum cleaners, buffers, and floor machines.
   b. Electrical transformers and circuit breaker sub-panels must not be located in custodial closets or storage rooms.

## SQUARE FEET SUMMARY:

| | |
|---|---|
| Building Engineer Office* | 200 sf |
| Custodial Closets* | 75 sf each |
| Custodial Storage Room* | 150 |

* Square feet are contained in support spaces allocation.

# MECHANICAL, ELECTRICAL AND COMMUNICATIONS ROOMS

## DESIGN CRITERIA:

### Mechanical and Electrical Rooms:

1. Provide adequate floor space for both mechanical and electrical rooms. Rooms must be of adequate size to facilitate maintenance of equipment and movement of personnel during normal maintenance procedures.
2. Floors should at constructed at grade level. The main mechanical and electrical rooms should be accessible by driveway for pick-up trucks delivering supplies and equipment.
3. Floor materials and painted walls are not required. Suspended ceilings in electrical rooms are not required.
4. Direct exterior access should be through a set of double doors. The door opening size must permit passage of the largest piece of equipment and equipment maintenance items. Building access must also be provided from an internal corridor.
5. Acoustical isolation from adjacent rooms and areas is a critical consideration in the location and design of mechanical and electrical rooms.
6. All building systems should be concealed in public areas, classrooms and finished spaces.
7. Vertical ladders with safety accessories must provide access to roof equipment.

### Communications Rooms:

Each school is required to have a communications room to house all building special systems control equipment. When data cable-run lengths exceed 300 total linear feet, the communications room must be connected to remote intermediate data closets. The equipment contained in the room is costly and environmentally sensitive. For that reason the room is not permitted to be used as a building storage room. Key access will be limited.

1. Locate the room centrally within the building and provide a door from the corridor.
2. Ceiling height should be a minimum of 8'-0". A suspended ceiling is not required.
3. The floor may be either unfinished concrete or vinyl composition tile. Carpet is not permitted.
4. The wall finish is required to be ¾" nonflammable unpainted plywood. Further requirements are contained in the District Data Diagram provided by the District's project Coordinating Architect.
5. Provide ventilation air only for the room as required in the District Technical Specifications.

# SPECIAL SYSTEMS

**A. Audio Enhancement System (Optional):**
The system, consisting of a base unit, four speakers, and a wireless microphone, allows use of a hands free, wireless microphone to enhance voice projection. One unit is installed for each teaching station. The system must be purchased and installed entirely from the school budget.

**B. Building Signs:**

1. Exterior signs:
   Building name and address identification, directional and traffic controls signs will be provided from the construction budget.
2. Interior signs:
   The construction contract will provide for directional signs in the lobby to the main building areas. Individual room number and identification signs, with a replaceable teacher name plaque at classrooms only, will be provided for each space at the room entrance door. Signs contain Braille information to meet Americans with Disabilities Act requirements. The signs will be provided from the construction budget.
3. Interior Dedication Plaque:
   A dedication plaque will be provided from the construction budget.

**C. CATV:**

1. Cable TV will be installed throughout the school. Refer to the media matrix in the Appendix for specific locations.
2. Cable outlet boxes, empty conduit and convenience outlets to serve the televisions are supplied and installed as part of the construction contract.
3. Television cable is pulled through the conduit, cable terminations made, and outlet covers provided by the District communications contractor.
4. Cable television control equipment is located in the Communications Room by the communications contractor.

**D. Central Energy Management System (CEMS):**
The central energy management system monitors the heating, ventilating and air conditioning system (HVAC) and reports status information to a District central monitor location.

1. The system is supplied and installed as a part of the construction contract.
2. CEMS control equipment is located in the Communications Room.

**E. Clock System:**
School clocks are on a master self-adjusting electrical system.

1. The system is supplied and installed as a part of the construction contract.
2. Locate the master control in the Communications Room.

**F. Communications Room:**
A dedicated room will be provided under the construction contract to house all building special system control equipment. The room is not intended as a storage room and key access will be limited.

**G. Data Systems:**
A computer network will be installed throughout the school. Refer to the media matrix diagram in the Appendix for specific data outlet locations.

1. Outlet boxes and empty conduit are supplied and installed as a part of the construction contract.
2. The District communications contractor installs cable, data box covers, and related hardware devices. Program cards, software and other devices selected by the school are paid for from the school budget.
3. Control equipment is located in the Communications Room.

**H. Fire Alarm System:**
A fire alarm system will be installed throughout the school. A fire alarm status panel will be located in the administrative/counseling area.

1. The system is supplied and installed by the construction contract.
2. Control equipment is located in the Communications Room.

**I. Knox Box:**
The construction contract provides for a recessed dual keyed Knox box at the main entrance that provides a secure location for building keys to be used by the Fire Department in the event of an emergency. The location will be determined by the consultant and the jurisdictional Fire Marshall.

**J. Security System:**
Security detection devices are located in corridors, administration/counseling areas, and Computer Laboratories.

1. The system is supplied and installed by the construction contract.
2. The system control equipment is located in the Communications Room.

**K. Sound Amplification Systems:**
A sound amplification system will be provided in the Auditeria and Gymnasium.

1. The system consists of an amplifier, speakers, two wired microphones and two wireless microphones.
2. Locate operation controls in the Auditeria performance area and the Gymnasium offices.
3. The system is supplied and installed by the construction contract.

**L. Stereo System:**
A school stereo system is provided which consists of an amplifier, CD player, tuner, tape recorder, two remote speakers and one wire microphone.

1. The system is supplied and installed by the construction contract.
2. Portable Music Room stereo systems are purchased from the school budget.

**M. Telephone System:**

A programmable telephone/paging speaker system will be installed. Stand-alone intercom systems are no longer provided because of the enhanced capabilities of the telephone system.

Refer to the media matrix diagram for device locations.

1. Telephone boxes, empty conduit room stub ups, and a corridor "bridle ring" system are supplied and installed by the construction contract.
2. Telephone cable, cable terminations, outlet covers, and telephone instruments, installed by the District communications contractor and Telecommunications are paid for from the construction budget.
3. Telephone control equipment is located in the Communications Room.

# TOILET ROOMS AND DRINKING FOUNTAINS

## SPACE DESCRIPTION:*

1. Core area public toilet rooms
2. Instructional area student toilet rooms
3. Drinking Fountains

*Other plumbing requirements are covered in rooms or areas in which it is located.

## DESIGN CRITERIA:

General requirements:

1. Core area public toilet rooms:
   a. Locate near the gymnasium, auditeria and administration/counseling area.
   b. Provide one handicapped accessible toilet room for each sex.
   c. Gypsum board ceilings at 9'-0" minimum are required.
2. Instructional area student toilet rooms:
   a. Provide one handicapped accessible toilet room per instructional suite for each sex.
   b. Provide gypsum board ceilings at 9'-0" minimum height.
   c. The design should be configured with an entrance passage without door, configured for visual privacy, rather than an entrance door.
   d. Provide acoustical separation from the instructional suite.
   e. Walls to 60 inches high behind all plumbing fixtures are recommended to be painted concrete block or ceramic tile. Epoxy paint or sheet materials such as decorative reinforced plastic (RFP) panels may be used on unplumbed walls.
   f. Floors are required to be seamless epoxy flooring or ceramic tile.
3. Teacher toilet rooms:
   a. Ceilings may be lay-in acoustical material.
   b. Walls may be gypsum drywall with epoxy paint.
   c. Floors are recommended to be of ceramic tile.
4. Drinking fountains:
   a. Quantities should be determined by building code requirements.
   b. Locate at least one drinking fountain near gymnasium, auditeria and administration/counseling areas. Locate instructional area drinking fountains near student toilet rooms.
   c. Drinking fountains are not required to be refrigerated type.

# SITE DEVELOPMENT STANDARDS

## DESIGN CRITERIA:

Jefferson County School District standards require a minimum site size of 20 acres for a middle school. Additional acreage may be required based on specific site characteristics. All buildings, building entrances, athletic fields, parking lots and pedestrian walks shall be designed for handicapped accessibility.

Preferable site components include land that is almost flat but with positive drainage, a large amount of non-major highway road frontage or corner site, and a location which abuts a neighborhood park. The site should be close to utilities and centered within the District boundary area and should not be in a flood plain or over a mining area. The geology and soils must be acceptable to the District Facilities Planning and Design Department and to the office of the State Geologist.

### A. General site requirements:

1. Utilize passive solar design elements, such as minimizing north side entrances and large glass expanses, and incorporate shading features into the building configuration.
2. Develop site contours such that building exits are on grade.
3. Minimize concealed exterior building areas with limited public view to enhance visual security.
4. Develop a site plan that minimizes the impact of building and site features on adjacent properties.
5. Develop the overall site to promote positive drainage.
6. Provide off street loading and circulation space for 12 buses separate from the auto loop. Counter-clockwise bus circulation is preferred.
7. Auto parking spaces and vehicle circulation is required for 135 staff and visitors. Locate three handicapped parking stalls near the front entrance. Parking lots should be designed to avoid traffic conflicts with pedestrians, bicycles and buses.
8. Provide an area large enough to accommodate six 24 feet wide by 48 feet long temporary classroom buildings convenient to a building entrance. The area must be configured to allow for the maneuvering required to add and remove the buildings. For new buildings, an underground vault and conduit back to the building electrical room should be provided to accommodate future high and low voltage needs.
9. Provide a 1500 square feet concrete bicycle pad with six feet high chain link fence with one pair of three feet wide by six feet high chain link doors. Locate pad near building for ease of supervision and security. Design to minimize conflicts with pedestrians and vehicles.
10. Provide an ecology area for student use. If no natural area with amenities such as streams, rock outcroppings, native grasses or trees exists, construct areas with plantings and fencing. If the site is adjacent to a developed park or open space park, no on-site ecology development is required.
11. Provide a lunch patio adjacent to the cafeteria.

12. Provide service and delivery drives with turnaround space to serve the kitchen, Technical Arts and Consumer and Family Studies areas, custodial facilities, gymnasium, and athletic fields. A trash enclosure to house four rollaway trash containers is required near the kitchen.
13. Trash compactor trucks backing up to the containers require a curb-less concrete pad with minimum elevation change. Minimize traffic conflicts between delivery vehicles and pedestrians, bicycles, buses and autos.
14. Design convenient paths and sidewalks from all building exits to fire refuge areas, parking lots, bicycle enclosures, and service areas and play pads. Avoid conflicts with vehicles and bicycles.

**N. Site Improvements:**

1. Water discharge over sidewalks is prohibited. Provide necessary site drainage improvements as required by the design concept. Where quantities of water are discharged to earth surfaces, provide erosion control structures. Direct water to storm drains where possible. When required by governing agencies, storm drainage and erosion studies are required. On-site retention ponds should be avoided for safety reasons.
2. Protect headwalls by appropriate plantings or other safety devices. Steep slopes, embankments and swales that are subject to erosion must comply with District Technical Specifications.
3. Fire hydrant locations must be determined by meeting with the jurisdictional Fire Marshall. Water line routes and easement types must be determined with the jurisdictional water provider.
4. An automatic underground irrigation system is required for turf grass play fields, lawns and planted areas. Provide quick-connect hose couplers to allow for remedial watering. Turf grasses or sod is restricted to designated play fields and high traffic areas. Native drought-resistant grasses and "Xeriscape" plant materials are preferred for unpaved areas, unassigned and utility areas.
5. Low maintenance landscape materials and drought resistant plant materials are required. Plant materials and site furniture that are selected should be able to withstand normal site use by students. Plantings such as shade and ornamental trees, shrubbery and ground covers should be used judiciously to provide shading, visual screening and wind protection for the building, and to make the site harmonious with the community.
6. Vandal resistant building and site materials are required.
7. Chain link property line fencing for security purposes is required at all property lines and when the site is adjacent to existing development or future development areas. Fencing is not required when school property abuts public parks. Ornamental fencing may be considered for site-specific purposes such as to protect planting and lawn areas from foot traffic.
8. Informal, easily visible student gathering areas with seating near the building are required.
9. Provide a storage building of approximately 625 square feet for site maintenance equipment such as gasoline-powered tractors, ladders, snow removal equipment and flammable materials. Attach the storage room to the building with appropriate fire separation materials. For renovation projects, a separate structure is acceptable.

a. Provide 10 feet minimum ceiling height and adequate area for tractors with snow plows or mowing equipment attached to be maneuvered in and out through a pair of 7'-0" high steel doors at grade level. A level threshold and entry area is required.
b. Locate the equipment storage building adjacent to the service drive.
c. Provide general-purpose duplex receptacles with metal cover plates, lighting and minimal heating (unless the building is detached from the main building) to prevent equipment and material freeze up.
d. Exterior materials shall be architecturally compatible with the main building.

10. The design should incorporate into the site plan a flagpole, benches for informal seating in patios and at main entrances, and fire and weather resistant fixed trash receptacles at main building entrances, patios and gathering areas.
11. Provide sturdy wood timber, masonry or concrete enclosures for meters, transformers and trash dumpsters.
12. Exterior building identification and direction and traffic control signage is required.

# MIDDLE SCHOOL BUILDING SQUARE FEET TOTAL

| | | | |
|---|---|---|---|
| **CORE AREAS:** | | | |
| Administration | | 3,345 | |
| Auditeria | | 6,250 | |
| Kitchen | | 2,100 | |
| Staff Lounge | | 650 | |
| Library Information Center | | 6,025 | |
| Physical Education Complex | | 17,725 | |
| | | | 36,095 |
| **INSTRUCTIONAL AREAS:** | | | |
| Six Core Team Instructional Suites: | | | |
| Three general purpose classrooms | 900x3x6 | 16,200 | |
| One educationally handicapped student classroom | 500x1x6 | 3,000 | |
| One science laboratory | 1,000x1x6 | 6,000 | |
| One science preparation room | 150x1x6 | 900 | |
| One science storage room | 100x1x6 | 600 | |
| One Resource/Workroom | 250x1x6 | 1,500 | |
| One team planning/conference room | 300x1x6 | 1,800 | |
| One storage room | 100x1x6 | 600 | |
| Teacher toilet room | 50x1x6 | 300 | |
| Per six suites: | | | |
| Two foreign language classrooms | 900x2 | 1,800 | |
| One keyboarding classroom | (See Exploratory Learning) | | |
| One business instruction laboratory | (See Exploratory Learning) | | |
| | | | 32,700 |
| Exploratory Learning: | | | |
| Art | | 2,500 | |
| Business Instruction Laboratory | | 900 | |
| Consumer and Family Studies | | 2,590 | |
| Keyboarding Classroom | | 900 | |
| Music | | 4,150 | |
| Technical Arts | | 3,400 | |
| Support Spaces: | | | |
| Staff Planning/Conference Room | | 300 | |
| Resource/Classroom | | 700 | |
| Storage Room | | 100 | |
| Teacher Toilet Room | | 50 | |
| | | | 15,590 |
| Total Assigned (Net) Square Feet | | | 84,385 |

Support Spaces:

Main lobby, vestibules, corridors, hallways
Mechanical boiler room
Electrical switch equipment
Student toilet rooms, public toilet rooms, custodial office, custodial closets and custodial storage room

| | |
|---|---|
| Total Support Space Square Feet | 30,890 |

**BUILDING SQUARE FEET TOTAL** **115,275**

| | |
|---|---|
| **Net Square Feet** | **84,385** |
| **Gross Square Feet** | **115,275** |
| **Ratio of Gross to Net** | **73%** |

# MIDDLE LEVEL EDUCATIONAL SPECIFICATIONS
## COMPARISON OF 1990 EDITION T0 1998 EDITION

| Area Name | 1990 | | 1998 |
|---|---|---|---|
| **Core Area:** | | | |
| Administration | 3,345 | | 3,345 |
| Auditorium/Cafeteria | 6,250 | Auditeria | 6,250 |
| Kitchen | 1,800 | | 2,100 |
| Staff Lounge | 650 | | 650 |
| Physical Education Complex | 17,725 | | 17,725 |
| Library Media Center | 5,850 | | 6,025 |
| **Instructional Areas:** | | | |
| Core Team Instructional Suites: | | | |
| 3 General classrooms | 850 | | 900 |
| 1 Equivalent classroom (Educationally handicapped, Foreign language, Keyboarding) | 850 | Educationally handicapped | 500 |
| 1 Science classroom | 1,000 | | 1,000 |
| 1 Science preparation room` | 150 | | 150 |
| 1 Science storage room | 100 | | 100 |
| 1 Resource/small group workroom | 350 | | 250 |
| 1 Team teacher planning/conference rm. | 300 | | 300 |
| 1 Storage room | 100 | | 100 |
| Teacher toilet room | 50 | | 50 |
| **Exploratory Learning:** | | | |
| Art | 2,500 | | 2,500 |
| Computer laboratory | 900 | Business Instruction | 900 |
| | | Keyboarding | 900 |
| Foreign Language (see equivalent classroom above) | -- | Foreign Language (2 @ 900 ea.) | 1,800 |
| Music | 4,150 | | 4,150 |
| Technical Arts | 3,400 | | 3,400 |
| Team planning/conference room | 400 | | 300 |
| Resource classroom | 800 | | 700 |
| Storage room | 200 | | 100 |
| Teacher toilet room | 50 | | 50 |
| **Support Space:** | | | |
| Hallways, mechanical, electrical, custodial, toilet rooms, communications room | 29,550 | | 30,890 |
| **BUILDING TOTALS** | **113,000 sf** | | **115,275 sf** |

# MIDDLE SCHOOL
# ACOUSTIC STANDARDS

## Room Acoustics Criteria

Proper room acoustics is essential to providing a conducive learning environment for students, and a comfortable working environment for Teachers and Staff. To ensure proper room acoustics, school designs must meet the criteria outlined below.

Design goals for Reverberation Times ($T_{60}$) are provided for each space. To meet the criteria (and approach the goal), the Architect shall select finish materials to provide the space-averaged Noise Reduction Coefficients (NRC) required by Table 1 below. The worksheet given in Figure 1 may be used to calculate the space-averaged NRC. NRC values of some common construction materials are given in Table 2, and should be used for the calculation unless another value can be supported by laboratory test data of the selected material. The NRC values for ceiling tile and other materials that are not listed should be acquired from the product manufacturer (and be based on laboratory tests).

Table 1 - Room Acoustics Criteria

| Room Description | Minimum Space Averaged NRC | Design Goal $T_{60}$ (seconds) |
|---|---|---|
| Classroom | 0.23 | 0.5 |
| Science Classroom | 0.20 | 0.6 |
| Art Studio | 0.20 | 0.8 |
| Private Office | 0.16 | 0.5 |
| Computer Lab | 0.20 | 0.6 |
| Conference Room | 0.22 | 0.5 |
| Teacher Work Room | 0.18 | 0.5 |
| Library (LIC) | 0.23 | 1.0 |
| Auditeria | 0.18 | 1.4 |
| Gymnasium | 0.21 | 2.0 |
| Music Practice Room (solo) | 0.25 | 0.3 |
| Fitness Room | 0.18 | 0.8 |
| Instrumental Music Room | Note 1 | |
| Vocal Music Room | Note 1 | |

Table 1 Notes

1. To provide proper acoustical characteristics for this room, the acoustical design goals should be established on a case-by-case basis by qualified personnel or acoustical consultants. The room, including its shape, volume, diffusive and absorptive treatments, should be selected to achieve the established design goals.

Table 2: NRC values of some common materials

| Material | NRC |
|---|---|
| Gypsum Board, painted | .05 |
| CMU, coarse, unpainted and unsealed | .35 |
| CMU, painted or sealed | .05 |
| Brick, unglazed and unpainted | .05 |
| Brick, unglazed, painted | .00 |
| Classroom Marker or Chalk Board, wall mounted | .05 |
| Metal roof deck, exposed | .05 |
| Metal roof deck, acoustical deck (perforated with insulation fill) | .35 |
| Concrete, sealed or painted | .00 |
| Floor, wood | .10 |
| Floor, Vinyl Composite Tile | .05 |
| Carpet, 1/8" pile height | .15 |
| Carpet, 1/4" pile height | .25 |
| Carpet, 3/16" combined pile and foam | .25 |
| Window | .10 |
| Door | .05 |

## FIGURE 1: SPACE-AVERAGED NRC WORKSHEET

JEFFERSON COUNTY SCHOOL DISTRICT

SCHOOL:

ROOM:

Enter the NRC and area of *all* floor, ceiling, and wall surfaces in the room. Multiply each component's NRC by its area. Add columns B and C. Calculate the space-averaged NRC.

| DESCRIPTION | A<br>NRC | B<br>AREA<br>(SQ. FT.) | C<br>(Col. A x Col. B)<br>AREA x NRC |
|---|---|---|---|
| 1. FLOOR SURFACE: | | | |
| 2. FLOOR SURFACE: | | | |
| 3. CEILING SURFACE: | | | |
| 4. CEILING SURFACE: | | | |
| 5. WALL SURFACE: | | | |
| 6. WALL SURFACE: | | | |
| 7. WALL SURFACE: | | | |
| 8. WINDOWS: | | | |
| 9. DOORS: | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| 13. | | | |
| 14. (Add Rows 1 Through 13) **TOTALS:** | | | |

**SPACE-AVERAGED NRC** ____

**(14C ÷ 14B)**

**Sound Isolation Criteria**

Most rooms in a school can be grouped into the following categories:

Type A: Classrooms, Art Studio, Library Information Center (LIC), Principal's Office, Counselor's Office, Health Office, Science Classroom

Type B: Assistant Principal's Office, Teacher Work Rooms, Conference Rooms, Computer Lab

Type C: Stairways, Locker Rooms, Staff Restrooms, Fitness Room.

Type D: Instrumental Music Room, Vocal Music Room, Music Practice Rooms (solo), Auditeria, Student Restrooms.

Type E: Corridor

Type F: Mechanical Rooms, Electrical Rooms with transformers (25 KVA or larger).

The airborne sound insulation requirements between each type of space are given in the matrix shown by Table 1 (with the exceptions given by the numbered notes). The requirements are listed as Sound Transmission Class (STC) values. The selected walls or floor-ceiling assemblies should meet these requirements, based on their laboratory STC ratings, or ratings estimated by qualified personnel.

To ensure compliance, the partitions may be field tested per ASTM E336, Standard Test Method for Measurement of Airborne Sound Insulation in Buildings. Sound insulation test results will be reported as a Field Sound Transmission Class (FSTC) value in accordance with ASTM E413, Classification for Rating Sound Insulation. The measured FSTC should be no more than 5 points below the required STC rating (according to Table 1). For example, a wall separating two classrooms should have a laboratory STC rating of 40, or a minimum FSTC of 35.

Table 1: Sound Transmission Class (STC) Ratings between spaces.

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| A | 40 | 45 | 45 | 55 | 40 | Note 4 |
| B | | 40 | 45 | 55 | 40 | Note 4 |
| C | | | 40 | 55 | 30 | Note 4 |
| D | | | | 60 Notes 1,2 | 45 Note 3 | Note 4 |
| E | | | | | -- | Note 4 |
| F | | | | | | Note 4 |

Table 1 - Notes

1. Wherever practical, the following guidelines should be followed: Instrumental and Vocal Music rooms should not be located directly adjacent to each other; and Music Practice Rooms (solo) should be located such that they do not open directly into the larger Music Rooms.

2. Sound isolation between Restrooms should be STC-40 or greater.

3. Sound isolation between a Restroom and a Corridor should be STC-40 or greater.

4. Separation of Type F rooms from other occupied spaces should be analyzed on a case-by-case basis. Where practical, Type F rooms should be separated from occupied space with a buffer space (i.e., Storage rooms or other unoccupied space). In any case the partition(s) separating the Type F room from the occupied room should be designed to reduce the intrusive noise into the occupied room to 5 decibels below the required mechanical Noise Criterion (NC) level at each octave-band frequency, for the occupied room. Refer to Division 15 for the applicable mechanical noise level criteria.

General Requirements

Sound isolating gypsum board partitions should be installed and sealed per ASTM E497, Standard Practice for Installing Sound-Isolating Gypsum Board Partitions, and ASTM C919, Standard Practice for Use of Sealants in Acoustical Applications.

Doors in sound isolating walls shall be solid-core wood or insulated metal doors. Where the wall must be rated for STC-40, the doors should be equipped with a perimeter smoke seal. Where the wall is rated for STC-45, the doors should be equipped with a perimeter smoke seal, an automatic door bottom, and threshold (if the floor is carpeted). For walls rated 55 or higher, the doors shall be an acoustically rated door assembly having an STC rating no less than 5 points below the wall rating.

Floor-ceiling assemblies *over* Classrooms, Conference Rooms, Offices, and Music Rooms should provide impact noise isolation equal to or greater than an Impact Insulation Class (IIC) of 50.

**Mechanical System Noise Criteria**

The mechanical system design shall include means and methods to reduce the mechanical noise levels in occupied spaces to the levels shown by Table 1. The criteria is given as Noise Criterion (NC) ratings. These ratings must be maintained at any location within the room that may be occupied by a person as part of the normal use of the room.

To determine compliance with this specification, octave band noise levels will be measured (by the Owner) in an *unoccupied* space, with all mechanical systems operating, at locations that are 3 feet or more from the floor, ceiling, walls, or other solid surface. A Type 1 or 2 sound level meter (according to ANSI S1.4-1983, Specification for Sound Level Meters) will be used. NC ratings will be determined from the octave band noise levels.

Table 1 - Mechanical Noise Criteria

| Room Description | Maximum RC (N) & NC [1] Rating |
|---|---|
| Auditeria | 30 |
| Instrumental Music Room | 30 |
| Vocal Music Room | 30 |
| Music Practice Room (solo) | 30 |
| Private Offices | 35 |
| Classroom | 35 [2] |
| Science Classroom | 35 [3] |
| Art Studio | 35 |
| Computer Lab | 35 |
| Conference Room | 35 |
| Teacher Work Room | 35 |
| Open Plan Office Administrative areas | 40 |
| Library (LIC) | 40 |
| Fitness Room | 40 |
| Gymnasium | 40 |
| Corridor | 50 |
| Stairway | 50 |

Table 1 Notes

1. Refer to Chapter 7 of the 1997 ASHRAE Handbook - Fundamentals, for a description of the NC curves.

2. NC-35 is the maximum allowable noise level. A noise level of NC-30 is desirable.

3. This noise level may be exceeded when a dedicated exhaust fan is on.

# FURNITURE AND EQUIPMENT

In addition to the construction budget, school projects generally contain three additional equipment budget allocations:

- Instructional Equipment
- Food Service Equipment
- Custodial Equipment

Projects for new and replacement schools, for substantial building renovations and for additions to existing schools contain funds for purchase of new and replacement instructional equipment. Food Service Equipment funds are provided for new and replacement schools and for those schools receiving major food service area renovations and building additions. Custodial Equipment funds are provided for new and replacement schools and for building additions The funds are determined by a per student allocation which varies according to the project type. The District Coordinating Architect will provide a copy of the project cost estimate (PCE) showing the amounts and account numbers at the beginning of the project. In addition, the Director of Construction Management and the Director of Purchasing hold information meetings several times a year for Principals, Financial Secretaries and Building Engineers regarding regulations and guidelines for expenditures of bond funds.

In addition to the Design Advisory Group members, the project design team consists of:

- The District Coordinating Architect who guides the project through design
- The District Construction Manager who guides the project through construction
- The Consulting Architect, a firm that is contracted for the design and construction of the project
- The Furnishings and Interiors Coordinator who is available on an as needed basis to work with the project team on design issues

The Coordinating Architect will introduce the Facilities Planning and Design Furnishings and Interiors Coordinator as the design portion of major projects near completion. The Coordinator will be available to provide assistance to Principals, Design Advisory Groups and school furniture committees regarding space planning, setting up budgets, use of District furniture bids and color and materials selection.

The project Consulting Architect is responsible for providing adequate voice, data and power outlets in every space. It is very important that during the Design Advisory Group process the Consulting Architect be given as much information as possible with regard to how rooms and spaces will be used, where furniture will likely be placed, and how equipment will be used and by whom. Once a construction project has been bid changes in voice, data and power locations become very expensive and generally cannot be made. The Furnishings and Interiors Coordinator can use project construction plans to verify that voice, data and power are in place for school purchased furniture and equipment.

The project Consulting Architect is not responsible for providing space planning services for furniture and equipment layouts except as noted in the Consultant Guidelines. Educational specifications recommend that built-in furniture be minimized in order to provide maximum future flexibility. The Furnishings and Interiors Coordinator works with Principals to plan administrative areas, with LIC Specialists to plan Library Information Centers for maximum efficiency, and with teachers to plan "typical" classrooms in order to demonstrate how much furniture and equipment can be placed in a classroom without overcrowding. In addition, the FI Coordinator works with the Coordinating Architect to provide pricing for those items paid for by the construction budget but installed by others.

The District's Purchasing Department bids a large variety of furnishings and equipment for school use each year. A binder containing the various products is available to each school

**Administration Offices and Reception Areas:**
As noted in the educational specifications, it is strongly recommended for future flexibility that administration areas be designed as open space without built-in casework. The intent is that the District's vendor, HON systems furniture, will be used. The systems furniture is paid for from the FFE budget. As soon as Coordinating Architects have a color/material sample board from the Consulting Architect, it should be made available to the Principal and FI Coordinator along with a reproducible architectural floor plan. The range of colors from HON will be compatible with any color palate. A drawing showing voice and data outlets, fire alarm annunciator panels and thermostat locations should also be conveyed.

**Counseling Offices, Conference Rooms or Other Administrative Areas:**
For future flexibility use HON systems furniture wherever possible.

**LIC's (LMC's):**
Elementary School circulation desks are paid for from the construction budget. The design of the desk is standardized in size, height and natural oak finish. Circulation desks may not be specified to be HON systems furniture. A drawing for information purposes is available from the Facilities Planning and Design. The drawing may be used to scale in on construction drawings in order to located voice, data and power outlets. The desk is provided and installed by others. Obtain pricing from the Furnishings and Interiors Coordinator.

Middle and High School circulation desks are paid for from the construction budget. The design is not standardized, however, Coordinating Architects are strongly encouraged to have the design reviewed by the Coordinator of Library Services to ensure functionality. The desk can also be provided and installed by the same vendor that builds elementary school circulation desks. The advantage of this method is both reduced price through elimination of contractor markups as well as reduced need for coordination of wood species and stain colors to match wood top canopies, end panels, tables and chairs that are likely to be provided by the same vendor. Woods other than oak for wood top canopies and end panels usually result in extra charges to school FFE budgets.

Metal library shelving is standardized in all schools. All metal shelving attached to walls is paid for from the construction budget. Custom shelving, without exception, is not permitted. The

shelving is provided and installed by a vendor coordinating with the FI Coordinator. All freestanding shelving is paid for from the FFE budget. Wood top canopies and end panels that cover metal shelving are paid for from the FFE budget whether the shelving is freestanding or wall attached.

**High Density Shelving:**
High-density rolling shelving is paid for from the construction budget and is optional. The FI Coordinator works with Purchasing to bid high-density shelving. The Consulting Architect should provide a floor plan showing the location and size to the Coordinating Architect for use by the FI Coordinator and Purchasing. Fixed end units are 12" deep x 84" high x length in whole feet (e.g., not 7'-9", either 7'-0" or 8'-0"). Rolling units are 24" deep x 84" high x length in whole feet. The Construction Project Manager and FI Coordinator coordinate installation requirements.

The LIC Specialist office can be HON systems furniture paid for by the FFE budget.

**Teachers' Lounge:**
Teachers' lounge requirements are identified in the educational specifications. Schools may wish to purchase from their FFE budget full size or undercounter refrigerators, disposals, microwaves, dishwashers or clothes washers. The District bids appliances each year. Schools should contact the FI Coordinator who will assist them in selecting the products and coordinating requirements (e.g., coordinating plumbing for the icemaker feature with the project manager). Coordinating Architects should also refer to the FI Coordinator for size, power and other requirements of appliances.

**Tack Boards and White Boards:**
The educational specifications define the type and amount of tack boards and white boards. Schools often wish to purchase more than that amount. The District uses a local vendor to supply additional tack boards at very reasonable cost. The vendor constructs any desired size using a vast array of fabric choices. The FI Coordinator can assist the school in determining size and color selections.

White boards in addition to what is supplied by the educational specifications can also be coordinated with the FI Coordinator.

**Consumer and Family Studies Appliances:**
Appliances are purchased from the school FFE budget. As noted above, the District bids appliances each year and the FI Coordinator will coordinate with the Coordinating Architect and Project Manager regarding requirements.

# GLOSSARY

**Americans with Disabilities Act (ADA):**
A civil rights law that mandates accessibility for all people.

**As-Built Drawing:**
A drawing showing the exact condition after the construction is complete.

**Asset Management Plan:**
A yearly-published book that describes all of the school district assets and details the history and future expenditures of that asset.

**Assigned Square Feet:**
Net building square feet that is assigned to a school program function, e.g., a classroom is an assigned use. Corridors or other support spaces not available for instructional use are not assigned.

**Bid:**
A formal process to secure pricing of work to be preformed by a General Contractor.

**Bond Project:**
Voter approved funds for capital improvement projects. Project must have a 20-year or greater life expectancy to use bond funds.

**Building Efficiency:**
The percentage of net square footage is to the gross square footage.

**Capacity:**

Permanent Design Capacity:
Number of regular classrooms times 27 students. Core areas are not counted as regular classrooms.

Temporary Building Capacity:
Number of Temporary buildings multiplied by 27 students.

Deduct Classrooms:
Number of regular classroom that may be used for core classroom activities.

**Total Program Capacity:**
The sum of the Permanent Design Capacity plus the Temporary Building Capacity minus the deduct classroom capacity. The Total Program Capacity determines the number of spaces available for students at a school site.

**Capital Reserve Project:**
Funds set aside from the yearly general fund for capital improvement projects. Project must have less than a 20-year life expectancy.

**Casework:**
Cabinets, either floor-supported or wall-hung, that are permanently attached to building structure.

**CD:**
Construction Documents: The final stage of design with full engineering, drawings and specifications.

**CM:**
Construction Management Department of JCPSD.

**Design Advisory Group (DAG):**
A selection of people who are invited to work with the District Coordinating Architect and Consulting Architect or Planner to provide input on the function and ascetics of a capital improvement project. The members are composed of staff, parents, and interested community members.

**Data Diagram:**
A schematic diagram produced by FP&D, Telecommunications and Networking Services which illustrates for the Consultants the District's standards for telephones, computer wiring, power, fire alarms, security systems, and communication rooms in elementary, middle and high schools.

**Design Development (DD):**
The second stage of design where the schematic design is clarified and expanded with detail.

Design Review: At the end of each project design phase, the coordinating architect holds a formal technical review of the design drawings, specifications and cost estimate.
Educational Specifications (Ed Specs): The Architectural Program for the school building.

**Furniture, Fixtures, and Equipment (FFE):**
Items that are not permanent attached to the structure.

**FP&D:**
Facilities Planning and Design Department of the JCPSD.

**General Contractor:**
The prime company that is responsible for the construction of the improvements. Works directly for the district.

**Gross Square Feet:**
The total enclosed floor area of a building measured from the outside surface of the exterior walls. (District Definition for Ed Specs Only.)

**HVAC:**
Heating, Ventilation, and Air Conditioning

**JCSD:**
Jefferson County School District.

**LF or lf :**
Lineal feet.

**Net Square Feet:**
The usable floor area of a building. Does not include wall thickness, corridors, restrooms or mechanical spaces. (District Definition for Ed Specs Only.)

**Project Cost Estimate (PCE):**
A District form used to tract the total costs of an individual project.

**Preparation Kitchen:**
A school kitchen that prepares food for its student lunch program and for lunch programs at other nearby school facilities.

**Program:**
A written document that establishes function of spaces with set parameters for area and spatial relationships for use by the DAGs and the Architects.

**Satellite Kitchen:**
A school kitchen that receives prepared food to serve from another school kitchen.

**Scope of Work:**
The agreed upon type and amount of work which will be accomplished during construction at a facility.

**Schematic Design (SC):**
The first phase of graphical design in which conceptual ideas are developed from the Scope of Work and the Program.

**SF or sf :**
square feet.

**Subcontractor:**
A specially contractor who works for the General Contractor.

**Systems Furniture:**
Modular furniture that can be rearranged for different configurations and uses by adding or removing components.

**Technical specifications:**
JCSD Field Services Division, in conjunction with FP&D and CM, publishes specifications intended to establish uniform and consistent quality standards for JCSD school facilities. The specifications outline minimum acceptable standards for products, materials and building systems used in District facilities.

**UBC:**
Uniform Building Code. The building code that the schools design must meet.

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