

BEST PRACTICES FOR INSTRUCTIONAL SPACE

PURPOSE

This publication is provided for the use of Districts and their design professional as a basis for discussion for development of District Education Specifications and supporting facilities.

BACKGROUND

While the building codes provide minimum requirements for the construction of a building, other considerations may be applied to enhance the building environment to supplement and support the educational program.

Educational program delivery in South Carolina is in a period of transition with Districts seeking to provide a diversity of educational opportunities to their students. The Office of School Facilities (OSF) supports the Districts' efforts by providing guidelines in the *South Carolina School Facilities Planning and Construction Guide* that are flexible and responsive. As a supplement to the *Guide*, OSF provides provide Districts and design professionals best practice informational tools such as this publication.

The National School Boards Association (NSBA) states that “the purpose of educational specifications is to define the programmatic, functional, spatial, and environmental requirements of the educational facility, whether new or remodeled, in written and graphic form for review, clarification, and agreement as to scope of work and design requirements for the architect, engineer, and other professionals working on the building design.” For information on developing Educational Specifications please consult the *CEFPI Guide for Educational Facility Planning – Creating Connections*, 2004, Council of Educational Facility Planners, International.

GENERAL CLASSROOM SPACE

Classroom sizes and amenities are determined by student to teacher ratio and use of space. Unless specified by the program utilized, space and amenities should be provided as listed in the table.

Item	K4 and Younger	K5	Elementary	Middle, Junior High,	Senior High
Floor Area	35 sq. ft per student			30 sq. ft per student	25 sq. ft per student
Minimum width	24 ft.				
Individual Toilets	Recommended in each classroom		Optional		
Sink Cabinets	Recommended in each classroom			Optional	

Some additional points for consideration are:

- If toilet facilities are provided within the classroom space, the fixtures may not count toward code required fixture counts for the building. Please discuss placement and access with your design professional to avoid excessive toilet fixture requirements.
- Unisex toilet facilities within classrooms serving students above the second grade are not permitted except under special circumstances such as accommodations for students with disabilities. Separate toilet facilities for girls and boys are required for students grade 3 and above.
- Space for toilets located in classroom areas is not included when calculating classroom size.
- Recommended rim height for sinks is 2'-1" in pre-K and kindergarten classrooms, 2'-3" for grades 1-3, 2'-6" for grades 4-6 and 3'-0" for grades 7-12.
- Ceiling heights for elementary classrooms should be at least 8'-8" and 9'-0" for middle and high school. If lower ceilings are required to accommodate lights or ductwork, it is recommended that the utilities be routed so that areas of lower ceiling are minimized.

LOCATION OF CLASSROOM SPACE

The safe evacuation of students in case of an emergency should always be a primary concern when allocating and assigning instructional space in a building. Younger children have less organizational skills and sense of self preservation and require additional direction, supervision and time in order to safely evacuate a building. Classrooms and other learning spaces such as media centers, art and music rooms, computer labs and project labs serving children younger than third grade should be located on the ground floor whenever possible. If program or site constraints prevent locating these spaces on the ground floor, proximity to enclosed exit enclosures and horizontal exits should be considered to provide protected space in which to gather and implement an evacuation.

Extensive studies have shown that students' performance improves with exposure to day lighting. Every effort should be made to locate instructional spaces adjacent to exterior walls or with proximity to skylights and light shafts to provide exposure to natural light. Spaces that do not have access to day lighting should be limited areas where students will not be assigned for more than two class periods a day.

SELF-CONTAINED CLASSROOMS AND RESOURCE ROOMS

Self-contained classrooms must have the amenities necessary to meet the students' and instructor's needs while supporting the instructional program for the space. Consideration should be given to providing facilities that may contain amenities not needed for the present program but are in place for future use of another program and student needs and population changes over time.

TIME-OUT ROOMS

Hold for policy under development

PRE-K AND KINDERGARTEN CLASSROOMS

Requirements for spaces serving children K4 and younger are determined and licensed by the South Carolina Department of Social Services (SCDSS). All rules and regulations associated with the license are required and cannot be waived except by SCDSS.

Consideration should be given to location and access to pre-k and kindergarten spaces in a building. Locating these spaces near exterior exits aids in student traffic management and evacuation. Access directly to an enclosed exterior play and learning environments increases safety while aiding in student oversight.

Access to water on demand is required for pre-k and kindergarten classrooms. This may be met by a classroom policy to travel to a corridor water fountain or a water fountain or a pitcher with disposable cups located within the classroom space. A bubbler sharing a basin with hand washing is not considered sanitary and is not an acceptable practice. Other amenities such as storage areas for teachers and students as well as work rooms for instructors should be designed to meet the needs of the educational program and the District's requirements.

SPECIALIZED CLASSROOMS

Art

Facilities appropriate for an art education program should be provided for all schools. These programs may be located in dedicated spaces or may share space with other programs such as science labs. A well-planned art room generally provides for activities such as:

- computer and hand generated graphic art;
- block printing, etching, and lithograph;
- general crafts and three dimensional art forms such as metals, weaving, ceramics and sculpture; and
- photography and visual arts.

Adequate space shall be provided for both student work areas and any for special furniture and equipment, i.e., easels, potters wheels, floor looms, darkroom developing tanks, and enlargers as needed to support the District's program. Work space should be allocated at 40 square feet per student for elementary, 50 square feet per student for middle school and 55 square feet per student for high school. The art room should accommodate both group and individual instructional activities.

Other amenities such as display areas, localized ventilation, floor drains, sinks and wet areas also are required as needed. Kiln rooms, when provided, are required to be installed in accordance with the manufacturer's instructions as well as state and local codes. Kiln rooms would be expected to be ventilated directly to the outside to remove heat and fumes and, if not sprinklered, with 1 hour rated barriers. Storage for raw materials as well as student work in progress should be provided. Sinks and work surfaces should be waterproof and durable to prevent chipping, cracking and breaking with use and clay and plaster traps are should be included on all drains. An emergency eye wash station is recommended for art rooms because of the use of materials and techniques that could result in injury.

Media Center

Media centers should be evaluated and stocked with materials and equipment to meet the District's program and teaching curriculum. While every school should have a media center of a

size commensurate with the long-range student population of the school and sufficient to house the minimum required materials specified by the Southern Association of Colleges and Schools, newer and diverse educational programs may require adjustments to traditional standards. The School Library Media Services in the State Department of Education is available for consultation and review of media center plans to provide the most appropriate facilities.

Media centers should include areas for research as well as casual reading. Computer labs and small breakout rooms may also be included in or adjacent to the media center. Office and work areas may also be required by the program. Generally, the media center should be sized to accommodate the activities of two typical classes simultaneously and should be configured to permit the media center specialist to have visual control of all activities.

Audio-Visual and Technology Distribution

Audio-visual (AV) and other technology storage and distribution may be located in the media center or in a dedicated space. The space should be sized to house the school's equipment neatly on shelves and in cabinets to avoid clutter and safety issues. The room should be secured with authorized access and equipment accountability.

Music

Music rooms should be designed for general music instruction with space to accommodate the largest group for instruction and ample space for physical movement. If offered, space for choral and band/orchestra may be offered in the same space or in a space dedicated to those programs. Consideration for multiple spaces should also be given for music programs with more than one instructor when classes can be scheduled simultaneously during or after school hours. Office or other work space should be provided for the instructor.

The space should include acoustical treatment to enhance the educational program while minimizing the distraction to adjacent spaces. Storage, both secured and unsecured as necessary, should be provided in or adjacent to the space for all materials, instruments, uniforms and other equipment necessary of the music program.

Ceiling heights should be determined by the room size and recommended by the design professionals. In other than general music room, the minimum ceiling height should be a least 12 feet. If the room has tiered risers, the ceiling height should be at least 12 feet above the highest riser level.

Permanent risers shall be installed in accordance with state and local codes. Removable risers will be considered permanent and are required to meet the state and local code requirements if they remain in place for more than 90 days.

Physical Education

Both indoor and outdoor facilities designed for the physical education program should be included in all schools. These facilities may share space within the school or within the community when the overall education program and scheduling will allow. Consideration to meet the needs of both students and spectators with disabilities is required by the state and local codes. Additionally, consideration should also be given to extracurricular athletic activities, after school programs and community based programs that may share use of the facilities. The

facilities should be adequate to accommodate a variety of activities and experiences regardless of weather considerations.

Spaces shall be sized and designed to meet the age group(s) and intended program. The space should include acoustical treatment to enhance the educational program while minimizing the distraction to adjacent spaces. Access to the space directly from the exterior to minimize noise and traffic distractions during school and to maintain security for activities after school house should also be considered along with access from parking areas to both inside and outside athletic activities. When a stage or other performance platform is included in the gymnasium space, the exiting requirements and other requirements of the state and local codes will be determined by the greater occupancy load.

Multipurpose spaces serving younger elementary students should be at least 2,400 square feet and configured as a 40' x 60' space if possible. Areas for older elementary, middle and high school students should be a minimum of 62' x 104' to accommodate a full sized basketball court with a recommended 10' safety perimeter on all sides. Areas for bleachers, when provided, shall be in addition to the minimum areas noted. Folding or movable partitions may be utilized when two separate instructional spaces are utilized simultaneously. Walls should be free from obstructions and safety hazards. Wall finishes are generally hard and smooth except where wall padding is deemed necessary for the safety of the students. Any wall padding shall meet the requirements of the state and local codes and shall be maintained in a neat and hygienic manner. Ceilings should be a minimum of 22' clear above the activity space and free from safety hazards.

Spaces to compliment the program such as a classroom, instructor office, locker room and storage areas should be included in or adjacent to the instructional space. Storage should include space for equipment, risers and necessary to meet the needs of the educational program. Storage should be sized and configured to arrange equipment in a neat and orderly manner to maintain safety and compliance with the state and local codes. Doors shall be sized to allow adequate and safe access to the storage space. Locker rooms should be sized to meet the needs of the largest group to use the facility and consideration must be given to extracurricular and community programs if that is part of the intended use. If showers are provided, a master shut-off valve should be located in the instructor's office or easily accessible to maintenance personnel and a separate shower facility should be provided for the instructor.

Outdoor activity spaces should include areas for age appropriate free play such as play grounds for younger students and informal activity areas for older students as well as formal playing fields and courts. Equipment and surfaces in these areas should be age appropriate and separate if necessary to maintain the safety of the students. The spaces should be located so there is no interference with traffic, pedestrians or other safety hazards. Turf spaces should be level and well-draining and should be a minimum clear area of 80' x 100' for each instructional area. Bleachers are to be located outside the instructional area. If asphalt or other synthetic activity space is provided, it should be at least 2,400 square feet or sized to meet the intended use. For additional information on outdoor activity spaces, please see **Stadiums and Other Athletic Venues** below.

Science

Facilities appropriate for science instruction should be provided for all schools. These programs may be located in dedicated spaces or may share space with other programs such as art. A well-planned science lab generally provides for the following:

- At least one sink with hot and cold running water;
- Instructor's demonstration table with necessary utilities;
- Adequate clear work space;
- Emergency eye wash station;
- Adequate counter space for laboratory preparation work; and
- Appropriate material and equipment storage, both secured and unsecured, located in or adjacent to the instructional space

If required by the instructional program, each work station should have:

- Wall clock with second hand visible to all work stations;
- Electrical supply;
- Data connection;
- Gas nozzles such as natural gas, propane, compressed air and vacuum;
- Localized exhaust; and
- Chemical resistant and heat resistant work surfaces.

Instruction in science labs serving middle and high school students generally includes some use of chemicals. In these spaces, materials, systems and equipment to accommodate the chemicals used are required in accordance with state and local codes to ensure the safety of the students.

- Combination emergency eyewash and shower served by tempered water is required along with chemical resistant work surfaces and plumbing waste piping.
- Ventilation for the work stations, lab preparation area and chemical storage cabinets is required for the types and quantities of chemicals used and stored.
- A master water valve and master gas valve shall be located at or within five feet of the instructor's demonstration desk in case emergency shut off of the water or gas system is required. These valves shall be clearly labeled, readily accessible and operable without special keys, tools or knowledge. These valves are in addition to any maintenance isolation valve to be installed in the system.
- Fire extinguishers and fire blankets appropriate for the chemicals to be used are recommended.
- The size of a laboratory preparation room depends on the amount of storage for materials and equipment as well as reasonable counter space for work. A minimum of 250 square feet of laboratory preparation space should be allocated for each science lab and 350 square feet if the laboratory preparation space is located between and serves two science rooms. Locating the prep room between two science rooms is advantageous because it may reduce the amount of equipment and materials the school maintains.

CATE and Vocational Spaces

The size and functionality of spaces for CATE and other vocational programs are determined by the District. The space must be sized to safely operate the equipment and program intended for the space. The recommended minimum clear ceiling height for industrial, construction and maintenance trade programs is 12'-8". Other spaces should have ceiling heights that will best

meet the needs of the space. Other amenities such as plumbing, electrical, data, heating and air conditioning should be determined by the needs of the program for the space.

SUPPORT SPACES

Cafeteria

The size of the cafeteria is determined by the District's policies and procedures for scheduling time for food service. Amenities to consider when planning cafeteria space are:

- Water coolers or water provided on demand by an alternate method is required when free- and reduced meals are served.
- Where possible, direct access to exterior play or gathering areas is desirable.
- Group toilet facilities should be located nearby and accessible both during school hours and in the event the cafeteria is utilized by either a school or community function after school hours.
- If the cafeteria is located close to the gymnasium or auditorium, fixture counts serving the spaces may be consolidated to reduce overall building count. Coordinate number of fixtures and their location with the OSF to minimize fixtures while maintaining state and local code requirements.
- If a stage or platform is planned as a part of the cafeteria, the occupancy load will be based on the higher requirement of the two.

Stadiums and Other Athletic Venues

Sports venues utilizing outside playing fields and surfaces should be located in close proximity to school buildings and parking areas. In accordance with state and local code, toilet facilities for spectators are required to be accessible during athletic events. The required facilities may be permanent or temporary and located at the venue, in an adjacent building or a combination of the two. If facilities are located in an adjacent building, signage is necessary to direct spectators to the additional facilities and the travel distance from the venue gate to the group toilet may not exceed 500 feet. When utilizing remote facilities, it is recommended that a minimum number of fixtures are provided at the venue for people with disabilities.

Guidance

The number of guidance counselors is determined by the district. The District should coordinate closely with the design professional to ensure the facilities are adequate for the program including both office and meeting or counseling spaces. The guidance spaces should be located near the main building entrance for convenience of parents, college or employment recruiters, district staff, and others involved in the counseling function. Guidance may be either adjacent to or in close proximity to the school administrative area but should have its own entrance from the corridor or lobby to reduce traffic in the administrative office and maintain a greater level of privacy.

Health Room

A space in each school should be designated as the health room. The size and functionality is determined by the District and, with the design professional, should be designed to meet the

needs of the student population and the district's student, family and community health programs. The health room may be either adjacent to or in close proximity to the school administrative area but should have its own entrance from the corridor or lobby to reduce traffic in the administrative office and maintain a greater level of privacy.

Corridors and Circulation Space

Corridors and stairs should be designed to provide adequate space for two way traffic while allowing adequate supervision for security and safety. The District should coordinate with the design professional to locate corridors and other circulation paths to minimize time between instructional spaces and maximize the ability of the administration to maintain order. Ceiling heights should be recommended by the design professional based on the width and length of the corridor but should not be less than 8'-8" for elementary and 9'-0" for middle and high school.

Corridors are to maintain a specified clear width. Careful planning between the District and design professional is needed to ensure that corridors are designed to maintain the necessary clear width and meet the operational needs of the school. When determining corridor widths, please be mindful that:

- Classroom and locker doors swinging into the corridor may not reduce the specified clear width.
- Furniture, plants, tables, vending machines and other furnishings and equipment may not reduce the specified clear width.

Major corridors, corridors serving more than four (4) instructional areas or more than 120 students, should be a minimum clear width of 8'-0" for elementary schools and 10'-0" for middle and high schools. This clear width does not include door swings for classroom or locker doors swinging into the corridor space.

Minor corridors serving three or four instructional areas or less or 60 to 120 students should be a minimum clear width of 7 feet in elementary schools and 8 feet in secondary schools. For minor corridors serving two or less instructional areas or less or less than 60, minimum clear corridor widths should be 6 feet for elementary and 7 feet for middle and high schools.

Tertiary corridors providing access from rooms or areas not in the main line of travel and not serving as an egress way for more than 30 people (such as access to toilet rooms and access within office suites) should be determined by the District and the design professional but in no case shall be less than the minimum required by state and local codes.

The minimum width of any stairway is required to comply with state and local codes but should not be less than 7'-4" measured along width of the stringer to provide safe room for two way traffic.

Doors for stairs and within corridors should be capable of being held in the open position at all times by means of a device to permit automatic closure in the event of a fire alarm. This will promote smooth flow through the space and reduce wear on the doors.

Roll down doors or grilles must not be used in corridors. In accordance with the state and local codes, exits cannot be blocked at any time, even during times the building is expected to be unoccupied. The OSF will work with the District and design professional to implement a plan that will meet the District's security needs while maintain compliance with life safety requirements.

Locker Space

In a locker alcove (adjacent to hallways) and/or separate locker rooms, the aisle width between faces of opposing lockers should 5'-6" minimum.

Lockers should be limited to classrooms, major corridors or other dedicated areas.

Records Room/Vault

In accordance with state laws and District policies and procedures, student records shall be maintained in a space provides protection from fire, theft, vandalism, mold, and mildew. This space may be in or adjacent to the administrative area and must be under the direct control of administrative personnel. The space should be convenient to guidance counselors. The space is required to meet the minimum requirements of state and local codes for storage of record medium and storage method including density and height. If permanent student records are stored off-site, coordinate requirements with the OSF. Consideration should be given to the structural implications of fully loaded shelving. Mechanical heating and cooling is recommended to ensure the longevity of the record medium.

Bookroom

If a bookroom is provided in the school, it shall comply with the state and local code requirements for storage of books including size of room and shelving height. Consideration should also be given to the structural implications of fully loaded shelving. Mechanical heating and cooling is recommended to ensure the longevity of the paper and bindings.

Toilet Facilities

State and local codes prescribe the minimum number of toilet fixtures, the distribution between male and female and the distribution within a building. The District should coordinate with the design professional to determine the number and location of toilet facilities that will best meet the needs of the school operation. Also, the District should consider future needs such as the placement of relocatable classrooms that may utilize toilet facilities in the building.

Fixtures required for major but intermittently used assembly spaces may be reduced with the approval of the OSF depending on location, access and the locations of fixtures in adjacent areas. Early discussions and planning will help to ensure that facilities are located in the most appropriate areas while minimizing additional fixtures.

When calculating and locating required fixtures for students, do not include fixtures in individual teacher, administrative or guidance area or staff toilet rooms, or those in gymnasium dressing room areas not available to the general student population.

The District should coordinate with the design professional to determine the need and location of private toilet facilities designated for the principle, administrative staff, visitors and teachers. These facilities may be grouped and combined or located throughout the building to best meet the operational needs of the school. It is strongly recommended that at least one toilet facility be located in the health room for the care of sick students and staff.

In new construction, state and local codes no longer allow the omission of toilet room doors for toilet rooms located off corridors in non-sprinklered building. New construction of fully

sprinklered buildings may omit doors at the District's discretion. Existing non-sprinklered buildings with no toilet doors will not require renovation or change to add doors unless other renovation activity requires the building to comply with the current state and local codes.

Ceilings in toilet rooms are recommended to be gypsum board, plaster or another solid material for security and privacy purposes.

Main Technology Distribution and Network Room

A secure room containing switches, hardware and networked systems for the building systems as well as systems external to the building should be centrally located, preferably on an exterior wall. Final size, location and level of security are determined by the District's policies and procedures as well as the school's program. Providing mechanical cooling with a unit that either is dedicated to the room or connected to the system maintaining temperatures in the administrative area is recommended to avoid unacceptable heat gain in the room when student areas are unoccupied. Close coordination between the District's technology department and the design professional is important to ensure the adequate provision for normal and emergency power as well as cooling for the space in order to protect the integrity of the equipment operation.

Mechanical and Electrical Equipment Rooms

In accordance with state and local codes, areas housing mechanical and/or electrical equipment are sized to accommodate the designed equipment with the manufacturer's recommended clearances for servicing, repairing and/or replacing all equipment and shall not be combined with storage or custodial areas. Minimum exit requirements are defined in state and local codes; however the District should review equipment layouts, exiting and other components to ensure compliance with the District's operational policies and procedures. Depending on the equipment in the space, separation from other areas of the building may be required by the state and local codes.

Access to and locations of mechanical and electrical room are determined by the District in coordination with the design professional unless access is defined in state and local codes. It is preferred to locate mechanical and electrical rooms on exterior walls so that equipment is readily accessible and servicing can be performed without disturbing the building occupants. If locating spaces on exterior walls is not practical, providing access to spaces from corridors so that instructional spaces are not disturbed is preferred.

Some provision must be made to provide the ability to remove and replace equipment in the space. If it is not practicable to size doors for this function, alternate means may be provided in the form of a removable louver or a knockout wall panel. Also to be considered is the ability to move heavy components with either a portable hoist through the occupied space or the capability to bring a service truck with a host to the access point.

Receiving, Storage and Custodial Spaces

The functionality, size and location of receiving, storage and custodial spaces are determined by the District's policies and procedures.

Receiving and storage spaces should be sized to meet the school’s operational needs and located to minimize material traveling through the building and not disrupt student and staff traffic flow.

At least one custodial space closet should be provided per floor with more provided to meet the school’s operational needs.

305.3.7.1 Roll-down doors/shutters used for the transfer of items, as is typically seen in concessions areas must be equipped with smoke actuated closers when the door/shutter serves as the opening protective in a rated wall. Each door shall be equipped with a safety edge that will allow door to reverse when it hits an obstruction within its downward path.

305.4.3 Windows for Emergency Egress

305.4.3.1 Except as noted there shall be at least one window that qualifies for emergency egress in any space where windows are required, including those on all floors of multistory buildings. However, if there is an egress door directly to the outside, the required window need not qualify as an emergency egress.

305.4.3.2 If there is more than one window in an area, all do not have to qualify for emergency egress, but those that do shall have a plainly visible plastic or metal placard stating “emergency exit”; the placard shall be riveted or attached to the window with non-removable screws. If all windows qualify for egress, placards are not required.

305.4.3.3 The following window types are permitted for egress: Single-hung sash, double-hung sash, casement, or projected.

305.4.3.4 Projected awning windows shall only be used where the escape portion opens to at least 45° and the size of the opening is as stipulated in Section 305.4.3.6.2. Sliding windows are not acceptable because of dirt collecting in tracks.

305.4.3.5 Size of egress openings:

305.4.3.5.1 For a single, double-hung, or casement window, there shall be a minimum of a 5.7 square feet opening in the clear, with a minimum clear dimension of 24" for the height and 20" for the width.

305.4.3.5.2 If projected windows are used, they shall have a minimum clear sash opening of 24" for the height and 20" for the width not less than 5.7 square feet clear passage under the sash when the sash is at a 45° open position.

305.4.3.6 Heights from floor to bottom of egress opening.

Location	Elementary	Secondary
First Floor: Minimum	4"	4"
First Floor: Maximum	3'-0"	3'-0"
Second Floor and above: Minimum	2'-6"	2'-6"
Second Floor and above: Maximum	3'-0"	3'-0"

305.4.3.6.1 Note that the heights in this table are to be measured from the floor to the actual opening and the thickness of the frames must be included. A tolerance of two inches will be allowed on maximum heights.

305.4.3.7 Locking: Egress openings shall have a one-point locking release, preferably within reach of the age of the student served, but in no case higher than 5'-8".

305.4.3.8 A force no greater than 15 pounds shall be allowed to open the lower sash of an emergency window.

305.4.4 Windows (or Doors) Opening to Interior Courts

305.4.4.1 Where required first-floor emergency egress windows or egress doors open to interior courts, the court shall have access to a protected passageway which leads to the open area outside the building, except as noted in Section 305.4.4.2.

305.4.4.2 In the case of rooms above the first-floor level, the classrooms or other instructional areas bordering a court shall be considered the same as if they were "interior" classrooms and shall meet the requirements of Section 303.2.2 of this regulation.