EDUCATIONAL SPECIFICATIONS - EXECUTIVE SUMMARY

The Educational Specifications were developed to provide guidance to help ensure that future school facilities are planned and designed to support the mission and vision of Horry County Schools. They seek to align the philosophical and pedagogical beliefs of the Board of Education articulated in the District's Strategic Plan with the qualities and characteristics of the learning environments in which the District's strategic objectives for instruction and delivery are realized.

The document offers sufficient detail to establish a broad understanding of the myriad issues, opportunities, and challenges surrounding contemporary school planning. It is intended to build on the strong traditions of academic and facility excellence established by the District, and to acknowledge the growing influence of the trends shaping both learning and the spaces in which learning occurs. Written with school administrators, elected officials, and members of the community in mind, too, it provides the knowledge to instill confidence that investments in the District's facilities will result in achievement-based, student-focused, safe, and sustainable learning environments.

For those involved in the planning, design, and construction of school projects, the Educational Specifications will serve as a resource to inform the decision-making process. They are not prescriptive, nor are they intended to limit the creativity of school representatives and design professionals. Rather, their purpose is to encourage inspirational, innovative, and effective learning environments.

Along with information about the programs, spaces, and places to be accounted for in the various kinds of educational facilities, the Educational Specifications contain information about contemporary issues in school planning and design that ought to be considered. Along with those issues are "educational space types" that can be utilized as a kit-of-parts to assist planners and designers as they identify ways in which to meet the needs of an ever-expanding curriculum and increasingly diverse student population. Also included are design guidelines issued by the Office of School Facilities on behalf of the State of South Carolina, information to guide the planning and design process including lists of required meetings and deliverables, and an overview of technical specifications endorsed by the District.

On whole, the Educational Specifications provide a road map of the territory that must be navigated by the District and its chosen design professionals in order to deliver safe, effective, healthy, and inspiring schools.

Horry County Schools

Educational Specifications:

A Guide to the Planning and Design of Educational Facilities

February 16, 2013

Horry County Schools

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1. Introduction

purpose and use

These *Educational Specifications* provide the guidance necessary to ensure that school facilities are planned and designed to support the mission and vision of Horry County Schools (the District). This document seeks to align the philosophical and pedagogical beliefs of the Board of Education (the Board) articulated in the District's Strategic Plan (the Plan) with the qualities and characteristics of the learning environments in which the District's strategic objectives for instruction and delivery are realized.

These *Educational Specifications* offer sufficient detail to establish a broad understanding of the myriad issues, opportunities, and challenges surrounding contemporary school planning. They are intended to build on the strong traditions of academic and facility excellence established by the District, and to acknowledge the growing influence of the trends shaping both learning and the spaces in which learning occurs. Written with school administrators, elected officials, and members of the community in mind, too, it provides the knowledge to instill confidence that investments in the District's facilities will result in achievement-based, student-focused, safe, and sustainable learning environments.

For those involved in the planning, design, and construction of school projects, these *Educational Specifications* will serve as a valuable resource to inform the decision-making process. However, they are not prescriptive, nor are they intended to limit the creativity of school representatives and design professionals. Rather, their purpose is to encourage safe, effective, healthy, and high-performing learning environments.

Given the continued evolution of teaching and learning, it is not possible to imagine every scenario that will influence the planning of school facilities in the future. Accordingly, these *Educational Specifications* should be thought of as a living document to be refined over time through implementation. At best, this document will generate meaningful discussions about how best to honor the high expectations of the District and community by fully leveraging the opportunities inherent in school planning and design. The mandate is clear. Seize upon the opportunity!

alignment with district's strategic plan

These *Educational Specifications* were developed to reflect the voice, values, and vision of the District and community. As approved by the Board, this document carries the same force and effect as other Board policies. Professional designers of the District's facilities are expected to be guided by the specifics, as well as the spirit, of the recommendations contained herein.

Mission and Vision

This document was compelled by the District's mission and vision. Fulfillment of those aspirations as they relate to school facilities is its overarching goal.

1. Introduction

The District's mission reads:

> *"The mission of Horry County Schools, diverse communities united in their focus on learning, is to guarantee that all students are fully prepared, successful contributors in a rapidly changing global society through the aggressive pursuit of personalized, achievement-based, student-centered teaching and learning."*

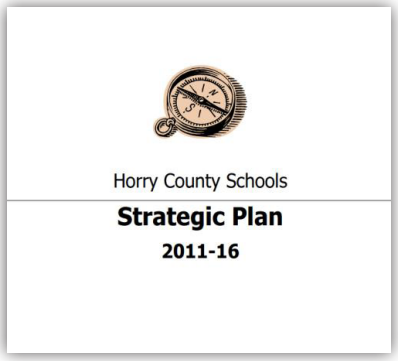
Accordingly, to fully prepare all students for a successful future, this document offers guidelines for planning and designing the types of spaces that facilitate "personalized, achievement-based, student-centered teaching and learning."

The District's vision reads:

> *"To be a premier, world-class school system in which every student acquires an excellent education. Our schools will be welcoming centers organized around high-quality teaching and learning."*

Accordingly, the framework presented by this document is designed to preclude random emphasis that too often occurs in the school planning and design process, and instead, maintain focus where it belongs on "high-quality teaching and learning."

Strategic Plan



As noted, the *Horry County Schools Strategic Plan 2011-2016* also informed these *Educational Specifications.*

The Plan makes clear that the District is guided by a set of *Beliefs* that *"serve as a foundation for all [its] efforts."* Among them are at least two with direct implications for the planning and design of learning environments:

> *"Our students' learning opportunities are enhanced when multiple approaches for learning are provided and positive relationships are formed."*

> *"All who share our schools deserve a safe, respectful and nurturing environment."*

Planners and designers of the District's facilities should familiarize themselves with the latest version of the Plan and its five *Areas of Focus*:

1. Teaching and Learning
2. Documenting and Using Results
3. Resources and Support Systems
4. Stakeholder Communication and Relationships
5. Governance and Leadership

The Plan articulates the meaning and strategic intent of each *Area* and develops them through a series of *Strategies, Quality Indicators, and Actions to be Taken*. Two of the areas, in particular – *Teaching and Learning* and *Resources and Support Systems*— contain several statements that relate directly to these *Educational Specifications* and should be accounted for when planning and designing schools for the District.

Teaching and Learning

This *Area* emphasizes student achievement and defines *Strategies* that "provide research-based curriculum and instructional methods that facilitate achievement for all students."

Quality *Indicators* for this *Area* acknowledge the "active involvement of students in the learning process" as well as "opportunities…to explore" and to "investigate new approaches to applying their learning." The role of "school climate" and the strategic imperative of ensuring "that it is conducive to student learning" are also cited.

Actions to be taken include an inspiring list of initiatives. They include "unique concept schools and programs" as well as instructional technology and parent-community partnerships that impart a critical component of "real-world" relevance to the learning experience. Successfully accomplishing these actions requires thoughtful and complete consideration of the environment in which the learning process occurs.

Resources and Support Systems

This *Area* also references school climate and defines *Strategies* that "provide the human, financial and physical resources, and services necessary to support [the District's] vision and purpose of achievement for all students."

Quality *Indicators* for this *Area* reflect the importance of aligning staff and fiscal resources needed to "meet the vision and purpose of the school." Specific reference is also made to maintaining "the site, facilities, services and equipment to provide an environment that is safe and orderly for all occupants."

Actions to be taken acknowledge the critical importance of ensuring enhanced school security; conducting and tracking "needs assessment ratings for each school using approved educational specifications;" performing an "annual analysis of attendance zones, school capacity and enrollment;" and "utilizing environmentally-friendly materials and equipment and emerging green design [strategies] for future additions and alterations."

In summary, the Plan references the need for well-planned, well-designed, well-built facilities to support the District's mission and vision. By outlining *Beliefs*, identifying *Areas of Focus*, and articulating *Strategies*, *Quality Indicators*, and *Actions to be Taken*, the Plan provides a means for justifying decisions that support these initiatives. Planners and designers should heed the Plan and reference specific items within it when developing facilities for approval by the Board.

1. Introduction

glossary of terms

Please reference this glossary of terms to ascertain the meaning of words that may be subject to interpretation.

Allocation ratio. Related to capacity, the number of pupils-per-teacher "allowable"; *developed based on budgets and approved by the Board; sometimes called P/T ratios*

Board of Education. Referred to in this document as simply *the Board.* A group of twelve citizens elected to oversee and manage Horry County Schools.

Capacity, Code. Given an occupancy classification, how many students can safely exit a space in a certain amount of time; *determined by code; identified on building plans; often seen on placards on walls of public spaces*

Capacity, Design. Based on allocation formula (i.e. pupil-to-teacher ratios) and other factors, how many students *could* occupy a space

Capacity, Operational. Given a design capacity and an efficiency factor, how many students *should* occupy a space; *simply a function of design capacity and the efficiency factor; baseline for comparison; often called 'maximum operating capacity'*

CEPTD. Crime Prevention Through Environmental Design; *a design philosophy wherein which a safe and secure environment is facilitated through thoughtful and sensible design*

Conceptual Design. The first of a two-part process that includes planning, conceptual plans, and community input.

Efficiency Factor. Related to capacity, an assumption about practical efficiency; *intended to balance efficiency and effectiveness; a planning parameter; expressed as a percentage*

Horry County Schools. Referred to in this document as simply *the District*. A school district responsible for the education of over 39,000 students attending 51 schools in 9 attendance zones.

Office of School Facilities. Referred to in this document as simply *the OSF.* The office within South Carolina's Department of Education responsible for overseeing school planning, design, and construction on behalf of the state.

Safety. Actual protection from threat of physical harm or violence.

Security. The sense of emotional comfort of the student in the learning environment.

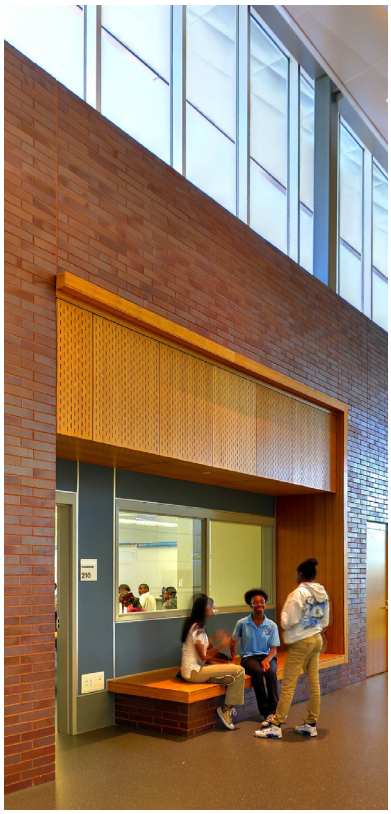
Strategic Plan. Referred to in this document as simply *the Plan.* A five-year plan developed to guide the current and future operations of Horry County Schools.

2. Principles of School Planning and Design

The principles that guide school planning and design today differ significantly from the principles that guided it in years past. Long-gone is the image of the schoolhouse as the civic building that defined a town or community on the new frontier. Gone, too, is the image of the industrial model that facilitated industrial practices that themselves reflected the industrial ethos of a booming post-war generation. And nearly gone are the rear-guards of that generation fighting to maintain control of their classrooms in the most traditional sense. In their place stands a new, post-industrial generation of educators delivering instruction to digital natives who themselves must thrive in a world in which knowledge is temporal – who remembers when Pluto was a planet – and expands exponentially.

Education is no longer "efficient" in that teaching to the mean or the norm or to any single group as if all in it were the same is no longer acceptable given the recognition and understanding of multiple learning styles. That means that the teacher can no longer "stand and deliver" and expect her students to meet the expectations established by high-stakes testing within the context of a global market and community. And it means that the environments in which teachers teach and students learn can no longer default to the lecture format. Audible learners constitute less than 5% of our population, which means that the overwhelming majority of students will be more successful when given the opportunity to synthesize information differently. First called "multiple intelligences" by Howard Gardner and later developed as "learning styles" by Dunn and Dunn, other ways of learning besides listening include, but are not limited to, visually (text and/or graphic) , kinesthetically (gross- and/or fine-motor), and tactually.

The challenge before design professionals has never been greater. Nor has the imperative. The good news is that the potential of architecture as an effective medium for enhancing teaching and learning remains largely untapped. The challenge, therefore, is to leverage the opportunity that exists at the intersection of these two seemingly disparate fields to create the kinds of places and spaces that facilitate learning in the most authentic way. In so doing, school planning and design become the trim-tab that turns the rudder that steers the ship in the direction in which the visionaries on deck are pointing.

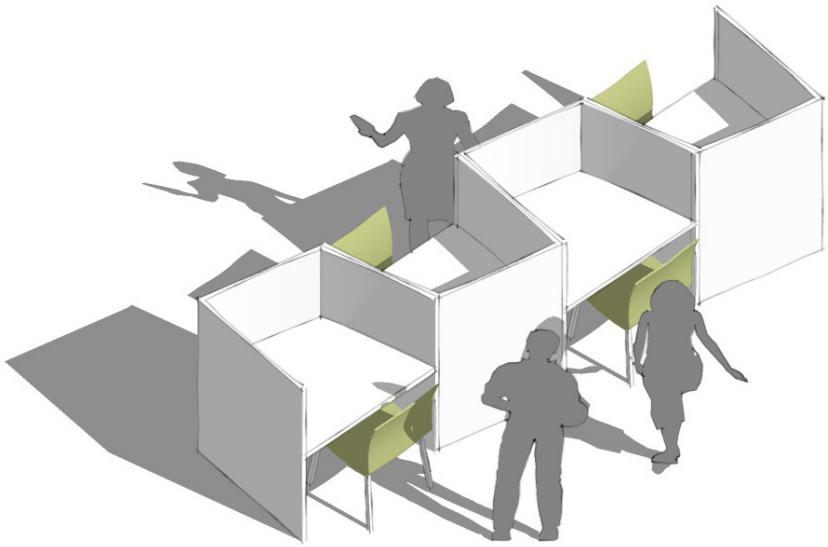


What follows are a series of *educational space types* that were developed with this conversation in mind. They are organized in pairs – formal and informal – in a progression from individual study carrels to large-group commons. They are a catalyst for conversation and a kit-of-parts of sorts, but are not intended to *be* the conversation nor should they be the *only* parts. Design professionals should seek to understand the learning that occurs within the facilities they are designing and then create the places and spaces that will facilitate it.

2. Principles of School Planning and Design

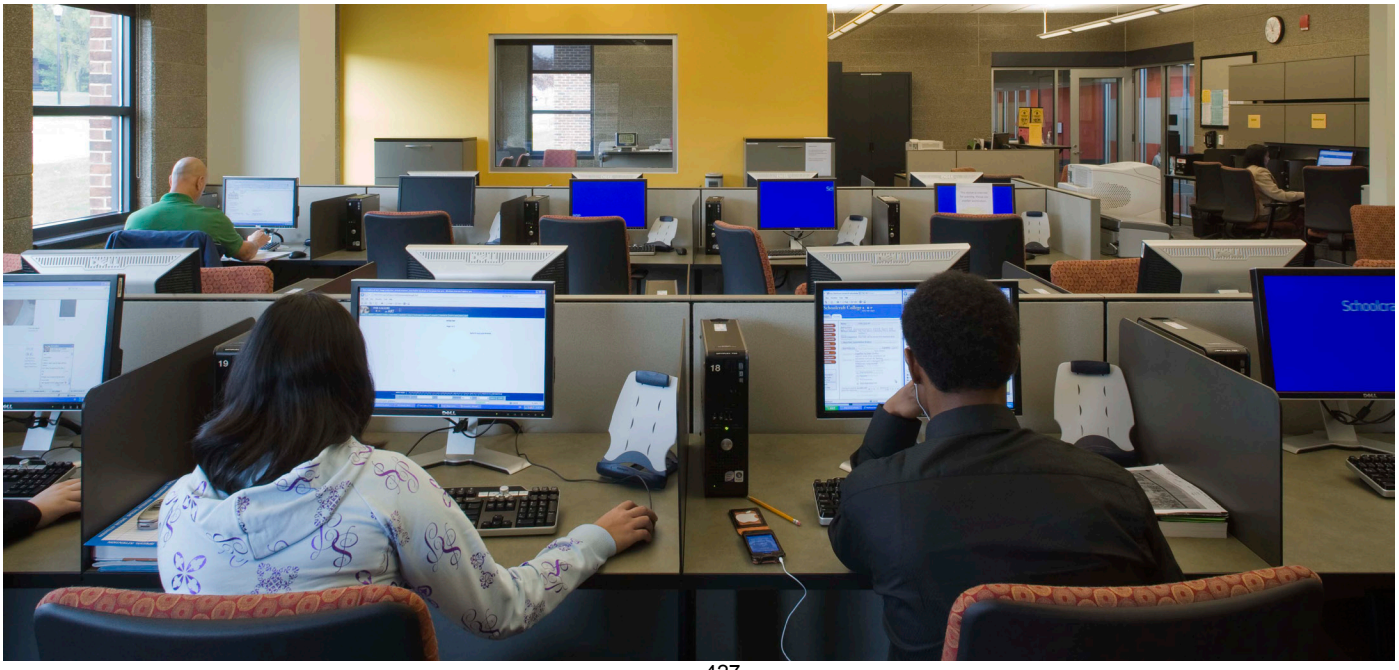
Function	individual / intimate
Furniture	carrel, chair, task lighting
Flexibility	low
Technology	wi-fi and power
Learning Style	individual

formal



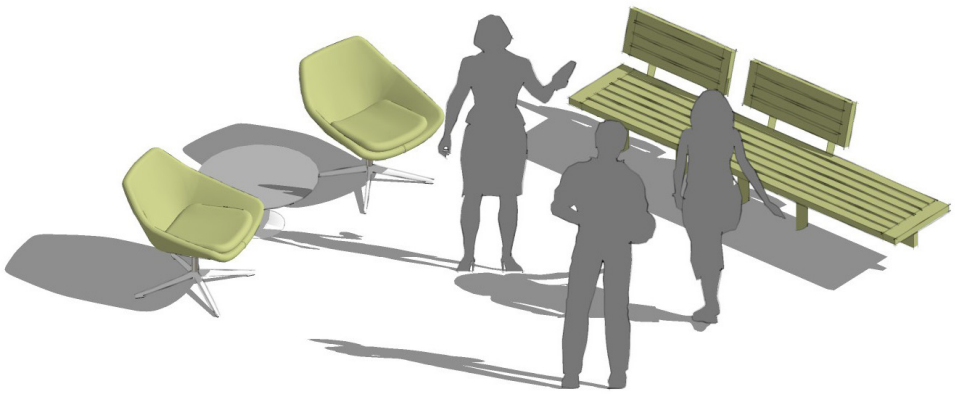
# of people 1-2

carrel. An individual environment that is sequestered within a larger space such as a library, lab, or lounge. Consists of partitioned desks or workstations where a student can work independently or in pairs with relative privacy without physically separating herself from the larger environment. Works well for projects or research efforts that take place during a class or as a set up for a computer lab. Provides privacy without isolation.



2. Principles of School Planning and Design

informal



Function	individual
Furniture	bistro tables \ benches
Flexibility	moderate
Technology	wi-fi
Learning Style	social

terrace/patio.

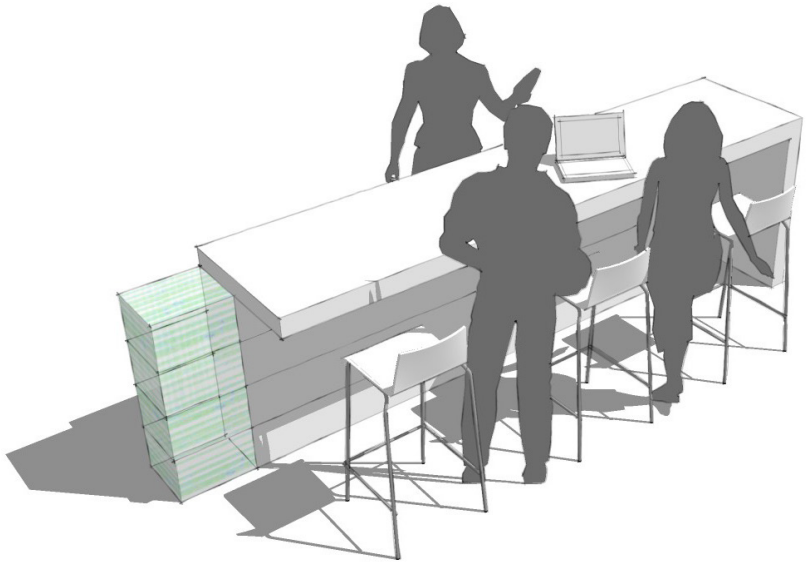
Outdoor learning has been shown to improve concentration and retention among students of all ages. Providing a terrace or patio in your facility promotes passive learning and appeals to a wide variety of learners. It can easily be used for individual study space and as a nexus for collaboration. Providing a meaningful connection to nature and the outdoors is an often overlooked asset for any academic building.

# of people 1-2

2. Principles of School Planning and Design

Function	resource
Furniture	bar, stools
Flexibility	low
Technology	computer stations, printer
Learning Style	support

formal



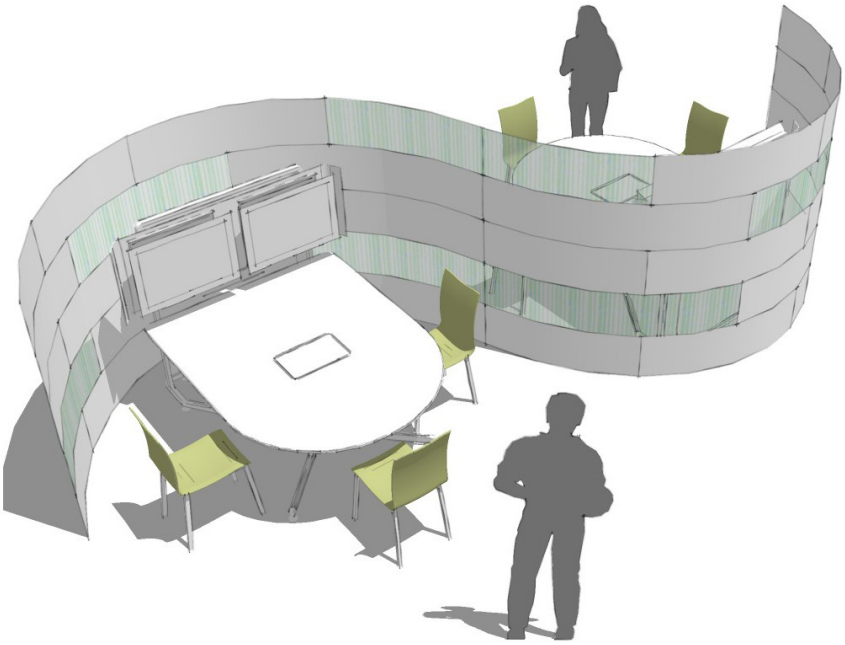
# of people 2-3

iBar.

The iBar, sometimes called a “genius bar,” is a long, technologically-rich station where students can “plug in,” print, study, and receive support from tutors or peers. Designed to be an optimal setting for groups of 2 or 3, it can also serve for individual study and occasionally group study. The iBar is typically located in a public, highly-visible area of the building making it an obvious resource for all students.

2. Principles of School Planning and Design

informal



Function	collaboration
Furniture	fixed table and chairs
Flexibility	low
Technology	wi-fi, screenshare, power, data
Learning Style	peer to peer

mediascape.

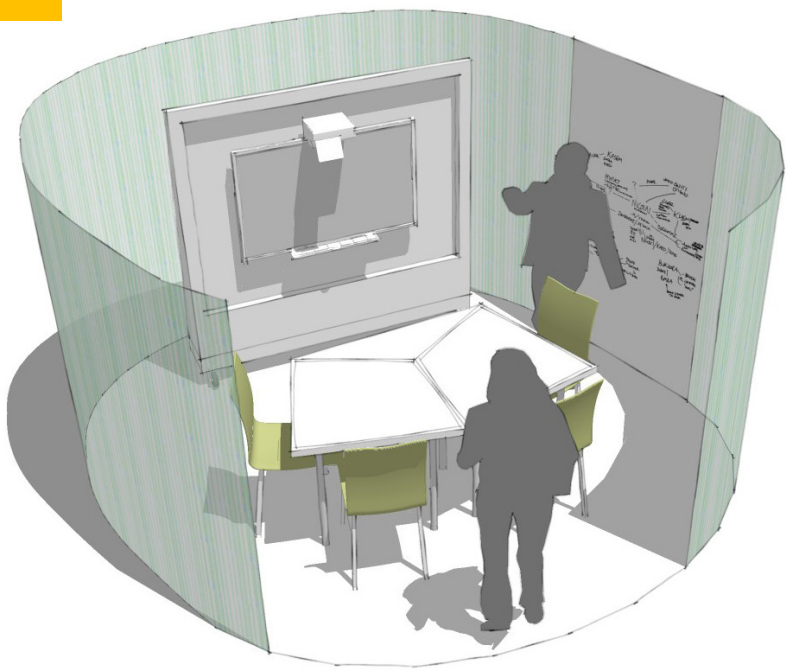
A mediascape is a small room or nook designed for small group media-related study. It usually features one or more screens where students can work on multi-media presentations. It may also be used for video conferencing and screen sharing. A mediascape space is usually semi-private, but can also be made visible to put learning on display and showcase project teams and the use of technology.

# of people 2-3

2. Principles of School Planning and Design

Function	small group
Furniture	table and chairs
Flexibility	moderate
Technology	wi-fi, power, whiteboard
Learning Style	collaborative

formal



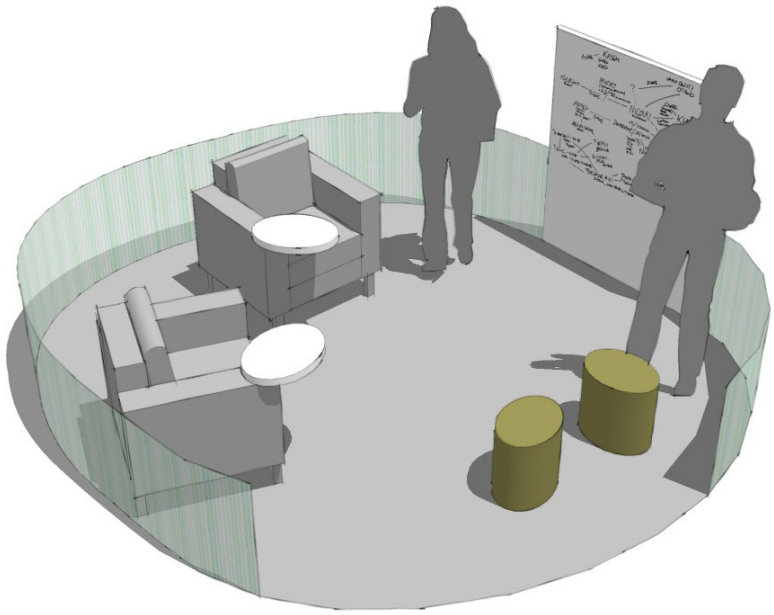
# of people 3-5

project room/pod.

A pod is a self-contained project room which can provide privacy to the user group or open partially to the corridor or commons. A pod is technology-rich and can support different media and learning styles - both low-tech and high-tech. It features a variety of surfaces - screens, marker boards, pin up walls - to provide a project team with everything they may need to complete an assignment. Wi-fi and computers are available to provide access to the internet and distance learning.

2. Principles of School Planning and Design

informal



Function	small group
Furniture	table and chairs
Flexibility	high
Technology	wi-fi, power, whiteboard, screen
Learning Style	collaborative

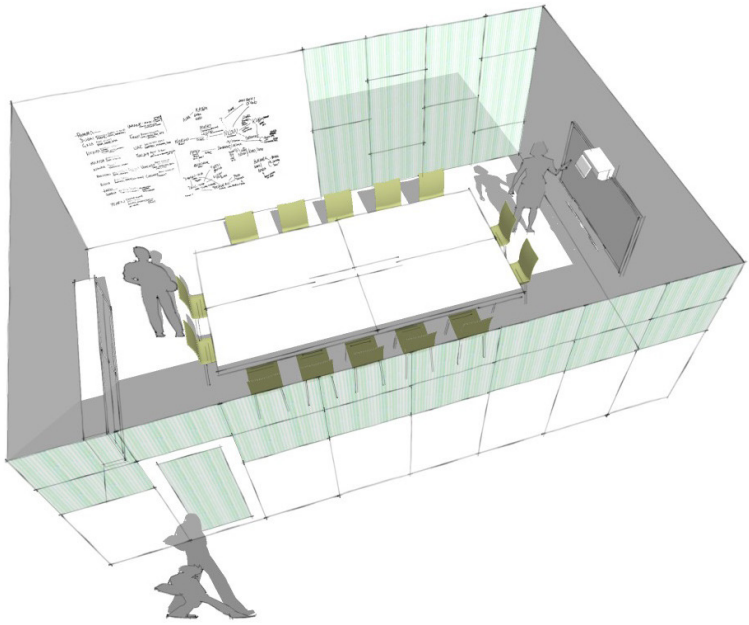
breakout. A breakout area is an informal environment usually adjacent to a more formal classroom or lab where students can move to during or after class in order to work independently or in small groups. It typically features wireless internet and power for laptop computers, as well as low tech writing surfaces. The breakout can also be used as a leisure or collaborative space by students between classes and before and after school.

# of people 3-5

2. Principles of School Planning and Design

Function	medium group
Furniture	conference table and chairs
Flexibility	low
Technology	screen, a/v, wi-fi
Learning Style	presentation/discussion

formal

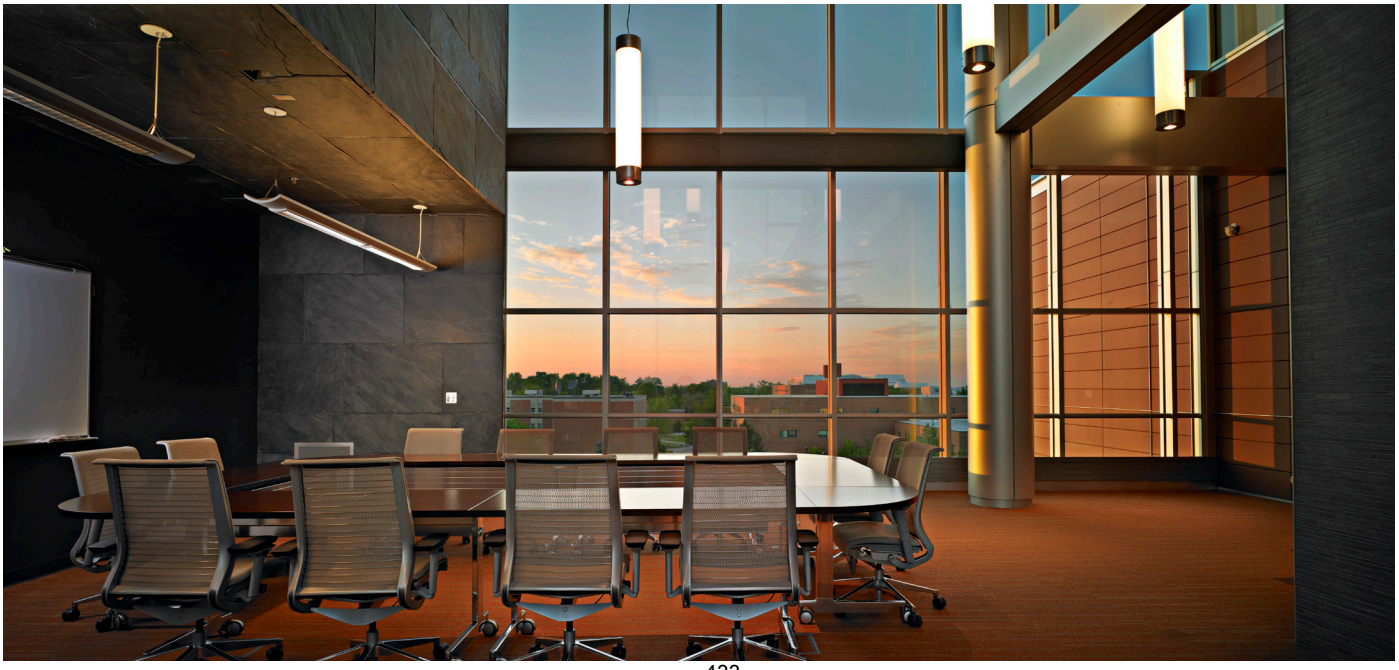


# of people

8-16

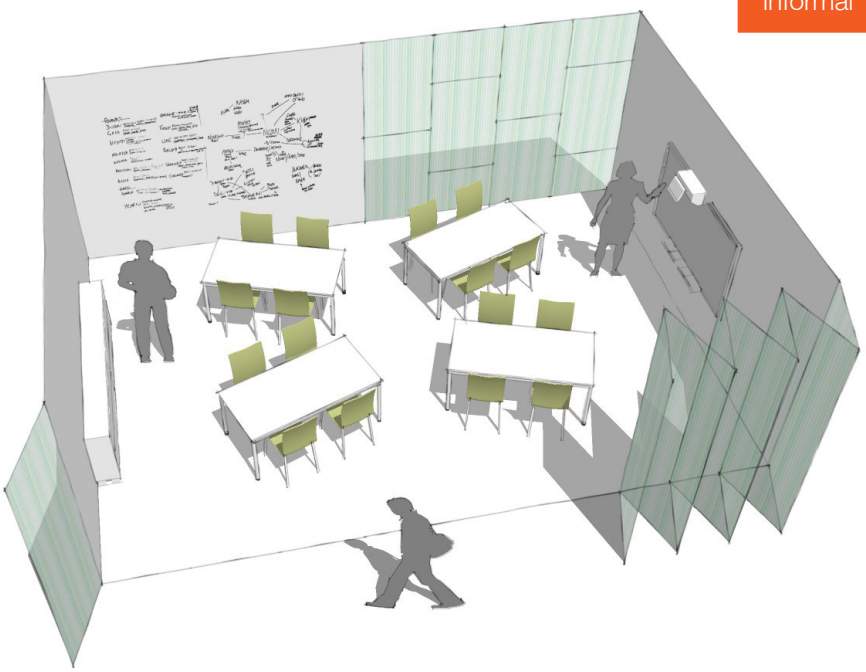
seminar.

A seminar room is a formal gathering space for a medium group of students and/or faculty. It is used for project-related meetings, collaborative group sessions, and discussions more so than formal instruction delivery. A successful seminar room will have a variety of writing surfaces, pin up walls, and projection hook ups.



2. Principles of School Planning and Design

informal



Function	medium group
Furniture	movable table and chairs
Flexibility	high
Technology	screenshare, whiteboard, power and data
Learning Style	collaborative

brainstorm room.

A brainstorm room is a less formal version of a seminar room and is typically used for impromptu working sessions or project study groups. It is a technology rich, flexible environment meant to encourage collaboration and idea sharing. It is typically closed off by a set of track doors and can be opened to the outside to become part of a larger student commons or lounge space.

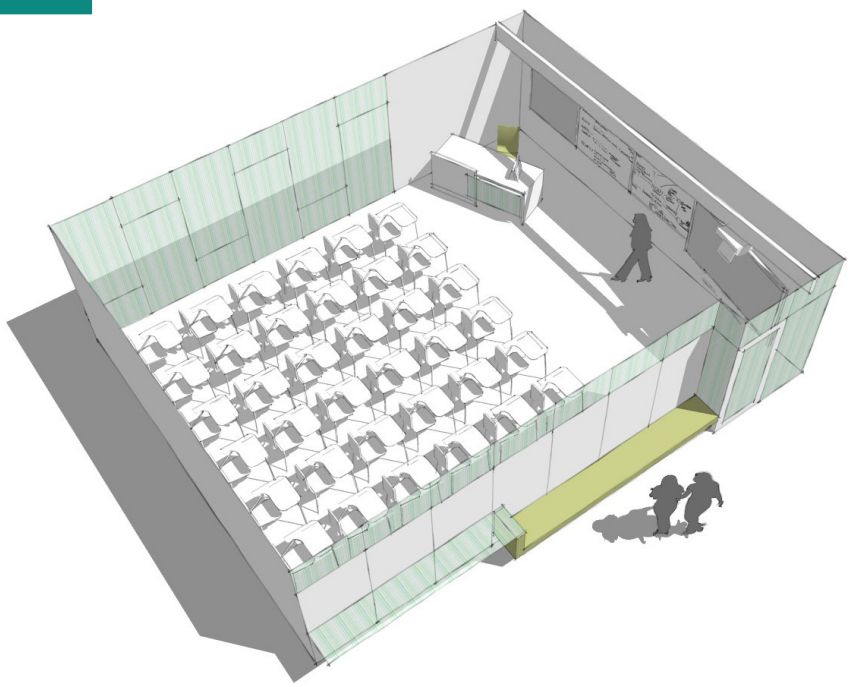
# of people

8-16

2. Principles of School Planning and Design

Function	medium/large lecture
Furniture	traditional chairs w/tablet arms
Flexibility	moderate
Technology	a/v, screens
Learning Style	socratic

formal



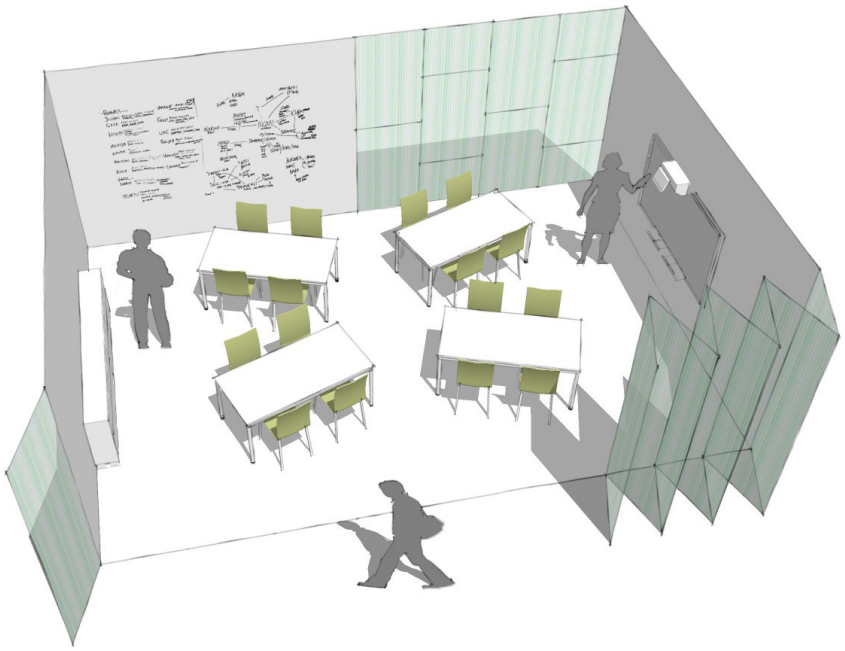
# of people

20-40

classroom. A formal classroom is one of the most recognized staples of the learning environment. A large room with rows of desks facing an instructor and whiteboard or projection screen, it is a space geared for formal instruction such as a lecture. In modern academic environments, the individual desks are not fixed, allowing for a degree of flexibility in room configuration.

2. Principles of School Planning and Design

informal



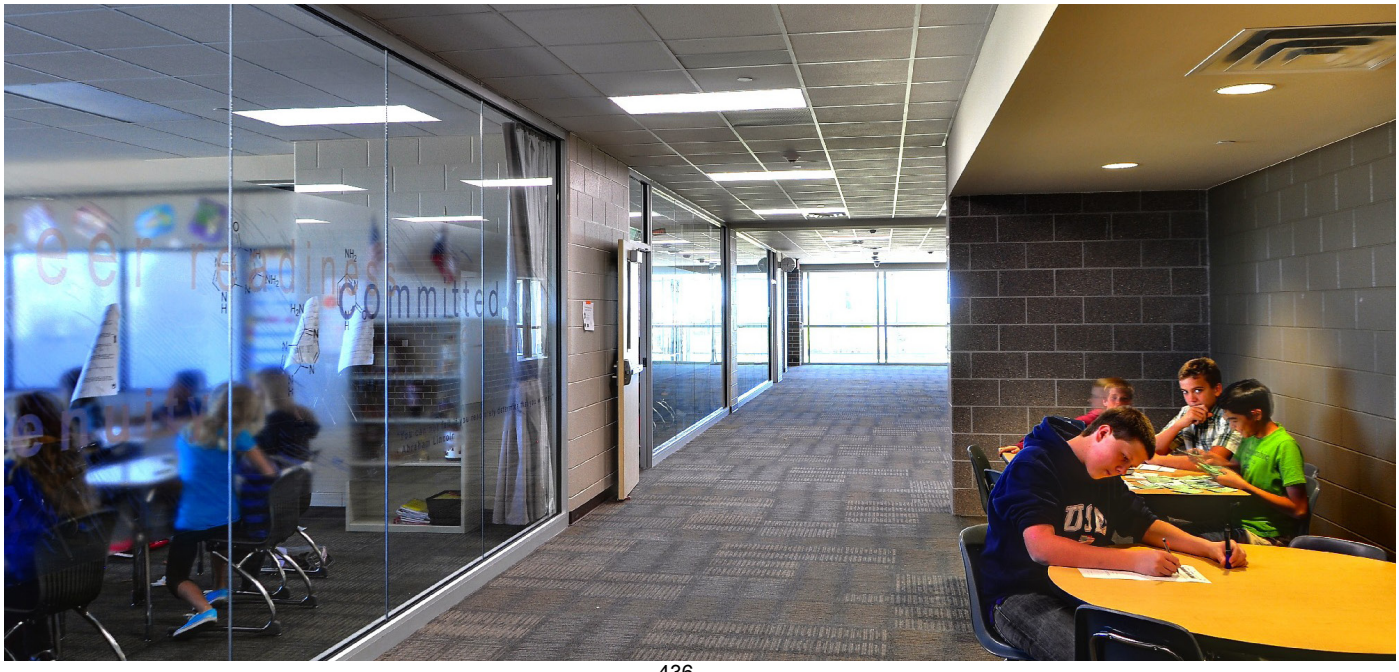
Function	medium/large group work
Furniture	movable table and chairs
Flexibility	high
Technology	wi-fi, screens, a/v, whiteboards
Learning Style	collaborative

flex class.

A flex class is a more informal classroom arranged primarily for group work and collaborative study rather than traditional, lecture-style instruction. It is still geared towards larger groups of people that may break up into smaller groups or participate in a group discussion. The furniture is highly flexbile to accommodate a variety of set ups, and technology is prevalent to facilitate different project types and curricula.

# of people

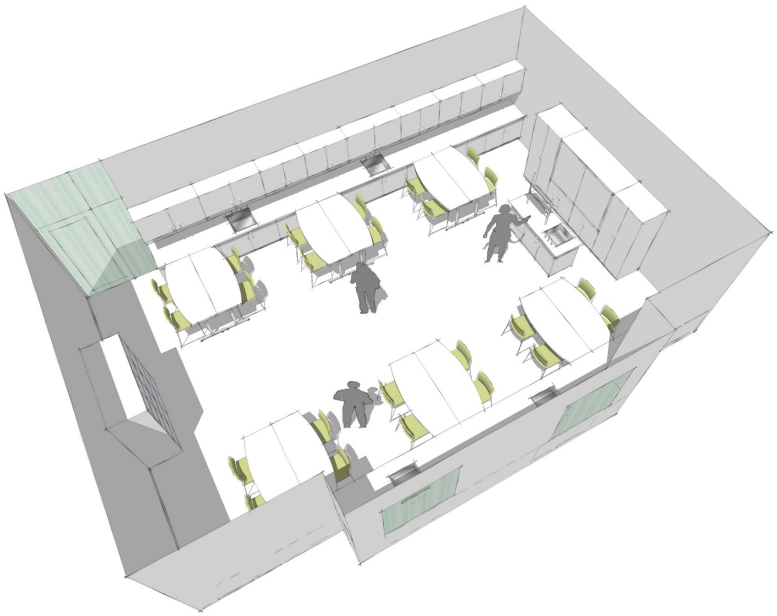
20-40



2. Principles of School Planning and Design

Function	hands on
Furniture	lab furniture
Flexibility	moderate
Technology	wi-fi, power, water
Learning Style	project based

formal



# of people

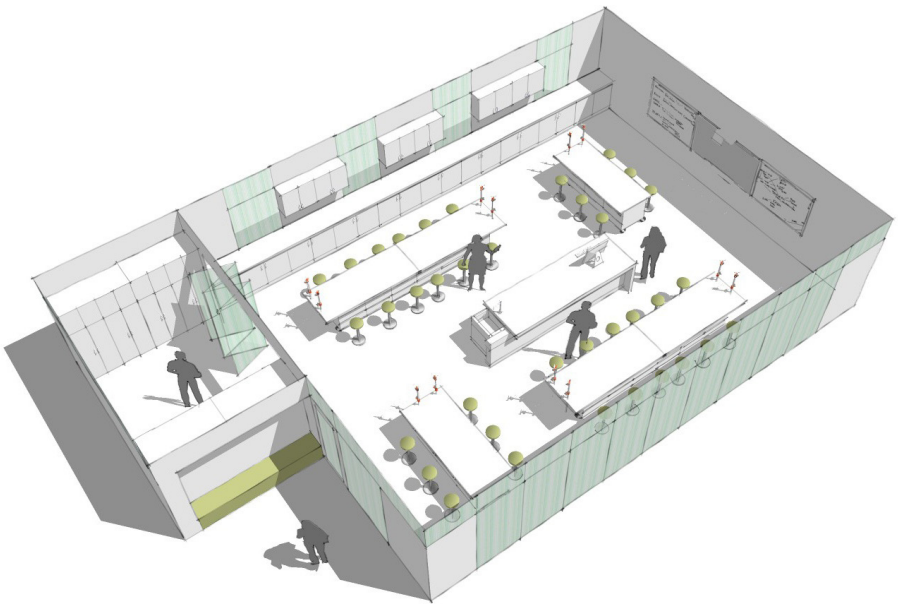
20-40

low intensity lab.

A low intensity lab is a typical laboratory classroom space adapted for a variety of science curricula and configured for a variety of projects and experiments. These rooms provide projection cabability, whiteboards, and on-demand access to power, data, water, and (sometimes) gas. Designed for formal project based instruction in a variety of scientific disciplines.

2. Principles of School Planning and Design

informal



Function	hands on
Furniture	mobile perimeter storage/ worksurface with workshop tables/stools
Flexibility	high
Technology	powered tables, equipment access
Learning Style	instructional demo and experiment

workshop-studio.

A workshop is a lab-like environment designed to teach through experimentation. It can be adapted to a wide variety of curricula including career and technology paths such as mechanics, welding, engineering, health promotion, cosmotology, animation, and graphic design. It typically features plentiful storage bays to allow the school to change the programs being taught without too much reconfiguration thereby increasing the utilization of these rooms.

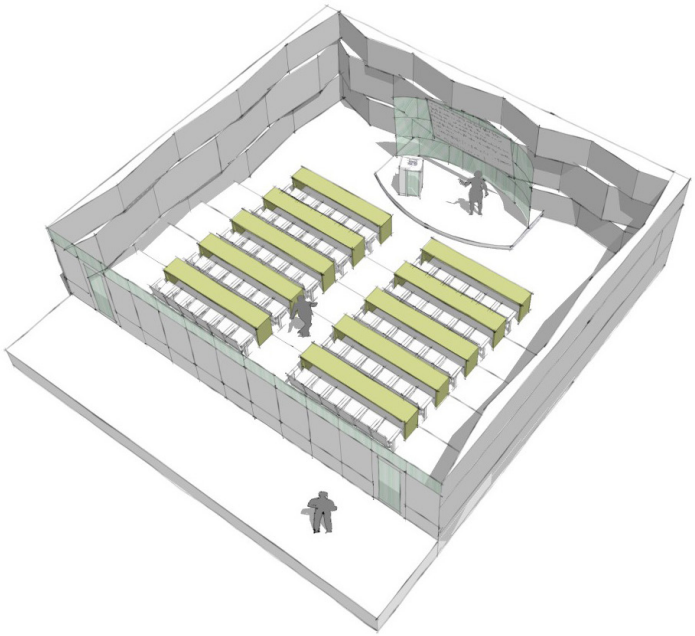
# of people

20-40

2. Principles of School Planning and Design

Function	large class
Furniture	fixed tables and chairs
Flexibility	low
Technology	a/v, screens, wi-fi
Learning Style	teacher-focused

formal



# of people

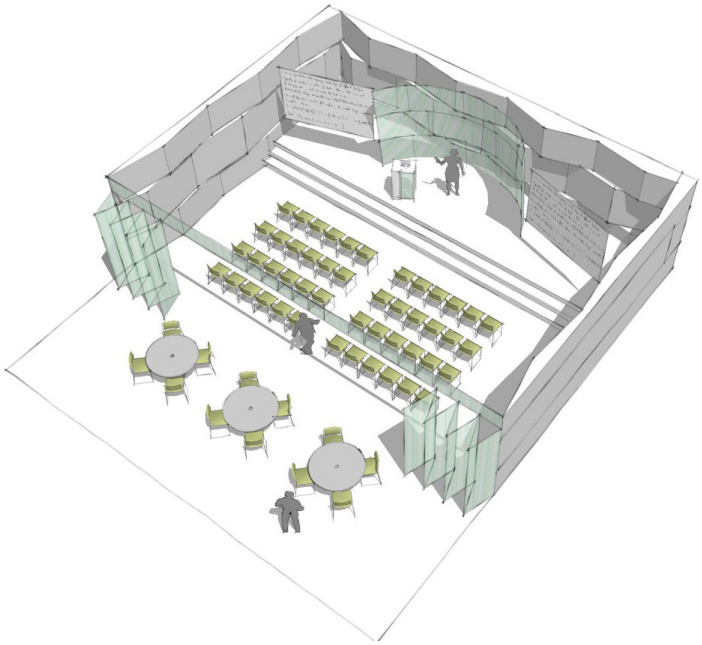
50+

tiered lecture hall.

This type of learning space is designed for large group (over 50 people) lecture delivery. The floor is sloped to provide better visibility for all rows. Projection and video are required in these spaces. Desk-tables provide sufficient space for each student's materials and access to power and data. These halls typically have shading devices that allow the instructor to black out the room for a video or other media presentation.

2. Principles of School Planning and Design

informal



Function	large class
Furniture	loose chairs
Flexibility	high
Technology	a/v, screens, wi-fi
Learning Style	high tech

learning theater.

A learning theater is a large room designed for lecture, demonstration, or other large group instruction. Its main difference from a formal lecture hall is the flexibility of the space and immersive technology. A flat floor allows the room to be reconfigured easily, and for corporate partners to bring in large machinery or other demonstration tools. Opening the learning theater to circulation by way of a glass wall creates a dialogue with the rest of the building.

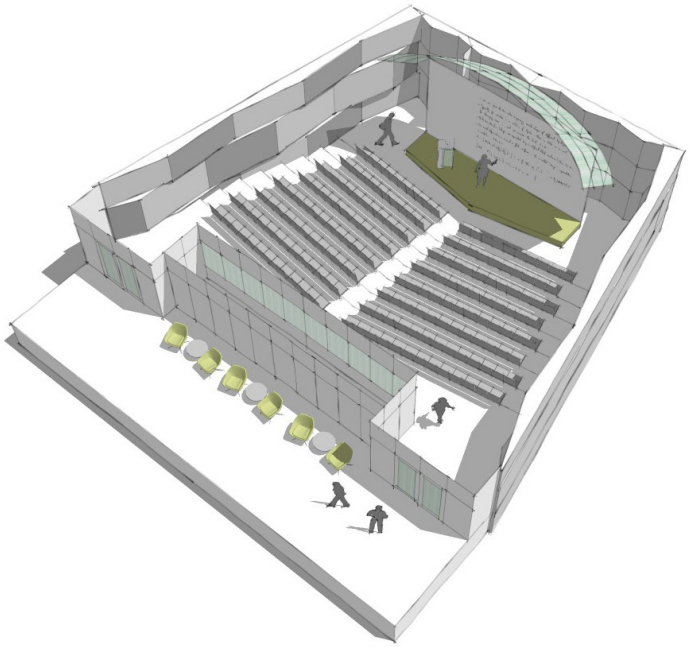
# of people

50+

2. Principles of School Planning and Design

Function	large group
Furniture	tiered fixed
Flexibility	low
Technology	wi-fi, power, projection, a/v, acoustics
Learning Style	teacher focused

formal



# of people

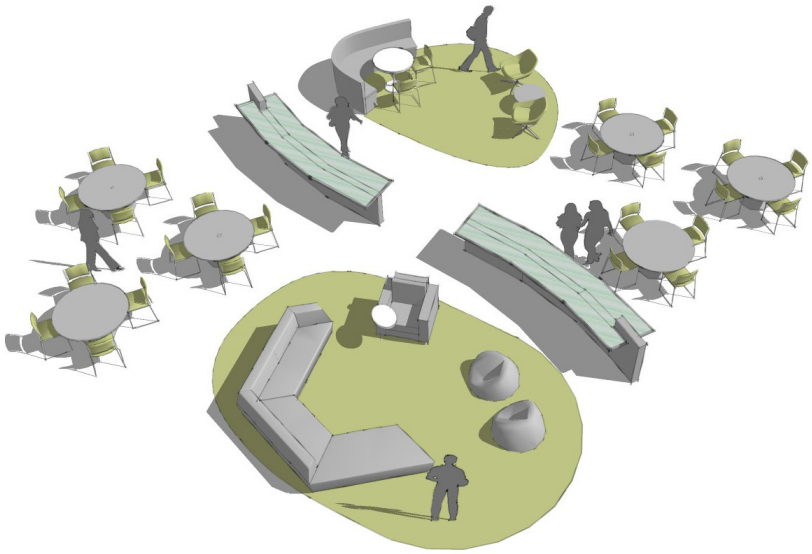
100+

auditorium.

An auditorium is a typical space for large group assembly and instruction. Tiered like its smaller counterpart - the lecture hall - an auditorium can accommodate upwards of 100 people and is often used for performances, large group instruction, and lectures by visiting professionals.

2. Principles of School Planning and Design

informal



Function	large group varied
Furniture	varied
Flexibility	moderate
Technology	wi-fi, information screens, power
Learning Style	social

commons/lounge.

The commons is the heart of any learning setting on any scale. It is a place where students gather to socialize, study, relax with a cup of coffee, and collaborate on assignments. A well-designed, technology-rich commons with plenty of natural light, a variety of surfaces, internet access and power will make any academic building feel more like home, attract and retain students and visitors, and create a dynamic social environment.

# of people

100+

2. Principles of School Planning and Design

Accompanying the educational space types are related ideas that should also be part of the discussion when planning and designing schools for the District.

learner-centered environments

As noted at the beginning of this section, contemporary school planning reflects a shift away from the industrial model of instruction and delivery toward learning that emphasizes the individual needs of students while providing ready-access to a variety of resources beyond the teacher and textbook.

High expectations for achievement by all students – regardless of learning style – have compelled educators and design professionals to work together to gain insight and understanding of the crucial features and requirements of the spaces that support productive learning behaviors. Discussions leading to decisions that focus on what students must know and be able to *do* have led to an emphasis on the "Four C's" – critical-thinking, communication, collaboration, and creativity. From these are born new pedagogies like "blended" and "project-based" learning that acknowledge the student and represent significant departures away from the rigid model of yesterday's schools.

Along with that we know that students and teachers will rely upon on an expanding array of digital tools and resources. E-readers and access to digital media will transform both the role and the physical setting of the school library, just as other forms of technology have led to more self-directed, online, and connected approaches to learning elsewhere in the school. Understanding the implications of the latest technology is essential to designing an environment that can leverage it today and adapt as it evolves and expands tomorrow.

The implications are profound. Thoughtful discussions about the *learner* and *learning* during the planning and conceptual design phases of school projects will help ensure that District facilities will be agile, adaptable, and instructionally viable settings for learning well into the future.

safety and security

A safe and secure learning environment should be a given condition for every student. In the context of school planning and design, these terms are often used interchangeably. However, it may be helpful to consider the following distinctions.

"Safety" can be defined as the actual protection from threat of physical harm or violence. A barrier, for instance, provides safety for those behind it. Despite recent tragedies that might suggest otherwise, statistically speaking, public schools are among the safest places for children to be. Indeed, schools across the nation have responded exceptionally well to the imperative by incorporating metal detectors, surveillance cameras, intrusion alarms, special hardware, and other similar strategies into their safety plans and facilities designs.

"Security," on the other hand, addresses the sense of emotional comfort of the student in the learning environment. The idea that an area is being surveilled, for instance, provides a sense of security for someone passing through it. For a student to succeed, she must be free from the stresses and pressures of learning in an unsafe place. In this way, security is a more elusive goal, as it is more specific to the individual

learner. However, research has shown that it is highly influenced by a nurturing school climate and a culture that is characterized by actively involved teachers and parents.

Best-practice approaches to school site safety often reflect the four principles of *Crime Prevention Through Environmental Design* (CPTED) planning: surveillance, access control, territorial reinforcement, and maintenance. The deployment of School Resource Officers (SRO) at schools has also been shown to dramatically reduce incidents of vandalism and other crimes. Design professionals are encouraged to familiarize themselves with the CPTED philosophy.

Fortunately, concerns for improved safety and security may be addressed through thoughtful planning and design. Reducing the number of entrances, eliminating "blind" hallways, incorporating good sight lines, generous use of interior glass, smaller learning communities that increase personalization among adults and students, and creating an overall sense of visual "connectedness" throughout the school will help to keep students safe, secure, and in the best possible frame of mind to achieve.

flexibility

Flexibility is a tenet of contemporary school planning and addresses the many ways in which learning spaces must be able to adapt to the changing needs of the school community. This is especially important given the accelerated evolution of programs serving students. Today, flexible learning environments like the brainstorm room, flex classroom, and learning theater earlier illustrated in these Educational Specifications are more critical than ever.

As noted previously, most school facilities today still reflect the industrial model of rigidly planned, double-loaded corridors; linear, sequential and standardized delivery of content; and well-defined functions for each space. The understanding of varied learning styles begs the need for flexible learning space that can easily adapt to both the program taught within a space and the student(s).

Going forward, flexibility may best be thought of as a "loose fit" between the instructional program and the structure and spaces that support it. In other words, as pedagogy and program evolve, the building itself must also be able to *flex* with such *flux*. Design professionals should ask how effortlessly the spaces built today will be able to adapt to new ways of teaching and learning in the tomorrow. Within the framework of contemporary schools, informal areas for student collaboration, small- and large-group instruction, digital content production and presentation, and project-based and online learning—all of which are made possible by the rapid expansion of learning technologies—must be given equal consideration along with the traditional, more formal spaces with which we are all familiar.

When considering a building's superstructure, framing system, and building module, design professionals are reminded of the need for flexibility and asked to recognize that demising walls are subject to change in the future.

community connection

Community support of public schools is manifest in many ways. Accordingly, schools function as the ultimate community center whose civic mission extends beyond the

2. Principles of School Planning and Design

school day. Already, the District's facilities are such places as evidenced by the many school-community relationships that exist.

In response, schools should be planned to acknowledge the shared public interest in leveraging the full potential of the facilities. Simply providing sufficient parking for after-hours events; space for parent volunteers; flexible meeting space for community organizations and business partnership; and evening access to indoor athletic, performance and media spaces are all relatively minor concessions that recognize the profound investment by the community and invite their participation in achieving the school's mission.

To accommodate after-hours activities, separate securable entrances, bathrooms, and building systems should be planned so that access can be granted without having to make available and operate the entire facility.

The main entrance should be given additional consideration. It serves as a gesture of invitation akin to an extended hand of greeting. It performs the social and cultural functions common to all front doors including the welcoming and receiving of visitors. It symbolizes not only the significance of the school's place in the community, but also the community's place in the school. It reinforces the vital school-community connection. By the same token, though, it should be readily observable and easily securable. Care should be taken to balance the needs for safety with the desire for a welcoming, inspirational entrance procession.

interior design

While the general public will "know" the school by its outward appearance, the students, teachers, and administrators who inhabit it will identify with how it looks on the inside just as much. The design of a school's interior is absolutely critical to creating lasting images and establishing the proper tone for the activities that occur within it. Consistent with the idea that students' learning styles vary is the understanding that their preferences for the conditions in which they learn differ, too. For instance, some students are more successful when studying in isolation (in a carrel, for example) while others achieve greater in open environments where they are surrounded by multiple stimuli (at a table in a common area, for instance). As Dunn and Dunn demonstrate in their research on learning styles, the same can be said about students' preferences regarding lighting levels, formal versus informal setting, types of furniture, amount of background noise, etc. A well designed interior will respond to this research and provide a wide range of options so that students can gravitate to the places and spaces where they feel most comfortable and can be most successful.

The interior elements – both individually and as a whole – will play a significant role in determining how the school is used and experienced. Architects are required to engage a professional interior designer with knowledge of the research as it applies to teaching and learning, but below are few considerations:

Colors. The use of color impacts the emotional and psychological connection and response to a space. The works of Rickard Kuller and Antonio Torrice demonstrate how colors impact our cerebral process and physical systems, respectively. The appropriate application of colors in schools can have positive impacts on eye fatigue, productivity and accuracy, and developmental processes. A studied approach to

color is required for each project with the understanding that school spirit, teacher decorations, and the universal availability of certain paint colors should not be the driving forces.

Along with understanding the potential impacts of colors on certain situation, it is important to select and apply colors with an overall understanding of a project's architectural aesthetic, level of permanency, desired integration of school spirit and standards, and programs defined by user needs. Colors are also useful for defining blocks of rooms (the sixth grade wing, for example) and care should be given to utilize them thoughtfully for wayfinding.

Space planning. As discussed in 'Principles of School Planning and Design,' teaching and learning are occurring more and more often beyond the limits of the traditional classrooms. As noted, the push for increasingly efficient facilities has forced every part of the building to be viewed as a potential learning environment. With that in mind, no space can be taken for granted. Every space must be given the same level of attention and consideration that the "defined" classrooms are given. Every space must be viewed through the eyes of the students and teachers to determine how it might someday be utilized for individual study, peer collaboration, and small-group instruction. How can the space be designed to encourage and invite such opportunities? What finishes would make it appealing? What resources should be available? The educational space types presented in these Educational Specifications provide insight into these questions, but the design professional is reminded to consult with the Steering Committee to determine the most appropriate applications for any given project.

Materials and finishes. Beyond color and texture there are many aspects of appropriate finishes and materials that must be considered when selecting them for schools. Life-cycle costs, fire resistance, life safety, durability, maintenance, impacts on indoor air quality, and sustainability (the composition and embodied energy of the materials) are also essential. Standards and guidelines such as a material's NFPA- and ASTM-designations must be met, too.

Acoustics. Good acoustical design is critical to successful teaching and learning. Studies have indicated that students in rooms with poor acoustics may not hear as many as 3 out of every 4 words spoken. In addition, studies have linked teacher absences to vocal strain caused by the need to elevate their voices in rooms with poor acoustics.

Along with the shape of a space, the interior finishes will be one of the most significant determinant when it comes to the quality of sound in a space. ANSI Standard S12.60 defines acceptable parameters for classroom acoustics, and materials selected for spaces should be considered for their sound reverberation time, noise reduction coefficient, and sound blocking qualities. Care should be taken to limit the amount of sound passing through walls, plenums, and ductwork, and offices should be designed to be as soundproof as possible. Design professionals are required to work with an acoustician to develop thoughtful solutions for typical spaces within the school. The solution(s) may involve the use of technology to amplify and/or reduce noise.

2. Principles of School Planning and Design

Ceilings. Ceilings are important factors when determining the acoustical and lighting properties of spaces, and the selection of materials for ceilings should bear this in mind. Likewise, indoor air quality is impacted by the choice of ceiling materials, and consideration should be given to the resistance to mold and mildew.

Lighting and lighting controls should meet the goals established for energy consumption while still accommodating required levels of light. Indirect lighting is recommended over direct lighting, and day-lighting and glare-control strategies should be part of the overall solution. Exterior light shelves are effective for controlling glare while at the same time reducing passive solar heat gain without limiting quantities of natural light and views. Interior lightshelves can also be effective for reducing glare and "bouncing" light off the ceiling toward the back of the classroom. Light tubes with diffusers and baffles are another effective way of bringing day-light into areas without direct access outside and should be considered part of any lighting solution.

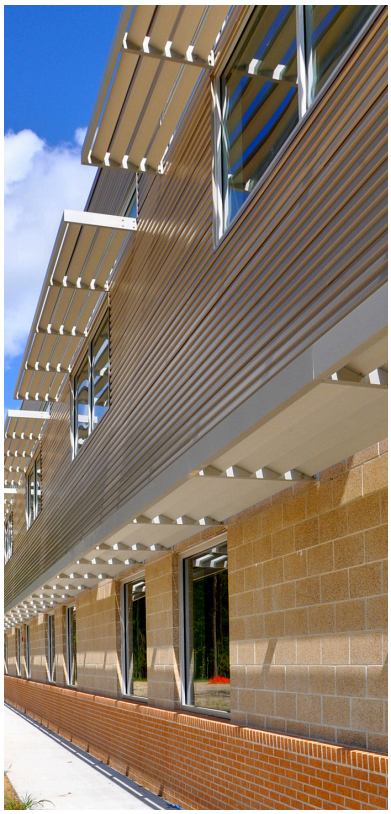
Furniture. Furniture is an oft overlooked but vital component of the interior environment. Appropriate furniture can transform almost any space into a high performing learning environment, and several manufacturers provide research-based solutions for educational spaces. Dieter Breithecker's research on bodies in motion, for instance, talks about the importance of providing ergonomically correct furniture that varies in sizes and allows for movement by the occupant, all of which is consistent with the research on varied learning styles.

Conversations about furniture should occur at the beginning of a project rather than the end. Making related decisions early will not only help protect the budget but will also inform the design of places and spaces.

As we create learning environments that will influence how our children will be shaped and formed, it is critical that interior design and all of its aspects are thoughtfully considered and provided as a part of an integrated solution.

2. Principles of School Planning and Design

sustainable design



Building operations represent one of the most significant budgeted expenses for school systems. In a time of increasingly limited resources – both natural and financial – it is imperative sustainable practices drive every aspect of school planning and design for the future. Every dollar saved on building operations is one that can be redirected to other needs such as instructional programs, educational technology, and teacher salaries to name just a few.

Separate and apart from the need to preserve dollars and resources is the case for healthy and high-performing schools, which is compelling. Over the past decade, “green schools” have been shown to offer a number of strategic benefits including, but not limited to, reduced absenteeism, increased student achievement, and increased teacher retention. They provide healthy indoor environments that are especially well-suited to learning. Design professionals should pay particular attention to the design of day-lighting; views outdoors; sufficient natural and mechanical ventilation; acoustic control; and thermal comfort.

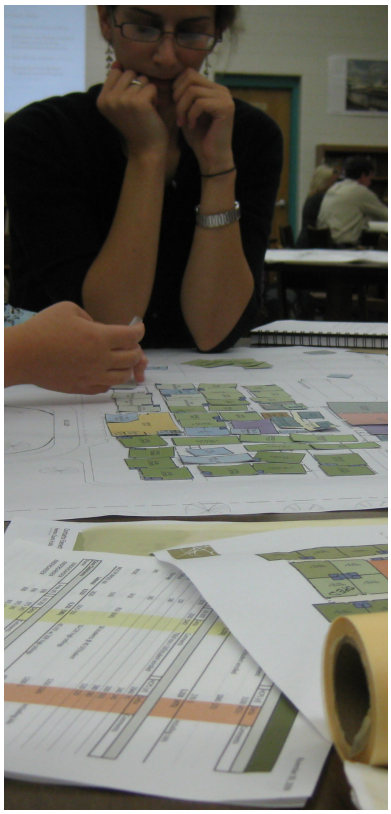
Sustainable strategies are holistic in nature. They entail thorough analysis of the building’s envelope and systems and training of school occupants and employees to reduce energy consumption. The latter is essential since studies show that 10-15% of energy use is waste, and the cost of energy is expected to escalate. Conservation of energy and lessons in stewardship are critical components of sustainable schools.

There are a number of approaches to creating a sustainable school, and most are guided by a third-party rating system like the USGBC’s LEED for Schools rating system, Green Globes, or CHiPS. Consistent with the goals embodied in the new ASHRAE requirements and the OSF Guidelines, all District schools shall be LEED certified at a minimum. Which level of LEED to achieve will be determined on a project-by-project basis depending on the opportunities and challenges apparent.

Ultimately, the District’s facilities should be designed to reinforce the lessons of good stewardship being taught within them. Along with the ways noted above, thought should be given to leveraging technologies, creating interactive means for learning, and putting learning on display. This can be done in a variety of ways including, but not limited to, “reveal” windows that allow observation of labeled building systems, displays that allow students to observe energy/water consumption, and themes that reflect aspects of the curriculum, community, and/or site.

3. Design Process Guidelines

The District utilizes a two-part process to plan, design, and deliver its projects. The first part involves planning, conceptual design development, and community input. The second part involves fully documenting design and constructing the project. What follows in these *Educational Specifications* are specifics related to the first part of this process.



planning and design phase

In order to achieve a project rooted in the District's mission and vision and, ultimately, realize a project's fullest potential requires rigorous planning as a first step. Absent this level of effort, the finished facility risks not meeting the needs of the occupants for whom it was built.

Prior to engaging a design professional, District staff will have defined the project budget, schedule, and proposed scope in order to establish the parameters within which planning and conceptual design shall occur. These will be provided at the outset and can be relied upon in good faith. The objective of the planning process, therefore, is to bridge the divide between the broad parameters provided and the specific information required for the Board to consider approval of the project.

It is critical that central office and building-level leadership participate in the process – either directly or by proxy – to inform decisions. Likewise, it is important that those who will be impacted by the project – students, teachers, administrators, and the community – be kept apprised of progress and be given opportunities to respond, too.

Architects and engineers are encouraged to collaborate with a professional educational planner to introduce broad concepts to inform the process. These might include new methods for instruction and delivery, educational best practices, case studies and examples from further afield, or any number of things intended to refocus efforts and help ensure that the conversation is moving the District forward rather than defaulting to the past. Doing so is also intended to help ensure that the design of the facility – new or renovated – is fully leveraged. Architecture is a powerful medium, and the opportunity to leverage it to enhance teaching and learning is too often missed.

The planning process takes place between the District's annual facility updates. Meetings with the Steering Committee should be scheduled at their convenience within the mutually established time frame. Meetings with the community should be scheduled in the evenings on weekdays to allow greatest participation.

It is important to allow for some means for keeping the Board apprised of progress and direction. That could mean including a member of the Board on the steering committee whose responsibility it is to keep the rest of the Board up to date or it could mean some sort of periodic but regular report to the Board in whole or in part.

Ultimately, the goal of this phase is to clearly establish expectations, ensure that the community is apprised, and establish a basis for design. As noted previously, the district recommends collaborating with a professional planner to help ensure that this process – and ultimately the project – is leveraged to its fullest.

3. Design Process Guidelines

The particulars of this phase will vary from project to project and should be tailored accordingly. Depending on the scope and scale of the project, it might include the following meetings with the following groups:

1. **Steering Committee.** The design professional will be guided by a small group from the District comprised of facilities, central office, and building-level leaders. The steering committee will be responsible for either providing required information or access to key individuals who can.

    a. **Steering Committee meeting 1.** The purpose of this meeting is for the District to define for the design professional the project parameters and convey related baseline data including, but not limited to, demographic analysis; capacity requirements; existing conditions including, but not limited to, site and geotechnical explorations, hazardous materials identification, structural investigations, utilities determinations, and technology requirements; the district's objectives for the project; alignment with the district's mission, vision, and strategic plan; and budget and schedule requirements. Expectations for deliverables should be confirmed. A calendar of milestones and meeting dates should be determined.

    b. **Steering Committee meeting 2.** After establishing the parameters and confirming expectations for deliverables, data must be collected and synthesized. This is necessarily an iterative process that will involve meetings with the steering committee to glean information about everything from the specifics of the curriculum as a whole to the particulars of individual programs as well as the special needs of the community. To the extent that the steering committee cannot provide the appropriate level of detail required, they will designate a proxy with whom the design professional should meet to obtain it.

    It is critical that enough information be gathered that a narrative can be written and a plan can be drafted of the project that will respond effectively to the needs of the end-users now and in the future. For each program/space identified by the steering committee and listed on the room data spreadsheet, a separate datasheet should be created to collect information related, but not limited to, storage needs, power and data requirements, casework, furniture, fixtures, equipment, and special considerations. The inclusion of design specialists in these meetings to ask specific questions related to a particular discipline is required, but care must be taken not to allow the discussion of a particular piece of equipment, for instance, to overshadow conversations about other critical matters. These datasheets, which should be approved by the steering committee after input is complete, will serve as the basis for design.

    The input meetings should lead directly to the creation of the program narrative, program data matrix, and room data sheets that will form the basis for design. The Steering Committee must approve each of these prior to beginning design.

    c. **Steering Committee meeting 3.** After the program narrative and room data matrix have been completed and formally approved, the design professional

shall synthesize the information in preparation for a design charrette with the Steering Committee and other key stakeholders whom the committee may select. Prior to the meeting the design professional shall also have reviewed the baseline information provided by the District, studied applicable codes and regulations, investigated the site, met with consulting engineers to discuss possible systems, and be prepared to share an overview of the design-related issues discussed by the design team.

The purpose of this initial charrette is to put relative form to the programs and spaces that have been identified and begin the process of amassing conceptual designs. Programming and adjacency diagrams should be developed and confirmed.

Subsequent design charrettes should occur at appropriate intervals in between which the design team should take the information created, study it, and develop it further. This should involve collaboration among the entire design team after which proposed solutions should be vetted with the Steering Committee and their appointees.

The design charrettes should lead directly to the creation of one of more conceptual site plans and conceptual floor plans.

d. **Steering Committee meeting 4.** The Steering Committee shall select and formally approve a conceptual site plan and conceptual floor plan.

Upon receiving a clear directive, the design professional shall organize and facilitate charrettes aimed at further refining the site and floor plans in conjunction with building elevations. Subsequent design charrettes should occur at appropriate intervals in between which the design team should take the information created, study it, and develop it further. This should involve collaboration among the entire design team after which proposed solutions should be vetted with the Steering Committee and their appointees.

The design charrettes should lead directly to the creation of one of more concepts for building elevations for the select plan. They should also result in the development of a conceptual interiors package.

f. **Steering Committee meeting 5.** The Steering Committee shall select and formally approve an elevation concept and confirm the interiors package. Upon receiving a clear directive, the design professional shall refine the elevations and continue along several parallel paths to complete conceptual design including, but not limited to, drafting a project narrative (not to be confused with the program narrative drafter previously) and creating an energy model to be analyzed in conjunction with specific energy targets. Color perspective renderings shall also be completed.

g. **Steering Committee meeting 6.** Prior to completing the planning and conceptual design phase and issuing the project for approval, the Steering Committee must review and approve the project narrative, energy analysis, and color renderings.

3. Design Process Guidelines

Upon receiving a clear directive, the design professional shall prepare a package that includes all of the deliverables as indicated below in 'Conceptual Phase Documents for Board Approval'.

A meeting with the community should follow.

2. **Community presentation.** Prior to submitting the conceptual design to the Board for approval, the District staff and design professional shall meet with the community to outline the project and convey related baseline data including, but not limited to, demographics, capacity, existing conditions, District objectives for the project, and budget and schedule requirements along with the conceptual floor plans, elevations, and finish selections that have been developed.

3. **Conceptual Design Documents for Board Approval.** The design professional shall work with the members of the Steering Committee to explore issues, refine options, and establish priorities. When establishing priorities it can be helpful to group them as "must-do," "should-do," and "would-do" since it is often the case that the needs and desires stress the schedule and/or budget.

3. Design Process Guidelines

Regarding the project scope, it should be defined with as much detail as possible in order to clarify expectations. However, the tendency to hone in too quickly should be avoided since this will limit the number of issues identified, considerations given, and options available. As with any creative process, the planning process must be allowed to diverge before eventually converging upon an idea. And while the design process should begin with the end in mind, the planning phases should not be so constrained.

The goal of the planning and conceptual design phase is to produce narratives and illustrations that define a project in sufficient detail that the scope of the project is easily understood, budgets and schedules can be confirmed, approvals can be granted with justification, and, ultimately, production of contract documents can advance seamlessly.

Required deliverables for the conceptual design documents include, but are not limited to, the following:

a. **Capacity calculations.** Refer to the section on 'Capacity Calculations' for the formulas to be used to determine the design capacity.

b. **Program narrative.** Fully describe the educational program being supported and the appropriate design responses. At a minimum, include information about general instruction and delivery, special education requirements, elective and auxiliary programs, athletic programs, administration, and food services. Include information drawn from the section on 'Principles of School Planning.' Include information about site and the community within which the facility will be set. Include aspects that make the program, population, site, and/or community unique and describe ways in which the facility can reinforce, capitalize upon, or otherwise highlight these features in support of the educational program. The narrative should attempt to tie as many aspects of the program to the District's mission, vision, and strategic plan.

c. **Program data matrix.** List the types of, quantities, and sizes of the spaces to be included in the design along with estimates for unprogrammed spaces and infrastructure in order to determine the SF of the facility. An example spreadsheet is provided below.

d. **Room data sheets.** List separately the program and user requirements for each of the programs/spaces identified by the Steering Committee and/or listed on the program data matrix. Document information related to, but not limited to, storage needs, power and data requirements, casework, furniture, fixtures, equipment, and special considerations. Document any local, state, or federal regulatory requirements that may apply to the program or space. Note the relationship between the program/space and any others that may be relevant (e.g. the kitchen is related to the cafeteria, serving area, receiving area, garbage removal, etc.). Involve design specialists, equipment representatives, and industry partners as necessary to obtain sufficient detail.

e. **Programming and adjacency diagrams.** Develop diagrams that illustrate and make plain the relative size of spaces and their relationships to one another.

3. Design Process Guidelines

f. **Project narrative.** Fully describe the building program including, but not limited to:

i. **codes and regulations** – identification of any having jurisdiction
ii. **site** – requirements for access, circulation, parking, utilities, landscaping, wetlands mitigation, and lighting;
iii. **foundation and substructure** – performance requirements for foundations and excavations; subsurface conditions; special problems; and foundation systems;
iv. **superstructure** – performance requirements floor, roof, stairs, and other structural elements; building and structural modules to be used, identification of systems for floors, roofs, stairs, and the superstructure; and sizing of key elements;
v. **exterior closure** – restrictions on materials; performance requirements, for walls, doors, windows; wall systems; insulation; water-proofing; envelope elements; and any key details;
vi. **roof** – performance requirements; type; pitch; systems; and materials;
vii. **interior construction** – performance requirements for partitions, finishes, and specialties; finishes; wall/partition types; floors; and ceilings;
viii. **vertical circulation and conveying systems** – performance requirements for conveying systems; justification for need; and required sizing of means of egress and exits;
ix. **mechanical systems** – performance requirements for plumbing, HVAC, and fire protection; identification of typical and special systems; space allocations for mechanical areas; approach to controlling passive solar heat gain; and distribution concepts for service, plumbing, and mechanical systems;
x. **electrical systems** – performance requirements for lighting and electrical systems; identification of typical and special systems; lighting quality and character; approach to day-lighting; approach to controlling glare; space allocations for electrical systems, distribution concepts for service and power; and
xi. **equipment** – performance requirements and identification of typical and special equipment.

g. **Site plan diagrams.** Illustrate plans for access, circulation, parking, utilities, landscaping, wetlands mitigation, lighting, and other considerations relative to the site

h. **Conceptual floor plans.** Illustrate floor plans at each level at 1/16”=1’-0”. Illustrate plans for typical classroom and office ¼” = 1’-0”. Illustrate plans for special spaces at ¼”=1’-0”.

i. **Conceptual elevations (interior and exterior).** Illustrate exterior elevations on all sides at 1/16”=1’-0”. Clearly identify materials. Illustrate interior elevations at ¼”=1’-0” at key places within the building to show design intent. Clearly identify materials.

j. **Conceptual interiors package.** Develop a color palette. Develop a materials palette. Develop a preliminary finish board showing options for interior and exterior finishes including, but not limited to, floors, interior walls, exterior walls, roofs, and glazing.

k. **Energy model.** Establish an energy budget in kBtu/SF/year. Construct an energy model and perform a preliminary analysis.

l. **Renderings.** Illustrate the project using at least one exterior perspective rendering of the front of the facility and two interior perspective renderings. Regarding the interior renderings, illustrate an "impact" space like the lobby, media center, or community room along with a typical classroom. Renderings should be in color.

When developing the architectural floor plans and elevations, the architect is required to utilize BIM technology. Refer to the section on 'BIM' for further clarification.

production and construction phase

Upon approval of conceptual design by the Board, a project will move into the design production and construction phase. The District utilizes two methods for project delivery – Design-Bid-Build and Design-Build.

Design-Bid-Build

The District will select a pre-approved design production team. The design production team shall produce contract documents in accordance with the requirements set forth in the District's Architect's Agreement. Upon completion of the construction documents, the project will be bid by District staff. The lowest, responsive contractor will be recommended to the Board for approval. Once approved, the District will execute the District's Contractor's Agreement with the contractor and begin construction. This method will typical be used on new facilities.

Design-Build

The District will select a pre-approved design-build team. The District will negotiate an agreement with the design-build team for Board approval. Once approved, the District will execute the District's Design-Build Agreement with the design-build team and begin design/construction. This method will typical be used on additions and renovations on existing sites.

Construction Management At-Risk

The District will select a general contractor to serve as a Construction Manager At-Risk (CMAR) through a RFP process with the express purpose of providing a guaranteed maximum price (GMP) based on design documents. The District will negotiate an agreement with the CMAR for Board approval.

4. Facility Programming

general

The best schools aspire to respond to the context within which they are set, reflect their history, look to the future, reinforce the integral nature of their communities, support instruction and delivery, motivate teaching and learning, and capitalize on the boundless possibilities of an educated citizenry. The goal of capital improvements is nothing less than achieving this aspiration.

The making of significant public places and the anticipated experiences of those who use them are inextricably linked. This is especially true for schools where the primary focus is on academic achievement through engagement of students in the learning process. Schools must necessarily be conceived in terms of what is known to be true about today's learners and the skills and knowledge they must acquire to be successful, contributing citizens. The nature of learning is changing, and schools must respond.

Architecture has a role to play in supporting and promoting education, and it is the responsibility of school planners, architects, engineers, and builders to ensure that it is leveraged to do so with each and every project. These *Educational Specifications* advocate an inclusive process of educational facility planning that reduces the likelihood that new facilities will fall into the trap of "the ever continuing past." Typically led by a professional planner or uniquely skilled design consultant, educational facility planning begins by establishing both breadth and depth of understanding among project stakeholders regarding the many issues that influence contemporary planning of school projects.

As noted in 'Design Process Guidelines' this entails:

- extensive dialogue with the Steering Committee regarding project vision, pedagogy, emerging trends, best practices, and strategies for learning space design;
- critical analysis of these *Educational Specifications*;
- site tours of similar and notable projects;
- facilitation of processes to gain community input and support; and
- documentation of process and requirements.

Educational facility planning is most effectively accomplished within the overall context of the District's strategic plan. Planning of school projects should strive to "connect the dots" between the strategic objectives of the Board and the opportunities to advance the District's mission through thoughtfully conceived learning spaces.

Educational facility planning must also respond to the circumstances surrounding a particular project, and to that end this document is not prescriptive in nature. Rather, planners and architects leading the process are encouraged to draw upon the resources necessary to clearly understand the salient issues unique to each project along with the myriad possibilities for addressing them creatively, effectively, and efficiently. When renovating a portion of a facility that will include resources for special education, for instance, experts with knowledge of the federal, state, and local requirements for special education must be consulted. Likewise, when designing a new middle school experts on best-practices in middle school education must be consulted to help understand the opportunities and challenges faced by middle school administrators, teachers, students, and parents.

4. Facility Programming

A generic program data matrix is provided as part of these *Educational Specifications* for reference, but planners and designers working for the district are reminded not to default to it. The spreadsheet is intended as a tool for summarizing the results of the process, not a place from which to begin it. The design professional leading the process are encouraged to default to dialogue and narrative for learning about and documenting the basis for design so that connections can be made at a deeper level before being simplified and quantified in the spreadsheet.

sc office of school facilities' guidelines

Guidance offered by these *Educational Specifications* should be considered in conjunction with the 2013 South Carolina School Facilities Planning and Construction Guide prepared by the South Carolina Department of Education's Office of School Facilities (OSF).

The OSF Guide was carefully developed within the framework of architecture supporting education. These *Educational Specifications* are not meant to replace facility requirements established by OSF. Instead they should be used as a supplement to inform planners and designers and inspire specific conversations that lead to more instructionally-responsive, flexible, and sustainable facilities in the District. The requirements of the OSF, however, take precedence and are included here for your convenience.

2013 SOUTH CAROLINA SCHOOL FACILITIES PLANNING AND CONSTRUCTION GUIDE

Prepared by

OFFICE OF SCHOOL FACILITIES

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DIVISION OF OPERATIONS AND SUPPORT

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Effective February 1, 2013

SOUTH CAROLINA DEPARTMENT OF EDUCATION

Mick Zais, Ph.D.

State Superintendent of Education

An Equal Opportunity Agency

4. Facility Programming

These regulations are updated on an annual basis. Public comments are welcomed. Your submittal must be written. It will be directed to the appropriate subcommittee for consideration. All submittals need to be received no later than March of the year to be considered by both subcommittee and the South Carolina Public School Facilities Committee for inclusion in the South Carolina School Facilities Planning and Construction Guide of the following year. Any entries beyond this deadline may not be timely for proper review for that year and will be deferred to the next year.

Please submit comments in written form either by mail or e-mail addressed to:

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DIVISION 1

GENERAL REQUIREMENTS

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SECTION 102 AUTHORITY

102.1 South Carolina Code Ann. §59-23-210 (Supp. 2009) requires all construction, improvement and renovation of public school buildings and property to comply with the latest standards and specifications set forth in the South Carolina School Facilities Planning and Construction *Guide* and requires that plans and specifications receive approval before bidding.

102.2 South Carolina Code Ann. §59-23-220 (Supp. 2009) requires the State Superintendent of Education or the superintendent's designee inspect all public school buildings before occupancy.

102.3 Section 6-9-110, Code of Laws of South Carolina, 1976, exempts school district facilities, reviewed and approved by the State Department of Education, from county, municipal or other local ordinances or regulations which require the purchase or acquisition of a permit, license, or other device utilized to enforce a building standard. However, it does not exempt the district from zoning ordinances.

SECTION 103 ACRONYMS AND DEFINITIONS

ADA American with Disabilities Act

ADAAG American with Disabilities Act Accessibility Guidelines

A/E The Design Professional of record for a given project

AHERA Asbestos Hazard Emergency Response Act

AIA American Institute of Architects

ANSI American National Standards Institute, Incorporated

ASCE American Society of Civil Engineers

ASHRAE American Society of Heating, Refrigeration & Air Conditioning

ASME American Society of Mechanical Engineers

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Building Codes are a set of rules that specify the minimum acceptable level of safety for constructed objects such as building and nonbuilding structures as well as other manmade improvements. The applicable building codes for school construction in South Carolina are adopted from national consensus standards and are listed in Section 108 Basic Codes and Standards.

CATE Career and Technology Education

CEFPI Council of Educational Facility Planners International

Charter Schools are public schools and must comply with the requirements of this *Guide* including, but not limited to, plan review, inspection of renovation and construction and approval of occupancy.

Code See Building Codes

Construction Documents consists of the final drawings, specifications and bidding documents. See Section 204 Construction Document Submittal.

Construction is the means of the creation of something new, rather than repair or improvement of something existing.

CM/PM Construction Management/Program Management

Design Development Phase is the preparation of detailed preliminary drawings along with supporting data. See Section 203 Design Development Submittal.

District Delegated authorities of the applicable school district

FEMA Federal Emergency Management Agency

Final Completion is the date when the Design Professional declares that all work has been completed, all deficiencies corrected, and everything is acceptable in accordance with the contract documents.

FHBM Flood Hazard Boundary Maps

FIRM Flood Insurance Rate Maps

HVAC Heating, ventilation and air conditioning system or equipment

IBC International Building Code

ICC International Code Council

ICCPC International Code Council Performance Code

ICCGBC International Code Council Green Building Code

IEBC International Existing Building Code

IECC International Energy Conservation Code

IESNA Illuminating Engineering Society of North America

IFC International Fire Code

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IFGC International Fuel Gas Code

IMC International Mechanical Code

IPC International Plumbing Code

IPMC International Property Maintenance Code

IPSDC International Private Sewage Disposal Code

IRC International Residential Code for One and Two Family Dwellings

IT Information Technology

IUWIC International Wildland – Urban Interface Code

IZC International Zoning Code

LEED Leadership in Energy and Environmental Design (LEED) /Other High Performance Standard Certification

MSL Mean Sea Level

NEC National Electrical Code, NFPA 70

NFIP National Flood Insurance Program

NFPA National Fire Protection Association

NGVD National Geodetic Vertical Datum

OSF Office of School Facilities, South Carolina Department of Education

OSHA Occupational Safety and Health Administration

Renovation is the means of the repair or improvement of something already existing (S.C. Attorney General Opinions, 1954 and 1968).

RFI Request for information

SCDHEC South Carolina Department of Health and Environmental Control

SCDNR South Carolina Department of Natural Resources

SCDOT South Carolina Department of Transportation

SCDSS South Carolina Department of Social Services

Schematic Design Phase is a study by the Design Professional of the project requirements, followed by the preparation of schematic design drawings with supporting data as outlined herein.

SCLLR Labor, Licensing, and Regulation

SMACNA Sheet Metal and Air Conditioning Contractors' National Association

Substantial Completion is the date all work or some designated portion, thereof, is certified by the Design Professional as being sufficiently complete, in accordance with the contract documents, so that people may safely occupy the workspace or a designated portion, thereof, for the use for which it is intended.

UL Underwriters Laboratories, Incorporated

SECTION 104 SCOPE OF OSF RESPONSIBILITY

104.1 The following are included within the requirements of this regulation and, therefore, are under the jurisdiction of the OSF regardless of the source of funding for the project.

104.1.1 Site inspections and approval prior to acquisition

104.1.2 All new structures, and additions and/or renovations or alterations to existing structures, in connection with the public education program in South Carolina, including student-related as well as non-student-related facilities

104.1.3 Existing school buildings once vacated and being placed back in service

104.1.4 Any existing building to be converted to an educational occupancy

104.1.5 Adjunct work related to the following facilities whether included as a part of an overall construction contract or awarded as a separate contract, unless otherwise waived by OSF

104.1.6 Site work and associated construction, including grading, paving, storm drainage, utilities, athletic facilities, stadiums and bleachers, press boxes, playing field lighting, and concession stands

104.1.7 Water supply and sewage disposal systems

104.1.8 Fixed equipment where plumbing, mechanical, or electrical systems, and/or the building structure must be modified such as security systems, technology systems and kitchen or science equipment.

104.1.9 Energy conservation equipment installations under energy savings contract when mechanical, electrical, and/or structural modifications are involved

104.1.10 Roofing projects when the membrane material is changed

104.2 The following are not included within the requirements of this regulation.

104.2.1 Carpet, curtains, furniture and portable equipment (such as for classroom and library furnishings, vocational shop equipment, etc.) not provided as a part of a construction or renovation project are excluded from the requirements of this regulation. The District is responsible for ensuring that all carpet, curtains, furniture and portable equipment meet the building code requirements for smoke development, flammability and flame spread for the location. The OSF is available to answer any questions the District or their vendors may have to determine material suitability.

104.2.2 The design and construction of "relocatable" classroom units addressed in the *South Carolina Minimum Specifications Guide for Relocatable Classrooms*.

104.3 The OSF will review for compliance with applicable building codes and regulatory or statutory requirements. Review of building code and regulatory or statutory requirements by the OSF must not relieve the design professional representing the district from code omissions as interpreted by the OSF.

104.3.1 Plan reviews may be done on a personal basis with the design professional, by request. School district representatives must be invited to attend such meetings.

104.3.2 After completing the review of design development drawings, written authorization will be given by the OSF to the District and copied to the design professional to proceed into the construction documents phase. The design professional assumes responsibility for any changes required if design proceeds without such authorization.

SECTION 105 SCOPE OF DISTRICT RESPONSIBILITY

105.1 The District is responsible for the procurement of design, construction and inspection services in accordance with its internal regulations

105.2 The District is responsible for the review and approval of program, budget, schedule, plans and specifications to ensure the project meets the design and programmatic intent established by the District.

105.3 The District is responsible for the coordination of work contracted directly with district such as furniture, road improvements, utility relocation, IT, telephone and security systems. All work contracted by the District must meet the requirements established by the *Guide* and may require review and approval by the OSF.

105.4 The District is responsible for the application and cost of permits as required by State and Federal laws and regulations. Refer to Section 109 Permits for additional guidance.

105.5 The District is responsible for ensuring that all asbestos and hazardous material testing is performed and abatement is completed prior to the start of any work.

105.6 The District is responsible for establishing requirements for record documents, operation and maintenance manuals and training at the completion of a project and ensuring that the design professional includes those requirements in the contract documents.

105.7 The District is responsible for all operational plans to be utilized such as fire safety and evacuation, full and modified lockdown and shelter in place. The plans should cover both hazardous weather as well as situations concerning safety and security.

SECTION 106 SCOPE OF DESIGN PROFESSIONAL RESPONSIBILITY

106.1 Design Professionals: There must be a design professional whose responsibility is to coordinate all design requirements throughout the entire construction project. This professional must be an architect and/or engineer registered to practice in South Carolina and must be designated as the prime contact for the OSF.

106.1.1 In certain types of projects, the principal design professional may be an engineer rather than an architect. For such projects, within the bounds of this *Guide*, where the term "architect" is used, it may refer instead to the principal design professional for the project.

106.1.2 The Design Professional must coordinate requirements for record documents, operation and maintenance manuals and training at the completion of a project for inclusion in the contract documents.

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106.2 Other Design Professionals: Where the scope of a project is not architectural or engineering in nature, the services of an Design Professional are not required and the basic services of other Design Professionals may be used. These professionals must be under direct contract to the district. The preceding applies to professionals, such as landscape architects, roofing consultants, and kitchen planners acting as independent practitioners whose credentials are recognized by the OSF.

106.3 Construction/Program Management (CM/PM): Districts may employ a CM/PM as their agent. Contracts vary widely with regard to CM/PM project responsibilities. Regardless of the defined contractual responsibilities, the CM/PM must be an architect or professional engineer registered in South Carolina or a South Carolina licensed general contractor (building classification) with a cost of work limitations not less than the construction cost of the project.

106.4 Incidental Work: By joint resolutions of the South Carolina Architectural Registration Board and the Engineering Examiners' Board, dated July 25, 1962, it is permissible for an architect to perform work in the field of engineering if it is incidental to his practice of architecture, if it is of a minor nature and if he is qualified to perform the work. Conversely, professional engineers may perform incidental work in the field of architecture under the same conditions.

106.5 Construction by a School District: A district may undertake small construction or renovation work using their own maintenance forces, or with vocational student or sub-contractor assistance. Note that under certain conditions licensure from the S.C. Contractors Licensing Board is required.

106.5.1 Drawings or a scope of work must be submitted and prior approval first obtained from the OSF.

106.5.2 Complete architectural and/or engineering services must be required unless otherwise waived by the OSF.

106.5.3 Third party inspections will be required for all work.

106.5.4 A district may engage in a contracting project up to $350,000 for general contracting and $125,000 for mechanical, plumbing, or electrical contracting, and $5,000 for asphalt paving contracting. The district must employ a certified party qualified in the classification of work that is to be performed (South Carolina Code Ann. § 40-11-230 and South Carolina Code Ann. § 40-11-360 {A}{8}) and submit the name of the party to the OSF for approval prior the start of construction. The certified party may be an employee of the District or contracted for the work.

106.5.5 The "cost of the work" must be determined by the cost of all materials, labor, subcontracts, and any other direct expenses. This estimated cost may be determined by a detailed estimate prepared by the district or may be estimated by the OSF based on current square foot cost of school construction, adjusted for any anticipated savings.

106.6 When Professional Services Are Not Required: The services of professional and specialists mentioned in items preceding are not normally required in the following situations (exceptions are noted). It is incumbent upon the district to ascertain that the work complies with applicable codes when professional services are not used.

106.6.1 For very small projects or projects of sufficiently limited scope, if the OSF agrees that the scope of the project does not justify the use of such professionals or specialists mentioned above. In such cases, the district must submit prior written request for waiver; use Form F1 "Request for Waiver from Use of Professional Services" in Division 9 of this *Guide*.

106.6.2 For minor renovation or alteration work where building codes, laws, or regulations are not involved, or for work that is cosmetic in nature (painting, etc.), or for work which is of a routine maintenance nature.

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106.6.3 Reroofing projects when no weight is added, the drainage does not change and the roofing membrane remains essentially the same as the existing roof.

106.6.4 Professional services may not be required for demolition projects. However, surveys for hazardous materials are required before demolition and those surveys or mitigation may require professional services. Please contact the OSF if clarification is required.

106.6.5 For locker installations, the vendor must submit drawings and specifications to the OSF for approval prior to installation.

106.6.6 For auditorium seating or folding gymnasium seating installations, the successful bidder must submit drawings and specifications to the OSF for prior approval, along with certification by the manufacturer that all applicable code requirements have been met.

106.6.7 For prefabricated walks and canopies, or prefabricated spectator bleachers for outdoor athletic facilities, the successful bidder must submit drawings and specifications to the OSF for prior approval. Furthermore, a structural engineer registered to practice in South Carolina must be retained by the successful bidder to approve and stamp the drawings and specifications and to certify by letter that all applicable code requirements have been met. The engineer may be in the employ of the manufacturer of the units if he meets the above registration requirement.

SECTION 107 INSPECTIONS

107.1 Required inspections must be performed by inspectors approved by the OSF.

107.2 The scope of both Chapter 1 and Chapter 17 inspections must be determined by the design professional team in conjunction with the district and the OSF.

107.3 The Inspector is responsible for inspecting work for compliance with the code as represented on the design documents.

107.4 The Inspector must advise the owner, design professional and the contractor of all code related deficiencies.

107.5 The Inspector must submit periodic deficiency logs on a schedule specified by the OSF.

107.6 The OSF, as the Authority Having Jurisdiction, must make the final determination of any code interpretation.

SECTION 108 BASIC CODES AND STANDARDS

108.1 In accordance with SC Code Ann §§ 1-34-10 thru 70, the OSF has adopted the following codes with all SC modifications as adopted by the SC Building Codes Council:

108.1.1 International Building Code (IBC), 2006 Edition,

108.1.2 International Existing Building Code (IEBC), 2006 Edition,

108.1.3 International Fire Code (IFC), 2006 Edition,

108.1.4 International Energy Conservation Code (IECC), 2009 Edition,

108.1.5 International Fuel Gas Code (IFGC), 2006 Edition,

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108.1.6 International Mechanical Code (IMC), 2006 Edition,

108.1.7 International Plumbing Code (IPC), 2006 Edition, with the following insertions:
107.1.7.1 Section 305.6.1, insert "24" and insert "24"
107.1.7.2 Section 904.1, insert "8"

108.1.8 International Private Sewage Disposal Code (IPSDC), 2006 Edition,

108.1.9 International Property Maintenance Code (IPMC), 2006 Edition,

108.1.10 International Residential Code for One and Two Family Dwellings (IRC), 2006 Edition, with the following insertions:
107.1.10.1 P2603.6.1, insert "12" and insert "24"

108.1.11 International Wildland – Urban Interface Code (IUWIC), 2006 Edition, Note: The IUWIC does not supersede existing statutory requirements.

108.1.12 National Electrical Code (NEC) [NFPA-70], 2008 Edition

108.1.13 National Electrical Safety Code, ANSI-C2-2007 Edition

108.1.14 ASCE 7—2005

108.1.15 ASHRAE 62, as referenced by ICC Codes

108.1.16 ASHRAE 90.1, as referenced by ICC Codes

108.1.17 Latest edition of the American National Standards Institute, Inc. (ANSI) document A117.1, Accessible and Useable Buildings and Facilities. Note that this standard is the standard adopted by the South Carolina Accessibility Act but this requirement does not relieve the District or the design professional from the Federal Statutory requirements that design and construction comply with the Americans With Disabilities Act Accessibility Guidelines for Buildings and Facilities. See http://www.access-board.gov/ada/

108.1.18 State Fire Marshal rules, regulations, and policies. See http://www.scfiremarshal.llronline.com/EngServices/index.asp?file=AdoptedStandards.htm

108.1.19 South Carolina Elevator, Code, & Regulations.1: See http://www.llronline.com/elevators/index.asp?file=laws.htm

108.1.20 The SC Elevator code references the American Society of Mechanical Engineers Safety Code for Elevators, Dumbwaiters, Escalators, and Moving Walks, and supplements thereto, ASME A17.1.

108.1.21 International Code Council Performance Code (ICCPC), 2006 Edition, upon Director of OSF written approval.

108.1.22 Governors Executive Order No. 82-19 (April 1982) – State of SC Building Standards in Floodplain Areas and compliance with the criteria in Title 44, Code of Federal Regulations, Parts 60.3 and 60.5. See http://www.gpoaccess.gov/cfr/index.html . Copies of these Parts are available from the State Coordinator's Office for the National Flood Insurance Program (NFIP).

108.1.23 The South Carolina Modular Buildings Construction Act S.C. Code § 23-43-10 et. Seq.

108.1.24 See Section 113 for School Bus Safety requirements.

108.1.25 See Section 113 for reference to OSHA standards

108.1.26 See Section 113 for reference to DOT standards

108.2 The adopted codes and standards in effect at the time of the initial submittal (design development or schematic), must establish code requirements for the remainder of the project.

108.3 Alternative Means and Methods: The OSF has the authority to accept alternative methods of compliance within the intent of these regulations, after finding that the materials and method of work offered is for the purpose intended, at least the equivalent of that prescribed in these regulations in quality, strength, effectiveness, fire resistance, durability, and safety. The OSF must require sufficient evidence or proof be submitted to substantiate any claim that may be made regarding use of alternative. All requests for acceptance must be supported by and submitted by a South Carolina registered design professional.

108.4 Resolutions of Conflicts

108.4.1 Where state statutes are at variance with the adopted codes or standards or other provisions of this document and this regulation is silent, the most stringent requirements must govern. The Design Professional must notify the OSF of any such conflicts as soon as they become known.

108.4.2 Where this document is specific and is at variance with a code or standard referenced herein, this document must govern whether more or less stringent.

SECTION 109 PERMITS

109.1 The design professionals must be responsible for obtaining all design-related permits and approvals. Status of permits and approvals must be submitted to the OSF along with final review documents.

109.2 The school district must comply with local zoning ordinances.

109.3 The contractor is not required to purchase a building permit from the local building official for general construction, as district projects are exempt from this requirement by S.C. Code Ann. § 6-9-110 (1990).

109.4 Permits and approvals required by South Carolina state laws and regulations include, but are not limited to, those listed in the schedule below. Permits and approvals required by Federal laws and regulations have not been included in this schedule; however, the school district must comply with requirements of federal agencies (e.g., EPA, Corps of Engineers), whenever required by law.

4. Facility Programming

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DESIGN AND CONSTRUCTION RELATED PERMITS AND APPROVALS

The following list is not all-inclusive of every, permit and standards applicable to each project and not all projects will require all of the permits listed below. District and A/E's must determine applicable permits for each project..

Type of Development	SC Law or Reg.	Where to Obtain Permit/Approval	Status
Air pollutant discharge	48-1-100, R61-62.1	SCDHEC - Air Quality Control	
Asbestos abatement	R61-86.1	SCDHEC - Air Quality Control	
Building construction, Zoning	6-7-830, 6-9-110	Local Authority	
Community residential care facilities	R61-84	SCDHEC - Health Facilities Construction	
Construction in critical coastal areas	48-39-10, 130, 190	SCDHEC - Ocean & Coastal Res. Mgmt.	
Construction in navigable waters	49-1-16	SCDHEC - Water Pollution Control	
Dams and reservoirs	49-11-200, R72-1, 2, 3	SCDHEC - Water Pollution Control	
Demolition of Real Property	R61-86.1	SCDHEC - Air Quality Control	
Design Review Board (BARs, SC Dept Archives & History, etc.)	Various local	Various local	
Early Childhood Development	R114-500	SCDSS – Child Care Licensing	
Elevators	41-16-10, R71-5000-5900	SCLLR	
Fire Department (Local)	Various local & State	Servicing Fire Department	
Fire, Building Automatic Sprinkler System and underground supply	40-10-260, R71-8300.4	State Fire Marshal	
Floodplains, construction in	Exec. Order 82-19	SCDNR	
Food service including concession and temporary	R61-25	SCDHEC – State and Local Office	
Hazardous waste management, Storage and disposal	44-56-20,60, R. 61-79	SCDHEC, Solid and Hazardous Waste	
Historical building rehabilitation	R12-125, 126	Archives and History, Local Authority	
Road encroachment, local road	57-7-60	Local City or County Authority	

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DESIGN AND CONSTRUCTION RELATED PERMITS AND APPROVALS

The following list is not all-inclusive of every, permit and standards applicable to each project and not all projects will require all of the permits listed below. District and A/E's must determine applicable permits for each project..

Type of Development	SC Law or Reg.	Where to Obtain Permit/Approval	Status
Road encroachment, state road	57-5-1080	SCDOT Traffic Engineering Office	
Sanitary sewer; grease trap	Various local	Local City or County Wastewater Authority	
Sanitary sewer; treatment & disposal	R61-56, 57	SCDHEC – Domestic Wastewater	
Septic tank system	R. 61-56	SCDHEC, Wastewater Management, Division of Environmental Health	
Storm water discharge, erosion and sediment control	R61-9; R72-100-108	SCDHEC – Water Pollution Control; State Engineer; Local Authority	
Swimming areas, natural public	R61-50	SCDHEC – Water Supply Construction	
Swimming pools, public	R61-51	SCDHEC – Water Supply Construction	
Underground storage tanks	R61-92	SCDHEC – Groundwater Protection	
Waste discharge (sewage, industrial waste, etc.)	48-1-100, 110, R61-9	SCDHEC – Water Pollution Control	
Water supply, potable	44-55-40, R61-57, 58	SCDHEC – Water Supply Construction	
Water supply, fire protection system	40-10-260, R71-8300.4	State Fire Marshal	
Wells, Underground injection	R61-71, 87	SCDHEC – Groundwater Protection	
Vocational facilities	Various	SCLLR Board of Cosmetology, SCLLR Board of Barber Examiners SCDHEC Food Service	
Zoning(Municipal, County or District)	Various	Local	

109.5 The "State of South Carolina Building Standards in Flood Plain Areas" requires compliance with the criteria set forth in Sections 60.3 and 60.5 of Title 44, Code of Federal Regulations available from the State Coordinator's NFIP. See also http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=4c3b8d3a9b324b28c83f066afc0f2425&tpl=/ecfrbrowse/Title44/44cfr60_main_02.tpl. Flood hazard areas are those identified by FEMA on FIRMs or FHBM that are subject to inundation by a 100-year flood.

109.5.1 All plans for new construction, substantial improvement and other development in a flood hazard area (floodplain) must be submitted to the responsible local authority to obtain a permit to develop in a flood hazard area.

109.5.2 A permit must be obtained and the OSF must be provided with a permit copy prior to advertising a project for bids.

SECTION 110 GENERAL BUILDING, MATERIAL AND SYSTEM REQUIREMENTS

110.1 All components used in an assembly that is required to be rated must be tested and certified to meet rating required as outlined in the IBC. Testing and certification must be performed by an accepted testing lab (UL, Warnock Hersey, etc.). If a component that has not been tested is to be used, then the fire resistance of said component must be established by alternative methods of determining fire resistance as allowed in Chapter 1 and 7 of the IBC and verified by the design professional. Documentation must be present on site stating method for determining fire resistance and data showing compliance with required fire resistance rating. In an instance where tested concrete block or any other component of a rated assembly is required in a tested design assembly, components meeting the requirements of the current building code for the required fire resistance rating must be accepted as equivalent to the components tested by a testing lab.

110.2 Due to the numerous problems associated with the use of fire retardant treated wood in construction due to exposure to moisture and deterioration of fasteners or attached materials, the use of fire retardant treated wood will not be allowed.

110.3 Buildings that have been out of use for more than one year must be brought up to code as a new building before they are re-occupied.

110.4 When the use of a building changes the occupancy classification as defined in the building code, the building must be brought up to meet the code requirements of the new classification.

110.5 Alterations, repairs, additions, and rehabilitation to an existing building or structure must comply with the State Fire Marshal's Rules and Regulations and the IEBC as applicable. The term "building value" referred to in the State Fire Marshal's Rules and Regulations must be the insured value of the structure.

110.4 Construction Coordination Plan for Work Performed in and adjacent to an Occupied Building The design professional in conjunction with school district staff and, if applicable, the construction/program manager must develop a written and/or graphic plan to maintain separation and egress requirements of students, staff, and visitors while construction activities are in progress. The plan must address exit access, exit width, travel distance, building separation, site traffic circulation, etc.; as code would require for the occupied portion of the project for each phase of construction. This plan must be submitted no later than the design development phase. This approved plan must be made part of the construction documents.

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SECTION 111 BOARD OF APPEALS

111.1 In order to hear and decide appeals of orders, decisions or determinations made by the OSF relative to the application and interpretation of the codes referenced in this *Guide*, there must be established a board of appeals whose members must be appointed by and who must serve at the pleasure of the SC State Superintendent of Education. The OSF must establish procedures for conducting the board's business.

111.2 An application for appeal must be based on a claim that the true intent of the referenced codes has been incorrectly interpreted, the provisions of the referenced codes do not fully apply or an equally good or better form of construction is proposed. The board does not have the authority to waive requirements of the referenced codes or the *Guide*.

111.3 The board of appeals must consist of members who are qualified by experience and training to pass on matters pertaining to building construction and are not employees of the SC Department of Education or a school district.

SECTION 112 PROCUREMENT

112.1 Procurement of professional design services, construction and goods and services is the responsibility of each school district in accordance with their established procurement code. The OSF recognizes all procurement methods authorized and defined in South Carolina Code Ann. §11-35-2910 and §11-35-3005. If the district would propose a plan submittal and approval process that differs from the procedures in the *Guide*, the district must coordinate new procedures prior to and bidding.

112.2 **Pre-qualification:** Project delivery methodology may be subject to pre-qualification as prescribed by the district's procurement code.

112.3 The requirements of this *Guide*, while written primarily for the single contract method of design-bid-build construction must also apply to each contract of the multi-prime or fast track method except where otherwise waived by the OSF.

112.4 The scope and schedule for a guaranteed energy savings contract must be coordinated with the OSF prior to signing of a contract. Heating, ventilating, or air conditioning system modifications or replacements, replacement or modification of lighting and/or electrical systems, energy recovery systems, and/or measures that are affected by any applicable codes, must be submitted as complete drawings and specifications with a professional seal of an Design Professional licensed to practice in South Carolina to the OSF for approval prior to installation of those measures. Drawings are not required if the scope of work is defined, in writing, to the approval of the OSF. Third party inspections are required for all applicable work. The OSF notification, inspection and acceptance of the work will be as outlined in the *Guide*.

SECTION 113 OTHER RELATED STANDARDS

113.1 Building automatic sprinkler systems are to be submitted to the State Fire Marshal's Office for review and approval in accordance with the State Fire Marshal's Rules and Regulations.

113.2 Any project which requires asbestos or other hazardous material mitigation is subject to AHERA and SCDHEC regulation

113.3 Schools must be in compliance with OSHA Standards. For further information, contact SCLLR OSHA.

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113.4 In reference to school food services and facilities, SCDHEC has set forth its requirements in this regard in Regulation 61-25 entitled "Retail Food Establishments." The owner must contact the SCDHEC Division of Food Protection to obtain this regulation and to secure plan approval.

113.5 Standards relating to roadway access have been developed by SCDOT in accordance with Sections 57-3-110, 57-5-1080 and 57-5-1090 of the Code of Laws of South Carolina (1976 as amended through the 2006 Session of the General Assembly.) They can be found in the document titled *"2008 Access and Roadside Management Standards,"* available on the SCDOT website.

113.6 Standards and Guidelines concerning bus safety on school sites and planning bus parking lots have been developed by the Transportation Office of the SC Department of Education. They can be found in the document, *Planning for Bus Safety on School Sites and School Bus Parking Lots.* This document is available on the OSF web site.

SECTION 114 WAIVERS

114.1 Section 43-261, Code of Regulations provides that the State Board of Education may waive any regulation, which would impede the implementation of an approved District Strategic Plan or School Renewal Plan.

114.1.1 When a district's Strategic Plan is at variance with the requirements of the *Guide*, the district board or its designee must submit to the State Board of Education through the Office of School Facilities a detailed description of the programmatic variance to include the requirement(s) at issue and the physical facility requirements necessary, as well as, the educational requirement necessary to implement the district's Strategic Plan.

114.1.2 The State Board of Education cannot waive requirements in referenced codes listed in Section 108.

114.2 South Carolina Code Ann. §59-23-230 (Supp. 2009) authorizes the State Superintendent of Education to waive regulations relating to building square footage requirements for construction of a new public school.

SECTION 115 OTHER DESIGN RESOURCES

115.1 The OSF believes in enhancing safety and discouraging violence and crime by careful consideration in the design of sites and buildings. By applying principles of CPTED (Crime Prevention Through Environmental Design) and other design features to reduce or eliminate conflicts or hazardous conditions, a safe, functional and orderly environment can be established. The OSF endorses the concept that a safer environment can create a psychological advantage for positive behavior and for learning.

115.2 The OSF encourages school districts to follow the principles of LEED, Green Globes or other high performance standard certification in school construction. Design professionals can assist in determining the most advantageous principles and/or certification level.

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DIVISION 2

DESIGN AND CONSTRUCTION PHASE REQUIREMENTS

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204	Construction Document Submittal	2-2			

SECTION 202 SCHEMATIC PLAN SUBMITTAL

202.1 One set of schematic plans should be submitted for new facilities, major additions and major renovations. Schematic plan review is optional but is encouraged for large and complex projects.

202.2 Site plan to include the following to the extent information is available:

1. North arrow;
2. Building outline(s);
3. Property lines;
4. Adjacent roadways;
5. Easements;
6. Encroachments;
7. Setbacks;
8. Parking areas;
9. Playing fields;
10. Existing Contours;
11. Adjacent structures and distance;
12. Other items defining the site such as hazards, wetlands, wooded areas, etc.

202.3 Floorplans to include the following to the extent information is available:

1. Individual spaces with names indicating intended use;
2. Egress paths with anticipated exit capacities and travel distances;
3. Location of fire walls, occupancy separations, exit enclosures and horizontal exits.

202.4 Other information to be submitted:

1. Schematic Document Transmittal Form;
2. Form F3 with available information;
3. Form F6 with available information;
4. Any other information in narrative form describing program elements or design intent that will impact design solutions.

SECTION 203 DESIGN DEVELOPMENT SUBMITTAL

203.1 One set of design development plans must be submitted for all projects.

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203.2 Site plan at an appropriate scale to include the following:
1. North arrow;
2. Building(s);
3. Actual property lines and any assumed for code analysis purposes;
4. Adjacent roadways with full width right of way information;
5. Easements;
6. Encroachments;
7. Setbacks;
8. Parking areas;
9. Playing fields;
10. Traffic routing for pedestrians, bicycles, vehicles and busses;
11. Existing and proposed contours;
12. Adjacent structures and distance;
13. Utilities above and below ground including within road right of way;
14. Fire apparatus access;
15. Other items defining the site such as hazards, wetlands, wooded areas, etc.

203.3 Drawings at an appropriate scale to include the following:
1. Form F3 and list of applicable permits;
2. Overall plan at a smaller scale if scope of work cannot be shown entirely on one plan;
3. If the project is a renovation or addition to an existing building, provide information for the existing building that would affect code considerations such as allowable building area, egress, plumbing fixture counts, etc.
4. Floorplans indicating names for individual spaces and intended use, grade classification and occupancy load;
5. Developed life safety plans with walls, floor and roof rating delineated, egress routes with exit capacities, widths and travel distances noted and areas of refuge identified;
6. Location of fire walls, occupancy separations, exit enclosures, horizontal exits, smoke enclosures and rated shaft locations;
7. Elevations and building sections sufficient to describe the building;
8. Location of equipment and furnishings requiring utility connections or affecting egress.

203.4 Other information to be submitted:
1. Design Development Document Transmittal Form;
2. Form F6 with available information;
3. Response to previous comments if reviewed;
4. Any other information in narrative or diagrammatic form describing program elements or design intent.

SECTION 204 CONSTRUCTION DOCUMENT SUBMITTAL

204.1 One set of District approved construction document plans sealed in accordance with state statutes and regulations must be submitted for all projects. Incomplete plans or specifications will not be reviewed until all information has been received.

204.2 Construction document submittal must include:
1. Complete plans including all alternates;
2. Complete specifications including front end and all technical specifications;
3. ASHRAE 90.1 Envelope, HVAC and Lighting Compliance Sheets or Energy Model;
4. Lighting Calculations for each space;
5. Previously submitted information must be updated as required;
6. Status of all permits;
7. Written responses to previous review comments.

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204.3 Projects cannot be advertised for bid until plans and specifications have been approved by the OSF.

204.4 If advertising is delayed longer than six months after initial approval of construction documents by the OSF, the design professional must request in writing a new permission to advertise. The design professional must certify that no changes have been made to the original contract documents or must resubmit revised contract documents for review and approval.

SECTION 205 BID PHASE

205.1 One set of bid documents sealed in accordance with state statutes and regulations must be submitted to the OSF. Plans may be paper or in electronic format.

205.2 The design professional must submit a copy of all addenda to the OSF.

205.3 The design professional must submit a status of all outstanding permits and approvals to the OSF. Any changes to documents previously reviewed and approved for permitting purposes must be resubmitted to the approving authority and the status of the resubmittal noted to the OSF.

SECTION 206 CONSTRUCTION PHASE

206.1 Any change order or change directive not limited to time must be submitted to the OSF by the design professional with a code impact statement prior to execution of the change order or change directive. Any changes to documents previously reviewed and approved for permitting purposes must be resubmitted to the approving authority and the status of the resubmittal noted to the OSF. Change orders and change directives having a code impact or a change in permit status require the OSF approval before execution.

206.2 Any reply to a contractor's request for information that results in a corrective action, clarification or bulletin drawing not resulting in a change order but having a code impact must be submitted to the OSF prior to giving the contractor notice to proceed. Any changes to documents previously reviewed and approved for permitting purposes must be resubmitted to the approving authority and the status of the resubmittal noted to the OSF. Corrective action, clarification or bulletin drawings having a code impact or a change in permit status require the OSF approval prior to giving the contractor notice to proceed.

206.3 Inspections During Construction: The design professional must request an inspection by OSF prior to closing rated construction and other concealed areas for inspection of fire and smoke protection measures. Reference material to be available at the site must include:

1. Red lined drawings;
2. Change directives with supporting documentation;
3. Change Orders with supporting documentation;
4. RFI's with supporting documentation;
5. Bulletin drawings;
6. Reviewed submittals and shop drawings;
7. Current deficiency log with Chapter 1 and 17 inspection reports.

206.3.1 The design professional must verify all work is complete and ready for inspection prior to notifying the OSF.

206.3.2 The design professional must provide at least one weeks' prior notice for the inspection.

206.3.3 Phased inspections for large building can be scheduled. All work must be completed in each section before an inspection is made.

206.3.4 The design professional and contractor are required to attend the inspection. The design professional must invite representatives for the district, the contract inspector, the State Fire Marshal's office and the local fire department to attend the inspection.

206.4 Substantial Completion: The design professional must request an inspection by OSF when the contractor has reached substantial completion. Reference material to be available at the site must include:

1. Reference material to be available at the site must include:
2. Red lined drawings;
3. Change directives with supporting documentation;
4. Change Orders with supporting documentation;
5. RFI's with supporting documentation;
6. Bulletin drawings;
7. Reviewed submittals and shop drawings;
8. Current deficiency log with Chapter 1 and 17 inspection reports.

206.4.1 The design professional must verify the work is substantially complete and ready for inspection prior to notifying the OSF.

206.4.2 The following systems must be complete and all certification tests are complete prior to notifying the OSF.

1. Elevators;
2. Potable water;
3. Sanitary sewer;
4. Septic tank and drainfield system;
5. Fire Alarm;
6. Sprinkler Systems, Above Ground
7. Sprinkler Systems, Below Ground;
8. Other fire suppression systems

206.4.3 Inspections by specialty manufacturers for folding bleachers, communication systems, lightning protection systems, and other similar systems should be made before inspection is requested of the OSF and in all cases must be made before occupancy.

206.4.4 Inspections by SCDHEC for food service operations and SCDSS for early childhood areas should be made before inspection is requested of the OSF and in all cases must be made before occupancy.

206.4.5 The design professional should provide at least two weeks' prior notice for the inspection. The design professional must submit a completed and certified Form F4 at least 24 hours prior to the inspection.

206.4.6 Phased inspections for large building can be scheduled. All work must be completed in each section before an inspection is made. Inspection of whole building systems such as the fire alarm system must be made after the entire system is complete and tested and ready for inspection.

206.4.7 The design professional, contractor and a representative of the State Fire Marshal's office are required to attend the inspection. Representative(s) for the district, the contract inspector and the local fire department must be invited to attend the inspection.

206.4.8 The OSF will provide written record of the inspection and any deficiencies noted will be provided to the design professional. Significant deficiencies may require reinspection for approval.

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206.4.9 If multiple occupancy inspections are required due to incomplete work or excessive deficiencies, the OSF reserves the right to charge the design professional, the construction/program manager and/or the contractor for the cost of additional services, including time and mileage costs.

206.5 Certificate of Occupancy: The OSF must issue a written Certificate of Occupancy before occupancy of a building is permitted. Before the Certificate can be issued, the following conditions must be met.

206.5.1 The design professional has verified the work is substantially complete.

206.5.2 The OSF has inspected the work and concurs with the design professional that the work substantially complete and all life safety systems are operating as required by the code. Additionally, all areas of the building and site are free of any apparent life safety hazard and egress is not compromised.

206.5.3 The design professional, district and the OSF have agreed to a date for project closeout.

206.6 Project Closeout: All outstanding documentation must be submitted to the OSF at project closeout.

206.6.1 All required permits and approvals have been received and copies have been transmitted to the OSF.

206.6.2 The design professional has submitted the completed Form F5.

206.6.3 The design professional has submitted certification that any remaining minor deficiencies not requiring the OSF reinspection are complete.

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DIVISION 3

SITE ACQUISITION, DEVELOPMENT AND DISPOSAL

SECTION 301 INDEX OF SECTIONS

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303 School Sites	3-2	305 Land Disposal	3-4

SECTION 302 EVALUATION AND APPROVAL OF SITE ACQUISITION OR LEASE

302.1 All real property subject to acquisition by a district, whether unimproved land or land with existing improvements, for purchase or for lease, must first be approved by the OSF. All property must be acquired as per state statute.

302.2 Site inspections must be made of all property prior to acquisition. The design professional, if engaged by the District, should be present at the site inspection along with a representative of the District, a representative of SCDOT Traffic Engineering Division and all other interested parties.

302.3 Reference Form 2A for information to be reviewed during the site inspection. Provide the following information to the extent information is available:

1. Boundary map or plat indicating wetlands or other special areas of interest;
2. Aerial map showing roads adjacent to the proposed property;
3. Buildings plans if a structure is existing;

302.4 A written copy of the Form F2A along with the written report with recommendations from SCDOT will be returned to the District.

302.5 On a site where a septic tank system is planned, the District must receive preliminary approval from SCDHEC Division of Onsite Wastewater Management before site acquisition can be approved by the OSF.

302.6 If, after consideration of the recommendations by the OSF, SCDOT, and any other resources the District engages in order to exercise due diligence when evaluating the property, the District elects to proceed with the acquisition or lease, the District must submit the Form F2 with the following supporting documentation:

1. Boundary plat prepared by a registered land surveyor indicating acreage, bounds, adjoining roads, wetlands and flood plain information and other pertinent information;
2. Topographic information, if available;
3. Phase 1 Environmental Report;
4. Phase 2 Environmental Report, if required;
5. Geotechnical Report, if available;
6. SCDOT Site Traffic Report;
7. Form F2A OSF Site Evaluation.

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SECTION 303 SCHOOL SITES

303.1 The OSF encourages Districts to utilize the "Best Practice for Site Selection and Planning" available from the OSF when considering a site for acquisition or lease. Recommendations by CEFPI may also provide valuable information for the District to consider when evaluating property.

303.2 The school district is required by South Carolina Code Ann.§6-29-540 to comply with local zoning ordinances and to consult with the local planning commission as to the compatibility of the proposed school site with the comprehensive plan of the community. In the event the planning commission finds the proposal to be in conflict with the comprehensive plan, the commission must transmit its findings and the particulars of the nonconformity to the District. If the District determines to go forward with the project which conflicts with the comprehensive plan, the School Board must publicly state its intention to proceed and the reasons for the action. A copy of this finding must be sent to the local governing body, the local planning commission, and published as a public notice in a newspaper of general circulation in the community at least thirty days prior to awarding a contract or beginning construction.

303.3 Parking is determined by local zoning ordinance. In the absence of a local zoning ordinance, districts may use Table 801.2.1 of the IZC or other code as approved by the OSF.

303.4 Roadway improvements requisite to access requirements and adequate to address any potential safety hazards are the responsibility of the school district. Districts must consider both the cost and impact to schedule when considering a site. The SCDOT must be consulted for roadway improvements whenever stacking loops or access to a school is modified, or whenever a new school is planned, or an addition that increases the number of students is planned. Access to a school site must be as defined by the SCDOT Traffic Engineering Division, as part of the application process for an encroachment permit. Chapter 4: "School Access Design" in the 2008 Access and Roadside Management Standards developed by the SCDOT's Traffic Engineering Division provides additional criteria.

303.4.1 County or State road frontage must be ample enough to allow for separate car and bus entrances and exits, unless otherwise agreed to in conjunction with SCDOT and/or the appropriate city/county authority.

303.4.2 On-site school bus traffic must be physically separated from visitor, parent, and student traffic at all schools unless approved by the OSF.

303.4.3 School automobile and bus loops must operate in a one-way counterclockwise direction or in a manner that assures that the loading/unloading of students occurs from the right hand side of the vehicle adjacent to the building to prevent pedestrians from crossing traffic lanes.

303.4.4 A site plan showing traffic and parking improvements must be submitted to and approved by SCDOT Traffic Engineering Division prior to bidding the project. The current Form F6 School Transportation Information Form must be shown on the site plan. This approval is required for any improvement affecting traffic or parking on or adjacent to the site, even if the work does not require an encroachment permit. Technical assistance necessary to this objective is available from the SCDOT, Traffic Engineering Division.

303.5 Pedestrians and bicyclists must have a designated safe path between the adjacent roads, school drives, parking areas and the school building.

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SECTION 304 EXISTING SITE ADDITIONS OR CHANGES

304.1 When additions or changes are made to an existing site, the additions or changes must comply with the requirements of this Division.

SECTION 305 LAND DISPOSAL

305.1 In accordance with §59-19-190, the reassignment or disposal of land purchased with any state funds after 1952 must be subject to the prior written approval of the State Board of Education. Request for disposition of such parcels must be made through the OSF for submission to the State Board of Education.

305.2 Parcel(s) may contain internal roads identified as being on the State Highway System regardless of purchase date. These are roads that are owned and maintained by the SCDOT and will require the SCDOT to remove the road(s) from the system prior to the disposal of the property. Providing a boundary survey (if available) of the parcel with the disposition request to the OSF will aid the SCDOT in determining if any road(s) are on the State Highway System.

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DIVISION 4

DESIGN CRITERIA

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403	**Special Requirements for Instructional Spaces**	**4-1**	404.1	Lockers	**4-2**
403.1	Interior Classrooms	**4-1**	404.2	Stages and Platforms	**4-2**
403.2	Early Childhood and Kindergarten	**4-2**	404.4	Drinking Fountains/Water Coolers	**4-3**

SECTION 402 GENERAL REQUIREMENTS

402.1 The OSF encourages Districts to utilize the "Best Practices for Instructional Space" available from the OSF when planning instructional and support spaces. Recommendations by the CEFPI may also provide valuable information for the District to consider when planning.

402.2 Design professionals are reminded that design criteria in Title II of the Americans with Disabilities Act (ADA) and the ADA Accessibility Guidelines (ADAAG) for buildings and facilities may be more stringent.

402.3 Maximum occupancy for all assembly occupancies and any other spaces designated by the OSF or the State Fire Marshal must comply with the IBC 1004.3

SECTION 403 SPECIAL REQUIREMENTS FOR INSTRUCTIONAL SPACES

403.1 Interior Classrooms

403.1.1 An interior classroom or other instructional space that does not have access to daylighting must be limited to spaces such as art or music where students will occupy for one or two class periods unless approved by the OSF.

403.1.2 Interior classrooms must be mechanically heated and cooled and provided with emergency lighting.

403.2 Early Childhood and Kindergarten

403.2.1 The electrical outlets must be of the tamper resistant type or be provided with blank plastic safety plugs.

403.2.2 Classrooms for 4K and younger monitored under the Child Development Education Pilot Program (CDEPP) must meet the requirement of SCDSS in addition to the requirements of this *Guide*.

403.2.3 Head Start classrooms for 4K and younger must meet the federal program requirements in addition to the requirements of this *Guide*.

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SECTION 404 OTHER SPECIAL REQUIREMENTS

404.1 Lockers

404.1.1 Lockers located in corridors must not reduce the required minimum clear width of the exit including locker doors that swing into the corridors. Both locker sets and door widths must be outside the minimum required corridor width when lockers are located on opposite sides of the corridor.

404.2 Stages and Platforms

404.2.1 Whenever a stage or platform is planned adjacent to or as a part of a cafeteria or gymnasium, the occupancy calculation must be based on the floor area in addition to any fixed seating (e.g. bleachers) for both the calculation of egress requirements and, in middle and high schools, the calculations of readily available plumbing fixture requirements.

404.3 Toilet Facilities

404.3.1 Individual toilets located in individual offices, workrooms or other areas with restricted access do not count toward the code required fixtures for the building.

404.3.2 Individual toilets located in instructional spaces may count toward the code required fixtures for the building if demonstrated that the fixtures are sufficient to serve the space and no public load is anticipated in the area.

404.3.2.1 Toilets must comply with IPC 403.2 for spaces serving students above the second grade.

404.3.2.2 At least 25% but not less than two toilet rooms for each type of space or grade served must comply with ANSI 117.1.

404.3.3 Individual toilets located in self-contained classrooms serving children with disabilities must comply with ANSI 117.1, IBC 1109.2.1.2 and IBC 1109.2.1.6.

404.3.4 Fixture counts for cafeterias, gymnasiums, auditorium and multipurpose spaces must be determined based on the intended use with the highest occupancy. Fixture counts for these areas that will not be used simultaneously may overlap with approval of the OSF.

404.3.5 Toilet facilities must be located near the area served, but in no case more than a 200 foot travel distance.

404.3.6 Toilet facilities and security measures must be located so that toilets are available whenever the space is occupied such as during afterschool programs and evening meetings.

404.3.7 Toilet facilities for outdoor activities must be provided. The facilities may be located in dedicated facilities such as a field house, in an adjacent building or with temporary facilities.

404.3.7.1 All required toilet facilities must be available for the duration of the activity.

404.3.7.2 At least 50% of the required fixtures and all required accessible fixtures must be located within a 200 foot travel distance.

404.3.7.3 The balance of the required fixtures must be located with no more than a 500 foot travel distance

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404.3.7.4 If remote facilities are planned, directional signage to the additional facilities must be provided.

404.4 Drinking Fountains/Water Coolers

404.4.1 Water coolers or an alternate source of free water is required in all cafeterias serving free or reduced meals.

404.4.2 Gymnasium and auditorium lobbies must have a minimum of one fountain/cooler located in each area.

404.4.3 Bi-level water coolers must be counted as one fixture for fixture count purposes.

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DIVISION 5

FIRE PROTECTION SYSTEMS

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SECTION 502 GENERAL REQUIREMENTS

502.1 The Contractor, through the Engineer of Record, must provide the OSF with a copy of the underground fire sprinkler system drawings approved by the State Fire Marshal's office prior to the start of installation.

502.2 The Contractor, through the Engineer of Record, must provide the OSF with a copy of the above ground fire sprinkler system shop drawings approved by the State Fire Marshal's office prior to the start of installation.

502.3 All plans must be coordinated with and approved by the District prior to submittal. The District must approve the location of risers, valves, inspector's test discharge and other components of the system that affect the operation of the building.

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DIVISION 6

PLUMBING

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603	Sewage Disposal	6-1	606	Fixtures	6-1
604	Interior Plumbing	6-1			

SECTION 602 GENERAL REQUIREMENTS

602.1 Other regulatory authorities may require permits or have requirements in addition to the ICC Codes and the *Guide*. Refer to Section 109 Permits for additional information and guidance.

SECTION 603 SEWAGE DISPOSAL

603.1 All waste from kitchen areas except food grinder/garbage pulpers shall discharge through a grease trap.

603.2 Food grinders/garbage pulpers shall not be installed in facilities served by a septic system in accordance with SCDHEC regulations.

SECTION 604 INTERIOR PLUMBING

604.1 Hot water may be omitted from group toilets.

604.2 Rain water, and/or grey water systems for use within buildings requires prior approval by the OSF with demonstration of adequate protection to ensure the health of the building occupants to include, but not limited to pipe identification.

SECTION 605 FUEL GAS PIPING

605.1 An emergency shutoff device for flammable laboratory gasses shall be located in an accessible location within 5 feet of the exit closest to the instructor's table.

SECTION 606 FIXTURES

606.1 Mounting heights and configurations for fixtures shall comply with the applicable codes including ANSI A117.1. The requirements for Water Closets and Toilet Compartments for Children's Use shall apply to fixtures intended to serve children in first grade and younger. Urinals, if used in these rooms, shall be mounted with the top of the front rim at the same height as required for the water closet. Please refer to the section discussing toilet facilitates in the "Best Practices for Instructional Space" for additional recommendations and guidance

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DIVISION 7

MECHANICAL

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SECTION 702 GENERAL REQUIREMENTS

702.1 Duct other than runouts to diffusers and grills must be constructed of metal in accordance with SMACNA standards except in special limited applications as approved by the OSF. Duct must be cleanable and duct liner installation must be minimized.

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DIVISION 8

ELECTRICAL

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803	Emergency Power	8-1			

SECTION 802 GENERAL REQUIREMENTS

802.1 Conductors smaller than #2 AWG must be copper only.

802.2 Illumination levels must be based on IESNA for the use of the space as measured at 30" above finished floor.

802.2.1 Lighting calculations for each type of space must be included in the construction document submittal.

802.2.2 Minimum illumination levels for instructional spaces must be 50 footcandles average maintained horizontal at the task level. If an audiovisual scene is designed in the instructional space, the minimum illumination level is 15 footcandles maintained.

802.2.3 Lighting calculations must be based on a maximum total light loss maintenance factor (LLF) of 75%. Calculations must utilize reflectance values of the materials specified for the space.

802.2.4 Special lighting designs must have prior approval of the OSF.

SECTION 803 EMERGENCY POWER

803.1 The building telephone system and communications to the classrooms must be supported by emergency power for a minimum of 90 minutes.

803.2 Egress lighting for the following must be supported by emergency power:

803.2.1 Gymnasium dressing rooms

803.2.2 Administrative areas essential for emergency operations

803.2.3 Kitchens

803.2.4 Group toilets

803.2.5 Laboratory preparation rooms

803.2.6 Classrooms and instructional space

803.2.7 Spectator bleachers more than three rows high in athletic stadiums and at playing fields with field lighting.

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SECTION 804 FIRE ALARM SYSTEM

804.1 Fire alarm cable must be installed in metallic conduit.

804.2 When a building is protected with a Remote Supervising Station fire Alarm System, the District must develop and implement a plan for the OSF's approval to comply with the following:

804.2.1 The District must identify a minimum of two persons on duty at the supervising station at all times. If the designated persons have other duties, those duties must be documented and approved by the OSF.

804.2.2 The District must notify the OSF of any changes to the approved plan.

804.2.3 A copy of the approved plan must be maintained with the annual fire alarm inspection and testing report.

804.3 An annunciator panel, where required by the selected system, must be installed at an attended location in the school administration area.

804.4 A drill function must be provided at the panel to enable the administrative personnel to initiate fire drills without operating an initiating device or activating the fire department notification apparatus.

804.5 All K4 and younger classrooms must have smoke detectors.

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DIVISION 9

FORMS

F1 REQUEST FOR WAIVER FROM USE OF PROFESSIONAL SERVICES

F2 APPLICATION FOR APPROVAL OF PROPERTY ACQUISITION

F2A EVALUATION FOR APPROVAL OF PROPERTY ACQUISITION

F3 BUILDING CODE ANALYSIS FORM

F4 CERTIFICATION OF READINESS FOR OSF OCCUPANCY INSPECTION

F5 SQUARE FOOT COST INFORMATION

F6 SCHOOL TRANSPORTATION INFORMATION FORM

F7 REVIEW DOCUMENT TRANSMITTAL FORM

4. Facility Programming

capacity calculations

Determining the desired capacity should precede educational programming. The definitions and formulas that follow in this section were examined by a 2012 committee of citizens, staff, and members of the Board to provide clarity and uniformity. They should be employed as required in the development of calculations related to school size and capacity.

- **Code Capacity** – given an occupancy classification, how many students can safely exit a space in a certain amount of time; *determined by code; identified on building plans; often seen on placards on walls of public spaces*
- **Design Capacity** – based on allocation formula (i.e. pupil-to-teacher ratios) and other factors; *how many students could occupy a space;*
- **Allocation ratios** – the number of pupils-per-teacher "allowable"; *developed based on budgets and approved by the Board; sometimes called P/T ratios;*

  - » child development 20 P/T
  - » kindergarten 25 P/T
  - » 1st through 3rd grade 21 P/T
  - » 4th though 5th grade 24 P/T
  - » 6th through 8th grade 24.75 P/T
  - » 9th through 12 grade 21-26 P/T*

  ** varies depending on the number of students enrolled at a school*

design capacity = number of rooms * allocation ratio

Note that only base general education classrooms are included in the formula for elementary and middle schools. In elementary and middle schools, therefore, special/exploratory programs such as music, art, physical education, and technology are not included. They are, however, included in the high school formula because students can be counted in them during the first period of the day.

- **Efficiency Factor** – an assumption about practical efficiency; intended to balance efficiency and effectiveness; a planning parameter; expressed as a percentage

The efficiency factors were developed by a 2012 committee of citizens, staff, and members of the board of education as follows:

  - » elementary efficiency – 100%
  - » middle school efficiency – 100%
  - » high school efficiency – 85%

- **Operational Capacity** – given a design capacity and an efficiency factor, how many students should occupy a space; simply a function of design capacity and the efficiency factor; baseline for comparison; often called 'maximum operating capacity'

operational capacity = design capacity * efficiency factor

Example. In order to determine the design capacity of a high school, for instance, one would take the number of students desired (the operational capacity) and divide it by the high school efficiency factor (.85). If 1,200 students were desired then the design capacity would be 1,200/.85 or 1,412 students. The latter would be used as a point of reference when determining the number of classrooms or educational spaces. For example, if the P/T ratio for the high school were 26 then the number of classrooms or educational spaces required to accommodate the desired enrollment of 1,200 students would be 1,412/26 or 54.3 or 55. If the P/T ratio were 21 then the number of rooms needed would be 67.2 or 68. The nature of the classrooms would, of course, be determined through stakeholder input as part of the planning process.

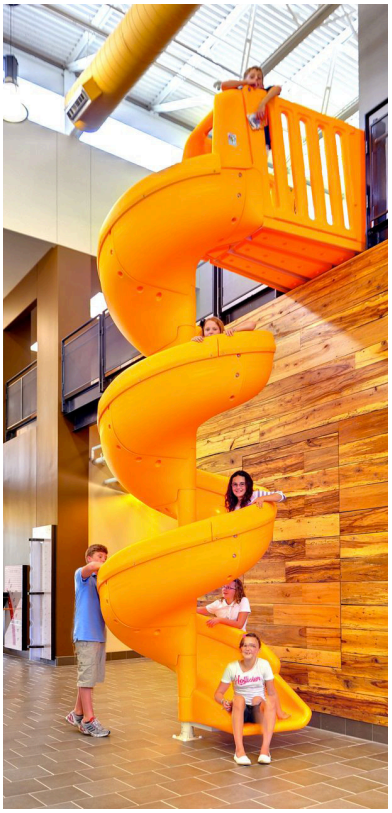
Since the efficiency factors for elementary and middle schools equal 100%, the design capacity and operational capacity for them are the same. They are included here, though, since ratios are subject to change in the future. If they do, the same formula applies.

educational facility planning standards

The information that follows should be applied to the planning and design of new and renovated educational facilities for the District. It should be understood within the framework of the District's mission and vision and in conjunction with the OSF's Guide and Best Practices documents.

Elementary schools. In general, elementary schools planned for the District should include provisions for the following:

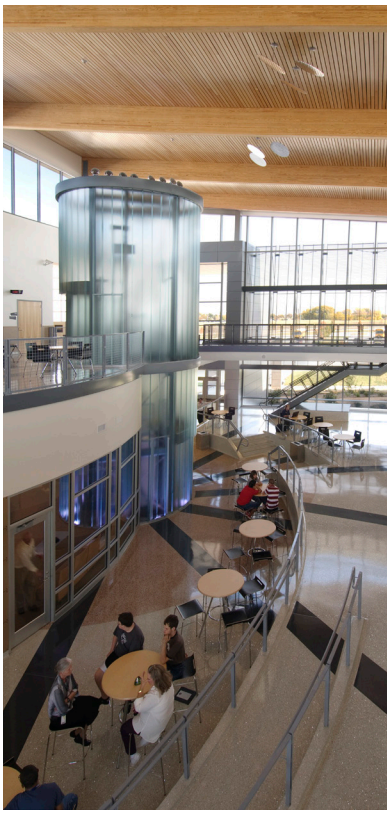
- General classrooms for childhood development, kindergarten, primary instruction, and elementary instruction; resource and self-contained special education classrooms; and classrooms for "specials" such as art, music, and technology.
- Physical education facilities including a gymnasium or multi-purpose room with a stage, coaches' and teachers' offices, ample storage, and dedicated bathrooms.
- Media center with a reading area, studio, technology lab, workroom, library office, accessible staff restroom, and book and periodical storage.
- Administrative suite with a reception area, in-school suspension room, conference room, curriculum coach's professional development room, ample storage, accessible staff restrooms, and offices for the principal, assistant principal, bookkeeper, and attendance officer.
- Guidance suite with a reception area, conference rooms, testing room, ample storage, records vault, space for Waccamaw Mental Health, and offices.
- Clinic with an examining room, isolation area, accessible bathroom, conference room, and clinician's office.
- Food service facilities with a dining area, serving area, kitchen, coolers and freezers, ample storage, receiving, and offices.
- Additional spaces including, but not limited to, teacher collaboration/work offices; areas for student collaboration; rooms for speech therapists, OT/PT, and other permanent or itinerate professionals; a parent resource center; and ample storage.



4. Facility Programming

Middle schools. In general, middle schools planned for the District should align with the "middle school philosophy" and include provisions for the following:

- General classrooms for sixth-, seventh-, and eighth-grade instruction; resource and self-contained special education classrooms; and classrooms for "exploratories" such as art, band, chorus, home arts, industrial technology, and business.
- Physical education facilities including a gymnasium, PE and team lockers, coaches' and teachers' offices, training room, laundry, ample storage, dedicated accessible bathrooms, and a health classroom.
- Media center with a reading area, studio, technology lab, workroom, library office, accessible staff restroom, and book and periodical storage.
- Administrative suite with a reception area, in-school suspension room, conference room, mail room, curriculum coach's professional development room, ample storage, accessible bathrooms, and offices for the principal, assistant principal, attendance officer, and bookkeeper.
- Guidance suite with a reception area, conference rooms, testing room, ample storage, records vault, space for Waccamaw Mental Health, and offices.
- Clinic with an examining room, isolation area, accessible bathroom, conference room, and clinician's office.
- Food service facilities with a dining area, serving area, kitchen, coolers and freezers, ample storage, receiving, and offices.
- Additional spaces including, but not limited to, teacher collaboration/work offices; areas for student collaboration; rooms for speech therapists, OT/PT, and other permanent or itinerate professionals; an office for the resource officer; and ample storage.



High schools. In general, high schools planned for the District should include provisions for the following:

- General classrooms for instruction; science laboratories; resource and self-contained special education classrooms; classrooms/laboratories/studios for "electives" such as fine arts, drama, ROTC, art, chorus, band, drivers education, career education, and journalism; technology labs; and multi-purpose labs.
- Physical education facilities including a gymnasium, auxiliary gymnasium, weight room, PE and team lockers, coaches' and teachers' offices, training room, laundry, ample storage, dedicated accessible bathrooms, and a health classroom.
- Auditorium with storage.
- Media center with a reading area, studio, technology lab, workroom, library office, accessible staff bathroom, and book and periodical storage.
- Administrative suite with a reception area, in-school suspension room, conference room, mail room, curriculum coach's professional development room, ample storage, accessible bathrooms, and offices for the principal, assistant principal, attendance officer, and bookkeeper.
- Guidance suite with a reception area, conference rooms, testing room, ample storage, records vault, space for Waccamaw Mental Health, and offices.
- Clinic with an examining room, conference room, and clinician's office.
- Food service facilities with a dining area, serving area, kitchen, coolers and freezers, ample storage, receiving, and offices.
- Additional spaces including, but not limited to, teacher collaboration/work offices; areas for student collaboration; large room for meetings and community use; rooms for speech therapists, OT/PT, and other permanent or itinerate pro-

fessionals; office for the resource officer; an area for the transportation director and bus drivers; and ample storage.

Additional information is provided below.

General education. General education classrooms constitute the bulk of the "traditional" learning environments within schools, but should not necessarily be thought of in traditional terms. The educational space types referenced in the 'Principles of School Planning' earlier in these *Educational Specifications* should be applied to program and design learner-centered places and spaces that will support instruction now and adapt along with the curriculum in the future. They include, but are not limited to, general education spaces for English, mathematics, social studies, foreign languages, and gifted and talented instruction as well as laboratories for science, career, and technical education. Below are guidelines for a typical project, but planners and designers are reminded of the need to engage the Steering Committee to more specifically determine needs now and in the future.

Per the OSF, the minimum floor size requirement for general education classrooms is 35 sq. ft. per student for Child Development through 5th grade and 30 sq. ft. per student for 6th grade through 12th grade.

1. **General classrooms.** The quantity of general classrooms will depend on the desired capacity. The size of each classroom will depend on P/T ratios, the number of students to be accommodated, and the particulars of the program to be housed within it. To the extent possible, these classrooms should follow a building unit module to facilitate both instructional flexibility (the ability to house different programs in different rooms from year to year) and ease of construction (the ability to order materials in standard units).

   Classrooms should allow for ample full-spectrum, natural light while at the same time being careful to control for glare. Accommodations should be made for technology per the District's latest plan, and consideration should be given to shading devices that provide blackout or near-blackout options. Special care should be given to the acoustics of the room and wherever possible mechanical units should not be located in the plenum above drop ceilings. Likewise, occupant comfort is an important consideration, and wherever possible classroom should be oriented south- or north-facing where light, glare, and passive solar heat gain are more easily controlled. The height of the ceiling should allow for the installation of indirect lighting fixtures with sufficient clearance between the bottom of the fixture and outstretched hands. When internal/external lightshelves are utilized as part of a day-lighting strategy, the ceiling should slope down to reflect light toward the back of the classroom. Light tubes with diffusers and baffles should be considered an option for proving full-spectrum, natural light in areas furthest from windows.

   Classrooms serving students in kindergarten and younger may be subject to rules and regulations set forth by the South Carolina Department of Social Services. On-demand water and bathrooms for pre-kindergarten and kindergarten classrooms is preferable. Consideration should be given to locating pre-kindergarten and kindergarten classrooms on the ground floor adjacent to an enclosed exterior play area.

4. Facility Programming

2. **Science laboratories.** The quantity of laboratories will depend on the desired capacity and the programs offered. The size of each laboratory will depend on P/T ratios, the number of students to be accommodated, and the particulars of the program to be housed within it. More so than the general classrooms, the laboratories should be designed with a particular program in mind. Even so, to the extent possible these laboratories should follow a building unit module to facilitate both instructional flexibility (the ability to house different programs in different rooms from year to year) and ease of construction (the ability to order materials in standard units). Because of the "hard" connections to power, water, and gas sometimes found in laboratories, additional consideration should be given to the placement of laboratories within the floor plan.

   Per the OSF, a well-planned science lab provides sinks with hot and cold running water, a demonstration table, ample work space, appropriate storage (both secured and unsecured) for materials, equipment, and works-in-progress. Work stations should include electric supply, data connections, gas nozzles (for natural gas, propane, compressed air and vacuum), localized exhaust, and chemical-resistant and heat-resistant surfaces. In addition, emergency measures should be in place including, but not limited to, eye wash and shower stations, fire extinguishers and blankets, shut-off valves, first-aid, and ventilation. Adjacent rooms for long-term storage and material preparation are also advised.

3. **Career and technical laboratories.** The quantity of laboratories will depend on the desired capacity and the programs offered. These are included along with general classrooms and science laboratories when computing capacity for high schools. The size of each laboratory will depend on P/T ratios, the number of students to be accommodated, and the particulars of the program to be housed within it. More so than the general classrooms, the laboratories should be designed with a particular program in mind with special consideration given to the operation of tools and machinery unique to a particular program. Because these are often "one-off" programs the program director or subject teacher should be included in the programming of the space. To the extent possible these laboratories should follow a building unit module to facilitate both instructional flexibility (the ability to house different programs in different rooms from year to year) and ease of construction (the ability to order materials in standard units).

4. **Small group instruction spaces.** An increasing number of professionals are coming into schools to provide intervention services in a wide range of subjects including, but not limited to, English as a second language (ESOL) tutoring and psychological analysis. And though they are not necessarily in-residence at the school, they require space in which to store their materials and conduct their business. To that end, planners and designers must ensure space for them. Planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future, but in general a classroom approximately 400 sq. ft. with the same considerations listed in the 'general classroom' section above is appropriate. At least three such rooms should be provided for ESOL (1) and interventionists (2) in elementary schools.

5. **Student/teacher collaboration spaces.** As the need for differentiated instruction increases and curriculum shifts toward learner-centered methods, more and more space will be required for informal small-group gathering spaces separate and apart from the small-group spaces noted above. As seen now this often occurs in hallways, stairwells, and other found spaces, but because such spaces

were not designed to do so they do not facilitate the learning process very effectively. Wide spots or "eddies" in hallways, lobbies, media centers, and other places create informally designated zones in prime, easily-observable locations without interrupting the flow of traffic. These are particularly useful when located adjacent to classrooms so that the flow between formal and informal learning is seamless. Planners and designers are asked to consider the necessity of such learning spaces and not sacrifice them for the sake of efficiency.

6. **Technology labs.** With wireless access almost ubiquitous and hand-held devices increasingly the norm among students, there is less and less need for dedicated computer rooms. At present there is still a need for such rooms for testing, though. When considering the inclusion and/or equipping of such spaces, design professionals should consult the latest version of the District's technology plan.

7. **Gifted and talented space.** General classroom space should be set aside for this program at elementary schools.

Special education. An increasing number of spaces for programs for special needs students are being included in facility programs. These include, but are not limited to, pre-kindergarten classrooms, occupational therapy studios, physical therapy studios, and self-contained classrooms hosting a broad range of educators. These spaces are carefully regulated to provide the special accommodations necessary to support and protect the interests of the students served.

Architects and engineers are required to review the most recent legislature to confirm current requirements, but a synopsis of some of the spaces is provided here for convenience.

1. **Resource classrooms.** Planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future, but in general a classroom approximately 400 sq. ft. adaptable to whatever program may be required and given the same considerations listed in the 'general classroom' section above is appropriate. At least seven such rooms should be provided for, at a minimum, Autism/ABA (1) with an accessible bathroom, speech (1), RBHS (1), and other programs (4) with accessible bathrooms.

2. **Self-contained classrooms.** Planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future, but in general a classroom approximately 800 sq. ft. exclusive of the bathroom, each adaptable to whatever program may be required, each containing an accessible bathroom, each given the same considerations listed in the 'general classroom' section above is appropriate. At least four (4) such rooms should be provided with at least one containing a time-out room and at least one containing changing facilities. In some cases, hook-ups for a washer, dryer, and refrigerator may be desired along with a food prep area.

3. **Pre-K self-contained classrooms.** Planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future, but in general a classroom approximately 800 sq. ft. adaptable to whatever program may be required, containing an accessible bathroom, and given the same considerations listed in the 'general classroom' section above is appropriate.

Classrooms serving students K4 and younger may be subject to rules and regulations set forth by the South Carolina Department of Social Services. On-demand water and bathrooms for pre-kindergarten and kindergarten classrooms is preferable. Consideration should be given to locating self-contained pre-kindergarten classrooms on the ground floor adjacent to an enclosed exterior play area.

4. **OT/PT studio.** Planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future, but in general a classroom approximately 800 sq. ft. exclusive of lockable storage and bathroom, adaptable to whatever program may be required if OT/PT is not administered, containing an accessible bathroom and a closet to store OT/PT equipment and materials.

Specials / Exploratories / Electives. Depending on the grade-level, auxiliary programs are referred to as specials (elementary), exploratory (middle), or elective (high). They supplement general instruction, and in the case of high schools can count toward capacity calculations along with general classrooms and laboratories. As with general classrooms and laboratories, the principles of school planning referenced earlier in these *Educational Specifications* should be applied to program and design learner-centered environments that will support instruction now and adapt along with the curriculum in the future. They include, but are not limited to, studios for music and fine arts. Below are guidelines for a typical project, but planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future.

1. **Visual arts studios.** The visual arts are delivered through a variety of programs including, but not limited to, 2D art, 3D art, photography, and graphic design. Planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future, but in general these studios should contain ample space for student and teacher work along with the sorts of equipment (e.g. easels, potters wheels, floor looms, developing tanks, enlargers, computers, printers, and plotters) and the surface areas required to complete it. The latter should be water-proof and ultra-durable. Other considerations include display areas, localized ventilation, floor drains, sinks and wet areas, a kiln room, and, of course, ample space for storage of works in progress and raw materials. Wherever possible, fine arts studios should be north-facing with large windows to provide even, full-spectrum light and distant views.

2. **Performing arts studios.** The performing arts are delivered through a variety of programs including, but not limited to, drama and dance. Planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future, but in general these studios should contain ample space for teaching and practicing performance techniques. Consideration should be given to locating these studios adjacent to performance venues such as the main auditorium or Black Box Theater. Adjacent storage, which can be shared with the performance venues, should be provided as required for materials, costumes, props, stage sets, and other equipment utilized by these programs. The acoustics of these spaces is particularly important, and architects and engineers are encouraged to collaborate with an acoustician to determine the appropriate size and configuration of these rooms along with the appropriate materials and interior finishes conducive to high-fidelity sound. Sets of doors leading to the performance venues should be large enough to provide unfettered access for the largest props.

3. **Music studios.** Music is delivered through a variety of programs including, but not limited to, general instruction, band, orchestra, keyboarding, chorus and ensemble. Planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future, but in general these studios should contain ample space to instruct large groups of students wielding instruments. Adjacent storage should be provided as required for materials, instruments, uniforms, props, and other equipment utilized by these programs. The acoustics of these spaces is particularly important, and architects and engineers are encouraged to collaborate with an acoustician to determine the appropriate size and configuration of these rooms along with the appropriate materials and interior finishes conducive to high-fidelity sound. If risers are installed in these rooms they must be done so in accordance with local, state, and federal guidelines. Sets of doors leading outside and to interior performance venues should be large enough to provide unfettered access for the largest instrument. Consideration should be given to programming individual, sound-proof practice rooms in conjunction with these spaces.

4. **Other programs.** The list of possible other elective programs is endless but often includes such programs as business, marketing, journalism, yearbook, and Junior ROTC to name just a few. As with all spaces, the recommendations provided for 'general classrooms' apply and planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future.

Auxiliary. Auxiliary spaces are large-group gathering spaces that serve multiple functions. Often they are in operation during the school day as well as in the evenings and weekends. They can support activities from outside organizations and often become vital spaces within their communities. Their primary function, though, is supporting education, and the 'Principles of School Planning' apply to them no less than anywhere else.

1. **Physical education gymnasiums and studios.** Physical education is delivered in a variety of ways including, but not limited to, general instruction, health, physical education, fitness and weight lifting, and athletics. Per the OSF, both indoor and outdoor facilities should be provided for physical education. In both cases, consideration should be given to community and extra-curricular events that will share the spaces to avoid unnecessary duplication. Planners and designers are reminded of the need to engage stakeholders to more specifically determine needs now and in the future, but in general these spaces might include competition gymnasiums, auxiliary gymnasiums, fitness/aerobic rooms, weight rooms, and locker rooms. They should contain ample space to instruct large groups of active students. Adjacent storage should be provided as required for materials and equipment utilized by these programs. The acoustics of these spaces is particularly important, and architects and engineers are encouraged to collaborate with an acoustician to determine the appropriate size and configuration of these rooms along with the appropriate materials and interior finishes conducive to high-fidelity sound.

   Per the OSF, these spaces must be age- and grade-level appropriate and sized accordingly. They may contain bleachers as required, and when they do the space required for the bleachers should not encroach upon the space required for instruction. Room dividers are appropriate for designating two or more spac-

es within larger volumes. Sets of doors leading outside should be large enough to provide unfettered access for the largest piece of equipment.

Locker rooms should be sized to accommodate the largest group. Determining the size, configuration, and kinds of locker rooms along with their adjacencies to each other, gymnasiums and studios, and outdoors should be carefully coordinated with extra-curricular activities (eg, varsity sports) to maximize efficiency and ensure that all needs are taken into account.

Health classrooms should be designed per the guidelines for 'general classrooms' above.

2. **Media centers.** Library and media science is changing as rapidly as the technologies that support it. They remain a vital part of every school and community – the heart of a school – but they are no longer viewed as the only means for connecting with points beyond via the books and publications they house. The internet has usurped its role as such, so media centers are adapting to become focal points for gathering and collaboration. Hard furniture and hushed tones have given way to a more relaxed atmosphere conducive to project work and small-group collaboration. In addition to engaging stakeholders to more specifically determine needs now and in the future, planners and designers are encouraged to review the latest guidelines provided by the Southern Association of Colleges and Schools and consult with SC Department of Education's School Library Media Services department.

   Per the OSF, media centers should include space for small-group collaboration along with designated areas for quiet reading and individual study. They should be large enough to accommodate two classes performing separate activities at the same time in addition to the spaces noted above. Security of books, computers, and equipment should be considered, and the media center specialist should command a view of the entire area. Technology requirements should be determined in conjunction with the needs of both the media center and the school at large. Wherever possible, the media center should be north-facing with large windows to provide even, full-spectrum light and consideration should be given to shading devices that provide blackout or near-blackout options.

3. **Auditoriums.** Auditoriums function in support of the performing arts and music programs as well as the school as a whole and the community. Their size will depend on the number of students to be housed, but consideration should be given to accommodating an entire grade-level at build-out. Generally, it is impractical to budget for an auditorium that will house the entire student body. Their location within the facility should be coordinated with the programs they support and provide ready-access for the public after-hours. The layout and acoustics of these spaces is particularly important, and architects and engineers are encouraged to collaborate with an acoustician and theater design specialist to determine the appropriate size and configuration of these rooms along with the appropriate materials and interior finishes conducive to appropriate stage lighting and high-fidelity sound.

Administration. The administration of the school is essential to its success, and the planning and design of its spaces should be given due consideration. The number and kinds of support spaces required will differ depending on the size of the school and programs being offered, and input should be sought from central office

and building-level stakeholders who can provide insight into operations now and in the future. Planners and designers should recognize the need for flexibility to support multiple options depending on current thought. For instance, accommodations should be made for both a centralized *and* a decentralized administration depending on whether or not assistant principals are required to be located in the main office or distributed throughout the school.

1. **Reception.** The main office should be located strategically to command a view of the front door to the school, its approach, and as much of the school grounds, student drop-off, and visitor parking areas as possible. A secure vestibule should separate the main entrance from the reception, school lobby, and any other spaces in a manner that requires passage through the reception before gaining access to the school at times other than arrival and dismissal. To the extent that metal detectors are utilized in a school, consideration should be given to integrating this equipment, its power and low-voltage requirements along with the queuing lines as part of the secondary threshold (the doors leading from the vestibule to the lobby) to keep from cluttering the lobby unnecessarily.

   The reception area is home to several administrative functions, which will vary depending on the size of the school and number and types of administrators on staff. These may include, but are not limited to, the receptionist, administrative secretary, bookkeeper, and attendance officer. A reception desk should function equally for the visitors in front of it and the staff seated behind it. Regarding the latter, it should accommodate their power, data, and storage needs.

   The reception area should also command a broad view of the main corridor and school lobby to facilitate passive supervision of students and visitors. Under no circumstance should it be located beyond a stairwell that might allow a visitor access to a second floor before checking into the office.

2. **Principal's office.** As with all offices, the principal's office should be thoughtfully designed to accommodate necessary power and data, provide full-spectrum natural light, and be as acoustically soundproof as possible. The principal should be located in close proximity to the reception area though not necessarily adjacent to it. Whenever possible, it should command a view of the front of the school. It should be large enough to accommodate the principal's desk and a credenza, comfortable chairs for visitors, along with a small conference table and bookshelves. A secure closet for storage is also a consideration. If the principal has an administrative assistant, the assistant's office should be located adjacent to the principal's office and provide a waiting area for it. A larger conference room for use by the principal should be located in close proximity to the principal's office.

3. **Assistant principal's office.** As with all offices, the assistant principal's office should be thoughtfully designed to accommodate necessary power and data, provide full-spectrum natural light, and be as acoustically soundproof as possible. When grouped in the administrative suite, the assistant principal should be located in close proximity to the reception area though not necessarily adjacent to it. In that case, it should command a view of the front of the school. Alternatively, the office can be located in a prominent location elsewhere in the school. In either case, it should be large enough to accommodate the assistant principal's desk and a credenza along with comfortable chairs for visitors.

Because assistant principals often deal with student issues, some form of waiting area should be included adjacent to it. This can be part of a hallway if space is limited but should in no way block any part of the hallway. And because the student issues are often disciplinary issues, consideration should be given to providing one or more enclosed waiting areas where students can be separated and cool off.

4. **Bookkeeping.** As with all offices, the bookkeeper's office should be thoughtfully designed to accommodate necessary power and data, provide full-spectrum natural light, and be as acoustically soundproof as possible. It should be located in proximity to the school safe/vault and/or records room.

   Regarding the records room, per the OSF and in accordance with state laws and District policies, student records must be maintained in a space protected from fire, theft, vandalism, mold, and mildew.

5. **Attendance.** The attendance officer is often located along with reception, but can also have a separate office adjacent to the main office.

6. **Clinic.** The size and configuration of the clinic will vary depending on the size of the school and its needs, and central office and building-level administrators should be consulted to determine the needs exactly. In general, though, the clinic should contain securable casework, a refrigerator with an ice maker, dedicated toilet facilities with at least one shower, work space and a sink, clinic beds with curtains to divide them, and a desk for the nurse. The clinic can be located in the administrative suite, but if so it must have its own entrance separate and apart from the entrance to the administrative area. Line of sight from the main corridor and other vantage points should be examined for matters of privacy.

7. **Guidance.** Guidance is part of administration but should not be located as part of the administrative suite. Instead, it should be located apart from it to both curb traffic through the administrative suite and to provide broader coverage of administrators within the school. The size and configuration of the guidance suite will vary depending on the size of the school and numbers and types of guidance programs offered, and central office and building-level input should be sought to plan the design accordingly. In general, though, it could include a guidance reception area and lobby, offices for guidance counselors, a conference room, a storage room, an area for researching colleges and employers, and dedicated bathrooms.

   Regarding the guidance counselors' offices, they should be thoughtfully designed to accommodate necessary power and data, provide full-spectrum natural light, and be as acoustically soundproof as possible. Each should be large enough to accommodate the counselor's desk and a credenza along with comfortable chairs for visitors.

8. **Curriculum coach.** Approximately 800 SF should be set aside for the curriculum coach. This area should be designed to facilitate large-group instruction and professional development. It should provide space for the school's student data wall.

Food services. As with libraries and media services, food services are departing rapidly from the traditional approach to serving lunch to students. For starters, they serve breakfast, too! But more than that, they are offering healthier meals with more options for dining. The layout of the dining, serving area, and kitchen spaces are inter-related, and architects and engineers are encouraged to collaborate with a food service consultant to determine the appropriate size and configuration of these areas along with the required equipment and appropriate materials and interior finishes conducive to preparing, serving, and eating food.

Per the OSF, considerations for cafeteria design include the inclusion for water-on-demand, direct access to outdoor play/gathering areas, and group toilet facilities. Particular attention should be paid to the location of the cafeteria within the building and on the site. Regarding the former, care should be taken to limit the intrusion of unwanted smells and noises upon adjacent spaces. Regarding the latter, care should be taken to locate the loading dock, grease traps, and areas for trash removal; none should be visible to the casual observer.

OSF Best Practices for Instructional Space. In addition to the guidelines provided herein and the requirements prescribed in the OSF's Guide, the OSF has issued the 2013 OSF Best Practices for Instructional Space that should be referenced as well. It provides further guidance in the area of instructional space planning. It is based on the experience of professionals who were hired by the OSF to study issues related to school planning, design, and construction and is for information only and not required by the District. As noted previously, each process, facility, community, and circumstance will differ so each needs to be approached accordingly.

The OSF Instructional Space Planning document is included here for your convenience.

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.

<table>
<tr><th>Item</th><th>K4 and Younger</th><th>K5</th><th>Grades 1-5</th><th>Grades 6-12</th></tr>
<tr><td>Floor Area</td><td colspan="3">35 sq. ft per student</td><td>30 sq. ft per student</td></tr>
<tr><td>Minimum width</td><td colspan="4">Maximum 1.75:1 aspect ratio</td></tr>
<tr><td>Individual Toilets</td><td colspan="2">Recommended in each classroom</td><td colspan="2">As determined by district policy</td></tr>
<tr><td>Sink Cabinets</td><td colspan="3">Recommended in each classroom</td><td>As determined by district policy</td></tr>
</table>

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 or special needs. 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.
- The aspect ratio of an instructional space should not exceed 2.5:1 to maintain adequate site lines for both the student and the instructor. Instructional space may be defined as a classroom or, in the case of smaller work groups, may be defined as an area within a classroom.

CLASSROOM ENVIRONMENT

The classroom environment must be designed to consider student and teacher comfort, noise levels and lighting while maintaining the District's energy efficiency goals. Each space should have temperature and lighting control dedicated to the space and building automation control systems are very useful when managing spaces with diverse occupancies and schedules and may help to meet occupant comfort while maintaining energy efficiency goals. Spaces that are used the full year should be separated from instructional spaces on occupied for an academic year. Similarly, auditoriums and gymnasiums should be on separate HVAC systems.

Care should be taken when discussing HVAC options with the Design Professional. The noise contributed by the HVAC system can have a significant impact on the learning environment. In the past, some teachers have struggled with the choice of operating the HVAC unit and maintaining heating or cooling to the space or turning the unit off so that instruction can occur. There are many new options available for HVAC units to provide adequate temperature and humidity control while maintain reasonable noise levels in the space.

With the incorporation of smart boards and other technology in the classroom, options for multiple lighting levels should be considered. Tasks should be reviewed and optimum lighting level and delivery should be identified for instructional spaces. At a minimum, two lighting levels – general ambient lighting and audiovisual scene should be designed for each instructional space.

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

The *Guidelines on the Use of Seclusion and Restraint* is currently under review and revision by the Office of Exceptional Children in the SC Department of Education. The construction or modification of this type of room must be coordinated with that Office as well as the OSF.

PRE-K AND KINDERGARTEN CLASSROOMS

Requirements for spaces serving children K4 and younger may be 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. Even if a space serving children K4 and younger is not required to be licensed by SCDSS, it is strongly recommended that the space comply with SCDSS regulations.

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 must 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.

Infrastructure to support the program such as daylighting for painting and other visual arts, adequate cooling for computers, kilns and other heat generating equipment and general lighting levels must be considered to optimize the art experience. Other amenities such as display areas, localized ventilation, floor drains, sinks and wet areas with hot and cold water supply 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. 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 must 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 must 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, must 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 must meet the requirements of the state and local codes and must 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 must 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 for both the hot and cold water supplies 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 lease 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.
- An emergency gas shut off valve must be located at or within five feet of the classroom exit closest to the instructor's demonstration desk. A master water valve should be located at or within five feet of the instructor's demonstration desk. These valves must 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. When sinks are provided, both hot and cold water must be provided.

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.
- Access for food delivery, trash removal and maintenance of grease traps.
- Access of water and gas isolation valves for maintenance.

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 facilitates 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.

The health room should include both secured and unsecured casework for storage and dedicated toilet facilities and sinks to meet the health program for the school and ensure sanitary conditions. Showers and washer/dryer capability should also be considered. The heath room

must be provided with adequate hot and cold water and should be provided with other amenities such as privacy curtains, a bed or cot for reclining, a refrigerator dedicated to medicinal storage and communication capability with both the administrative area and outside the school.

Stairs, 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 stairs, 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 must 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 isle 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 must 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 must 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 counts required for major but intermittently used assembly spaces may be distributed and overlapped with fixture counts for adjacent areas with the approval of the OSF depending on occupancy type, location and access to 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 principal, 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.

When renovating existing facilities or constructing new, the following is recommended for finishes and installation of fixtures and equipment:

- Hot water for hand washing is required in the health room, kitchen and food preparation areas and in single fixture toilet rooms. Hot water for hand washing in group toilet should be provided to manage the spread of colds and other infections.
- Care should be taken in locating and sizing supply and drain piping to minimize noise transmission into instructional spaces and other areas where the sound may be a distraction.
- Ceilings in toilet rooms are recommended to be gypsum board, plaster or another solid material for security and privacy purposes.
- Vandal resistant finishes fixtures, trim and installation methods are recommended for durability and safety of the students.
- Tank-type water closets should only be specified where water pressure is insufficient for flush valves.
- Wall mounted water closets are recommended for ease of cleaning. Wall mounted fixtures including lavatories, water closets and water fountain should be attached with heavy duty concealed carriers or other comparable mounting method to resist the weight of students.
- Recommended fixture heights are:

Item	Early Childhood/ Kindergarten and Grade 1	2 – 3 (1)	4 – 6 (2)	7 – 12 and Public Areas
Water Closet	Standard 15”	Standard 15”	Standard 15”	Standard 15”
	Accessible 11"-17"	Accessible 17"-19"	Accessible 17"-19"	Accessible 17"-19"
Urinal	Standard 15”	17”	17”	17”
	Accessible 11"-17"			
Lavatory or Sink and Work Counter	25”	27"	30"	34" – 36”
Drinking Fountain / Water Cooler (3)	30” max	30” max	30” max	36” max and 38”-43”

Notes:
1. Group toilet fixture heights serving primarily elementary students should be the same as noted for grade 4-6 for maximum flexibility.
2. Group toilet fixture heights serving primarily middle school students should be the same as noted for grade 7-12 for maximum flexibility.
3. All drinking fountains/water coolers in the main public area of the building must be installed to comply with applicable codes.

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 must 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.

4. Facility Programming

educational site planning standards

Site planning is yet another critical component of the overall plan of a school. The response will depend on the desired size, program to be delivered, natural occurrences, and surrounding context, but as with the architecture of the building and its interior design the site on which the school is located should be as carefully designed to enhance teaching and learning.

Landscapes for Learning. As with interior design, much is known about the psychological and physiological benefits of incorporating the natural environment into the overall learning experience. Sunlight; fresh air; breezes; and the sights, sounds, and smells of the world around us combine to create a powerful backdrop for human interaction. Landscaped courtyards, gardens, terraces, and amphitheater-type spaces provide opportunities for students and teachers to meet outdoors and connect their indoor classroom work to a natural context. Additionally, safe and comfortable settings such as these allow the entire site to be fully leveraged as a "learning landscape."

OSF Best Practices for Site Selection and Planning. In addition, to the guidelines provided herein and the requirements prescribed in the OSF's Guide, the OSF has issued the 2013 OSF Best Practices for Site Selection and Planning that should be referenced as well. It provides further guidance in the area of instructional space planning. It is based on the experience of professionals who were hired by the OSF to study issues related to school planning, design, and construction and is for information only and not required by the District. As noted previously, each process, facility, community, and circumstance will differ so each needs to be approached accordingly.

The OSF Site Selection and Planning document is included here for your convenience.

BEST PRACTICES FOR SITE SELECTION AND PLANNING

PURPOSE

This publication is provided for the use of Districts and their design professional as a basis for discussion for selection of potential school sites and the planning of site features.

BACKGROUND

Many factors are involved in the selection of a suitable site for a new school, the addition to an existing school or the selection of space for lease. Access to the site, traffic impact on the surrounding community and cost to develop or improve the site can have significant financial consequences if not addressed early in the planning process.

In accordance with State statute, the Office of School Facilities (OSF) is required to approve school sites, whether a land gift, swap or purchase or the lease of land or buildings. The OSF is available to provide assistance to the Districts when evaluating potential sites for improvement, lease or acquisition. There are additional resources to assist Districts in selecting sites such as recommendations from the Council of Educational Facility Planners International (CEFPI).

As with the building themselves, South Carolina is in a period of transition with Districts seeking to provide a diversity of educational opportunities to their students when considering the location and planning for school sites. 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.

SELECTING A SITE

Site Review

The OSF will visit the site with a representative of the school district, a representative from the Department of Transportation and the design professional if available, to determine factors that will make the site suitable or unsuitable for use as a school. When requesting consideration for a site, the District should furnish a boundary map of the property with any applicable wetlands or flood zones shown. The site visit will be documented on the *Form F2A Evaluation for Approval for Site Acquisition* and sent to the District. In addition to DOT, the OSF may request the input of other state and local agencies to take into consideration all natural and/or man-made features that may influence the final decision to approve a site.

Other site selection factors to be considered are:

Natural and man-made features

Features present on the site may limit use of the site or have a significant cost impact on the project budget. Natural features such as wetlands and waterways limit the area available for development. The presence of floodways or a flood plain may either limit the area available for development or will have a cost impact to meet state and local code requirements or both.

High voltage electric transmission lines have an associated easement that restricts development and is generally perceived to have a potential negative effect on health by a large segment of the general public. If transmission lines are present on the site, the following setbacks from the easement are recommended for siting a structure:

- **Kilovolt Designation Setback**
- 100-115 kV 100 Feet
- 220-235 kV 150 Feet
- 345 kV 250 Feet

Natural gas and propane transmission pipelines also have easement issues and may present a potential safety hazard. These pipelines are maintained at high pressures and, in the event of a leak, could release a significant amount of flammable gas. Natural gas is lighter than air and will tend to rise but may have sufficient gas concentration to be an explosion risk. Propane is heavier than air and will tend to collect in low pockets to create an explosion risk.

On a site where a septic tank system is planned, the District must receive preliminary approval from DHEC Division of Onsite Wastewater Management before submitting an application to the OSF for approval to acquire the property.

Local Government Comprehensive Planning and Zoning

Districts are required by South Carolina Code Ann.§6-29-540 (supp.1999) to comply with local zoning ordinances and to consult with the local planning commission as to the compatibility of the proposed school site with the comprehensive plan of the community. If the local planning commission finds the proposal to be in conflict with the comprehensive plan, the school district may proceed with the project as long as the district publicly states its intention to proceed and the reason. A copy of this finding must be sent to the local governing body, the local planning commission, and published as a public notice in a newspaper of general circulation. However, it is generally recommended that the District work to resolve any objections and receive planning commission approval in the interests of community harmony.

The ability to override the rejection of the planning commission is limited to siting the school. Other zoning regulations that would normally be applied had the zoning been approved would remain in place and the District would be obligated to comply with requirements as they apply to items such as signage, setback distances, building height or area restrictions, architectural and material requirements, landscaping and parking.

Traffic Management and Parking

The District is responsible for mitigating any traffic issues that may arise on the adjacent roads due to the school operation. This responsibility applies to new construction as well as any addition or renovation to an existing school that will add students and/or change existing parking or traffic patterns on the site. All site issues or changes pertaining to access, stacking, traffic patterns and parking require review and approval from DOT. All site issues or changes pertaining to bus access, stacking and parking require review and approval by the Department of Education Transportation Division in addition to DOT. All site issues or changes pertaining to fire department and emergency vehicle access require review and approval by OSF and the local fire official in addition to DOT

The prospective site must have road frontage of sufficient length to allow for separate car and bus entrances and exits and of a size sufficient to site the building, allow for adequate parking and allow for safe and adequate car stacking on the property. Unless otherwise approved by DOT and/or the appropriate city/county authority, the property must meet the requirements of Chapter 4: "School Access Design" in the *2008 Access and Roadside Management* Standards as published by the South Carolina Department of Transportation (DOT) Traffic Engineering Division. These requirements detail minimum separation distances from other drives, intersections, blind curves and other road features as well as requirements for the construction of turn lanes. DOT may require a traffic study to be funded by the District to determine the necessity of signal lights or roadway improvements that may be required away from the actual school site. Technical assistance is available from the DOT, Traffic Engineering Division to assist Districts and their design professionals.

Parking is determined by local zoning ordinance. In the absence of a local zoning ordinance, districts may use either the ICC Building or Zoning Code to determine requirements. In not case may the parking be less that that approved by DOT.

Managing traffic flow is important for the smooth and safe operation of the school. The following should be considered when planning a site:

- Pedestrians and bicyclists must have a designated safe path between the adjacent road, parking areas and the school building that avoids crossing vehicle and bus loops.
- Vehicle and bus loops should operate in a one-way counterclockwise direction or in a manner that assures that the loading/unloading of students occurs from the right hand side of the vehicle adjacent to the building. This maintains the safety of the student by preventing the need to cross in front of and between cars during loading and unloading;
- Although vehicles waiting for loading and unloading may form more than one parallel line, it is recommended that vehicles merge into a single line for loading and unloading. This maintains the safety of the students by preventing the need for some students to cross in front of and between a line of cars for loading and unloading in the second line.
- A separate area is recommended for younger children in safety and booster seats to allow for the increased loading and unloading time required with the seats without impacting the flow of older students.
- On-site school bus traffic should be physically separated from visitor, parent, and student traffic to prevent route delays for the next set of students.
- Student parking areas should be separated from staff/visitor/bus parking and student loading/unloading areas to maintain traffic flow and prevent delays.

Bus parking and circulation must be planned so that busses do not back-up on school sites. Busses have limited visibility and the chance of an accident during backing a bus is significant. Each parking stall for a full sized bus shall be a minimum of 15 feet wide. Smaller spaces may be provided for mini busses and other specially sized vehicles used to transport students after consultation and approval from the Department of Education Transportation Division.

The District is responsible for any and all costs associated with roadway improvements including, but not limited to permits, underground and above ground utility relocation and roadway construction, Preliminary cost estimates for roadway improvements are recommended to be prepared by the district prior to the site acquisition for inclusion in the project budget. All

site improvement plans and applications for encroachment permit must be submitted to and approved by DOT Traffic Engineering Division prior to bidding the project.

SITE APPROVAL

If the District elects to proceed with site acquisition after initial of the site visit with the OSF and DOT, the District will be responsible for obtaining the following additional information to submit with the *Form F2 Application for Approval of Property Acquisition*:

- Current zoning status;
- Utility information;
- Certified plat including applicable wetlands and flood plain information;
- Phase 1 Environmental Report;
- Phase 2 Environmental Report, if required;
- Topographical map, if available; and
- Geotechnical Report, if available.

The environmental reports provide information on the past use of the site that may identify potential obstacles to developing the site such as soil contamination, landfill activity and ground water contamination and the geotechnical report may identify rock or unsuitable soil that could have a significant impact on the project budget.

Leases for land and/or structures are recommended to be negotiated for a minimum sufficient time to properly depreciate any capital improvements the District proposes. Leases for transitional facilities and relocatable classrooms will be allowed on request by the District with a justification for the leasing plan.

MODIFYING AN EXISTING SITE

The same consideration is required for modification of an existing site as selecting and planning for a new site except for the application for approval to purchase. Dealing with existing conditions that may limit design considerations, submitting for and receiving necessary approvals and permits for design before work starts and inspections when work is complete are required in a manner similar to new construction. The OSF and DOT will conduct site reviews and provide technical assistance to Districts for renovations project on request to assist with planning and the OSF will review plans for all site renovation work.

An existing site may contain internal roads on the State Highway System. Consultation with DOT will help identify these roads. Before modification on these roads can start, these roads must be removed from the state system. Although there is no charge associated with this action, it may have an impact on the construction schedule, especially for work to be completed over the summer break.

PROPERTY DISPOSAL

In accordance with §59-19-190, the reassignment or disposal of property, land and/or buildings, purchased with any state funds after 1952 requires approval of the State Board of Education prior to reassignment, transfer or disposal. Requests to the Board for disposition of such parcels shall

be made through the OSF in accordance with the *South Carolina School Facilities Planning and Construction Guide*.

Parcel(s) may contain internal roads identified as being on the State Highway System regardless of purchase date. These are roads that are owned and maintained by the DOT and will require DOT to remove the road(s) from the system prior to the disposal of the property. Providing a boundary survey (if available) of the parcel with the disposition request to the OSF will aid the DOT in determining if any road(s) are on the State Highway System.

4. Facility Programming

athletics and playground standards

The District's minimum standards for athletic facilities/playgrounds for:

Elementary Schools

MULTI-PURPOSE PLAYFIELD

- 90' X 120' minimum dimensions
- Properly graded (minimum 1.5% slope; crown preferred on the long axis)
- Provide deep well with fully automatic irrigation for the entire playing area. New and renovated systems shall be 2-wire type.
- Bermuda 419 sod covering the entire playing area

MULTI-PURPOSE ROOM

- Minimum total area shall be 5,500 sq. ft.
- Activity floor area shall be covered with a rolled synthetic athletic flooring product.
- The boundaries of the activity area shall be clearly identified with painted floor markings, 3 inches wide, to include a 40-foot x 60-foot activity area with a minimum 10' safety zone on all sides. Court shall also be bisected laterally at the midpoint.
- The room shall be free from potential safety hazards such as protruding structures or objects.
- Walls shall have a smooth or flat surface from the floor up to a minimum 12'-0" in height. Ceiling height shall be suitable for the intended activities of the space.
- The architect shall design appropriate wall and ceiling acoustical treatments to provide adequate sound quality for assembly functions.
- The room shall be well-lighted (minimum 80 footcandles with spectators; 50 footcandles without spectators) and free from shadows. All lighting fixtures and surface-mounted controls or devices shall be covered with protective grids.
- Place wall safety padding on each end of the space. Padding shall be installed 12 inches above the floor surface and shall extend vertically an additional six feet where possible.
- Adequate storage space should be provided for physical education equipment (minimum 400 to 600 sq. ft.) with a 12' to 15' ceiling height. Provide double-door access that is direct and convenient to the activity area. Minimum 16-inch depth shelving units shall be provided.
- The room should have easy access to outdoor instructional areas in order to facilitate quick transitions from indoor to outdoor facilities.
- The space shall be designed to minimize "pass-through traffic patterns".
- Additional striping for other uses such as basketball, four-square, etc. in addition to the need for goals shall be determined by the Owner during Conceptual Design.

AUXILIARY MULTI-PURPOSE ROOM

- Minimum total area shall be 4,000 sq. ft.
- Activity floor area shall be covered with a rolled synthetic athletic flooring product.
- The boundary of the activity area shall be clearly identified with painted floor markings, 3 inches wide, providing at least a 10' safety zone on all sides.
- The room shall be free from potential safety hazards such as protruding structures or objects.
- Walls shall have a smooth or flat surface from the floor up to a minimum 12'-0"

in height. Ceiling height shall be suitable for the intended activities of the space.
- The room shall be well-lighted (minimum 50 foot candles) and free from shadows. All lighting fixtures and surface-mounted controls or devices shall be covered with protective grids.
- Adequate storage space should be provided for equipment (minimum 200 to 400 sq. ft.) with a 12' to 15' ceiling height. Provide double-door access that is direct and convenient to the activity area. Minimum 16-inch depth shelving units shall be provided.

OUTDOOR CLASSROOM

- Provide one (1) fully-accessible 40' x 46' concrete area with a shade sail structure covering the area. The shade sail shall be professionally engineered for safety and appropriately planned and placed to shield the area from sun glare during typical school day hours.
- Provide fixed seating to accommodate at least 25 students, or as otherwise directed by the Owner.

HARD-SURFACED OUTDOOR PLAY SPACE

- Provide hard-surfaced play space for games and activities such as hopscotch, four-square, etc. In locations where fire lanes or basketball courts exist, these are encouraged to be adapted or incorporated for this purpose wherever feasible. Games shall be professionally painted to the appropriate dimensions of the respective activity.
- Minimum area shall be 3,000 sq. ft.

GENERAL REQUIREMENTS FOR ALL PLAYGROUNDS AND EQUIPMENT

- All play equipment shall be ADA-friendly.
- All play structures and equipment, including any additions to existing play systems, must prove they have obtained the International Play Equipment Manufacturers Association (IPEMA) certification.
- At least one member of the on-site installation crew for all play equipment and structures must be a Certified Playground Safety Inspector (CPSI), and certified, factory-trained on the equipment being installed.
- A poured rubber surfacing shall be placed under all equipment with proper fall protection as described by the Consumer Product Safety Commission (CPSC) and IPEMA. A subbase of four-inch (4") concrete or four-inch (4") compacted stone shall be installed with suitable underdrain system. Asphalt is not an acceptable subbase material.
- Provide a shade structure for at least 1/3 of all play equipment components.
- Wear mats (minimum 44" x 48") shall be placed at all slide exits and at non-adaptive (belt) swings. Mats shall be installed integral to and flush with the rubber surfacing application.
- All play structures shall have prominent signage indicating the appropriate age range for use of the specific equipment to give supervisors easily understood visual cues.

CHILD DEVELOPMENT / KINDERGARTEN PLAYGROUND REQUIREMENTS

(Ages 2 to 5 years)

- Provide an outdoor play area with a minimum of 5,000 sq. ft. of rubber-surfaced play space, or 75 sq. ft. of area per child at maximum occupancy period (i.e.,

maximum number of classes using the area at a given time), whichever is greater.
- A continuous accessible pathway shall also be provided from the appropriate building access point to the play area(s).
- Provide age-appropriate multi-component play structure(s) combined with non-platform ground level equipment components, sized for maximum occupancy. Equipment shall incorporate activities for sliding, climbing, crawling, swinging, and interactive games. These shall include, but not be limited to:
  - » Tic-Tac-Toe, or similar interactive games
  - » Crawl tunnel
  - » Open slides such as the elbow type (no enclosed / tunnel slides allowed)
  - » Ladders
  - » Heavy-duty belt swings
- The entire play area shall be encompassed by a minimum 4-foot height, PVC-coated, chain link fence (color selected by Architect). Fencing shall have at least one double gate (minimum 10' clear opening) with lockable latch to provide access for maintenance equipment and at least one pedestrian gate with lockable latch.

PRIMARY / ELEMENTARY / INTERMEDIATE PLAYGROUND REQUIREMENTS

(Ages 6 to 12 years)

- Provide an outdoor play area with a minimum of 9,300 sq. ft. of rubber-surfaced play space, or 75 sq. ft. of area per child at maximum occupancy period (i.e., maximum number of classes using the space at a given time), whichever is greater.
- All play areas shall have a continuous accessible pathway from the appropriate building access corridor(s) to the play area surface.
- Provide age-appropriate multi-component play structure(s) combined with non-platform ground level equipment components, sized for maximum occupancy. Equipment shall incorporate activities for sliding, climbing, balance, swinging, and fitness exercises, including, but not limited to:
  - » Balance beam
  - » Pull up bars
  - » Sit-up bench
  - » Ladders
  - » Slides including, double side-by-side and spiral / elbow type (no enclosed / tunnel slides allowed)
  - » Individual spring riders

Middle Schools

Sports:	Fall	Winter	Spring
	Football	*Basketball*	*Soccer*
	Cheerleading	*Cheerleading*	

MULTI-PURPOSE PRACTICE FIELD

Size
- Provide at least one field, minimum 150 feet wide x 300 feet long. Where possible, the long axis shall be oriented north-south.

Grading
- Crowned along field centerline at 1% grade (minimum), 1.5% preferred

Drainage
- Water must have positive flow to designated drainage areas off the playing surface

Irrigation
- All heads must be even or slightly below playing surface
- Each head coverage shall overlap another zone
- Entire playing surface must have coverage
- System shall have a deep well supply and must be fully automatic
- New systems and renovated systems shall be 2-wire with decoders
- Valve boxes shall be located outside of play area

Sod
- Fields must have grass, covering the entire playing surface
- If grass is installed for a new field or grass is being replaced, Bermuda Tifton 419 sod shall be used
- Sod shall not be permitted to be installed without a fully operational irrigation system
- Sod shall not be installed with nylon mesh backing or similar materials

Goal Posts
- One regulation high school goal post.
- Assure proper clearance zones or mechanisms are present beyond goal post location to contain kicked footballs
- Backstop
- One chain link backstop, minimum 20 feet in height. Provide three sections, minimum 20 feet length each, having an interior angle of 135 degrees at each section.

OUTDOOR BASKETBALL COURT

- Minimum one (1) full-court with standard markings; 50 feet x 84 feet plus minimum safety zones of 5-foot sidelines and 10-foot beyond each end (total area minimum 60 feet x 104 feet).
- Two goal posts with backboard, rim, and net; rim to be 10 feet above ground
- Surface shall be minimum 2 inches SCDOT Type 'D' asphalt with 6 inches Graded Aggregate Base Course

OTHER EQUIPMENT

- Provide a minimum of three (3) tetherball posts with a circular 10-foot diameter, 4-inch depth concrete pad centered on the pole. Top of concrete shall be flush with surrounding finished grades and shall have a light broom finish with positive drainage away from the base of the pole.
- Provide outdoor permanent seating areas (3 to 4 spaces) for approximately 30 to 40 total students, near the school and with good sight lines for supervision. Seating shall be placed on concrete paving to reduce erosion, and should have an accessible walkway from the school to the seating.
- Provide approximately 8 to 10 age-appropriate exercise stations near playfields or other outdoor activity areas, with adequate separation between each and preferably located adjacent to a paved fire lane or major sidewalk for ease of access. Each component shall be permanently installed over concrete paving with rubberized safety surfacing if fall protection is a concern for the equipment chosen.

4. Facility Programming

GYM

- Minimum total area shall be approximately 9,000 sq. ft.
- Playing area floor surfacing shall be competition-grade wood flooring.
- The boundaries of the activity area shall be clearly identified with painted floor markings, 3 inches wide, to include a 50-foot x 84-foot activity area / basketball court with a minimum 10' safety zone at each end and 4 feet at each side to nearest seating. Court shall include regulation markings for one basketball court and one volleyball court.
- The room shall be free from potential safety hazards such as protruding structures or objects.
- Walls shall have a smooth or flat surface from the floor up to a minimum 12'-0" in height. Ceiling height shall be suitable for the intended activities of the space.
- The architect shall design appropriate wall and ceiling acoustical treatments to provide adequate sound quality for assembly functions.
- The room shall be well-lighted (minimum 80 footcandles with spectators; 50 footcandles without spectators) and free from shadows. All lighting fixtures and surface-mounted controls or devices shall be covered with protective grids.
- Place wall safety padding on each end of the space. Padding shall be installed 12 inches above the floor surface and shall extend vertically an additional six feet, where possible.
- Adequate storage space should be provided for physical education equipment (minimum 400 to 600 sq. ft.) with a 12' to 15' ceiling height. Provide double-door access that is direct and convenient to the activity area. Minimum 16-inch depth shelving units shall be provided.
- The room should have easy access to outdoor instructional areas in order to facilitate quick transitions from indoor to outdoor facilities.
- The space shall be designed to minimize "pass-through traffic patterns".
- Provide handicapped accessible telescopic seating for approximately 800 spectators.
- Restrooms shall be provided for spectators based upon the code requirement for the total occupancy. (These are in addition to locker room facilities.)
- Provide one general concessions area for the sale of pre-packaged items, convenient to the gymnasium.
- Provide one ticket booth near the primary entrance used for ticketed gymnasium functions.
- Provide at least one basketball scoreboard with wireless controls.

High Schools

Sports:	Outdoor	Indoor
	Football	*Basketball*
	Cross Country	*Volleyball*
	Tennis	*Wrestling*
	Cheerleading	
	Soccer	
	Lacrosse	
	Track	
	Baseball	
	Softball	

OUTDOOR:

ALL PURPOSE BUILDINGS

Field House
- Building to be located centrally to all outdoor fields and courts. Building to be used by all outdoor sports and its use managed by school staff.
- Building consisting of two (2) locker rooms – Varsity and Junior Varsity
- Support spaces consisting of training room, conference room, office space, restrooms, changing rooms, and laundry.
- Must meet OSF & IBC Codes.

Ticket Booth
- One booth with ticket window (minimum)
- Additional ticket booth(s) may be required per venue depending on school layout.
- Additional ticket booths to be per industry standard for larger seating capacity.
- Must meet OSF & IBC Codes.

MULTI-PURPOSE PRACTICE FIELDS (INCLUDING BAND)

AAAA & AAA Practice Area
- Minimum of 200,000 S.F. of open, playable practice area per the following:
- Minimum of three (3) fields, 360 feet long by 160 feet wide (plus 12' safety zones)
- Crowned along field centerline (long axis) where feasible at 1% grade (minimum), 1.5% preferred

AA & A Practice Area
- Minimum of 125,000 S.F. of open, playable practice area per the following:
- Minimum of two (2) fields, 360 feet long by 160 feet wide (plus 12' safety zones)
- Crowned along field centerline (long axis) where feasible at 1% grade (minimum), 1.5% preferred

Lighting
- Lighting for one (1) of the required fields indicated above.
- Foot-candles = 50 maintained

Goal Posts
- Off-set goal posts (removable) & other sport moveable goals

Grading, Drainage, and Orientation
- Water must run to designated drainage areas off the playing surface.
- Where possible, the long axis should be oriented north-south.

Irrigation
- All heads must be even or below playing surface
- Each head coverage shall overlap another zone
- Entire playing surface must have coverage
- Valve boxes shall be located outside of play area

Sod
- Practice areas must have grass, which covers the entire playing surface
- If grass is being placed on a new field or grass is being replaced, Bermuda Tifton 419 shall be used

4. Facility Programming

ATHLETIC STADIUM FACILITY (FOOTBALL, TRACK AND SOCCER)

Outside playing fields and surfaces should be located in close proximity to school buildings and parking areas.

Seating Requirements

- All Seats should be constructed of aluminum, placed on concrete pad, and be fully accessible from nearest parking area with a concrete sidewalk, complying with current code for fall protection and accessibility.
- Seating Capacities adequate for first and second round of playoffs as required by SCHSL.
  - » AAAA 4,000
  - » AAA 3,500
  - » AA 2,300
  - » A 1,000

Press Box

- Adequate space to accommodate the following: Home and Away coaches (two per team), clock judge, announcer and spotter. Adequate area must be available for filming
- Press box shall be a maximum of 499 S.F. including film area.
- Major modifications to existing press boxes over 499 S.F. must meet current building codes (OSF and IBC Codes)
- Must meet OSF & IBC Codes

Concession Stand(s)

- Shall include a home side concession stand with restrooms
- Shall include a visitors side concession stand with restrooms
- Major modifications to existing concession stands over 499 S.F. must meet current building codes (OSF and IBC Codes)
- Must meet OSF & IBC Codes

Scoreboard

- LED fixed panel board
- Scoreboard to have two play clocks
- Wireless

Lighting

- Four Poles – 70’ High (min.)
- Foot-candle = 50 maintained
- Metal or concrete poles
- Emergency evacuation lighting

Fencing

- 4’ barrier separating spectators from playing field
- 6’ fence surrounding entire stadium complex to include two separate double gate sections for entrance and emergency exits. (Must be an easy access for emergency vehicles to enter and leave playing area on a suitable solid surface).

Field Size

- Minimum size field should be 345’ x 195’ (Soccer) & 360’ x 160’ (Football)

Grading & Drainage
- 1 percent grade (minimum) with crown.
- Water must run to designated drainage areas off the playing surface and away from the stadium

Irrigation
- All heads must be even or below playing surface
- Each head coverage shall overlap another zone
- Entire playing surface must have coverage
- Valve boxes shall be located outside of play area

Sod
- Fields must have grass, which covers the entire playing surface
- If grass is going on a new field or grass is being replaced, Bermuda Tifton 419 should be used

Track Lanes
- Number of lanes – (8)
- Lanes widths – 42”
- Surface – Basemat Structural Spray (min.)
- Number of chutes / overrun areas – one (1)
- Inside Trench Drain

Long/Triple Jump
- Number of pits – (2)
- Number of runways- (2)
- Runway length – 40 meters
- Sand pit size – 10’ x 26’ with concrete border
- Surface – Basemat structural spray (min.)

Pole Vault
- One runway minimum (Preferably not crossing prevailing winds)
- Runway length – 40 meters
- Concrete pad for mats
- Surface – Basemat structural spray (min.)

High Jump
- One independent high jump area (15 meter min approach)
- Surface – Basemat Structural Spray (min.)

Discus / Hammer
- One NFHS approved discus / hammer cage and dedicated landing sector

Shot Put
- Throw circle with toe board with dedicated landing sector.

TENNIS

Seating Requirements
- Minimum seating at all schools– (100).
- All Seats should be constructed of aluminum, placed on concrete pad, and be fully accessible from nearest parking area with a concrete sidewalk, complying with current code for fall protection and accessibility.

4. Facility Programming

Courts
- Four (4) regulation courts with appropriate surfacing and proper markings.
- 10' fence surrounding tennis complex (wind screens on fence)
- Practice wall and hitting area

Lighting
- Four Poles – 70' High (min.)
- Foot-candle = 50 maintained
- Metal or concrete poles
- Emergency evacuation lighting

BASEBALL

Seating Requirements
- All Seats should be constructed of aluminum, placed on concrete pad, and be fully accessible from nearest parking area with a concrete sidewalk, complying with current code for fall protection and accessibility..
- Seating Capacities adequate for standard high school games.
  - » AAAA 250
  - » AAA 200
  - » AA 150
  - » A 100

Press Box
- Raised behind home plate (4 person minimum)
- Power, P.A. System & Scoreboard controls
- Maximum size of 499 S.F.
- Must meet OSF & IBC codes

Concession Stand(s)
- Shall include a minimum of one (1) concession stand with restrooms to service both baseball and softball.
- Concession stand shall be a maximum of 499 S.F. including restrooms.
- Major modifications to existing concession stands over 499 S.F. must meet current building codes (OSF and IBC Codes)
- Must meet OSF & IBC Codes

Scoreboard
- LED fixed panel board
- Wireless

Lighting
- 50 footcandles (infield) / 30 footcandles (outfield)
- Metal or concrete poles
- Emergency evacuation lighting for seating greater than 300 seats

Dugouts
- Two (2) required per competition field
- Concrete block with a roof (on grade dugouts)
- Concrete floor with a bench and bat and helmet racks
- Minimum 100 SF storage area per dugout; lockable
- Bullpens

- (2) mounds for both home and visitors (raised mounds)
- Protective fencing behind catcher (6' high minimum)

Field
- 18' min. height backstop with 50' width section behind home plate, and 40' minimum width sections toward dugouts
- Proper solar orientation
- Skinned area for infield, homeplate and pitchers mound
- Left field/Right field minimum dimensions 290'
- Centerfield minimum dimensions 305'
- Outfield fence 6' height with wind screen and safety cap
- Accessible route to seating area from nearest parking

Warning Track
- Behind home plate – 10' wide
- Sidelines – 15' wide
- Outfield – 15' wide

Grading & Drainage
- Water must run to designated drainage areas off the playing surface.
- Irrigation
- All heads must be even or below playing surface
- Each head coverage shall overlap another zone
- Entire playing surface must have coverage

Sod
- Practice area must have grass, which covers the entire playing surface
- If grass is going on a new field or grass is being replaced, Bermuda Tifton 419 should be used

Batting Cages (Shared with Softball)
- Locate near competition fields
- (2) cages (minimum)
- Concrete floor covered with artificial turf
- Power for lighting and hitting machines
- Permanent roof covering the entire area

Practice Infield (Shared with Softball)
- Locate near competition fields
- 90' Infield

<u>SOFTBALL</u>

Seating Requirements
- All Seats should be constructed of aluminum, placed on concrete pad, and be fully accessible from nearest parking area with a concrete sidewalk, complying with current code for fall protection and accessibility.
- Seating Capacities adequate for standard high school games.
  - » AAAA 250
  - » AAA 200
  - » AA 150
  - » A 100

4. Facility Programming

Press Box
- Raised behind home plate (4 person minimum)
- Power, P.A. System & Scoreboard controls
- Maximum size of 499 S.F.
- Must meet OSF & IBC codes

Concession Stand(s)
- Shall include a minimum one (1) concession stand with restrooms to service both baseball and softball.
- Concession stand shall be a maximum of 499 S.F including restrooms.
- Major modifications to existing concession stands over 499 S.F. must meet current building codes (OSF and IBC Codes)
- Must meet OSF & IBC Codes

Dugouts
- Two (2) required per competition field
- Concrete block with a roof (on grade dugouts)
- Concrete floor with a bench and bat and helmet racks
- Minimum 100 S.F. storage area per dugout; lockable

Bullpens
- (2) mounds for both home and visitors
- Protective fencing behind catcher (6' high minimum)

Scoreboard
- LED fixed panel board
- Wireless

Lighting
- 50 foot-candles (infield) / 30 foot-candles (outfield)
- Metal or concrete poles
- Emergency evacuation lighting for seating greater than 300 seats

Field
- Proper solar orientation
- 18' min. height backstop with three (3), min.16' length sections
- Skinned area shall be entire infield
- Left field/Right field minimum dimensions 195'
- Centerfield minimum dimensions 205'
- Outfield fence 6' height with wind screen and safety cap
- Accessible route to seating area from nearest parking

Warning Track
- Behind home plate – 10' wide
- Sidelines – 15' wide
- Outfield – 15' wide

Grading & Drainage
- Water must run to designated drainage areas off the playing surface.

Irrigation
- All heads must be even or below playing surface
- Each head coverage shall overlap another zone
- Entire playing surface must have coverage
- Valve boxes shall be located outside of play area

Sod
- Practice area must have grass, which covers the entire playing surface
- If grass is going on a new field or grass is being replaced, Bermuda Tifton 419 should be used

Batting Cages (Shared with Baseball – See Above)

Practice Infield (Shared with Baseball – See Above)

CROSS COUNTRY
- Course must be complete with start and finish line (3.1 miles) and created by the school to meet all district policies & guidelines.

INDOOR:

GYM:

GENERAL
- Restrooms shall be provided for spectators based upon the code requirement for the total occupancy. (These are in addition to locker room facilities.)
- Provide one ticket booth near the primary entrance for ticketed gymnasium functions
- Playing area floor surfacing shall be competition-grade wood flooring
- Provide one general concessions area for the sale of pre-packaged items, convenient to the gymnasium and within the ticketed-access area
- Provide handicapped accessible telescopic seating for a minimum of 1,500 spectators, or the current South Carolina High School League (HSL) requirements for Third Round playoffs (Class AAAA, AAA, AA, and A).
- Place wall safety padding on each end of the gymnasium if the wall is within fifteen (15) feet, or less, to the boundary of the court play area. Padding shall be installed 12 inches above the floor surface and shall extend vertically an additional six feet, where possible.
- All courts, playing areas, equipment, etc., shall comply with the National Federation of State High School Associations (NFHSA) rules, specifications, and requirements.
- The space shall be well-lighted (minimum 80 footcandles with spectators; 50 footcandles without spectators) and free from shadows. All lighting fixtures and surface-mounted controls or devices shall be covered with protective grids.
- The ceiling height should be at least 25 feet, clear of obstructions.
- Provide scoreboard(s) for basketball with wireless controls. Locate scoreboards for proper spectator viewing.
- The architect shall design appropriate wall and ceiling acoustical treatments to provide adequate sound quality for assembly functions.

- Adequate storage space should be provided for physical education equipment (minimum 400 to 600 sq. ft.) with a 12' to 15' ceiling height. Provide double-door access with direct and convenient to the gym.

BASKETBALL
Provide one regulation court with regulation markings and retractable goals.
Provide two cross-court basketball courts for practice with markings and retractable goals.

VOLLEYBALL
- Provide one regulation court with markings and recessed net post anchors with securable covers
- Provide two cross-court volleyball courts for practice

WRESTLING
- Provide one (1) regulation competition PVC foam mat per National Federation of State High School Associations rules.
- Provide two (2) regulation PVC foam mats for practice areas

MULTI-PURPOSE ROOM / AUXILIARY GYM:

GENERAL:
- The space shall be 4,000 SF
- Provide handicapped accessible telescopic seating for a minimum of 150 spectators
- Space shall be designed to accommodate P.E. activities, volleyball, and wrestling
- Floor surfacing shall be practice-grade wood flooring
- The architect shall design appropriate wall and ceiling acoustical treatments to provide adequate sound quality for assembly functions.
- Adequate storage space should be provided for physical education equipment (minimum 400 to 600 sq. ft.) with a 12' to 15' ceiling height. Provide double-door access with direct and convenient to the space.

BASKETBALL:
- Provide one (1) retractable basketball goal at each end of the space, and four (4) solid fiberglass goals, two on each side of the space

WRESTLING:
- Provide one (1) regulation competition mat per National Federation of State High School Associations rules. Mat size shall be minimum 38' x 38' with a 28' diameter minimum circular wrestling area
- Provide two (2) regulation mats for practice areas

VOLLEYBALL:
- Provide one (1) regulation court with markings and recessed net post anchors with securable covers

Sample Program Data Matrix

	Functional Area / Description	PTR	NSF	No.	TS/Capacity	Total NSF	Comments
1.00.00	**Core Academics**						
1.01.00	Child Development / Kindergarten						
	1.01.01 Classroom						
	1.01.02 Toilet						
	1.01.03 Storage						
1.02.00	Primary (1 - 2)						
	1.02.01 Classroom						
	1.02.02 Toilet						
1.03.00	Elementary (3 - 5)						
	1.03.01 Classroom						
1.04.00	Regular Classroom (6 - 12)						
	1.04.01 Classroom						
1.05.00	Science						
	1.05.01 Lab / Classroom						
	1.05.02 Science Prep						
	1.05.03 Chemical Storage						
1.06.00	Student Collaboration						
	1.06.01 Resource / Project Area						
	subtotal						
2.00.00	**Resource**						
2.01.00	Resource						
	2.01.01 Classroom (ESL, Writing)						
	2.01.02 Computer Lab						
	2.01.03 Small Group						
2.02.00	Special Education						
	2.02.01 Self-Contained, Life Skills						
	2.02.02 Toilet						
	2.02.03 Storage						
	2.02.04 Self-Contained, X-Category						
	2.02.05 Toilet						
	2.02.06 Storage						
	2.02.07 OT/PT Classroom						
	2.02.08 Gifted and Talented						
	2.02.09 Speech						
	subtotal						
3.00.00	**Elective**						
3.01.00	Family and Consumer Science						
	3.01.01 Interdisciplinary Lab						
	3.01.02 Storage						
	3.01.03 Classroom						
3.02.00	Technology						
	3.02.01 Multi-Purp Tech Lab						
	3.02.02 Technology Storage						
3.03.00	JROTC						
	3.03.01 Classroom						
	3.03.02 Uniform Storage						
	3.03.03 Armory						
	3.03.04 Storage						
	3.03.05 Office						
3.04.00	Business / Marketing / Journalism						
	3.04.01 Classroom						
3.05.00	Performance / Production						
	3.05.01 Black Box / Drama Classrm						
	3.05.02 Storage						
	subtotal						

4. Facility Programming

4.00.00	**Fine and Performing Arts**						
4.01.00	Visual Arts						
	4.01.01 2D Studio						
	4.01.02 Storage						
	4.01.03 Office						
	4.01.04 3D Studio						
	4.01.05 Storage						
	4.01.06 Kiln						
	4.01.07 Office						
	4.01.08 Digital Photography						
	4.01.09 Darkroom						
	4.01.10 Storage						
	4.01.11 Office						
4.02.00	Music						
	4.02.01 Choir Room						
	4.02.02 Robe Storage						
	4.02.03 Office / Music Storage						
	4.02.04 Band Room						
	4.02.05 Instrument Storage						
	4.02.06 Uniform Storage						
	4.02.07 Office / Music Storage						
	4.02.08 Orchestra Room						
	4.02.09 Storage						
	4.02.10 Practice Room						
	subtotal						
5.00.00	**Auxiliary Support**						
5.01.00	Physical Education						
	5.01.01 Gymnasium						
	5.01.02 Auxiliary Gym						
	5.01.03 PE Lockers / Showers						
	5.01.04 Team Lockers / Showers						
	5.01.05 P.E. Storage						
	5.01.06 Team Uniform Storage						
	5.01.07 P.E. / Coaches Office						
	5.01.08 Official's Room						
	5.01.09 Laundry						
	5.01.11 Mat Storage						
	5.01.12 Weights/Fitness Room						
	5.01.13 Training Room						
	5.01.14 Health Classroom						
5.02.00	Media Center						
	5.02.01 Reading Room						
	5.02.02 Office / Workroom						
	5.02.03 Staff Toilet						
	5.02.04 Conference / Collaboration						
	5.02.05 Media Production/ Studio						
	5.02.06 Storage						
	5.02.07 MDF						
5.03.00	Auditorium						
	5.03.01 House						
	5.03.02 Stage						
	5.03.03 Control Room						
	5.03.04 Prop Storage						
	5.03.05 Costume Storage						
	5.03.06 Scene Shop						
	5.03.07 Dressing Room / Toilet						

	5.03.08 Ticket Booth						
	subtotal						
6.00.00	**Administration**						
6.01.00	Main Office						
	6.01.01 Waiting						
	6.01.02 Reception / Clerical						
	6.01.03 Workroom / Mail						
	6.01.04 Conference Room						
	6.01.05 Principal's Office						
	6.01.06 Asst. Principal's Office						
	6.01.07 Bookkeeper's Office						
	6.01.08 Toilet						
6.02.00	Guidance						
	6.02.01 Reception / Clerical						
	6.02.02 Counselor Office						
	6.02.03 Student Records						
	6.02.04 Conference						
6.03.00	Health Suite						
	6.03.01 Waiting						
	6.03.02 Office / Exam						
	6.03.03 Rest Area						
	6.03.04 Storage						
	6.03.05 Toilet						
6.04.00	Academic Support						
	6.04.01 Curriculum Coach						
	6.04.02 School Resource Officer						
	6.04.03 Itinerant Office						
	6.04.05 Testing						
	6.04.06 Teacher Planning						
	6.04.07 ISS						
	6.04.08 Book Storage						
	6.04.09 General Storage						
	subtotal						
7.00.00	**Food Service**						
7.01.00	Student Dining						
	7.01.01 Dining Room						
	7.01.02 Chair / Table Storage						
7.02.00	School Kitchen						
	7.02.01 Food Preparation						
	7.02.02 Serving Area						
	7.02.03 Manager Office						
	7.02.04 Staff Locker / Laundry						
	7.02.05 Staff Toilet						
	7.02.06 Dry Food Storage						
	7.02.07 Walk-in Refrig/Freezer						
	7.02.08 Dishwashing						
	7.02.09 Custodial Supply						
	7.02.10 Receiving						
	subtotal						
	subtotlal all areas						
	Circulation, Toilets, Walls, Mech @ 35%						
	Total						

PTR = Pupil:Teacher Ratio
NSF = Net Square Feet

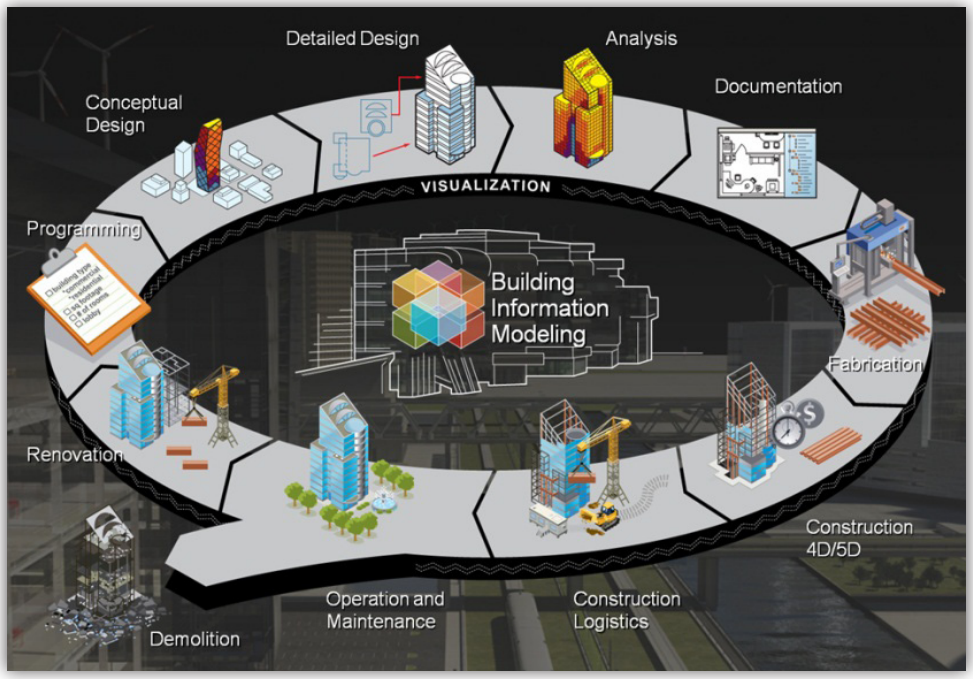
5. Additional Design Guidance

building information modeling

Architects and engineers working for the District are required to utilize Building Information Modeling (BIM) in the development, documentation, and administration of their projects.

BIM should be viewed as a process and not a drawing tool, though drafting is certainly one critical aspect of the technology. BIM is an intelligent, model-based design process that can be leveraged throughout the life of a project. From concept through design and construction through the operation and maintenance of the facility, it is quickly becoming the industry standard as documented in the 2009 McGraw-Hill Construction SmartMarket Report *The Business Value of BIM: Getting Building Information Modeling to the Bottom Line.* The report states that nearly half of the U.S. building industry is using BIM and that the number will only grow as more adopters realize its value. The report also cites 70 percent of the U.S. owners surveyed reported a positive return on their investment after implementing BIM.

Architects and engineers initiate the process but in so doing should recognize and understand how the information developed within their models will live beyond their involvement in the project as illustrated in the diagram below.



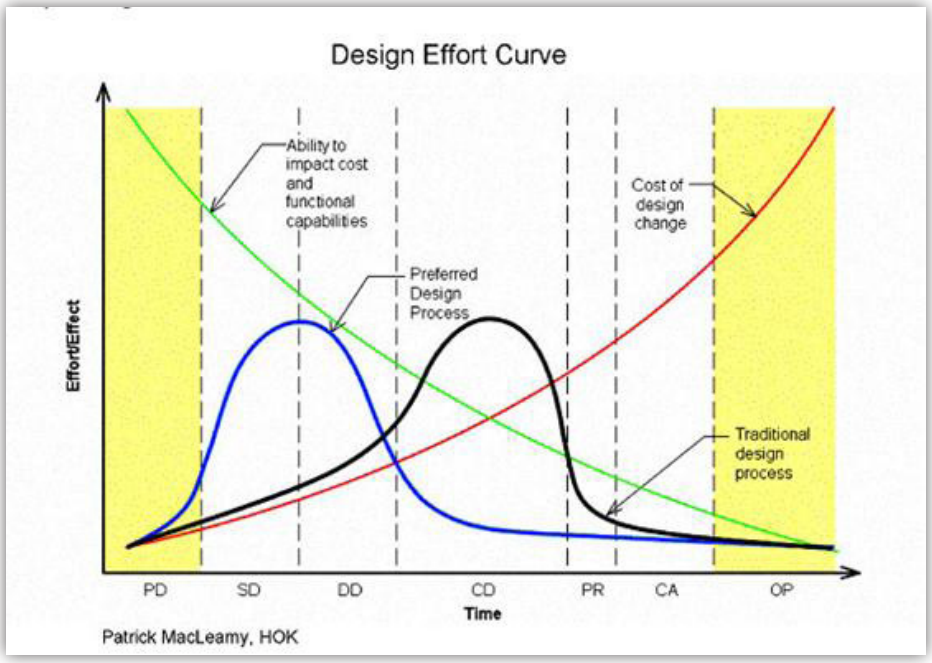
One way to understand BIM as a process is to consider a typical room in a building. During the programming phase, information about the room is gathered from stakeholders and imported into BIM where it is then called upon to develop the building's massing in conjunction with other bits of information. Ultimately, the information about the room is refined to determine its size, location, and adjacencies relative to other rooms.

5. Additional Design Guidance

At the same time, other tools (either internal to BIM or as part of third-part software) can draw on the data in whole or in part to perform early analysis energy modeling. As the design develops, so too will the model. Building systems, structural components, architectural details, and materials all become part of a model in which meta-data – information unique to the specified components – will also reside. This data is useful for construction take-offs and, ultimately, the care of the facility.

Eventually the room in our example will be enclosed by walls, floors, and ceilings. It will be supported by structure that will be analyzed by engineering software that integrates with the model. The room will be supplied mechanically by systems that will be designed and analyzed with interoperable software. It will be lit by lights developed in integral software to establish acceptable lighting levels for the tasks performed in the room. In essence the building will be "built" in three dimensions – four if you count the meta-data – on the computer. At present, "slices" of the building are placed on sheets with dimensions, tags, and notes to convey the design intent to the contractor in the familiar floor plans, sections, and details. This is subject to change, though, as technology advances and Integrated Project Delivery (IPD) becomes the norm.

The McLeamy Curve illustrates traditional project staffing and effort. The District encourages the use of BIM to accelerate and push forward the curve so that the decisions most fundamental to the overall design of the building can be made sooner in the process. As is understood about the relationship between time and effect, delaying such decisions results in a less efficient process that costs both the A/E and the owner time and money.



Before development of the model it is recommended that expectations be clearly established by all stakeholders – Owner, Architect, Engineers, and, if possible, Builder – in its creation. Document what the model is intended to do (e.g. document design, provide the basis for an energy model, allow for cost estimating take-offs, provide

facility management data, etc.). Indicate the information to be embedded within the model. List the final deliverables to be generated out of the model. Reference the American Institute of Architects' E202 document as a basis for understanding and establishing levels of development for the various systems at the established phases in the project model. Revisit levels, systems, responsibilities, and capabilities as the technology evolves beyond the information outlined in AIA E202.

BIM has the power to transform the way buildings are designed, built, and maintained. The productivity gains in producing documents with BIM are only one aspect it offers AEC professionals. It also allows teams to design, visualize, simulate, and analyze the project before ground is broken as described in McGraw-Hill Green BIM: *How Building Information Modeling is Contributing to Green Design and Construction.*

BIM gives AEC professionals the ability to produce more accurate, clash-free buildings that reduce errors and omissions that can contribute cost overruns and waste. Contractors can use design data to fabricate building elements, flag constructability issues before problems arise in the field, and assign time to elements in the model to stage construction. Ultimately, building owners will take ownership of the models and integrate the embedded data into facility management applications and maintain the building systems and manage assets.

energy budgets and models

In the same way that a project budget and schedule are established at the outset, energy and water budgets for the project should be established, too. All new buildings, additions, and renovations shall be designed to meet a fossil fuel, greenhouse-gas-emitting, energy consumption performance standard of 50% of the Commercial Buildings Energy Consumption Survey (CBECS) 2003 regional average for schools. Reducing consumption by half is a readily achievable goal, and with limitations on resources – both fiscal and physical – a more aggressive goal should be considered. For the District, the goal should be 40 kBtu/SF/year or less.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers' workbook entitled Advanced Energy Design Guide for K-12 School Buildings provides best practices for and case studies from all the temperate zones including Zone 3A in which the District resides. In an effort to help districts achieve 50% energy savings en route to net-zero energy buildings, the publication provides recommendations and how-to tips for nearly every component of the building. For instance, it recommends a solar reflectance index of 78 or higher for cool roofs in Zone 3A and it distinguishes between the types of glazing that ought to be specified on south- versus north-facing windows. All of the strategies in the publication combine with time-tested architectural and engineering best-practices to ensure a well-designed, energy-efficient facility.

The design professional must be as vigilant about the established energy budget as the project budget and schedule. In the same way that cost estimates are produced at regular intervals, confirmation that the energy goals are being met must be provided, too. For projects greater than 50,000 SF this can be accomplished effectively via energy models. The District requires integrated design modeling, which is a level of energy model that requires the inclusion of an integrated process between the design team. The model will be used as an informative tool where multiple scenarios of building envelope, systems designs, and other aspects of the building will be analyzed during the schematic and design development stages to inform the design.

5. Additional Design Guidance

The steps required during the planning, conceptual design, and community input phase are outlined below.

Conceptual design (Research/Comparative Analysis/Design Performance Modeling) shall include a baseline analysis to assess existing conditions and applicable building systems, benchmark existing energy and water usage, and establish energy and water consumption budgets for the project. Multiple applicable systems will be considered and proposed. After discussions with the District to establish project goals and limit the number of potential options, the remaining options will be analyzed for performance and cost comparisons. The final deliverable will include a description of the existing conditions, existing conditions to remain, recommendations for applicable systems, and first- and life-cycle costs for said systems. Preparation for and participation in a goal-setting charette is required.

The expectations for performance analysis/energy modeling shall be defined in the contract with the design professional. Benchmarks shall include typical energy use/loads for a building type and/or code compliant base case per Energy Star Target Finder. Utility analysis shall include rates and energy mix. Additional analysis shall include the applicability of tax incentives, rebates, renewable energy credits, grants, etc.

The design professional shall facilitate a goal-setting work-shop at which alternatives and recommendations are provided and the impacts on budget are discussed. Deliverables shall include project requirements, energy and water budgets, occupancy, and a schedule of operations.

Subsequently, the design professional shall develop a baseline energy model and run multiple simulations for comparative studies of the effect of basic design decisions and major system alternatives on energy performance. At the conclusion of the analysis, a narrative will be drafted describing the systems and components proposed for installation on the project including life-cycle cost analysis and an estimate of total energy use expressed in kBTU/sf/year.

Comparative “shoebox” modeling shall be performed to analyze building orientation, form, and massing. Comparative envelope modeling shall be performed to analyze R-value of roofs, R-value of walls, glazing properties (U-value, SHGC, VLT), glazing to wall ratios (percentage area of glass to solid), glazing distribution/orientation (walls, roof), and the life-cycle cost analysis of proposed envelope components

As the concept develops, systems to be analyzed shall include HVAC, lighting, rainwater harvesting, alternative wastewater treatment, renewable energy systems, and the life-cycle cost analysis of proposed systems.

At the conclusion of conceptual design a preferred alternative shall be proposed and analysis conducted to determine total building pEUI and compare against project goals. Adjustments shall be made as required and the budget shall be confirmed.

Design Development (Predictive/Building Energy Modeling) will include further refinement of the energy model and multiple simulations for comparative studies of the effect of detail design decisions and refined system alternatives on energy performance. Other performance simulations will be conducted to study lighting, water efficiency measures, etc. Documents based on these additional refinements will be prepared to indicate the general design approach and locations of mechanical,

plumbing, fire protection and electrical equipment and components. Space requirements for equipment and appurtenances will be established, and this will require coordination with architectural and structural components. Life-cycle cost analysis will be refined as will the estimate of total energy use expressed in kBTU/sf/year.

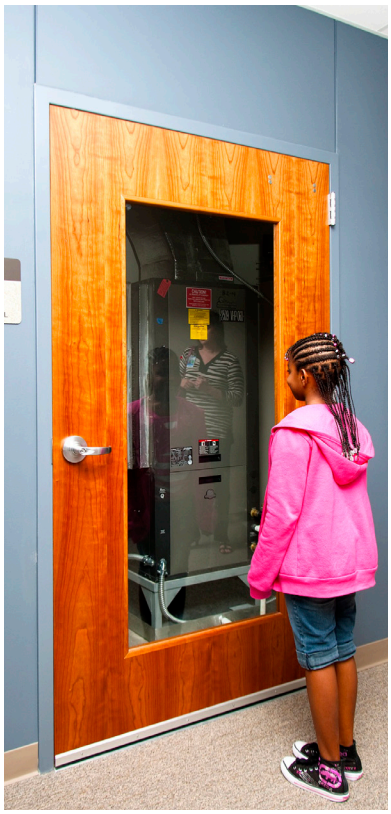
Construction Documents (Compliance Modeling) will be completed based on the approved Design Development documents. The energy model will be finalized to provide energy performance data for documentation/reporting.

commitment to sustainability

Sustainable schools encompass far more than just energy conservation. True sustainable design is about doing the right thing for the communities in which we work and live and the future generations being educated in the buildings we design. To that end, a significant commitment is required on the part of the design professional to a broad, whole-systems approach that addresses many other issues including land use, transportation, water, material consumption, waste, and the health and well-being of humans and natural systems.

The United States Green Building Council's LEED for Schools program outlines five broad categories of sustainable design applicable to learning environments: site design, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. The USGBC's Center for Green Schools and the McGraw Hill Foundation jointly released "The Impact of School Buildings on Student Health and Performance" that conveys the importance of sustainable design, and whether LEED certification is sought or not the principles outlined in the LEED for Schools Reference Guide should be heeded. The strategies outlined include, but are not limited to, the following:

- Removing toxic materials and products from places where children learn and play.
- Controlling exposure to dust and pollen, which improves the health of students, faculty and staff.
- Giving access to daylight and outdoor views to building occupants, which has been shown to heighten participation, lessen distraction, and encourage learning.
- Emphasizing the importance of acoustics, which are fundamental to absorbing and retaining information.
- Providing access to thermal controls like thermostats or operable windows, which teachers report give higher levels of comfort in their classrooms.
- Using LEED credits such as "the school as a teaching tool" within the LEED for Schools rating system, which encourages teachers to use the school facility as an educational tool.



Regarding the latter, as noted in 'Principles of School Planning and Design," using the sustainable features of a school facility with the school's educational mission brings the building to life, improves environmental literacy in students, and leads to a generation of sustainability natives.

Design professionals are encouraged to consult with LEED accredited professionals to help leverage opportunities to design healthy, high-performing environments to their fullest.

5. Additional Design Guidance

technical specifications summary

The District's Technical Specifications provides architects and engineers with detailed information regarding preferences for the systems and products to be used when designing schools and facility improvements. These specifications are based on many years of experience by district personnel building schools in the district and the institutional knowledge they have gained about best practices for local school construction. The Technical Specifications may be considered a compilation of "lessons learned," and the inclusion of their requirements in future projects will improve the clarity of the project specifications and overall alignment with the District's expectations.

Specific products are identified in the Technical Specifications, which will be reviewed annually by the District and updated accordingly. Vendors and suppliers will have an opportunity to present new products to the District for review, but all new products included in the specifications will be approved by the Board.

The paragraphs below offer an "at-a-glance" summary of HCS-preferred materials and technical features. For complete detail on these and other elements to be incorporated into the plans and specifications for future school projects, refer to the Technical Specifications.

Roofs. Roof should be sloped (preferable) or low-slope (as required). Sloped roofs should be standing-seam Kynar-finished metal with double-locked ribs. Low-slope roofs should be cold or hot modified bituminous membrane installed over specified insulation with a minimum of two plies of prefabricated, reinforced, homogeneous Styrene-Butadiene-Styrene (SBS). All roof installations shall include a twenty-year, no-dollar-limit, weather-tightness warranty. Please refer to the technical specifications for a complete description of roofing requirements.

Walls. Walls shall be designed for durability, ease of maintenance, acoustical performance, flexibility, and aesthetic appeal. Preferred exterior wall system is insulated cavity-wall construction with 4" face brick veneer and concrete masonry unit backup. Insulated metal panel systems are an acceptable alternative but EIFS or stucco systems are not to be used unless approved by the District. Interior walls at classrooms, toilets and corridors shall be painted CMU or metal stud and impact resistant gypsum drywall. Walls in Administrative areas may be metal stud and gypsum drywall construction with acoustical batt insulation.

Kitchens. Finishes in food prep and serving areas shall consist of FRP, floor-to-ceiling. Floors shall be non-skid, poured epoxy type, in dark colors such as blue, charcoal, black and terracotta. Personnel door at loading dock shall be equipped with fly fan, peep hole, and buzzer with signal to manager's office. Manager's office shall provide good visibility of entire kitchen and be equipped with stand-alone HVAC unit. Kitchen equipment, including shelving, exhaust hood and walk-in freezer and refrigerator shall be stainless steel. A specialty kitchen designer is to be consulted on any and all kitchen designs.

5. Additional Design Guidance

Paint. Interior and exterior surfaces specified to be painted shall receive a minimum of three coats (including primer), with finish coats of waterborne acrylic type. In all applications, compliance with specified requirements for surface preparation and coverage shall be strictly enforced. Technical Specifications provide information related to acceptable products, sheens, etc. All finish schedules will be provided by the design professional in the drawings – not in the specifications.

HVAC. HVAC design must meet the required codes and be as efficient as possible. Good indoor air quality and regulating humidity are high priorities. Historically, HVAC designs include larger packaged make up air units complete with plate heat exchangers, motorized dampers, fans, controls, *et cetera* to cool or heat the outside air and provide humidity control. This treated air is delivered directly to the occupied portions of the building. Separate DX-type split systems are used within individual spaces to provide room controlled heating and cooling.

HVAC equipment shall be manufactured by a single manufacturer on any given project. When installed on the ground, equipment shall be enclosed by fencing and supported on elevated concrete pads. Wherever installed, proper clearances shall be maintained and unencumbered access shall be provided. For units installed on the roof, walkways to and adjacent pads shall be provided to protect roofing. Ductwork shall be metal, with 2" thick externally wrapped insulation. Duct board and/or duct lining shall not be allowed. Humidity control shall be provided for entire building, not just classrooms. Testing and balancing of HVAC system shall be accomplished by a T&B contractor who is contracted by the District. All controls shall be an extension of the existing Siemens Facility Management System provided by the District's contractor. Individual temperature, humidity and CO2 sensors shall be used to monitor and control the indoor air quality.

Plumbing. Piping materials shall include copper (Type K under slab and Type L above finished floor) for all domestic hot and cold water piping, and Schedule 40 (minimum) PVC for drain/waste/vent piping. Chemical resistant acid waste piping shall be used for all laboratories. Plumbing vents on roof shall be located away from fresh-air intakes to avoid circulation. Automatic trap primers shall be used for floor drains, passive type fed from local sink traps. Mechanical trap primers shall not be used. All underslab piping shall be checked by camera and DVD of all lines must be turned in with closeout documents.

Electrical. All spaces in the school shall be equipped with occupancy sensors. All fluorescent fixtures shall be 3-tube type, T5 or T8 lamps. Convenience-type electrical receptacles shall be on circuits separated from computer power. All receptacles shall be rate for not less than 20 amps. Electrical panels shall be mounted in shallow closets, accessible from corridors. Electrical work shall be closely coordinated with Technology specs, to include requirements for number and size of data cable raceways serving various equipment and spaces throughout the school.

Security. Security system components (cameras, sensors, intrusion detection devices, etc.) shall be provided the District. Locations of all empty box and conduit rough-in shall be shown on the construction documents for installation by the contractor.

5. Additional Design Guidance

Fire Alarm and Sprinkler Riser Rooms. Fire alarm design shall meet applicable codes. Fire alarm control panels along with annunciator panels shall be located near the main entry of the facility. Fire alarm systems shall be UL-specified and must be installed by a UL Certified Fire Alarm Contractor. One year monitoring services shall be included in the initial construction budget.

Doors. Unless otherwise specified, interior doors shall be type PC-5, solid-core wood veneer. Exterior doors shall be 18-gauge galvanized steel, insulated, or FRP-clad aluminum. Interior and exterior frames to be 16-gauge steel, primed for interior application and galvanized for exterior application. All doors shall be 1-3/4" thick.

Hardware. The District's standard specification for architectural hardware, to include: types of hardware, finishes, lock function, keying conferences and schedules, products and manufacturers. All cylinder cores shall be a 6-pin in an A4 System, no substitutions. Coordination with work of other trades for rough-in of ADA door operators and/or magnetically-locking doors is required. Hardware accessories, including thresholds, saddles, weatherstripping and acoustical seals, are also specified in this section. All hardware schedules are to be provided in the drawings – not in specifications.

Padlocks/Keyless Entry Locks. Padlocks shall be provided at all fence gates and all lockable items outside the building. Padlocks shall coordinate with District's Key-Mark Keying System. Quantity of padlocks required shall be specified by the Architect. Keyless locks shall be wireless type, provided at IDF, MDF and exterior doors.

Fiberglass Reinforced Polyester Doors. The District's standard specification for FRP doors and aluminum frames. FRP doors shall be used for new exterior entrances, and high-use areas where scheduled. Front entry and corridor doors shall have top and bottom glass panels. All other FRP doors shall be a solid panel with louvers as required for ventilation.

Aluminum Doors and Entrances. The District's standard specification for aluminum storefront type framing and doors. HCS approval shall be obtained for proposed system manufacturer wherever hurricane impact rating is required. Aluminum doors shall be fabricated from .125" extrusions x 1-3/4" thick x rail dimensions specified. Framing shall be .125" aluminum tube. Finishes as specified.

Toilet Partitions. The District's standard specification for solid phenolic toilet partitions. Type to be overhead-braced, floor-anchored. Brackets and overhead rails shall be extruded aluminum. Hinges, pilaster shoes and miscellaneous accessories shall stainless steel. Brackets and hinges shall be full-height. Privacy screens shall be wall-braced, floor-anchored, matching partition construction.

Lockers. Student and athletic team lockers shall be all-steel, manufactured by Debourgh, or approved equal. Locks shall be built-in combination type. Sloping tops shall be provided at all locations.

Fencing. Fence should be aluminum rail style in front of schools for appearances and chain link for the perimeter and other areas. As much as possbile, fencing should

blend into the landscaping. Chain link fence shall be 9-gauge wire, galvanized or vinyl-coated, 2" mesh, in one-piece heights up to 12'. Posts shall be Schedule 40 galvanized pipe, O.D. depending on fabric height and gate spans. Gates to be 28" wide, minimum. Chain link fence contractor shall maintain an office within Horry County.

Floor Finishes. Decisions regarding floor finishes will be proposed by the Architect and approved by the District during the design phases of the project. Acceptable floor finishes are VCT, carpet squares, and polished concrete. If VCT is used it should be a non-wax product. All colors and finishes shall be provided by the Interior Designer and approved by the District.

Ceiling Tile. Acoustical ceiling tiles shall be 2'x2' or 2'x4' only. 2'x2' ceilings shall be style #824 or #770 by Armstrong, or style #2110 by USG. 2'x4' ceilings shall be style #823A or #769A by Armstrong or style #2310 by USG. Acoustical ceiling system specification shall include suspension grid, hanger wire, wall trim and accessories. Tiles shall receive Bio-Block coating on front and back to inhibit mold and mildew. In locker rooms, wet areas and kitchen, provide 2'x2' ceilings, style as defined in the District's technical specifications.

Cabinetry. Educational casework shall be plastic laminate, AWI custom grade, manufactured with locally available hardware. Storage cubbies and wall hooks shall be provided for all elementary classrooms, following OSF guidelines. All classrooms shall be equipped with lockable teacher storage, corner type preferred, keyed similar to other lockable cabinets in the classroom.

Windows. Extruded aluminum, thermally broken, with insulating glass units. Where tinted glazing is specified, degree of shading coefficient shall be coordinated with mechanical engineer and colors shall be limited to solar grey, solar bronze or light green. Tinted glass and reflective coatings shall block UV penetration and preclude need for classroom blinds. Windows with internal blinds are not permitted.

Media Center. Media Center shall be located adjacent to Media Production and Studio spaces, which shall be designed to offer a complete view between Production and Studio spaces. Media Production shall include a work counter and sink. In Media Center, circulation desk heights shall be sized according to grade levels served and include a book return feature. All shelving shall be 12" deep, adjustable. Storage room shall offer separate access from either an exterior corridor or from media center.

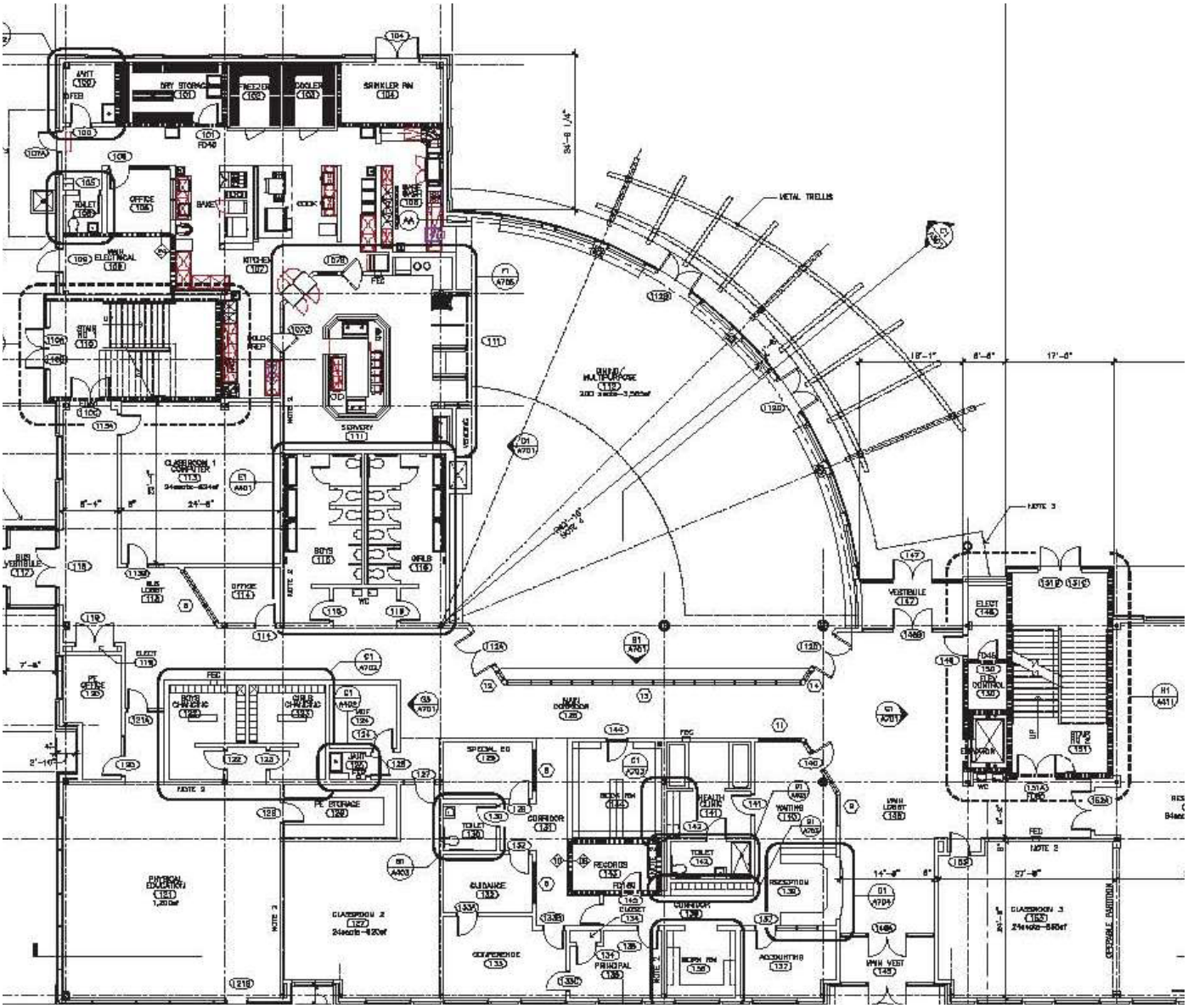
Stormwater Drainage Maintenance. Retention ponds shall receive sufficient maintenance such that vegetation on pond bank does not become overgrown or a nuisance, yet remains established to degree necessary to prevent erosion. Outlet control structures shall be inspected weekly and kept free from debris and trash. Dredging of ponds will be required if at any time it is determined that top of sediment build-up is 1' above the pond bottom elevation. Catch basins shall be inspected monthly. Piping to storm drains shall be completely sealed during construction.

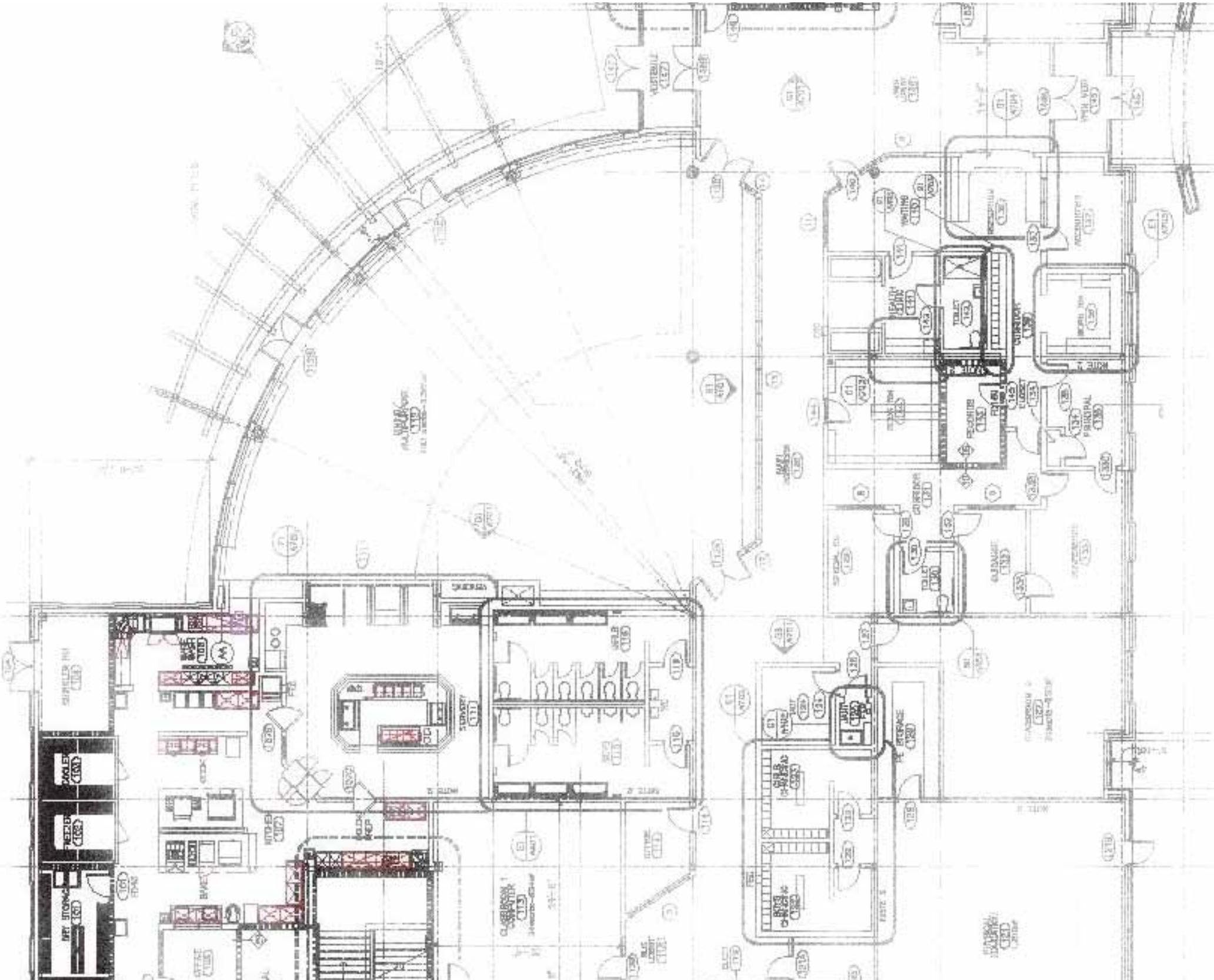
Landscaping. Vegetation shall be indigenous, drought tolerant. Planted beds shall receive weed protection. Ornamental flower beds are not permitted. Irrigation systems to be fully described on plans. Mesh-backed sod is not permitted.

5. Additional Design Guidance

Civil. Rainwater collection and drainage systems shall be designed by the civil engineer and fully detailed on the plans. Systems shall include downspouts and run-out piping, catch basins and inlets, curbs and gutters, and retention structures. Ponding of water on paved, grassed or playground areas shall not be permitted. Lawns adjacent to the building shall be established using sod.

Technology Specifications. This section of the Technical Specifications shall be followed without deviation, unless otherwise approved by the District. Specifications for data backbone and pathways, telecommunications outlets and assemblies, conduit, raceway and hardware for terminating and interconnecting between MDF and IDF are provided.





TECHNICAL SPECIFICATIONS

District staff has prepared project specifications, “Technical Specifications”, for use by design professionals when developing construction documents in an attempt to standardize the acceptable products and construction methodologies. The generated specifications are to be utilized for all future projects. The specifications have been created in conjunction with both architectural and engineering consultants. The specifications represent the intended products and minimum construction standards expected by the District.

District staff has utilized MasterSpec 3Part specifications as the preferred method of creating and organizing the Technical Specifications. In conjunction with these specifications, the project design professionals are expected to incorporate into the construction drawings appropriate information which is compatible with the Technical Specifications and the specific demands of the project. An example of information to be provided in the construction drawings would include: the building hardware sets; interior and exterior finish schedule; structural requirements; design pressures of windows; equipment schedules; etc.

Design professionals are expected to review the provided specifications and coordinate the project information with the specifications. The design professional will still be expected to design the projects and to meet all code, OSF, and District requirements. The design professional must notify the District if there is a conflict with design direction or requirements. The design professionals will not be allowed to change or alter the approved Technical Specifications, nor will manufacturers, vendors or suppliers be able to request inclusion without a thorough review process.

The Technical Specifications will be updated annually for new products, removal of products, and code changes. This will allow design professionals, suppliers, and manufacturer’s opportunity to request revisions to Technical Specifications. Any and all future changes will be provided to the Board for review and approval with the annual update.

Sections can be made available upon request. All specifications will be posted to the HCS website upon Board approval.

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