State of Arkansas

Division of Public School Academic Facilities and Transportation

Arkansas Public School Academic Facility Manual

Arkansas Division of
Public School Academic
Facilities and Transportation

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Arkansas Public School Academic Facility Manual

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Introduction

Introduction

The ~~Arkansas Department of Education (ADE)~~ Division of Public School Academic Facilities and Transportation (DPSAFT) is charged with overseeing the design and construction of school facilities in the state of Arkansas. The Arkansas Public School Academic Facility Manual (APSAFM) has been developed to provide consistent, clear information for school districts and design professionals as a new generation of schools is being created for Arkansas.

The ~~S~~standards ~~&~~and ~~G~~guidelines contained within this ~~section~~ APSAFM are the culmination of standards, accepted procedures, statutory requirements and the experience of experts and authorities throughout the United States and establishes a uniform level of quality for all public school buildings.

~~The Sstandards &and Gguidelines will apply to new school facilities and new additions to existing buildings. Renovation to existing facilities should adhere to the standards & guidelines as outlined in Section 1200.~~

Since ~~S~~standards ~~&~~and ~~G~~guidelines must communicate information about so many issues, the length and quantity of the document can be intimidating. However, understanding how the standards and guidelines are organized and which information will be needed during the various phases of the process will enable each participant to be better prepared for the exciting opportunity of creating school facilities.

An important consideration in developing a statewide program that must provide equity among districts is the balance between broadly applicable standards and educational program delivery. A fundamental tenet of educational facility planning is that school facilities must be responsive to a school district's educational program.

The standards and guidelines allow districts to develop building programs that respond to their current and unique needs as well as prepare for their educational future. There are also many different ways in which districts are delivering educational programs and helping students accomplish learning objectives at every ~~school and school~~ grade level. By designing classrooms and other instructional spaces to be flexible and adaptable, individual districts are better prepared to accommodate future educational program developments.

Throughout the planning, design, and construction phases of a project there are three factors that must be considered and held in balance: quality, cost, and time (schedule). The ~~S~~standards ~~&~~ and ~~G~~guidelines ~~was~~ were created to provide parameters for balancing these three essential elements

fairly for all projects throughout the state.

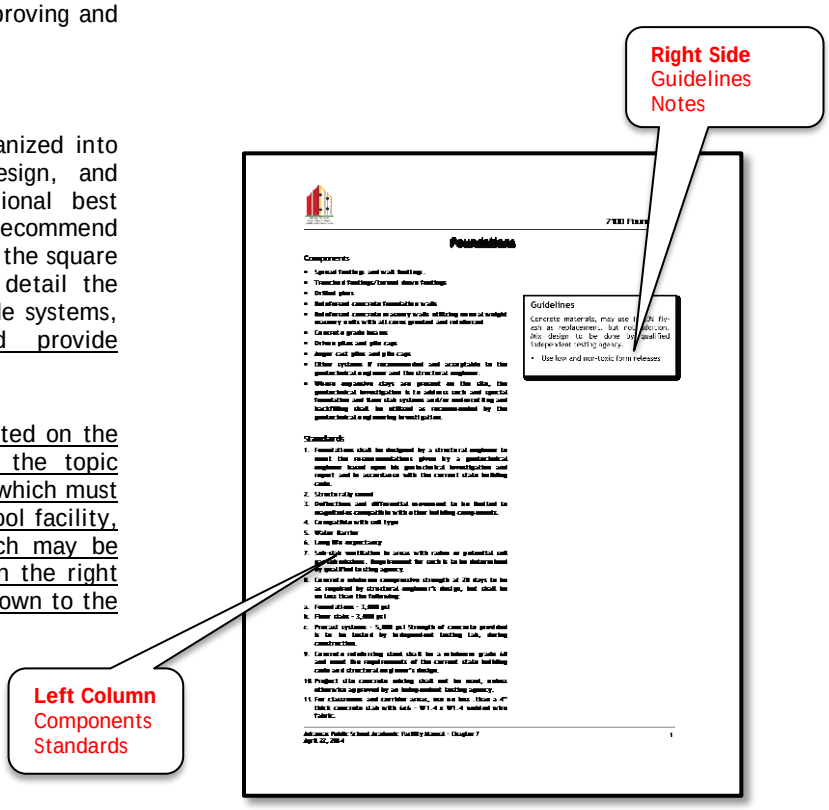
The ~~S~~standards ~~&~~and ~~G~~guidelines are intended as a starting point for architects, engineers, other design professionals, and school districts to develop solutions to meet the educational needs of the individual school community. The information is provided to allow the planning, design, and construction processes to proceed most efficiently, without undo restriction on the design of the facilities, focusing efforts on the creation of best possible school facilities for each project rather than "reinventing the wheel".

The ~~Arkansas School Facility Manual~~ APSAFM is the exclusive property of ~~the Arkansas Department of Education of the State of Arkansas, and the Arkansas Department of Education~~ DPSAFT, who reserves the right to add, delete, modify, or otherwise change the content of this manual at any time. Specific information contained within the manual will be periodically modified to reflect current and future trends in teaching methodologies, educational programs and services, construction and education technologies, and lessons learned as Arkansas proceeds with the ongoing task of improving and maintaining its schools.

Facility Manual Organization

The ~~Standards & Guidelines~~ APSAFM ~~are~~ is organized into seven chapters that explain the planning, design, and construction processes; suggest current educational best practices, ~~and~~ facility planning concepts, and recommend components of an education framework~~,~~; identify the square footage provisions for each school grade level; detail the features and amenities of each space; ~~and~~ provide systems, materials, guidelines, and information; and provide technology infrastructure recommendations.

Each chapter begins with general comments, located on the left side of the page [left column], regarding the topic included in the chapter. Additionally, standards, which must be incorporated into each new and renovated school facility, are listed in the left column. Guidelines, which may be included in a text box or drawing, are located on the right side of the page [right column]. An example is shown to the right.



This chapter contains an outline of the information found ~~of~~ in the ~~Arkansas School Facility Manual~~ APSAFM ~~within this section~~ in each of the following chapters of the ~~Arkansas School Facility Manual~~ APSAFM and a summary of the standards and guidelines contained within each chapter.

The chapters included in the ~~this section of the Arkansas School Facility Manual~~ APSAFM are:

- Chapter 1: How To Use This Manual
- Chapter 2: Educational Facility Planning Concepts
- Chapter 3: Educational Framework
- Chapter 4: Site Guidelines
- Chapter 5: Program of Requirements [Bracketing]
- Chapter 6: Program Space Guidelines
- Chapter 7: Building Systems

Chapter 1: How To Use This ~~Section~~ Manual

Chapter 1 contains introductory information that indicates the organization of ~~Section Two~~ the Facility Manual; an executive summary highlighting the standards and guidelines; a glossary of general APSAFM definitions and abbreviations; and a ~~general overview~~ timeline indicating the steps and persons responsible ~~of~~ for the planning, design, and construction processes intended to respond to the educational facility needs of Arkansas schools.

Chapter 2: Educational Facility Planning Concepts

Chapter 2 contains planning concepts related to current educational best practices, special education, ~~workforce development~~ career education, and program and design capacity. The facility planning concepts contained within this chapter are intended to provide information regarding current and future trends in educational delivery methods and facilities and to assist the planning and design team as they review and develop their individual educational facility concepts. The concepts are for information only ~~be informative only~~ and are not standards.

Chapter 3: Educational Framework

Chapter 3 contains a series of broad principles associated with organizational, facility, program, and service issues, including: grade configuration, school size, and class size. In conjunction with ~~the~~Chapter 2: Educational Facility Planning Concepts, Chapter 3 provides assistance when developing an educational facility.

Chapter 4: Site Guidelines

Chapter 4 contains information about site size and site amenities. Guidelines are also outlined for a multitude of factors that must be considered, including: various types of circulation and site access, drainage, play fields and playgrounds, fencing, lighting, mechanical/~~Chapter 5 assists~~

~~the school district in establishing the size and quantity of instructional and support spaces for construction of a new facility or an~~ electrical yard, landscaping, site furnishings, and exterior security provisions.

Chapter 5: Program of Requirements (Bracketing)

Chapter 5 assists the school district in establishing the size and quantity of instructional and support spaces for construction of a new facility or an addition to an existing facility. The size of a school facility is based on total student population and grade configuration. The Program of Requirements (POR) identifies an overall size in square feet for a facility and then identifies spaces that must be included in the school facility. The POR also ~~and~~ provides an allowance for additional support spaces that the district may choose, based on their programs and methods of educational delivery.

Chapter 6: Program Space Guidelines

Chapter 6 contains space plates for each type of space in the ~~Programs of Requirements~~ POR. Most space plates contain a graphic representation and information related to features, loose furnishings, finishes, and notes. Space plates are intended to give information and are not meant to establish a design standard for the space.

Chapter 7: Building Systems

Chapter 7 provides ~~an overview and examples of the various materials and systems that have been used to establish a~~ design and performance standards and guidelines for the level of quality of ~~for~~ the systems and materials to be incorporated into new school buildings and additions to existing school buildings.

Introduction

Introduction

Arkansas Code Annotated § 6-21-806 entitled Academic Facilities Master Plan Program – School districts provides the framework for school facility planning in Arkansas. The law requires each school district to develop a six-year master plan that is approved by the district's board of directors. The district submits the master plan to the Division of Public School Academic Facilities and Transportation for approval.

The following milestones are pertinent to the master plan process:

- February 1 of each even-numbered year – districts must submit final master plans for the next six-year period. Districts that desire Academic Facilities Partnership Program project funding for the next two-year funding cycle must include the projects in the master plan.
- September 1 of each even-numbered year – the Division approves the master plan if all requirements are met.
- February 1 of each odd-numbered year – districts must submit a master plan report and preliminary master plan for the upcoming final master plan submission.

The master plan must include:

- A schedule of custodial activities for each public school facility.
- A schedule of maintenance, renovation, and repair activities.
- Documentation that describes preventative maintenance work.
- Annual expenditures for all custodial, maintenance, renovation, and repair activities.
- A projected replacement schedule for all major building system in each public school facility.
- Identification of issues with regard to public school facility and program access to individuals with disabilities.
- Identification of committed projects.
- Annual expenditures for capital outlay.
- A description of planned new construction projects with cost estimates.
- Evidence of the school district's insurance coverage.
- The division shall establish procedures and timelines for a school district to submit a preliminary facilities master plan or a master plan outline to the division before the submission of the school district's final facilities master plan.
- The preliminary facilities master plan or master plan outline shall form the basis for a consultation meeting

It is important ~~to note~~ that time be set aside to consider what students will require to be successful in the future as the School District, Educational Planner, and Design Professionals begin to discuss the design, construction or renovation of school facilities. ~~that time be allotted to consider what students will require to help them be successful in the future.~~ Consideration should be given to current and future trends in educational programs and delivery methods, changes in coursework, impact of technology on teaching methods, and social, economic, and world issues.

This chapter, along with ~~Chapter~~ ~~3~~ Section 3000, should provide the Project Team with "fodder" to fuel the creative thinking process and develop a school facility that not only meets the standards and guidelines, but positions the district to achieve the highest results in student education.

between representatives of the school district and members of the division.

- As soon as practicable after submission of the preliminary facilities master plan or master plan outline, the division shall hold the consultation meeting with the school district to:
  - Assure understanding of the general goals of this subchapter and the criteria by which projects will be evaluated
  - Discuss ways the facilities master plan may be structured to meet the goals of this subchapter
  - Assist school districts to prepare accurate budgets and reasonable project schedules, and
  - Provide for efficiency and productivity in the approval process for local academic facilities projects and state financial participation in local projects.

The master plan consultation meeting between the school district and the division, generally conducted in the summer or fall of each odd-numbered year, provides an excellent opportunity for dialogue and enhances the district's preparation of a complete master plan that meets the district's goals.

~~This chapter contains information that may be used by the Project Team regarding current and future educational "best practices", rules, and regulations for students with disabilities, and current standards for Career Education programs in the State of Arkansas.~~

~~It is important to note that as the School District, Educational Planner, and Design Professionals begin to discuss the design, construction or renovation of school facilities. that time be allotted to consider what students will require to help them be successful in the future. Consideration should be given to current and future trends in educational programs and delivery methods, changes in coursework, impact of technology on teaching methods, and social, economical, and world issues.~~

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~~Overview~~

~~Public education is at a unique point in history. We have transitioned from the industrial age to the information age, and as most organizations have already done, school districts across the country are considering changing the way they do business. School districts are investigating curricula, organizational models, current and emerging technologies, the role of administration, and their local communities to determine the effect each of these has on student performance.~~

~~These investigations have resulted in a series of educational "best practices" intended to provide students with the greatest opportunity for success.~~

Overview

Public education is at a unique point in history. We have transitioned from the industrial age to the information age, and as most organizations have already done, school districts across the country are considering changing the way they do business. School districts are investigating curricula, organizational models, current and emerging technologies, the role of administration, and their local communities to determine the effect each of these has on student performance.

These investigations have resulted in a series of educational ~~"best practices"~~ facility planning concepts intended to provide students with the greatest opportunity for success.

~~Implementing educational "best practices" can have a significant impact on facilities. The following describes a few educational "best practices", cites examples where they have been implemented, and expresses the impact each has on facilities. The information included with the examples is to help facilitate the planning, design and construction of school facilities.~~

Implementing ~~educational "best practices"~~ such concepts can have a significant impact on facilities. The following describes a few educational ~~"best practices"~~ facility planning concepts, cites examples where they have been implemented, and expresses the impact each has on facilities. The information included with the examples is to help facilitate the planning, design and construction of school facilities.

~~Curriculum~~

~~Offer Essential Knowledge, Integrate It, and Make Connections to Real Life~~

- ~~Based on federal and state content standards~~
- ~~Require content areas to be linked to one another~~
- ~~Accommodate multiple-intelligences and learning styles~~
- ~~Demand critical thinking and problem-solving~~
- ~~Incorporate pervasive technology~~
- ~~Utilize multiple performance assessments~~

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~~"Best Practice"~~

~~Investigation and research suggest that the core of the high school curriculum must offer both the substance and the practicality to prepare students for an uncertain future. The curriculum should strive to meet the individual needs without comprising larger goals. Dr. Willard Daggett, President of the International Center for Leadership in Education and a national expert on education, claims that schools should "make education rigorous and relevant for all students". Daggett uses a Rigor and Relevance Matrix to categorize curricula into one of four quadrants.~~

~~Daggett defines rigor as the level of Bloom's Taxonomy achieved in any given lesson. He defines relevance as a continuum ranging from "knowledge in one discipline" to "applications to real-world unpredictable situations."~~

~~"Best Practice"~~Educational Planning Concept

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~~Example~~

~~In an effort to make curriculum rigorous and relevant, all sophomores at Oxford Hills Comprehensive High School, located in South Paris, Maine, take a class called the Human Experience (HumEx), which combines the study of math, biology, English, and social studies. At the core of the integrated HumEX class is a problem-based approach to the curriculum. Instead of students simply studying content, they are expected to study, understand and then apply the content to a specific, "real" problem. During the school year '2002-'03, the students were charged with creating and maintaining their own model community. To solve the problem, the students studied ecology, philosophy, genetics, literature, economy, geometry, algebra, statistics, government, and poetry.~~

~~**Facilities Impact**~~

~~Adopting curricula that offer essential knowledge, integrated approaches, and connections to real life can have a significant impact on facilities. Facilities may require student production for spaces for the creation of project, small group rooms for collaboration, and large group spaces for students to show their work.~~

~~Organizational Models~~

~~Provide Student-Centered House Approach~~

~~"**Best Practice"**~~

~~Student-centered approaches provide students with a variety of opportunities to learn and develop skills and competencies based on their individual needs. Organizational models such as grade-level teaming, schools-within-a-school, and thematic approaches often characterize these student-centered approaches.~~

~~"Best practices" may suggest that facilities be organized into houses, instructional units comprised of classroom spaces, student production spaces, and teacher preparation areas. "Best practices" may also suggest that double-loaded corridor designs cannot provide the flexibility necessary to accommodate multiple organizational models nor can they foster the same level of cooperation, teaming, and sharing of professional resources as house designs.~~

~~**Examples**~~

- ~~**Grade-Level Teaming**~~

  ~~Grade-level teaming is based on organizing the building into separate grade-level units. Grade-level teams typically utilize an interdisciplinary approach.~~

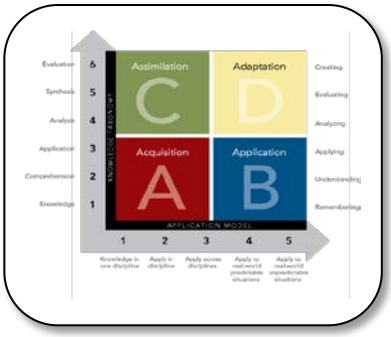
  ~~Medina High School, located in Medina, Ohio, is organized into six 600-student grade-level houses. Each house contains learning centers, regular classrooms, for each of the core academic content areas [i.e. mathematics, science, English, social studies, foreign language, and business.] Students in each grade-level take their core academics in their house leaving only for specialty areas such as physical education visual and performing arts. The goal of grade-level teaming for Medina High School is to create an environment which facilitates personalized education and accommodates both departmentalized and interdisciplinary instructional approaches.~~

- ~~**Schools-Within-A-School**~~

  ~~Schools-within-a-school are based upon multiple units of grades 9-12 housed in the same facility, but having separate governing bodies. Thus, a large school can be divided into smaller, more personalized units.~~

~~"Best Practice"~~Educational Planning Concept

Daggett defines rigor as the level of Bloom's Taxonomy of Thinking Skills achieved in any given lesson [creating, evaluating, analyzing, applying, understanding, and remembering]. He defines relevance as a continuum ranging from "knowledge in one discipline" to "applications to real-world unpredictable situations."



Facilities Impact

Adopting curricula that offer essential knowledge, integrated approaches, and connections to real life can have a significant impact on facilities. Facilities may require student production for spaces for the creation of project~~s~~ work, small group rooms for collaboration, and large group ~~presentation~~ spaces for students to ~~show~~ present their work

Organizational Models

Provide Student-Centered House Approach

~~"Best Practice"~~Educational Planning Concept

Student-centered approaches provide students with a variety of opportunities to learn and develop skills and competencies based on their individual needs. Organizational models such as grade-level teaming, schools-within-a-school, and thematic approaches often characterize these student-centered approaches.

Alhambra High School, located in Phoenix, Arizona, is based on a school-within-a-school organizational model. Houses in Alhambra High Schools are comprised of regular classrooms, small group rooms, science, a project lab, and teacher workroom. In addition, decentralized administrative spaces such as an assistant principal's office and an itinerant office are included in each house. The school-within-a-school model provides an opportunity for more interaction between students and administrators and staff. The school within-a-school model also provides for the flexibility to operate as independent schools under the same roof.

- **Thematic Teaming**

  Thematic teaming is based on delivering curriculum within the context of a specific theme. Themes may include Science and Math, Fine and Performing Arts, or Foreign Language and Literature.

  Metro-Tech High School is a comprehensive academic and vocational high school located in Phoenix, Arizona, was renovated to incorporate a thematic organizational model. Each house includes regular classrooms, a science lab, a student production area, and a teacher workroom. Each house is specialized for one of five themes: Public Service, Construction, Manufacturing, Transportation, Business,and Marketing.

Facilities Impact

Implementing these organizational models, specifically the house concept, may offer significant advantages to the delivery of curriculum and observation of students. While the impact these models have implementing the house concept as well as other models, has on facilities is continually being evaluated in terms of major systems, it typically should not outweigh the educational advantages.

Technology

Create Pervasive and Integrated Systems

- Access to voice, video, data, and electrical outlets provided in every instructional space.
- Proficiencies incorporated into other content areas
- Utilize distance-learning opportunities
- Staff development

"Best Practice"

Technology continues to evolve and influence education. Technology has traditionally been perceived as a stand-alone content area with its own dedicated spaces. "Best practices," however, may suggest that technology should be incorporated into every learning space and into all. Incorporating technology can accomplish two basic goals of education: linking traditionally isolated content areas and providing teachers with tools to utilize understanding of multiple intelligences in their lessons.

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Organizational Models

Provide Student-Centered House Approach

Examples

- **Grade-Level Teaming**

  Grade-level teaming is based on organizing the building into separate grade-level units. Grade-level teams typically utilize an interdisciplinary approach.

- **Schools-Within-A-School**

  A schools-within-a-school are is based upon multiple units of grades 9-12 housed in the same facility, but having with separate governing bodies. Thus, a large school can be divided into smaller, more personalized units "houses".

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Howard Gardner has indicated in "Frames of Mind" that there are several different types of intelligences (linguistic, mathematical, musical, kinesthetic, spatial, intrapersonal, interpersonal, and natural intelligence). Each person has strengths in some intelligences and weaknesses in others. Experts have indicated that students retain more information when several intelligences are involved in the learning process. For example, the NTL Institute for Behavior Science reports that students retain only 10% of what they read, but retain 90% of what they read, see, hear, experience, and teach.

Facilities Impact

Incorporating technology into all learning spaces and into all curricula can have a significant impact on facilities. First, all learning spaces would require access to voice, video, data ports, and electrical outlets. Second, infrastructure must be designed in such a way to allow access for maintenance and upgrades as technology continues to evolve.

Administration

Increase Student Contact and Flexibility

"Best Practice"

As a result of recent violent crimes occurring in school facilities, school districts across the country are searching for both active and passive means of security. While not the only reason "best practices" suggest that decentralizing administration, may serve this purpose. The decentralization of administrative services may also provide the flexibility and opportunity for increased student contact, decreased student anonymity, and opportunities for passive supervision.

In addition, assistant principals, deans, and counselors for teams, are closer to the student and teachers, and can more efficiently use their time, expertise, and resources because their offices are located in the academic clusters. Communication between administrators is no longer an issue, as access to instructional information and student records and maintaining a positive and secure school environment can be achieved through the effective use of technology

Facilities Impact

Decentralizing administration affects facilities only by the necessity to relocate offices and support spaces within each learning community and/or other areas.

Community Use

Instill a Sense of Participation, Ownership, and Pride

- Cooperative Alliances
- Youth Services
- Shared Decision-Making
- Community Service Volunteers

Technology

Create Pervasive and Integrated Systems

- Access to voice, video, data, and electrical outlets provided in every instructional space.
- Proficiencies incorporated into other content areas
- Utilize distance-learning opportunities
- Staff development

"Best Practice" Educational Planning Concept

Technology continues to evolve and influence education. Technology has traditionally previously been perceived as a stand-alone content area with its own dedicated spaces. "Best practices," however, may suggest that Today, technology should be is most often incorporated into every learning space and into all curriculum. Incorporating technology can accomplish two basic goals of education: linking traditionally isolated content areas and providing teachers with tools to utilize understanding of multiple intelligences in their lessons.

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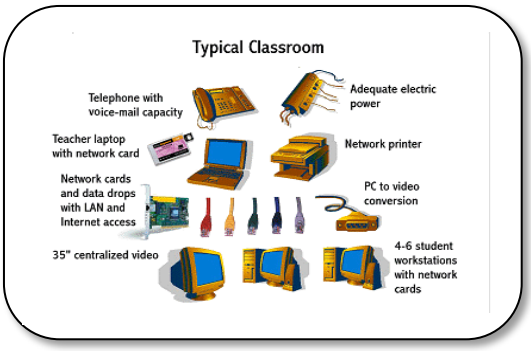
- Parent Involvement
- School/College Partnerships

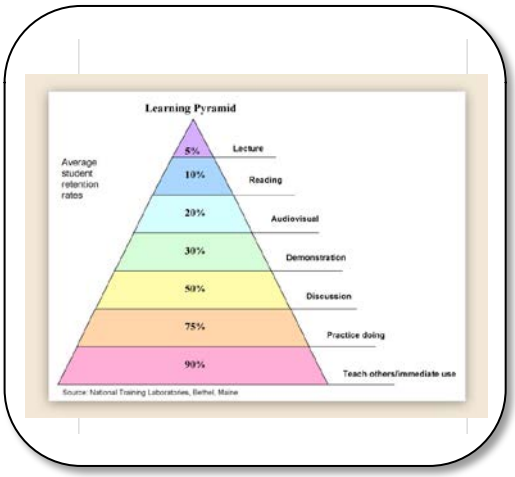
"Best Practice"

"Best practices" suggest that facilities could serve not only as an instructional centers for students, but also as user-friendly centers of the communities. Facilities could provide program and access to resources for adults, businesses, and other community organizations. Community/school partnerships are playing an increasing role in high school facilities. These partnerships provide students with expanded learning opportunities, professional development opportunities for staff, and a venue for community activities.



Facilities Impact

Providing access to and forming partnerships with the community can have a significant impact on facilities. Additional spaces such as parent or community volunteer rooms, community locker rooms, and storage spaces may be necessary. In addition, for security purposes, community access may require careful attention to the organization of the facility. Community accessible portions of the facility may need to be located in areas that permit the remainder of the facility to be secure before, during, and after school hours.



Summary

As a result of the transition to the information age as well as the aging of facilities, school districts are investigating curricula, organizational models, current and emerging technologies, the role of administration, and their local communities to determine the effect of each of these has on student performance.

The research and investigations provided within this chapter describes "best practices" that suggest the following:

- Curriculum - Offer Essential Knowledge, Integrate It, and Make Connections to Real Life
- Organizational Models - Provide Student-Centered House Approach
- Technology - Create Pervasive and Integrated System
- Administration - Increase Student Contact and Flexibility
- Community Use - Instill a Sense of Participation, Ownership, and Pride

These "best practices" are not intended to be solutions to all of the issues confronting schools. Schools may choose to utilize these "best practices" as they work as a team to discuss how best to provide educational opportunities to improve student achievement in their district.

Sections 2100 – Special Education and 2200 – Workforce Development have been moved to Chapter 3.

Administration

Increase Student Contact and Flexibility

~~"Best Practice"~~Educational Planning Concept

As a result of recent violent crimes occurring in school facilities, school districts across the country are searching for both active and passive means of security. While not the only reason ~~"best practices" suggest that~~ for decentralizing administration, it may serve this purpose. The decentralization of administrative services may also provide the flexibility and opportunity for increased student contact, decreased student anonymity, and opportunities for passive supervision.

In addition, assistant principals, deans, and counselors for teams, are closer to the students and teachers, and can more efficiently use their time, expertise, and resources because their offices are located in the academic clusters. Communication between administrators is ~~no longer~~ not an issue, as access to instructional information and student records ~~and maintaining a positive and secure school environment~~ can be achieved through the effective use of technology. This arrangement can maintain a positive and secure environment.

Facilities Impact

Decentralizing administration affects facilities only by the necessity to relocate offices and support spaces within each learning community and/or other areas.

Community Use

Instill a Sense of Participation, Ownership, and Pride

- Cooperative Alliances
- Youth Services
- Shared Decision-Making
- Community Service Volunteers
- Parent Involvement
- School/College Partnerships

~~"Best Practice"~~Educational Planning Concepts

~~"Best practices" suggest that facilities could serve not only as an instructional centers for students, but also as user-friendly centers of the communities.~~ Facilities can serve as instructional centers for students as well as user-friendly centers for the community. Facilities ~~could~~ may provide program and access to resources for adults, businesses, and other community organizations. Community/school partnerships ~~are~~ play~~ing~~ an increasing role in ~~high~~ school facilities. These partnerships provide students with expanded learning opportunities, professional development opportunities for staff, and a venue for community activities.

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- Administration - Increase Student Contact and Flexibility
- Community Use - Instill a Sense of Participation, Ownership, and Pride

These ~~"best practices"~~ concepts are not intended to be solutions to all of the issues confronting schools. Schools may choose to utilize ~~these~~ the ~~"best practices"~~ concepts as they work as a team to ~~discuss~~ determine how best to provide educational opportunities ~~to~~ and improve student achievement ~~in their district~~.

Educational Framework

~~Introduction~~

~~An Educational Framework is a series of broad principles associated with organizational, facility, program, and service issues. In conjunction with the Educational Facility Planning Concepts, the Education Framework establishes the foundation on which educational facilities are designed.~~

~~The Standards & Guidelines are not intended to address every possible condition. Flexibility is required to develop appropriate solutions give the diversity of programs, community requirements, existing building conditions, site constraints, etc. found in the school district.~~

~~The following educational assumptions/concepts were derived from a wide range of sources that included representation from parents and students, teachers and school administrators, business and government [state and local] officials.~~

~~Grade Configuration~~

~~Following are the suggested grade configurations for each level of school facility.~~

~~Pre-Kindergarten programs should be included as part of the school facility.~~

~~Workforce Development courses are included in middle and high school facilities.~~

~~A. Elementary School: PreK-5~~
~~B. Middle School: 6-8~~
~~C. High School: 9-12~~
~~D. Combination Schools~~
~~1. PreK-8~~
~~2. PreK-12~~

School Size

School size is based on the number of students projected to attend a particular school facility. For the number of students by grade level the Program of Requirements provides the total required school size that contains both the required spaces and a support space allowance needed to adequately meet the needs of the students.

The Program of Requirements found in Chapter 5 provides required spaces and a support space allowance for the selection of spaces needed for the various program areas found in each grade level of school.

Introduction

An Educational Framework is a series of broad principles associated with organizational, facility, program, and service issues. In conjunction with the Educational Facility Planning Concepts, the Education Framework establishes the foundation on which educational facilities are designed.

The ~~Standards & Guidelines~~ Facility Manual ~~are~~ is not intended to address every possible condition. Flexibility is ~~required~~ important to develop appropriate solutions give the diversity of programs, community requirements, existing building conditions, site constraints, etc. found in the ~~s~~School ~~d~~District.

Grade Configuration

Following are the suggested grade configurations for each level of school facility.

- Elementary School: ~~Pre-~~K-5
- Middle School: 6-8
- High School: 9-12
- Combination Schools: ~~Pre-~~K-8 or ~~Pre-~~K-12

~~Workforce Development~~ Career Education courses are included in middle and high school facilities.

Class Size

Class size ~~[~~(or maximum class size~~]~~) is defined as the number of students occupying a space at one time. Class size is not necessarily synonymous with student teacher ratio.

- ~~Pre-K~~ Kindergarten 20 students
- 1st Grade through 3rd Grade 25 students
- 4th Grade through 6th Grade 28 students
- 7th Grade through 12th Grade 30 students

~~Workforce Development~~ Career Education

~~Workforce Development [WFD]~~ Career Education [CE] refers to programs traditionally offered under the label Career Technical Education or Vocational Education.

- Middle schools and ~~P~~K-8 combination schools must provide access to pre-technical courses for students in grades 6-8.
- High schools and ~~P~~K-12 combination schools must provide access to at least three different ~~WFD~~ CE occupational areas for students grades 9-12.
- High schools and ~~P~~K-12 combinations schools must provide access to at least on Program of Study within each occupational area in grades 9-12.

Note: Access to a ~~[WFD]~~ [CE] occupational area can occur in the following ways:

- On-site
- Through a partnership with an off-site organization.

Kindergarten

Kindergarten courses will be delivered all day.

Programs

As programs and services change, it is important that each ~~s~~School ~~d~~District identify the current and future educational needs of its students. Once those needs have been identified, the District should then determine the types of instructional programs that will result in a successful student. The Standards & Guidelines are based on current and future trends in education and include the following programs. As stated above, ultimately, each ~~d~~District should determine the appropriate programs for ~~their~~ its students.

- Elementary Schools
  - Core Academic
  - Special Education
  - Visual Arts
  - Music
  - Physical Education
- Middle Schools
  - Core Academic
  - Special Education

- Visual Arts
- Music
- Technology Education
- Family and Consumer Science
- Physical Education
- ~~Workforce Development~~ Career Education

- High Schools
  - Core Academic
  - Special Education
  - Visual Arts
  - Music
  - Performing Arts
  - Physical Education
  - ~~Workforce Development~~ Career Education

High Performance Learning Environments

High Performance Learning Environments

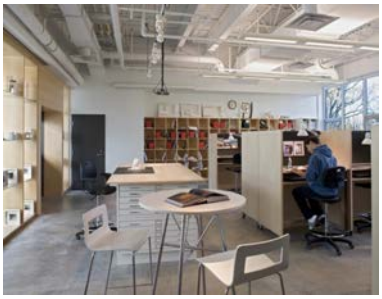
High Performance Learning Environments have their own learning models and distinguishing characteristics, which have implications for the design of the curriculum as well as the physical facility.

In Section 3000, three environments were described in detail:

- Traditional Learning Environment (TLE)
- Student Centered Learning Environment (SCLE)
- Blended Learning Environment (BLE)

All three types of learning environments may contain a variety of spaces, such as:

- Collaborative large group spaces
- Project spaces
- Niche spaces for individual and small group work
- Individual study spaces and work stations with storage
- Science/discovery areas
- Break-out spaces
- Reconfigurable labs for science, art, and project activities
- Learner display areas
- Formal and informal presentation spaces
- Combined music, art, performance, and dance labs or studios
- Wellness and physical education space beyond the traditional “basketball only” gymnasium
- Outdoor learning spaces
- Varied food service and dining areas throughout the facility
- Common spaces serving as multi-purpose/multi-function spaces
- Welcoming entries
- Indoor and outdoor connectivity
- Facilitator spaces
- School and community connectivity and shared spaces



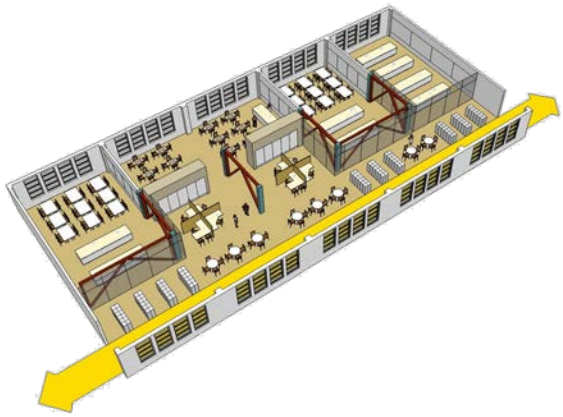
Additionally, all three types of learning environments should:

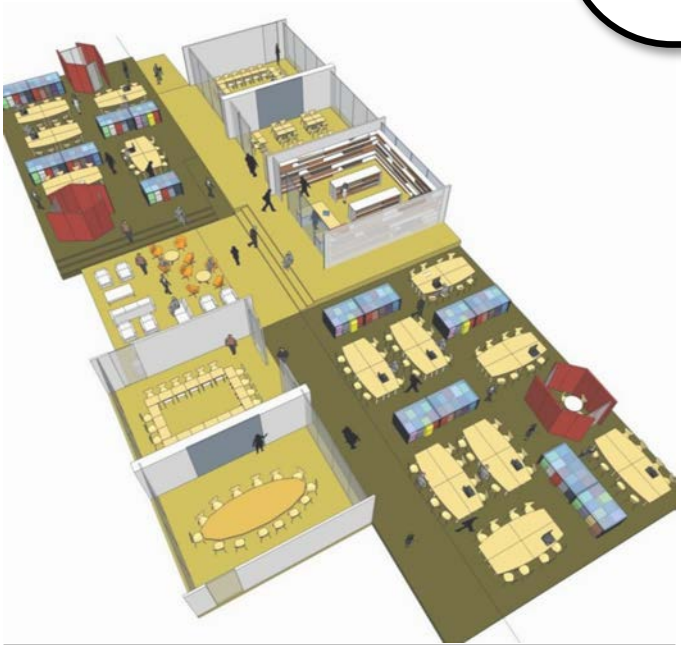
- Support self-directed learning
- Provide for individual and small group instruction
- Encourage problem-solving
- Promote socializing among participants
- Encourage learner discovery
- Allow instructor-guided learning
- Allow for continuous assessment of learner knowledge and mastery level

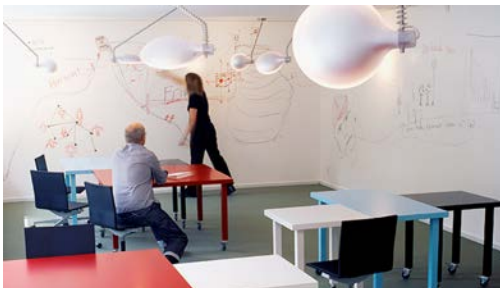
These spaces should bring students and facilitators together, ensuring that the environment promotes, rather than constrains, learning.

Diagrams

Several diagrams have been provided to serve as examples of high performance learning environment layout and design.







Special Education

Special Education

The Arkansas Department of Education – Special Education Unit complies with the Federal Regulations for the Individuals with Disabilities Education Act (IDEA) and the ~~Arkansas School Facility Manual~~ APSAFM provides square footage guidelines to comply with the educational program requirements. IDEA requires a District to provide a full continuum of services in a student's neighborhood/home school to the greatest extent possible in the Least Restrictive Environment.

The *Rules and Regulations Governing Special Education and Related Services: Procedural Requirements and Program Standards* provide eligibility criteria for students with disabilities to meet the Least Restrictive Environment requirement for all special needs students. These criteria assist in differentiating the type and number of spaces that are needed in each school to address the facility needs for students with disabilities. As each ~~s~~School ~~d~~District is planning for specific educational program needs in ~~their~~ its new or renovated facilities, identifying the number of students in each of these options is important to ~~appropriately~~ provide appropriately the unique space requirements. The terms used to establish eligibility criteria are provided as part of this document to assist in identifying all of the students who need to be considered in the facility program needs.

~~Definition of Terms~~

~~1. Autism – a development disability significantly affecting verbal and non-verbal communication and social interaction, generally evident before age 3, that which adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance, as defined in paragraph (b)(4) of 34 CFR 300.7 and at 6.08.3 of the Arkansas regulations.~~

~~2. Deaf-Blindness – concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness.~~

~~3. Emotional Disturbance – a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance.~~

- ~~An inability to learn that cannot be explained by intellectual, sensory, or health factors.~~

- An inability to build or maintain satisfactory interpersonal relationships with peers or teachers.
- Inappropriate types of behavior or feelings under normal circumstances.
- A general pervasive mood of unhappiness or depression.
- A tendency to develop physical symptoms or fears associated with personal or school problems.

The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance.

4. Hearing Impairment (Including Deafness) – a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, that which adversely affects educational performance.

"Hearing impairment" also means an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's performance but that is not included under the definition of deafness.

Audiological Indicators

- An average pure-tone hearing loss in the speech range (500 – 2000Hz) of 20dB or greater in the better ear. A child with fluctuating hearing impairment, such as one resulting from chronic otitis media, is classified as hearing impaired (HI).
- An average high frequency, pure-tone hearing loss of 35dB or greater in the better ear at two or more of the following frequencies: 2000, 3000, 4000 and 6000Hz.
- A permanent unilateral hearing loss of 35 dB or greater in the speech range (pure-tone average of 500 – 2000Hz).

5. Mental Retardation – significantly sub-average general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that which adversely affects a child's educational performance.

6. Multiple Disabilities – concomitant impairments (such as mental retardation-blindness, mental retardation-orthopedic impairment, etc.), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. This term does not include deaf-blindness.

7. Orthopedic Impairment – a severe orthopedic impairment that adversely affects a child's educational performance. The term includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member, etc.), impairments caused by disease (e.g., poliomyelitis, bone

tuberculosis, etc.), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures.)

8. Other Health Impairment – having limited strength, vitality or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that –
   - Is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, and sickle cell anemia; and
   - Adversely affects a child's educational performance.

9. Specific Learning Disability – a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perpetual disabilities, brain injury, minimal brain dysfunction, dyslexia, and development aphasia.

10. Speech Or Language Impairment – a communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment, that adversely affects a child's educational performance. The operational definition under these regulations, which is designed to be compatible with the Federal definition, is as follows:

11. "Speech or Language Impairment" means a communication disorder such as deviant articulation, fluency, voice, and/or comprehension and/or expression of language, spoken or written, which impedes the child's articulation of basic cognitive and/or affective performance skills as established in the Basic Educational Skills manual developed by the Arkansas Department of Education.

12. Traumatic Brain Injury – an acquired injury to the brain caused by an external force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychological behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.

13. Visual Impairment – an impairment in vision that, even with correction, adversely affects a child's educational

~~performance. The term includes both partial sight and blindness.~~

~~Students with partial sight are those whose vision, although impaired, is still the primary channel of learning and, with adjustments,~~. ~~They~~ are able to ~~perform the visual tasks required in the usual school situation. Generally, their visual acuity with correction is 20/70 or less.~~

~~Students with blindness are those with no vision or with little potential for developing vision as a primary channel for learning and, therefore, must rely upon tactile and auditory sense to obtain information.~~

Career Education

Introduction

The current *Standards for Accreditation of Public Schools* require that secondary educational facilities offer a minimum of three programs of study from three different occupational areas. A list of all approved occupational areas, clusters or pathways, and programs of study is included in this manual to assist school districts, educational planners, and design professionals with anticipating space needs for these requirements.

In order to meet the needs of ~~Workforce Development~~ Career Education programs, adequate laboratory, classroom, storage, and office space is needed. Chapter 5: Program of Requirements [Bracketing] contains a detailed list of the spaces that a District may include when designing a ~~H~~high ~~S~~school facility with ~~Workforce Development~~ Career Education programs and the required size for each space.

It is important to point out that the District should determine the Occupational Areas to be delivered, the associated cluster or pathways, and the programs of study and then proceed to Chapter 5 to complete the Program of Requirement Worksheet. When completing the worksheet, the Project Team should select the laboratory space for each program of study and the related spaces such as offices, tool rooms, and storage needed to serve the laboratory space. Additional information can be found in Chapter 5.

Occupational Areas

Included below is an outline of current career education programs. Each Occupational Area is organized in the following organizational structure.

1. Occupational Area
   - Pathway or Cluster
     - Program of Study

Occupational Areas

1. Agriculture
   - Agriculture, Food, and Natural Resources
     - Agribusiness
     - Agricultural Power, Structural and Technical Systems
     - Agricultural Science – Animal or Plant Systems
     - Horticulture/Plant Systems
     - Natural Resources/Environmental Science Systems
2. Business and Marketing
   - Business Management and Administration
     - Management
     - Office Administration
   - Hospitality and Tourism
     - Hospitality
     - Lodging
   - Information Technology
     - Desktop Publishing
     - Multimedia
     - Programming
   - Finance
     - Accounting
     - Banking and Finance
   - Marketing, Sales, and Service
     - Marketing
3. Family and Consumer Sciences
   - Family and Consumer Science Education
     - Family and Consumer Sciences
   - Education and Training
     - Education and Training
   - Hospitality and Tourism
     - Food Production, Management and Services
     - Facilities Management, Maintenance, and Services
   - Human Services
     - Child Care Guidance, Management and Services
     - Cosmetology

Occupational Areas

4. Architecture and Construction
    - Construction Technology
    - HVACR
5. Arts, A/V Technology and Communications
    - Advertising Design
    - Career Communications
    - Commercial Photography
    - Graphic Communications
    - Performing Arts
    - Radio/TV Broadcasting
6. Government and Public Administration
    - ROTC
7. Health Science
    - Medical Professions Education
8. Law, Public Safety and Security
    - Criminal Justice
9. Manufacturing
    - Electronics
    - Furniture Manufacturing
    - Industrial Equipment Maintenance
    - Machine Tool Repair
    - Major Appliance Repair
    - Welding
10. Science, Technology, Engineering and Mathematics
    - Drafting and Design
    - Computer Engineering
    - Geospatial Technology (GIS)
    - Pre-Engineering
11. Transportation, Distribution, and Logistics
    - Automotive Collision
    - Automotive Services Technology
    - Aviation Mechanics
    - Diesel Mechanics
    - Power Equipment Technology

Site Selection and Design

Purpose

The purpose of this chapter is to ~~assist~~ provide the ~~s~~School ~~d~~District and the Design Professional with informative guidelines to consider prior to selection, purchase, and development of a site. DPSAFT has not established standards with respect to site selection and design. Information is included for informational purposes only.

Site Selection Criteria

At first look, a potential site may appear to be a good acquisition. There are many factors, however, that can distort the picture. A ~~large~~ site ~~can diminish~~ may be reduced in size if wetlands ~~are to be avoided~~ occupy the site or if part of the area is in a floodplain. There ~~must~~ should be a ~~stream or other outsource nearby to remove storm drainage~~ watershed nearby to allow for adequate storm drainage. ~~Hilly~~ Irregular topography can escalate site development costs. Adequate ~~space~~ area is needed to retain and release storm water from the site.

Access to and from the site, ~~which has connection to~~ from a major highway or road artery, is an important factor. ~~Aside from the~~ In addition to understanding surface characteristics, sub-surface conditions may require exploration. Preliminary soil borings should be ~~taken~~ considered to ascertain the presence of poor soil, high water table, voids, or other impediments. A Phase I environmental study should be a requirement.

Site Design

With a good site available, site design and layout becomes the next task. Good site design ~~dictates that~~ includes separate bus and car ~~traffic should not cross~~ circulation~~.~~, ~~Likewise, students should not be required to cross car traffic lanes either~~ safe passage for students entering or ~~leaving~~ exiting buses~~.~~, and ~~B~~bus parking ~~should be~~ arranged in a continuous line or~~,~~ ~~preferably, in~~ a 45 degree parking arrangement.

Site Design (continued)

Visitor and staff parking~~,~~ ~~as well as~~ and a separate service drive~~,~~ is recommended. ~~Event parking is difficult to provide since large events usually only occur a couple times per year.~~

~~The o~~Orientation of the building ~~critical~~ is an important factor when considering ~~from an~~ energy usage ~~standpoint~~. ~~The~~ A majority of the windows should be ~~face a~~ located on the north~~/~~or south ~~direction~~ side of the building. Easy access to the main entrance should be obvious to all.

Good site design requires careful and thorough planning to provide maximum safety, and efficient utilization of site features.

Site Size

The recommended minimum site size found in this section should be considered when considering a new school site. ~~is consistent with current Arkansas State Board of Education standards. The site size was also based on a compilation of code requirements from cities in the Midwest and practical experience of site design. Most state education departments either mandate or recommend the minimum number of acres needed for the specific grade levels.~~ The~~se~~ size guidelines are consistent with those recommended in the Council of Educational Facility Planners International (CEFPI), *Guide for School Facility Appraisal*.

~~**Site Design**~~

~~From past professional site design experience, sound judgment can determine if the visual survey of the site will satisfy the project needs. Useable topography, good surface drainage, available site utilities, and vehicular access are important. Soil borings must be obtained. Site design criteria are good practice recommendations, rather than standards.~~

Site Size

- ~~The r~~Recommended minimum site sizes are:
  - Elementary School: 10 acres plus 1 acre per 100 students
  - Middle School: 20 acres plus 1 acre per 100 students
  - High School: 35 acres plus 1 acre per 100 students
  - Combination Schools:
    - ~~P~~K-12 School: 40 acres plus 1 acre per 100 students
    - ~~P~~K-8 School: 20 acres plus 1 acre per 100 students
- Deviations from ~~the~~ recommended minimum site sizes may be ~~required~~ needed because of extenuating circumstances~~.~~, especially in urban areas.
- ~~Where possible, l~~Larger site sizes or additional acreage ~~should be strongly considered~~ may be needed to allow adequate land for ~~development,~~ storm water detention, building expansion, topography features, subsurface sanitary sewage systems, etc.

1.

Urban Site Size

~~The site sizes given attempt to accommodate a range of available site sizes.~~ It is ~~also~~ recognized that not all sites, especially those found in urban areas, will be able to accommodate ~~a~~ new or replacement facility~~y~~ies. ~~even with the smallest site size recommended in this Arkansas School Facility Manual~~ Therefore, it may be necessary to modify/reduce areas such as parking and circulation to "fit" the facility on the smaller site. A list of ~~possible site size~~ reductions to consider is provided ~~below for~~ to assist the ~~administration~~ School District and Design Professional ~~to~~ in analyzing ~~the~~ different size options. ~~The list is not all-inclusive and all decisions need to involve all interested parties prior to deleting or reducing a program.~~

- ~~Decrease the footprint percentages from the ideal target sizes identified in the Proposed Building Footprint chart~~
- Decrease the amount of visitor and staff parking to be provided
- Decrease the amount of student parking provided
- Decrease the amount of mechanical yard space to be provided
- Delete the bus drop-off and parent drop-off areas and provide ~~a~~ curbside service only
- Reduce the amount of greenspace to be provided
- Reduce/decrease the size/number of playfields/playgrounds to be provided

~~Urban Site Introduction~~

- ~~The Urban Building Footprint section t~~ presents the building sizes ~~recommended for various grade levels and student populations. It also indicates~~ what portion of that area ~~should be reflected in footprint area of the building, i.e., what portion should remain on the first floor of the building.~~
  - ~~After evaluation of all possible factors affecting the size of the new or existing site, the Desing Professional shall submit the itemized evaluation for review and approval.~~
- ~~The Urban Parking section presents total parking spaces recommended for various grade levels and student populations.~~
- ~~The Urban Elementary School example presents the total site area recommended for an elementary school with a 350 student population.~~
- ~~The Urban Middle School example presents the total site area recommended for an middle school with a 550 student population.~~
- ~~The Urban Middle School example presents the total site area recommended for a middle school with a 550 student population.~~
- ~~The Urban High School example presents the total site area recommended for a high school with a 1,000 student population.~~
- ~~The Outdoor Athletic and Recreation Fields section presents the total area required for each type of outdoor athletic or recreation facility, and is intended as a guideline in adjusting recommended site sizes.~~

~~Urban Building Footprint~~

- ~~The following chart is intended to assist with building footprint size selection:~~

Percentage of Building Footprint to Total Area (GSF)							
Building Size	GSF	50%	60%	70%	80%	90%	100%
ELEMENTARY SCHOOLS							
200 students	34,400						34,400
350 students	47,600						47,600
550 students	70,400			49,280	56,320		
700 students	89,600			62,720	71,680		
MIDDLE SCHOOLS							
200 students	32,600						32,600
350 students	54,600						54,600
550 students	86,350			60,445	69,080		
700 students	109,200		65,520	76,440			
HIGH SCHOOLS							
250 students	51,750						51,750
500 students	95,500			66,850	76,400		
1,000 students	178,000		106,800	124,600			
1,500 students	249,000	124,500	149,400				
2,000 students	322,000	161,000	193,200				

~~Urban~~ Parking

- The following chart is intended to assist in the development of the ~~minimum~~ recommended parking for new facilities.
- Provide the ~~required~~ suggested number of accessible parking spaces ~~within quantities allocated as~~ indicated in the chart below.
- Confirm all parking quantities with ~~the~~ local building, planning, and/or zoning departments.
- It is suggested that ~~Contain~~ staff parking ~~in a~~ be located in a secured area separated from other facility parking.
- ~~Verify~~ Check to see that the ~~minimum required~~ number of parking spaces equals or exceeds the requirements of the local governing agencies.

Description	Elementary Schools				Middle Schools				High Schools					
Building Capacity	200	350	550	700	200	350	550	700	250	500	1000	1500	2000	
Teaching Stations	8	14	22	28	8	14	22	28	14	23	44	62	81	See Note 1
Staff Parking														
Teachers	8	14	22	28	10	16	26	33	16	27	52	73	96	See Note 2
Ancillary Staff	4	7	11	14	4	7	11	14	2	5	10	15	20	See Note 3
Administration	3	4	7	9	3	5	8	11	5	7	12	16	20	See Note 4
Custodial/Maintenance	2	3	4	5	2	3	4	5	2	4	7	10	14	See Note 5
Food Service	2	3	5	6	2	3	5	6	3	5	10	15	20	See Note 6
Total Staff Parking	**19**	**31**	**49**	**62**	**21**	**34**	**54**	**69**	**28**	**48**	**91**	**129**	**170**	
Total Visitor Parking	**4**	**7**	**11**	**14**	**4**	**7**	**11**	**14**	**5**	**10**	**20**	**30**	**40**	See Note 7
High School Student Parking									**50**	**100**	**200**	**300**	**400**	See Note 8
Minimum Required Parking	**23**	**38**	**60**	**76**	**25**	**41**	**65**	**83**	**83**	**158**	**311**	**459**	**610**	See Note 9

Note 1: Teaching stations are determined at a percentage of 1 per 25 students.

Note 2: Teachers are calculated at the following utilization of teaching stations:

Elementary 100%; Middle-85%; High School-85%.

Calculation: Teaching Station/Utilization percentage = Number of Teachers (24/.85 = 29)

Note 3: Ancillary staff includes teaching aides, media center specialist, special education staff, etc. Total is calculated as percentage of the student population as follows: Elementary-2%; Middle-2%; High-1%.

Note 4: Administration includes principals, secretarial, and itinerant staff.

Note 5: Custodial/maintenance staff includes full-time staff for regular school hours.

Calculation: 1 staff per 150 students.

Note 6: Food service staff is calculated at 1 staff per 100 meals served with 80% building capacity participation for a full-service kitchen. Satellite kitchen would reduce staff by approximately 50-75%.

Note 7: Visitor parking is calculated at 2% of building student capacity.

Note 8: Student parking is calculated at 20% of all High School students.

Note 9: Minimum required parking is determined by the total of staff, visitor, and student parking or by required zoning.

~~Urban Elementary School - 350 students~~

~~Building Footprint (One-Story)~~	~~47,600 SF~~	~~1.09 acres PK-2/3-5 Playgrounds (see~~
~~Note 1)~~	~~17,500 SF~~	~~0.40 acre Parking and Drives (see Note 2)~~
	~~15,200 SF~~	~~0.35 acre~~
~~Play Fields (see Note 3):~~	~~96,840 SF~~	~~2.22 acres one multipurpose field~~
~~(360'x250')~~		
~~one softball field (200' outfield)~~		
~~one basketball court~~		
~~**Subtotal:**~~	~~177,140 SF~~	~~4.06 acres~~
~~Add 20% Greenspace (see Note 4)~~	~~35,428 SF~~	~~0.81 acre~~
~~**TOTAL:**~~	~~212,568 SF~~	~~4.88 acres~~
~~**Recommended site size:**~~		~~**5.25 acres**~~

~~Note 1: This space footage, based on 50 SF per student, allows for a hard surface play area and a soft surface play equipment area for each playground.~~

~~Note 2: This estimate of area, based on 400 SF per car, allows for drives, a drop off pick-up zone, and a service area drive.~~

~~Note 3: Softball fields may partially overlap multipurpose field.~~

~~Note 4: Setting aside 20% of the site square footage requirements as greenspace ensures adequate space for separation of the various elements located on each site. Site landscaping is included in this area.~~

~~Urban Middle School - 550 students~~

~~Building Footprint (Two-Story)~~	~~69,080 SF~~	~~1.59 acres~~
~~Parking and Drives (see Note 1)~~	~~26,000 SF~~	~~0.60 acre~~
~~Play Fields (see Note 2):~~ ~~one six-lane running track~~ ~~one soccer/football and event field in track interior~~ ~~one baseball field (350' outfield)~~ ~~two softball fields (200' outfield)~~ ~~two basketball courts~~	~~400,264 SF~~	~~9.19 acres~~
~~Subtotal:~~	~~495,344 SF~~	~~11.38 acres~~
~~Add 25% Greenspace (see Note 3)~~	~~123,836 SF~~	~~2.84 acres~~
~~TOTAL:~~	~~619,180 SF~~	~~14.22 acres~~
~~Recommended site size:~~		**~~14.50 acres~~**

~~Note 1: This estimate of area, based on 400 SF per car, allows for drives, a drop-off/pick-up zone, and a service area drive.~~

~~Note 2: Pole vault is not included at track.~~

~~Note 3: Setting aside 25% of the site square footage requirements as greenspace ensures adequate space for separation of the various elements located on each site. Site landscaping is included in this area.~~

~~Urban High School – 1,000 students~~

~~Building Footprint~~	~~106,800SF~~	~~2.45 acres~~
~~Parking and Drives (see Note 1)~~	~~124,400SF~~	~~2.86 acres~~
~~Play Fields (see Note 2):~~	~~797,090 SF~~	~~18.30 acres~~

~~one eight-lane running track~~
~~one soccer/football and event field in track interior~~
~~one practice football field~~
~~one practice soccer field~~
~~two baseball fields (350' outfield)~~
~~two softball fields (250' outfield)~~
~~ten tennis courts~~
~~four basketball courts~~

~~Subtotal:~~	~~1,028,290 SF~~	~~23.61 acres~~
~~Add 30% Greenspace (see Note 3)~~	~~308,487 SF~~	~~7.08 acres~~
~~TOTAL:~~	~~1,336,777 SF~~	~~30.69 acres~~
~~Recommended site size:~~		**~~31.00 acres~~**

~~Note 1: This estimate of area, based on 400 SF per car, allows for drives, a drop-off/pick-up zone, and a service area drive.~~
~~Note 2: Pole vault is not included at track.~~
~~Note 3: Setting aside 30% of the site square footage requirements as greenspace ensures adequate space for separation of the various elements located on each site. Site landscaping is included in this area.~~

Outdoor Athletic and Recreation Fields

- ~~The following information is intended as a guideline in adjusting the recommended site sizes by adding or deleting playing fields~~ When selecting a site, consideration should be given regarding the size and configuration of type and quantity of outdoor athletic and recreation fields to be accommodated.
- ~~The designer should note that the Urban Elementary, Middle, and High School sections of this chapter use some overlap of recreational fields in determining total area required for all fields at each site.~~
- ~~The designer must consider configuration of each field in determining the actual area to add or delete for each field. Refer to guidelines for court and field dimensions.~~
- The designer should ~~also~~ consider drainage, circulation, access, and the need for bleacher seating when determining school site sizes.
- ~~Specific Sizes~~:
  - ~~Baseball: Based on 350' radius to centerfield and 300' radius to right and left outfield with 60' offset from baseline to sideline fence. 135,806 SF 3.12 acres~~
  - ~~Softball:~~
    - ~~One field with outfield overlapping multi-purpose field (includes 360' x 195' multi-purpose field) 91,200sf 2.09 acres.~~
    - ~~One field no overlap 53,824sf 1.24 acres~~
  - ~~Soccer/multi-purpose field 70,200sf 1.61 acres~~
  - ~~Track and Field Events~~
    - ~~6 lane track with interior field (no events) 146,000sf 3.35 acres~~
    - ~~6 lane track with interior field with discus/shotput combo 172,322sf 3.98 acres~~
    - ~~8 lane track with interior field and events 187,500sf 4.30 acres~~

~~**Play Fields (continued)**~~

- ~~Specific Sizes (continued):~~
  - ~~Tennis~~
    - ~~10 courts 63,530sf 1.53 acres~~
    - ~~4 courts 24,480sf 0.56 acre~~
  - ~~Basketball – Courts are 84' x 50'. Courts in quantity of 1-2 have 5' surrounding and between courts. Courts in quantity of 3 and up have 10' on ends and 5' to sides and between courts~~
    - ~~1 court 5,640sf 0.13 acre~~
    - ~~2 courts 10,810sf 0.25 acre~~
    - ~~3 courts 23,400sf 0.54 acre~~
    - ~~4 courts 34,840sf 0.80 acre~~

Site Design

General

~~Aside from site size described in Chapter 4, the~~ ~~f~~Following are additional factors to ~~be~~ considered ~~for~~ when ~~judging~~ determining the merits of a potential site:

- Topography
- Vehicle Access
- Soil Characteristics
- Site Utilities
- Site Preparation
- Codes and Zoning
- Adjacent Property
- Easements/Rights-of-Way
- Environmental Restrictions
- Testing
- Aesthetic Considerations
- ~~LEED rating system~~
- ~~Demographics~~
- Vehicular Circulation
- Pedestrian Circulation
- Storm Sewer System
- Detention Pond
- Sanitary/Sewerage
- Directional Signage
- Playgrounds
- Lighting
- Landscaping
- Positive Drainage

Topography

- A reasonably level area is ~~required~~ needed to accommodate buildings, parking, student playgrounds, and physical education areas.
- There should be sufficient slope to allow for positive drainage to storm sewer outlets or other discharge points.
- Retain natural features.
- ~~Do not develop facilities on~~ ~~l~~Land whose elevation is lower than 5 feet above the elevation of the 100 year flood as defined by FEMA should not be considered for development.

Vehicular Access

- A traffic study may be ~~required~~ needed to predict the impact of the school at peak times of arrival and dismissal~~.~~
- Consult local street or highway departments for turn lane, drive widths, and radius requirements.
- Review site distances at proposed entry exit for hazardous conditions.
- Two or three entry/exit points into the site are recommended to provide appropriate separation of car and bus traffic.

Soil Characteristics

- Obtain preliminary soil borings to obtain characteristics for foundation design, pavement design, storm sewer design, and excavation requirements.
- The presence of high ground water may result in the need for an underground drainage system.
- Erosion characteristics ~~will~~ may affect the need for temporary measures, such as silt fence, etc.
- ~~If a geotech investigation was performed an earlier time, those results need to be checked.~~

Site Utilities

- Storm water ~~must~~ may need to be detained on site and released at a rate that will not exceed current runoff rates and meets requirements of the authority having jurisdiction.
- Sewage from school buildings ~~shall~~ should be discharged into an approved sewage system per applicable codes.

Site Utilities – cont'd

- A water flow test will provide data on the available water flow in gallons per minute (gpm), static pressure available, and available residual pressure for fire protection systems.
- If a local water service is not available, an on-site well system ~~is~~ may be ~~required~~ needed. ~~The~~ An on-site well system ~~shall~~ may be ~~required~~ needed to provide water for domestic use and fire protection systems. ~~When a well is considered, a test well is to be drilled.~~ The Environmental Protection Agency ~~must~~ should be contacted to make an evaluation of the proposed well system.
- The Site Design Professional ~~is required to~~ should evaluate the need and method ~~to provide~~ of providing gas service to the building. If natural gas service is not available, the installation of liquid propane (LP) gas should be investigated.

Site Preparation

- ~~Clear~~ Consider clearing ~~the~~ site ~~of~~ vegetation only as necessary for building, parking, roads, and walks.
- Adequate space should be available on-site for construction staging – location of stockpiles, portable field offices, storage of construction materials, and equipment.
- ~~Prevent~~ Consider methods to reduce the loss of soil during construction by storm water runoff and/or wind erosion, including topsoil.
- ~~Prevent~~ ~~s~~Sediment~~ation~~ should be prevented from running off into ~~of~~ storm sewer or receiving streams.
- Every effort should be made to minimize disruption to the site.

Codes and Zoning

- Incompatible or nonconforming zoning may necessitate a zoning change variance or a special exception land use permit.
- Zoning ordinance restrictions such as building height, setback, fence height, landscaping, screening requirements,

Adjacent Property

- Screening of noise and views may be required. Minimize environmental pollution.
- Consider the safety of children walking to and from the school site during use of outdoor athletic and play facilities.
- Adjacent railroad rights-of-way or busy streets may require the use of earth berms, landscaping, and/or fencing.

Easements/Rights-of-Way

- Easements and rights-of-way for roads, sewers, gas, power, water, and oil lines should be researched for potential development restrictions.
- Acquisition of additional rights-of-way may be required to accommodate left turn lanes, tapers, passing blisters, and utility extensions.

Environmental restrictions

- Wetland delineation must be performed if the presence of a wetland is suspected.
- A designated wetland may prevent site development.
- Mitigation ~~will~~ may be ~~required~~ needed if a wetland ~~must~~ is to be disturbed. ~~Replacement ratios will be higher than the wetland being impacted. The most pristine wetlands are considered "unmitigable" – not allowed to be disturbed or replaced.~~
- ~~Prevent polluting the air with dust and particle matter.~~ Consider air pollution reduction methods.

Testing

- A Phase I Environmental Assessment should be completed to evaluate the potential for environmental liabilities associated with current and past property use and to assess regulatory compliance.
- ~~Perform~~ Consider performing a site investigation and records search of hazardous materials used, stored, or disposed of on the property; proximity to landfills; adjoining property uses; proximity to properties listed on the United States Environmental Protection Agency, Comprehensive Environmental Response, Compensation, and Liability Information System.

Testing – cont'd

- A Phase II Environmental Assessment may be required for areas of the site which indicate the potential for asbestos and other contaminants.
- ~~Brownfield sites: Rehabilitate damaged sites where development is complicated by real or perceived environmental contamination, reducing pressure on undeveloped land.~~

Aesthetic considerations

- It is preferable to choose a site with natural features compatible and complementary to the proposed building and site development.

~~13. LEED rating system~~
~~14. Demographics~~

Vehicular Circulation

- Maintain separate car and bus circulation areas. Buses should not be required to back up.
- Diagonal bus parking spaces should be 12 feet to 13 feet wide by the length of the bus. Spaces ~~shall~~ may be aligned at a 45-degree to 60-degree angle to the curb.
- Angle diagonal bus parking spaces so the bus exit door will allow children to exit in front of the adjacent bus.
- Provide parking spaces near delivery/receiving area for food service and custodial staff.
- Locate staff parking near visitor parking for economy of pavement design where possible. Staff parking can also be located to one side of the bus parking lot in the area not required for bus traffic.
- Consult building codes for parking space number and size.

Pedestrian Circulation

- ~~Provide~~ Consider constructing walks a minimum of 8-foot wide and a maximum of 12-foot wide from major drop-off drives to major entrances. Minor connecting walks are to be a minimum of 5-foot wide.
- Walks ~~are to~~ should be reinforced concrete, a minimum of 4 inches thick, with light broom finish. Consider thickened or reinforced edges.
- Walk slope ~~is to~~ should be a minimum of 1 percent and a maximum of 1:20. If walk exceeds 1:20, it ~~shall~~ should be designed as a ramp.
- Provide bollards at main entrance walk to block vehicles.

Storm Sewer System

- Create positive drainage away from building. Collect storm water in a series of inlets or swales to be detained and filtered on-site.
- Connect the building site storm drainage system by means of downspouts or roof drains to the building storm drainage system.
- All storm piping ~~shall~~ should be designed using the 10-year return period and intensity-duration curves consistent with the region.
- All storm piping and culverts ~~shall~~ should have a smooth interior. All pipe with a diameter greater than 24 inches shall be concrete, aluminized steel, or HDPE.
- Design the project site to maintain natural slope and water flows by promoting infiltration.
- Reuse storm water volumes generated for non-potable uses such as landscape irrigation, toilet and urinal flushing, and custodial use.

Detention Pond

- Detention ponds ~~are to~~ should be designed to prevent storm water from flowing off the site at a rate greater than permitted by the authorities having jurisdiction. Detention ponds are normally dry except after rainfalls.
- Side slopes ~~shall~~ should not exceed 4:1 and may be increased to 2:1 in the immediate vicinity of headwalls or other discharge control devices.
- All detention ponds which serve an area greater than 15 acres ~~shall~~ should be designed using an appropriate hydrograph method. The inflow hydrograph shall be routed through the pond using standard engineering methods to obtain the discharge hydrograph.
- Provide riprap or other erosion control measures at inlet and outlet of pond.

Sanitary/Sewerage

- The disposal of sanitary sewerage to the local utility ~~shall~~ should be approved by the local authority having jurisdiction.
- Appropriate methods for the disposal or treatment of sanitary sewerage consists of conventional gravity sewer, force main, septic with leach field system, or sand filter and on-site treatment plants.

Directional Signage

- Provide "Stop", "Yield", "No Parking", "One-Way", "Do Not Enter", or other signs as necessary to maintain a fluid traffic stream.
- Signs, and the installation of signs, are to meet the requirements of the authority having jurisdiction.
- For handicap signage consult ADA requirements.

Playgrounds

- Play equipment to be in compliance with "ASTM F 1487-95 or most current version of the Standard Consumer Safety Performance Specification for Playground Equipment for Public Use" and the current guidelines for public play equipment by the United States Consumer Product Safety Commission.
- The design of play equipment ~~shall~~ should comply with Americans with Disabilities Act guidelines.
- Provide a firm, stable, slip-resistant, and resilient soft surface under and around play equipment. Depth and type of soft surfaces ~~shall~~ should comply with ASTM F 1292-99 or most current version of Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
- Provide an accessible route of travel through soft-surface play area. Choice of surfacing and minimum areas of surfacing required ~~shall~~ should comply with Americans with Disabilities Act guidelines.

Lighting

- Provide a 10-footcandle illumination level at main building entrances. Provide a 5-footcandle illumination level at all entrances except main entrance.
- Light fixtures ~~shall~~ should be high-density discharge type located directly over doors, or high-density discharge type recessed in overhangs or soffits located directly over doors. Fixtures shall be designed for exterior use. Wall-mounted fixtures shall be vandal resistant.
- Provide an illumination level of 0.5 footcandles at entrance/exit drives. Provide an illumination of 1.0 footcandles within parking areas and bus drop- off/pick-up areas.

Lighting – cont'd

- Lighting ~~shall~~ should be high-intensity discharge type located on poles with a concrete base. Pole height shall be a maximum of 39 feet. Lighting shall be controlled by photoelectric cells, time clocks, or time management system. The Site Design Professional ~~shall~~ should have discussions with the ~~s~~School ~~d~~District to determine light fixture switching and time clock programming.
- Minimize site lighting where possible and model the site lighting using a computer model.
- ~~Shield~~ Consider shielding all site lighting and minimize uplighting.

Landscaping

- ~~Do~~ Should not exceed 3:1 slope on lawn areas where mowing is required.
- On slopes greater than 3:1, provide slope controlled vegetation to retard erosion. Consider safety of children.
- Provide low maintenance shrubs and flowering trees to emphasize main building entries.
- ~~Consider native vegetation.~~
- Consider ~~L~~limiting or eliminate~~e~~ing the use of potable water for landscape irrigation.

Positive Drainage

- At building perimeter, exterior grade ~~shall~~ should be 8 inches or more below first floor level, except at entrances. The ground around the building perimeter shall slope down and away from the building for a minimum of 20 feet to eliminate any standing water.

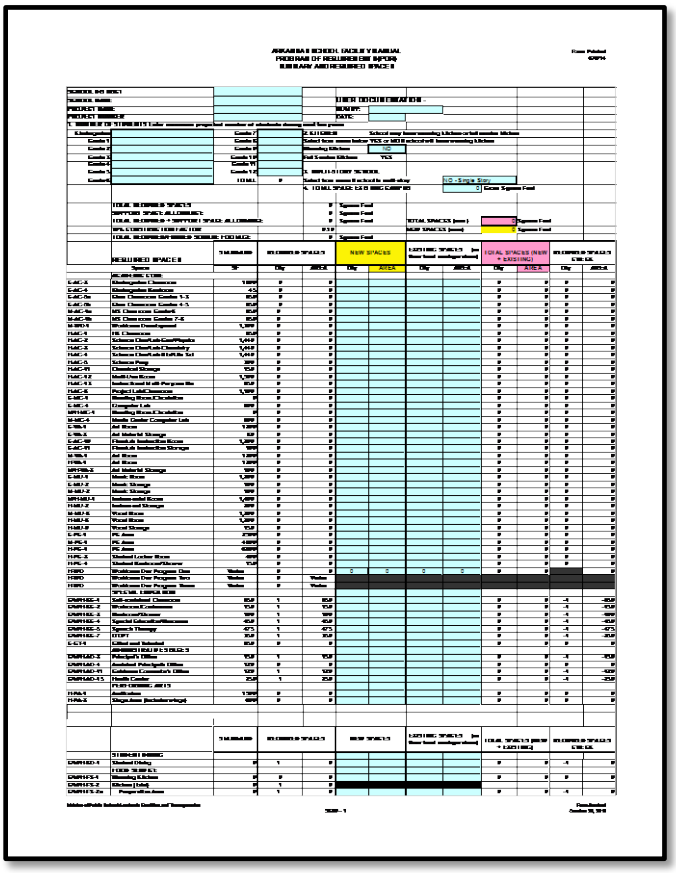
Program of Requirements

Introduction

A Program of Requirements (POR) is a compilation of the instructional and support spaces to be incorporated into a new or renovated school facility. The type, size and quantity of each space are included, resulting in a total gross square footage of the proposed building or renovation.

The POR establishes minimum adequate components, and total square footage required in a school construction project.

The following link may be accessed to download the POR. http://arkansasfacilities.arkansas.gov/public/userfiles/Program_of_Requirements/Revised_Copy_POR.xls



Program of Requirements

Before developing a POR, the School District must develop a thorough understanding of its educational mission, vision, and objectives to insure that the project meets current and future student instructional needs. After projected enrollment, grade configuration, and educational programs are established, the District works together with its Design Professional(s) to review and complete the interactive POR spreadsheet.

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (POR)
SUMMARY AND REQUIRED SPACES

Form Printed
4/23/2015

SCHOOL DISTRICT													
SCHOOL NAME					**USER DOCUMENTATION -**								
PROJECT NAME					RUN BY:								
PROJECT NUMBER					DATE:								
1. NUMBER OF STUDENTS Enter maximum projected number of students during next ten years													
Kindergarten		Grade 7			**2. KITCHEN**		School may have warming kitchen or full service kitchen						
Grade 1		Grade 8			Select from menu below YES or NO if school will have warming kitchen								
Grade 2		Grade 9			Warming Kitchen	NO							
Grade 3		Grade 10			Full Service Kitchen	YES							
Grade 4		Grade 11											
Grade 5		Grade 12			**3. MULTI-STORY SCHOOL**								
Grade 6		**TOTAL**	0		Select from menu if school is multi-story		NO - Single Story						
					4. TOTAL SPACE EXISTING CAMPUS		0	Gross Square Feet					
	TOTAL REQUIRED SPACES			0	Square Feet								
	SUPPORT SPACE ALLOWANCE			0	Square Feet								
	TOTAL REQUIRED + SUPPORT SPACE ALLOWANCE			0	Square Feet		TOTAL SPACES (sum)		0	Square Feet			
	10% CONSTRUCTION FACTOR			0.10			NEW SPACES (sum)		0	Square Feet			
	TOTAL REQUIRED/FUNDED SQUARE FOOTAGE			0	Square Feet								

	REQUIRED SPACES	**STANDARD**	**REQUIRED SPACES**		**NEW SPACES**		**EXISTING SPACES (in their final configuration)**		**TOTAL SPACES (NEW + EXISTING)**		**REQUIRED SPACES CHECK**	
	Space	**SF**	**Qty**	**AREA**	**Qty**	**AREA**	**Qty**	**AREA**	**Qty**	**AREA**	**Qty**	**AREA**
	ACADEMIC CORE											
E-AC-3	Kindergarten Classroom	1000	0	0					0	0	0	0
E-AC-4	Kindergarten Restroom	45	0	0					0	0	0	0
E-AC-5a	Elem Classroom Grades 1-3	850	0	0					0	0	0	0
E-AC-5b	Elem Classroom Grades 4-5	850	0	0					0	0	0	0
M-AC-1a	MS Classroom Grade 6	850	0	0					0	0	0	0
M-AC-1b	MS Classroom Grades 7-8	850	0	0					0	0	0	0
M-~~WD~~-CE 1	~~Workforce Development~~ Career E	1,300	0	0					0	0	0	0
H-AC-1	HS Classroom	850	0	0					0	0	0	0
H-AC-2	Science Clrm/Lab-Gen/Physics	1,440	0	0					0	0	0	0
H-AC-3	Science Clrm/Lab-Chemistry	1,440	0	0					0	0	0	0
H-AC-4	Science Clrm/Lab-Biol/Life Sci	1,440	0	0					0	0	0	0
H-AC-5	Science Prep	300	0	0					0	0	0	0
H-AC-11	Chemical Storage	150	0	0					0	0	0	0
H-AC-12	Multi-Use Room	1,500	0	0					0	0	0	0
H-AC-13	Instructional Multi-Purpose Rm	850	0	0					0	0	0	0
H-AC-8	Project Lab/Classroom	1,100	0	0					0	0	0	0
E-MC-1	Reading Room/Circulation	0	0	0					0	0	0	0
E-MC-4	Computer Lab	900	0	0					0	0	0	0
M/H-MC-1	Reading Room/Circulation	0	0	0					0	0	0	0
M-MC-4	Media Center Computer Lab	900	0	0					0	0	0	0
E-VA-1	Art Room	1200	0	0					0	0	0	0
E-VA-3	Art Material Storage	80	0	0					0	0	0	0
E-AC-10	Fine Arts Instruction Room	1,200	0	0					0	0	0	0
E-AC-11	Fine Arts Instruction Storage	100	0	0					0	0	0	0
M-VA-1	Art Room	1200	0	0					0	0	0	0
H-VA-1	Art Room	1200	0	0					0	0	0	0
M/H-VA-3	Art Material Storage	100	0	0					0	0	0	0
E-MU-1	Music Room	1,200	0	0					0	0	0	0
E-MU-2	Music Storage	100	0	0					0	0	0	0
M-MU-2	Music Storage	100	0	0					0	0	0	0
M/H-MU-1	Instrumental Room	1,400	0	0					0	0	0	0
H-MU-2	Instrument Storage	200	0	0					0	0	0	0
M-MU-8	Vocal Room	1,200	0	0					0	0	0	0
H-MU-8	Vocal Room	1,200	0	0					0	0	0	0
H-MU-9	Vocal Storage	150	0	0					0	0	0	0
E-PE-1	PE Area	2500	0	0					0	0	0	0
M-PE-1	PE Area	4000	0	0					0	0	0	0
H-PE-1	PE Area	6000	0	0					0	0	0	0
H-PE-3	Student Locker Room	400	0	0					0	0	0	0
H-PE-4	Student Restroom/Shower	150	0	0					0	0	0	0
H-~~WD~~-CE	~~Workforce Dev~~ Career Education F	Varies	0	0	0	0	0	0	0	0		0
H-~~WD~~-CE	~~Workforce Dev~~ Career Education F	Varies	0	Varies								
H-~~WD~~-CE	~~Workforce Dev~~ Career Education F	Varies	0	Varies								
	SPECIAL EDUCATION											
E/M/H-SE-1	Self-contained Classroom	850	1	850					0	0	-1	-850
E/M/H-SE-2	Workroom/Conference	150	1	150					0	0	-1	-150
E/M/H-SE-3	Restroom/Shower	100	1	100					0	0	-1	-100
E/M/H-SE-4	Special Education/Resource	450	1	450					0	0	-1	-450
E/M/H-SE-5	Speech Therapy	475	1	475					0	0	-1	-475
E/M/H-SE-7	OT/PT	350	1	350					0	0	-1	-350
E-GT-1	Gifted and Talented	850	0	0					0	0	0	0
	ADMINISTRATIVE SPACES											
E/M/H-AD-3	Principal's Office	150	1	150					0	0	-1	-150
E/M/H-AD-4	Assistant Principal's Office	120	0	0					0	0	0	0
E/M/H-AD-11	Guidance Counselor's Office	120	1	120					0	0	-1	-120
E/M/H-AD-15	Health Center	250	1	250					0	0	-1	-250
E/M/H-AD-20	Health Center Restroom	45	1	45								
	PERFORMING ARTS											
H-PA-1	Auditorium	1500	0	0					0	0	0	0
H-PA-3	Stage Area (includes wings)	600	0	0					0	0	0	0

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (POR)
SUMMARY AND REQUIRED SPACES

SCHOOL DISTRICT	
SCHOOL NAME	
PROJECT NAME	
PROJECT NUMBER	

USER DOCUMENTATION -
RUN BY:
DATE:

		STANDARD	REQUIRED SPACES		NEW SPACES		EXISTING SPACES (in their final configuration)		TOTAL SPACES (NEW + EXISTING)		REQUIRED SPACES CHECK	
	STUDENT DINING											
E/M/H-SD-1	Student Dining	0	1	0					0	0	-1	0
	FOOD SERVICE											
E/M/H-FS-1	Warming Kitchen	0	0	0					0	0	0	0
E/M/H-FS-2	Kitchen (total)	0	1	0								
E/M/H-FS-2a	Preparation Area	0	1	0					0	0	-1	0
E/M/H-FS-2b	Serving Area	0	1	0					0	0	-1	0
E/M/H-FS-2c	Dry Food Storage	0	1	0					0	0	-1	0
E/M/H-FS-2d	Cooler/Freezer	0	1	0					0	0	-1	0
E/M/H-FS-2e	Ware Washing	0	1	0					0	0	-1	0
	BUILDING SERVICES											
E/M/H-CU-1	Workroom	125	1	125					0	0	-1	-125
E/M/H-MultiSt	Vertical Circulation	0	0	0					0	0	0	0
E/M/H-BS-1	Large Group Restrooms	92		92					0	0		-92
E/M/H-BS-2	Custodial Closet	50	1	50					0	0	-1	-50
E/M/H-BS-3	Electrical Closet	50	1	50					0	0	-1	-50
E/M/H-BS-4	Telecommunications Room	64	1	64					0	0	-1	-64
E/M/H-BS-5	Corridors/Circulation	613		613					0	0		-613
E/M/H-BS-6	Mech/Elect Space/Decks	169		169					0	0		-169
E/M/H-BS-7	Storage Area	150	1	150					0	0	-1	-150
E/M/H-BS-8	Central Storage Area	150	1	150					0	0	-1	-150
E/M/H-BS-9	Loading/Receiving Area	100	1	100					0	0	-1	-100
E/M/H-BS-10	Main Cross-connect	150	1	150					0	0	-1	-150

NOTES: PLEASE DESCRIBE 1) ANY CONVERSIONS OF SPACE. FOR EXAMPLE, EXISTING 3,000 SF STUDENT DINING CONVERTED TO THREE 4TH GRADE CLASSROOMS.
2) ANY SHARED SPACES WITH OTHER SCHOOLS.

SUITABILITY ANALYSIS

SUITABILITY ANALYSIS							
BY:	0						
DATE:	1/0/1900						
(CHOOSE CORRECT PROJECT TYPE)							
FOR ADDITION PROJECT	YES						
FOR NEW SCHOOL IN DISTRICT	NO						
SCHOOL DISTRICT			0				
SCHOOL NAME			0				
PROJECT NAME			0				
PROJECT NUMBER			0				
	Existing Size			POR Allowance		Difference	
	(GROSS SF)			(SF)			
TOTAL SCHOOL/CAMPUS	0			0		0	
SINGLE-PURPOSE AREAS	**2008 or Before**	**After 2008**				**2008 or Before**	
Physical Education				0		0	
Media Center				0		0	
Student Dining				0		0	
Performing Arts				0		0	
	TOTAL SUITABILITY NEED (GROSS SF)					**0**	
	FOR STATE FINANCIAL PARTICIPATION						
NOTES				District Inputs			
				From POR Summary Sheet			
				Suitability Analysis Computes			
				State Participation Area or Excess Area in Gross SF			

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS
~~WORKFORCE DEVELOPMENT~~ CAREER EDUCATION Required for 9-12)

SCHOOL DISTRICT	0		9-12 schools must provide a minimum of three
SCHOOL NAME	0		~~workforce development~~ Career Education programs. Each
PROJECT NAME	0		contain at least three course offerings. Allowable
PROJECT NUMBER	0		~~workforce~~ career education total space is shown on Summar

			REQUIRED	NEW SPACES		EXISTING SPACES		TOTAL SPACES (NEW + EXISTING)	
	~~WORKFORCE DEVELOPMENT~~ CAREER EDUC		SIZE	Qty	AREA	Qty	AREA	Qty	AREA
Agribusiness Systems									
~~WD~~- CE-AG-1	Agribusiness Lab		1,500					0	0
Agricultural Power, Structural, & Technical Sys.									
~~WD~~-CE-AG-2	Ag Mechanics Lab		3,000					0	0
~~WD~~- CE-AG-3	Outdoor Covered Work Area		800					0	0
Agricultural Science - Animal or Plant Sys.									
~~WD~~-CE-AG-4	Outdoor Animal Science Lab		1,000					0	0
Horticulture / Plant Systems									
~~WD~~-CE-AG-5	Greenhouse		1,800					0	0
~~WD~~-CE-AG-6	Cold Frame		800					0	0
~~WD~~-CE-AG-7	Shade House		300					0	0
~~WD~~-CE-AG-8	Hydroponics Lab		250					0	0
Natural Resources / Environmental Service Sys.									
~~WD~~-CE-AG-9	Aquaculture Lab		500					0	0
Related Spaces									
~~WD~~-CE-AG-10	Classroom		850					0	0
~~WD~~-CE-AG-11	Office		120					0	0
~~WD~~-CE-AG-12	Restrooms/Locker Rooms		150					0	0
~~WD~~-CE-AG-13	Storage		150					0	0
Business Marketing Management									
~~WD~~-CE-BM-1	Management Lab		1,500					0	0
Office Administration									
~~WD~~-CE-BM-2	Office Administration Lab		1,500					0	0
Hospitality									
~~WD~~-CE-BM-3	Hospitality Lab		1,500					0	0
Lodging									
~~WD~~-CE-BM-4	Lodging Lab		1,500					0	0
Desktop Publishing									
~~WD~~-CE-BM-5	Desktop Publishing Lab		1,500					0	0
Multimedia									
~~WD~~-CE-BM-6	Multimedia Lab		1,500					0	0
Programming									
~~WD~~-CE-BM-7	Programming Lab		1,500					0	0
Accounting									
~~WD~~-CE-BM-8	Accounting Lab		1,500					0	0
Banking & Finance									
~~WD~~-CE-BM-9	Banking & Finance Lab		1,500					0	0
Marketing									
~~WD~~-CE-BM-10	Marketing Lab		1,500					0	0
Related Spaces									
~~WD~~-CE-BM-11	Classroom		850					0	0
~~WD~~-CE-BM-12	Office		120					0	0
~~WD~~-CE-BM-13	Storage		100					0	0

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS
~~WORKFORCE DEVELOPMENT~~ CAREER EDUCATION Required for 9-12)

SCHOOL DISTRICT	0		9-12 schools must provide a minimum of three
SCHOOL NAME	0		~~workforce development~~ Career Education programs. Each
PROJECT NAME	0		contain at least three course offerings. Allowable
PROJECT NUMBER	0		~~workforce~~ career education total space is shown on Summar

			REQUIRED	NEW SPACES		EXISTING SPACES		TOTAL SPACES (NEW + EXISTING)	
	~~WORKFORCE DEVELOPMENT~~ CAREER EDUC		SIZE	Qty	AREA	Qty	AREA	Qty	AREA
Family & Consumer Sciences									
~~WD~~-CE-FCS-1	Family & Consumer Sciences Lab		1,200					0	0
~~WD~~-CE-FCS-2	Food Prep Lab (kitchen units)		600					0	0
~~WD~~-CE-FCS-3	Sewing Lab		550					0	0
~~WD~~-CE-FCS-4	Fitting Room		150					0	0
~~WD~~-CE-FCS-5	Laundry		50					0	0
Consumer Services									
~~WD~~-CE-FCS-1	Consumer Services Lab		1,500					0	0
Education & Training									
~~WD~~-CE-FCS-6	Education & Training Lab		1,200					0	0
Food Production, Management, & Services									
~~WD~~-CE-FCS-7	Food Production, Management, & Services Lab		1,200					0	0
~~WD~~-CE-FCS-8	Food Prep Lab (kitchen units)		600					0	0
Facilities Management, Maintenance, & Services									
~~WD~~-CE-FCS-9	Facilities Management, Maintenance, & Services L		1,200					0	0
Child Care Guidance, Management, & Services									
~~WD~~-CE-FCS-1	Child Care Guidance, Management, & Services La		1,200					0	0
~~WD~~-CE-FCS-1	Laundry		50					0	0
Cosmetology									
~~WD~~-CE-FCS-1	Cosmetology Lab		2,500					0	0
Required Spaces in Cosmetology Lab - included in required SF									
~~WD~~-CE-FCS-2	Restroom		100						
~~WD~~-CE-FCS-2	Reception		250						
~~WD~~-CE-FCS-2	Supply		200						
~~WD~~-CE-FCS-2	Dispensary		150						
~~WD~~-CE-FCS-1	Office		120						
~~WD~~-CE-FCS-1	Cosmetology Clinic Area		1,200					0	0
~~WD~~-CE-FCS-1	Cosmetology Instruction Area		275					0	0
Related Spaces									
~~WD~~-CE-FCS-1	Classroom		850					0	0
~~WD~~-CE-FCS-1	Restrooms		150					0	0
~~WD~~-CE-FCS-1	Storage		100					0	0
Architecture and Construction Services									
Construction Technology									
~~WD~~-CE-ARC-1	Construction Technology Lab		3,000					0	0
HVACR									
~~WD~~-CE-ARC-2	HVACR Lab		3,000					0	0
Related Spaces									
~~WD~~-CE-ARC-3	Classroom		850					0	0
~~WD~~-CE-ARC-4	Office		120					0	0
~~WD~~-CE-ARC-5	Storage		200					0	0
ARTS, AV TECHNOLOGY, & COMMUNICATION SPACES									
Advertising Design									
~~WD~~-CE-AV-1	Advertising Design Lab		1,500					0	0
Career Communications									
~~WD~~-CE-AV-2	Career Communications Lab		1,500					0	0
Commercial Photography									
~~WD~~-CE-AV-3	Photography Production Lab		400					0	0

ARKANSAS SCHOOL FACILITY MANUAL
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~~WORKFORCE DEVELOPMENT~~ CAREER EDUCATION Required for 9-12)

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SCHOOL NAME	0		~~workforce development~~ Career Education programs. Each
PROJECT NAME	0		contain at least three course offerings. Allowable
PROJECT NUMBER	0		~~workforce~~ career education total space is shown on Summar

			REQUIRED	NEW SPACES		EXISTING SPACES		TOTAL SPACES (NEW + EXISTING)	
	~~WORKFORCE DEVELOPMENT~~ CAREER EDUC		SIZE	Qty	AREA	Qty	AREA	Qty	AREA
~~WD~~-CE-AV-4	Photography Workroom		750					0	0
Graphic Communications									
~~WD~~-CE-AV-6	Graphic Communication Work Area		1,800					0	0
Performing Arts									
~~WD~~-CE-AV-7	Performing Arts Studio		1,800					0	0
~~WD~~-CE-AV-8	Dressing Rooms		750					0	0
~~WD~~-CE-AV-9	Performing Arts Storage		250					0	0
Radio / TV Broadcasting									
~~WD~~-CE-AV-10	Radio / TV Broadcasting Lab		1,200					0	0
Related Spaces									
~~WD~~-CE-AV-11	Classroom		850					0	0
~~WD~~-CE-AV-12	Office		120					0	0
~~WD~~-CE-AV-13	Storage		200					0	0
Government and Public Education Spaces									
ROTC									
~~WD~~-CE-GOV-1	ROTC Lab		3,000					0	0
Related Spaces									
~~WD~~-CE-GOV-2	Classroom		850					0	0
~~WD~~-CE-GOV-3	Office		120					0	0
~~WD~~-CE-GOV-4	Storage		200					0	0
Health Science Spaces									
Medical Professions Education									
~~WD~~-CE-HSC-1	Clinic Area		500					0	0
Related Spaces									
~~WD~~-CE-HSC-2	Classroom		850					0	0
~~WD~~-CE-HSC-3	Office		120					0	0
~~WD~~-CE-HSC-4	Storage		200					0	0
Law, Public Safety and Security Spaces									
Criminal Justice									
~~WD~~-CE-LAW-1	Criminal Justice Lab (forensics)		1,200					0	0
Related Spaces									
~~WD~~-CE-LAW-2	Classroom		850					0	0
~~WD~~-CE-LAW-3	Office		120					0	0
~~WD~~-CE-LAW-4	Storage		200					0	0
Manufacturing Spaces									
Electronics									
~~WD~~-CE-MAN-1	Electronics Lab		2,000					0	0
Furniture Manufacturing									
~~WD~~-CE-MAN-2	Furniture Manufacturing Lab		3,000					0	0
Industrial Equipment Maintenance									
~~WD~~-CE-MAN-3	Industrial Equipment Lab		3,000					0	0
Machine Tool Technology									
~~WD~~-CE-MAN-4	Machine Tool Lab		3,000					0	0
Major Appliance Repair									
~~WD~~-CE-MAN-5	Major Appliance Repair Lab		3,000					0	0
Welding									

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS
~~WORKFORCE DEVELOPMENT~~ CAREER EDUCATION Required for 9-12)

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SCHOOL NAME	0		~~workforce development~~ Career Education programs. Each
PROJECT NAME	0		contain at least three course offerings. Allowable
PROJECT NUMBER	0		~~workforce~~ career education total space is shown on Summar

			REQUIRED	NEW SPACES		EXISTING SPACES		TOTAL SPACES (NEW + EXISTING)	
	~~WORKFORCE DEVELOPMENT~~ CAREER EDUC		SIZE	Qty	AREA	Qty	AREA	Qty	AREA
~~WD~~-CE-MAN-6	Welding Lab		3,000					0	0
Related Spaces									
~~WD~~-CE-MAN-7	Classroom		850					0	0
~~WD~~-CE-MAN-8	Office		120					0	0
~~WD~~-CE-MAN-9	Storage		200					0	0
SCIENCE, TECHNOLOGY, ENGINEERING, & MATHEMATICS SPACES									
Drafting & Design									
~~WD~~-CE-ENG-1	Drafting & Design Lab		2,000					0	0
Computer Engineering									
~~WD~~-CE-ENG-2	Computer Engineering Lab		1,500					0	0
Geospatial Technology (GIS)									
~~WD~~-CE-ENG-3	Geospatial Technology (GIS) Lab		1,500					0	0
Pre-Engineering									
~~WD~~-CE-ENG-4	Pre-Engineering Lab		1,500					0	0
Related Spaces									
~~WD~~-CE-ENG-5	Classroom		850					0	0
~~WD~~-CE-ENG-6	Office		120					0	0
~~WD~~-CE-ENG-7	Storage		200					0	0
Transportation, Distribution, & Logistics Spaces									
Automotive Collision									
~~WD~~-CE-TDL-1	Automotive Collision Repair Lab		4,000					0	0
Automotive Service Technology									
~~WD~~-CE-TDL-2	Automotive Service Technology Lab		4,000					0	0
Aviation Mechanics									
~~WD~~-CE-TDL-3	Aviation Mechanics Lab		10,000					0	0
~~WD~~-CE-TDL-4	Aviation Technology Lab		1,200					0	0
Diesel Mechanics									
~~WD~~-CE-TDL-5	Diesel Mechanics Lab		4,000					0	0
Power Equipment Technology									
~~WD~~-CE-TDL-6	Power Equipment Technology Lab		3,000					0	0
Related Spaces									
~~WD~~-CE-TDL-7	Classroom		850					0	0
~~WD~~-CE-TDL-8	Office		120					0	0
~~WD~~-CE-TDL-9	Storage		200					0	0
			TOTALS	0	0	0	0	0	0

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS
SCHOOL SUPPORT SPACES (NOT REQUIRED)

SCHOOL DISTRICT		0		
SCHOOL NAME		0		
PROJECT NAME		0		
PROJECT NUMBER		0		
	ONLY ENTER NEW SPACES INCLUDED IN THE PROJECT			
	SUPPORT SPACES (NOT REQUIRED)	**SUGGESTED SF**	**Qty**	**AREA**
	ACADEMIC CORE			
E-AC-6	Teacher Prep Area/Workroom	150		
E-AC-7	Individual Restroom	50		
E-AC-8	Instructional Material Storage	100		
E-AC-9	Instructional Multi-purpose	850		
E-MC-2	Media Specialist Office	100		
E-MC-3	Media Center Workroom/Storage	100		
E-MC-5	A/V Storage	50		
E-MC-6	Conference Room	200		
E-VA-2	Kiln/Ceramic Storage	100		
E-PE-2	P. E. Workroom/Storage	100		
M-AC-2	Project Lab/Classroom	1100		
M-AC-3	Teacher Prep Area/Workroom	200		
M-AC-4	Individual Restroom	50		
M-AC-5	Instructional Material Storage	120		
M-AC-6	Small Group Room	150		
M-AC-7	Instructional Multi-purpose Room	850		
M-MC-2	Media Specialist Office	120		
M-MC-3	Media Center Workroom/Storage	150		
M-MC-5	Media Center A/V Storage	80		
M-MC-6	Media Center Conference Room	150		
M-MC-7	Multimedia Production Room	300		
M-VA-2	Kiln/Ceramic Storage	100		
M-MU-3	Music Office	120		
M-MU-4	Music Library	120		
M-~~WD~~ CE-2	~~Workforce Dev~~ Career EducationP	1300		
M-~~WD~~ CE-3	~~Workforce Development~~ Career Ed	150		
M-FCS-1	Life Skills Lab	1100		
M-FCS-2	Life Skills Storage	100		
M-PE-2	P.E./Athletic Office	75		
M-PE-3	Staff Shower	75		
M-PE-4	Student Locker Room	350		
M-PE-5	Student Restroom/Shower	150		
M-PE-6	Physical Education Storage	200		
H-AC-6	Teacher Prep Area/Workroom	300		
H-AC-7	Individual Restroom	50		
H-AC-9	Small Group Room	150		
H-AC-10	Instructional Material Storage	150		
H-MC-2	Media Specialist Office	120		
H-MC-3	Workroom/Storage	150		
H-MC-4	A/V Storage	75		
H-MC-5	Conference Room	250		
H-MC-6	Multimedia Production Room	400		

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS
SCHOOL SUPPORT SPACES (NOT REQUIRED)

SCHOOL DISTRICT		0		
SCHOOL NAME		0		
PROJECT NAME		0		
PROJECT NUMBER		0		
	ONLY ENTER NEW SPACES INCLUDED IN THE PROJECT			
	SUPPORT SPACES (NOT REQUIRED)	**SUGGESTED SF**	**Qty**	**AREA**
H-MC-7	Document Storage	60		
H-VA-2	Kiln/Ceramic Storage	100		
H-MU-3	Instrument Repair Room	100		
H-MU-4	Orchestra Storage	100		
H-MU-5	Instrumental Music Library	120		
H-MU-6	Instrumental Office	120		
H-MU-7	Uniform Storage	100		
H-MU-10	Vocal Music Library	120		
H-MU-11	Vocal Office	120		
H-MU-12	Ensemble Room	150		
H-MU-13	Practice Room	80		
H-MU-14	Restroom	50		
H-PE-2	Auxiliary Gymnasium	4,000		
H-PE-5	Physical Education Storage	200		
H-PE-6	P.E./Athletic Office	75		
H-PE-7	Staff Shower	75		
H-PE-8	Athletic Director's Office	120		
H-PE-9	Lobby Services	100		
H-PE-10	Training Room	200		
H-PE-11	Physical Health Classroom	850		
H-PE-12	Multi-use P.E. Room	2,400		
	SPECIAL EDUCATION			
E-SE-6	Storage	80		
M-SE-6	Storage	100		
H-SE-6	Storage	100		
	ADMINISTRATIVE SPACES			
E-AD-1	Reception Area	150		
E-AD-2	Secretarial Area	150		
E-AD-5	Conference Room	150		
E-AD-6	Mail/Work/Copy Room	150		
E-AD-7	Administrative Storage	80		
E-AD-8	Vault/Records Storage	50		
E-AD-9	In-school Suspension	450		
E-AD-10	Restroom	50		
E-AD-12	Guidance Reception	120		
E-AD-13	Guidance Records/Storage	50		
E-AD-14	Parent Center	300		
E-AD-16	Itinerant Personnel Office	100		
E-AD-17	Family Restroom	80		
M-AD-1	Reception Area	150		
M-AD-2	Secretarial Area	150		

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS
SCHOOL SUPPORT SPACES (NOT REQUIRED)

SCHOOL DISTRICT		0		
SCHOOL NAME		0		
PROJECT NAME		0		
PROJECT NUMBER		0		
	ONLY ENTER NEW SPACES INCLUDED IN THE PROJECT			
	SUPPORT SPACES (NOT REQUIRED)	**SUGGESTED SF**	**Qty**	**AREA**
M-AD-5	Conference Room	150		
M-AD-6	Mail/Work/Copy Room	150		
M-AD-7	Administrative Storage	75		
M-AD-8	Vault/Records Storage	50		
M-AD-9	In-school Suspension	350		
M-AD-10	Restroom	50		
M-AD-12	Guidance Reception	120		
M-AD-13	Guidance Records/Storage	50		
M-AD-14	Parent Center	400		
M-AD-16	Itinerant Personnel Office	120		
M-AD-17	Family Restroom	80		
H-AD-1	Reception Area	150		
H-AD-2	Secretarial Area	150		
H-AD-5	Conference Room	200		
H-AD-6	Mail/Work/Copy Room	150		
H-AD-7	Administrative Storage	100		
H-AD-8	Vault/Records Storage	50		
H-AD-9	In-school Suspension	450		
H-AD-10	Restroom	50		
H-AD-12	Guidance Records/Storage	80		
H-AD-13	Guid. Conference Rm/Group Procedures Rm	250		
H-AD-14	Guidance Reception and Display Area	120		
H-AD-15	Parent Center	450		
H-AD-17	Itinerant Personnel Office	120		
H-AD-18	Career Center	500		
H-AD-19	Family Restroom	80		
	FOOD SERVICE			
E-SD-2	Stage	900		
E-SD-3	Staff Dining	250		
E-SD-4	Table Storage	200		
E-FS-3	Dietician Office	75		
E-FS-4	Restroom	50		
E-FS-5	Locker Room	100		
M-SD-2	Stage	1000		
M-SD-3	Staff Dining	400		
M-SD-4	Table Storage	200		
M-FS-3	Dietician Office	75		
M-FS-4	Restroom	50		
M-FS-5	Locker Room	50		
H-FS-3	Dietician Office	75		

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS
SCHOOL SUPPORT SPACES (NOT REQUIRED)

SCHOOL DISTRICT		0		
SCHOOL NAME		0		
PROJECT NAME		0		
PROJECT NUMBER		0		
	ONLY ENTER NEW SPACES INCLUDED IN THE PROJECT			
	SUPPORT SPACES (NOT REQUIRED)	**SUGGESTED SF**	**Qty**	**AREA**
H-FS-4	Restroom	50		
H-FS-5	Locker Room	125		
	PERFORMING ARTS			
H-PA-2	Orchestra Pit [with cover]	300		
H-PA-4	Scene Shop	400		
H-PA-5	Scene Shop Storage	250		
H-PA-6	Make-up/Dressing Room	100		
H-PA-7	Green Room	300		
H-PA-8	Costume Storage	150		
H-PA-9	Control Room	100		
H-PA-10	Lobby/Concessions/Gallery	200		
H-PA-11	Ticket Booth	80		
H-PA-12	Theatre/Drama Office	100		
H-PA-13	Storage	200		
	BUILDING SERVICES			
E-CU-2	Custodial Office	80		
M-CU-2	Custodial Workroom	63		
H-CU-2	Custodial Workroom	125		
		Total area of support spaces		0

	REQUIRED SPACES		
		STANDARD SIZE	
	Space	Square Feet	Notes
	ACADEMIC CORE		
E-AC-3	Kindergarten Classroom	1000	Maximum class size 20 students
E-AC-4	Kindergarten Restroom	45	One per kindergarten classroom
E-AC-5a	Elem Classroom Grades 1-3	850	Maximum class size 25 students
E-AC-5b	Elem Classroom Grades 4-5	850	Maximum class size 28 students
M-AC-1a	MS Classroom Grade 6	850	Maximum class size 28 students.
M-AC-1b	MS Classroom Grades 7-8	850	Maximum class size 30 students.
M-~~WD~~-CE-1	Workforce Development	1,300	Two required for 700 or more students.
H-AC-1	HS Classroom	850	Maximum class size 30 students.
H-AC-2	Science Clrm/Lab-Gen/Physics	1,440	Minimum one plus one per each 500 students
H-AC-3	Science Clrm/Lab-Chemistry	1,440	One per each 500 students above 1,000 students.
H-AC-4	Science Clrm/Lab-Biol/Life Sci	1,440	One minimum to 1000 students. Additional for each 500 above 1000 students.
H-AC-5	Science Prep	300	
H-AC-11	Chemical Storage	150	One miminum. Two above 1500 students.
H-AC-12	Multi-Use Room	1,500	
H-AC-13	Instructional Multi-Purpose Rm	850	
H-AC-8	Project Lab/Classroom	1,100	One minimum to 1000 students. Additional for each 500 above 1000 students.
E-MC-1	Reading Room/Circulation	Computed	10% of the student capacity multiplied by 35 SF per student.
E-MC-4	Computer Lab	900	
M/H-MC-1	Reading Room/Circulation	Computed	10% of the student capacity multiplied by 40 SF per student.
M-MC-4	Media Center Computer Lab	900	
E-VA-1	Art Room	1200	Required for 550 or more students.
E-VA-3	Art Material Storage	80	Required for 550 or more students.
E-AC-10	Fine Arts Instruction Room	1,200	Substituted for Art and Music Room in ES with less than 550 students
E-AC-11	Fine Arts Instruction Storage	100	Substituted for Art and Music Storage in ES with less than 550 students
M-VA-1	Art Room	1200	
H-VA-1	Art Room	1200	Minimum one, plus one for each 500 students
M/H-VA-3	Art Material Storage	100	
E-MU-1	Music Room	1,200	Required for 550 or more students.
E-MU-2	Music Storage	100	Required for 550 or more students.
M-MU-2	Music Storage	100	Required for 550 or more students.
M/H-MU-1	Instrumental Room	1,400	Minimum one plus additional room for more than 1000 students.
H-MU-2	Instrument Storage	Computed	Minimum 200 SF. One-half SF per student.
M-MU-8	Vocal Room	1,200	Required for 700 or more students
H-MU-8	Vocal Room	1,200	Minimum one for 500 students plus additional room for more than 2000 students.
H-MU-9	Vocal Storage	150	One per vocal room.
E-PE-1	PE Area	Computed	10 SF per student. Minimum 2,500 SF, Maximum 10,000 SF. Minimum single space size 900 SF.
M-PE-1	PE Area	Computed	15 SF per student. Minimum 4,000 SF, Maximum 10,000 SF. Minimum single space size 900 SF.
H-PE-1	PE Area	Computed	15 SF per student. Min 6,000 SF, Max 30,000 SF. Includes aux gym above 1000 students. Minimum 900 S
H-PE-3	Student Locker Room	Computed	Minimum 2 @ 400 SF. Maximum 6 @ 850 SF.
H-PE-4	Student Restroom/Shower	Computed	Minimum 2 @ 150 SF. Maximum 6 @ 350 SF.
H-~~WD~~-CE	~~Workforce Dev~~ Career Educati	Varies	Total. Minimum 8,000 SF. Maximum 23,000 SF. 15 SF/student.
H-~~WD~~-CE	~~Workforce Dev~~ Career Educati	Varies	
H-~~WD~~-CE	~~Workforce Dev~~ Career Educati	Varies	
	SPECIAL EDUCATION		
E/M/H-SE-1	Self-contained Classroom	850	Two required for 1,000 students and above.
E/M/H-SE-2	Workroom/Conference	150	Two required for 1,000 students and above.
E/M/H-SE-3	Restroom/Shower	100	Two required for 1,000 students and above.
E/M/H-SE-4	Special Education/Resource	450	Two required for 1,000 students and above.
E/M/H-SE-5	Speech Therapy	475	Two required for 1,000 students and above.
E/M/H-SE-7	OT/PT	350	Two required for 1,000 students and above.
E-GT-1	Gifted and Talented	850	
	ADMINISTRATIVE SPACES		
E/M/H-AD-3	Principal's Office	150	
E/M/H-AD-4	Assistant Principal's Office	120	Required for 500 or more students.
E/M/H-AD-11	Guidance Counselor's Office	120	Minimum 1. Must maintain ratio of 1:450
E/M/H-AD-15	Health Center	250	
	PERFORMING ARTS		
H-PA-1	Auditorium	Computed	Minimum 1500 SF. 5 SF per 9-12 student.
H-PA-3	Stage Area (includes wings)	Computed	Minimum 600 SF. 2 SF per 9-12 student.
	STUDENT DINING		
E/M/H-SD-1	Student Dining	Computed	One-half of the student capacity multiplied by 15 SF per student.
	FOOD SERVICE		Only one of the two kitchens is to be used - either E-FS-1 or E-FS-2 - not both.
E/M/H-FS-1	Warming Kitchen	Computed	2 SF per student.
E/M/H-FS-2	Kitchen (total)	Computed	Equal to sum of areas for preparation, serving, dry food storage, cooler/freezer, and ware washing.
E/M/H-FS-2a	Preparation Area	Computed	Student capacity multiplied by 3.5 SF per student multiplied by 36%.
E/M/H-FS-2b	Serving Area	Computed	Student capacity multiplied by 3.5 SF per student multiplied by 34%.
E/M/H-FS-2c	Dry Food Storage	Computed	Student capacity multiplied by 3.5 SF per student multiplied by 11%.
E/M/H-FS-2d	Cooler/Freezer	Computed	Student capacity multiplied by 3.5 SF per student multiplied by 10%.
E/M/H-FS-2e	Ware Washing	Computed	Student capacity multiplied by 3.5 SF per student multiplied by 9%.
	BUILDING SERVICES		
E/M/H-CU-1	Workroom	Computed	0.5 SF per student. Minimum 125 SF.
E/M/H-MultiSt	Vertical Circulation	Computed	Vertical Circulation for Multi-Story Schools
E/M/H-BS-1	Large Group Restrooms	Computed	Equal to the sum of the program areas, excluding building services, multiplied by 3%.
E/M/H-BS-2	Custodial Closet	50	
E/M/H-BS-3	Electrical Closet	50	
E/M/H-BS-4	Telecommunications Room	64	
E/M/H-BS-5	Corridors/Circulation	Computed	Equal to the sum of the program areas, excluding building services, multiplied by 20%.
E/M/H-BS-6	Mech/Elect Space/Decks	Computed	Equal to the sum of the program areas, excluding building services, multiplied by 5.5%.
E/M/H-BS-7	Storage Area	150	
E/M/H-BS-8	Central Storage Area	150	
E/M/H-BS-9	Loading/Receiving Area	100	
E/M/H-BS-10	Main Cross-connect	150	

Introduction

Purpose

The information in this chapter consists of a diagram, features, loose furnishing, finishes, and notes which is referred to as a "space plate." There is a space plate for each room in each program areas in each school level. The purpose is to provide the Design Professionals and School Districts with guidelines to condition, finish, and equip each space.

Description

The diagram is not intended to fix the size or shape of that room. The size of each space is stated in the bracketing chapter (Chapter 5). Features noted are desirable, but quantities must be determined in relation to the size and capacity stated in the bracketing section. In some cases, casework can be fixed or movable. Loose furnishings are normally furniture items needed to complete the space.

Each room has a unique code that appears in the bracketing section and on the space plate. Example: E-AC-1 (E = elementary, AC = academic core, 1 = space plate #1).

Finishes are suggested options from life-cycle analysis that resulted in economical, durable, and maintainable finishes. Refer to material standards and guidelines in Chapter 7.

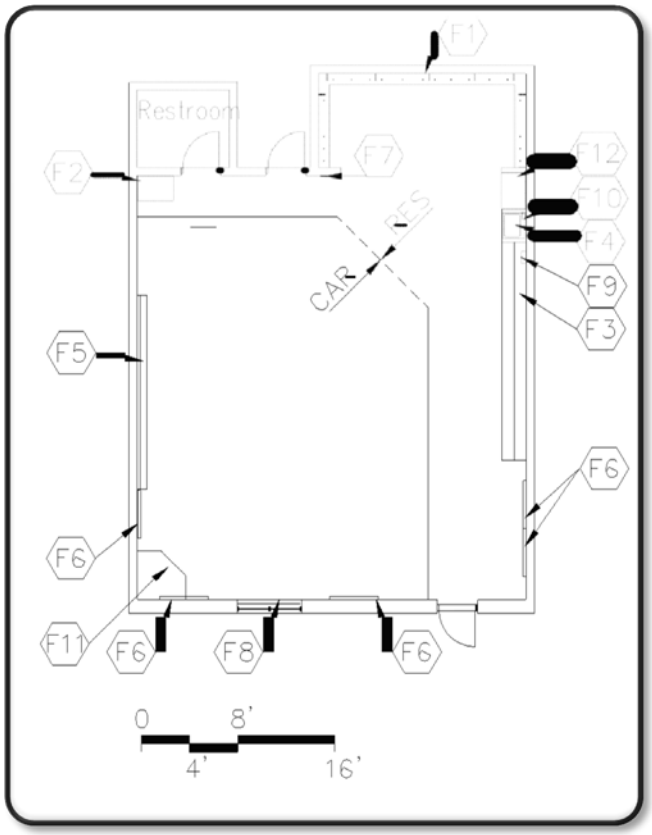
Plumbing, HVAC, and electrical provisions must, first of all, conform to all appropriate building and energy codes. In addition to the notes on each space plate, design professionals should provide good design recommendations that enhance code requirements where possible.

Technology is a vital part of the teaching_programs. Careful programming and early infrastructure inclusion in the design of the facility is recommended.

Pre-Kindergarten Classroom
E-AC-1

Features - Fixed Equipment

F1 Open casework – student coats and personal items
F2 Tall wardrobe w/file drawers
F3 Base & wall cabinets
F4 Sink base cabinet
F5 Chalk/marker board
F6 Tack board
F7 Pencil sharpener support
F8 Windows with integral blinds
F9 Towel dispenser
F10 Soap dispenser
F11 High storage cabinet
F12 Tall cabinets (could have tote trays, optional)



Features – Loose Furnishings

Student desks/tables
Computer workstation furniture
Student chairs
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Sand/water table
Children's painting easel
Teacher reading chair or stool
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet; Resilient – 4' width in front of cabinets
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing – sink with drinking fountain

Pre-Kindergarten Restroom
E-AC-2

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser

Features - Loose Furnishings

Wastebasket

Finishes:

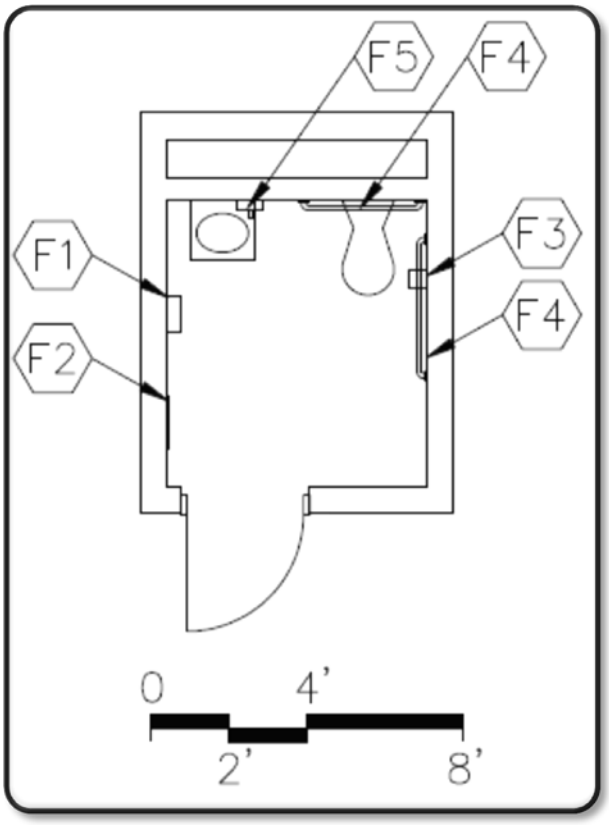
Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

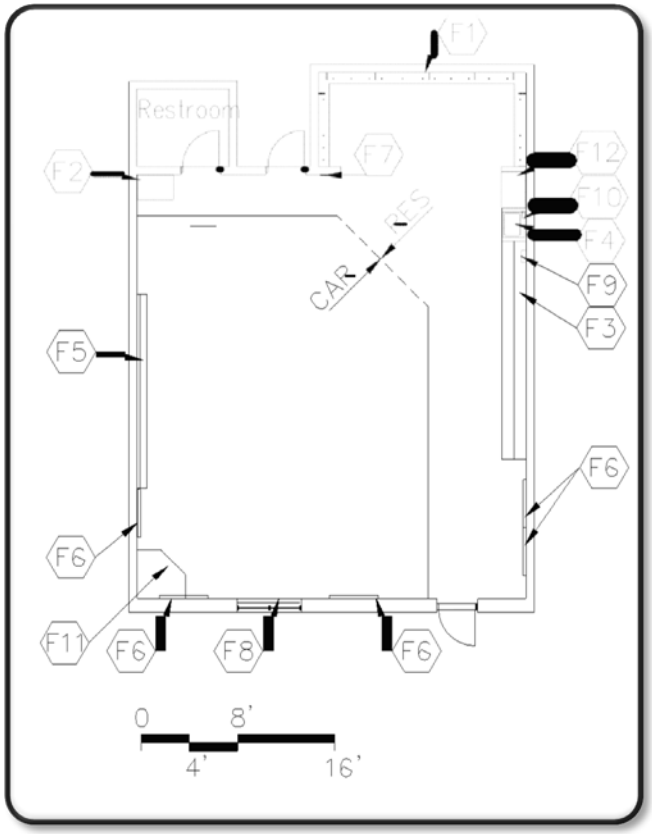
Notes
1. Plumbing - water closet and lavatory
2. Electrical - single-level switching; receptacles



Kindergarten Classroom
E-AC-3

Features - Fixed Equipment

F1 Open casework – student coats and personal items
F2 Tall wardrobe w/file drawers
F3 Base & wall cabinets
F4 Sink base cabinet
F5 ~~Chalk/marker~~ Marker board
F6 Tack board
F7 Pencil sharpener support
F8 Windows with integral blinds
F9 Towel dispenser
F10 Soap dispenser
F11 High storage cabinet
F12 Tall cabinets
(could have tote trays, optional)



Features – Loose Furnishings

Student desks/tables
Computer workstation furniture
Student chairs
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile) Sand/water table
Children's painting easel
Teacher reading chair or stool
Wastebasket
Pencil sharpener

Finishes:

Flooring – Carpet; Resilient -4' width in front of cabinets
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

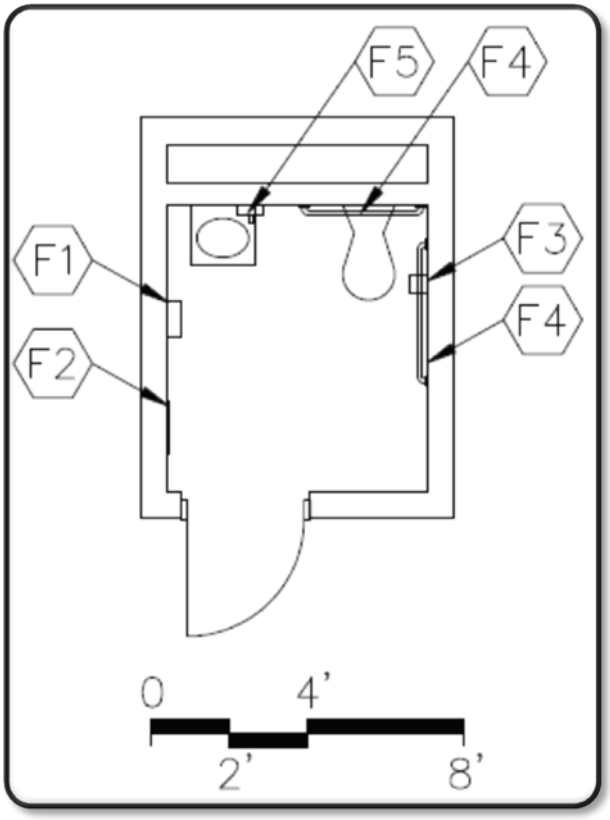
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing – sink with drinking fountain

Kindergarten Restroom
E-AC-4

Features - Fixed Equipment

F1 Towel dispenser
F2 24” x 60” mirror
F3 Toilet tissue holder
F4 36” and 42” grab bar
F5 Soap dispenser



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

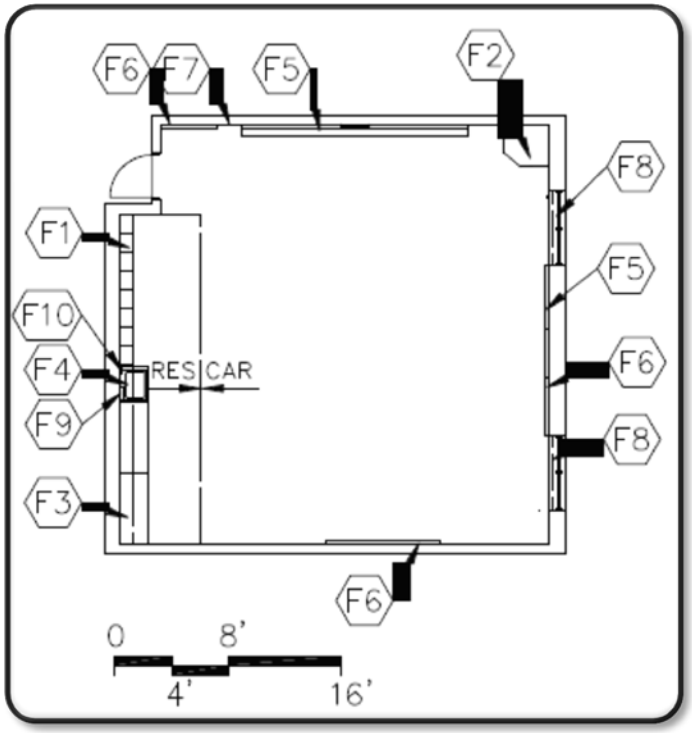
Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory
2. Electrical - single-level switching; receptacles

Elementary Classroom
E-AC-5

Features - Fixed Equipment

F1 Open casework – student coats and personal items
F2 Tall wardrobe w/file drawers
F3 Base & wall cabinets
F4 Sink base cabinet
F5 ~~Chalk/marker~~ Marker board
F6 Tack board
F7 Pencil sharpener support
F8 Windows with integral blinds
F9 Towel dispenser
F10 Soap dispenser



Features – Loose Furnishings

Student desks/tables
Computer workstation furniture
Student chairs
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Reading table
Wastebasket
Pencil sharpener

Finishes:

Flooring – Carpet; Resilient -4' width in front of cabinets or
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

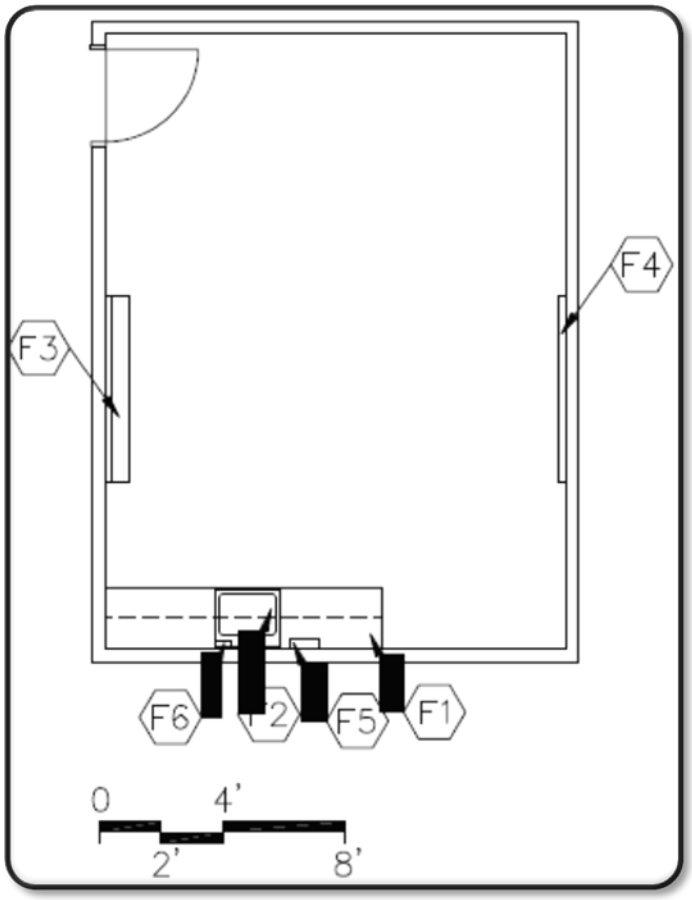
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing – sink with drinking fountain
4. Miscellaneous - operable partition between classrooms is optional

Teacher Prep Area/Workroom
E-AC-6

Features - Fixed Equipment

F1 Base & wall cabinets
F2 Sink base cabinet
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Towel dispenser
F6 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Computer workstation furniture
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

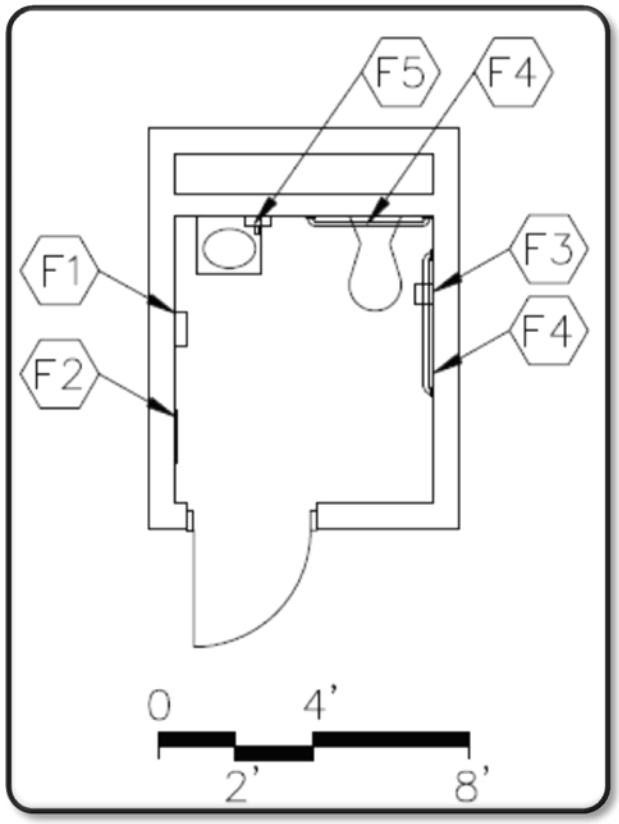
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, voice port & phone; clock; data ports
3. Plumbing - sink

Individual Restroom
E-AC-7

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory
2. Electrical - single-level switching; receptacles

Instructional Material Storage
E-AC-8

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

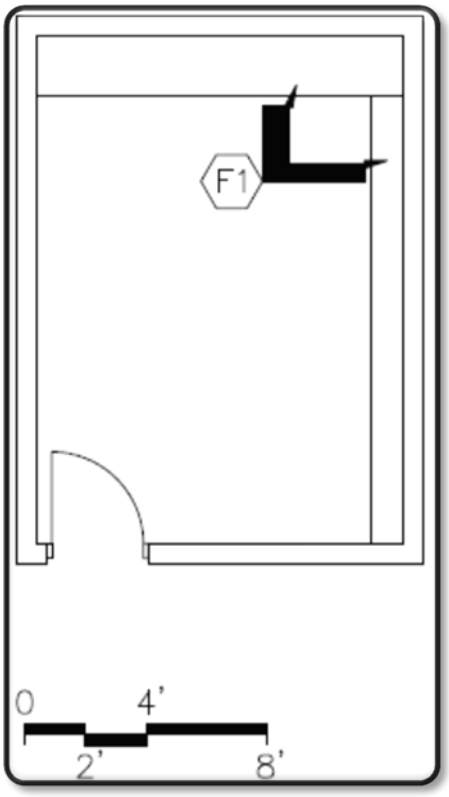
Base - Resilient base

Ceiling - Suspended, acoustical or painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching



Instructional Multi-Purpose Room
E-AC-9

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

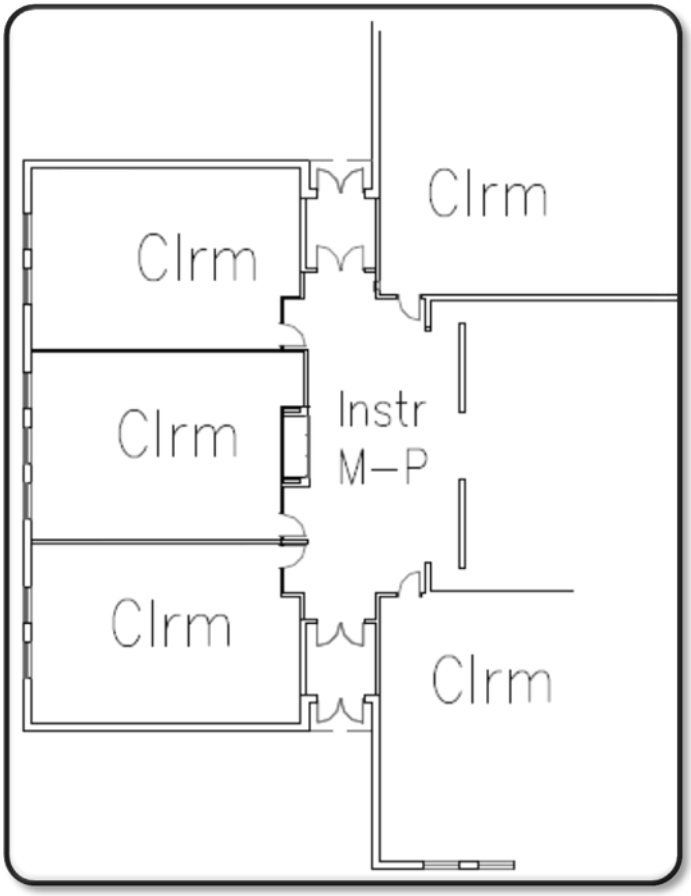
Base - Resilient, porcelain tile, or terrazzo

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; dual-level switching
2. Technology - wireless access points; video ports; data ports

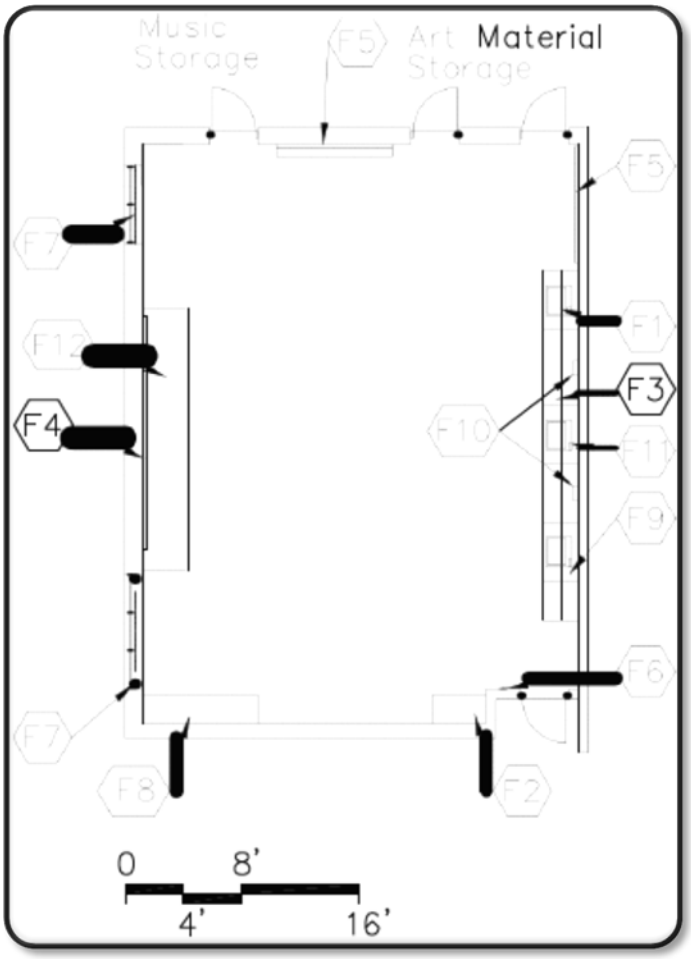


Instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.

Fine Arts Instruction Room
E-AC-10

Features - Fixed Equipment

F1 Sink base cabinet, 30" deep
F2 Tall wardrobe w/file drawers
F3 Base cabinets, 30" deep
F4 Tack board
F5 ~~Chalk/marker~~ Marker board
F6 Pencil sharpener support
F7 Windows with integral blinds
F8 Tall storage cabinets
F9 Wall cabinets
F10 Towel dispensers
F11 Soap dispensers
F12 Bookcases, 12" deep



Features – Loose Furnishings

Student work tables
Computer workstation furniture
Student chairs or stools
Teacher workstation/computer support and chair
Drying rack
Desk height file cabinet
Wastebasket Pencil sharpener Portable risers
Music stand and chairs
Conductor podium
Folding mobile cart for ORFF instruments

Finishes:

Flooring - Resilient or sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; track lighting
2. Technology - video port, data port, voice port & phone; clock; overhead projector data ports for students
3. Plumbing - sinks with solids interceptor and drinking fountain
4. HVAC - manually operated exhaust system

Instructional Material Storage
E-AC-11

Features - Fixed Equipment

F1 Tall storage cabinet
F2 Base cabinets, 30" deep
F3 Wall cabinets, 12" deep
F4 Kiln

Features – Loose Furnishings

Mobile materials cart
Tall dry storage units
Tall damp storage units

Finishes:

Flooring - Sealed concrete

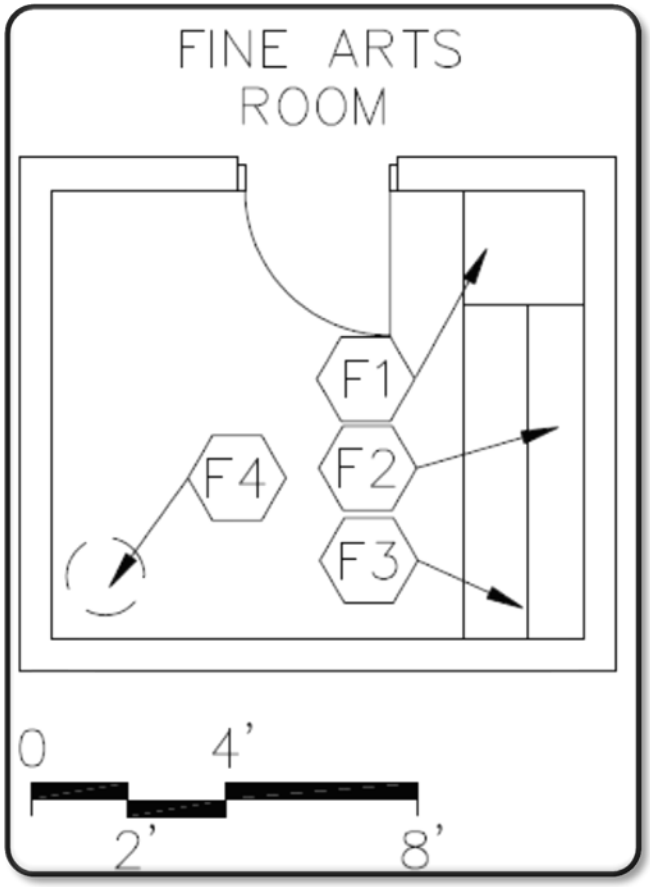
Base - Resilient base

Ceiling - Suspended, acoustical or painted structure

Walls - Painted concrete masonry units

Notes

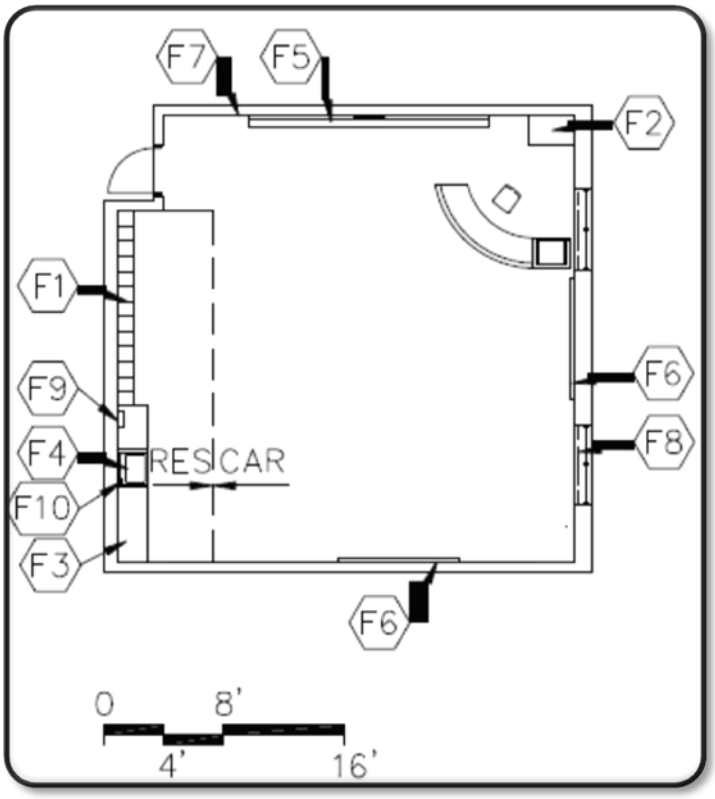
1. Electrical - duplex receptacle; single-level switching; electrical connection for kiln
2. HVAC - temperature controlled exhaust; ventilation for kiln



Self-Contained Classroom
E-SE-1

Features - Fixed Equipment

F1 Open casework – ~~coats with wall cabinets above~~ student coats and personal items
F2 Tall wardrobe w/file drawers
F3 Base & wall cabinets
F4 Sink base cabinet
F5 ~~Chalk/marker~~ Marker board
F6 Tack board
F7 Pencil sharpener support
F8 Windows with integral blinds
F9 Towel dispenser
F10 Soap dispenser



Features – Loose Furnishings

Student desks/tables
Student chairs
Teacher workstation/computer support and chair
Computer workstation furniture
File cabinet
Low bookcases (fixed or mobile)
Reading table
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet; Resilient – 4' width in front of cabinets
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

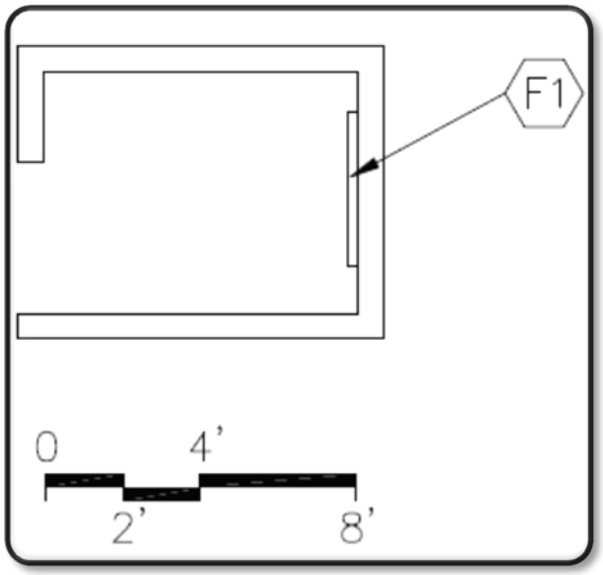
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing – sink with drinking fountain

Workroom/Conference
(quiet area)
E-SE-2

Features - Fixed Equipment

F1 Tack board



Features - Loose Furnishings

Student desk and chair
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

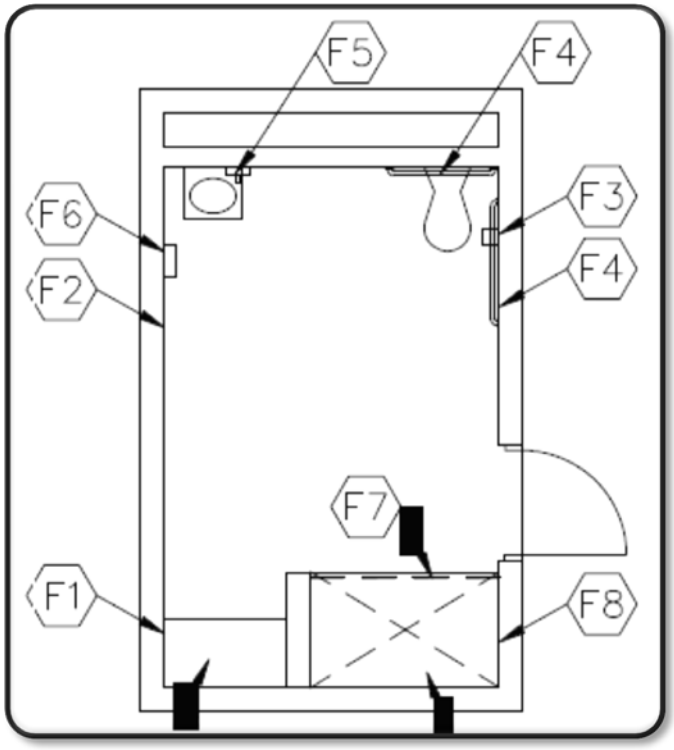
Notes

1. Electrical - duplex receptacle; dimmable lighting
2. Technology - clock

Restroom/Shower
E-SE-3

Features - Fixed Equipment

F1 Base cabinet
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser
F6 Towel dispenser
F7 Shower curtain and rod
F8 ADA shower accessories



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Restroom - Resilient
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Restroom - Resilient base
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Ceiling - Restroom- Suspended, acoustical
Shower - Painted Portland cement plaster or interior finish system

Walls - Epoxy painted concrete masonry units

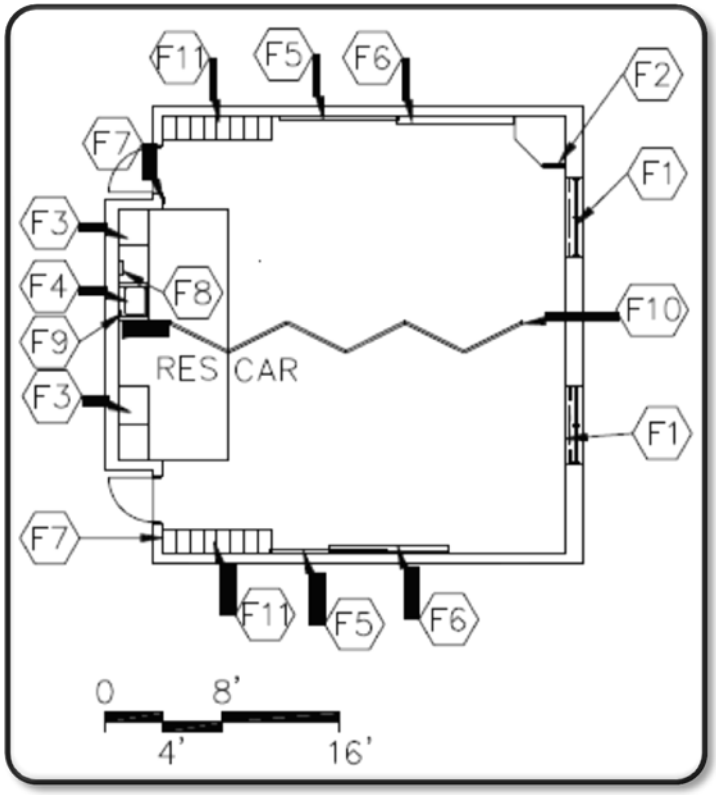
Notes

1. Plumbing - water closet and lavatory; ADA shower controls and head; floor drain
2. Electrical - duplex receptacles; single-level switching

Special Education/Resource
E-SE-4

Features - Fixed Equipment

F1 Windows with integral blinds
F2 Tall wardrobe w/file drawers
F3 Base cabinets
F4 Sink base cabinet
F5 ~~Chalk/marker~~ Marker board
F6 Tack board
F7 Pencil sharpener support
F8 Towel dispenser
F9 Soap dispenser
F10 Operable partition
F11 Open casework-coats with wall cabinets above



Features – Loose Furnishings

Student desks/tables
Computer workstation furniture
Student chairs
Teacher desk or workstation/computer support and chair
File cabinet
Mobile bookcases or storage unit
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet; Resilient – 4' width in front of cabinets

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

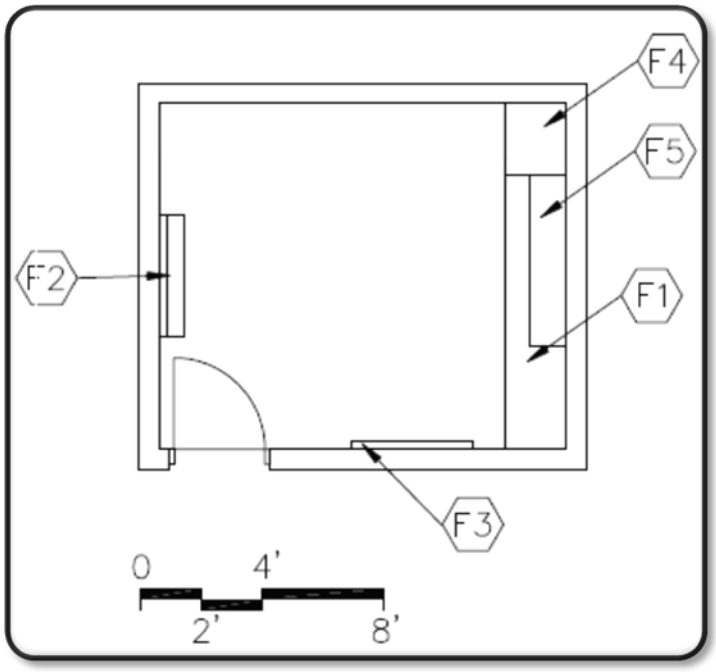
Notes

1. Plumbing - sink
2. Electrical - duplex receptacles; multi-level switching
3. Technology - video port, data port, voice port & phone; data ports for students; clock; overhead projector

Speech Therapy
E-SE-5

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Small table with chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
E-SE-6

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Resilient

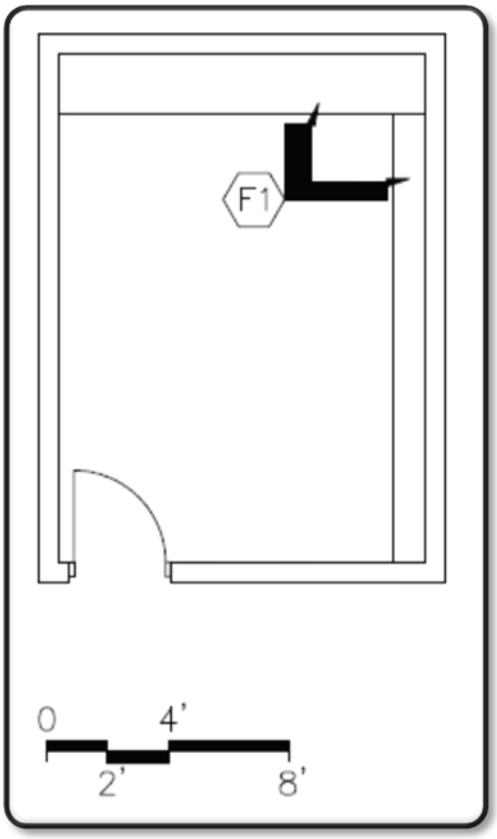
Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

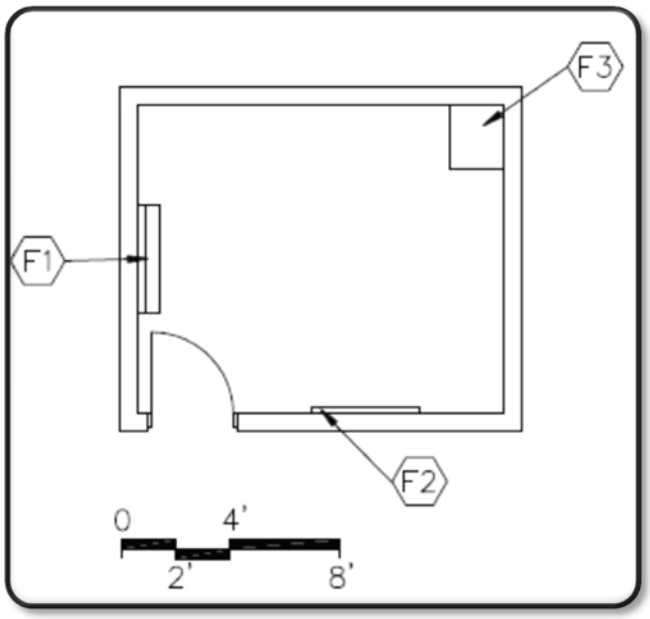
1. Electrical - duplex receptacle; single-level switching



Occupational and Physical Therapy
E-SE-7

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Wall cabinets



Features – Loose Furnishings

Chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

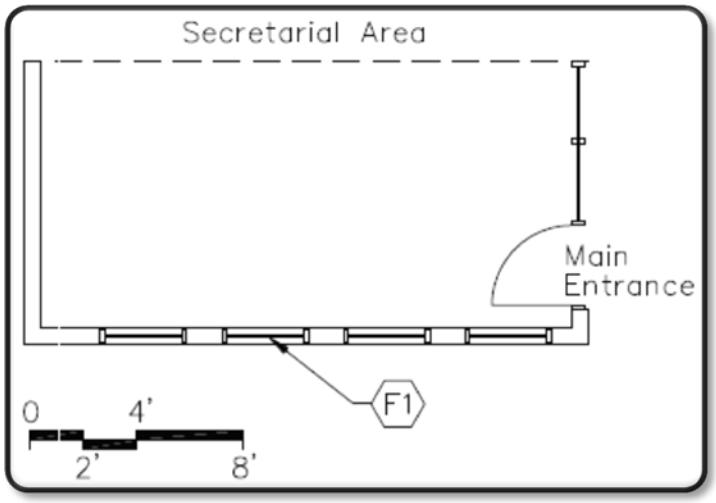
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Reception Area
E-AD-1

Features - Fixed Equipment

F1 Interior windows



Features – Loose Furnishings

Visitor chairs
End table
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

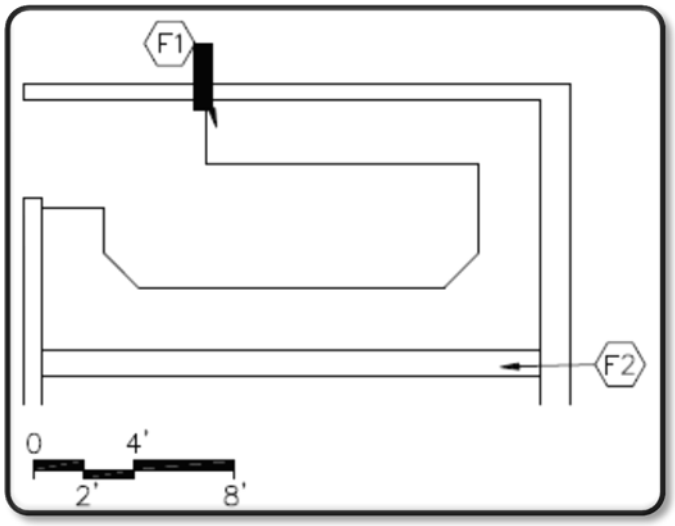
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, voice port & phone; clock

Secretarial Area
E-AD-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 High counter top



Features – Loose Furnishings

Secretarial chair(s)
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

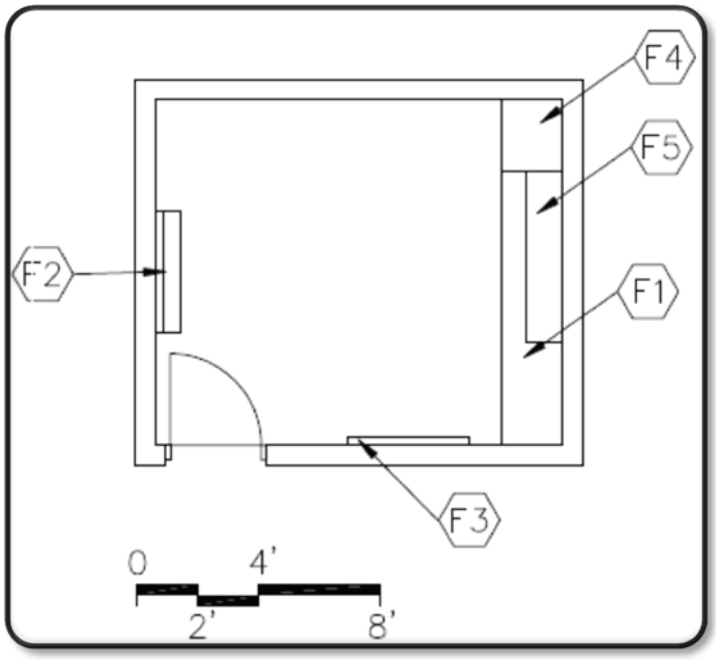
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port & phone at each secretarial station; fax port, data port for printer; clock
3. Miscellaneous - fax machine; printer; computer/typewriter

Principal's Office
E-AD-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

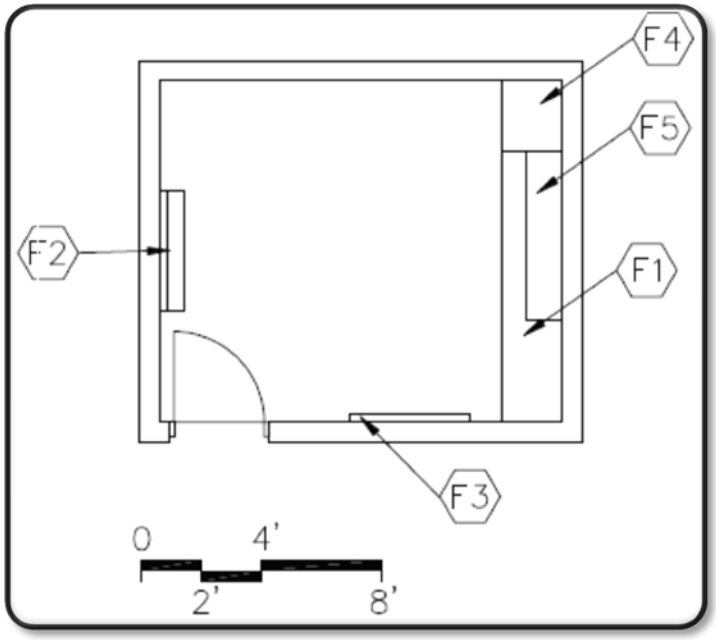
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Assistant Principal's Office E-AD-4

Features - Fixed Equipment

F1 Work surface with file drawers
F2 Chalk/marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

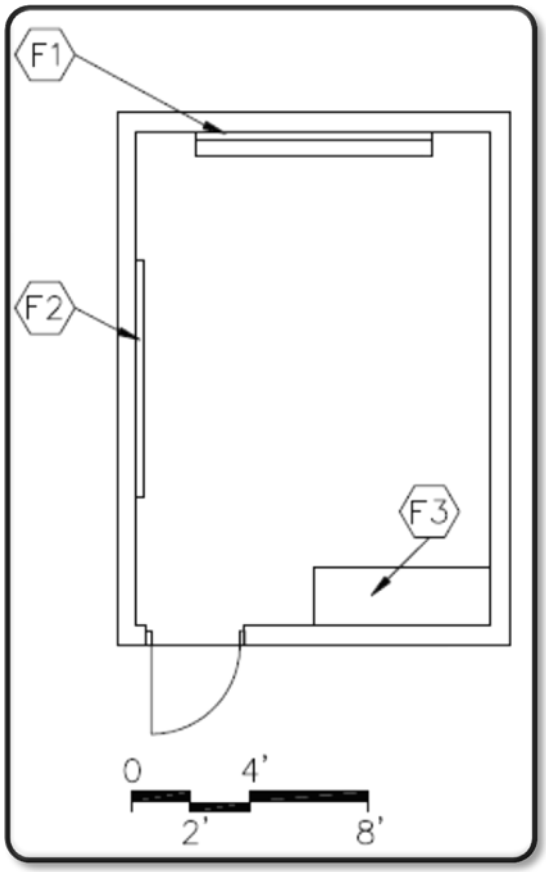
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Conference Room
E-AD-5

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Base cabinets



Features – Loose Furnishings

Conference table
Chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

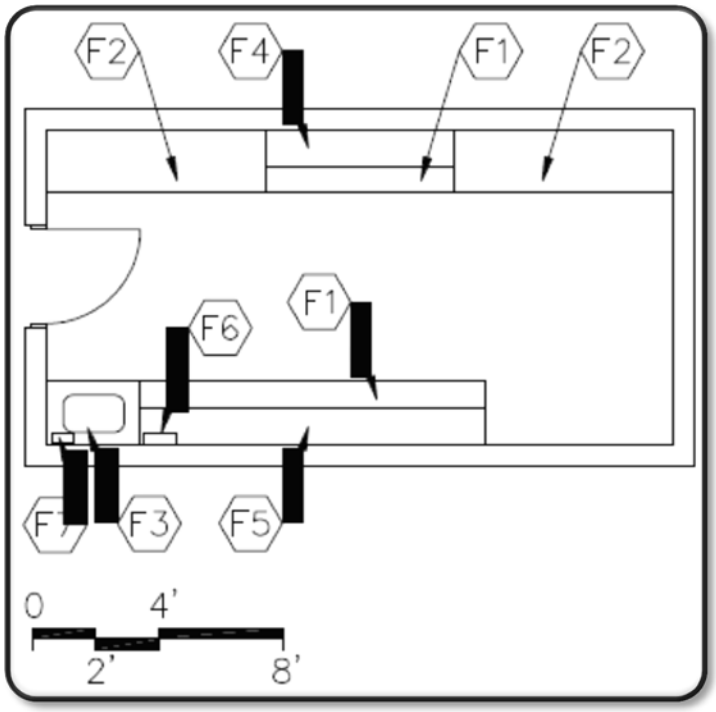
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - data port, voice port & phone; video port and video display device, clock

Mail/Work/Copy Room
E-AD-6

Features - Fixed Equipment

F1 Base cabinets
F2 Tall Storage Cabinet
F3 Sink base cabinet
F4 Mail Cubicle
F5 Wall Cabinets
F6 Towel dispenser
F7 Soap dispenser



Features – Loose Furnishings

Worktable
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes

1. Electrical - duplex receptacles; single-level switching; receptacle for copier
2. Technology - voice port & phone; clock
3. Plumbing - sink
4. Miscellaneous - copier

Administrative Storage
E-AD-7

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

File cabinets

Finishes:

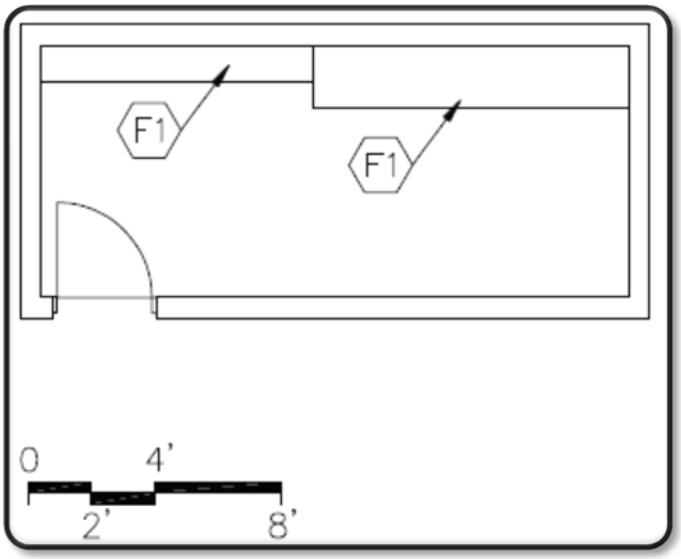
Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical or painted

Walls - Painted concrete masonry units

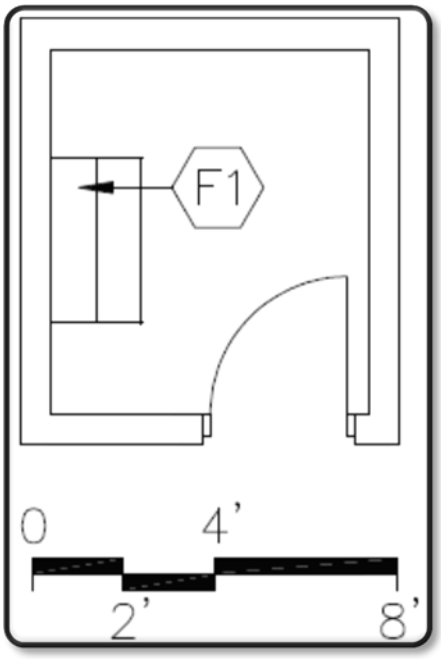
Notes
1. Electrical - duplex receptacle; single-level switching



Vaults/Record Storage
E-AD-8

Features - Fixed Equipment

F1 Open Metal Shelving



Features – Loose Furnishings

File cabinet
Safe

Finishes:

Flooring - Sealed Concrete

Base - Resilient base

Ceiling - Rated 2 hour construction

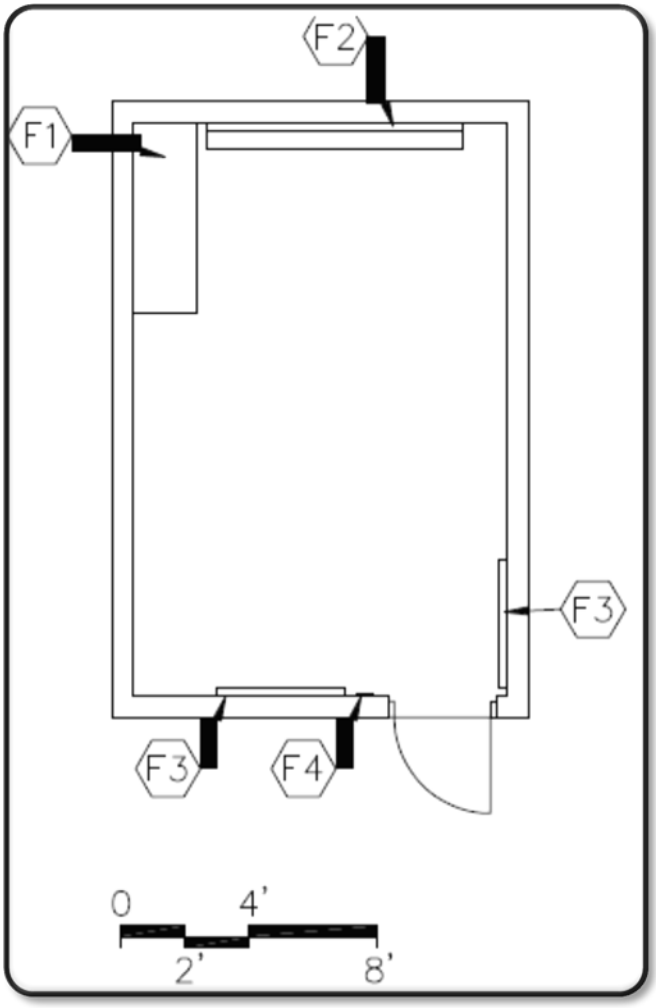
Walls - Painted concrete masonry units
Rated 2 hour construction

Notes
1. Electrical - duplex receptacles; single-level switching

In School Suspension
E-AD-9

Features - Fixed Equipment

F1 Base cabinets
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Pencil sharpener support



Features – Loose Furnishings

Student carrels and/or desks
Student chairs
Teacher desk and chair
Computer workstation furniture
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, data port, voice port & phone; data ports for students; clock

Restroom
E-AD-10

Features - Fixed Equipment

F1 Towel dispenser
F2 24” x 60” mirror
F3 Toilet tissue holder
F4 36” and 42” grab bar
F5 Soap dispenser

Features – Loose Furnishings

Wastebasket

Finishes:

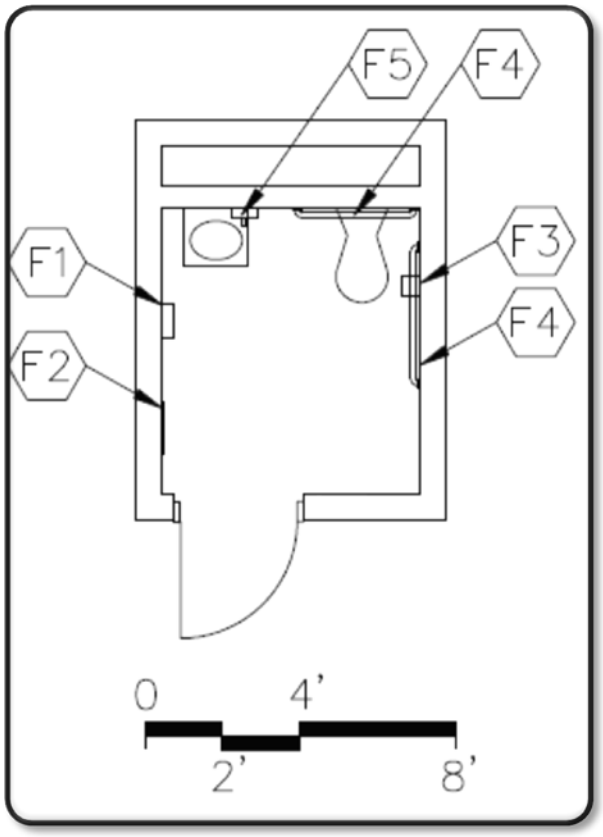
Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

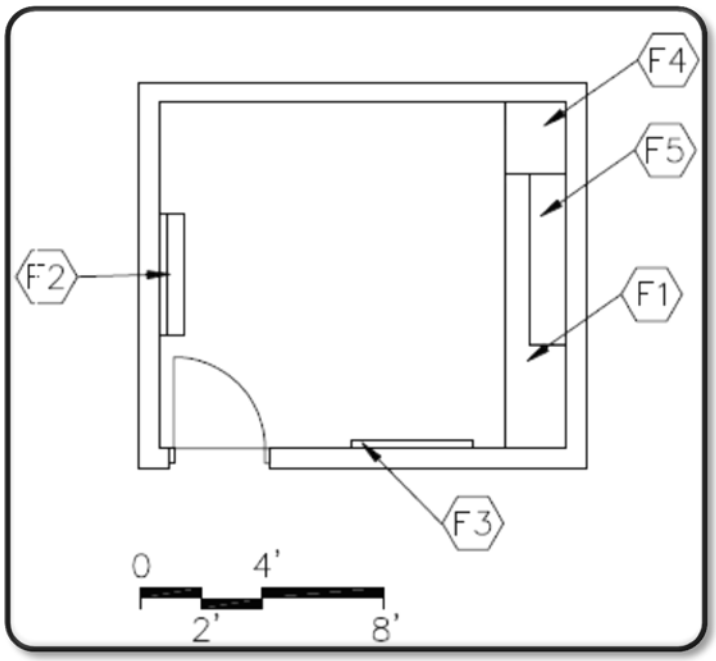
Notes
1. Plumbing - water closet and lavatory
2. Electrical - duplex receptacle; single level switching



Guidance Counselor's Office
E-AD-11

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

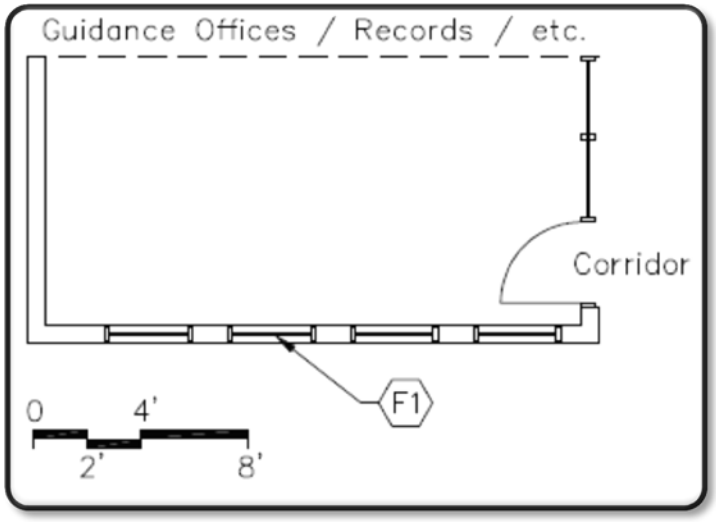
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Guidance Reception Area
E-AD-12

Features - Fixed Equipment

F1 Interior Windows



Features – Loose Furnishings

Visitor chairs
End Table
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

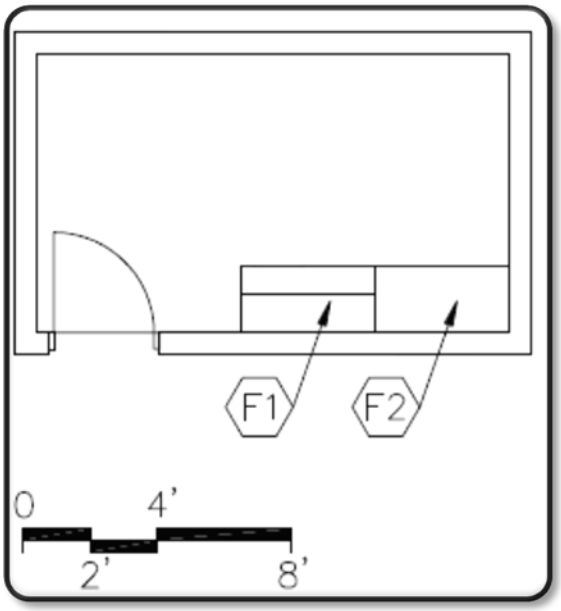
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, voice port & phone; clock

Guidance Records/Storage
E-AD-13

Features - Fixed Equipment

F1 Base and wall cabinets
F2 Tall storage cabinets



Features – Loose Furnishings

File cabinets

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Rated 2 hour construction

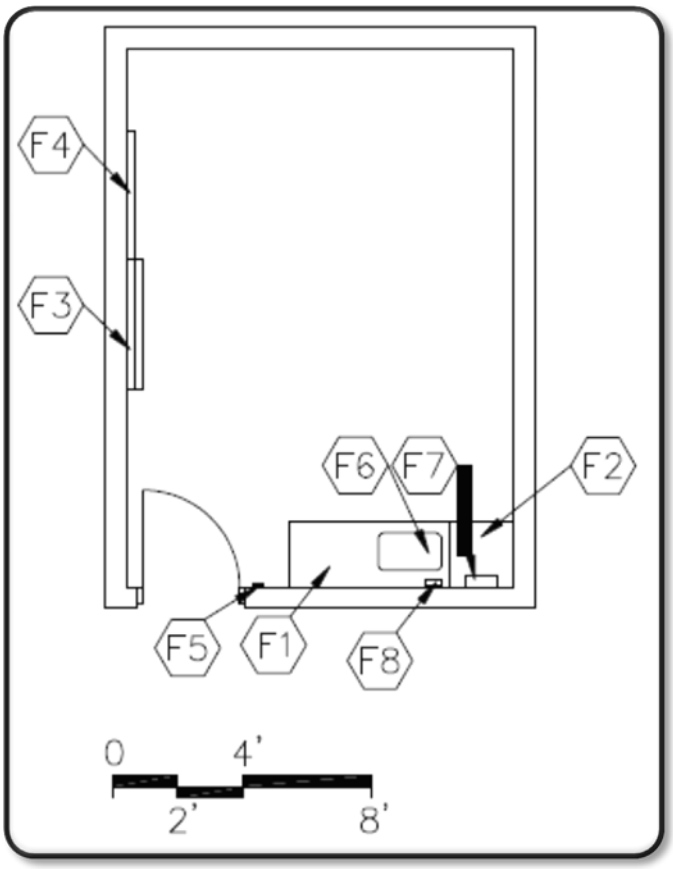
Walls - Painted gypsum wallboard over metal studs;
Rated 2 hour construction

Notes
1. Electrical - duplex receptacles; single-level switching

Parent Center
E-AD-14

Features - Fixed Equipment

F1 Base cabinets
F2 Tall wardrobe
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Pencil sharpener support
F6 Sink base cabinet
F7 Towel dispenser
F8 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Computer workstation furniture
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

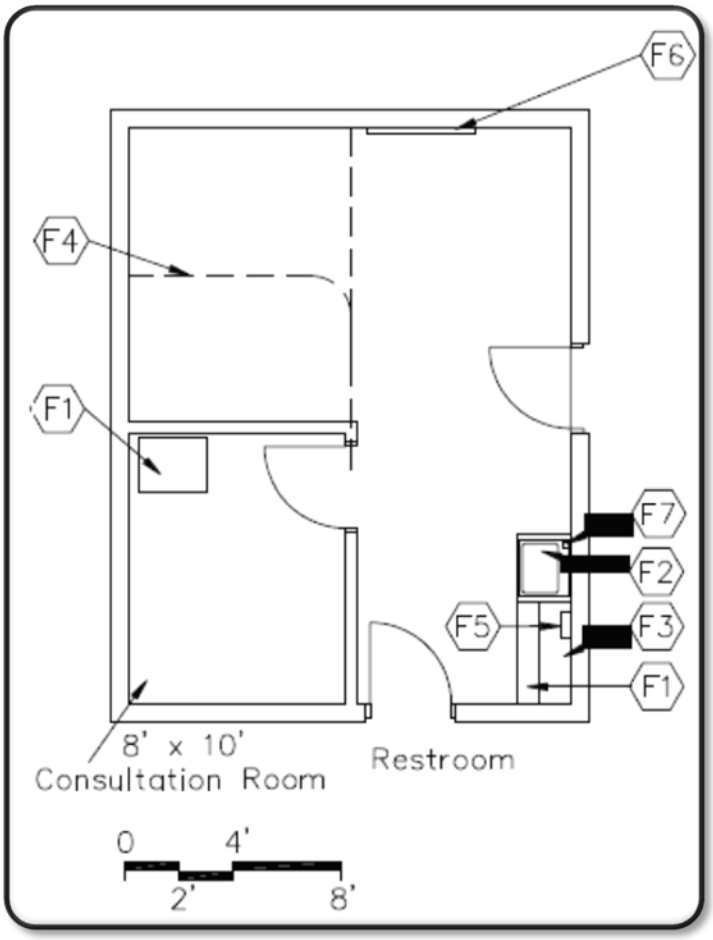
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, video display device, voice port & phone; data port; clock
3. Plumbing - sink

Health Clinic
E-AD-15

Features - Fixed Equipment

F1 Base cabinets
F2 Sink base cabinet
F3 Wall cabinets; lockable
F4 Cubicle curtain and track
F5 Towel dispenser
F6 Tack board
F7 Soap Dispenser



Features – Loose Furnishings

Cots
Refrigerator with ice making capabilities
Desk and chair
Chairs Stool
Wastebasket

Finishes:

Flooring - Seamless sheet vinyl

Base - Resilient base

Ceiling - Suspended, acoustical

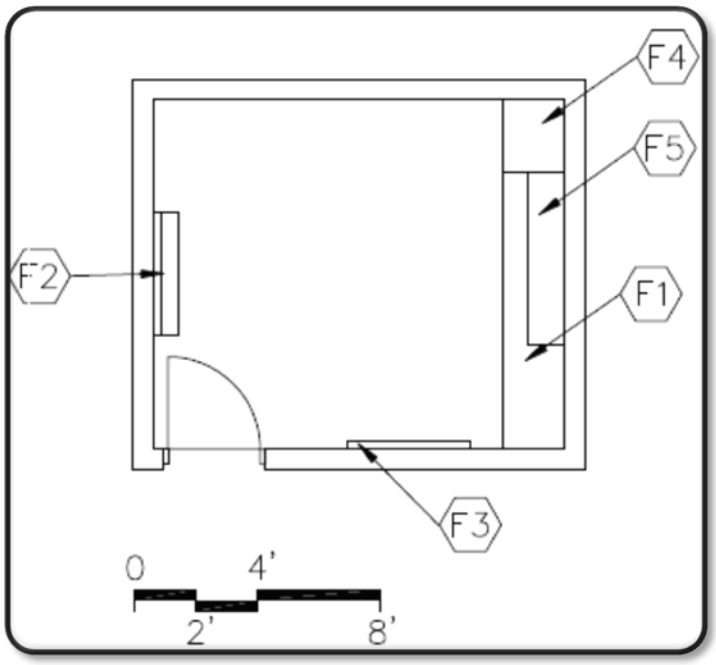
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - voice port & phone; data port; clock
3. Plumbing - sink
4. Restroom must be located adjacent to health clinic

Itinerant Personnel Office
E-AD-16

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

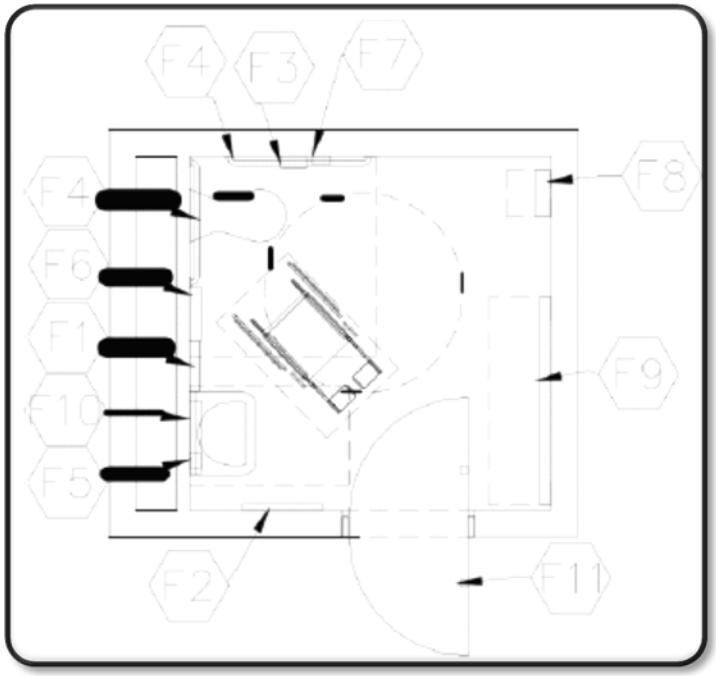
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Family Restroom
E-AD-17

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser
F6 Sanitary napkin dispenser/disposal
F7 Folding utility shelf
F8 Mounted child seat
F9 Adult/child changing station
F10 16" x 24" mirror with shelf
F11 Coat hooks



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory; floor drain
2. Electrical - duplex receptacle; single level switching

Health Center Restroom
E/M/H-AD-20

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser

Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

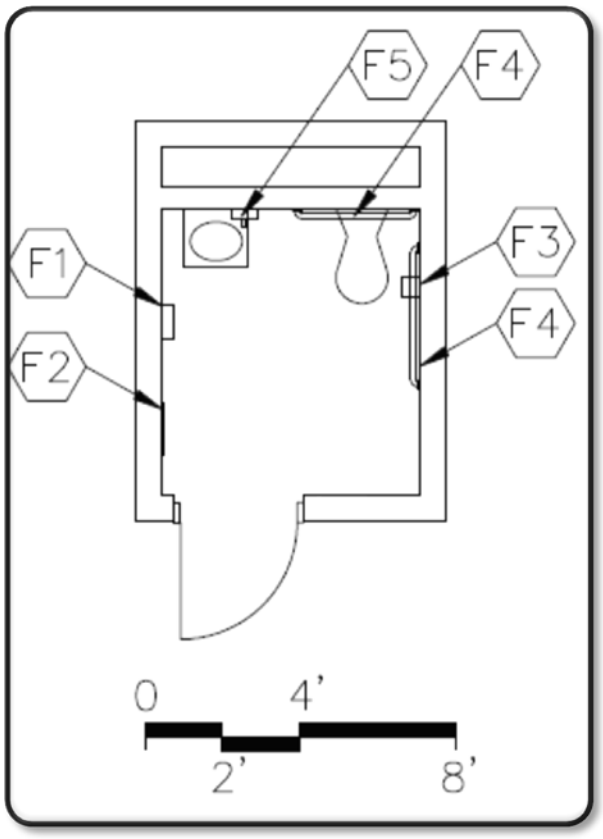
Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

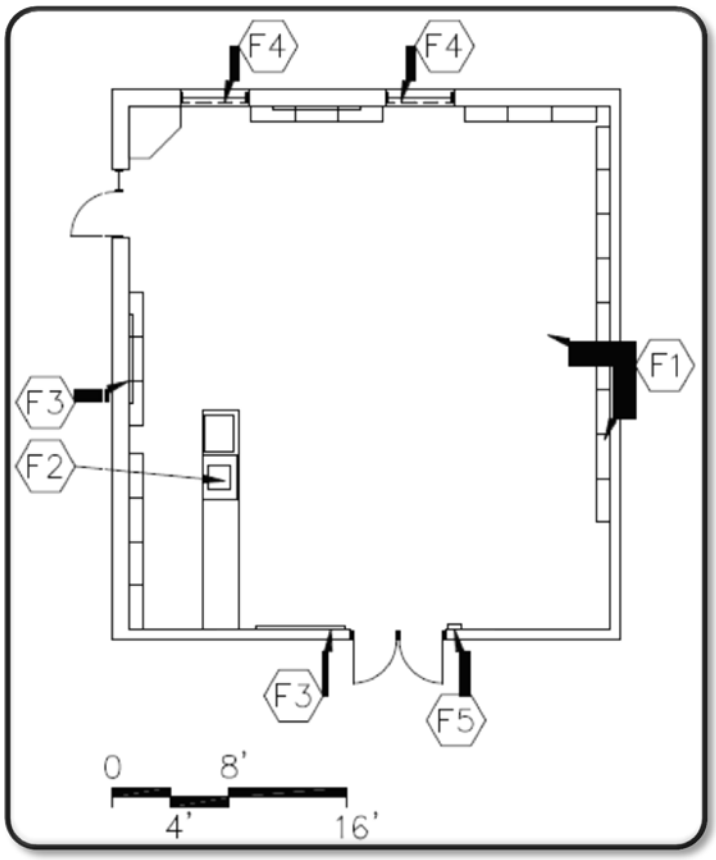
3. Plumbing - water closet and lavatory
4. Electrical - duplex receptacle; single level switching



Reading Room/Circulation
E-MC-1

Features - Fixed Equipment

F1 Library book shelving
F2 Circulation desk casework
F3 Tack board
F4 Windows with integral blinds
F5 Pencil sharpener



Features – Loose Furnishings

Student tables and chairs
Computer workstation furniture
Circulation desk task chair
Atlas stand
Paperback book rack
Modular picture book display
Wastebaskets
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

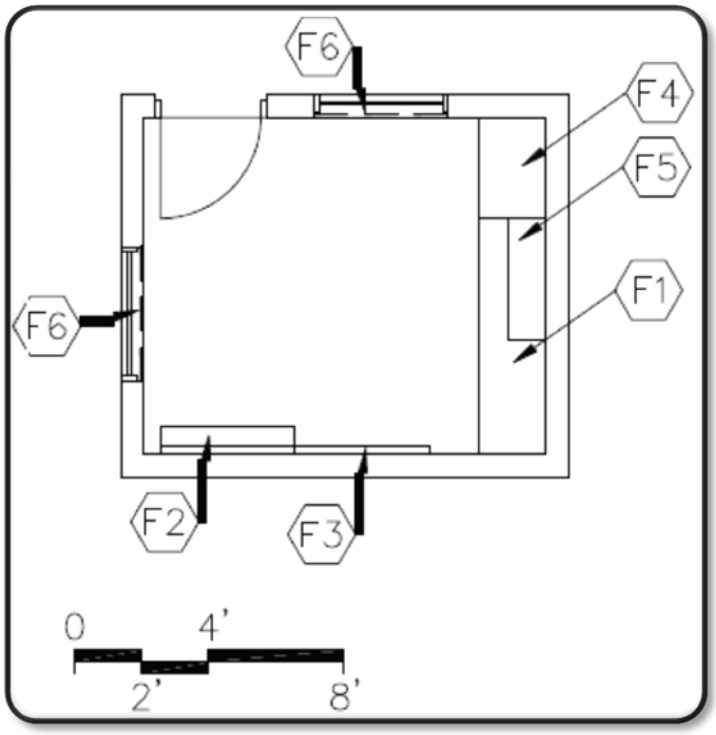
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - video ports and video display devices, voice port & phone; data ports for students; data port for library automation system; clock
3. Miscellaneous - various sizes of casework for dictionaries, magazines, card catalog, etc.

Media Specialist Office
E-MC-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets
F6 Interior window



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
File cabinet
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

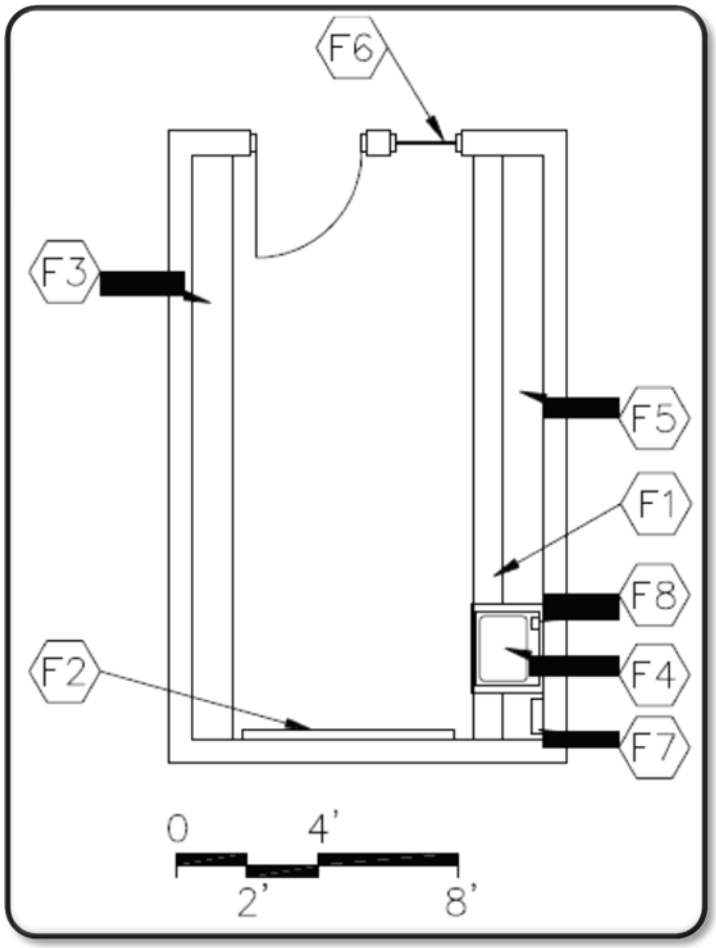
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Workroom/Storage
E-MC-3

Features - Fixed Equipment

F1 Base cabinets
F2 Tack board
F3 Bookcases
F4 Sink base cabinet
F5 Wall cabinets
F6 Interior window
F7 Towel dispenser
F8 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Book trucks
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

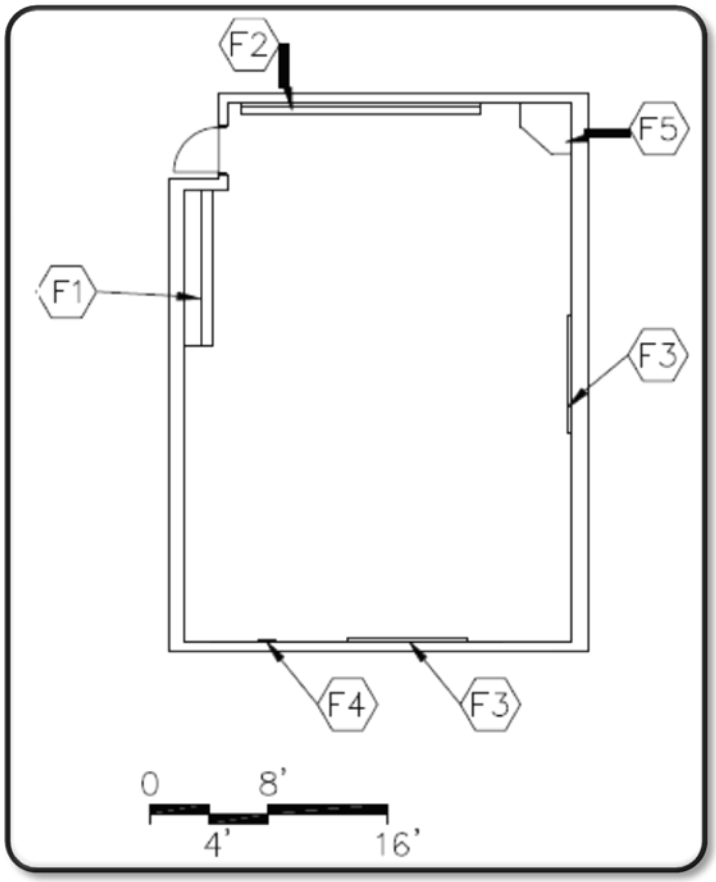
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port & phone; clock
3. Plumbing - sink

Computer Lab
E-MC-4

Features - Fixed Equipment

F1 Base & wall cabinets
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Pencil sharpener support
F5 Tall wardrobe with file drawers



Features – Loose Furnishings

Computer workstation furniture
Student chairs
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

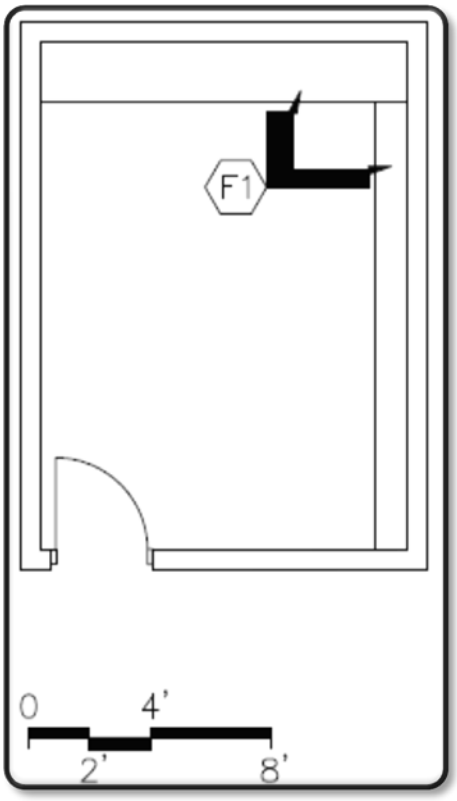
Notes

1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, voice port & phone; data port near teacher workstation; clock; overhead projector; classroom area network (26 ports minimum)
3. Miscellaneous - classroom area network file server; printer

A/V Storage
E-MC-5

Features - Fixed Equipment

F1 Tall shelving



Features – Loose Furnishings

Desk and chair
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical or painted structure

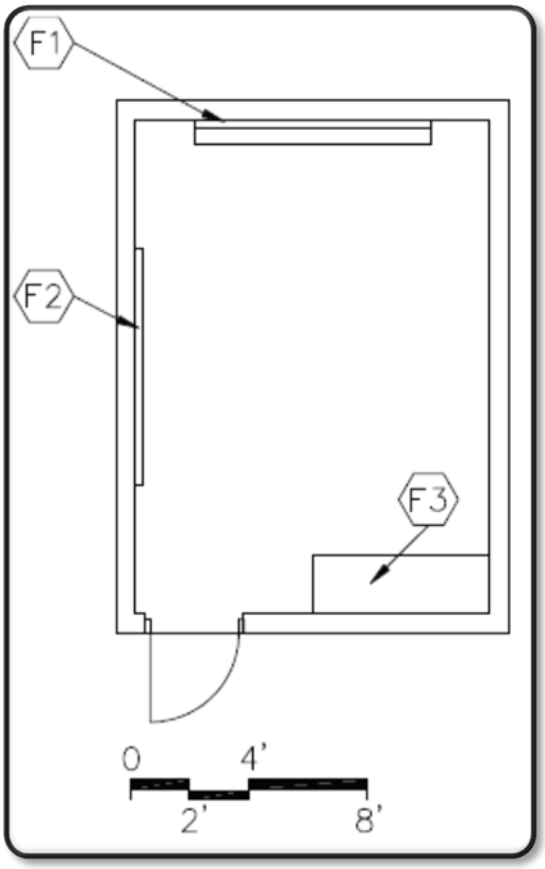
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port and phone

Conference Room
E-MC-6

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Base cabinets



Features – Loose Furnishings

Conference table
Chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

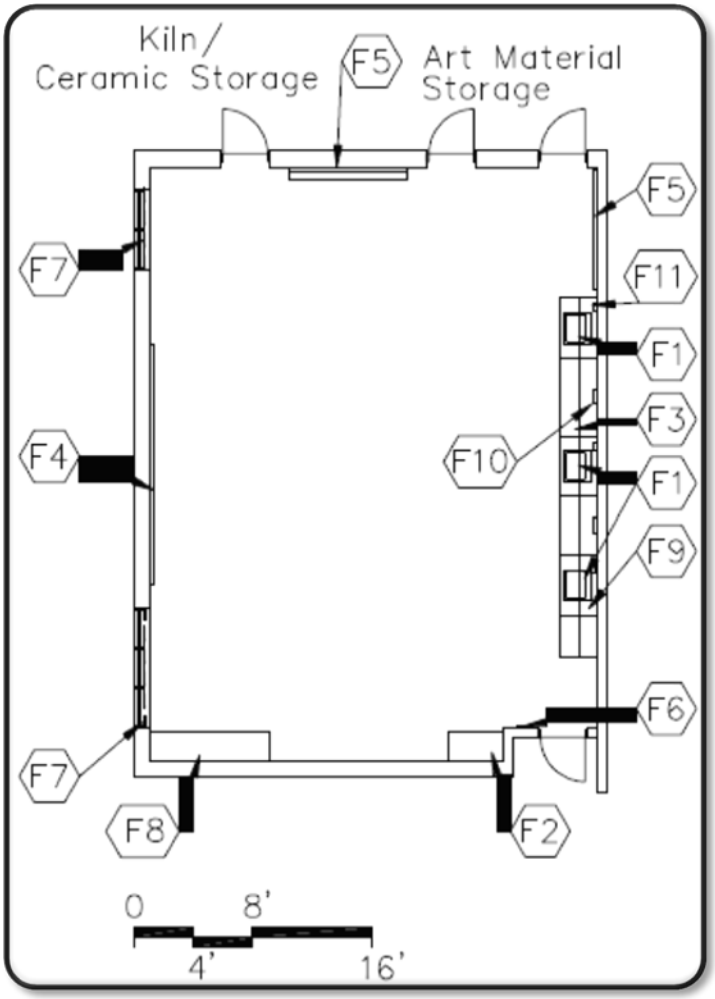
Notes

1. Electrical - duplex receptacles; multi-level switching
2. Technology - data port, voice port & phone, video port and video display device; clock

Art Room
E-VA-1

Features - Fixed Equipment

F1 Sink base cabinet, 30" deep
F2 Tall wardrobe w/file drawers
F3 Base cabinets, 30" deep
F4 Tack board
F5 ~~Chalk/marker~~ Marker board
F6 Pencil sharpener support
F7 Windows with integral blinds
F8 Tall storage cabinets
F9 Wall cabinets
F10 Towel dispensers
F11 Soap dispensers



Features – Loose Furnishings

Student work tables
Computer workstation furniture
Student chairs or stools
Teacher workstation/computer support and chair
Drying rack
Desk height file cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient or sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

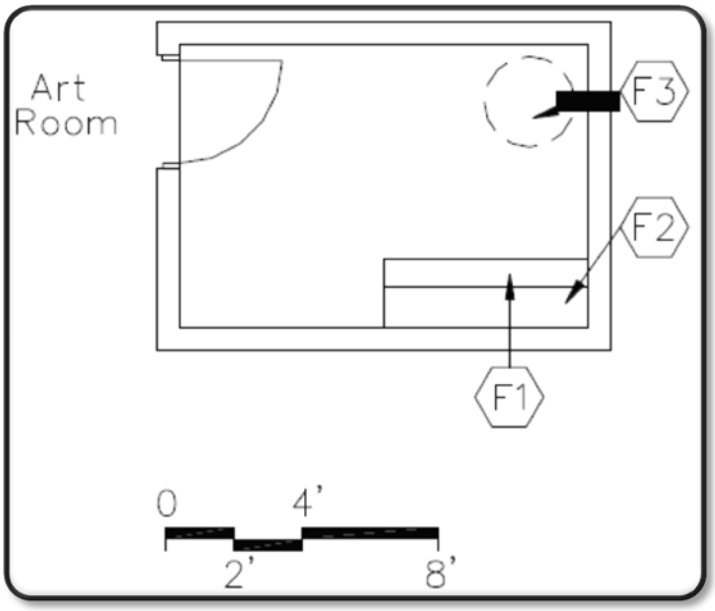
Notes

1. Electrical - duplex receptacles; multi-level switching; track lighting
2. Technology - video port, data port, voice port & phone; clock; overhead projector; data ports for students
3. Plumbing - sinks with solids interceptor
4. HVAC - manually operated exhaust air system

Kiln/Ceramic Storage
E-VA-2

Features - Fixed Equipment

F1 Base cabinets
F2 Wall cabinets
F3 Kiln



Features – Loose Furnishings

Tall dry storage units
Tall damp storage units

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; electrical connection for kiln
2. HVAC - temperature controlled exhaust; ventilation for kiln

Art Material Storage
E-VA-3

Features - Fixed Equipment

F1 Tall storage cabinets
F2 Base cabinets, 30" deep
F3 Wall cabinets, 12" deep

Features – Loose Furnishings

Mobile materials cart

Finishes:

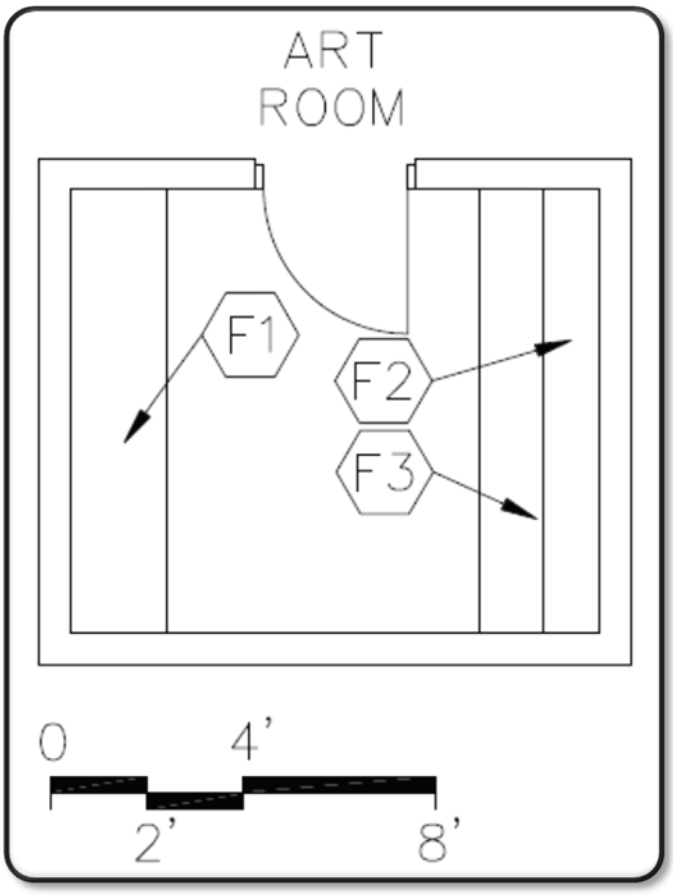
Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

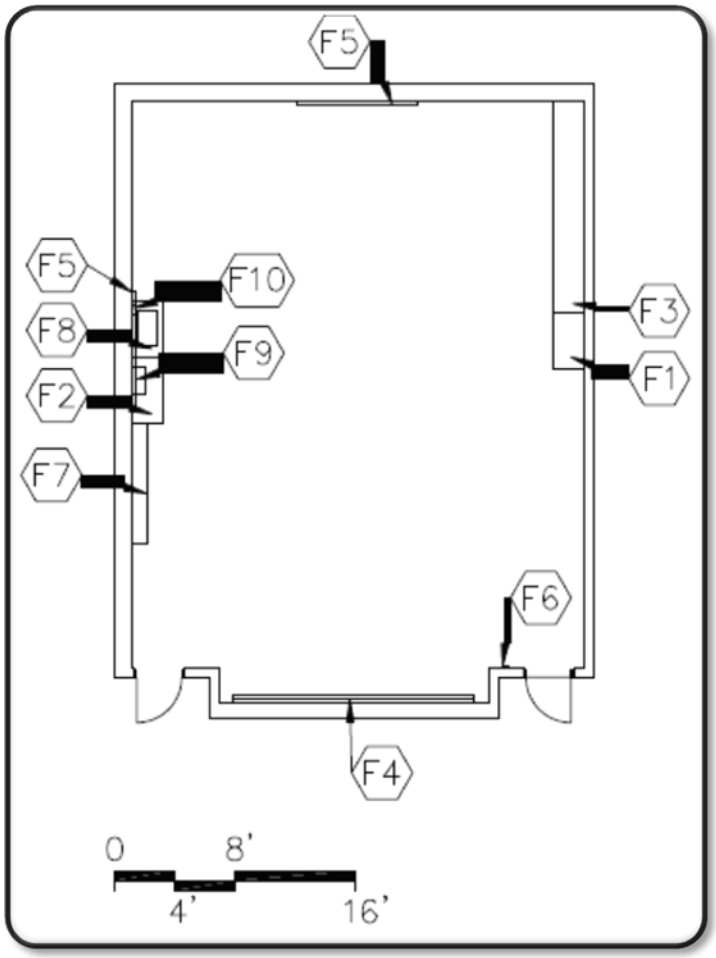
Notes
1. Electrical - duplex receptacle; single-level switching



Music Room
E-MU-1

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Base cabinets
F3 Tall storage cabinets
F4 ~~Chalk/marker~~ Marker board
F5 Tack board
F6 Pencil sharpener support
F7 Bookcases, 12" deep
F8 Sink base cabinet
F9 Towel dispenser
F10 Soap dispenser



Features – Loose Furnishings

Computer workstation furniture
Risers
Music stands
Music chairs
Conductor podium
Teacher workstation/computer support and chair
File cabinet
Folding mobile cart for ORFF instruments
Wastebasket
Pencil sharpener

Finishes:

Flooring – Carpet; Resilient-4' width in front of cabinets
Optional: All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

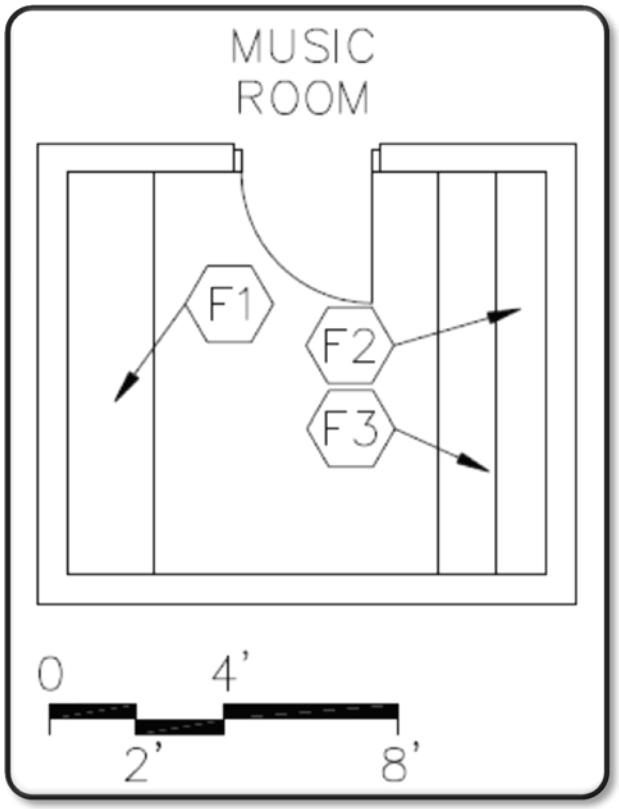
Notes

1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing - sink with drinking fountain
4. Miscellaneous - piano
5. ORFF Instruments - Large musical instruments capable of being beat upon by children.

Music Storage
E-MU-2

Features - Fixed Equipment

F1 Tall storage cabinets
F2 Base cabinets, 30” deep
F3 Wall cabinets, 12” deep



Features – Loose Furnishings

Lateral files

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching

Gymnasium
E-PE-1

Features - Fixed Equipment

F1 Volleyball sleeves and standards with cart

F2 Safety wall wainscot

F3 Basketball backstops – fiberglass, adjustable height

Features – Loose Furnishings

Portable ~~chalkboard~~ marker board

Finishes:

Flooring - Resilient or fluid-applied athletic flooring

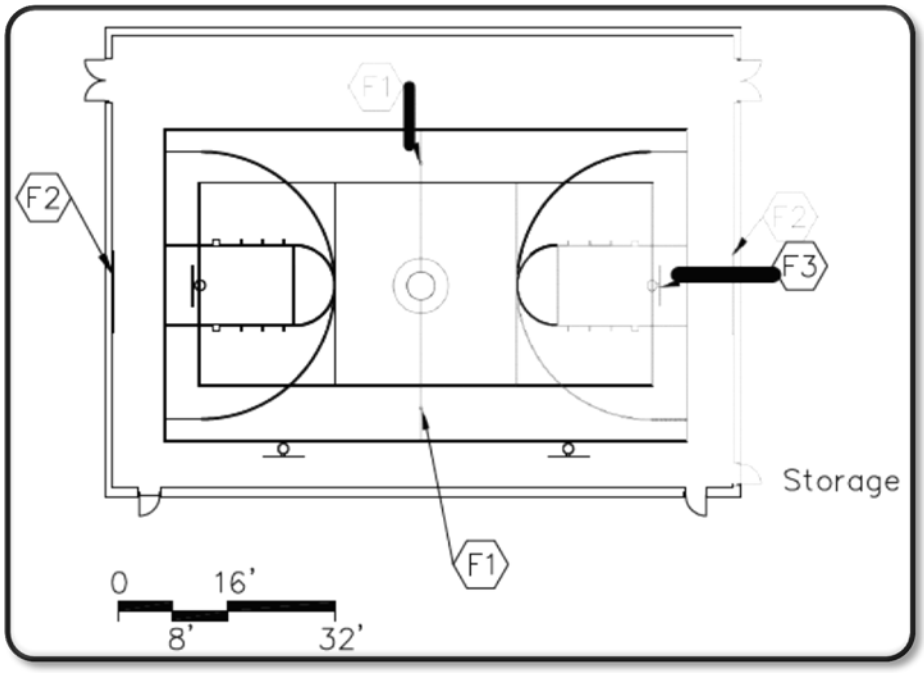
Base - Resilient base

Ceiling - Painted, exposed structure

Walls - Painted concrete masonry units

Notes

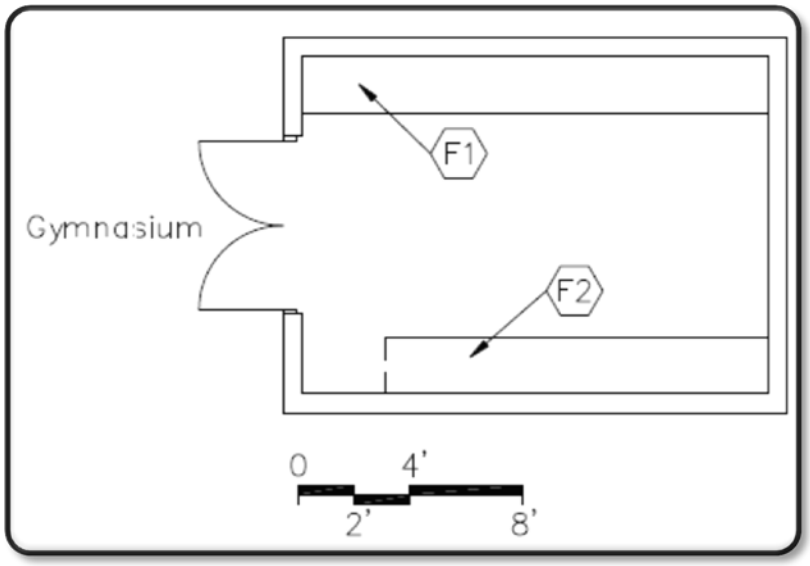
1. Electrical - duplex receptacles; telecommunications grounding
2. Technology - video ports, monitor with cart; data ports; clock with wire guards
3. Miscellaneous - court markings



P.E. Workroom/Storage
E-PE-2

Features - Fixed Equipment

F1 Open metal shelving
F2 Tall storage



Features – Loose Furnishings

Tumbling mats on carts
Ball carts
Teacher desk and chair
Wastebasket

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching
2. Technology - data port, voice port and phone

Student Dining
E-SD-1

Features - Fixed Equipment

N/A

Features – Loose Furnishings

Tables and chairs or long tables with attached stools
Large waste receptacles
Folding or high density stack chairs for community use
Carts for chairs

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo tile

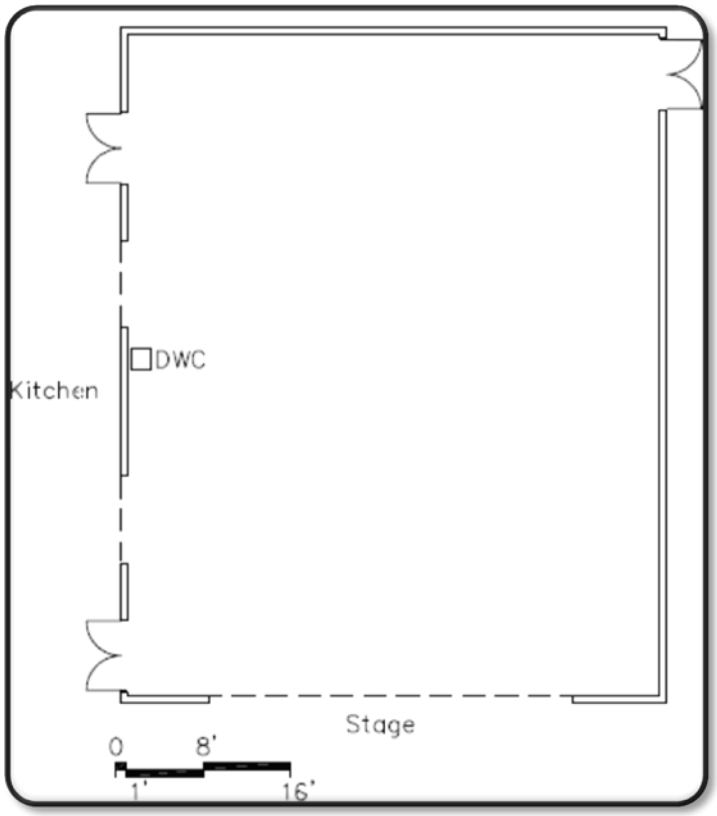
Base - Resilient base
Optional – Porcelain tile

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; telecommunications grounding
2. Technology - clock; overhead projector; video ports; data ports
3. Plumbing - drinking water cooler



Stage
E-SD-2

Features - Fixed Equipment

F1 Projection screen
F2 Curtain
F3 Curtain and valance
F4 Operable partition
F5 Pipe handrail

Features – Loose Furnishings

Portable risers

Finishes:

Flooring - Resilient or wood

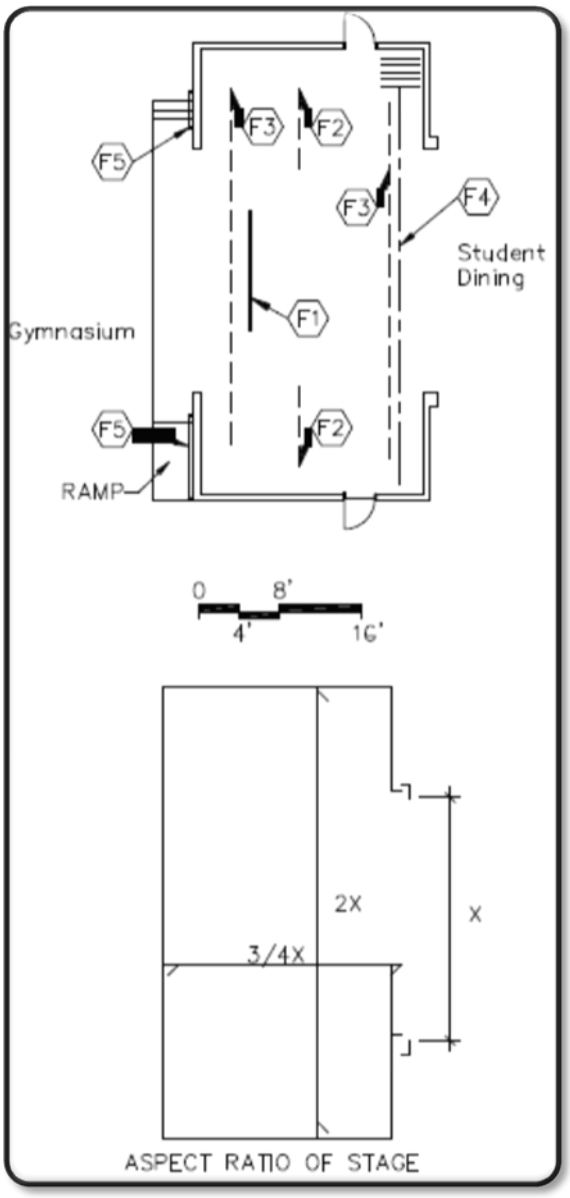
Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

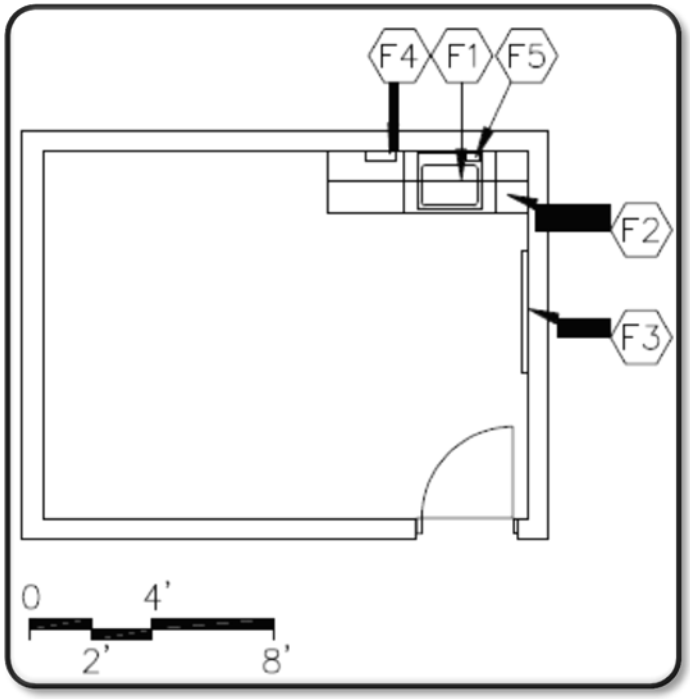
1. Electrical - duplex receptacles; single-level switching; telecommunications grounding
2. Technology - video ports and data ports – 1 each on each side of proscenium opening



Staff Dining
E-SD-3

Features - Fixed Equipment

F1 Sink base cabinet
F2 Base and wall cabinets
F3 Tack board
F4 Towel dispenser
F5 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Refrigerator
Microwave
Waste receptacle

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo tile

Base - Resilient base
Optional – Porcelain tile

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching; receptacles for vending machines, refrigerator, and microwave
2. Technology - video port, voice port and phone; clock
3. Plumbing - sink
4. Miscellaneous - vending machines

Table Storage
E-SD-4

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

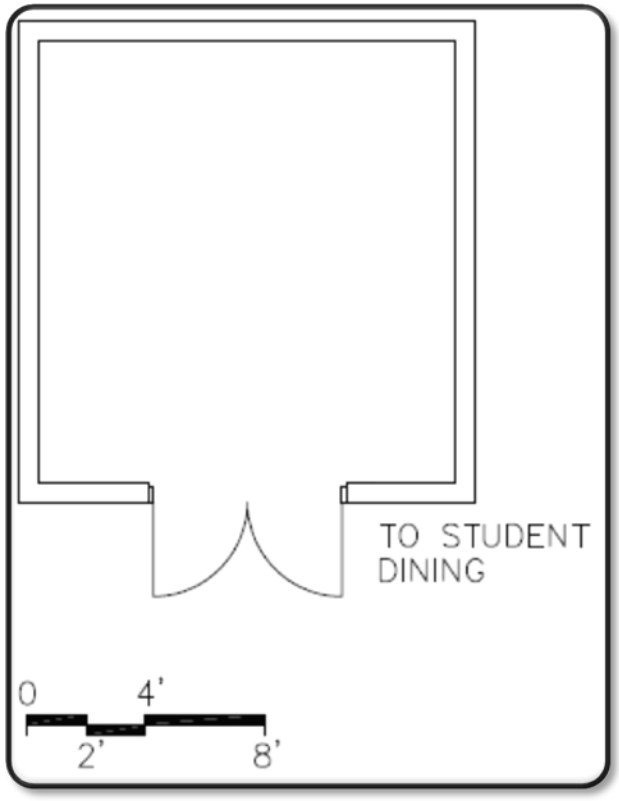
Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching



Warming Kitchen
E-FS-1

Features - Fixed Equipment

Food Service Equipment

Features – Loose Furnishings

N/A

NOTE:
Kitchen area must be located adjacent to exterior loading dock area to receive transported food from central kitchen.

Finishes:

Flooring - Quarry tile

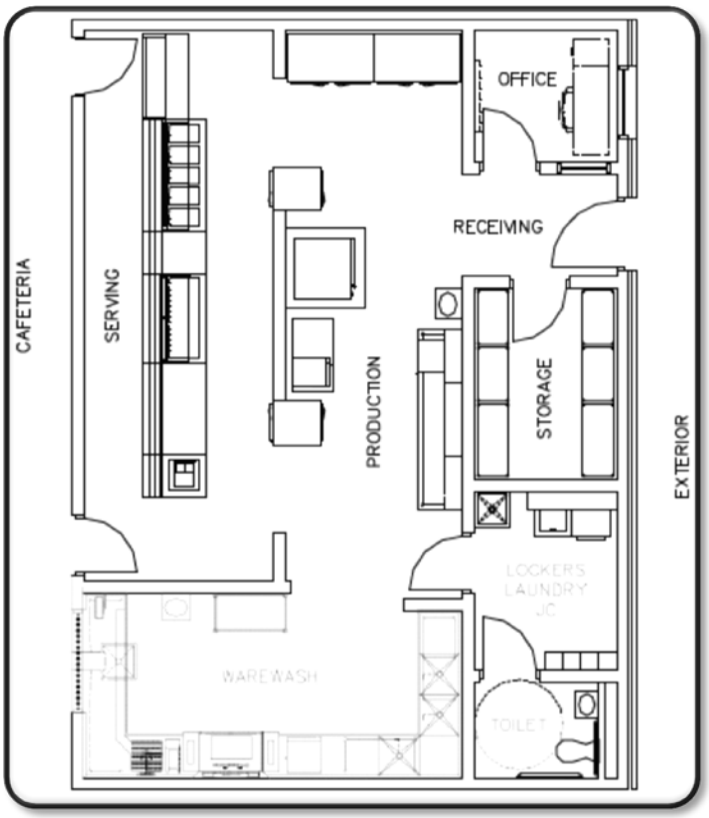
Base - Quarry tile base

Ceiling - Cleanable, suspended, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - dual level switching; duplex receptacles; connections to food service equipment
2. Technology - voice port and phone, data port at cash register; clock
3. Plumbing - hand washing lavatory; plumbing and gas connections; connections to food service equipment; floor drains
4. HVAC - kitchen canopy exhaust system



The space consists of various areas:

- Production Area
- Serving Area
- Warewash
- Storage
- Receiving

Additional areas to be added: office, restroom, locker room, janitorial closet

Kitchen
E-FS-2

Features - Fixed Equipment

Food Service Equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

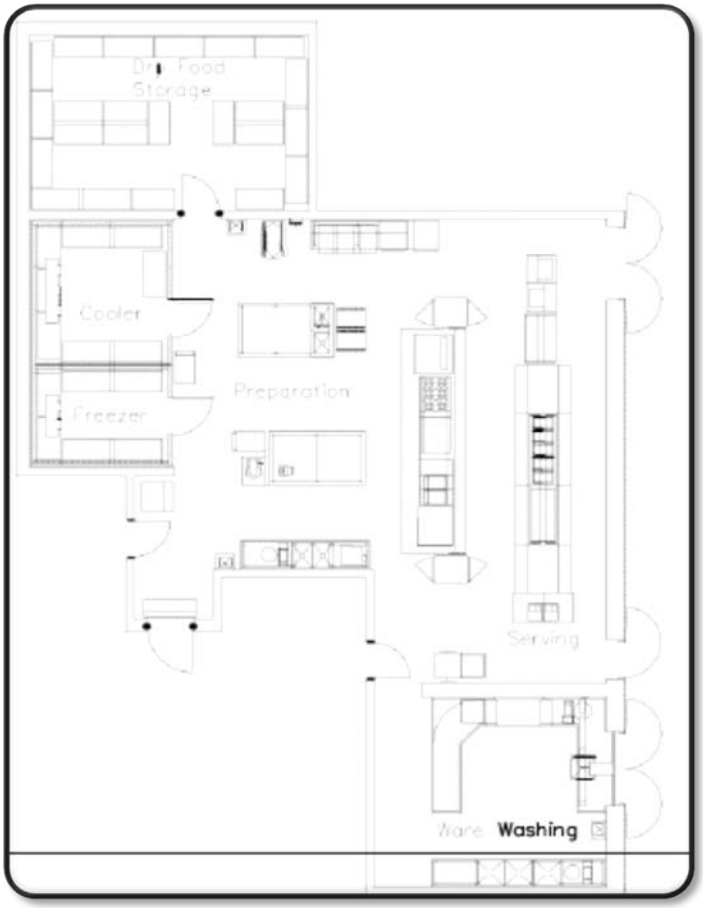
Base - Quarry tile base

Ceiling - Cleanable, suspended, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - dual level switching; duplex receptacles; connections to food service equipment
2. Technology - voice port and phone, data port at cash register; clock
3. Plumbing - hand washing lavatory; plumbing and gas connections; connections to food service equipment; floor drains
4. HVAC - kitchen canopy exhaust system



The space consists of various areas:

- Production Area
- Serving Area
- Warewash
- Storage
- Receiving

A space plate follows for each of these spaces.

Additional areas to be added: office, restroom, locker room, janitorial closet

Kitchen - Preparation Area
E-FS-2a

Features - Fixed Equipment

Food Service Equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

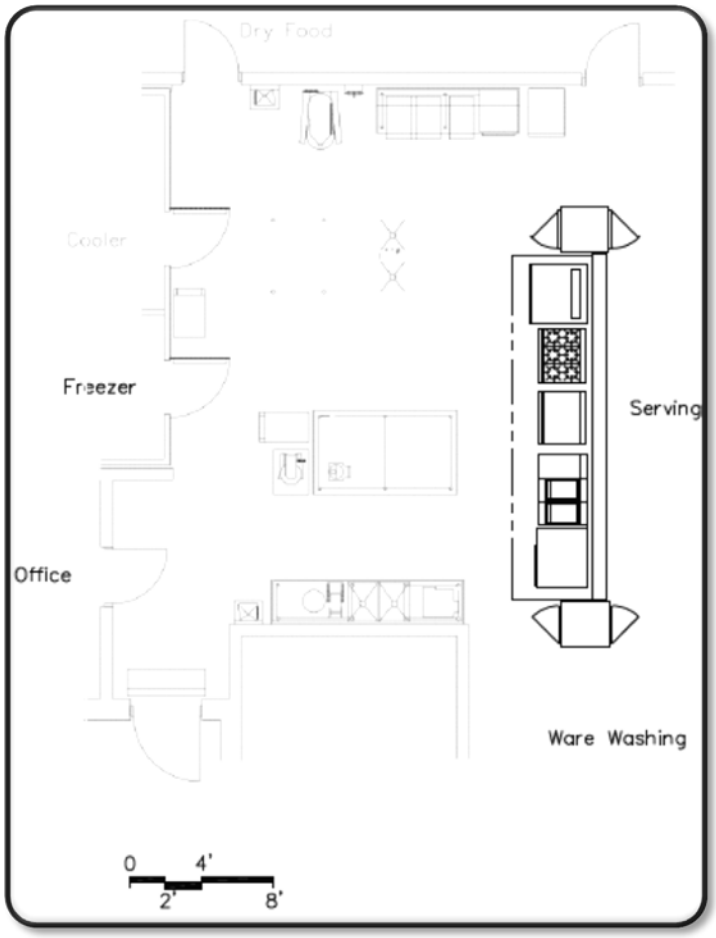
Base - Quarry tile base

Ceiling - Cleanable, suspended, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - duplex receptacles; dual-level switching; connections to food service equipment
2. Technology - Voice port & phone; clock
3. Plumbing - plumbing and gas connections; hand washing lavatory; floor drains



Kitchen - Serving Area
E-FS-2b

Features - Fixed Equipment

Food service equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile
Optional - Porcelain tile

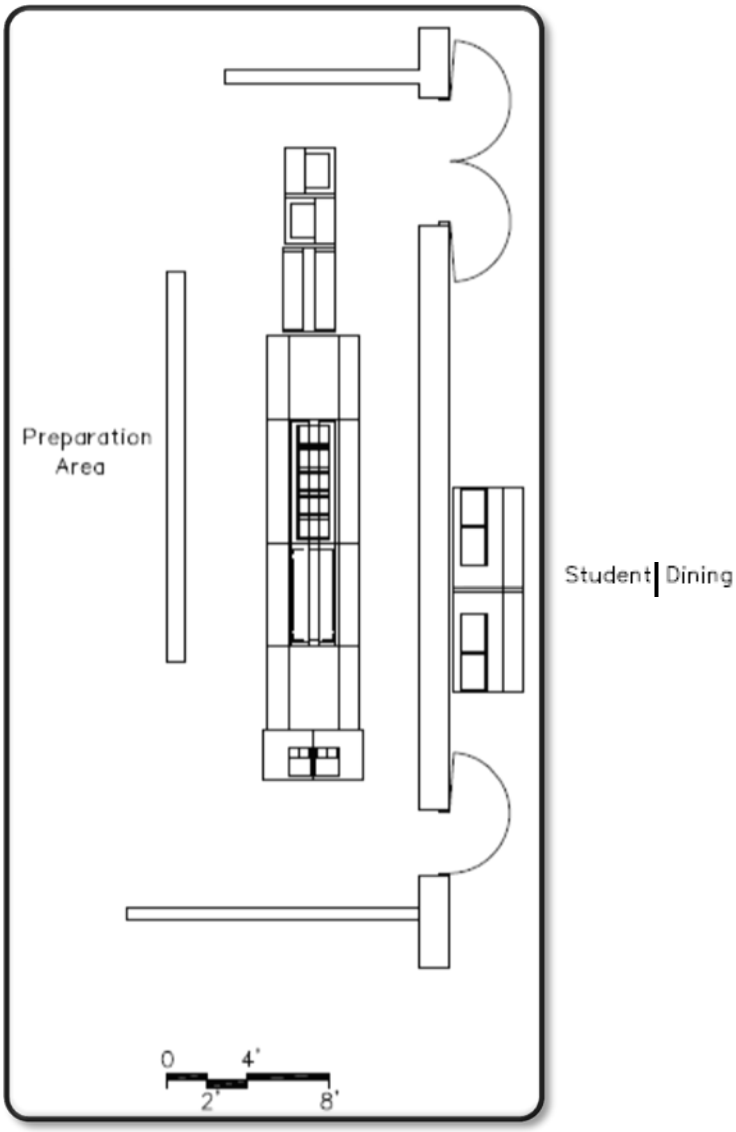
Base - Quarry tile base (optional: PT)

Ceiling - Cleanable, suspendable, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

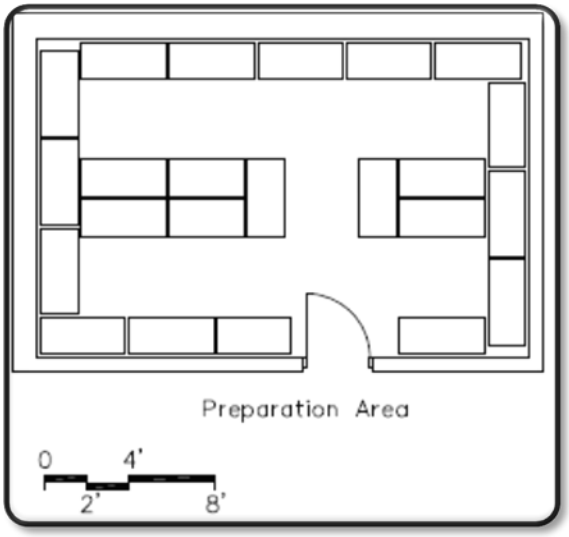
1. Electrical - duplex receptacles; dual-level switching; connections to food service equipment
2. Technology - voice port & phone; clock; data port at cash register
3. Plumbing - connections to food service equipment



Kitchen - Dry Storage
E-FS-2c

Features - Fixed Equipment

Food service equipment



Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Cleanable, suspendable, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching

Kitchen - Cooler/Freezer
E-FS-2d

Features - Fixed Equipment

Food service equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

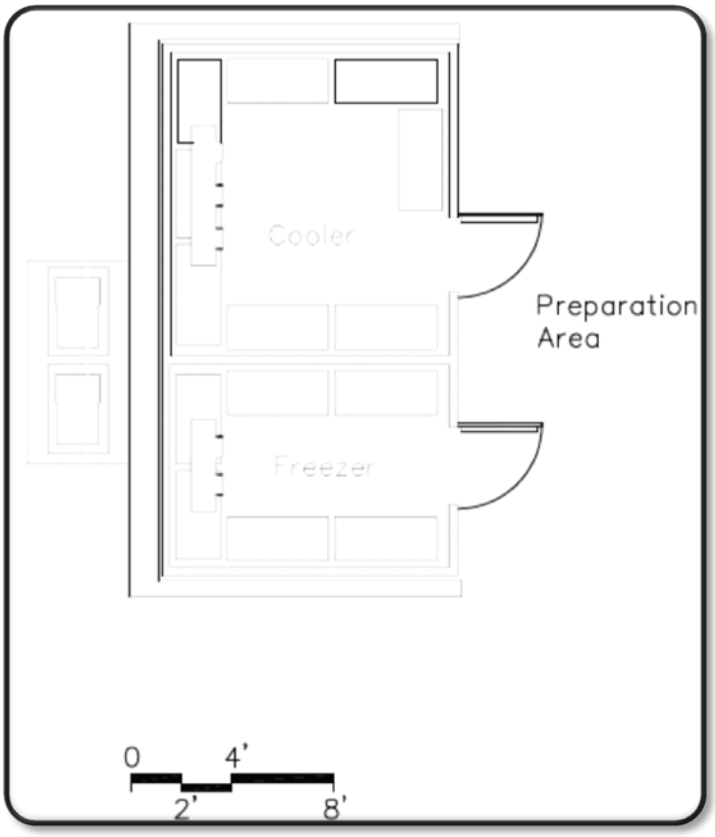
Base - Quarry tile base

Ceiling - Manufactured insulated panel

Walls - Manufactured insulated panel

Notes

1. Electrical - single-level switching; electrical connections to freezer/cooler refrigeration equipment



Kitchen - Ware Washing
E-FS-2e

Features - Fixed Equipment

Food service equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

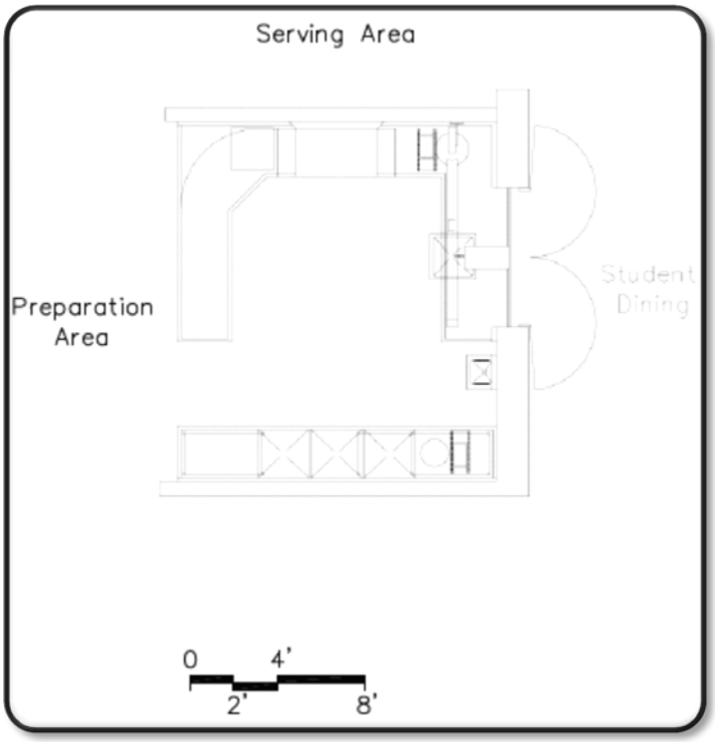
Base - Quarry tile base

Ceiling - Cleanable, suspendable, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

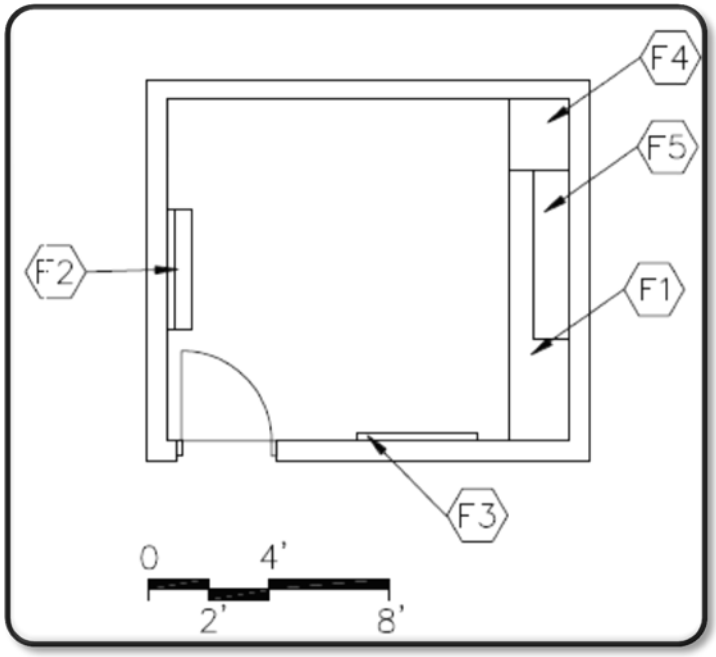
1. Electrical - duplex receptacle; dual-level switching; connections to food service equipment
2. HVAC - exhaust hood system
3. Plumbing - lavatory



Dietician's Office
E-FS-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

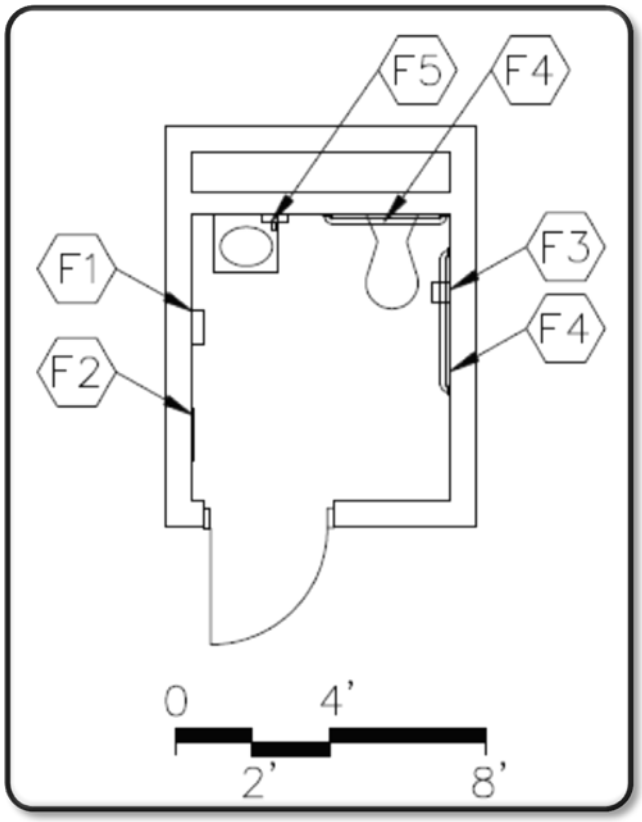
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - each data port, video port, voice port & phone; clock

Restroom
E-FS-4

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory
2. Electrical - single-level switching; duplex receptacle

Locker Room
E-FS-5

Features - Fixed Equipment

F1 24" x 60" mirror
F2 Lockers
F3 Wall cabinets
F4 Mop holder

Features – Loose Furnishings

Chairs
Washer
Dryer
Wastebasket

Finishes:

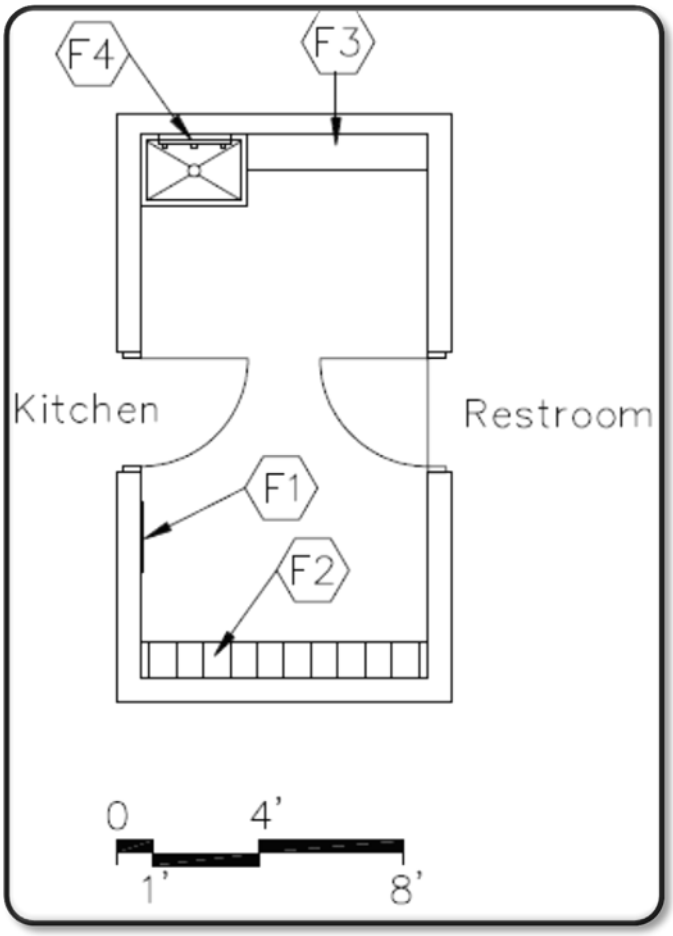
Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical, with high-impact, hold-down clips
Optional - Exposed, painted pre-cast units

Walls - Painted concrete masonry units

Notes
1. Plumbing - floor service sink; floor drain
2. Electrical - single-level switching; (1) duplex receptacle
3. HVAC - dryer vent system; manually operated exhaust air system
4. Technology - clock



Workroom
E-CU-1

Features - Fixed Equipment

F1 Metal shelving
F2 Lockers
F3 Mop holder
F4 Soap dispenser
F5 Towel dispenser

Features – Loose Furnishings

Workbench
Stool
Recycling bins
Waste receptacles

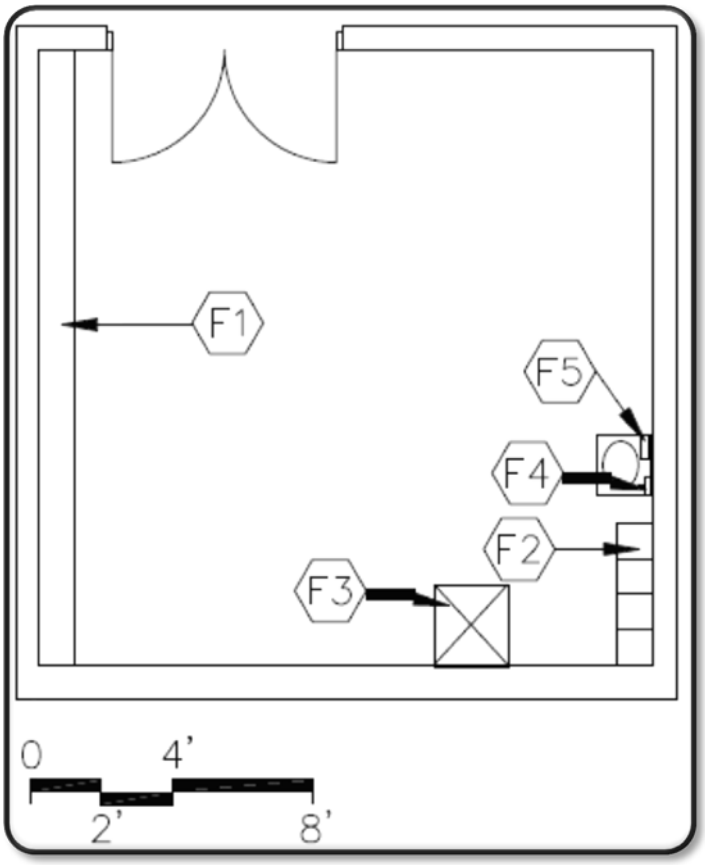
Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units



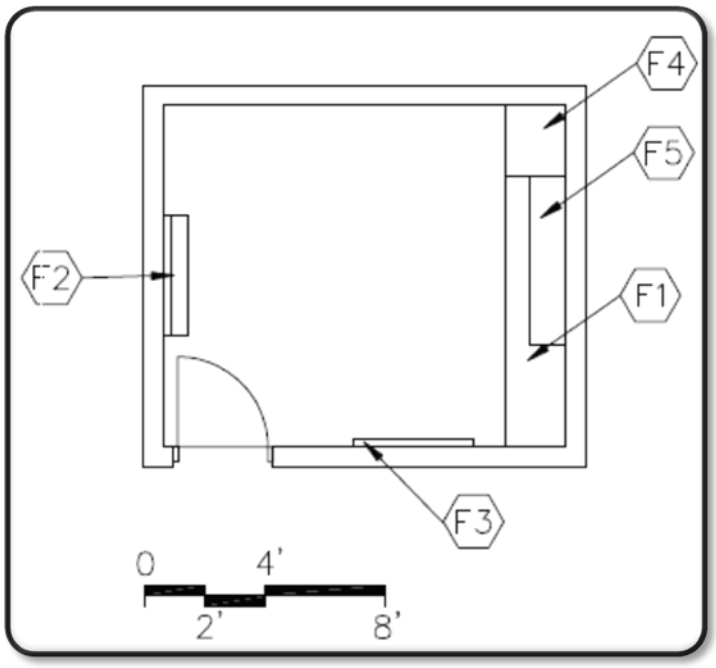
Notes

1. Electrical - duplex receptacle; single-level switching; electrical receptacles for custodial equipment
2. Plumbing - floor service sink; handwash sink
3. Technology - voice port and phone; clock

Custodial Office
E-CU-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

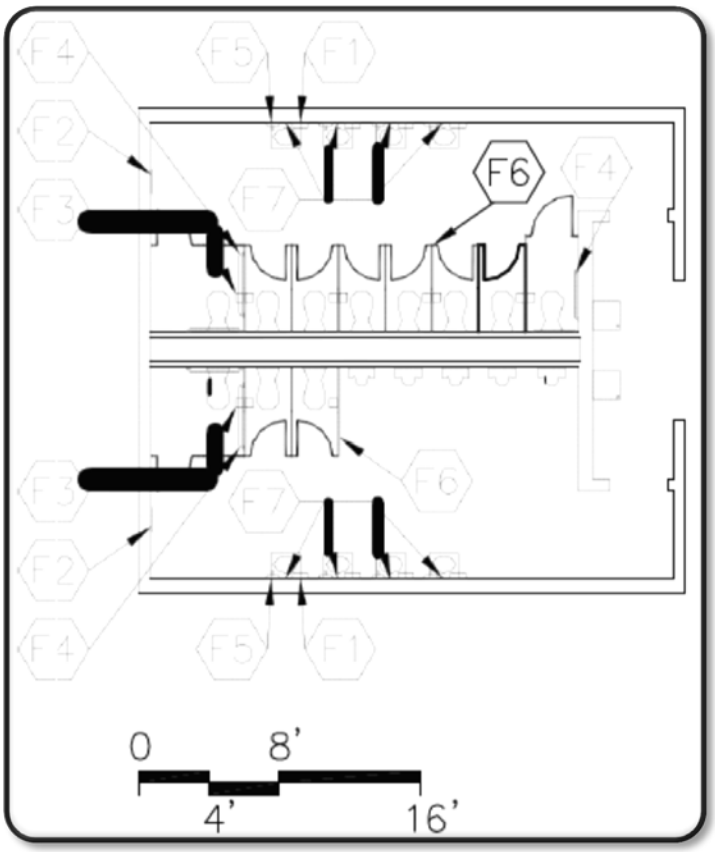
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port & phone; clock; modem port for temperature controls

Large Group Restrooms
E-BS-1

Features - Fixed Equipment

F1 Towel dispenser
F2 24” x 60” mirror
F3 Toilet tissue holder
F4 36” and 42” grab bar
F5 Soap dispenser
F6 Toilet partitions
F7 16” x 24” mirrors



Features – Loose Furnishings

Waste receptacles

Finishes:

Flooring - Ceramic mosaic tile base
Optional - Porcelain tile or terrazzo tile

Base - Ceramic mosaic tile base
Optional - Structural glazed tile base or porcelain tile base

Ceiling - Suspended, acoustical
Optional - Abuse-resistant gypsum wallboard

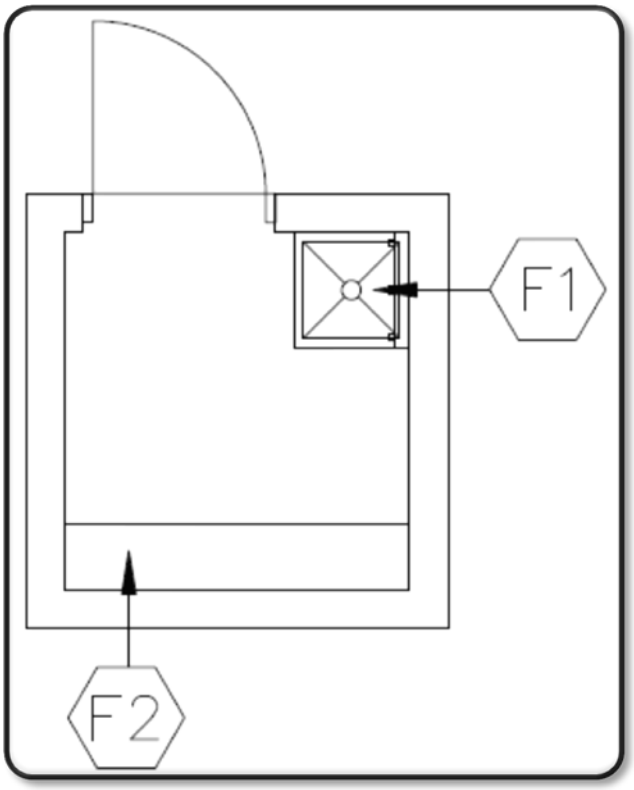
Walls - Painted concrete masonry units

Notes
1. Plumbing - water closets, urinals, lavatories, and hydrants; water coolers; floor drains
2. Electrical - single-level switching; duplex receptacle

Custodial Closet
E-BS-2

Features - Fixed Equipment

F1 Mop holder
F2 Wall cabinets



Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching
2. Plumbing - service sink and floor drain sink

Electrical Closet
E-BS-3

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

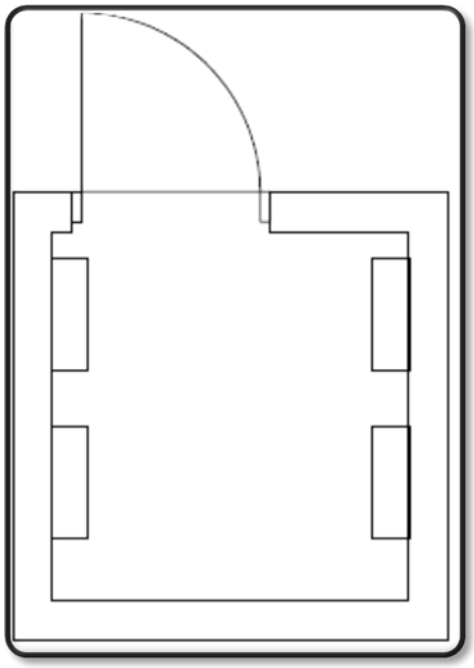
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; electrical switchgear



Telecommunications Room
E-BS-4

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

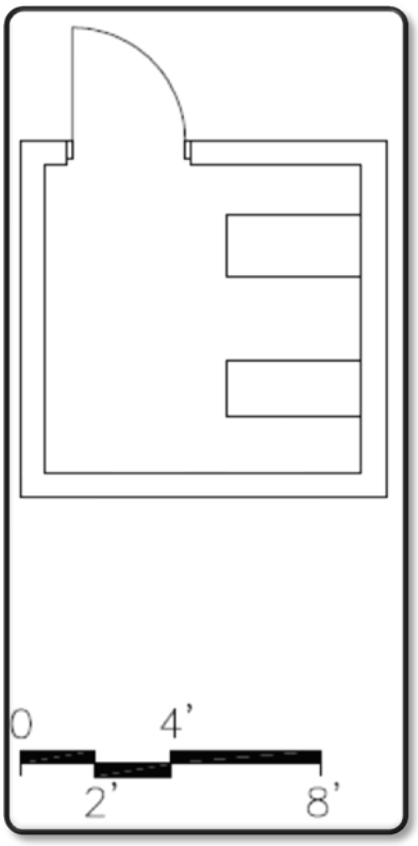
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; telecommunications grounding
2. Technology - technology equipment; plywood backboard



Corridors/Vestibules
E-BS-5

Features - Fixed Equipment

F1 Fire extinguishers and cabinets

F2 Recessed vinyl floor mats or surface mats

Features – Loose Furnishings

Recycling bins and waste receptacles

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo

Base - Resilient base

Optional - Structural glazed tile

Ceiling - Suspended, acoustical

Optional in vestibules - Abuse-resistant gypsum wallboard

Walls - Painted concrete masonry units

NOTE - At entries adjacent to dining/commons area, match dining/commons flooring.

Notes

1. Electrical - duplex receptacles; dual-level switching
2. Technology - clocks, wireless access points; video ports
3. Plumbing - drinking water coolers
4. Miscellaneous - display cases

Corridors shall be a minimum of 8 feet wide.

Corridors are to meet the egress requirements applicable codes.

Instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.

Area of vestibules is to be included within area allotted for corridors.

Width of vestibules can be no less than minimum width of adjacent corridor.

Minimum corridor length recommended is 8 feet between doors.

Vestibules are to be provided at major entrances/exits.

Mechanical Room/Decks
E-BS-6

Features - Fixed Equipment

To be determined by Design Professional

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

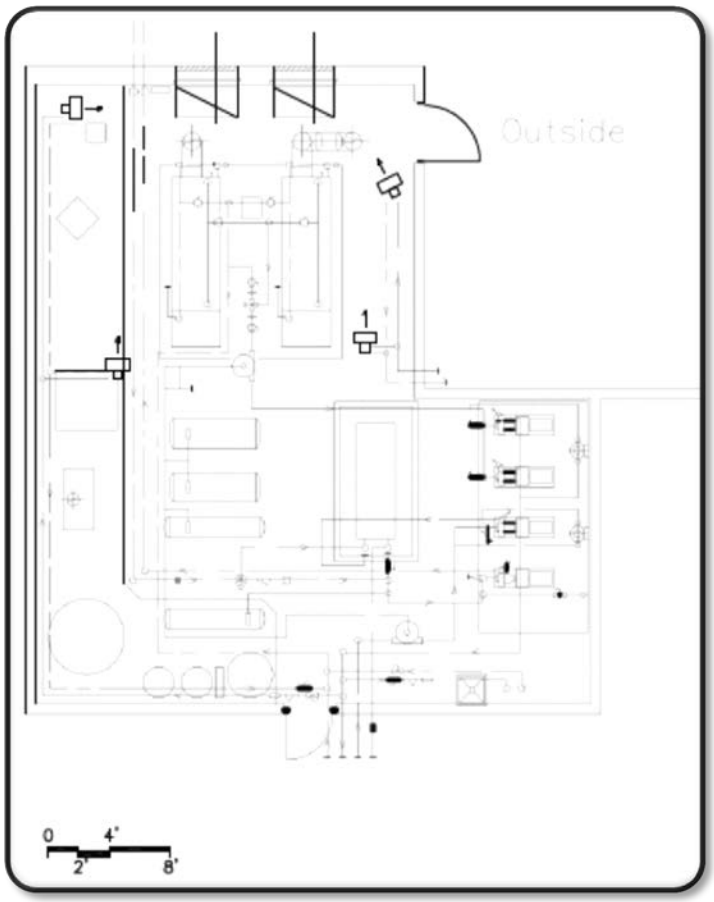
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units
Optional - Can use metal panel on CMU or metal panel on metal framing wall system for penthouse

Notes

1. Electrical - dual-level switching; to be determined by Design Professional
2. Plumbing - to be determined by Design Professional



Storage Area
E-BS-7

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

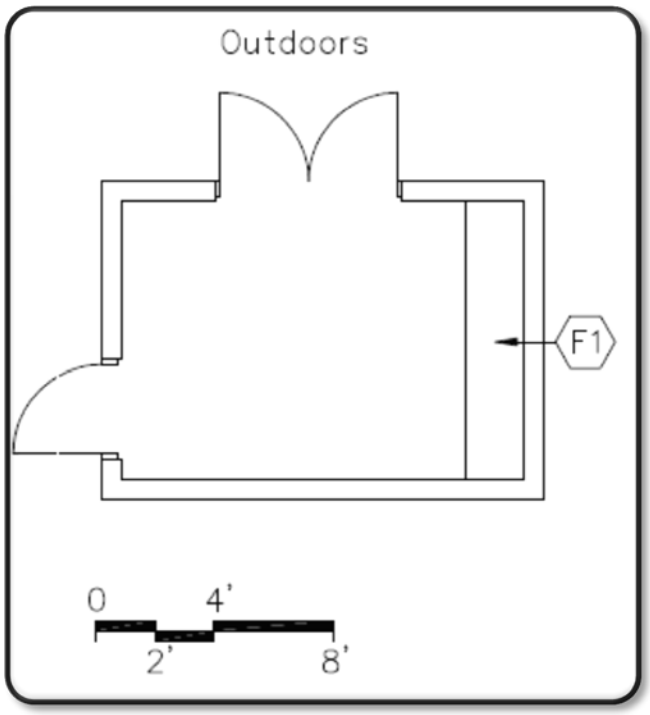
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - single-level switching; duplex receptacles



Central Storage Area
E-BS-8

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

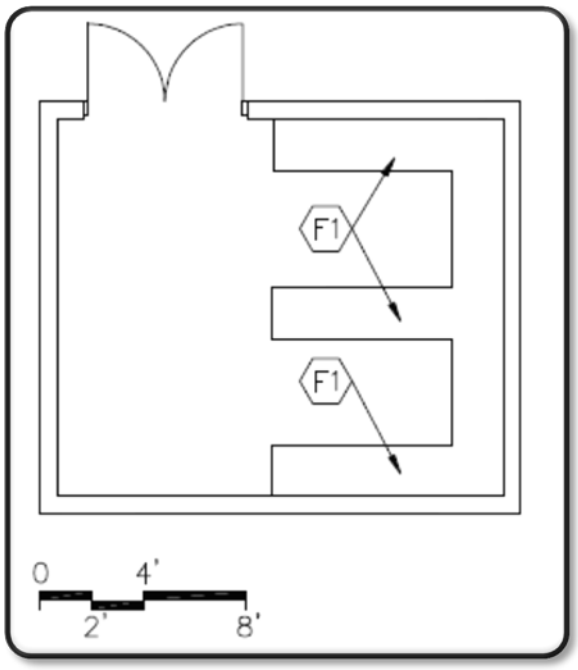
Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes
1. Electrical - single-level switching; duplex receptacles



Loading/Receiving Area
E-BS-9

Features - Fixed Equipment

F1 Loading dock leveler and dock bumpers

Features – Loose Furnishings

N/A

Finishes:

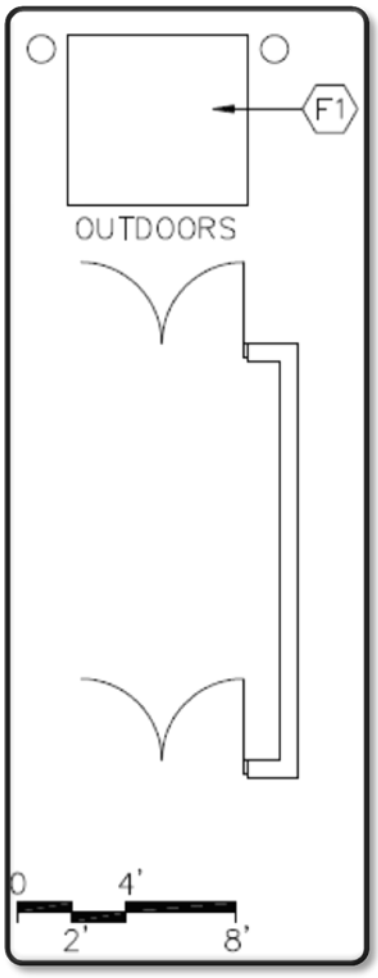
Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes
1. Electrical - single-level switching; duplex receptacles



Main Cross Connect
E-BS-10

Features - Fixed Equipment

F1 Open metal shelving
F2 Tack board
F3 ~~Chalk/marker~~ Marker board

Features – Loose Furnishings

Desk and chair
Wastebasket

Finishes:

Flooring - Resilient

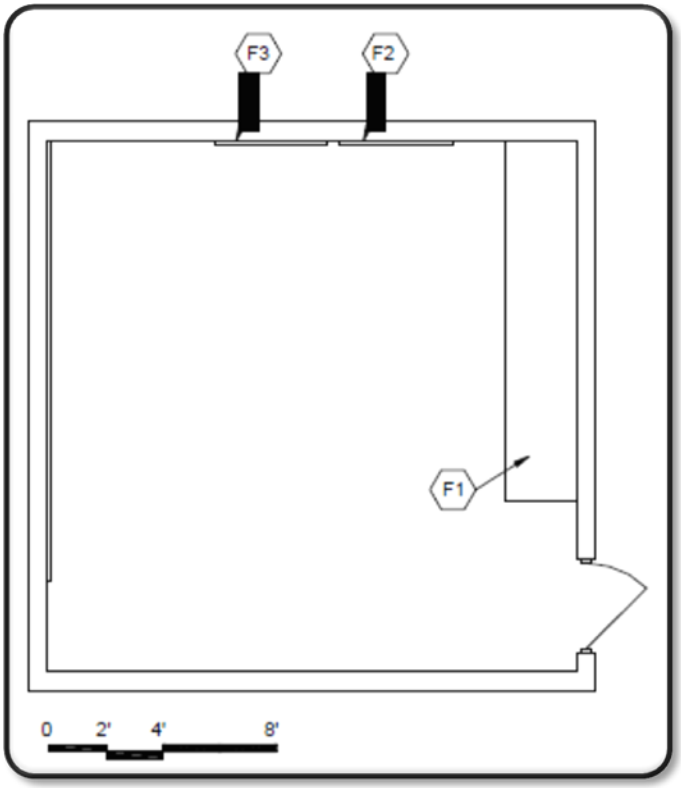
Base - Resilient base

Ceiling - Suspended acoustical

Walls - Painted concrete masonry units

Notes

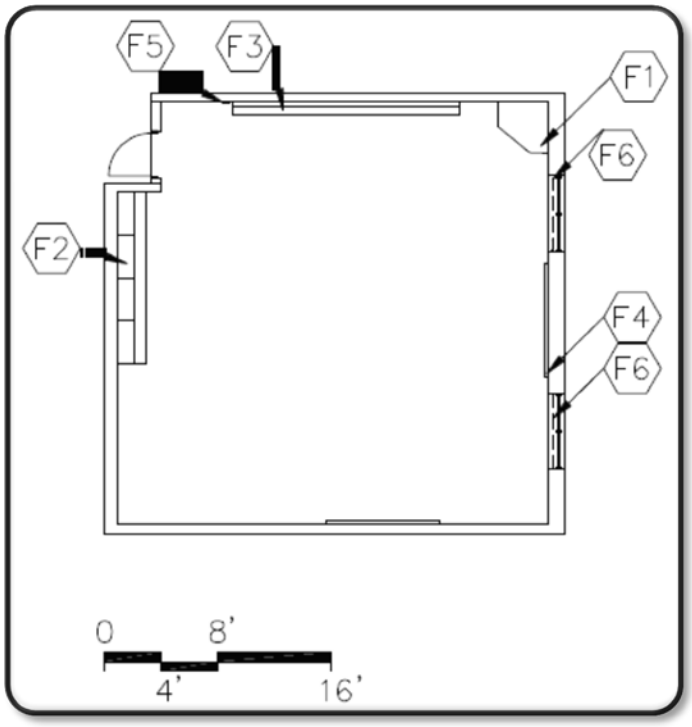
1. Electrical - duplex receptacles; single-level switching; telecommunications grounding
2. Technology - data port, voice port & phone; technology equipment; plywood backboard
3. Miscellaneous - Provide distribution equipment with an equipment electrical ground.



Middle School Classroom
M-AC-1

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Base & wall cabinets
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks/tables and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
Activity table
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

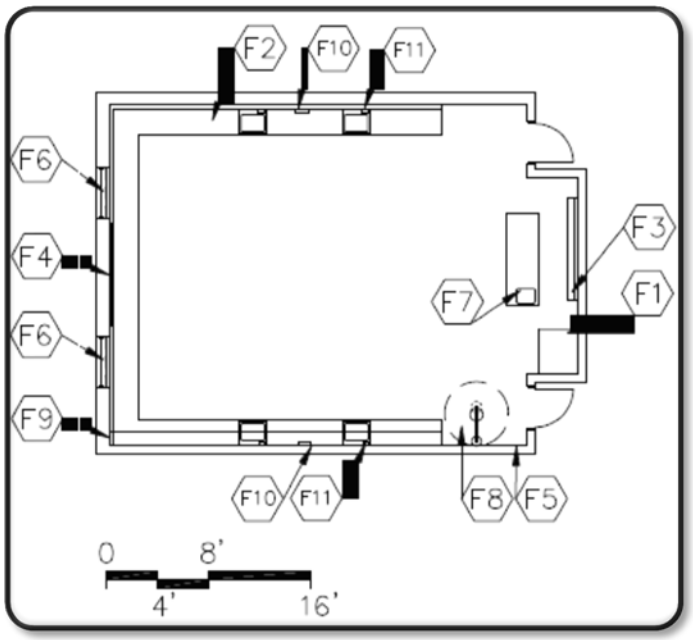
Notes

1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Miscellaneous - operable partitions optional between classrooms

Project Laboratory
M-AC-2

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Perimeter sink base cabinets
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Pencil sharpener support
F6 Windows with integral blinds
F7 Demonstration table
F8 Emergency shower/eyewash
F9 Wall cabinets
F10 Towel dispensers
F11 Soap dispensers



Features – Loose Furnishings

Student worktables and stools/chairs
Teacher stool/chair
File cabinet
Wastebaskets
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

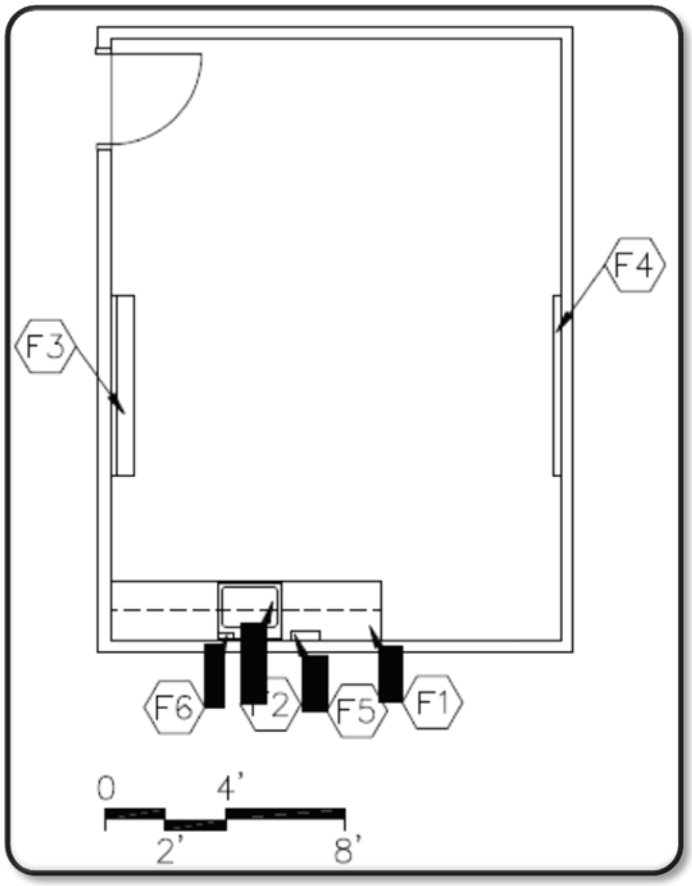
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. HVAC - manually operated exhaust air system
4. Plumbing - sinks; plumbing, gas, and compressed air connections; master shutoff for gas; emergency shower/eyewash connection

Teacher Prep Area/ Workroom M-AC-3

Features - Fixed Equipment

F1 Base & wall cabinets
F2 Sink base cabinet
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Towel dispenser
F6 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Computer workstation furniture
Wastebasket

Finishes:

Flooring – Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

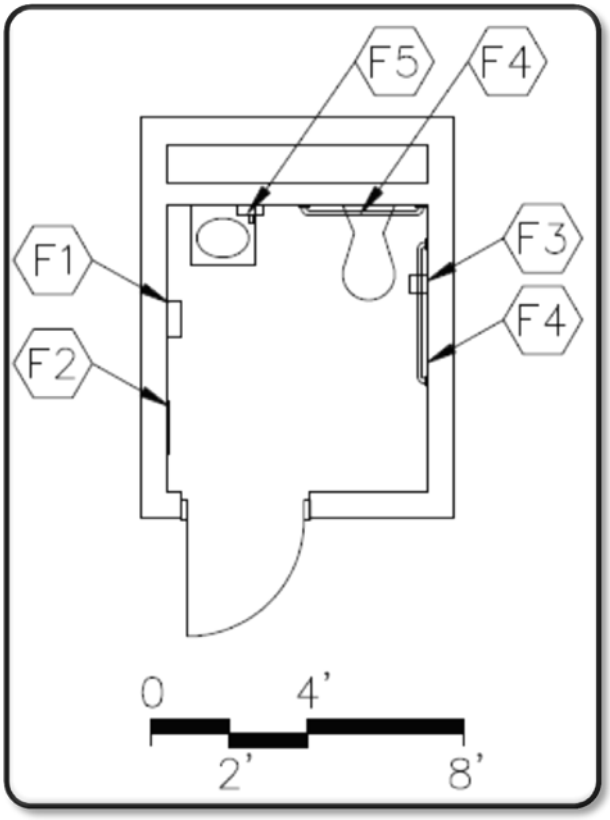
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, voice port & phone; clock; data ports
3. Plumbing – sink

Individual Restroom
M-AC-4

Features - Fixed Equipment

F1 Towel dispenser
F2 24” x 60” mirror
F3 Toilet tissue holder
F4 36” and 42” grab bar
F5 Soap dispenser



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory
2. Electrical - single-level switching

Instructional Material Storage
M-AC-5

Features - Fixed Equipment

F1 Open Metal Shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

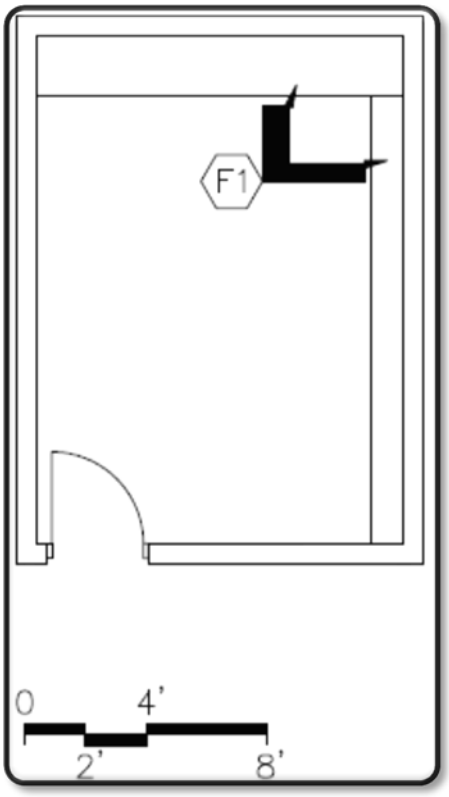
Base - Resilient base

Ceiling - Suspended, acoustical or exposed painted structure

Walls - Painted concrete masonry units

Notes

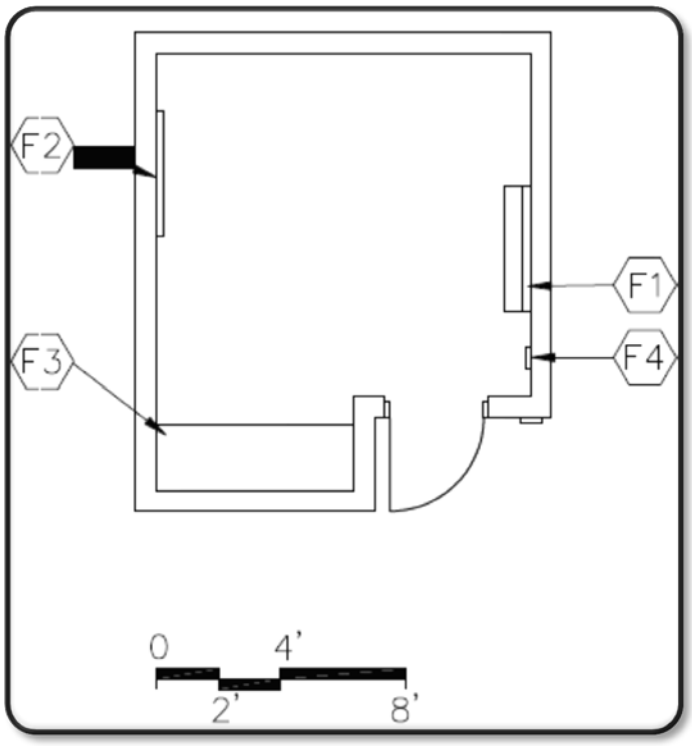
1. Electrical - duplex receptacle; single-level switching



Small Group Room
M-AC-6

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Work surface
F4 Pencil sharpener support



Features – Loose Furnishings

Work tables and chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Carpet
Optional - ~~Carpet~~ Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port; clock

Instructional Multi-Purpose Room
M-AC-7

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo

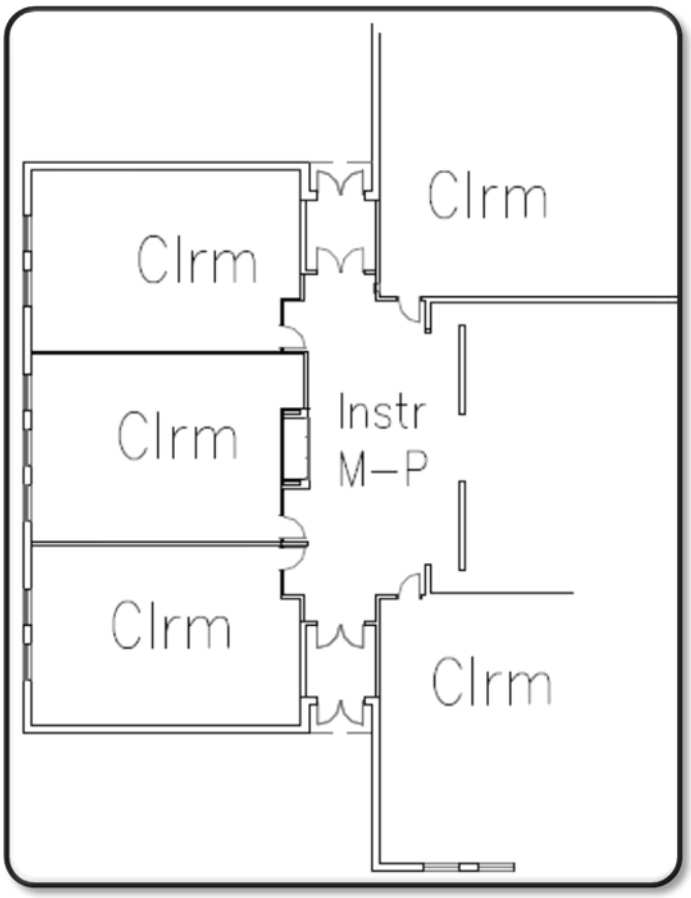
Base – Resilient base, porcelain tile, or terrazzo

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

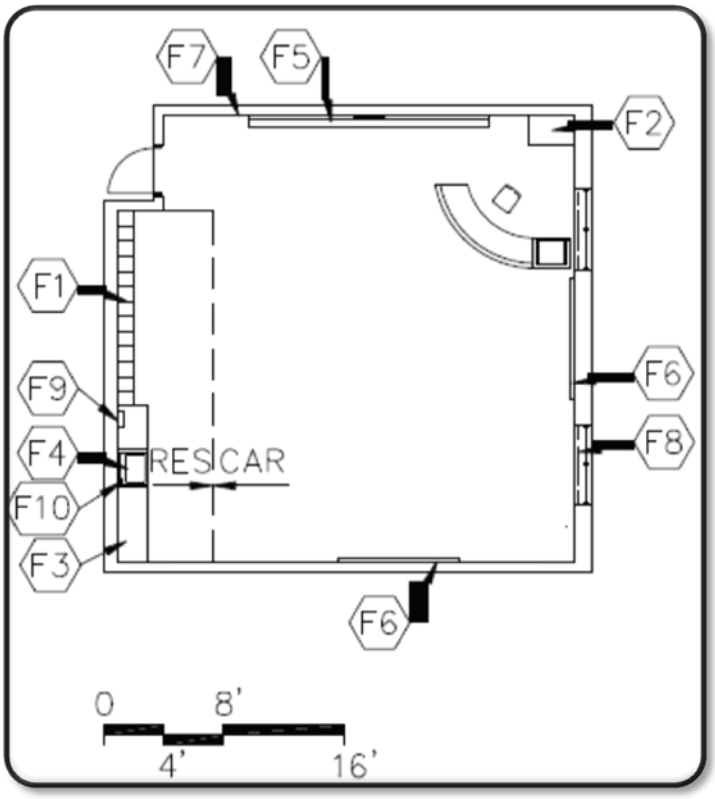
1. Electrical - duplex receptacles; dual-level switching
2. Technology - wireless access points; video ports; data ports
3. Instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.



Self-Contained Classroom
M-SE-1

Features - Fixed Equipment

F1 Open casework – ~~coats with wall cabinets above~~ student coats and personal items
F2 Tall wardrobe w/file drawers
F3 Base & wall cabinets
F4 Sink base cabinet
F5 ~~Chalk/marker~~ Marker board
F6 Tack board
F7 Pencil sharpener support
F8 Windows with integral blinds
F9 Towel dispenser
F10 Soap dispenser



Features – Loose Furnishings

Student desks/tables
Student chairs
Teacher workstation/computer support and chair
Computer workstation furniture
File cabinet
Low bookcases (fixed or mobile)
Reading table
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet; Resilient – 4' width in front of cabinets
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

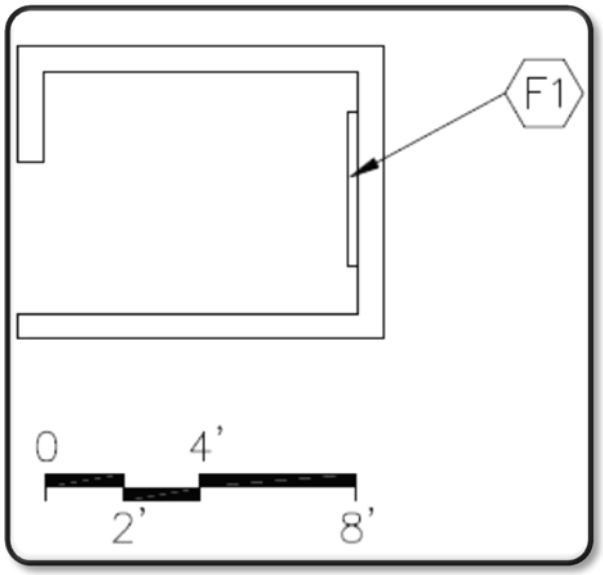
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing – sink with drinking fountain

Workroom/Conference
(quiet area)
M-SE-2

Features - Fixed Equipment

F1 Tack board



Features - Loose Furnishings

Student desk and chair
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

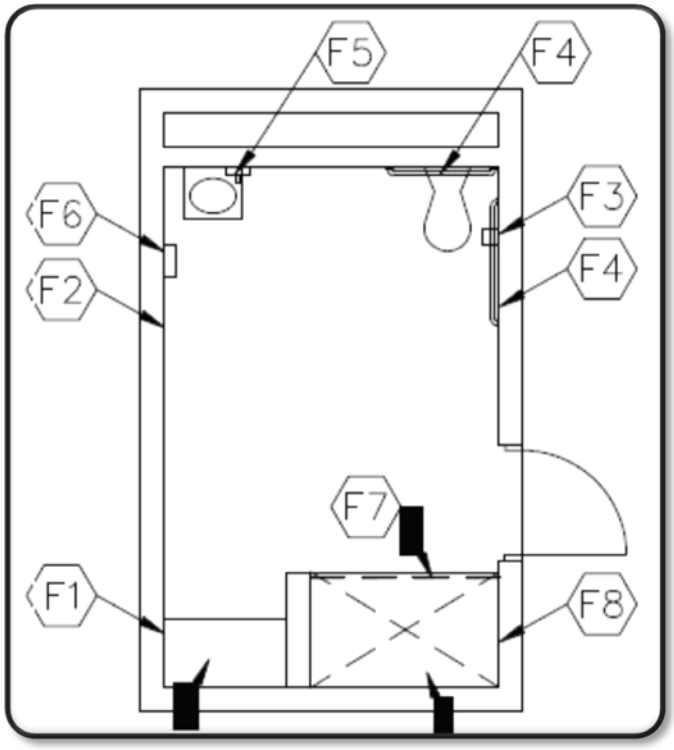
Notes

1. Electrical - duplex receptacle; dimmable lighting
2. Technology - clock

Restroom/Shower
M-SE-3

Features - Fixed Equipment

F1 Base cabinet
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser
F6 Towel dispenser
F7 Shower curtain and rod
F8 ADA shower accessories



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Restroom - Resilient
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Restroom - Resilient base
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Ceiling - Restroom- Suspended, acoustical
Shower - Painted Portland cement plaster or interior finish system

Walls - Epoxy painted concrete masonry units

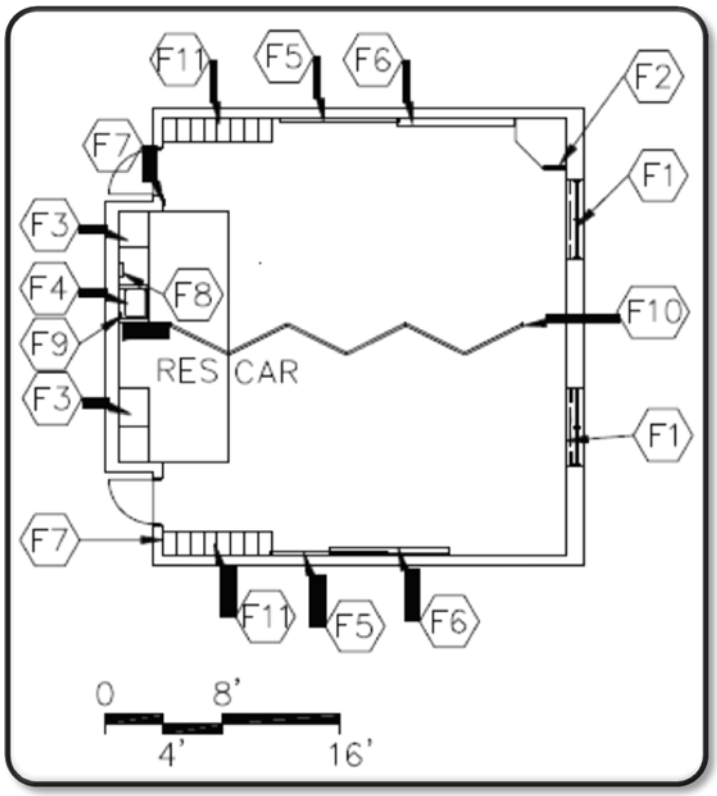
Notes

1. Plumbing - water closet and lavatory; ADA shower controls and head; floor drain
2. Electrical - duplex receptacles; single-level switching

Special Education/Resource
M-SE-4

Features - Fixed Equipment

F1 Windows with integral blinds
F2 Tall wardrobe w/file drawers
F3 Base cabinets
F4 Sink base cabinet
F5 ~~Chalk/marker~~ Marker board
F6 Tack board
F7 Pencil sharpener support
F8 Towel dispenser
F9 Soap dispenser
F10 Operable partition
F11 Open casework-coats with wall cabinets above



Features – Loose Furnishings

Student desks/tables
Computer workstation furniture
Student chairs
Teacher desk or workstation/computer support and chair
File cabinet
Mobile bookcases or storage unit
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet; Resilient – 4' width in front of cabinets

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

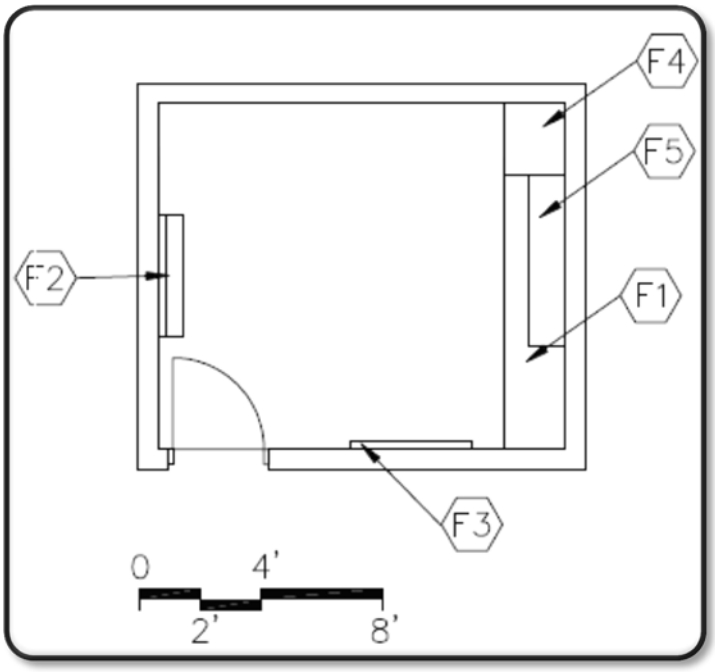
Notes

1. Plumbing - sink
2. Electrical - duplex receptacles; multi-level switching
3. Technology - video port, data port, voice port & phone; data ports for students; clock; overhead projector

Speech Therapy
M-SE-5

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Small table with chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
M-SE-6

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Resilient

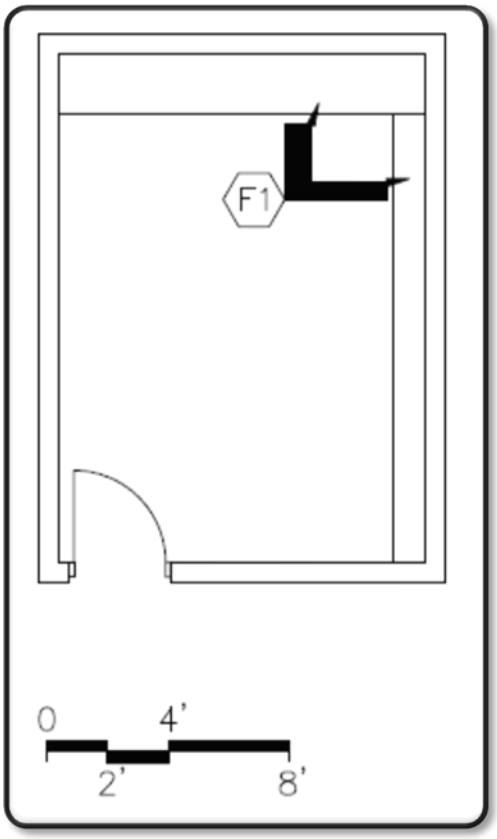
Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

Notes

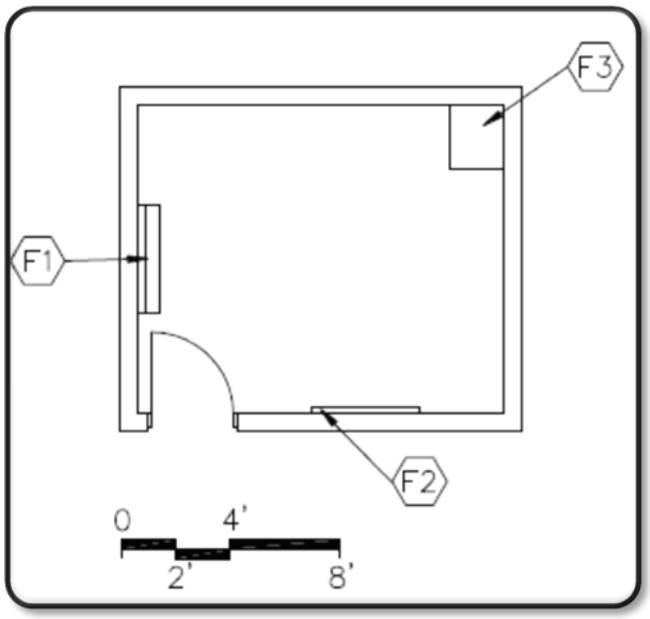
1. Electrical - duplex receptacle; single-level switching



Occupational and Physical Therapy
M-SE-7

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Wall cabinets



Features – Loose Furnishings

Chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

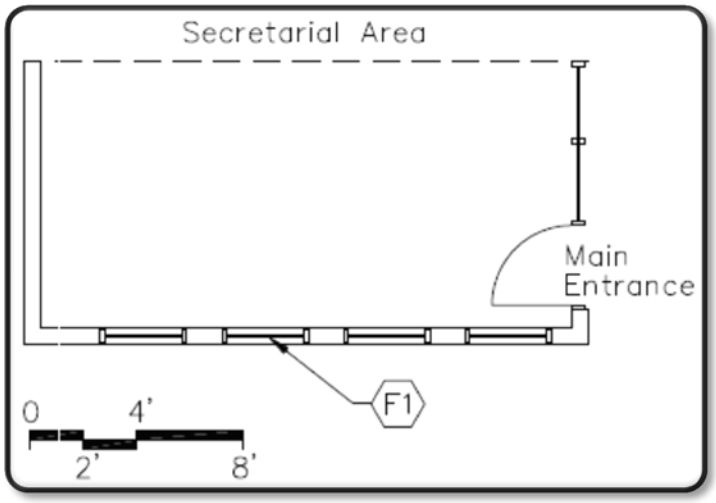
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Reception Area
M-AD-1

Features - Fixed Equipment

F1 Interior windows



Features – Loose Furnishings

Visitor chairs
End table
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

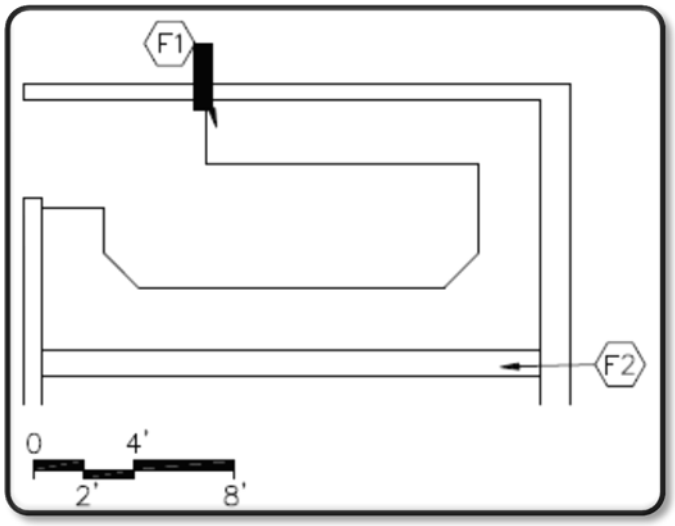
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, voice port & phone; clock

Secretarial Area
M-AD-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 High counter top



Features – Loose Furnishings

Secretarial chair(s)
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

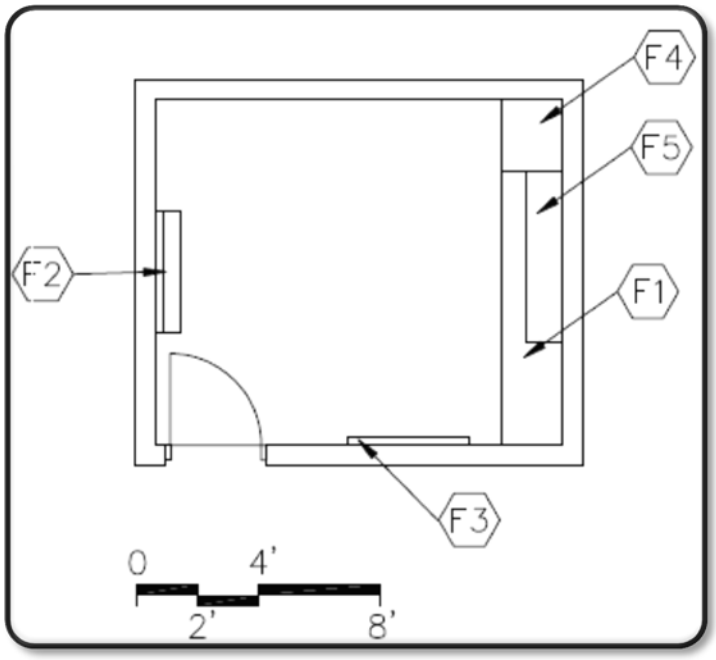
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port & phone at each secretarial station; fax port, data port for printer; clock
3. Miscellaneous - fax machine; printer; computer/typewriter

Principal's Office
M-AD-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

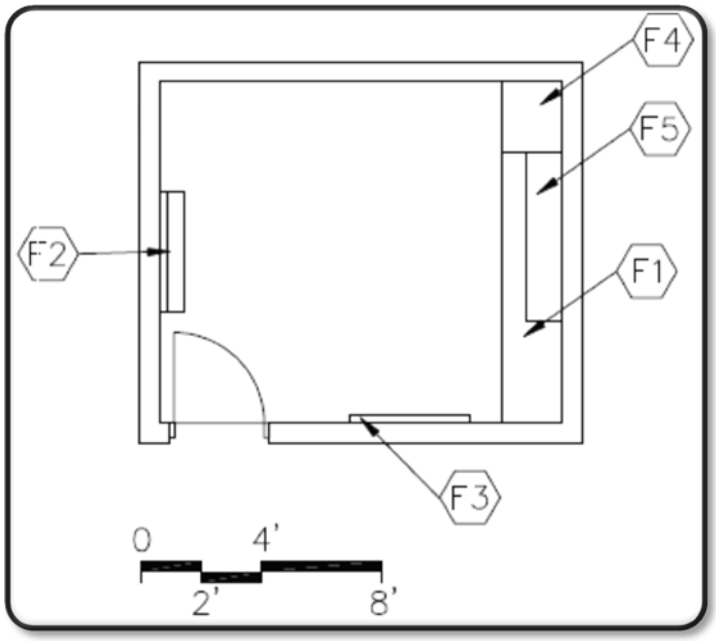
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Assistant Principal's Office
M-AD-4

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

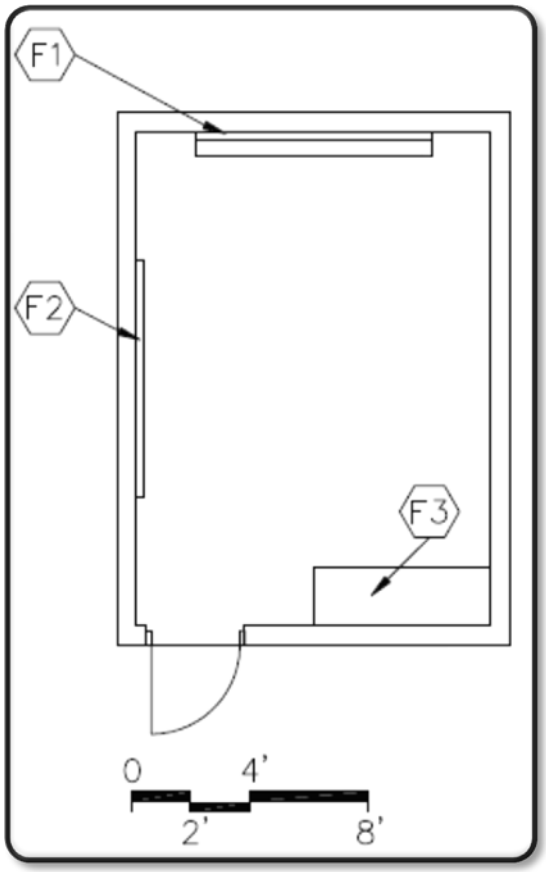
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Conference Room
M-AD-5

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Base cabinets



Features – Loose Furnishings

Conference table
Chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

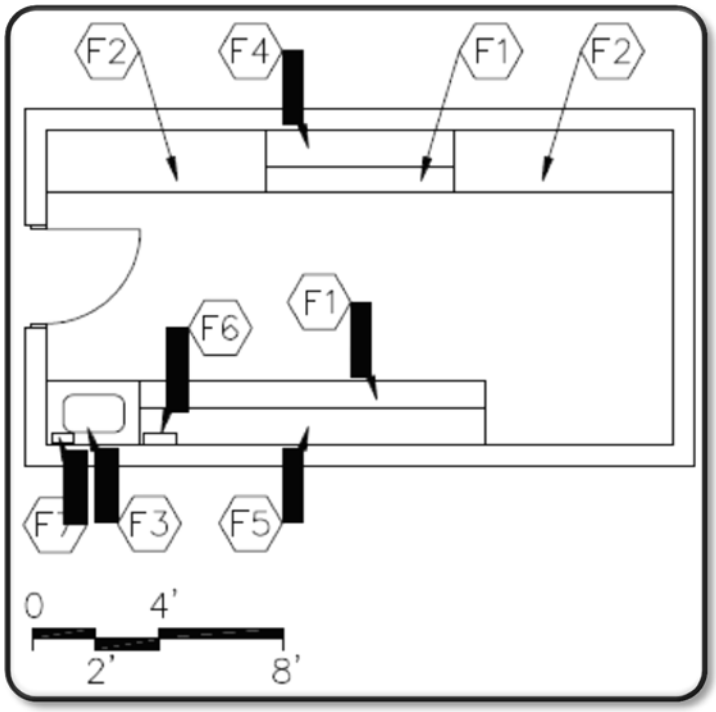
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - data port, voice port & phone; video port and video display device, clock

Mail/Work/Copy Room
M-AD-6

Features - Fixed Equipment

F1 Base cabinets
F2 Tall Storage Cabinet
F3 Sink base cabinet
F4 Mail Cubicles
F5 Wall Cabinets
F6 Towel dispenser
F7 Soap dispenser



Features – Loose Furnishings

Worktable
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes

1. Electrical - duplex receptacles; single-level switching; receptacle for copier
2. Technology - voice port & phone; clock
3. Plumbing - sink
4. Miscellaneous - copier

Administrative Storage
M-AD-7

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

File cabinets

Finishes:

Flooring - Resilient

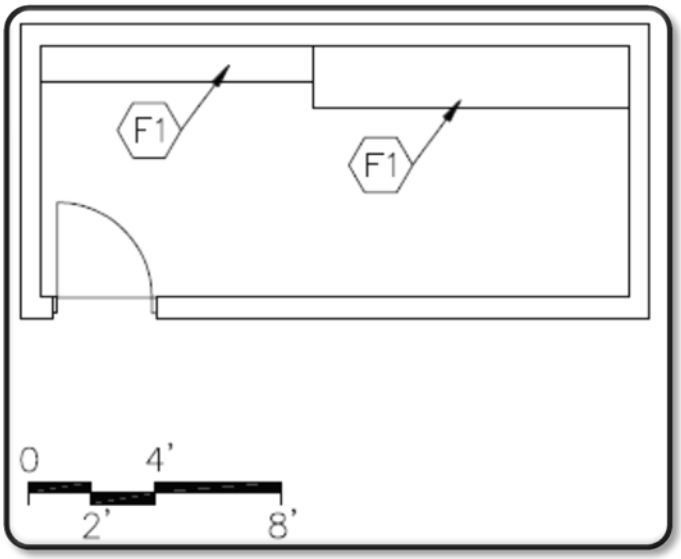
Base - Resilient base

Ceiling - Suspended, acoustical or painted or exposed, painted structure

Walls - Painted concrete masonry units

Notes

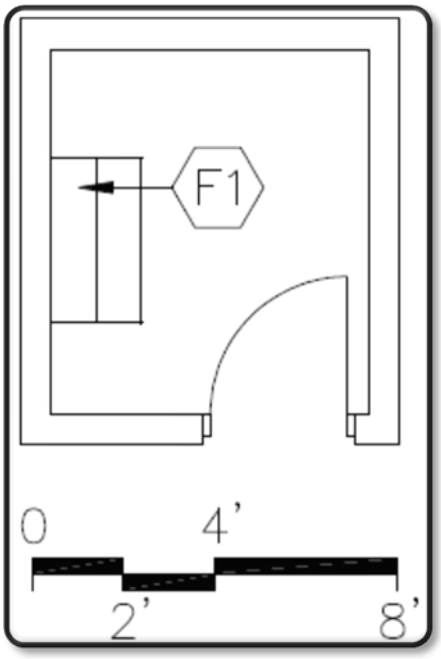
1. Electrical - duplex receptacle; single-level switching



Vaults/Record Storage
M-AD-8

Features - Fixed Equipment

F1 Open Metal Shelving



Features – Loose Furnishings

File cabinet
Safe

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Rated 2 hour construction

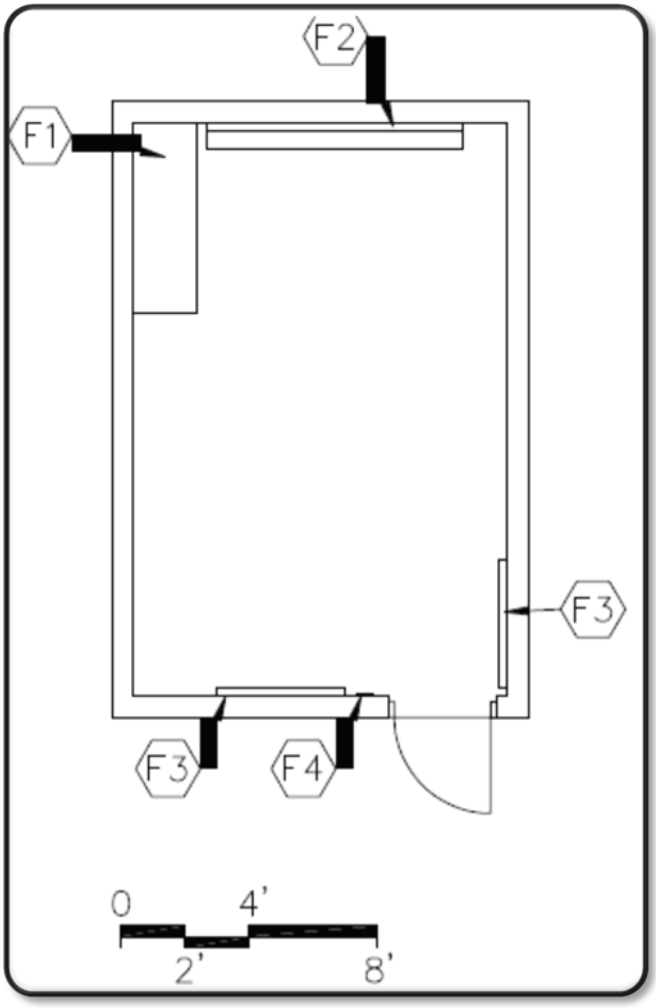
Walls - Painted concrete masonry units;
Rated 2 hour construction

Notes
1. Electrical - duplex receptacles; single-level switching

In School Suspension
M-AD-9

Features - Fixed Equipment

F1 Base cabinets
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Pencil sharpener support



Features – Loose Furnishings

Student carrels and/or desks
Student chairs
Teacher desk and chair
Computer workstation furniture
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, data port, voice port & phone; data ports for students; clock

Restroom
M-AD-10

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser

Features – Loose Furnishings

Wastebasket

Finishes:

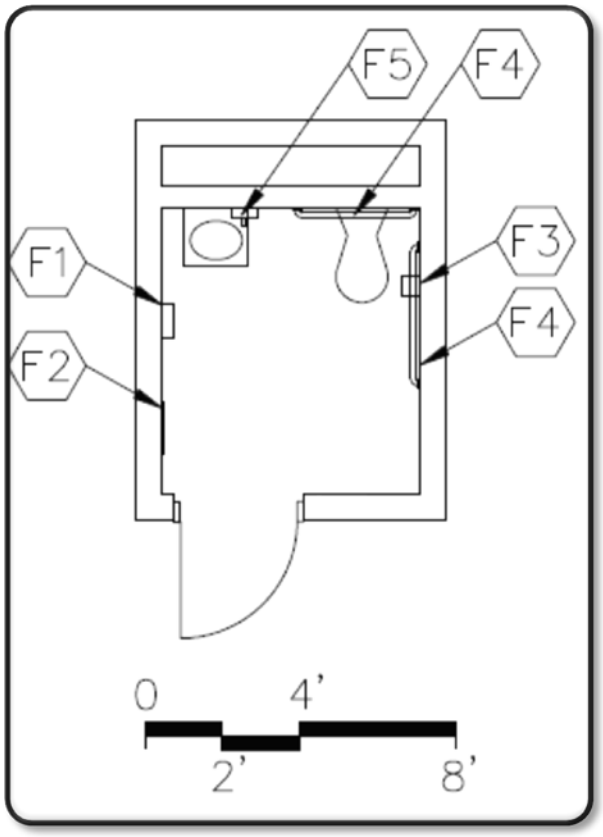
Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

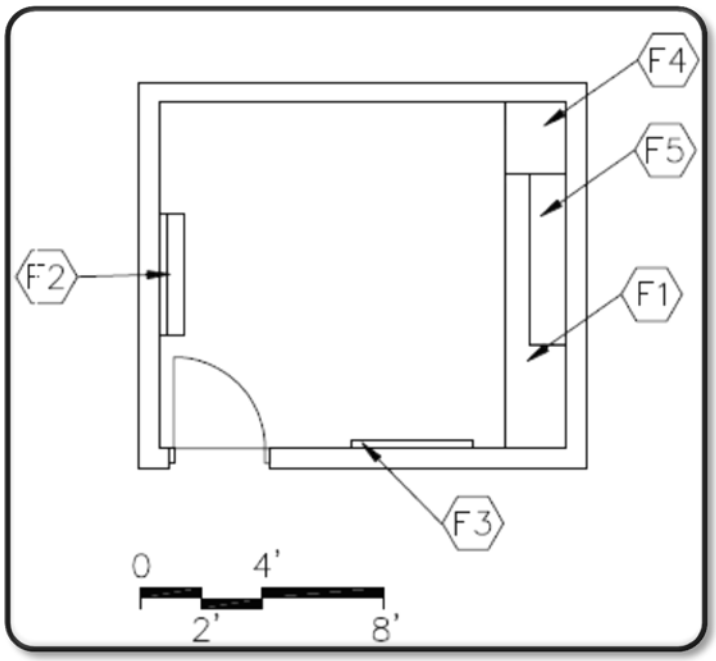
Notes
1. Plumbing - water closet and lavatory
2. Electrical - duplex receptacle; single level switching



Guidance Counselor's Office
M-AD-11

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

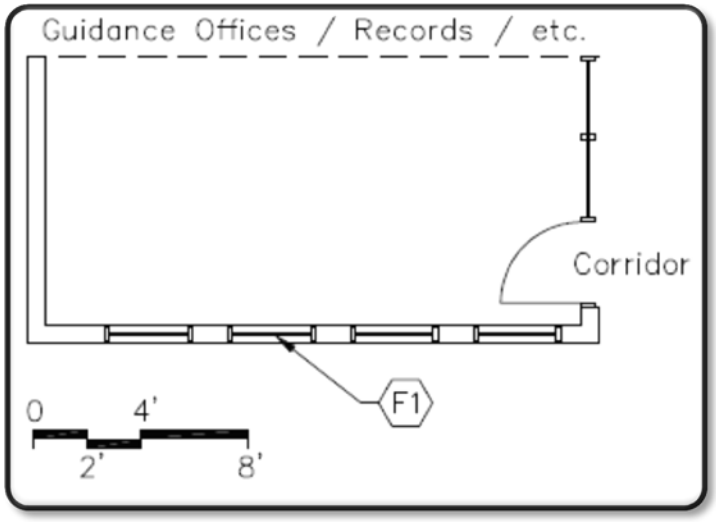
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Guidance Reception Area
M-AD-12

Features - Fixed Equipment

F1 Interior Windows



Features – Loose Furnishings

Visitor chairs
End Table
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, voice port & phone; clock

Guidance Records/Storage
M-AD-13

Features - Fixed Equipment

F1 Base and wall cabinets
F2 Tall storage cabinets

Features – Loose Furnishings

File cabinets

Finishes:

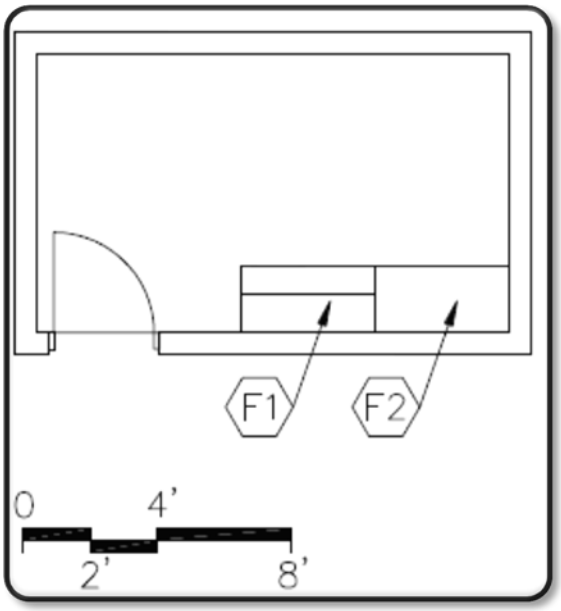
Flooring - Resilient

Base - Resilient base

Ceiling - Rated 2 hour construction

Walls - Painted gypsum wallboard over metal studs;
Rated 2 hour construction

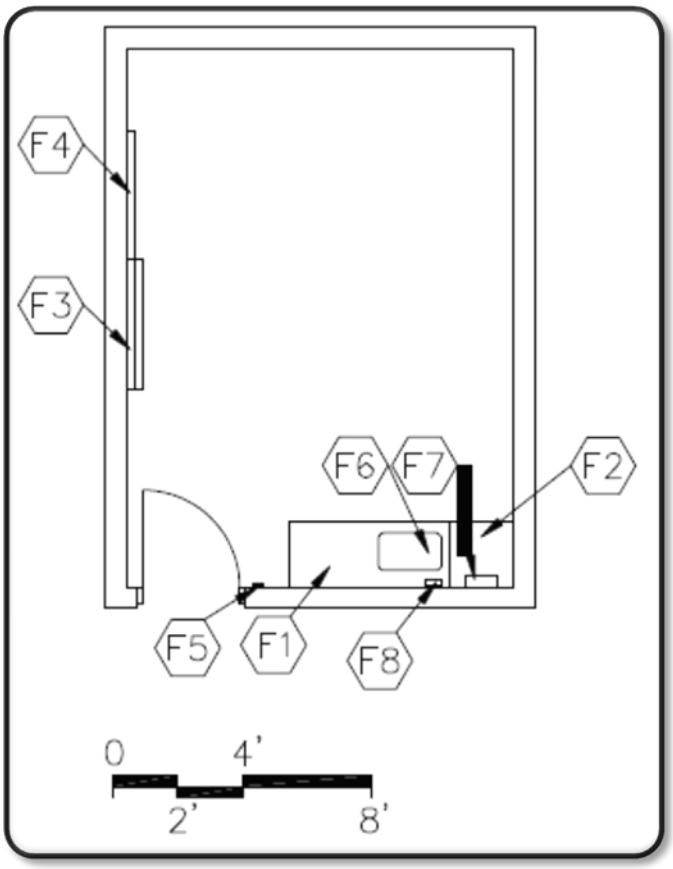
Notes
1. Electrical - duplex receptacles; single-level switching



Parent Center
M-AD-14

Features - Fixed Equipment

F1 Base cabinets
F2 Tall wardrobe
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Pencil sharpener support
F6 Sink base cabinet
F7 Towel dispenser
F8 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Computer workstation furniture
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

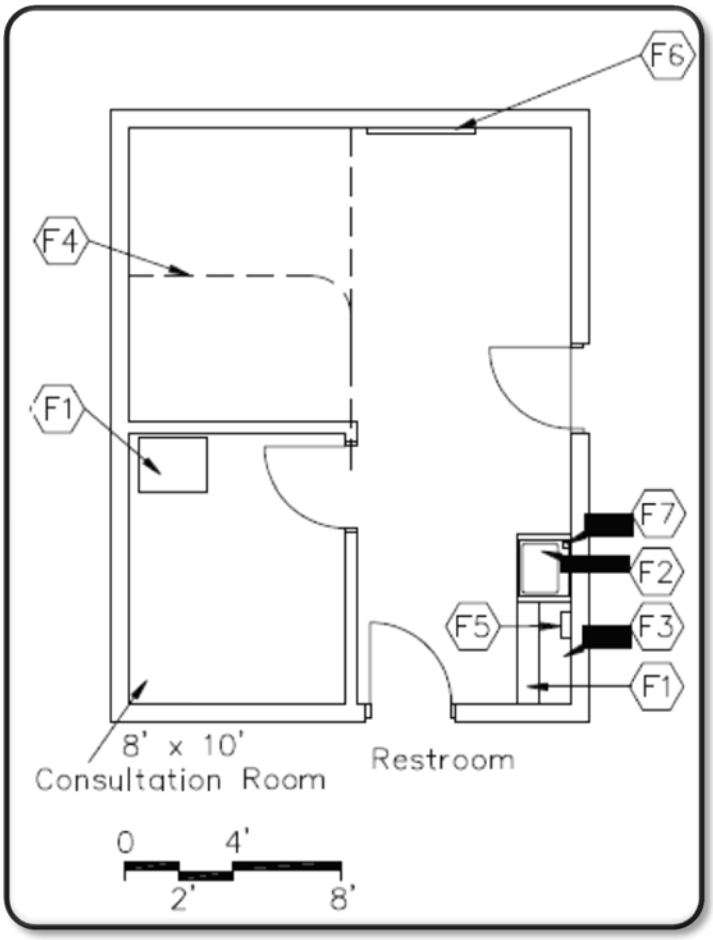
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, video display device, voice port & phone; data port; clock
3. Plumbing - sink

Health Clinic
M-AD-15

Features - Fixed Equipment

F1 Base cabinets
F2 Sink base cabinet
F3 Wall cabinets; lockable
F4 Cubicle curtain and track
F5 Towel dispenser
F6 Tack board
F7 Soap Dispenser



Features – Loose Furnishings

Cots
Refrigerator with ice making capabilities
Desk and chair
Chairs Stool
Wastebasket

Finishes:

Flooring - Seamless sheet vinyl

Base - Resilient base

Ceiling - Suspended, acoustical

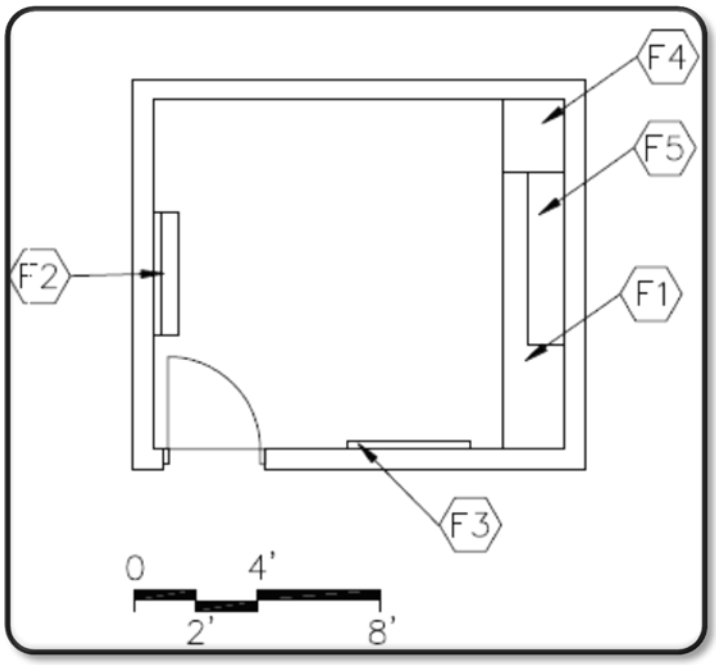
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - voice port & phone; data port; clock
3. Plumbing - sink
4. Restroom must be located adjacent to health clinic

Itinerant Personnel Office
M-AD-16

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

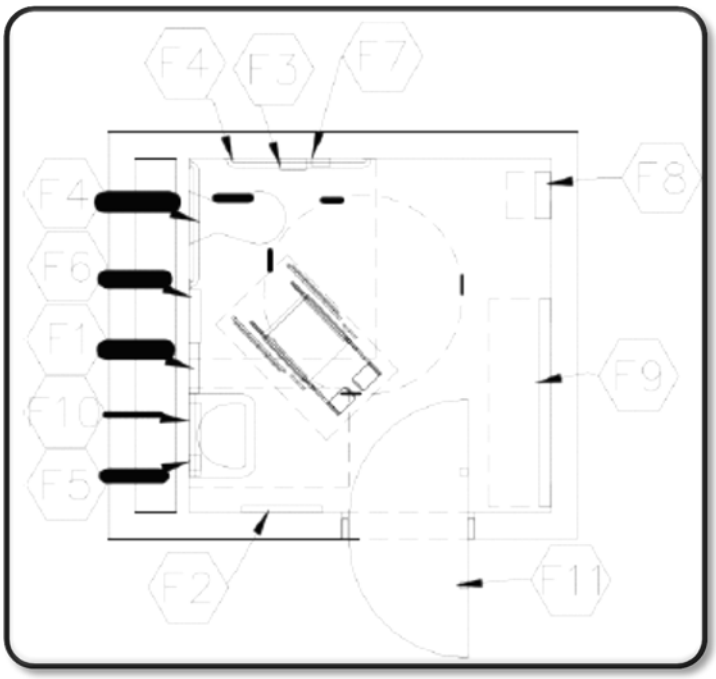
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Family Restroom
M-AD-17

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser
F6 Sanitary napkin dispenser/disposal
F7 Folding utility shelf
F8 Mounted child seat
F9 Adult/child changing station
F10 16" x 24" mirror with shelf
F11 Coat hooks



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory; floor drain
2. Electrical - duplex receptacle; single level switching

Health Center Restroom
E/M/H-AD-20

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser

Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

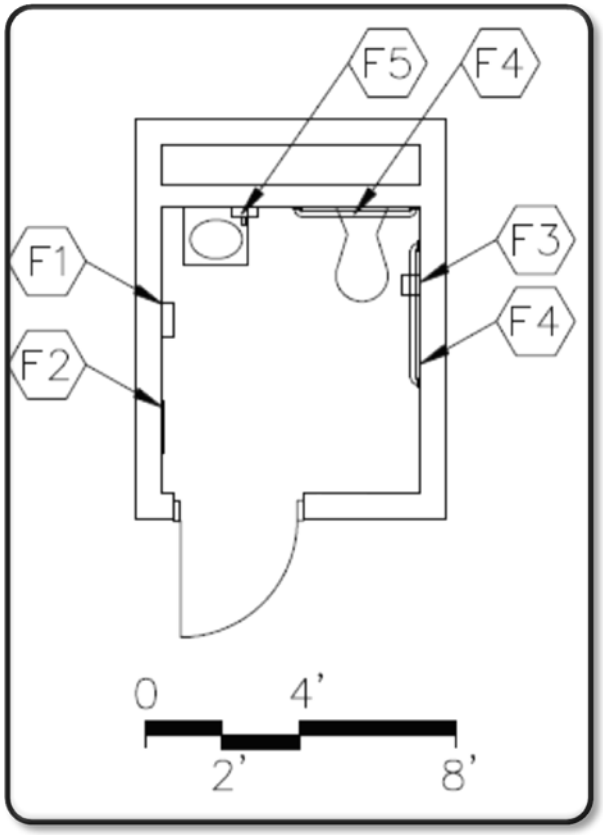
Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

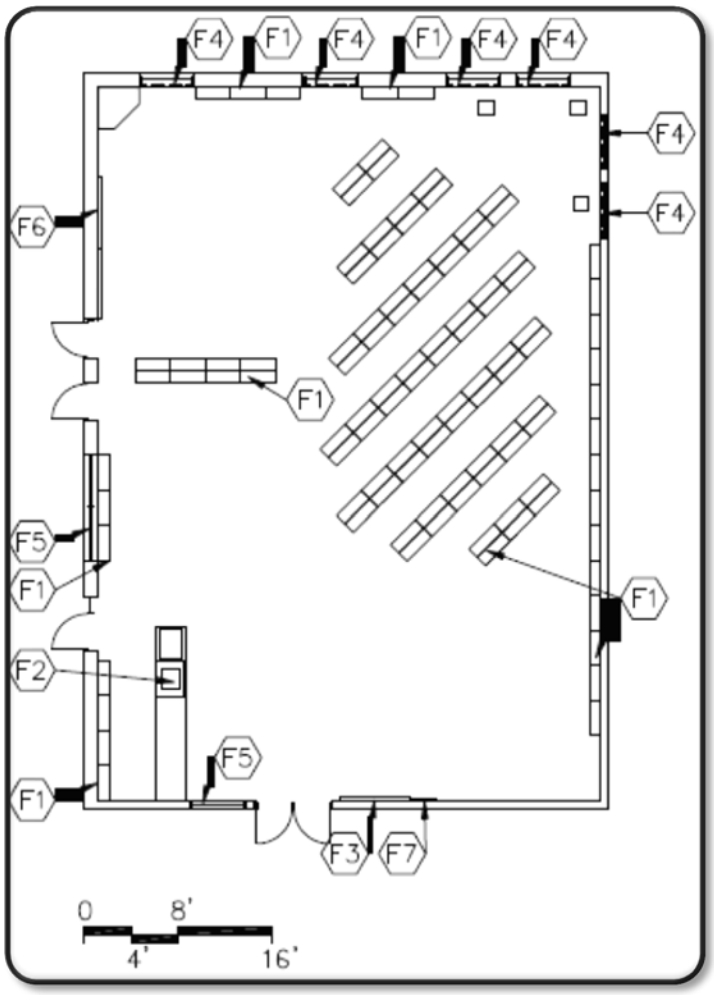
3. Plumbing - water closet and lavatory
4. Electrical - duplex receptacle; single level switching



Reading Room/Circulation
M-MC-1

Features - Fixed Equipment

F1 Library book shelving
F2 Circulation desk casework
F3 Tack board
F4 Windows with integral blinds
F5 Interior windows
F6 ~~Chalk/marker~~ Marker board
F7 Pencil sharpener support



Features – Loose Furnishings

Student tables and chairs
Computer workstation furniture
Circulation desk task chair
Atlas/dictionary stand
Paperback book rack
Lateral file
Mobile book carts
Magazine display
Newspaper rack
Study carrels
Wastebaskets
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

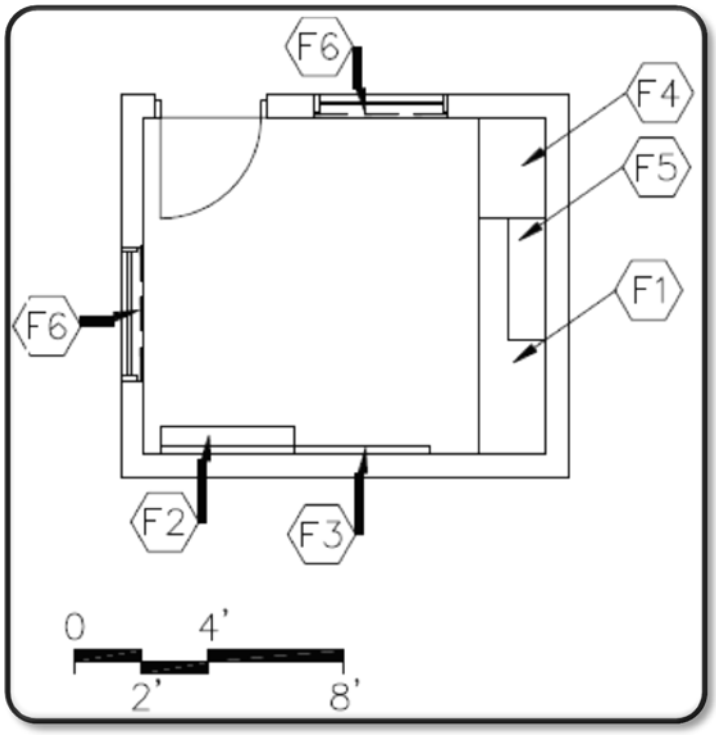
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - video ports and video display devices, voice port & phone; data ports for students; data port for library automation system; clock

Media Specialist Office
M-MC-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 Chalk/marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets
F6 Interior window



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
File cabinet
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

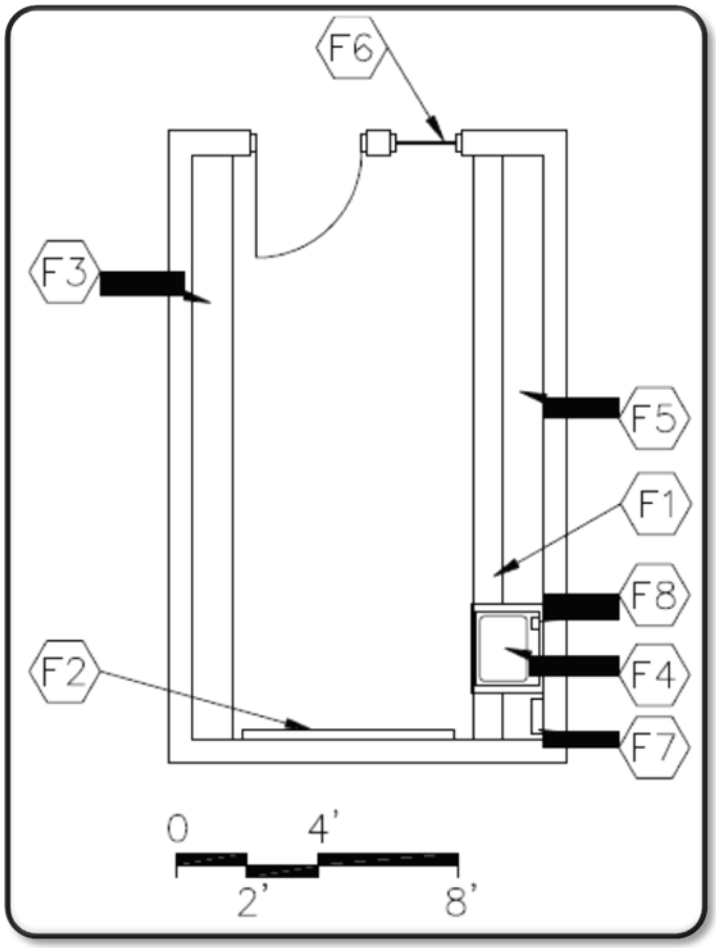
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Workroom/Storage
M-MC-3

Features - Fixed Equipment

F1 Base cabinets
F2 Tack board
F3 Bookcases
F4 Sink base cabinet
F5 Wall cabinets
F6 Interior window
F7 Towel dispenser
F8 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Book trucks
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

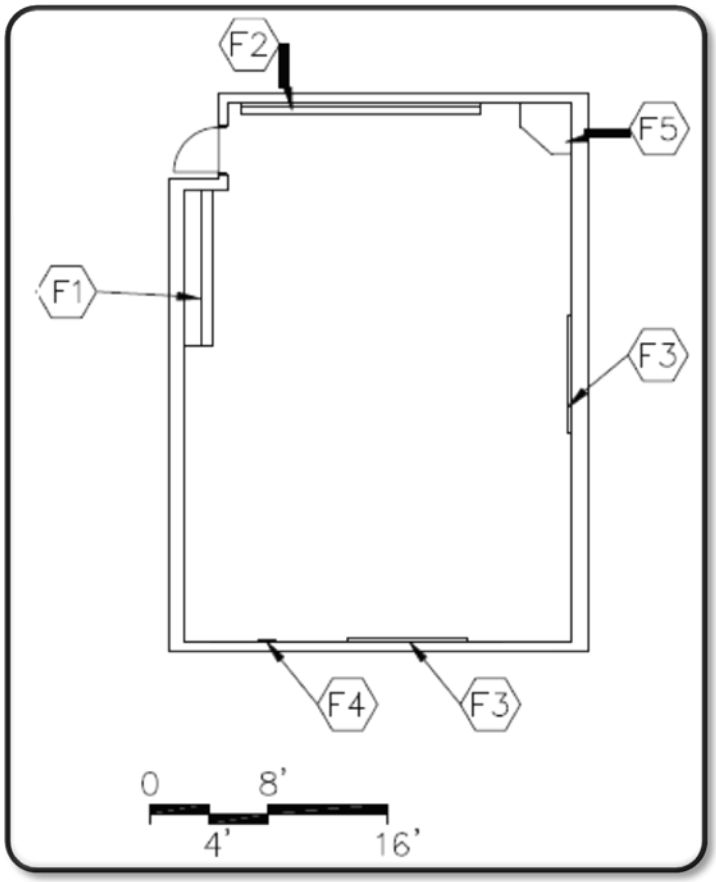
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port & phone; clock
3. Plumbing - sink

Computer Lab
M-MC-4

Features - Fixed Equipment

F1 Base & wall cabinets
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Pencil sharpener support
F5 Tall wardrobe with file drawers



Features – Loose Furnishings

Computer workstation furniture
Student chairs
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls – Painted concrete masonry units

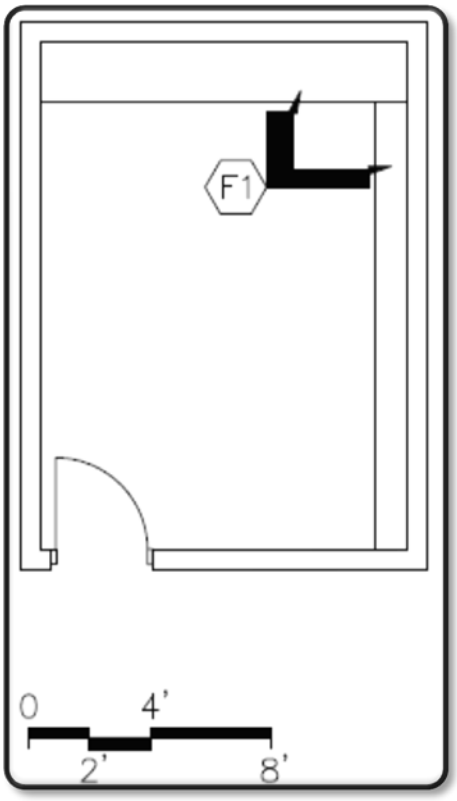
Notes

1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, voice port & phone; data port near teacher workstation; clock; overhead projector; classroom area network (26 ports minimum)
3. Miscellaneous - classroom area network file server; printer

A/V Storage
M-MC-5

Features - Fixed Equipment

F1 Tall shelving



Features – Loose Furnishings

Desk and chair
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical or painted structure

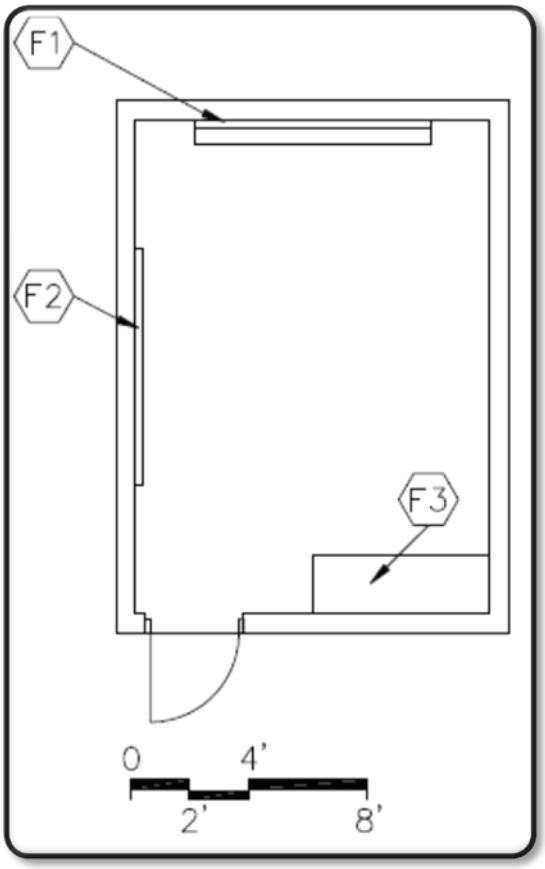
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port and phone

Conference Room
M-MC-6

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Base cabinets



Features – Loose Furnishings

Conference table
Chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

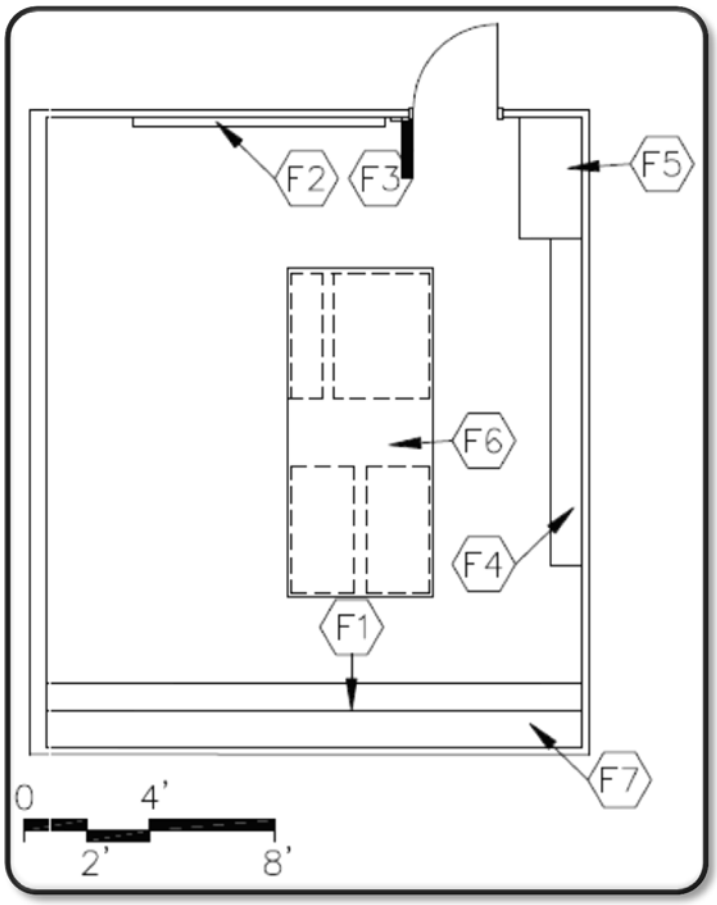
Notes

1. Electrical - duplex receptacles; multi-level switching
2. Technology - data port, voice port & phone, video port and video display device; clock

Multi-Media Production Room
M-MC-7

Features - Fixed Equipment

F1 Base cabinets with file drawers
F2 Tack board
F3 Pencil sharpener support
F4 Tall bookcases
F5 Tall cabinets
F6 Work surface with base cabinets below
F7 Wall cabinets



Features – Loose Furnishings

Tables and chairs/stools
Computer workstation furniture
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

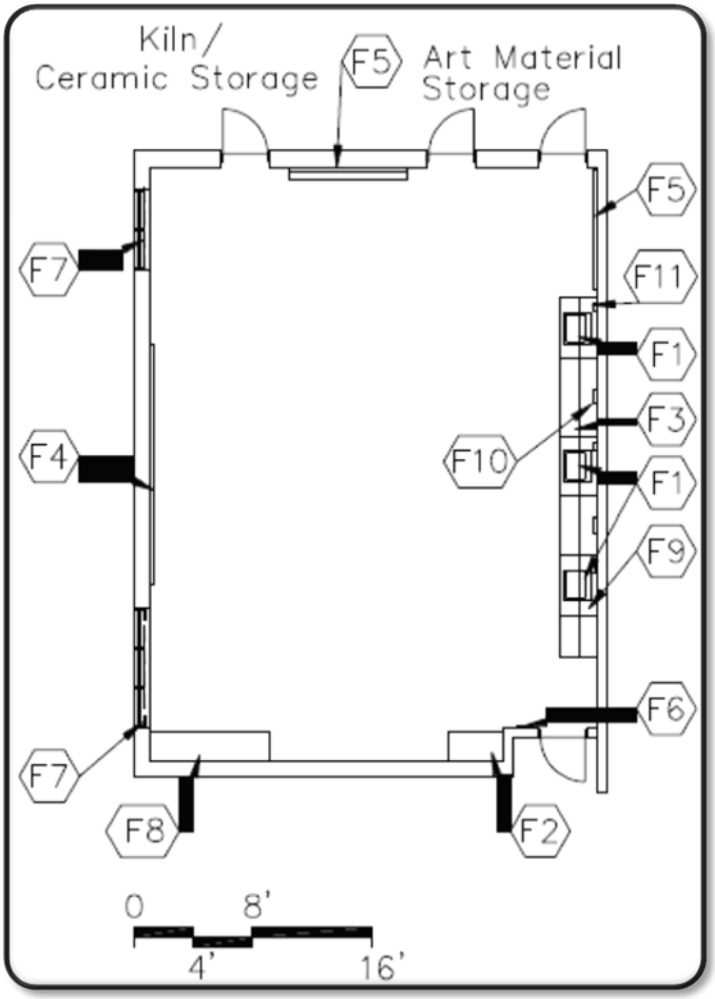
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port and video display device, voice port & phone; data ports for students; clock

Art Room
M-VA-1

Features - Fixed Equipment

F1 Sink base cabinet, 30" deep
F2 Tall wardrobe w/file drawers
F3 Base cabinets, 30" deep
F4 Tack board
F5 ~~Chalk/marker~~ Marker board
F6 Pencil sharpener support
F7 Windows with integral blinds
F8 Tall storage cabinets
F9 Wall cabinets
F10 Towel dispensers
F11 Soap dispensers



Features – Loose Furnishings

Student work tables
Computer workstation furniture
Student chairs or stools
Teacher workstation/computer support and chair
Drying rack
Desk height file cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient or sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

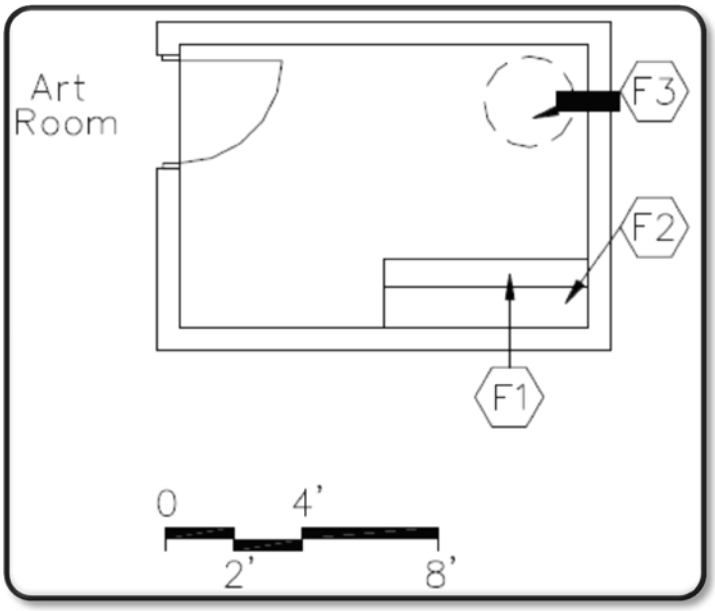
Notes

1. Electrical - duplex receptacles; multi-level switching; track lighting
2. Technology - video port, data port, voice port & phone; clock; overhead projector; data ports for students
3. Plumbing - sinks with solids interceptor
4. HVAC - manually operated exhaust air system

Kiln/Ceramic Storage
M-VA-2

Features - Fixed Equipment

F1 Base cabinets
F2 Wall cabinets
F3 Kiln



Features – Loose Furnishings

Tall dry storage units
Tall damp storage units

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; electrical connection for kiln
2. HVAC - temperature controlled exhaust; ventilation for kiln

Art Material Storage
M-VA-3

Features - Fixed Equipment

F1 Tall storage cabinets
F2 Base cabinets, 30” deep
F3 Wall cabinets, 12” deep

Features – Loose Furnishings

Mobile materials cart

Finishes:

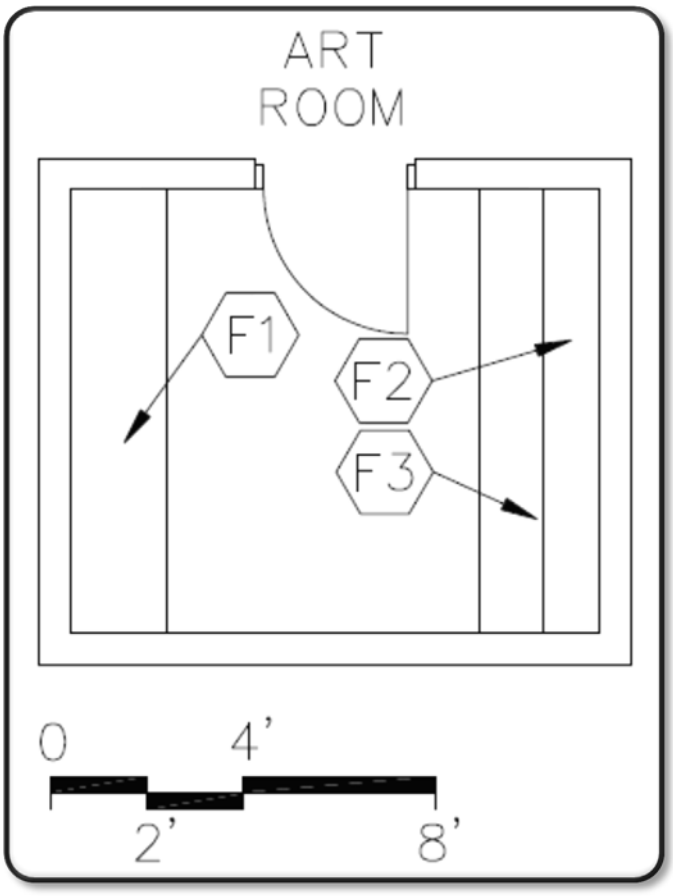
Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

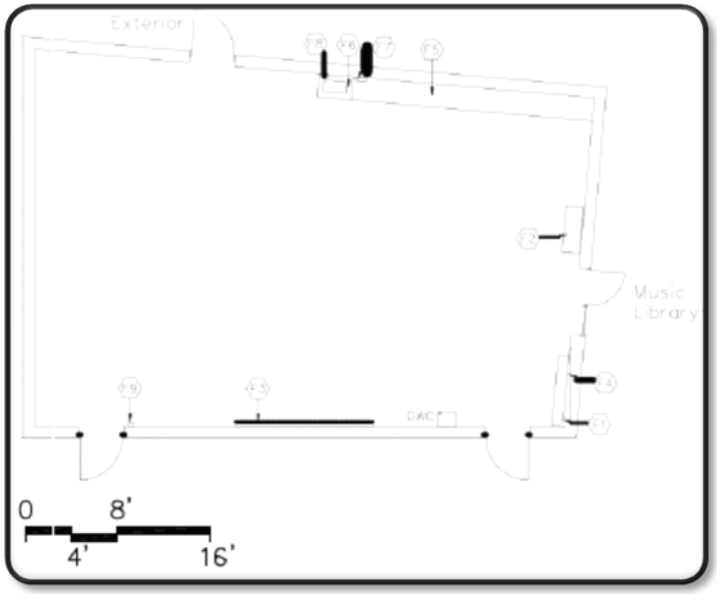
Notes
1. Electrical - duplex receptacle; single-level switching



Instrumental Room
M-MU-1

Features - Fixed Equipment

F1 Bookshelves
F2 Tall cabinets
F3 ~~Chalk/marker~~ Marker board with staff lines
F4 Tack board
F5 Miscellaneous instrument storage cabinets
F6 Sink base cabinet
F7 Towel dispenser
F8 Soap dispenser
F9 Pencil sharpener support



Features – Loose Furnishings

Conducting podium
Mobile percussion instrument storage cabinet
Computer workstation furniture
Mobile sheet music cabinet
Music chairs
Music stands
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

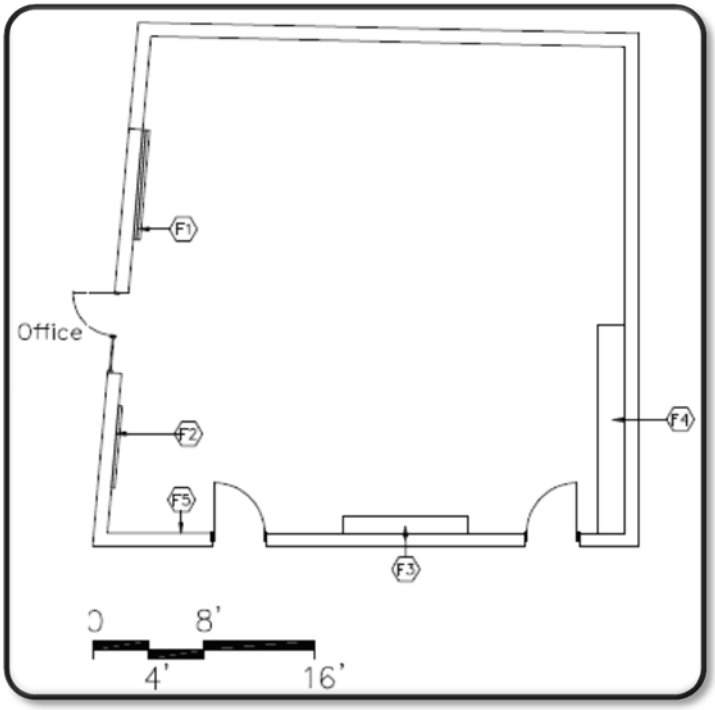
Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units
Acoustical wall treatment

Notes

1. Electrical - duplex receptacles; multi-level switching; telecommunications grounding
2. Technology - video port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing - drinking water cooler and sink
4. Miscellaneous – piano

Vocal Room
M-MU-2



Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board with staff lines
F2 Tack board
F3 Bookcases
F4 Tall cabinets
F5 Pencil sharpener support

Features – Loose Furnishings

Conducting podium
Computer workstation furniture
Mobile sheet music cabinet
Music chairs
Portable risers
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units
Optional - Acoustical wall treatment

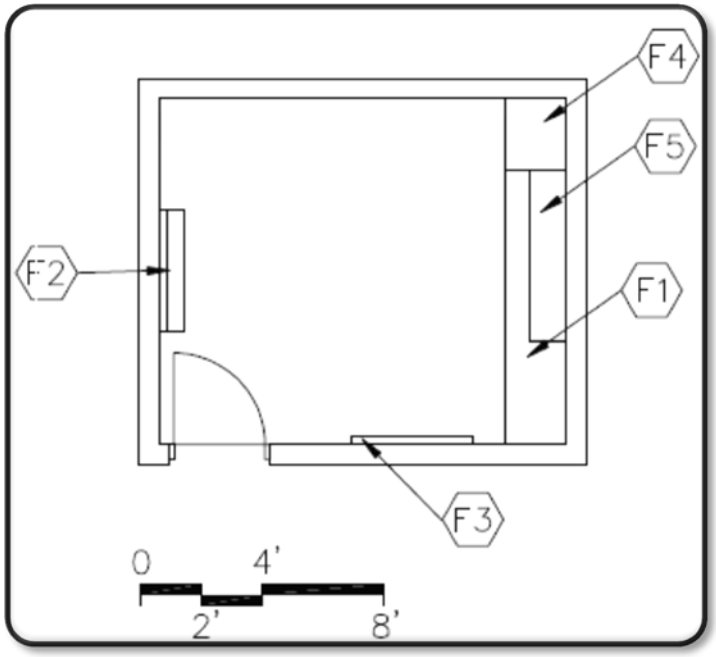
Notes

1. Electrical - duplex receptacles; multi-level switching; telecommunications grounding
2. Technology - video port, voice port & phone; data ports for students; clock; overhead projector
3. Miscellaneous – piano

Music Office
M-MU-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

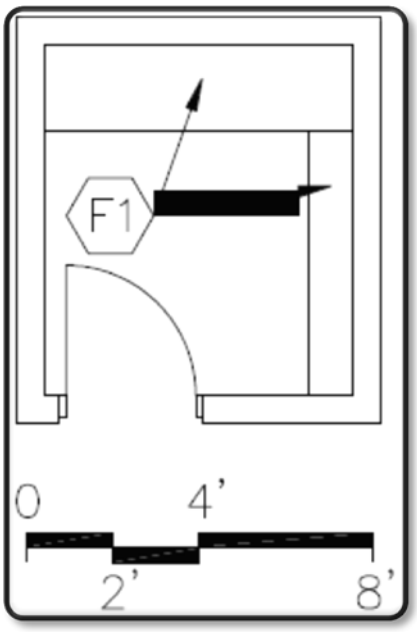
Walls - Painted concrete masonry units or
Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Music Library
M-MU-4

Features - Fixed Equipment

F1 Base and wall cabinets



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls – Painted gypsum wallboard over metal studs or painted concrete masonry units

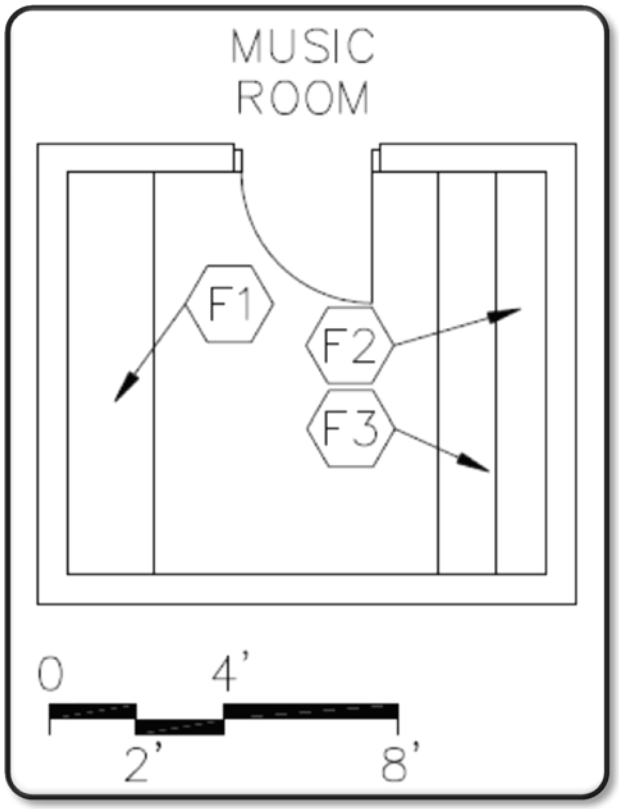
Notes

1. Electrical - duplex receptacles; single-level switching

Music Storage
M-MU-5

Features - Fixed Equipment

F1 Tall storage cabinets
F2 Base cabinets, 30” deep
F3 Wall cabinets, 12” deep



Features – Loose Furnishings

Lateral files

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

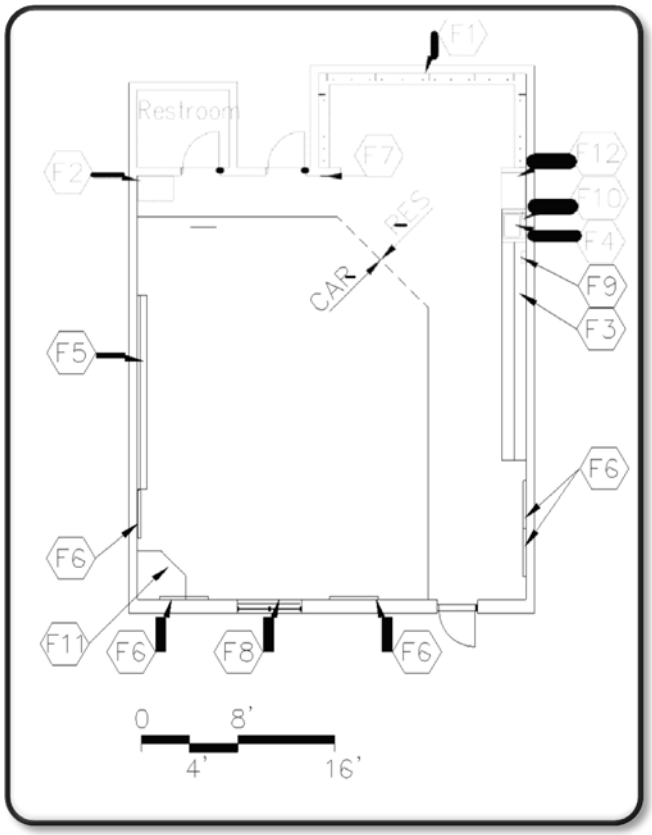
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching

Modular Technology Lab
M-CE-1

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Sink base cabinet
F3 Wall cabinets
F4 Base cabinet with heavy duty countertop
F5 Towel dispenser
F6 Pencil sharpener support
F7 Tack board
F8 Soap dispenser



Features – Loose Furnishings

Teacher desk/computer support and chair
Tables with heavy duty top
Student stools/chairs
Computer technology workstation
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet; Resilient – 4' width in front of cabinets
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

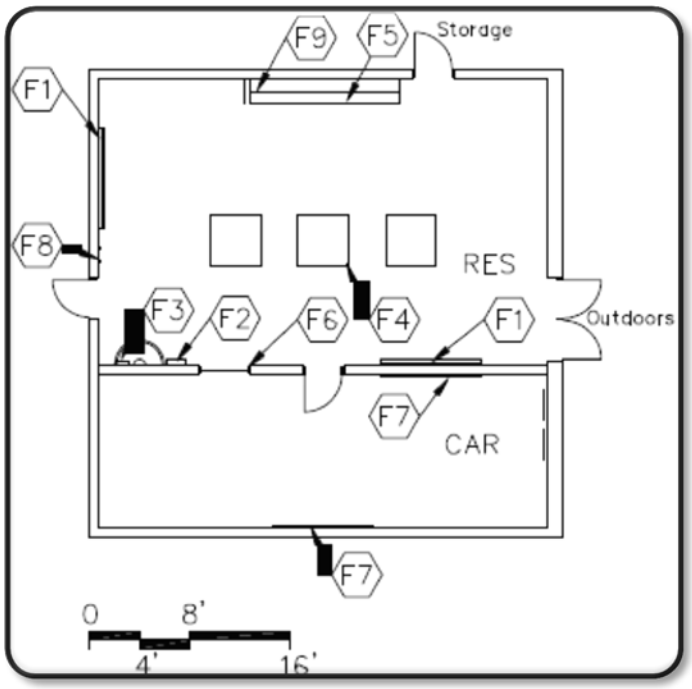
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting with parabolic lenses; receptacle for printer
2. Plumbing - 12" deep sink; plumbing connections
3. Technology - video port, voice port and phone; clock; overhead projector; classroom area network (25 ports minimum)
4. Miscellaneous - printer; classroom area network file server

Production Lab
M-CE-2

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Towel dispenser
F3 Soap dispenser
F4 Workbench and locker base
F5 Heavy duty countertop at 36" high with knee space
F6 Interior window
F7 Tack board
F8 Pencil sharpener support
F9 Wall cabinets



Features – Loose Furnishings

Teacher desk/computer support and chair
Tables with heavy duty top
Student stools
Computer technology workstation with chairs
File cabinet
Wastebasket
Waste receptacle
Pencil sharpener

Finishes:

Flooring – Resilient, carpet

Base - Resilient base

Ceiling – Painted, exposed structure
Suspended acoustical in classroom area

Walls - Painted concrete masonry units

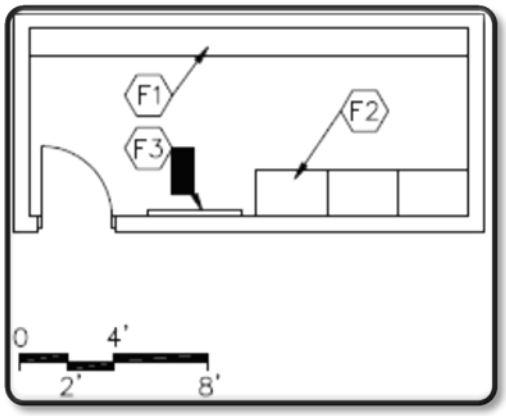
Notes

1. Electrical - duplex receptacles; multi-level switching in computer area; electrical power for shop equipment; master shut-off for power equipment
2. HVAC - localized dust collection system as necessary
3. Plumbing - wash fountain; plumbing connections
4. Technology - video port, voice port and phone; clock; overhead projector; classroom area network (25 ports minimum)
5. Miscellaneous - printer; classroom area network file server; shop equipment with localized dust collection as necessary

Storage
M-CE-3

Features - Fixed Equipment

F1 Open metal shelving
F2 Tall cabinets
F3 Pegboard



Features – Loose Furnishings

Mobile tool cart

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

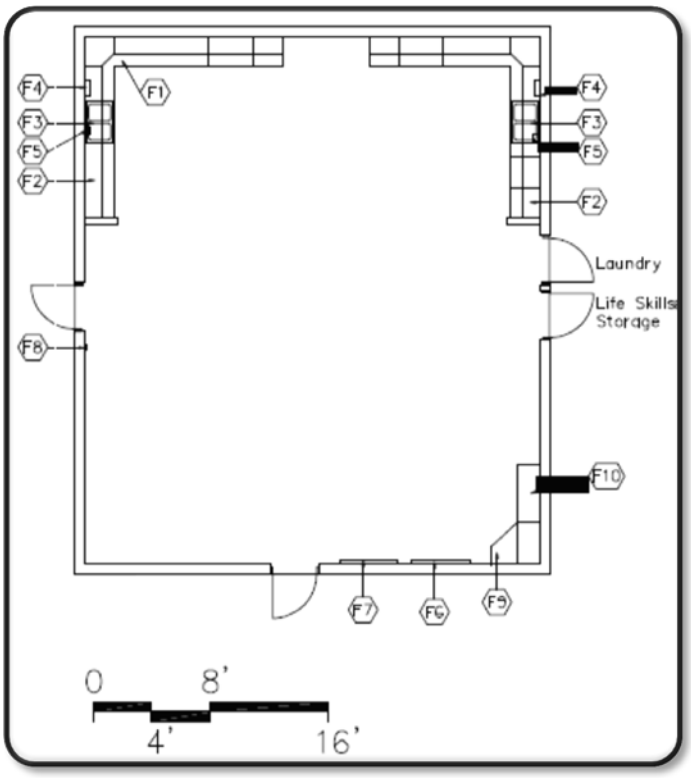
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle

Life Skills Lab
M-FCS-1

Features - Fixed Equipment

F1 Base cabinets
F2 Wall cabinets
F3 Sink base cabinet
F4 Towel dispensers
F5 Soap dispensers
F6 ~~Chalk/marker~~ Marker board
F7 Tack board
F8 Pencil sharpener support
F9 Tall wardrobe with file drawers
F10 Bookcases



Features – Loose Furnishings

Tables and chairs
Microwaves
Refrigerators
Ranges and ovens
Dishwasher
Sewing machines
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebaskets
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; receptacles for appliances
2. Technology - video port, voice port & phone; data ports for student use; clock; overhead projector
3. HVAC - manually operated exhaust air system
4. Plumbing - double sinks

Life Skills Storage
M-FCS-2

Features - Fixed Equipment

F1 Tall wardrobe
F2 Tall cabinets
F3 Open tall cabinets

Features – Loose Furnishings

N/A

Finishes:

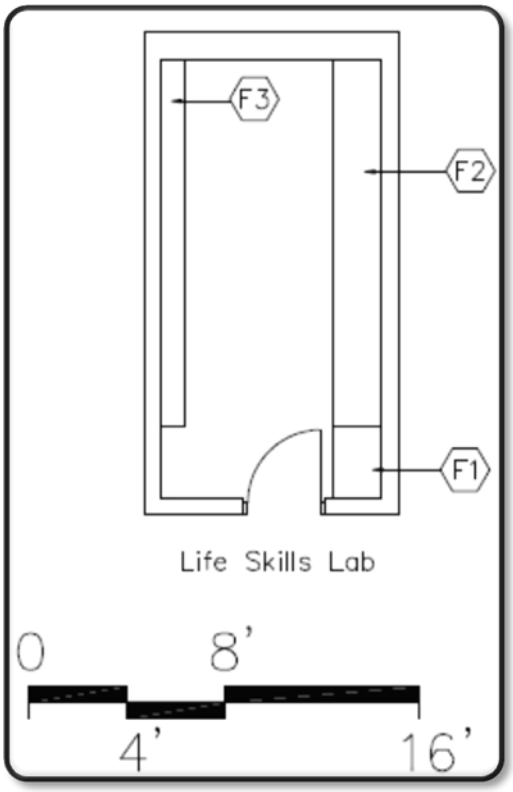
Flooring – Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

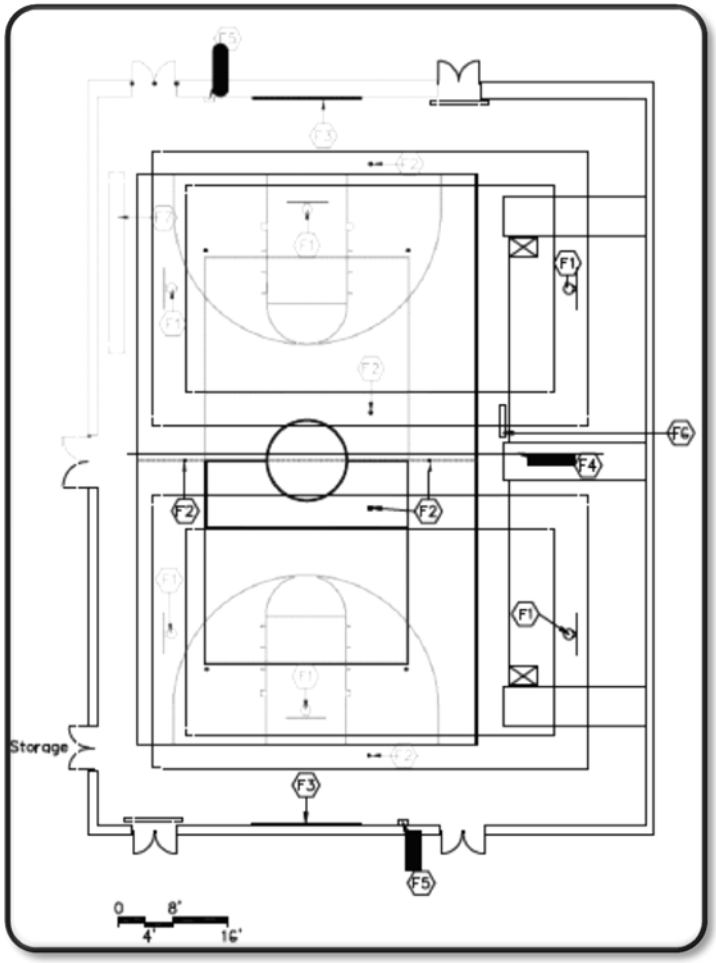
Notes
1. Electrical - duplex receptacle; single-level switching



Gymnasium
M-PE-1

Features - Fixed Equipment

F1 Basketball backstops – glass, adjustable height
F2 Volleyball sleeves and standards on a cart
F3 Safety wall wainscot
F4 Divider gym curtain
F5 Chin-up bar
F6 Scorer table
F7 Wrestling mat hoist



Features – Loose Furnishings

Wrestling mat
Portable ~~chalkboard~~ marker board

MISCELLANEOUS:
Handicapped seating
Court markings
Wire guards on light fixtures and wall-mounted electrical devices

Finishes:

Flooring – Wood flooring

Base – Ventilated resilient base

Ceiling - Painted, exposed structure

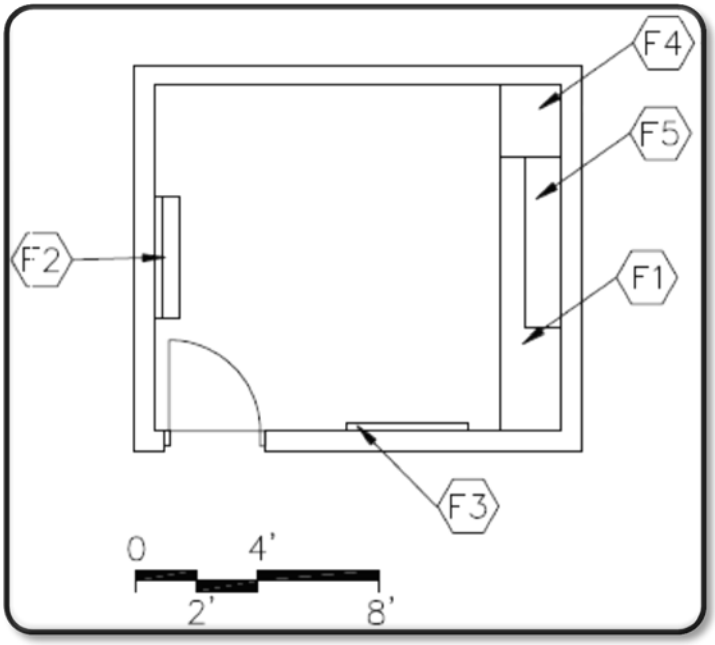
Walls - Painted concrete masonry units
Sound absorbing concrete masonry units on 2 walls

Notes
1. Electrical - duplex receptacles; single-level switching; scoreboard; telecommunications grounding
2. Technology - video ports, monitor with cart; voice port; data ports; clocks with wire guards

P.E./Athletic Office
M-PE-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring – Resilient

Base – Resilient base

Ceiling – Suspended, acoustical

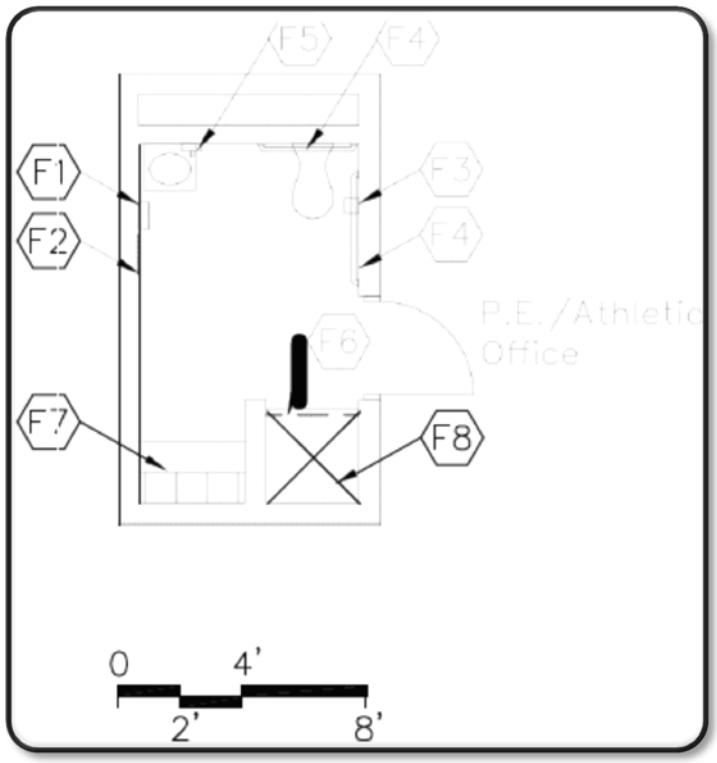
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Staff Shower
M-PE-3

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser
F6 Shower curtain and rod
F7 3 athletic lockers
F8 ADA shower accessories



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Restroom - Resilient
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Restroom - Resilient base
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Ceiling – Restroom - Suspended, acoustical
Shower - Painted portland cement plaster or interior finish system

Walls - Epoxy painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory; ADA shower controls and head; floor drain
2. Electrical - duplex receptacles; single-level switching

Student Locker Room
M-PE-4

Features - Fixed Equipment

F1 Athletic lockers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Locker benches

Features – Loose Furnishings

Wastebaskets

Finishes:

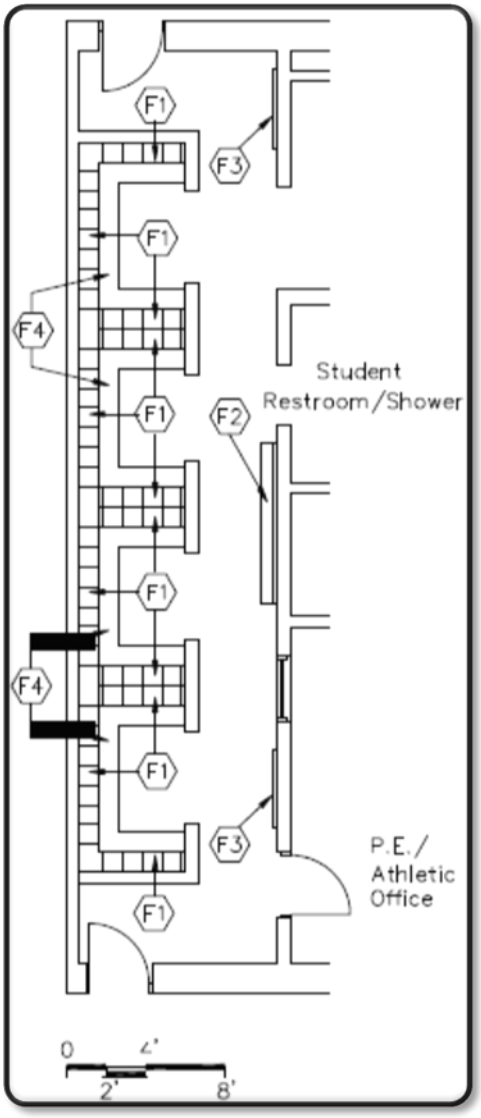
Flooring – Resilient or sealed concrete

Base – Resilient base

Ceiling – Suspended, acoustical with high-impact, hold-down clips (option: exposed, painted, pre-cast units

Walls - Painted concrete masonry units

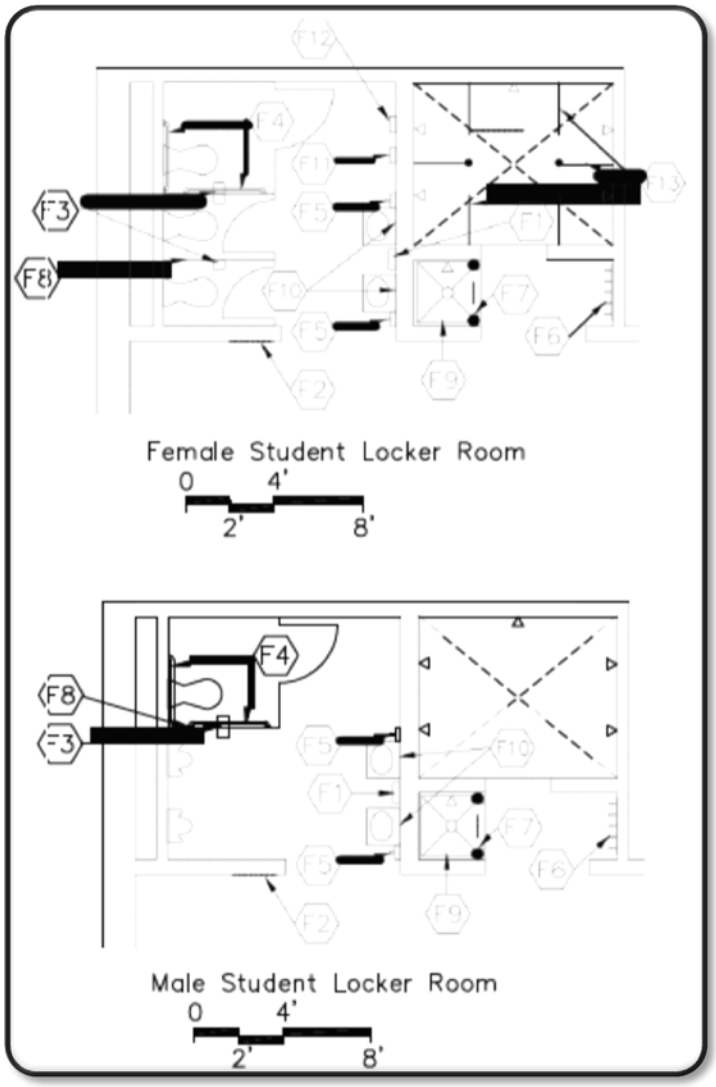
Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - clock
3. Plumbing - drinking fountain



Student Restroom/Shower
M-PE-5

Features - Fixed Equipment

F1 Towel dispensers
F2 24" by 60" mirror
F3 Toilet tissue holders
F4 36" and 42" grab bars
F5 Soap dispensers
F6 Towel hooks
F7 Shower curtain and rod
F8 Toilet partitions
F9 ADA shower accessories
F10 16" by 24" mirrors
F11 Sanitary product dispensers
F12 Sanitary product receptacles
F13 Modesty shower partitions



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Restroom - Resilient
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Restroom - Resilient base
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Ceiling – Restroom - Suspended, acoustical
Shower - Painted portland cement plaster or interior finish system

Walls - Epoxy painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching
2. Plumbing - water closets, lavatories, urinals; ADA shower controls and head; shower fixtures; floor drains

Physical Educational Storage
M-PE-6

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

Tumbling mats on carts
Ball carts

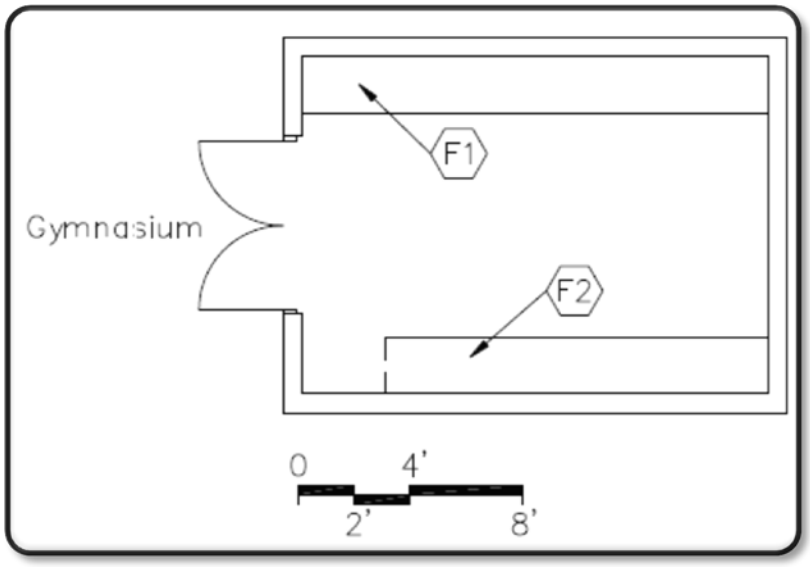
Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units



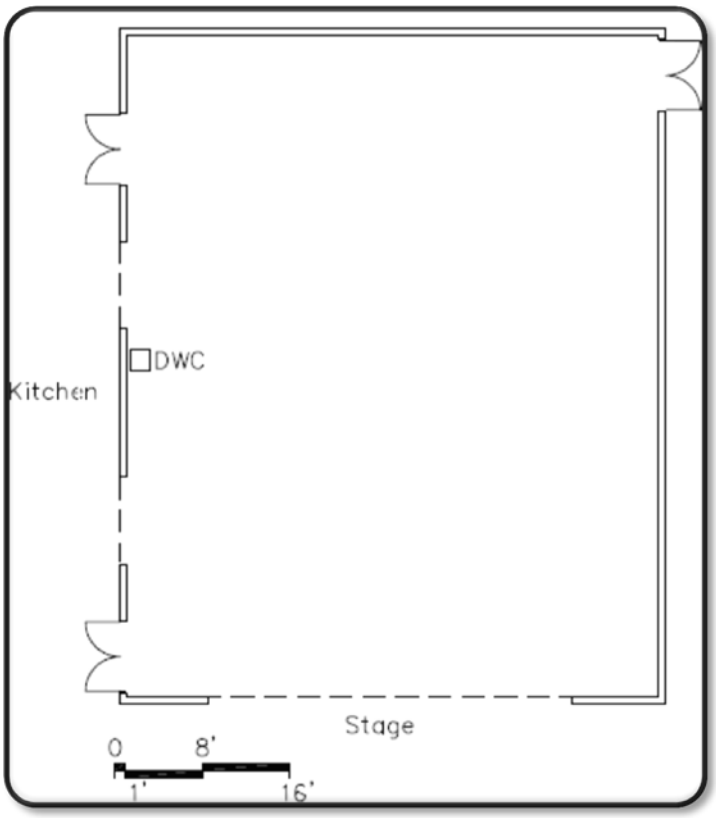
Notes

1. Electrical - duplex receptacle; single-level switching

Student Dining
M-SD-1

Features - Fixed Equipment

N/A



Features – Loose Furnishings

Tables and chairs or long tables with attached stools
Large waste receptacles
Folding or high density stack chairs for community use
Carts for chairs

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo tile

Base - Resilient base
Optional - Porcelain tile

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; telecommunications grounding
2. Technology - clock; overhead projector; video ports; data ports
3. Plumbing - drinking water cooler

Stage
M-SD-2

Features - Fixed Equipment

F1 Projection screen
F2 Curtain
F3 Curtain and valance
F4 Operable partition
F5 Pipe handrail

Features – Loose Furnishings

Portable risers

Finishes:

Flooring - Resilient or wood

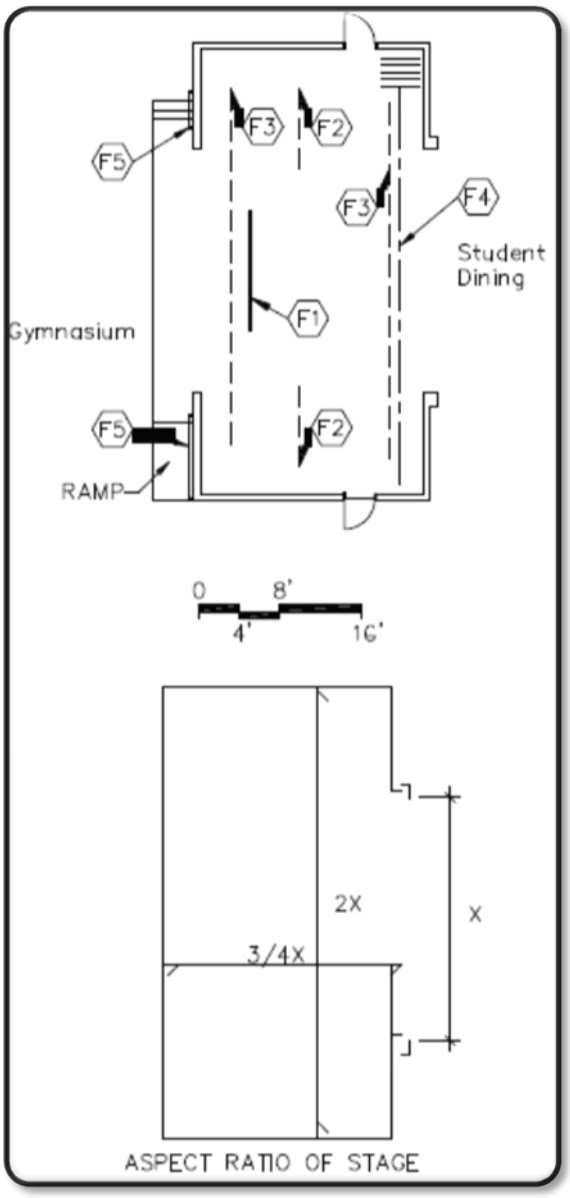
Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

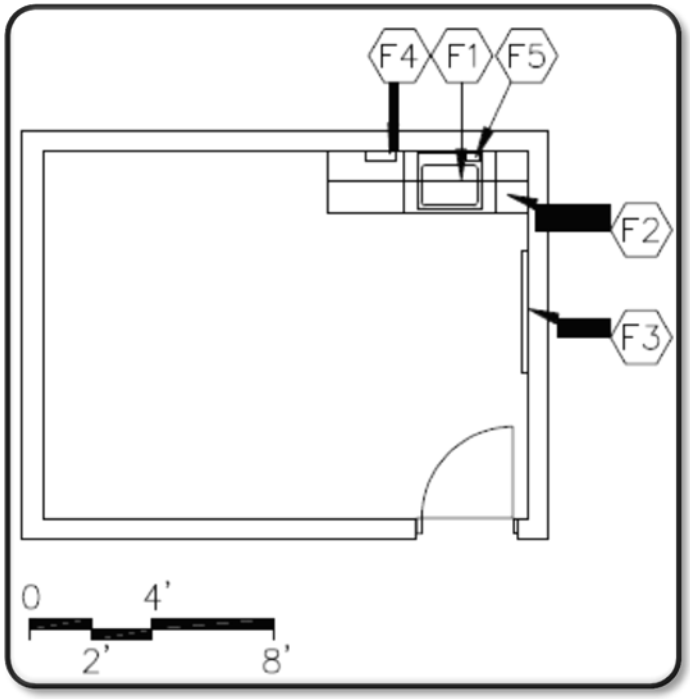
1. Electrical - duplex receptacles; single-level switching; telecommunications grounding
2. Technology - video ports and data ports – 1 each on each side of proscenium opening



Staff Dining
M-SD-3

Features - Fixed Equipment

F1 Sink base cabinet
F2 Base and wall cabinets
F3 Tack board
F4 Towel dispenser
F5 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Refrigerator
Microwave
Waste receptacle

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo tile

Base - Resilient, porcelain tile, or terrazzo

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching; receptacles for vending machines, refrigerator, and microwave
2. Technology - video port, voice port and phone; clock
3. Plumbing - sink
4. Miscellaneous - vending machines

Table Storage
M-SD-4

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

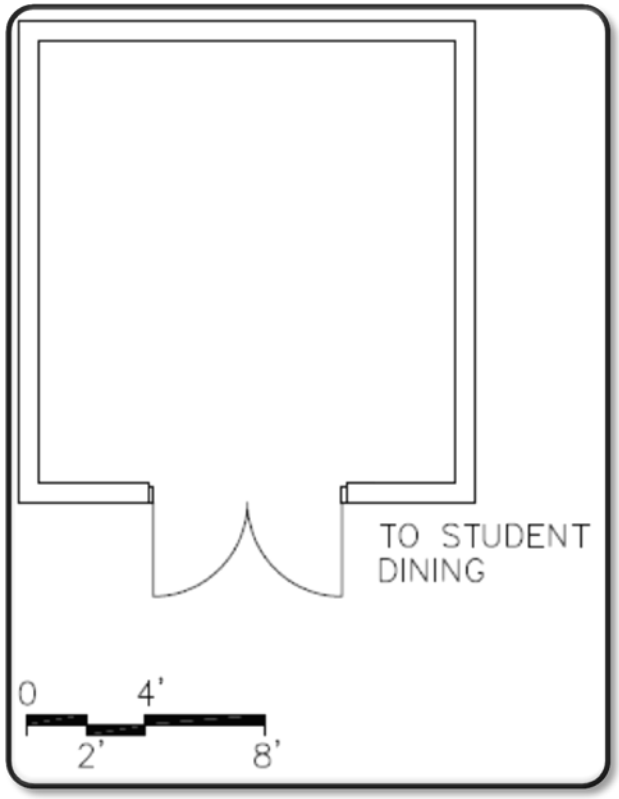
Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching



Warming Kitchen
M-FS-1

Features - Fixed Equipment

Food Service Equipment

Features – Loose Furnishings

N/A

NOTE:
Kitchen area must be located adjacent to exterior loading dock area to receive transported food from central kitchen.

Finishes:

Flooring - Quarry tile

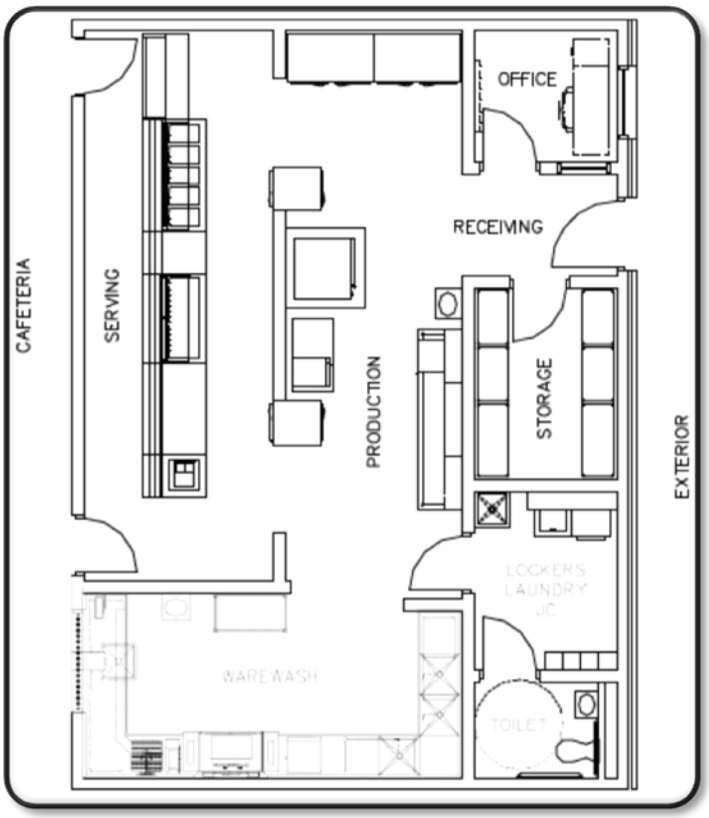
Base - Quarry tile base

Ceiling - Cleanable, suspended, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - dual level switching; duplex receptacles; connections to food service equipment
2. Technology - voice port and phone, data port at cash register; clock
3. Plumbing - hand washing lavatory; plumbing and gas connections; connections to food service equipment; floor drains
4. HVAC - kitchen canopy exhaust system



The space consists of various areas:

- Production Area
- Serving Area
- Warewash
- Storage
- Receiving

Additional areas to be added: office, restroom, locker room, janitorial closet

Kitchen
M-FS-2

Features - Fixed Equipment

Food Service Equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

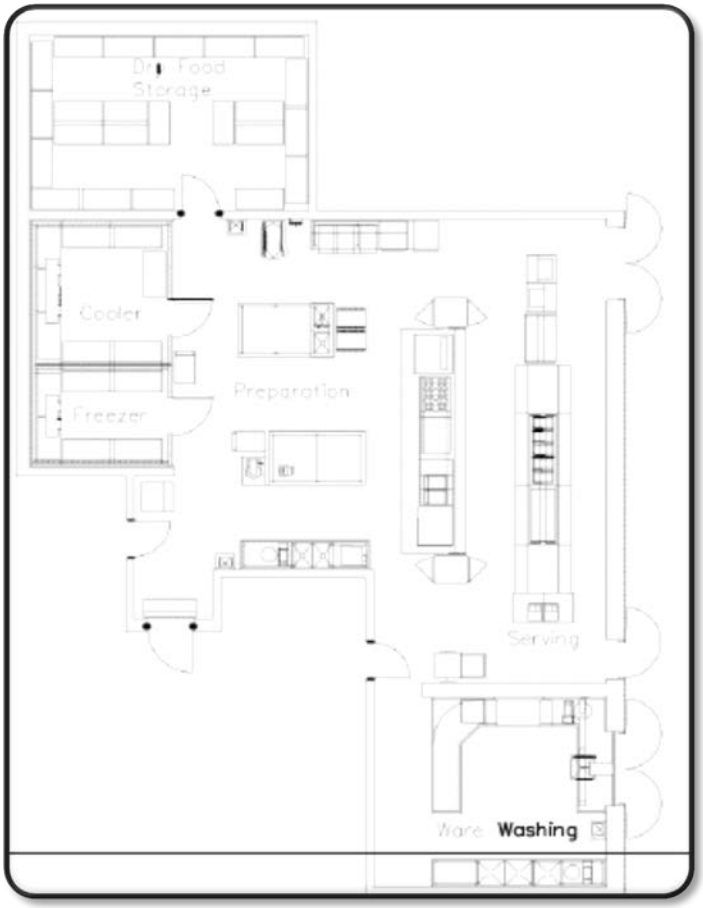
Base - Quarry tile base

Ceiling - Cleanable, suspended, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - dual level switching; duplex receptacles; connections to food service equipment
2. Technology - voice port and phone, data port at cash register; clock
3. Plumbing - hand washing lavatory; plumbing and gas connections; connections to food service equipment; floor drains
4. HVAC - kitchen canopy exhaust system



The space consists of various areas:

- Production Area
- Serving Area
- Warewash
- Storage
- Receiving

A space plate follows for each of these spaces.

Additional areas to be added: office, restroom, locker room, janitorial closet

Kitchen - Preparation Area
M-FS-2a

Features - Fixed Equipment

Food Service Equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

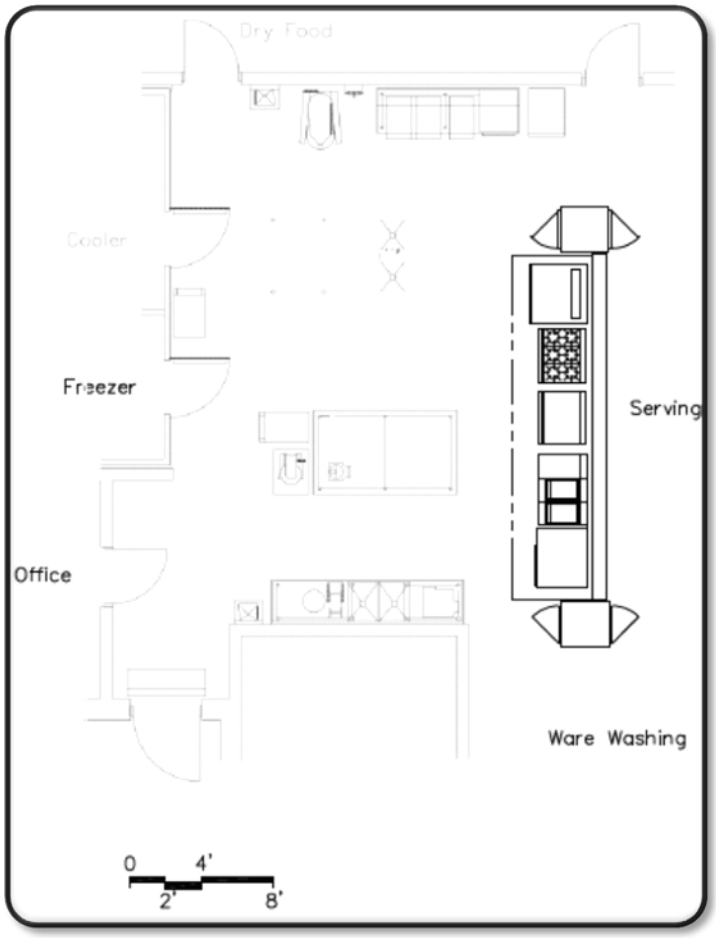
Base - Quarry tile base

Ceiling - Cleanable, suspended, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - duplex receptacles; dual-level switching; connections to food service equipment
2. Technology - Voice port & phone; clock
3. Plumbing - plumbing and gas connections; hand washing lavatory; floor drains



Kitchen - Serving Area
M-FS-2b

Features - Fixed Equipment

Food service equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile
Optional - Porcelain tile

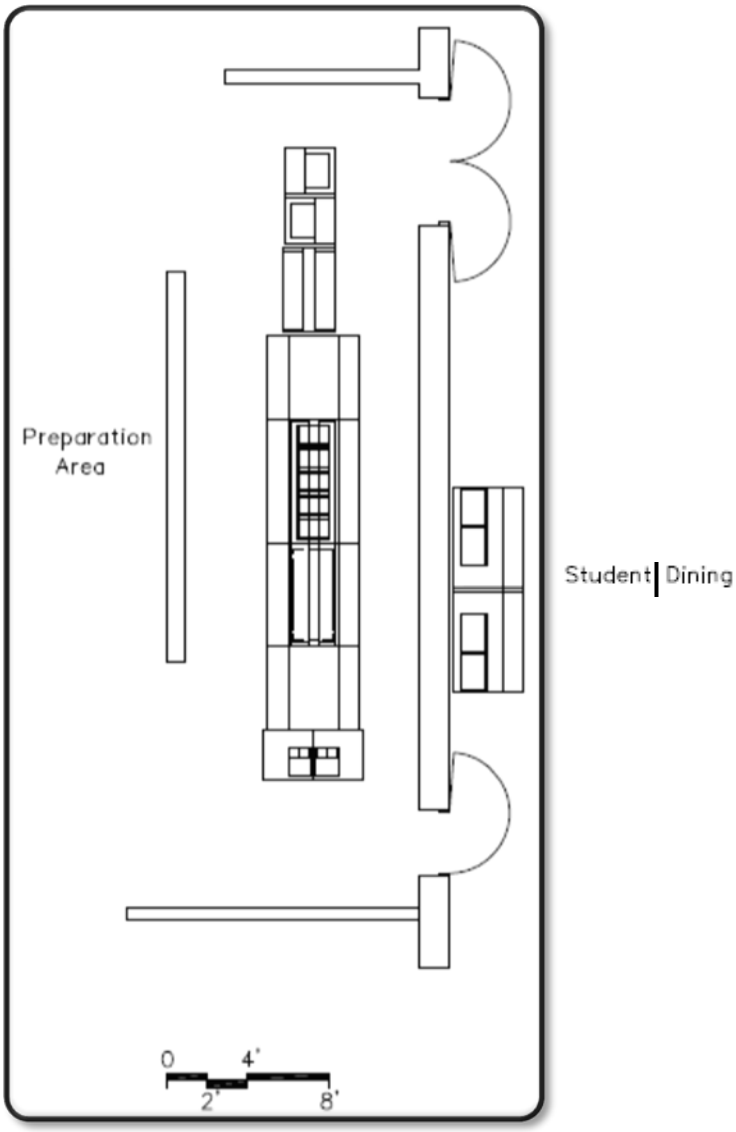
Base - Quarry tile base (optional: porcelain tile)

Ceiling - Cleanable, suspendable, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

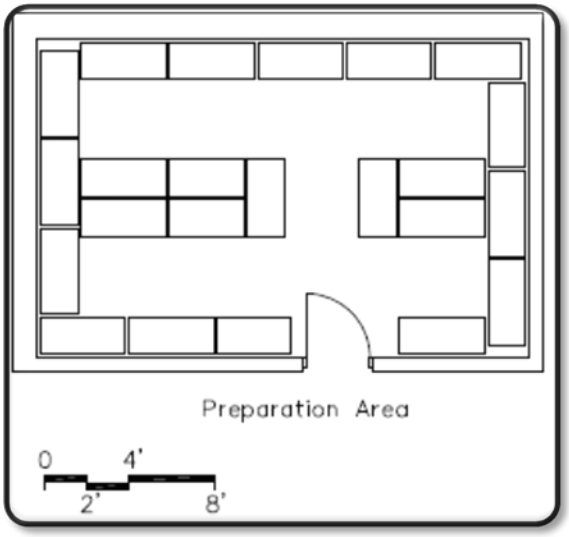
1. Electrical - duplex receptacles; dual-level switching; connections to food service equipment
2. Technology - voice port & phone; clock; data port at cash register
3. Plumbing - connections to food service equipment



Kitchen - Dry Storage
M-FS-2c

Features - Fixed Equipment

Food service equipment



Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Cleanable, suspendable, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching

Kitchen - Cooler/Freezer
M-FS-2d

Features - Fixed Equipment

Food service equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

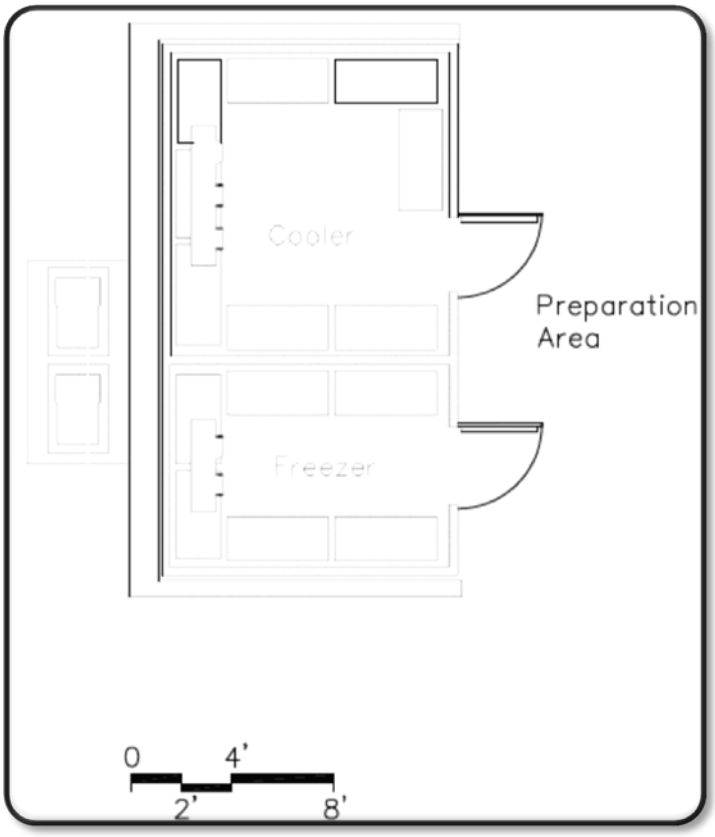
Base - Quarry tile base

Ceiling - Manufactured insulated panel

Walls - Manufactured insulated panel

Notes

1. Electrical - single-level switching; electrical connections to freezer/cooler refrigeration equipment



Kitchen - Ware Washing
M-FS-2e

Features - Fixed Equipment

Food service equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

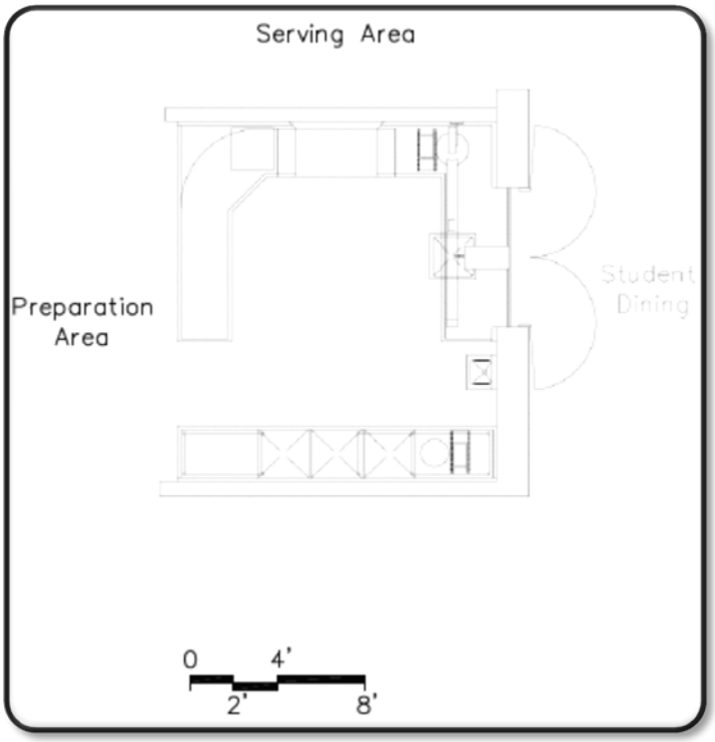
Base - Quarry tile base

Ceiling - Cleanable, suspendable, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

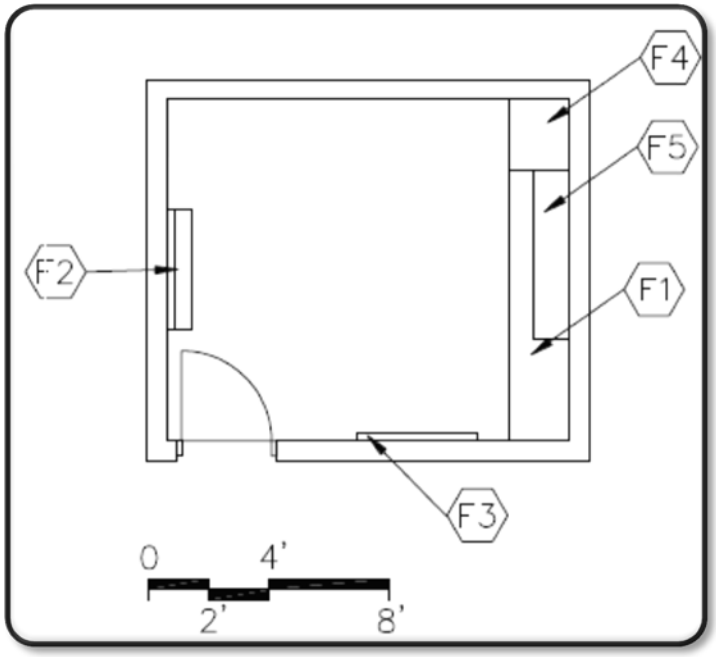
1. Electrical - duplex receptacle; dual-level switching; connections to food service equipment
2. HVAC - exhaust hood system
3. Plumbing - lavatory



Dietician's Office
M-FS-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

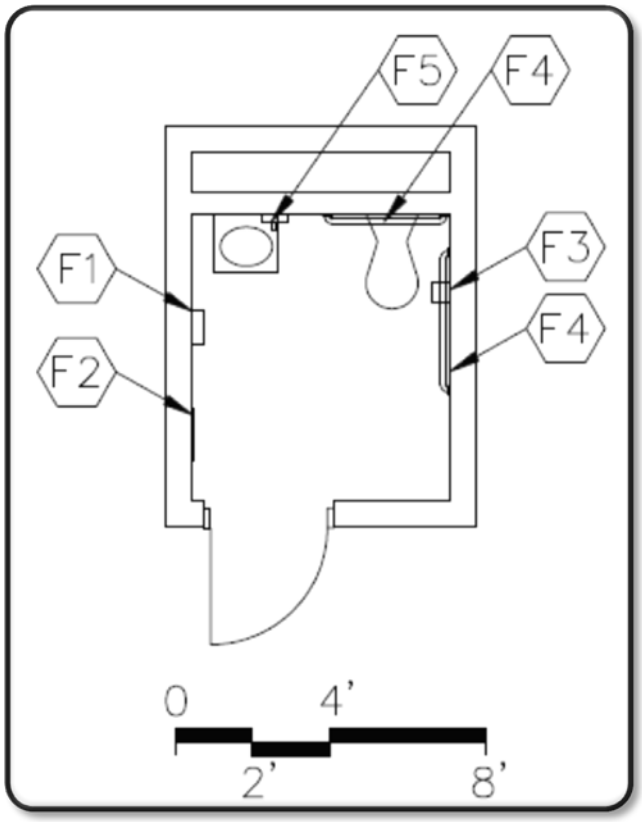
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - each data port, video port, voice port & phone; clock

Restroom
M-FS-4

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory
2. Electrical - single-level switching; duplex receptacle

Locker Room
M-FS-5

Features - Fixed Equipment

F1 24" x 60" mirror
F2 Lockers
F3 Wall cabinets
F4 Mop holder

Features – Loose Furnishings

Chairs
Washer
Dryer
Wastebasket

Finishes:

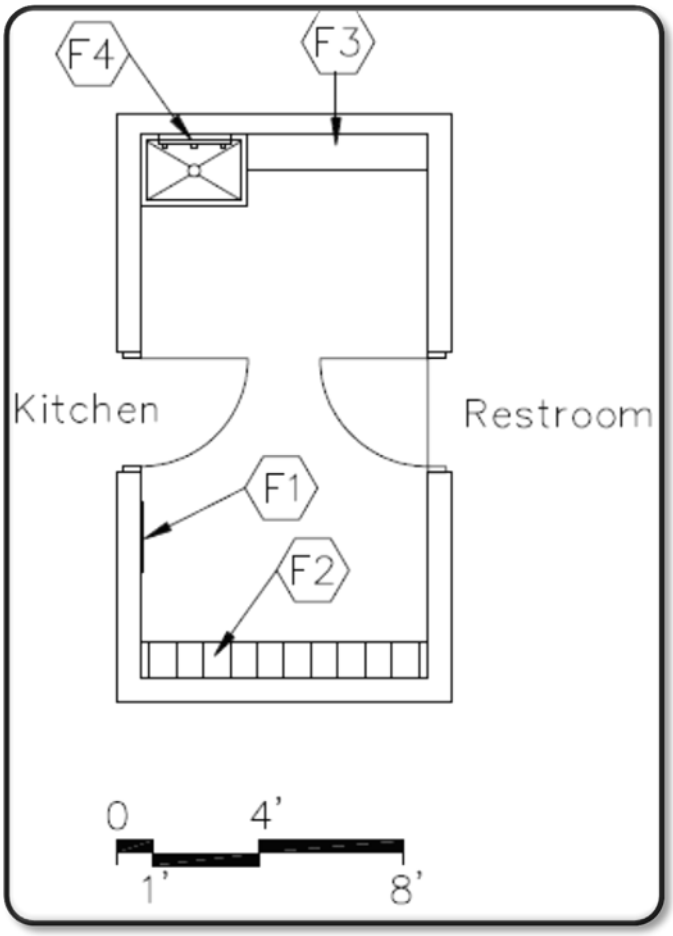
Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical, with high-impact, hold-down clips
Optional - Exposed, painted pre-cast units

Walls - Painted concrete masonry units

Notes
1. Plumbing - floor service sink; floor drain
2. Electrical - single-level switching; (1) duplex receptacle
3. HVAC - dryer vent system; manually operated exhaust air system
4. Technology - clock



Workroom
M-CU-1

Features - Fixed Equipment

F1 Metal shelving
F2 Lockers
F3 Mop holder
F4 Soap dispenser
F5 Towel dispenser

Features – Loose Furnishings

Workbench
Stool
Recycling bins
Waste receptacles

Finishes:

Flooring - Sealed concrete

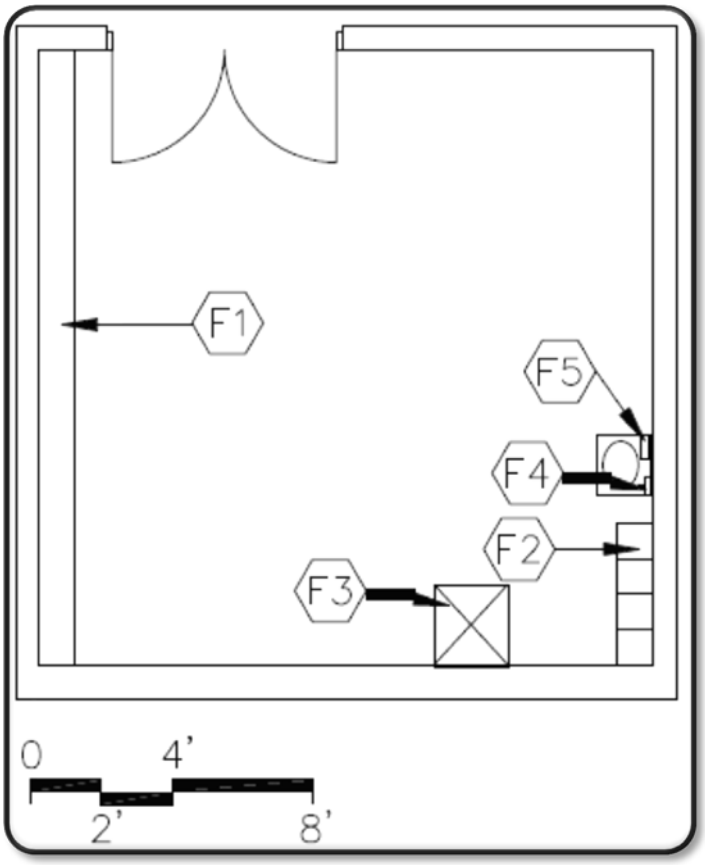
Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

Notes

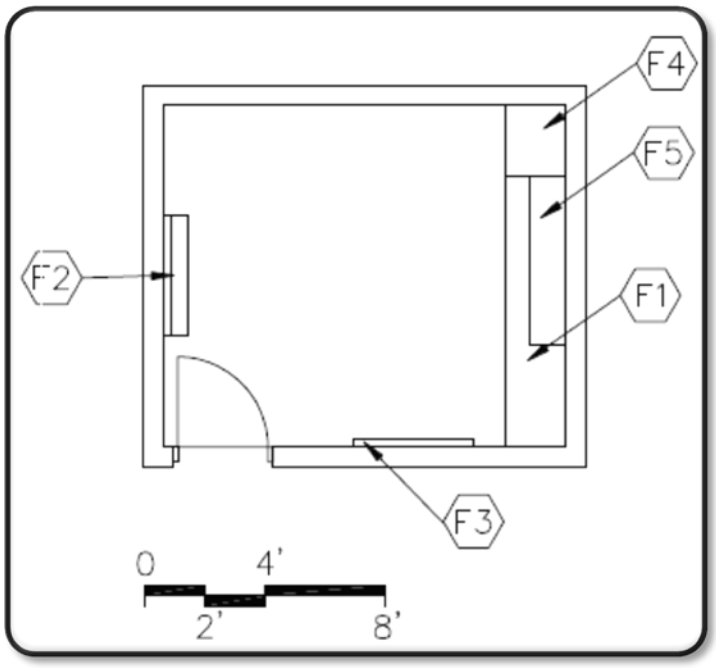
1. Electrical - duplex receptacle; single-level switching; electrical receptacles for custodial equipment
2. Plumbing - floor service sink; handwash sink
3. Technology - voice port and phone; clock



Custodial Office
M-CU-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

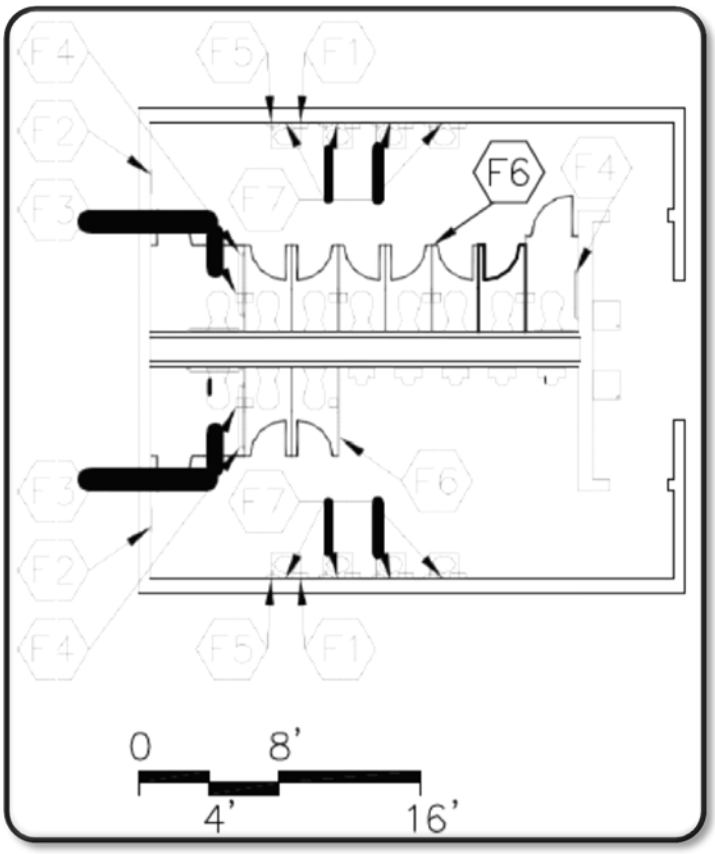
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port & phone; clock; modem port for temperature controls

Large Group Restrooms
M-BS-1

Features - Fixed Equipment

F1 Towel dispenser
F2 24” x 60” mirror
F3 Toilet tissue holder
F4 36” and 42” grab bar
F5 Soap dispenser
F6 Toilet partitions
F7 16” x 24” mirrors



Features – Loose Furnishings

Waste receptacles

Finishes:

Flooring - Ceramic mosaic tile base
Optional - Porcelain tile or terrazzo tile

Base - Ceramic mosaic tile base
Optional - Structural glazed tile base or porcelain tile base

Ceiling - Suspended, acoustical
Optional - Abuse-resistant gypsum wallboard

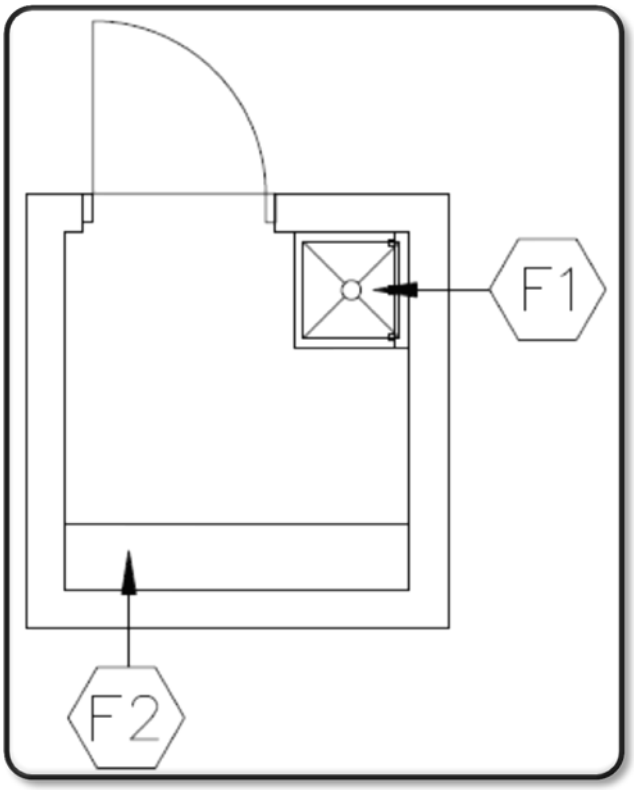
Walls - Painted concrete masonry units

Notes
1. Plumbing - water closets, urinals, lavatories, and hydrants; water coolers; floor drains
2. Electrical - single-level switching; duplex receptacle

Custodial Closet
M-BS-2

Features - Fixed Equipment

F1 Mop holder
F2 Wall cabinets



Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching
2. Plumbing - service sink and floor drain sink

Electrical Closet
M-BS-3

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

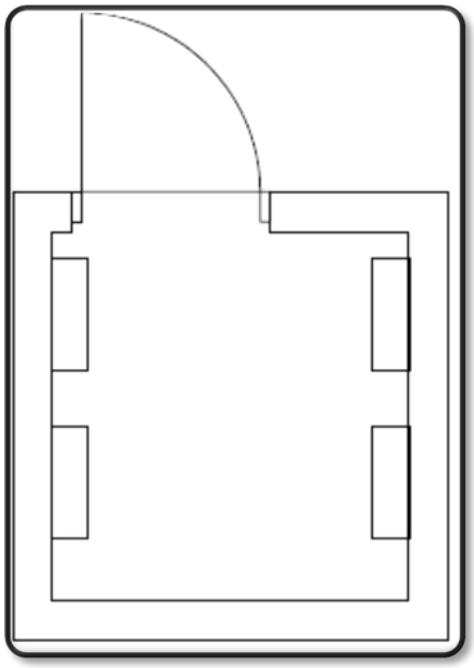
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; electrical switchgear



Telecommunications Room
M-BS-4

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

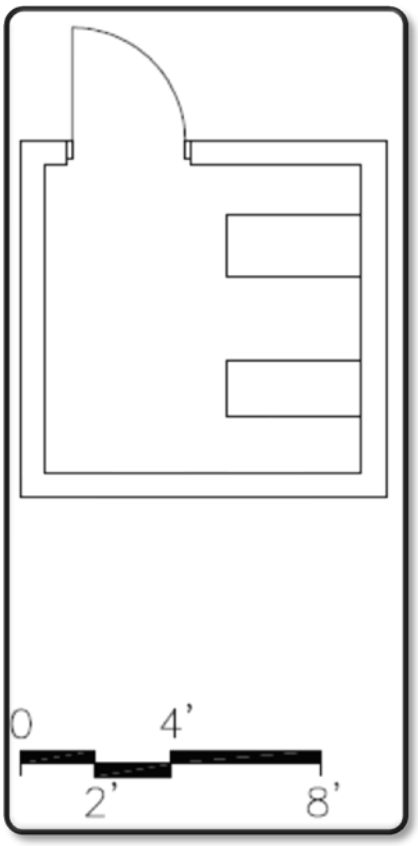
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; telecommunications grounding
2. Technology - technology equipment; plywood backboard



Corridors/Vestibules
M-BS-5

Features - Fixed Equipment

F1 Fire extinguishers and cabinets

F2 Recessed vinyl floor mats or surface mats

Features – Loose Furnishings

Recycling bins and waste receptacles

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo

Base - Resilient base

Optional - Structural glazed tile

Ceiling - Suspended, acoustical

Optional in vestibules - Abuse-resistant gypsum wallboard

Walls - Painted concrete masonry units

NOTE - At entries adjacent to dining/commons area, match dining/commons flooring.

Notes

1. Electrical - duplex receptacles; dual-level switching
2. Technology - clocks, wireless access points; video ports
3. Plumbing - drinking water coolers
4. Miscellaneous - display cases

Corridors shall be a minimum of 8 feet wide.

Corridors are to meet the egress requirements applicable codes.

Instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.

Area of vestibules is to be included within area allotted for corridors.

Width of vestibules can be no less than minimum width of adjacent corridor.

Minimum corridor length recommended is 8 feet between doors.

Vestibules are to be provided at major entrances/exits.

Mechanical Room/Decks
M-BS-6

Features - Fixed Equipment

To be determined by Design Professional

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

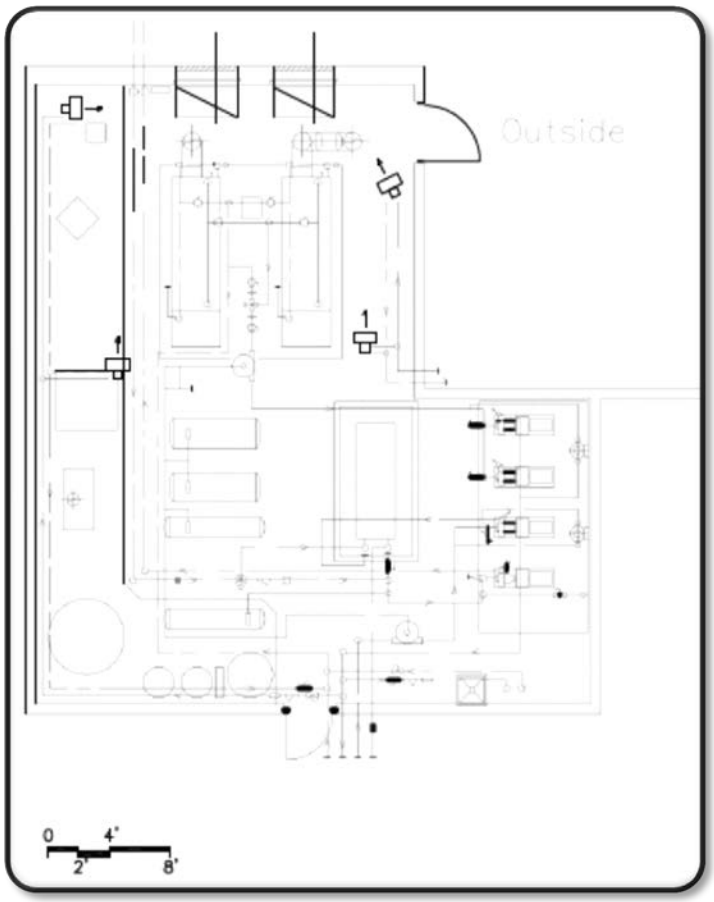
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units
Optional - Can use metal panel on CMU or metal panel on metal framing wall system for penthouse

Notes

1. Electrical - dual-level switching; to be determined by Design Professional
2. Plumbing - to be determined by Design Professional



Storage Area
M-BS-7

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

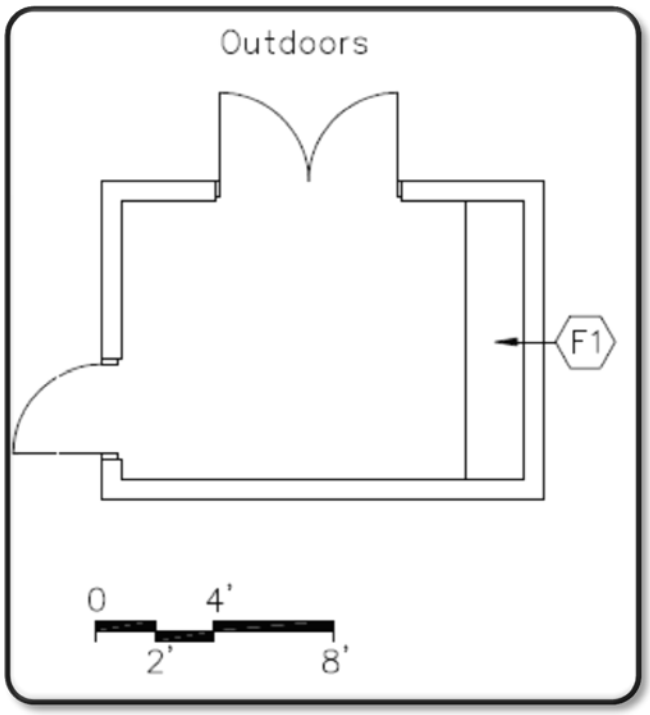
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - single-level switching; duplex receptacles



Central Storage Area
M-BS-8

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

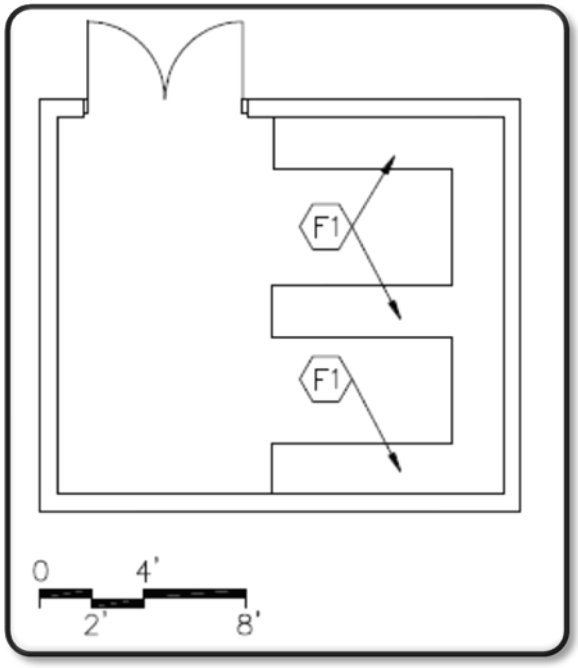
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - single-level switching; duplex receptacles



Loading/Receiving Area
M-BS-9

Features - Fixed Equipment

F1 Loading dock leveler and dock bumpers

Features – Loose Furnishings

N/A

Finishes:

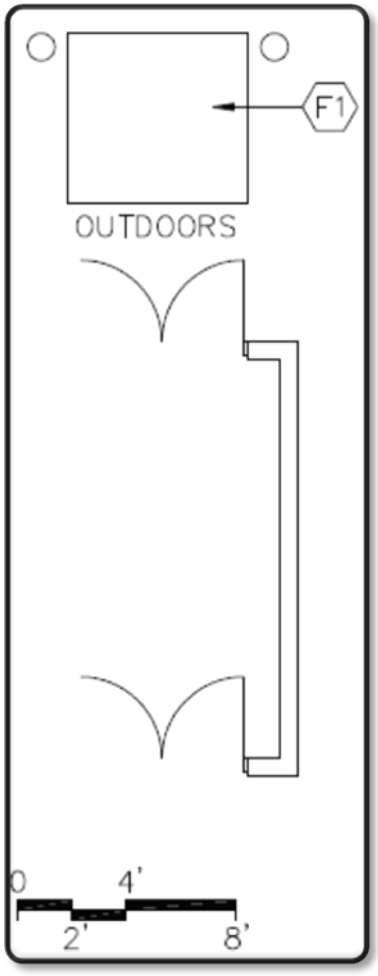
Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

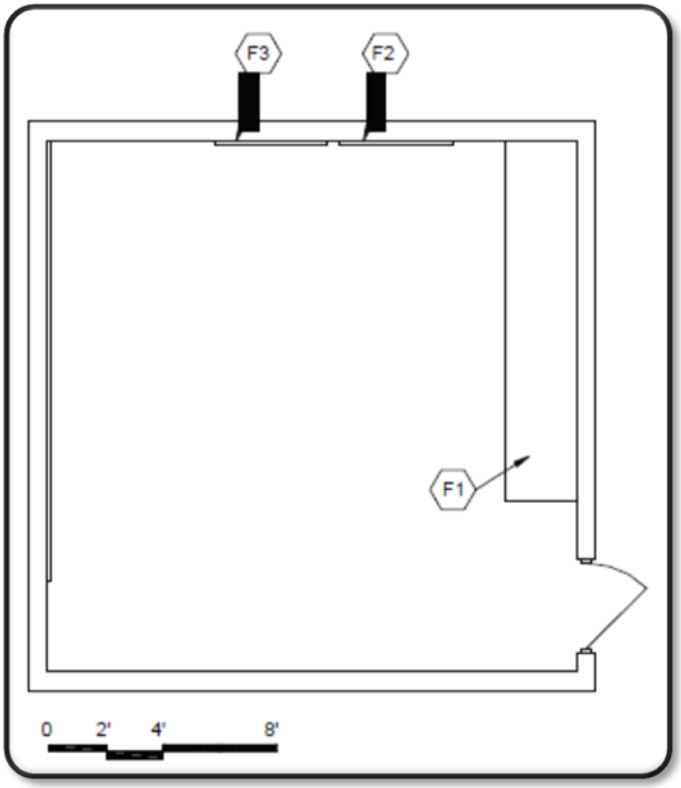
Notes
1. Electrical - single-level switching; duplex receptacles



Main Cross Connect
M-BS-10

Features - Fixed Equipment

F1 Open metal shelving
F2 Tack board
F3 ~~Chalk/marker~~ Marker board



Features – Loose Furnishings

Desk and chair
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching; telecommunications grounding
2. Technology - data port, voice port & phone; technology equipment; plywood backboard
3. Miscellaneous - Provide distribution equipment with an equipment electrical ground.

High School Classroom
H-AC-1

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Base & wall cabinets
F5 Pencil sharpener support
F6 Windows with integral blinds

Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener

Finishes:

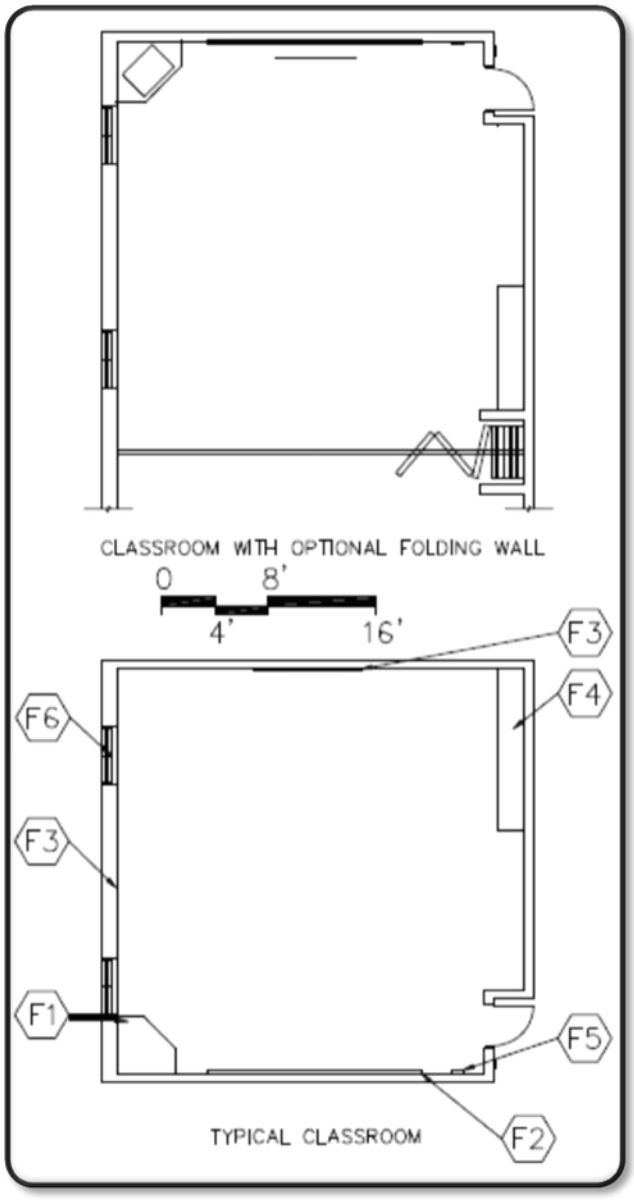
Flooring - Carpet
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

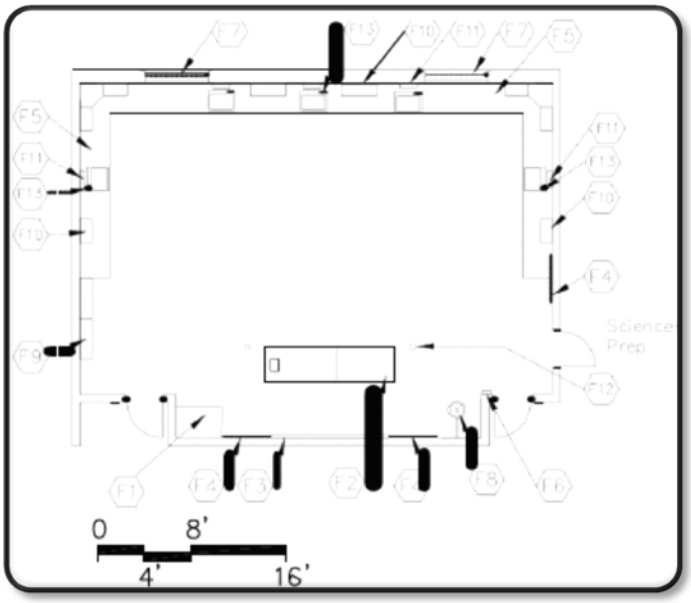
Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Miscellaneous - operable partitions optional between classrooms



Science Classroom
General/Physics
H-AC-2

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Demonstration table/teacher desk
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Perimeter sink base cabinets
F6 Pencil sharpener support
F7 Windows with integral blinds
F8 Emergency shower/eyewash
F9 Wall cabinets
F10 Wall cabinets, lockable
F11 Towel dispensers
F12 Eye hooks for demonstrations
F13 Soap dispensers



Features – Loose Furnishings

Student worktables and stools/chairs
Computer workstation furniture
Teacher stool/chair
File cabinet
Wastebaskets
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

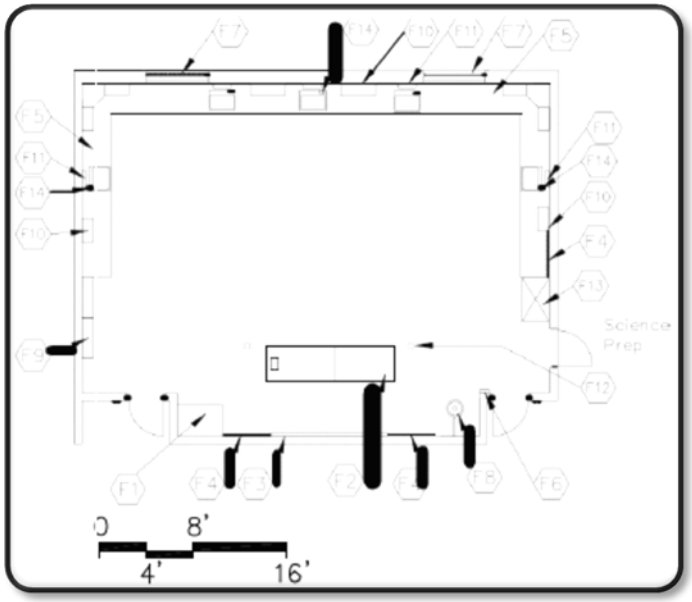
Notes

1. Electrical - duplex receptacles at perimeter workstations and teaching wall; multi-level switching
2. Technology - video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing - emergency shower/eyewash; gas, plumbing, and compressed air connections; master shutoff for gas; sinks

Science Classroom
Chemistry
H-AC-3

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Demonstration table/teacher desk
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Perimeter sink base cabinets
F6 Pencil sharpener support
F7 Windows with integral blinds
F8 Emergency shower/eyewash
F9 Wall cabinets
F10 Wall cabinets, lockable
F11 Towel dispensers
F12 Eye hooks for demonstrations
F13 Fume hood
F14 Soap dispensers



Features – Loose Furnishings

Student worktables and stools/chairs
Computer workstation furniture
Teacher chair or stool
File cabinet
Wastebaskets
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

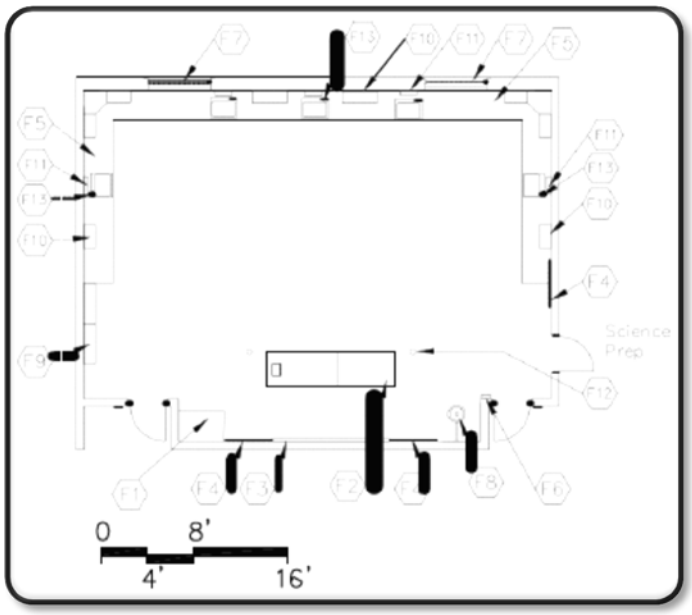
Notes

1. Electrical - duplex receptacles at perimeter workstations and teaching wall; multi-level switching
2. Technology - video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing - emergency shower/eyewash; gas, plumbing, and compressed air connections; master shutoff for gas; sinks

Science Classroom
Biology
H-AC-4

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Demonstration table/teacher desk
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Perimeter sink base cabinets
F6 Pencil sharpener support
F7 Windows with integral blinds
F8 Emergency shower/eyewash
F9 Wall cabinets
F10 Wall cabinets, lockable
F11 Towel dispensers
F12 Eye hooks for demonstrations
F13 Soap dispensers



Features – Loose Furnishings

Student worktables and stools/chairs
Computer workstation furniture
Teacher chair or stool
File cabinet
Wastebaskets
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

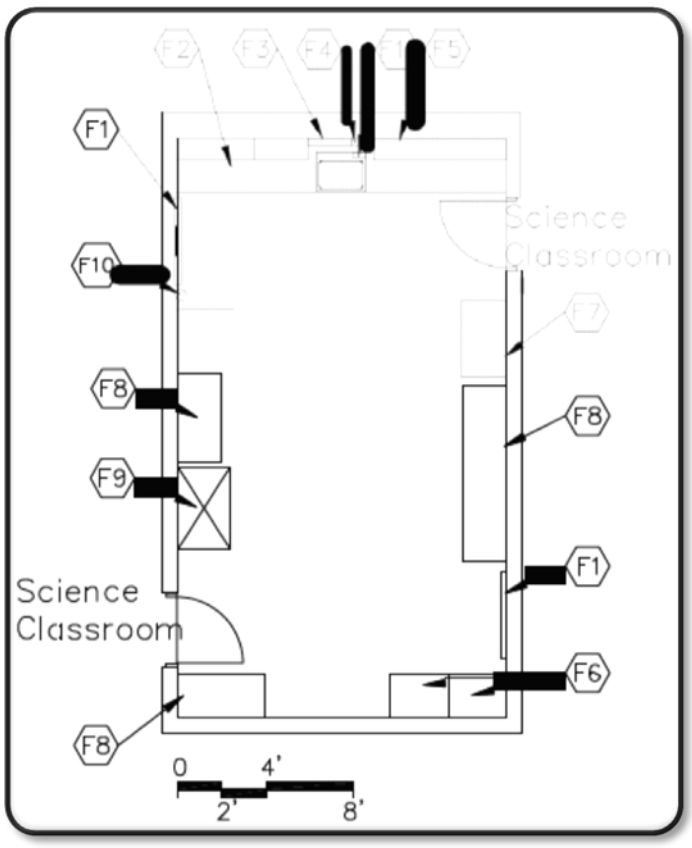
Notes

4. Electrical - duplex receptacles at perimeter workstations and teaching wall; multi-level switching
5. Technology - video port, data port, voice port & phone; data ports for students; clock; overhead projector
6. Plumbing - emergency shower/eyewash; gas, plumbing, and compressed air connections; master shutoff for gas; sinks

Science Prep
H-AC-5

Features - Fixed Equipment

F1 Tack board
F2 Lab station with sink
F3 Drying rack with pegs
F4 Towel dispenser
F5 Wall cabinets
F6 Storage cabinets for acid, ventilated
F7 Storage cabinets for flammables
F8 Tall storage cabinets
F9 Fume hood
F10 Emergency eyewash
F11 Soap dispenser



Features – Loose Furnishings

Work table with chemical-resistant top
File cabinets
Refrigerator/freezer
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle under work table; duplex receptacles; single-level switching
2. Technology - video port, data port, voice port & phone; clock
3. Plumbing - emergency eyewash connection; gas, plumbing, and compressed air connections; acid waste system

Teacher Prep Area/ Workroom H-AC-6

Features - Fixed Equipment

F1 Base & wall cabinets
F2 Sink base cabinet
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Towel dispenser
F6 Soap dispenser

Features – Loose Furnishings

Tables and chairs
Computer workstation furniture
Wastebasket

Finishes:

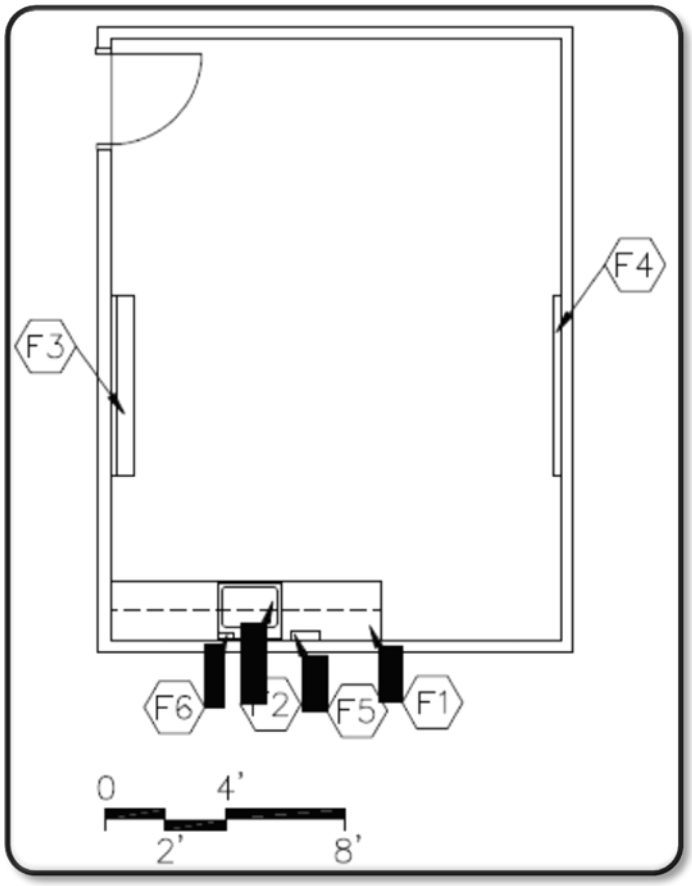
Flooring – Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

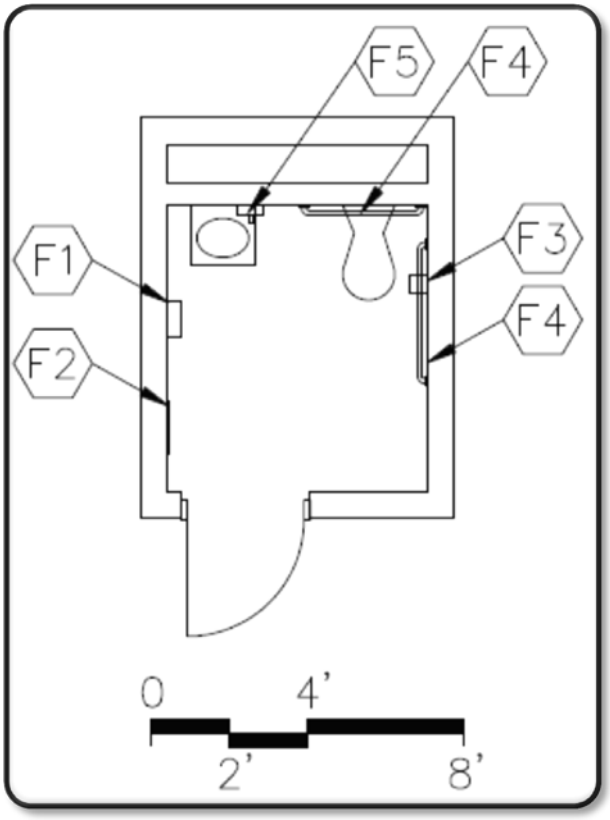
Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, voice port & phone; clock; data ports
3. Plumbing – sink



Individual Restroom
H-AC-7

Features - Fixed Equipment

F1 Towel dispenser
F2 24” x 60” mirror
F3 Toilet tissue holder
F4 36” and 42” grab bar
F5 Soap dispenser



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

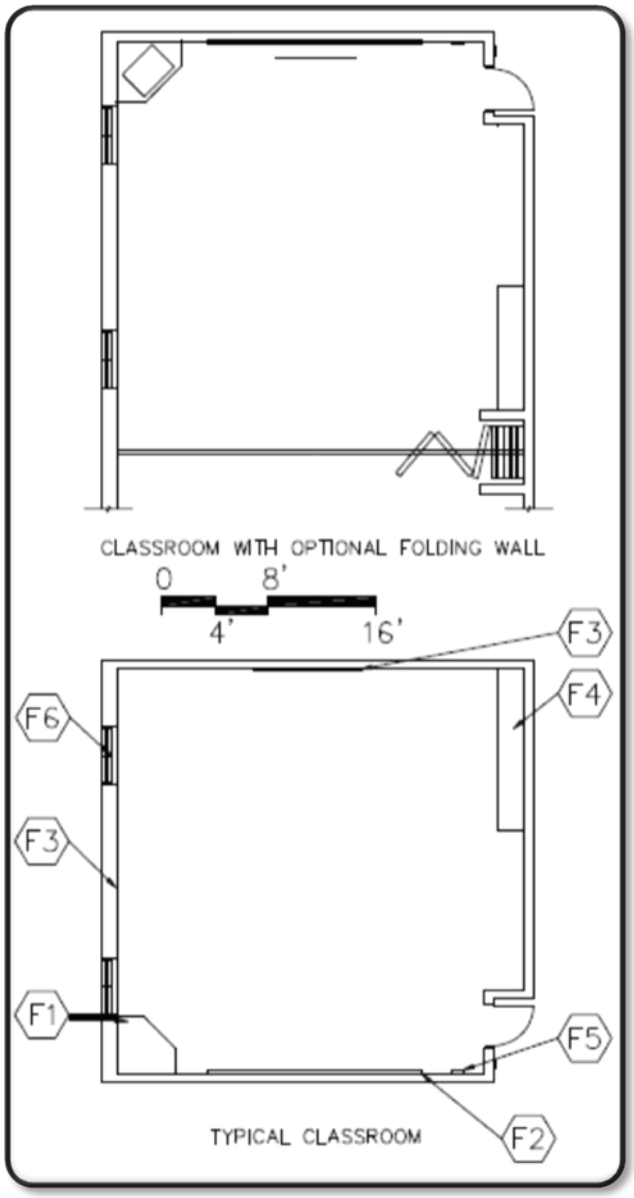
Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory
2. Electrical - single-level switching

Project/Classroom
H-AC-8

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Pencil sharpener support
F5 Sink base cabinet
F6 Towel dispenser
F7 Base cabinets
F8 Tall storage cabinets
F9 Soap dispenser



Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

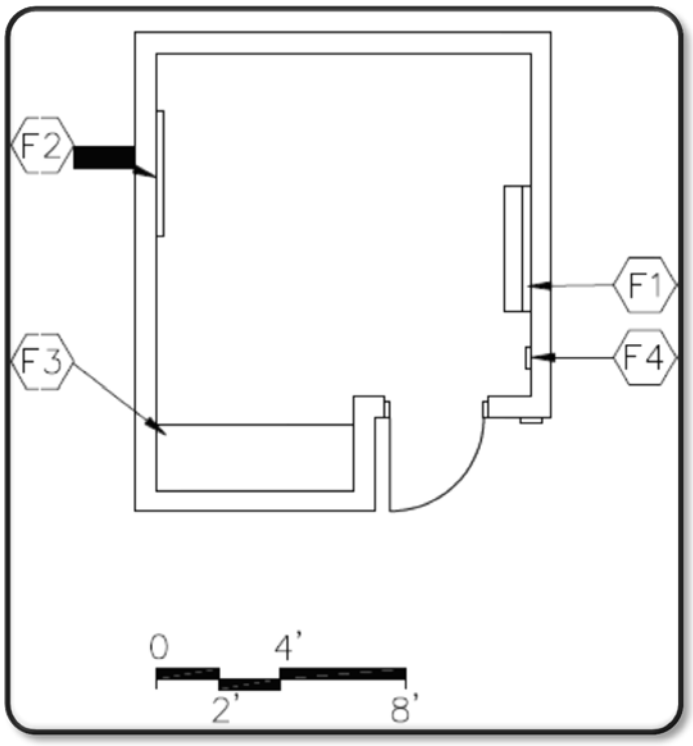
Notes

1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone; classroom area network (13 ports minimum); clock; overhead projector
3. Miscellaneous - classroom area network file server; printer
4. Plumbing - sink

Small Group Room
H-AC-9

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Work surface
F4 Pencil sharpener support



Features – Loose Furnishings

Work tables and chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Carpet
Optional – Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port; clock

Instructional Material Storage
H-AC-10

Features - Fixed Equipment

F1 Open Metal Shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

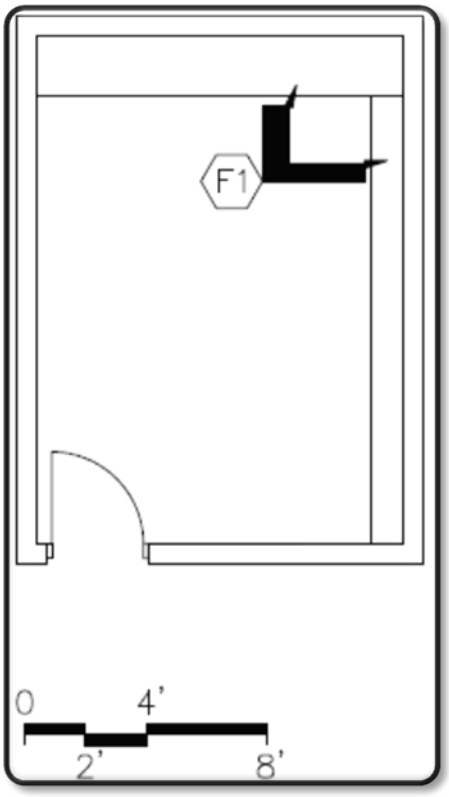
Base - Resilient base

Ceiling - Suspended, acoustical or exposed painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching



Chemical Storage
H-AC-11

Features - Fixed Equipment

F1 Storage cabinets for acid, ventilated
F2 Storage cabinets for flammables
F3 Tall storage cabinets

Features – Loose Furnishings

Refrigerator/freezer

Finishes:

Flooring – Resilient

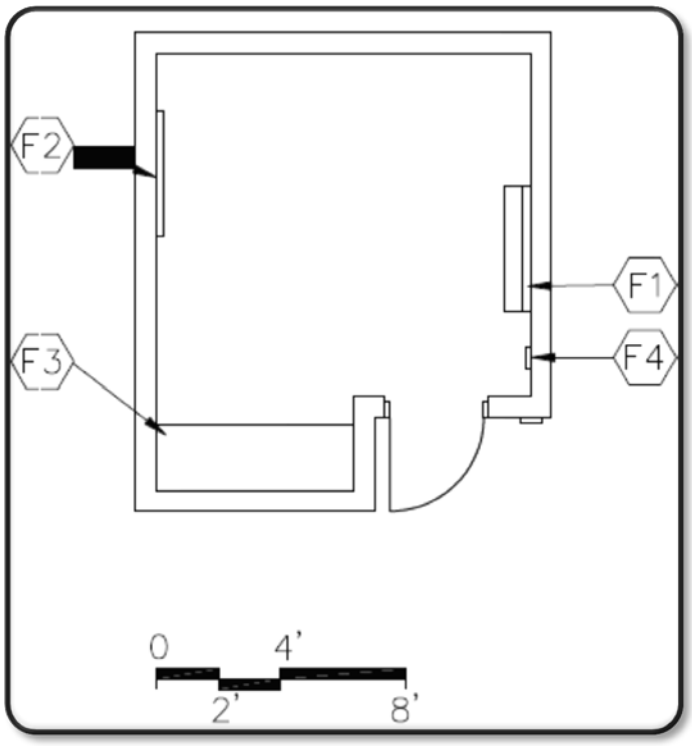
Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical – duplex receptacles on each wall; single-level switching



Multi-Use Room
H-AC-12

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Pencil sharpener support
F4 Projection screen

Features – Loose Furnishings

Student desks and chairs
Podium
Portable risers
Wastebasket
Pencil sharpener

Finishes:

Flooring – Carpet

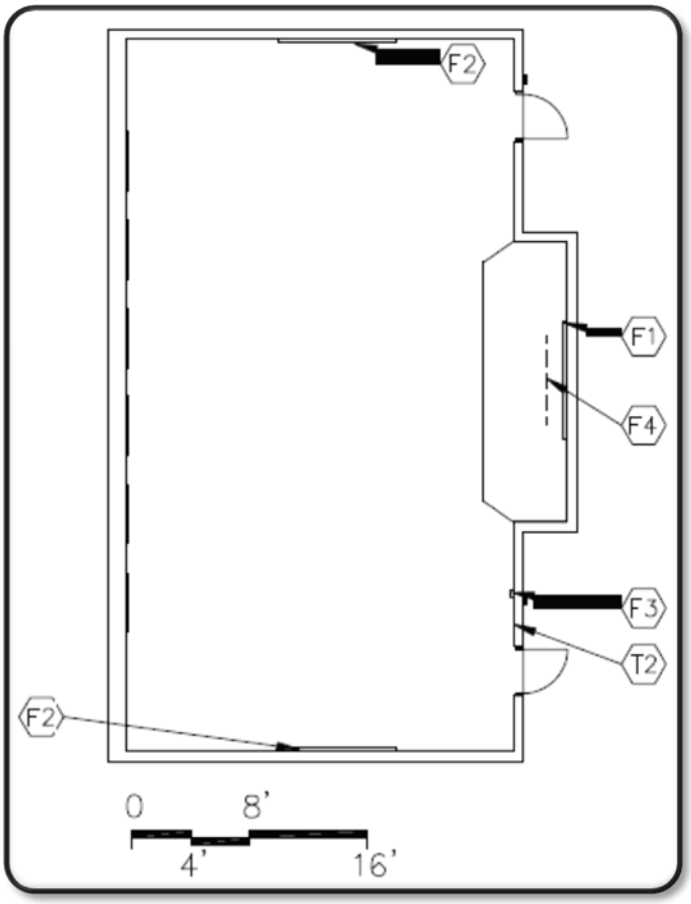
Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units;
Acoustical wall treatment

Notes

1. Electrical - duplex receptacles; multi-level switching; telecommunications grounding
2. Technology - data port, voice port & phone, port to input local computer to monitor; video ports; clock; overhead projector



Instructional Multi-Purpose Room
H-AC-13

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo

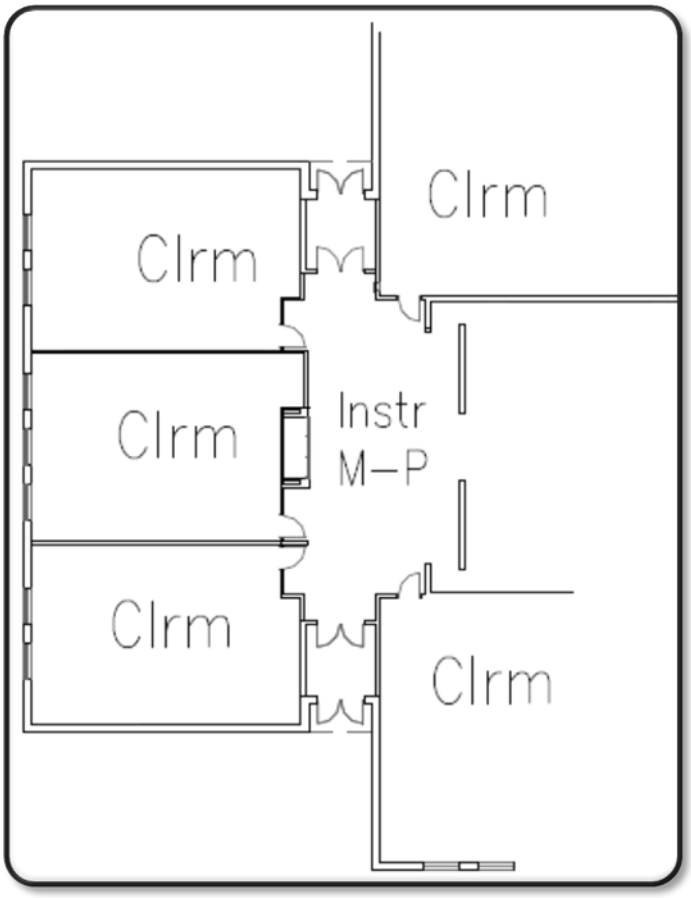
Base – Resilient base, porcelain tile, or terrazzo

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

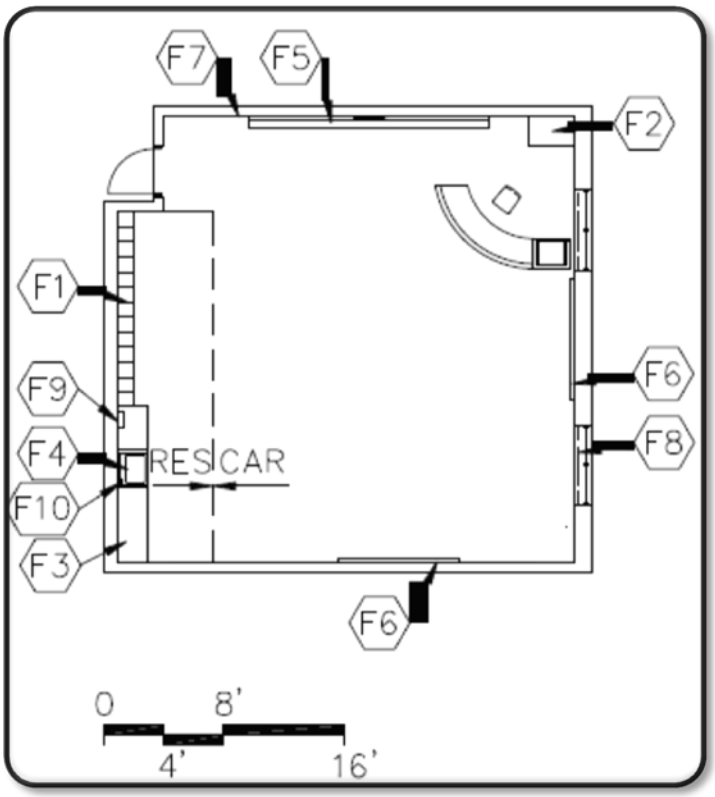
1. Electrical - duplex receptacles; dual-level switching
2. Technology - wireless access points; video ports; data ports
3. Instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.



Self-Contained Classroom
H-SE-1

Features - Fixed Equipment

F1 Open casework – coats with wall cabinets above
F2 Tall wardrobe w/file drawers
F3 Base & wall cabinets
F4 Sink base cabinet
F5 ~~Chalk/marker~~ Marker board
F6 Tack board
F7 Pencil sharpener support
F8 Windows with integral blinds
F9 Towel dispenser
F10 Soap dispenser



Features – Loose Furnishings

Student desks/tables
Student chairs
Teacher workstation/computer support and chair
Computer workstation furniture
File cabinet
Low bookcases (fixed or mobile)
Reading table
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet; Resilient – 4' width in front of cabinets
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

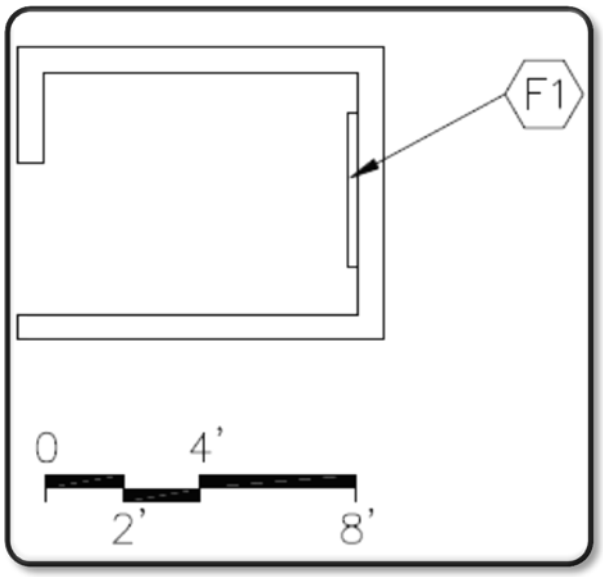
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing – sink with drinking fountain

Workroom/Conference (quiet area)
H-SE-2

Features - Fixed Equipment

F1 Tack board



Features - Loose Furnishings

Student desk and chair
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

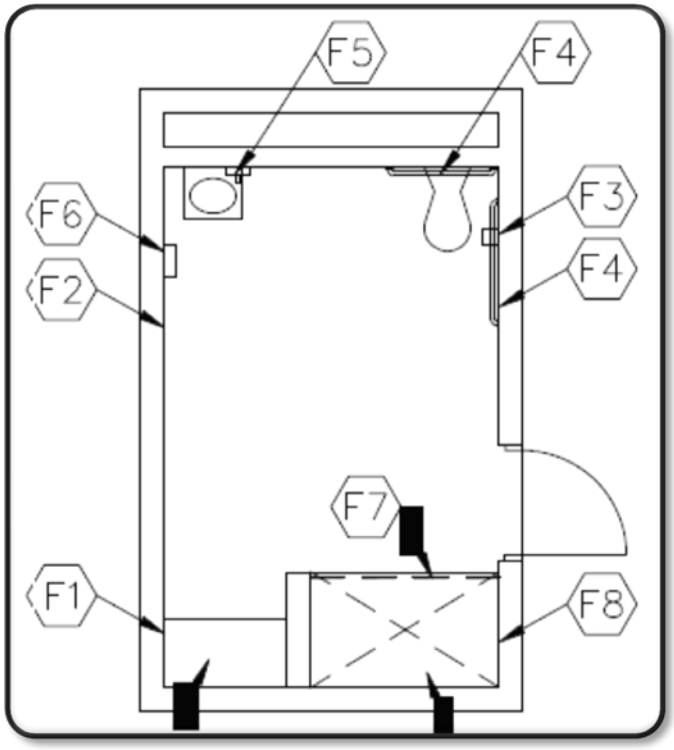
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; dimmable lighting
2. Technology - clock

Restroom/Shower
H-SE-3

Features - Fixed Equipment

F1 Base cabinet
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser
F6 Towel dispenser
F7 Shower curtain and rod
F8 ADA shower accessories



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Restroom - Resilient
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Restroom - Resilient base
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Ceiling - Restroom- Suspended, acoustical
Shower - Painted Portland cement plaster or interior finish system

Walls - Epoxy painted concrete masonry units

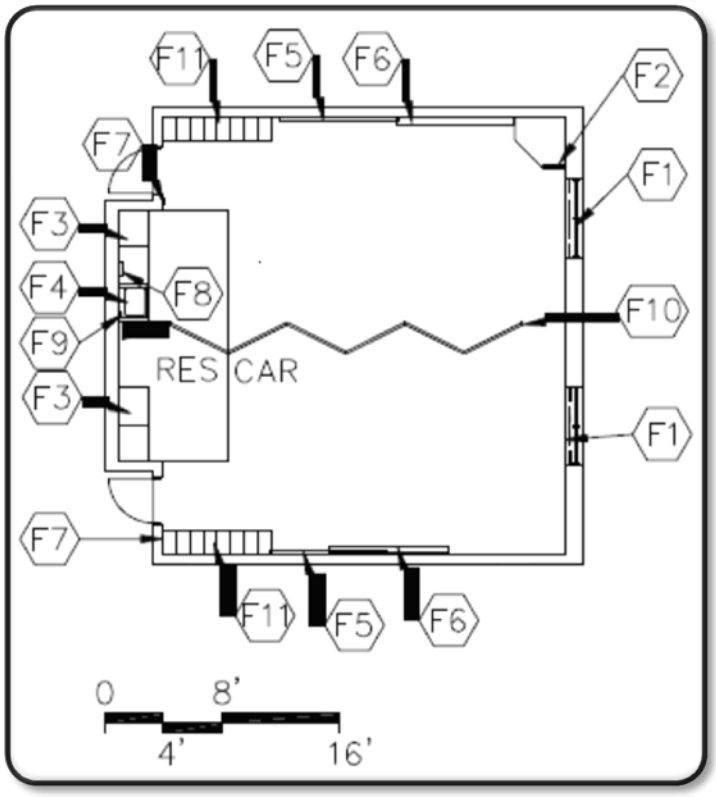
Notes

1. Plumbing - water closet and lavatory; ADA shower controls and head; floor drain
2. Electrical - duplex receptacles; single-level switching

Special Education/Resource
H-SE-4

Features - Fixed Equipment

F1 Windows with integral blinds
F2 Tall wardrobe w/file drawers
F3 Base cabinets
F4 Sink base cabinet
F5 ~~Chalk/marker~~ Marker board
F6 Tack board
F7 Pencil sharpener support
F8 Towel dispenser
F9 Soap dispenser
F10 Operable partition
F11 Open casework-coats with wall cabinets above



Features – Loose Furnishings

Student desks/tables
Computer workstation furniture
Student chairs
Teacher desk or workstation/computer support and chair
File cabinet
Mobile bookcases or storage unit
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet; Resilient – 4' width in front of cabinets

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

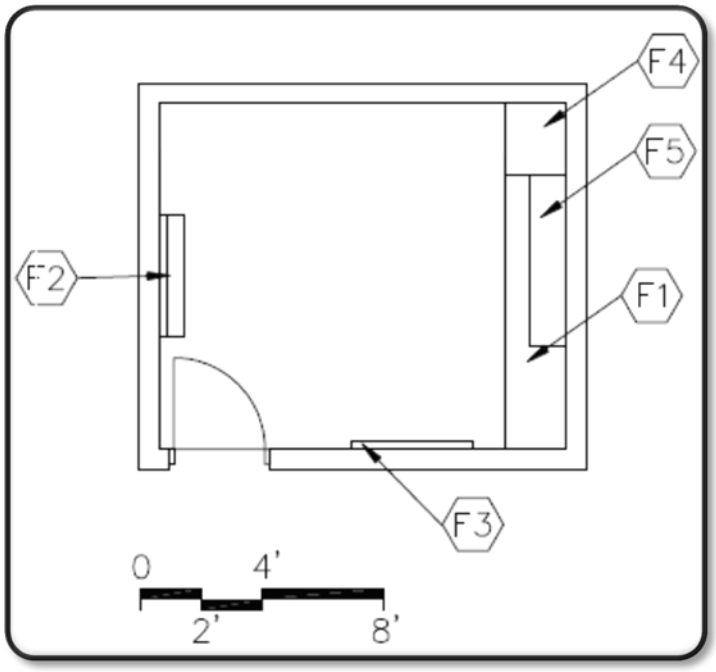
Notes

1. Plumbing - sink
2. Electrical - duplex receptacles; multi-level switching
3. Technology - video port, data port, voice port & phone; data ports for students; clock; overhead projector

Speech Therapy
H-SE-5

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Small table with chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
H-AC-6

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Resilient

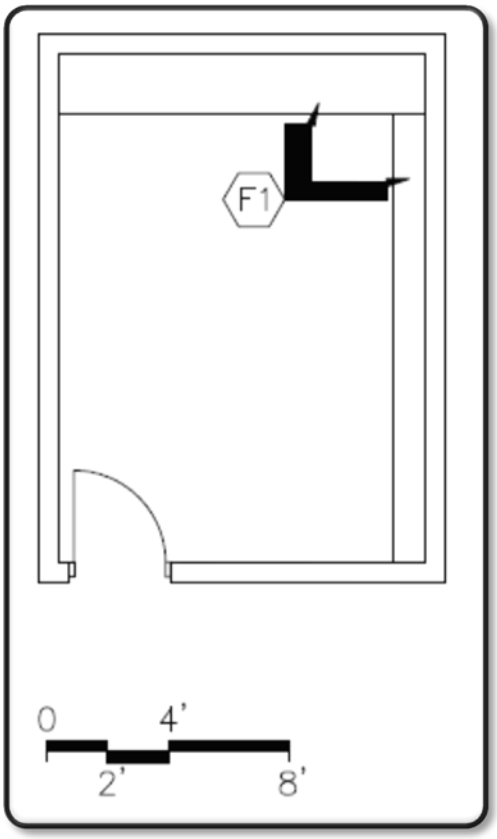
Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

Notes

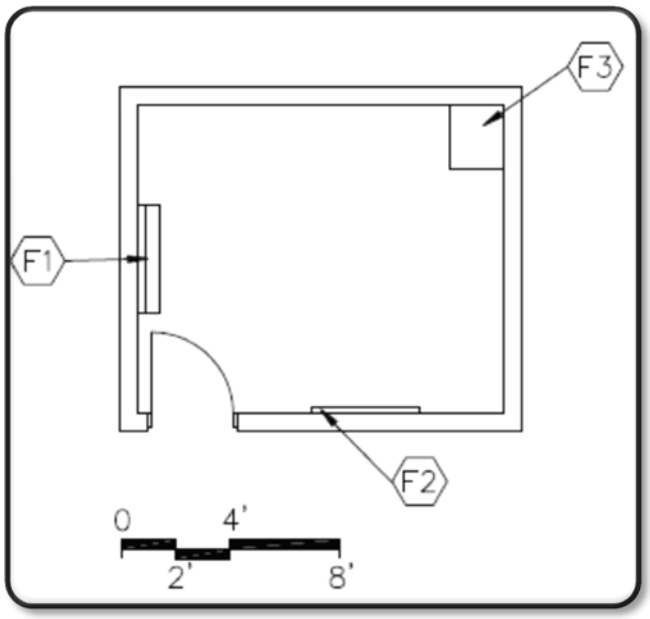
1. Electrical - duplex receptacle; single-level switching



Occupational and Physical Therapy
H-SE-7

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Wall cabinets



Features – Loose Furnishings

Chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

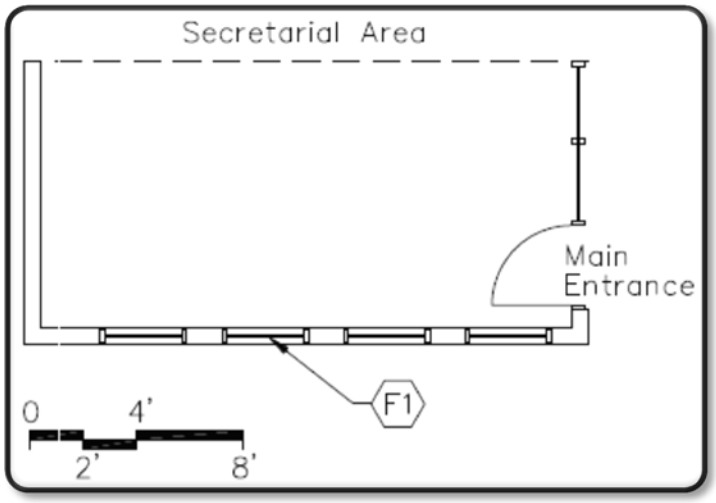
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Reception Area
H-AD-1

Features - Fixed Equipment

F1 Interior windows



Features – Loose Furnishings

Visitor chairs
End table
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

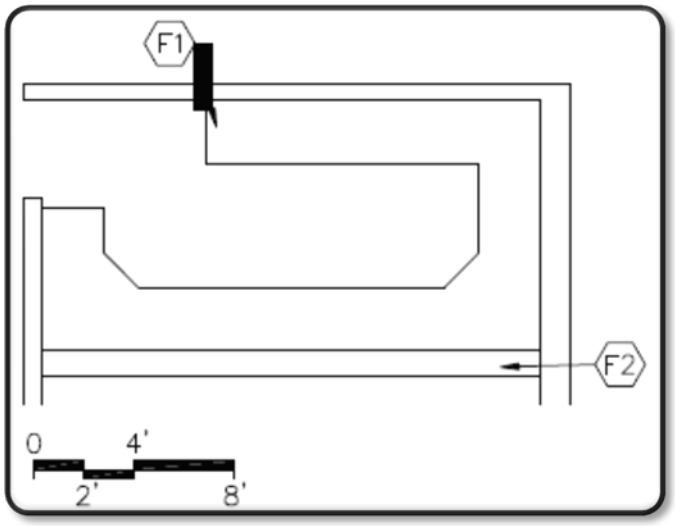
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, voice port & phone; clock

Secretarial Area
H-AD-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 High counter top



Features – Loose Furnishings

Secretarial chair(s)
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

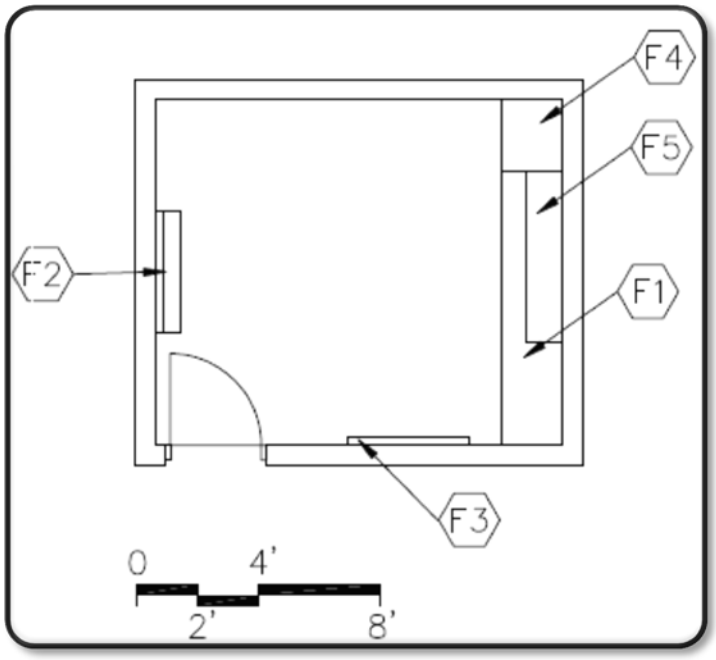
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port & phone at each secretarial station; fax port, data port for printer; clock
3. Miscellaneous - fax machine; printer; computer/typewriter

Principal's Office
H-AD-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

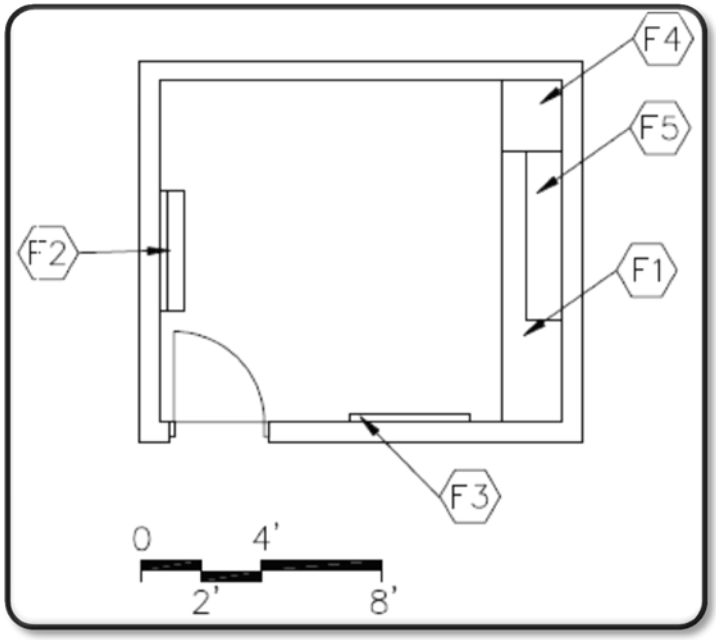
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Assistant Principal's Office H-AD-4

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

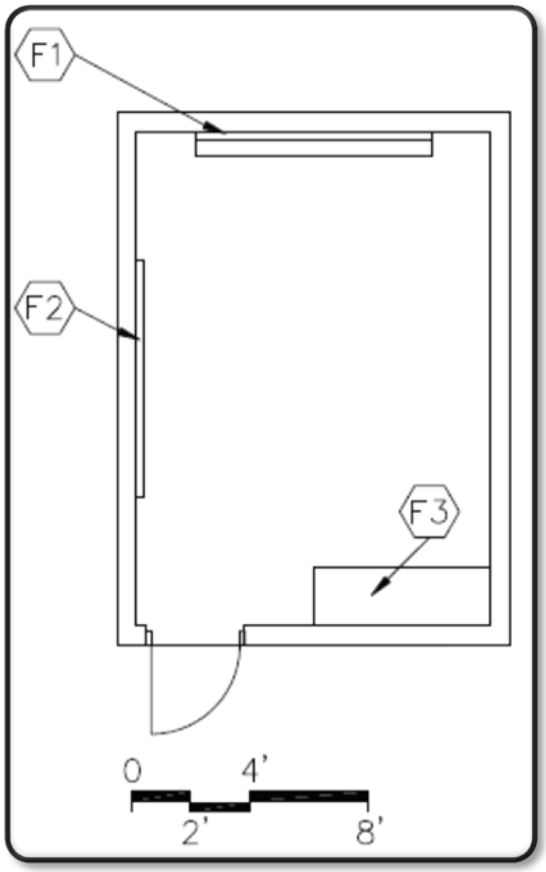
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Conference Room
H-AD-5

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Base cabinets



Features – Loose Furnishings

Conference table
Chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

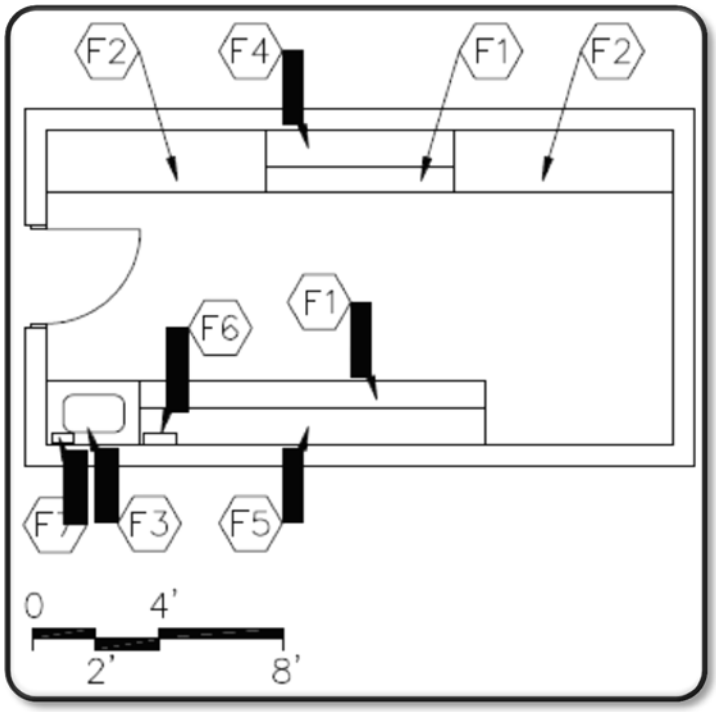
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - data port, voice port & phone; video port and video display device, clock

Mail/Work/Copy Room
H-AD-6

Features - Fixed Equipment

F1 Base cabinets
F2 Tall Storage Cabinet
F3 Sink base cabinet
F4 Mail Cubicle
F5 Wall Cabinets
F6 Towel dispenser
F7 Soap dispenser



Features – Loose Furnishings

Worktable
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes

1. Electrical - duplex receptacles; single-level switching; receptacle for copier
2. Technology - voice port & phone; clock
3. Plumbing - sink
4. Miscellaneous - copier

Administrative Storage
H-AD-7

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

File cabinets

Finishes:

Flooring - Resilient

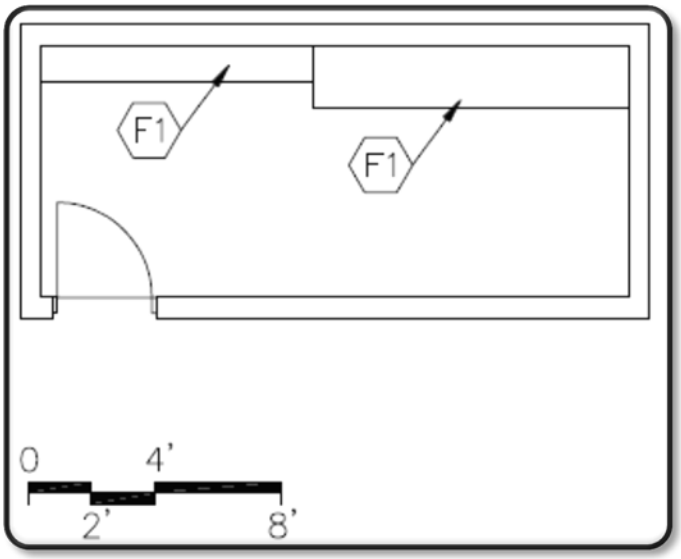
Base - Resilient base

Ceiling - Suspended, acoustical or painted or exposed, painted structure

Walls - Painted concrete masonry units

Notes

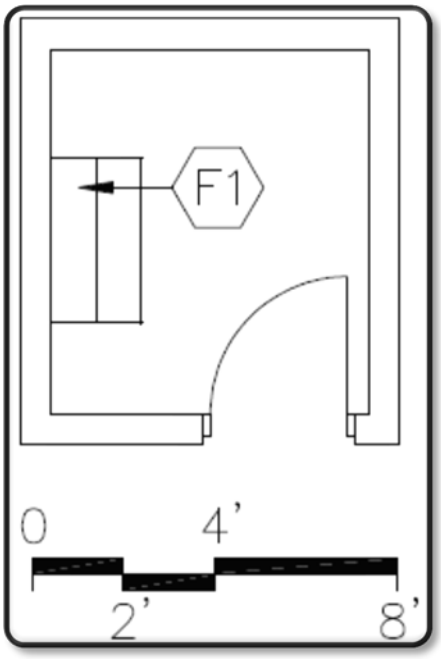
1. Electrical - duplex receptacle; single-level switching



Vaults/Record Storage
H-AD-8

Features - Fixed Equipment

F1 Open Metal Shelving



Features – Loose Furnishings

File cabinet
Safe

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Rated 2 hour construction

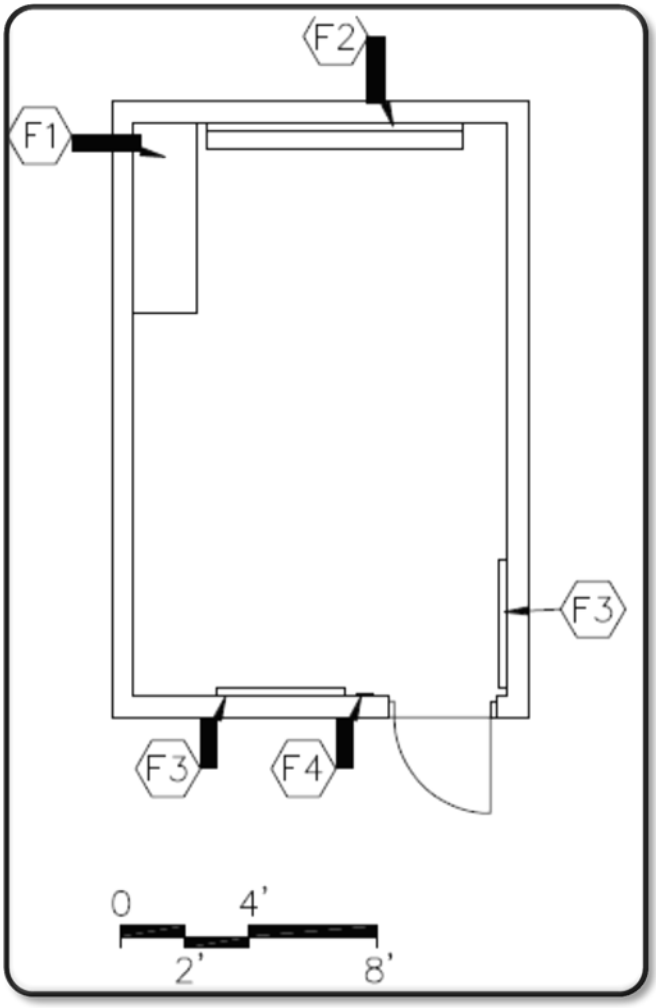
Walls - Painted concrete masonry units;
Rated 2 hour construction

Notes
1. Electrical - duplex receptacles; single-level switching

In School Suspension
H-AD-9

Features - Fixed Equipment

F1 Base cabinets
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Pencil sharpener support



Features – Loose Furnishings

Student carrels and/or desks
Student chairs
Teacher desk and chair
Computer workstation furniture
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, data port, voice port & phone; data ports for students; clock

Restroom
H-AD-10

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser

Features – Loose Furnishings

Wastebasket

Finishes:

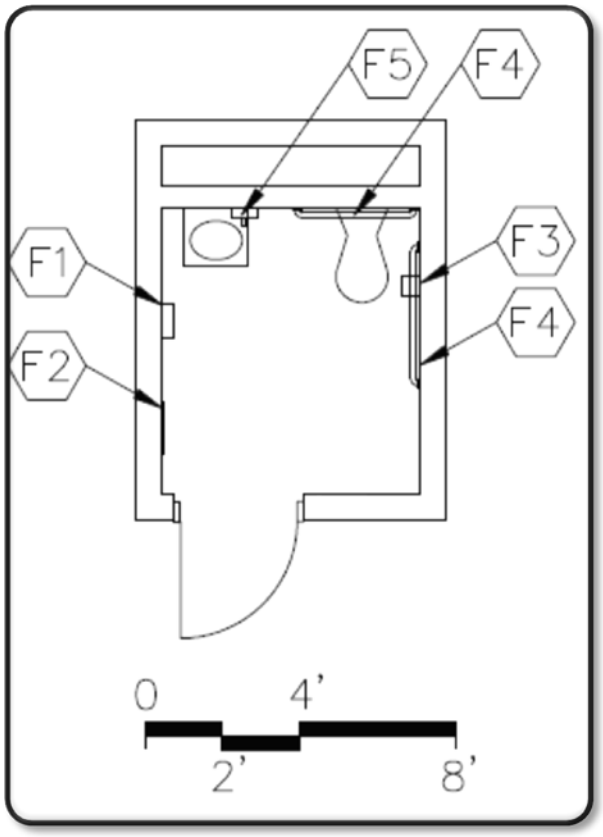
Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

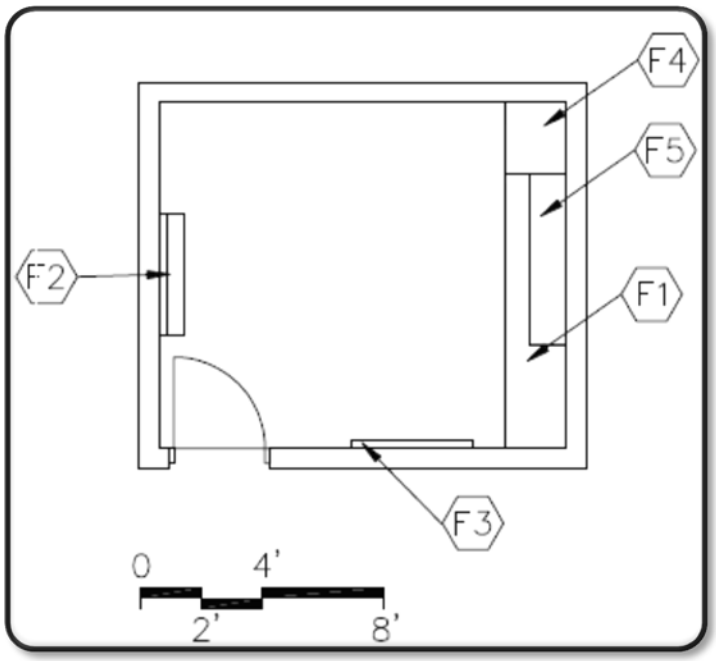
Notes
1. Plumbing - water closet and lavatory
2. Electrical - duplex receptacle; single level switching



Guidance Counselor's Office
H-AD-11

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes

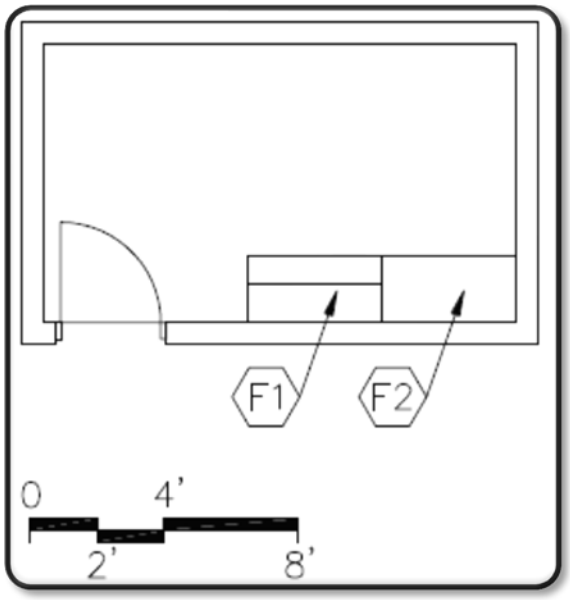
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Guidance Records/Storage
H-AD-12

Features - Fixed Equipment

F1 Base and wall cabinets

F2 Tall storage cabinets



Features – Loose Furnishings

File cabinets

Finishes:

Flooring – Resilient

Base - Resilient base

Ceiling – Rated 2 hour construction

Walls - Painted gypsum wallboard over metal studs; Rated 2 hour construction

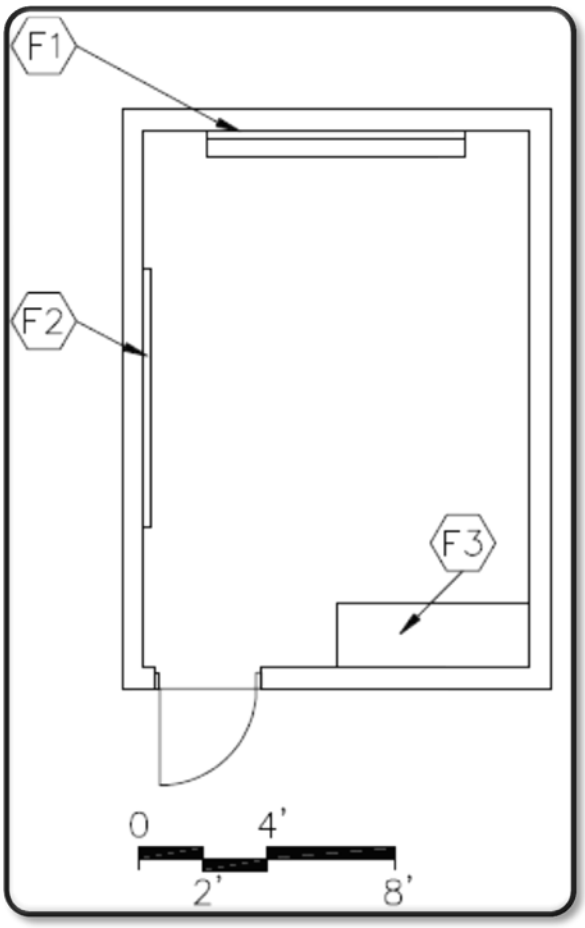
Notes

1. Electrical - duplex receptacles; single-level switching

Guidance Conference/ Group Procedures Room H-AD-13

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Base cabinets



Features – Loose Furnishings

Conference table
Chairs
Wastebasket

Finishes:

Flooring – Carpet

Base - Resilient base

Ceiling – Suspended, acoustical

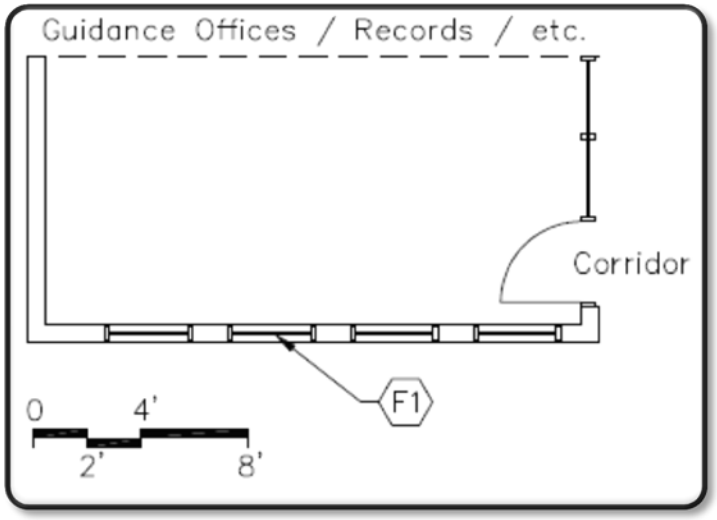
Walls - Painted gypsum wallboard over metal studs;

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port and video display device, voice port & phone; data port; clock

Guidance Reception and Display Area H-AD-14

Features - Fixed Equipment

F1 Interior Windows



Features – Loose Furnishings

Visitor chairs
End Table
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

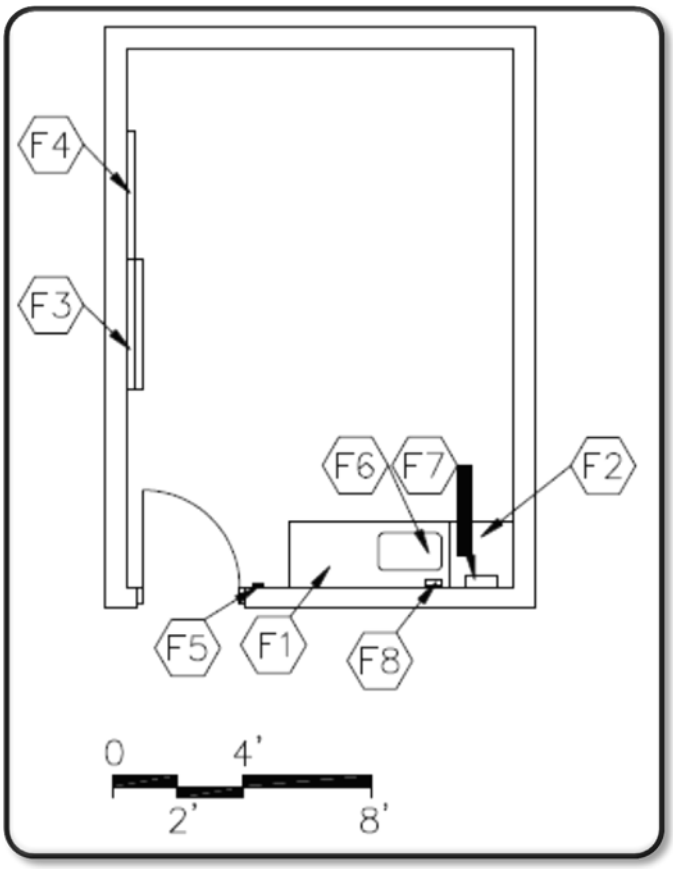
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, voice port & phone; clock

Parent Center
H-AD-15

Features - Fixed Equipment

F1 Base cabinets
F2 Tall wardrobe
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Pencil sharpener support
F6 Sink base cabinet
F7 Towel dispenser
F8 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Computer workstation furniture
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

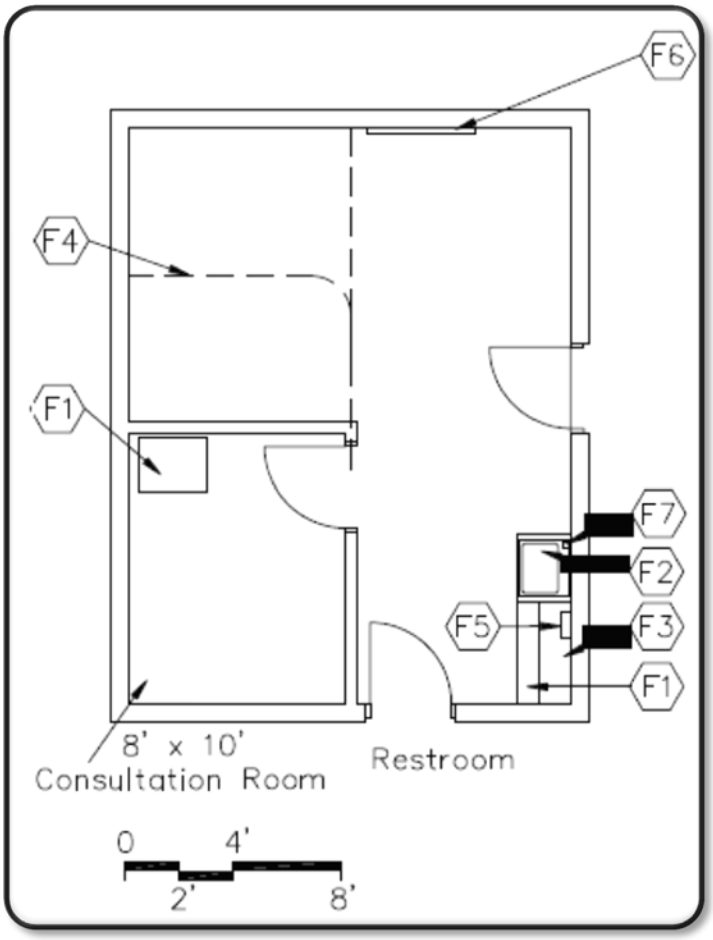
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - video port, video display device, voice port & phone; data port; clock
3. Plumbing - sink

Health Clinic
H-AD-16

Features - Fixed Equipment

F1 Base cabinets
F2 Sink base cabinet
F3 Wall cabinets; lockable
F4 Cubicle curtain and track
F5 Towel dispenser
F6 Tack board
F7 Soap Dispenser



Features – Loose Furnishings

Cots
Refrigerator with ice making capabilities
Desk and chair
Chairs Stool
Wastebasket

Finishes:

Flooring - Seamless sheet vinyl

Base - Resilient base

Ceiling - Suspended, acoustical

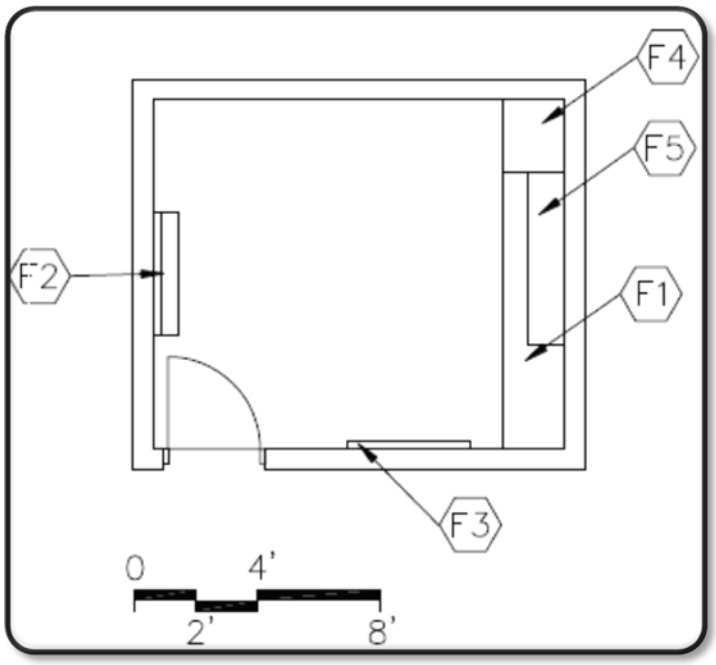
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - voice port & phone; data port; clock
3. Plumbing - sink
4. Restroom must be located adjacent to health clinic

Itinerant Personnel Office
H-AD-17

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

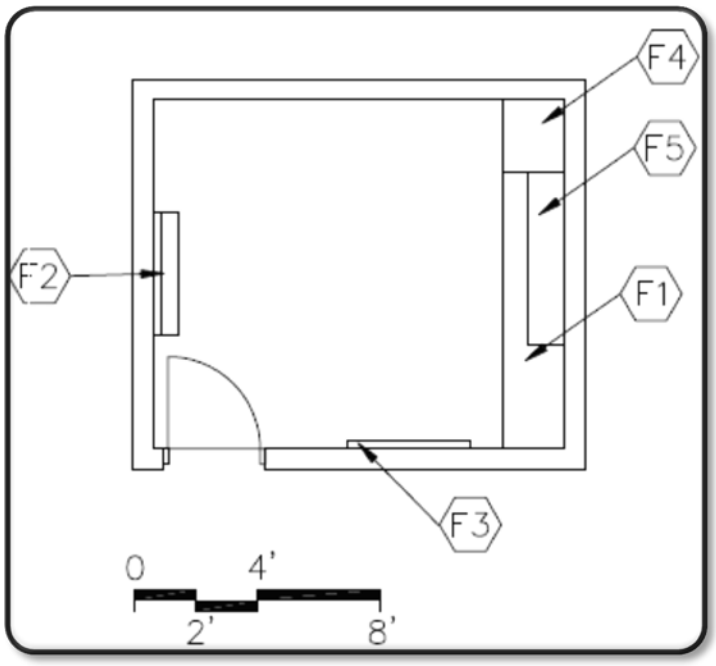
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Career Center
H-AD-18

Features - Fixed Equipment

F1 Display cabinets
F2 Base cabinets
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Workstation



Features – Loose Furnishings

Work tables and chairs

Workstations

Reading chairs

Small table

Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

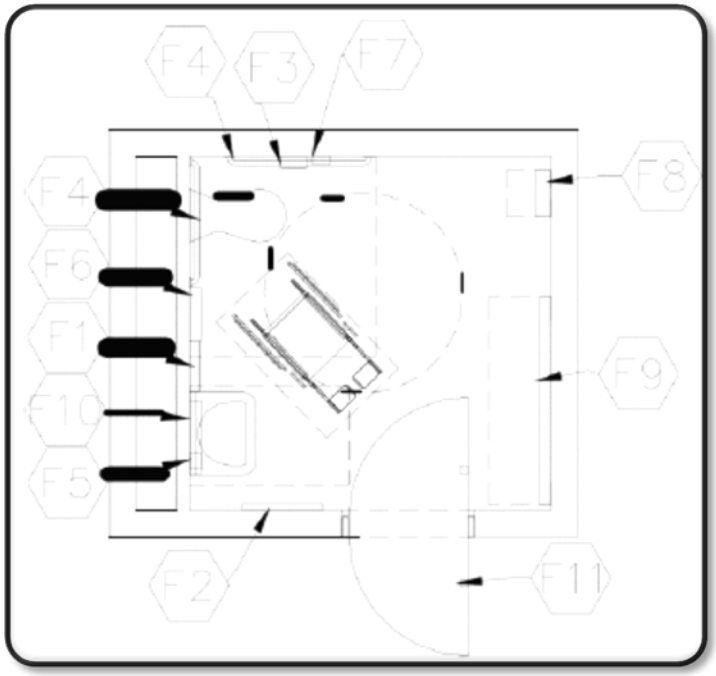
Notes

1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port and video display device, voice port, clock; data ports at workstations

Family Restroom
H-AD-19

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser
F6 Sanitary napkin dispenser/disposal
F7 Folding utility shelf
F8 Mounted child seat
F9 Adult/child changing station
F10 16" x 24" mirror with shelf
F11 Coat hooks



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory; floor drain
2. Electrical - duplex receptacle; single level switching

Health Center Restroom
E/M/H-AD-20

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser

Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient
Optional - Ceramic mosaic tile, porcelain tile, or terrazzo

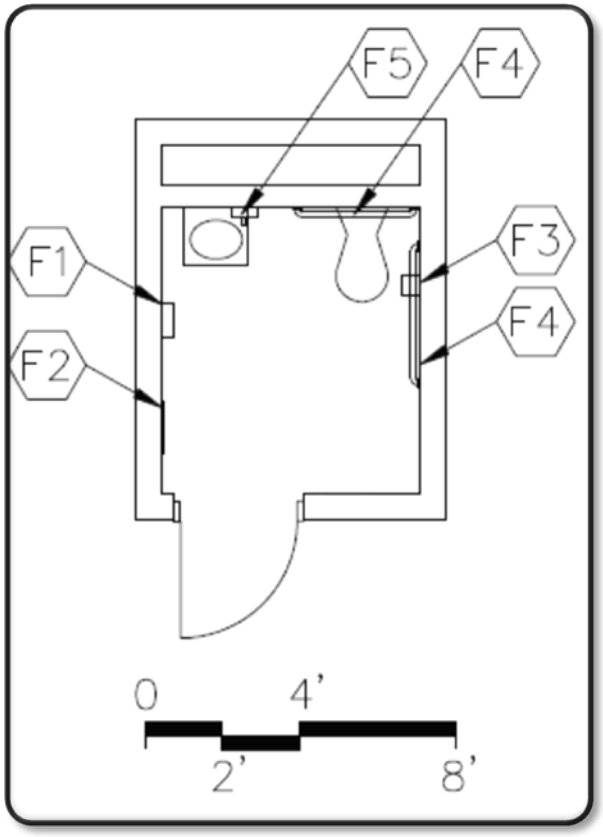
Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

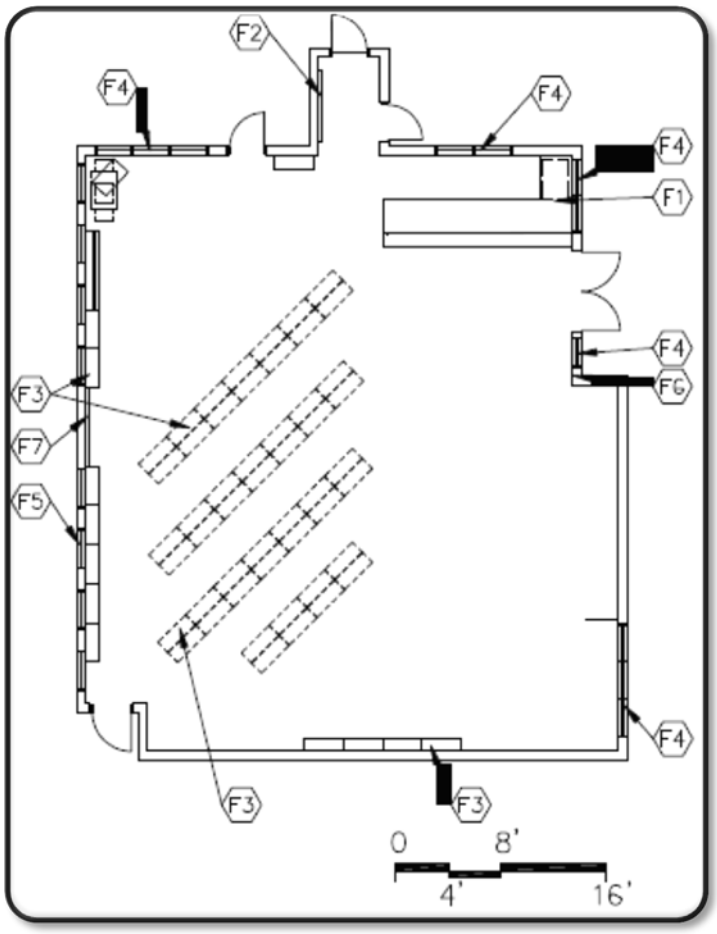
3. Plumbing - water closet and lavatory
4. Electrical - duplex receptacle; single level switching



Reading Room/Circulation
H-MC-1

Features - Fixed Equipment

F1 Circulation desk casework
F2 Tack board
F3 Library book shelving
F4 Interior windows
F5 Windows with integral blinds
F6 Pencil sharpener support
F7 ~~Chalk/marker~~ Marker board



Features – Loose Furnishings

Student tables and chairs
Computer workstation furniture
Circulation desk task chair
Dictionary stand
Atlas stand
Paperback book rack
Lateral file
Mobile book carts
Magazine display
Newspaper rack
Study carrels
Desk height filing cabinets
Casual seating chairs
Wastebaskets
Pencil sharpener

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

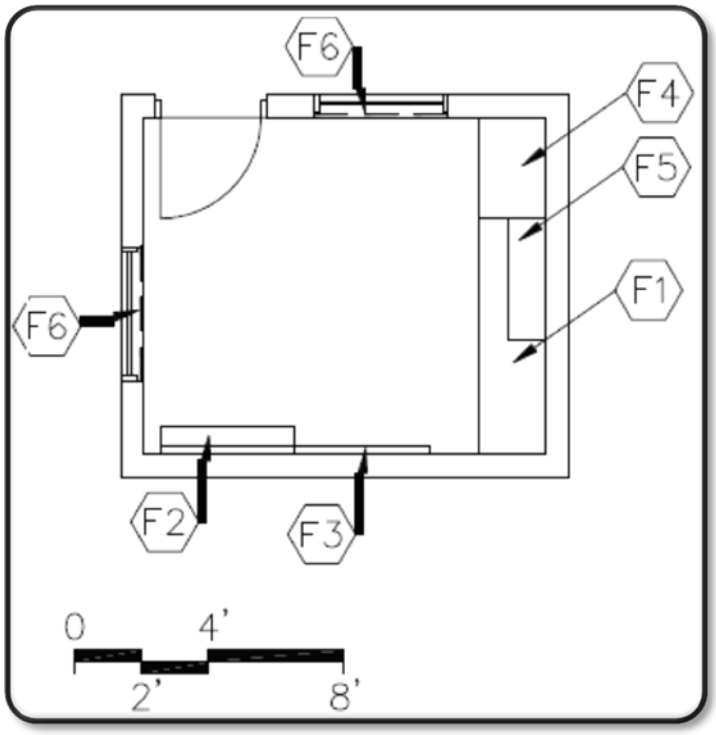
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - video ports and video display devices, voice port & phone; data ports for students; data port for library automation system; clock
3. Miscellaneous - printers – one at circulation desk and one in student work area

Media Specialist Office
H-MC-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets
F6 Interior window



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
File cabinet
Wastebasket(s)

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

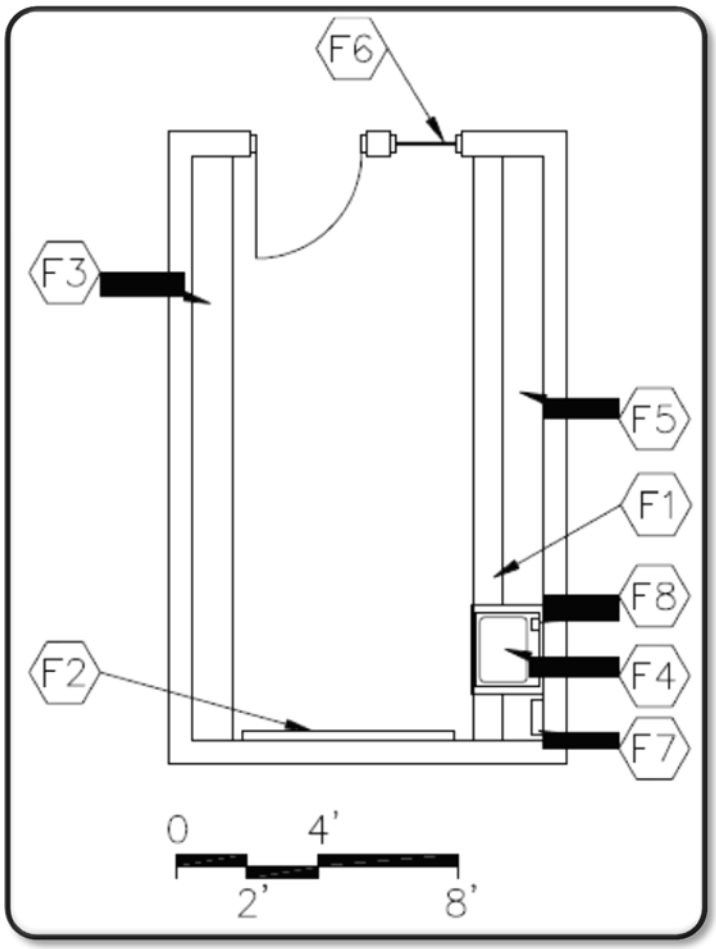
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Workroom/Storage
H-MC-3

Features - Fixed Equipment

F1 Base cabinets
F2 Tack board
F3 Bookcases
F4 Sink base cabinet
F5 Wall cabinets
F6 Interior window
F7 Towel dispenser
F8 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Book trucks
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

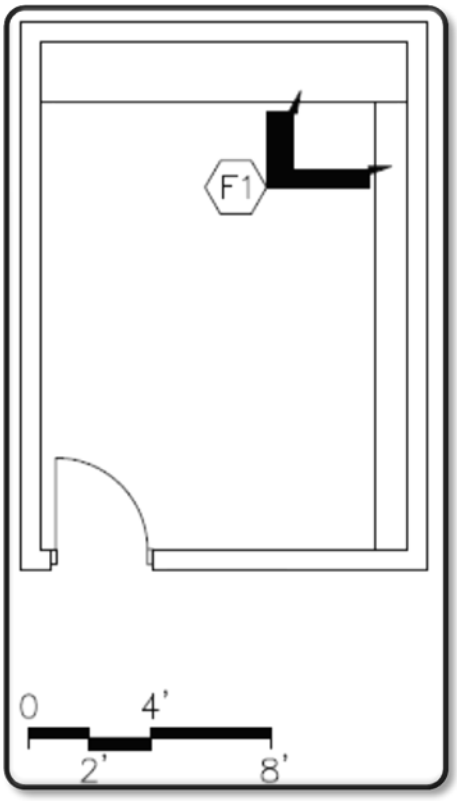
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port & phone; clock
3. Plumbing - sink

A/V Storage
H-MC-4

Features - Fixed Equipment

F1 Tall shelving



Features – Loose Furnishings

Desk and chair

Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical or painted structure

Walls - Painted concrete masonry units

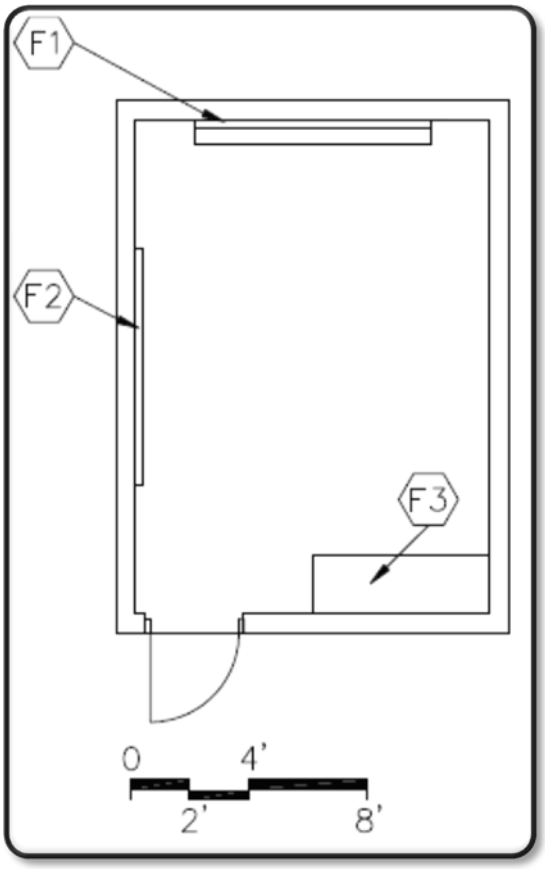
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port and phone

Conference Room
H-MC-5

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Base cabinets



Features – Loose Furnishings

Conference table
Chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

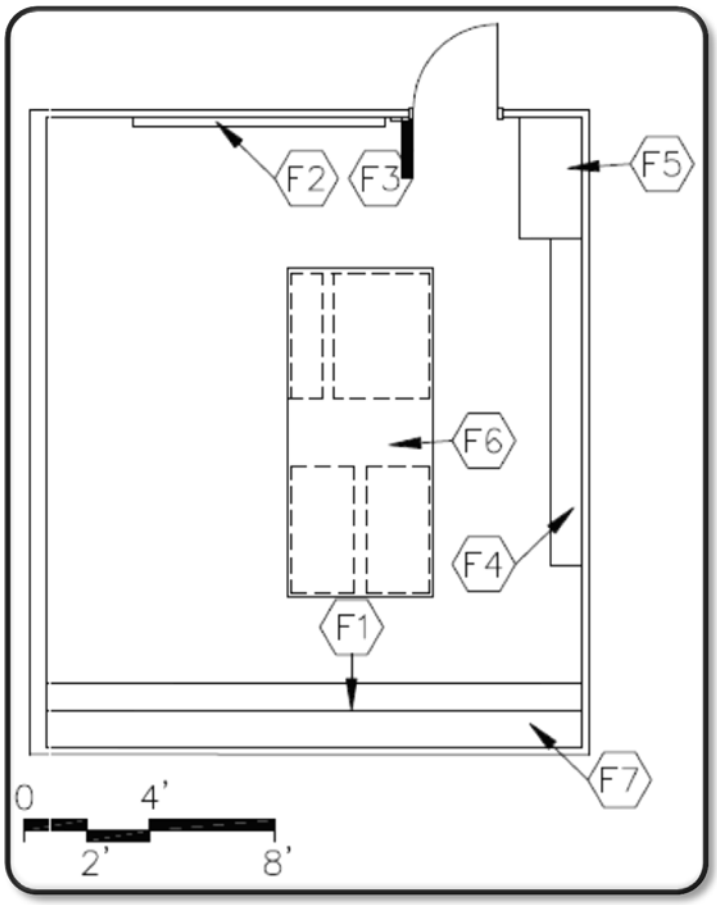
Notes

1. Electrical - duplex receptacles; multi-level switching
2. Technology - data port, voice port & phone, video port and video display device; clock

Multi-Media Production Room
H-MC-6

Features - Fixed Equipment

F1 Base cabinets with file drawers
F2 Tack board
F3 Pencil sharpener support
F4 Tall bookcases
F5 Tall cabinets
F6 Work surface with base cabinets below
F7 Wall cabinets



Features – Loose Furnishings

Tables and chairs/stools
Computer workstation furniture
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port and video display device, voice port & phone; data ports for students; clock

Document Storage
H-MC-7

Features - Fixed Equipment

F1 Open Metal Shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Resilient

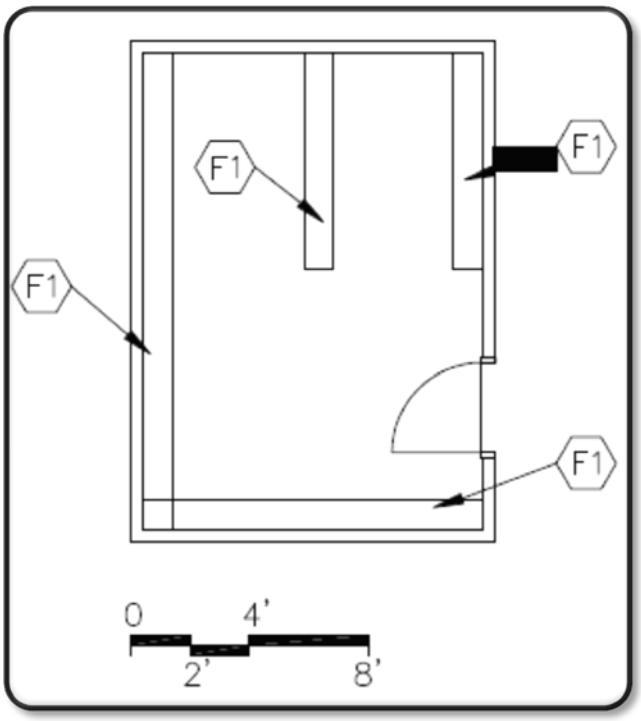
Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

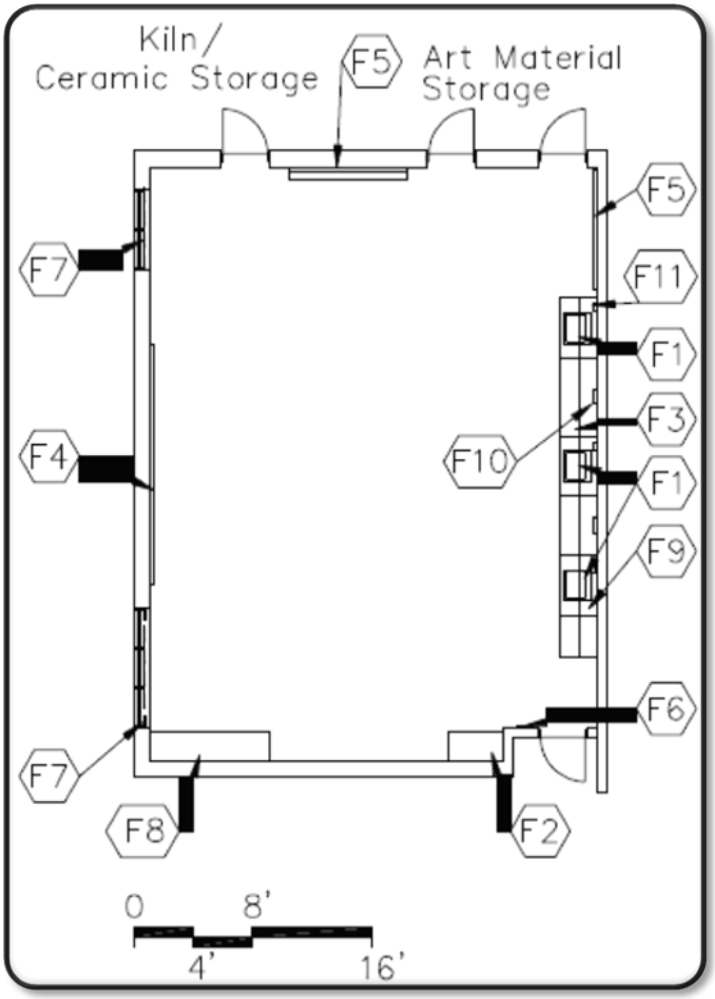
1. Electrical - duplex receptacles; single-level switching



Art Room
H-VA-1

Features - Fixed Equipment

F1 Sink base cabinet, 30" deep
F2 Tall wardrobe w/file drawers
F3 Base cabinets, 30" deep
F4 Tack board
F5 ~~Chalk/marker~~ Marker board
F6 Pencil sharpener support
F7 Windows with integral blinds
F8 Tall storage cabinets with pull out shelves
F9 Wall cabinets
F10 Towel dispensers
F11 Soap dispensers



Features – Loose Furnishings

Student work tables
Computer workstation furniture
Student chairs or stools
Teacher workstation/computer support and chair
Drying rack
Desk height file cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient or sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

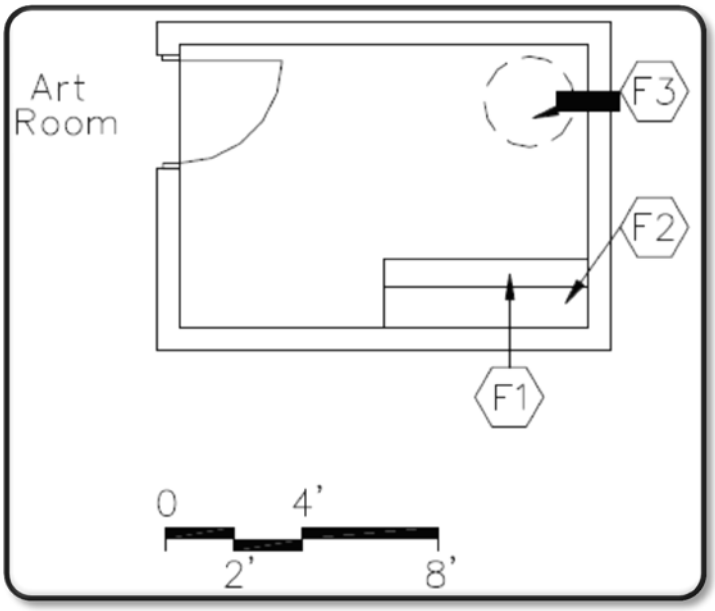
Notes

1. Electrical - duplex receptacles; multi-level switching; track lighting
2. Technology - video port, data port, voice port & phone; clock; overhead projector; data ports for students
3. Plumbing - sinks with solids interceptor
4. HVAC - manually operated exhaust air system

Kiln/Ceramic Storage
H-VA-2

Features - Fixed Equipment

F1 Base cabinets
F2 Wall cabinets
F3 Kiln



Features – Loose Furnishings

Tall dry storage units
Tall damp storage units

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; electrical connection for kiln
2. HVAC - temperature controlled exhaust; ventilation for kiln

Art Material Storage
H-VA-3

Features - Fixed Equipment

F1 Tall storage cabinets
F2 Base cabinets, 30" deep
F3 Wall cabinets, 12" deep

Features – Loose Furnishings

Mobile materials cart

Finishes:

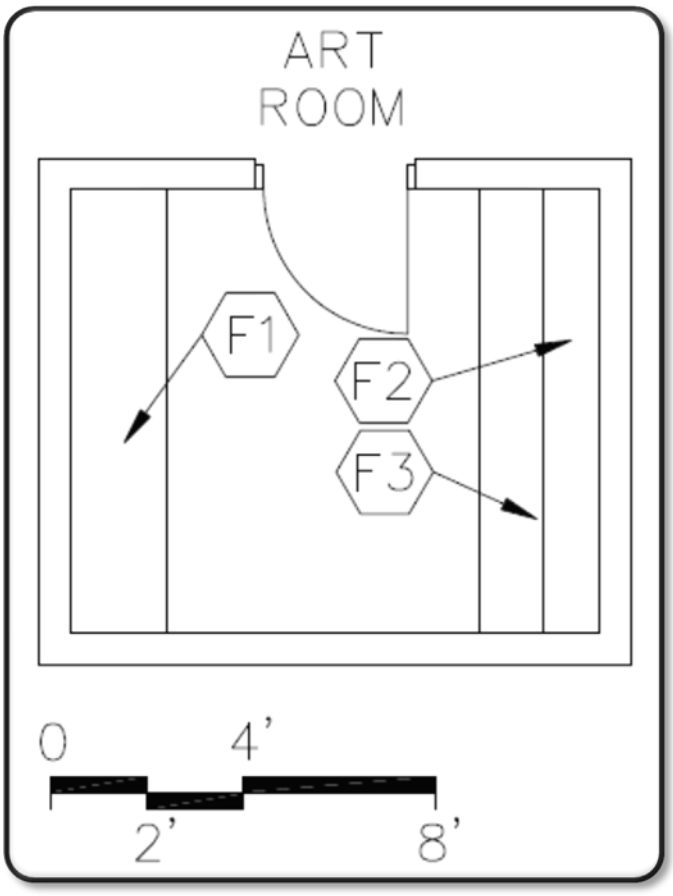
Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

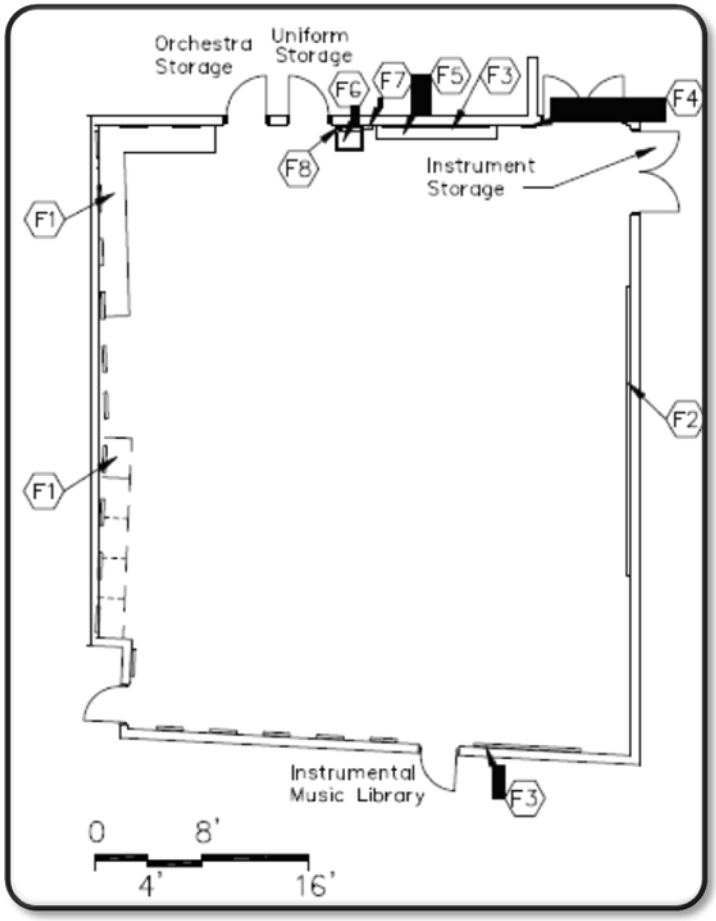
Notes
1. Electrical - duplex receptacle; single-level switching



Instrumental Room
H-MU-1

Features - Fixed Equipment

F1 Base cabinets
F2 ~~Chalk/marker~~ Marker board with staff lines
F3 Tack board
F4 Pencil sharpener support
F5 Bookcases
F6 Sink base cabinet
F7 Towel dispenser
F8 Soap dispenser



Features – Loose Furnishings

Conducting podium
Mobile percussion instrument storage cabinet
Computer workstation furniture
Mobile sheet music cabinet
Music chairs
Music stands
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units
Acoustical wall treatment

Notes

1. Electrical - duplex receptacles; multi-level switching; telecommunications grounding
2. Technology - video port, voice port & phone; data ports for students; clock; overhead projector
3. Plumbing - drinking water cooler; 10” deep sink
4. Miscellaneous – piano; doors to have acoustic trim accessories

Instrument Storage
H-MU-2

Features - Fixed Equipment

F1 Miscellaneous instrument storage cabinets
F2 Base cabinets
F3 Wall cabinets

Features – Loose Furnishings

Wastebasket

Finishes:

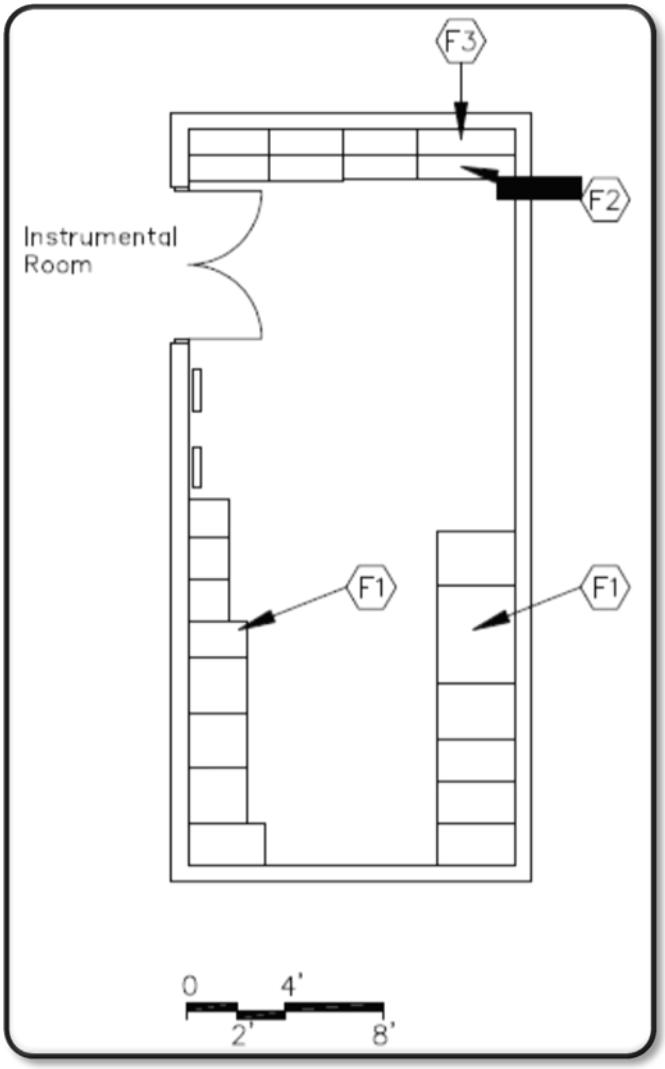
Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

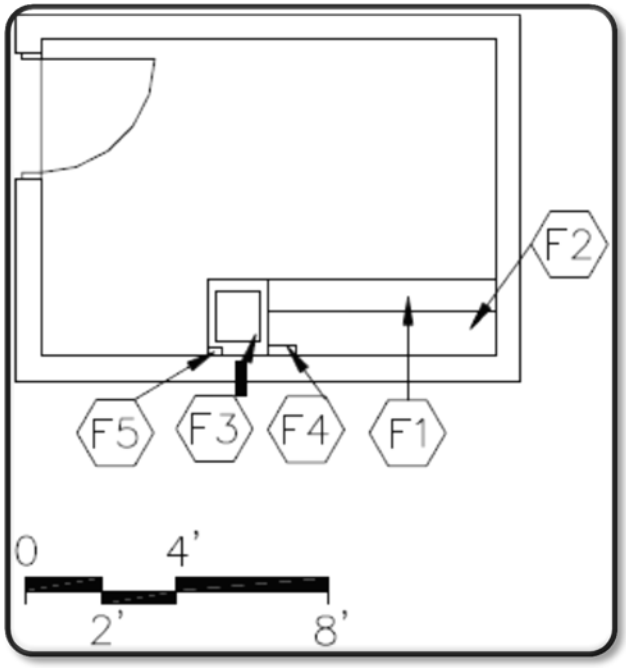
Notes
1. Electrical - duplex receptacle; single-level switching



Instrument Repair Room
H-MU-3

Features - Fixed Equipment

F1 Base cabinet
F2 Wall cabinet
F3 Sink base cabinet
F4 Towel dispenser
F5 Soap dispenser



Features – Loose Furnishings

Storage units
Wastebasket
Table and chairs

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching
2. Plumbing - sink; plumbing connections

Orchestra Storage
H-MU-4

Features - Fixed Equipment

F1 Miscellaneous instrument storage cabinets

Features – Loose Furnishings

Carts for large instruments

Finishes:

Flooring - Resilient

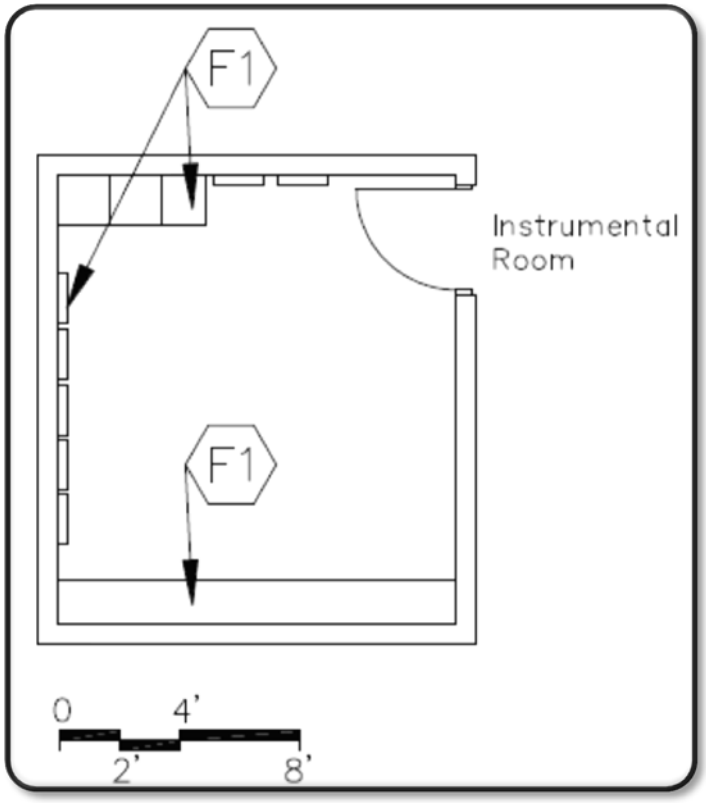
Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

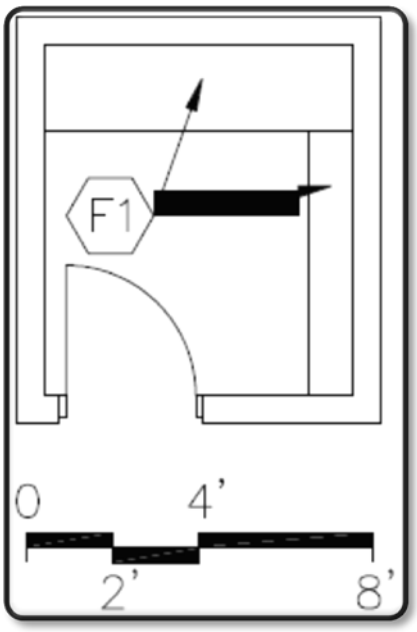
1. Electrical - duplex receptacle; single-level switching



Instrumental Music Library
H-MU-5

Features - Fixed Equipment

F1 Base and wall cabinets



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

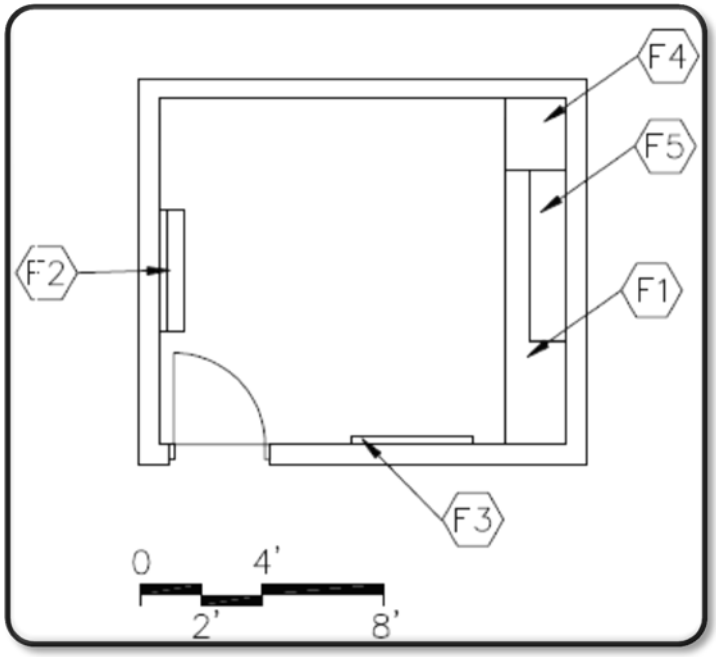
Walls – Painted gypsum wallboard over metal studs or painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching

Instrumental Office
H-MU-6

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units or
Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Uniform Storage
H-MU-7

Features - Fixed Equipment

F1 High uniform storage cabinets
F2 Mirror

Features – Loose Furnishings

N/A

Finishes:

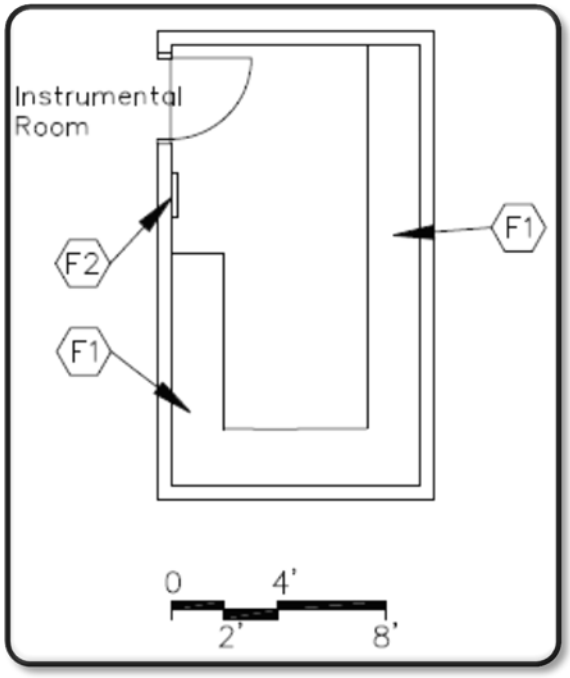
Flooring - Resilient

Base - Resilient base

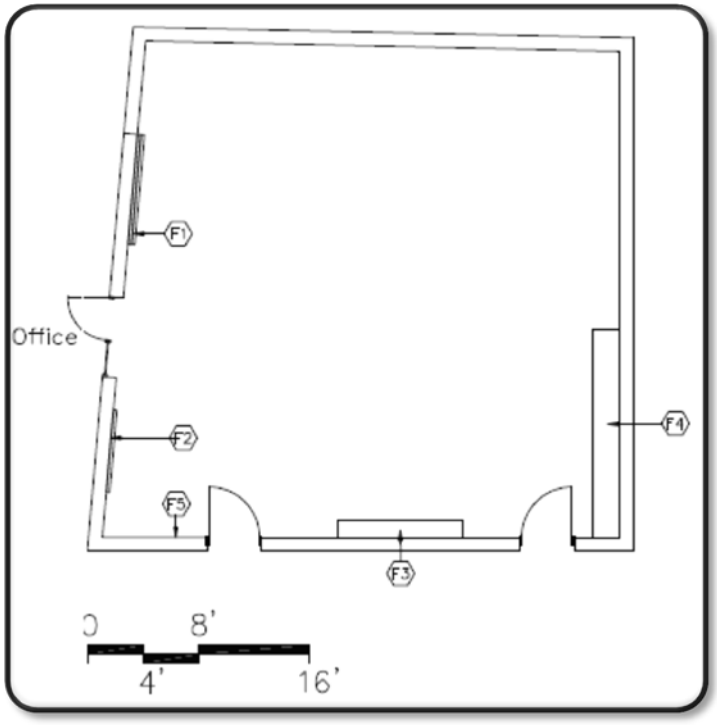
Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching



Vocal Room
H-MU-8



Features - Fixed Equipment

F1 30' x 5' mirror mounted 12" above floor
F2 ~~Chalk/marker~~ Marker board with staff lines
F3 Tack board
F4 ~~Pencil sharpener support~~ Base cabinets
F5 ~~Base cabinets~~ Pencil sharpener support
~~F6 Tall storage cabinet~~
~~F7 Wall cabinets~~

Features – Loose Furnishings

Conducting podium
Computer workstation furniture
Mobile sheet music cabinet
Music chairs
Portable risers
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units
Optional - Acoustical wall treatment

Notes

1. Electrical - duplex receptacles; multi-level switching; telecommunications grounding
2. Technology - video port, voice port & phone; data ports for students; clock; overhead projector
3. Miscellaneous - piano

Vocal Storage
H-MU-9

Features - Fixed Equipment

F1 High robe storage cabinets
F2 Mirror

Features – Loose Furnishings

N/A

Finishes:

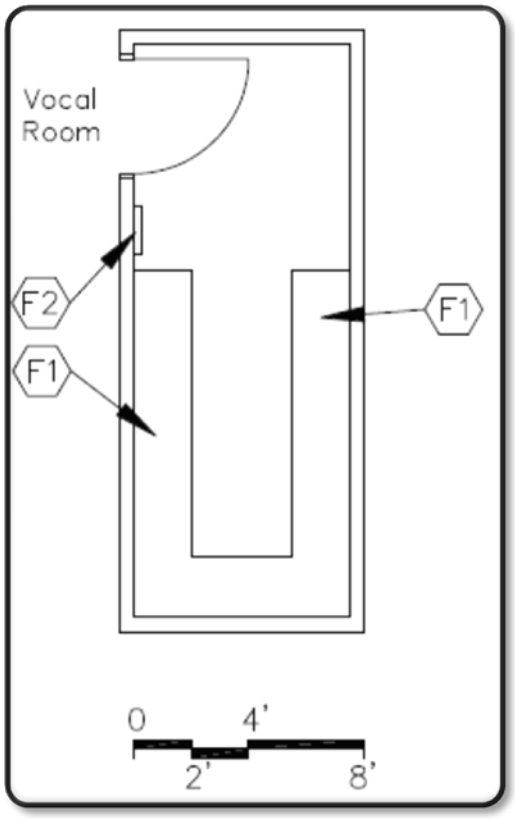
Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching
2. Miscellaneous - space for storage of portable risers



Vocal Music Library
H-MU-10

Features - Fixed Equipment

F1 Base and wall cabinets

Features – Loose Furnishings

Wastebasket

Finishes:

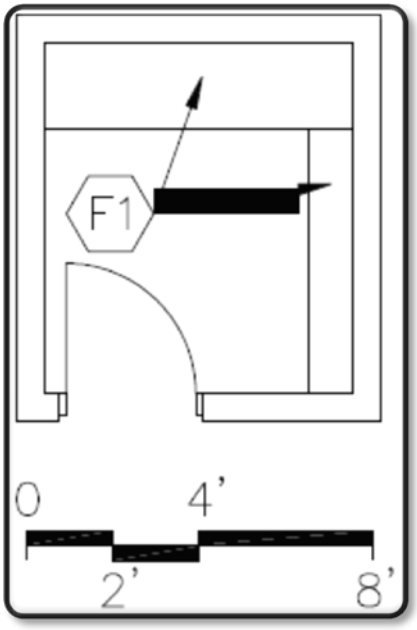
Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls – Painted gypsum wallboard over metal studs

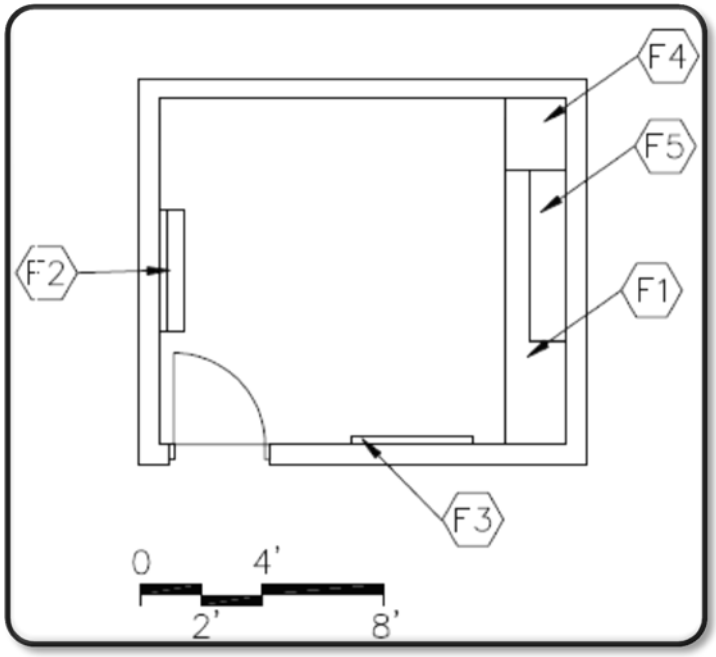
Notes
1. Electrical - duplex receptacles; single-level switching



Vocal Office
H-MU-11

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units or
Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Ensemble Room
H-MU-12

Features - Fixed Equipment

N/A

Features – Loose Furnishings

Music stands
Music chairs

Finishes:

Flooring - Carpet

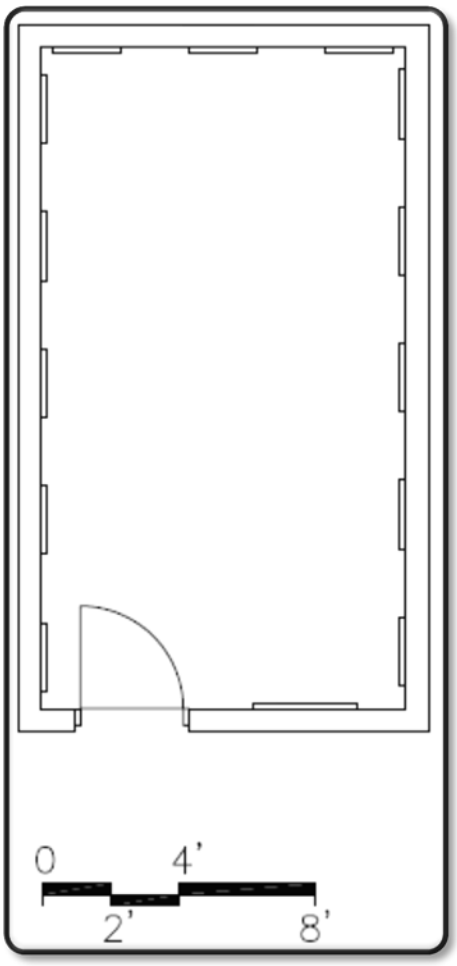
Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units;
Acoustical wall treatment

Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - clock
3. Miscellaneous - provide 4’ door



Practice Room
H-MU-13

Features - Fixed Equipment

F1 3’ x 5’ high mirror mounted 12” above finish floor

Features – Loose Furnishings

Music stands
Music chairs

Finishes:

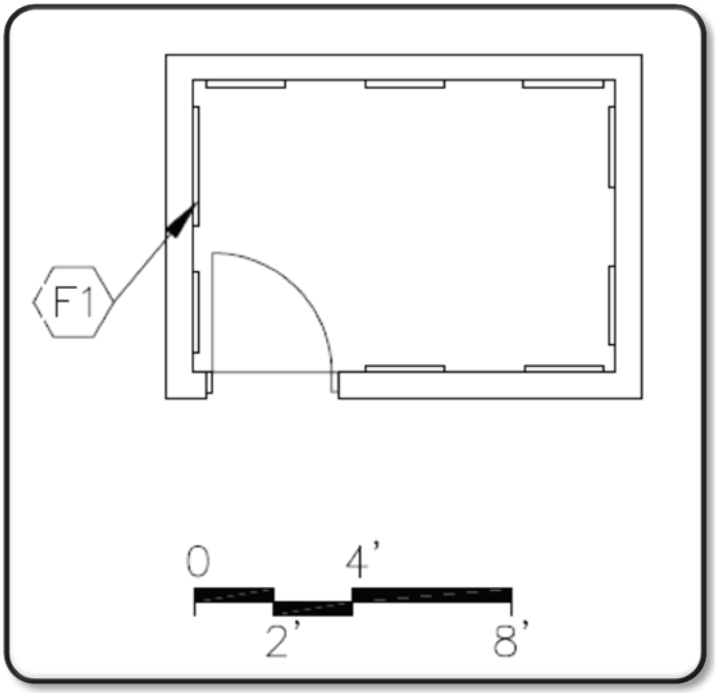
Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units;
Acoustical wall treatment

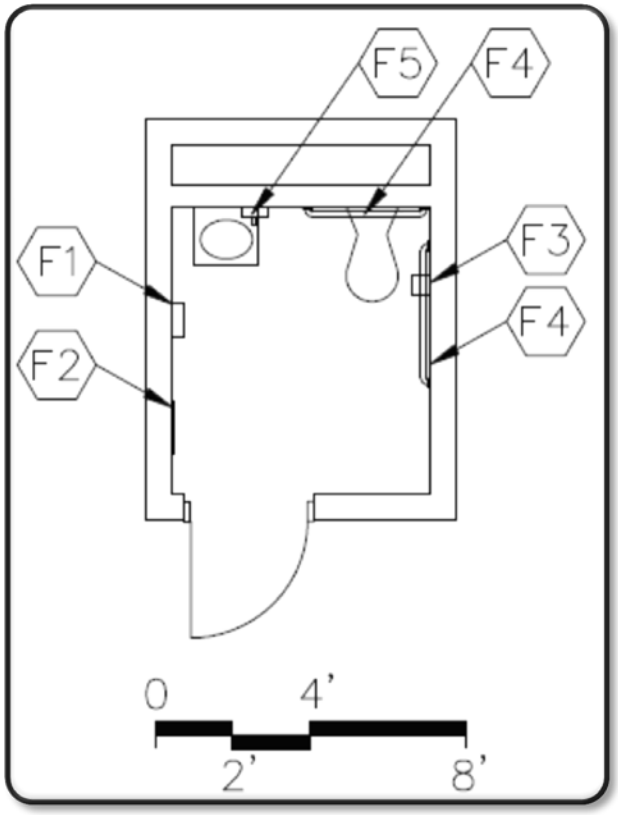
Notes
1. Electrical: duplex receptacles; single-level switching



Restroom
H-MU-14

Features - Fixed Equipment

F1 Towel dispenser
F2 24” x 60” mirror
F3 Toilet tissue holder
F4 36” and 42” grab bar
F5 Soap dispenser



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring – Resilient
Optional: Ceramic mosaic tile, porcelain tile or terrazzo

Base - Resilient base
Optional: Ceramic mosaic tile, porcelain tile or terrazzo

Ceiling - Suspended, acoustical

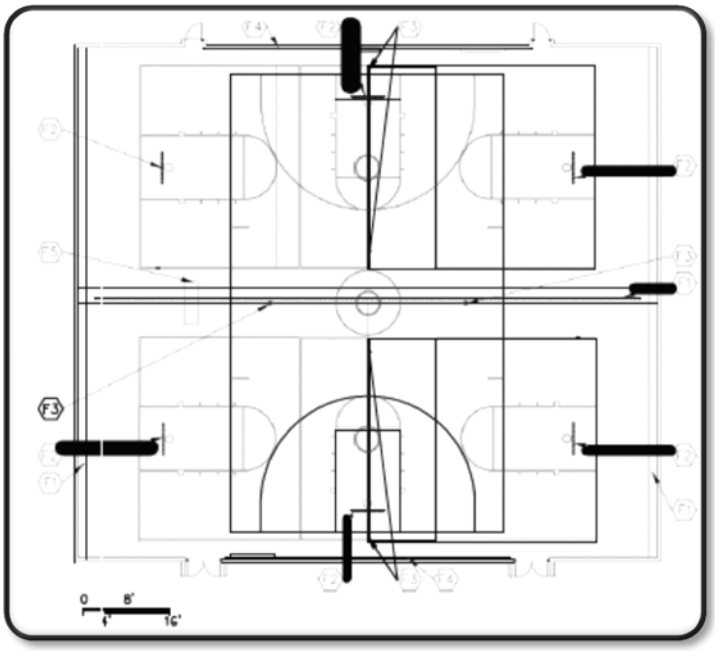
Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory
2. Electrical - duplex receptacle; single-level switching

Gymnasium
H-PE-1

Features - Fixed Equipment

F1 Divider gym curtain
F2 Basketball backstops – glass, adjustable height
F3 Volleyball sleeves and standards on a cart
F4 Safety wall wainscot
F5 Scorer table



Features – Loose Furnishings

Portable chalkboard

MISCELLANEOUS:
Handicapped seating
Court markings
Wire guards on light fixtures and wall-mounted electrical devices

Finishes:

Flooring – Wood flooring

Base – Ventilated resilient base

Ceiling - Painted, exposed structure

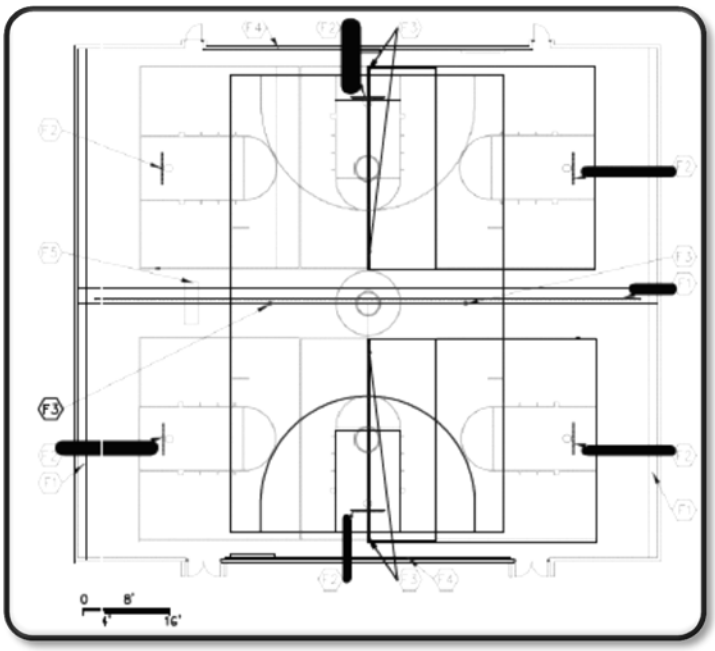
Walls - Painted concrete masonry units
Sound absorbing concrete masonry units on 2 walls

Notes
1. Electrical: duplex receptacles; single-level switching; scoreboard; telecommunications grounding
2. Technology: video ports, monitor with cart; voice port; data ports; clocks with wire guards

Auxiliary Gymnasium
H-PE-2

Features - Fixed Equipment

F1 Basketball backstops – glass, adjustable height
F2 Volleyball sleeves and standards on a cart
F3 Safety wall wainscot
F4 Divider gym curtain
F5 Chin-up bar
F6 Scorer table



Features – Loose Furnishings

Portable chalkboard

MISCELLANEOUS:
Court markings
Wire guards on light fixtures and wall-mounted electrical devices

Finishes:

Flooring – Wood flooring

Base – Ventilated resilient base

Ceiling - Painted, exposed structure

Walls - Painted concrete masonry units
Sound absorbing concrete masonry units on 2 walls

Notes
1. Electrical: duplex receptacles; single-level switching; scoreboard; telecommunications grounding
2. Technology: video ports, monitor with cart; voice port; data ports; clocks with wire guards

Student Locker Room
H-PE-3

Features - Fixed Equipment

F1 Athletic lockers

F2 ~~Chalk/marker~~ Marker board

F3 Tack board

F4 Locker benches

Features – Loose Furnishings

Wastebaskets

Finishes:

Flooring – Resilient or sealed concrete

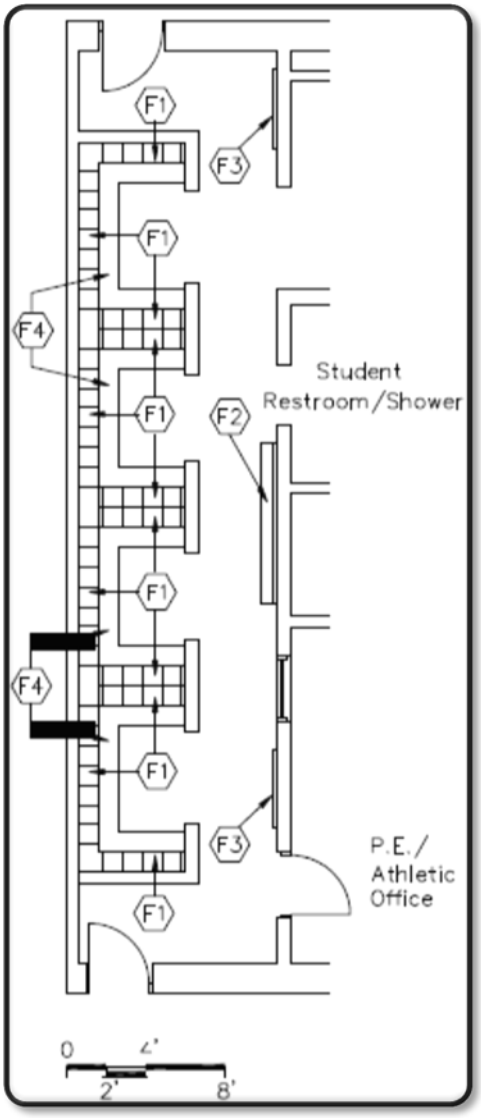
Base – Resilient base

Ceiling – Suspended, acoustical with high-impact, hold-down clips (option: exposed, painted, pre-cast units)

Walls - Painted concrete masonry units

Notes

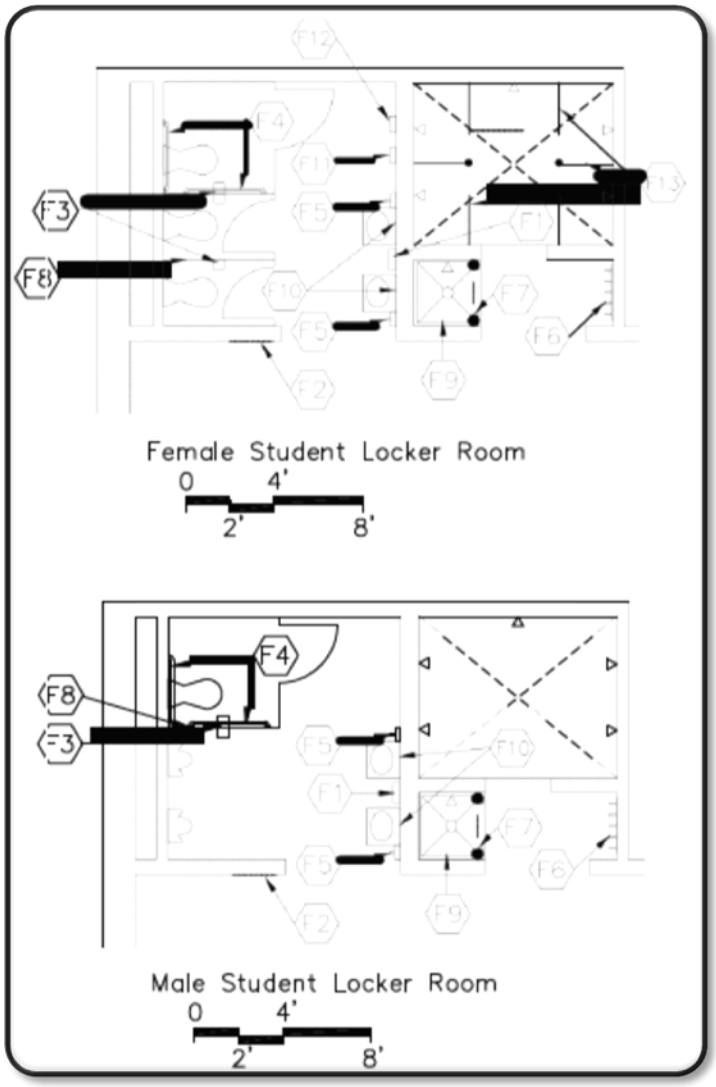
1. Electrical - duplex receptacles; single-level switching
2. Technology - clock
3. Plumbing - drinking fountain



Student Restroom/Shower
H-PE-4

Features - Fixed Equipment

F1 Towel dispensers
F2 24" by 60" mirror
F3 Toilet tissue holders
F4 36" and 42" grab bars
F5 Soap dispensers
F6 Towel hooks
F7 Shower curtain and rod
F8 Toilet partitions
F9 ADA shower accessories
F10 16" by 24" mirrors
F11 Sanitary product dispensers
F12 Sanitary product receptacles
F13 Modesty shower partitions



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Restroom - Resilient
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Restroom - Resilient base
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Ceiling - Restroom- Suspended, acoustical
Shower - Painted portland cement plaster or interior finish system

Walls - Epoxy painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching
2. Plumbing - water closets, lavatories, urinals; ADA shower controls and head; shower fixtures; floor drains

Physical Educational Storage
H-PE-5

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

Tumbling mats on carts
Ball carts

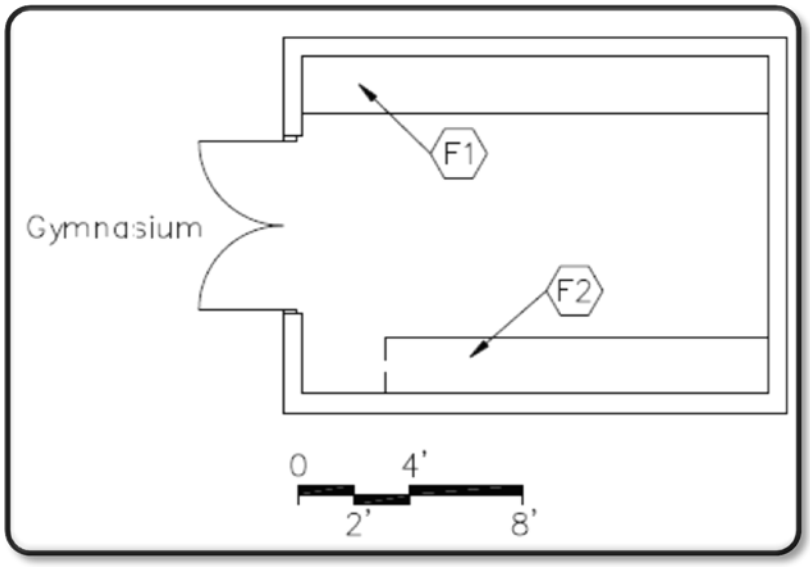
Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units



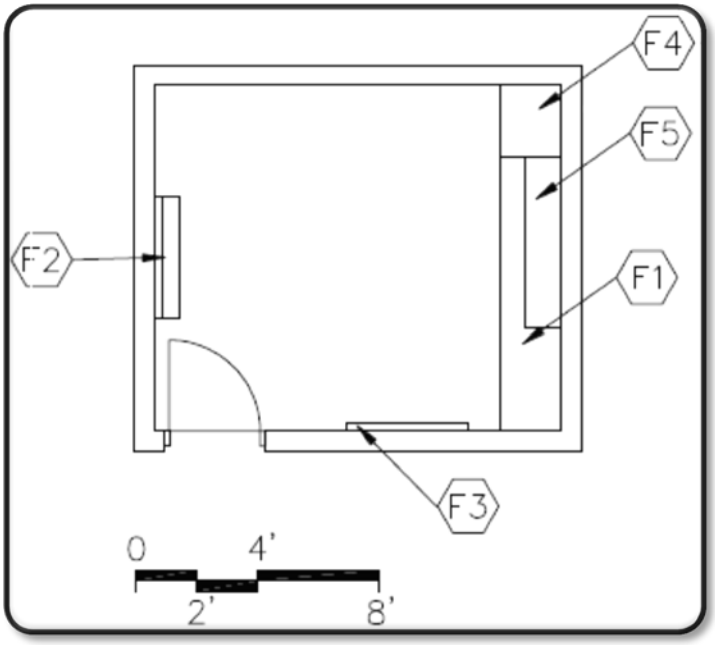
Notes

1. Electrical - duplex receptacle; single-level switching

P.E./Athletic Office
H-PE-6

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring – Resilient

Base – Resilient base

Ceiling – Suspended, acoustical

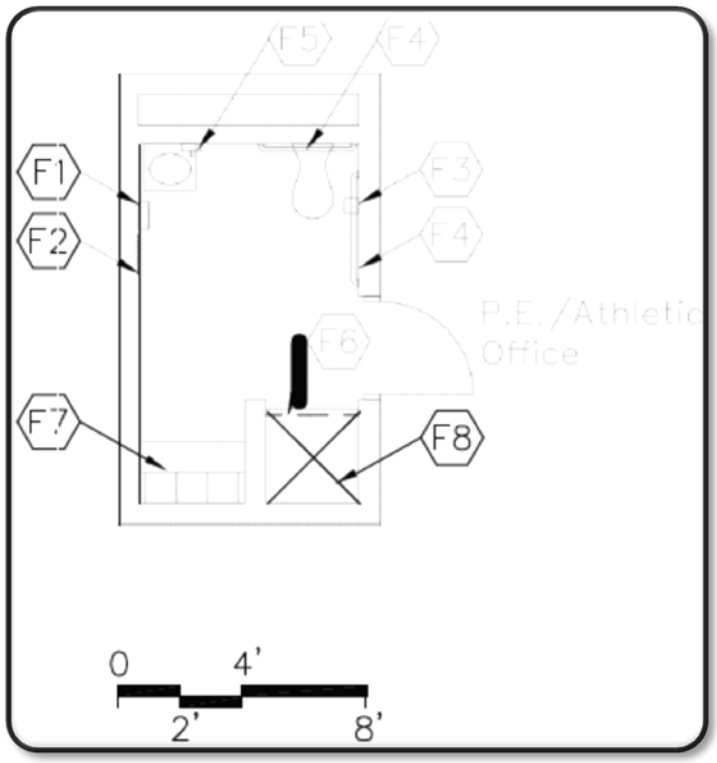
Walls - Painted concrete masonry units

Notes
1. Electrical: duplex receptacles; single-level switching
2. Technology: data port, video port, voice port & phone; clock

Staff Shower
H-PE-7

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser
F6 Shower curtain and rod
F7 3 athletic lockers
F8 ADA shower accessories



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Restroom - Resilient
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Base - Restroom - Resilient base
Shower - Ceramic mosaic tile, porcelain tile, or terrazzo

Ceiling - Restroom- Suspended, acoustical
Shower - Painted portland cement plaster or interior finish system

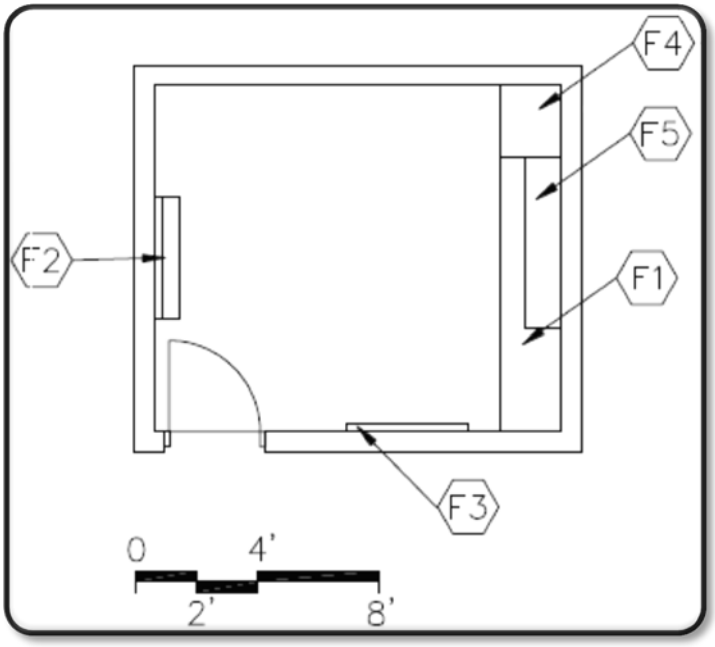
Walls - Epoxy painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory; ADA shower controls and head; floor drain
2. Electrical - duplex receptacles; single-level switching

Athletic Director's Office
H-PE-8

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
File cabinet
Wastebasket

Finishes:

Flooring – Carpet

Base – Resilient base

Ceiling – Suspended, acoustical

Walls - Painted concrete masonry units

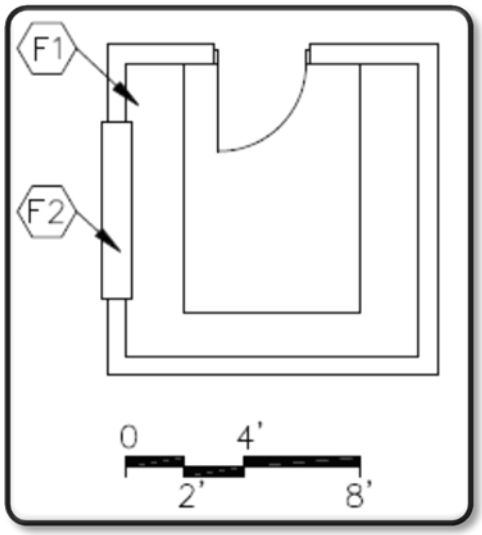
Notes

1. Electrical: duplex receptacles; single-level switching
2. Technology: data port, video port, voice port & phone; clock

Lobby Services
H-PE-9

Features - Fixed Equipment

F1 Base cabinet
F2 Coiling doors



Features – Loose Furnishings

N/A

Finishes:

Flooring – Resilient

Base – Resilient base

Ceiling – Suspended, acoustical

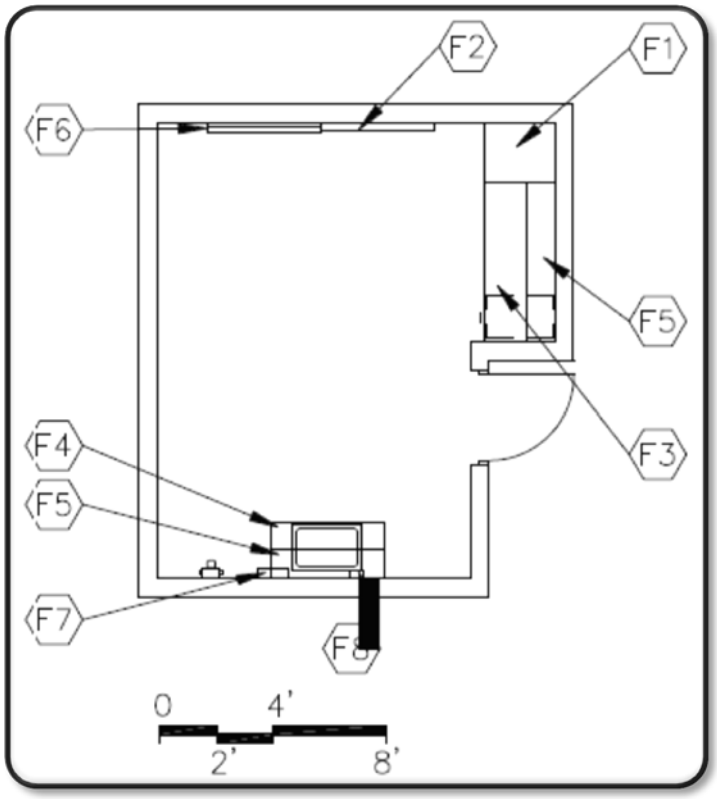
Walls - Painted concrete masonry units

Notes
1. Electrical: duplex receptacles; single-level switching

Training Room
H-PE-10

Features - Fixed Equipment

F1 Tall wardrobe
F2 Tack board
F3 Work surface with file drawers
F4 Sink base cabinet
F5 Wall cabinets
F6 ~~Chalk/marker~~ Marker board
F7 Towel dispenser
F8 Soap dispenser



Features – Loose Furnishings

Chairs
Taping tables
Wastebasket

Finishes:

Flooring – Resilient

Base – Resilient base

Ceiling – Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching; electrical power for ice machine and whirlpool
2. Technology - data port near trainer workstation, voice port & phone; clock
3. Plumbing - sink
4. Miscellaneous - ice machine and whirlpool

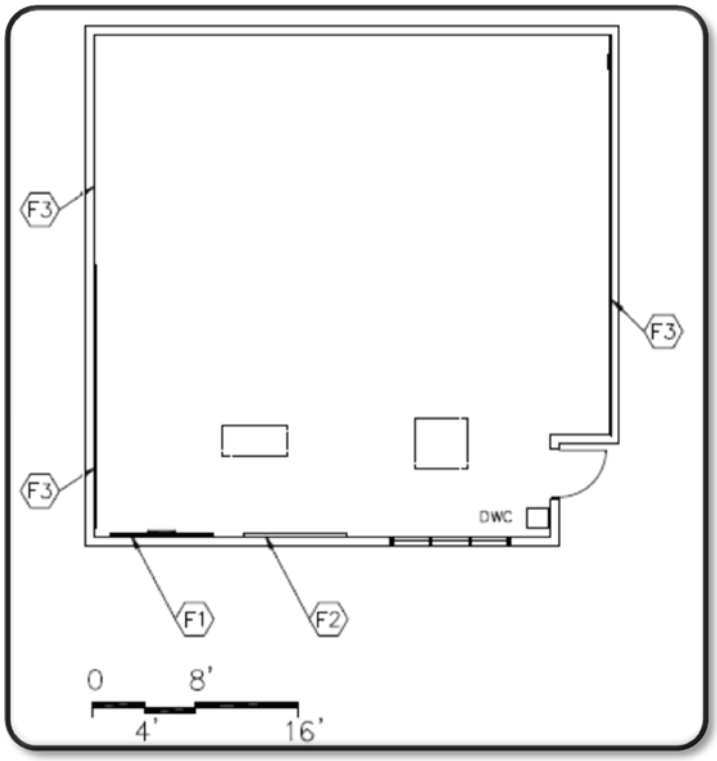
Physical Health Classroom
H-PE-11

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board

F2 Tack board

F3 40’ of 5’ high mirror mounted 12” above floor



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring – Resilient

Base – Resilient base

Ceiling – Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical: duplex receptacles; multi-level switching
2. Technology: video port and video display device, data port, voice port; clock
3. Plumbing: Drinking water cooler; plumbing connections
4. Miscellaneous: Weight lifting equipment; stationary bikes; treadmills; stair climbers; digital weight scale

Multi-Use P.E. Room
H-PE-12

Features - Fixed Equipment

F1 ~~Chalk/marker~~ Marker board
F2 Tack board
F3 Mat hoist
F4 Safety wall wainscot

Features – Loose Furnishings

Wrestling mat

Finishes:

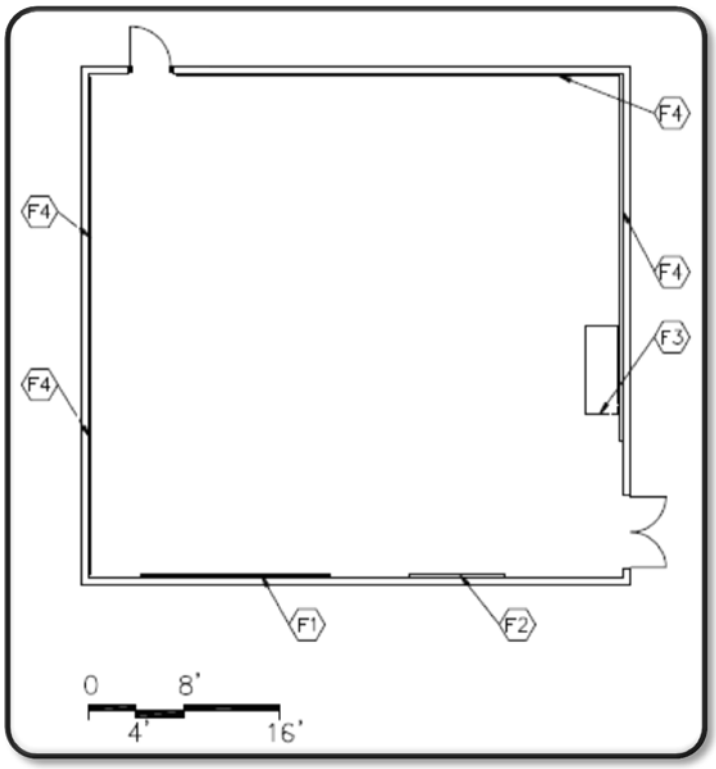
Flooring – Resilient

Base – Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes
1. Electrical: duplex receptacles; multi-level switching
2. Technology: video port, data port, voice port; clock with wire guards



Student Dining
H-SD-1

Features - Fixed Equipment

N/A

Features – Loose Furnishings

Tables
High density stacked chairs
Waste receptacles
Recycling bins
Carts for chairs

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo tile

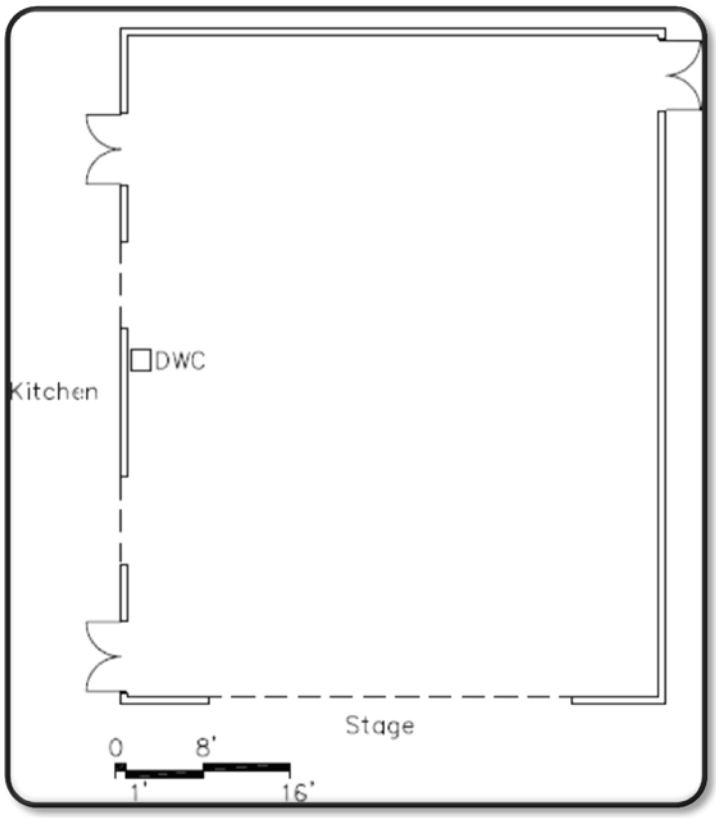
Base - Resilient, porcelain tile, or terrazzo

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

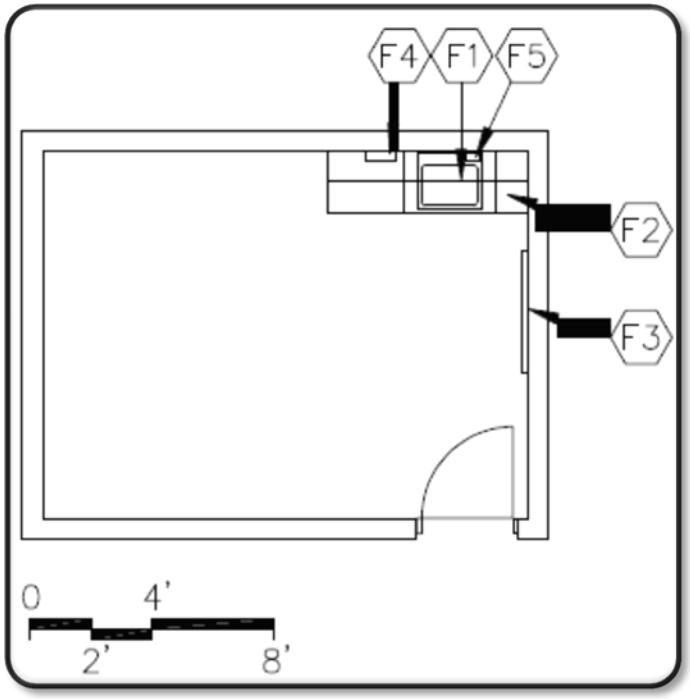
1. Electrical - duplex receptacles; multi-level switching; telecommunications grounding
2. Technology - clock; overhead projector; video ports; data ports; voice ports
3. Plumbing - drinking water cooler



Staff Dining
H-SD-2

Features - Fixed Equipment

F1 Sink base cabinet
F2 Base and wall cabinets
F3 Tack board
F4 Towel dispenser
F5 Soap dispenser



Features – Loose Furnishings

Tables and chairs
Refrigerator
Microwave
Waste receptacle

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo tile

Base - Resilient,
Optional: Porcelain tile base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching; receptacles for vending machines, refrigerator, and microwave
2. Technology - video port, voice port and phone; clock
3. Plumbing - sink
4. Miscellaneous - vending machines

Table Storage
H-SD-3

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

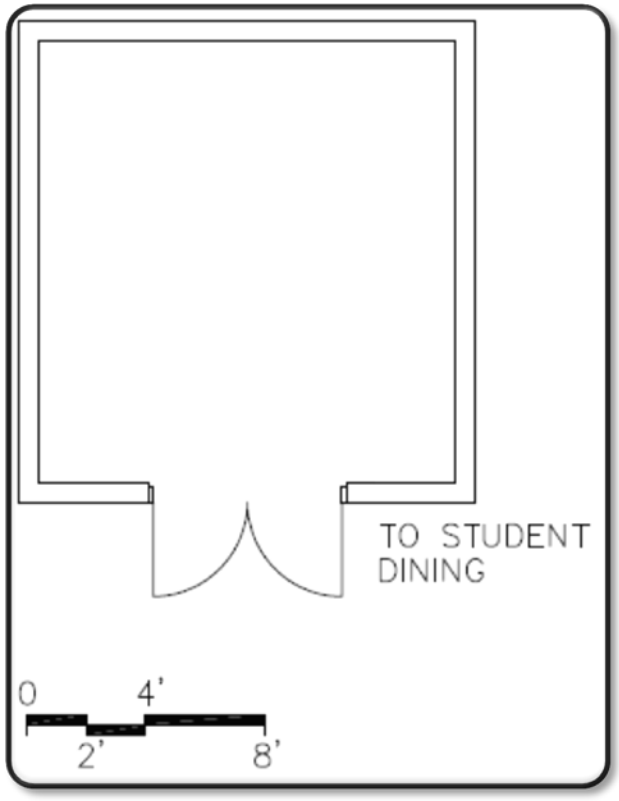
Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching

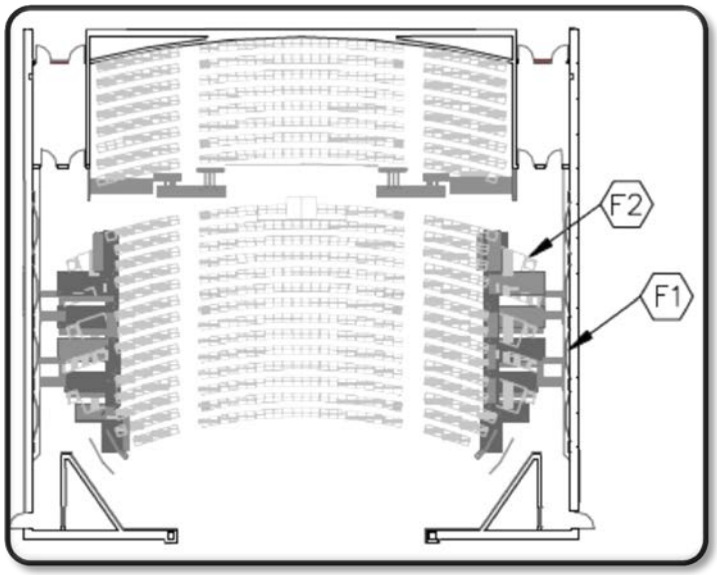


Auditorium
H-PA-1

Features - Fixed Equipment

F1 Acoustical wall treatment

F2 Handicap wheelchair locations;
Lighting catwalk



Features – Loose Furnishings

Fixed auditorium seating

Finishes:

Flooring – Carpet and sealed concrete

Base – Resilient base

Ceiling - Painted, exposed structure; sound baffles

Walls – Brick; painted concrete masonry units; wood trim

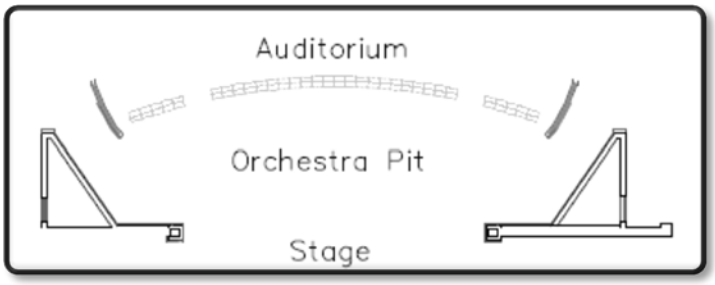
Notes

1. Electrical: Special theatrical sound and lighting systems

Orchestra Pit
H-PA-2

Features - Fixed Equipment

Cover



Features – Loose Furnishings

Music stands
Music chairs
Conductor podium

Finishes:

Flooring – Resilient

Base – Resilient base

Ceiling - Painted, exposed structure

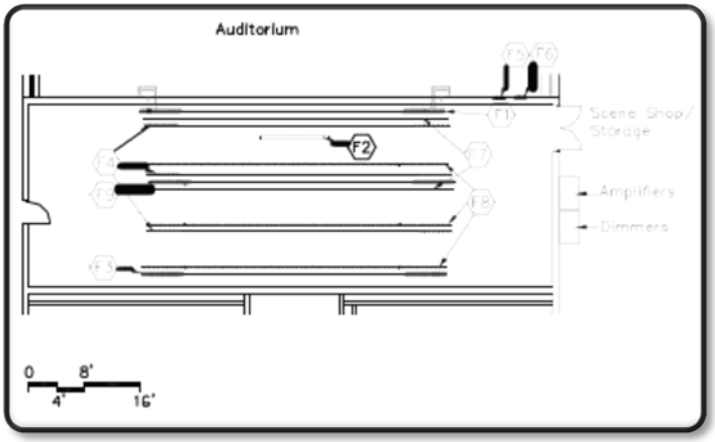
Walls - Painted concrete masonry units

Notes
1. Electrical - special lighting; adequate receptacles for instruments and lighting
2. Technology - each video, voice, data port, audio output

Stage Area
H-PA-3

Features - Fixed Equipment

F1 Front curtain, track, and valance or grand border
F2 Projection screen
F3 Rear curtain with track
F4 Leg curtains, tracks, and/or pivots
F5 Sound control console receptacle
F6 Lighting control console receptacle
F7 Light pipe
F8 Border curtains
F9 Mid-stage traveler



Features – Loose Furnishings

N/A

Finishes:

Flooring – Stage: Softwood
Thrust: Hardwood

Base – Ventilated, resilient base

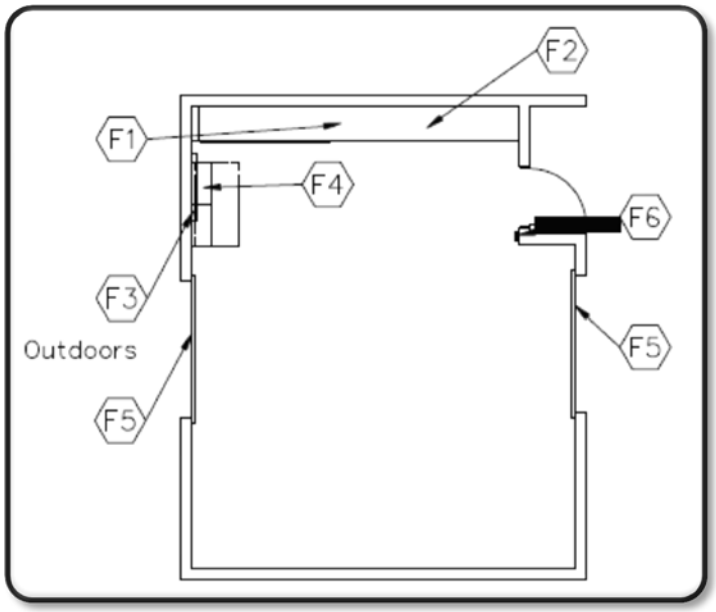
Ceiling – Painted exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical: Stage dimming system; theatrical lighting; duplex receptacles; telecommunications grounding
2. Technology: video ports and data ports – 1 on each side of proscenium opening

Scene Shop
H-PA-4



Features - Fixed Equipment

F1 Tall, lockable storage cabinets
F2 Tall storage cabinets
F3 Tack board
F4 Work bench
F5 Overhead door
F6 Pencil sharpener support

Features – Loose Furnishings

Work tables
Work bench stools
Waste receptacle
Pencil sharpener

Finishes:

Flooring – Sealed concrete

Base - Restroom - Resilient base

Ceiling – Painted exposed structure

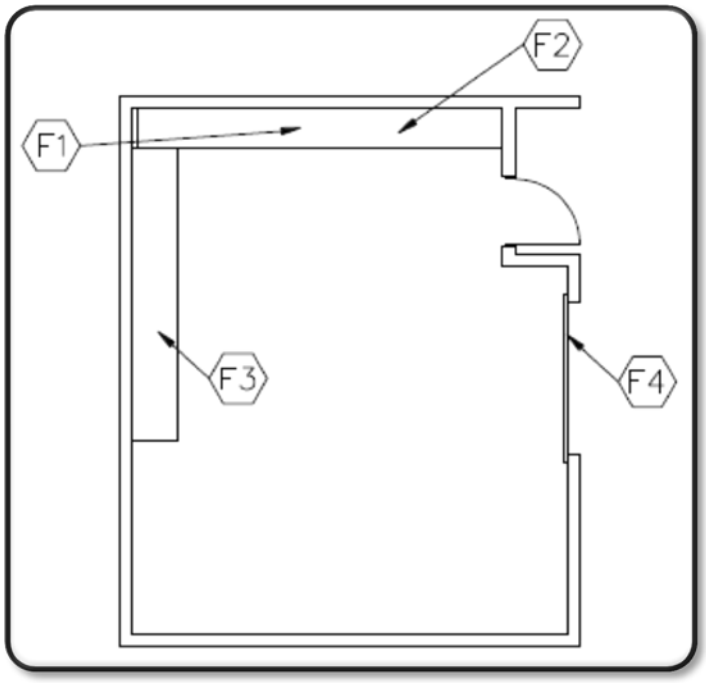
Walls - Painted concrete masonry units

Notes
1. Electrical: duplex receptacles; single-level switching
2. Technology: each video, voice, and data ports; clock

Scene Shop Storage
H-PA-5

Features - Fixed Equipment

F1 Tall, lockable storage cabinets
F2 Tall storage cabinets
F3 Base cabinets
F4 Overhead door



Features – Loose Furnishings

Waste receptacle

Finishes:

Flooring – Sealed concrete

Base - Restroom - Resilient base

Ceiling – Painted exposed structure

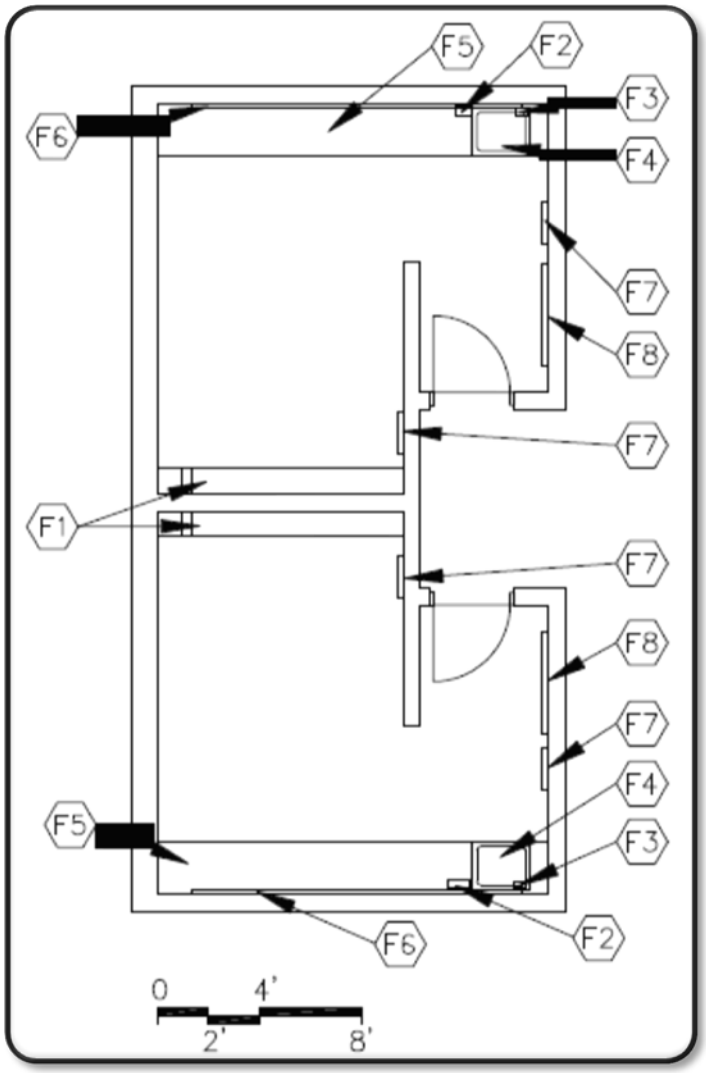
Walls - Painted concrete masonry units

Notes
1. Electrical: duplex receptacles; single-level switching

Make Up/Dressing Room
H-PA-6

Features - Fixed Equipment

F1 108" high costume storage cabinets
F2 Towel dispenser
F3 Soap dispenser
F4 Sink base cabinet
F5 Work surface
F6 48" high make-up mirrors - full length of work surface
F7 20" wide x 60" high dressing mirrors (2 minimum)
F8 Tack board



Features – Loose Furnishings

Chairs
Bench
Mobile costume rack
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

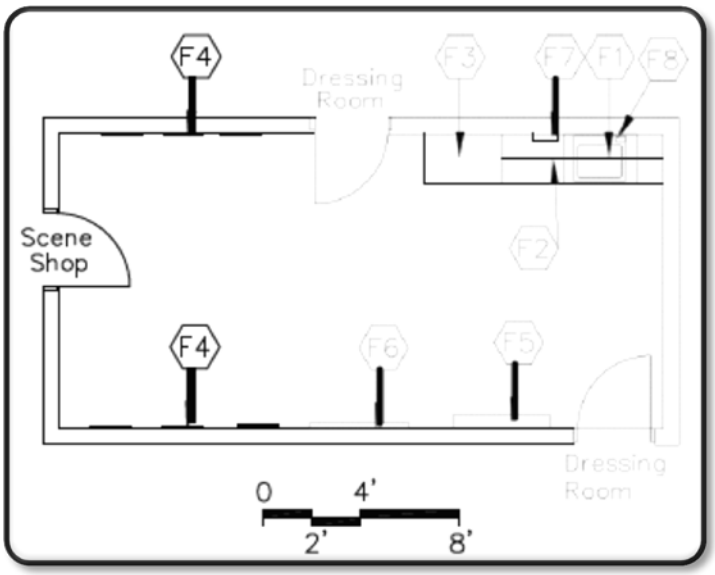
Notes

1. Electrical - duplex receptacles; duplex receptacle at each make-up station under mirror; incandescent lighting over make-up mirrors; fluorescent lighting overhead; single-level switching; telecommunications grounding
2. Technology - clock
3. Plumbing - sink; plumbing connections

Green Room
H-PA-7

Features - Fixed Equipment

F1 Sink base cabinet
F2 Base cabinets
F3 Tall storage cabinets
F4 Mirrors
F5 ~~Chalk/marker~~ Marker board
F6 Tack board
F7 Towel dispenser
F8 Soap dispenser



Features – Loose Furnishings

Lounge furniture
Chairs/stools
Wastebaskets

Finishes:

Flooring – Carpet

Base – Resilient base

Ceiling – Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Plumbing -sink; drinking fountain
3. Technology - video ports and monitors; voice port and phone

Costume Storage
H-PA-8

Features - Fixed Equipment

F1 High costume storage cabinets

F2 Mirror

Features – Loose Furnishings

N/A

Finishes:

Flooring - Resilient

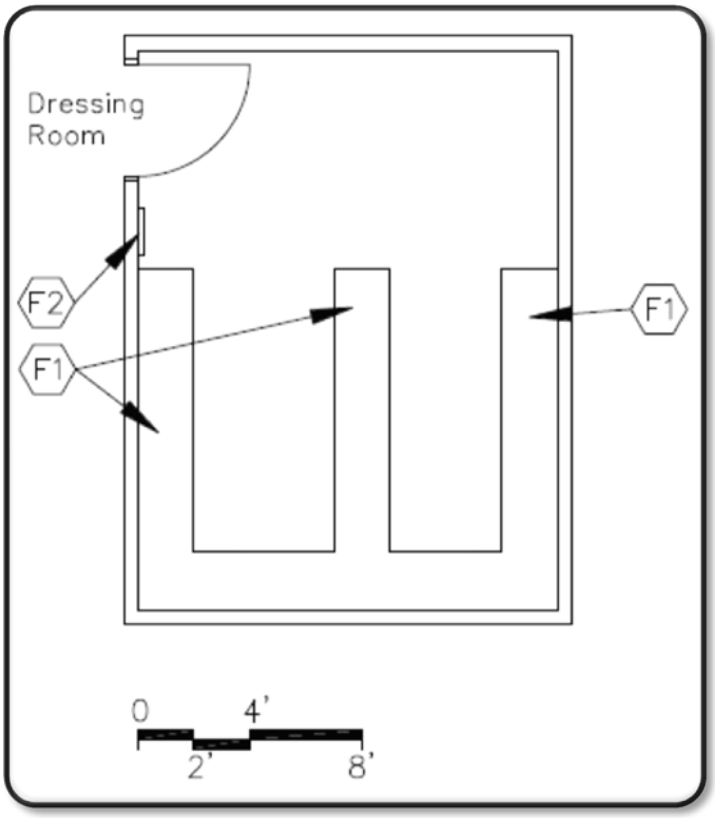
Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching



Control Room
H-PA-9

Features - Fixed Equipment

F1 Equipment/work surface
F2 Tack board
F3 Operable windows
F4 Acoustical wall treatment

Features – Loose Furnishings

Chairs
Wastebasket

Finishes:

Flooring – Resilient

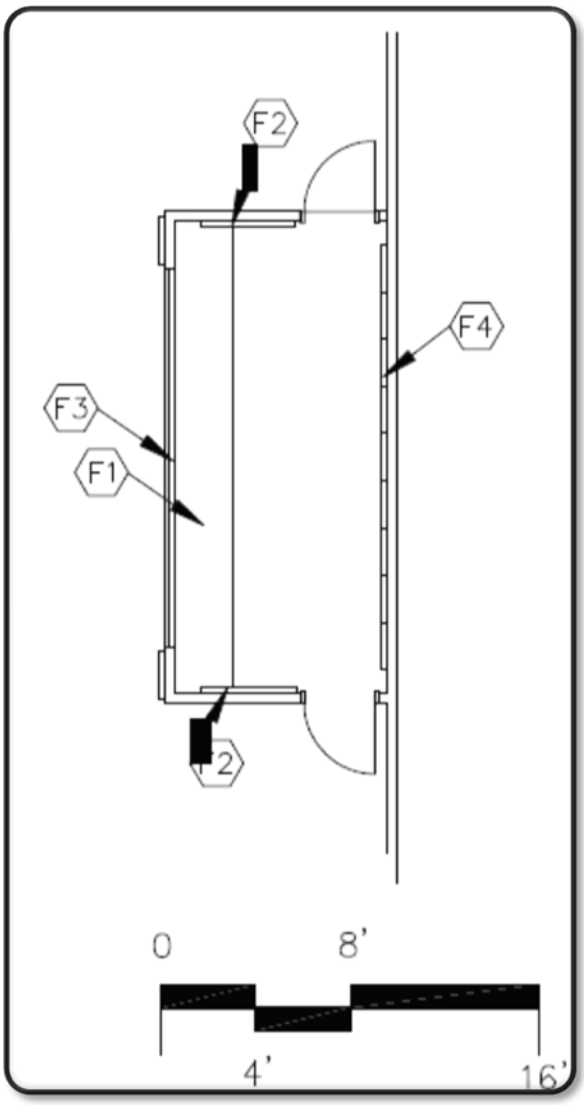
Base – Resilient base

Ceiling – Suspended, acoustical

Walls - Painted gypsum wallboard, acoustical wall treatment

Notes

1. Electrical - duplex receptacles; dimmable incandescent task lighting on work surface; fluorescent lighting overhead; single-level switching; telecommunications grounding; auditorium lighting wired through stage dimmer panel; provisions for hard-wired equipment; empty communications conduit with pull cable from stage for future video projection control; stage dimming system control panel
2. Technology - clock; voice port and phone; video port, data ports



Lobby/Concessions/Gallery
H-PA-10

Features - Fixed Equipment

F1 Base cabinet

F2 Coiling doors

Features – Loose Furnishings

N/A

Finishes:

Flooring – Porcelain tile or terrazzo

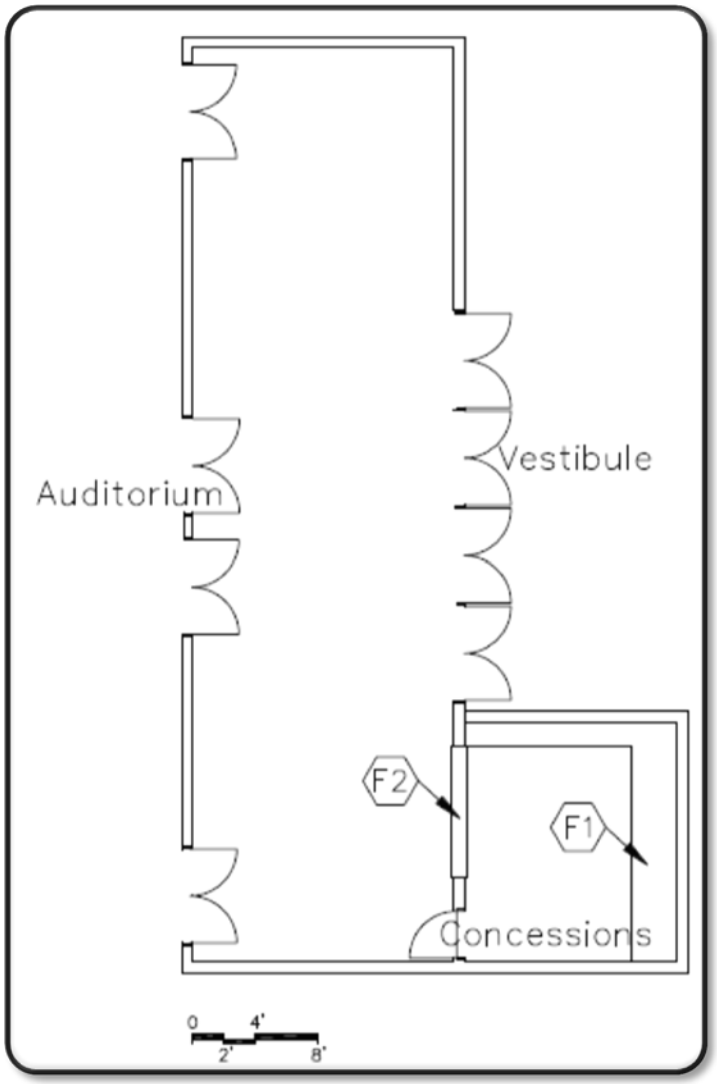
Base – Porcelain tile or terrazzo base

Ceiling – Suspended, acoustical

Walls - Ceramic tile, brick, painted concrete masonry units, acoustical wall treatment

Notes

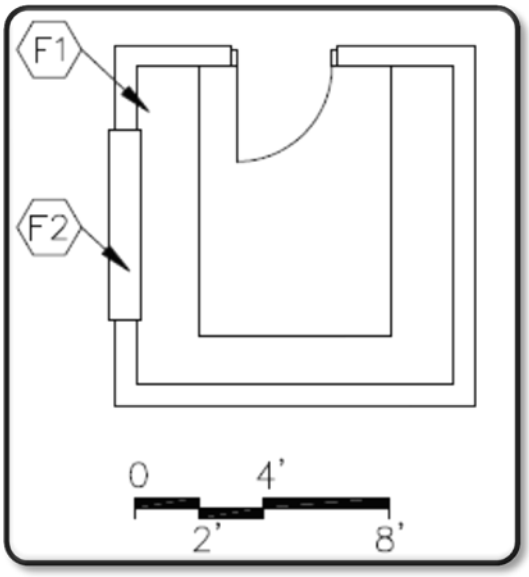
1. Electrical - duplex receptacles; multi-level switching; accent lighting; receptacles for concession equipment



Ticket Booth
H-PA-11

Features - Fixed Equipment

F1 Base cabinet
F2 Coiling door



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring – Resilient

Base – Resilient base

Ceiling – Suspended, acoustical

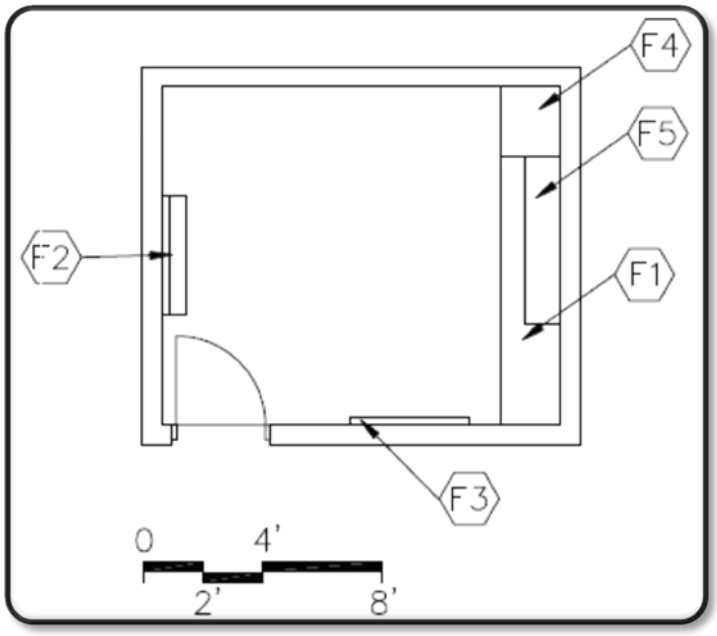
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching;

Theatre/Drama Office
H-PA-12

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket(s)

Finishes:

Flooring – Carpet

Base – Resilient base

Ceiling – Suspended, acoustical

Walls – Painted gypsum wallboard over metal studs or
Painted concrete masonry units

Notes

1. Electrical: duplex receptacles; single-level switching
2. Technology: each data port, video port, voice port & phone; clock

Storage
H-PA-13

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

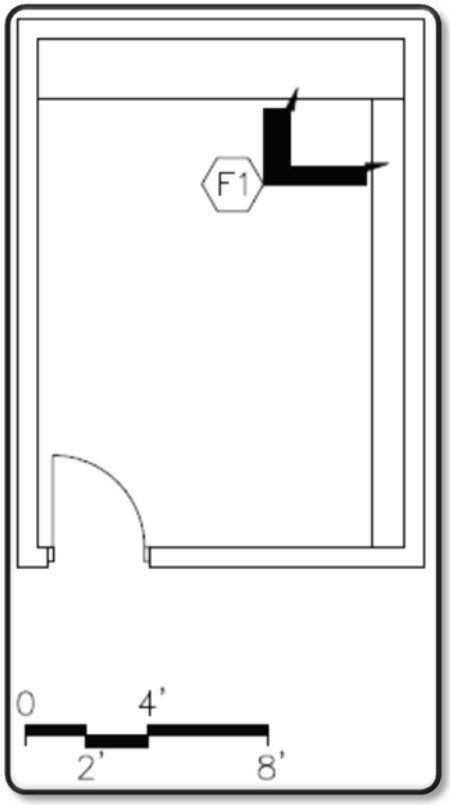
Flooring – Sealed concrete

Base – Resilient base

Ceiling – Suspended, acoustical or
Exposed, painted structure

Walls - Painted concrete masonry units

Notes
1. Electrical: duplex receptacles; single-level switching



Warming Kitchen
H-FS-1

Features - Fixed Equipment

Food Service Equipment

Features – Loose Furnishings

N/A

NOTE:
Kitchen area must be located adjacent to exterior loading dock area to receive transported food from central kitchen.

Finishes:

Flooring - Quarry tile

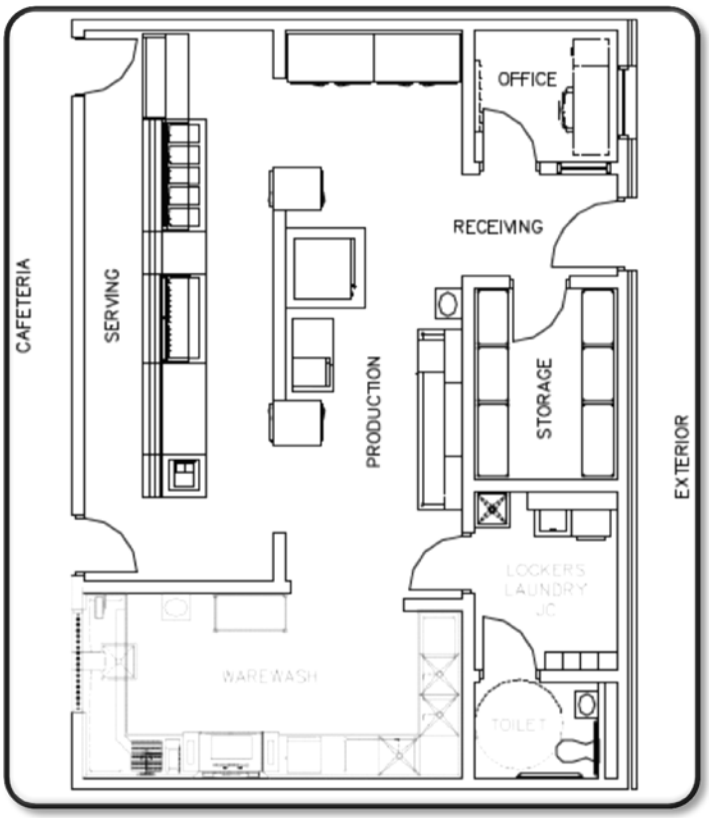
Base - Quarry tile base

Ceiling - Cleanable, suspended, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - dual level switching; duplex receptacles; connections to food service equipment
2. Technology - voice port and phone, data port at cash register; clock
3. Plumbing - hand washing lavatory; plumbing and gas connections; connections to food service equipment; floor drains
4. HVAC - kitchen canopy exhaust system



The space consists of various areas:

- Production Area
- Serving Area
- Warewash
- Storage
- Receiving

Additional areas to be added: office, restroom, locker room, janitorial closet

Kitchen
H-FS-2

Features - Fixed Equipment

Food Service Equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

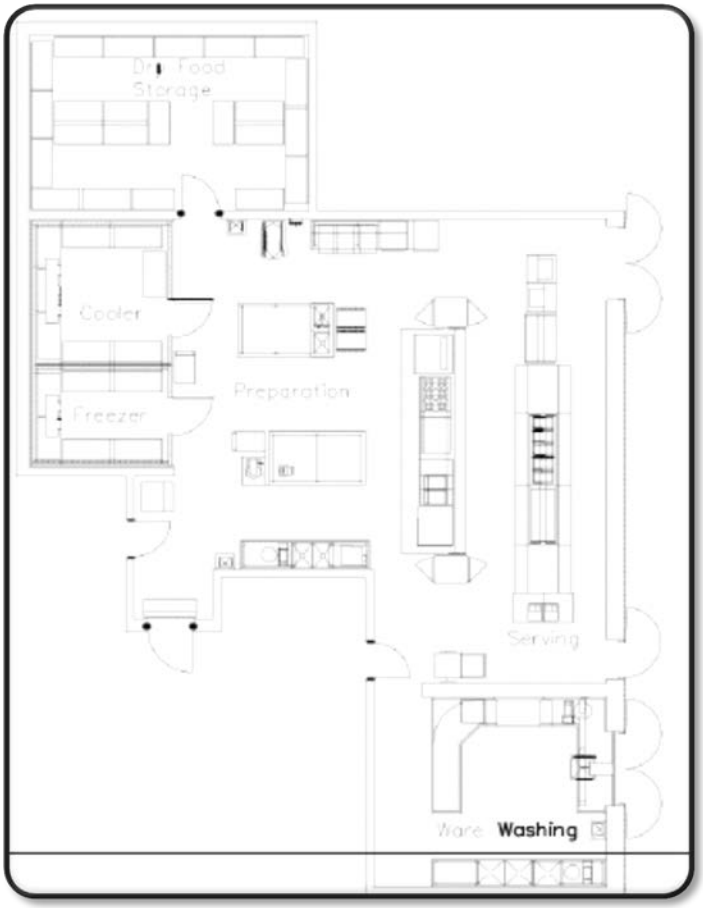
Base - Quarry tile base

Ceiling - Cleanable, suspended, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - dual level switching; duplex receptacles; connections to food service equipment
2. Technology - voice port and phone, data port at cash register; clock
3. Plumbing - hand washing lavatory; plumbing and gas connections; connections to food service equipment; floor drains
4. HVAC - kitchen canopy exhaust system



The space consists of various areas:

- Production Area
- Serving Area
- Warewash
- Storage
- Receiving

A space plate follows for each of these spaces.

Additional areas to be added: office, restroom, locker room, janitorial closet

Kitchen - Preparation Area
H-FS-2a

Features - Fixed Equipment

Food Service Equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

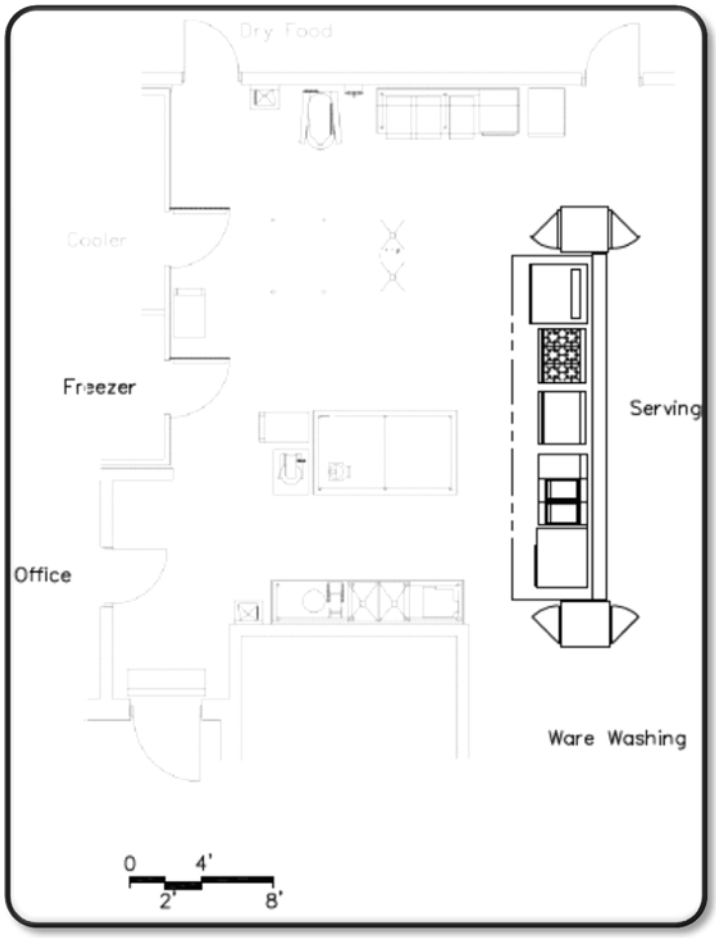
Base - Quarry tile base

Ceiling - Cleanable, suspended, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - duplex receptacles; dual-level switching; connections to food service equipment
2. Technology - Voice port & phone; clock
3. Plumbing - plumbing and gas connections; hand washing lavatory; floor drains



Kitchen - Serving Area
H-FS-2b

Features - Fixed Equipment

Food service equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile
Optional - Porcelain tile

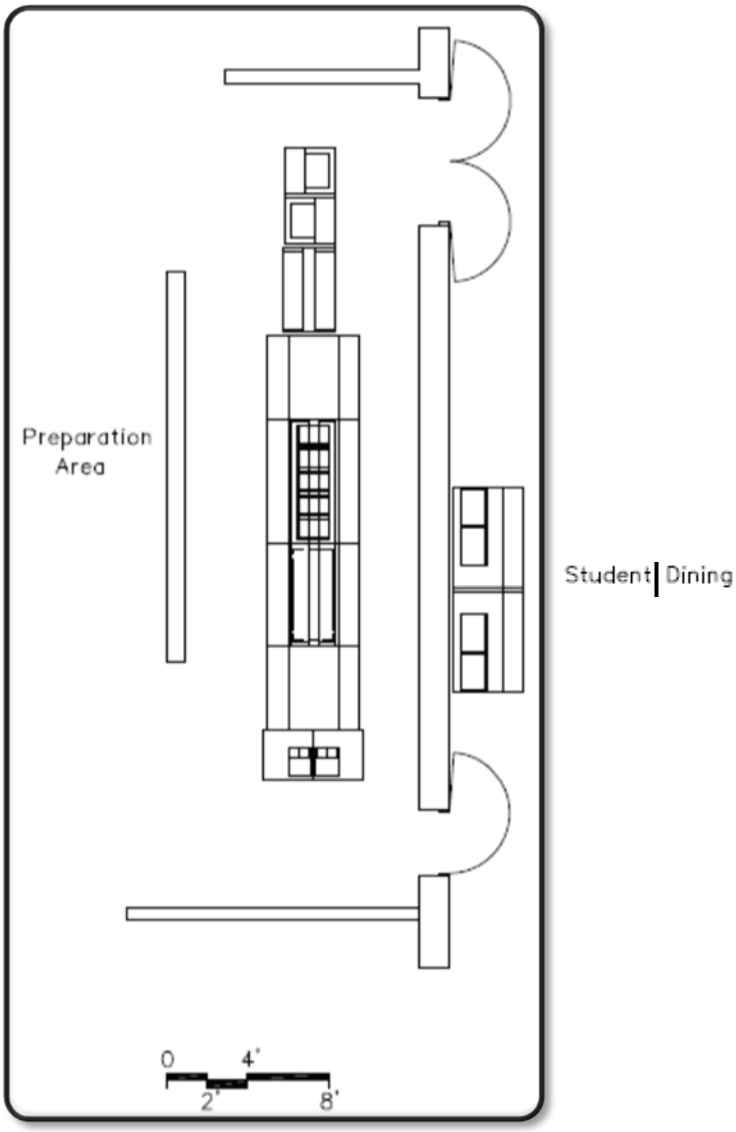
Base - Quarry tile base (optional: porcelain tile)

Ceiling - Cleanable, suspendable, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

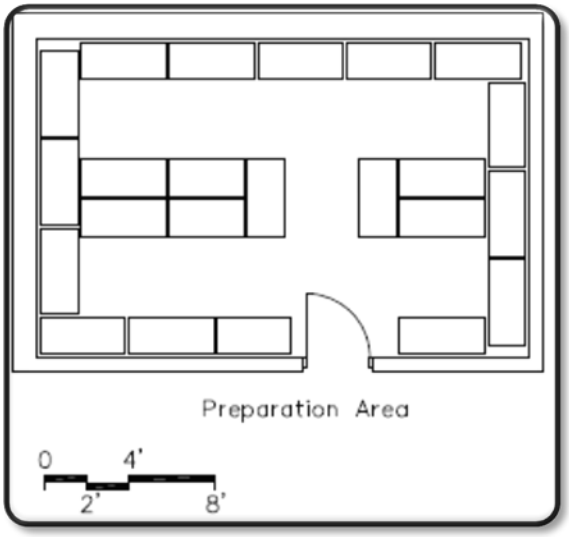
1. Electrical - duplex receptacles; dual-level switching; connections to food service equipment
2. Technology - voice port & phone; clock; data port at cash register
3. Plumbing - connections to food service equipment



Kitchen - Dry Storage
H-FS-2c

Features - Fixed Equipment

Food service equipment



Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Cleanable, suspendable, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching

Kitchen - Cooler/Freezer
H-FS-2d

Features - Fixed Equipment

Food service equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

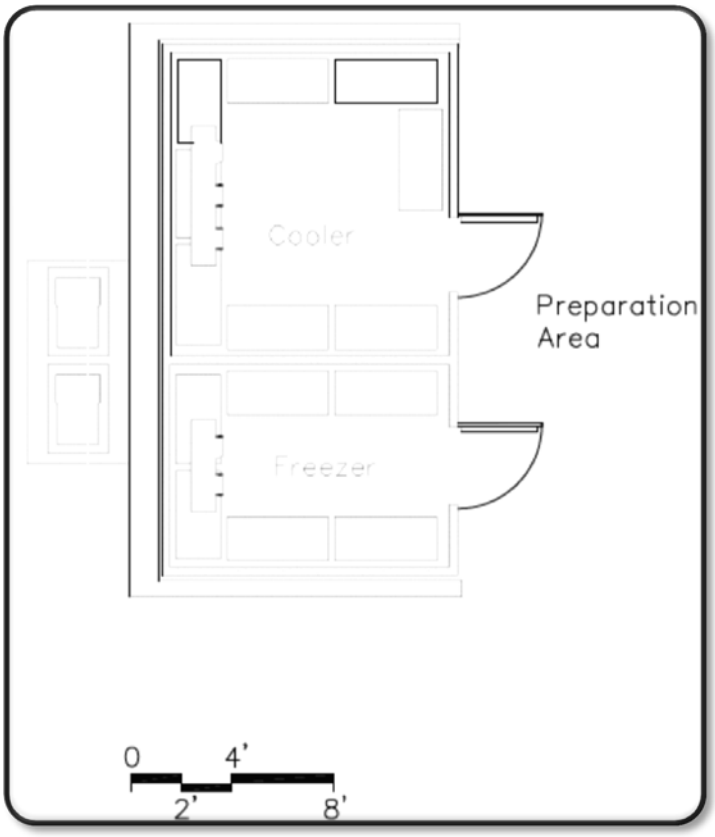
Base - Quarry tile base

Ceiling - Manufactured insulated panel

Walls - Manufactured insulated panel

Notes

1. Electrical - single-level switching; electrical connections to freezer/cooler refrigeration equipment



Kitchen - Ware Washing
H-FS-2e

Features - Fixed Equipment

Food service equipment

Features – Loose Furnishings

N/A

Finishes:

Flooring - Quarry tile

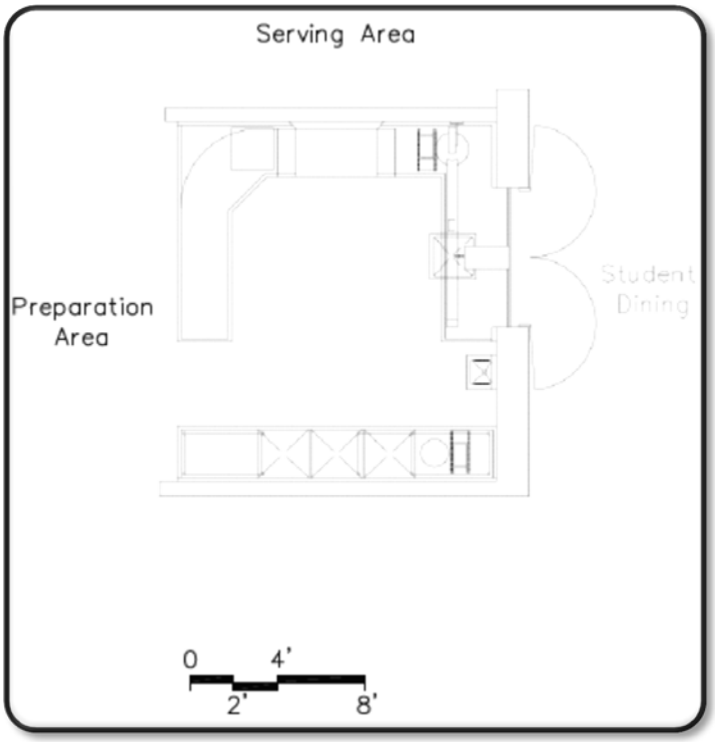
Base - Quarry tile base

Ceiling - Cleanable, suspendable, acoustical

Walls - Epoxy-painted concrete masonry units

Notes

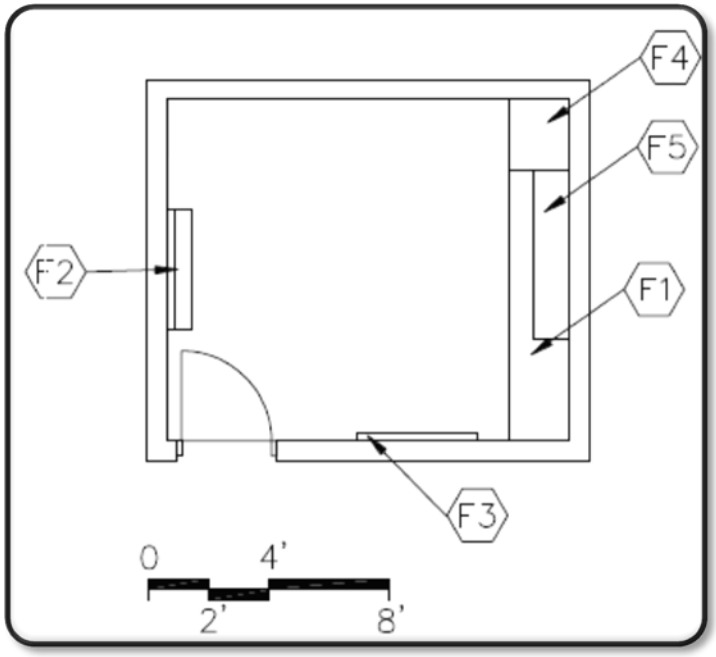
1. Electrical - duplex receptacle; dual-level switching; connections to food service equipment
2. HVAC - exhaust hood system
3. Plumbing - lavatory



Dietician's Office
H-FS-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

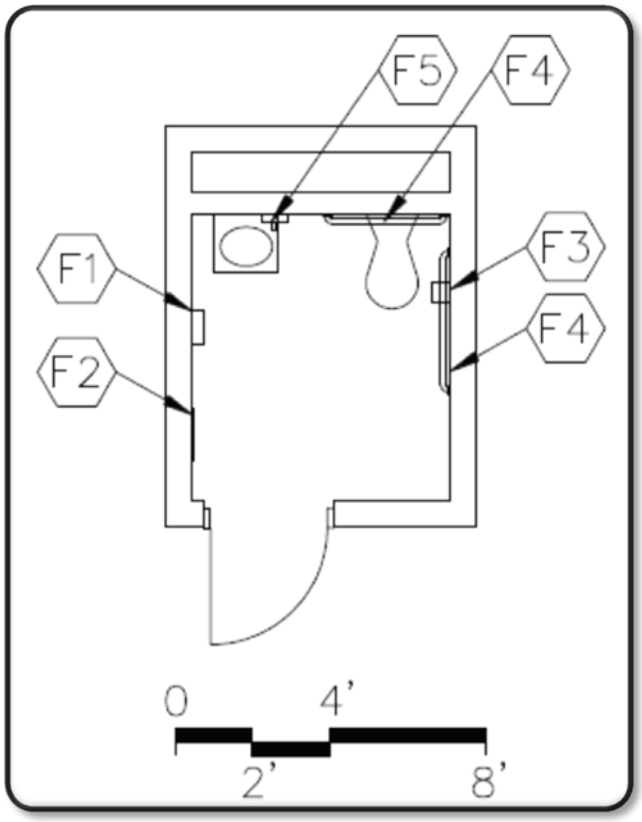
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - each data port, video port, voice port & phone; clock

Restroom
H-FS-4

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base (optional: CMT, PT, or TER)

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Plumbing - water closet and lavatory
2. Electrical - single-level switching; duplex receptacle

Locker Room
H-FS-5

Features - Fixed Equipment

F1 24" x 60" mirror
F2 Lockers
F3 Wall cabinets
F4 Mop holder

Features – Loose Furnishings

Chairs
Washer
Dryer
Wastebasket

Finishes:

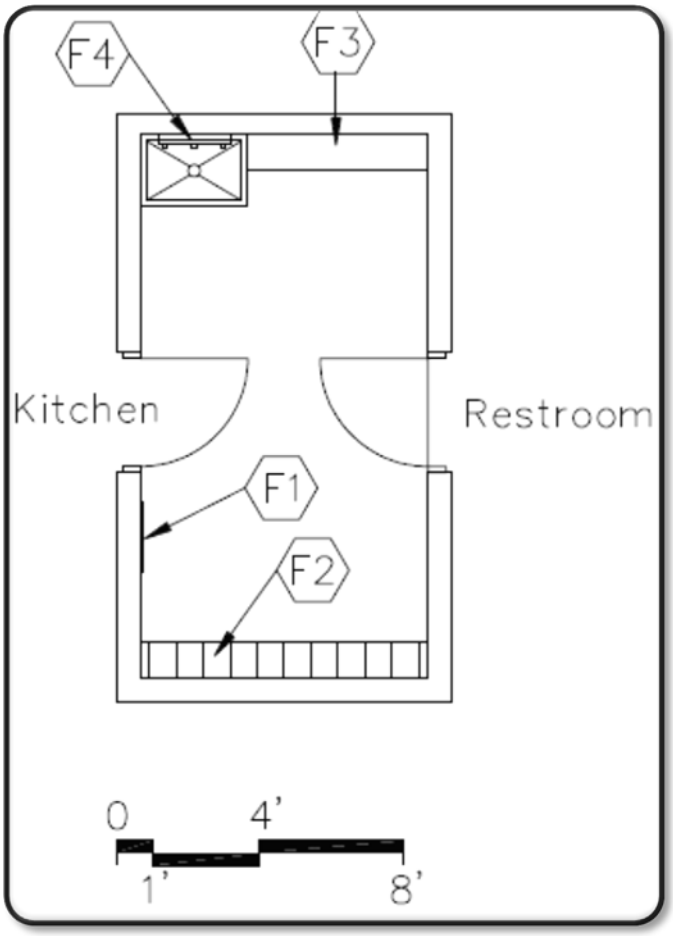
Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical, with high-impact, hold-down clips
Optional - Exposed, painted pre-cast units

Walls - Painted concrete masonry units

Notes
1. Plumbing - floor service sink; floor drain
2. Electrical - single-level switching; (1) duplex receptacle
3. HVAC - dryer vent system; manually operated exhaust air system
4. Technology - clock



Workroom
H-CU-1

Features - Fixed Equipment

F1 Metal shelving
F2 Lockers
F3 Mop holder
F4 Soap dispenser
F5 Towel dispenser

Features – Loose Furnishings

Workbench
Stool
Recycling bins
Waste receptacles

Finishes:

Flooring - Sealed concrete

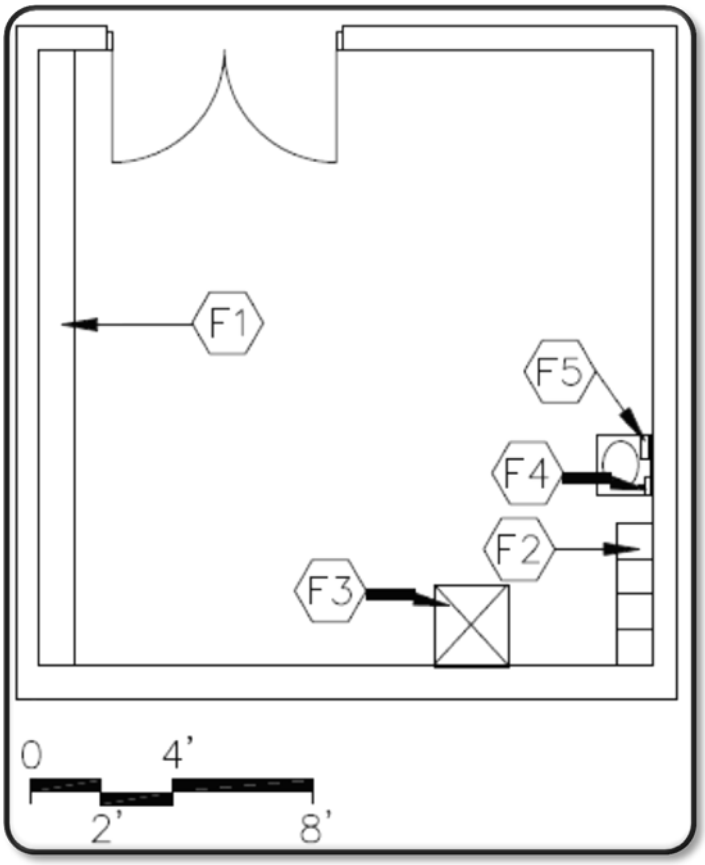
Base - Resilient base

Ceiling - Suspended, acoustical or exposed, painted structure

Walls - Painted concrete masonry units

Notes

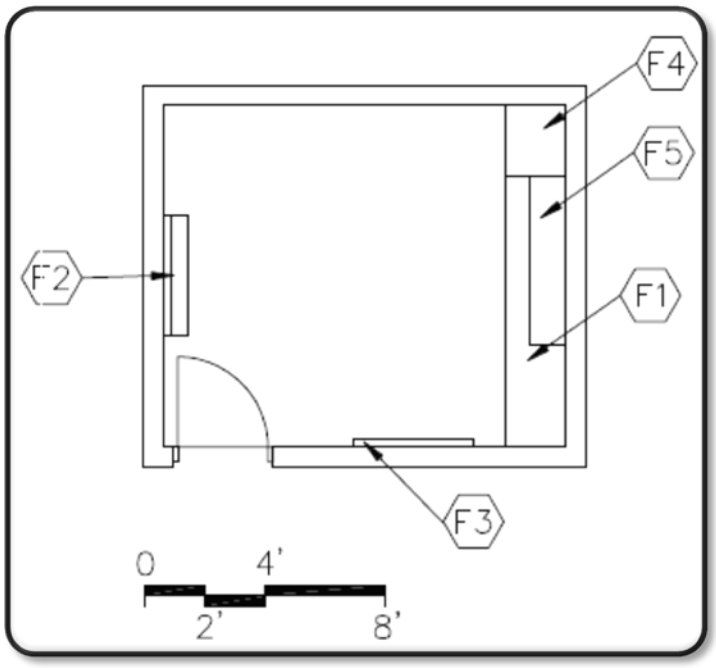
1. Electrical - duplex receptacle; single-level switching; electrical receptacles for custodial equipment
2. Plumbing - floor service sink; handwash sink
3. Technology - voice port and phone; clock



Custodial Office
H-CU-2

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

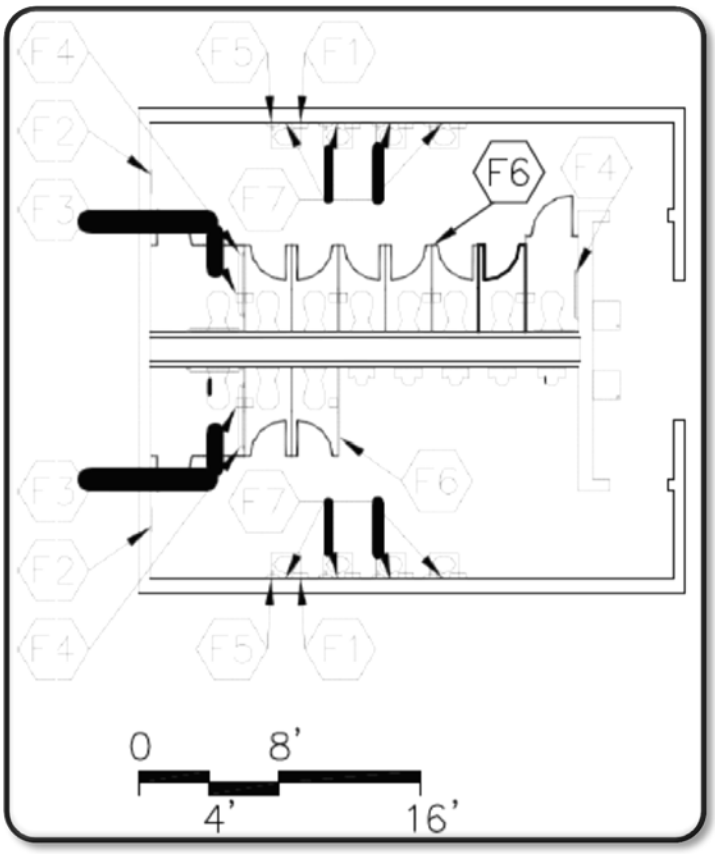
Notes

1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, voice port & phone; clock; modem port for temperature controls

Large Group Restrooms
H-BS-1

Features - Fixed Equipment

F1 Towel dispenser
F2 24” x 60” mirror
F3 Toilet tissue holder
F4 36” and 42” grab bar
F5 Soap dispenser
F6 Toilet partitions
F7 16” x 24” mirrors



Features – Loose Furnishings

Waste receptacles

Finishes:

Flooring - Ceramic mosaic tile base
Optional - Porcelain tile or terrazzo tile

Base - Ceramic mosaic tile base
Optional - Structural glazed tile base or porcelain tile base

Ceiling - Suspended, acoustical
Optional - Abuse-resistant gypsum wallboard

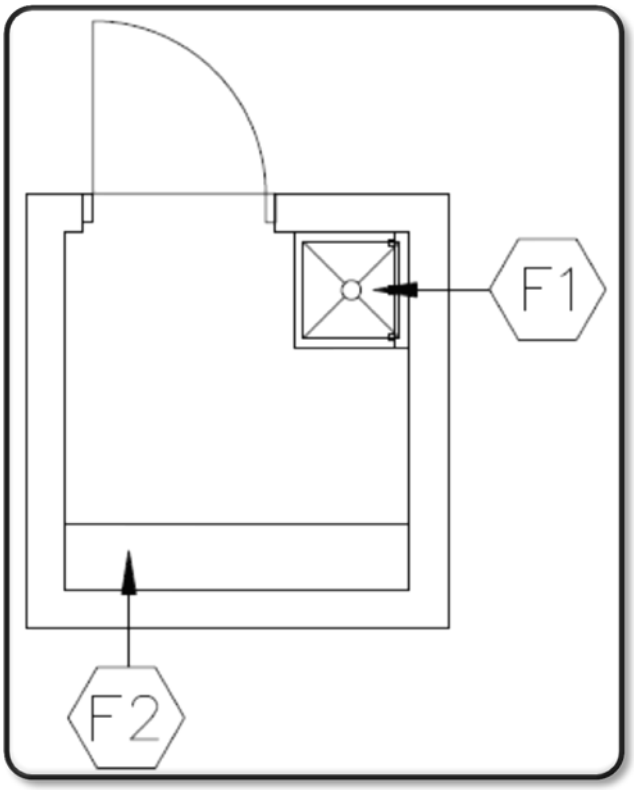
Walls - Painted concrete masonry units

Notes
1. Plumbing - water closets, urinals, lavatories, and hydrants; water coolers; floor drains
2. Electrical - single-level switching; duplex receptacle

Custodial Closet
H-BS-2

Features - Fixed Equipment

F1 Mop holder
F2 Wall cabinets



Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching
2. Plumbing - service sink and floor drain sink

Electrical Closet
H-BS-3

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

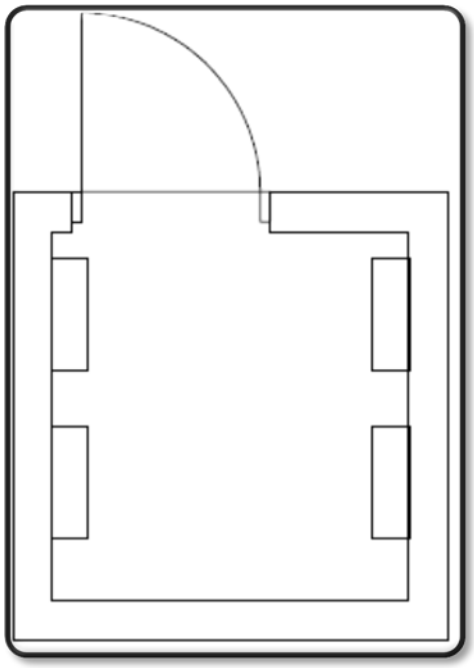
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; electrical switchgear



Telecommunications Room
H-BS-4

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

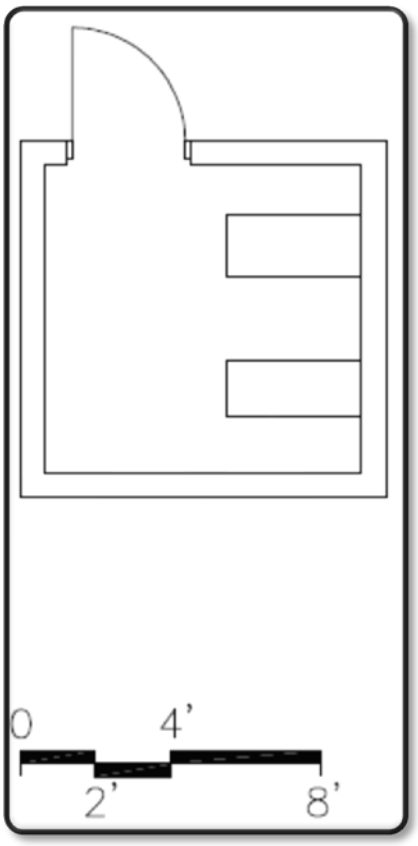
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; telecommunications grounding
2. Technology - technology equipment; plywood backboard



Corridors/Vestibules
H-BS-5

Features - Fixed Equipment

Fire extinguishers and cabinets
Recessed vinyl floor mats or surface mats

Features – Loose Furnishings

Recycling bins and waste receptacles

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo

Base - Resilient base
Optional - Structural glazed tile

Ceiling - Suspended, acoustical
Optional in vestibules - Abuse-resistant gypsum wallboard

Walls - Painted concrete masonry units

NOTE - At entries adjacent to dining/commons area, match dining/commons flooring.

Notes

1. Electrical - duplex receptacles; dual-level switching
2. Technology - clocks, wireless access points; video ports
3. Plumbing - drinking water coolers
4. Miscellaneous - display cases

Corridors shall be a minimum of 8 feet wide.

Corridors are to meet the egress requirements applicable codes.

Instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.

Area of vestibules is to be included within area allotted for corridors.

Width of vestibules can be no less than minimum width of adjacent corridor.

Minimum corridor length recommended is 8 feet between doors.

Vestibules are to be provided at major entrances/exits.

Mechanical Room/Decks
H-BS-6

Features - Fixed Equipment

To be determined by Design Professional

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

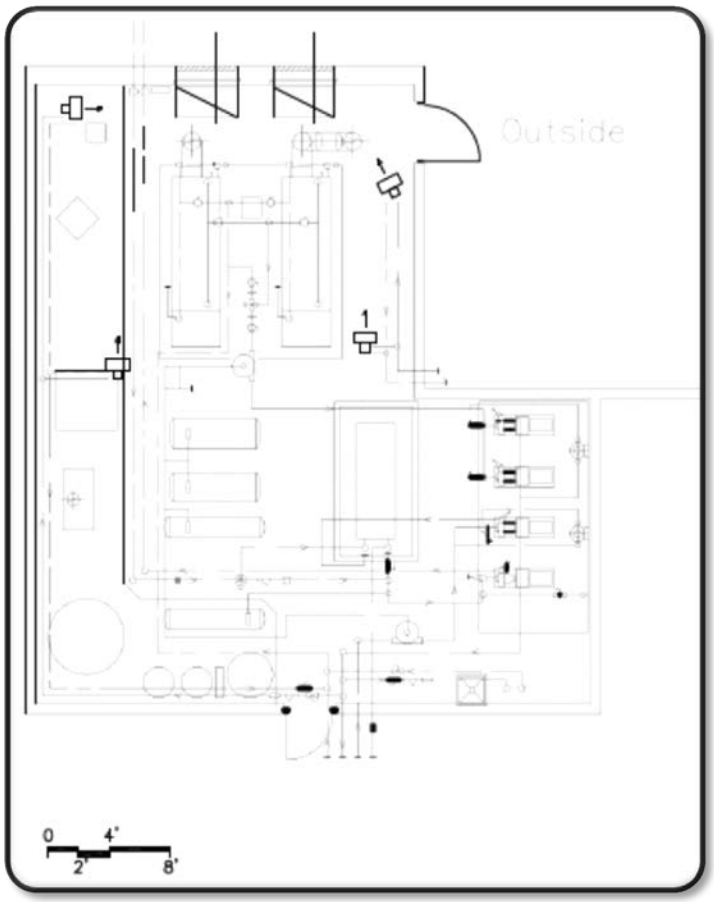
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units
Optional - Can use metal panel on CMU or metal panel on metal framing wall system for penthouse

Notes

1. Electrical - dual-level switching; to be determined by Design Professional
2. Plumbing - to be determined by Design Professional



Storage Area
H-BS-7

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

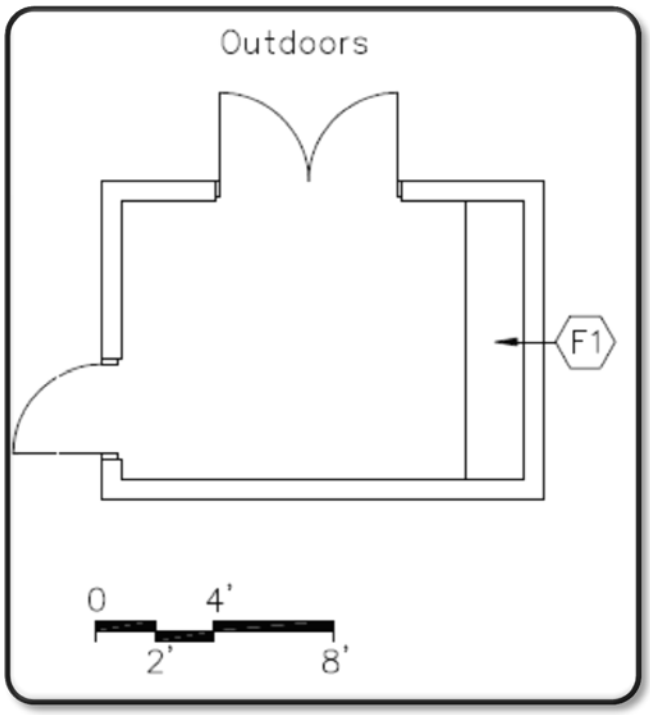
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - single-level switching; duplex receptacles



Central Storage Area
H-BS-8

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

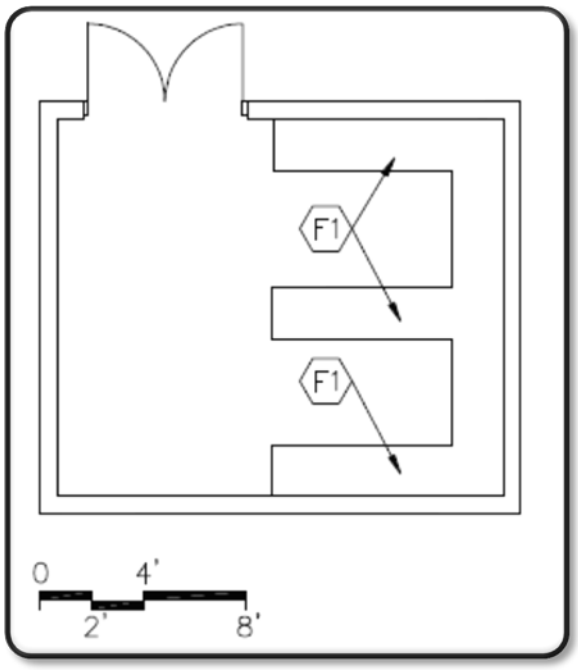
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - single-level switching; duplex receptacles



Loading/Receiving Area
H-BS-9

Features - Fixed Equipment

F1 Loading dock leveler and dock bumpers

Features – Loose Furnishings

N/A

Finishes:

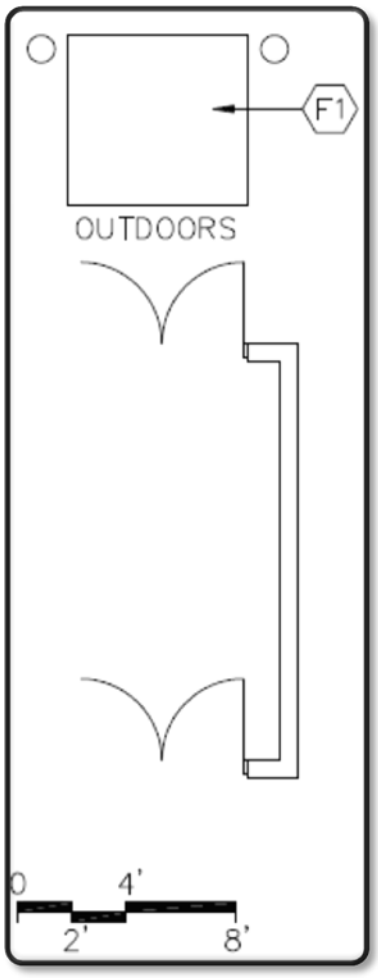
Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

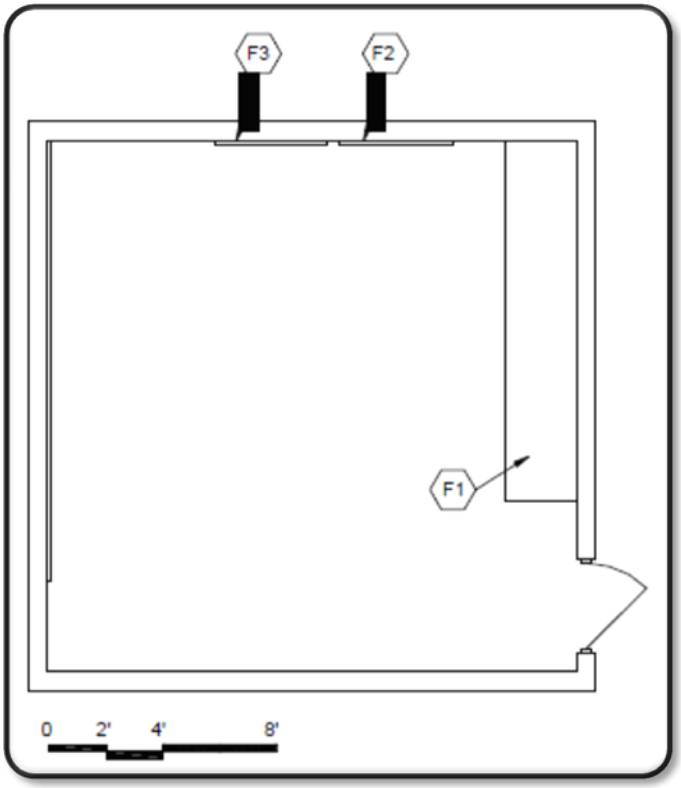
Notes
1. Electrical - single-level switching; duplex receptacles



Main Cross Connect
H-BS-10

Features - Fixed Equipment

F1 Open metal shelving
F2 Tack board
F3 ~~Chalk/marker~~ Marker board



Features – Loose Furnishings

Desk and chair
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching; telecommunications grounding
2. Technology - data port, voice port & phone; technology equipment; plywood backboard
3. Miscellaneous - Provide distribution equipment with an equipment electrical ground.

Agribusiness Lab
CE-AG-1

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Sink base cabinet
Towel dispenser
Base cabinets
Tall storage cabinets
Soap dispenser

Program Description - Program provides instruction in planning, organizing, directing, and controlling the functions of an agricultural business.

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Plumbing - sink
4. Miscellaneous - classroom area network file server; laser printer

AG Mechanics Lab
CE-AG-2

Program Description - Programs provide instruction in the operations or processes concerned with the selection, operation, maintenance, and use of agricultural power, agricultural machinery and equipment, structures, utilities, soil, and water management.

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Paper towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
Steel bollards at overhead door, both sides
3'x7' hollow metal mandoor to exterior

Features – Loose Furnishings

Workbenches with heavy-duty metal tops
Stools or chairs
Welding tables
Wastebasket
Pencil sharpener
Various instructional equipment

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; 220-volt receptacles
1. Technology - video port and video display device; voice port and phone; data ports; clock
2. Plumbing - each washfountains, utility sinks, hose bibs; safety eyewash/shower; compressed air connections; floor drains; trench drain
3. HVAC - welding hood and exhaust; vehicle exhaust system

Outdoor Covered Work Area
CE-AG-3

Program Description - Program provides hands-on skill learning of using various pieces of agricultural equipment

Features - Fixed Equipment

N/A

Features – Loose Furnishings

Mobile tools cart

Finishes:

Flooring – Concrete

Base – N/A

Ceiling – Exposed structure

Walls – N/A

Notes

1. Electrical - duplex receptacles

Outdoor Animal Science Lab
CE-AG-4

Features - Fixed Equipment

N/A

Features – Loose Furnishings

Mobile material cart

Finishes:

Flooring – Concrete

Base – N/A

Ceiling – N/A

Walls – N/A

Notes

1. Electrical - duplex receptacles

Program Description - Program provides instruction in the principles and practices of producing, caring for, and marketing domesticated non-food animals. Examples of careers in this program include veterinary technicians, zoo keepers, kennel managers, grooming specialists, pet sales associates, and animal laboratory technicians.

Greenhouse
CE-AG-5

Program Description - Program provides instruction on the development and caring of ornamental plants and vegetable crops. Examples of careers in this program include floral design, landscape design, ~~turfgrass~~ turf grass management, and garden and nursery product sales.

Features - Fixed Equipment

Fixed tables and benches
~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Paper towel dispensers
Soap dispensers
3'x7' hollow metal man door to exterior

Features – Loose Furnishings

Work tables with heavy-duty tops
Stools or chairs
Various instructional materials

Finishes:

Flooring – ½ Sealed concrete with drains
½ Earth floor

Base – N/A

Ceiling – Glass structure – natural ventilation

Walls – Glass and painted concrete masonry

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - voice port and phone; video port and video display device; data ports; clock;
3. Plumbing - washfountain; utility sinks, floor drains; trench drain; hose bibs
4. HVAC - independent ventilation system

Cold Frame
CE-AG-6

Program Description - Program provides instruction on the development and caring of ornamental plants and vegetables from seed. Experience in the care and nurturing of plants in the exterior dormant season.

Features - Fixed Equipment

Tables and benches
Soap dispenser
Towel dispenser

Features – Loose Furnishings

Work tables with heavy-duty tops

Finishes:

Flooring – Sealed concrete with drains

Base – N/A

Ceiling – Glass structure – natural ventilation

Walls – Glass and painted concrete masonry units

Notes
1. Electrical - duplex receptacles; outlets for “gro” lamps
2. Plumbing - Washfountain and utility sink; floor drains; hosebibbs
3. HVAC - Independent heating and ventilation system

Shade House
CE-AG-7

Program Description - Program provides instruction on the development and caring of plants that prefer shade areas and do not flourish in full sun.

Features - Fixed Equipment

N/A

Features – Loose Furnishings

Work tables
Stools

Finishes:

Flooring – Sealed concrete

Base – N/A

Ceiling – Painted

Walls – Painted

Notes
1. Electrical - duplex receptacles
2. Plumbing - Hose bibb; floor drain

Hydroponics Lab
CE-AG-8

Program Description - Program provides instruction on plants that live in water.

Features - Fixed Equipment

N/A

Features – Loose Furnishings

Work tables
Stools

Finishes:

Flooring – Sealed concrete

Base – Resilient base

Ceiling – Painted, exposed structure

Walls – Painted concrete masonry units

Notes

3. Electrical - duplex receptacles
4. Plumbing - Hose bibb; floor drain, washfountain

Aquaculture Lab
CE-AG-9

Program Description - Program provides instruction in the principles and practices of conserving, improving, and productively managing natural resources, especially water.

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Paper towel dispensers
Soap dispensers

Features – Loose Furnishings

Workbenches with heavy-duty metal tops
Stools or chairs
Welding tables
Wastebasket
Pencil sharpener
Various instructional materials

Finishes:

Flooring – Sealed concrete

Base – Resilient base

Ceiling – Painted, exposed structure

Walls – Painted concrete masonry units

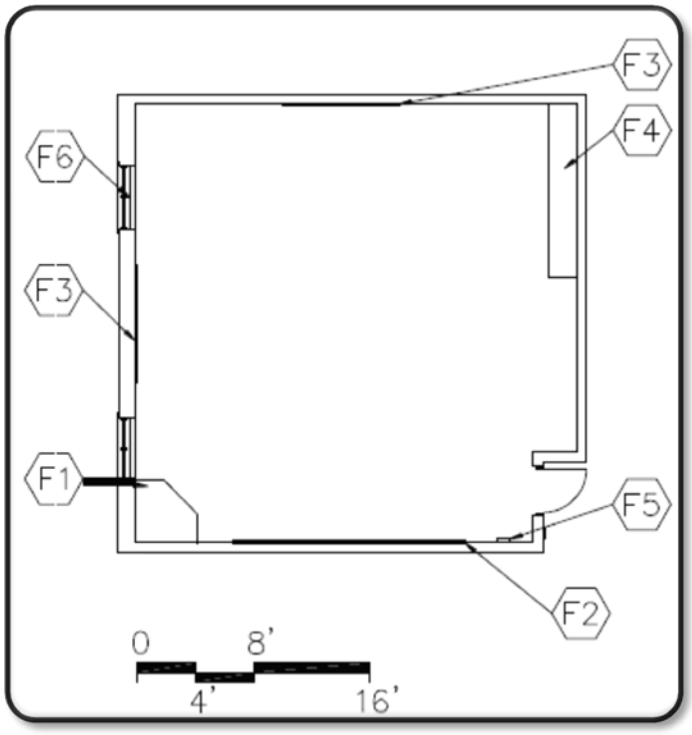
Notes

1. Electrical - duplex receptacles; multi-level switching; 220-volt receptacles
2. Technology - video port and video display device; voice port and phone; data ports; clock
3. Plumbing - washfountain, each utility sink, hose bib, floor drain; safety eyewash/shower; compressed air connections; natural gas connections; trench drain; master gas shut-off valve

Classroom
CE-AG-10

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Base & wall cabinets
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

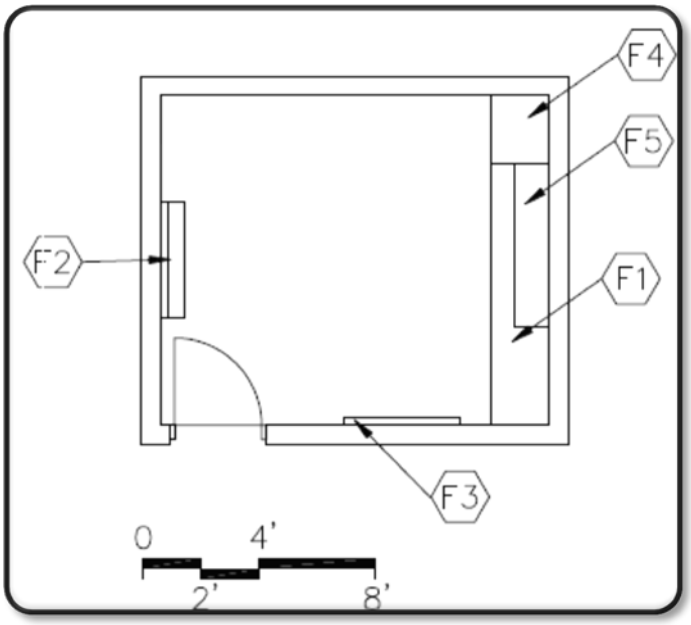
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-AG-11

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Restroom/Locker Room
CE-AG-12

Features - Fixed Equipment

Fixed Equipment
Towel dispenser
24" x 60" mirror
Toilet tissue holder
36" and 42" grab bar
Soap dispenser
Lockers
Wall cabinets

Features – Loose Furnishings

Wastebasket
Chairs

Finishes:

Flooring – Resilient
Optional – Ceramic mosaic tile, porcelain tile or terrazzo

Base - Resilient base
Optional – Ceramic mosaic tile, porcelain tile or terrazzo

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical: Single-level switching; duplex receptacle
2. Plumbing: water closet and lavatory; floor drain

Storage
CE-AG-13

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

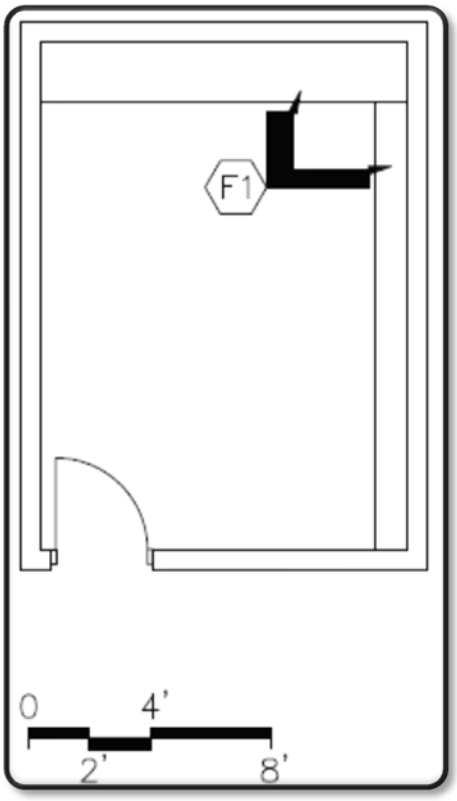
Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching



Management Lab
CE-BM-1

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Program Description - Program prepares individuals to plan, organize, direct, and control the functions and processes of a firm or organization. Includes instruction in human resource management, strategic planning, managing technology, general office functions, financial functions, supervisory functions, and business law.

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Office Administration Lab
CE-BM-2

Program Description - Program prepares individuals to provide administrative support services in a variety of business settings. Instructional emphasis will include office technology, financial functions, records management, and support tasks.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Hospitality Lab
CE-BM-3

Program Description - Program provides instruction and experiences for students to perform marketing functions in any business enterprise primarily engaged in travel services, lodging, leisure activities, attraction and entertainment events, convention services, transportation, and food services.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Lodging Lab
CE-BM-4

Program Description - Program prepares individuals for employment in service and management occupations in the area of hospitality, lodging and facility care. Includes instruction and experiences to develop competencies in lodging services, guest relations, hotel security, guest and room services, environmental services, meeting and banquet services, and laundry and linen services.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart
Reception counter
Appliances such as dishwasher, oven, refrigerator, washer and dryer, microwave oven, etc.

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone; clock;
3. Plumbing – utility sink
4. HVAC - localized exhaust at laundry and oven area

Desktop Publishing Lab
CE-BM-5

Program Description - Program provides instruction on various software programs used to provide graphics for organizations, and includes spatial and visual organization of graphic items on a page for maximum effect. This could include graphics used for marketing materials, newspapers, magazines, advertisements, technical brochures and manuals, websites, etc.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Multimedia Lab
CE-BM-6

Program Description - Program provides instruction on various pieces of technology equipment including computer, printers, scanners, digital cameras, video cameras, etc. Students will learn to use these items to produce various pieces of information for presentations, news reports, magazines, etc.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Programming Lab
CE-BM-7

Program Description - Program prepares individuals to provide and manage data systems for processing and retrieving internal business information, as well as responding to external data requests. Numerous programming languages will be introduced.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Accounting Lab
CE-BM-8

Program Description - Program provides planned learning experiences concerned with systemizing information about transactions and activities into accounts and quantitative records, as well as paying and receiving money.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Banking & Finance Lab
CE-BM-9

Program Description - Program provides instruction concerned with systemizing information about transactions and activities into accounts. Including paying and receiving money, as well as investing and long-term financial planning.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Marketing Lab
CE-BM-10

Program Description - Program provides systematic study of marketing policies, developing a marketing plan for a product or service, setting and achieving marketing goals, and overall marketing involvement in the success of a firm or organization.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

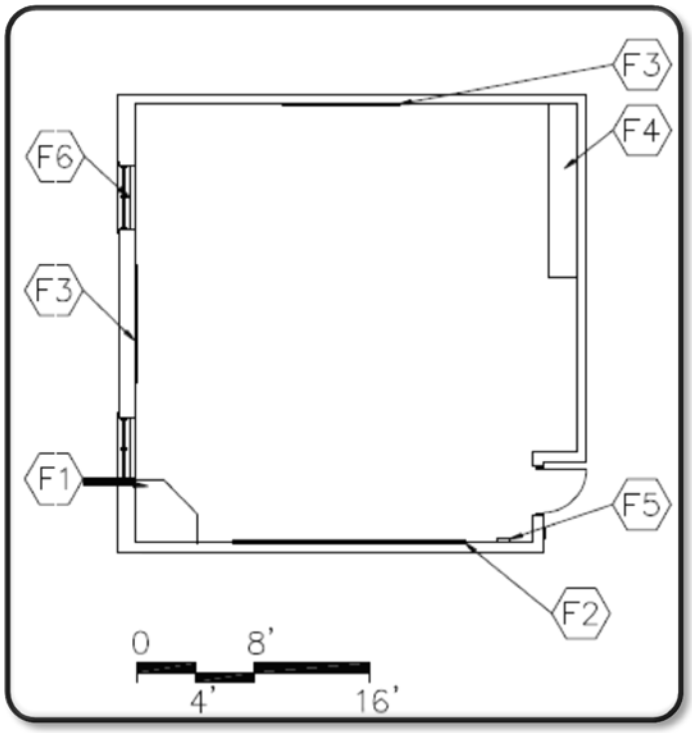
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Classroom
CE-BM-11

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Base & wall cabinets
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

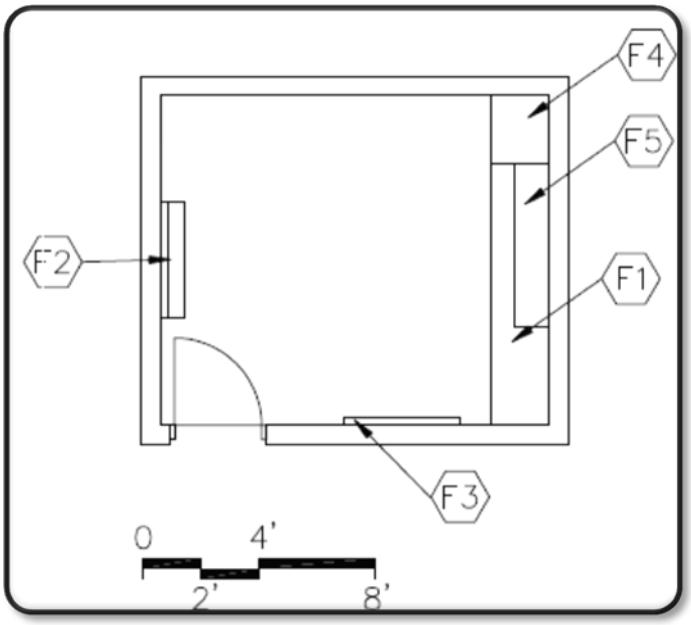
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-BM-12

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
CE-BM-13

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

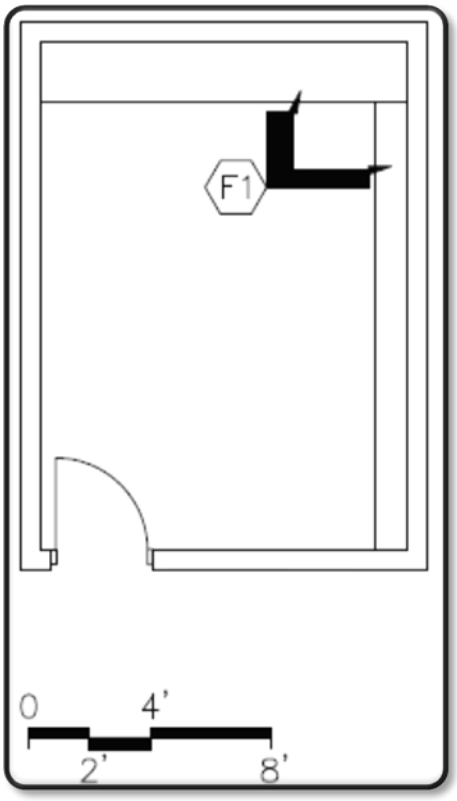
Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching



Family & Consumer Science Lab
CE-FCS-1

Program Description - Program prepares students for family life, work life, and careers by providing opportunities to develop the knowledge, skills, attitudes, and behaviors needed to become responsible citizens.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Sink base cabinet
Towel dispenser
Soap dispenser
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Plumbing - sink
4. Miscellaneous - classroom area network file server; laser printer

Food Prep Lab [kitchen units]
CE-FCS-2

Program Description - Program prepares students for providing nourishing meals for themselves and others through buying groceries, organizing and storing of food items, preparation of food items, cleaning and storage of kitchen items, and planning well-balanced meals.

Features - Fixed Equipment

Sink base cabinet
Towel dispensers
Soap dispensers
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Tables
Wastebaskets
Microwaves
Refrigerators
Ranges and ovens
Dishwasher

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching
2. Technology - each video port, data port, voice port & phone
3. HVAC - localized exhaust at range/oven area
4. Plumbing - sinks

Sewing Lab
CE-FCS-3

Program Description - Program instructs students on how to create clothing from a bolt of material, as well as the necessities of mending clothes. This includes button replacement, shortening of pants, taking in or letting out of garments, reading a pattern, cutting material, and sewing a garment.

Features - Fixed Equipment

Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Wastebaskets
Sewing machines

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical: duplex receptacles; multi-level switching
2. Technology: each video port, data port, voice port & phone

Fitting Room
CE-FCS-4

Features - Fixed Equipment

Mirror
Base cabinet

Features – Loose Furnishings

Pedestal for standing on
Stool
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching

Laundry Room
CE-FCS-5

Features - Fixed Equipment

Wall cabinet

Features – Loose Furnishings

Washer
Dryer
Hanging bar/rack
Clothes basket
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching; receptacle for washer and dryer
2. HVAC - localized exhaust at laundry

Education & Training Lab
CE-FCS-6

Program Description - Program prepares students for training in the service of food in public dining with skills in etiquette and efficient service techniques.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Sink base cabinet
Towel dispenser
Soap dispenser
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Miscellaneous - classroom area network file server; laser printer

Food Production, Management, & Services Lab
CE-FCS-7

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Sink base cabinet
Towel dispenser
Soap dispenser
Base cabinets
Tall storage cabinets

Program Description - Program prepares students for employment in managerial, production, and service jobs for a variety of food service and/or baking operations. Instruction and experiences develop the students' abilities in selection of nutritional foods.

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Plumbing - sink
4. Miscellaneous - classroom area network file server; laser printer

Food Prep Lab [kitchen units]
CE-FCS-8

Features - Fixed Equipment

Sink base cabinet
Towel dispensers
Soap dispensers
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Tables
Wastebaskets
Microwaves
Refrigerators
Ranges and ovens
Dishwasher

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - each video port, data port, voice port & phone
3. HVAC - localized exhaust at range/oven area
4. Plumbing - sinks

Facilities Management, Maintenance, & Services Lab
CE-FCS-9

Program Description - Program provides organized learning experiences concerned with keeping the physical structure of a building in good repair. Instruction includes awareness of the upkeep and maintenance of building components and furnishings, including procedures to service or replace components as required.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Sink base cabinet
Towel dispenser
Soap dispenser
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener
Media cart

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; LCD projector; digital camera; scanner; television; VCR/DVD player
3. Plumbing - sink
4. Miscellaneous - classroom area network file server; laser printer

Child Care Guidance, Management, & Services Lab CE-FCS-10

Program Description - Program prepares students for employment in childcare and guidance. Includes instruction and experiences to develop competencies in teaching and guiding young children. Includes promoting physical, intellectual, social, and emotional growth and development of children, as well as the laws, regulations, and policies related to providing child care services.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Sink base cabinet
Towel dispenser
Soap dispenser
Base cabinets
Tall storage cabinets
Open casework – coats
Windows with integral blinds

Features – Loose Furnishings

Student desks and chairs
Tables and chairs for small children
Low mobile storage units
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring – 60% Carpet; 40% Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical: duplex receptacles; multi-level switching
2. Technology: each video port, data port, voice port & phone; data ports; clock; overhead projector
3. Plumbing: sinks (1 with drinking fountain)

Laundry Room
CE-FCS-11

Features - Fixed Equipment

Wall cabinet

Features – Loose Furnishings

Washer
Dryer
Hanging bar/rack
Clothes basket
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching; receptacle for washer and dryer
2. HVAC - localized exhaust at laundry

Cosmetology Lab
CE-FCS-12

Features - Fixed Equipment

Tack board
Pencil sharpener support
Sink base cabinets
Towel dispensers
Soap dispensers
Base cabinets
Reception counter
Adjustable display shelving
Windows with integral blinds

Program Description - Program prepares students for providing hair styling, applying make-up and arm massaging. Keeping records, sanitizing techniques, personal hygiene, and customer relations are also a part of this program.

Features – Loose Furnishings

Student hair stations
File cabinet
Wastebasket
Pencil sharpener
Portable demonstration stage

Finishes:

Flooring -Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - each video port, data port, voice port & phone; clock
3. Plumbing - hair washing sinks
4. HVAC - ventilation for odors

Cosmetology Clinic Area
CE-FCS-13

Features - Fixed Equipment

Sink base cabinets
Towel dispensers
Soap dispensers
Base cabinets

Features – Loose Furnishings

Wastebasket
Table and chairs

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - clock
3. Plumbing - sinks
4. HVAC - independent ventilation

Cosmetology Instruction Area
CE-FCS-14

Features - Fixed Equipment

Sink base cabinets
Towel dispensers
Soap dispensers
Base cabinets

Features – Loose Furnishings

Wastebasket
Table and chairs

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

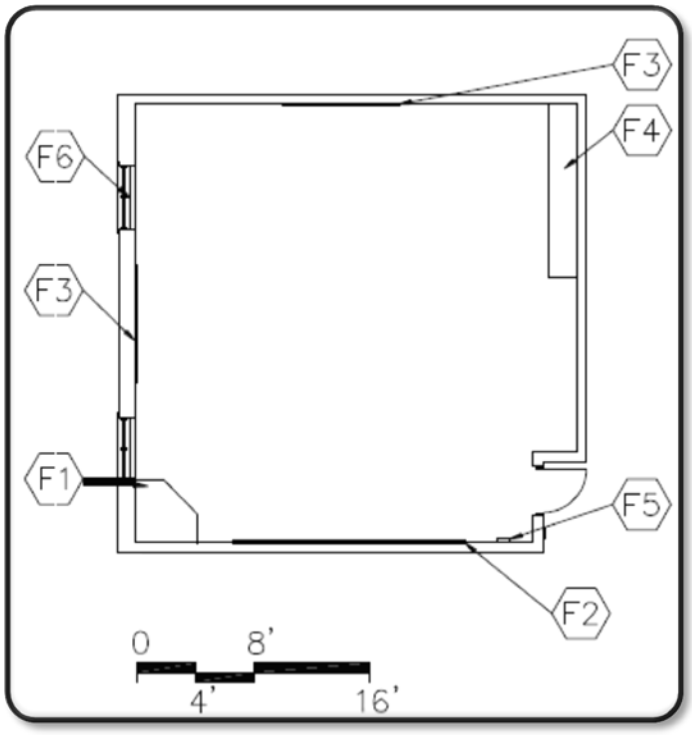
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - clock
3. Plumbing - sink

Classroom
CE-FCS-15

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Base & wall cabinets
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

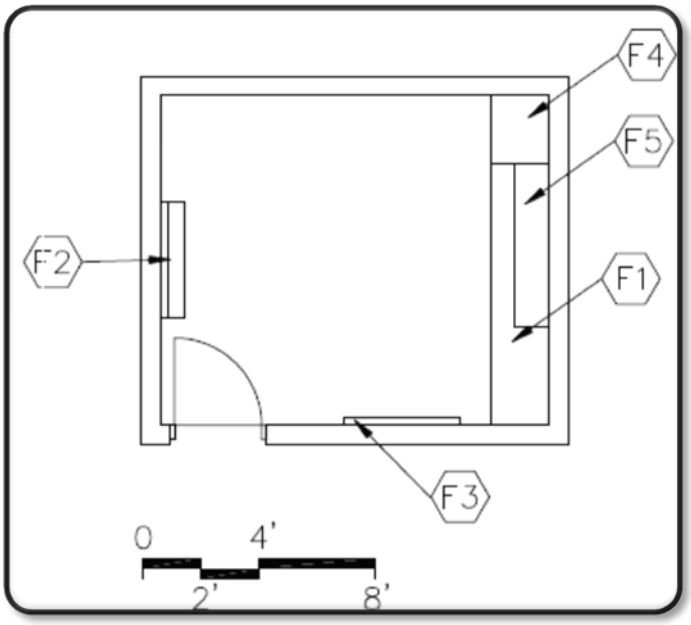
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-FCS-16

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

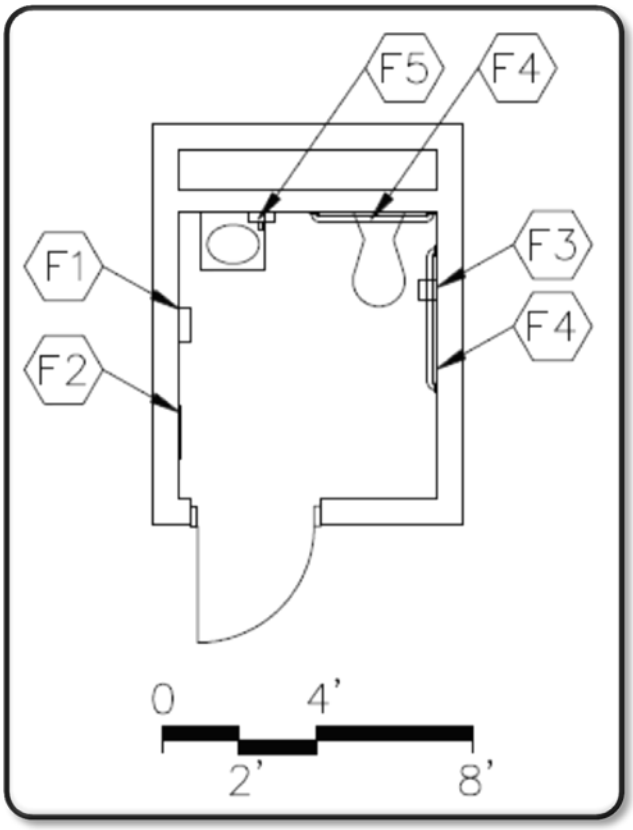
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Restroom
CE-FCS-17

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser



Features – Loose Furnishings

Wastebasket

Finishes:

Flooring – Resilient
Optional – Ceramic mosaic tile, porcelain tile or terrazzo

Base - Resilient base
Optional – Ceramic mosaic tile, porcelain tile or terrazzo

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Plumbing: water closet and lavatory
2. Electrical: duplex receptacle; single-level switching

Storage
CE-FCS-18

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

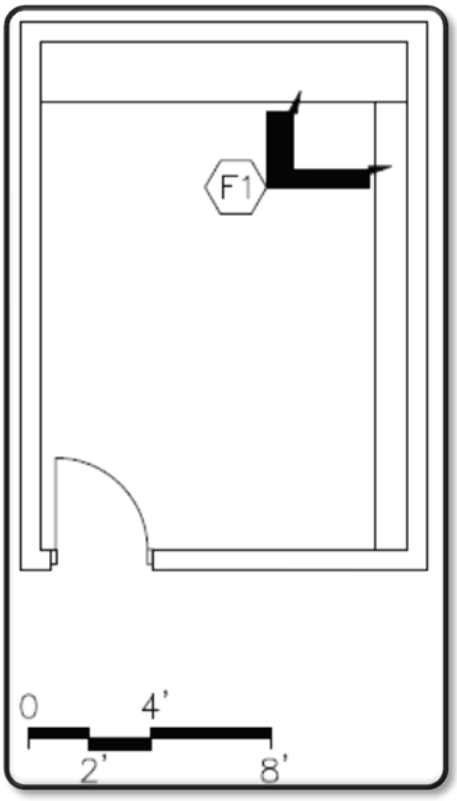
Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching



Construction Technology Lab
CE-ARC-1

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Paper towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
Steel bollards at overhead door, both sides
3'x7' hollow metal mandoor to exterior

Program Description - Program provides instruction in ~~the~~ mathematical and scientific principles and technical skills in support of the design, development, and use of integrated manufacturing systems. Includes problem solving in design, testing, systems logistics, material flow, and the calibration and maintenance of instruments.

Features – Loose Furnishings

Workbenches with heavy-duty metal tops
Stools or chairs
Welding tables
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed Concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; 220-volt receptacles
2. Technology - video port and video display device; voice port and phone; data ports; clock
3. Plumbing - washfountains, utility sinks, hose bibs; safety eyewash/shower; compressed air connections; floor drains; trench drain
4. HVAC - welding hood and exhaust

HVACR Lab
CE-ARC-2

Program Description - Program allows students to become proficient in the installation, repair, and maintenance of air-conditioning systems. Include is instruction related to electrical principles, electric motors, controls, refrigeration, piping systems, and heating and air-conditioning principles and practices.

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Paper towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
Steel bollards at overhead door, both sides
3'x7' hollow metal mandoor to exterior

Features – Loose Furnishings

Workbenches with heavy-duty metal tops
Stools or chairs
Welding tables
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed Concrete

Base - Resilient base

Ceiling – Painted, exposed structure

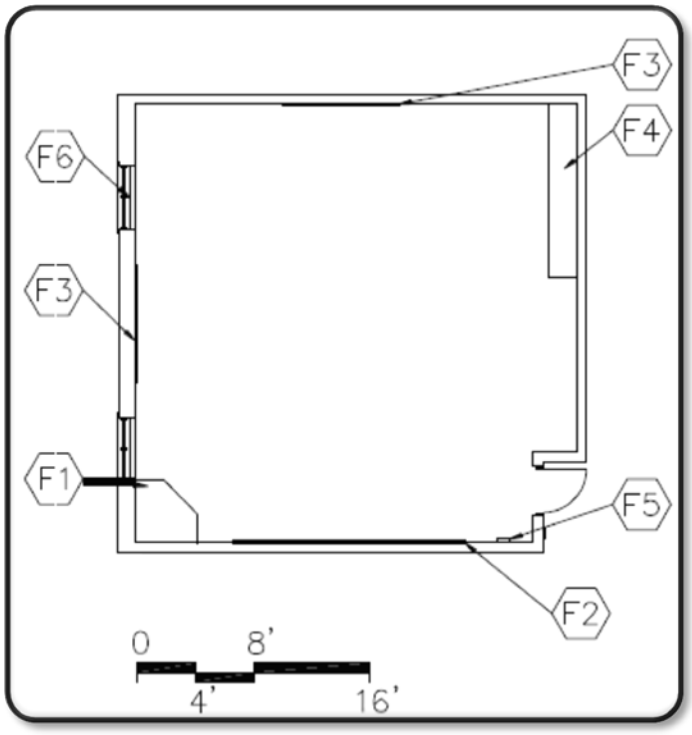
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; 220-volt receptacles; 277 volt receptacles; 408 volt receptacles
2. Technology - video port and video display device; voice port and phone; data ports; clock
3. Plumbing - each washfountains, utility sinks, hose bibs; safety eyewash/shower; compressed air connections; floor drains; trench drain
4. HVAC - welding hood and exhaust

Classroom
CE-ARC-3

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Base & wall cabinets
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - All resilient

Base - Resilient base

Ceiling - Suspended, acoustical

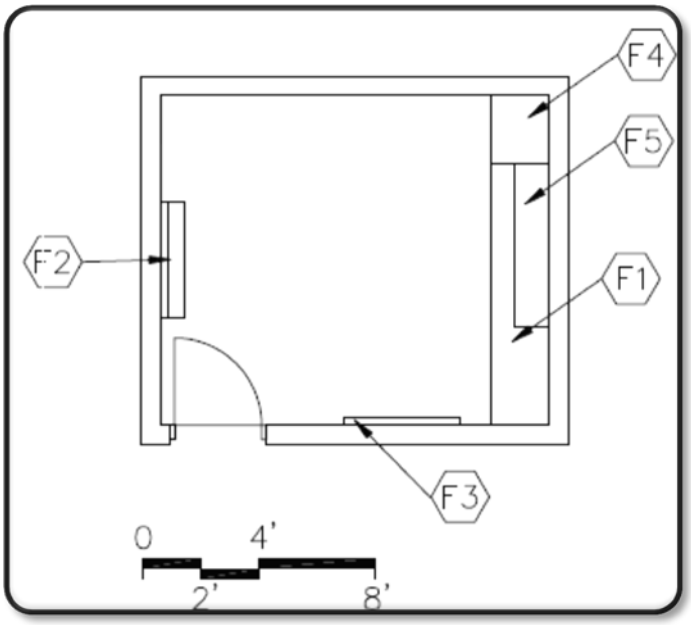
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-ARC-4

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

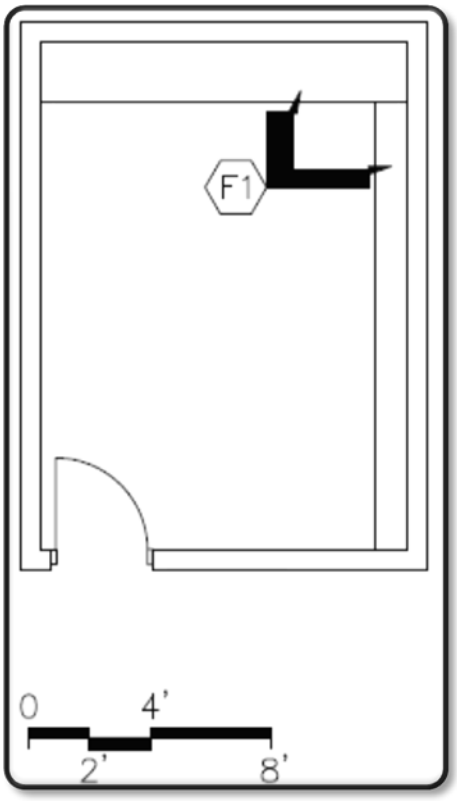
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
CE-ARC-5

Features - Fixed Equipment

F1 Open metal shelving



Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching

Advertising Design Lab
CE-AV-1

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Program Description - Program instructs students on the proper ways to layout print advertisements; including newspapers, magazines, trade journals, etc. ~~Will include the use of many~~

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone
3. Miscellaneous – color laser printer

Career Communications Lab
CE-AV-2

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Program Description - Program prepares individuals for diversified work experience with training in verbal and written communication.

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone
3. Miscellaneous – color laser printer

Photography Production Lab
CE-AV-3

Features - Fixed Equipment

Base cabinets
Tall storage cabinets
~~Chalk/marker~~ Marker board
Tack board

Features – Loose Furnishings

Student chairs
Work tables
Wastebasket

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone
3. Plumbing - safety shower/eyewash

Program Description - Organized, specialized learning experience that includes theory, laboratory, and studio work as each relates to all phases of camera uses and photographic processing. Instruction includes composition and color dynamics; contact printing and enlarging; film development; airbrush and retouching; coloring; copying; utilization of camera, meters, and other photographic equipment. Areas of study include portrait, commercial, and industry photography, leading to employment as a Commercial Photographer, Airbrush Artist, Camera person (offset printing), Audiovisual Projectionist, and Camera person (broadcasting).

Photography Workroom
CE-AV-4

Features - Fixed Equipment

Base cabinets
Tall storage cabinets
Pencil sharpener support
~~Chalk/marker~~ Marker board
Tack board
Sink base cabinets
Paper towel dispenser
Soap dispenser

Features – Loose Furnishings

Student chairs/stools
Work tables with epoxy tops
Teacher station & chair
Pencil sharpener
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting
2. Technology - video port, voice port & phone; data ports; overhead projector
3. Plumbing - sinks

Photography Darkroom
CE-AV-5

Features - Fixed Equipment

Epoxy top sink base cabinets
Wall cabinets
Epoxy shelving
Towel dispenser
Soap dispenser
Access via revolving darkroom room

Features – Loose Furnishings

Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching; keyed fluorescent lighting;
1. darkroom lighting on keyed switch
2. Technology - video port, voice port & phone; data ports; overhead projector
3. Plumbing - eyewash; sinks
4. HVAC - independent ventilation

Graphic Communication
Work Area
CE-AV-6

Program Description - Program involves theory, lab, and shop work for all phases of layout, composition, and presentation of graphic communication documents.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets
Sink base cabinets
Towel dispensers
Soap dispensers

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; 220-volt service; emergency shutoff for printing equipment; safety lights over plate making area; overhead electrical drops for printing equipment
2. Technology - video port, voice port & phone; clock; data ports
3. Plumbing - sinks

Performing Arts Studio
CE-AV-8

Program Description - Program involves all concepts related to the production of a musical, a play, etc.

Features - Fixed Equipment

Acoustical wall treatment

Features – Loose Furnishings

Student tables and chairs

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching;
2. Technology - video port, data port, voice port & phone; clock

Dressing Rooms
CE-AV-8

Features - Fixed Equipment

108" high costume storage cabinet
Sink base cabinet
Towel dispenser
Soap dispenser
Tack board
Work surface
48" high make-up mirrors
20" wide x 60" high dressing mirrors

Features – Loose Furnishings

Chairs
Bench
Mobile costume rack
Wastebasket

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; incandescent lighting over make-up mirrors; fluorescent lighting overhead; single-level switching; telecommunications grounding
2. Technology - video port, data port, voice port & phone; clock
3. Plumbing - sinks

Performing Arts Storage
CE-AV-9

Features - Fixed Equipment

Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical or painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching

Radio/TV Broadcasting Lab
CE-AV-10

Features - Fixed Equipment

Acoustical wall treatment

Features – Loose Furnishings

Student tables and chairs
Stage furniture

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

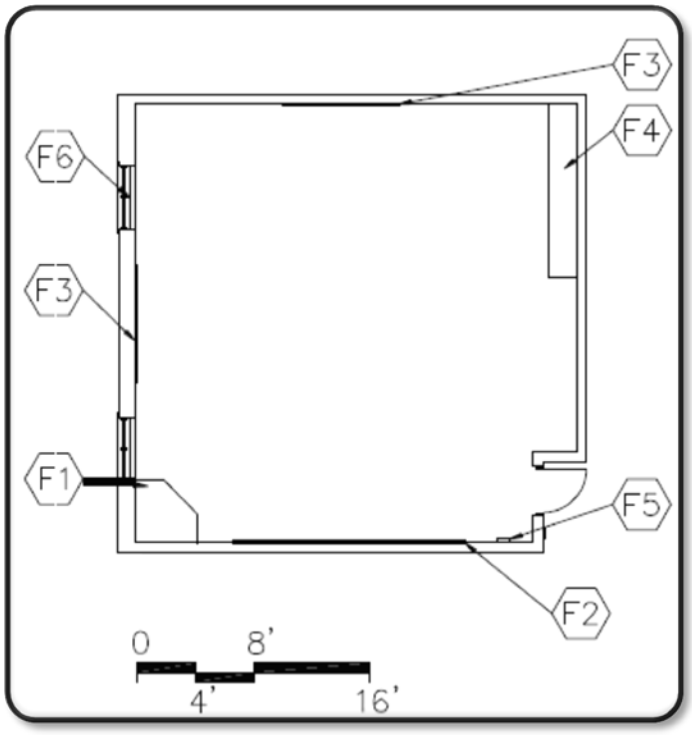
Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone; clock

Program Description - Program involves all concepts related to the broadcasting arena includes radio interviews, televisions interviews, news reports, and coverage of sporting and entertainment events.

Classroom
CE-AV-11

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Base & wall cabinets
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

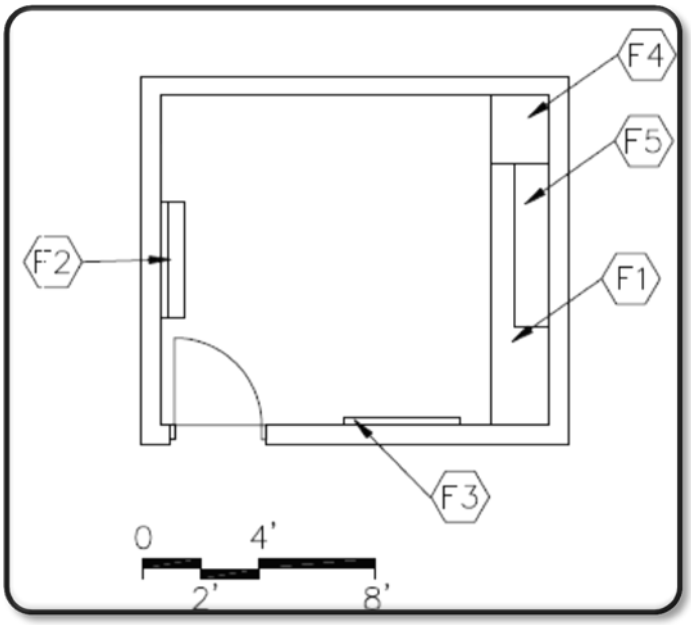
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-AV-12

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
CE-AV-13

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

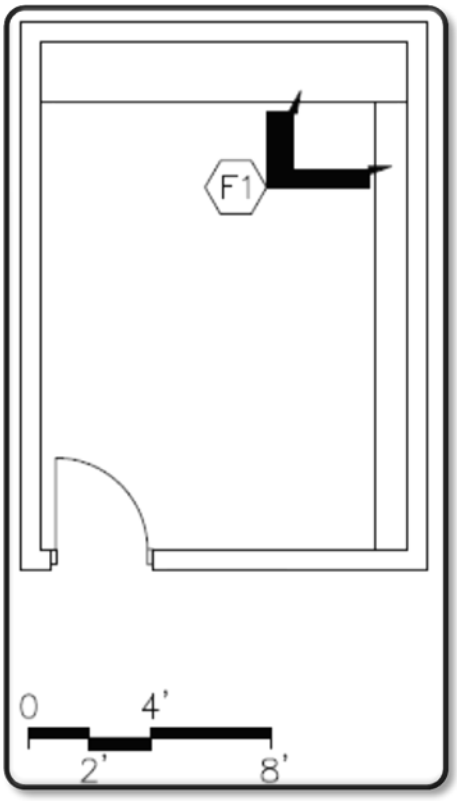
Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching



ROTC Lab
CE-GOV-1

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support

Program Description - Program involves instruction in ROTC programs.

Features – Loose Furnishings

Student tables and chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

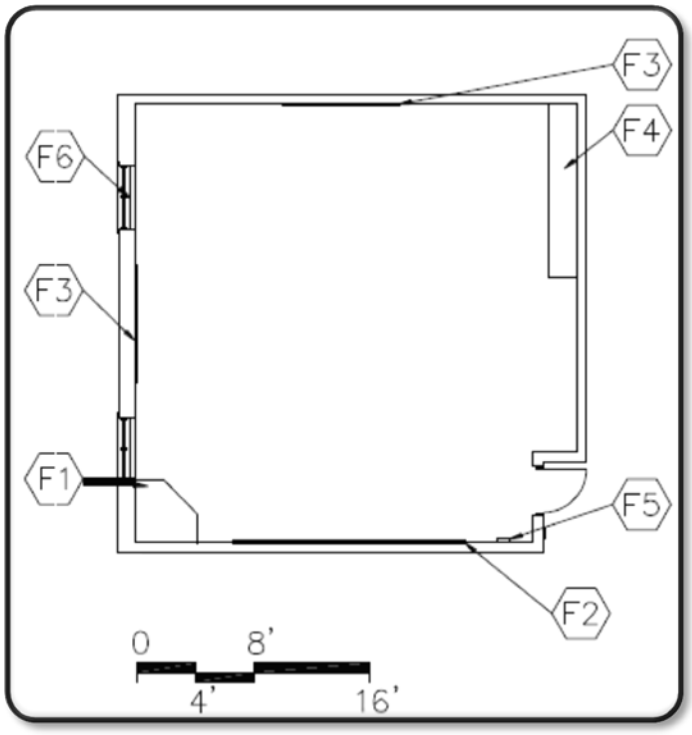
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone; clock

Classroom
CE-GOV-2

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Base & wall cabinets
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

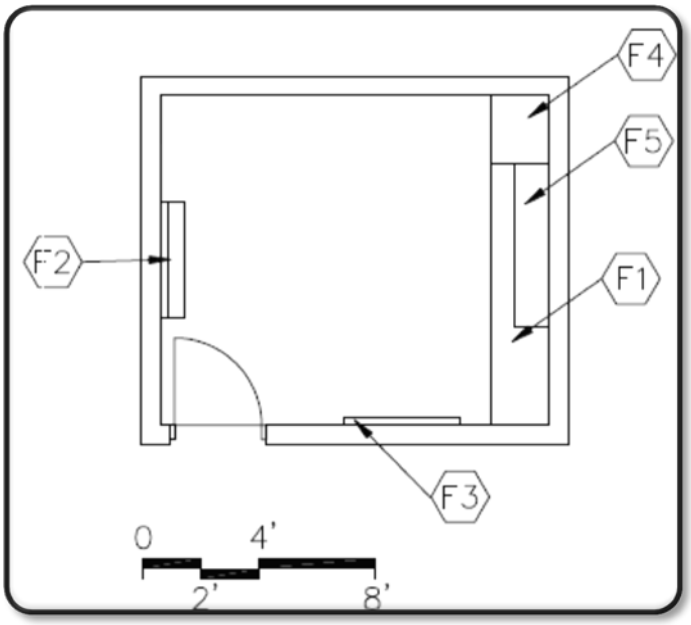
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-GOV-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
CE-GOV-4

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

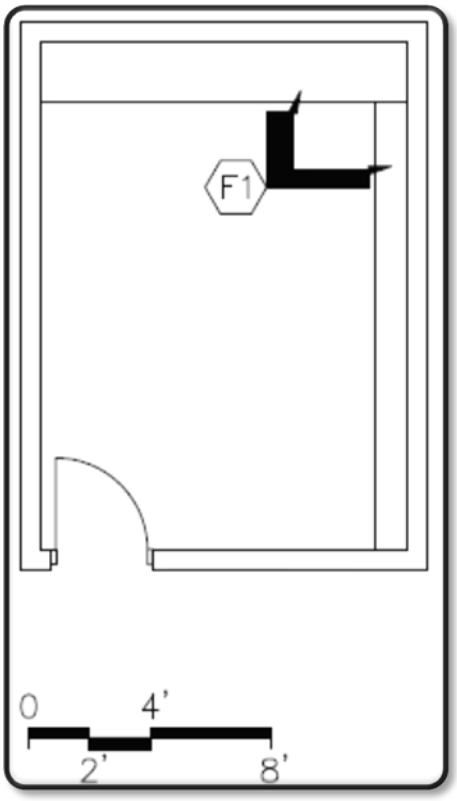
Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching



Clinic Area
CE-HSC-1

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Sink base cabinets
Towel dispenser
Soap dispenser

Program Description - Program involves instruction for direct nursing care. Instruction includes safety and infection control, first aid and COR, legal and ethical responsibilities, treatments and procedures, basic care, and early treatment of disease.

Features – Loose Furnishings

Student tables and chairs
Teacher station and chair
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

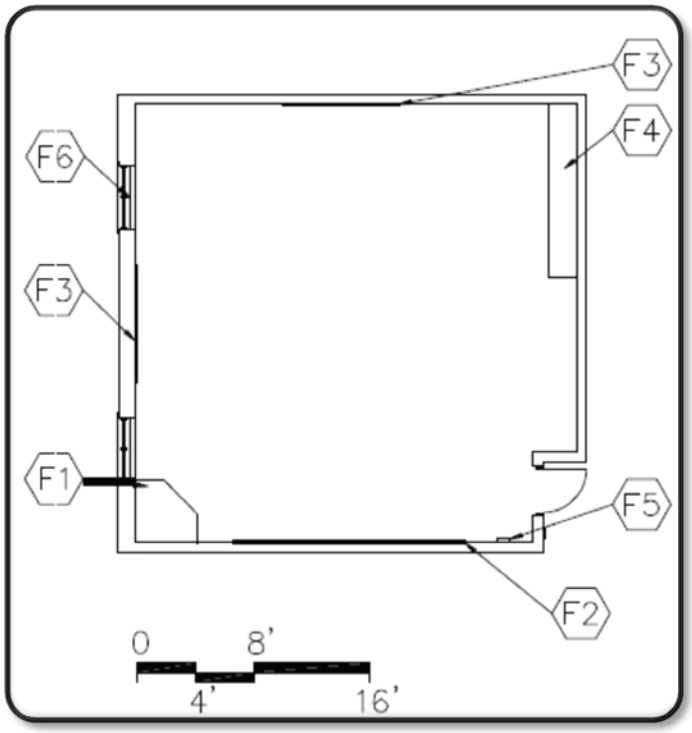
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching
2. Technology - video port, data port, voice port & phone; clock
3. Plumbing - sinks

Classroom
CE-HSC-2

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 Base & wall cabinets
F3 ~~Chalk/marker~~ Marker board
F4 Tack board
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

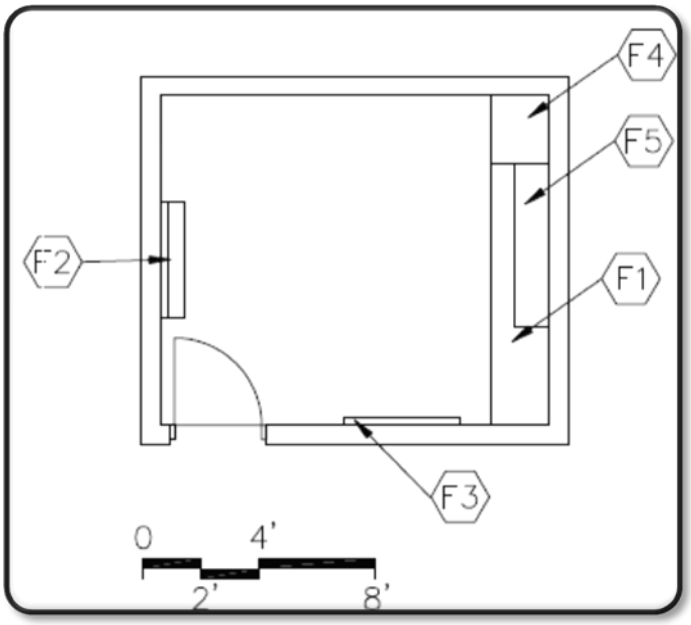
Notes

1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-HSC-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
CE-HSC-4

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

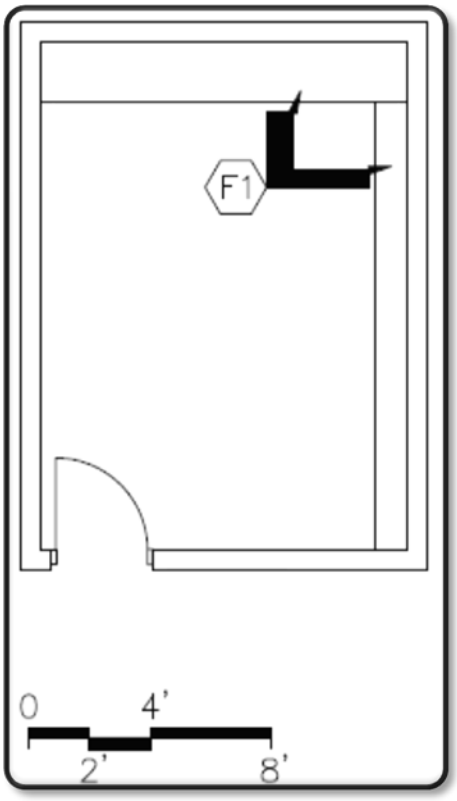
Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching



Criminal Justice Lab [forensic]
CE-LAW-1

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Sink base cabinets
Towel dispenser
Soap dispenser
Windows with integral blinds

Program Description - Program involves training designed to assist the police department in solving a case hypotheses, and keeping good records of everything is essential.

Features – Loose Furnishings

Student tables and chairs
Teacher station and chair
Wastebasket
Pencil sharpener

Finishes:

Flooring - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

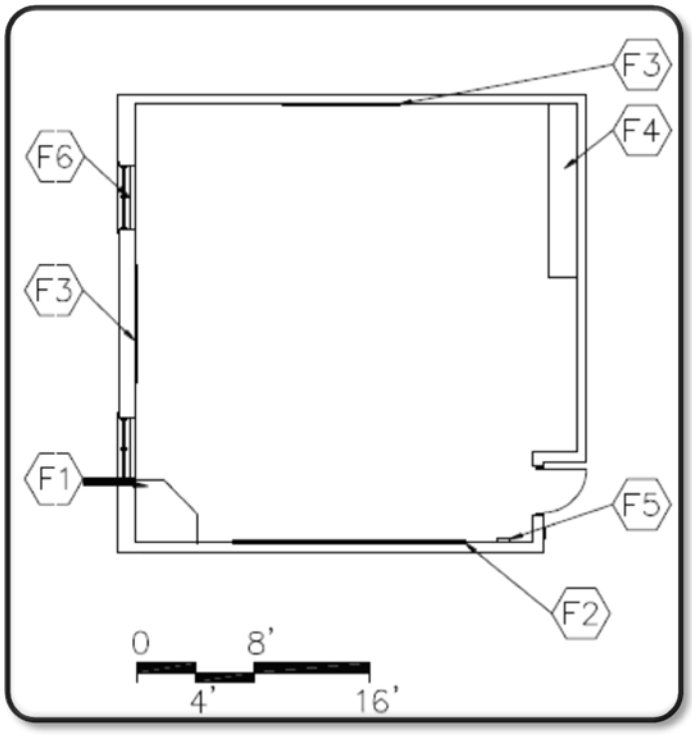
Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting
2. Technology - video port, voice port & phone; clock; data ports; overhead projector
3. Plumbing - sinks

Classroom
CE-LAW-2

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Base & wall cabinets
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

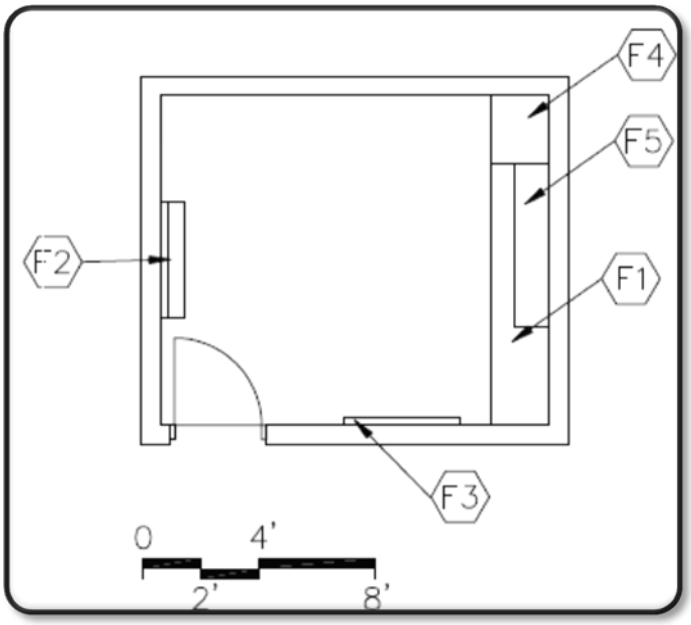
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-LAW-3

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

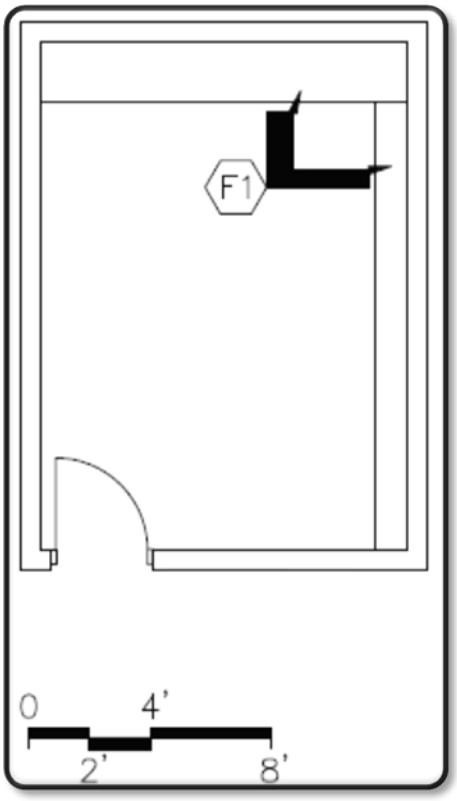
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
CE-LAW-4

Features - Fixed Equipment

F1 Open metal shelving



Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching

Electronics Lab
CE-MAN-1

Program Description - Students learn construction, maintenance, and repair of digital, analog, and microprocessor circuits in applications such as communications equipment, consumer equipment, and industrial equipment.

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Base and wall cabinets
Tall storage cabinets
Pencil sharpener support
Windows with integral blinds

Features – Loose Furnishings

Worktables with storage below
Stools or chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes
1. Electrical: duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology: video port, voice port and phone, data port (26) data ports; clock; overhead projector

Furniture Manufacturing Lab CE-MAN-2

Program Description - Program instruction includes the mass production of products such as window frames, molding, trims, and panels; as well as the manufacturing of furniture, store fixtures, office furnishings. Students will learn to read blueprints, the identification and selection of woods and finishes; cutting, shaping, and assembling parts by using hand tools and woodworking machines; installing hardware; and refinishing furniture.

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
3'x7' hollow metal mandoor to exterior
Steel bollards at overhead door, both sides

Features – Loose Furnishings

Worktables with heavy-duty wooden tops
Stools or chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; high-intensity lighting
2. Technology - video port, voice port and phone; data ports; clock
3. Plumbing - washfountain; trench drain; safety eyewash/shower; floor drains, utility sinks, hose bibbs; compressed air connections
4. HVAC - dust collection system

Industrial Equipment Lab
CE-MAN-3

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
3'x7' hollow metal mandoor to exterior
Steel bollards at overhead door, both sides

Program Description - Program instruction of the maintenance of machinery and mechanical equipment of an industrial plant or factory. Inspection, disassembly, repair, and reassembly of machines and equipment is included in the training experience.

Features – Loose Furnishings

Worktables with heavy-duty wooden tops
Stools or chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; high-intensity lighting; 208b 3-phase service; 480v 3-phase service; 220v receptacles
2. Technology - video port, voice port and phone; data ports; clock
3. Plumbing - washfountain; trench drain; safety eyewash/shower; floor drains, utility sinks, hose bibbs; compressed air connections
4. HVAC - welding hood and exhaust

Machine Tool Lab
CE-MAN-4

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
3'x7' hollow metal mandoor to exterior
Steel bollards at overhead door, both sides

Program Description - Program instruction through classroom and shop learning experiences for all aspects of shaping metal parts. Involves making computations relating to work dimensions, tooling, feeds, and speeds of machinery. Includes work on the bench, lathes, shapers, milling machines, grinders, drills, and gauges.

Features – Loose Furnishings

Worktables with heavy-duty wooden tops
Stools or chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; high-intensity lighting; 208b 3-phase service; 480v 3-phase service; 220v receptacles
2. Technology - video port, voice port and phone; data ports; clock
3. Plumbing - washfountain; trench drain; safety eyewash/shower; floor drains, utility sinks, hose bibbs; compressed air connections

Appliance Repair Lab
CE-MAN-5

Program Description - Program instruction teaches the theory of electrical circuitry, simple gearing, linkages, and lubrication in the operation, maintenance, and repair of components.

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
3'x7' hollow metal mandoor to exterior
Steel bollards at overhead door, both sides

Features – Loose Furnishings

Worktables with heavy-duty wooden tops
Stools or chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; high-intensity lighting; 208b 3-phase service; 480v 3-phase service; 220v receptacles
2. Technology - video port, voice port and phone; data ports; clock
3. Plumbing - washfountain; trench drain; safety eyewash/shower; floor drains, utility sinks, hose bibbs; compressed air connections

Welding Lab
CE-MAN-6

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
3'x7' hollow metal mandoor to exterior
Steel bollards at overhead door, both sides
Overhead hoist crane

Program Description - Program instruction includes all types of metal welding, brazing, and flame cutting. Instruction includes properties of metals, blueprint reading, electrical principles, and mechanical drawing.

Features – Loose Furnishings

Worktables with heavy-duty wooden tops
Stools or chairs
Wastebasket
Pencil sharpener
Steel tube storage rack
Sheet steel storage rack

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

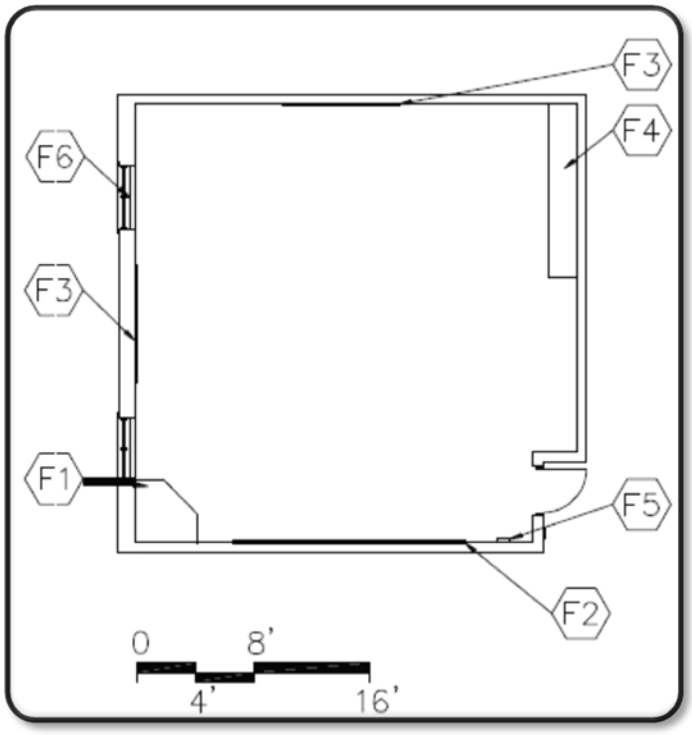
Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; high-intensity lighting; 220v receptacles; 480v 3 phase service
2. Technology - video port, voice port and phone; data ports; clock
3. Plumbing - washfountain; trench drain; safety eyewash/shower; floor drains, utility sinks, hose bibbs; compressed air connections
4. HVAC – welding hood and exhaust

Classroom
CE-MAN-7

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Base & wall cabinets
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

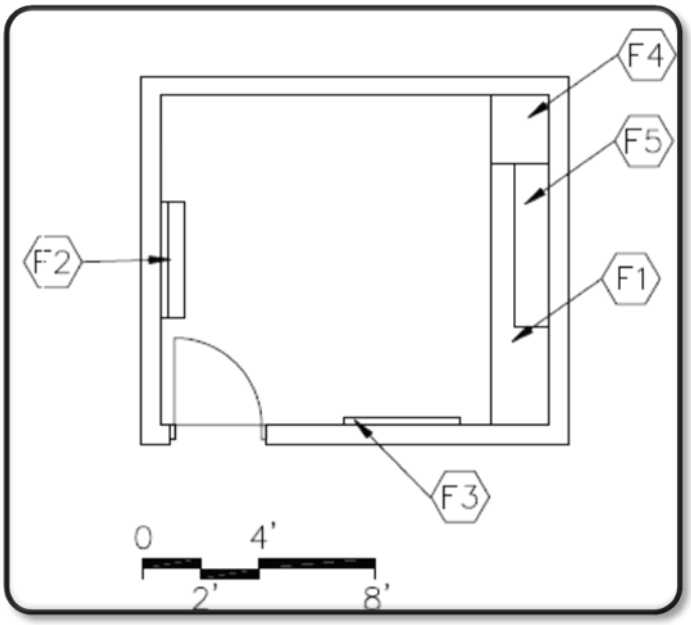
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-MAN-8

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

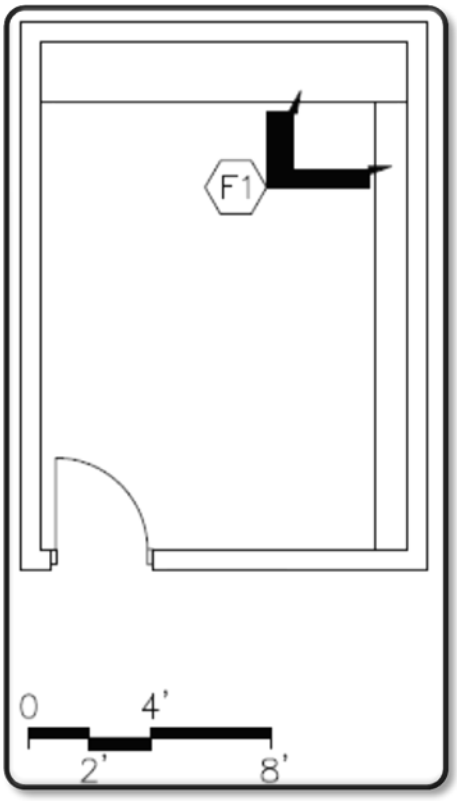
Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
CE-MAN-9

Features - Fixed Equipment

F1 Open metal shelving



Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching

Drafting and Design Lab
CE-ENG-1

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base & wall cabinets
Tall storage cabinets
Windows with integral blinds

Program Description - Learning experiences include theory, lab, and shop work, as it relates to the gathering and translation of data or specifications; and the planning, preparation, and interpretation of mechanical and/or architectural drawings and sketches.

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; clock; overhead projector
3. Miscellaneous - classroom area network file server; laser printer

Computer Engineering Lab
CE-ENG-2

Program Description - Program provides instruction designed to prepare a person to gain entry-level experiences in an engineering technology cluster program.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base & wall cabinets
Tall storage cabinets
Windows with integral blinds

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; overhead projector
3. Miscellaneous - classroom area network file server; laser printer

Geospatial Technology Lab
CE-ENG-3

Program Description - Program provides instruction in geographical information systems (GIS) with applications of map data.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base & wall cabinets
Tall storage cabinets

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; overhead projector
3. Miscellaneous - classroom area network file server; laser printer

Pre-Engineering Lab
CE-ENG-4

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base & wall cabinets
Tall storage cabinets

Program Description - Program provides instruction in beginning engineering areas. Broad exposure to areas such as civil, industrial, mechanical,

Features – Loose Furnishings

Student chairs
Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted concrete masonry units

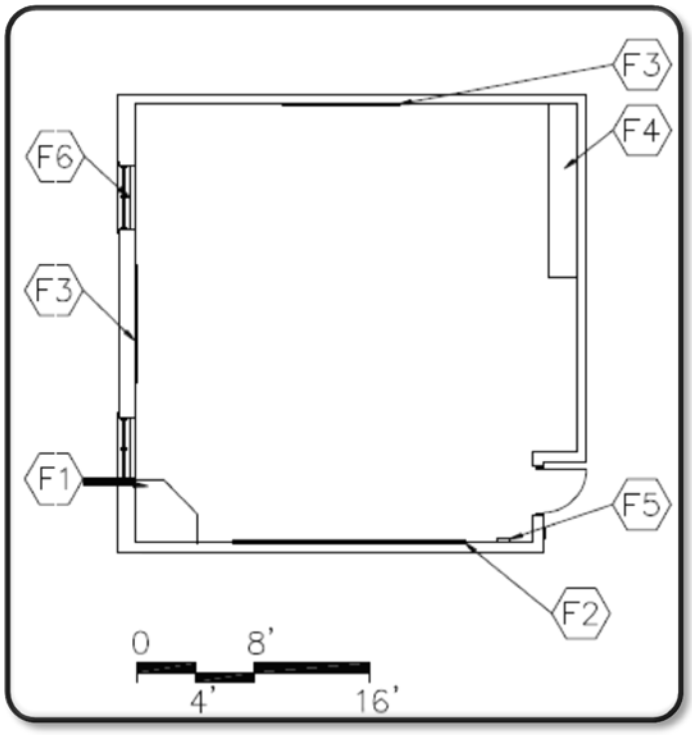
Notes

1. Electrical - duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology - each video port, data port, voice port & phone; classroom area network (26 ports minimum); clock; overhead projector
3. Miscellaneous - classroom area network file server; laser printer

Classroom
CE-ENG-5

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Base & wall cabinets
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

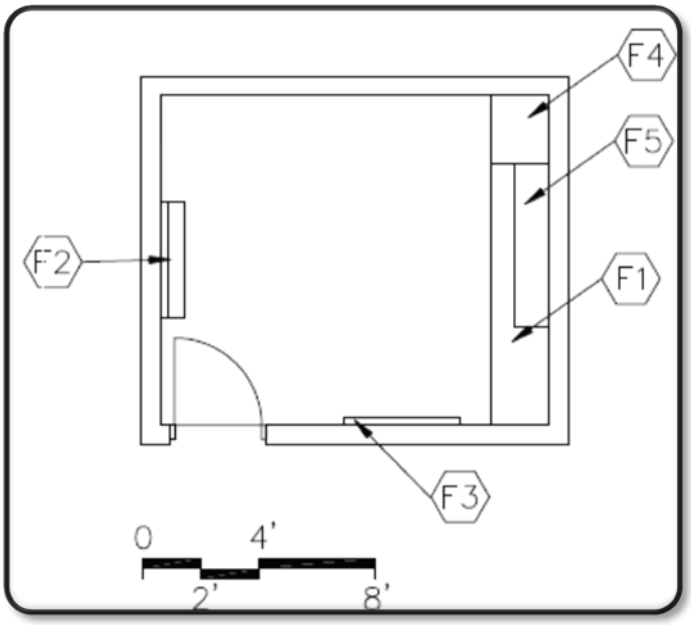
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-ENG-6

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
CE-ENG-7

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

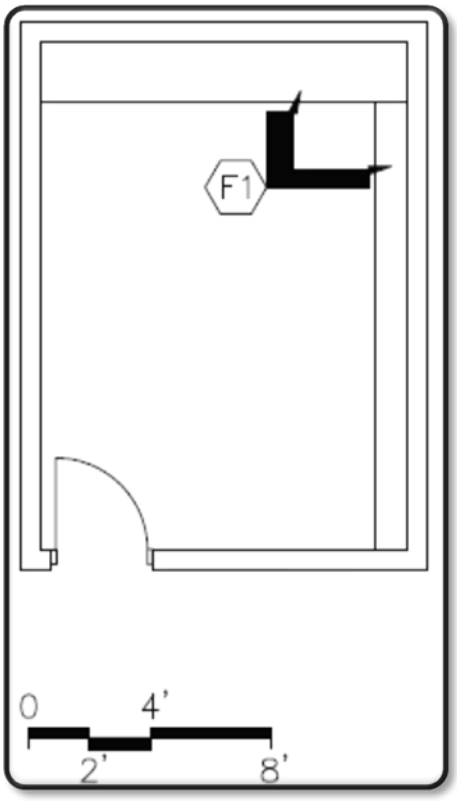
Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching



Automotive Collision Repair Lab
CE-TDL-1

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Paper Towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
Steel bollards at overhead door, both sides
3'x7' hollow metal mandoor to exterior
Paint booth
Paint prep station
Paint mixing station
3 car lifts
2 frame racks

Program Description - Programs provide instruction of all phases of the repair of damaged bodies and fenders. Includes metal straightening by hammering; smoothing areas by filing, grinding, or sanding; concealment of imperfections; painting; and replacement of body components, including trim.

Features – Loose Furnishings

Workbenches with heavy-duty metal tops
Stools or chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; 220-volt receptacles; high-intensity lighting
2. Technology - video port and video display device; voice port and phone; data ports; clock
3. Plumbing - washfountains, utility sinks, hose bibs; safety eyewash/shower; compressed air connections; floor drains; trench drain
4. HVAC - paint booth supply and exhaust system

Automotive Service Technology Lab CE-TDL-2

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Paper Towel dispensers
Soap dispensers
12'x14' motorized overhead sectional door to exterior
Steel bollards at overhead door, both sides
3'x7' hollow metal mandoor to exterior
Paint booth
Paint prep station
Paint mixing station
3 car lifts
2 frame racks

Program Description - Programs provide instruction of all components of the vehicle, including engine, transmissions, steering, suspension, brakes, and electrical/electronic systems. Includes training through the use of diagnostic and testing equipment used in the repair process.

Features – Loose Furnishings

Workbenches with heavy-duty metal tops
Stools or chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; 220-volt receptacles; high-intensity lighting
2. Technology - video port and video display device; voice port and phone; data ports; clock
3. Plumbing - washfountains, utility sinks, hose bibs; safety eyewash/shower; compressed air connections; (4) floor drains; trench drain
4. HVAC - vehicle exhaust system

Aviation Mechanics Lab
CE-TDL-3

Program Description - Classroom and lab learning experiences for the inspection, repair, servicing, and overhauling of all airplane parts, including engines, propellers, instruments, airframes, fuel and oil tanks, control cables, and hydraulic units.

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Paper towel dispensers
Soap dispensers
35'x45' motorized overhead door
Steel bollards at overhead door, both sides
3'x7' hollow metal mandoor to exterior

Features – Loose Furnishings

Workbenches with heavy-duty metal tops
Stools or chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; multi-level switching; 220-volt receptacles; high-intensity lighting
2. Technology - video port and video display device, voice port and phone; data ports; clock
3. Plumbing - washfountains, utility sinks; (3) hose bibs; safety eyewash/shower; compressed air connections; floor drains; trench drain
4. HVAC - vehicle exhaust system

Aviation Technology Lab
CE-TDL-4

Program Description - Program provides instruction in avionics, which includes computer experience in determining wind and weather information.

Features - Fixed Equipment

Tall wardrobe w/file drawers
~~Chalk/marker~~ Marker board
Tack board
Pencil sharpener support
Base cabinets
Tall storage cabinets

Features – Loose Furnishings

Work tables
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Wastebasket
Pencil sharpener

Finishes:

Flooring – Resilient

Base - Resilient base

Ceiling – Suspended, acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical – duplex receptacles; multi-level switching; fluorescent lighting-parabolic lenses
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player
3. Miscellaneous: Classroom area network file server

Diesel Mechanics Lab
CE-TDL-5

Program Description - Program prepares individuals in the service and repair of truck vehicles. Instruction includes diagnosis, maintenance, and repair of diesel engines; including the drive train, suspension, brakes, hydraulic units, cooling systems, and electrical systems.

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Paper Towel dispensers
Soap dispensers
12'x14' motorized overhead door
Steel bollards at overhead door, both sides
3'x7' hollow metal mandoor to exterior
3 truck lifts
1 frame racks

Features – Loose Furnishings

Workbenches with heavy-duty metal tops
Stools or chairs
Wastebasket
Pencil sharpener

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacles; multi-level switching; 220-volt receptacles; high-intensity lighting
2. Technology - video port and video display device; voice port and phone; data ports; clock
3. Plumbing - washfountains, utility sinks, hose bibs; safety eyewash/shower; compressed air connections; floor drains; trench drain
4. HVAC - vehicle exhaust system

Power Equipment Technology Lab CE-TDL-6

Program Description - Program prepares individuals in the service and repair of portable power equipment, e.g., lawnmowers, motorboats, chainsaws, and rototillers. Includes principles of internal-combustion engine operation, reading technical manuals, and customer relations.

Features - Fixed Equipment

~~Chalk/marker~~ Marker board
Tack board
Tall storage cabinets
Pencil sharpener support
Paper Towel dispensers
Soap dispensers
12'x14' motorized overhead door
Steel bollards at overhead door, both sides
3'x7' hollow metal mandoor to exterior

Features – Loose Furnishings

Workbenches with heavy-duty metal tops
Stools or chairs
Wastebasket
Pencil sharpener
Welding tables

Finishes:

Flooring – Sealed concrete

Base - Resilient base

Ceiling – Painted, exposed structure

Walls - Painted concrete masonry units

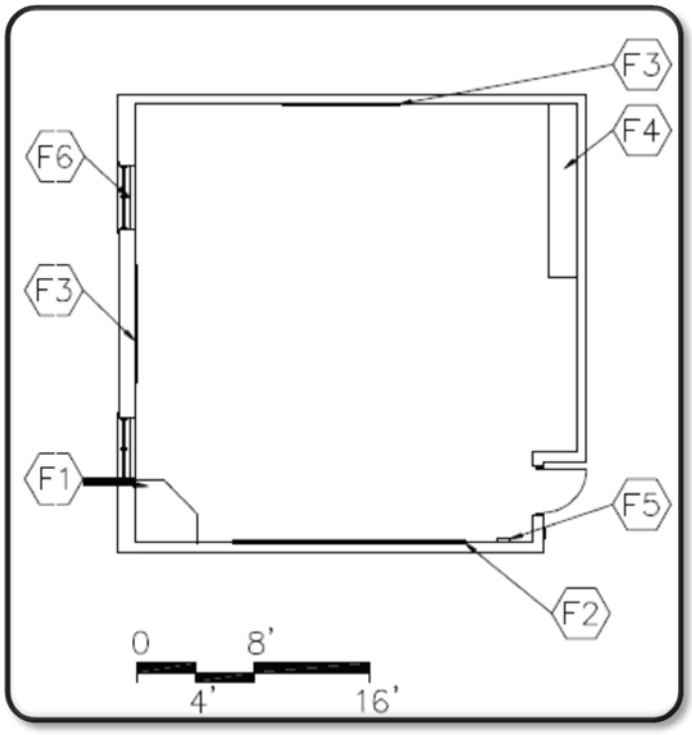
Notes

1. Electrical - duplex receptacles; multi-level switching; 220-volt receptacles; high-intensity lighting
2. Technology - video port and video display device; voice port and phone; data ports; clock
3. Plumbing - washfountains, utility sinks, hose bibs; safety eyewash/shower; compressed air connections; floor drains; trench drain
4. HVAC - welding hood and exhaust

Classroom
CE-TDL-7

Features - Fixed Equipment

F1 Tall wardrobe w/file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Base & wall cabinets
F5 Pencil sharpener support
F6 Windows with integral blinds



Features – Loose Furnishings

Student desks and chairs
Computer workstation furniture
Teacher workstation/computer support and chair
File cabinet
Low bookcases (fixed or mobile)
Wastebasket
Pencil sharpener
Instructional microscope
Media cart

Finishes:

Flooring - Carpet
Optional - Resilient

Base - Resilient base

Ceiling - Suspended, acoustical

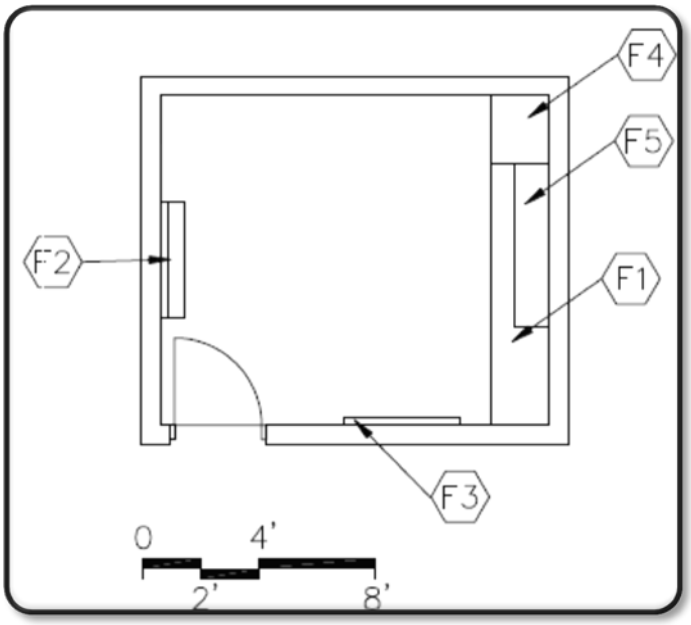
Walls - Painted concrete masonry units

Notes
1. Electrical – duplex receptacles; multi-level switching
2. Technology – video port, data port, voice port & phone; data ports for students; clock; LCD projector; printer; scanner; video camera; television with supports; VCR or DVD player

Office
CE-TDL-8

Features - Fixed Equipment

F1 Work surface with file drawers
F2 ~~Chalk/marker~~ Marker board
F3 Tack board
F4 Tall wardrobe
F5 Wall cabinets



Features – Loose Furnishings

Desk and chair
Computer desk return
Visitor chairs
Wastebasket

Finishes:

Flooring - Carpet

Base - Resilient base

Ceiling - Suspended, acoustical

Walls - Painted gypsum wallboard over metal studs

Notes
1. Electrical - duplex receptacles; single-level switching
2. Technology - data port, video port, voice port & phone; clock

Storage
CE-TDL-9

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring – Sealed concrete

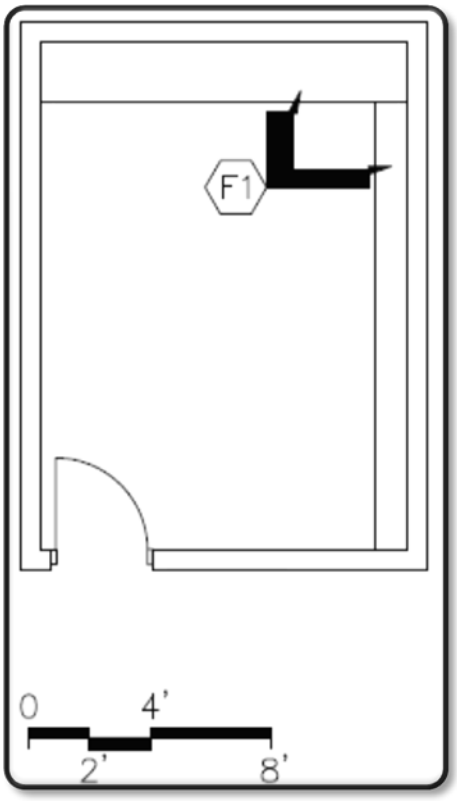
Base - Resilient base

Ceiling - Suspended, acoustical or painted, exposed structure

Walls - Painted concrete masonry units

Notes

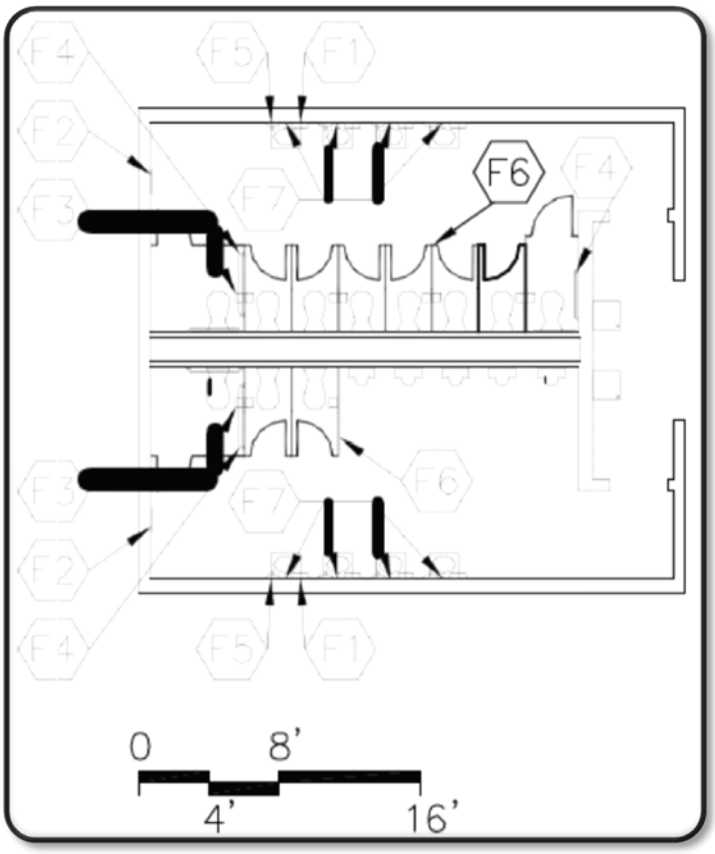
1. Electrical - duplex receptacles; single-level switching



Large Group Restrooms
CE-BS-1

Features - Fixed Equipment

F1 Towel dispenser
F2 24" x 60" mirror
F3 Toilet tissue holder
F4 36" and 42" grab bar
F5 Soap dispenser
F6 Toilet partitions
F7 16" x 24" mirrors



Features – Loose Furnishings

Waste receptacles

Finishes:

Flooring - Ceramic mosaic tile base
Optional - Porcelain tile or terrazzo tile

Base - Ceramic mosaic tile base
Optional - Structural glazed tile base or porcelain tile base

Ceiling - Suspended, acoustical
Optional - Abuse-resistant gypsum wallboard

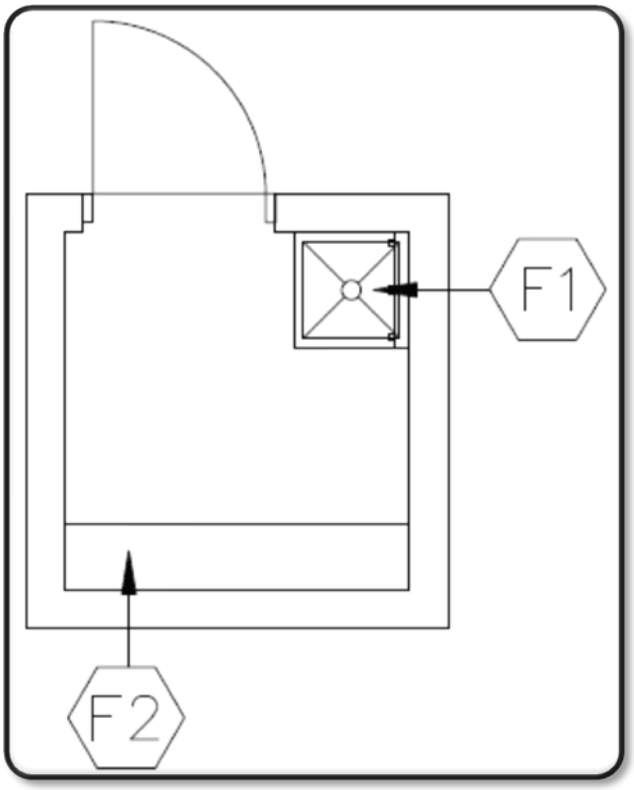
Walls - Painted concrete masonry units

Notes
1. Plumbing - water closets, urinals, lavatories, and hydrants; water coolers; floor drains
2. Electrical - single-level switching; duplex receptacle

Custodial Closet
CE-BS-2

Features - Fixed Equipment

F1 Mop holder
F2 Wall cabinets



Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes
1. Electrical - duplex receptacle; single-level switching
2. Plumbing - service sink and floor drain sink

Electrical Closet
CE-BS-3

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

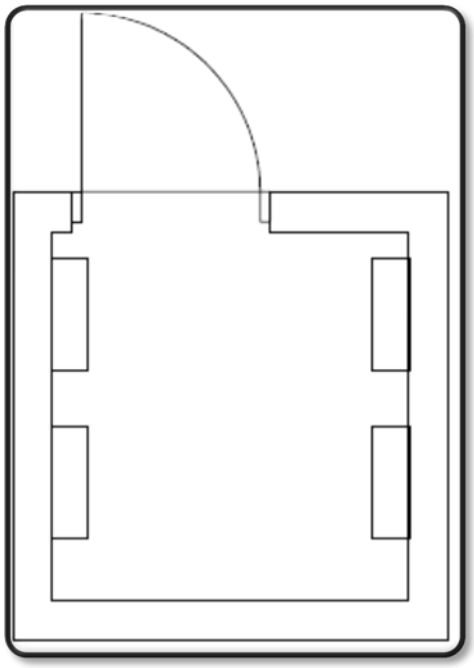
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; electrical switchgear



Telecommunications Room
CE-BS-4

Features - Fixed Equipment

N/A

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

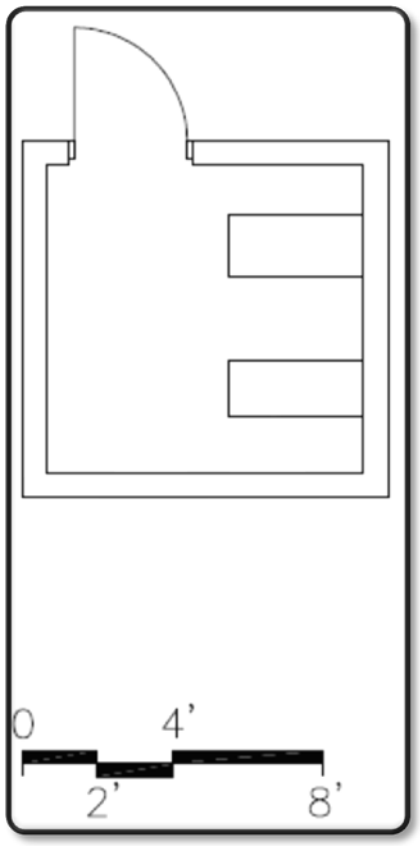
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacle; single-level switching; telecommunications grounding
2. Technology - technology equipment; plywood backboard



Corridors/Vestibules
CE-BS-5

Features - Fixed Equipment

F1 Fire extinguishers and cabinets

F2 Recessed vinyl floor mats or surface mats

Features – Loose Furnishings

Recycling bins and waste receptacles

Finishes:

Flooring - Resilient, porcelain tile, or terrazzo

Base - Resilient base

Optional - Structural glazed tile

Ceiling - Suspended, acoustical

Optional in vestibules - Abuse-resistant gypsum wallboard

Walls - Painted concrete masonry units

NOTE - At entries adjacent to dining/commons area, match dining/commons flooring.

Notes

1. Electrical - duplex receptacles; dual-level switching
2. Technology - clocks, wireless access points; video ports
3. Plumbing - drinking water coolers
4. Miscellaneous - display cases

Corridors shall be a minimum of 8 feet wide.

Corridors are to meet the egress requirements applicable codes.

Instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.

Area of vestibules is to be included within area allotted for corridors.

Width of vestibules can be no less than minimum width of adjacent corridor.

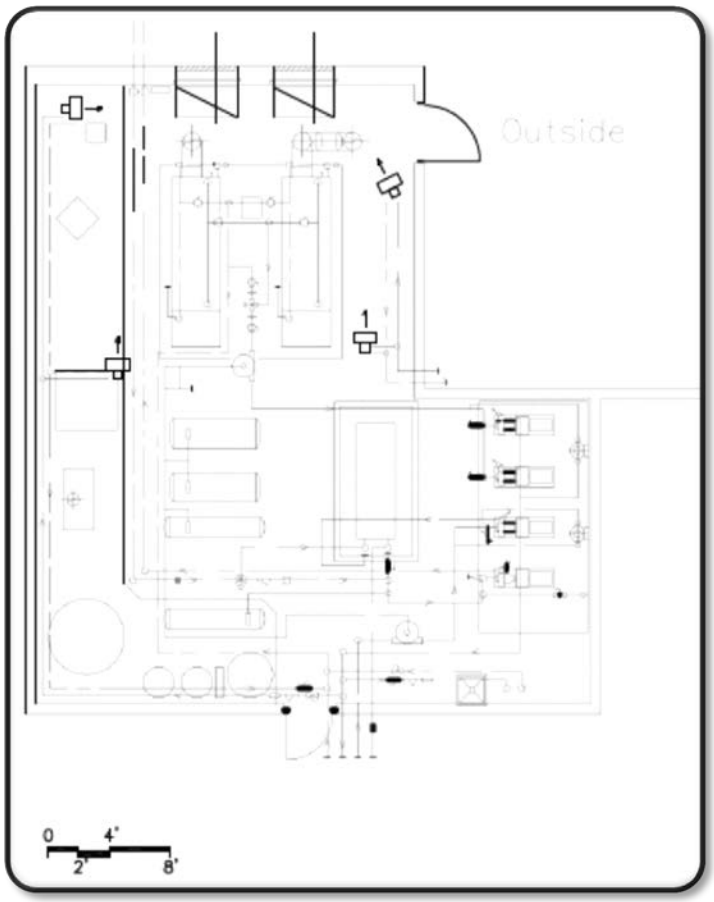
Minimum corridor length recommended is 8 feet between doors.

Vestibules are to be provided at major entrances/exits.

Mechanical Room/Decks
CE-BS-6

Features - Fixed Equipment

To be determined by Design Professional



Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units
Optional - Can use metal panel on CMU or metal panel on metal framing wall system for penthouse

Notes

1. Electrical - dual-level switching; to be determined by Design Professional
2. Plumbing - to be determined by Design Professional

Storage Area
CE-BS-7

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

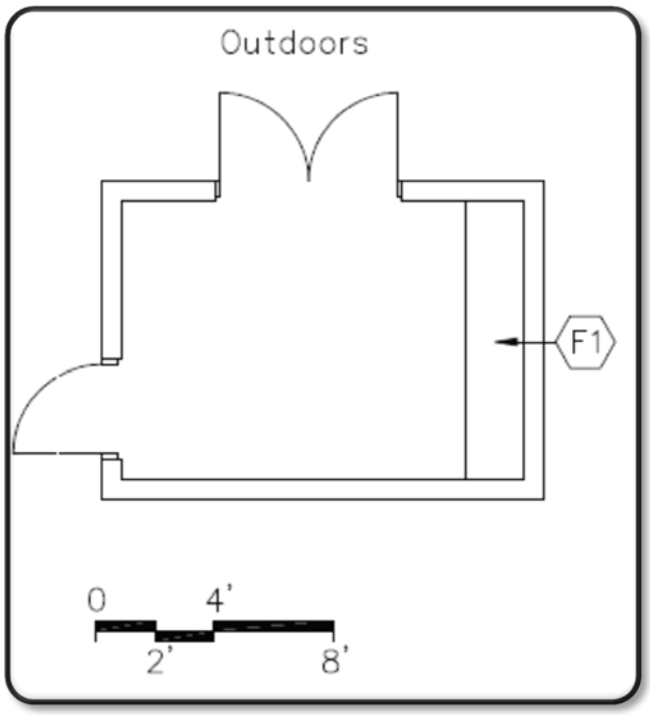
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - single-level switching; duplex receptacles



Central Storage Area
CE-BS-8

Features - Fixed Equipment

F1 Open metal shelving

Features – Loose Furnishings

N/A

Finishes:

Flooring - Sealed concrete

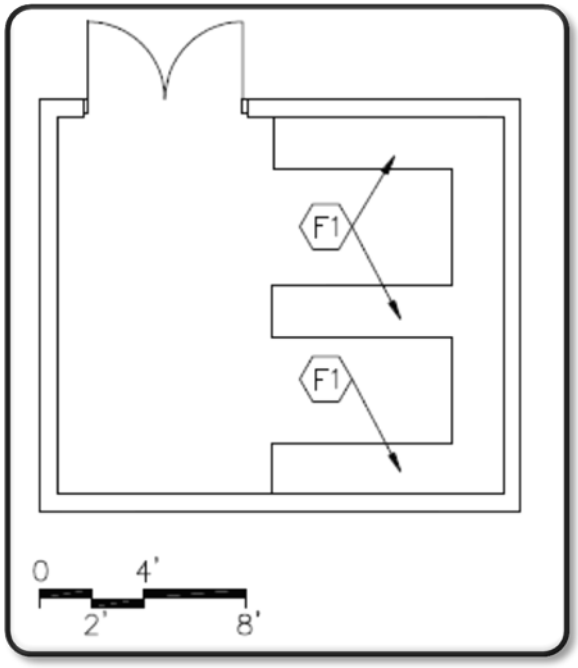
Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes

1. Electrical - single-level switching; duplex receptacles



Loading/Receiving Area
CE-BS-9

Features - Fixed Equipment

F1 Loading dock leveler and dock bumpers

Features – Loose Furnishings

N/A

Finishes:

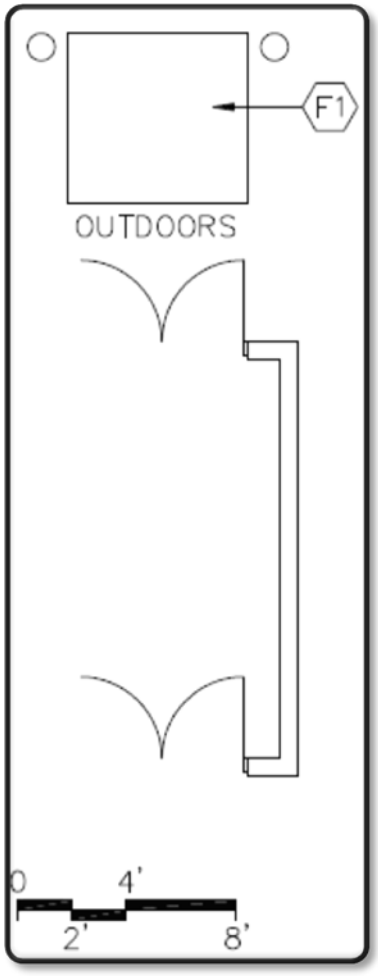
Flooring - Sealed concrete

Base - Resilient base

Ceiling - Exposed, painted structure

Walls - Painted concrete masonry units

Notes
1. Electrical - single-level switching; duplex receptacles



Main Cross Connect
CE-BS-10

Features - Fixed Equipment

F1 Open metal shelving
F2 Tack board
F3 ~~Chalk/marker~~ Marker board

Features – Loose Furnishings

Desk and chair
Wastebasket

Finishes:

Flooring - Resilient

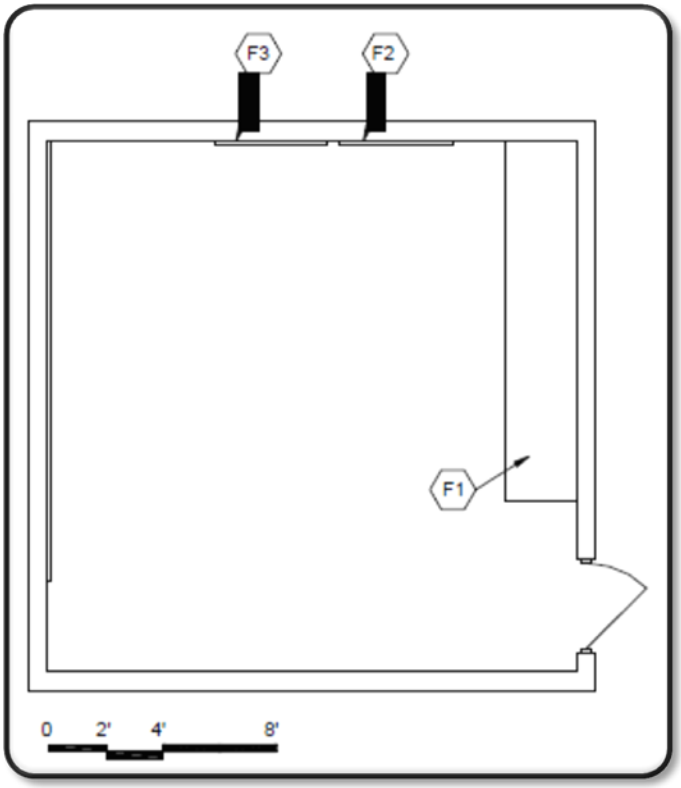
Base - Resilient base

Ceiling - Suspended acoustical

Walls - Painted concrete masonry units

Notes

1. Electrical - duplex receptacles; single-level switching; telecommunications grounding
2. Technology - data port, voice port & phone; technology equipment; plywood backboard
3. Miscellaneous - Provide distribution equipment with an equipment electrical ground.



Introduction

Purpose

The intent of Chapter 7 is to provide standards and guidelines necessary to plan, design and construct school facilities throughout the state of Arkansas. The focus is on building systems and materials that will provide buildings that are economical and reflect quality construction, along with mandatory performance standards, additional options and available choices. All items and systems, such as loose furnishings, casework, technology, etc., should be integrated early in the planning phase of the project.

Definitions

The planning and design of school facilities shall be based upon criteria described in Chapter 7 in accordance with the following definitions:

"Standards" ~~in bold"~~ Performance or construction required items for which there is mandatory adherence.

"Guidelines" – Performance or construction items which are recommended, but NOT required.

"Components", "Examples" – Typical ~~component(s)~~ element(s) of standards or guidelines.

Codes and Standards

Applicable local, state, and international building codes and standards are not repeated in this chapter. It is the responsibility of the design professionals to conform to the current codes in their design process. Should the standards contained in this manual be in conflict with international, state, or local codes, the established codes shall prevail. The requirements of ADAAG (Americans with Disabilities Act Accessibility Guidelines) should be consulted.

No attempt has been made to provide detailed specifications in Chapter 7. Standards and guidelines are available that allow architects and engineers the flexibility to design to fit the School District needs.

Applicability

The construction and performance standards and guidelines contained herein are applicable to both new construction of public school facilities and renovation of existing public school facilities. Every attempt should be made to apply these standards and guidelines to existing buildings, in gradual steps as funding and other influences allow~~.~~ (refer to Chapter 1). It may be recognized that some standards may not be compatible with existing facilities in renovation projects nor may it be possible to completely conform a performance or construction standard to ~~new~~ a new facility.

~~It~~ In those instances, variances to those standards, upon request, may be granted by the Division.

~~Green Building Design (optional)~~

~~A strong motive of these building systems standards and guidelines is to promote high performance schools. High performance schools are healthy, comfortable, energy efficient, resource efficient, water efficient, safe, secure, adaptable, and easy to operate and maintain. Designing for high performance goals is a guideline. It is to be considered, but is not mandatory.~~

~~Green building design strives to balance environmental responsibility, resource efficiency, occupant comfort and well-being, and community sensitivity. Green building design includes all players in an integrated development process, from the design team (building owners, architects, engineers, and consultants), to the construction team (materials manufacturers, contractors, and waste haulers), to the maintenance staff and building occupants. The green building process results in a high-quality product that maximizes the owner's return on investment~~.

~~Why Design Green?~~

~~The building sector has a tremendous impact on the environment. According to the U.S. Department of Energy (DOE), buildings in the United States consume more than 30% 40% of our total energy and 60% 72% of our electricity annually. Buildings are a major source of pollutants that cause urban air quality problems and contribute to climate change. Buildings produce 35% 40% of the country's carbon dioxide emissions. Green building practices can substantially reduce the negative environmental impacts associated with these buildings and reverse the trend of unsustainable construction activities. Green design also reduces operating costs, enhances building marketability, potentially increases occupant productivity, and helps create a sustainable community. Green design has environmental, economic, and social elements that benefit all stakeholders, including owners, occupants, and the general public.~~

~~Creating High Performance Schools (optional)~~

~~School districts around the country are finding that smart energy choices can help them save money and provide healthier, more effective learning environments. By incorporating energy improvements into their construction or renovation plans, schools can significantly reduce energy consumption and costs. These savings can then be redirected to educational needs such as additional teachers, instructional materials, or new computers.~~

~~Establishing High Performance Goals~~

~~Cost-effective energy- and resource-efficient schools start with good planning. Working closely with the school's design~~

and planning staff, the architects and engineers should develop objectives that reflect local conditions and priorities, balance short-term needs and long-term savings, and address environmental issues. Goals can include reducing operating costs; designing building that teach; improving academic performance; protecting the environment; increasing health, safety, and comfort; supporting community values; and considering emerging solutions:

- Reducing Operating Costs - To ensure that your school is water- and energy-efficient, you must first work with the school system to establish clear consumption goals. Given your climatic region and building type, this "energy budget" must be realistic, and it must be based on the potential of current, proven energy-saving technologies. Many energy- and resource-saving options have very good financial value. Some of these solutions do not add anything to installation costs.
- Designing Buildings That Teach - When designing the school, consider the importance of incorporating high performance features that can be used for educational purposes. Some high performance features may be harder to rationalize financially, but from an educational standpoint are still important to consider. Solar electric systems (photovoltaics), for example, may have a longer return on investment, but if installed properly, can be a very powerful educational tool.
- Improving Academic Performance - During the past decade, remarkable studies have indicated a correlation between the way schools are designed and student performances. You can maximize student performance by setting air quality objectives that:
    - Define a level of indoor air quality desired during occupied times.
    - Place limitations on the use of materials, products, or systems that create indoor air quality problems.
    - Require monitoring equipment.

  Establishing day lighting objectives will also improve classroom conditions and can help improve performance if you:

    - Include controlled day lighting in all classrooms, administrative areas, the gymnasium, and other significantly occupied spaces.
    - Develop intentional visual connections between the indoor and outdoor environment..
- Protecting Our Environment - High performance school design takes into consideration not only the economic and academic impacts of design, but also environmental impacts. Environmentally sound design elements are those that:
    - Use renewable energy systems and energy-efficient technologies:
    - Incorporate resource-efficient building products and systems ;
    - Promote water-conserving strategies;
    - Use less polluting transportation alternatives;
    - Establish recycling systems; and

- Incorporate environmentally sound site design

- Designing for Health, Safety, and Comfort - You cannot design a high performance school without including design strategies that address health, safety, and comfort issues. Goals should include objectives that:
  - Implement day lighting and indoor air quality solutions to make the school a healthier place to teach and learn; and
  - Address acoustical and thermal comfort
- Supporting Community Values – Incorporating high performance strategies in your school's design results in a win-win situation for the community and the school. Through the implementation of energy-savings strategies, the school saves money and taxpayers benefit. Additionally, the energy dollars saved don't leave the immediate region but stay within the community and help to build a stronger local economy. Building to high performance standards implies the purchase of locally manufactured products and the use of local services. This approach is effective because much of the environmental impact associated with materials, products, and equipment purchased for construction involves transportation. The more transportation, the more pollution. Specifying local products benefits the community in the same way that retaining energy dollars helps: it strengthens the local economy.

Green Building Rating System (optional)

The Green Building Initiative design program called Green Globes and the program offered by the U.S. Green Building council, LEED (Leadership in Energy and Environmental Design), are green measurement systems designed for rating commercial and institutional buildings. Both address new construction and major renovations. The programs address various environmental categories, typically sustainable sites, water efficiency, energy, indoor environmental quality, and materials and resources. Both are performance oriented systems where points are earned for satisfying performance criteria. Different levels of green building certification are awarded based on the total points earned.

- Sustainable Sites - Properly chosen and developed site help minimize negative project impacts of the surrounding areas, the project site, and occupants of the project site
- Water Efficiency – Reduce quality quantity of water needed for the building and the burden of water from the site on municipal treatment facilities.
- Energy & Atmosphere – Establish energy efficiency to reduce operational expenses, conserve natural resources, and reduce local and global pollution.
  - Commissioning and Training – All schools should be commissioned to ensure that the design meets the expectations of the district, and that the school is built as it was designed. Modern schools are complex buildings. Commissioning ensures that all building systems are working properly, and that the school staff knows how to

operate and maintain them.

- Academic Materials & Resources – Reduce the amount of materials needed. Those used should have less environmental impact. More sustainable alternatives exist and should be used as much as possible. Waste from the project should be reduced and managed. It is now possible to recycle, compost, or salvage a majority of construction and demolition waste instead of disposing it in landfills.
- Indoor Air Quality – Schools must protect student health, and good indoor air quality is essential for healthy schools. Good indoor environmental quality can be managed by controlling the sources of pollutants, ensuring thermal comfort and student connections to the outdoor environment.
    - Acoustics – If not controlled to appropriate levels, noise from loud ventilation systems, outdoor sources, and neighboring rooms can significantly impeded communication between teachers and students. Young learners, students with hearing difficulties, and those learning English as a second language are particularly vulnerable. Classrooms should be designed to be accessible for all students.

Commissioning (optional)

The commissioning process is a single-point responsibility to make sure that certain systems in a building are functioning and performing according to the design intent. The independent Commissioning Agent goes far beyond the occasional Design Professional job visits during the construction period. Actual tests are performed and components are verified under the guidance of the Commissioning Agent. Several systems can be commissioned, but emphasis in the chapter is to commission the HVAC components.

Definition

Commissioning is the process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained according to the Owner's operational needs.

Application

Commissioning may be applicable to both new facilities and renovation. It is a guideline to be considered, but not mandatory.

Commissioning Authority Options

The CA can be selected from an independent third party, a mechanical or installing contractor(s), or a design professional.

Contractor: Desirable when building is small and contractor

performs all mechanical work on a system, but a conflict of interest can arise.

Design Professional: Good idea provided that the project specifications detail the requirements. Already familiar with the design intent but a conflict of interest can arise. Also, may not have day-to-day experience in the commissioning process.

How to Select

Use competitive Request for Qualifications (RFQ) and follow a qualification based selection process (QBS).

CA Qualifications

Experience required:

- Designing, specifying, or installing educational building mechanical control systems or general HVAC systems
- Working with project teams and conducting "scoping meetings"
- Building systems start-up, balancing, testing, and troubleshooting
- Commissioning at least two projects involving HVAC and lighting controls
- Writing functional performance-test plans for at least two projects

Extent of Commissioning

The degree or extent of commissioning for new buildings is recommended for the planning, design, and construction phases. However, involvement can occur only in design, construction, or post-construction phases.

What to Commission

All projects that include controls, EMCS, pneumatic equipment, integrated systems, HVAC-related equipment, and air distribution systems should be commissioned.

Benefits of Commissioning

- Improved performance of building equipment and building systems interactions
- Improved IAQ occupant comfort and productivity
- Decreased potential for building Owner liability related to IAQ indoor air quality
- Reduced operation and maintenance costs
- Maximize energy efficiency
- Provide training for school personnel

Civil Sitework

Components

- Building placement
- Ingress, Egress Routing
- Sidewalk
- Trash Enclosure
- Curbing
- Signage and Striping
- Pavement
- Subgrade, Building Pad
- Grading and Drainage
- Water, Sewer, other Utilities

General Standards

1. This section establishes the minimum design and construction requirements for civil sitework for new construction and expansions of school facilities.
2. All drawings including surveys and civil plans shall be prepared in AutoCAD DWG or .pdf format.
3. Site design shall be performed under the supervision of a Registered Civil Engineer and all civil related plans, reports and construction documents shall be signed and sealed in accordance with state statutes.
4. All site design shall conform to the applicable codes and to Federal, State, and local requirements of the Authorities Having Jurisdiction (AHJ).
5. A subsurface geotechnical analysis shall be performed by a Registered Geotechnical Engineer to determine soil properties and provide recommendations for design of footings, foundations, pavements and construction techniques.
6. The following publications (latest edition) shall be consulted by the design professional and are hereby included for reference:
   - Americans with Disabilities Act (ADA)
   - American Association of State Highway and Transportation Officials (AASHTO) Design Greenbook
   - Institute of Transportation Engineers (ITE Manual)
   - Manual on Uniform Traffic Control Devices (MUTCD)
   - Arkansas Highway and Transportation Department (AHTD) Materials Specifications

Site Design Standards

1. Site planning and building placement – The placement of the building shall be closely coordinated with the architect to make good use of the property and ancillary facilities. The various modes of travel (pedestrian, bicycle, cars, buses, delivery vehicles) shall be separated as much as possible to provide safe and efficient access. Special attention shall be given to ingress and egress of pedestrians, passenger vehicles, and buses, and short

term and long term parking locations for each. Pedestrian and vehicular conflicts shall be minimized, as much as possible. Consideration shall also be given for proper drainage of the site during site planning design.

2. Parking – Parking stalls for cars shall be designed at 30°, 45° or 90° angle to the traffic flow direction and shall be a minimum of 9' by 18' in size or per the authorities having jurisdiction (AHJ) requirements, whichever is greater. See Chapter 4 of this manual for number of spaces required for each type of school. All accessible parking shall be designed per the latest edition of the Americans with Disabilities Act (ADA) Federal Guidelines and/or the local codes, whichever is more stringent. Drive aisles between car parking shall be a minimum of 24' for two-way traffic and a minimum of 16' for one-way traffic. Bus parking is recommended at 30° angle to traffic flow direction and oriented so the bus exit door allows students to exit in front of adjacent buses. Bus spaces shall be a minimum of 12' by 40'. Buses should not be required to back up. Drive aisles for buses are recommended to be a minimum of 20'. A parking summary shall be included on the site plan.
3. Sidewalks - Sidewalks shall be designed for access from the parking areas to all entry doors, as well as an accessible path from the street frontage, per ADA guidelines. Sidewalks shall be a minimum of 5' in width and shall be constructed of a minimum of 4" thick Portland cement concrete and minimum strength of 2500 psi.
4. Trash Enclosure – Trash enclosure shall be provided in a location accessible to trash trucks without conflicting with pedestrian routes or bus pick-up/drop-off point. The size of the enclosure may vary by size and number of dumpsters available from the provider. Where practical, recycling may also be staged in the trash enclosure area. The standard enclosure shall have three sides constructed of durable wood, synthetic, or masonry to a minimum height of 6' and capable of screening the dumpster(s) from view. The enclosure will ~~require a pair of gates~~be gated on the "open" side to screen the dumpster interior and provide access. The enclosure shall be positioned so that the "open" side faces a drive entrance with a minimum of 35' direct approach to the enclosure. The trash enclosure shall be constructed on an 8" concrete slab and slab shall extend at least 15' in front of dumpster for the entire opening.
5. Curbing –Curbing shall be provided around the entire pavement perimeter and at all pavement edges. All curbing shall be defined on the site work drawings as to type of curb, size and general location. All permanent curbing shall be concrete. Extruded concrete curbing epoxied to the pavement surface is not permitted. Asphalt curbing shall only be allowed along pavement edges when it is adjacent to a future development area.
6. Traffic Signage and Striping– Traffic signage shall conform to the Manual on Uniform Traffic Control Devices (MUTCD), and at a minimum shall include stop signs where traffic leaves the school property and/or enters a public

Pick-up/drop-off area Sidewalks
Consideration for wider sidewalks in pick-up/drop-off areas and areas leading to main entries are recommended.

Bollards at Trash Enclosure
Bollards are recommended at each corner of the enclosure, where exposed to traffic.

Curbing
Special care should be taken to ensure that all curb radii at entrances, around islands and around curves are sufficiently large enough to accommodate bus turning movements.

thoroughfare. The school shall defer to local authorities for proper off-site signage of public rights-of-ways.

Pavement Design Standards

1. Pavement design shall be based on a minimum design period of twenty (20) years.
2. Pavement design shall be as recommended by the geotechnical engineer and shall consider such variables as the California Bearing Ratio (CBR) of the soil, anticipated traffic volume and vehicle mix (i.e. automobiles, buses, single axle trucks, double axle trucks, etc.) The design professional shall consult the ITE Manual, as well as Chapter 4 of this manual, for determination of anticipated traffic loads for various school types and sizes. The design shall also be based on sound geotechnical practices, existing soil conditions, knowledge of local conditions, and availability of material and pavement performance.
3. Pavement design shall include, at a minimum, the following paving design sections:
   - Standard Duty Asphalt Paving – for use in areas of car traffic and car parking
   - Heavy Duty Asphalt Paving – for use in bus lanes, bus parking, delivery vehicle access, trash truck access, and extreme high use vehicular areas
   - Standard Duty Concrete Paving - for use in areas of car traffic and car parking and/or areas of mixed use traffic
   - Heavy Duty Concrete Paving – for use in bus lanes, bus parking, delivery vehicle access, trash truck access, and extreme high use vehicular areas
   - Heavy Duty Reinforced Concrete Paving – for use in trash enclosure areas, loading docks, truck wells, delivery doors or other areas of extreme loading
4. Pavement and base materials shall conform to the Arkansas Highway and Transportation Department specifications for materials and pavement design.
5. Asphalt pavement design shall conform to Superpave specifications and consist of three layers: surface course, binder course, and crushed aggregate base course, resting on a properly prepared subgrade.
6. Concrete paving shall have a minimum strength of 3000 psi.

Subgrade and Building Pad Preparation Standards

1. Site specific recommendations by the geotechnical engineer shall supersede this section.
2. Topsoil shall be stripped from the site and stockpiled (on-site if possible) per the geotechnical recommendations. Topsoil removal shall be to a sufficient depth to remove the layers containing organics. Topsoil may be reused for top dressing of landscape areas or other non-structural fill areas, where applicable.
3. Preparation of the site subgrade shall be per the recommendations of the geotechnical engineer, and may include scarifying and re-compaction, over-excavation, cut, fill, lime stabilization, cement stabilization, dewatering, moisture conditioning, or compaction.

Signage and Striping

Additional interior signage, including pedestrian crossings, stop signs, directional arrows, and informational signage may be necessary.

Striping and pavement markings should be considered to aid in the sage and efficient movement of vehicles through the site.

4. Subgrade must be properly shaped to the desired sections and elevation and shall be compacted so that it is firm, hard and unyielding. The subgrade shall be at least 12" thick and free of organic and other deleterious materials. Subgrade under paved areas shall be compacted to 95% maximum dry density Modified Proctor per ASTM D-1557.
5. Subgrade for the "building pad" shall extend 5' beyond the perimeter walls of the building and at least 4' below the floor slab and base layer. Subgrade for the building pad shall have a maximum plasticity index of 20 and a maximum liquid limit of 40.
6. The "building pad" subgrade soils shall have a minimum allowable bearing capacity of 3,000 psf.
7. Structural fill placed in the "building pad" area shall be placed in 8" lifts (max) and shall be compacted to 95% maximum dry density Modified Proctor per ASTM D-1557.

Grading and Drainage Design Standards

1. The site shall be graded to safely and efficiently convey stormwater through and around the site.
2. The site shall be designed to safely convey the 100 year storm event. When stormwater piping is used, piping shall be designed to convey the 25 year storm event, or per the AHJ, whichever is greater. The site shall conform to the AHJ requirements for stormwater detention/retention, if required.
3. The design professional shall set the finish floor elevation of the building at an elevation at least 1' above base flood elevation (BFE), or per the AHJ requirements, whichever is greater.
4. Grading around the building shall slope away from the building at a minimum of 2% slope for at least 10' from the building walls. Care should be taken to ensure that landscaping, mulch, topsoil, sod or other materials do not inhibit proper drainage around the base of the building. Where possible, foundation plantings and irrigation close to the foundation walls should be avoided, in order to reduce the effects of moisture under the footings and slabs.
5. Surface drainage swales through playgrounds and play areas shall be prohibited. Inlets and/or pipe openings in playgrounds and play area shall be avoided, and if unavoidable, shall be adequately designed to prohibit students from access.
6. All paved areas, unless otherwise required by code, shall be designed between a 5% maximum and a 1% minimum slope.
7. All landscape areas shall have a maximum slope of three (3) horizontal to one (1) vertical (3:1) and a minimum slope of 1%.
8. Ponding around drainage inlets in paved areas shall be limited to a maximum of 6" depth.
9. Stormwater detention/retention areas shall be adequately fenced to prohibit accidental student access. Detention areas should be placed away from play areas and playgrounds. Slopes in and around stormwater detention/retention area shall have a maximum slope of four (4) horizontal to one (1) vertical (4:1) for ease of

Grading at Play Areas
Play areas generally should be sloped at 2% to promote positive drainage and eliminate ponding and puddles.

maintenance.

10. All drainage inlets on school sites shall be designed as "child safe" to reasonably prohibit student access into inlets and drainage boxes.
11. All grated inlets shall use "bicycle safe" grates.

Stormwater Quality Initiatives
The design professional should consider stormwater quality initiatives, such as filtration strips, bio-swales, and other water quality devices, where applicable.

Water and Sewer Design Standards

1. Domestic water and sanitary sewer shall conform to the requirements of the Arkansas Department of Health.
2. Domestic water main lines shall maintain at least 10' horizontal separation from sanitary sewer mains. Water and sewer lines shall maintain 18" vertical separation.
3. Design of the water system shall include the necessary domestic and fire protection needs for the site. The civil engineer shall coordinate with the plumbing engineer to ensure the system has the adequate capacity for the needs of the site.
4. Civil design documents shall include design of water and sewer commencing 5' outside the building and continuing to the point of connection at the public main.
5. Water system design shall include all main lines, service lines, and fire lines outside the building, as well as fire hydrants, meter locations, valves and other appurtenances.
6. Water pipe materials may include copper, PVC, and ductile iron conforming to American Water Works Association specifications.
7. Water lines shall be designed for burial below frost depth and of adequate depth to avoid damage during construction.
8. Sanitary service lines shall be a minimum of 4" diameter PVC, and mainlines shall be minimum 8" PVC.
9. All facilities with food preparation shall have a grease trap (minimum 1000 gallon capacity).
10. Utility easements shall be provided where public mains cross private property.
11. Proper trenching and bedding of water and sewer lines shall be required
    - Bedding Material: Provide Class I-A or I-B granular material in accordance with ASTM D 2321 which is free from clay lumps, organic, or other deleterious material.
    - Haunching Material: Provide Class I-A, I-B or Class II granular material in accordance with ASTM D 2321 which is free from clay lumps, organic, or other deleterious material. Haunching is considered the zone from the bottom of the pipe to the spring line of the pipe.
12. Trenching and construction shall comply with all OSHA requirements. The site shall be graded to safely and efficiently convey stormwater through and around the site.

Utility Design Standards

1. Civil engineer shall be responsible for design of site routing of utilities from 5' outside of the building to the point of connection. These may include electric,

telephone, gas, and fiber optic routing. The civil engineer shall coordinate with the design team and the utility providers for connection points, service demarcation points, building entry points and load requirements.

2. Utility services shall be placed underground, where possible.
3. Electrical transformers and other utility appurtenances shall be placed away from playgrounds, play areas, and pedestrian walkways, or fenced to adequately prohibit student access.
4. All vaults, meter boxes, and pull boxes in traffic areas shall be "traffic rated H-20".
5. Utility easements should be provided for primary electric service runs to and including the transformer location. Secondary electric service runs typically do not require easements.
6. Empty conduits for future use should be provided under paved entrances and driveways.
7. Proper trenching and bedding of utility lines shall be required
   - Bedding Material: Provide Class I-A or I-B granular material in accordance with ASTM D 2321 which is free from clay lumps, organic, or other deleterious material.
8. Trenching and construction shall comply with all OSHA requirements.

Foundations and Floor Slabs at Grade

Components

- Spread footings and wall footings
- Trenched footings/turned down footings
- Drilled piers
- Reinforced concrete foundation walls
- Reinforced concrete masonry walls utilizing normal weight masonry units with all cores grouted and reinforced
- Concrete grade beams
- Driven piles and pile caps
- Auger cast piles and pile caps
- Other systems if recommended and acceptable to the geotechnical engineer and the structural engineer
- Where expansive clays are present on the site, the geotechnical investigation is to address such and special foundation and floor slab systems and/or undercutting and backfilling shall be utilized as recommended by the geotechnical engineering investigation.

Standards

1. Foundations shall be designed by a structural engineer to meet the recommendations given by a geotechnical engineer based upon his geotechnical investigation and report and in accordance with the current state building code.
2. Structurally sound
3. Deflections and differential movement to be limited to magnitudes compatible with other building components
4. Compatible with soil type
5. Water Barrier
6. Long life expectancy
7. Do not use calcium chloride in concrete.
8. Sub-slab ventilation in areas with radon or potential soil gas submissions. Requirement for such is to be determined by qualified testing agency.
9. Concrete minimum compressive strength at 28 days to be as required by structural engineer's design, but shall be no less than the following:
   - Foundations – 3,000 psi
   - Floor slabs – 3,000 psi
   - Precast systems – 5,000 psi Strength of concrete provided is to be tested by independent testing lab, during construction
10. Concrete reinforcing steel shall be a minimum grade 60 and meet the requirements of the current state building code and structural engineer's design.
11. Project site concrete mixing shall not be used, unless otherwise approved by an independent testing agency.

Fly-Ash
Concrete materials may use 10%-20% fly-ash as replacement, but not addition. Mix design to be done by qualified independent testing agency.

Form Release
Use low- and non-toxic form releases.

12. For classrooms and corridor areas, use no less .than a 4" thick concrete slab with 6x6 - W1.4 x W1.4 welded wire fabric.
13. Under concrete building slabs, place a minimum 10 mil vapor barrier and compact a minimum of 4" of drainage fill material unless geotechnical engineering investigation recommends otherwise.

Framing Systems

Examples

- Steel roof deck on open web steel joists or steel beams
- Cementitious deck on open web joists
- Composite action concrete slabs and steel beams
- Pre-engineered building systems
- Concrete on steel form deck floor
- Cast-in-place floor slabs (*1-way or 2-way*)
- Steel and/or reinforced concrete columns and beams
- Load bearing masonry walls
- Wood Frame systems or Heavy Timber Frame Systems
- Engineered wood products including engineered wood joists and beams, pre-engineered wood trusses, OSB and plywood
- Other systems if recommended and acceptable to the structural engineer and Owner and in accordance with the applicable Fire Prevention and/or Building Codes

Standards

1. Structurally sound
2. Structural systems and members shall be designed by a licensed structural engineer to meet current state fire prevention and building codes and to have adequate stiffness to limit deflections and lateral drift to the requirements of these codes.
3. Steel roof deck: as designed by structural engineer
4. For cementitious decks, use galvanized sub-purlins.
5. For roof slopes greater than 1:12, metal joists shall span parallel to the slope.
6. Do not use calcium chloride in concrete.
7. For structural steel, comply with the American Institute of Steel Construction (AISC) specifications and current state building codes.
8. Steel joist manufacturer shall be certified by the Steel Joist Institute (SJI).
9. Non-painted steel roof deck, if galvanized, to be ASTM A924, G90 (90 oz. per sq. ft.) zinc coating. Steel floor deck shall be galvanized and to be ASTM A924 G60.
10. Concrete deck fill: minimum compressive strength of 3,000 psi or greater at 28 days.
11. Structural steel fabrication must be in accordance with standards.
12. Rolled steel columns and beams: ASTM A572, grade 50 or others if recommended and approved by the structural engineer; Square or rectangular hollow structural steel sections shall be ASTM Grade B, Fy = 46 ksi; Round hollow structural steel sections shall be ASTM A 500, Grade B, Fy = 42 ksi.
13. Concrete columns: minimum compressive strength of 3,000 psi or greater at 28 days.

14. Steel form deck shall comply with the Steel Deck Institute (SDI) design manual (publication no. 27).
15. Structural masonry columns shall be filled and reinforced.
16. Load bearing masonry walls shall comply with current state building codes.
17. Steel lintels in exterior walls: if 8" or less in depth and 12" or less in length, use hot-dipped galvanized, grade 65. For lintels greater in size, use ASTM A123M-02.
18. Steel lintels, other than angles, supporting masonry shall have rigid masonry anchors at 32" maximum spacing to secure masonry to steel.
19. Reinforced masonry lintels shall be used in exterior walls wherever possible.
20. Concrete mix design to be designed and strength tested by qualified independent testing agency to meet these requirements and any others from the design professional.
21. All lumber used for wood trusses shall be #2 grade, kiln dried, Southern Pine; #2 grade, kiln dried, Spruce-Pine-Fir; or #2 grade Hem-Fir or better. #3 grade lumber shall not be allowed for chords or web members.

Exterior Walls

Examples – Exterior Walls

- Masonry veneer cavity walls
- Masonry veneer and metal framing walls
- Masonry veneer and wood framing walls
- Pre-cast concrete insulated panels
- Metal panel on concrete masonry walls
- Metal panel on metal framing walls

- NOTE: Other types of exterior wall construction may be acceptable if type meets or exceeds the above performance standards criteria. ~~Construction standards following, indicated in bold type, are to be considered mandatory minimum requirements.~~ More stringent requirements shall be used when required by the current state building codes and fire prevention codes.

Standards – Exterior Walls

1. Exterior Insulation Finish System shall use ~~i~~impact resistant mesh – must resist breakdown from projectiles.
2. Moisture resistant – provide vapor retarder to inside of insulation.
3. Thermal resistant – minimum ~~U factor of 0.074~~ R-value of R-13.5. Consider long-term performance.
4. Required Air Barrier System ~~(Required) Option include~~ shall be one of the following:
   - ~~a.~~Self-adhering sheets
   - ~~b.~~Fluid applied membranes
   - ~~c.~~Closed-cell polyurethane insulation
   - ~~d.Air barrier transition tape required at masonry control joints~~
   - ~~e.~~Building wrap
5. Air barrier transition tape required at masonry control joints.
6. Minimum maintenance – no routine applied maintenance.
7. Detail roof/wall intersection to provide a continuous air barrier system.

Guidelines – Exterior Walls:

- Economical – consider life cycle evaluation
- Light-colored exterior walls
- Preference given to non-combustible materials

Masonry Veneer Cavity Walls

Components

- Exterior finish
  - Exterior stone, clay, or concrete masonry units
- One-inch air cavity ~~(two inch recommended)~~
- Cavity insulation
  - Rigid insulation or closed cell polyurethane insulation
- Air barrier system ~~(required)~~
- Back-up material
  - Concrete masonry units (normal weight)

Component – Air Cavity
- Two-inch air cavity recommended

Standards – Masonry Veneer Cavity Walls

1. Impact, moisture, and thermal resistant
2. Fire resistant
3. In-wall flashing – copper fabric laminate; elastomeric thermoplastic; sheet metal
4. Drain cavity with weep holes, 4'0" o.c.
5. Steel reinforcement to meet the requirements of the current state building code, including the seismic provisions where applicable.
6. Rebar shall be minimum grade 60.
7. Face brick veneer: grade SW
8. Concrete masonry: unit compressive strength 1900 psi (13.1 MPa)
   - Use CMU's containing fly ash
9. Insulation: extruded polystyrene board or spray polyurethane foam. Minimum R-value of ~~R-10.00~~ R-<u>13.5</u>
10. For exterior CMU veneer: provide water repellent.

Guidelines – Masonry Veneer Cavity Walls:
- Use mortar dropping control product to prevent blocking of weep holes
- For exterior CMU, provide normal weight (CMU)
- Thorocoat ~~coating is acceptable~~ <u>or equal acceptable for required water repellant.</u>

Masonry Veneer on Metal Framing Walls

Components

- Exterior finish
  - Exterior stone, clay, or concrete masonry units
- One-inch air cavity ~~(two inch recommended)~~
- Cavity air infiltration barrier
  - Rigid insulation or closed cell extruded polyurethane insulation
  - Exterior sheathing
  - Air barrier membrane
- Batt/blanket insulation with faced membrane
- Back-up material
  - Cold formed steel framing system
- 5/8 inch gypsum wallboard

Component – Air Cavity
- Two-inch air cavity recommended

Standards – Masonry Veneer on Metal Framing Walls

1. Impact, moisture, and thermal resistant
2. In-wall flashing
3. Drain cavity with weep holes, 4'0" o.c.
4. Mill galvanized wall ties
5. Face brick veneer: grade SW
6. Concrete masonry veneer: unit compressive strength 1900 psi (13.1Mpa) ~~Optional use of CMU's containing fly ash. Maximize recycled content.~~ Provide color and water repellent.

~~7. Thorocoat is acceptable~~.

7. Steel framing system
   - Light gauge steel studs (minimum 20 gauge) or as designed by structural engineer
   - Pre-engineered steel framing system as designed by structural engineer
8. Use minimum ~~R-19~~ R-value of R-13.5 fiberglass insulation. ~~The paper or foil vapor barrier should be anchored to the face of the studs.~~
9. Insulation ~~could~~ shall be soybean oil-based polyurethane, open- cell, semi-rigid foam or equal.

Guidelines – Masonry Veneer Cavity Walls:
- Optional use of CMU's containing fly ash
- Maximize recycled content
- Thorocoat or equal acceptable for required water repellant
- The paper or foil vapor barrier of required insulation should be anchored to the face of the studs.

Pre-Cast Concrete - Insulated Sandwich

Components

- Exterior architectural concrete with smooth or exposed aggregate texture finish or thin brick facing
- Rigid cavity insulation
- Structural concrete backup
- Interior finish, if exposed to be smooth concrete or exposed aggregate concrete or a surface applied smooth or textured finish

Standards - ~~Pre-Case~~ Pre-Cast Concrete - Insulated Sandwich Walls

1. Impact, moisture, and thermal resistant
2. Low maintenance
3. Meet ASHRAE 90.1-2007 (or later) and current state energy code requirements.
4. Use extruded polystyrene or polyisocyanurate insulation.
5. Use fiber composite or plastic connectors – no metal connectors.
6. Concrete materials: Portland cement ASTM C-180, Type I or III~~; Fly ash, ASTM C-618, Class C or F may be substituted for up to 20% of total cementitious materials~~
7. Concrete mix: 28 day compressive strength, 5,000 psi minimum

~~8. Interior surface: paint or skim-coat plaster~~

9. Minimum R-value is R-13.5

Guidelines - Pre-Cast Concrete - Insulated Sandwich Walls:

- Fly ash, ASTM C-618, Class C or F, may be substituted for up to 20% of total cementitious materials.

Metal Panel on Metal Framing

Components

- Exterior finish
  - Exterior metal wall panel system
- Weather barrier
- Air barrier system (required)
- Batt insulation with vapor barrier
- Backup materials
  - Cold formed metal framing
- 5/8 inch gypsum wallboard

Standards – Metal Panel on Metal Framing

1. Metal wall panel: 26 gauge minimum thickness zinc-coated (galvanized) or aluminum-zinc alloy-coated sheet steel; fluoropolymer exterior finish with minimum 20 year finish warranty
2. Low maintenance
3. Moisture and thermal resistant
4. Weather barrier: composite, self-adhesive, rubberized-asphalt compound flashing product
5. Steel framing system:
   - Steel studs as designed by structural engineer
   - Pre-engineered steel framing system as designed by structural engineer
6. Provide ASTM C665, Type 1, faced mineral fiber insulation blankets
7. Interior surface: painted, 5/8 inch, gypsum wallboard. Use ~~t~~Type X where required.
8. Insulation could be soybean oil-based polyurethane, open-cell, semi-rigid foam or equal.
9. Minimum R13.5

Guidelines – Metal Panel on Metal Framing:

- Maximize recycled content

Masonry Veneer on Wood Framing Walls

Components

- Exterior finish
- Exterior stone, clay, or concrete masonry units
- One inch air cavity
- Cavity insulation extruded polystyrene sheathing
  - Closed cell
  - Rigid insulation
- Batt/blanket insulation with vapor barrier
- Backup materials
  - Wood frame system
  - Heavy timber system
- 5/8 inch abuse/moisture/mold resistant gypsum wallboard

Standards – Masonry Veneer on Wood Framing Walls

1. Impact, moisture, and thermal resistant
2. In-wall flashing
3. Drain cavity with weep holes, 4'0" o.c.
4. Mill galvanized wall ties
5. Face brick veneer: grade SW
6. Concrete masonry veneer: unit compressive strength 1900 psi (13.1Mpa). ~~Optional use of CMU's containing fly ash. Maximize recycled content.~~ Provide color and water repellant.
7. Wood frame systems or heavy timber systems:
   - Engineered in strict compliance with requirements of Arkansas State Fire Prevention Code and Building Code
   - All lumber used for wood framed wall systems shall be #2 grade, kiln dried Southern Pine; #2 grade, kiln dried, Spruce-Pine-Fir; or #2 grade, Hem-Fir or better.
8. Use minimum R-value ~~R-19~~ R-13.5 fiberglass insulation. The paper or foil vapor barrier should be anchored to the face of the studs.
9. Insulation could be soybean oil-based polyurethane, open-cell, semi-rigid foam or equal.

Guidelines – Masonry Veneer on Wood Framing Walls:

- Optional use of CMU's containing fly ash
- Maximize recycled content

Roofing Systems

Examples – Roofing Systems

- Shingle roof system
- Metal roof with blanket insulation
- Metal roof with rigid insulation
- Built-up asphalt roof system
- Single-ply roof system
- Modified bitumen roofing system

- NOTES
  - ~~Other types of roof systems may be acceptable if system meets or exceeds the performance standards listed below.~~
  - All roof system and products shall be designed in accordance with state fire prevention code and state building code

Other Roofing Systems

- Other types of roof systems may be acceptable if system meets or exceeds the "Performance Standards - Roofing Systems"

Performance Standards – Roofing Systems

~~Moisture resistant – integral finishes~~

1. Roofing and flashings shall
   - remain watertight
   - not permit the passage of water
   - resist uplift pressure calculated according to current version(s) of applicable code(s)
   - resist thermally induced movement
   - not fail when exposed to weather
2. ~~Thermal resistant – m~~Minimum ~~U~~ R-factor for low-slope roof is R-26.0 and steep roof. is ~~19.6~~ R-19.0

~~Wind / weather resistant – meet Factory Mutual (FM) uplift criteria~~

3. Impact resistant: Class 4 per Underwriters Laboratories (UL) 2218 impact test
4. Fire resistive – meet UL Class "A"
5. Positive slope – minimum slope ¼:12, unless specified otherwise; 1/8:12 for existing buildings

~~4. Minimal maintenance upkeep but not continual maintenance~~

~~6. Wind / weather resistant – meet Factory Mutual (FM) uplift criteria~~

6. Positive drainage to interior drains or exterior ~~sources~~ collection systems

~~7. Fire resistive – meet UL class "A"~~

7. "ENERGY STAR" compliant ratings for surface treatments
8. Minimum 20 year manufacturer's warrantee on materials and system performance
9. Minimum 2 year Contractor guarantee on all materials and workmanship of all system components and accessories

~~9. Consider "radiant barriers", such as aluminum foil at~~

Roofing System Guidelines

- Consider installing "radiant barriers," such as aluminum foil ~~at the ceiling of attics~~ above attic spaces

~~the ceiling of attics~~

10. Sheet metal flashings shall conform to SMACNA's "Architectural Sheet Metal Manual."

~~Pre-Roofing Conference prior to field installation of roofing System to comply with the manufacturer's requirements. Post installation inspection shall be made per manufacturers requirements.~~.

"SMACNA"
Sheet Metal and Air Conditioning Contractors' National Association

Construction Standards – Roofing Systems

1. Provide pre-roofing conference prior to field installation of Roofing System to comply with the manufacturer's requirements. Provide post installation inspection to comply with manufacturer's requirements.

Shingle Roof Systems

Components

- Asphalt Shingles, UL Class "A", ASTM B108 or UL790
- Roofing accessories
  - Felt Underlayment
  - Self-adhering sheet underlayment
  - Sheet metal drip edge and flashing
- Oriented strand board (OSB) or plywood
- Rigid insulation~~ with vapor barrier on underside~~: extruded polystyrene or polyisocyanurate board
- Vapor barrier, on underside of rigid insulation
- Structural support: steel deck or cementitious deck; or wood deck (lumber, plywood or oriented strand board, OSB) permitted in accordance with Arkansas State Fire Prevention Code and Building Code

Performance Standards – Shingle Roofing Systems

1. Roofing and flashings shall
   - remain watertight
   - not permit the passage of water
   - resist uplift pressure calculated according to current version(s) of applicable code(s)
   - resist thermally induced movement
   - not fail when exposed to weather

~~Moisture resistant~~
~~Thermal resistant~~

2. System shall meet Class 4 per UL 2218 impact test
3. System shall meet UL Class "A" for fire resistance
4. "ENERGY STAR" compliant surface treatments
5. ~~Maximum industry available~~ Minimum 20 year material and weather tightness warranty by manufacturer
6. Contractor furnish 2 year guarantee on materials and workmanship for all system components and accessories

Construction Standards – Shingle Roofing Systems

1. Minimum 3:12 slope
2. Fasten shingles to roof sheathing with nails – not staple fasteners. Staples shall not be used on decking.
3. Metal drip edge: brake formed sheet metal with at least a 2 inch roof deck flange
4. Laminated-Strip Asphalt Shingles: ASTM D3462 laminated, multi-ply overlay construction glass-fiber reinforced, mineral-granule surfaced, self-sealing shingles
5. Felt underlayment 30 pound asphalt-saturated organic felts, non-perforated.~~Use two layers where slope equals or is less than 4/12.~~ Use ice & water shield for slopes less than 4:12.
6. Sheet metal flashings conform to SMACNA's

"Architectural Sheet Metal" manual. Includes perimeter edge metal; penetration flashings; valley construction; and apron, step, cricket, or back flashings.

~~7. Minimum 20 year warranty.~~

7. Provide pre-roofing conference prior to field installation of Roofing System to comply with the manufacturer's requirements. Provide post installation inspection to comply with manufacturer's requirements.

Metal Roof with Blanket Insulation

Components

- Standing seam metal roof panels, minimum 26 gauge
  - Profile: vertical, rib, seamed joint
  - Material: aluminum zinc alloy coated steel sheet
  - Exterior finish: fluoropolymer two-coat finish system, 70% PDFY resin
  - ~~Snow guards: seam-mounted, stop or bare type (surface mounted is not acceptable)~~
- Insulation: glass fiber blanket (Minimum R-value R-19) with vapor tight edge tabs and ~~facer~~ faced on under side ~~(Minimum R-Value R-19)~~
- ~~Galvanized~~ Factory primed or galvanized steel purlins
- ~~Solid substrate with ice/water shield moisture barrier recommended.~~
- Structural support:
  - Steel joist or truss joists
  - Pre-engineered structural framing system
- Sheet metal drip edge and flashing
- Snow guards

Component – Ice / water shield

- Ice / water shield moisture barrier recommended
- Install over required solid substrate component

Performance Standards – Metal Roof with Blanket Insulation

1. Roofing and flashings shall
   - remain watertight
   - not permit the passage of water
   - resist uplift pressure calculated according to current version(s) of applicable code(s)
   - resist thermally induced movement
   - not fail when exposed to weather

~~Moisture resistant~~
~~Thermal resistant~~

2. System shall meet Class 4 per UL 2218 impact test
3. System shall meet UL Class "A" for fire resistance
4. System shall have ASTM E1592-94 wind uplift classification
5. No water penetration when tested according to ~~ASTE~~ ASTM E1646
6. Air leakage through assembly of not more than 0.06 CFM/sq. ft. of roof area when tested to ASTM E1680
7. "ENERGY STAR" compliant surface treatments
8. Special warranty on panel finishes by manufacturer: 20 years
9. Special weather tightness warranty by manufacturer for standing seam metal roof panels: 20 years
10. Contractor furnish 2 year guarantee on materials and workmanship for all system components and accessories (in accordance with terms and conditions of required manufacturer's ~~20 year weathertightness warranty~~ warranties)

~~**Guideline – Metal Roof with Blanket Insulation**~~

- ~~"ENERGY STAR" compliant roof surface recommended~~

Construction Standards – Metal Roof with Blanket Insulation

1. Minimum 1:12 slope
2. ~~Thermal spacers~~Provide break where panels attach directly to purlins
3. Standing seam assembly: factory formed, cap seam assembly designed for concealed mechanical attachment of panels to roof purlins or deck

~~4. Air leakage through assembly of not more than 0.06 CFM/sq. ft. of roof area when tested to ASTM E 1680.~~

~~5. No water penetration when tested according to ASTM E 1646.~~

~~6. Roof panels shall be 26 gauge minimum.~~

4. Provide pre-roofing conference prior to field installation of roofing system to comply with the manufacturer's requirements. Provide post installation inspection ~~required~~ to comply ~~per~~ with manufacturer's ~~recommendations~~ requirements.
5. ~~Snow guards shainbeinstalled~~

Metal Roof with Rigid Insulation

Components

- Standing seam metal roof panels, minimum 26 gauge
  - Profile: vertical, rib, seamed joint
  - Material: aluminum zinc alloy coated steel sheet
  - Exterior finish: fluoropolymer two-coat finish system, 70% PDFY resin
  - ~~Snow guards: seam-mounted, stop or bare type (surface mounted is not acceptable)~~
- Underlayment (ice and water shield)
- Nail base rigid roof insulation – ~~one or two layers~~
- Structural support: steel deck or cementitious deck; wood deck (lumber, plywood, or oriented strand board – OSB) permitted in accordance with Arkansas State Fire Prevention Code and Building Code
- Sheet metal drip edge and flashing
- Snow guards

Component – rigid roof insulation

- Required nail base rigid roof insulation may be installed using one or two layers.
  - Recommend that insulation be installed in two layers with joints offset in each direction, to reduce thermal bridging and make the roofing system more energy efficient

Performance Standards – Metal Roof with Rigid Insulation

1. Roofing and flashings shall
   - remain watertight
   - not permit the passage of water
   - resist uplift pressure calculated according to current version(s) of applicable code(s)
   - resist thermally induced movement
   - not fail when exposed to weather

~~Moderate Impact resistant~~

~~Moisture resistant~~

2. System shall meet Class 4 per UL 2218 impact test
3. System shall meet UL Class "A" for fire resistance
4. System shall have ASTM E1592-94 wind uplift classification
5. No water penetration when tested according to ~~ASTE~~ ASTM E1646
6. Air leakage through assembly of not more than 0.06 CFM/sq. ft. of roof area when tested to ASTM E1680
7. "ENERGY STAR" compliant surface treatment~~s~~
8. Special warranty by manufacturer on panel finishes: 20 years
9. Special weather tightness warranty by manufacturer for standing seam metal roof panels: 20 years
10. Contractor furnish 2 year guarantee on materials and workmanship for all system components and accessories (in accordance with terms and conditions of manufacturer's ~~20 year weathertightness warranty~~ warranties)

~~11. System shall have ASTM E 1592-94 wind uplift classification.~~

~~12. No water penetration when tested according to ASTE~~

~~ASTM E1646.~~

~~13. Air leakage through assembly of not more than 0.06 CFM/sq. ft. of roof area when tested to ASTM E1680.~~

Construction Standards – Metal Roof with Rigid Insulation

1. Minimum 1:12 slope
2. Underlayment: self-adhering high temperature sheet, 30 to 40 mils thick
3. Standing seam assembly: factory formed, cap seam assembly designed for concealed mechanical attachment of panels to roof purlins or deck

~~4. Air leakage through assembly of not more than 0.06 CFM/sq. ft. of roof area when tested to ASTM E 1680.~~

~~5. Roof panels shall be 26 gauge minimum.~~

5. Provide pre-roofing conference prior to field installation of roofing system to comply with the manufacturer's requirements. Provide post installation inspection per manufacturer's requirements.

~~6. Snow Guards~~

Built-Up Asphalt Roof System

Components

- Alternating layers of bituminous sheets and viscous bituminous coatings over an insulated deck

Performance Standards – Built-Up Asphalt Roof System

1. Roofing membrane and base flashings shall
   - remain watertight
   - not permit the passage of water
   - resist uplift pressure calculated according to current version(s) of applicable code(s)
   - resist thermally induced movement
   - not fail when exposed to weather

~~Thermal resistant~~
~~Impact resistant~~
~~Moisture resistant~~

2. System shall meet Class 4 per UL 2218 impact test
3. System shall meet UL Class "A" for fire resistance
4. "ENERGY STAR" compliant surface treatment
5. Manufacturer to provide minimum ~~15~~ 20 year warranty on materials and system performance
6. Contractor to provide 2 year guarantee ~~warranting the roofing, insulation and flashing~~ on materials and workmanship for all system components and accessories (in accordance with terms and conditions of manufacturer's warranties)

~~7. Post installation inspection shall be per the manufacturer's requirements.~~

Construction Standards – Built-Up Asphalt Roof System

1. System description
   - BU-I-A-G (4) A (Built up membrane over insulated deck using asphalt with glass fiber ply sheets and aggregate surfacing
   - BU-I-L-G2 (coated base) (4) A (built up membrane over insulated deck using cold liquid applied asphalt with ply sheets and aggregate surfacing)
2. Base sheet (recommended by manufacturer)
3. Ply felt: asphalt impregnated, glass fiber felt, complying with ASTM D2178, Type VI or 28 lb. coated base sheets as required by manufacturer to meet warranty requirements
4. Flashing sheet
   - SB5 modified asphalt sheet, mineral granule surfaced, ASTM G162 (composite sheet) or ASTM G164 ~~(polyster)~~ polyester
   - APP modified asphalt sheet, mineral granule surfaced, ASTM G223 (composite)

5. Asphalt materials
   - Roofing asphalt: recommended by built-up roofing manufacturer
   - Cold applied adhesive
6. Auxiliary membrane materials may include: aggregate surfacing, substrate board, vapor retarder, roof coating, and/or protective walkways.
7. Polyisocyanurate board insulation with a minimum compressive strength of 20 psi and ~~be~~ faced on both top and bottom
8. Provide pre-roofing conference prior to field installation of roofing system to comply with the manufacturer's requirements. Provide post installation inspection per manufacturer's requirements.
9. Minimum slope ¼:12. Reroofs may remain 1/8: 12 if current roof has 1/8:12 slope. Flat roofs are unacceptable.

Single Ply Roof System

Components

- Uniform elastomeric EPDM membrane, PVC or TPO
- ½ inch, rigid cover board
- Rigid insulation~~ – one or two layers~~
- Vapor barrier
- ¼ inch substrate board
- Structural support: steel deck or cementitious deck or wood deck (lumber, plywood or oriented strand board, OSB)

Component – rigid insulation

- Required nail base rigid roof insulation may be installed using one or two layers
  - Recommend that insulation be installed in two layers with joints offset in each direction, to reduce thermal bridging and make the roofing system more energy efficient

Performance Standards – Single Ply Roof System

1. Roofing membrane and base flashings shall
   - remain watertight
   - not permit the passage of water
   - resist uplift pressure calculated according to current version(s) of applicable code(s)
   - resist thermally induced movement
   - not fail when exposed to weather

~~Thermal resistant~~
~~Moisture resistant~~
~~Weather / temperature resistant~~

2. System shall meet Class 4 per UL 2218 impact test
3. System shall meet UL Class "A" for fire resistance
4. "ENERGY STAR" compliant surface treatment

~~Class "A" U.L. roof system~~

5. Manufacturer to provide 20 year warranty on materials and system performance
6. Contractor to provide 2 year guarantee ~~warranting the roofing, insulation and flashing~~ on materials and workmanship for all system components and accessories (in accordance with terms and conditions of manufacturer's warranties)
7. ~~Post installation inspection shall be per the manufacturer's requirements~~

Construction Standards – Single Ply Roof System

1. Minimum slope 1/4:12 for new construction. Reroofs may remain 1/8:12 if current roof has 1/8:12 slope. Flat roofs are unacceptable.
2. Loose laid/ballasted, fully adhered or mechanically fastened ethylene propylene diene monomers (EPDM), TPO, PVC membrane, ~~.045 inch~~ 50 mils thick minimum
3. Cover board: ASTM C 1177, glass mat, water resistant gypsum substrate Type X, or ASTM C 272 gypsum wood fiber composite board
4. Insulation: extruded polystyrene board or polyisocyanurate board
5. Vapor barrier: polyethylene retarder, ASTM D 4397, 6 mils (0.15 mm) thick minimum

6. Substrate board: glass mat, water resistant gypsum board
7. Provide pre-roofing conference prior to field installation of roofing to comply with the manufacturer's requirements. Provide post installation inspection per manufacturer's requirements.

Modified Bituminous Membrane

Components

- Roofing system formed with modified bituminous membranes over an insulated deck

Performance Standards – Modified Bituminous Membrane

1. Roofing membrane and base flashings shall
   - remain watertight
   - not permit the passage of water
   - resist uplift pressure calculated according to current version(s) of applicable code(s)
   - resist thermally induced movement
   - not fail when exposed to weather

~~Thermal resistant~~
~~Impact resistant~~
~~Moisture resistant~~

2. System shall meet Class 4 per UL 2218 impact test
3. System shall meet UL Class "A" for fire resistance
4. "ENERGY STAR" compliant surface treatments
5. Manufacturer to provide a minimum 20 year warranty on materials and system performance
6. Contractor to provide 2 year guarantee ~~warranting the roofing, insulation and flashing~~ on materials and workmanship for all system components and accessories (in accordance with terms and conditions of manufacturer's warranties)

Construction Standards – Modified Bituminous Membrane

1. System description – provide one of the following:
   - MBA(1)-i-(T,M, or L)-G(2)-M or A (modified bitumen APP roofing membrane over insulated deck, mopped or set in cold, liquid-applied adhesive, with glass fiber ply sheet and mineral or aggregate surfacing)
   - MBS(1)-I-(TM, or L)-G(2)-M or A (modified bitumen SBS roofing membrane, over insulated deck, mopped or set in cold, liquid-applied adhesive, with glass fiber ply sheet and mineral or aggregate surfacing)
2. Cap sheet – provide one of the following:
   - SBS modified bituminous cap sheet: SBS modified asphalt sheet, smooth surfaced, dusted with fine parting agent on both sides or granular surfaced; suitable for application method specified; manufacturer's standard thickness and weight; for use of reinforcing type as follows:
     - Use: roof membrane and base flashing
     - Reinforcing: composite woven (ASTM G162) and

glass fiber mat

- APP-modified cap sheet, smooth surfaced: atactic ~~polyprospolene~~ polypropylene modified asphalt sheet, smooth surfaced; suitable for application method specified; manufacturer's standard thickness and weight; for use and of reinforcing types as follows:
  - Use: roof membrane and base flashing
  - Reinforcing: composite woven (ASTM-G162) and glass fiber mat

3. Auxiliary membrane materials may include: protective surfacing (aggregate surfacing or roof granules); roofing asphalt (as recommended by system manufacturer); substrate board (if required by design professional or roof manufacturer); cold applied adhesive: vapor ~~retarded~~ retarder (if required by project conditions by design professional or manufacturer; and protective walkway materials recommended by system manufacturer.
4. Base sheet: ~~unperformated~~ unperforated, asphalt impregnated and coated glass fiber sheet, dusted with fine mineral surfacing on both sides
5. Base ply felts: asphalt coated, glass fiber felt, complying with ASTM D2178, Type VI or 28 lb. coated base sheets as required by manufacturer to meet warranty requirements
6. Polyisocyanurate board insulation with a minimum compressive strength of 20 PSI and faced both top and bottom. Provide tapered insulation, preformed saddles, crickets, tapered edge strips and other insulation shapes as required for "positive drainage."
7. Insulation accessories as may be recommended by the insulation manufacturer and as compatible with membrane roofing including: fasteners; cold fluid applied adhesive; wood nailer strips; and cover board (perlite insulation board or cellulosic-fiber insulation board)
8. Provide pre-roofing conference prior to field installation of roofing to comply with the manufacturer's requirements. Provide post installation inspection per manufacturer's requirements.
9. Minimum slope ¼:12. Reroofs may remain 1/8:12 if current roof slope is 1/8:12. Flat roofs are unacceptable.

Openings

Examples – Openings

- View windows
- Clerestory windows
- Roof monitors, unit and tubular skylights
- Entrance assemblies
- Interior doors
- Exterior doors

Standards – Doors and Windows

1. Air infiltration rate of less than 0.4 CFM/ft performance class AW and grade 65 by the American Architectural Manufacturing Association (AAMA)
2. Testing for thermal performance according to AAMA 1503
3. Not less than 26 STC when tested for sound transmission loss according to ASTM A90
4. Operating window sash to be factory glazed.
5. Windows to be double glazed and have low emissive coating.
6. Glass for exterior doors and sidelights shall comply with state fire prevention codes. Provide vestibule at main entrance.
7. In un-rated assemblies, glass for interior doors shall be a minimum of ¼ inch clear tempered.
8. Interior doors to be solid-core wood and factory finished except in PE, Shop, Gyms, Labs and Locker rooms. Unfinished doors may be used for renovations and additions. 1 ¾" 16 ga. insulated hollow metal doors with 18 ga. frames may be used in lieu of wood.
9. ~~Consider selection of interior doors constructed with recycled or recovered content and low VOC (volatile organic compounds) if available.~~
10. ~~Consider selection of interior doors with wood veneers harvested from sustainable forests if available.~~
9. For a high degree of sound isolation on both interior and exterior doors, provide full perimeter gaskets and automatic door bottoms with a neoprene element for acoustical doors and an STC rating appropriate for the intended use.
10. On exterior doors, provide full perimeter weather-stripping and thresholds.
11. Exterior hollow metal doors shall be insulated.

Performance Guidelines - Openings

- Provide uniform light distribution
- Provide low glare
- Reduce energy costs
- Mitigate safety / security concerns
- Low maintenance
- Provide day lighting that uses diffused or reflected sunlight
- Provide window views to help eye health and help reduce stress
- Encourage "top lighting" to provide best uniform illumination
- Consider natural daylight for all academic spaces
- Minimize east and west facing glass

Guidelines – Doors and Windows

- Consider selection of interior doors constructed with recycled or recovered content and low VOC (volatile organic compounds) if available
- Consider selection of interior doors with wood veneers harvested from sustainable forests if available

Interior Partitions

Examples – Interior Partitions

- Concrete masonry walls (CMU)
- Glazed tile and ceramic tile
- Metal or wood studs with gypsum wallboard
- Veneer plaster over gypsum wallboard
- Operable partitions
- Folding partitions
- Demountable partitions
- ~~Wood framing~~

Performance Standards – Interior Partitions

1. Easy to clean materials
2. Resistant to moisture and inhibits the growth of biological contaminants
3. Impact resistant materials in high traffic areas
4. Durable, long life materials
5. Dimensional planning to reduce waste (i.e. 4 ft. by 8 ft. wallboard)
6. Use materials that meet industry consensus standards for VOC emissions.

Guidelines – Interior Partitions

- Consider the design of a product for disassembly and its parts to be reused, remanufactured, or recycled
- ~~Good~~ Consider acoustical qualities
- Consider recycled/recyclable
- Local (within 500 miles) materials and products where possible
- Consider renewable materials

Concrete Masonry Walls
Structural Glazed Tile Walls
Ceramic Tile

~~**Performance Standards**~~

- ~~Impact resistant~~
- ~~Easily cleanable & maintainable~~
- ~~Good acoustic qualities~~
- ~~Daylight enhancement qualities~~

Performance ~~Guidelines~~ and Benefits – Concrete Masonry Walls, Structural Glazed Tile Walls, Ceramic Tile

- Impact resistant
- Easily cleanable & maintainable
- Good acoustic qualities
- Daylight enhancement qualities

Construction Standards – Concrete Masonry Walls, Structural Glazed Tile Walls, Ceramic Tile

1. CMU walls: ASTM C190, 1900 psi compressive strength, normal weight aggregate or FM 1500 psi.
2. Tooled or struck mortar joints for cleanability. Use Type "S" mortar for loadbearing walls and Type "N" for non-loadbearing walls.
3. Glazed structural clay tile: ASTM C 126, Type I (single-faced units) and Type II (double-faced units)
4. Ceramic tile: for materials ANSI A 137.1 "Specifications for Ceramic Tile"; for installation ANSI 108 series and TCA handbook
5. Glazed wall tile: 5/16 inch thick, flat tile with cushion edges
6. Grout tile using latex Portland cement grout. Exception: use chemical resistant epoxy grout in kitchens
7. Control joints required for CMU partition walls per design.

Metal or Wood Studs with Gypsum Wallboard
Veneer Plaster over Gypsum Wallboard

Construction Standards – Metal or Wood Studs with Gypsum Wallboard, Veneer Plaster over Gypsum Wallboard

~~1. Do not use in exterior walls where threat of moisture and mold might be present~~

1. Sound transmission class: Minimum STC of 41 in academic areas
2. Steel framing: comply with ASTM C754 and G40 hot-dip galvanized zinc coating
3. Gypsum wallboard: ASTM C36, Type X 5/8 inch thick
4. Type X wallboard required at rated partitions
5. Moisture resistant wallboard to be used in high moisture areas
6. Metal studs: ASTM C645, 20 gauge sheet base metal
7. Provide control joints in partitions 30 feet maximum
8. Veneer plaster: ASTM C58T consisting of separate base coat and finish coat
9. Wood stud grade marked as required by the applicable building code
10. Abrasive and impact resistant materials in high traffic areas

Performance ~~Guidelines~~ and Benefits – Metal or Wood Studs with Gypsum Wallboard, Veneer Plaster over Gypsum Wallboard

- ~~"Abrasive-resistant" and "high impact" in high traffic areas~~
- Economical
- Relatively easy to move or remove
- Accommodates periodic finish color changes
- Good sound barrier when used with acoustical insulation

Operable Partitions, Folding Partitions, Demountable Partitions

Performance Standards – Operable Partitions, Folding Partitions, Demountable Partitions

1. Easily moved from opened to closed (stored) position by manual or electrical operating mechanism.
2. Sound transmission ~~(STC rating)~~ class (STC) as provided below in Construction Standards, or as required to meet the sound isolation requirements for the functional use of the rooms or spaces to be divided, whichever is greater.
3. Options for tack and marker-board surfaces.
4. Overhead structural support with minimal deflection as required for functional operation.
5. Demountable partitions convenient to disassemble and relocate.

Construction Standards – Operable Partitions, Folding Partitions, Demountable Partitions

~~1. Manually or electrically operated partitions~~

1. Operable partitions: panels ½ inch gypsum board laminated with 3/16 inch natural cork (STC 47) or steel face sheet (STC 50); Panel finish-vinyl fabric, carpet, tack boards or marker boards; pedestrian pass doors as required.
2. Accordion folding partitions: steel or aluminum suspension tracks; manually operated; interior 22 gauge steel panels for sound isolation; vinyl coated fabric finish.
3. Demountable partitions; face panels of gypsum board painted or covered with vinyl; face panels of steel painted or covered with vinyl or plastic laminate; doors and windows available as required.
4. Non-combustible products that meet rated fire or smoke separation building code requirements.

Interior Floor Finishes

Performance Standards – Interior Floor Finishes

1. Water-based coatings and adhesives
2. Nontoxic and non-polluting materials (low VOC)
3. Resistant to moisture or inhibits the growth of biological contaminants
4. ~~Easy to clean~~ Can be cleaned with non-polluting maintenance products
5. ~~Durable to withstand~~ Suitable for heavy use ~~without requiring frequent replacement~~ areas
6. ~~Easy to maintain~~
7. Prior to finish flooring installation, ~~P~~provide moisture testing of concrete floors to meet finish flooring manufacturer's requirements

Examples – Interior Floor Finishes

- Soft Surface Flooring
  - Vinyl composition tile (VCT and vinyl enhanced tile (VET)
  - Carpeting and carpet tiles
  - Rubber flooring
- Hard Surface Flooring
  - Porcelain ceramic tile (CT) with recycled content
  - Quarry tile (QT)
  - Terrazzo tile with recycled content
  - Concrete finish
  - Wood (athletic)
  - Resinous epoxy
  - Hardwood

Guidelines – Interior Floor Finishes

- Maximize ~~R~~recycled/recyclable content
- Minimize PVC content

Soft Surface Flooring

Examples

- Vinyl composition tile (VCT) and Vinyl enhanced tile (VET)
- Linoleum and Sheet vinyl
- Carpet (CAR) and carpet tiles
- Rubber flooring

Construction Standards – Soft Surface Flooring

1. Carpet: minimum recycled content guideline of 25%, minimum 17 ounce face weight
2. Low-VOC emitting materials. Resilient VOC content limited to 340 ~~GM~~ grams/liter or less
3. Maximum acceptable moisture emission rate for concrete sub floors:
   - Carpet and sheet vinyl – 3 lbs/1,000 sq. ft. per 24 hours or less
   - VCT – 5 lbs./1,000 sq.ft.
4. Use water-based low VOC adhesives, sealants, and cleaning products
5. Sheet vinyl with backing: 0.080 inch thick
6. Linoleum: 0.10 inch (2.5mm) minimum thickness

Performance Benefits - Soft Surface Flooring

- Easy to clean and maintain
- Acoustical benefits
- Physical comfort (cushion)
- Safety for small children

Performance Guidelines - Soft Surface Flooring

- ~~Easy to clean and maintain~~
- ~~Acoustical benefits~~
- ~~Physical comfort (cushion)~~
- Maximize ~~R~~recycled ~~content~~ / ~~R~~recyclable content
- ~~Safety for small children~~
- Consider meeting Carpet and Rug Institute Green Label Plus criteria
- Research and use carpet reclamation programs where available for disposal of existing carpet
- Minimize PVC content where possible
- ~~Review~~ Consider life cycle costs including materials, cleaning and maintenance

Hard Surface Flooring

Examples

- Porcelain ceramic tile (CT) with recycled content
- Quarry tile (QT)
- Terrazzo tile with recycled content
- Concrete finish
- Wood (athletic)
- Resinous Epoxy

Construction Standards – Hard Surface Flooring

1. Low-VOC emitting materials: flooring, adhesives, grouts, caulk, or sealants
2. Comply with ANSI ceramic tile standard
3. Mortars and grouts should be based upon the installation conditions and as recommended by the Tile Council of America
4. Use epoxy-modified grout mixture for high moisture areas
5. For concrete floors use two-component, water-based, low odor, dust proofing, color pigmented epoxy sealer, or stain
6. Wood gym floors:
   - maximum 4.5 pounds per 1,000 sq.ft. moisture emission in slab
   - two year guarantee
   - second and better grade, maple strip flooring

Performance Benefits - Hard Surface Flooring

- Easy to clean and stain resistant
- Highly durable
- Reasonably economical based on life-cycle cost analysis

Performance Guidelines - Hard Surface Flooring

- ~~Easy to clean and stain resistant~~
- ~~Highly durable~~
- ~~Reasonably economical based on life-cycle cost analysis~~
- Consider finishes and/or materials suitable for use in high traffic areas
- Wood flooring: Use certified hardwood, salvaged wood and/or laminated or veneered wood products where possible

Wall and Ceiling Finishes

Examples – Wall and Ceiling Finishes

- Paints
- Stains and transparent finishes
- Multi-color coatings Rubber Flooring
- Vinyl-coated fabric wall covering-PVC free
- Suspended acoustic ceiling systems or acoustical panels
- Sprayed-on acoustical treatment
- Acoustical wall treatment
- Abuse resistant acoustical panels
- Metal Ceiling Panels
- Wood Ceilings

Performance Standards – Wall and Ceiling Finishes

1. Non-toxic and non-polluting materials (low-VOC)
2. Can be cleaned with non-polluting maintenance products
3. Specify only composite wood and agri fiber products, or products containing these as substrates, that are third-party certified to comply with formaldehyde emissions requirements in the product's ANSI standard, the Composite Panel Association Environmentally Preferable Product Standard, or that contain no added urea formaldehyde resins. Do not use in high humidity or wet areas.

Performance Guidelines – Wall and Ceiling Finishes

- ~~Relatively easy to clean with non-polluting materials (Low VOC emitting)~~
- Maximize use of recycled content products~~: 100% recycled content paper facing for gypsum board when available~~
- Consider initial costs and life cycle costs
- Consider products that can be repaired or replaced by local persons
- ~~Specify only composite wood and agri fiber products, or products containing these as substrates, that are third-party certified to comply with formaldehyde emissions requirements in the product's ANSI standard, the Composite Panel Association Environmentally Preferable Product Standard. Or that contain no added urea formaldehyde resins. Do not use in high humidity or wet areas.~~
- Consider ease of installation
- Consider sound absorbing qualities
- Consider use of locally available materials
- ~~Take care in delivery, handling, and storage of gypsum board. Prevent moisture damage.~~
- Consider reflectance values of walls and ceilings
- Consider wall and ceiling products or systems appropriate for specific functional spaces with and acoustical properties

Paints and Vinyl Wall Coverings

Examples – Paints and Vinyl Wall Coverings

- Paints
- Stains and transparent finishes
- Multi-color coatings Rubber flooring
- Vinyl-coated fabric wall coverings – PVC free

Construction Standards – Paints and Vinyl Wall Coverings

1. Use low-VOC emitting paints
2. Use Water-based Acrylic Latex paints in lieu of solvent-based paints on non-metal surfaces
3. Use Alkyd Enamel paints on metal surfaces
4. Apply water-based paints within a temperature range in accordance with the manufacturer's recommendations
5. Vinyl-coated fabric wall covering: total weight minimum 22 oz. /~~lin.~~ sq.yd.; adhesive VOC content of 50 ~~G~~ grams/liter or less
6. Provide proper ventilation during application, curing and occupancy
7. Use water-based epoxy paints in interior areas with high humidity or subjected to surface moisture

Performance Benefits - Paints and Vinyl Wall Coverings

- Easy to clean

Performance Guidelines - Paints and Vinyl Wall Coverings

- ~~Use low-VOC emitting materials~~
- ~~Easy to clean~~
- Wall coverings: maximize use of ~~R~~recycled and recyclable materials
- Consider light value colors to enhance day-lighting
- Paints: Consider abrasion resistance; hide ability, odor, overall appearance and application method

Acoustical Ceilings and Panels

Examples – Acoustical Ceilings and Panels

- Suspended acoustic ceiling systems or acoustical panels
- Sprayed-on acoustical treatment
- Acoustical wall treatment
- Abuse resistant acoustical panels
- Metal Ceiling Panels
- Wood Ceilings

Construction Standards – Acoustical Ceilings and Panels

1. Ceiling suspension system: Conform to ASTM C 635; main and cross runners roll-formed from cold-rolled steel sheet, pre-painted; Hot-dip galvanized per ASTM A 653, G30 coating
2. Ceiling panels shall meet ASTM C 1264 for Class A materials
3. Acoustic ceiling panels shall have a minimum Noise Reduction Coefficient (NRC) ~~0.65~~ 0.55 and Ceiling Attenuation Class (CAC) 35 rating
4. Spray-on acoustical treatment: minimum NRC ~~values~~ of 0.65 per ASTM C423, and a maximum flame spread rating of 15, and smoke developed of 0 per ASTM E84;thickness as necessary to accomplish design R-value and STC values
5. Acoustical wall treatment: rigid glass-fiber board and fine-grain cork core faced with fabric
6. Abuse-resistant acoustical panels: flame spread rating less than 25; wood fibers and hydraulic cement binder composition
7. Specify low formaldehyde acoustical ceiling panels

Performance Benefits - Acoustical Ceilings and Panels

- Good sound absorption qualities
- Low cost ceiling application

Performance Guidelines - Acoustical Ceilings and Panels

- ~~Good sound absorption qualities~~
- Consider ceiling tiles that contain a minimum recycled content of 20%
- ~~Low cost ceiling application~~
- ~~Ceiling panels should have a minimum rating NRC 0.65 and CAC 35~~
- Ceiling panels ~~shall meet ASTM C 1264 for Class A materials;~~ anti-microbial treatment is optional

Specialties

Examples – Specialties

- Visual display boards
- Fire Extinguishers
- Wire mesh security partitions
- Standard lockers
- Athletic lockers
- Metal toilet compartments
- Plastic toilet compartments

Performance Guidelines – Specialties

- Sturdy, well-constructed
- Maintenance-free
- Ability to easily replace damaged components
- Choose quality manufacturers
- Wide range of color selections
- Durable, easy-to-clean finishes
- ~~Ceiling attachment for toilet partitions~~
- Use recycled/recyclable material if available
- Consider use of materials and products local within 500 miles of project

~~Lockers & Toilet Compartments~~ Visual Display Boards, Fire Extinguishers, Wire Mesh Security Partitions

Examples

- ~~Chalkboards~~
- Marker boards
- Tack boards
- Fire extinguishers
- Wire mesh security partitions

Construction ~~Guidelines~~ Standards – Boards, Extinguishers, Wire Mesh Partitions

~~1. Chalkboards: .021 inch thick porcelain enamel steel face sheet with matte finish; 3/8 inch particleboard core; .005 inch aluminum foil backing; anodized extruded aluminum trim~~

1. Marker boards: Porcelain enamel face sheet with high gloss finish; 3/8 inch particleboard core; .005 inch aluminum foil backing; anodized extruded aluminum trim
2. Tack boards: factory built, vinyl covered, 3/8 inch industrial grade fiberboard core material; or, vinyl impregnated cork (natural or colors); with anodized extruded aluminum trim
3. Fire extinguishers: comply with NFPA, the Arkansas Fire Prevention Code and accessibility guidelines (ADA~~AG~~) with the type and size selected for use in specific areas
4. Wire mesh security partitions: cold-rolled steel C-section channels for vertical members and steel channels for horizontal frame; 10 gauge steel wire woven into 1-½ inch diamond mesh

Lockers & Toilet Compartments

Examples

- Standard lockers
- Athletic lockers
- Metal toilet compartments
- Plastic toilet compartments

Construction ~~Guidelines~~ Standards – Lockers and Toilet Compartments

1. Standard lockers: comply with accessibility guidelines (ADA~~AG~~); form body from steel sheet; assemble locker units by bolting together; steel frames and doors; recessed handle and latch; baked enamel finish
2. Provide ADA~~AG~~ lockers for the physically challenged in physical education area
3. Athletic lockers: (punched type) 20 gauge sheet steel with diamond shaped perforations for sides; 20 gauge perforated steel doors; and baked enamel finish
4. Athletic lockers: (expanded metal type) 0.0897 inch expanded metal backs, sides, and doors; baked enamel finish
5. Metal toilet compartments and urinal screens: zinc-coated steel sheet ASTM A 591, Class C consisting of 18 gauge overhead braced pilasters; 20 gauge partition panels with a sound deadening core; 22 gauge doors with stainless steel door hardware; electrostatic and baked enamel paint finish; and polished anodized aluminum rails and mounting brackets. Consider stainless steel finish only in high humidity areas where a corrosive environment exists.
6. Solid plastic toilet compartments: Solid high-density polyethylene (HDPE), polypropylene (PP) or solid phenolic core construction not less than 1 inch thick. Recycled content of HDPE to be within range of 20-35%.
7. Toilet compartments shall be floor mounted, overhead braced, or ceiling mounted

Equipment and Furnishings

Examples – Equipment and Furnishings

- Theater and stage equipment
- Projection screens
- Athletic Equipment
- Educational casework
- Science casework
- Telescoping bleachers

Performance ~~Standards~~ Guidelines – Equipment and Furnishings

- The K-12 school environment requires special needs for equipment and furnishings
- These items must be strong and sturdy to last many decades
- Manufacturers must specialize in these areas to meet the broad age range of students
- Safety of their products is essential and they must meet standards, codes, and accessibility guidelines
- With casework, environmentally preferable product alternates should be utilized, such as oriented strand board (OSB) and recycled plastic
- Equipment and furnishings must be as maintenance-free as possible and easily cleaned

Theater, Stage, Projection Screens, and Athletic Equipment

Examples

- Theater and stage equipment
- Projection screens
- Athletic equipment

Construction Standards – Theater, Stage, and Athletic Equipment and Projection Screens

1. Material: woven velour fabric.
2. Fabrics shall be flame resistant.
3. Curtain tracks as recommended by manufacturer
4. Stage rigging and fire curtain systems shall meet all fire and life-safety codes and OSHA safety requirements

Performance Guidelines – Theater, Stage, and Athletic Equipment and Projection Screens

- Theater-electrically operated projection screen: 3 position control switch with metal device box for flush wall mounting and for connection to 120v, AC power supply; screen same as manual screen
- Manual, front projection screen: matte white, vinyl coated glass fiber fabric complying with FSGG-5-00172D for Type A screen surface; 80 inches by 60 inches in classrooms
- Athletic equipment to comply with National Federation of State High School Associations
- Basketball backboards: 72 inch by 42 inch, ½ inch thick transparent, tempered glass
- Wall-mounted safety pads: 14 ounce PVC coated polyester or nylon reinforced PVC fabric; pad cover over 2 inches, 6 lb. density polyurethane over composite panel

Educational Casework and Bleachers

Examples

- Educational casework
- Science casework
- Telescoping bleachers

Construction Standards – Educational Casework and Bleachers

1. Formaldehyde free and low VOC
2. Casework shall conform to ADA~~AG~~ guidelines and state and local regulations
3. Countertops shall not deflect more than ¼ inch when a 100 lb. /ft. load is applied
4. Shelving shall be capable of supporting 25 lbs./sq.ft.
5. Countertops shall be .048 inch thick plastic laminate conforming to NEAM HG5
6. Exposed surfaces shall be .028 inches thick plastic laminate conforming to NEMA NG5
7. Hardware: conform to ADA~~AG~~; standard finish, commercial quality, heavy duty
8. Provide (1) year warranty on casework
9. Lab casework: solid wood and plain sliced veneer plywood, or high pressure plastic laminate NEMA LD3
10. Countertops: 1 inch thick, epoxy resin and cast epoxy resin sinks
11. Locks: cylinder type, 5 disk tumbler mechanism
12. Hinges: 5 knuckle with hospital tips, .090 inch steel, 270 degree swing complying with BHMA 156.9, Grade 1
13. Telescoping bleachers shall comply with NFPA 102, Chapter 5, "Folding and Telescopic Seating"
14. Provide five (5) year warranty for bleachers

Performance Guidelines - Educational Casework and Bleachers

- Maximize use of ~~R~~recycled/recyclable materials
- ~~Formaldehyde free~~
- Consider ~~L~~local materials (within 500 miles)
- ~~Low VOC~~
- Consider ~~M~~molded polyethylene plastic seats

Plumbing

Components – Plumbing

- Site Utilities
- Valving
- Hangers
- Identification
- Testing
- Potable Water Systems
- Domestic Water Heater Systems
- Water Conditioning and Softening Systems
- Sanitary Piping Systems
- Gas Piping System
- Roof Drain and Storm Sewer System
- Food Service Area Systems
- Building Fire Protection Systems
- Plumbing Fixtures and Specialties

Standards – Plumbing

1. This section establishes the minimum design requirements that must be ~~met~~ incorporated into the project by the Plumbing Design Professional. Minimum code requirements are the current editions of the Arkansas State ~~Plumbing~~ plumbing and ~~Gas~~ gas ~~Codes~~codes. Local codes and standards ~~may~~ shall take precedence over these requirements, provided said codes and standards are ~~considered~~ more stringent.
2. All systems shall be designed in compliance with the current Arkansas Energy Code.
3. ~~Consideration should be given to providing a metering device to measure all water usage for new buildings over 20,000 SF.~~
4. ~~Consideration should be given to providing a metering device to measure all gas usage for new buildings over 20,000 SF~~

~~Site Design Parameter Guidelines~~ Standards – Plumbing Site Utilities

1. Determination of the available site services with regard to gas service, sanitary systems, storm water systems, domestic water systems, and fire service systems is necessary as a part of the site selection process.
2. The building plumbing system ~~design~~ is to be complete to 5 feet outside the perimeter of the building foundation ~~system~~ and shall include all piping, fixtures, appurtenances, and appliances in connection with a supply of potable water (except for fire sprinkler systems), sanitary drainage or storm drainage ~~facilities~~ systems within or adjacent to any building, structure, or conveyance on the premises. The connection to a utility water meter or other public water or sewer utility

Design Guidelines – Plumbing Site Utilities

1. Consideration should be given to providing a metering device to measure all water usage for new buildings over 20,000 SF
2. Consideration should be given to providing a metering device to measure all gas usage for new buildings over 20,000 SF

~~property~~ system or other source of potable water ~~supply~~ or sewage disposal and storm water structures shall be designed by the Site Utility Design Professional from 5 feet outside the perimeter of the building foundation system. Food service grease interceptors, science room acid neutralizing sumps, and gas piping and regulators shall be designed~~, in most cases,~~ by the Plumbing Design Professional.

3. The Plumbing Design Professional is required to evaluate the ~~need~~ anticipated demand and method ~~to provide~~ of supplying gas service to the building. All natural gas piping systems shall be installed in accordance with the Arkansas ~~Gas~~ gas ~~Code~~ code. ~~If natural gas service is not available, the installation of liquid propane gas should be investigated.~~ The estimated gas loads for operation of the ~~heating water~~ water heating boilers, domestic water heaters, food service equipment, science program usage, and miscellaneous items ~~are~~ shall be obtained from the appropriate disciplines by the Plumbing Design Professional and totaled with the inclusion of a growth or safety factor. Discussion with the local gas company is necessary, both to determine potential service costs and to determine the responsibilities of the building owner and the gas company regarding installation. ~~It is also important to d~~Determine the gas pressure requirements for the equipment in the building and communicate this need to the gas company. The Plumbing Design Professional or Site Utility Design Professional shall design the gas service.
4. ~~The plumbing design professional should coordinate with the HVAC design professional and local utility to determine best practice for cooling system(s) condensate discharge.~~

Liquid Propane

- If natural gas service is not available, the installation of liquid propone gas should be investigated.

Condensate Discharge

- The plumbing design professional should coordinate with the HVAC design professional and local utility to determine best practice for cooling system(s) condensate discharge.

Standards – Plumbing Valving

1. Valves will be installed to isolate individual plumbing fixtures and groups of plumbing fixtures to permit shut down of the fixture or equipment ~~item~~ without affecting the remainder of the building.
2. The domestic water system valves shall be bronze construction gate valves or valves with a ball-type conventional port.
3. The gas supply to science rooms and art rooms shall have an emergency solenoid-type, automatic shutoff valve with a manual reset. The purpose of the valve is for shut down of the gas in case of an emergency or when the fire alarm system is activated. A solenoid-type, automatic shutoff valve with a manual reset shall be installed to shut the gas off to the appliances under the kitchen hood in the event there is a fire under the hood. The valves are designed normally closed and are held open by an electric solenoid valve. A mushroom-type wall switch shall be located in the room for solenoid activation.

Standards – Plumbing Hangers

1. Provide hangers for all horizontal, suspended, domestic, water, gas, sanitary, and storm piping with distances as noted in the state and local codes.

~~Guidelines~~ Standards – Plumbing Identification

1. Piping shall be identified in mechanical rooms, unfinished spaces without ceilings, above suspended lay-in acoustical ceilings, and crawl spaces for the type of service and direction of flow. Equipment shall be identified with nameplates.

~~Guidelines~~ Standards – Testing

1. Domestic water, storm and sanitary sewers, and gas piping shall be tested per state and local codes.

Standards – Potable Water Systems

1. All buildings shall include a potable domestic water system serving all sinks, toilets, showers, food service, custodial needs, hose bibs, HVAC plant systems, and drinking water coolers/fountains. All municipal domestic water entering the building must pass through a reduced pressure backflow preventer to protect the outside water source from contamination in the building. Whenever possible, the backflow device shall be located inside the building. A main pressure-reducing valve is required if the incoming water pressure exceeds 75 psi. All backflow prevention devices shall be installed and maintained in accordance with the requirements of the Arkansas Department of Health and/or the municipal water purveyor.
2. Water distribution throughout the facility will be through piping systems located above ceiling areas and below insulation. Piping installed under slab areas shall be avoided where possible, unless accessible for maintenance on the system.
3. Domestic water systems within the building shall be Type K or L copper tubing. The use of polyvinyl chloride, chlorinated polyvinyl chloride, or polybutylene material will not be permitted.
4. Water piping and gas piping to island sinks shall be in an accessible trench in the floor with a removable cover except in kitchens and for trap primers and shall be type K copper pipe.
5. The required pressure for operation of the furthest fixture from the incoming service will determine if a pressure booster system will be required. The booster system should be a packaged unit that includes all controls. Provide a constant-speed duplex pump package with bladder-type compression tank to meet the flow requirements. It will be necessary to consider the installation of an emergency power system in order to maintain the operation of the booster system in the event of power outages, if the building is to be used during emergency-type occupancies. Coordination with the Electrical Design Professional will be necessary.
6. Insulate the piping using fiberglass insulation ~~except in block walls where closed cell insulation may be used~~ to minimum requirements of current Arkansas Energy Code. Vapor barrier shall be maintained throughout piping system including all valves, hangers and terminations. Seal terminations with proper vapor barrier sealant.

Standards – Domestic Hot Water Systems

1. A hot water return system with a re-circulating pump shall be required if the building hot water piping is more than 100 feet in length.
2. The on/off operation of the 120 and 140 degrees Fahrenheit water circulation pumps shall be controlled by time clock operation and an aquastat.
3. Instantaneous water heaters with a storage tank shall be required for high use applications in buildings with kitchens and/or shower room facilities. Tank-type water heaters shall be considered for use in elementary school applications having no dishwasher facilities and no locker rooms.
4. The use of thermostatic mixing valves is required to maintain hot water temperature consistent with the plumbing code requirement of a maximum of 110 degrees Fahrenheit water to hand washing sinks and 120 degrees Fahrenheit water to showers. Use a single valve or a high/low valve system based on minimum and maximum flow rates.
5. Provide a building-wide hot water system; instantaneous water heater for remote locations.

~~Guidelines~~ Standards – Water Conditioning and Softening Systems

1. The water shall be tested for quality to determine the makeup of the water including hardness, mineral content, and chemicals. The ~~recommendation for~~ installation of a water conditioning/softening system ~~should~~ shall be directly related to the results of the water testing. A total hardness of less than 10 grains will not require a softener system.
2. If the grain hardness is above 10 grains per gallon (171 ppm), the water softener shall be sized to reduce the hardness to 10 grains, but never below 6 grains. Soften the hot water only.
3. ~~Review with school personnel before incorporating water softening in the design. A complete water conditioning system, including iron filters, may be necessary in the event the water has high iron content from an on-site well system.~~

Complete Water Conditioning with Iron Filters

- Review with school personnel before incorporating water softening in the design. A complete water conditioning system, including iron filters, may be necessary in the event the water has high iron content from an on-site well system.

~~Guidelines~~ Standards – Sanitary Piping Systems

1. Piping materials shall include Schedule 40 polyvinyl chloride with solvent joints; cast iron no hub; or cast iron, hub and spigot. PVC piping in RA plenum is prohibited.
2. Fill material around piping below slab shall be compacted granular material to 95 percent-modified proctor. Piping shall not be installed parallel/directly under walls.
3. Piping above grade shall be cast iron, no hub with approved hanger spacing or schedule 40 PVC except in any plenum.
4. Acid waste piping below grade will be Schedule 40 polypropylene with fusion joints or lab grade CPVC with solvent cement joints. All acid waste piping above grade shall be Schedule 40 polypropylene with mechanical joints or lab grade CVPC with solvent cement joints. Acid waste

piping in plenum applications shall be fire- and smoke-rated. Acid neutralizing sumps shall be located on the exterior of the building with access to grade.
5. Provide information to the Site Design Professional as to the depth of the sewer(s) exiting the building. Provide information to the Structural Design Professional as to the location and depths of the sewer in relationship to footings and columns as they pertain to the project.
6. Insulate sanitary sewer piping carrying HVAC system condensate.

Standards – Gas Piping Systems

1. Gas piping shall be Schedule 40 black steel with screw fittings for piping 2 inches or less and welded fittings for piping 2 1/2 inches or larger.
2. Gas piping in plenums shall not contain valves or unions.
3. A gas regulator shall be provided to maintain the correct inlet pressure to each gas appliance. The inlet and outlet piping to each regulator shall be valved with Arkansas Gas Code approved valves.
4. The maximum gas pressure into the building shall be as established by the local gas company. Provide the gas company with the gas load for each appliance, and the minimum and maximum operating pressures for each appliance early in the design process.
5. Provide a valve, union, and a dirt leg at each appliance connection.
6. LP gas piping shall not be concealed.
7. Natural gas piping to island sinks shall be in an accessible trench in the floor with a removable cover.

Standards – Roof Drain and Storm Sewer Systems

1. Piping materials shall include Schedule 40 polyvinyl chloride with solvent joints; cast iron, no hub or cast iron, hub and spigot.
2. Fill material around piping below slab shall be compacted granular material to 95 percent-modified proctor. Piping shall not be installed parallel/directly under walls.
3. Piping above grade shall be cast iron, no hub, with approved hanger spacing.
4. Provide connections to all roof drains.
5. Provide information to the Site Design Professional as to the depth of the sewer(s) exiting the building. Provide information to the Structural Design Professional as to the location and depths of the sewer in relationship to footing and column pass as they pertain to the project.
6. Insulate the bottom of roof drains and branch lines from drain to downspout.
7. Insulate storm drain piping carrying HVAC condensate.

Standards – Food Service Areas Systems

1. Ware washing system will have a booster heater to provide 180-degree water unless the system utilizes a chemical dishwasher.
2. Provide 3-compartment sink with 110-degree water.
3. Provide a grease interceptor on the sanitary sewer line serving the food service area. The grease interceptor shall be located on the exterior of the building and will be

sized for a 500-gallon minimum capacity, constructed of concrete or cast iron with access to grade. Interceptor shall meet the Arkansas Plumbing Code and Local requirements. Locate the interceptor as close to the building as practical.

4. Provide 140-degree water to all kitchen equipment except hand washing lavatories and sinks.

Standards – Building Fire Protection Systems

1. All buildings shall have a complete fire suppression (sprinkler) system throughout in accordance with NFPA 13, 14 and 20 when dictated by the design professional. Available static water pressure, residual pressure, and water flow must be evaluated as a part of this determination.
2. Installation of a water storage system along with the fire pump installation may be required where insufficient water, flow, and pressure are present.
3. A backflow preventer shall be included on all incoming systems.

Standards - Plumbing Fixtures and Specialties

1. Water closets shall be china, white, hand operated or battery or hardwired infrared flush valve, wall hung or floor mounted, and low water consumption type.
2. Urinals shall be china, white, hand operated or battery/ hardwired infrared flush valve, wall hung or floor mounted, and low water consumption type.~~Waterless urinals are optional.~~
3. Lavatories shall be wall or counter mounted china and shall have cast brass hand operated or battery or hardwired infrared faucet. Temperature control shall be integral with the faucet or remote mixed (see Domestic Water Heater System Standards).
4. Showers shall be low water consumption, pressure-balanced type.
5. Drinking water coolers/fountains shall be refrigerated and conform to ADA standards.
6. Sinks shall be 18-gauge, 302 or 304 stainless steel
7. Science lab sinks shall be connected with acid-resistant material. The science casework manufacturer shall provide sinks.
8. Large group restrooms shall be provided with lavatories or a comparably sized wash fountain with infrared sensing or manual operation.
9. All plumbing fixtures and trim designed or designated for use by the handicapped shall meet the Americans with Disabilities Act guidelines.
10. Water supply (hot and/or cold) to the lavatories, sinks, and drinking fountains shall have angle stops with loose key handles.
11. All lavatories, water closets, and urinals shall have wall carriers.
12. Floor drains shall be installed in each restroom (except single person toilet room), locker room, mechanical room, and kitchen area. Provide a sediment bucket in the floor drain if conditions exist where solids may enter the drain.

Waterless Urinals

- Waterless urinals are optional.

13. Sanitary and storm sewer cleanouts shall be installed at 100 feet on center inside and outside the building, and at changes in direction of 90 degrees or more, at the bottom of vertical risers, and as the sewer exits the building.
14. Showers shall have a hot and cold, single lever pressure balancing valve with a vandal-resistant head.
15. Service sinks shall be floor-mounted, molded stone, 10 inches high, with a wall-mounted faucet, except as provided in Item 21.
16. Install a cold water hose bib in each large group restroom, locker room, and mechanical room if a hose bibb is not located within 40 feet of these areas. The hose bibb shall be surface mounted behind a lockable door in restrooms and locker rooms, with access by a removable key handle.
17. Reduced pressure backflow preventers are required on the water supplies to each HVAC makeup water system.
18. A water pressure reducing station requiring 2 pressure reducing valves sized for 1/3 and 2/3 flows shall maintain the water pressure in the building to a maximum of 75 psi, if the incoming water pressure can exceed 75 psi.
19. Clay traps shall be provided in art rooms to prohibit clay and solids from entering the sanitary sewer. The clay trap shall be accessible to clean out the trap.
20. Trap primers or trap guards shall be required for all traps inside the building. Trap primers or trap guards shall be accessible for repair.
21. Provide floor drain sinks with hinged covers in custodial closets and the main mechanical room for emptying of the power floor cleaning units, where those devices are used.
22. Install exterior hose bibbs on all exterior faces of the building.

HVAC

Components – HVAC

- General
- System Selection Life Cycle Cost Analysis
- Outdoor Air Design Values
- Indoor Air Design Values
- Outdoor Air Ventilation
- Welding Ventilation
- Temperature Control Systems
- Ductwork
- HVAC Piping
- HVAC Insulation
- Interior and Exterior Noise Control
- Equipment Accessibility
- Closeout Documents
- Physical Education and Indoor Practice Facility

General Standards – HVAC

1. The heating, ventilating, and air conditioning system design standards criteria denoted as a part of this ~~Design~~ Facility Manual have been developed or are obtained directly from accepted engineering design references such as the ASHRAE handbooks and standards, the state of Arkansas code references, and good engineering practice. School HVAC system plans and specifications shall be prepared by a licensed professional engineer with a valid Arkansas registration. The HVAC Design Professional ~~should~~ shall review each requirement and obtain or develop the necessary information for each specific building before proceeding with the systems design.
2. All systems shall be designed in compliance with ASHRAE Standard 90.1 "Energy Standard for Buildings except Low-Rise Residential Buildings", as modified by the Arkansas Energy Code.
3. All HVAC products shall be rated in accordance with the applicable ARI rating program (where rating has been established) or products manufactured in compliance with policies of the Arkansas HVACR Licensing Board and in compliance with Arkansas Law.
4. All new construction shall include air-conditioning except in some physical education and indoor practice facility spaces as hereinafter defined. Variances will be considered by the Division upon request.

Guidelines – HVAC System Selection Life Cycle Cost Analysis

- Several HVAC systems are applicable to Arkansas Schools. System selection ~~shall~~ should be based on a life cycle cost analysis of a minimum of three alternative systems. This requirement for System Selection Life Cycle Cost Analysis applies to New Construction, including new buildings and additions to existing buildings, and the replacement to upgrade HVAC units in existing buildings when the cumulative cooling tonnage exceeds 16 tons. The Life Cycle Cost Analyses ~~shall~~ should be submitted with the project final review documents. This analysis may be considered as an extra service to the design contract.

Guidelines – HVAC System Selection Life Cycle Cost Analysis (continued)

- The following are examples of acceptable programs for use in generating a detailed evaluation of proposed heating, ventilating, and air conditioning systems. Further, the building load calculations necessary for the design of each building will require the use of computer-generated data. Equivalent computer programs that are able to generate the necessary data for evaluation of the proposed heating, ventilating, and air conditioning systems and for generation of the building load data will be considered, but must be submitted for approval prior to use.
  - Trane Trace 700 (or the most recent version of Trane Trace)
    The Trane Trace 700 program is a PC based program used by the HVAC Design Professional for generation of detailed building system air conditioning loads, energy consumption analysis, and economic analysis. The current version can be obtained from the Trane Company, Customer Direct Service (CDS) Network, La Crosse, WI, (608) 787-~~2000~~ 3926.
  - Carrier HAP (or the most recent version of Carrier HAP)
    The Carrier Hourly Analysis Program is a PC based program used by the HVAC Design Professional for generation of detailed building system air conditioning loads, energy consumption analysis, and economic analysis. The current version can be obtained by contacting the local Carrier equipment representative or by calling ~~Software Systems Network, Syracuse, NY, (315) 432-7072~~ (800) 253-1794.
  - DOE-2.E
    The DOE-2.E is a detailed energy analysis program developed through the United States Department of Energy. A number of vendors across the country have developed software that operates to meet the intent of the DOE-2.E program. Contact the Energy Science and Technology Software Center at (865) 576-2606.

Guidelines – HVAC System Selection Life Cycle Cost Analysis (continued)

- Occupancy loads and schedules will mirror the building usage schedules. Input occupancy ~~shall~~ should be calculated at 90 percent of capacity during normal school hours for classroom areas and the administration area. After hours occupancy can be considered negligible in these areas. Activity areas such as gymnasiums should be calculated at no more than 25 percent of the full load capacity during unoccupied operation.
- Lighting systems ~~shall~~ should be consistent throughout the building. The lighting load shall be input for consideration as a cooling load only, and should not be used to credit the winter heating load. Lighting loads ~~shall~~ should comply with the Arkansas Energy Code. The HVAC Design Professional ~~shall~~ should coordinate and review proposed lighting requirements for each building with the Electrical Design Professional prior to generating a final energy load analysis. Usage of the lighting systems should mirror the occupancy scheduling for each area in the building.
- Computer Locations and expected usage will impact every building designed. All classroom areas will be wired for computers. Include a minimum of 280 watts for each computer station in the building. This load includes the total expected heat gain for a desktop computer and color monitor.

Standards – HVAC Outdoor Air Ventilation

1. Outdoor ventilation rates shall be calculated for each occupied space and shall conform to the requirements of the Arkansas Mechanical Code minimum ventilation rates. The only exception will be an engineered ventilation system design with written approval of exception by the Arkansas HVACR Board.
2. Each system shall include controls for a 100 percent economizer cycle to cool the building when dictated by the Arkansas Energy Code.
3. Energy recovery shall be used as a part of the design for classroom, gymnasium, locker room, and student dining systems to reduce the energy consumption required to provide the necessary outdoor ventilation rates when required by the Arkansas Energy Code.
4. Carbon dioxide levels may be monitored through the direct digital temperature control system for proof of system operation to maintain a carbon dioxide level in the

Guidelines – HVAC Outdoor Air Design Values

- Summer and winter outside air design values ~~shall~~ should be derived from standard ASHRAE compiled weather data located in the latest edition of the ASHRAE Fundamentals Handbook. The city nearest the proposed construction project is to be selected for evaluation. Use the 99.6 percent design values for heating design dry-bulb and the 1 percent design values for cooling design dry-bulb and mean coincidental wet- bulb. To determine the maximum ventilation capacity, use the 1 percent design values for Humidification design dew point and mean coincident dry bulb.

building as recommended by ASHRAE Standard 62. The use of space specific carbon dioxide sensors are recommended for this operation. Return air sensors may be considered when a unit serves multiple spaces provided accurate readings can be obtained. It is not the intention of this ~~guideline~~ paragraph to require the use of carbon dioxide sensors for a reduction of outside air quantities below the calculated minimum air flow requirements.

5. Ventilation air ~~MUST~~ shall be conditioned for temperature and humidity control. Acceptable methods are dedicated OSA units, energy recovery ventilators, hot gas humidity control in packaged units and OSA conditioned in an air handling system. Untempered air shall not be introduced from exterior louvers into return air plenums or duct from the outdoors into the return air ductwork.

Guidelines – HVAC Indoor Air Design Values

- Indoor air temperature design values ~~must~~ should reflect the need for energy conservation and ~~shall~~ should be in accordance with the Arkansas Mechanical Code and the Arkansas Energy Code.
- Design ~~shall~~ should produce indoor conditions in accordance with ASHRAE Standard 55 "Thermal Environmental Conditions for Human Occupancy."
- Night setback controls ~~shall~~ should be used for all systems. Temperature ~~shall~~ should be 55 degrees Fahrenheit. The summer setup temperature shall operate as required to maintain a relative humidity in the building area that does not exceed 60 percent. Maintaining humidity levels below 60 percent will result in periodic operation of the HVAC system during the summer months to reduce the potential for mold and mildew in the building.

Guidelines – HVAC Welding Ventilation

- Different ventilation strategies may be needed in each specific case to remove air contaminants from the welder's breathing zone. General guidelines have been published in CSA W117.2 Safety in Welding, Cutting, and Allied Processes, and ANSI Z49.1 Standard Safety in Welding and Cutting.
- Mechanical ventilation should be required when welding takes place in a space less than 10,000 cubic feet per welder, or in a room with a ceiling height of less than 16 feet. Mechanical ventilation should be at a rate of 2,000 cubic feet per minute per welder. See ~~paragraph E. and F.~~ subsequent items below.

Guidelines – HVAC Welding Ventilation (continued)

- Dependent on the application and associated hazard, ventilation strategies fall into three general categories: Natural Dilution Ventilation, Mechanical Dilution Ventilation, and Local Exhaust Ventilation
- Night setback controls ~~shall~~ should be used for all systems
- Natural Dilution Ventilation involves introduction of fresh air into the welding area through non-mechanical mean such as opening windows and doors, and the use of exterior wall louvers. This type of ventilation is generally considered the least effective, since there is no control on movement of contaminants through the work area.
- Mechanical Dilution Ventilation involves the use of wall or roof exhaust fans to draw contaminants away from the welder's breathing zone
- Local Exhaust Ventilation involves the use of dedicated exhaust hoods or movable hoods to remove contaminants from the welder's breathing zone. Movable hoods are ducted to a central exhaust system and provide the best removal of contaminants. Local exhaust ventilation is always the preferred method for removing welding fumes and gases.
- Exhaust hoods should provide a minimum velocity of 100 feet per minute
- A downdraft exhaust bench is preferred over an overhead exhaust hood
- Exhaust air velocities higher than 100 feet per minute at the arc or flame may disturb the process or shielding gas.
- Obtain the services of an HVAC design professional for special cases and when welding materials that produce high toxicity levels

Standards - HVAC Temperature Control Systems

1. All temperature control systems installed shall be electronic, direct digital controls. Pneumatic control systems will not be permitted. Each facility will be provided with the means to access the control system software with a desktop or laptop computer. It will be necessary for the HVAC Design Professional to advise the school district of the options for control and management of the building available through the direct digital control system. Building additions where less than 50% of the square footage is being added to a school campus without

a DDC system may utilize 7-day programmable thermostats.

2. Thermostatic zoning shall be developed using good engineering practice. Dissimilar spaces shall not be grouped on the same thermostat. Each classroom shall be an independent zone. Other zones may also be required to be separately thermostatically controlled. Carefully review space requirements for these requirements. Occupied/unoccupied scheduling shall be based on the associated air handling system. Each thermostat zone associated with digital control shall have a means to override the schedule for temporary occupancy.
3. The direct digital control system shall be capable of performing time of day scheduling, night set-back, holiday scheduling and demand limiting.
4. The ventilation system control shall be set through the central direct digital controller based on global outside air temperature and humidity to maintain indoor relative humidity below 60 percent.
5. The direct digital control system shall be designed to place emergency calls to designated school personnel in the event of equipment failure.
6. Options shall be investigated with each direct digital control system for the operation of exterior, corridor, and restroom lighting systems through the energy management computer.

Standards – HVAC Ductwork

1. Duct systems shall be designed, constructed, and installed to provide minimum leakage and air noise, and to minimize system static pressure requirements. Design HVAC professional shall comply with SMACNA standards for construction and leakage standards.
2. Classrooms and other instructional spaces shall be ducted for supply to at least four (4) supply air devices
3. Ductwork shall be 26 gauge minimum
4. Flexible duct shall be rated ETL Class 1 Air Duct, complying to UL 181, with a maximum vapor barrier permeance of 0.05 Perm as measured by ASTM E96, Procedure A
5. Flex duct shall be limited to 6' in length

Standards – HVAC Piping

1. Hydronic piping 2" and below shall be type L copper piping.
2. Hydronic piping 2 ½" and above shall be schedule 40 steel with welded fittings.
3. HVAC condensate piping shall be type M or L copper piping.
4. Refrigerant piping shall be ACR copper tubing.

Standards – HVAC Insulation

1. Hydronic piping and condensate piping insulation shall be jacketed fiberglass insulation with vapor barrier and preformed fittings per the latest adopted version of the Arkansas Energy code for HVAC.
2. Duct insulation shall be FRK duct wrap and a minimum of 1 ½" with a density of .75 lbs/cf.

3. ACR piping insulation shall be closed cell elastomeric insulation with non-longitudinal seams and butt connection sealant. Provide adequate UV protection for outdoor applications.
4. Maintain vapor barrier throughout the system including hangers, joints and terminations.

Standards – HVAC Interior and Exterior Noise Control

1. The location of exterior mechanical equipment shall be reviewed by the Design Professional for its sound impact, both inside and outside the building.
2. Exterior equipment operation shall not cause indoor sound levels to exceed specified levels for the space.
3. Exterior sound levels shall be in compliance with the local governmental ordinances. When these values are not governed, the sound level created by the equipment shall not exceed 70 dB measured at the property line.

Standard – HVAC Equipment Accessibility

1. Access and service space per mechanical equipment shall be in accordance with the Arkansas Mechanical Code.

Standard – HVAC Closeout Documentation

1. The contractor and/or engineer shall provide to the School District an accurate set of as-built plans, showing all construction revisions to the design set.

Guidelines – HVAC Interior and Exterior Noise Control

- Interior HVAC acoustic design ~~shall~~ should not cause indoor sound levels to exceed NC30
- ~~The location of exterior mechanical equipment shall be reviewed by the Design Professional for its sound impact, both inside and outside the building.~~
- ~~Exterior equipment operation shall not cause indoor sound levels to exceed specified levels for the space.~~
- ~~Exterior sound levels shall be in compliance with the local governmental ordinances. When these values are not governed, the sound level created by the equipment shall not exceed 70 dB measured at the property line.~~

Guidelines – HVAC Closeout Documentation

- O & M Manuals ~~shall~~ should be provided in duplicate for the School District
- Manuals ~~shall~~ should contain approved shop drawings, operations and maintenance instructions and parts manuals for all HVAC equipment
- ~~The contractor shall should maintain and provide to the School District an accurate set of design plans showing all construction revisions to the design set.~~

Standards – HVAC Physical Education and Indoor Practice Facility

1. Indoor Practice Facilities shall be heated and ventilated
2. Ventilation systems must provide ten air changes per hour in spectator facilities
3. Ventilation systems must provide five changes per hour in non-spectator spaces
4. The ventilation must provide intake air near playing floor level and exhaust air at the opposite high wall of the space

Guidelines – HVAC Physical Education and Indoor Practice Facility

- Gymnasiums may be heated and ventilated rather than being provided with mechanical cooling when the HVAC systems are effectively separated from other areas of the building
- ~~Indoor Practice Facilities shall be heated and ventilated.~~
- ~~Ventilation systems must provide ten air changes per hour in spectator facilities.~~
- ~~Ventilation systems must provide five changes per hour in non-spectator spaces.~~
- ~~The ventilation must provide intake air near playing floor level and exhaust air at the opposite high wall of the space.~~
- Ancillary spaces such as offices and locker rooms ~~shall~~ should be served by separate HVAC systems

Electric

Components – Electric

- Energy Usage
- Distribution
- Lighting
- Wiring Devices
- Fire Alarm Systems
- Security Systems
- Lightning Protection
- Technology
- Telecommunications Grounding
- Intercom / Bell Systems

Standards – Energy Usage - Electric

1. All systems shall be designed in compliance with the ~~current~~ latest version of ASHRAE Standard 90.1 "Energy Standard for Buildings Except Low- Rise Residential Buildings," and the energy usage requirements prescribed by the latest Arkansas adopted version of the Arkansas Energy Code and the Department of Energy.
2. All electrical work shall be in compliance with the latest edition of the National Electrical Code (NEC) as adopted by the State of Arkansas.
3. ~~Consideration should be given to provide a metering device to measure all electrical usage for new buildings over 20,000 SF.~~

Guidelines – Energy Usage - Electric

- Consideration should be given to provide a metering device to measure all electrical usage for new buildings over 6,000 SF

Standards – Electric Distribution

1. Electrical systems distributed throughout the building shall be based upon the 480-volt or 208-volt, three-phase, grounded wye configuration except electrical system extensions in existing buildings, which may match existing criteria where not economically feasible to reconfigure. All attempts shall be made to rectify potentially dangerous voltage configurations.
2. Transient voltage surge protection and lightning arrester devices shall be located on main service distribution equipment.
3. Current carrying conductors shall be a minimum No. 12 American Wire Gauge (AWG), except for systems wiring such as fire alarm, data, telephone, etc. Conductors shall only be copper except ~~A~~aluminum ~~Stabilloy~~ conductors which may be utilized in lieu of copper conductors ~~from the utility transformer to the building main disconnect switch~~ for wire size 4/0 AWG and larger. Terminations must be listed compression connectors using a compatible oxide inhibitor. A ~~s~~School ~~d~~District shall put in place and submit to the ~~d~~Division a maintenance plan for annual review of all terminations by qualified personnel. Conductor size No. 12 AWG and No. 10 AWG must be solid type, except where flexibility is required, such as at motors. Conductors larger than No. 10 shall be stranded.

Aluminum lugs for terminating copper conductors are acceptable, if labeled for that purpose.

4. Current carrying conductors shall be installed in conduit systems conforming to the NEC, latest edition adopted by the State.
5. Continuous equipment grounding conductors shall be installed in all circuits bonded to all ground lugs, bussing, switches, receptacles, equipment frames, etc., per the NEC. The main facility grounding field electrode system to ground shall be 5 ohms or less.
6. Electrical systems main service equipment shall be designed with a minimum 25 percent spare amperage capacity and 20 percent spare space capacity. Panel board loads shall not exceed 75 percent of amperage capacity and each panel shall be provided with a minimum of 6 spare overcurrent protection devices. Provide spare overcurrent protection devices in branch distribution panel boards and main service equipment boards.
7. Electrical energy distribution equipment shall be located in dedicated electrical or mechanical rooms, and mounted at heights in accordance with the "Device Locations" table at the end of this Section 7400. Main electrical service (switchboards) distribution equipment shall not be located in the main heating or cooling generating room. Branch circuit ~~distribution~~ panel boards recessed in corridor walls will not be acceptable. Provide exterior lockable Main Disconnecting means.
8. Coordinate service entrance requirements with local utility service companies for electrical energy, telephone, and cable television.
9. Dry type transformers shall be National Electrical Manufacturers Association (NEMA) TP-1/TP-2 compliant energy efficient type. Dry type transformers shall be floor mounted.
10. Electrical branch circuits to 5 horsepower, 3-phase, and larger motors for air-handling units, exhaust fans, pumps, chillers, and condensing units shall be provided with phase loss protection. Protection shall prevent equipment from single phasing. Phase loss protection equipment shall be integral to starters or variable frequency drives serving the equipment.
11. Voltage drop for feeders between the service entrance equipment and the branch circuit distribution equipment shall conform to the requirements found in the latest State adopted version of ~~The Arkansas Energy National Electrical Code~~ the NEC.
12. The intent of connecting emergency power to selected components of the HVAC system is to provide an opportunity to limit damage from freezing weather during a power outage of short duration. The following components are not required to be connected to the emergency power source and are optional within budgets:
    - Air handling unit pre-heat coil (heating coil)
    - Cooling tower basin heaters
    - Chilled water circulating pump, when used for chiller freeze protection

Independent, separate raceway, wiring, and transfer switches shall be provided for emergency life safety systems and non-emergency life safety systems.

13. ~~Consideration to r~~Run all branch circuit and feeder conduits within buildings above ceilings and within walls ~~shall be taken~~ unless stated below. No device conduits are permitted in or below slabs unless serving a device or millwork that requires it. Below slab conduit may be used from MDP to the secondary panels only. Conduit shall be ¾" minimum trade size. MC cable may be used for "lighting whips" of lengths less than 6'0". EMT conduit should be used within walls and above ceilings to ease future circuit and technology upgrades.
14. PVC conduit is not allowed except for the underground portion of the incoming utility service to the buildings. It must then be encased in 3" of concrete. All elbows and risers to 6" above finished floor in PVC conduit runs must be rigid steel. PVC elbows are not allowed.
15. MC cable is not allowed for use in walls to devices.

Standards – Lighting

1. Interior instructional spaces shall be artificially illuminated with energy-efficient and high-efficiency ~~fluorescent~~ light fixtures. ~~utilizing low harmonic electronic ballasts and low-mercury certified lamps.~~
2. High volume spaces such as gymnasiums, student dining, etc., shall be illuminated with high-efficiency, high-intensity discharge lamp type light fixtures; or, an equal or better energy efficient fluorescent luminaire that maintains or increases light levels. Fluorescent luminaires which are at least as efficient as high- intensity discharge fixtures are recommended over seating areas. Quartz restrike options shall be incorporated into some fixtures to provide an average of 2 foot-candles of illumination during the cool- down/warm-up (restrike) period caused by momentary electrical outages.

1. The minimum illumination (foot-candle) levels shall conform to the established Illuminating Engineers Society of North America (IES) guidelines. See the "School Lighting Levels" ~~Illumination~~ chart at the end of this ~~s~~Section 7400. Foot-candle calculation shall be developed by using computerized point-by-point analysis of classrooms and other learning spaces. Ceiling, wall, and floor material reflectances shall be verified with the Electrical Design Professional.
2. Emergency means of egress lighting shall be provided per local and NFPA Code requirements. The following areas shall have emergency illumination whether having natural illumination or not:
   - Exits and exit access corridors
   - Small and large assembly areas
   - Locker rooms
   - Student restrooms
   - Main and other dedicated electrical rooms
   - Main mechanical room and other mechanical decks
   - Emergency power equipment location
   - Administration and other building control areas

- Kitchen/student dining
- Interior instructional space
- Rooms with occupant load over 50 people
- Exterior side of exterior exit doors

Where the total emergency power load exceeds 8 kW, emergency power shall be delivered by on-site, standby power generator. Generators rated 150 kW and below shall use gaseous fuel (if available, large units shall be diesel).

3. Light fixtures shall be controlled by switches on a per room basis where fixtures are located. Circuit breakers will not be acceptable for turning lighting "on" and "off". Switches are to be installed in accordance with "Device Locations" table at the end of this Section 7400.
4. Exterior parking areas shall be illuminated with high-intensity, discharge lamp type light fixtures. Do not use high pressure sodium or mercury vapor. Fluorescents or LED lighting shall be used.
5. ~~High school student dining area shall be equipped with theatrical type lighting controlled by dimmer banks and control consoles.~~
6. Computer labs shall be illuminated with fluorescent light fixtures constructed and configured to reduce glare on computer monitors. Minimum Visual Comfort Probability (VCP) in these rooms shall be 80%.
7. Fluorescent lighting in instructional spaces shall be oriented so the long dimension of the fixture is parallel with the chalkboard on the primary instructional wall and switched separately unless design parameters suggest otherwise. Optionally provide wall wash type fixtures to illuminate white-boards or chalk-boards.
8. Provide site lighting to foot-candle levels recommended by ~~Illuminating Engineering Society of North America~~ the IES.
9. Light fixtures located in gymnasiums and auxiliary gymnasiums shall be equipped with protective wire guards.
10. Exit signs shall be wall mounted, where possible, in lieu of ceiling mounted and be of the LED type.
11. ~~Art rooms shall be provided with supplemental incandescent track lighting in middle schools and high schools.~~ Middle School and High School Art rooms shall be provided with supplemental track lighting that comes as close as possible to the color and quality of daylight, generally in the color temperature range of approximately 5000 Kelvin to 5900 Kelvin.
12. Walk through fluorescent lighting shall be provided to supplement main lighting in gymnasium and auxiliary gymnasiums to illuminate area to 5 foot-candles. Fixtures shall be vandal-resistant type and protected with wire guards. Mount fixture at same level as high intensity discharge lighting. LED or fluorescent lighting shall be used.
13. Options shall be investigated for control of exterior and interior corridor lighting by direct digital control, the energy management system, or occupancy sensors.
14. Interior lighting shall be controlled by occupancy sensors, automatic timed lighting controlled system or a

combination of both to comply with ASHRAE 90.1 as required by the Arkansas Energy Code. Exterior lighting shall be controlled by photo sensor or astronomical time clock to comply with ASHRAE 90.1 1 as required by the Arkansas Energy Code to automatically turn lighting off when sufficient daylight is available.

15. Instructional space lighting shall be configured to provide at least two levels of light. One level shall be configured to darken the area around a video or projection screen.
16. Options shall be investigated for providing non-disruptive day-light harvesting in classrooms and other spaces with natural lighting.

Standards – Wiring Devices –Electric

1. Receptacles, switches, and other wiring devices to be installed at heights above finished floor in accordance with the "Device Locations" table at the end of this Section 7400.
2. General purpose use, 120-volt duplex receptacles shall be specification grade, 20 amp standard grounded type.
3. Separate receptacles located within instructional spaces shall be provided for general purpose uses and for computer/video technologies.
4. Instructional spaces shall be provided with a minimum of 8 general use receptacles, as well as double duplex receptacles next to computer/video technologies ports.
5. Each space or room shall be provided with a minimum of one, 120- volt receptacle.
6. General purpose receptacles in corridors shall be spaced a maximum of 50 feet apart and not on classroom circuits.
7. Office areas, conference rooms, and teacher workrooms shall be provided with a minimum of 4 receptacles..
8. Duplex receptacles within 6 feet of plumbing fixture units shall be ground fault protected. These receptacles shall be protected by a local or an integral ground fault device.
9. A maximum of 4 computers shall be on a single 20-amp, 120-volt electrical circuit with a dedicated ground, and neutral. Do not share computer circuit neutrals with other branch circuits.
10. Key-type switches protected with wire guards shall be used to control lighting in gymnasiums, auxiliary gymnasiums, and locker rooms. Non-protected key switches shall be used to control lighting in corridors, large group restrooms, and other public spaces. Instructional type spaces shall be controlled by toggle-type switches.
11. Provide an exterior, weatherproof ground fault protected duplex receptacle outside each main exterior door.
12. Electrical receptacles serving food service equipment not located against walls shall be mounted above the floor line on pedestal-type mountings.
13. ~~Pre-kindergarten/k~~Kindergarten classrooms and their auxiliary spaces shall have duplex, tamper-resistant receptacles installed.
14. Receptacles shall be side-wired using pigtails. Back-wiring or thru- wiring on device terminals is not acceptable.
15. A dedicated 20 amp charging station shall be installed per every eight instructional spaces.

Standards – Fire Alarm Systems

1. Fire alarm and fire protection systems shall be installed per the Fire Prevention Code and NFPA ~~72~~ 70. System device mounting heights above finished floor provided in the table "Outlet Locations" at the end of this Section 7400.
2. Companies designing, installing or servicing fire alarm systems in Group E occupancies ~~must~~ shall be properly licensed by the Arkansas Board of Private Investigators, Private Security Agencies and Alarm Systems Companies.
3. Fire alarm shop drawings ~~must~~ shall be prepared in accordance with the Arkansas Fire Prevention Code and approved by the State Fire Marshal's office or their Designee prior to installation.
4. Main control panel shall be located in the administrative area..
5. A Sequence of Operation document shall be provided to the District with each system.

Standards – Security Systems

1. Within the base building electrical system cost, provide the following basic security systems~~, items B, C, and D.~~:
   - Provide conduit rough-in and wiring only for key pad locations, motion sensors, door contacts switches, card readers, and control panel
   - System selection, installation and funding shall be by the school district
   - A minimum system design shall include door contact switches at exterior doors, and motion detectors distributed throughout corridors, administrative areas, and in rooms with 6 computers or more

Standards – Lightning Protection

1. Within the design of the base building electrical system, the Electrical Design Professional has the option of including an Underwriter's Laboratory (UL) listed and certified lightning protection system, where calculations indicate the facility may be at elevated risk. Therefore, where calculations indicate the facility may be at an elevated risk, new school buildings shall be protected but additions to existing schools with no history of damage with similar roof elevations may be omitted.

Standards – Technology

1. Within the base building electrical system cost, provide the ~~following basic~~ Technology rough-ins ~~(Items B - L)~~ required by this sub-section. Coordinate the placement of all Technology Conduits, boxes and outlets with the Technology Design Professional.
2. Provide Telecommunications cable tray above corridor ceilings of academic wings. Cable tray depth shall be calculated per NEC requirements.
   - Provide 24" center-hung raceway in main corridors
   - Provide 18" center-hung raceway in secondary corridors

- Cable tray shall connect between all intermediate closets Telecommunication Rooms (TRs) and the Main Cross- connect (MC)
- Provide continuous bonding conductor (minimum # No.6 AWG), in accordance with NEC-250 and TIA/EIA-607-B, in all cable trays and bond to associated Telecommunications Grounding Busbar (TGB)
- NOTE: Cable "D" devices may be used in lieu of cable trays in both main and secondary corridors, providing they are of sufficient size to clearly distinguish individual runs. J-Hooks shall be pre-galvanized, with a static load capacity of 30 lbs., and cable retainers.
- All firewall penetrations shall be appropriately and properly sealed per latest state adopted version of the NFPA

3. Junction boxes used for data/voice/video outlets shall be 2-gang, 3 1/2:" deep boxes and equipped with a minimum of a 1" conduit home run to the associated Telecommunications Cable Tray, except where noted by the Telecommunications Design Professional.
4. Telecommunications Rooms (TRs) shall be provided with a minimum of two (2) 120-volt, 30 Amp circuits for powering rack mounted UPS Units. Each receptacle used for powering UPS units shall be twist lock. Quantity and location of circuits will depend upon requirements of Technology Design professional. If the building has a standby Generator, these circuits shall be attached to the standby power. General use receptacles, as well as double duplex receptacles shall be provided next to computer/video technologies ports.
5. In concert with the "Device Locations" table at the end of this Section 7400, ~~P~~provide power outlets, technology cabling home-run conduits and projector mounting brackets as follows:
   - Provide one (1), 2-gang, 3-1/2" deep box for Technology use (HI station) and a quad power outlet mounted at 18" below finished ceiling for monitors installed in wall or ceiling mounts
     - Provide one (1), home run, 1-1/4" conduit from HI Station box to associated instructor LO Station box
     - Provide one (1), home run, 1" conduit from HI Station box to associated Telecommunications Cable Tray
   - Provide one (1) 2-gang, 3½" deep box for the instructor's LO station and quad power outlet at 18" AFF
     - Provide one (1) ~~home run~~, 1-1/4" conduit from LO Station box to associated monitor HI Station box
   - For locations with an Overhead Mounted Projector in lieu of a Monitor, provide one (1), 1-gang, 31/2" deep box for Technology use (Projector HI station) and a dual power outlet mounted in a finished ceiling tile, projector bracket in the finished ceiling
     - Provide one (1), ~~home run,~~ 1-1/4" conduit from Projector HI Station box to associated instructor LO Station box

- Provide one (1), home run, 1" conduit from Projector HI Station box to associated Telecommunications Cable Tray

6. Provide a minimum 4-3/4 inch high center divided surface applied metal raceway in computer labs where equipment is located on perimeter of room.
   - Provide one (1) 1-1/4" conduit for every six computer workstation locations stubbed up above the nearest finished ceiling and home run to the Telecommunications cable tray
7. Provide two (2) 2-gang, 3½" deep boxes for the video projector local inputs, with one on the backside of the proscenium wall and one in the control booth.
   - Provide one (1) home run 1½" conduit from each box to the video projector in the ceiling. Provide a minimum of one 4" conduit for Wide Area Network (WAN) from the Service Provider (SP) Entrance (DEMARC) to the property line.
8. Provide a minimum of one 4" conduit for Wide Area Network (WAN) from the Service Provider (SP) Entrance (DEMARC) to the property line.
9. Provide one (1), 4" conduit for cable television (CATV) from the Service Provider (SP) Entrance (DEMARC) to the property line.
10. Provide one (1), 4" conduit for the telephone from the Services Provider (SP) Entrance (DEMARC) to the property line.
11. Provide a minimum of two (2), 4" conduits from the Service Provider Entrance (DEMARC) to the Main Cross-Connect (MC) Telecommunications Room (TR). Conduit runs for fiber optic cable have no more than ~~four~~ two (2) 90 degree bends without installations of a pull box. All 90 degree bends are to be wide sweep. Pull boxes should be placed in a straight section of conduit and shall not be used in lieu of a bend. Pull box sizing shall be in accordance with TIA-569-C.
12. Provide ~~one (1),~~ two (2), 2" sleeves in all classroom walls.
13. All empty conduits shall be provided with a rot, mildew, and tangle resistant pull string.
14. Exterior conduit shall not exceed 600 feet between pull points and shall not contain more than two (2) 90 degree bends. Covers shall be rated per application.
15. Ground floor outlet boxes shall be rated for damp locations with a direct pathway provided under slab to the nearest telecommunications room. All telecommunications copper cabling located under slab shall be OSP rated.
16. Generic telecommunications cabling shall be installed in a hierarchal star topology.

Standards – Telecommunications Grounding

1. Provide Telecommunications Grounding/Bonding System in accordance with NEC-250 and TIA/EIA-607 using ~~d~~Designer approved Grounding Hardware. CAD Weld Bonding Conductors to Building Steel.
2. Provide Telecommunications Main Grounding Busbar (TMGB) in the main cross-connect, and a Grounding Busbar

(TGB) in ~~in Main Cross-connect (MC)~~ the Telecommunications Rooms (TR).

- All TMGB and TGB Connections to be made with double- bolted, Compression style, Grounding LugsAs a minimum, Bond TMGB to following:
  - Building Steel (minimum #~~-~~No. ~~2~~6 AWG insulated copper bonding conductor). Sizing per TIA-607-B
  - Main Electrical Service Ground (minimum #~~2~~No. 6 AWG insulated copper bonding conductor). Sizing per TIA-607-B
  - Local Service Panel Ground (minimum #No. 6 AWG insulated copper bonding conductor). Sizing per TIA-607-B
  - Telecommunications Bonding Backbone (TBB) that connects TMGB to other TGBs (minimum #~~2~~No. 6 AWG insulated copper bonding conductor). Sizing per TIA-607-B
  - Associated Telecommunications Cable Tray(s) (minimum # No. 6 AWG insulated copper bonding conductor). Sizing per TIA-607-B
  - Telecommunications Conduit(s) Entering TR (minimum #No. 6 AWG insulated copper bonding conductor). Sizing per TIA-607-B

3. Provide Telecommunications Bonding Backbone (TBB) between all TGBs and the TMGB
   - The TBB shall be a minimum of #~~-~~No. 2 AWG insulated copper bonding conductor. Sizing per TIA-607-B
   - All TBB Connections to be made with double-bolted, Compression style, Grounding Lugs
4. As a minimum, the Technology Contractor shall bond the following devices to the associated TMGB and TGBs using a minimum #~~-~~No. 6 AWG (sizing per TIA-607-B) insulated copper bonding conductor using compression style lugs:
   - PABX equipment
   - Equipment racks and cabinets
   - TR cable ladder and tray
   - CATV Equipment
   - Lightning and surge protectors
   - Telecommunications devices
   - Coupled Bonding Conductors (CBCs)
   - Backbone cable shields
   - Telecommunication and fiber cable shields
   - Antenna cable shields
   - Raised floors

~~Guidelines~~ Standards – Intercom / Bell Systems

1. Provide a complete intercom communication system with call stations and speakers in each occupied space and speakers on the building exterior. Speakers shall be located and sufficiently powered to be clearly heard.
2. The intercom system shall be capable of generating various tone signals to be used in special notification situations.
3. Provide Battery Back-up for operation during a power failure.

School Lighting Levels - 2004

ROOM TYPE CLASSIFICATION	2000 IES FOOTCANDLES	RECOMMENDED DESIGN FOOTCANDLES DIRECT LIGHTING(1)	RECOMMENDED DESIGN FOOTCANDLES INDIRECT LIGHTING
ADMINISTRATIVE			
Offices/Receptionist	50	50	40
Storage Rooms	-	25	25
Restrooms	5	25-30	25-30
Conference/Resource Rooms	30-100	50	40
Health Clinic	50	50	40
Teacher Prep/Workroom	50	50	40
CLASSROOMS-GENERAL	30	50	40
Art Rooms/Kiln	50	50	40
Modular Technology Labs	-	50	40
CADD Labs	30	30	30
Industrial Tech/Production Labs	100	60	60
Computer Labs	30	40	40
Graphics Labs	30-100	50	40
Life Skills Labs	50	50	50
Science Labs	50	50	50
Laundry Rooms	-	25	25
Music Rooms	30-50	50	40
Large Group Instruction Rooms	30	50	40
MEDIA CENTER	-	50	40
Active Areas	30 vertical	50	40
Inactive Areas	5 vertical	40	40
ATHLETIC AREAS			
Gymnasium - Elementary School	100	50	-
Gymnasium - Middle School	100	50	-
Gymnasium - High School	100	60	-
Multi-use P.E. Rooms	-	50	-
Locker Rooms	10	25	25
STUDENT DINING			

Assembly	10-20	20	-
Stage/Work Lights	30	20	-
Make-up/Dressing Rooms	30-50	50	-
Theatrical Control Room	10-30	30	-
Equipment room with dimmable incandescent lighting offering 10 foot-candles of illumination.			

School Lighting Levels - 2004

ROOM TYPE CLASSIFICATION	2000 IES FOOTCANDLES	RECOMMENDED DESIGN FOOTCANDLES DIRECT LIGHTING(1)	RECOMMENDED DESIGN FOOTCANDLES INDIRECT LIGHTING
STUDENT DINING	10-50	50	40
Cooking	50	75-80 (2)	-
Food Preparation	50	75-80 (2)	-
Serving Line	50	75-80 (2)	-
Ware Washing	10	75-80 (2)	-
CUSTODIAL CLOSETS	10-30	20-30	-
ELECTRICAL ROOMS	30	20-30	-
MECHANICAL ROOMS	30	30	-
PARKING AREA	.2	(1 (3)	-
DRIVEWAYS	.3	.5 (3)	-
CIRCULATION AREAS			
Building Entries	5	5-10 (3)	-
Corridors	5	20	20
Corridors with Lockers	5	20	20
Stairways	5	20	20
(1) Maintenance factor 70% LL/SF = Lamp Lumens per square foot			
(2) Foot-candles shall comply with local health department regulations			
(3) Foot-candles shall conform to ~~page~~ Sub-section 4200~~-6~~			

~~Outlet~~ Recommended Device Locations

ELECTRICAL OUTLET DEVICE TYPE	Masonry Wall, Base (Starter) Course Height ~~4 inch~~ ~~8 inch~~ Mounting Height Above Floor to Bottom of Outlet (Device) Box	Masonry Wall, Base (Starter) Course Height 8 inch Mounting Height Above Floor to Bottom of Outlet (Device) Box
Receptacle outlets, microphone outlets (jacks), equipment outlets (jacks), television outlets (jacks), portable telephone outlets, computer outlets, etc.		
* General throughout	18"	18"
* Mechanical equipment rooms	52"	48"
* Above counter tops 30"H	36"	40"
36"H	44"	48"
48"H	52"	56"
* Above backsplash top	2" minimum	2" minimum
* Above radiators	6" minimum	6" minimum
* Above or adjacent to lavatories	44"	48"
* Behind domestic refrigerators	52"	56"
* Behind domestic washers and dryers	36"	32"
* Serving domestic dishwashers	2"	2"
* Wall-mounted telephone outlets	44"	48"
* Telephone/video control	44"	48"
Toggle switches	48"	48"
Recessed motor controllers	60"	56"
Electric panels, terminal cabinets, etc., to center of tub or box	50"	48"
Clocks	Near ceiling	Near ceiling
Pull stations (fire alarm)	44"	44"
Volume controls, call-in switches, doorbell buttons	44"	44"
Horn/strobes (fire alarm)	80"	80"

Technology Systems

Components – Technology Systems

- General
- Technology Wiring
- Telecommunications Room Wiring
- Telecommunications Room Interior Environment
- Telecommunications Room Terminations
- Building Technology Wiring
- Telephone Systems
- Data/Communications Network
- Central Sound System/Public Address System
- Gymnasium Sound Reinforcement System
- High School Student Dining Area Sound Reinforcement System
- Student Dining Sound Reinforcement Systems (Cafetoriums only)
- Music Room Sound Reinforcement Systems
- Security Systems (optional)
- Interactive Classroom Design (optional)

Standards – General – Technology Systems

1. A Technology System Plan and Specifications shall be prepared ~~as part of the overall building design process before construction begins~~ in accordance with the latest edition of the Building Industry Consulting Service International (BICSI) Telecommunications Distribution Methods Manual (TDMM). ~~It shall be designed and approved by a Registered Communications Distribution Designer (RCDD).~~
2. All work shall be performed in accordance with the latest revisions of the following standards and codes:
   - ~~Uniform Building Code~~State Building Code
   - Local Building Code
   - Local Electrical Code
   - National Electrical Code
   - EIA/TIA-568-C Commercial Building Wiring Standards
   - EIA/TIA-569-C Commercial Building Standard for Telecommunication Pathways and Spaces
   - TIA 606-B Telecommunications Administration Labeling Standard
   - EIA/TIA J-STD-607-B~~A~~ Commercial Building Grounding/Bonding Requirements Standard
3. A Technology System Plan shall consist of the following minimum Telecommunications Drawings, as required:
   - Campus or Site Plans, Exterior Pathways, and Inter-Building Backbones
     - Shows physical and logical connections from the perspective of an entire campus - such as actual building locations, exterior pathways, inter-building backbone cabling on plan view drawings, and major

Guidelines - Technology System

- The Technology System Plan and Specifications should be designed and approved by a Registered Communications Distribution Designer (RCDD).

system nodes and related connections on the logical system drawings.

- Layout of complete building per floor – Serving Zone Boundaries, Backbone Systems, and Horizontal Pathways
  - The drawings should show the complete building layout per floor and indicate location of serving zones, communication equipment rooms, access points, pathways, and other systems that need to be viewed from the complete building perspective.
- Serving Zone Drawings – Drop Locations and Cable IDs
  - The building is divided up by its serving zones. Drawings to indicate drop locations, communication equipment rooms, access points and detail callouts for communication equipment rooms and other congested areas. All telecommunications labeling shall be in accordance with TIA-606-B.
- Communication Equipment Rooms – Plan Views – Tech and AMEP/Elevations – Racks and Wall Elevation
  - Detailed look at communication equipment room. Drawings should indicate technology layout (racks, ladder-racks, etc.), mechanical/electrical layout, rack elevation, and backboard elevation.

4. The Technology Design shall include the following components:
   - Mandatory Systems
     - Telephone system
     - ~~Video distribution system~~ Continuity of Operations Plan
     - Data / computer network system
     - Central sound / public address system
     - Gymnasium sound reinforcement system
     - High school student dining sound reinforcement system
     - Student dining sound reinforcement system
     - Music room sound reinforcement system
   - ~~Optional Systems~~
     - ~~Security System~~
5. The Technology Designer should endeavor to reduce the quantity of Main Cross-Connect Rooms (MCs) by centralizing the MCs and/or using one MC to serve multiple floors or areas. For example, in a 3-story building, place the MC on the second floor and serve the 1st, 2nd, and 3rd floors from the same closet. The Technology Designer shall coordinate the quantity and size of MCs required with the ~~D~~design ~~P~~professional.
6. The Technology Designer should endeavor to centralize as many Technology and Control Systems as possible for the district into one school building or Network Operations Center (NOC), and interconnect the buildings and systems via fiber-optic cables whenever economically feasible. Consider using the savings from the centralization of the systems to offset the cost of the inter-building, fiber-optic cabling.

Guidelines - Technology – Optional System

- The Technology Design may (optional) include a Security System.

Standards – Technology Wiring

1. Media Standards

- Unshielded twisted pair
  - The minimum standard for horizontal distribution wiring is six (6) cables of category 5e or higher, 4- pair, 24-gauge unshielded twisted pair (UTP) wiring, terminated in each classroom. The standard specifies 100-ohms impedance at one (1) megahertz, satisfying Integrated Services Digital Network (ISDN) and Institute of Electrical and Electronics Engineers (IEEE) 802.3 10BaseT requirements.
  - ~~*Note: wiring specifications are a minimum of category 5e. When bandwidth is expected to be above category 5e of 1 Gigabit per second (Gb/s or 100 Mhz) then category 6 or 6A for up to 10 Gigabit or 200+ Mhz should be used. From a future proofing perspective, it is always better to install the best cabling available. This is because it is so difficult to replace cabling inside walls, in ducts under floors and other difficult places to access. The rationale is that cabling will last at least 10 years and will support at least four to five generations of equipment during that time. If future equipment running at much higher data rates requires better cabling, it will be very expensive to pull out category 5e cabling at a later time to install category 6 or 6A cabling. Category 6 250 Mhz minimum is recommended.*~~
- Fiber Optics
  - The media standard for both intra- and inter-building backbones is OM2 50/125 ~~62.5/125~~ micron graded-index multimode optical fiber cable. A minimum of ~~six~~ ten fiber strand cable should be installed for each cable run.
  - Grade of optical fiber cable shall increase based on distance anticipated bandwidth requirements. All optical fiber located outside or in a wet location shall be OSP rated, loose tube construction, and shall comply with ICEA S-87-640 for mechanical properties. Exposed OSP rated cable shall not exceed 50 feet within the building.
- Cross-connect jumpers and patch cables shall be of the same performance or greater and shall be factory manufactured modular cords.
- Comply with NEC and TIA-569-C for separating unshielded copper telecommunications cable from potential EMI sources.
- Install plenum rated cable in environmental air spaces, including plenum ceilings.

Guidelines – Technology Wiring

~~Note:~~ Media wiring specifications are a minimum of category 5e. When bandwidth is expected to be above category 5e of 1 Gigabit per second (Gb/s or 100 Mhz) then category 6 or 6A for up to 10 Gigabit or 200+ Mhz should be used. From a future proofing perspective, it is always better to install the best cabling available. This is because it is so difficult to replace cabling inside walls, in ducts under floors and other difficult places to access. The rationale is that cabling will last at least 10 years and will support at least four to five generations of equipment during that time. If future equipment running at much higher data rates requires better cabling, it will be very expensive at that later time to pull out category 5e cabling ~~at a later time~~ and to install category 6 or 6A cabling. Category 6 250 Mhz minimum is recommended.

Guidelines – Telecommunication Room Wiring

- A telecommunication room (TR) is a local communications equipment room. This should be a dedicated ~~space~~ room providing a secure environment for the installation and termination of cable network electronics and other telecommunications equipment, *as specified in the ADE IT Security Policy (ISTP), 2B2.*
- The main cross-connect (MC), the point where the backbones and horizontal distribution facilities intersect, should be located near the center of the area served, preferably in the building core area. Every effort should be made to secure as large an area as possible. When one MC is insufficient to cover a building, additional TRs must be established. The same parameters apply for both TRs and MCs.
- Locate telecommunication rooms *away* from any sources of electromagnetic interference, such as electrical power-supply transformers, motors, and generators. There should be *no water sources* in this area.
- There should be one telecommunications room for each 20,000 square feet zone/wing/building section. The recommended minimum closet size is ~~6~~ 8 feet by ~~6~~ 9 feet. ~~The recommended minimum ceiling height is 8 feet, 6 inches~~Closets should be designed with adequate conduit or openings through beams and other obstructions into the accessible ceiling space. Closets should be designed with controls to limit access to authorized personnel only, *as specified in the ADE IT Security Policy (ITSP), 2B2.*
- The MC contains wiring terminations and communications equipment to serve a building. This equipment may include modular fiber distribution panels, wiring termination panels, telephone systems, concentrators/hubs that connect communication lines, routers that connect users on different networks, CATV (cable television) equipment, and equipment racks.

Standards – Telecommunication Room Interior Environment

- Telecommunication rooms require continuous climate control. Air conditioning should maintain temperature in the range of 65 to 75 degrees Fahrenheit, with relative humidity in the range of 40 to 55 percent. Telecommunication rooms require continuous climate control. The temperature and humidity in telecommunication rooms shall meet the requirements for ASHRAE Class B.
- ~~Carpet should *not* be installed in closets.~~ Tile or sealed concrete floors will protect equipment from static electricity and dust.
- ~~The major components of the building electrical system should not be co-located in the telecommunications room. *Closet space should be dedicated to serving telecommunication needs only*. Electrical installations supporting telecommunication functions only should be located in the closet.~~

Guidelines – Telecommunication Room Interior Environment

- Carpet should *not* be installed in closets.
- The major components of the building electrical system should not be co-located in the telecommunications room.
- *Closet space should be dedicated to serving telecommunication needs only*.
- Electrical installations supporting telecommunication functions only should be located in the closet.

Standards – Telecommunications Room Terminations

1. ~~Each TR should contain at least one universal, self-supporting 19-inch data rack~~ with vertical and horizontal cable managers~~. Each rack should be securely mounted to the floor and braced to the wall using a section of cable tray.~~ Racks must be grounded in accordance with National Electrical Code (NEC) requirements and TIA-607-B. Rack fill shall be in accordance with NEC requirements. Minimum rack clearance requirements shall be a minimum of 3 feet front clearance and 2 feet rear clearance.
2. ~~If fiber optic cable is to be terminated in the closet, attach a fiber optic patch panel to the uppermost part of the data rack.~~ Terminate the fiber optic cable with ST, SC, LC or pre-terminated high capacity MPO type connectors. The maximum optical attenuation for each mated connector pair must not exceed the connector manufacturer's specifications.
3. Terminate category 5e or higher cable on category 5e or higher RJ45 patch panels in all closet locations. ~~All incoming cables should be routed on the tray and neatly dressed down to the patch panels. A cable management panel should be installed directly above and below each patch panel.~~

Guidelines – Telecommunication Room Terminations

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- If fiber optic cable is to be terminated in the closet, attach a fiber optic patch panel to the uppermost part of the data rack.
- All incoming cables should be routed on the cable tray and neatly dressed down to the patch panels. A cable management panel should be installed directly above and below each patch panel.

~~Guidelines~~ Standards – Building Technology Wiring

1. Student Workstation Wiring
   - ~~Each classroom should have at least two student workstation outlets. Consideration should be given to placing at least one student workstation outlet on each wall in every classroom. A duplex power outlet with ground should be in close proximity to the student workstation outlet.~~ Run two cables of category 5e or higher, 4-pair, unshielded twisted pair from ~~the~~ each student workstation outlet to the wiring patch panel located in the telecommunication room. The cables must be a *continuous run* and not spliced. The

Guidelines – Student Workstation Wiring

- Each classroom should have at *least two* student workstation outlets.
- Consideration should be given to placing at least one student workstation outlet on each wall in every classroom.
- A duplex power outlet with ground should be in close proximity to the student workstation outlet.

maximum cable length must not exceed 295 feet/90 meters as specified in the EIA/TIA-568-C commercial building wiring standard. The maximum allowable horizontal cable distance is 90m of installed twisted pair cabling, ~~whether fiber or twisted-pair,~~ with 100m of maximum total length including patch cords.

- Each outlet must consist of either flush-mounted or surface-mounted, high-quality category 5e or higher RJ45 modular jacks with IDC-style or 110-style wire T568A or B terminations. Consistency must be maintained throughout the installation. Jacks must meet EIA/TIA-568 recommendations for category 5e or higher connecting hardware.
- Each outlet must be terminated with two individual cables. One outlet allows for voice and the remaining outlet allows for data. The color stripes on each cable should correspond with the color stripes on the edge connector. Faceplates must match the manufacturer for RJ45 outlets at all locations. Faceplates should be modular.

2. Teacher Workstation Wiring

- ~~Each classroom should have one teacher information outlet. A duplex power outlet with ground should be in close proximity to the information outlet.~~
- Run two cables of category 5e or higher, 4-pair, unshielded twisted pair from the outlet to the wiring patch panel located in the telecommunication room. The cables must be a *continuous run* and not spliced. The maximum cable length must not exceed 295 feet/90 meters as specified in the EIATIA-568-C Commercial Building Wiring Standard. The maximum allowable horizontal cable distance is 90m of installed twisted pair cabling, ~~whether fiber or twisted-pair,~~ with 100m of maximum total length including patch cords.
- Each outlet must consist of either flush-mounted or surface-mounted, high-quality category 5e or higher RJ45 modular jacks with IDC-style or 110-style wire T568A or B terminations. Consistency must be maintained throughout the installation. Jacks must meet EIA/TIA-568 recommendations for category 5e or higher connecting hardware.
- Each outlet must be terminated with two individual cables. One outlet allows for voice and the remaining outlet allows for data. The color stripes on each cable must correspond with the color stripes on the edge connector. Faceplates must match the manufacturer for RJ45 outlets at all locations. Faceplates should be modular.

3. Administrative Workstation Wiring

- Each outlet must be terminated with two individual cables. One outlet allows for voice and the remaining outlet allows for data. The color stripes on each cable must correspond with the color stripes on the edge connector. Faceplates must match the manufacturer for RJ45 outlets at all locations.

Guidelines – Teacher Workstation Wiring

- Each classroom should have one teacher information outlet.
- A duplex power outlet with ground should be in close proximity to the information outlet

4. Campus Backbone Wiring

- Fiber optic cabling shall be the standard for interconnecting buildings in a campus environment. The fiber optic cable shall contain a minimum of ~~six~~ ten fiber strands and be placed in conduit. The cable must meet or exceed FDDI ANSI Standard X3T9.5 requirements for ~~100 Mbps~~ 1 Gbps transmission.

Standards – Telephone Systems

~~1. The telephone system should provide TDM or IP-based voice communications both internally and externally throughout the building and the dDistrict.~~

~~2. The PABX should be a fully digital, IP-Enabled PABX or an all-IP- Based PABX. The all-IP-Based system should maintain the same high level of functionality, redundancy, and programmable features as originally specified. Any all-IP system should employ standards-based signaling and instrument powering. All PABX systems should fully support an E911 system.~~

1. A school telephone system shall be as follows:
   - Provide a 4-pair, minimum Category 5e, CM (CMP where required), UTP cable to all telephone, fax, alarm, elevator, and ancillary voice connections. Provide Multi-Pair, minimum Category 3, CM (CMP where required), UTP, trunk- cables between Telecommunications Rooms and the Main Cross-connect (MC), and between the MC and the Telecommunications Service Entrance Facility (aka DEMARC).
   - ~~The PABX telephone system should provide the capability for a fully digital, non-blocking, voice communications link between all classrooms and offices within the building. A telephone set is not required in each classroom; however, the necessary wiring infrastructure should be installed so as to provide access to the telephone system on an as-needed basis.~~
   - ~~The PABX telephone system should be capable of inter-operating on a dDistrict-wide basis using T-1, PRI, or VOIP trunking between buildings. The PABX system should be connected in order to provide a unified system throughout the district. Trunking should be designed on a P=0.01 basis.~~
   - Provide telephone jacks and telephones in classrooms, offices, media center, teacher prep areas, workrooms, conference rooms, secretarial areas, telecommunication rooms, elevators, etc., as determined by the ~~d~~District's program needs.
   - Provide fully digital, full-duplex, digital display speakerphones with a minimum of eight (8) programmable function keys in each area where access to the telephone system is needed.
   - Provide a minimum of one fully digital, full-duplex, speakerphone attendant console with multiple programmable function keys and one-touch button calling for all extensions within the building. The

Guidelines – Telephone Systems

- ~~Provide personalized programming for each system within the district.~~
- ~~Provide personalized training for all users within the district.~~
- ~~The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607-B specifications.~~
- The telephone system should provide TDM or IP-based voice communications both internally and externally throughout the building and the ~~d~~District.
- The PABX should be a fully digital, IP-Enabled PABX or an all-IP- Based PABX. The all-IP-Based system should maintain the same high level of functionality, redundancy, and programmable features as originally specified. Any all-IP system should employ standards-based signaling and instrument powering. All PABX systems should fully support an E911 system.
- The PABX telephone system should provide the capability for a fully digital, non-blocking, voice communications link between all classrooms and offices within the building. A telephone set is not required in each classroom; however, the necessary wiring infrastructure should be installed so as to provide access to the telephone system on an as-needed basis.
- The PABX telephone system should be capable of inter- operating on a ~~d~~District-wide basis using T-1, PRI, or VOIP trunking between buildings. The PABX system should be connected in order to provide a unified system throughout the ~~d~~District. Trunking should be designed on a P=0.01 basis.
- IP-based systems should also be provided with four (4) busy-hour standby capabilities for all powered switches ~~or patch panels~~ located in each telecommunications room. Connect the central power supplies to building emergency power when available. All IP instruments and power sources should be IEEE 802.3af compliant.

attendant console should be located in the main administrative reception area.

- Provide centralized PABX and phone instrument power with a minimum of four (4) busy-hour standby capabilities for all PABX equipment. ~~IP-based systems should also be provided with four (4) busy-hour standby capabilities for all powered switches or patch panels located in each telecommunications room. Connect the central power supplies to building emergency power when available. All IP instruments and power sources should be IEEE 802.3af compliant.~~

2. Provide personalized programming for each system within the ~~d~~District.
3. Provide personalized training for all users within the ~~d~~District.
4. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607-B specifications.

~~Standards - Video Distribution System~~

~~1. The video delivery system should include a 750 MHz broadband, coaxial-based system for distributing centrally-located RF video programming sources such as CATV, satellite dish programming, etc.~~

~~2. The system should provide an extension of the CATV service from the service provider's demarc to the main cross-connect.~~

~~3. The system should allow for remote broadband origination of programming via a RF broadband or an MPEG IP connection.~~

Standards - Data / Computer Network Systems

~~1.The data network should provide a "high speed" ethernet local area network to all buildings within the district, providing a minimum of 100/1000 Mbps switched ethernet connectivity between all computer devices, such as file servers, printers, etc. The backbone should consist of gigabit ethernet links between the telecommunication rooms and the main cross-connect. Inter- building links should consist of a minimum of two (2) parallel gigabit ethernet circuits arranged in a load-sharing, ethernet trunk with properly programmed VLAN and QoS support.~~

1. The data network shall consist of the following:
   - A 4-pair, minimum category 5e compliant, CM-rated (CMP where required), UTP horizontal cabling infrastructure, terminated and tested with a level-III cable certification unit, and provided with a manufacturer's 20 year (minimum) lifetime performance-based warranty.
   - A fiber optic-based backbone cabling infrastructure equipped with multi-mode and single-mode fibers between the telecommunication rooms and the main cross-connect. The multi-mode fibers shall be terminated with fusion- spliced, factory-polished, SC or LC pigtails. The single-mode fibers shall be terminated with fusion-spliced, factory- polished, SC LC or MPO pigtails capable of 10 Gbps operation.
   - A minimum of six (6), 4-pair, minimum category 5e compliant, CM (CMP where required) rated, UTP cables

Guidelines – Data / Computer Network Systems

- The data network should provide a "high speed" ethernet local area network to all buildings within the district, providing a minimum of 100/1000 Mbps switched ethernet connectivity between all computer devices, such as file servers, printers, etc. The backbone should consist of gigabit ethernet links between the telecommunication rooms and the main cross-connect. Inter- building links should consist of a minimum of two (2) parallel gigabit ethernet circuits arranged in a load-sharing, ethernet trunk with properly programmed VLAN and QoS support.
- The system should include all jacks, patch panels, patch cords, connectors, labels, designation strips, and equipment cabinets or racks (with associated fans, grounding/bonding, wire-managers, labels, power strips, etc.)
- The system should include all inter- and intra-building network electronics, including user layer-2 workgroup switches, layer-3 gigabit backbone switches, wireless switches, routers, and file servers.

from the service entrance facility to the main cross-connect for the extension of special circuits (T-1, PRI, etc.) that are provided by the service provider.

- A ~~100~~ 25 pair (may be more pairs based on facility size) , minimum category 3 compliant, CM (CMP where required) rated, multi-pair telecommunications UTP cable from the service entrance facility to the main cross-connect to be used for the extension of voice, fax, and alarm circuits that are provided by the service-provider. Trunk cables must be sized to accommodate all telephone system requirements. Investigate the possibility of making a single process communication cabling "utility" through the building and/or campus. The result will be a design methodology that allows a standardized cabling system to serve all communications needs throughout the process areas.
- A minimum of six (6), 4-pair, minimum category 5e compliant, CM (CMP where required) rated, UTP cables from the main cross-connect to each telecommunications room for special data circuits.
- A minimum of one (1), ~~100~~-25-pair, minimum category 3 compliant, CM (CMP where required), UTP cable from the main cross-connect to each telecommunications room for voice circuits. Trunk cables must be sized to accommodate all telephone system requirements.
- Review the building design and place data faceplates, equipped with a single minimum category 5e compliant, CM (CMP where required) rated, UTP cable from the associated telecommunications room, below ceilings to support the deployment, by the Owner of 802.11 ~~a/b/g~~/n wireless ethernet access points and associated wireless network switching devices and phones. Provide proper spacing for adequate coverage of entire facility. Consult with Owner and consider coverage of selected external areas, playgrounds, entrances, parking lots, commons areas, etc. (via externally mounted antennas). Wireless design shall be based on centralized, IEEE 802.3af compliant power sources.

~~2. The system should include all jacks, patch panels, patch cords, connectors, labels, designation strips, and equipment cabinets or racks (with associated fans, grounding/bonding, wire-managers, labels, power strips, etc.)~~

~~3. The system should include all inter- and intra-building network electronics, including user layer-2 workgroup switches, layer-3 gigabit backbone switches, wireless switches, routers, and file servers.~~

~~4. As a minimum, the network may be used to support the following applications on a local and wide area basis:~~

- ~~Data networking~~
- ~~VoIP telecommunications~~
- ~~Wireless access points~~
- ~~Video conferencing~~
- ~~Video streaming/media retrieval~~

Guidelines – Data / Computer Network Systems (continued)

- As a minimum, the network may be used to support the following applications on a local and wide area basis:
  - Data networking
  - VoIP telecommunications
  - Wireless access points
  - Video conferencing
  - Video streaming/media retrieval
  - Automation systems
  - Control systems
  - Security systems
- The network system should also include un-interruptible power supplies (UPS) for all primary components. Provide an SNMP management interface in all UPS units. Provide a minimum of 30 minute (4 hours when used for voice support or security system support) standby power for all network electronics. Connect the UPS units to the building emergency generator when available.

- ~~Automation systems~~
- ~~Control systems~~
- ~~Security systems~~

5. ~~The network system should also include un-interruptible power supplies (UPS) for all primary components. Provide an SNMP management interface in all UPS units. Provide a minimum of 30 minute (4 hours when used for voice support or security system support) standby power for all network electronics. Connect the UPS units to the building emergency generator when available.~~
6. Provide all required integration services to setup and program the network (IP addresses, VLANs, routing, wireless surveys, etc.).
7. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA J-STD-607-A specifications.

Standards – Central Sound System / Public Address System

1. Provide a building-wide central sound (public address/paging) system providing communications used for "all call" and emergency announcements. This system shall incorporate a master program clock/bell system used to generate tone signals for class change. This system shall be connected to the voice installed in all classrooms, the central sound system shall provide two-way communication with the school administrative office. ~~Clock design should be based on PoE devices.~~
2. Provide surge-protected, weatherproof exterior horns protected with wire guards/cages, as required, on the outside of the building at playground and bus drop-off/pick-up locations~~. Consider easily accessible, internally-mounted volume controls for all external paging horns.~~ All volume controlled speakers shall be operated at a predetermined volume upon an all-call event.
3. Provide wall-mounted type horns protected with wire guards/cages, as required, in gymnasiums, auxiliary gymnasiums, and locker rooms. Non-protected, wall-mounted type horns shall be provided in high school student dining areas, technology production labs, vocal rooms, instrumental rooms, mechanical decks, or other spaces with high ambient noise levels.
4. Instructional spaces shall have speakers recessed in ceiling pads in suspended ceilings. Supply wall-mounted volume controls as required.

Standards – Gymnasium Sound Reinforcement System

1. Provide a separate sound system in gymnasiums for use during instruction periods, student assemblies, public assemblies, and sporting events.
2. Locate main equipment cabinet directly accessible from the gymnasium for ease of adjusting sound levels.
3. Provide a minimum of 2 combination XLR microphone/auxiliary jacks at opposite ends of space.
4. In buildings where announcements or broadcasts are to be made from bleachers, provide a single microphone and an auxiliary jack in a junction box attached to the bleachers.

Guidelines - Central Sound System / Public Address

- Clock design should be based on Power over Ethernet (PoE) devices.
- Consider easily accessible, internally-mounted volume controls for all external paging horns.

Provide protective cover plates.
5. Provide a wireless microphone system.
6. Loudspeakers pointed at the bleachers shall provide a maximum 3 decibels difference in sound level across the entire bleacher seating area and 25 decibels over the highest ambient noise level.
7. Provide a feedback elimination system.
8. Provide a portable console/cabinet containing a CD, cassette, and MP3 player unit, mic mixer, mic inputs, and associated audio cables for attaching to the permanently mounted microphone and auxiliary input faceplates.
9. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607 specifications.

Guidelines - High School Student Dining Area Sound Reinforcement

1. Provide a separate sound system in high school student dining areas for use during media productions, stage productions, student assemblies, or public assemblies.
2. The system shall be designed for a high degree of intelligibility and a full range of stereo music capabilities.
3. Locate the main equipment cabinet in the main high school student dining area control room. Provide a sound reinforcement mixing station in the control room and at the back of the high school student dining area.
4. Locate the main sound reinforcement speakers in a space so all seats are provided with a high degree of intelligibility for both stereo music and speech. Intelligibility shall be a maximum of 3 decibels over the entire seating area and 25 decibels over the highest ambient noise level.
5. Provide a minimum of 2 microphone outlets at locations in the seating area. Locate a microphone patch panel housing XLR microphone/auxiliary inputs on the stage to serve various microphone stands on stage. Provide for on-stage, monitor speakers connected to central amplifier.
6. Provide separate wireless sound systems for both performers and for attendees requiring assistive listening. The assistive listening system shall conform to the Americans with Disabilities Act guidelines.
7. Install speakers used for monitoring this sound system in ready (green) rooms so performers know when to go on stage. Such rooms may include dressing rooms, music rooms, and instrumental rooms. Consider video monitor jack for video monitoring.
8. Provide a wireless stage manager communication system dedicated for use by sound, lighting, and stage manager personnel.
9. Provide a feedback elimination system.
10. When equipped with an FM tuner, connect to an FM antenna mounted externally to the building.
11. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607 specifications.

~~Guidelines~~ Standards - Cafetorium-only Sound Reinforcement System

1. Provide a separate sound system in the student dining area for use during student assemblies or public assemblies.
2. This system shall be comprised of a permanently mounted cabinet or rack (based on space architecture) for housing production and amplification equipment connected to either ceiling- or wall-mounted speakers conforming to the architecture of the space.
3. Provide a minimum of 2 XLR hanging microphone/auxiliary jacks at opposite ends of space for use.
4. Provide a wireless microphone system located in the rack/cabinet system.
5. Provide a feedback elimination system.
6. When equipped with an FM tuner, connect to an FM antenna mounted externally to the building.
7. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607 specifications.

~~Guidelines~~ Standards - Music Room Sound Reinforcement System

8. Provide single (shared) portable sound equipment for the playing and recording of music in the high school instrumental, vocal, and ensemble rooms.
9. Provide the instrumental, vocal, and ensemble rooms with wall-mounted speakers and a minimum of 3 XLR wall-mounted microphone jacks distributed throughout the rooms. Provide a minimum of 2 XLR hanging microphone jacks located on the ceilings.
10. The equipment rack shall be mobile housing amplification equipment.
11. Provide a feedback elimination system.
12. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607 specifications.

~~Guidelines~~ Standards – Optional Security System

NOTE: The inclusion of a security system is an option available to the District. Security systems, when included in project scope, must meet the following standards. Security system recommendations are available in the adjacent Guidelines items.

1. Every system shall be UL approved and monitoring shall be provided at UL approved central station.
2. Alarm system shall have a battery backup (UPS system) for power of at least 4 hours. Provide SNMP management on UPS system and connect to network. Provide for graceful shutdown of equipment.
3. Every alarm system shall communicate over a dedicated telephone data line.
4. System shall be programmed to accept individual alarm access codes from authorized employees. Codes are not to be shared.

Guidelines – Optional Security System

NOTE: The inclusion of a security system is an option available to the District.

Within the building security system allowance designated in Chapter 1, provide as many of the following provisions as possible. The following recommendations represent a reasonable expectation of protection within budget constraints and security needs of the District. The ~~D~~design ~~P~~professional should specify the priority security systems to fit the site/building conditions.

- Access Control System
- ~~Burglar alarms:~~ Intrusion Detection System
- Closed Circuit Television (CCTV) System

Consideration shall be given to centralizing and integrating the system on a District-wide basis via the wide area network, where available.

5. Every door, hatch or other port of entry will be fitted with an alarm contact. Each entry point will be backed up by motion detectors.
6. Panic buttons will be installed at reception areas.
7. Each keypad will have a distress code.
8. The systems will be supervised, i.e., power failure, line cut, and communication failure will signal the monitoring station of the problem.
9. Minimum Standard: Access Control Systems
   - The primary security system will be the access control system~~;~~, consisting of a CPU, software, control modules, wiring, readers, and strikes/locks for selected exterior doors.
   - All access control systems ~~should be a minimum of Windows 2000 based or compatible~~ shall be a commonly available operating system. If the facility is existing, the operating system shall be compatible with the existing system. Provide SNMP management on UPS system and connect to network. Provide for graceful shutdown of equipment. The controller shall be IP- connected to the network and shall permit viewing and control over the network, via PCs. Connect the central power supplies to building emergency power, when available.
   - Doors protected by access control will open for exit by using a crash bar release. Each of these doors will be monitored via the door alarm contact for being propped or stuck open. In an emergency, the protected doors can be seized allowing exit only.
   - The system will be on a programmed schedule that automatically unlocks the doors for admittance at the start of the day, locks doors (except the main entrance) during class hours, and locks all doors at the close of the day. This will funnel visitors to the front door where they can be observed and controlled.
   - Access controls system shall be interfaced with the building fire alarm.
10. Minimum Standard: Intrusion Detection System
    - Every exterior door ~~is contacted~~ has a door contact and backup up by motion detection in the corridors to protect the facility from after-hours intrusion and to summon authorities in an emergency situation.
    - Install motion detectors on all floors of the facility in corridors and all rooms with outside access.
    - The alarm system shall be integrated with the building lighting system and shall activate the corridor lights and other selected areas in the event of alarm activation.
11. Minimum Standard: Closed Circuit Television Systems
    - Cameras: All cameras will be color, CCD chip technology. High contrast areas should use wide dynamic cameras. Those abilities will be designated at the design phase and based on need. All cameras will be equipped with an automatic iris to control light. Compatible lenses specific to each placement and required field of view will be used. Cameras with integral motion detectors are acceptable. Limit

Guidelines – Optional Security System

Access Control System

- The system should have the ability to integrate alarms and video signals into one centralized system.
- The number of doors on the system will vary from building to building; however, a minimum number of doors should be selected for access control devices.
- Card readers should be proximity or biometric readers.
- All other exterior doors should be equipped with fire panic devices to prevent entry while allowing exit. Remove exterior hardware.

internal camera spacing to 150 feet maximum. Provide a dedicated camera for each building entrance. Use appropriate lenses for application.

- Mount external cameras in an appropriate, environmentally controlled enclosure. Mount internal cameras in smoked-dome enclosures.
- All cameras shall be capable of being viewed and digitally recorded at the same time.
- Controllers: Should the design call for cameras that can pan, tilt, and zoom, they will require a controller that can move the cameras. The system shall have a battery backup (UPS system) for power of at least 4 hours. Provide SNMP management on UPS system and connect to network. Provide for graceful shutdown of equipment. The controller shall be IP connected to the network and shall permit viewing and control over the network, via PCs. A separate security VLAN shall be established. Connect the central UPS to building emergency generator when available.
- Recorder: Each recorder shall be digital and provide for ~~up to 60~~ a minimum of 30 days of storage. Each recording system shall be equipped with provisions for extracting digital images and transferring to a CD or DVD. The recordings shall contain a digitally encoded date and time for each camera. Each recorder shall be equipped with digital image enhancement capabilities. The recorder shall be network connected and shall be capable of being viewed and controlled remotely from a PC workstation over the data network.
- Camera Power: All cameras will be powered by low voltage wire and transformers connected to central UPS power with a minimum of 4 hours standby. The wire will be run with the copper video transmission cable. Twisted pair cabling shall be limited to 90 meters without the use of a repeater. Category 5e, IP, or Baseband video systems are acceptable. In-line or parallel power is acceptable. Exterior installations ~~can have the cable above or below ground~~ shall be OSP rated. The wire must be tied to a support cable if run above the ground, and every camera should be grounded with surge suppressors for lightning strikes. The lightning protectors shall be properly grounded in accordance with NEC and EIA/TIA-607 and connected to the associated telecommunications grounding bus (TGB).
- Exterior Housings: Exterior cameras will be placed in climate- controlled and vandal-resistant housings. Exterior cameras will be placed no more than 1,000 feet apart. Exterior camera housings shall be grounded in accordance with NEC and EIA/TIA-607-B. Provide surge protection for all exterior mounted cameras utilizing conductive cabling.
- Monitors: Systems with 4 or fewer cameras will be monitored with a 13-inch (minimum) color monitor. Systems of 5 cameras or more will be monitored with 20-inch color monitors.

12. An exterior horn and strobe light that signals an alarm break will be part of this system.

Guidelines – Optional Security System

CCTV System

- Provide exterior cameras and adequate cameras in the corridors, plus the head end equipment (digital recorder, monitors, multiplexer, and power).
  - ~~They~~ Cameras may be stationary or they may be pan, tilt, or zoom. Pan zoom tilt (PZT) should be considered for external cameras.
  - PoE IP Cameras should be strongly considered due to migration away from analog camera systems.
  - Exterior cameras should be day/night with IR sensors.
  - The camera system should be equipped with motion detectors for changing the frame per second recording rate, depending on system set up.
- Cable runs exceeding 500 feet may require the use of fiber optic cable. Exterior installations can have the cable above or below ground
- Exterior installations can have the cable above or below ground.
- Recorders: NVR's should be used if network bandwidth allows.
- Monitors: An additional 20-inch (minimum) color monitor should be mounted on the ceiling at the public entrance to show that cameras are being used in the public areas.

~~8. If equipped, the fire system flow and tamper switches will be tied to an alarm point.~~

13. The alarm company will provide monthly reports detailing alarm system use, including opening, closing, and alarm conditions.
14. Provide security screens for windows if warranted by the specific project location and exposure.

Guidelines – Optional Interactive Classroom Design

Videoconferencing classrooms require special attention to ensure that the highest quality sound and visual signals are transmitted and received by participants. The following are recommendations on the building of interactive videoconferencing rooms:

- Location: A quiet, convenient and central location is best. It should be isolated or separated from the sources of loud outside noise. This minimizes the need for sound isolation treatment. The room should be near an area that allows for direct and indirect supervision of the class (for monitoring students, security and liability reasons). Access should be suitable for a person with a physical disability. A ground floor location is preferable. Areas to avoid are those that are located near high traffic areas, lifts, plumbing, workshops, and plant rooms. Care should be taken to diminish the sounds from the air conditioning ducts, the gymnasium, band room, shop, or cafeteria.
- Classroom Size: Classroom size depends on the maximum number of participants you hope to have in your room. We suggest planning for a minimum of 20 participants, but ideally be prepared to accommodate at least 25, with tables and chairs. The space should be approximately 24 feet wide by 30 feet long, with a ceiling of 9 feet minimum, to accommodate compressed interactive equipment along with 20 students, or a majority of the faculty for staff development. For teaching seminar groups involving 100 or more, the system should be placed in a lecture theatre setting. Consideration shall be given for appropriate acoustics.
- Classroom Shape: To reduce acoustic effects, square rooms should be avoided, if possible. An oblong or irregular shaped room is a better shape, as it does not encourage standing waves (and thus echoes).
- Physical Layout: Room layout will depend on the number of participants, the available space and the purpose of the room. Layout is a compromise between clear audio, the best viewing of monitors, interaction, and the space available.

Guidelines - Optional Interactive Classroom Design (continued)

- Acoustics: Audio quality is one of the most critical technical elements in a successful videoconference, and it has implications for the selection and placing of the room, as well as for its construction and treatment. The participants and presenters must hear each other clearly, both locally and remotely, without strain. Some factors influence the quality of the sound in a videoconference; namely, ambient noise, room acoustics and reverberation, and equipment configuration.
  - Acoustic treatment of rooms will need to be executed with materials that satisfy the relevant building regulations, so it is essential that this work be supervised by qualified staff.
  - The internal acoustics of a room are very important. Too much reverberation (echoes in a closed room) will present problems. Rooms should not be too absorbent, as this will present an unnatural and uncomfortable environment for the participants. A room that suffers badly from echoes should have the acoustic treatment applied to the adjacent walls rather than the two opposite ones. This will allow standing waves to be reduced in two dimensions (lengthwise and widthwise).
  - Hard blank walls can be deadened by heavy curtains, which have the added bonus of improving the décor. Carpets and other soft furnishings will improve the acoustics and will generally be more cost-effective than acoustic ceiling tile.
- Windows: The ideal room has NO windows. Windows always cause problems for television cameras due to the changing light levels. Window Treatments: If windows are unavoidable, heavy curtains or drapes should be applied to improve acoustics.
- Entrances: Entrance at rear of the room is the best option. Access should be suitable for a person with a physical disability.
- Flooring: There should be carpet on the floor. Carpets and other soft furnishings will improve the acoustics and will generally be more cost- effective than acoustic ceiling tile.

Guidelines – Optional Interactive Classroom Design (continued)

- Lighting: Fluorescent lighting is the most realistic choice for these rooms. Normal office lighting levels will be adequate, i.e., 500 Lux, and an intermediate or warm fluorescent tube color (equivalent color temperature 3200-4000 Kelvin). There should not be a buzzing sound projected from the lights in the classroom.
    - Install lighting at the front of the room but ensure that it is on a separate switch from the rest of the room lights. As a general practice, it is advised that classroom lighting, even in traditional classrooms, be "zoned" into rows of separately switched lights. These rows should run across the width of the room, not down its length. In this way the front of a room, beside the projection screen, can be darkened to give better contrast to the projected images, but still retain a good level of light over the participant's desks.
        - Recommend using high efficiency T-8 lamps and electronic ballast along with the use of occupancy light sensors to prevent energy waste in unoccupied areas and/or buildings, along with copy/work rooms, rest rooms, etc.
- HVAC: The HVAC should be seen – not heard in the classroom.
- Microphones are sensitive to moving air. The microphone amplifies normal air conditioning and can cause a large amount of background noise in a videoconference. Air conditioning/handling equipment will also require installation by experienced staff to ensure the quality of air is adequate and the temperature, humidity, etc. are of an acceptable standard.
- Communication: There should be a dedicated phone line and phone in the videoconference room. It is also recommended that there be a FAX line in the room. It is suggested that you have at least one phone and an additional phone line, or jack, in the room for a FAX line or expansion in the future.
- Computer: Videoconference rooms should have a minimum of four areas to access a computer and the Internet.

Guidelines – Optional Interactive Classroom Design (continued)

- Electrical: Electrical installations need to comply with current National Electrical Code (NEC) wiring regulations and should be carried out by competent and qualified staff. The equipment used for videoconferencing should be powered from a clean main supply to avoid electrical interference. It should not be on a circuit that is shared by large electrical loads such as plant motors, lifts, workshops, etc.
- Wiring: To minimize hum pickup, signal cables (i.e. sound and vision) should not be run parallel to main supply cables; this is especially important for microphone cables. Also, do not run over or parallel to lighting ballasts.
  - Several cables should be run from the control desk to the picture monitors and loudspeaker/audio mixer and also to the CODEC, wherever these are situated. Some provision must be made for small ducting or conduit to protect these cables.
  - When cable runs across floor spaces cannot be avoided, some form of protection must be provided. Special rubber cable protectors are available that protect the cables and minimize the risk of tripping.
- Room Color: Generally high contrast color is desired. Light Blue or light gray is commonly used. Stay away from dark and vivid colors. One recommendation is Periwinkle Blue, or Slate Gray.
- Furniture**:** Individual sites will have their own preferences for the type of furniture to be installed. Try to avoid bright, reflective surfaces that may cause unwanted highlights in the picture and distract the viewer from the main subject matter.