



**MARICOPA
COMMUNITY
COLLEGES®**



CAPITAL DEVELOPMENT PROJECTS MANUAL

Part I: ADMINISTRATIVE and GENERAL DESIGN GUIDELINES

We would like to acknowledge and thank Rich Franz, Director of Facilities Planning and Construction, Pima Community College District, along with his co-author, Manny Marti, Architectural Programmer, for allowing us to modify and reproduce large portions of their "Pima Community College Facilities Guidelines", in this Section. We share many common needs and visions with them and felt that creating a Guideline based upon common best practices and philosophy would benefit our users, community and common consultants.

Modifications:
LEED Silver requirement added 3-24-11

Part I: Administrative and General Design Guidelines

http://www.maricopa.edu/facilitiesplanning/docs/PartI-MCCCD_Design_Guidelines.pdf

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http://www.maricopa.edu/facilitiesplanning/docs/PartIII-MCCCD_Ops_and_Maint_Guidelines.pdf

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http://www.maricopa.edu/facilitiesplanning/docs/PartIV-IT_Standards.pdf

Revisions to Guidelines

Facilities Planning and Development (FPD) intends to maintain these Guidelines as a living document that represents current administrative procedures, design and construction practices and standards, and "lessons learned". Any user of this document may submit a revision suggestion. If the user is not a District employee (e.g., a consultant, supplier, etc.), please submit the suggested revision to the Project Manager assigned to the project or to FPD. Changes to PART III of this document must be made in consultation with the Project Manager, and the particular campus Facilities Manager.

The request for change or revision should be in writing and contain the following:

- Reason for the proposed change or revision.
- Proposed text of the change or revision including Section or paragraph number(s) as may apply.
- Any background information that may help evaluate the proposed change.
- Potential cost impact as applicable.

Final review of the proposed change(s) or revision(s) will be done by the Director and project management staff in Facilities Planning and Development. If approved, the change(s) and/or revision(s) will be incorporated in the Guidelines and expedited as a revision or correction addendum if applicable to on-going projects. Change(s), revision(s) or update(s) whose inclusion is essential or unique to a specific project may be approved for that particular case only.

Section 1: Facilities Planning and Development Mission and Responsibilities

1.1 Mission

Facilities Planning and Development (www.maricopa.edu/facilitiesplanning) serves as a District-wide resource for capital project planning, development and facilities maintenance in support of Maricopa's education and training mission. We are problem solvers, employing creative approaches to managing functional, operational, or interactive issues related to the physical environment. We work with our colleges and facility users to develop intuitive, well-designed, and cost effective solutions.

Our work includes leadership in managing, assisting or supporting colleges with:

- Developing and evaluating their facilities with special attention to the needs of Maricopa's many constituent groups and programmatic needs
- Campus master planning and capital programs
- Management of the facilities design and construction process
- Selection and management of architects, engineers, other consultants and contractors
- Construction permits and other community regulatory processes related to our facilities and sites
- Property purchases and other issues related to facilities growth or expansion
- Liaison to local and State government agencies, and public utilities related to facilities issues
- Project cost, funding and budgets
- Facilities infrastructure and systems maintenance
- Energy and water conservation programs
- Life safety and energy management systems
- Optimum utilization, operation and efficiency of central plants and utilities systems

Our Department strives to be a highly respected, recognized leader in facilities capital development among peer and public institutions.

1.2 Facilities Planning and Development/ Project Manager's Role

Facilities Planning and Development (FPD) is charged with managing the project so that both our internal and external customers' requirements are met or exceeded, meeting budget and schedule. The FPD Project Manager (PM) is the design and construction team leader and functions as the single-point contact between the design consultant and contractor team and District's users' group. As team leader, the PM assists the users in developing and stating the project requirements, acting as advocate/interpreter/negotiator for the entire project team, then monitoring the team's progress for budget and schedule compliance.

The PM also will call upon other Department staff to describe facility operations related to mechanical and electrical systems, building automation controls, life/safety systems, and energy consumption. We also may use outside, contract project management services to supplement our staff during heavier project development phases. These outside project managers speak for and on behalf of the PM, and carry the authority of the PM for all issues except those requiring District signature authority (actual signature approval of change orders, etc.)

1.3 Consulting Designer's and Contractor's Roles

The consultants' relationship to the College is through the PM, who is the consultants' contractual client. However, FPD, the consultants and contractor share the goal of meeting the users' requirements. The consultants are responsible for developing facilities solutions, and the contractor is responsible for constructing them, to meet project requirements **within budget and on schedule**.

Section 2: Project Management

2.1 Administrative Procedures

The design of Maricopa Community College District ("District") facilities involves many individuals and groups within our community, each representing a particular interest in the project. These individuals form the Project Committee. Although these groups share similar goals, these representatives sometimes differ in their priorities and approaches for seeking solutions to specific problems including considerations of planning, financing, aesthetics, scheduling, operations, maintenance, etc.

During the evolution of a project, various departments within the College and District will provide input to the designers and review designs, samples, colors, cut-sheets, the drawings and specifications. In order to maintain an effective flow of information to and from the consultant team, the District appoints the PM at the initiation of the project. This individual is the administrative focus of all project development phases. Communication between the consultant, contractor, the District and the College should be channeled through the PM. The PM may authorize direct contact between the consultant and other College departments as needed. In such cases, the consultant will brief the PM about the content and result of these contacts and provide summary written notes or e-mail and any conclusions or decisions reached during the meeting. During construction, College users also may be in direct contact with the contractor but are not authorized to make any changes or binding decisions. Similar procedures should be followed.

The PM is the District and College's official representative and is authorized to act on behalf of the Owner (per the Owner-Consultant Agreement). The PM is the official *client* for the consultant and contracting team. Changes to the contract, the design, the construction or other instructions to the consultant or contractor can only be made through written communication from the PM.

2.2 Design Review Process

After researching the particular campus and building site, designers of campus buildings should develop a set of principles as to how the proposed structure should relate to its environment. This may include heights, open spaces, pedestrian ways, predominant materials used to compliment its surroundings, scale, building envelope, and other contextual factors. Based on this analysis, the designers will prepare a conceptual design package to be submitted to the Committee for review. The design package should, at a minimum, describe the following:

- Context
- Analysis of the building program and its fit to the site
- Massing and height
- Façade and fenestration
- Orientation
- Zones of pedestrian and service entries
- Suggested materials, palettes, and details
- Relationship to open space and pedestrian ways

The design package will typically include diagrams, storyboards, proposed building elevations, and perspective drawings as part of the submittal requirements described in greater detail in the Owner-Architect Agreement. The design package first needs to be submitted to the PM for review before

presenting the proposed design to the Committee. This process is to be repeated at both the Schematic and Design Development phases of the project. **No information is to be presented to the Project Committee or college users without prior review by the PM, and the consultant's reasonable confidence that the material being presented can be provided within the budget and other parameters for the project.** All design review comments issued by the Committee shall be incorporated into the design or responded to by the consultant indicating why the change could or should not be made.

Section 3. General Design Considerations

3.1 Design Approach and Objectives

The designer of any project is constantly faced with decisions regarding the selection of materials and methods to achieve an economical, aesthetically pleasing and well-functioning end product. While these objectives may be universally applicable, there are several design objectives for District projects to which the designer must devote special attention. These objectives are listed below in priority from highest to lowest, which the designer should follow as decisions are made:

- Program and utility of the design to meet the users' program needs
- Maintainability of the facility over the long term
- Economy of use
- Aesthetics/design
- Sustainability

3.1.1 Design Integration

The architectural design must respond to the environmental characteristics and unique opportunities that characterize the Arizona Sonoran Desert, the Phoenix metropolitan area, and the particular campus. Designs should address aesthetic and stylistic integration into or justify departure from existing campus facilities.

3.1.2 Overall Economy

While the District constantly seeks ways of reducing its construction costs, the increasing sophistication of building systems tends to obscure the fact that these systems proportionately increase operation and/or maintenance costs. Because the lowest first cost does not necessarily mean lowest total cost, life cycle cost analyses should be an important consideration of the design process, materials and systems selections.

3.1.3 Adaptability

Adaptability should not be confused with flexibility, which often adds undue expense. "Flexible" space may require "customization" such as movable walls or WalkerdUCTs in a floor. Less expensive "generic" spaces are more often appropriate unless a special requirement emerges in programming and/or the design process. Adaptability should occur in spaces where change **will** occur, not **may** occur.

3.1.4 Learning Models

Learning and instructional models have shifted to incorporate emerging technologies and alternative learning styles, evolving from the old model's reliance primarily on "seat time" in lecture halls. While newer models rely on collaboration and self-paced computer learning, some instruction and learning will continue to be more traditional. Unlike universities that have more homogenous student populations, our colleges serve a wide range of users and age groups. We must create learning spaces that serve both the newer "Net-Gen" learning styles as well as more traditional styles for the older generations.

3.1.5 User-friendly Designs

Certain aspects of a campus or building should be more obvious to a layperson than others. For example, the campus "front door" should be obvious from the parking areas. The heart of the campus

should be clearly developed and should foster spontaneous interaction. The overall design approach should be kept simple and avoid reliance on significant amounts signage to draw people into the building(s) that function as part of the campus entry. Building design style, intent and result should be understandable and appreciated by the common user without interpretation, multiple levels of understanding or significant knowledge of external references often sought in “high design”. Buildings should be designed for users, not for other architects or magazine covers. Not everyone is comfortable or appreciative of exposed building systems, blunt structure or raw material finishes. A college building represents the District and college’s image to the community; be careful and considerate of that message.

3.1.6 Sensitivity to Cultural Diversity

The District's intent is to establish a built environment that helps stimulate and sustain appreciation of cultural diversity. The District community recognizes that cultural, ethnic and religious minorities strengthen the District as a whole and improve the learning process. Attention to vernacular design solutions can be one way to acknowledge cultural diversity. Such attention does not need to be literally applied. Many local structures integrate local vernacular design in different ways by providing shaded areas, semi-enclosed spaces and contained greenery.

3.1.7 Outline Specifications

PART III of this Guideline series provides technical guidelines for building materials, methods and performance. Designers are encouraged to make suggestions for alternative approaches to meet or improve upon these standards as may be justified by engineering factors, operational criteria, or cost. Among the operational factors to be considered in designing building systems are the following:

- .1. Functionality and cost considerations
- .2. Reliability and durability
- .3. Conservation and sustainability
- .4. Maintenance requirements minimization
- .5. Simplicity of operation and adequacy of control systems
- .6. Accessibility and serviceability of mechanical and electrical components
- .7. Availability of replacement parts.

3.1.8 Sustainability, energy and water conservation

As a large user of energy in the operation of its facilities, the District is extremely conscious of the need to minimize its consumption of energy and water. This requires a comprehensive, interdisciplinary approach to energy and water efficient design. Examples include the use of native, drought-tolerant vegetation in landscaping, proper building orientation, adequate but protected fenestration, appropriate design and performance of mechanical systems, etc.

3.1.9 Signage

The PM is responsible for approving all interior and exterior signage, whether interior or exterior in conjunction with the campus. All proposed signage must be in compliance with the Americans with Disabilities Act Design Guidelines. All campus logos and District logo shall comply with the standards approved by District Marketing/Public Relations. The design consultant shall include exterior monument signage or signage attached to buildings in the Contract Documents. Custom designed and/or manufactured signage makes replacements, repairs and additional purchases more difficult and expensive for colleges, and should be avoided

3.2 Sustainable Buildings

All new college buildings and renovation projects should be designed to meet general sustainable building principles and “green building” criteria where practical to do at reasonable costs and investment return. A properly designed, sustainable building reduces energy and water use, wasted resources and provides a healthy working and learning environment for our users. While a certified LEED Silver rating will not be required of any District facilities, energy and water conservation and other issues of sustainability should be explored for each project. Use of local materials, low water use landscaping and plumbing fixtures, construction waste management, recycled content in new materials, low emitting materials, daylighting techniques, along with energy and water conservation are principles that can be evaluated and applied.

The design and construction team should consider LEED Silver Credit categories and concepts that can be achieved with relative ease and be pursued to the extent that such measures provide meaningful benefits to the building projects, occupants, operators, or the environment within the project budget.

3.3 Energy Conservation Design Criteria

3.3.1 Building Envelope

The envelope specifications will adhere to the prescriptive standards listed in ASHRAE 90.1-2004. Alternatively, the designer may follow the directions for the use of a computer simulation under the Energy Cost Budget section of ASHRAE 90.1-2004.

3.3.2 Roofing Materials – Reflectivity

Roofing products should follow the concepts of, and where appropriate, comply with the technical specifications of the U.S. EPA’s Energy Star labeled Roof Products.

3.3.3 Lighting

Fluorescent lighting shall be T-8 tubes with electronic ballasts or better. T-5 tubes and technology may be used in completely new locations where no integration with existing T-8 systems is required. Occupancy sensors with manual override will control all interior lighting. All exterior lighting should operate through time clocks or the energy management system on campus. No lighting should be operated through circuit breakers in the panels only. Exit signs shall be LED. Other light fixtures that typically use incandescent light sources should use PL tubes when equivalent or better lighting levels can be achieved.

3.3.4 HVAC Systems and Controls

Each classroom or meeting room is to be served by a single VAV box. Up to four offices may be served on a single VAV box where similar exposures and loads may be expected HVAC controls shall switch between unoccupied and occupied modes based on tying into occupancy sensors or scheduling.

3.4 Acoustical Privacy

These guidelines apply to all rooms requiring acoustic protection. More specific acoustic requirements for Learning Spaces will be found in Part II of the Guidelines. General design considerations are as follows:

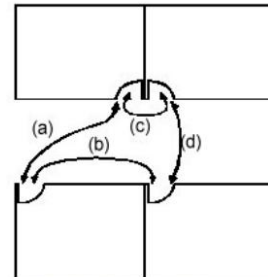
3.4.1. All plumbing, electrical and mechanical penetrations in acoustically rated walls must be caulked airtight using acoustical caulk.

3.4.2 Where recessed fixtures or equipment of any type are installed in sound rated walls (e.g., cabinets, fire extinguishers, electric panels, drinking fountains, bookcases, etc.) the design consultant must ensure that required acoustic wall construction extends behind and around the recesses for these elements. This construction needs to be completely detailed and specified within the documents, not left to contractor “means and methods”.

3.4.3 Installation of noise-generating equipment (such as telephones, drinking fountains, electrical transformers, etc.) should be avoided on walls or in rooms adjacent to those requiring acoustic protection.

3.4.4 Use surface-mounted rather than recessed lighting fixtures and fans at ceilings of rooms requiring acoustical protection in order to minimize sound transference to adjacent spaces.

3.4.5 At rooms requiring acoustical protection, locate doors so that neighboring rooms do not have directly adjoining doors, and in such a manner that doors on opposite sides of corridors do not face each other. In cases where acoustical isolation is imperative at each side of corridors all doors should be staggered, as shown to the right:



Paths (a) and (b) represent good layouts because the sound has a longer path to travel from one room to the next, paths (c) and (d) represent bad layouts because the distance between is short.

3.4.6 Avoid placing doors to rooms requiring acoustical isolation opposite to stairwells, elevators, lobbies or bathroom doors. Do not locate toilets (public or private) or lounges directly over or next to rooms requiring acoustical protection.

3.4.7 Use intervening non-occupied areas to buffer noise-producing areas from areas requiring more acoustic isolation.

3.4.8 Whenever possible, the gap at the bottom of all doors should not exceed 1/2".

3.4.9 Separate studs, with a structural in-wall air gap, must isolate the jambs of all heavily used corridor doors from any adjacent rooms requiring acoustical isolation.

3.4.10 Mechanical equipment in spaces above, beside, or below rooms requiring acoustical isolation must be vibration isolated, including piping and conduits, from walls, floors and ceilings, but preferably should be located remotely from these spaces.

3.5. Building Configuration

Attempt to minimize the ratio of surface area of walls and roofing to gross building area in order to reduce heat loss and/or heat gain within reasonable design considerations. Configuration of floor plans should strongly consider maximizing the number of areas the mechanical equipment serves by minimizing the quantity of mechanical systems required to support those spaces, again within reasonable design considerations.

3.6. Glazing and Infiltration

Use appropriate glazing systems to minimize heat gain and reflected glare to adjacent buildings or public areas. The use of projections and roof overhangs over windows is recommended in sunny locations and particularly on south and west orientations. The length of the projection should be calculated to maximize solar gain in winter and shading during the late spring/summer/early fall, the times of heaviest internal and external loads. This function may also be achieved by using fixed awnings or other architectural devices. Avoid use of highly reflective or mirrored glass. All exterior windows should be double glazed, insulated units. All exterior doors shall be weather stripped, including door thresholds.

3.7. Environmental Issues

Environmental issues that must be addressed in the early planning stages of a project. In these situations, risk management and campus safety requirements must be considered. Of the greatest concern are:

- environmental regulations imposed at the local, state and federal levels pertaining to air and water quality
- requirements and considerations be given to atmospheric emissions and discharges to storm and/or sanitary systems
- storm water retention and run-off, along with dust control, during construction
- handling of solid and hazardous substances, including their disposal
- good HVAC system design that provides a high level of air quality in the building

If hazardous materials (asbestos, lead, PCB's, mold, etc.) are suspected or discovered during either the design or construction phase immediately notify the PM. The District will provide testing and abatement as the situation requires.

3.8 Building Security

3.8.1 General

3.8.1.1 Security always is required for people, building spaces and equipment. At a minimum, provide a one-half inch (1/2") conduit installed at the head of all exterior exit doors tied back to electrical room for future connection to a security system. Limited access to labs, offices and main computer rooms also may be a concern with the college. Access may be by means of keys or magnetic card system(s) at the college's option. In some cases, twenty-four hour surveillance or CCTV systems also may be required.

3.8.1.2 Exiting at Night: Consider the experience of leaving the building at night. Provide an area that is well lighted, without "hidden areas".

3.8.1.3 Defensible Space

The National Crime Prevention Institute defines "Crime Prevention through Environmental Design" (**C.P.T.E.D.**) as "The proper design and effective use of the built environment which can lead to a reduction in the fear and incidence of crime, and an improvement of the quality of life." CPTED attempts to decrease the conditions perceived as unsafe and increase the conditions perceived as safe. Four basic design strategies — natural surveillance, access management, and territoriality – are supported by three owner operation strategies- physical maintenance, order maintenance and activity support.

Natural Surveillance

This design concept is directed primarily at keeping intruders easily observable. We do this by the design and placement of physical features in such a way as to maximize visibility or people, parking areas, outdoor circulation and building entrances. The objective is to provide an environment in which you can see and be seen, to eliminate hiding or hard-to-see places, and thereby increase the perception of a human presence. Features include windows, walkways, assembly or social gathering areas, corridors, stairways, doors and lighting. For instance, in choosing landscaping material, make sure that the material provides benefit without blocking views. Potential offenders feel increased scrutiny and limitations on their escape routes. Other examples include:

- Placing windows overlooking sidewalks and parking lots.
- Using passing vehicular traffic as a surveillance asset.
- Creating landscape designs that provide surveillance, especially in proximity to designated points of entry and opportunistic points of entry.
- Using transparent vestibules at building entrances.
- When creating lighting design, avoid poorly placed lights that create blind-spots for potential observers and miss critical areas. Ensure potential problem areas are well-lit: pathways, stairs, entrances/exits, parking areas, ATMs, bus stops, etc.
- Avoiding too-bright security lighting that creates blinding glare and/or deep shadows, hindering the view for potential observers. Eyes adapt to night lighting and have trouble

- adjusting to severe lighting disparities. Using lower intensity lights often requires more fixtures. Keep night time building lighting away from building but shining towards the building to create large shadows of movement close to buildings.
- Use shielded or cut-off luminaires to control glare.
 - Place lighting along pathways and other pedestrian-use areas at proper heights for lighting the faces of the people in the space (and to identify the faces of potential attackers).

Natural surveillance measures can be complemented by mechanical and organizational measures, such as closed-circuit television (CCTV) cameras.

Natural Access Control

This design concept is directed primarily at decreasing crime opportunity by denying access to crime targets and creating in offenders a perception of risk. The objectives of access management are to keep people on safe routes, enhance emergency response, decrease the sense of being lost, avoid conflicts and prevent trespassing. Use judicious placement of signage, entrances, exits, fencing, landscaping, lighting and other way finding elements, such as the use of color, to provide orientation and direction. Other examples include:

- Using a limited number of clearly identifiable points of entry
- Eliminating design features that provide access to roofs or upper levels

Natural access control is used to complement mechanical and operational access control measures, such as target hardening.

Territorial Reinforcement

Physical design can create or extend a sphere of influence, and is accomplished through the use of physical attributes that delineate space and express ownership. Users then develop a sense of territorial control while potential offenders, perceiving this control, are discouraged from entering the area. Attributes include art, displays, signage, landscaping, fencing and pavement treatments. Buildings and other features also can be placed so they create a perceived area of influence, similar to the concept of circling the wagons. The objectives are to increase the sense of pride and ownership felt by the students, faculty and school personnel, and put others on alert that they are coming into territory that is owned and cared for. This gives the message that unacceptable behavior will not be tolerated. Other examples include:

- Maintaining premises and landscaping such that it communicates an alert and active presence occupying the space.
- Display security system signage at access points.
- Avoid cyclone fencing and razor-wire fence topping, as it communicates the absence of a physical presence and cues a reduced risk of being detected.
- Placing amenities such as seating or refreshments in common areas in a commercial or institutional setting helps to attract larger numbers of desired users.
- Scheduling activities in common areas increases proper use, attracts more people and increases the perception that these areas are controlled.

Territorial reinforcement measures make the normal user feel safe and make the potential offender aware of a substantial risk of apprehension or scrutiny.

Owner operations strategies include **Physical Maintenance**, the repair, replacement and general upkeep of the grounds and buildings; **Order Maintenance**, the attention to and reduction of minor undesirable acts through expectations regarding behavior and consequences for unacceptable behavior; and **Activity Support**, the planning and placement of activities that promote human presence to enhance opportunities for casual surveillance and access management.

*(some information above taken from American School and University Magazine's **Planning Safer Schools**, Aug 1, 2001 by Sherry P. Carter and Stanley L. Carter)*

Also see <http://www.cpted.net> or <http://www.phoenix.gov/police/cpted1.html> for information posted on this program.

Use similar defensible space concepts at administrative and faculty offices, classrooms, etc. internal to buildings are well. Provide emergency phones near the prime instructor location in each classroom. Consider irate students or staff in some administrative and support areas, making sure that the student or visitor is not seated between the staff member and the door.

3.8.2. Security Levels.

In general, there are three different levels of security in most campus facilities. In some special cases, a fourth level may be required.

3.8.2.1 Level One: Public and Semi-Public Spaces

This security level applies to public spaces with intense public traffic and no clear department ownership. Among the public spaces are lobbies, unrestricted public corridors, vestibules, classrooms, stairs, elevators, public restrooms, food service facilities, recreation rooms, parking facilities, etc. Examples of semi-public spaces are department reception areas, seminar rooms, libraries/resource centers, theaters, lecture halls, auditoriums, study areas and conference rooms. The following security measures are recommended for public and semi-public spaces:

- Clearly defined hours of use
- Well-lighted entries, lobbies and corridors
- A view into the space(s) before entering
- Doors lockable only by maintenance staff or College security
- Visibility from adjacent occupied spaces
- Emergency telephones and TTY phones linked to campus police
- Easily identifiable and accessible exit routes

3.8.2.2 Level Two: Private and Locked Semi-Public Spaces

Locked doors may secure parts of a facility. In those areas, traffic flow is smaller and controlled. More valuable equipment and/or risk factors are involved. Examples of private spaces at this level include: faculty and staff offices, teaching labs including science and vocational/occupational labs, exercise facilities, health and safety areas, large lecture halls, projection booths, art rooms and dark rooms, private/faculty toilets and baths, general exhibit spaces that do not house rare or expensive items, mail rooms, police and security areas, campus operation and maintenance spaces, building mechanical and electrical rooms. In addition to the security measures recommended for Level One space, these areas should include the following:

- Secured doors with inside, vandal-proof, or pinned hinges and latch guard
- Lockable windows
- Controlled/programmable keying system, easily changeable locks or card access system
- Non-lift sliding windows or doors (if used)

3.8.2.3. Level Three: Secure Spaces

Among these are the following: bookstore(s), libraries, computer areas, testing areas, high-value equipment holding spaces, special collection and museum display areas, high value exhibit spaces, science lab prep and storage areas, supply rooms, computer/server/data rooms, special secured areas, confidential file rooms and vaults. The security requirements for these spaces must be determined on a case-by-case basis, but as a general rule, the following may be considered in addition to all the security features noted before:

- Motion sensors
- Intrusion alarm(s)
- Electronic surveillance

- Time clock access restrictions
- Security guard/patrol intervals
- Duress alarm
- Special ID detection/access systems

3.8.2.4. Exterior Security

The protection of people and vehicles at building exteriors is extremely important. Security at walkways, entries, loading and unloading areas, near ground floor windows and building indentations can be significantly enhanced by applying the same principles followed in the design of other public spaces. All plantings that may serve as a hideaway must be kept below three feet in height or with the main canopy trimmed to above six feet. Do not place vegetation up against window areas. Defensible space design will take into account exterior lighting, landscaping, traffic visibility and personal safety all need to be coordinated.

Exterior illumination should never be below one foot-candle, preferably more to provide a better sense of illumination and safety. Standard light posts and fixtures are preferred over bollards to provide a better impression of light levels as well as illumination of more than the walking surface. All exterior lighting should be vandal-resistant, directed downward and high lumen per watt per output source. Respect dark sky requirements and throw of light beyond college boundaries into neighboring areas of homes. Fully light all exterior circulation campus areas between buildings and parking areas. Exterior site lighting should be set up with two circuits, one of which is set to be on all night for lower level, twenty-four hour general security lighting. The second circuiting, representing a majority of the lights, will be tied to a timer or energy management system, allowing operation only during normal campus evening use hours. Provide 1" conduit and power (as needed for the particular equipment) to locations both on the building exterior and site lighting fixtures where designated by College Security for surveillance cameras and emergency call boxes.

3.8.2.5. Public Telephones

Provide emergency telephones or direct lines to College Security at strategic locations throughout campus. Provide at least one ADA accessible text telephone if pay phones are provided. Include a blue light on top of each.

3.8.2.6. All elevators shall have the capability to be key-operated after regular working hours.

Section 4. Non-Instructional Space Design Considerations

4.1 Offices

Offices typically are designed following an "office suite" concept, with several offices grouped within areas off central work areas or shared areas. This is to provide a sense of openness and welcome. At the college's option, faculty offices may open directly to public corridors or common spaces. Space allocation guidelines and design features for recommended office area(s) are as follows:

4.1.1. Administrative Offices

.1 President/Provost Office: 350 – 450 sf. This office may contain a work area or small conference area within the office. There should be a quad outlet at the desk/credenza area and a minimum of 1 duplex outlet on other walls and two telephone/data outlets per office (the second should be at the separate conference area if that is used). If the office contains different work areas, there may need to be some consideration for variable light switching.

.2 Vice Presidents, Deans, Associate Deans, and Assistant Deans: 200 – 275 sf. There should be a quad outlet at the desk/credenza area and a minimum of 1 duplex outlet on other walls, and 1 telephone/data outlet per office.

.3 Mid and upper level management, director, and manager: 120 – 175 sf. There should be a quad outlet at the desk/credenza area and a minimum of 1 duplex outlet on other walls per office. The size of the office is dependent upon meeting and visitor needs and special storage needs.

.4 Entry or lower level professional offices: 100 – 125 sf. Offices in this class and range are often being done with modular furniture, unless there is a significant need for user privacy, such as in counseling or financial services areas. The cost of the modular furniture must be accounted for in the FF&E budget. The modular furniture should be wired for power and data/telephone services. Typically, the modular units are attached or adjacent to permanent walls to allow power, telephone and data to be run without the use of raised flooring or power poles.

.5 Clerical and support staff: 65 – 100 sf per office, depending on the position and storage/workspace/visitor needs. These positions have often been set as normal furniture in open areas or as modular furniture set-ups. The open areas should be equipped with electrical outlets and a data/telephone outlet. Modular furniture should be wired for power and data/telephone services. Again typically, the modular units are attached or adjacent to permanent walls to allow power, telephone and data to be run without the use of raised flooring or power poles.

.6 Storage/Filing: Size as needed. Filing has either been traditional file cabinets, or for more intense record storage, compact/rolling filing systems. This area may be combined with the Copy/Workroom area.

.7 Copy/Workroom: 150 – 200 sf or sized as needed. Allow for multiple copy machines and some counter workspace for paper sorting/punching/assembly. Include power and telephone/data outlets adjacent to the copy machines and at the work counter for phone, fax machine, etc.

.8 Kitchenette/Lunch Room: The range is from 150 sf, which would provide a basic counter with sink (with garbage disposal), refrigerator and seating for a minimum of 8; to 375 NASF, which allows for the same features as the smaller area but seating for 24 – 30 occupants. This larger size also can include some informal lounge or work space. While not recommended, a lunchroom can be combined with a department workroom to allow for larger work/layout areas or large department meetings. This option should be thoroughly discussed and evaluated by a requesting department so that they understand the limitations of use that a combined room presents versus the advantages.

4.1.2 Conference Rooms

The range of conference rooms is from a small 4 – 6 person breakout area to a large, mass, combined workroom and conference area. Departments often request these with large numbers of faculty so that everyone may attend a departmental meeting at the same time, without having to stand. The smallest conference room, for 4 persons, should begin at 100 sf. Allow 15 - 18 sf for each additional seat in the conference room. A 300 sf room will seat 8 comfortably, 375 sf seats 12, etc. Provide electrical power and data/telephone services to be supplied to the conference table, often through floor boxes located under the conference table. Larger conference rooms should be wired and equipped for audio/visual presentations and provided with a projection screen.

4.1.3 Faculty Offices

.1 Division Chair: 160 – 185 sf. Provide a minimum of three duplex outlets (rear and both sidewalls) plus a quad outlet and one telephone/data outlet in the rear corner closest to the desk/credenza. The office should contain adjustable shelving for books and the opportunity to have a small table plus chairs for visitor meetings. To provide space for the shelving, we often offset the door 14" from the jamb and provide a full wall of shelving on the wall that the

door swings to, including the area behind the door. Provide a sidelight window adjacent to the office door.

.2 Department Chair: 140 – 175 sf. Provide a minimum of three duplex outlets (rear and both sidewalls) plus a quad outlet and one telephone/data outlet in the rear corner closest to the desk/credenza. The office should contain shelving for books and the opportunity to have a small table plus chairs for visitor meetings. Shelving location may be similarly situated as described in for the Division chair. Provide a sidelight window adjacent to the office door.

.3 Faculty Offices: 95 – 110 sf each. Provide two duplex outlets (front wall and rear wall corner opposite the desk) plus a quad outlet and one telephone/data outlet in the rear corner closest to the desk/credenza. All faculty office should contain shelving that may be similarly situated as described in for the Division chair. Often this shelving is started about 48” above the floor to allow a desk, file, etc. to be placed beneath the shelving location. Discuss with faculty whether they are more “paper oriented”, which would require additional filing cabinets or more “book oriented”, which would suggest more bookshelves, either built in or movable units. Depending on the office size, the opportunity to have an additional two-seat table and chairs or elongated desk for small meetings, enabling faculty to work side by side with students. Provide a sidelight window adjacent to the office door or in the door itself.

4.1.4 Visiting or Adjunct Faculty Office Space with Adjacent Meeting Rooms

With large numbers of visiting/adjunct faculty, colleges should provide a place for the faculty to prepare for class, store items between classes and meet with students, even though permanent, individual offices cannot be provided. Visiting and adjunct faculty rooms have been designed in a number of different ways, but all should be located (a) convenient to student access (b) convenient to staff support and (c) close to or within permanent faculty areas. All of these rooms are equipped with computers and telephones for the faculty’s use.

Some buildings have a small to moderate sized open room with counter workstations around the perimeter of the room. Above and below the counters is cabinetry, allowing locked drawers or wall cabinets for each visiting faculty member. Allow 25 – 40 sf per seat for this arrangement, with 42” to 48” of counter length per seating location.

A second design, used with larger groups of visiting or adjunct faculty, is a “hoteling” model, similar to what private industry has adopted when they have a high number of traveling staff. Modular office cubicles are provided and each visiting/adjunct faculty member has either (a) an assigned spot and lockable storage at the desk (multiple drawers or doors in a single piece of furniture, each single door/drawer being lockable and assigned to one person); or (b) has a rolling lockable storage cabinet, centrally stored and then rolled to any available office cubicle. Allow 75 sf plus circulation per seating position for this arrangement. All cubicles should be wired for power and data/telephone services. This second arrangement is larger than the work counter solution, but provides for more workspace and is more like an office environment than a call center.

With either design, provide one or two four-person conference rooms should be located adjacent to the visiting/adjunct faculty office to allow for small group meetings, private conversations, or counseling students. Provide a sidelight window adjacent to the conference room door.

4.1.5 Workroom/Faculty Resource Room

These rooms will vary in size, depending upon the functions and formality of the room. Most often, they combine large worktables, lots of perimeter work counters with wall and base cabinets, from formal conference tables to informal lounge furniture, and significant amounts of storage. The room often has a sink. These rooms should be sized as needed with no suggested standard. Some rooms serve as a small workroom; others are large enough to contain the department’s entire faculty in a single meeting location. Be careful if asked to combine lunchrooms with workrooms, as the room

typically can't perform both functions, creating conflict during many hours of the day. We recommend a small separate lunchroom for four to eight seats and tables, small counter with sink and disposal, and room for refrigerator, microwave, coffeepot, etc.

4.2 Custodial Closets

Provide one custodial closet for every 10,000 square feet of floor area (with a minimum of one custodial closet per building less than 10,000 sf). In multistory buildings, provide one at least one custodial closet per floor. In large floor plates, custodial closets shall not be placed any farther than 300 feet from each other. For all new construction, including remodeling and additions, verify any and all particular requirements for custodial closets requirements with the PM.

Ideally, custodial closets should be located near permanent service core elements, such elevators, toilets, or centralized among the areas they will service. Do not locate custodial closets on stair landings. Also avoid entrances to custodial closets that must pass through restrooms, mechanical rooms or similar intermediate spaces and vice versa.

The typical custodial closet floor area needs to be a minimum of 60 to 70 square feet (approximate dimensions = 8' x 8') preferably with high ceilings. In new buildings, or buildings with only a single janitor closet, the closet size shall be 100 sf, with an eight-foot minimum dimension, in order to store increasingly more common large maintenance equipment. The minimum size is 80 square feet for a second janitor closet if a water heater is included. Do not locate components of any life safety, telecommunications, electrical or mechanical systems in custodial closets. Specifically, the following shall **not** be located inside custodial closets:

- Desks
- Telephone panels
- Electrical panels
- Fire alarm panels
- Building security panels
- Water heaters (except if the closet size is increased to accommodate the heater)
- Circulation pumps for other than the water heater
- Mechanical equipment

A large capacity floor sink with hot and cold running water and a floor drain must be provided in each custodial closet. Sinks are best located nearer to the door, as opposed to the back corner, and should be positioned so cleaning machines and equipment can be maneuvered easily and emptied or filled in the sink. Provide stainless steel wainscot protection to 24" high at all walls immediately above the sink, a mop hanger/shelf combination, and faucet with bucket hook, wall brace, hose and bracket;

Custodial closet doors should open outward. A three-foot wide single door is adequate except in cases where the closet is wide and relatively shallow in depth, or oversize custodial equipment will be stored, such as in the main/prime closet on the first floor. In these locations, provide a double door or a single regular door with 12" to 18" inactive leaf.

In the main or only janitor closet, provide fifteen linear feet of shelving with a minimum of fourteen inches clearance measured vertically between shelves, on one or two walls as needed. At least two electrical duplex outlets are required in each custodial closet. Provide a timer lighting control. Lighting level design standard should be figured at 50-75 fc level maintained. Adequate ventilation and exhaust are essential, providing a minimum of fifteen air changes per hour. Barring fire rating restrictions, the door should have a ventilation louver. Place a fire extinguisher immediately outside the door.

Closet floors should be either vinyl composition tile or sealed concrete. Walls should be durable material with semi-gloss or gloss epoxy paint.

4.3 Telecommunication Closets

Refer to Part IV for the District's "Voice, Data, and Video Cabling and Outside Plant Guidelines for Maricopa County Community Colleges" for sizes, configuration, electrical and cooling requirements. Telecom closets require ¾" fire treated plywood, painted white, on three walls. Floors will be VCT and ceilings should gypsum board with a minimum 24" X 24" access panel to above the ceiling, located away from racks and equipment. Lighting should be incandescent, and on a push button timer/switch combination. Cooling is provided by an independent split system heat pump, although the building's primary HVAC system also may provide cooling in addition, so that the split system only is used when the building's system is off. NO other equipment, panel or items except data/telecommunications shall be in this room. Telecommunications closets may be entered directly from public hallways or through mechanical or electrical rooms, but no passage through a telecommunications closet to another space is allowed.

4.4 Restrooms

All restrooms shall be designed to comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG). Every building shall be equipped with at least one unisex/family restroom per floor. In facilities with large assembly areas, like performing arts centers, exceed minimum code required fixture counts. In other assembly areas, like large meeting rooms or conference centers, and in buildings that offer programs with predominantly female students, also increase fixture counts in female restrooms above code minimums.

All restrooms, regardless of size, shall have a purse or briefcase shelf in the general sink area, and floor drains with trap primers. Lavatory counters shall be solid plastic materials with self-rimming sinks for longevity and durability. Solid plastic toilet partitions also are preferred.

Confirm with each college if any restroom accessories will be provided by the college through their own vendors, such as paper towel or soap dispensers, toilet paper or seat cover dispensers, etc. All college provided items will be specified as owner provided, contractor installed. Floors and walls behind and immediately to the side of plumbing fixtures should be ceramic tile or similar material. Full height tile is preferred on the walls, but may be reduced to wainscot height and only the depth of the toilet stall on the side of the fixture if budgets are tight. Painted or epoxy painted "wet walls" are unacceptable.

Provide automatic door openers on all accessible restrooms. Install pull down diaper changing stations in all family/unisex restrooms.

4.5 Parking Lots

Parking and vehicular circulation at colleges needs to accommodate high peak traffic flows each hour as students arrive and leave campus over a fifteen to twenty minute time. Provide clear circulation and adequate stacking space for turns, setting up circulation so that driveways and major access to parking areas is not blocked by stacked cars waiting for signals or turns. Be sure to take into account the many different types of vehicles using the campus circulation system: students and faculty, visitors, service and delivery, and emergency vehicles. Design separated, safe circulation paths for bicycles and pedestrians from vehicles. While strong "gathering paths" through parking lots may be attractive design, students tend to walk the straightest path from their vehicles to their destination, regardless of formal circulation paths.

Parking lots should be designed as ninety-degree parking with two-way aisles to accommodate traffic flows and allow vehicles to pass while a car has stopped to wait for a space. Parking lot aisles should exit and access directly off main driveway circulation. At areas of heaviest vehicle use, more than one lane in either direction or when significant numbers of vehicles are turning, a center turn lane should be considered. Provide parking per ADA requirements at spaces closest to main sidewalk access

points. Also provide speed control features, such as speed “pillows” regularly along main driveways, and when approaching major crosswalks, to promote safety and reduce vehicle speed.

Due to higher noise levels from vehicles and car radios, pull parking areas and main driveways away from academic building locations, providing significant set back distance from curb line to the building. Consider designated short term parking at areas closest to student services, auto-teller kiosks, child care, etc. Provide pull-outs for drop-off and pick up at main pedestrian access points to the campus. For areas used for Dial-A-Ride or physically disabled transit, also provide shaded seating at the pull-out area.

Parking lots should contain separating landscaped islands, including ground covers and shade trees. Often, local municipal zoning or design guidelines are followed for these situations. All landscaping material should be thornless. Keep ground covers low and the bottoms of tree canopies high to provide complete views of all areas and increased safety. Trees that are used should provide light shade but not have so dense or wide a canopy as to block the view of security cameras.

Parking lots and pedestrian circulation through the lots should be designed using *defensible space* concepts. Circulation paths and parking areas should be well lit at night, providing actual and perceived safe pathways. Work with college security to locate emergency phone locations, security cameras, etc., in the parking lots. Both phones and cameras require power and conduit for data cabling. The college will identify tie-in locations for power and data for lighting and security.

Section 5: Consultant’s Submittal Requirements

5.1 General Requirements

5.1.1 Plans Review Process

The College Plans Review Process provides for review and approvals of schematic design, design development, construction documents and cost estimates. Each review occurs at or near the completion of each design phase and is handled through the PM who distributes plans and specifications to specific departments or individuals for review and comment. Review comments are transmitted back to the design consultant for consideration, response and discussion with the Project Team prior to incorporation or rejection. **The Consultant team shall respond to all Owner generated review comments through one or more of the following methods:**

- Acknowledged, reviewed and incorporated with no comments
- Acknowledged, reviewed and rejected (justification for rejection must be communicated to the Owner)
- Acknowledged and incorporated with modification into the documents within the spirit of the requested change

Once the review comments have been incorporated into the documents, the Consultant shall not change, replace, delete or modify the incorporated comments without notification to and approval of the Project Manager.

The review time required at each phase is approximately two weeks, but may vary depending on the project. The number of document sets to be submitted is stipulated in the Consultant's Agreement. The two-week period for each submittal phase must be accounted for and included as line items in all Consultant's proposed schedule(s). At the end of each review period, the PM will issue a letter to the Consultant approving each phase of the work, confirming the budget, the schedule and status of any variance, and authorizing the design consultant to proceed with the next phase.

5.1.2 The Review Process is used to verify that the project is being designed in accordance with these Guidelines, the education specifications and additional user input and review. The review stages generally are:

- .1. 100% Program Document
- .2. 100% Schematic Design.
- .3. 100% Design Development.
- .4. 50%/75%/90% of Construction Documents (percentage to be determined for each particular project)
- .5. 100% Construction Documents. (Bid or GMP Documents reviewed during bidding)

Submittal requirements for each stage are shown in the appendices of the Owner-Consultant Agreement.

5.2 Presentation Formats

5.2.1 Reports

All written reports shall be submitted in 8 ½" x 11" format. Major sections or parts shall be tabbed or marked in such a way that they are easily referenced. An electronic copy of the document shall be provided for the College's use in a previously approved software format. Provide one report draft for review by the PM prior to completing and issuing the Final Report Document. Be careful with color or pattern selection so that it shows and is easily distinguished from other colors or patterns when reproduced in black and white.

5.2.2 Drawings

All drawings must have the following minimum identification: Project Name as defined by the College, District Project Number, Date (including revisions), and the drawing identification and number. All project drawings shall be the same format and be on the same size sheet. The maximum sheet size shall not exceed 42" x 30". Lettering shall be neat, legible and easily reproducible.

5.2.3 Specifications Boilerplate

The PM will prepare certain sections of the Specifications Boilerplate and Division 1 that the Design Consultant will include within the final Construction Documents, including Project Schedule, Instructions to Bidders, Contract Form, General Conditions, Bond Forms, etc. In addition, the Consultant shall obtain sections and requirements on Close-Out activities and requirements to include in the Specifications. The PM will work with the Design Consultant on the review of all other Boilerplate and Division 1 sections.

The Design Consultant shall obtain the most recent edition and revised sections of Owner requirements and Specifications that will be bound into the final documents. **DO NOT** use versions, and **DO NOT** attempt to edit previous project's specifications for use on the present project.

5.3 Room Numbers

During the Schematic Design, the Design Consultant shall meet with the Project Manager to assign room numbers to all spaces. Room numbers are assigned to help users in way finding when the building opens, not for the convenience of the Design Team looking at a floor plan. (Room numbers used on the electrical consultant's panel schedule also end up on the panel cards and therefore also must correspond to the final room numbers from early in the design!) Upon approval, no changes shall be made to the numbers without the approval of the PM.

5.4 Bid Period/GMP Submissions.

The following information supplements the Standard Form of Agreement Between the Owner and Consultant.

5.4.1. Bid Documents Distribution

.1 Document Printing. The District will be responsible for document printing for traditional bids, using reproducible originals provided by the Consultant. For CMAR or Design/Build projects, the contractor may elect to print and distribute documents from reproducible originals.

.2. Bid Advertisement. The District's Purchasing Department is responsible for placing and paying for legal advertising required for public bids. The PM and Design Consultant will determine pre-bid meeting, prior approval deadline and bid dates.

.3. Document Distribution. The District's blueprint service will be responsible for bid document distribution, including management of deposits and addenda distribution. General Contractors may receive two complete sets with no partial sets being issued. Subcontractors and suppliers may receive one (1) complete set, again with no partial sets being issued. A refundable deposit check, in an amount determined by the PM will be required in each case. Deposit checks shall be made out to "Maricopa County Community College District." Documents must be returned within the specified time frame in order to receive the deposit check back. All remaining deposit checks will be delivered to the District and cashed following this cut-off date.

.3 Plan Services Distribution. Local plan services will each receive two (2) complete sets at no charge.

.4 Reproducible Drawings Management. One reproducible set shall be placed with the blueprint company. Only full sets will be printed, including the project manuals. The purchase of partial sets is not allowed.

.5 Owner's and Consultant Copies. The District will need a minimum of four (4) sets: one for Facilities Planning and Development, another for Procurement and two sets for the campus/user committee. Verify actual requirements with the PM. The Design Consultant team will receive one full set of documents for the lead and each sub-consultant.

5.4.2. Addenda

.1 All addenda shall be prepared by the Design Consultant and approved by the PM prior to issuance.

.2 The cut off time for issuing Addenda is seventy-two (72) hours prior to bid opening time. Under *very limited* circumstances, when the addenda is small and will have minimal impact on bidders, an addenda may be issued as late as forty-eight (48) prior to bid opening only with the PM's and Purchasing's approval. No addendum shall be issued or distributed after this cut off time unless the bid period is extended.

.3 All addenda shall be issued by the Design Consultant and distributed by the blueprint service. Addenda shall be placed at the front of the specifications and numbered for incorporation into the appropriate drawings or specifications sections. The addenda distribution must include all holders of plan sets, including those issued to the College. Addenda are **strongly** preferred to be in an 8½" X 11" format so that it may be fax'd as needed. Avoid reissuing entire sheets of drawings, instead providing bubbled portions of the overall drawing if the information can be communicated clearly and easily in this fashion. Sketches or modifications to drawings needed for Addenda should be done on the original CAD/D files and bubbled as Addenda items so that the drawing original always is up to date with the latest addenda (and sketches and ASI's, RFI's, change order requests, etc.).

.4 **Proof** of addenda issuance/receipts will be provided by the blueprint service to the District Purchasing Department no later than twenty-four (24) hours after issuance. Proof of addenda issuance and receipt are copies of fax transmissions and receipt or signed delivery forms/tickets.

5.4.3 Bid Opening Date

No bid opening date should be set for Mondays, Fridays or any day of the week following a national or statewide holiday. The Design Consultant and PM should research other bid openings for similar projects or that may attract the same group of contractors that may take place concurrently and make appropriate date or time change recommendations to the College to avoid conflicts and ensure favorable bidding conditions.

5.4.4 Post-Bid Submissions

The Design Consultant shall evaluate the bids and required, supporting documentation and shall submit a Bid Opening Summary and award recommendations to the PM.

5.5 Agency Reviews

5.5.1 As a political subdivision of the State of Arizona, per Arizona Revised Statutes [34-462](#). Community College buildings are exempt from local building codes pursuant to section 34-461, subsection D. The College is not subject to City or County ordinances (except as noted below) and is not required to obtain a building permit, except for work within the municipality right-of-way. State Fire Marshall review is required for all remodeling and new construction unless the local municipality has assumed Fire Code review from the Fire Marshal. The Consultant shall arrange for all regulatory agency reviews. Private plan review and site inspection for code compliance will be required for new construction and remodeling projects. The District will identify and contract with the Plan Review firm. Preliminary regulatory reviews should occur during the Schematic Design and Design Development phases.

The sole exception to the local code review and permits is Scottsdale Community College, which is under the jurisdiction of the Salt River Pima-Maricopa Indian Community for all construction work, including design review for new construction projects.

5.5.2 References to City or County building codes and regulations must be made carefully.

5.5.3 If required by the type of work, the College must comply with and the Consultant shall submit plans for review and permits to comply with County, State and Federal regulation:

- County Health Department approval for its food service facilities
- Municipal water and sewer connection fees
- ADEQ demolition permits and NESHAP permits as required
- ADEQ air quality activity permits
- County Health Department Storm water runoff prevention

5.5.4 The design consultant should contact the agencies listed above as appropriate to (1) determine if jurisdiction applies and permits are required, and (2) submit appropriate drawings and information required for permits. Permits must be ready for the contractor to pick up on the anticipated notice to proceed date.

5.5.5 Include in the project specifications a list of the permits required and contact for each permit. If the cost of the permit can be determined prior to bidding, the specifications shall include the requirement that the Contractor obtain and pay for the permits. If the cost of the permits cannot be determined prior to bid, include in the specifications either an allowance for the permits or a statement that the Owner will pay the cost of all permits by change order at direct cost without markup.

Section 6. Testing Services and Special Studies

6.1 General

The PM will select a geo-technical/soils and materials testing agencies for both the design and construction phases of the project. Every effort will be made to use the same firm for all phases of the testing work. The design consultant and sub-consultant will provide special inspections on items required by code, such as special structural or electrical inspections.

6.2 Design Phase

The usual services performed by the testing agency are:

- Test borings as required
- Tests and analyses of boring samples
- Consultations with structural consultants and foundation design recommendations
- Report preparation summarizing findings and conclusions for building foundations, parking lot and roadway pavements, general earthwork/compaction/backfill requirements etc.

Upon selection of a testing agency, the agency will work under the advice and direction of the structural and civil consultants. After the soils information and report become available, the Design Consultant, with input from the soils testing agency, will prepare the specifications for soils and related paving or structural work during construction. The specifications shall clearly define the scope of services to be performed by the soils testing agency during construction, as well as the responsibilities of the Contractor, including a suggested frequency of testing and reference to the proper testing requirement such as ASTM, MAG, ACI, etc. A draft of these specifications on soil work shall be submitted with the Schematic Documents Submittal for review.

Specifications provisions should be included requiring the Contractor to be responsible for the cost of re-testing and inspections of all rejected work. The testing agency will invoice the Owner separately for such work, which will be credited by Change Order to the District or paid for directly by the Contractor. The Contractor shall also be responsible for tests due to unnecessary delays in excavation, trenching, drilling, grading, etc., which prolong the work of the agency.

6.3 Construction Phase

The usual services performed by the testing agency are:

- Site grading and excavation observation
- Backfill operations observation
- Special inspections as required except those required by code or the local authorities to be provided by the engineer of record
- Typical materials testing, including A.B.C, asphalt, concrete, mortar, grout, welding, and fireproofing density/thickness.
- Utility trenching and backfill observation and other miscellaneous tests

The Design Consultant is responsibility to ensure that the specific provisions necessary to execute and complete all construction testing work are included in the Contract Documents. No "included by reference" for information provided in the project's geo-technical report will be acceptable unless the report is included and/or bound in the project specifications with the corresponding disclaimer(s), or is available for reading or reproduction at the same location(s) as the document distribution,

Section 7: Construction Administration

The following information supplements the Standard Form of Agreement Between the Owner and Consultant.

7.1 General

7.1.1. During the Construction Administration phase, the Design Consultant shall provide the services necessary for the administration of the construction contract as set forth in the General Conditions of the Contract for Construction, unless otherwise stipulated. The Design Consultant's duties and responsibilities during construction shall be as required in the Owner-Consultant Agreement.

7.1.2. Weekly job-site meetings should not be construed to replace the required construction field observation services or to set a minimum or maximum on the frequency of the on-site observation requirements. Observation schedules will be set by the Design Consultant and sub-consultants as appropriate to the phase and type of work in progress and be done as often as is necessary to assure that the work is being constructed in compliance with the Construction Documents.

7.1.3. The Design Consultant and appropriate sub-consultants are responsible for the review of all shop drawings, products data and other submittals stipulated in the Contract Documents that pertain to their specific trades and/or specialties. These reviews shall be conducted in an expeditious manner and shall not delay the progress of the construction work. Reviews shall be taken within seven (7) calendar days if review is by the Prime Consultant and within ten (10) calendar days if review is by a sub-consultant to the Prime Consultant. The parties at the Pre-Construction meeting may modify this requirement.

7.1.4. The Design Consultant shall distribute these submittals to the College, sub-consultants and field representatives as required in the Contract Documents. The PM will provide the Consultant with a list of all submittals that the College or PM wishes to review. The College requires two copies of all shop drawings as initially submitted: one for the campus representative and another for the PM. The submittals for the College should be distributed at the time they are received by the Consultant. College and PM reviews will be made as expeditiously as possible, with comments returned to the Consultant for his review and inclusion in the final review provided for the Contractor. The Design Consultant must maintain a complete log of these submittals and all construction related communications for the duration of the Construction phase. A copy of this complete log shall become part of the close-out documentation.

7.1.5 Informal walk-throughs during construction by the Operations and Maintenance Department and the PM will take place at the Owner's option or as requested by the Consultant or Contractor. Subcontractors and the superintendent will review with College representatives portions of the project concerning their trades, or that may be impacted by operation and maintenance once they are closed in. Suggestions for corrections and/or modifications shall be forwarded to the PM whom will review the information with the Design Consultant to determine is action if required.

7.1.6 A complete set of all reviewed submittals, samples and shop drawings shall be provided to the District at the completion of the project.

7.1.7 All Contractor requests for reduction of retention will be reviewed by and agreed to by the Consultant by making a written recommendation to the Owner for the reduction. Consent of Surety must be obtained for any retention reductions.

7.2 In Progress As-Built Record Documents

7.2.1. The Owner-Contractor agreement requires the Contractor to submit reproducible record drawings reflecting as-built conditions. To ensure accurate as-built drawings, the Design Consultant shall review as-built conditions and changes that may have taken place during the prior month with the Contractor during each monthly payment application review meeting. All changes to drawings made for RFI's, COR's, etc., should be made to the original CAD/D files so that a completely updated set of base documents is available to the Contractor for As-Built purposes.

7.2.2. The District's construction Agreement requires the Contractor to record all changes to drawings and specifications as they occur on the job site and to deliver these as-built record drawings and specifications in reproducible format to the Design Consultant upon completion of the work. In addition, shop drawings, field notes, change orders, ASI's, RFI's, correspondence and the Design Consultant's own set(s) of field drawings must be incorporated in a final record set.

7.2.3. At the conclusion of construction, the Contractor will incorporate all changes on the tracings and properly note them as "as-built, a change order number, or any other appropriate designation. The Specifications will be annotated to show the actual products used on the project.

Section 8: Project Closeout

The District requires the following record documents and activities at the conclusion of the construction for its records. The Design-Consultant will review all Contractor submittals and information to ascertain, to the best of the Consultant's knowledge, that the information is complete and accurate.

8.1. General

The General Conditions of the Construction Contract contains instructions and requirements of the Contractor, the Design Consultant(s) and the College for acceptance of the project. The College also has internal procedures for turning over the project to the Operations and Maintenance Department. The Design Consultant is responsible for including in the Specifications the obligations of the Contractor for an orderly acceptance and turnover. Included in such obligations are punch lists, "as-built" plans and specifications, operation and maintenance manuals and training of maintenance personnel.

8.2 Substantial and Final Completion

8.2.1 When the Contractor feels that the project has reached Substantial Completion, he will submit a written request to the Design Consultant for Substantial Completion Inspection, including a punch list. The Design Consultant will send the PM a copy of the punch list and establish the date for the inspection. At the same time, the PM and representatives from District and College will schedule and complete a separate punch walk-through, forwarding appropriate items to the Design Consultant. The District's and PM's items will be reviewed by the Design Consultant ahead of his inspections and be included on the punch list for the Contractor. The PM and College representatives will only participate in two inspections: the Substantial Completion inspection (or an inspection with the PM and Design Consultant alone) and one (1) re-inspection. It is the responsibility of the Design Consultant to determine which items must be completed prior to this Substantial Completion Inspection.

8.2.2 When the Contractor makes a request for Substantial Completion, the Design Consultant and sub-consultants will work with the Contractor to provide a punch list and then make a recommendation to the Owner whether the project meets the Agreement's requirements for Substantial Completion. Additional inspections may considered additional services and may be back-charged to the Contractor if significant costs are incurred or multiple inspections/reviews are needed to achieve completion of the punch list.

8.2.3 Equipment start up, preliminary test and balance, and satisfactory operation of all building systems and equipment is required to show that the work is functionally ready for occupancy as per General Conditions, and must be completed before the work is considered Substantially Complete.

8.2.4 After the Substantial Completion inspection, the Design Consultant shall issue the Certificate of Substantial Completion and a final punch list. The Contractor must correct incomplete or defective work within the time stipulated for final completion. One Substantial Completion re-inspection is included in the General Conditions. When all punch list items are complete, the Contractor will call for

a Final Inspection where the Design Consultant and his team will ascertain whether all items have been completed and if so, issue a letter of stating that all punch items have been corrected to the Consultant team's satisfaction.

8.2.5 Additional punch list items that are discovered following issue of the initial Punch List to the Contractor may be added to the punch list or treated as a warranty item at the PM's and Contractor's option.

8.2.6 Both Substantial and Final Completion is a determination made by the PM based upon the Design Consultant's recommendation.

8.3 Project Record Documents and Activities

As a requirement to achieve Substantial Completion, the Contractor is required to provide a draft submittal of Operations and Maintenance and operation and maintenance training necessary for the Owner's personnel to maintain operation and occupancy of the facility has been completed. Final Completion will be attained when all required close out documents are received, reviewed and accepted, when all other required close-out activities are completed, and all paperwork and forms for Final Payment have been received.

8.3.1 Project Record Documents

The Contractor will provide a complete set of reproducible mylars, two edge bound blue-line or blackline sets reproduced from these mylars, two CD-ROMs of the electronic As-Built drawings, and complete set of project Specifications noting all changes from the original document. Final Record Drawings will update the original Drawings indicating all field changes that were made to adapt to field conditions, changes resulting from Supplemental Instructions or Contract Change Orders, and all concealed and buried installation of piping, conduits and utilities services installed or changed as part of this Work.

All buried and concealed items both inside and outside the facility shall be accurately located on the final Record Drawings as to the depth and in relationship to not less than two permanent features, such as interior or exterior wall faces or corners. Also include hard copies and electronic copies of all systems designed by subcontractors, such as fire sprinklers or fire alarm systems.

The Contractor may sub-contract this work back to the Design Consultant to complete, with the appropriate disclaimers from the Consultant.

8.3.1 Extra materials

In addition to the operations and maintenance manuals, the Contractor will deliver maintenance material, surplus stock, tools, keys and other items to a place designated by the College. These items shall be itemized on a materials transmittal (in duplicate), giving the project name, job number, Contractor's name, reference to the specification section, and number and complete description of the items. The description of the items shall include the manufacturer's name, supplier, order number, kind/type/model, color and color number for all items considered maintenance replacements. The College representative will inventory these items at the time of delivery, sign for, and retain one copy of the transmittal.

8.3.2 Final Listing of Architectural Finishes

The Contractor will provide a listing of all finish materials including manufacturer, local supplier(s), and model(s), line(s), pattern(s), finish/sheen/luster (flat, semi-gloss, etc.), finish coat vehicle (latex, acrylic, alkyd, varnish, epoxy, etc.), and/or color(s) used.

8.3.3 Record Shop Drawings, Samples and Submittals

The Contractor will provide one full set of the final and approved shop drawings and submittals to the Owner at the closet of the project.

8.3.4 Building Official's Certificate of Occupancy and other similar approval documents

8.3.5 Site Utilities Location, documented by the Project's civil engineer or a professional utilities locating firm to identify, locate and record the locations of all new and modified site utilities on the project, beginning at the outside face of the building. This final product is an electronic file in AutoCad format (confirm version with Owner) that can be inserted into existing electronic documents showing utilities.

8.3.6 Operations and Maintenance Data

Loose leaf binders prepared by the Contractor and reviewed by the Design Consultant and all applicable sub-consultants for accuracy and completeness, containing information on operations, maintenance and cleaning of all products, materials, equipment and finishes placed into the Project. The District will provide closet document and activity specifications to the Design Consultant to include in the Contract Documents.

8.3.8 Instruction of Owner's Personnel

8.3.8.1 After the Design Consultant's Substantial Completion inspection, an Operations and Maintenance pre-training walk-through will be scheduled with a one week advance notice to all parties by the PM. Attendees shall include the College's operations and maintenance personnel, Design Consultant(s) and any specialized associates and/or representatives, mechanical, plumbing and electrical foremen, the Project Superintendent and the PM at his option. Copies of the operation and maintenance manuals will be provided at the beginning of this meeting. The operation and maintenance manuals shall be separated or organized by trade.

8.3.8.2 The Contractor must videotape the training walk-through. Upon completion of the walk-through, the building shall be turned over to the College for maintenance as of a specific date in writing, stipulating such exceptions as may be noted in the Certificate of Substantial Completion and/or Commissioning Report(s). Until the Contractor completes Owner training and submits Operations and Maintenance Manuals, the Contractor will retain the liability for improperly maintained or operated systems or equipment.

8.3.8.3 On large projects, the project Specifications should include a stipulation requiring adequate work hours for each foreman of the mechanical, plumbing, electrical and other specialized trades to provide additional training or trouble-shooting explanations to the College's Operation and Maintenance personnel. These hours shall be in addition to the Training Walk-Through time.

8.3.8.4 On small projects (minor remodeling, in-house design and others as established by the PM), the formal procedures outlined in paragraphs above may be streamlined. The PM will discuss the turnover steps with the College's Operations and Maintenance Department, arrange for whatever walk-through or inspection(s) that are warranted. The College will notify the PM upon completion of all requested training and reviews.

8.4 Final Consultant Calculations

The Design Consultant shall include as part of the as-built documents a set of any revised/final structural, mechanical and electrical calculations if they differ from those prepared during the design phases. The submitted material must be clearly labeled "as-built" and dated.

8.5 Final Application for Payment

The Contractor must submit the following prior to, or include these with, the final Application for Payment the following per the General Conditions:

- Completion of all punch list items

- Affidavit that payroll, bills and all subcontractors due payments have been paid or otherwise satisfied.
- Insurance certificate for insurance during warranty period.
- Consent of surety to final payment.
- All applicable lien waivers, including final, or conditional final, lien waivers from all subcontractors and material suppliers.
- All required close-out materials and Record Drawings and Specifications, including fully marked up as-built drawings and electronic files, warranties, operating manuals, and assignments as required, to be reviewed and approved as to content and completeness by the Consultant, and
- All specified training of Owner personnel

At the completion of all punch list work, review of the As-Builts, Operations and Maintenance Manuals and other all other requirements for Final Completion and Project Close-out, the Design Consultant will issue a written notification to the Owner indicating that: (a) all work is complete and satisfactory (b) all close-out requirements have been met and are satisfactory, and (c) recommend final payment and release of all remaining retention to the Contractor. The Design Consultant shall review the aforementioned material and any other project-specific requirements and certify the final certificate for payment.

8.6 Slides, videotape or photographs

When professionally taken slides, videotapes or photographs are taken of the project, the District will have the option to purchase one copy of the media at the rate normally charged to the Design-Builder by the photographer for additional copies at the time of the original shooting. Proper credit to the photographer and Design-Builder will be provided as appropriate if any of the media are reproduced by the Owner. The Owner will have unlimited internal use of these materials.

8.7 Design Deficiencies Following Substantial Completion

If College's complaints are neither a maintenance or warranty issue, the Operations and Maintenance Department will contact the PM and recommend a solution(s) or request assistance. If a problem is a design deficiency, the PM will discuss the matter with the facility users, the Design Consultant and the Contractor to formulate a solution and request corrective work.

8.8 Warranty

The District's General Conditions of the Construction Contract require a **two year** warranty period, unless specific longer warranties are required by the Specifications or are provided as standard practice by the manufacturer. Special provisions or drawing notes shall not reduce this requirement. Following acceptance of the project, the Operations and Maintenance staff will perform routine maintenance in accordance with the operating manuals with the first scheduled maintenance measured from the date of turnover. All failures during the warranty period are the responsibility of the Contractor.

Section 9: Contracts and Procurement

9.1 Standard Contract Provisions

The District uses the following contract forms:

- MCCCC Owner-Consultant Agreement (custom document)
- MCCCC Owner-Contractor Agreement (custom document)
- A.I.A. A121, Owner- Construction Manager at Risk Agreement, with MCCCC modifications
- A.I.A. A201, General Conditions of the Contract for Construction, with MCCCC modifications
- MCCCC Owner- Design/Builder Agreement (custom document)

The District will provide copies of its standard contract forms to the consultants and contractors.

See PART III, Division 1 regarding the College's standard Division 1 General Requirements.

9.2 Procurement Responsibilities

9.2.1 The District's Purchasing Department is responsible for managing the technical bid process, assisted by the PM and consultant. FPD provides the following items to the consultant to be included in the Project Specifications manual.

- Project Summary Sheet and Schedule
- Bid Submittal Form listing all alternates, unit costs, etc. (Design Consultant to coordinate with the PM as well as provide a separate section within the specification boilerplate with detailed description of each alternate, unit cost, etc.).
- Statutory Bid Bond Form
- Statutory Performance Bond Form
- Statutory Payment Bond Form
- Non-Collusion Affidavit
- General Conditions AIA A201 with MCCCCD modifications
- Bidders' Information Form
- Instructions to Bidders

9.2.2 The PM will chair the pre-bid conference. Purchasing will open the bids, issue the Contract and Purchase Order. The consultant does not need to attend the bid opening. Purchasing and FPD will ensure that all paperwork is submitted, including Payment and Performance Bonds and Insurance Certificates.

9.2.3 All bids are received at the Lobby Reception Desk of Maricopa County Community Colleges District Support Services Center (DSSC), 2411 West 14th Street, Tempe, Arizona 85281-6942.

9.2.4 The consultant may be asked to review the bids and alternates, as well as assist in reference checking for the lowest responsive, responsible bidders.

Section 10. Consultant Billing Procedures and Format

10.1 Procedures

The Following information needs to be included on each invoice submitted to the District:

1. Consultant's invoice number
2. Invoice date
3. District's project title
4. Purchase order number. Payment of invoices that do not contain the correct, current PO number probably will be delayed.
5. Number of invoice pages
6. Dates covered by the invoice
7. Listing showing original fee amounts and any approved amendments

8. Line items listed by phase for all Basic and Additional Services showing amount previously billed, current billing and remaining balance

9. Attach documentation for all services procured as "not to exceed," as well as unit prices. (For example: hourly rate with a maximum Not to Exceed (NTE) figure, or five (5) site visits at \$75.00 per visit, etc.)

10. Do not include past due billings in the current invoice. If an approved amount is past due, the PM should be notified directly and will confirm payment independently from the current billing.

10.2 Reimbursable Expenses

10.2.1 Provide an itemized list and complete documentation for all reimbursables.

10.2.2 Acceptable Reimbursables

During initial contract negotiations, the District and consultant need to reach agreement on unit prices for the following:

.1 For employees or sub-consultant based outside Maricopa County:

- The number of trips outside Maricopa County to be included in the Basic Services (the cost of travel, meals and lodging are to be included in the Basic Services fee).
- Trips in excess of the above, if authorized in advance by the District, to be billed at rates not to exceed the State of Arizona Travel Manual and reimbursement rates (<http://www.gao.state.az.us/travel/>)

.2 If the District requires the prime consultant or any sub-consultants to travel out of Maricopa County, reimbursement shall be in accordance with the State of Arizona Travel Manual (rates vary depending on the destination).

.3 During contract negotiations, the District and consultant should reach agreement on unit prices for the following:

- For in-house reproduction, a photocopy per page amount, and a blueprint per square foot amount
- A per page charge for faxes if applicable
- There shall be no reimbursement for plotting or printing of documents used only in-house or between the prime and sub-consultants
- The cost of postage and long distance calls between the in-house and out-of-town consultants or employees shall be included in the Basic Services fee. All other postage and long distance charges shall be reimbursable.
- Local cellular phone charges (to or from a cellular phone) are not considered long distance charges and will not be reimbursed unless specifically authorized by the Owner.
- Office expenses at the site are applicable only if the consultant is required to establish an office at the site by the Agreement

10.2.4 Final Billing

In addition to the information provided above, all final invoices submitted to the District for Basic Services and Reimbursables must include an "Available Balance" tabulation for "not to exceed" allocations such as site investigations, construction inspections and reimbursable expenses.

- End of Guidelines Part I -