Support Spaces and Functions Design Requirements
Maricopa Community Colleges Projects

The following guidelines apply to support spaces and "non-assignable" spaces within District projects. These guidelines are in addition to or serve to narrow some specific requirements of the consultant team's normal design work and specifications. This ed spec section should be reviewed and then modified for each project, but only on "CONFIRM" options noted below or to increase the final requirement over what is listed below; requirements should not be lessened or deleted.

Some recommendations or options below differ between colleges and must be verified for each project. We've noted these with a "**CONFIRM:**" below. For all other information and requirements, **NO** deviation should be made without specific review and approval first, by the Facilities Planning Project Manager, followed by the College Facilities Director or College. **These requirements represent minimum requirements for all Maricopa facilities. Designs may increase these requirements, but should not decrease them.**

These standards are intended to serve as a tool for colleges, design professionals, construction managers, planners, and other participants in capital improvement efforts. They represent the District's "strong preference" and should be applied, when possible, without compromising the creativity and/or ownership of the overall design. They do not diminish or eliminate the standard of care owed by a consultant to the District or relieve a consultant from any professional responsibility, duty or due diligence required toward the work[1].

All equipment is intended to be contractor furnished, contactor installed (CFCI) unless specifically noted at OFCI (owner furnished, contractor installed) or OFOI (owner furnished, owner installed).

AREAS/USES:

Building Support
Custodial Closets/Custodial Storage
Mechanical Rooms
Electrical Equipment Rooms

Restrooms
Primary Public Restrooms
Family Assistance/Unisex Restrooms
Faculty Restroom

Lactation Rooms

Circulation
General Circulation/Primary Corridors
Stairways
Elevators and Elevator Equipment Room

Data and Communications
Data Rooms
Data/Audio-Visual/Security Low Voltage wiring conduit and cable tray

In Development:
Faculty Offices
Faculty Workroom
Adjunct Faculty Group Space

1. *Wording from the SMCCCD Design Standards and Construction Specifications Intent & Instructions, Deviations, and Updates 8-2013*

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

Locate the primary/general building custodial closets with the balance the restroom core. Occasionally, a separate custodial closet will be required by codes, such as part of a commercial kitchen.

Custodial closets should have direct access from corridors or general use spaces. Access through restrooms into custodial closets is not allowed.

The mop sink may be set against one wall or in the corner, but should be located closer to the door rather than against a far wall. This will allow easier access to the sink along, will maximum unimpeded storage area and minimize space lost for circulation. The room door should swing outward as long as it will not block or pose a danger to circulation paths.

CONFIRM: if any heavy duty custodial equipment with rechargeable batteries will be stored in the room, provide additional power and ventilation if the batteries off-gas during recharging.

Estimated or minimum floor

Primary custodial closet on the grade level floor shall be 100 square feet on the grade level floor, which includes storage space for custodial supplies. If general custodial supplies storage is part of a separate custodial storage room or included in a larger, dedicated general building services storage room, this primary custodial closet can be reduced to 80 square feet. The minimum dimension of this room shall be 8'-0".

Each floor above or below grade (except unoccupied basements, orchestra pits, storage areas, etc.) larger than 3,500 sf shall have at least one 80 square foot (10' X 8') custodial closet. Secondary custodial closets, such as required with commercial kitchens, and additional floors less than 3,500 sf, may be 48 square foot (6' X 8') The minimum dimension of these rooms shall be 6'-0".

NOTE: If any equipment or features are added/located within a custodial closet, such as mechanical or plumbing equipment (except a single water heater), fire sprinkler system riser, roof access ladder, etc., increase the size of the room as needed to accommodate these additional items so that the basic open space provided for custodial use still meets the 100 sf/ 80 sf/ 48 sf requirement listed above. Usable clearance/clear space in front of these items (such as clear space in front of panels) may be included in the basic space requirement.

Construction requirements

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)

B. Special room finishes or room characteristics
   a. Flooring: sealed concrete, rubber base at the wall.
      CONFIRM: VCT floor may be used at college option.

   b. Ceiling: gypsum board or open ceiling. If open ceiling, the walls need to run full height and seal to the deck above.

   c. Walls: gypsum board with epoxy paint throughout the room.

d. Special characteristics: 48” high stainless steel or FRP wainscot immediately behind the floor sink and at walls immediately adjacent to the sink exposed to water splashing, hung mops, etc.

C. Storage, work or counter surface, and storage cabinet or shelving

CONFIRM: shelving and storage requirements with the College. Some prefer free standing metal shelving (OFOI), others may request metal/wire shelving, built-in adjustable shelving or built-in fixed shelving. Built-in fixed or adjustable shelving shall be durable, strong construction, extra thick shelves and supports for heavy loads, generally of exterior plywood or other moisture resistant wood, epoxy painted or sealed to protect against moisture.

CONFIRM: Shelves typically are 12” deep along one wall, spaced at 14” o.c. vertically, to about 7’ above the floor.

D. Wall display/work surfaces

E. Other special features

F. HVAC

Continuous exhaust ventilation

G. Plumbing

Provide a minimum 24” X 24” molded stone, one piece, floor mounted mop sink with integral stainless steel strainer, chrome plated supply fitting for hot and cold water with integral vacuum breaker, ¾” hose thread and wall brace. Include 30” of heavy duty flexible rubber hose and hose bracket. Seal all floor and wall joints with silicone sealant.

CONFIRM: If a separate cold water source for automatic chemical mixing devices near the floor sink is required and if so,

CONFIRM: If the additional connection is a faucet with hose or hose bib.

Hot water heaters may be located in custodial closets or general mechanical rooms. In either location, provide a pan underneath each water heater and drain line to the mop sink or a floor sink. This will require the heater to be mounted on a raised platform so that the pan drains by gravity into the mop sink. Small water heaters may be suspended above the floor, with the pan piped directly to the mop sink.

If the hot water heater is electric and/or an electric circulating pump is provided, also provide a 24 X 7 multi-programmable time clock for both the hot water heater and pump to allow both to be shut down during unoccupied hours.

Provide a floor drain with trap primer near the sink.

H. Special fire protection, security or other general needs

I. Electrical (lighting and power)

NO electrical panels, energy management, security, fire alarm or other special systems panels or equipment is allowed in custodial closets.

Provide adequate lighting in the room. Control lights with a digital time switch with push button manual on/off similar to Wattstopper TS-400. Provide fluorescent tube light fixtures either with lenses or wire guard.

Provide two duplex outlets, one 20 amp near the door for custodial equipment and the second near the sink.

CONFIRM: if additional outlets are needed for battery recharging. Confirm type, voltage, amps, etc.

J. Communications (data, etc.)

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
Mop hanger	24" to 30" long stainless steel with three (3) rubber tool grips, installed above the mop sink.
Paper towel dispenser	OFCI
Trash can	OFOI
Storage shelving	OFOI **or** built in by contractor

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

Group all permanent building support areas (mechanical, electrical and data rooms) within the same area of the building where possible and practical. Locate these rooms so that they are **NOT** in the middle of other softer uses, like instructional space, which would significantly limit future remodeling opportunities.

THE DISTRICT'S STRONG PREFERENCE IS TO HAVE THE MAIN AIR HANDLER ROOM ON THE GRADE LEVEL FLOOR WITH DIRECT EXTERIOR ACCESS. If the main mechanical room is not proposed on the first/grade level floor, the request must be made very early in the design work and receive approval by both the Project Manager and the college. We expect that all new buildings should be able to meet the grade level requirement.

Primary mechanical equipment, such as air handlers, shall NOT be located on roofs or in below grade areas *(see below)* without the specific review and consent of the Facilities Planning Project Manager and college Facilities Director. The District's strong preference is to have air handler rooms for each floor (the District's cost and space models provide for this), or if floor services are combined in a single air handler, place the primary air handler room on grade level, with direct access from the exterior through an oversized (height and width) double door.

Provide adequate circulation and service space around all equipment, including all sides of the air handler. Show coil pull configuration on the construction documents. Confirm adequate space is available without having to remove walls, for coil and shaft replacements, servicing of all bearings and belts, etc.

Arrange all pipe, valves, panels, etc. so that breakers, valves, handles, etc. may be reached, serviced and operated easily, without having to reach through other piping, balance on a ladder, etc.

If a mechanical room is located on a floor above the main, grade level floor, the following features must be provided:

- Provide a wide corridor along the entire route from the mechanical room to the elevator to allow large carts or transporting movers to travel from the mechanical room to the elevator. Watch tight corners, etc. Provide an oversize double door from the mechanical room to this corridor. All portions and pieces of the air handler and other equipment located in the mechanical room shall be able to be moved to and use the elevator for replacement and service except for the largest segments of the original air handler or equipment itself.
- The air handler room shall be located on an exterior wall, allowing fresh air make-up and relief through the wall, as well potential replacement of the largest pieces of equipment or the air handler through the exterior grille work.

CONFIRM: if the mechanical room(s) are located either below grade or at roof level, obtain both the project manager's and college facilities director's permission before proceeding with any design of the space.

If a main mechanical room is located on the roof, the following features must be provided:

- All equipment, including air handlers, shall be contained within a roofed, enclosed structure. No exterior rated, unprotected air handlers shall be allowed.

- The mechanical room floor shall be flush with the finished roof surface to allow easy service circulation for cart or other heavier equipment.
- A normal stairway (not a ladder or ship's ladder) shall be provided from the occupied floor level below, up the exterior of the building, through an oversize access hatch or through a roof penthouse enclosing the stairway. We prefer that this stairway come up directly within the mechanical room. If the stair is separated from the mechanical room, a solid, durable walkway/service path must be provided from the mechanical room to the stairway and service lift area, to allow carts with heavy mechanical equipment to move across the roof without damaging the roofing.
- Locate this stairwell to provide easy and reasonable equipment access through the building once reaching the floor below the roof. Provide wide corridors, double doors, etc. as needed to allow equipment brought down the stairway area to reach the exterior of the building. Where this roof stair lands on the second or higher floor of the building, locate the stair close to, or provide easy and adequate corridor access to the elevator for moving the equipment to grade level.
- Provision must be made for lifting or lowering heavy equipment or components from the roof to either the next occupied floor below or directly to grade level outside the building. Nearly all components and equipment in the room should be able to be serviced without needing a crane. Provide either a davit (along with power) for a chain hoist, or provide a support beam within the roof top stair penthouse for the chain hoist (again, along with power). Configure and size the stairs, penthouse or hatch such that equipment can be loaded off carts onto the hoist and then lowered down to the floor (or grade) below and land on a flat landing area, then moved through the building to external servicing. Demonstrate this arrangement during early design.
- If the stair access to the roof is located remotely from the mechanical room, provide general roof lighting on emergency power or battery back-up, to allow safe access from the hatch or stair to the mechanical room during power outages. Locate the switch for this lighting at the lower end of the stairs and include a pilot light.
- If provided to allow direct loading of equipment off the roof to exterior grade level, locate the davit above areas that can be easily accessible by service vehicles. Provide a solid, durable service path over the roofing from the mechanical room to the davit location.

If a main mechanical room is located in a basement or sub-grade location, the following features must be provided:

- Fresh air make-up, air relief and adequate access for equipment removal shall be through an exterior well. This well should be placed to allow safe and easy access by maintenance vehicles. The well shall be sized to allow the largest segment/section of the equipment, and the largest piece of the equipment itself to be installed and removed through the well. The wall surrounding the well shall be elevated at least 12" above grade to prevent local flood water from entering the well. Do not allow roof drain leaders or roof drains to empty into the well. Protect the well opening at the top with open grating for safety and security. The grating should be designed to support the weight of people walking on it.
- The mechanical room floor shall be flush with the lower floor level if other occupied areas exist below grade level, to allow easy service circulation for cart or other heavier equipment.
- Access to the mechanical room shall be via a normal stairway (not a ladder or ship's ladder). The District's preference is that this be an internal stair inside the building if the location and layout allow. Review code restrictions whether a second exit/stair is needed. If the building is multiple story (above grade) and has an elevator, the District's preference is to have the elevator also serve this lower equipment room level for easier access and equipment servicing. If the building has other occupied space below grade which is served by the elevators, provide a wide corridor along the entire route from the mechanical room to the elevator to

allow large carts or transporting movers to travel from the mechanical room to the elevator. Watch tight corners, etc. Provide an oversize double door from the mechanical room to this corridor. All portions and pieces of the air handler and other equipment located in the basement shall be able to be moved to and use the elevator for replacement and service except for the largest segments of the original air handler or equipment itself.

- If access stairs to the mechanical room are provided within the well, all service and maneuvering space for equipment shall be provided without having to remove or move any portion of the stair. Provide a means of securing access to the stairs to prevent any unauthorized access into the well. This may be done with removable grille sections, etc.
- Provision must be made to allow lifting or lowering heavy equipment or components from grade level into and through the well. Allow enough room around the well for a small crane. A davit or small beam for a portable hoist may be provided at the well as the college's choice.
- Air grilles from the well into the mechanical room shall be able to be removed fully to allow equipment to me moved in and out of the well. Provide an oversize double door from the mechanical room into the well to allow smaller equipment into the well without removing the grilles. Size the well, mechanical room directly adjacent to the well and the placement of all equipment in the room, to allow the largest segment of the air handler or other equipment to be moved or aligned within or before reaching the well, and then be lifted out of the well.
- Provide and assure adequate drainage from the well from large storms, potential broken pipes, etc. Do not rely solely on dry wells. Provide a pair of sump pumps or single unit with dual pumps (primary and back-up) on emergency power back up to operate the pumps during a storm outage. Provide pumps with a separate or integral battery backup if emergency power is not otherwise available at the building. Backup power may be deleted with the College's consent, if drywells providing 150% of the heavy storm projected water drop over an eight hour period are provided in the well (be sure to take into account any wind driven rain water that may run down the building into the well.) Do not mix storm drainage pumps and systems with domestic pump or drain systems required within the mechanical room. Drain pipes from the pump shall have check valves to prevent drainage from above ground outlets from entering the mechanical room. Daylight drain pipes well above grade, away from the well opening. Well bottoms may be located slightly below the mechanical room floor line to provide additional flood protection/water retention.

Estimated or minimum floor area is generally <u>about 3.5% of the total building area, but not less than 750 square feet per mechanical room (with a single air handling unit)</u>. Each mechanical room will be sized based upon adequate space for all equipment, including access, service and circulation needs.

<u>Construction requirements</u>

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)
   Provide minimum 60 STC sound rated walls for mechanical rooms with large air handlers or other equipment that generates noise where this room abuts any occupied spaces. Seal all penetrations through these walls for noise containment (ALL pipe, duct, conduit, or other penetrations).

B. Special room finishes or room characteristics
   a. Flooring: sealed concrete with rubber base at gypsum board walls.

   b. Ceiling: open to structure.

c. Walls: gypsum board, masonry or other permanent finished wall. Extend walls up to and seal to deck above. Walls to have additional sound resistance.

d. Special characteristics: Housekeeping pads at all equipment. Provide vibration separation for any equipment in the room that can induce higher levels of vibration and noise into the slab or adjacent occupied areas (like compressors, etc.)

C. Storage, work or counter surface, and storage cabinet or shelving

D. Wall display/work surfaces

E. Other special features

F. HVAC

At new chilled water piping, install a "Y" sieve and strainer on the supply and return main riser to protect the new equipment and campus system. All chilled water piping must be chemically cleaned, flushed and inspected by the college before opening the building system to the campus system. Obtain the college's specific requirements for flushing of new piping prior to opening the piping to the general college system.

Chilled water piping at the main air handler shall be in a "reverse flow" configuration.

Provide 100% outside air, fresh air make-up capability at main air handlers. Size air handler coils to allow use of 51°F supply chilled water from flat plate operation during extended use.

OBTAIN OTHER DISTRICT REQUIREMENTS FOR THE MECHANICAL SYSTEM DESIGN FROM FACILITIES PLANNING.

G. Plumbing

Provide and locate floor sinks close to the air handler. Where the mechanical room also is used as a plenum air return, provide trap primers for the floor sinks. Coordinate floor sink locations so that condensate pipe from air handlers does not have to run across circulation or service areas, or become tripping hazards.

Where roof top split/condensing or package units are present, provide at least one hose bib on the roof close to the condensers for wash downs and other service needs.

For hot water heaters located in mechanical rooms, see Custodial Closets for the requirements.

H. Special fire protection, security or other general needs

I. Electrical (lighting and power)

Electrical panels, security, fire alarm or other special systems electrical panels MAY be located in mechanical rooms. The energy management system controls and panel should be placed in the primary mechanical room.

Provide adequate lighting in the room, coordinated with equipment locations. Control lights using a digital time switch with push button manual on/off similar to Wattstopper TS-400. Provide fluorescent tube light fixtures either with lenses or wire guard.

Provide emergency lighting in the mechanical room to allow examination, repairs and restart of equipment during power outages.

Provide at least three duplex outlets for general use, equally spaced and easily accessible around the room perimeter. Locate the EMS panel in an easily accessible and serviceable

area and provide an additional 120v outlet for the energy management system. Provide a ¾" empty conduit with pull string from the EMS panel location to the nearest data room for the EMS system data tie-in.

Where roof top condensing units are present, provide at least one convenience outlets on the roof close to the condensers for service needs.

J. Communications (data, etc.)
Provide an additional voice/data location in the mechanical room for computer connection or wall phone.

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
none	

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

Group all permanent building support areas (mechanical, electrical and data rooms) within the same area where possible and practical. Locate these rooms so that they are **NOT** in the middle of other softer uses, like instructional space, which would significantly limit future remodeling opportunities.

Unless specifically approved by the Project Manager, all electrical panels should be located in an electrical equipment room, second option in a mechanical room. Do not place panels in storage rooms or instructional areas. Panels outside electrical rooms should be located in corridors outside the primary areas that they serve and should be lockable. Provide panel keys to M&O, College Security and/or place a key in a secured location that only maintenance staff can access.

Confirm whether direct exterior access is required by the providing utility for meter reading, and if so, locate this room in order to provide this direct access.

The District prefers to have main service entrance sections and distribution gear located within an enclosed room, but this is not an absolute requirement.

Confirm whether this room requires a second access/exit due to equipment or transformer size/capacity.

Fire alarm, security and other low voltage system panels may occur, and are preferred, in electric rooms.

Do NOT install electrical equipment against or on a common wall with an adjacent data room, which may create electrical fields or interference with data wiring and equipment.

Controls for exterior lights, site lights, etc. may be placed in this room. All exterior lights, including parking lots, should be set up for at least two circuits, one of which will control lights from dusk to close of business and the other circuit, which will control lights to be on all night for general safety and security.

CONFIRM: locations and spacing of lights on each circuit with the Project Manager. Exterior site and building lights are switched through contactors controlled by the energy management system. Contactors will fail to the “ON” position so that malfunctioning contactors can be easily noticed.

Estimated or minimum floor area is:

As required by equipment size, clearance and service needs, but not less than 150 square feet per floor, and at least 175 square feet for a single large electrical room that also includes the main service distribution sections. Do not stack panels or equipment such that regular servicing and access is a difficult (due to reach or needing a ladder) or a hazard (having to work over the top of other equipment).

Construction requirements

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)

If transformers are located in the room, provide additional NRC sound rated walls and sound seals at doors. Sound rated transformers often create unacceptable levels of noise when enclosed in small rooms, which then is transmitted to adjacent uses.

B. Special room finishes or room characteristics
   a. Flooring: sealed concrete, rubber base
   b. Ceiling: open to structure or gypsum board ceiling. If open to structure, walls must extend and close to structural deck above.

   c. Walls: gypsum board

   d. Special characteristics:

C. Storage, work or counter surface, and storage cabinet or shelving

D. Wall display/work surfaces

E. Other special features

F. HVAC

Provide a separate cooling zone for the electrical room (or group the zone with an adjacent data room). If a separate small split cooling system for weekends (when the campus may reduce chilled water service) or additional protection is requested for the electrical room, the normal building system should be the primary cooling with the smaller split system as back up. Provide a separate regular thermostat for the split system so that this system comes on only when above normal temperatures are sensed in the room.

Locate any VAV box above aisle space, not above panels or other electrical gear. Do not run condensate lines above panels or gear.

Do not locate any other mechanical, plumbing or electrical equipment that requires any service access above the equipment panels or electrical gear. Confirm easy access for ladders, service personnel and full opening of any access doors.

If an HVAC unit is located in the room and the unit within the room requires a condensate pan, provide a second, separately drained pan in addition to the primary pan

G. Plumbing

With the exception of the fire sprinkler system, NO wet pipe systems (water supply, sewer, drain lines, chilled water supply/return, condensate lines, etc.) should pass within or through an electrical equipment room.

If absolutely necessary and no other solution is possible, locate the wet pipe so that it runs in aisles and walkways, not over equipment. Provide a continuous gutter underneath the pipe line for the entire length of its exposure with the room or continuous sheet metal deflector above panels and gear where wet piping passes above them.

If the room is fed by a separate chilled water supplied cooling box (VAV or other), locate this box outside of the electrical room and extend the ductwork into the electrical room.

H. Special fire protection, security or other general needs

I. Electrical (lighting and power)

Provide adequate lighting in the room, coordinated with equipment locations.

Control lights using a digital time switch with push button manual on/off similar to Wattstopper TS-400

Provide room for additional electrical panel (future growth). For general lighting and convenience power, provide each panel with at least 15% additional load/breaker growth before code capacity is reached. For panels serving computer and science labs, provide 25% additional capacity. If panels are recessed into the wall, provide additional empty conduit stubs out of the panel, up the wall and stubbing out into the electrical room or into a gutter for future circuits.

J. Communications (data, etc.)
J-boxed and empty conduit connections to data room for special systems panels located in this room including fire alarm, security systems, etc.

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
none	

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

All restrooms shall be designed and constructed to meet ADA requirements. Provide adequate clearance and circulation space at the entry and within the room.

Locate the primary public restroom core near or directly off primary lobbies or circulation corridors. Try to group all permanent support areas (custodial, restrooms, etc.) within the same area. Also locate restroom and custodial groups so that they are **NOT** in the middle of other softer uses, like instructional space, which would significantly limit future remodeling opportunities.

Provide proper shielding and screen walls at the entry to prevent direct views or views reflected off mirrors into the balance of the restroom.

Provide a single door into the restroom; avoid pairs of doors in a series. All restrooms must have a door for privacy and noise containment. All restrooms shall have doors.

CONFIRM: if electric hand dryers will be used.

Estimated or minimum floor area

As required to meet fixture counts and ADA requirements.

In area with large public assembly occupancy (sports facilities, performing arts centers) or instructional buildings/programs with large percentages of female students/staff (such as nursing programs), provide 125% (rounded upwards) of the code required number of toilets and sinks in the female restrooms. Do not use the additional fixtures to reduce the count in the male restroom.

Construction requirements

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)

Plumbing fixture walls that are common to instructional, office or other acoustically sensitive space must have higher NRC ratings. See the General Classroom Design Guide.

B. Special room finishes or room characteristics
   a. Flooring: non-slip ceramic/quarry/porcelain tile and base

   b. Ceiling: gypsum board

   c. Walls: As budget allows, the preference is to provide full height ceramic tile on all walls within the restroom. If not possible, provide minimum 72” high ceramic tile at all walls with plumbing fixtures and next to the plumbing fixtures. For walls next to fixtures, install the tile wainscot for the entire length of the wall at sinks and urinals (or if a long wall, at least 24” past the forward edge of the fixture), and the entire toilet compartment length at toilet stalls. BE SURE TO COORDINATE the tile height with mirrors, light switches or other accessories where these may extend past the top edge of the tile.

   SPECIAL ITEM: To protect the walls at drinking fountains, also provide a water resistant material behind and on walls immediately adjacent (straight wall or at

the sides of a recessed area) to the drinking fountain unless the fountain comes with an integral tall backsplash.

d. Special characteristics:
Sink and vanity counters to be solid plastic material- Do **NOT** use plastic laminate or stainless steel for lavatory counters.

Toilet partitions and urinal screens, if used, shall be solid plastic type. Toilet partitions may be either floor mounted/overhead braced or ceiling hung (make sure to include structural bracing above the ceiling).

CONFIRM: whether stainless steel partitions are preferred (most will not).

e. Free standing trash cans often are being placed near or next to the door so that they are used on the way out of the restroom for towel disposal. Provide a design that allows this trash can placement without interfering with ADA access and clearance at the door.

C. Storage, work or counter surface, and storage cabinet or shelving
Provide a purse/book/briefcase shelf in each restroom. The shelf can be either stainless steel, normal casework, built in or match the vanity material, and be free hanging from the wall or built in. If built in, it should not be level/part of the vanity counter to avoid wetting materials set on the shelf. Locate this shelf so that it is easily observable from within the restroom and purses/book bags/computers cannot be stolen on the way out the door.

Provide coat hooks in all toilet stalls, purse shelf in women's stalls. This can be done by installing a coat hook at mid-height on the stall door that will support purses and backpacks.

D. Wall display/work surfaces

E. Other special features
As space allows, provide a full height mirror in the women's restroom. Carefully place to provide both visual privacy of this location from outside room as well as avoiding reflections off the mirror into the balance of the restrooms.

Provide automatic door openers at all primary public restroom doors.

CONFIRM: if a deadbolt is desired for the door, use a "Public Toilet" function (keyed X keyed, with thumb turn on restroom side of door that retracts deadbolt but will not project it).

Wall mounted, recessed feminine hygiene product dispenser in women's restrooms.

F. HVAC
Provide 100% exhaust ventilation for restrooms to contain and remove odors.

G. Plumbing
Provide at least one floor drain with trap primer in every restroom, (including all unisex and faculty restrooms).

Provide low water use/low flow fixtures and self closing faucets.
CONFIRM: preference for electronic or manual self closing faucets and if electronic, what model, whether battery operated or hardwired, etc. (NOTE: Scottsdale cannot use self closing faucets due to the sand in the well water which damages seals and mechanisms in the self closing faucets.)

Provide **CONFIRM:** waterless or ultra low flow (0.125 gallons per flush or less) urinals in all locations. Waterless fixtures are the default starting position unless specifically directed otherwise by the campus.
CONFIRM: preference in style or model. Design sewer piping so that waterless urinals are not the last fixture on the soil line, so that there always is some water running past these fixtures to wash urine further down the pipe line.

CONFIRM: preference for single or dual action flush valves on toilets.
CONFIRM: preference for electronic or manual flush valves and if electronic, what model, whether they are battery operated or hardwired, etc.
CONFIRM: preference for floor mounted or wall mounted toilets.
CONFIRM: preference for a hose bib in the restroom. If so, located in a recessed box with locking lid underneath the sinks.

Do **NOT** use stainless steel sinks in restrooms- colleges complain that they appear to be constantly water spotted and dirty. Sinks should be self rimming or integral with the counter construction if a vanity counter is used. Wall hung individual sinks are acceptable.

In addition to normal angle shut off valves at sinks and screw driver shut offs at flush valves, provide a general shut off valve at both hot and cold water feeds for the entire restroom fixture set (and if needed, for isolated drinking fountains) at the main feed line, so that every fixture may be serviced without shutting down other portions of the building or the entire building.

H. Special fire protection, security or other general needs

I. Electrical (lighting and power)

Provide adequate lighting at mirrors and over sinks or sink counters to properly light faces and avoid shadows or only back lighting.

If using cove lighting above the plumbing fixtures, design the cove so that the entire fixture can be seen, serviced and accessed by staff while having to stand on a ladder. Often, these coves (or light fixture shields) have been designed so that servicing tubes or ballasts has to be done blindly or with an awkward reach.

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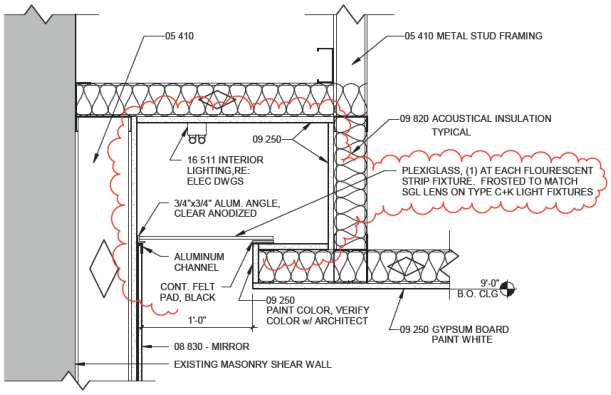
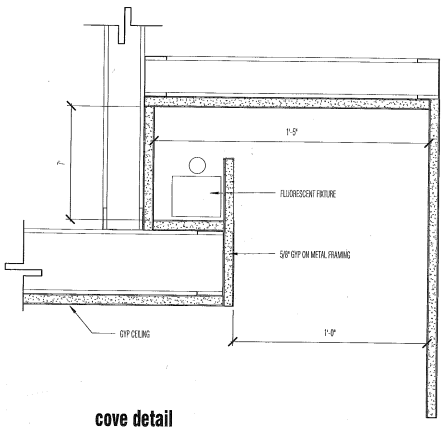


Restroom Light Cove
1 1/2" = 1'-0"

Not this:



cove detail

Lights should be operated using a normal (not tamper resistant/key type) light switch and dual technology occupancy sensor, properly selected and placed for use in large public restroom areas.

Provide emergency lighting in the main public restrooms.

Provide one GFI protected electrical outlet adjacent to the sinks.

CONFIRM: if electric hand dryers will be used.

J. Communications (data, etc.)

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
Free standing waste cans and containers	OFOI, loose trash cans. DO NOT use built-in waste containers.

CONFIRM: which toilet accessories will be OFCI. All other accessories will be contractor provided and installed. Typically, OFCI items will be for paper products (toilet paper, hand towels, toilet seat covers, etc.), soap dispensers, feminine product dispensers and bio-hazard disposal.

CONFIRM: whether OFCI toilet accessories will be wall or partition mounted.

CONFIRM: if electric hand dryers will be used.

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

Unisex/family assisted restrooms are provide to meet a wide variety of needs of potential users of college facilities: physically challenged individuals who need extra room beyond normal ADA accessible restrooms; individuals who may have opposite sex assistance; parents with opposite sex younger children; mothers needing additional privacy for nursing or breast pumping; transgender individuals who may not feel comfortable with regular public restrooms or may cause issues in public restrooms from other users; and individuals with self-image or disfigurements who may not be comfortable in a more open public restroom setting.

Provide at least one unisex restroom **for each floor**, located within or adjacent to the primary public restroom core. The entry to this restroom should be from the same lobby or corridor as the primary restrooms, should be in the same proximate area as the main restroom doors and be readily seen from the area of the main restroom doors, not be tucked down a side corridor, or *narrow* alcove leading to a regular public restroom. Because the door to this room generally will not have a door closer and the door may remain open, try to shield the door into this restroom so that is does not open directly onto a main corridor, lobby or circulation area, but remains visible and easy to find by the public.

If the primary restrooms are designed to be accessible from the exterior (can be isolated from the interior of the building) for after hours use, the unisex restroom also must be accessible from the exterior, or another provided.

In Fitness Centers, gymnasiums and other areas that normally provide shower and dressing facilities, provide at least one unisex restroom in the locker room/dressing room area with roll in shower (ADA accessible) and single stack locker. Be sure to allow adequate extra space in the area for locker(s) and perhaps a small seat, still allowing for wheelchair clearance and accessibility.

CONFIRM: At the college's option, the dressing and shower area may be a separated, securable area instead of being an open extension of the restroom. If this is preferred, the dressing and shower areas must be sized/dimensioned for wheelchair access. We recommend a solid plastic partition, similar to those used in restrooms or showers, to secure the dressing/shower area so that wood door warping or steel door rusting is not an issue. Further, we recommend using a card access combination to secure/unlock the partition door instead of a keyed lock so that lost cards (guest cards) can be taken out of the card access system immediately or be issued as "one time use" only card, as opposed to having to rekey a lock if the key is lost or not returned. The card accessibility may unlock the partition door for an extended period (example of 30 minutes) to allow free access between the areas throughout the single use/visitor period. Provide signage both outside the unisex restroom as well as within the room indicating that a key/card access is needed for the shower and where the key/card may be obtained.

[The issue and reason for the separated area within a unisex restroom is who may use the unisex restrooms: transgendered individuals, people who are extremely shy/have psychological self image issues, someone with an opposite sex attendant, someone who may have disfigurements from injuries, a parent with an opposite sex child, etc. Any of these typical users would be uncomfortable or cause discomfort to others in a normal shower room arrangement, even if you provide a full height partition in the shower (think transgender). We still recommend at least one oversize/ADA accessible shower stall within in each locker for someone who may be in a wheelchair or be physically disabled but who is able and comfortable to function in a normal locker room.]

Estimated or minimum floor area is

As required for the intended need and function for a single toilet/single sink arrangement, including complete compliance with ADA and similar accessibility standards.

Construction requirements

A. Location: The family/unisex restroom shall be located along with the main public restrooms. The door to the family/unisex restroom should open directly on to a main corridor for safety and visibility, not be recessed into an alcove all by itself. The door may be located in a common recessed alcove with the doors to the primary public restrooms.

B. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)

Plumbing fixture walls that are common to instructional, office or other acoustically sensitive space must have higher NRC ratings. See the General Classroom Design Guide.

C. Special room finishes or room characteristics

a. Flooring: ceramic tile and base preferred, VCT and rubber base acceptable by prior approval by the Project Manager and College

b. Ceiling: gypsum board

c. Walls: Minimum 48" high ceramic tile wainscot at all walls with plumbing fixtures or next to plumbing fixtures. For the walls next to fixtures, install the tile wainscot for the entire length of the wall. If a tile wainscot is used vs. full height tile, BE SURE TO COORDINATE the tile height with mirrors, light switches or other accessories where these may extend past the top edge of the tile.

d. Special characteristics:

D. Storage, work or counter surface, and storage cabinet or shelving

Wall hung (either surface mounted or recessed) baby changing station.

Provide two wall mounted coat or towel hooks at +42" located away from plumbing fixtures, preferably next to the diaper changing station.

E. Wall display/work surfaces

F. Other special features

1. Provide a privacy lockset on the door with "In Use" indicator visible to the public side when the room is in use.

Do not use a door closer unless required for a fire rated door. Users of the unisex restroom often are in wheelchairs, have children, and the door closer poses an additional burden to enter the room. If a closer must be used, provide an electric closer, which then must be coordinated with the locking mechanism so that the closer does not try to open a locked door *AND* the push button for the closer does not override the locking mechanism if the room is occupied.

2. Signage

Signage should show all functions and represent all needs of this restroom: physically challenged access (typically wheelchair symbol), baby/diaper changing (either baby or changing table symbol) and an acceptable symbol for unisex restroom facilities often labeled as "All Gender" (symbols typically are a toilet, NOT man/woman/half-man-half-

woman symbol which is insensitive to the transgender community.) Specifically review and receive approval for the appearance of this sign. Sample signage might be:

or

G. HVAC
Exhaust fan may be run off a common switch with the light.

H. Plumbing
See Primary Public Restroom for general plumbing information.

I. Special fire protection, security or other general needs

J. Electrical (lighting and power)
Provide two convenience outlets: one GFI protected duplex outlet near the sink and a second duplex outlet at +48" AFF next to the changing station.

Lighting to be controlled by a dual technology occupancy sensor. Lighting should be adequate levels at both the lavatory/mirror area and the baby changing station.

K. Communications (data, etc.)

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
Baby changing station	wall hung, with plenty of clearance and access
Toilet accessories	see the listing and requirements in the Primary Public Restroom listing above.
Coat/bag hanging hooks	as described above
Free standing waste cans and	OFOI, loose trash cans. DO NOT use built-in waste containers

Facilities Requirements:
FACULTY RESTROOM(S)

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

At the request of the college, separate private restrooms for faculty only use may be provided within faculty office cores or elsewhere in the building. Typically, when located within the faculty offices core, a separate restroom is provided for men and women. If located elsewhere in the building, they often are a single, unisex restroom.

Estimated or minimum floor area is

As required for the intended need and function, including complete compliance with ADA and similar accessibility standards.

Construction requirements

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)

Plumbing fixture walls that are common to instructional, office or other acoustically sensitive space must have higher NRC ratings. See the General Classroom Design Guide.

B. Special room finishes or room characteristics

a. Flooring: ceramic tile and base preferred, VCT and rubber base acceptable by prior approval by the Project Manager and College

b. Ceiling: gypsum board

c. Walls: 48" high ceramic tile wainscot at all walls with plumbing fixtures or next to plumbing fixtures. For the walls next to fixtures, install the tile wainscot for the entire length of the wall. BE SURE TO COORDINATE the tile height with mirrors, light switches or other accessories where these may extend past the top edge of the tile.

d. Special characteristics:
Walls to have recessed feminine hygiene product dispenser in women's and family/unisex restrooms.

C. Storage, work or counter surface, and storage cabinet or shelving

Small, wall mounted purse/briefcase shelf.

Provide one wall mounted coat hook(s) per toilet/urinal, located away from plumbing fixtures.

D. Wall display/work surfaces

E. Other special features

Provide a "Hotel" or "Guest Room" function lockset on the door (*"Latch retracted by inside or outside knob. Outside knob is always rigid. Depressing push button when door is closed shuts out all keys except emergency key. Lockset also may be provided with a "Privacy indicator". Push button is released by turning inside knob.")* Do not use a door closer unless required for a fire rated door. If a closer must be used, provide an electric closer, which must be coordinated with the locking mechanism (generally use an electric latch) so that the closer does not try to open a locked door AND the push button for the closer does not override the locking mechanism if the room is occupied. privacy locking by a user.

F. HVAC
Exhaust fan may be run off a common switch with the light.

G. Plumbing
See Primary Public Restroom for general plumbing information.

H. Special fire protection, security or other general needs

I. Electrical (lighting and power)
Provide one GFI protected convenience outlet near the sink.

Lighting to be controlled by a dual technology occupancy sensor.

J. Communications (data, etc.)

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
Toilet accessories	see the listing and requirements in the Primary Public Restroom listing above.
Free standing waste cans and	OFOI, loose trash cans. DO NOT use built-in waste containers

New mothers face many challenges when they return to the workplace, school, or visit our colleges. While technically required only for employees, lactation rooms are seeing growing demand for general availability in public buildings. Section 4207 of the Patient Protection and Affordable Care Act amended the Fair Labor Standards Act to require that employers provide reasonable break time and a private, non-bathroom place for nursing mothers to express breast milk during the workday.

A lactation room must provide privacy, proper ventilation, lighting, climate control, cleanliness, and freedom from mold, bacteria, and chemical contaminants. Especially in more active public facilities such as college buildings, nursing mothers need a calm and secure environment to express breastmilk or breastfeed their babies where their belongings, such as a stroller, can be accommodated.

Many of the recommendations below, as well as the two sample floor plans, are provided from the "*Best Practice Recommendations for Designing Lactation/Wellness Rooms," The American Institute of Architects, January 27, 2017* ***(https://www.aia.org/articles/24341-designing-for-the-modern-working-mom and http://aiad8.prod.acquia-sites.com/sites/default/files/2016-09/BestPractices_Three-lactation-room-designs.pdf).***

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

Where possible, a lactation room should be proximate to the general restrooms and other core public areas. It should be located in areas that are accessible to both employees and the public at all hours the building is open, be easily identifiable or adequately signed, but be shielded from general public view and free from intrusion by co-workers or the public.

The law requires that the space be "other than a bathroom."

In lactation rooms that are shared by multiple users, provide curtains or screens to ensure privacy for each user (see the sample plan below).

Estimated or minimum floor
A minimum footprint of 7 feet by 7 feet is recommended for a single user room allowing for a 5-foot radius circle for wheelchairs along with a 24-inch deep counter and seating. Other configurations such as 10 feet by 5 feet work well in offices and public facing facilities where more mothers are likely to be breastfeeding their babies.

Accessibility guidelines should be met for all the features of the room.

Construction requirements

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)
   Walls should extend to the structure to minimize sound transmission (i.e. minimum STC 45) into or from adjacent spaces. Consider other sound-dampening materials to minimize echoes and unwanted noise.

B. Special room finishes or room characteristics
   a. Flooring: Durable, cleanable carpeting

   b. Ceiling: lay-in acoustic ceiling.

   c. Walls: gypsum board with durable, cleanable paint or vinyl wall covering throughout the room with a soothing and calming color palette

   d. Special characteristics:

C. Storage, work or counter surface, and storage cabinet or shelving

Provide a minimum 18-inch deep by 32-inch wide plastic laminate or solid surface counter at desk height for the pump and bottles to rest on in front of the chair. The surface should be easily cleaned or wiped down for the next user. Provide clear knee space beneath the counter at openings for seating.

Provide lower cabinets for storage of cleaning supplies, paper towels, and pumping supplies if the room is located in office environment or other area where the same users visit the room on a regular basis.

D. Wall display/work surfaces

Optional artwork and/or other accessories that add to a calming environment

Optional bulletin board for educational information for nursing mothers

If many mothers will be sharing the room, installing a scheduling system or communication board outside the door to facilitate efficient use of the room.

E. Other special features

Cubicle curtains to divide the seating area and provide privacy in multiple user rooms

Signage: Signage that will indicate in use/occupied or open/vacant in addition to identification of the room use including international symbol

F. HVAC

Maintained room temperatures year-round at a comfortably warm level such as in a dressing room. Be cautious of the temperature control sensor location if the room shares an HVAC zone with adjacent areas.

G. Plumbing

Provide a small utility-type sink and goose-neck or kitchen type faucet combination deep enough to wash bottles and pump parts. Goose neck or kitchen type faucets are recommended.

H. Special fire protection, security or other general needs

Provide a user-operated door lock with either (a) an indicator for privacy that displays an "occupied" message or (b) signage as noted above to discourage interruptions. If a door lock is provided, it should allow one hand operation for exiting the room in the case of emergency.

Do NOT install a door closer unless the room and door are fire rated.

I. Electrical (lighting and power)

Provide uniform ambient light to create a restful and soothing environment. Provide task lighting over the sink and the pump area.

Provide electrical outlets above the countertop surface and at least one outlet with each seat in multiple user arrangements for the pump and accessories.

J. Communications (data, etc.)

Special furnishings, fixtures or equipment needs:

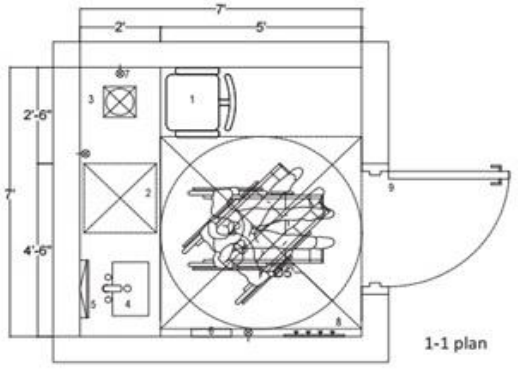
Item Description	Remarks/Utility Connection Needs
Coat hooks (three per occupant)	CFCI
Full-length mirror	CFCI
Paper towel dispenser	OFCI, located adjacent to the sink
Trash can	OFOI
Comfortable chair	OFOI

Chair fabric or material should be selected easy and repeated cleaning or wiping. Seat, back, armrest, lumbar, tension, and height adjustments are preferable. Provide casters to allow the user freedom of movement when hands are occupied with bottles of milk and pump parts.

OPTIONAL: If a midsize or compact refrigerator (OFCI) is desired for milk storage, under-counter models help conserve floor space but should not take up the knee space beneath the work area. Refrigerators are not desired in public facing facilities where use is more transient. Rooms that are sized to accommodate more than one user may require a mid-sized or a large refrigerator, depending on frequency of use.

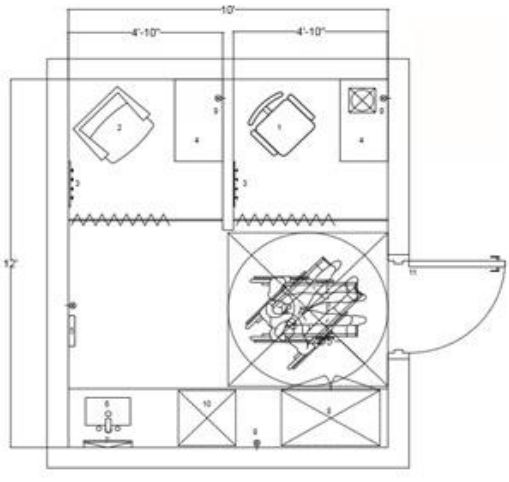
Workplace Sample Layout
7'x7' Wellness Room Unit

1. task chair
2. counter (fridge underneath)
3. counter for pump
4. sink (cold and hot water dispenser)
5. tilt mirror
6. paper towel dispenser (trash can underneath)
7. electrical outlet (above the counter)
8. coat hooks
9. door for privacy



1-1 plan

Double-Unit Sample Layout
10'x12'



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General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

Corridors serve many functions in addition to circulation within our facilities. Whether at offices or instructional areas, wider corridors, niches, and other areas for casual learning and socializing activate our spaces. Look for these opportunities. Most of these areas will use loose furniture (tables, chairs, benches, etc.) for seating. Design these social spaces as "seen and be seen" arrangements.

Automated External Defibrillator (**AED):** Confirm with College Safety whether an AED needs to be provided in any new building or major remodel. AED's are not provided in every building but are distributed throughout a campus. If the project is a new, stand alone building location, an AED generally will be provided. The AED location should be in the main corridor, generally in an easy to find position for users and general public who are AED trained. Often, these occur at or behind a security desk in the main entry area. Try to avoid a location that allows someone to easily grab (steal) the AED and run out the door. AED's are furnished and installed by the College. No power is needed- they are battery operated- but we generally provide an empty conduit from the AED location to open plenum area for a telephone monitoring connection.

Estimated or minimum floor area is as needed. Size corridor width to allow the double student loads that occur at class change over. Also size corridors to allow waiting students to stand without significantly blocking or impeding circulation at class changeovers.

The District strongly wishes that all spaces are served from internal corridors due to building security, cleanliness and air conditioning concerns.

Construction requirements

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)
   Corridors and lobbies tend to be noisy, active spaces. Pay particular attention to noise and sound attenuation at corridors within instructional areas.

B. Special room finishes or room characteristics
   a. Flooring:
      CONFIRM: floor material selection. VCT, carpet squares, durable stone or quarry tile are preferred. Tiles and stone are easier to clean and more durable, carpet provides noise control in large areas or areas immediately outside instructional areas.

      Ground concrete, terrazzo, etc. generally have not provided satisfactory, long term finishes due to cracking of the slab. If ground concrete is desired, special mix designs, additional reinforcing and adequate saw cut joint patterns (with matching caulk fill) shall be provided to reduce cracks. Users, college maintenance and Facilities Planning all should discuss the advantages and disadvantages of the concrete to understand that it is not a perfect product, that the finished product likely will have visible cracks, patches that may not match, stains that cannot be removed, etc.

      If the floor finish requires mopping or similar cleaning, a wall base must be provided at all adjacent walls. Rubber base, matching tile or stone, or stainless steel may be used and must be provided at gypsum board, masonry walls, etc. to protect the walls from wet mop damage and wet mop discoloration. **TYPICAL FOR ALL MARICOPA FACILITIES ALL LOCATIONS**

b. Ceiling: mix of lay-in, gypsum board, or other decorative materials

c. Walls: durable finishes. Must be easily and economically patchable/matchable/ repairable by college staff for scratches and scrapes.

d. Special characteristics: Consider and use corner guards and chair rail where exposed corners or walls (at furniture placements, for example) will have significant exposure to damage. **TYPICAL FOR ALL MARICOPA FACILITIES ALL LOCATIONS**

e. If skylights are used, they should be double dome/layer for energy conservation and have either the inner or outer layer translucent white. Do not use clear-clear for the dual layers due to high glare and continuously dirty appearance that is visible from the inside. **TYPICAL FOR ALL MARICOPA FACILITIES ALL LOCATIONS**

C. Storage, work or counter surface, and storage cabinet or shelving

D. Wall display/work surfaces

Confirm type, size and location of white boards and bulletin boards in corridors with college. Locate white boards near student seating and instructional areas.

E. Other special features

Provide wall-off mats or grating at main entry doors. Rubber, sisal or similar material mats provide better dust and dirt removal from shoes than open metal grating. Allow at least 10' of walking distance on the mats in front of doors. Recess the mats in the slab ahead of the doors to minimize mat movement or edge tripping hazards.

Provide hinged doors at main entries, using a continuous, full height continuous hinge for long life and use/abuse. Pivots mounted close to the door edge may be allowed with Project Manager approval. DO NOT use offset pivots anywhere in the project, which would allow arms, fingers or children to become caught between the small/backset portion of the door and adjacent frame. Double doors that have center mullions must swing at least 105° to assure adequate wheelchair clearance between surface mounted exit hardware on the doors and the center mullion.

General door hardware for major entry double doors should include a center removable mullion (with keyed cylinder to remove the mullion) and rim type exit devices (also using keyed cylinders to for the dogging feature). Avoid surface mounted or concealed vertical rod exit device models. All exit devices that are not on fire rated assemblies require keyed lock cylinder dog down feature.

Provide automatic door openers at all major exterior entries and doors from corridors into high use rooms (such as community rooms, dining areas, etc.) or rooms commonly accessed by the public. **TYPICAL FOR ALL MARICOPA FACILITIES ALL LOCATIONS**

Both double doors (one in the exiting direction, one in entry direction) require the openers. At entries with multiple sets of doors, provide an automatic door opener for at least one door in each traffic direction. Push buttons for the openers generally are radio transmitter/battery type, avoiding the need for hard wired connection. Confirm the push pad location to assure compliance with ADA, simple access and positioning for a user, adequate clearance to avoid swinging doors and close enough proximity to the door to allow easy passage before the door begins to close.

BE SURE TO COORDINATE the hardware on these doors- most of the doors also will have panic exit hardware or thumb turn deadbolt with a push/pull, along with card access. The opener, latching and card access all need to be coordinated in the hardware

specification to assure that the opener does not try to open a latched door. This operation needs to be confirmed for both normal building operating hours (when the exit device may be dogged down or the cylinder lock is open) as well as when the building is closed and the door is locked.

CONFIRM: type of electronic latching will be used: electrically operated lockset, electric latch or magnetic lock. Our initial preference is to use electronic latches instead of electric exit devices or electronic locksets wherever possible. Magnetic locks are a less desirable preference, but if used, still must be coordinated with the other door hardware as well as the fire alarm system. Once the door is locked after hours, the automatic door opener system shall not override the secured door.

CONFIRM: if *all* entry doors (or one door in a pair) at the public entry require card access *or* only a single door at each entry requires card access *or* if only one entry for the entire building requires card access.

Door contact/position monitor for the building security system should be provided and installed as part of the general contractor's hardware package at ALL exterior doors. The wire leads will be extended to an accessible tie-in location, where the college's security vendor will connect them into the building security system.

Corridors can include skylights or other natural lighting, particularly at the social/informal learning locations.

CONFIRM: Use and locations of AED's (Automatic External Defibrillators). Provide furred opening in the wall and empty conduit stubbed into an accessible attic space or to the cable tray for connection into the college security or monitoring system.

F. HVAC

G. Plumbing

H. Special fire protection, security or other general needs

I. Electrical (lighting and power)

All corridor and lobby lighting should be on switches, along with occupancy sensors. No switching using only a circuit breaker is allowed.

Confirm with the architect where electric door openers will be used. Generally, these openers are provided at all main doors and primary public restroom doors. Provide power to each of these openers and a j-box to mount the radio/battery operated push pad for the opener.

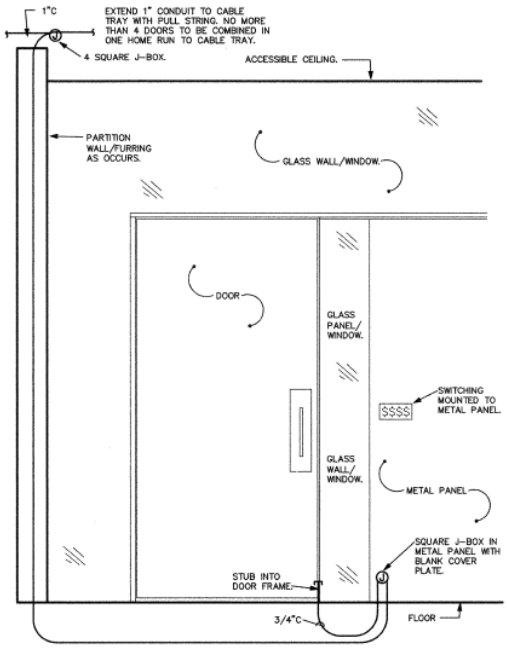
Provide power at social and informal learning areas within the corridors for lap top computers, cell phones, and other hand held electronic devices.

CONFIRM: whether wireless or hard wired data outlets will be used at these locations.

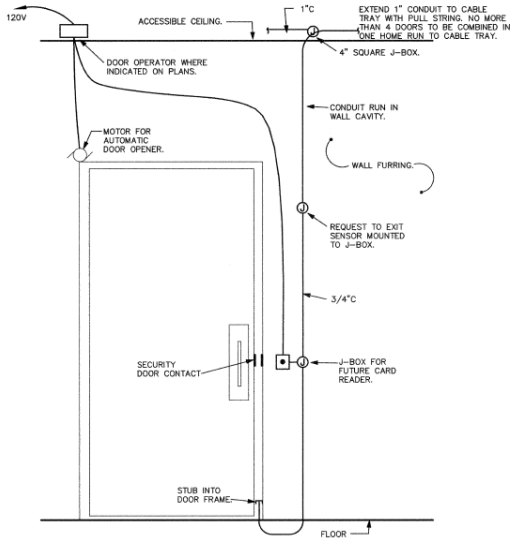
CONFIRM and include wiring diagrams for power, security cabling, etc. in the construction drawings and note on both the door schedule and floor plans which doors will have access security, card readers, automatic openers, etc. Coordinate power for these on the electrical drawings. All conduit and boxes are to be provided by the general contractor and must provide an easy, clear path to all devices wired. The low voltage wiring and card readers will be provided by the college. Suggested conduit arrangement are as follows, which should be reviewed for the particular project and installation. Conduit may take the most

direct route if glass is not provided above or adjacent to the door. All conduit should stub into accessible ceiling space or directly to a cable tray.

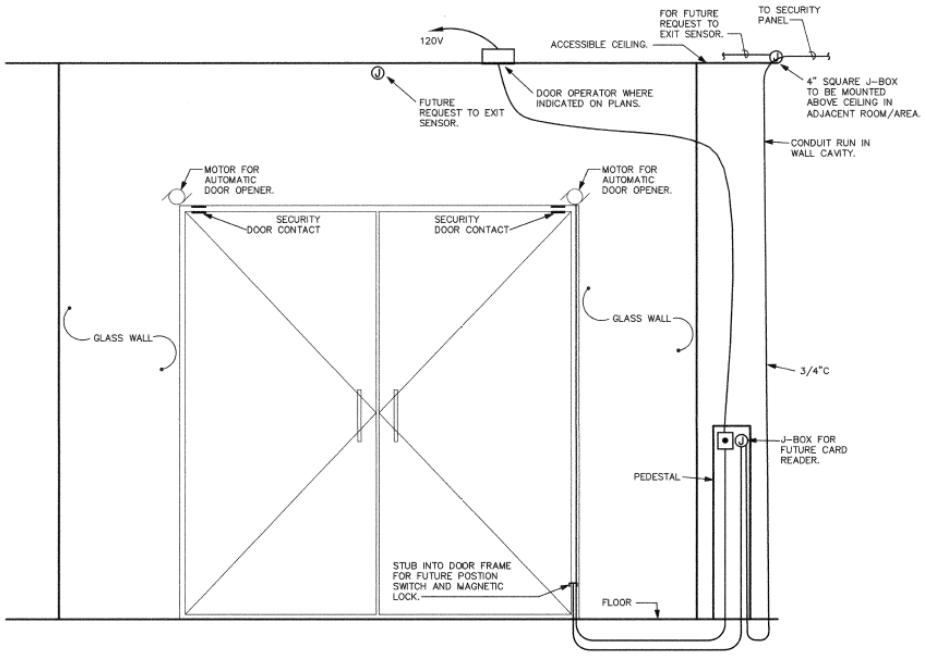
Coordinate with the architect and college what type of securing system will be used for the door (electrically operated lockset bolt, electric latch, magnetic lock, etc.) and assure correct conduit and power to the particular location of the operating item. Magnetic locks must be tied into the fire alarm system to allow unimpeded exit upon a fire alarm.



GENERIC CONDUIT ROUTE
GLASS WALL OR SIDE PANELS 1 E0.2
NOT TO SCALE
* REFER TO ARCHITECTURAL DRAWINGS/SCHEDULE FOR WITCH DOORS ARE CARD ACCESS AND POWER OPERATED.



GENERIC CONDUIT ROUTE
FURRING OR STUD WALL 2 E0.2
NOT TO SCALE
* REFER TO ARCHITECTURAL DRAWINGS/SCHEDULE FOR WITCH DOORS ARE CARD ACCESS AND POWER OPERATED.



GENERIC CONDUIT ROUTE

DOUBLE DOOR 3/E0.2

NOT TO SCALE

* REFER TO ARCHITECTURAL DRAWINGS/SCHEDULE FOR WITCH DOORS ARE CARD ACCESS AND POWER OPERATED.

J. Communications (data, etc.)

Confirm locations of wireless data access points with college IT. Provide an empty j-box and conduit for these locations, which will run entirely on the data wiring power.

Confirm locations of any CCTV systems and equipment. Provide a j-box and conduit AND 120v power to each camera location.

Buildings should be equipped with an owner provided alarm system, tied into college main burglar alarm for both on and off campus monitoring.

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
none	

Facilities Requirements:
STAIRWAYS

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

Locate primary exit stairs and main internal circulation stairways so that they exit either directly to the exterior of the building or to a primary lobby that then exits directly to the exterior.

Estimated or minimum floor area

As required for safe exiting per building codes.

In fire rated/protected stairwells, increase the landing size at each floor to accommodate areas of refuge for the physically challenged users who cannot exit the building safely using stairs. Space should be provided for two wheelchairs/seating positions, and be located such this space it is outside the required pathway and circulation at the landing and stairs.

Construction requirements

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)

B. Special room finishes or room characteristics
   a. Flooring: all stair treads, and the leading edge of the landing at the stairs, shall be non-slip material or treatment across the entire width and depth of the tread.

   b. Ceiling:

   c. Walls:

   d. Special characteristics:

C. Storage, work or counter surface, and storage cabinet or shelving

D. Wall display/work surfaces

E. Other special features

F. HVAC

G. Plumbing

H. Special fire protection, security or other general needs

I. Electrical (lighting and power)
   Lighting should be on emergency power or battery back up. Lights can be 24 hour use.

   Insure that adequate light levels are provided both at landings and through the entire length of the actual stair runs.

J. Communications (data, etc.)
   Confirm with the local Fire jurisdiction whether Fire Department communication systems must be provided in stairwells.

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
none	

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

In any building with occupied floors above or below grade, provide at least two elevators. One elevator may be a passenger size, large enough to allow an ambulance gurney to be used in a level, horizontal position. The second elevator should be slightly larger, to allow easier moving of furniture, equipment, etc.

Exceptions to a second elevator may be allowed only for limited situations such as:

- orchestra pits in Performing Arts Centers, which still require ADA access via a smaller elevator or wheelchair lift
- small mezzanines that are for staff/employee use only and would not require an elevator under ADA

Locate elevators so that they are easy to identify, access and be available to the general public. The primary passenger elevator should be near the main entrance, lobby or primary circulation path. If all elevators are not grouped together, the less prominent, second, location often will be a back up for public use, should the first elevator be out of operation, thus also be relatively easy to locate and use from any floor.

All elevators shall be open and available to the public. No locked access or card access should be installed on the entry doors or call buttons. Card access may be used inside the elevator to secure areas or floors not open to the general public outside business hours.

If the elevators are not part of a single bank of elevators, provide either a second equipment room or an adequately sized single room for both pumps if allowed by code.

Estimated or minimum floor area is as required for the elevator and equipment room.

The following are in additional to standard specified elevator finishes, equipment and configuration:

Construction requirements

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)
   Construct walls around the elevator shafts and elevator equipment room(s) to meet at least a 60 STC. Provide sound seals at the doors into the equipment room.

B. Special room finishes or room characteristics
   Elevator cabs:
   a. Flooring: VCT, high durability resilient flooring or carpet tile

   b. Ceiling:

   c. Walls: durable, scratch/damage resistance materials. Stainless steel preferred with brushed finish. Specify railings on both side walls and back wall.

   d. Special characteristics: brushed stainless steel for elevator doors and door frames to reduce the visual impact of scratches

Elevator equipment rooms:

a. Flooring: sealed concrete with rubber base

b. Ceiling: either gypsum board or open to deck above. In either arrangement, walls must extend full height to the deck above, with gypsum board on both sides of the wall framing for the full height.

c. Walls: painted gypsum board

d. Special characteristics: At hydraulic pumps, provide isolated slabs (housekeeping pads if required by the elevator manufacturer) to prevent transfer of vibration to occupied areas. Separate pads from the adjacent concrete slab by an expansion joint.

e. Storage, work or counter surface, and storage cabinet or shelving

f. Wall display/work surfaces

g. Other special features

Provide standard pit lighting and convenience outlets, access ladder, etc.

Provide a maintenance service agreement consisting of regular examinations, adjustments and lubrication of the elevator equipment for a period of twelve months after the elevator has been turned over for the customer's use. This service shall not be subcontracted but shall be performed by the elevator contractor.

Provide full length handrail/bumper rail on both sides and the back of the passenger car.

h. HVAC

At elevator shafts, confirm whether a relief gooseneck vent is required at the roof.

In the elevator equipment room, provide 100% exhaust ventilation due to hydraulic or other equipment odors. Provide a separate cooling zone for the electrical room when significant equipment and cooling loads are present. If a separate small split system for weekend or additional protection is recommended, the normal building system should be the primary cooling with the smaller split system as back up. Provide a separate regular thermostat provided for the split system so that this system comes on only when above normal temperatures are sensed in the room.

If elevators are located at an exterior wall and have a window back to the exterior OR if the elevators are located in a stand-alone shaft away from conditioned space, consider providing separate cooling to the shaft and elevator car to prevent high temperatures in the car for users.

i. Plumbing

Provide a sump pump and pump in each elevator pit.

j. Special fire protection, security or other general needs

Provide code required fire and smoke sensors, fire department recall and other connections into the fire alarm system and equipment room.

k. Electrical (lighting and power)

l. Communications (data, etc.)

Elevator emergency phone with single push button call button, response light for hearing impaired and Braille for hearing impaired. Confirm technology of phone to determine if a separate dialer is needed for external monitoring.

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
Protective wall pads, all 4 walls	By contractor. Provide a full set (three walls) of pad hooks and quilted fire retardant protective pads for each elevator.

Facilities Requirements:
DATA ROOM(S)

General Requirements and Description
(including location, relationship to other spaces, characteristics, etc.):

Provide at least one data room per floor. Locate the data room(s) such that the farthest point of the building floor plate served is no greater than 275 feet away, measured horizontally. (This allows some vertical length of cable such that no cable run is longer than 300 lineal feet and one data room serving approximately 25,000 gsf.) This cable run is not to be measured as a purely a straight line between the data room and far corner of the building, but a point to point line on the plan, but by the actual final routing of the cable.

Where distance or configuration of the floor plate cannot me this distance requirement with a single data room, provide a second (and more as needed) per floor.

Each floor shall have its own data room(s). Data rooms located on different floors of a building should be stacked above each other.

Entry to the data room should be directly from a public corridor and not require going through another public room or support room. No other room shall be accessed by going through the data room.

Try to group all permanent support areas (mechanical, electrical and data rooms) within the same area. Locate these rooms so that they are **NOT** in the middle of other soft uses, such as offices or instructional space which would significantly limit future remodeling opportunities in the area.

NO other electrical panels, energy management, security, fire alarm or other special systems panels or systems *(with the exception of the college's A/V systems at their request)* **may be located in data rooms- NO exceptions**. Don't even ask. Don't pretend you weren't told about this requirement.

Do **NOT** place electrical panels, transformers, distribution panels, etc. on the common wall with the data room in an adjacent electrical room.

Minimum floor area is 100 square feet in a 10' X 10' size for each data room. If the college also is placing audio-visual equipment in the room, the size may have to be increased. For very small buildings with a minimal amount of electronic equipment, smaller room may be allowed only following review by College IT and an actual rack layout to assure proper access to the front and back of equipment. Provide at least double doors to open the entire area in front of the equipment.

For data rooms that are located in college buildings not located a main campus, this data room also will serve as a point of presence ("POP") for Qwest, Cox or other phone/data service providers. ***INCREASE*** *the room size to* ***110 sf*** *to allow for the additional serving utility equipment. Confirm the additional electrical needs for the utility provider's equipment, including size and number of conduits, pull boxes, etc. from the data room to their point of service. Additional utilities also will require additional and separate electrical outlets to serve their equipment. Confirm the voltage/amperage/receptacle type (often a receptacle for a twist-lock type plug) for these utilities. Obtain or produce a coordinated drawing, showing both college and utility provider equipment and racks to assure proper placement of all electrical outlets, grounding bars, etc.*

Construction requirements

A. Special acoustical needs (sound proofing, noise isolation, speech privacy, music or speaking performance, etc.)
   Provide walls and ceiling with a minimum 50 STC rating.

B. Special room finishes or room characteristics
   a. Flooring: Low static VCT.

   b. Ceiling: painted gypsum board.
      CONFIRM: preference for lay-in ceiling instead of hard ceiling. If lay in, the tiles should be a vinyl faced gypsum board to avoid introducing fine dust or debris into servers and other equipment. Do **NOT** provide open ceilings to structure in this room.

      Ceilings should be as high as possible for the room, and at least 10'-0" above the floor. Cable basket and main overhead conduit for cabling should come into the room below the ceiling level.

   c. Walls: painted gypsum board, with eight foot tall, ¾" fire treated plywood, painted black (**CONFIRM:** or white) with college IT, starting at the top of the rubber base, on all four walls. Extend light switches, power, etc. through the plywood.

   d. Special characteristics:

C. Storage, work or counter surface, and storage cabinet or shelving

D. Wall display/work surfaces

E. Other special features
   If a hard ceiling is installed, provide a 24" square access panel located in front of the door, inside the room, for access above the data room ceiling. Coordinate the location of this panel with the room equipment and rack layout to assure that the panel can be accessed safely and easily by a ladder.

F. HVAC
   Provide a separate cooling zone for the data room (or group with adjacent electrical room). Provide a separate small split system for weekend, over heating or additional protection, using the normal building system as the primary cooling with the smaller split system as back up. Provide a separate regular thermostat for the split system so that this system comes on only when above normal temperatures are sensed in the room.

   Locate any VAV box serving this room outside of the data room, due to limited service access above racks and equipment. Do not locate any other mechanical, plumbing or electrical equipment that requires any service access above the equipment racks or cable tray/basket. Confirm easy access for ladders, service personnel and full opening of any access doors.

   Do not run condensate lines or other wet utilities above this room.

   If the unit within the room requires a condensate tray AND the unit is located above racks or equipment, provide a second, separately drained pan in addition to the primary pan.

G. Plumbing

H. Special fire protection, security or other general needs
   CONFIRM: if card access is required for the data room door.

I. Electrical (lighting and power)

NO other electrical panels, energy management, security, fire alarm or other special systems panels or systems *(with the exception of the college's A/V systems at their request)* may be located in data rooms.

All lights within the data room shall be incandescent bulb fixtures; **DO NOT use fluorescent tubes or ballasts, which may introduce electrical interference into the data wiring. Provide adequate ceiling mounted lighting in the room**, coordinated with rack and overhead tray/ladder locations. Control lights using a digital time switch with push button manual on/off similar to Wattstopper TS-400.

CONFIRM POWER REQUIREMENTS FOR EQUIPMENT: the layout, number, type and voltage/amperage of outlets dedicated for servers and other electronic equipment. Many colleges are using 208v outlets, heavier amperage outlets (30 or 50 amp), etc. often for small rack mounted UPS systems. Also **CONFIRM** the location of power outlets for data equipment- at regular outlet height or at +/-6', even with the top of the racks. Provide additional normal duplex outlets for convenience use.

Cable tray and racks within the data room will be furnished by the college.

Provide a properly grounded neutral bus bar in the data room to create and continue a properly grounded system for the entire building electrical and communication systems.

Provide at least two 4" empty conduit between the data room and tie in location for college data and communications systems. Provide innerduct in each conduit. One conduit will be used for college data and information technology and the other conduit will bring in the college fire alarm, security systems and other low voltage, directly tied in systems as needed. **CONFIRM:** the final tie in locations for all communications links for the college network **CONFIRM:** whether the college wants four 4" conduits in place of two.

For new/stand alone facilities not located on campus, provide at least one 4" empty conduit from each of the phone and cable TV provider point of presence on the site into the data room.

The 4" conduit shall have long sweep steel radius (straight sections can be PVC where direct buried), have bushings on each end and stub at least 4" above the floor where they enter the data room. Confirm with the college where the 4" conduit are to stub up in the data room.

Provide two ¾" dedicated conduit from the data room to the main fire alarm panel. Provide one ¾" dedicated conduit from the data room to the main energy management system panel.

If data rooms are stacked above one another, provide four 4" empty conduit stubs from below the ceiling of the first floor room through the floor and stubbed up at least 4" above the second or higher floor(s). If multiple rooms are provided on the same floor, are data rooms on different floors are NOT stacked above one another, provide two 4" empty conduits directly linking the rooms in addition to any cable tray pathway that may be available.

All data conduit entering the room shall extend down through the ceiling to +8'-0" AFF or up through the floor to +4" AFF. No access above the ceiling should be required for access to data cabling.

Obtain the college's rack layout and coordinate lighting and all other overhead access panels so that they do not occur directly over the racks or cable ladder.

J. Communications (data, etc.)

Special furnishings, fixtures or equipment needs:

Item Description	Remarks/Utility Connection Needs
Racks	OFOI
Cable tray within the room	OFOI
Data equipment	OFOI
Wiring and punch down blocks	OFOI
Patch panels	OFOI
Vertical wire management	OFOI

The following is for systems requirements for conduit, cable tray/basket and other infrastructure pathways for the college's low voltage voice, data and audio-visual systems. Also included is information on combined power and data, dual chamber wire mould and floor boxes.

To the extent that the following requirements can be shown in the drops and routes of conduit, cable basket, etc., in the drawings, they should be accurately and completely depicted. We strongly recommend that the following installation requirements, as applicable, also be placed in their entirety on the electrical construction drawings as a narrative performance specification, to assure that the pathway continuity conditions are met as field conditions vary.

General

NO other low or medium voltage systems, including fire alarm wiring, may share the empty conduit sleeves, conduit or tray/basket with college installed voice, data, audio-visual or security systems. These conduit and tray/basket are to be reserved in their entirety for the college's systems. The fire alarm system shall be installed in its own conduit system (no "free air" installation of fire alarm cabling).

The college's vendors will fire or sound seal all conduit through walls following their wiring installation.

CONFIRM: Building security systems may be run in the cable tray with the college's permission.

Conduit Systems

Provide four- 4" empty conduit from the college's source of data tie-in to the new data room.
CONFIRM: the originating location of the conduit with the college. The conduit shall extend 4" above the finished floor if coming in from underground or up through a floor slab. Link multiple data rooms with two 4" conduit. If the floor slab is part of a fire rated assembly, assure that the conduit assembly maintains the rating.

All 4" empty conduits shall use long sweep radius. Conduit runs shall not contain more than 270 degrees in total offsets, sweeps or changes in direction in a single run without a pull box.

Provide plastic bushings on the open ends of all empty conduit. Provide a pull string through and tied at each end of each empty conduit. At EACH END of all empty conduit, provide a non-fading, permanently attached label of the conduit size, proposed future use (if identified) and the location of the other end of the conduit.

Confirm the pathway for data/voice cabling from every room with voice/data/A-V jacks to the cable tray location. Where rooms have full height walls, provide 12" long, 4" conduit sleeves with bushings on each end, through the full height wall. Provide one sleeve through office walls, two sleeves through classroom and lab walls, and three sleeves through computer lab walls. Generally place sleeves above the door to the room, confirming the shortest, most direct cable path from the room to the nearest cable tray/basket. College vendors will seal the sleeves for sound or fire rating following installation of cabling.

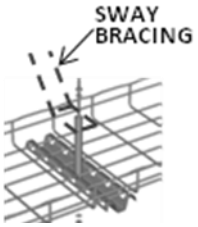
DO NOT RUN CABLE TRAY/BASKET THROUGH FULL HEIGHT, SOUND OR FIRE RATED WALLS, with the exception that the end of the cable tray may run through the data room wall.

Except for the four main 4" conduits coming into the data room and data conduit from floor boxes, NO other data or A/V systems conduit should run under the floor at any point. All data and A/V cabling systems shall run overhead except at raised floors. Where raised floor is used, provide cable basket under the floor for main/gathering routes. Support this basket at least 1" above the sub-floor to avoid moisture damage in case of broken pipes.

Also see the following section for conduit requirements where the cable basket/tray route is above inaccessible areas or ceilings.

Maintain at least the following clearances:
between cable tray/conduit and fluorescent lighting- at least 24"
between cable tray/conduit and HVAC equipment- at least 48"

Cable Tray or Cable Basket



Provide cable tray or lighter cable basket for major routing and gathering of cabling. Cable tray/basket should be placed in general use areas like corridors, avoiding placement over offices, instructional areas, etc. The tray/basket should increase in depth and width as it gets closer to the data room. The tray/basket should not be less than 4" deep throughout, and not less than 8" wide at points farthest from data rooms, increasing to 12" to 16" wide at the data rooms.

The tray/basket should be hung using a bottom supported, single center rod hung configuration to allow easy installation of cabling into the basket. Provide alternating sway bracing to prevent movement of the tray. Trapeze hung tray/basket (a wire or rod support on both sides of the tray/basket) is NOT acceptable.

Where the tray/basket path takes it over hard ceilings, or areas with limited accessibility (more than a 36" easy reach by cabling installers standing on a tall, unstable ladder), provide 4" empty conduits in place of the tray/basket. Provide the number of 4" conduits so that the total cross sectional area of the conduits is at least 100% of the cross sectional area of the basket that it replaces at that location, but not less than four 4" conduit. *(for example, a 4" X 12" basket has a cross sectional area of 48 in^2. A 4" conduit is 12.6 in^2, so four 4" empty conduits are required. Round the number of conduit required UP.)* The empty conduit shall extend to, and be just slightly above (within ½") of the ends of the tray/basket.

Basket/tray shall **NOT** be installed so that its top is tight against ductwork, pipes, structure, etc. Allow at least 3" clearance between the upper lip of the basket/tray and any obstruction above it. Where possible, install basket/tray so that it is the lowest item in multiple use areas, so that installers do not have to reach dangerously above structure, ductwork, etc. to install cabling.

Do **NOT** design or place tray/basket so that it interferes with service access to mechanical or other equipment located in the same area, above/below/next to the cable basket/tray.

Conduit or basket/tray shall enter the data room and terminate below the ceiling, so that no access above the data room ceiling is needed for cable installation.

Data, Voice and Audio-Visual jack boxes

Normal data, voice and A/V outlets in the wall are combined into a single 2" X 4" j-box, served by a ¾" empty conduit, stubbed up to an accessible ceiling space.

CONFIRM: if a larger conduit is needed for A/V or voice/data boxes to accommodate plugs and pre-made cords for A/V equipment.

If hard ceilings are provided in the area, continue the stubbed up conduit beyond the hard ceiling to an accessible ceiling area or to the cable tray/basket. The conduit must be stubbed into/towards the room that it is serving. ACCESSIBLE is defined as being above a lay-in ceiling that provides complete access *or* the end of the stubbed conduit is within 24" of an access panel or edge of hard ceiling soffit such that **the open end of a conduit can be easily and safely reached by someone standing on a ladder**.

Where floor boxes contain data or A/V outlets,
CONFIRM: whether college IT will allow "daisy chaining" data conduit between floor boxes. IF ALLOWED, no more than three floor boxes may be daisy chained for data. Provide a 1" conduit between the first two boxes, 1½" conduit between the second and third box, and then a 2" conduit from the last box stubbed up the nearest wall to accessible space or to the cable tray/basket overhead.

CONFIRM: if a larger conduit is needed for special plug/termination sizes.
If daisy chain is NOT ALLOWED, or no SPECIFIC approval is provided by college IT, provide a separate 1¼" empty conduit from the box, up in the nearest wall and stubbed into accessible attic space above the ceiling or to the nearest cable tray. Power may be daisy chained between multiple boxes.

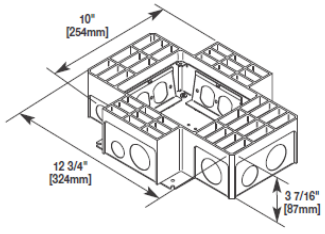
ALL floor boxes and under floor conduit shall be swabbed clean AND 100% dry prior to completion. Moisture in these systems corrodes electrical outlets and degrades data cabling.

Specify that the contractor is to provide blank j-box outlet covers, equal to 50% of the data/phone box count, to the Owner at the completion of the work. These shall match the appearance and finish of the balance of outlet covers. The Owner or Owner's vendor will install these cover plates on the boxes not populated with jacks.

Where dual channel raceway is used on walls to combine power and data service, provide one 2" empty conduit from a 4" X 4" j-box in the wall at each end of the raceway, not to exceed 20' centers, for data cabling. Stub the 2" riser conduit up the wall to accessible ceiling areas or nearest cable tray/basket.

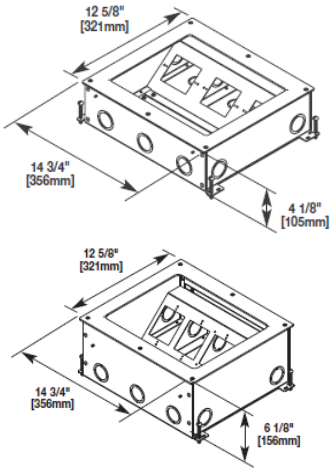
Provide a wall mounted (+48" AFF) phone location in all classrooms and labs. Locate this phone behind the primary instructor location, generally the corner opposite the door. Confirm this location in each room with the Owner. Confirm other special requirements for data, phone and audio-visual systems in all instructional areas, including special configurations of these controls and switches preferred by some colleges.

Combined power/data floor boxes

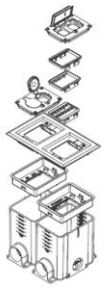


The standard floor box for power/data used in classrooms and labs is a Walker RFB4-4DB or Wiremold RFB-11 (both boxes require conduit size knock out to accommodate 2" data conduit) multi-service recessed floor box or similar product. Provide with telephone/data brackets and plates as required to match the District's data/phone jack type and power provided. Provide electrical devices as needed (duplex or quad outlets). Include flush activation cover with carpet or VCT insert, Walker #RAKMII, with cable entrance at pop-ups. **CONFIRM:** the correct mounting insert bracket for the owner supplied data receptacle. This bracket is to be supplied with the box by the electrical contractor. Wiremold RFB-9 may be used for power only floor boxes

In rooms with computers, **CONFIRM:** provide either one duplex per computer or if plug strips will be used to distribute power from floor boxes to computers. If the latter, size outlets and circuits as appropriate.



At the instructor station in classrooms and labs, provide a Walker RFB11 series box (12" X 14" X 6" deep) with conduit knockouts on the sides and bottom as needed, or similar product. The data and A/V conduit into this box require 2" conduit to allow wires with pre-made plugs to be pulled in. Include gang mounting plates and covers inside the box to match the proposed A-V/data/voice/power services. Set the top of the box to be flush with the finished flooring surface and include carpet or flush tile cover assembly. **CONFIRM:** the correct mounting insert bracket for the owner supplied data receptacle. This bracket is to be supplied with the box by the electrical contractor.



In general public areas, lounges, corridors, meeting rooms, etc. use a Wiremold Series 880MP floor box, which will allow a 1¼" conduit connection for A/V and data. Power and data shall be in separate, ganged boxes with a single, ganged cover plate. The 889 metal steel box series also may be used if the extra deep box allowing 1¼" conduit is used, along with the appropriate single cover plate with flip lids. Flanges, flip lid covers, exposed screws, etc. shall be brass, brushed aluminum or other durable metal; no plastic trim rings, covers or screw securing the flip cover is permitted. Provide trim ring that allows a matching floor material insert where appropri