MINNESOTA STATE

Physical Security Design Guidelines

For Campus Buildings and Sites

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Introduction

Safety and security should be an integral part of campus design with the goal of providing safe places to live, learn, and work—places where people feel safe and secure. Securing our college and university campuses is much easier, and less expensive, when security design is part of the initial process rather than retrofitted after the fact.

These guidelines are divided into two sections: **Site Planning** (Section 1) and **Building Design and Planning** (Section 2). Both provide basic instructions for design that assists in the provision of formal security while also facilitating and encouraging casual or informal security as a means to maintaining safe learning environments.

How to use these guidelines

This document provides high-level guidelines for the early planning stages of a site or building project, especially predesigns. The first step in evaluating the potential security improvements of a project is to consult with the campus's Safety and Security personnel. The design or planning team should work with campus staff to perform a threat assessment of the campus and project site, then develop an appropriate facilities security strategy for the project.

During predesign or preliminary planning stages, the need for certain types of program spaces should trigger an increased attention to security needs for the project. These space types include:

- Administration offices
- Rooms where private records may be stored

- Money-handling rooms
- IT/server rooms
- Residence halls (and their restrooms/bathing rooms) and dining rooms
- Science labs or storage rooms that will contain unusual or hazardous chemicals

Once a project has entered the later design stages (design development and construction documents), the design team should consult the system's Facilities Design Standards Manual for more detailed information about specific building components (such as door locks and CCTV systems).

Campuses also benefit from having formal written procedures that govern the use of certain types of spaces, such as loading docks and rooms with money safes. These procedures can address which personnel may have access to these spaces and how access is provided, as well as what types of security technology (CCTV, alarm systems, etc.) should be provided.

Basic elements of campus security

There are three basic elements of campus security to be considered while designing new or renovating existing campus spaces. The three elements incorporate the principles of what has come to be known as *Crime Prevention Through Environmental Design (CPTED)*.

- **The first element** of campus security design is to clearly define the boundary of the property. A clearly defined outer boundary establishes an expectation of behavior and responsibility. A well defined perimeter will discourage casual entrance onto the campus or into the campus buildings by people who might present a threat to campus facilities or occupants.

Introduction

- **The second element** includes the ways in which the campus and buildings may be monitored for undesirable or questionable activity. For operational issues or lock down procedures, contact system office Emergency Preparedness staff. Active methods of control include security outbuildings, visibility from key building locations which are frequently occupied by responsible individuals, surveillance systems, parking gates and controls, controlled building entries, etc. These methods of security can be used in conjunction with passive security and safety measures that create a "transparent" security environment, allowing people clear visual access to their environment, both seeing and being seen.

- **The third element** involves casual or natural surveillance, in which each person on the campus participates, to some degree, in monitoring or supervising the activities taking place on campus, keeping the campus secure. This is not an assigned task, but rather a natural result of an aware population going about their normal activities while equipped with the tools described above. Students, faculty, administration, and staff can all be responsible for recognizing and reporting questionable activity. Campuses and buildings should be designed to support this type of proactive environment.

These three points are not comprehensive, but provide a basis for evaluating existing facilities and designing new secure environments.

General Principles

Ascending levels of security

Locks

1. The most basic form of lock is one that utilizes a metal key. While this is adequate for low level security areas, it will not suffice for areas requiring mid- to high-level security. Keys are relatively easy to duplicate, making it difficult to track who has authorized access to this type of lock. Key locks should only be used in low-level security applications.

Two common types of keyed locks used on our campuses allow exit from the inside of a room, but differ in how access is allowed from the outside.

- Opening a "storeroom function" lock from the outside requires either a key or coordination with electronic hardware.
- A door with a "classroom function" lock may be opened from the outside without a key if the toggle on the bolt side of the lock has been placed in the proper position.
- Many rooms will be well served by a storeroom function lock. Classrooms should utilize either a storeroom or classroom function lock.

2. The next level is a combination lock, but they are vulnerable because codes can be easily broken or compromised.

3. The next level would be a standalone card access lock (non-networked). This method provides a higher level of security compared to both keys and combination locks because there is nothing that can be duplicated like a key and there are no combinations to be compromised. This type of lock is also capable of reporting at a minimum the last 1000 transactions that are recorded on the lock. One disadvantage of this type of lock is that they have to be programmed by some type of handheld device connected directly to the lock. This type of lock is also not capable of providing any type of alarm if the door that it is on is compromised.

4. The next highest level is electronic card access. This method of securing rooms and areas is the general standard with most companies for securing mid- to high-level areas. This form of access is relatively secure, especially when used in combination with CCTV monitoring and archiving. This type of lock should be used on most exterior doors, and some internal doors, especially executive office areas, computer rooms, telecommunication rooms, high-value equipment and tool rooms, research laboratories, and residence halls.

Higher security areas

Areas of buildings in which cash or other negotiable instruments are to be kept in quantities exceeding $1000 should have provisions for a safe. Standards for such safes are found in section 2.14.

Areas in which the total of the cash or negotiable documents will, at any time, exceed $20,000 should have a high security room (see standards in section 2.14) in which the required safe is located. These rooms are not designed to be vaults but simply higher security than normal construction.

Rooms designed to contain items that require higher security should be constructed with walls containing ¾" plywood under the outer layer of gypsum board. This plywood should be on the exterior of the room wall.

General Principles

Standards for high security rooms

- Doors should be hollow metal (steel) with hollow metal door frames.
- Equip each door with security hinges, a peephole, a door closer, and a deadbolt locking device.
- The ceiling should be a hard ceiling with a layer of plywood behind the gypsum board.
- The floor should be of poured concrete construction.
- HVAC openings into the walls or ceiling should be no larger than 4" by 12".
- If the valuables are easily marketed, such as cash, the room should be equipped with a separate alarm system including door contacts and motion detection.
- High security rooms should not open into a general employee or public area.
- The door to these rooms should be within the view of a CCTV camera.
- A duress alarm should be installed at each teller, cashier, or business transaction desk of these areas. The duress alarm should report to a 24 hour monitoring station whether it is on or off campus.
- Cash handling positions should be within the view of CCTV cameras with the images archived for at least 30 days.
- Money drops (points at which a bag or envelope containing money can be dropped at a cash handling point after hours) should be of approved burglar resistant construction. Use of mail drops for money drops is not acceptable.

- The window through which transactions take place can be an attractive target for a "snatch and run" criminal. All such windows should include metal doors that can be rolled down at the end of the day or in case of emergency.

SECTION 1: SITE PLANNING

1.01: Perimeter Control

General principles

- Identify *control points*. These include security outbuildings, visibility from key buildings commonly occupied by responsible individuals, or surveillance systems. Concentrate control points on those pathways by which the majority of vehicular and pedestrian traffic enters and exits the campus.

- Maintain visibility: the goal is transparent security (seeing and being seen).
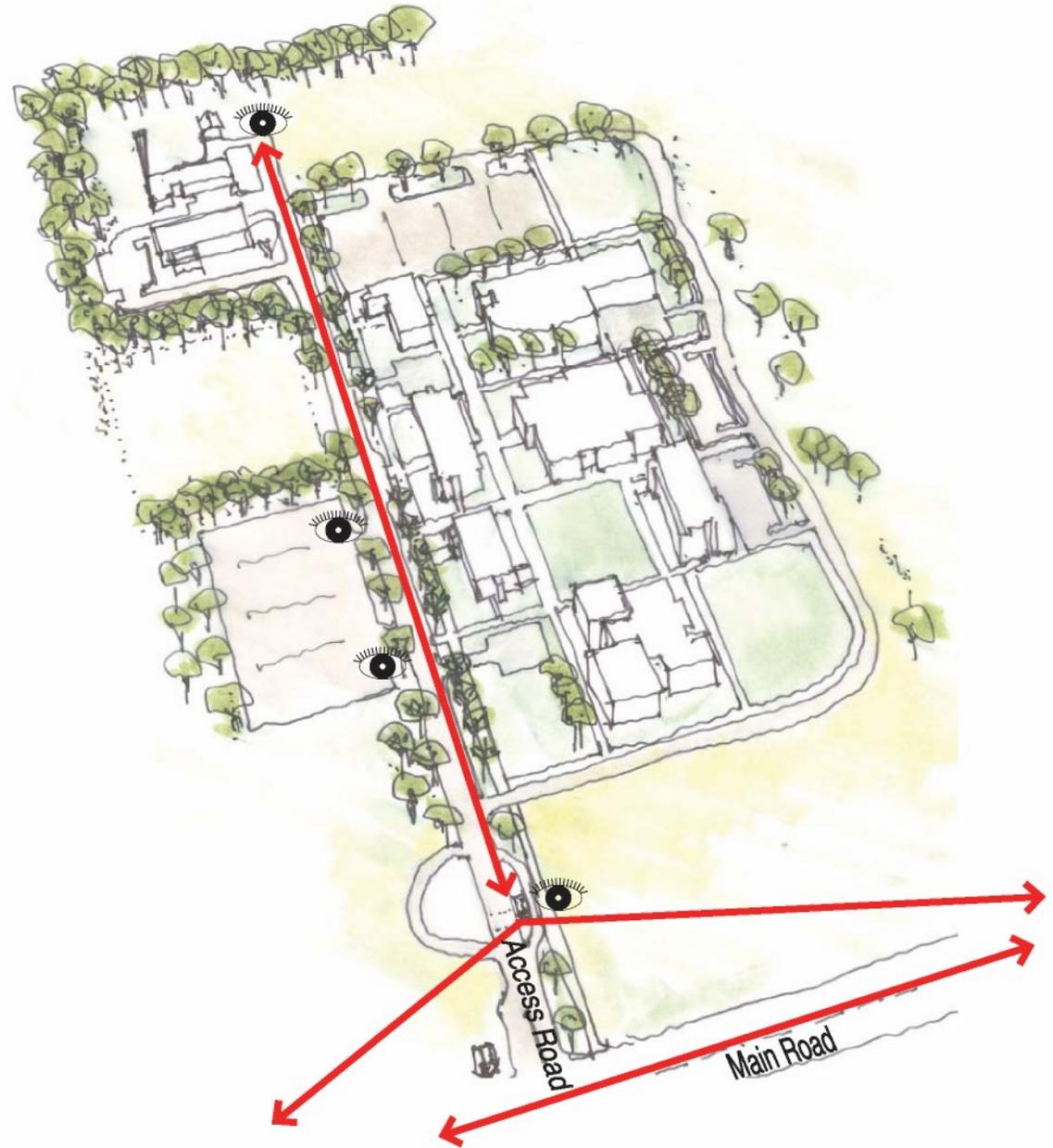
1.01: Perimeter Control

Visually defining the perimeter

- The perimeter should have clearly identifiable points of access to the site. Restrict the number of access points to as few as possible while still considering the impact on traffic flow. Physically close off unused or abandoned access points.

- Consider video surveillance (CCTV) at key areas of the perimeter.

- Locate retaining walls and other site enhancements within sight of a supervision/control point.

- Define the perimeter with fences, signs, and changes in landscaping to make it immediately apparent when one has entered the property of the campus. (Typically, landscaping and curbing/sidewalks are used. Fencing is often not possible or is cost prohibitive, but may be appropriate in some cases.)

Monument or gateway signs, such as this gateway at Bemidji State, clearly mark the campus perimeter.

A combination of parking signage and branding flags help to define the campus boundary along a public street.

= Control Point

Visual Control Zone

Campus Perimeter

Property Perimeter

1.02: Parking

Parking signage

- Controlled parking is one way for campus administration to indicate to the entrant that there will be expected levels of conforming behavior on campus.

- Parking should be visible from surrounding buildings and pedestrian paths. Provide proper signage clearly indicating the type of parking (visitor, student, faculty, van pool, carpool, hybrid cars, etc.).

- Clearly mark "No Parking" areas, and other restricted parking areas, throughout the campus. Behavioral signage such as "Smoke Free Campus", "Firearms prohibited beyond this point", "Visitors please report to [office] for visitor pass", etc., may be appropriate in these areas as well.

Specialty signs identify restricted parking areas.

👁 = Control Point

↔ = Primary routes to parking
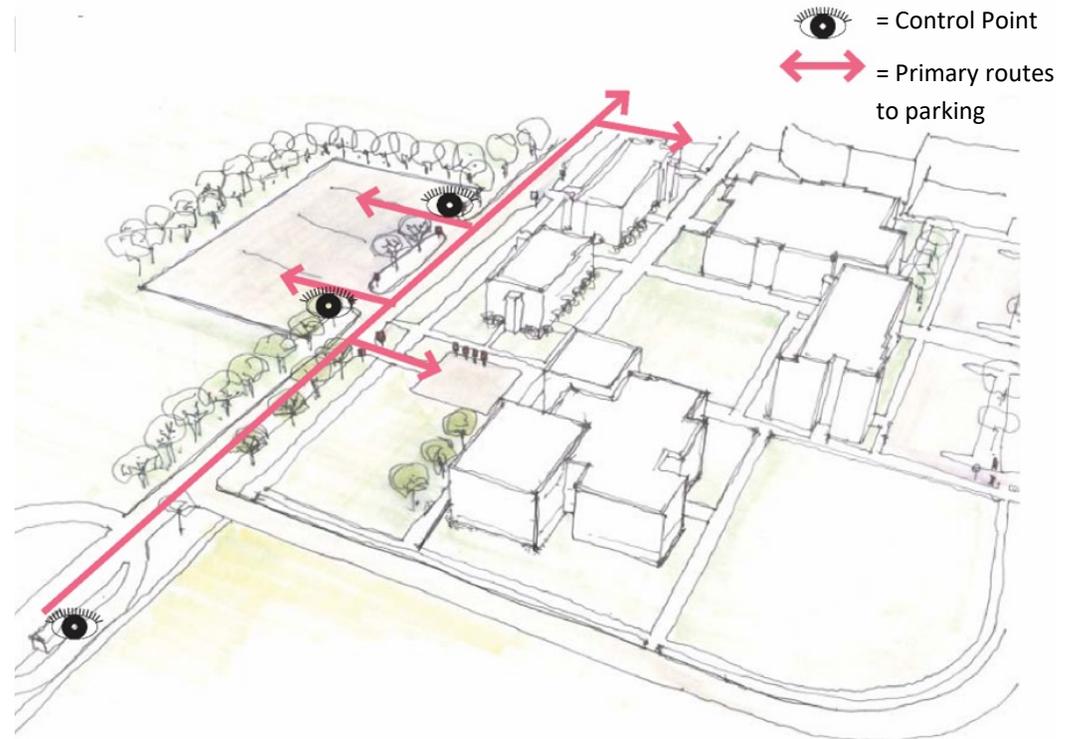
1.02: Parking

Parking access

- The parking lot is the point at which the driver will become the pedestrian. Pedestrians are much more vulnerable to crime; this should be taken into account in the design and support of parking areas. Equip parking lots for staff and students with emergency call stations at strategic locations.

  ◊ Blue light call stations are sometimes considered obsolete due to the ubiquity of cell phones. However, if accosted or surprised, most crime victims never get to their cell phones, which are often held in purses, backpacks, or pockets. Call stations also make excellent rally points during evacuations. The added sense of security and immediate availability, plus additional features available such as loudspeakers and camera capability, make call stations an attractive security enhancement.

- Consider video surveillance (CCTV) at key areas of the perimeter.

- When parking lots use controlled access, implement appropriate equipment, such as barrier arm gates, card readers or keypad controls, and video.

- Establish clearly identifiable access to pedestrian circulation systems from parking areas.

- When possible, orient parking lot drive aisles perpendicular to primary sidewalks or pedestrian pathways, to provide greater safety and visibility for pedestrians within parking lots.

Before: Drive aisles in this parking lot are parallel to the main building and sidewalks, creating unsafe conditions where pedestrians must walk between parked cars to get to the building entrances.
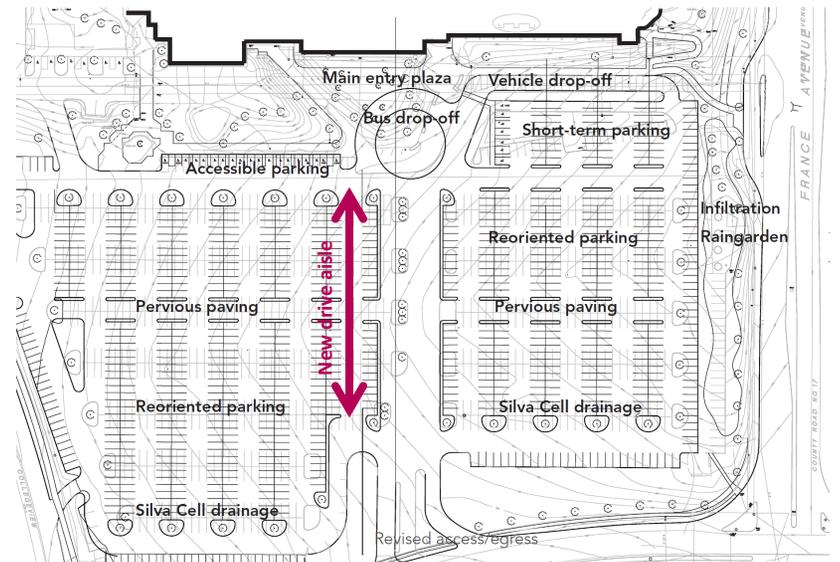
After: Parking lot renovations reorient the drive aisles to be perpendicular to the main building, providing greater safety and visibility by allowing pedestrians to walk down the aisles.

1.03: Vehicular Circulation

Primary vehicular circulation

- The entry drive should be accessed through control points and should include the ability to direct vehicular access to the campus, i.e. gate houses, etc.

- Provide entry drives with appropriate lighting to establish identifiable entry points at night.

- Single entry/exit points to campus destinations will facilitate safety. Criminals desire multiple points of escape; restricting those points of escape will result in a safer environment.

- Minimize the number of entry points while still taking into account adequate traffic flow. Some entry points may only be open during times of peak traffic flow (sports events, theater performances, etc.) and physically closed at all other times.

= Control Point

= Roads

Main Campus Road
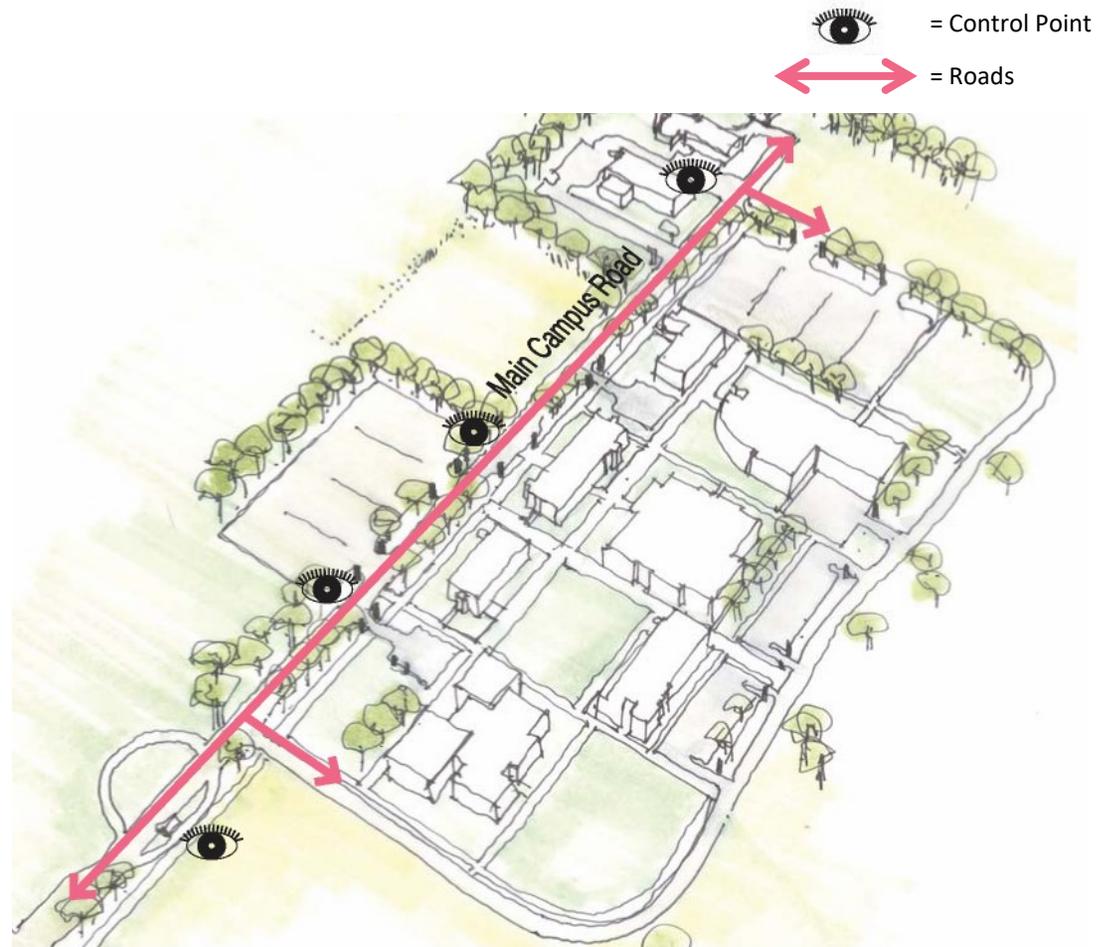
1.03: Vehicular Circulation

Secondary vehicular circulation

- Secondary vehicular drive routes should be clearly identifiable from the entry drive.

- Interior drive routes should be clearly visible from campus buildings and entries.

- Interior campus drives should be illuminated at night for safety and visibility.

- Do not screen campus drive intersections with plants or landscaping.

- Use CCTV coverage where high-volume vehicular and pedestrian traffic intersect and when security issues exist at these locations.

= Control Point

= Roads
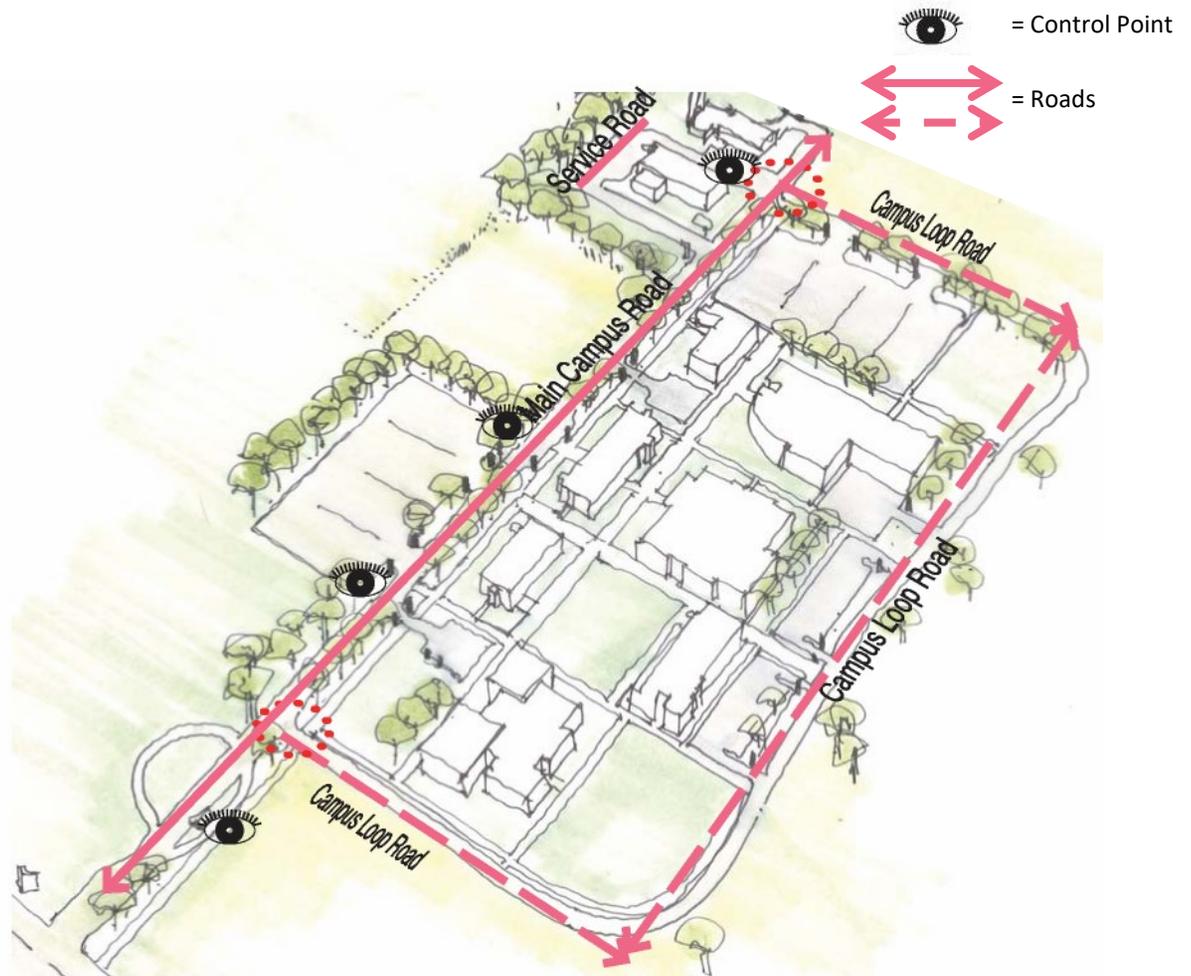
1.03: Vehicular Circulation

Service areas

- Post appropriate restrictive parking signage at loading areas. This signage should prohibit parking by any vehicle not actively involved in loading or unloading.

- Personnel loading/unloading areas are typically located at the main entrance to a facility. Decorative bollards and/or planters should be installed at these areas to provide a stand-off and to prevent vehicles from getting too close to the facility.

- Consider placing video surveillance (CCTV) at loading dock areas for shipping and receiving. These areas are often the most vulnerable access areas on campus.

= Control Point

= Roads

= Service Area
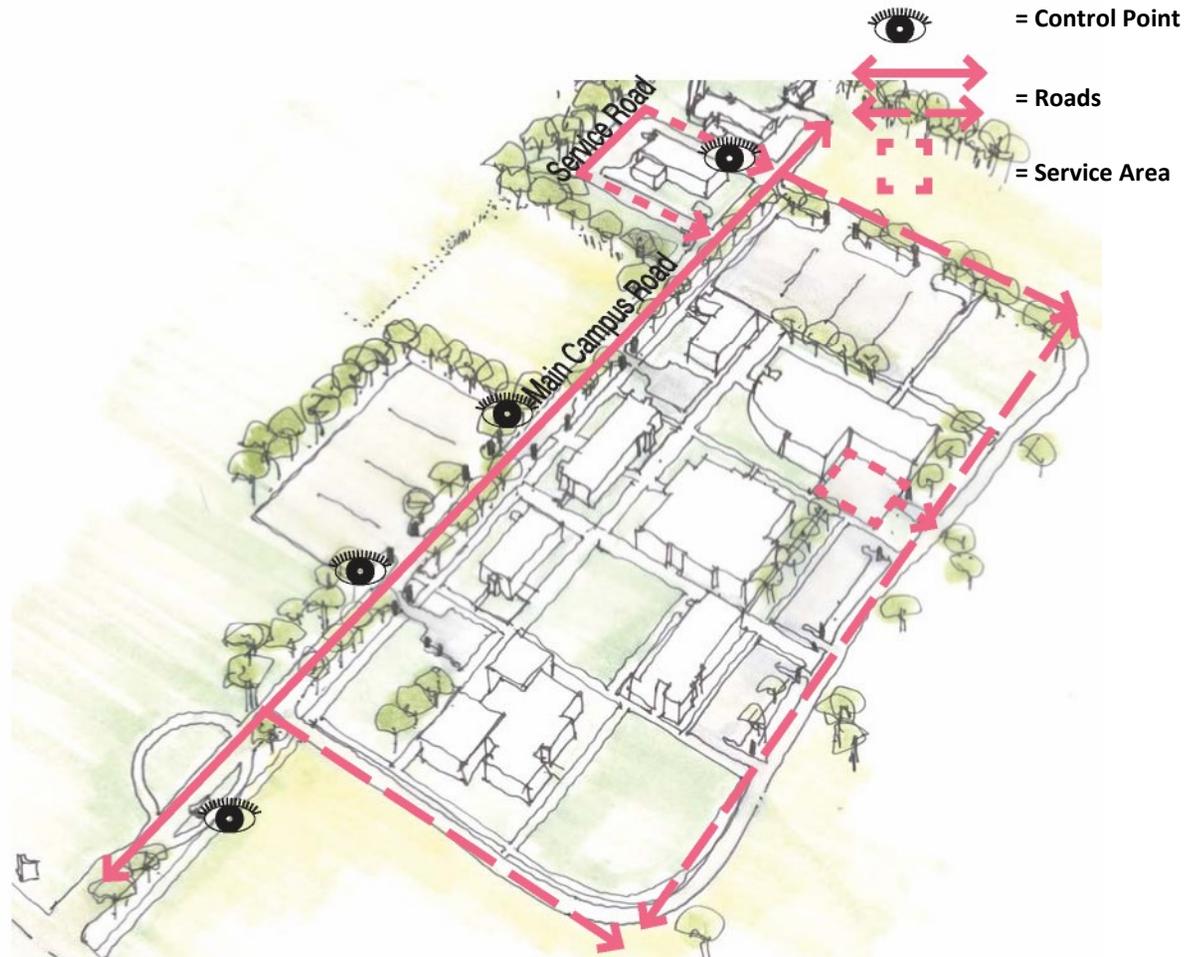
1.04: Bicycle Circulation

Bicycle circulation routes

- Consider bicycle circulation when planning automotive and pedestrian circulation routes. When planning bicycle routes, consider the location of public transit routes.

- Clearly designate bicycle circulation routes to separate them from automotive circulation in heavy traffic areas. Clearly mark bicycle circulation routes on sidewalks or other places where riders and pedestrians come into contact.

- Establish clearly marked "Pedestrian Only" areas where there is heavy pedestrian circulation.

- Bicycle riders should have easy access to bike racks at every building to deter the use of campus furniture for bicycle parking. Place bike racks in highly visible areas that do not create circulation bottlenecks.

These bicycle racks are located adjacent to a major pedestrian path to provide access without disrupting pedestrian traffic flow.

👁 = Control Point

↔ = Bicycle Routes

← - → = "Pedestrians Only" Circulation
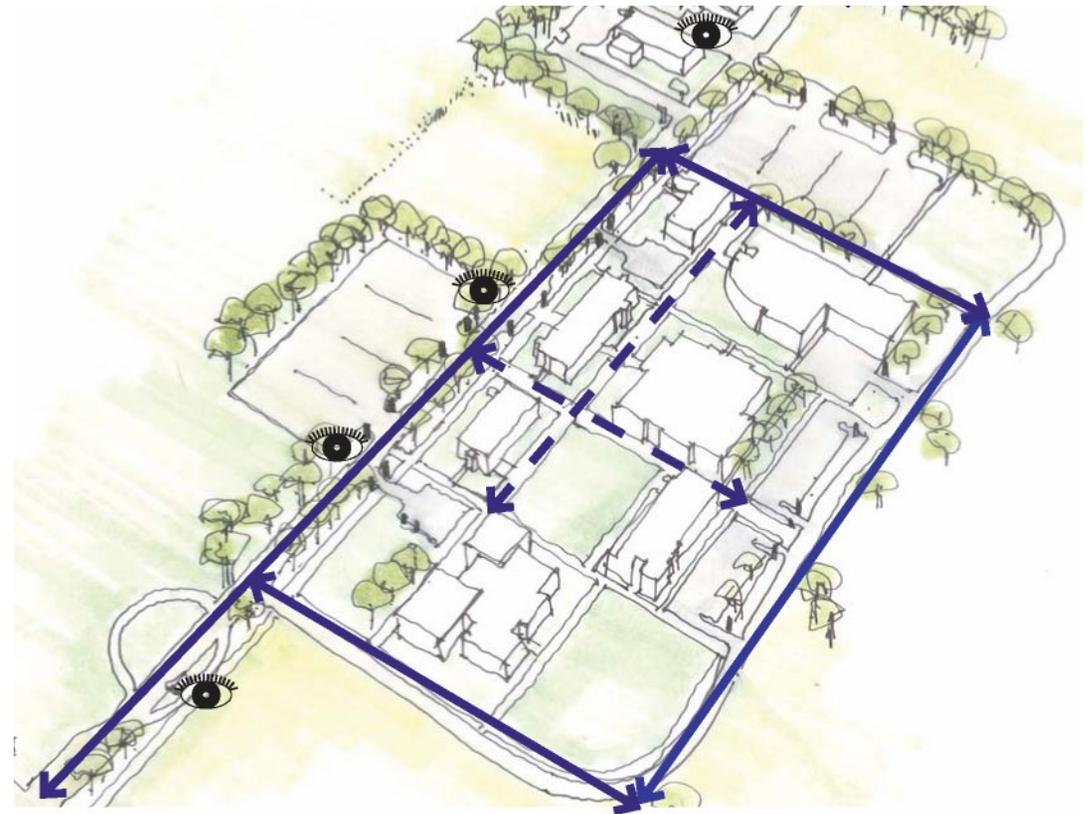
1.05: Pedestrian Circulation

Primary pedestrian circulation

- Clearly separate pedestrian circulation from vehicular circulation with curbs, boulevard strips, or bollards.

- Locate a buffer zone or "clear" zone between pedestrian circulation pathways and site features that might create blind spots for pedestrians, such as plant material or points of concealment.

Pavers or stamped concrete can help mark a transition between vehicular and pedestrian circulation.
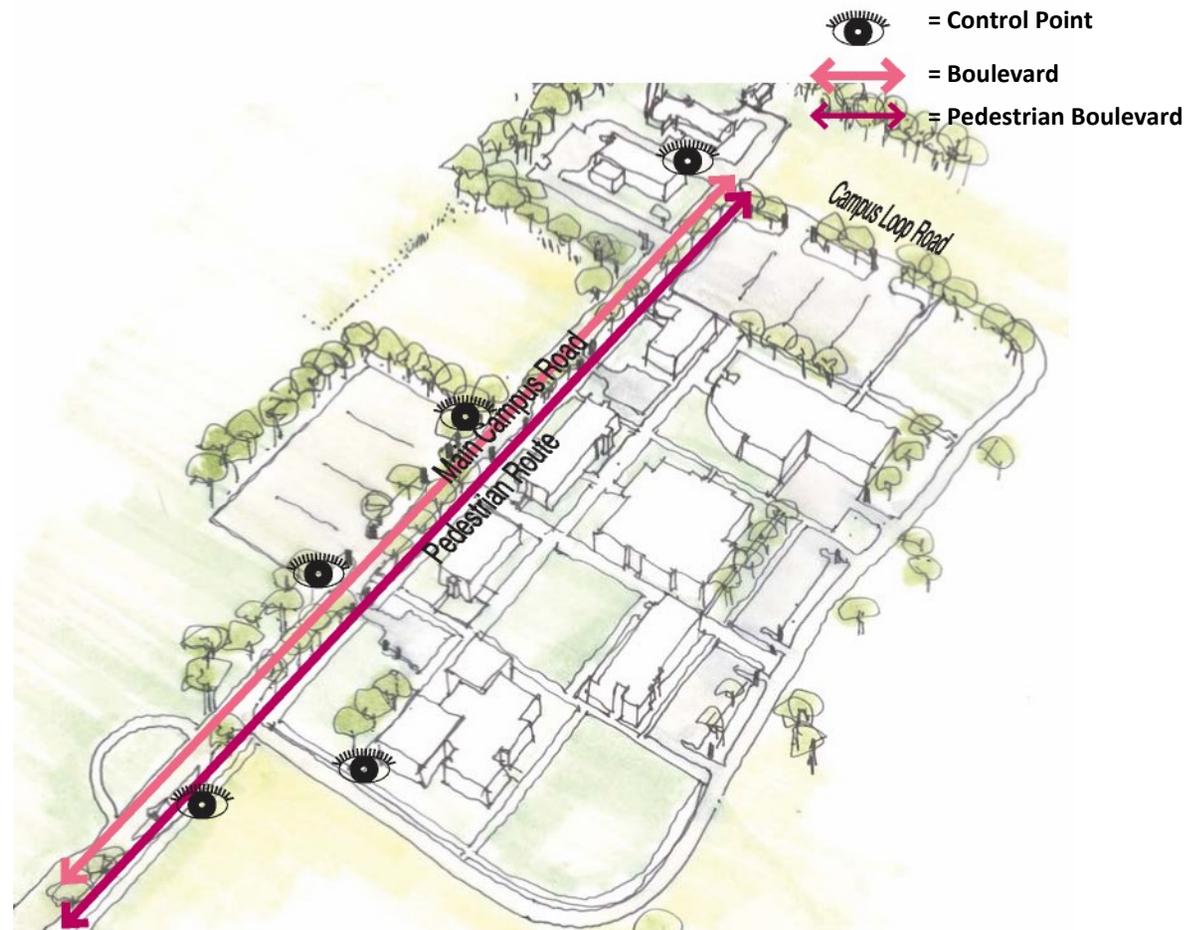
= Control Point
= Boulevard
= Pedestrian Boulevard

Campus Loop Road

Main Campus Road

Pedestrian Route

1.05: Pedestrian Circulation

Primary pedestrian circulation

- Primary pedestrian circulation routes should have clear lines of sight through the campus to create a sense of safety between buildings.

- Primary pedestrian circulation routes should have clear relationships to building entries.

- Primary pedestrian circulation routes should have multiple visual control points to maximize natural or casual surveillance.

- Consider CCTV use in locations with heavy pedestrian traffic at night.

This upper pathway does not have a clear relationship to a building entrance.
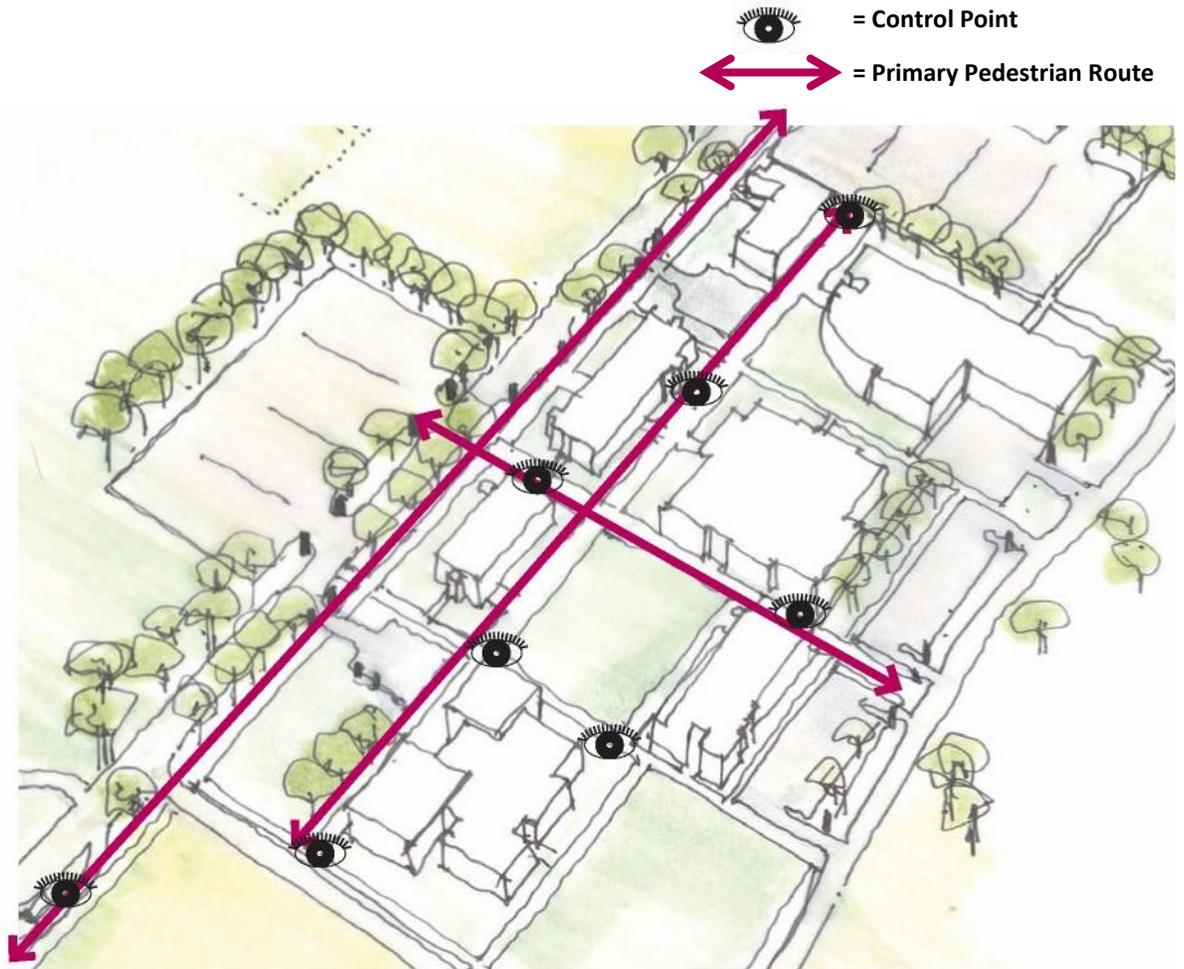
👁 = Control Point

⟷ = Primary Pedestrian Route

1.05: Pedestrian Circulation

Secondary pedestrian circulation

- Secondary pedestrian circulation routes should have clear relationships to primary routes, and should feed into the primary circulation routes where possible.

- Secondary pedestrian circulation routes should have at least one point of visual control and/or supervision.

- Maintain visual access between primary and secondary access points. Avoid locating visual obstacles at intersections.

- Carefully consider potential points of concealment for criminal perpetrators when evaluating pedestrian routes.

- Pedestrians will not always use the designated pathways but may instead choose alternate pathways based on convenience, distance, etc.; take this into consideration when planning and designing the campus.

- Locate emergency call stations strategically throughout pedestrian pathways (sidewalks and otherwise).

= Control Point
= Primary Pedestrian Route
= Secondary Ped. Route

INFORMAL ROUTE

INFORMAL ROUTE
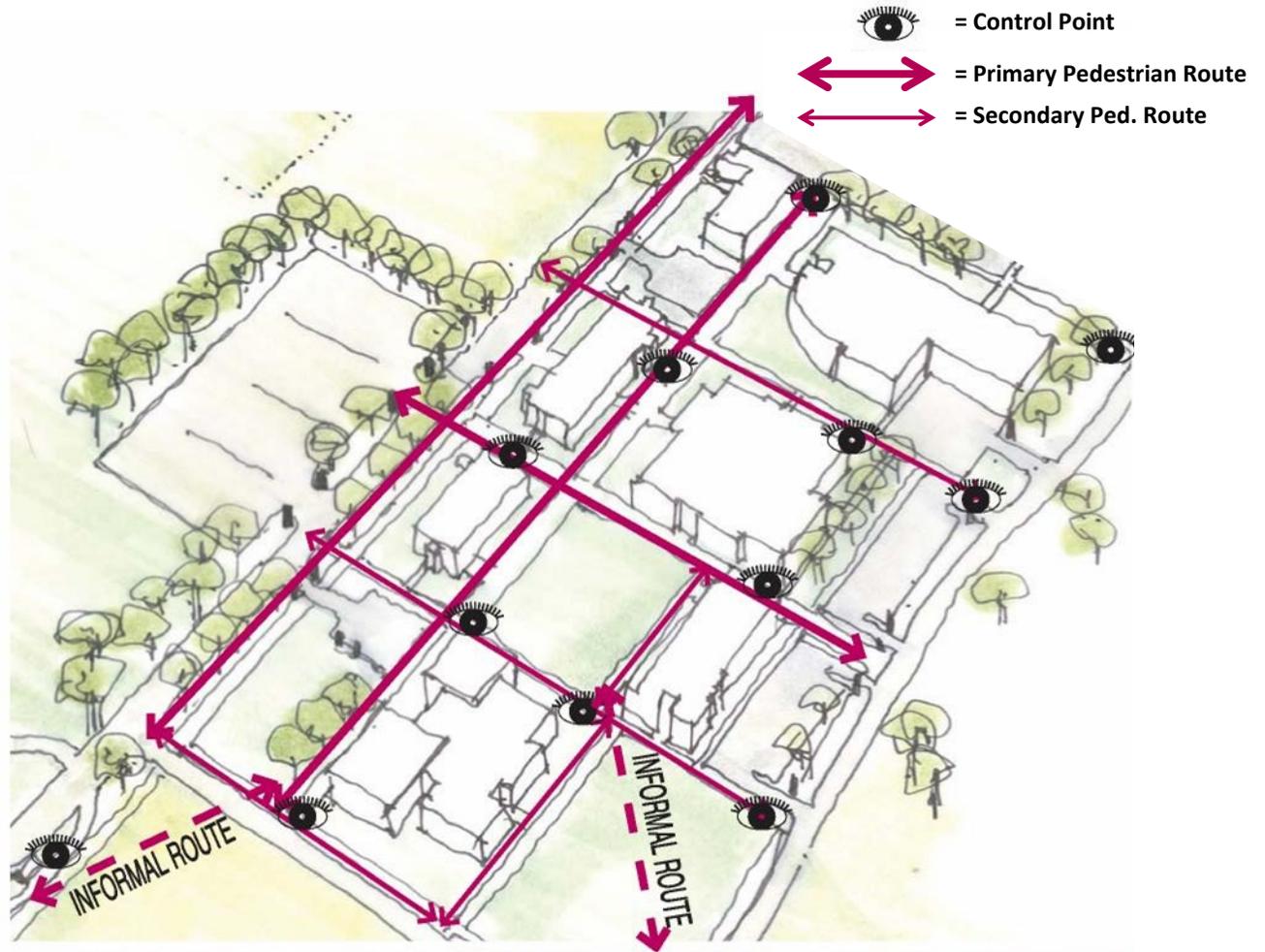
1.05: Pedestrian Circulation

Tertiary pedestrian circulation

- Tertiary circulation routes should have one clearly identifiable point of control from the adjacent buildings.

- Tertiary routes should have a clearly identified connection to primary pedestrian circulation routes.

- Tertiary routes should have at least two clearly identifiable routes of escape.

- Consider placing video surveillance (CCTV) and emergency call stations along circulation routes in remote locations of the campus.

= Control Point

= Primary Pedestrian Route

= Secondary Ped. Route

1.05: Pedestrian Circulation

Locate pedestrian infrastructure, like bus stops and benches, adjacent to pedestrian paths so foot traffic is not disrupted.

"Desire lines", like this informal pathway, often indicate a need for additional pedestrian infrastructure.

This outdoor stairwell is hidden behind a corner and a large evergreen shrub, creating a potentially dangerous hiding place.

If emergency exit doors must open onto a primary pedestrian route, provide protective railings within the door swing area.

1.06: Exterior Furnishings and Art

Placing furnishings and art

- Locate exterior furnishings in areas where they can be actively used by students, staff, and visitors.

- Group exterior furnishings to provide convenience and safety.

- Locate exterior furnishings in areas where casual observation may be possible.

- Exterior furnishings should be capable of being permanently mounted into place.

= Control Point

= Area for Furnishings
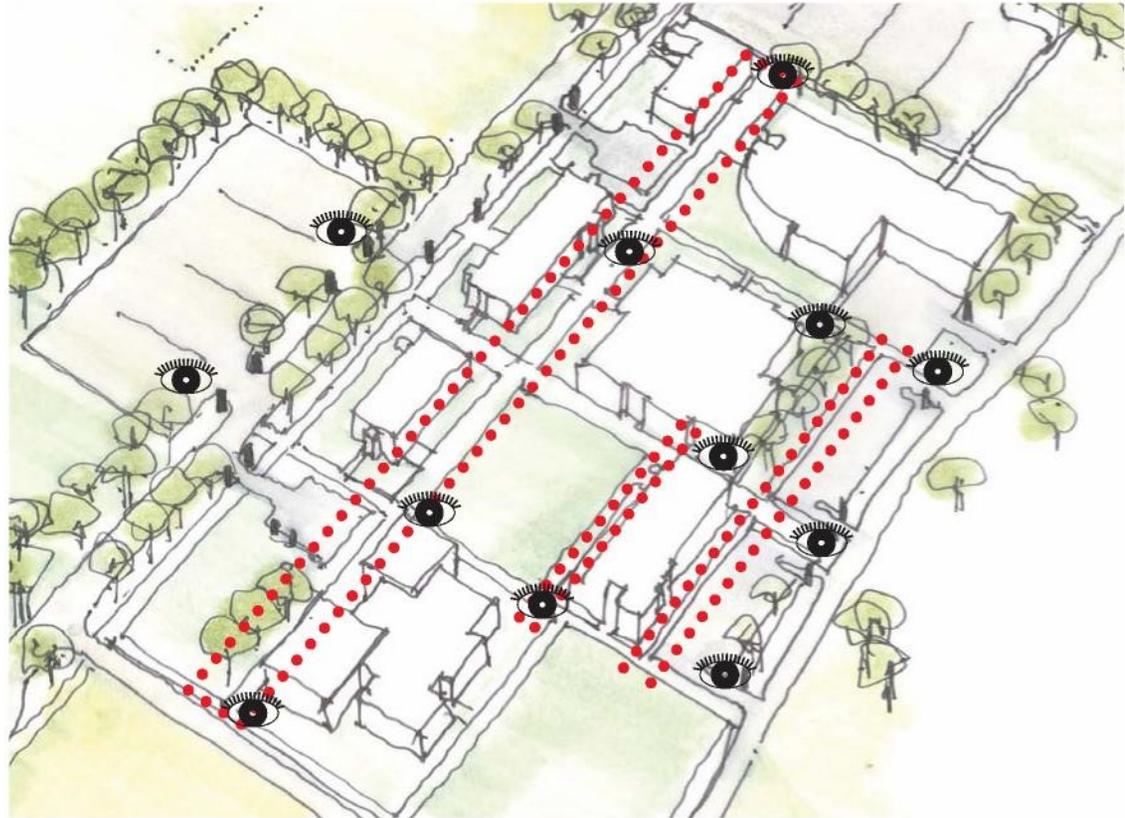
1.06: Exterior Furnishings and Art

Placing site art objects

- Art objects should not obstruct circulation or vision along circulation routes.

- Art objects should create opportunities for wayfinding.

- When possible, small art objects should be small enough to deter people from hiding behind them.

- Large objects should be placed to minimize visual obstruction and maintain clear lines of sight. When possible, use additional measures (e.g. fencing) to prevent access to the object.

The bench and art are placed adjacent to sidewalks to minimize foot traffic disruption.

= Control Point

= Area for Art
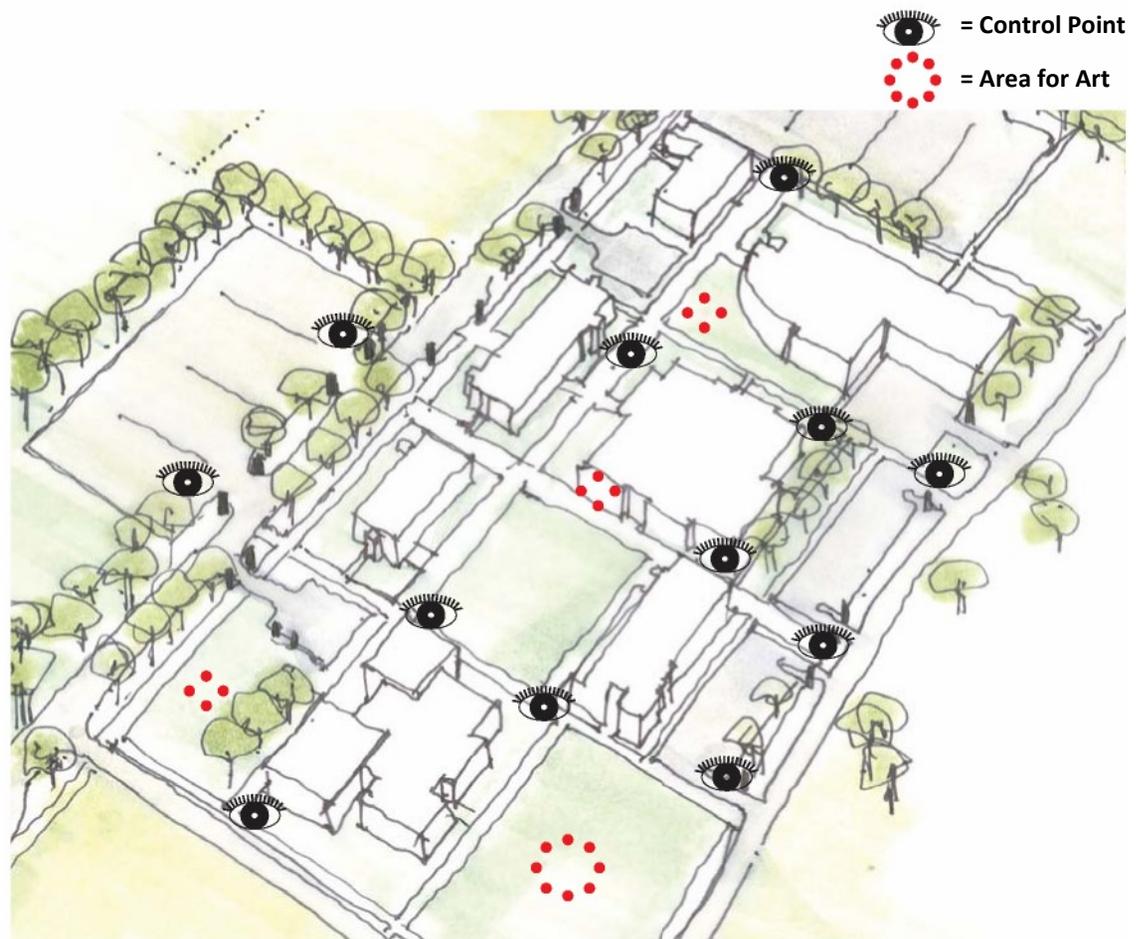
1.07: Landscaping

Selecting trees and shrubs

- Provide a clear zone of sight beginning at 30" from the ground and extending to 84" from the ground.

- Select trees so that the limbs start no lower than 84" above the ground. Existing deciduous plants should be 'limbed-up' as required to establish clear lines of sight.

- Trees being considered for installation should be evaluated for the crown size and diameter of the tree trunk ten years in the future, to reduce the potential for blind spots and hiding areas.

This tree canopy is high enough from the ground to maintain clear sight lines, minimizing blind spots.
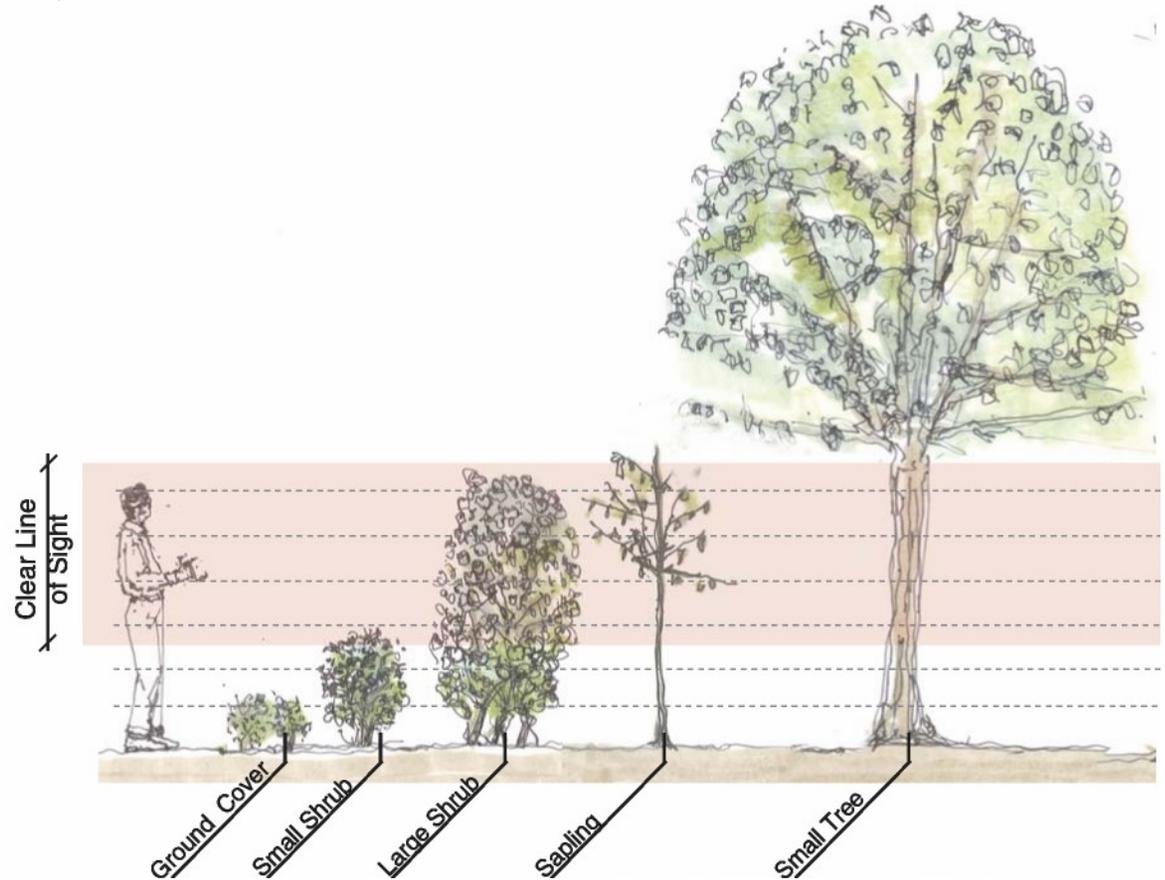
1.07: Landscaping

Plant material and sight lines

- Select shrubs that are expected to attain no more than 30" in height with annual or bi-annual pruning.

- For plantings adjacent to buildings and pedestrian circulation routes, select shrubs based on the density of the foliage and branches when planted, to eliminate hiding places or obscured signage.

- Low ground cover vegetation is preferred adjacent to pedestrian sidewalks, steps, or pathways, to maintain clear lines of sight along the path.

The low shrubs next to this sidewalk help maintain clear sight lines for pedestrians.

Ground Cover   Small Shrub   Large Shrub
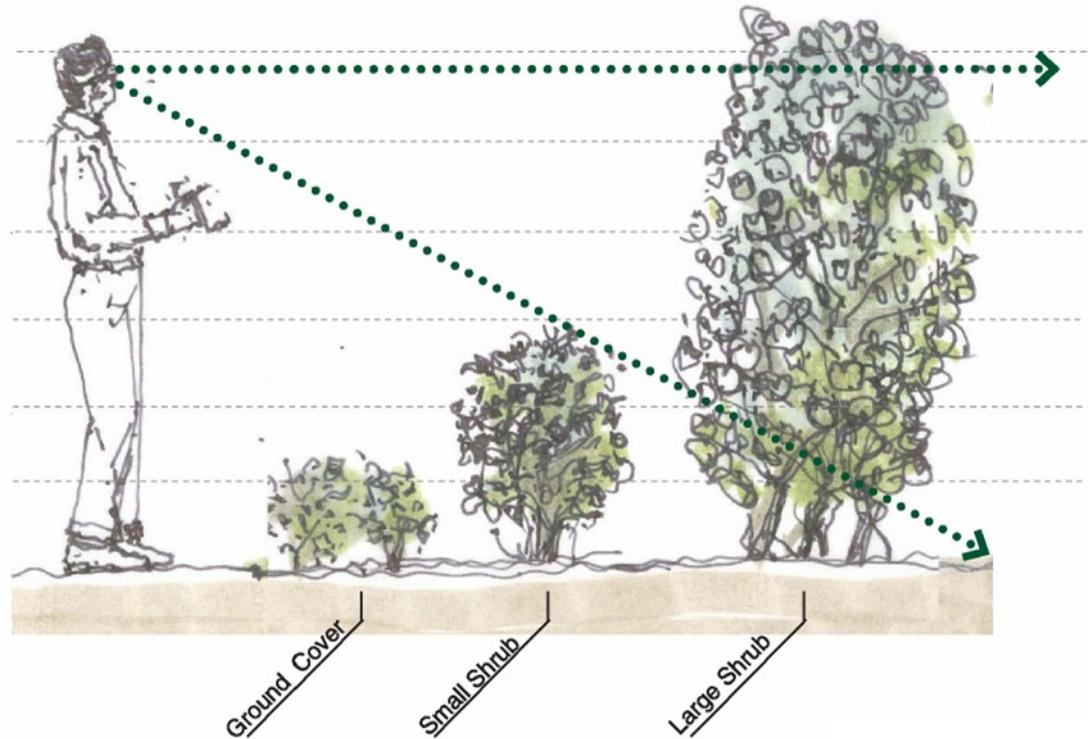
1.07: Landscaping

Landscaping and maintenance

- Proper landscape maintenance opens up the area to visual inspection and casual surveillance by campus administrators, faculty, students, security officers, and law enforcement.

- Keep trees and shrubs clear of lighting fixtures to maximize light distribution, especially in or near parking areas where established trees that have grown may curb the distribution of light that once existed.

- Pay close attention to shrubs located near doors, pedestrian sidewalks, pathways, and steps. Eliminate any potential concealment areas behind shrubs and maintain sight paths for security and safety observation.

- Carefully consider security camera locations, as vegetation can block video surveillance. Trim trees and shrubs to maintain clear sight lines for video surveillance.

= Control Point

Defined Edge

Defined Edge

Open space with clear sightlines

Defined Edge

Main Campus Road

Boulevard plantings strengthen visual axis

Open space with clear sightlines
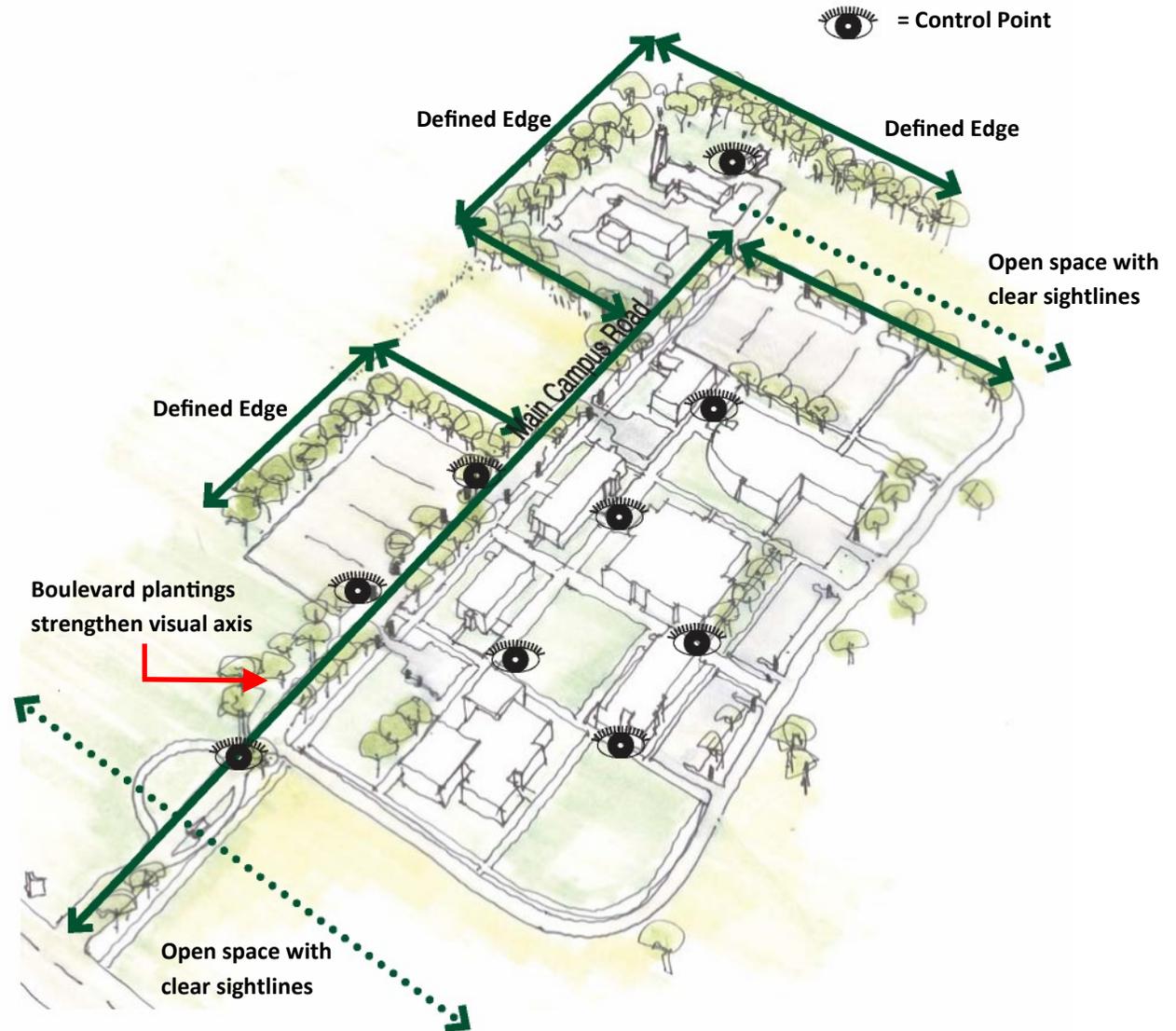
1.08: Site Lighting

Site lighting types and levels

- Even lighting levels assist people in identifying potential threats.

- Site lighting can be separated into two types: **surface lighting** and **task lighting**.

  ◊ **Surface lighting** levels are measured at the ground plane or vertical surfaces such as buildings and retaining walls.

  ◊ **Task lighting** levels are measured above the ground plane, typically at 30". Task lighting increases safety for people performing tasks such as unlocking vehicle doors.

- Control external lights with photocells measuring exterior light levels, rather than timers, to ensure that lights are on at appropriate times of the day.

- In parking areas that are not heavily used, consider using motion sensitive switches and "instant-on" fixtures.

Surface light level = 0.5 fc

Task light level = 10 fc
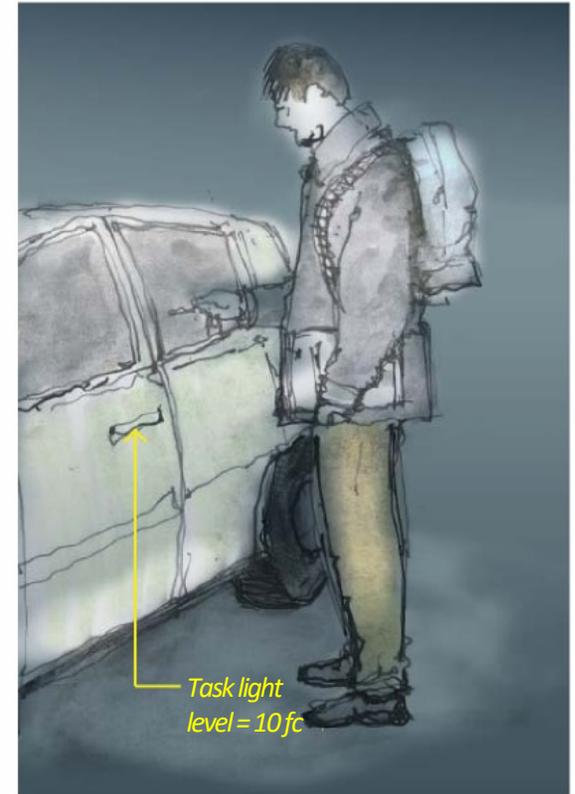
1.08: Site Lighting

Site lighting types and lighting distribution

- Select and locate lighting fixtures to prevent glare.

- Minimize the use of decorative or accent fixtures to provide ambient lighting; instead, consider lighting fixtures that are designed to direct all the light towards a surface.

- Accent or decorative lighting may be used to provide a visual cue for pedestrians to use routes that are more controlled at night.

- The output of gas discharge lighting changes based on temperature. Lighting should be considered based on its output during the coldest anticipated weather.

- Emergency call stations should be accompanied by lighting.

- Sensitive areas that require CCTV monitoring should be properly illuminated to serve both as a deterrent and to aid monitoring the location.
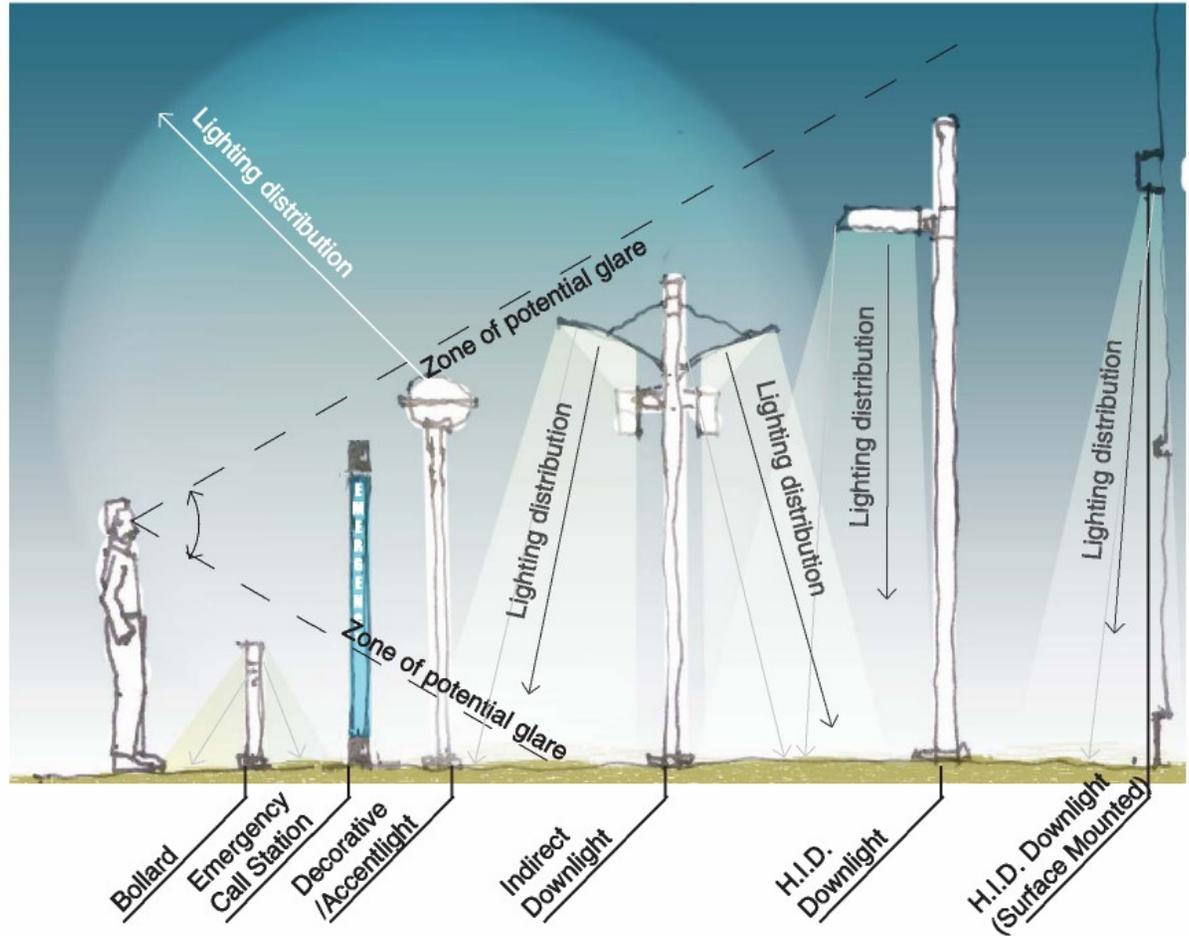
1.08: Site Lighting

Primary illuminated routes

- General lighting along pedestrian sidewalks, along pedestrian pathways, in courtyards, and in any other area where pedestrians might be normally found during hours of darkness, should be at a uniform 0.5 foot-candles (fc) at a minimum.

- Surface lighting along primary pedestrian circulation routes should be coordinated with visual control points.

- Surface lighting levels on primary pedestrian circulation routes should also illuminate buffer zones.

- Accent or decorative lighting may be used to designate primary routes of circulation at night, but should not replace functional down lights.

👁 = Control Point

1.08: Site Lighting

Secondary illuminated routes

- Task lighting in parking lots should be 10 foot-candles at 30" above the ground plane.

- Overhead lighting in parking lots should be clear of any obstacles, such as trees. When selecting lighting and trees, consider the size of the tree ten years in the future.

- Lighting at secure entries or control points should 10 foot-candles at the surface.

- Lighting at secure entries or control points should create a buffer or safety zone at night.

- Surface lighting levels at secondary building entries should be the same as lighting levels at primary entries.

- For lighting adjacent to circulation routes, avoid "up-lighting" fixtures below the line of sight. This can create glare.

= Control Point

1.09: Site Signage and Wayfinding

Site signage

- Two types of signage are predominantly used on campuses: informational signs and command signs. Informational signs inform but do not advise of required behavior. Command signs tell people what to do or what not to do.

- Signs indicating desired or prohibited behaviors should be posted in adequate numbers to ensure they are clearly seen. If necessary, use graphics or multiple languages on signs to ensure clear communication.

- Signage at the perimeter should be clearly identifiable.

- Use trailblazing signage, such as banners mounted on light posts, to delineate the perimeter of the campus and enhance wayfinding.

- Use monument or gateway signage at primary vehicular entries to identify controlled access points.

- Install gateway signage at secondary entrances.

- Use small monument or bollard signage to define pedestrian access points separate from vehicular access.

- Use signage to clearly identify service entries.
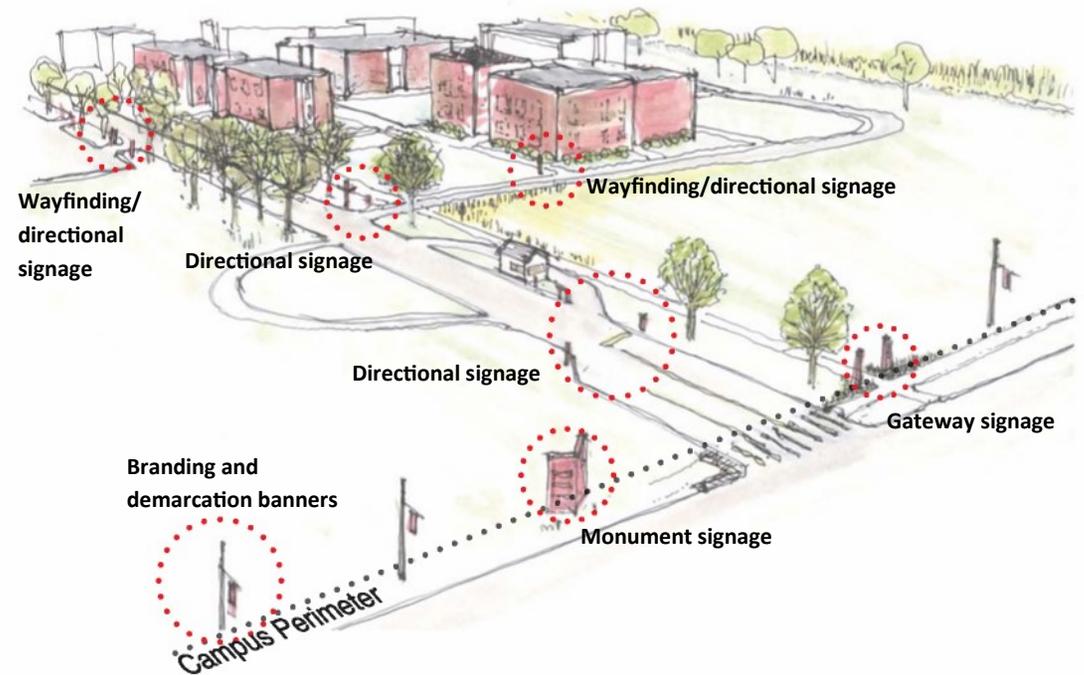
Site signage types and locations

Place wayfinding signs at major sidewalk intersections to guide visitors.

1.09: Site Signage and Wayfinding

Parking and directional signage

- Signage for parking should clearly identify the location of the parking as part of the campus.

- Signage for parking should clearly identify visitor parking and special permit parking in a consistent manner.

- Prominently identify primary routes to significant buildings on campus to control vehicular traffic.

= Control Point

= Wayfinding point/key signage point
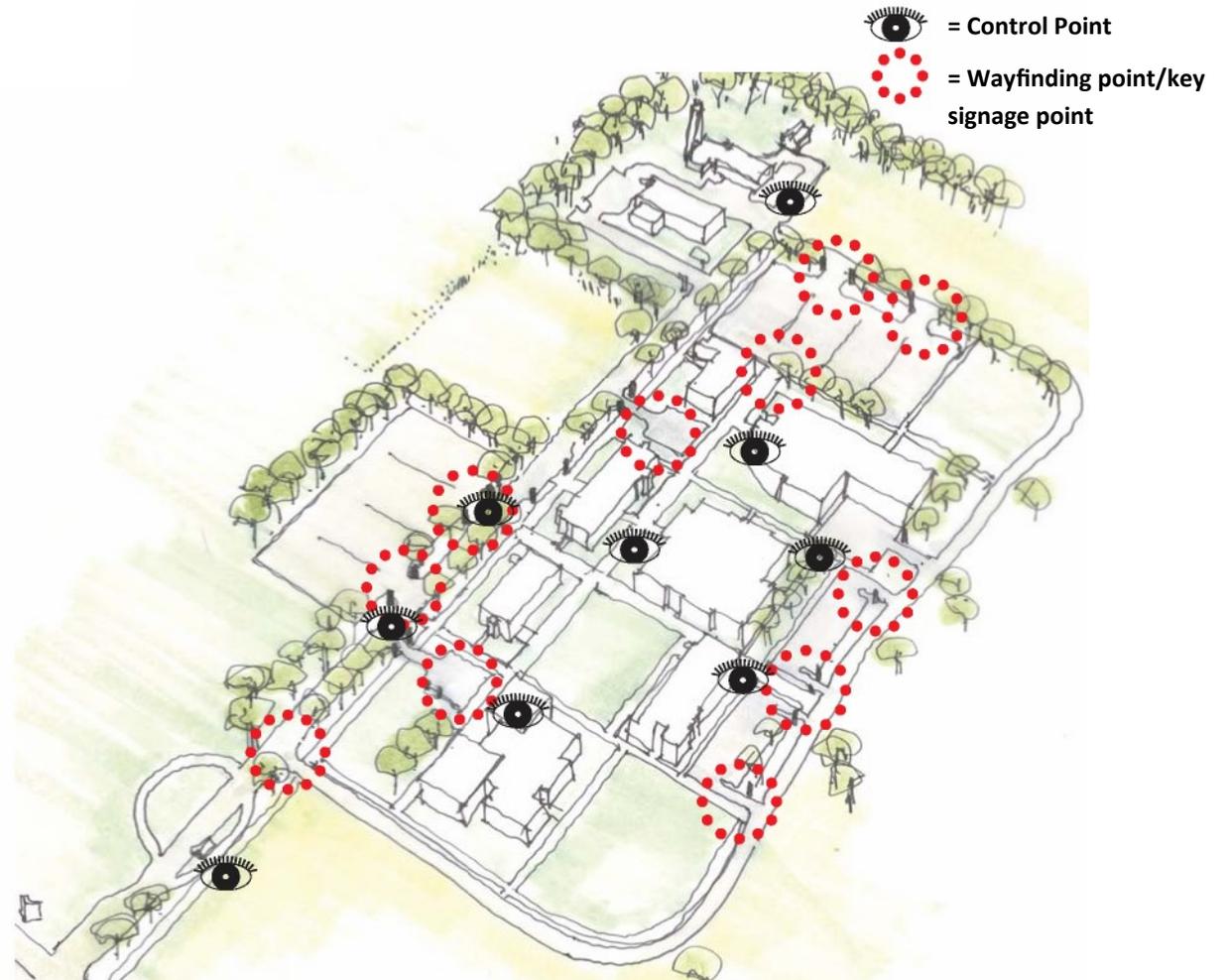
1.09: Site Signage and Wayfinding

Access signage

- Clearly identify service routes and parking with appropriate signage.

- Locate signage for buildings at primary and secondary building entrances.

- If buildings have varied levels of access, these varied levels should be clearly designated by signage at entry points. Levels of access may include personnel-related levels, as well as time-of-day or day-of-week related levels.

- Use signage to designate exterior doors in a sequential numbering system, from left to right, starting at the primary entrance. Use decals inside and out at each door to facilitate first responder access. Outside numbers should be large enough and contrast enough to be seen from the nearest vehicular path to the entryway.

- If the campus uses a visitor accountability process, place signage at each entry point to indicate where visitors should go to obtain a visitor's pass or escort.

= Control Point

= Wayfinding point/key signage point
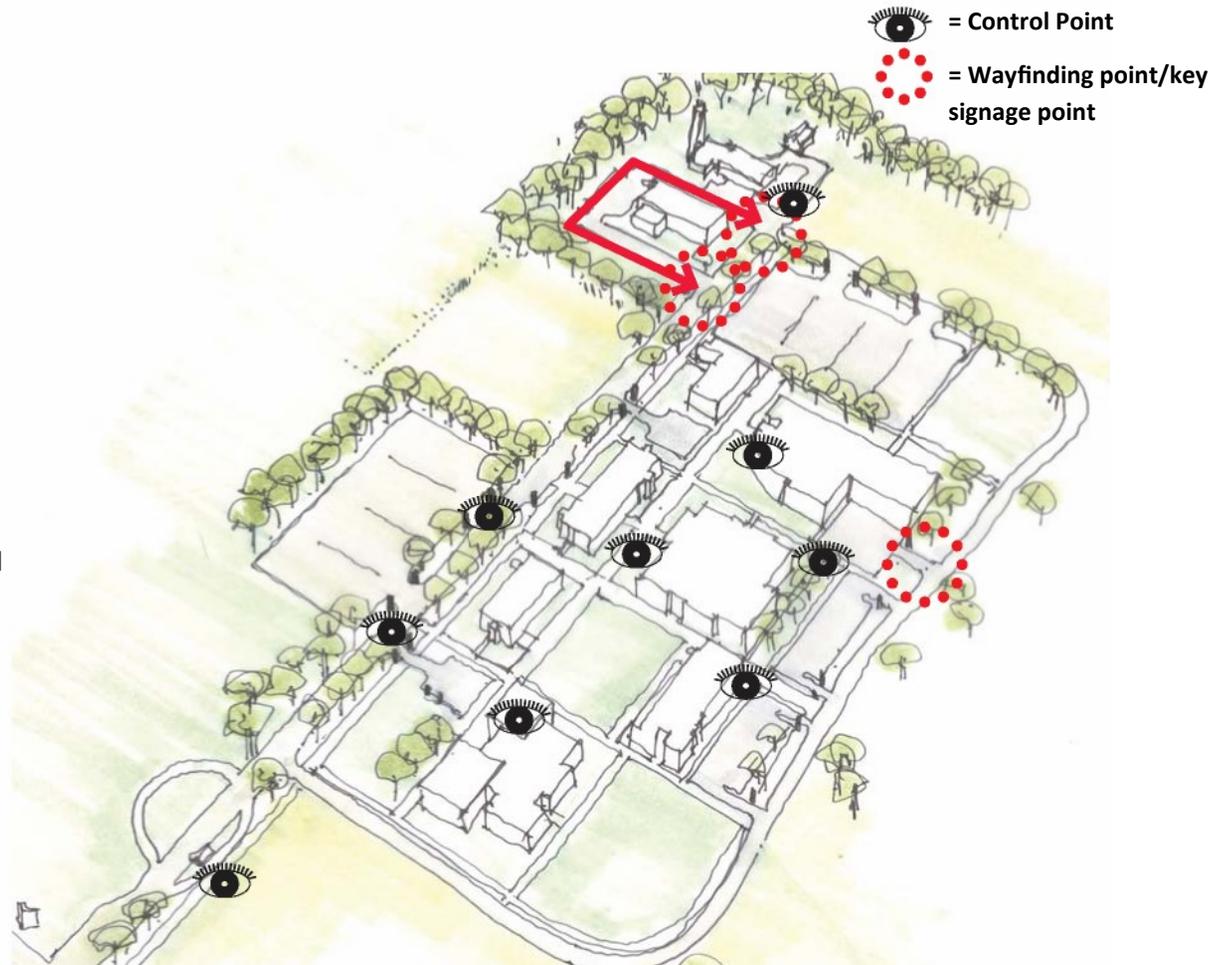
SECTION 2: BUILDING DESIGN AND PLANNING

2: Building Design and Planning

General principles

- While careful site design is the first step in creating safe environments, security within buildings is an important consideration as well.

- Areas of transition, such as building entries and doorways into classrooms or offices, are locations of vulnerability and should be designed to reduce potential threats. Controlling entry and exit points of buildings, through thoughtful design and door hardware specifications, leads to increased security. Building exits that are not required should be eliminated.

- Another important security consideration for building design is controlling access into the building, including visual access in areas where privacy is important (e.g. residence halls, bursar's offices, etc.).

- Visual transparency in public spaces is also important, allowing people to identify potential threats immediately. One key difference between site and building design is that egress routes play a more prominent role in the process of building design and the location of control points within buildings.

Though this stairway has a clearly marked exit, it has numerous blind spots, creating an unsafe feeling.

Blank exterior walls lack the "eyes on the street" that make people feel safer along pathways.

This electrical panel, located in a public open space, is vulnerable to tampering.

2.01: Classrooms and Class Labs

Egress and circulation

- Provide two routes for emergency exit for classrooms and classroom labs for ease of circulation.

- Avoid creating blind spots in circulation areas, as these can be potential hiding places.

- Place classroom and class lab exit doors in shallow niches so outward-swinging doors do not interfere with corridor traffic.

- Classroom doors should be closed and locked when not in use.

- For classroom doors, specify hardware that can be locked from the inside without having to enter the hallway.

Niches in this hallway create space for doors to swing out without hitting passersby.

👁 = Control Point
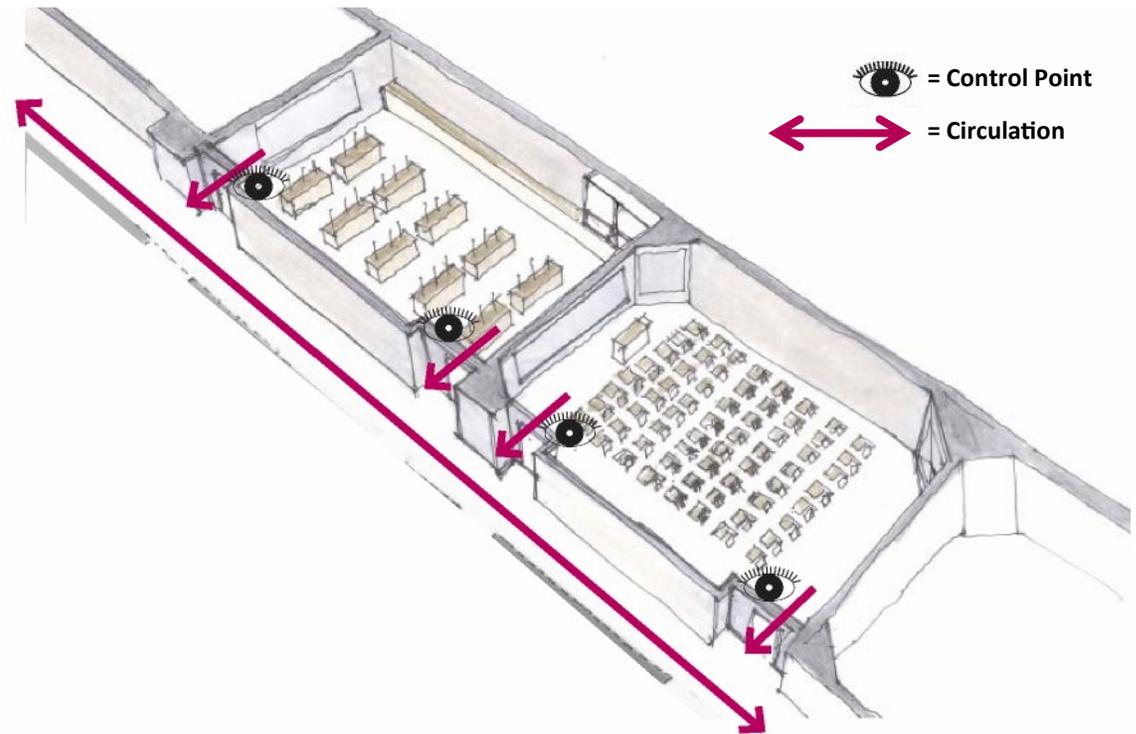
⟷ = Circulation

2.01: Classrooms and Class Labs

Egress and circulation

- Arrange classroom furniture to provide a minimum of two means of passage to a exit door from the classroom.

- Place lecterns and other instructional furniture to provide clear lines of sight to the exit doors.

- Establish refuge areas within classrooms. These should be outside the line of sight from doorways and interior windows.

= Control Point

= Circulation

= Refuge area
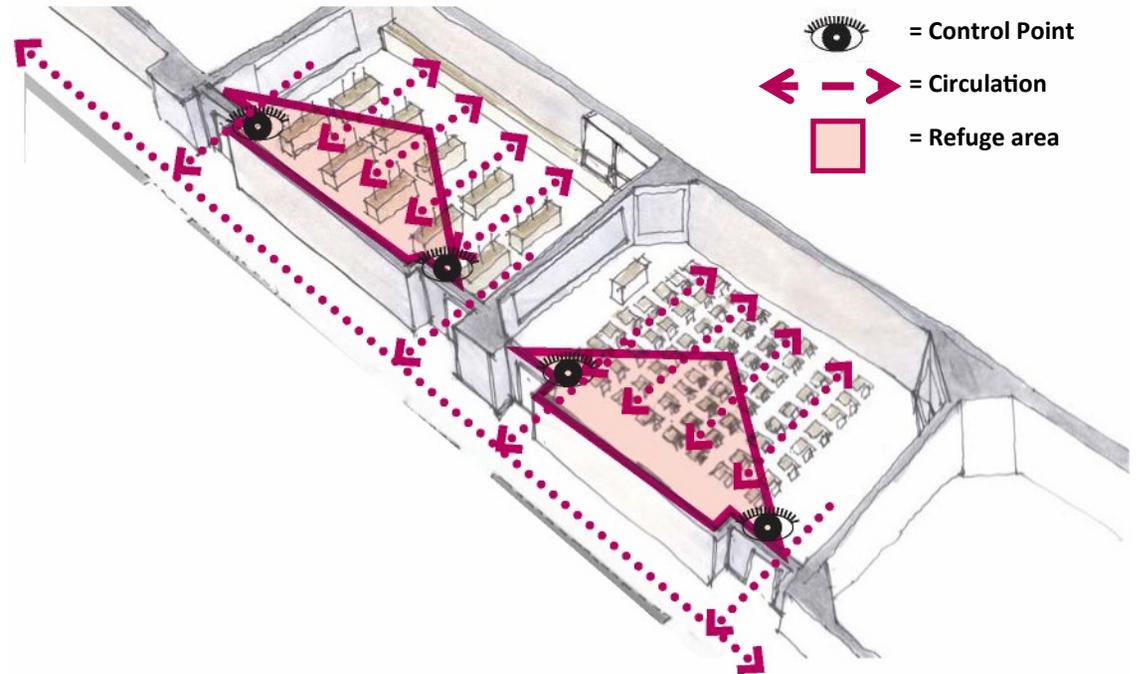
2.01: Classrooms and Class Labs

Sight lines to corridors

- Provide classrooms and class labs with sight lines to corridors, by using sidelights next to doors and/or view lights in doors.

- Design windows located within classrooms to limit visual access from outside of the building to protect the occupants. This can be achieved through window height, tinting, blinds, adhesive films, etc.

Decorative film can be installed on sidelights to provide partial views and light transfer while also reducing distractions within the classroom.

👁 = Control Point

◄ - ► = Circulation
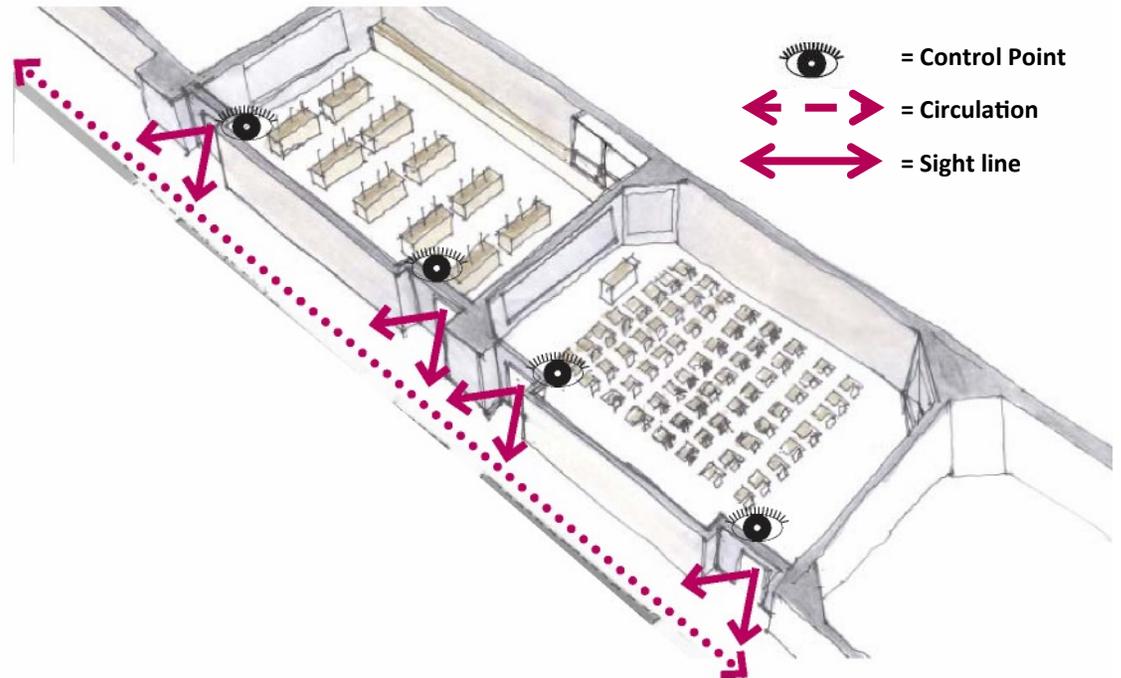
◄──► = Sight line

2.02: Toilet Rooms and Locker Rooms

Sight lines at toilet rooms

- Screen sinks, urinals, and toilets from casual observation from hallways and corridors.

- At single-gender multi-stall restrooms, raise full height stall partitions from the floor so users can see which stalls are occupied.

= Control Point

= Circulation

= Circulation
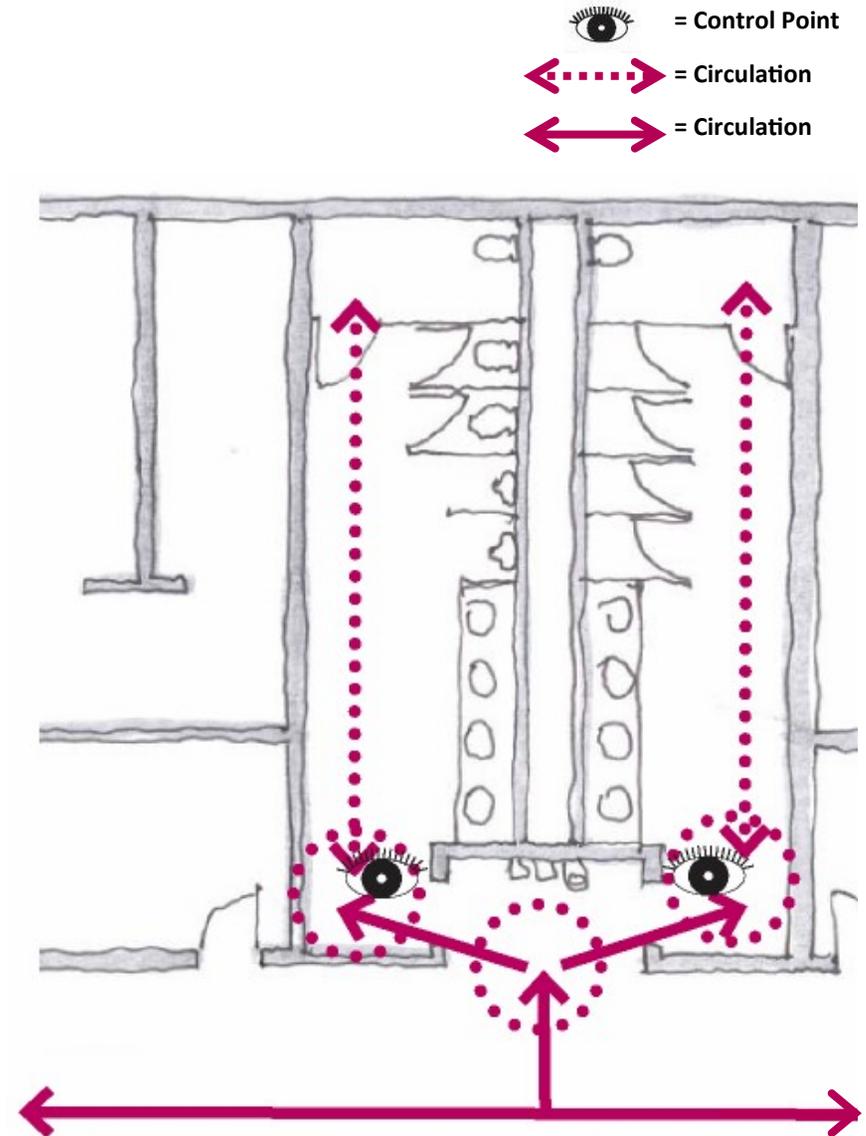
2.02: Toilet Rooms and Locker Rooms

Sight lines at locker rooms

- Locker rooms should have internal control points (such as a coach's office) with sight lines to the locker room entry.

- Lockers should be primarily located on the perimeter walls to maintain sight lines.

- Freestanding lockers should be no higher than 54" to maintain sight lines.

- Design locker rooms to have multiple means of exit.
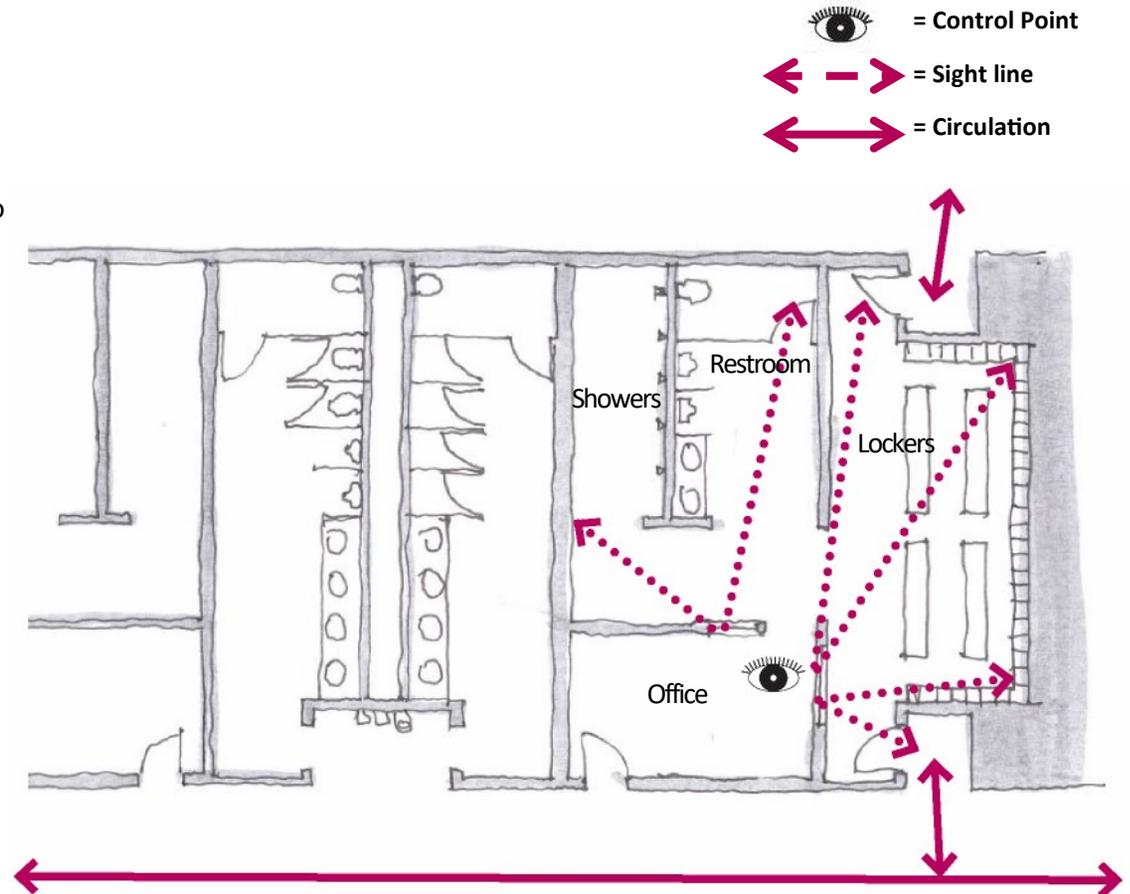
2.03: Administration and Information Areas

Circulation at administration/information areas

- Provide multiple control points for administrative spaces to maintain security within offices.

- Include a sidelight at doors into administrative spaces to allow sight lines to the corridor.

- Provide a second means of emergency exit for administrative spaces.

- Install access control and CCTV at control points for administrative spaces.
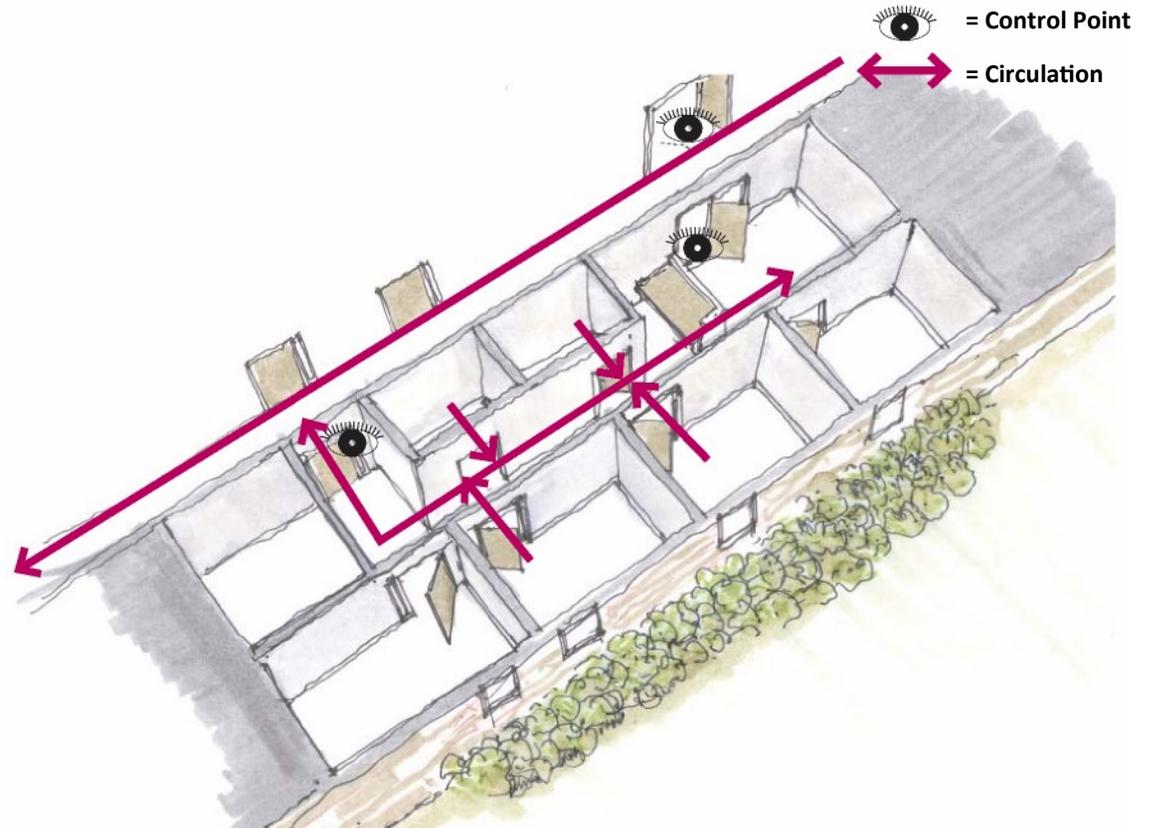
= Control Point

= Circulation

2.03: Administration and Information Areas

Circulation at administration/information areas

- Design reception areas to provide protection without eliminating sight lines to the door or waiting area.

- Locate reception desks between the waiting area and circulation within the office.

- Equip reception desks at critical or high-risk locations with silent duress alarms and CCTV.

- Connect general information desks to administrative suites for security and cross-training purposes.

= Control Point

= Circulation
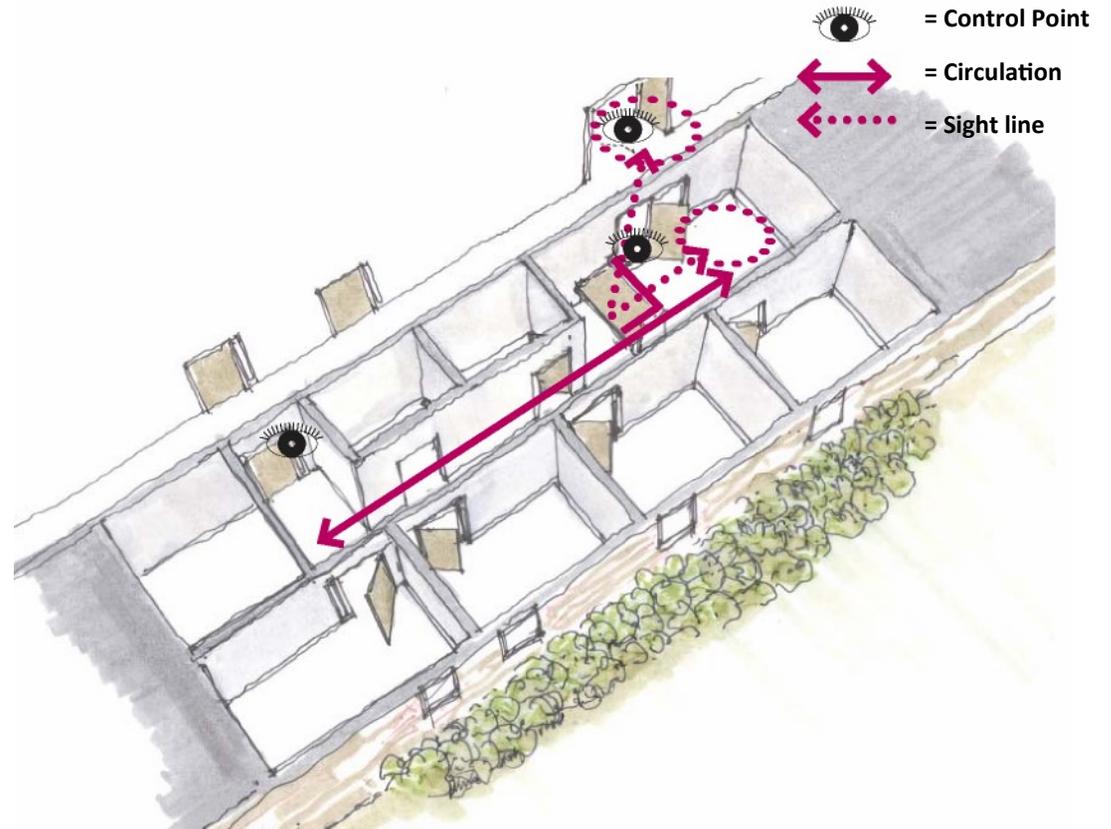
= Sight line

2.03: Administration and Information Areas

Sight lines from outside

- Position exterior windows in administrative offices to prevent access from the outside.

- Exterior windows in high-profile administrators' offices should use screening (such as window film or blinds) to reduce interior visibility from outside.

= Control Point

= Sight line
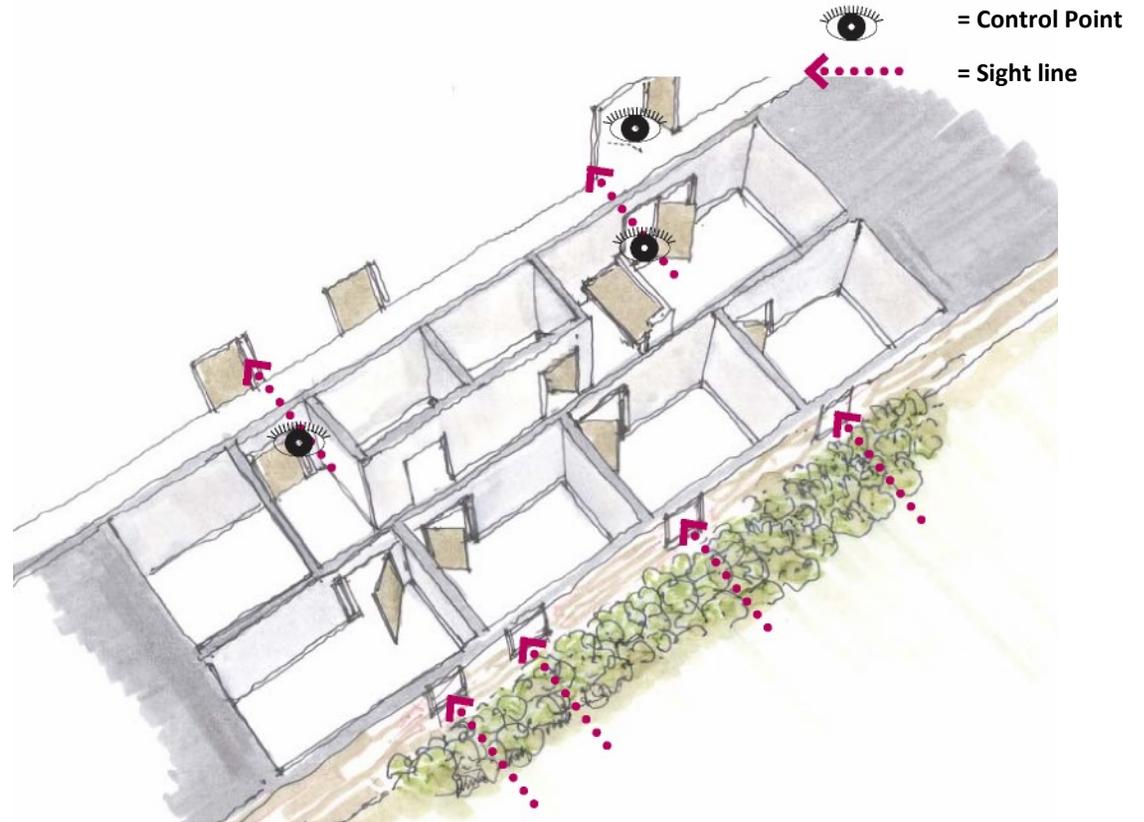
2.04: Common Areas

Egress and control points

- Provide multiple routes of emergency exit from common areas.

- Common areas should have a control point located adjacent to the primary entrance or circulation route.

- Control points in common areas should have sight lines to all circulation routes within the space.

Seating areas adjacent to major corridors can provide casual surveillance.

= Control Point

= Circulation
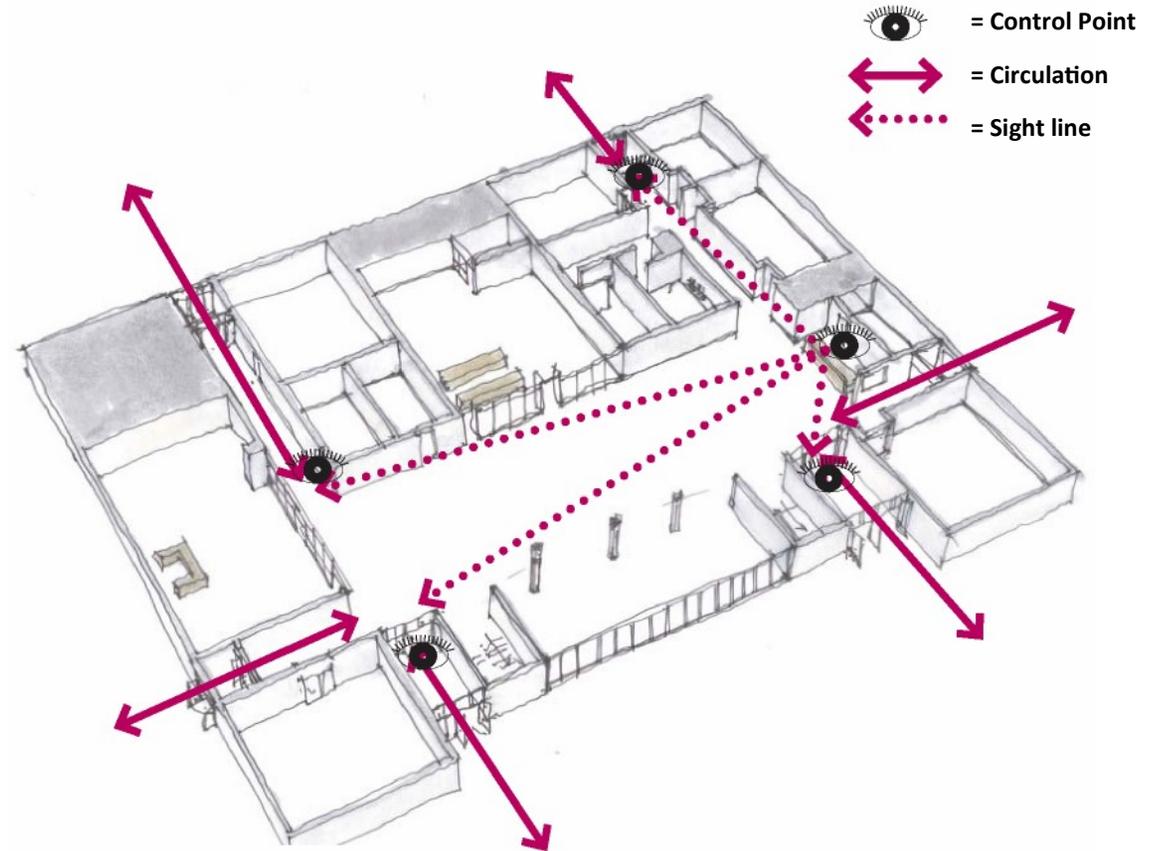
= Sight line

2.04: Common Areas

Sight lines

- Furniture or partitions in common areas should not restrict sight lines through the entire space.

- Avoid blind spots, especially in common areas such as niches along circulation routes, to prevent criminal perpetrators from hiding.

- Placing glass between smaller common areas and circulation routes, or frequently occupied administration areas, facilitates casual or natural surveillance.

An abundance of glass creates views into, and from, areas adjacent to this common area.

= Control Point

= Sight line
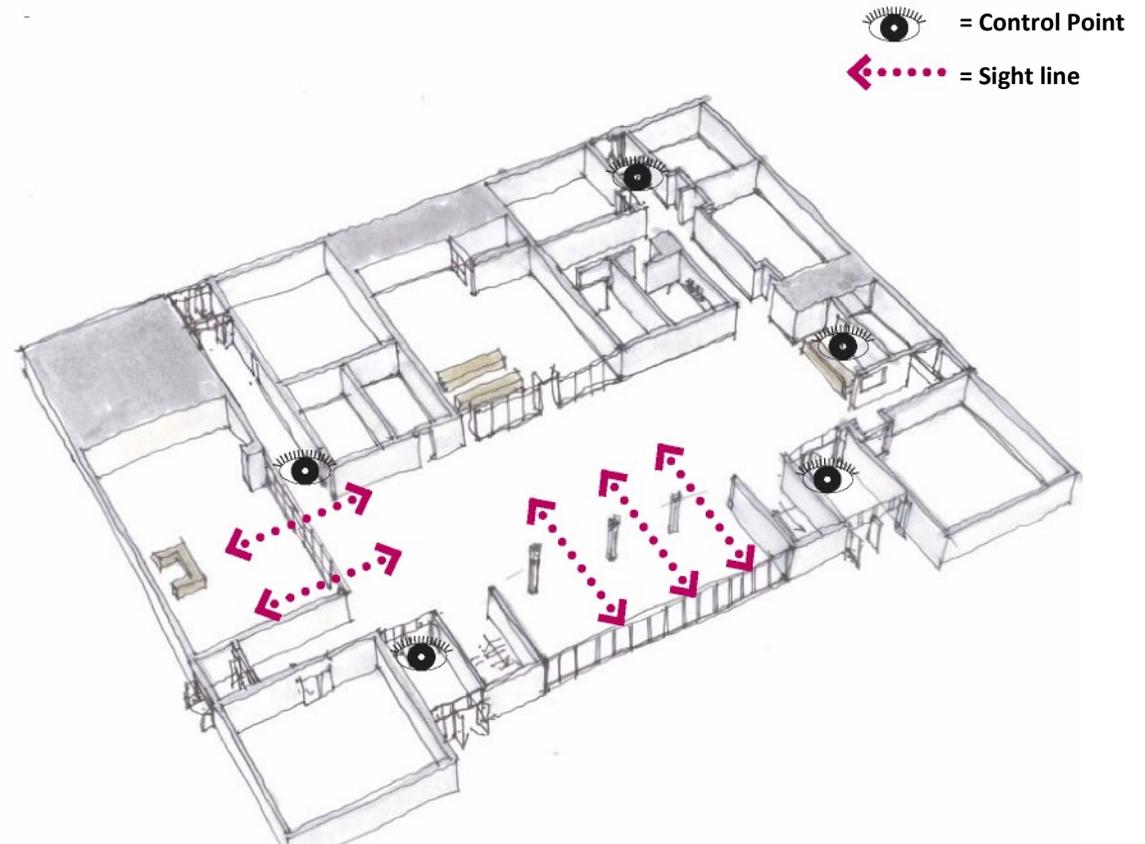
2.05: Libraries, Galleries, and Exhibit Space

Security and control points

- Libraries are high risk areas: students study alone at odd hours, and libraries contain high value collections with little inventory control.

- When possible, restrict the library to one entry. Secure emergency exits with appropriate exit hardware and alarms that will alert staff to unauthorized use.

- Locate control points at the main library entrance.

- Offices and study rooms within libraries should be visually accessible, but still somewhat private.

👁 = Control Point

↔ = Circulation

⇠···· = Sight line

This reference desk is ideally placed to observe the main library entrance and the stacks behind.
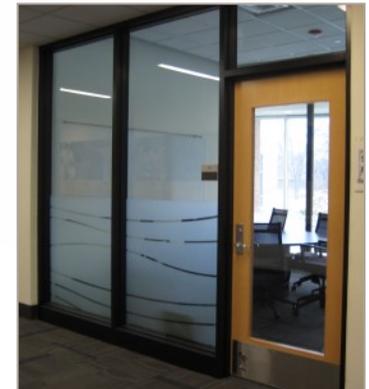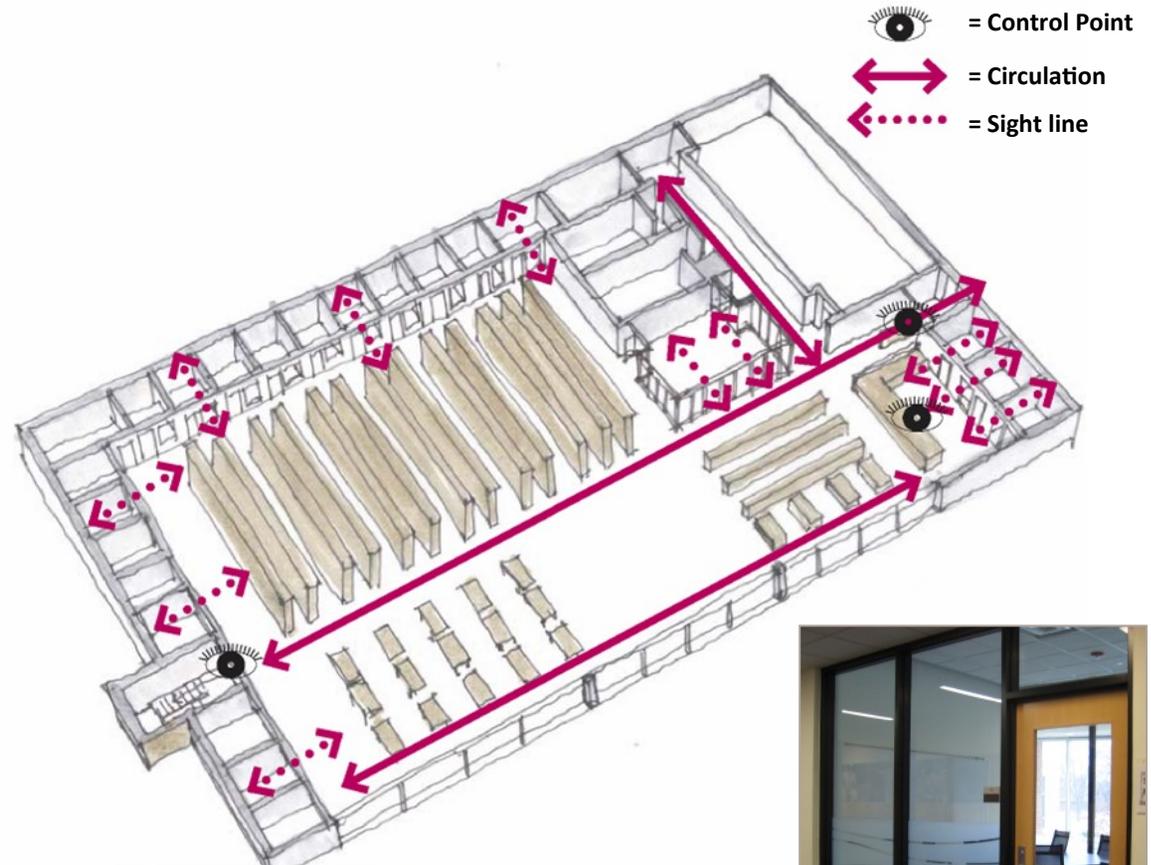
Glass with obscuring film provides visibility into this study room while also maintaining some privacy.

2.05: Libraries, Galleries, and Exhibit Space

Furniture and sight lines

- Library furniture should not exceed 54" in height to maintain sight lines.

- Library shelves exceeding 54" in height should allow visibility between aisles, or be placed along the walls.

- Avoid creating library aisles with dead ends.

👁 = Control Point
↔ = Circulation
⟵···· = Sight line
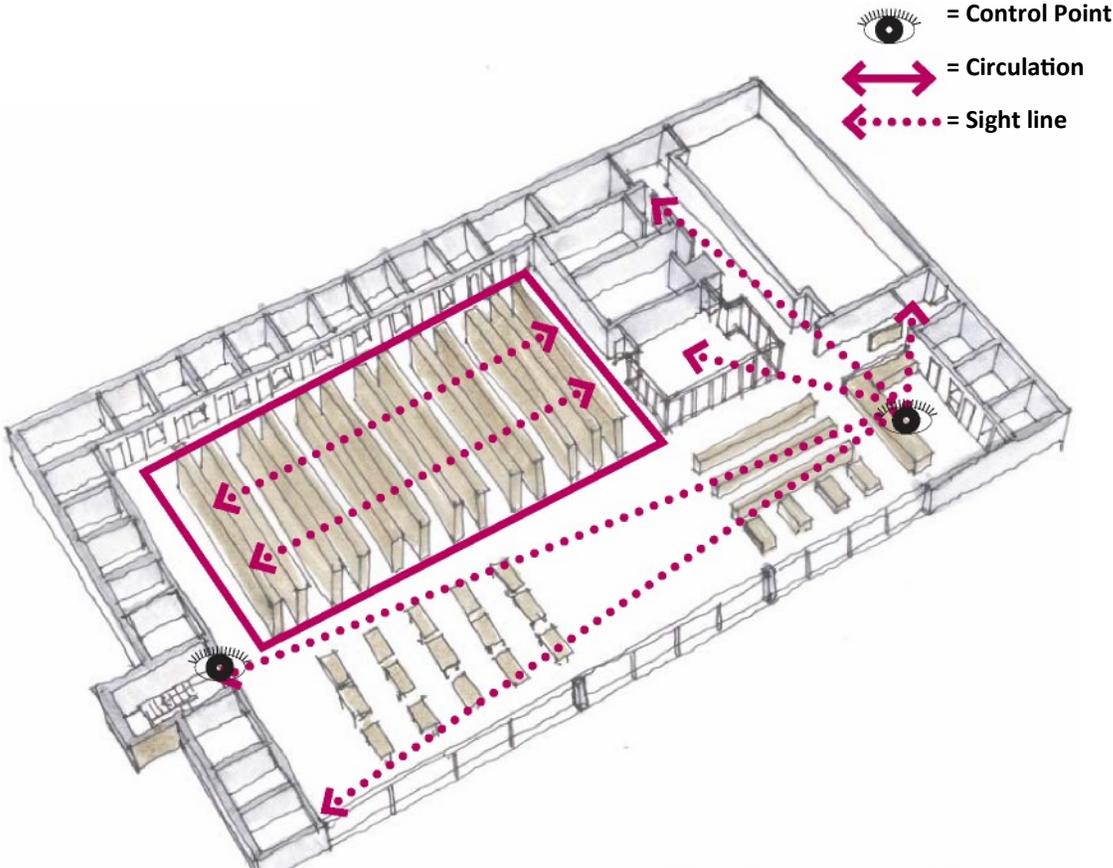
2.05: Libraries, Galleries, and Exhibit Space

Control points and sight lines

- Provide control points at entrances to exhibition spaces.

- Provide control hardware at emergency exit doors.

- Museum galleries should not have operable windows, to prevent theft and vandalism.

- Displays or vitrines should not exceed 54" in height to maintain visual access.

- Use CCTV where high value exhibits are displayed.

Legend:
- = Control Point
- = Circulation
- = Sight line
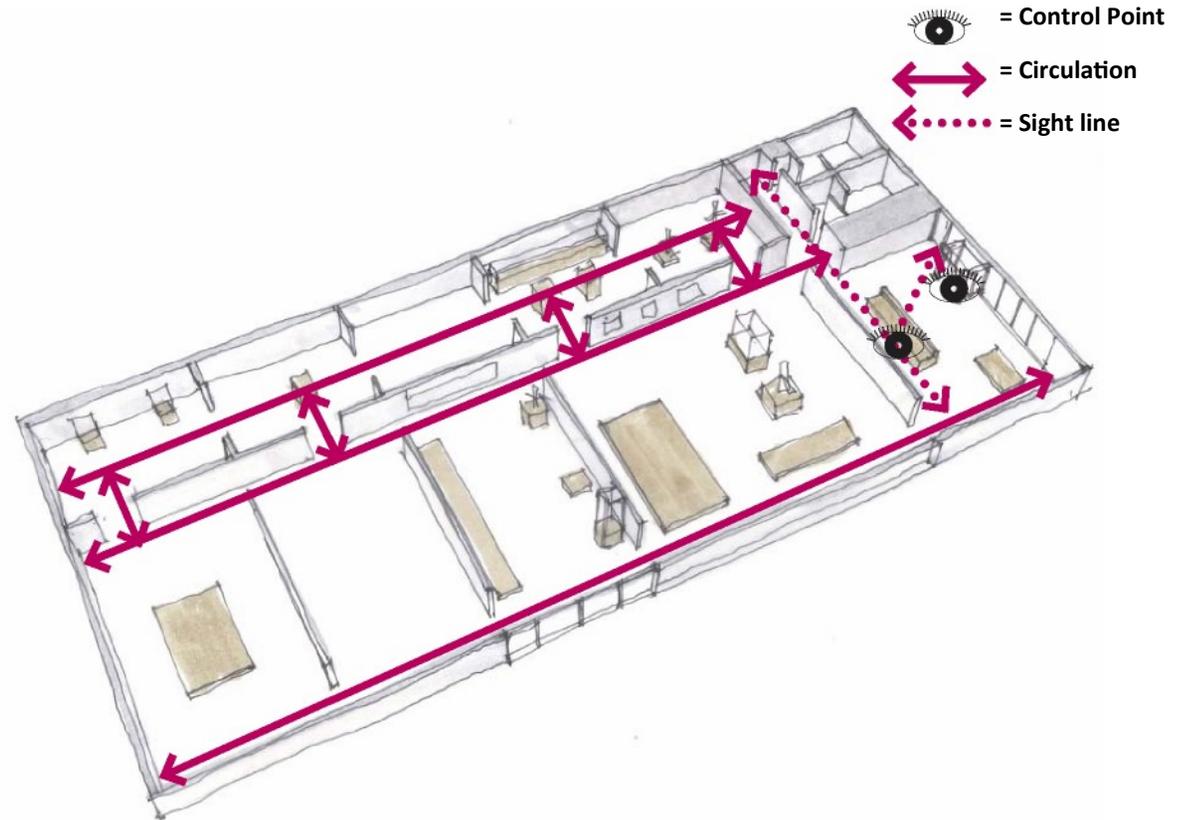
2.06: Recreation and Athletics Space

Sight lines and egress

- Clearly identify gymnasium exits with appropriate signage.

- Configure bleacher seating for ease of access and visibility of emergency exits.

- Secure emergency exits with appropriate hardware.

- Ensure clerestory windows are not accessible from bleacher seating.
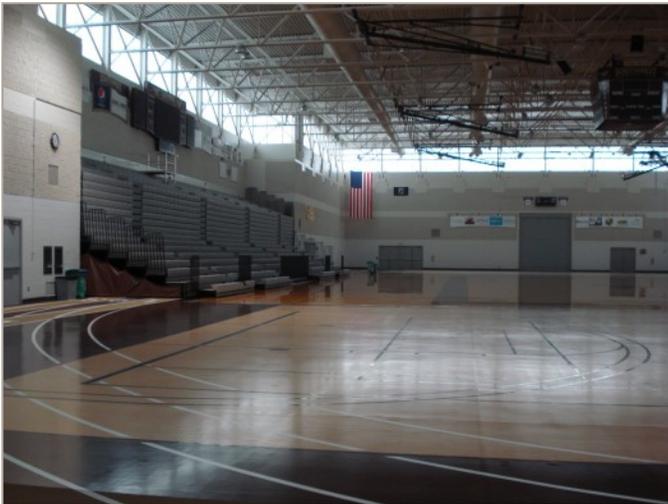
The clerestory windows in this gymnasium are not accessible from the bleachers.

👁 = Control Point

⟷ = Circulation

⟵····· = Sight line
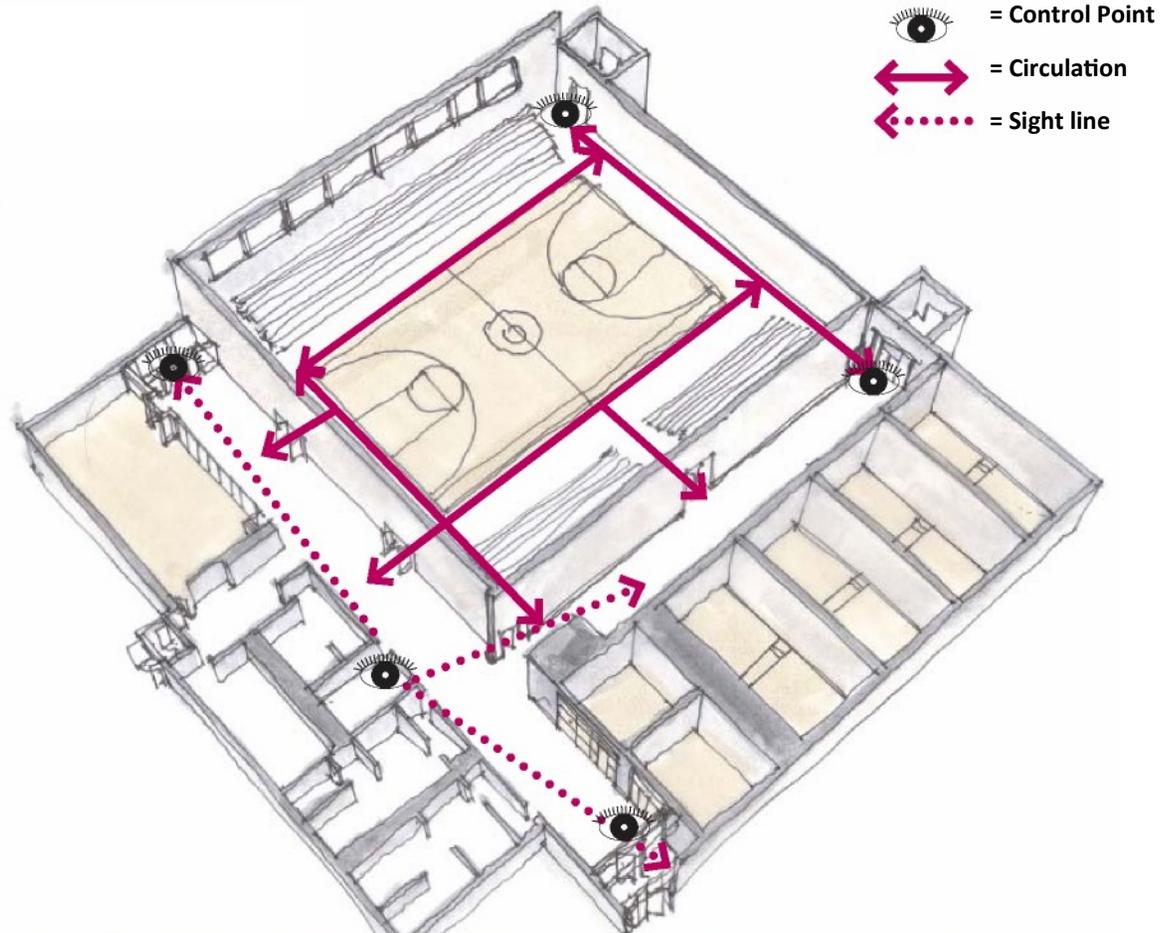
2.07: Residence Halls

Circulation and control points

- Residence halls should have visual control points to manage the main entry and primary routes of circulation.

- Lock secondary entries with appropriate emergency hardware.

- Elevator lobbies should be visible from main routes of circulation.

- Common areas should have multiple means and directions of exit.

- Lounges and study areas should be visible from main routes of circulation.

- Furniture in common areas should not exceed 54" in height to maintain lines of sight.

- Locate common areas where students can be expected to spend time alone, such as laundry rooms, on main circulation routes. Provide these spaces with glass at the corridor wall to enhance visual supervision. Door hardware for these spaces should be key-locked only to prevent victims being locked into rooms with attackers. Thumb-turn or push button locks should not be used.

= Control Point
= Circulation
= Sight line
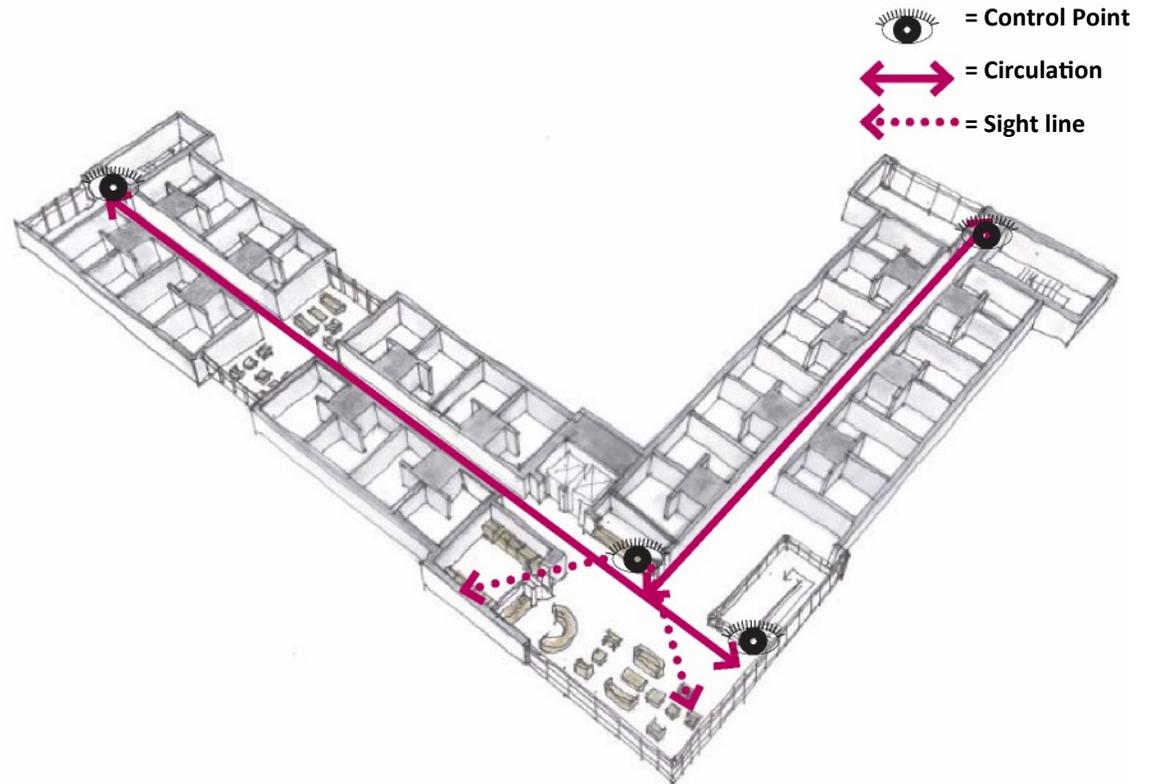
2.07: Residence Halls

Circulation routes

- Avoid placing niches or blind spots in circulation routes.

- Consider placing convex/fisheye mirrors near circulation corners and blind spots.

- Exterior windows for dwelling units should be high enough off the ground to deter visual and physical access from the outside.

- Provide clear access to circulation routes from rooms and suites.

- Consider placing CCTV at building entrances and exits.

= Control Point

= Circulation
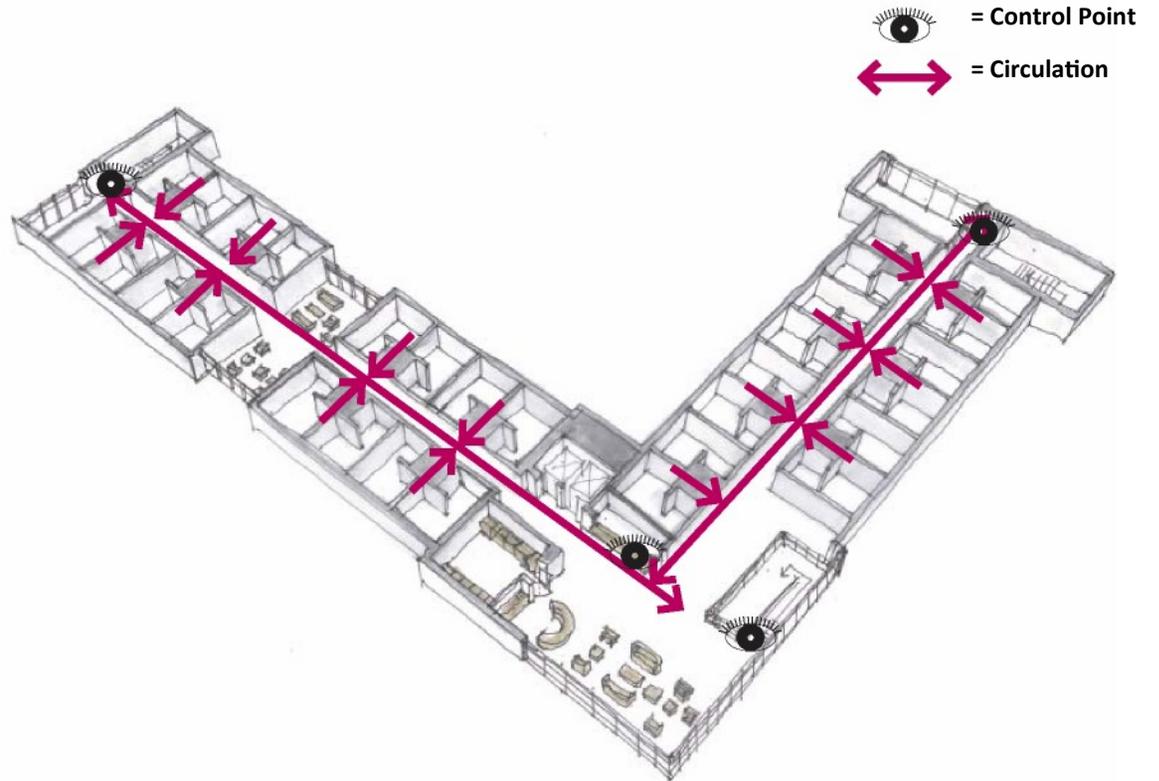
2.08: Parking Structures

Sight lines and control

- Clearly identify points of entry and exit for vehicles and pedestrians.

- As much as possible, stair towers should have clear sight lines to the stairways and landings from both outside and inside the parking deck.

- Parking should be secure and protected from means of unauthorized entry.

- Use CCTV where high-volume vehicular and pedestrian traffic intersect and where security issues exist at these locations.

- Security offices located within the parking structure provide increased safety.

SCSU's Public Safety Center is part of the parking ramp.

= Control Point

= Sight line

= Secure perimeter
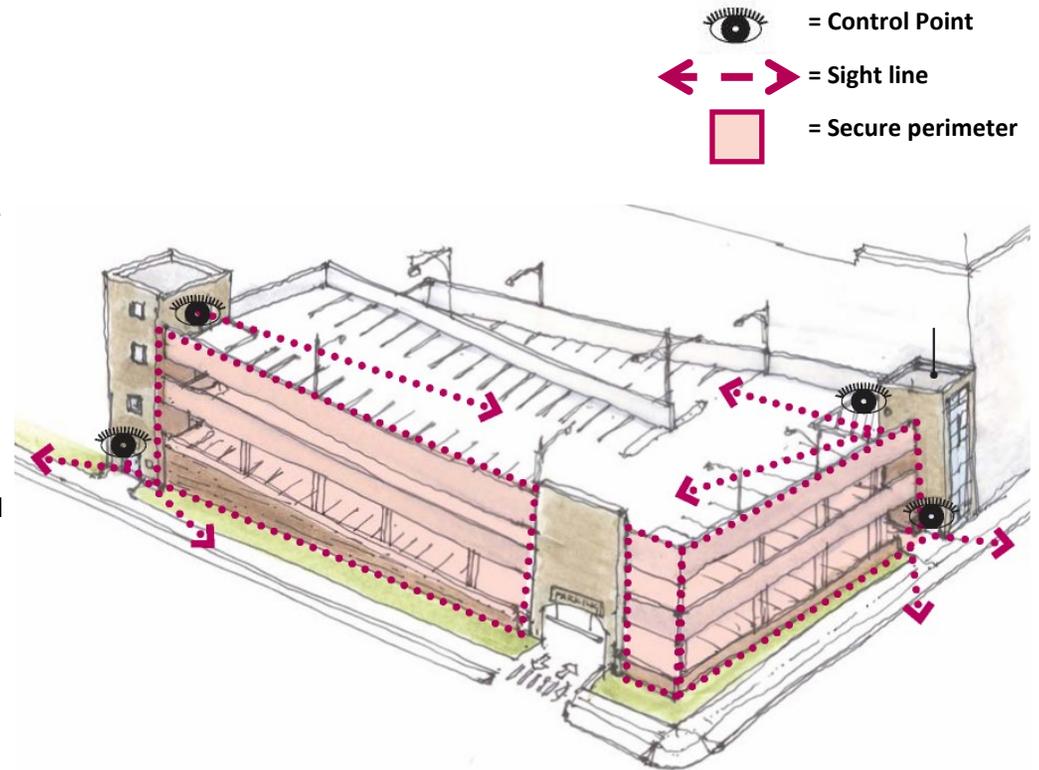
2.08: Parking Structures

Lighting and surveillance

- Illuminate all parking levels to provide visually secure environments.

- Paint the underside of parking level decks white to distribute light evenly.

- Entrances to stair towers should be clearly identifiable at night and be the best-lit areas of the parking deck.

- Illuminate doors at street level to prove a safe transitional area.

- Locate CCTV at entrances for vehicles and pedestrians.

= Control Point

= Sight line

= Lighted surface
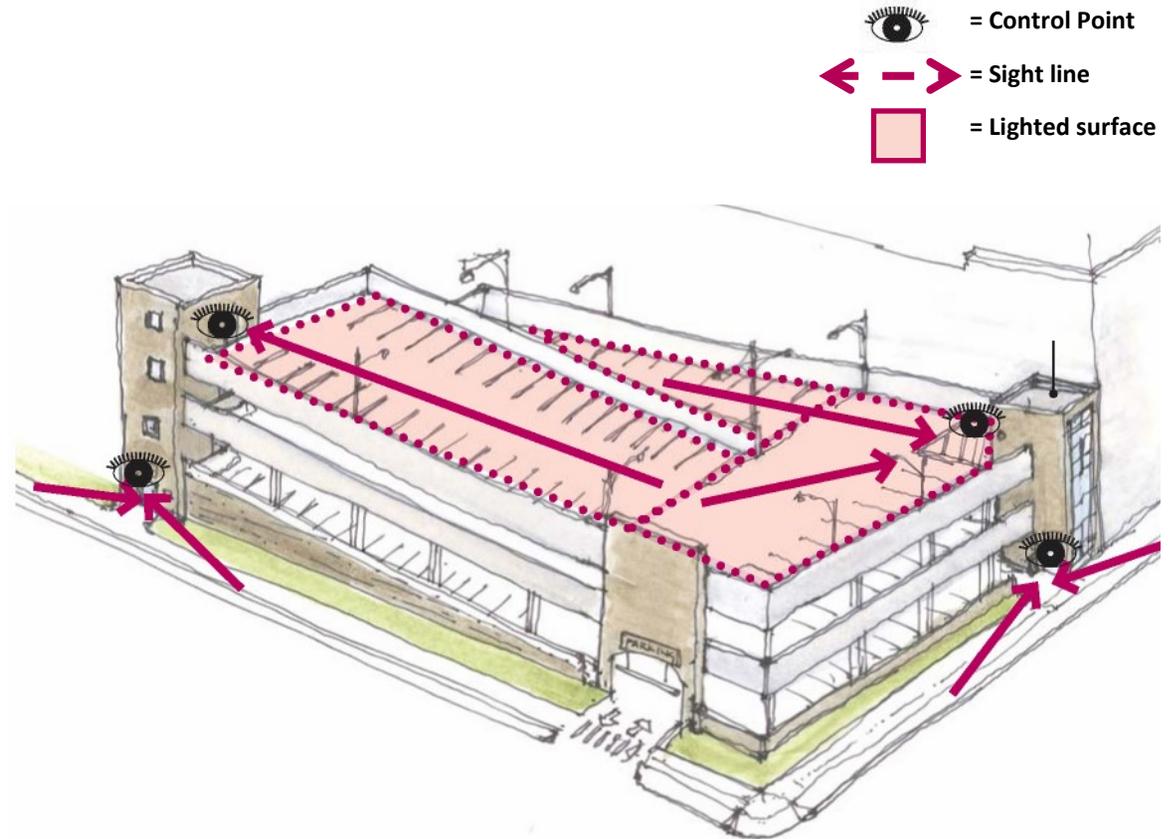
2.09: Loading Docks and Utility Areas

Sight lines and security

- Provide a control point at receiving areas to manage deliveries and departures.

- Locate person-doors adjacent to garage doors to maintain ease of access while maintaining security.

- Receiving area doors should have clear sight lines to the exterior.

- Monitor trash collection areas visually or by CCTV.

- Monitor shipping/receiving areas by CCTV.

Screening enclosures protect mechanical and utility elements while creating a more pleasant environment for pedestrians.

= Control Point

= Sight line

= Security device
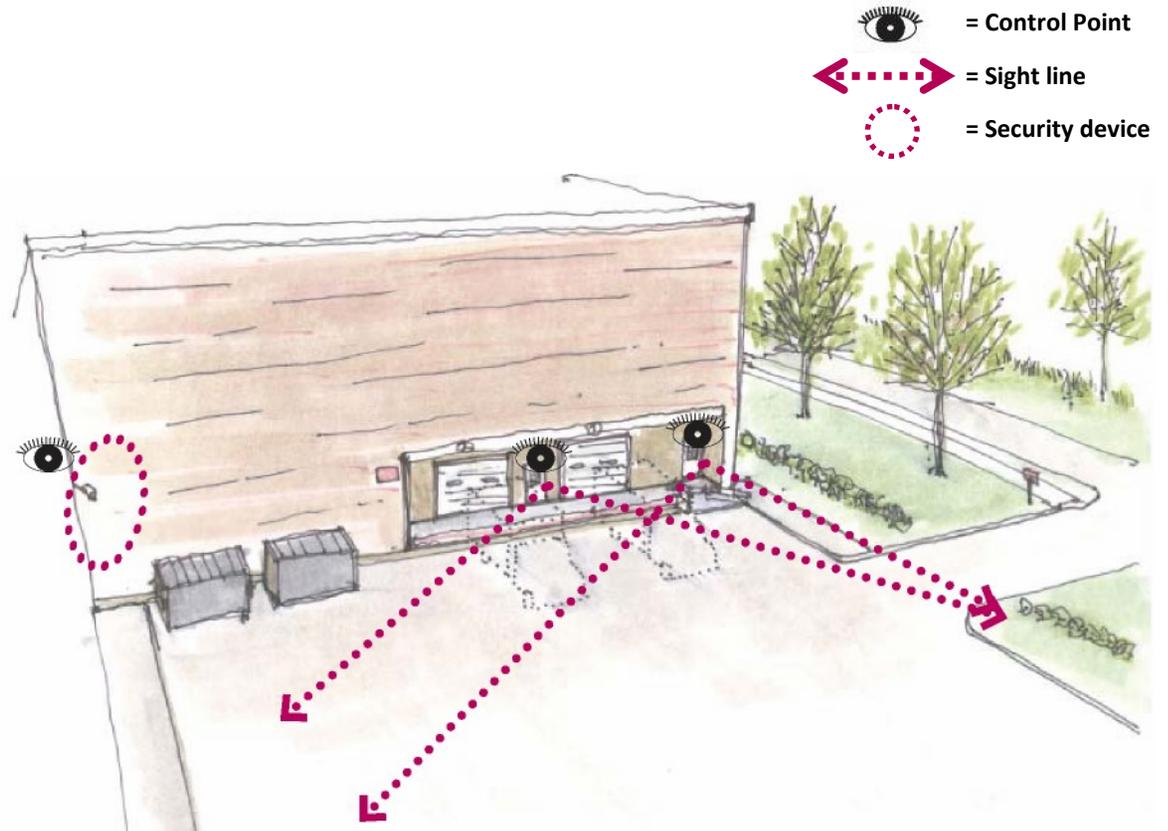
2.10: Doors, Windows, and Hardware

General principles

- Provide doors with locking hardware. Locking hardware should be appropriate for the function taking place within the secured space and also appropriate for the threat or risk to that space.

- Use security hinges, or other hinge hardware designed to prevent removal of hinge pins, on all exterior doors as well as on any door accessing a high-security area.

- Provide vandal-resistant locking hardware on exterior windows that are accessible from ground level.

- Equip residence hall sleeping room doors with wide angle viewers or peepholes at standard and ADA-compliant heights.

- Use electrified mortise locks or panic exit device hardware in lieu of electric strikes at exterior doors requiring electronic door hardware.

- Security hardware on doors should be recessed, flush-mounted, or concealed to prevent tampering.

- Place security wiring in conduit or within walls to prevent tampering.

- Provide exterior doors with at least three hinges, at least one of which shall be a non-removable pin (NRP) hinge, which has the hinge pin equipped with a set-screw securing the hinge pin or some other design that prevents the removal of the hinge pin when the door is closed.

This astragal guard protects the lock from tampering.
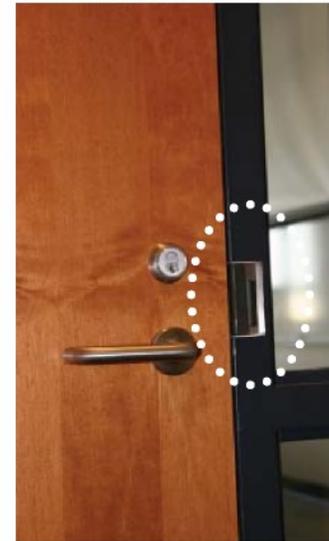
This exposed electric strike is vulnerable to tampering.

This exterior hinge pin could be easily removed to gain access.

- Exterior wood doors should be solid core construction.

- Equip all exterior doors with a self-closing device.

- Equip manually operated roll-up doors with an auxiliary locking device sufficient to prevent the door being forced open from the bottom.

- Doors that are used to control access should be equipped with "propped door" alarms with at least 120 db audible sounders and remote monitoring. Propped door alarms should be set for duration not to exceed 30 seconds.

- If horizontal sliding windows are included, they should be equipped with auxiliary locking devices.

2.11 Signage and Alarms

General principles

- Where possible, locate alarm devices accessible to the general occupant at or above 10 feet from the floor or ground level.

- Exit alarms for high value areas, such as libraries or sensitive areas (controlled substance storage, daycare, etc.), should report back to the local control point as well as to a staffed central monitoring point.

- Local audible alarms in sensitive areas such as controlled substance storage, daycare, etc., should be loud enough to be heard in commonly frequented areas.

- Signage identifying room numbers and names should be a minimum of 5/8" in height.

- Lettering on general wayfinding signage should be 2" high at a minimum.

- Provide directional signage in high occupancy areas such as classrooms and residence halls.

- Visual alarms should be located clear of obstructions.

- Locate annunciation panels at building entries in clearly accessible locations.

Consistent and easily readable signs help with wayfinding.

2.12: Secure Storage Areas

Cash rooms and personal data storage areas

- Place safes and money counting areas away from areas of general access and circulation, avoiding visual access.

- Reinforce interior walls enclosing safes and money counting areas to prevent criminal perpetrators from gaining access by cutting openings in the wall.

- High-risk areas with the need for a stand-alone safe should be designed to support a concentrated floor load of over 750 pounds. Build safes into the structure where appropriate.

- Rooms which are designed to house a safe should also be protected by a independent alarm system.

- Locate security management system hardware and alarm system panels within secure rooms, in locked enclosures within the room.

- Secure elevator equipment rooms with alarmed hardware.

= Control Point

= Secure area

This location is removed from public areas (more secure)

This location is clearly visible from public areas (less secure)
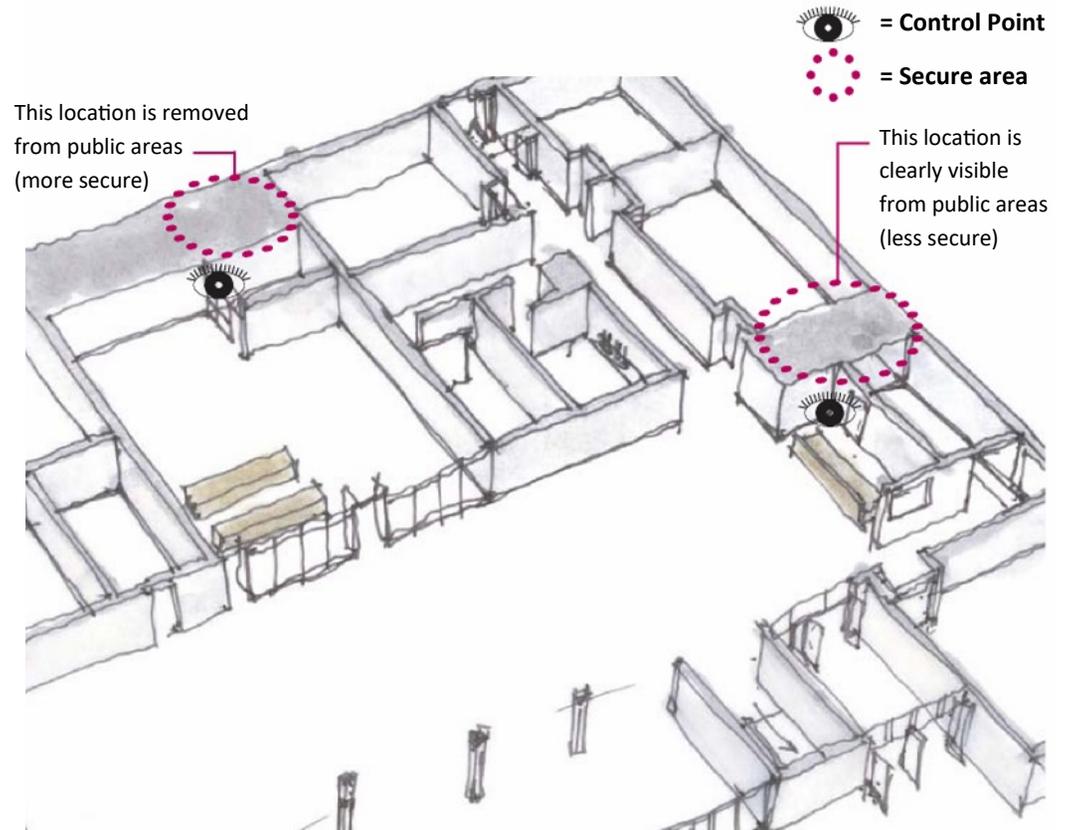
2.13: Exterior Mechanical Areas

Access to exterior mechanical areas

- Locate mechanical system intakes away from primary vehicle and pedestrian circulation routes, to reduce potential vandalism and to maintain air quality.

- Locate mechanical system intakes away from parking or service areas to maintain air quality.

- Protect openings into a building's exterior shell (such as mechanical air intakes) with tamper-resistant grilles.

- Secure interior rooftop access locations with alarmed door hardware.

- Exterior rooftop access points, such as roof ladders, should not extend to a point accessible to pedestrian traffic.

👁 = Control Point

⦚ = Area of concern
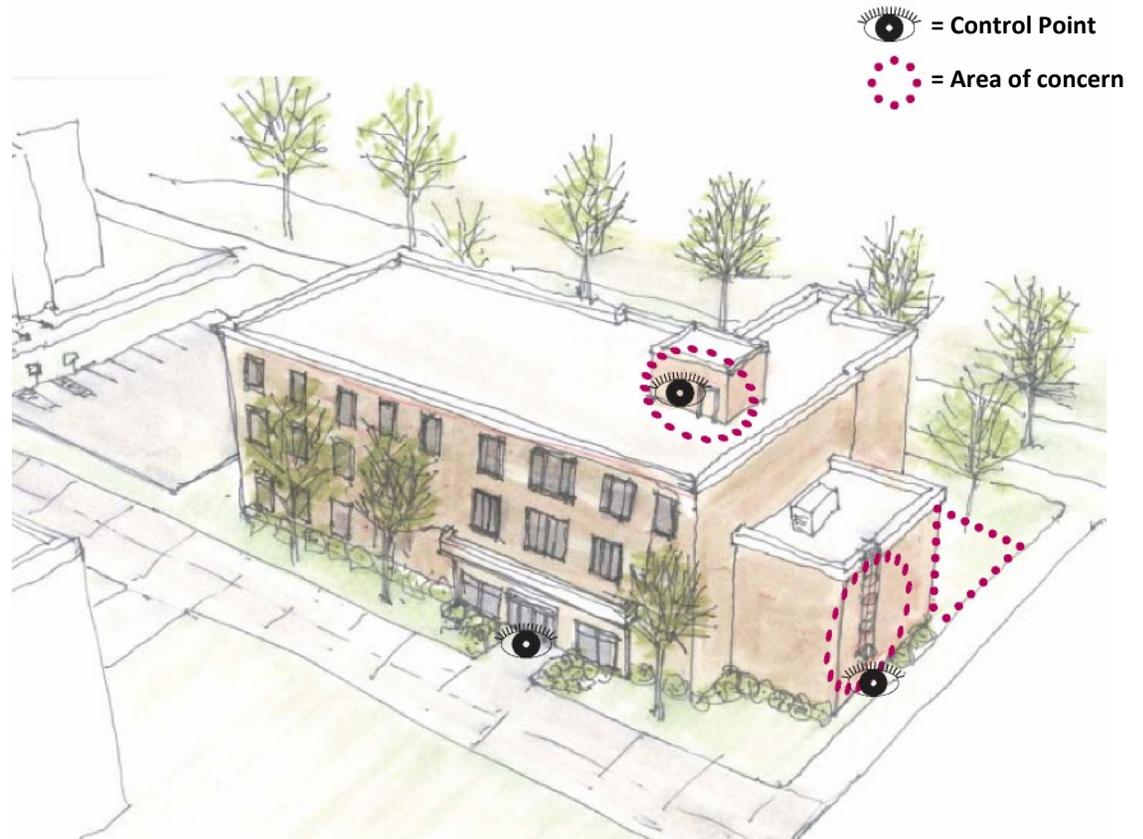
2.14: Rooms and devices containing money

ATMs and automated payment stations

- ATMs and automated payment stations can contain large sums of money and present attractive targets for criminals, creating safety concerns for students and staff.

- Devices should be bolted to the floor, or to the wall if they do not exceed 750 pounds.

- Devices should have alarm systems to monitor tampering and signs should advise users of this fact.

- Devices should be under the obvious view of CCTV cameras.

- Devices should be lit to a minimum of 10 foot-candles.

- Avoid locating devices should be located within 50' of any area that might conceal a potential aggressor.

Safes

- The use of safes should be confined to those areas of high security where a true safe (as opposed to a fire-resistant enclosure) is necessary.

- Safes that are to be used for the storage of cash or other negotiable instruments in amount that will, at any time, exceed $1000 shall be Underwriters Laboratories listed and carry the UL label.

- Safes used for storage of $1000 to $10,000 should carry the UL rating of TL15.

- Safes used for the storage of $10,000 to $20,000 should carry the rating of TL30.

- Safes used for the storage of over $20,000 in cash and negotiable instruments should carry the UL rating of TRTL30.

- Any of the above safes that weigh less than 750 pounds should be securely bolted to the floor to prevent unauthorized removal.