



Gensler | QKA

Sonoma County Junior College District

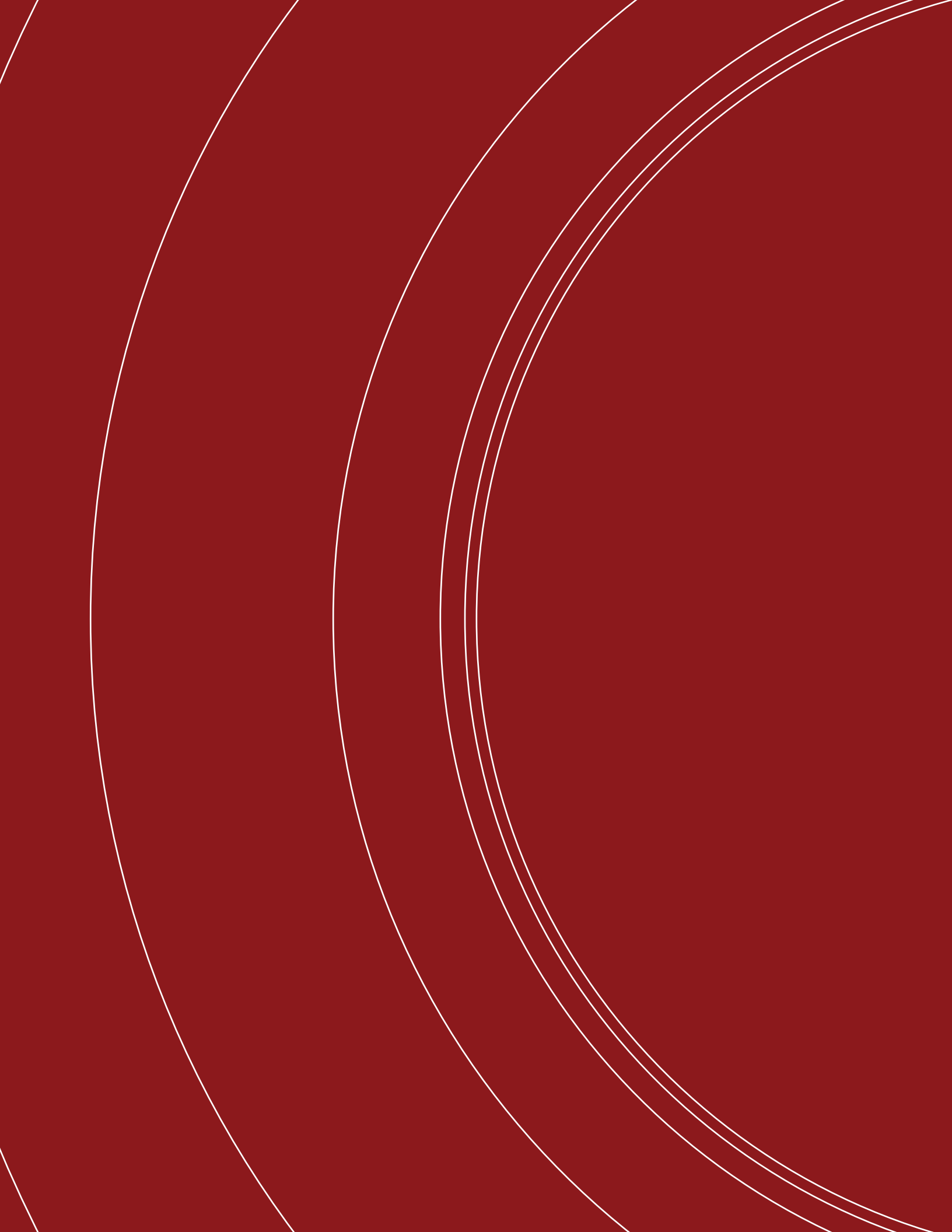
2016 Facilities Master Plan

Ch. 5 of 6
Technical
Standards



Technical Standards

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5.1 Site & Landscape

Paving Materials

The Sonoma County Junior College District is comprised of a network of pedestrian and vehicular pathways and gathering spaces. A well-designed hierarchy of walks, plazas, and hard surface areas enriches the campus environment, improves visual quality, supports wayfinding, and reinforces the importance of the pedestrian experience.

All new construction of plazas and walkways (pedestrian walk, gathering space, bicycle path, multipurpose lane, and vehicular route) will use these material standards. Further improvement or repair of existing pathways and plazas over time will follow these standards. All materials located within city right-of-way shall comply with city standards. These technical performance guidelines serve to ensure the quality of maintenance, reliability, and safety of paving on campus across the district.

Cast-in-Place Concrete

Concrete shall be the standard pedestrian walkway material used throughout the campus. This may extend to gathering spaces and multipurpose lanes, except as noted at special landscape areas.

- Campus walkways shall be cast-in-place concrete with a light broom finish and saw-cut joints.
- Smaller or re-oriented concrete scoring modules may be used to identify campus spaces as gathering spaces.
- Walkways identified for service vehicles and pedestrians shall have an 8" pavement depth with a proper sub-base. Walkways for service areas with heavier vehicular loading shall have suitable concrete depth with reinforced steel and sub-base thickness.
- Use neutral tones for concrete paving, either carbon additives or an integral pavement color. Natural gray color is preferred.

Concrete Paving
Photo By: City of Omaha Public Works

Concrete Unit Pavers
Photo By: Marshalls Celestia



Concrete Unit Pavers

Unit pavers can be used for parking stalls to minimize storm water runoff, as well as small service and loading areas (especially service areas that also serve a pedestrian function).

They can also be used to delineate special event plaza spaces, or used as a decorative accent element.

- Concrete unit pavers can be used for plaza or special area paving.
 - Colors: Porcelain, Almond, French Gray
 - Sandblast finish
- Pervious concrete unit pavers can be used for parking stalls.
 - Colors: Natural Gray



Decomposed Granite

Decomposed granite or crushed granite aggregate may be used for minor pedestrian pathways, special landscaped areas such as the community/ demonstration gardens and themed gardens where appropriate, traffic areas under large trees, and bicycle parking areas.

- It may only be used in locations where surface grading is no greater than 2 percent.
- Decomposed granite paving is to be used far enough away from doorways and asphalt pedestrian paths so that the materials are not tracked onto these surfaces.



Gravel / Stone

- Gravel walkways shall be used only for paths that are connecting destinations through landscapes with special circumstances, such as trees next to walkways with surface roots where excavation for concrete walkways can damage the tree roots or where walkways will have damage from tree roots.
- Gravel can also be used on paths in natural settings where concrete walkways are too formal.
- In general, gravel walkways are not accessible paths and should only be considered where another accessible path is already provided.

Asphalt

- Use asphalt for vehicular roadways, select bicycle paths, parking entrances, drive aisles, and some bicycle parking areas.
- Roads and service paths shall be concrete or asphalt pavement designed in accordance with recommendations set forth in the geotechnical report and anticipated vehicle loading.
- Parking areas shall be concrete or asphalt pavement designed in accordance with recommendations set forth in the geotechnical report and anticipated vehicle loading.
- Where feasible, endeavor to use porous surface for parking stalls. Where permeable surfaces are not feasible for parking stalls, use asphalt and perforated curbs draining into bioswales.

Brick Pavers

The Santa Rosa Campus has a history of using brick in its buildings and landscape. Consider its use in or near the historic core in the following ways:

- Gathering spaces, plazas
- Accenting pedestrian routes
- Delineating pedestrian and bicycle paths



Decomposed Granite
Photo By: Ladick Road Materials

Brick Pavers
Photo By: Lawrenceville Brick

Planting & Trees

Landscape plantings are space defining elements that contribute to the overall character, scale, and order of the campus, which in turn affects quality of the campus experience. Plantings can achieve desired functions and spatial effects such as limiting and directing views, screening unsightly views, defining major spaces on campus, creating micro-climates and shade for human comfort, and defining the character of Sonoma County Junior College District as a naturalistic, regionally appropriate, and welcoming setting.

Landscape plantings also provide many opportunities to support the overarching campus goals of sustainability. A unified landscape framework for the campus proposes that the planting is organized into various landscape space typologies as shown in this section. These typologies are based on the use, location, and configuration of each space in the campus. Guidelines are proposed for each landscape space, to encourage design consistency, visual cohesion, and allow for the ease of maintenance and integral deployment of resources across the campus.

The two primary ecologically resilient and sustainable objectives for campus planting design are to: minimize irrigation needs, and minimize maintenance requirements. Sustainable landscape practices guide the technical standard guidelines for planting in the Sonoma County Junior College District.



DESIGN FOR LOW WATER USE

Due to the need to reduce water consumption and use in California, limiting the use of potable water for outdoor landscapes is extremely important. Landscape systems should be designed to recognize this condition.

The following key principles should apply in designing planting for low water use:

- Select native Californian plant materials or Mediterranean plants that are adapted to the conditions in Sonoma County and representative of the Sonoma County Junior College District.
- Select plant species according to the specific site conditions - including campus micro-climates and soil types.
- Select plant species that can go dormant during drought conditions.
- Convert large lawn areas and traditional landscapes to a more resilient native landscape and minimize lawn planting.

DESIGN FOR LOW MAINTENANCE

Selecting plant species that require less maintenance can reduce the amount of resources required to maintain the landscape.

The following key principles should apply in designing planting for low maintenance:

- Select plant species that will grow to their natural size and form in the space allotted without severe pruning.
- Select plant species that require little to no mowing or pruning.
- Do not plant invasive species.
- Select plant species that require little fertilizer and pesticide use.
- Select spreading plant species to cover ground with minimum mulching required.

UC Davis - Native Grass Planting
Photo By: Katie Hetrick



DEVELOPMENT STANDARDS FOR PLANTING

Campus planting area minimum plant sizes:

Trees	24” box minimum
Shrubs	5 gallon minimum
Groundcovers	5 gallon minimum
Ornamental Grasses	5 gallon minimum
Vines	5 gallon minimum

Historic Spaces

The historic aesthetic of the campus plays a large role in the identity of the college district.

- Healthy, heritage oaks and other exceptional trees should be protected and maintained in place. (See Board Policy 6.5.4 and 6.5.4P)
- Existing plantings in historic spaces shall be maintained for health to support the longevity of the landscape.
- Where there are large lawn areas that are not actively used native plant species that are low water use should be used in lieu of the lawn.



Courtyards

Courtyards are the public outdoor living spaces of the campus. They are designed to invite people to linger, and to foster both social interaction and quiet contemplation. The courtyard typology should hence have a diverse range of designs and character that respond to each unique setting and user groups.

- Employ plantings with unique colors, forms, and texture through the foliage and flowers
- Cultivars of native species and ornamental species can be considered for their various qualities (such as form, color, aesthetics, etc) and are appropriate for this typology.
- Utilize tree canopies for shade purposes
- Use trees and a mix of low and medium height planting to screen views or create spaces

Outdoor Event Spaces

The landscape planting should consist of large and high canopy trees, lawns, and groundcover beds. Small-scale, decorative, and ornamental plantings with multiple species should be avoided.

- Select trees that produce little to no litter.
- Use a combination of evergreen and deciduous shade trees to mediate weather and climates.
- Shrubs are discouraged, but if used, should be designed in masses that respond to the plaza or event space.
- Although lawn is water and maintenance intensive, its flexibility of use and importance for events such as graduation, Larry Bertolini Day Under the Oaks, and informal student use merits investment in them in select locations.

Santa Rosa Campus - Historic Oaks
Photo By: Santa Rosa Campus

Planting & Trees

(CONT.)

Outdoor Educational Programs

OUTDOOR TEACHING SPACES

- Provide a tree canopy for shade if a shade structure is not in place.
- Utilize plants that could be incorporated into teaching curriculum for plant identification or systems learning for teaching spaces.

ROOF GARDEN

- Select plants that are suitable for the type of roof garden system and soil depth: extensive or intensive green roofs.

STORMWATER GARDEN

- Select native Northern California plants, or compatible Mediterranean plants with similar cultural requirements that are suited to rain garden conditions (i.e. extended periods of wet or dry soil)
- These could be a combination of perennials, wildflowers, ferns, grasses and sedges, trees, and shrubs.

COMMUNITY/DEMONSTRATION GARDEN

- Designed for seasonal and educational interest
- Select a variety of plant species for demonstration of horticulture and sustainable landscape concepts
- Promote edible landscaping plant species

THEMED GARDEN

- The themed garden should include Luther Burbank's hybrid and unusual plants. Select garden areas may focus on a combination of Burbank's horticultural contributions with themes such as medicinal herbs, cutting flowers, roses, wildlife habitats, and ornamental grasses.

Athletic Fields

The athletic fields are currently large areas of both artificial and natural turf. The objective is to move towards conversion of the artificial turf into a natural turf, composed of low-water use grass species suitable for sport activities.

Planting areas adjacent to the athletic fields should maintain institutional scale and simplicity, utilizing a simple unified palette of plants in large, bold strokes for ease of maintenance and visual harmony.

Interstitial Spaces

The underlying landscape design objective is to provide spaces that are safe and comfortable, presenting a unified image of the campus as these interstitial spaces tie various buildings and landscape spaces together.

- Reinforce the consistency of tree canopy along the campus corridors and interstitial spaces to provide shade, spatial continuity, and relieve the dominance of pavement and buildings.
- Repeat landscape elements to provide visual cohesion and continuity.
- Simplify planting treatments in the area between the sidewalk and buildings. Plantings should be of a limited variety in large, continuous masses to reduce maintenance, increase visual cohesion, and lower water use.

Natural Spaces

Natural landscapes are considered as such due to the minimal human management. These character of these landscapes should be informal and naturalistic rather than geometric or formal. They should be protected and sustained in its “natural” state.

- The predominant character of plantings should be naturalistic and arrangements should be in non-geometric patterns.
- Identify areas with healthy historic oaks and retain the park-like landscape character by adding plants to complement the historic plantings and/or replacing historic plant material that has declined.
- Keep the majority of the campus park-like and simple, limiting the variety of plantings used in each landscape and matching the plantings in the surrounding Sonoma County landscape.
- Retain enough plant diversity to satisfy educational needs.
- Identify and save existing historical specimen plants and choose new plantings to complement the existing landscape features.

- Trees shall be pruned to a clear height of 15 feet or more eventually, to allow for vehicular passage and minimize shading of pedestrian post lights.
- Tree species may vary to introduce some dissimilarity and protect against disease that may strike a given species - however, this added variety should not be at the expense of overall continuity of character and form of the street.

PARKING LOTS

- Planting shall not block or cover streetscape and parking lot pole lighting.
- Establish a tree canopy for parking lots to mitigate urban heat island effect and reduce visual impact of vehicles.
- Edges of parking lots should be visually screened with planting or stormwater gardens to conceal the lower half of automobiles, but still allow for visual surveillance of the parking lot in addressing the need for campus security and avoid creating hiding places for predators.

Streetscape & Parking Lots

STREETSCAPE

The streetscape planting palette should be simple. Employ a limited palette of canopy trees, single-species shrubs in row/masses, and planes of groundcover to ensure visual continuity and simplicity in keeping with the scale and order of the space. Where possible, streetscapes should incorporate integrated stormwater management landscapes.

- Continuous street trees shall be planted along the street corridors and sidewalks, spaced to create a continuous shaded environment for pedestrians and cyclists.



Mountain Equipment Co-Op Store.
Photo By: Bob Matheson Photography/Randy Sharp

Site Furnishings

Current site furnishings vary in condition, ages, style, and material; they are inconsistent across the teaching sites. The purpose of the following guidelines is to standardize the type of furnishings use throughout the campuses to create a uniformity of expression for exterior use areas. See FF&E standards in appendix for additional site furnishing details.

Tables & Chairs

Choose table and chairs that utilize materials suitable for outdoor use and exposure . These include:

Timber

- a. Ipe or other tropical hardwoods
- b. Red and Yellow Cedar
- c. Redwood
- d. Thermally or chemically-modified woods

Metal:

- a. Anodized aluminum
- b. Stainless steel
- c. Powder-coated metal

BENCHES

- A family of bench styles for each teaching site district-wide shall be selected, with a site standard established by the committee.
- Benches shall be selected for the anticipated length of use - backed for longer term use, and backless for shorter term use.
- Benches shall be selected for the character and size of the space - backless benches should be used in small gathering spaces to avoid the appearance of clutter, while backed benches could be used in larger areas (e.g lawns).
- Compose benches with other landscape elements such as trees, or other amenities such as kiosks, trash/recycling receptacles etc.
- Benches should be located on concrete paving, unit pavers, asphalt, or decomposed granite areas for accessibility



Solid Sunken Cypress Benches - North Park Center, Dallas, Texas
Photo By: Archi Type Source

Timber Bench
Photo By: Massachusetts College of Liberal Arts

MOVABLE TABLES & CHAIRS

- Each area should only have one selection or family of movable tables and chairs to avoid the appearance of clutter.
- Where possible, table or chair legs shall not be affixed to the ground - this will allow for free movement of furnishings to accommodate flexibility of space and arrangements.
- Ensure there is the minimum required wheelchair accessible table.



FIXED TABLES & CHAIRS

- Each area should only have one selection or family of fixed tables and chairs to avoid the appearance of clutter.
- Seat-walls are considered fixed seating - and can be mixed with movable tables and chairs to create a flexible outdoor area.
- Ensure there is the minimum required wheelchair accessible table.

Trash & Recycling

- Place trash and recycling receptacles together at each location.
- Place at main entrances to buildings, plazas, and pedestrian walkways.
- Place with other site furniture for functional and organized gathering areas.



Bicycle Racks

- Have a district-wide campus standard for the bike racks and bike barns.
- Place bike racks and bike barns in select locations without cluttering or obscuring building entrances, and where they can be accessed without navigating steps.
- Install number of bike racks per CalGreen Standards.
- Use durable materials such as stainless or powder-coated steel, anodized aluminum, or galvanized metal.



Movable Chairs
Photo By: Fermob

Movable Table and Chairs
Photo By: Fermob

Litter and Recycling Bins
Photo By: Landscape Forms

UC Davis Bicycle Racks.
Photo By: Eric E Johnson

Site Furnishings

(CONT.)

Planters

Use planter pots as accents at building entrances sparingly. Select planter pots that are in scale with context.

- Scale of fountains shall be compatible with setting and not obscure axes nor sight lines to building entrances.
- Materials, color, form and texture shall compliment context.

Walls & Fences

- To preserve the open space campus quality, walls and fences are discouraged. Where solid fences and screening is necessary, they shall be designed in a style compatible with adjacent buildings.
- Plant at the base of walls and fences to reduce the visual impact of the walls and fences.
- Chain-link fences are discouraged.

Water Bottle Filler

Standards to be confirmed.

Solar Powered Battery Chargers

Standards to be confirmed.

Electric Vehicle Chargers

Standards to be confirmed.

Water Fountains

Water fountains often consume large volumes of water. Due to the 2015 State Water Resources Control Board request that Californians reduce water consumption, additional water fountains shall not be constructed until water restrictions have been lifted.

For current water fountains, the following guidelines should apply:

- Use an individual water meter to ensure efficient water use.
- Use a filter to prevent clogging of the recirculating system.

When water restrictions are lifted, the following guidelines should apply for new water fountains:

- Use recirculating pumps.
- Avoid fountain designs that discharge a jet or stream of water into the air.
- Place water fountains in courtyards and plazas in sunny locations and where plant debris will not fall into fountains.

Site Lighting



Campus lighting, above all, helps to create a safe campus environment. It also can help to frame



open space and reinforce the overall structure of campus walkways, streetscapes, and open space. It can create a sense of identity within a campus and should be carefully selected to reflect an appropriate aesthetic and safety functionality. Some fixtures may vary by area and campus, while others may be uniform throughout the district.

The exterior lighting should be integrally designed as part of the built environment. It should aim to improve the quality of the nighttime environment, achieve design compatibility with both existing and new architecture, while taking advantage of the efficiency of new LED technologies. Light levels for all campus exterior spaces should be designed to conform to IES standards (www.ies.org).

In general, the following guidelines should be applied to all exterior lighting areas to improve light quality and maintain consistency throughout the campus:

- Lighting designs should be designed to minimize glare, light spillover, energy conservation, and to maintain dark skies.
- Full cut-off fixtures, mounting heights, and shielding should be utilized to effectively control glare and light spillover.
- Exterior specialty lighting can be used to accent plant material, building entrances, building facades, or signs.
- Any exterior lighting designs shall take into account all exterior lighting sources.
- The level of lighting can be increased in potentially hazardous locations, such as exterior stairs, crossing intersections, and remote parking areas, where appropriate.
- All exterior lighting, including parking areas, should utilize light sources with a high color rendering index (CRI). Obvious color contrasts in light sources/coloration should be avoided.

Parking Lot

Parking Lot lighting should create a safe and well-lit environment, but not exceeding the needs for security and safety or detract from the aesthetics of the environment.

- Light pole fixtures are most commonly used in parking lot areas.
- Light poles should maintain a suitable distance from trees to avoid blocking of light source by tree canopy.
- Pole fixtures along the roadway should be located a minimum of 3 feet behind the curb, or affixed on a raised concrete bases.

Campus Road

- A campus standard roadside fixture should be employed for all internal campus roads and parking areas to foster a unified appearance.
- Roadway lighting along public streets should follow Sonoma City standards to create a consistent streetscape.

Lighting location shall consider safety and adequate illumination of the surrounding area. Design consideration should also be given of the fixtures as part of the overall landscape: linear alignment, progression, etc.

Pathway & Pedestrian Poles

- Pedestrian pole lights shall be used in all pedestrian areas on campus, especially along primary pedestrian pathways.
- Additional light fixtures may be employed for additional safety and comfort along main walkways and routes that connect parking areas to primary campus destinations.
- Banner arms shall be provided on pole lights in designated areas.
- Electrical outlets shall be provided on poles in select areas, such as open lawn areas, plazas, and courtyards.



Pathway & Low Bollards

Light bollards are used where pole lighting is not appropriate. In general, reserve the use of the campus bollard only for unique situations as approved by the District where the campus pedestrian fixture is inappropriate, recognizing that their tighter spacing can create a littered look in the landscape.



Santa Rosa Campus Pole Light.
Photo By: Gensler

AccuLite Low Bollard Light.
Photo By: Juno Lighting Group

Pedestrian Barriers & Traffic Controls

Guardrails

- Guardrails should conform to current codes.
- Materials for guardrails should match nearest visually adjacent guardrails.
- Guardrails shall be provided where required due to elevation changes adjacent to pedestrian walkways.
- Ensure that guardrails do not create a tripping hazard.
- See Health & Safety Section for additional information.



Traffic Gate Arms

Where possible, bollards shall be used in lieu of traffic gate arms, so that these controls can be limited to areas solely designated for vehicular use such as entry and exit to parking areas.

Bollards

TRAFFIC BOLLARDS

Standards to be confirmed.

- Removable
- Fixed

PEDESTRIAN BOLLARDS

Standards to be confirmed.

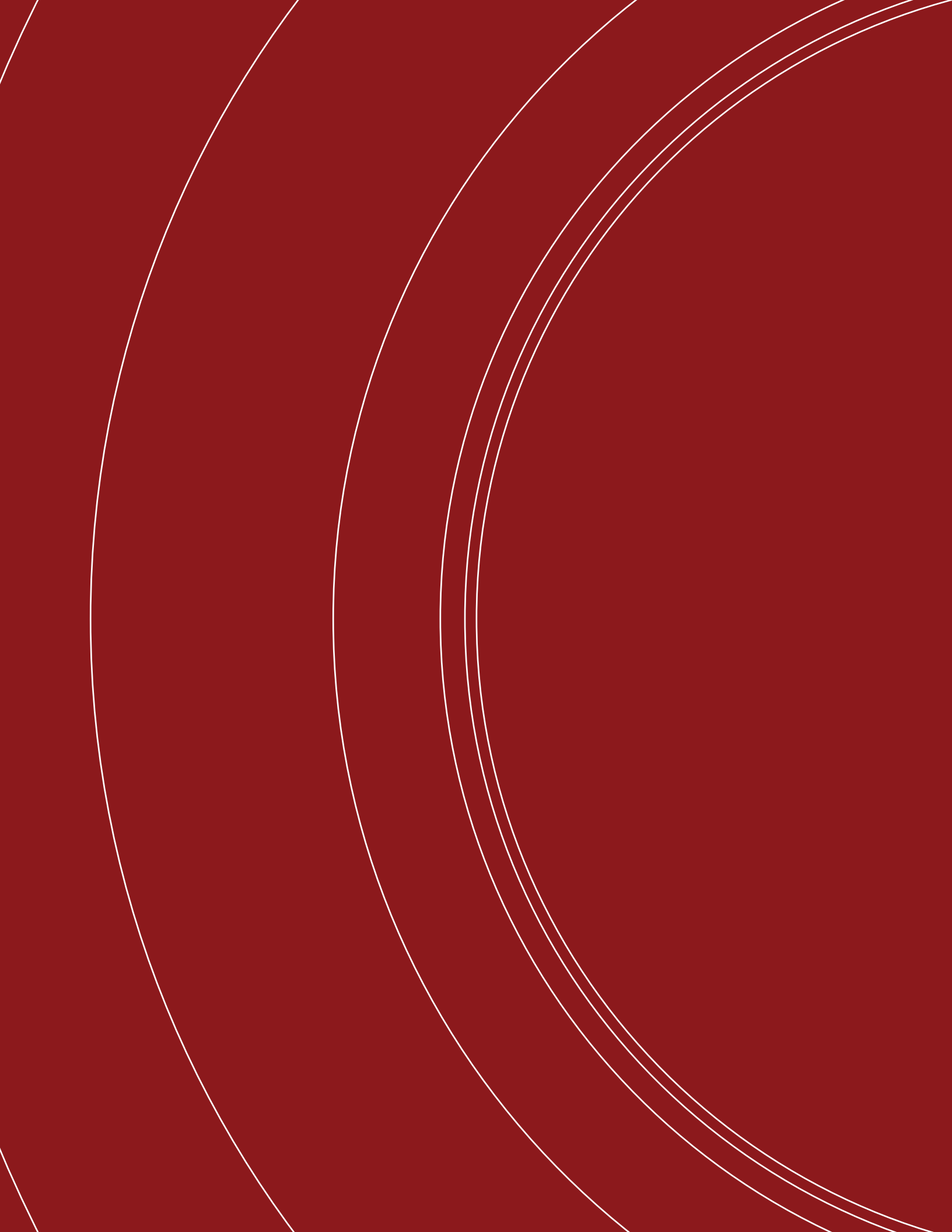
- Purpose
- Aesthetic



Annapolis Bollard
Photo By: Landscape Forms

OMOS S23 Bollard
Photo By: OMOS





5.2 Structural Systems

Structural Systems

The Sonoma County Junior College District urges consultants working on their new construction projects to consider the following structural design guidelines in order to achieve a variety of benefits including: long term flexibility, structural performance, constructibility and sustainability. Renovation projects warrant choosing the best system for the existing building type.

FLOOR LIVE LOADS

SCJCD urges consideration of using a minimum live load of 80 pounds per square foot (psf) coupled with 20 psf for partition loads for a total of 100 psf. This minimum live load promotes long term flexibility. This is a minimum live load, and some areas of buildings may require higher live loads as required by the California Building Code.

LATERAL FORCE RESISTING SYSTEMS

SCJCD encourages the use of Buckling Restrained Braced Frames (BRBF's) due to their effective seismic performance and the relative simplicity of installing new braces after a major earthquake.



BRBF's need not be considered for one-story buildings or penthouses.

SLABS AND DECKS

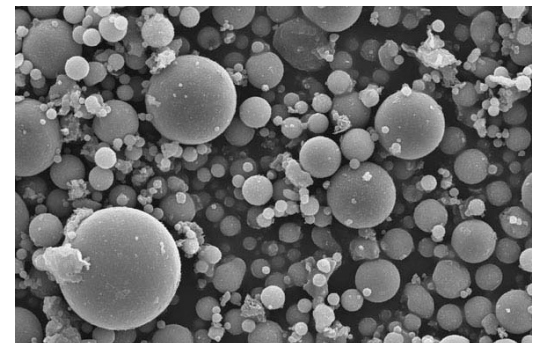
1. Fire Rating: SCJCD encourages using a minimum fire rating of two hours at

suspended floors in order to promote long term flexibility in use of District buildings.

2. Slabs-on-Grade: SCJCD encourages setting a maximum water / cementitious material (w/c) ratio of 0.45 for concrete used in slabs-on-grade. Many floor finish manufacturers set this value as a minimum w/c ratio because it helps to reduce vapor transmission, which can have a detrimental effect on finishes.
3. Roof Deck: SCJCD encourages using concrete fill at roof decks in order to provide for long term flexibility of attachments for equipment or other architectural items. Often roof decks consist of bare corrugated metal, but this has a much more limited capacity for hanging attachments at a later time.

SUSTAINABILITY

1. Supplementary Cementitious Materials (SCM's) in Foundations. SCJCD encourages the specification of a minimum of 50% replacement of portland cement with SCM's in foundation elements, such as footings and grade beams. SCM's include Class F fly ash and ground slag. Use of SCM's in this manner reduces greenhouse gas emissions and energy consumption associated with the manufacture of portland cement. SCJCD also encourages specification of design compressive strength at 56 days for foundation elements. The additional time allows the SCM's to contribute



Left: Buckling Restrained Braced Frames

Right: Fly Ash

more to the strength gain. The longer period to achieve the specified strength has a negligible effect on foundation construction schedules.



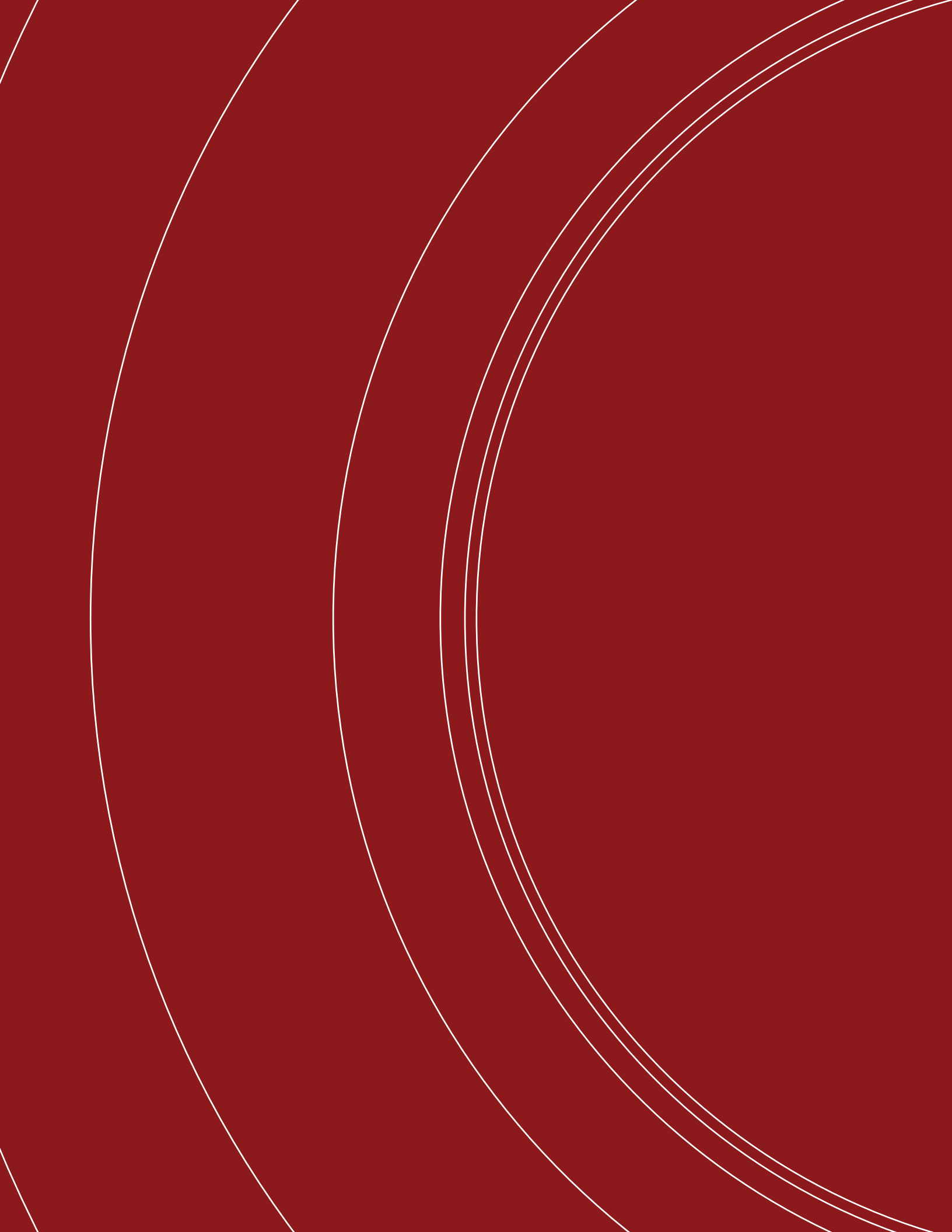
2. Recycled Content in Steel: SCJCD encourages the specification of a minimum of 85% recycled content in structural steel.
3. Regional Materials: SCJCD promotes the



specification materials extracted, recovered or manufactured within 500 miles of the project site in order to reduce environmental impacts associated with transport.

Left Above: Recycled Steel

Left Below: Regional Materials



5.3 Architecture

Division 2

Existing Conditions

02 4000 - SITE DEMOLITION

Except for materials indicated to be stockpiled or to remain the Owner's property, cleared materials are the Contractor's property. Remove cleared materials from site and dispose of in lawful manner.

Salvageable Improvements: Carefully remove items indicated to be salvaged and store where indicated on plans or where designated by the Owner. Avoid damaging materials designated for salvage.



Unidentified Materials: If unidentified materials are discovered, including hazardous materials that will require additional removal other than is required by the Contract Documents, immediately report the discovery to the Owner. If necessary, the Owner will arrange for any testing or analysis of the discovered materials and will provide instructions regarding the removal and disposal of the unidentified materials.

Protected Items: Follow all prescribed precautions to protect buildings, utility infrastructure roadways, trees, etc. by the Owner's consultants or mitigations required by any environmental impact reports.

02 4116 - BUILDING DEMOLITION

Conform to applicable code for demolition of structures, safety of adjacent structures, dust control.

Obtain required permits from authorities.

Notify affected utility companies before starting work and comply with their requirements.

Do not close or obstruct roadways without permits.

Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

02 4119 - MINOR DEMOLITION FOR REMODELING

Conduct demolition to minimize interference with adjacent and occupied building areas.

Use all means necessary to protect existing objects, construction and plantings designated to remain. In the event of damage, make all repairs and replacements necessary for approval of Architect at no additional cost to the Owner.

Protective measures: Provide all necessary safeguards, including warning signs and lights, barricades, and the like, for protection of the public, Contractor's employees and existing improvements during demolition. Prevent access of unauthorized persons to area of work

Provide at least one person who shall be present at all times during execution of this portion of the work, be thoroughly familiar with the type of work being performed and the best methods for its execution and who shall direct all work performed under this Section.

Division 3

Concrete

03 3000 - CAST-IN-PLACE CONCRETE

Portland Cement Concrete has inherent adverse environmental impacts in its production and placement. These should be mitigated by the specification of concrete mixes, sourcing of materials, and production methodologies that reduce environmental impacts. Mix designs should reduce the amount of PCC by the use of high volume fly ash (HVFA) or other approved materials as appropriate for the intended use and required strength of the concrete.

Polished concrete flooring may be used as an interior floor finish however is should not be used in wet locations. Exposed concrete floors shall have a penetrating sealer, with colorant if desired, that provides an abrasive finish to provide sufficient traction for safe foot traffic.

Division 4

Concrete Unit Masonry

04 0000 - MASONRY

Where exterior brick veneer is to be utilized on new buildings, full unit masonry shall be employed for the exterior cladding for buildings. The size and coloration of the brick shall match the existing brick of the existing historical buildings on campus. Brick shall be installed per the manufacturers recommendations, the recommendations of the Masonry Institute of America (www.masonryinstitute.org)

Adhered thin brick or brick tiles will not be acceptable.

04 2000 - CONCRETE UNIT MASONRY

The use of concrete unit masonry as an exposed exterior finish is discouraged. It may be used as a structural element of a building. All CMU shall be moisture controlled masonry with water repellent admixture and all materials shall conform to ACI 530 and ASTM C90.

Division 5

Metals

05 5000 - METAL FABRICATIONS

All miscellaneous metal work not classified as structural steel.

Materials: Steel shapes, bars and plates ASTM A36; Steel pipe ASTM A53 Grade B Type 3. Hot-dipped galvanized steel at exterior exposure and at interior locations subject to high moisture.

Steel pipe or tube handrails and railings: Fabricate to dimensions and details shown, with welded joints ground smooth and flush. Hot-dipped galvanized at exterior locations.

Steel Pipe Rain Water Leaders: Schedule 40 iron pipe with welded joints ground smooth and flush, hot-dipped galvanized.

Perforated sheet steel and plate. Perforations can be round or square, and can have a free area of 30% to 65% depending on the pattern. Exterior installations shall be paintable.

Stairs and ladders shall require calculations and details by a structural engineer licensed in California.

Division 6

Wood and Plastics

required to provide a seismic/DSA compliant installation.



06 2000 – FINISH CARPENTRY

The use of sustainably harvested wood is highly encouraged. Comply with VOC content restrictions. Wood fabricated from old growth timber is not permitted.

Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI (AWS) for Custom Grade.

Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency identification; except omit marking from surfaces to receive transparent finish.

06 4100 - ARCHITECTURAL WOOD CASEWORK

Conform with CAL-GREEN requirements for VOC and Formaldehyde limits.

Wood fabricated from old growth timber is not permitted.

Quality Grade: Unless otherwise indicated provide products of quality specified by AWI//AWMAC/WI (AWS) for Premium Grade.

Closeout Submittals: AWS certificates of compliance indicating that installation fully meets requirements of AWS Millwork Grade specified.

Avoid plastic laminate counter tops.

Hardware: Meet or exceed specified requirements of AWI/AWMAC/WI - Architectural Woodwork Standards (AWS) and BHMA Grade 1; or as selected by Architect from manufacturer's standards.

Use fixture attachments in concealed locations wherever possible for wall mounted components. Exposed fasteners at semi-exposed surfaces and exposed interior surfaces are acceptable when

Division 7

Thermal and Moisture Protection

07 2100 - BOARD AND BATT BUILDING INSULATION



See report from SRJC sustainability committee.

For adhesives sealants, fillers, primers and coatings, documentation including printed statement of VOC contents, comply with limits specified in related section.

Insulating Material Standards: All insulation materials must comply with the 2013 California Referenced Standards Code, California Code of Regulations, Title 24, Part 12 / Chapter 12-13 Standards for Insulating Material.

Roof and wall insulation to provide a complete insulation envelope surrounding all conditioned spaces. Minimum R-values for various building assemblies to meet Cal-Green standards.

07 2633 - WATER VAPOR EMISSION CONTROL COATING

Epoxy type, environmentally safe, 100 percent solids, water vapor emission and alkalinity control coating. A Moisture Mitigation and Alkalinity Control System as defined in ASTM F3010.

CAL-GREEN Requirements – VOC Limits: For adhesives sealants, fillers, primers and coatings, comply within limits.

07 3200 - CLAY ROOF TILES

Existing Clay Roof Tiles: Salvage and reuse intact and serviceable existing clay tiles wherever possible.

New Clay Roof Tiles: Match existing tile shape and color as closely as possible.

Special Shapes and Fittings: Supply special shapes and fittings of same material and finish as adjacent tile, factory-formed before firing, as indicated on drawings or as required for specific project conditions, including but not limited to hip caps, ridge caps, rake edges, eave edges, and terminations.

Minimum Warranty: 25 Years

07 4100 - METAL ROOFING

Metal roofing shall be pre-formed roof panels with appropriate clips, anchors, and perimeter and penetration flashing, closures, and accessories as required for weatherproof installation. Metal Roofing shall be Class A rated 24-gauge minimum, steel batten seam roof panels. Roof panels shall have factory fluorocarbon coating with 25-year warranty. Certified test report that bear the stamp of a registered California PE to show compliance with specified performance criteria.

07 5400 - THERMOPLASTIC MEMBRANE ROOFING

Thermoplastic membrane single ply roofing:
PVC Sheet: ASTM D 4434, Type II, Grade I, 80 mil thickness, fiberglass reinforced, fleece backed, fully adhered membrane with a lacquer coating. Meet CAL-Green VOC Compliance limits and requirements for cool roofing. Substrate shall meet manufacturers requirements for single ply PVC membrane roofing

30-year warranty and 3-Year post completion inspection are required. Provide inspections as required to maintain warranty

07 7200 - ROOF ACCESSORIES



Rooftop safety harness anchor points. All roofs shall have safety features and accessories as required by OSHA for worker safety while on any

roof. The anchorage must support 5,000 pounds per employee attached. Anchorages cannot be connected to platforms, guardrails or hoists.

Straps have to be made of synthetic fiber. Locking snap hooks are required and must attach to a body harness at the D-ring in the center of the back.

Provide permanent means of fall protection for all hatch openings.

Guardrails: Top rails and mid-rails of guardrail systems must be at least ¼ of an inch nominal diameter or thickness to prevent cuts and lacerations. The top edge height of top rails or (equivalent) guardrails must be 42 inches plus or minus 3 inches (39 - 45 inches) above the walking or working level. Screens, mid-rails, mesh, intermediate vertical members or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking and/or working surface when there are no walls or parapet walls at least 21 inches high.

Sloped roof with fascia gutter shall have gutter shields to deter the accumulation of debris in the gutters.

Division 8

Openings

08 1100 - STEEL DOORS AND FRAMES

General Requirements: Comply with ANSI A250.8.

1-3/4-inches thick, exhibiting no warp or buckle.

Faces: Fully welded, seamless, flush.

Edges: Full height and width of door.

Bevel lock edge 1/8 in 2.

Top and bottom edges: Fabricate from material 2 gages thicker than specified for faces. Closed with a continuous recessed steel channel; extending full width of door and spotweld to both faces.

Core: Comply with ANSI A151.1.

Hardware reinforcement: Cut-out, reinforce, punch and tap for mortise hardware. Reinforce for surface hardware. Reinforce in accordance with ANSI A115 and SDI-107 except as specified for material gauge.

Hinges: No. 7 gauge

Lock fronts: No. 12 gauge

Mortise lock sides and other surface mounted hardware: No. 14 gauge.

Interior Doors: 16 gauge faces

Exterior and interior wet location doors: 14 gauge galvanized faces

Interior Frames: 14 gauge frames

Exterior and interior wet location frames: 12 gauge galvanized frames

08 1416 - FLUSH WOOD DOORS

Perform work in accordance with AWI/AWMAC/WI - Architectural Woodwork Standards (AWS);2009, Section 9, Custom Grade.

Finish doors in accordance with AWI/AWMAC/WI - Architectural Woodwork Standards (AWS);2009, Section 5.



VOC Limits: For adhesives, sealants, fillers, primers and coatings, documentation including printed statement of VOC contents, comply with limits specified in related section.

Composite Wood Formaldehyde Limits: Provide certification that all products meet current CARB Airborne Toxic Control Measure (ATCM) for Composite Wood Formaldehyde Limits by Mandatory Compliance Dates as specified in related section.

Fire-rated Assemblies: Manufactured in accordance with Underwriters Laboratories Inc. or other approved independent testing laboratory and bearing their metal label affixed to both door and frame. Labels shall list fire rating and "UL 10B and 10C POSITIVE PRESSURE" label. Door labels shall also include smoke and draft "S" designation.

08 1613 – FRP DOORS AND ALUMINUM FRAMES

FRP doors to be used in areas where heavy duty service use and/or high corrosion conditions, such as high moisture or corrosive chemicals, are anticipated. Fiber Reinforced Plastic faced doors with aluminum frames and foam insulation core. Door and frame assemblies to be factory fabricated pre-assembled, complete with continuous hinges, hipped with braces, spreaders and packaging as required to prevent damage. Through-color gel coating on fiberglass reinforced polyester resin construction with reinforced core.

Insert frames and louvers: Aluminum, finished to match door components.

08 4313 – ALUMINUM ENTRANCE AND STOREFRONTS

Aluminum storefront systems should be incorporated at major building entrances. Systems should be minimum offset glazed system of tubular aluminum sections, 2-inch x 4-inch nominal section size. Fluoropolymer “Kynar” color finish or Class I anodizing, 25-year warranty. Systems shall be thermally broken. Sound Transmission Class (STC): Rated for not less than 30 STC when tested for laboratory sound transmission loss according to ASTM E 90 and determined by ASTM E 413. Exterior sun control devices shall be by storefront manufacturer.

Storefront systems shall include aluminum doors and frames. Where high volumes of traffic are anticipated automatic sliding doors should be considered.

Storefront systems exceeding code maximum size limitations will be subject to deferred approval review by DSA. Submittals shall include details and structural calculations prepared by a structural engineer licensed in California. substantiating the design, member properties and anchorages.

Constructed with structural support as required to meet wind loading requirements of prevailing codes.

08 7100 - DOOR HARDWARE

Of paramount concern when specifying door hardware is classroom security. All instructional spaces shall be equipped with “Classroom Security” function locksets. This style of lockset can generally be described as having the ability to be locked from the inside using a key while still allowing free egress. The College may want to consider the long term conversion to electronic locks which should include an automated system for remote lockdown for all doors. No devices or locksets that violate ADA accessibility requirements or NFPA egress requirements shall be used.

See the following SRJC Door Hardware Specification Guideline.

Note: There are a number of proprietary products required. These have been deemed by the College to meet the requirements of Public Contracts Code Section 3400, (c), (2).

(Insert District Hardware Specifications/Curt Sheets here)



**1501 Mendocino Avenue, Santa Rosa, CA 95401
(707) 527-4231**

DOOR HARDWARE SPECIFICATION GUIDELINE

SECTION 087100

Edit Date: March 30, 2016

The purpose of this booklet is to support the Santa Rosa Junior College District building standards for door hardware. The District maintains the following hardware and is currently stocking replacement parts. The products listed in this booklet are pursuant to Public Contract Code Section 3400. The following particular products are designated by brand name in order to match other products in use on a particular improvement, either completed or in the course of completion.

No substitutions will be accepted for these products.

It is the intent of this booklet to provide guidelines for the architect's specification section 087100, for product groups and the hardware schedule. It remains the architect's responsibility to coordinate these products to meet the applicable building codes, life safety codes, and ADA requirements.

Section 087100 door hardware preamble must specify the following:

Door and frame prep

Before hardware installation, verify that all doors and frames are properly prepared to receive the specified hardware. Hollow metal frames shall be prepared for ANSI strike plates per A115.1-2 (4-7/8" high), hinge preps will be mortised and reinforced with a minimum of 8 gauge reinforcement material for closer installation. Hollow metal doors shall be properly prepared and reinforced with a minimum of 16 gauge material for either mortised or cylindrical locks as specified. It is preferred that all hollow metal doors receiving door closers have 12 gauge reinforcement. If this is not possible, the use of sex bolts is mandatory. Wood doors shall be factory prepared to receive the scheduled hardware.

Hardware installation



The manufacturer's representative for the locking devices and closing devices must inspect and approve, in writing, the installation of their products. Hardware installed incorrectly must be reported to the architect prior to the architect's final punch list.



**SPECIFICATION GUIDELINE
Manufacturers and Products**

Substitutions or Alternates not permitted unless noted below.
Edit Date: March 30, 2016

DOOR HARDWARE

<u>Description</u>	<u>Manufacturer</u>	<u>Model / Series</u>	<u>Finish</u>
<u>Hanging Devices</u>			
Cont. Hinge	Ives	224HD (High traffic openings, exterior doors, classrooms) 157XY Adjustable Full Surface Hinge	CL CL
Butt Hinge	Ives	5BB1HW x NRP 5BB1	630 652
<u>Securing Devices</u>			
 Lock Set	Schlage	<u>Cylindrical Locks</u> ND Series x Sparta: ND10S Passage Lock ND40S Privacy Lock  ND93JD Classroom Security Lock ND96JD Storeroom Lock ND97JD Corridor Lock ND85PD Faculty Restroom Lock	US26D
		Electric Lock/Trims	Schlage
Exit Device	Von Duprin	CDSI-AX-99NLx990NL"Trim Pull"	US26D
		CDSI-AX-99NLx990NL"Trim Pull" x AX-99EO	US26D
		xSNBxKR4954 Mullion x 154 (at pairs)	
		AX99L-2SI-F-996L-NL-R (F-rated single doors)	US26D
		AX99L-2SI-F-996L-NL-R x AX99EO-F x KR9954 Mullion x 154 (F pairs)	US26D
		<ul style="list-style-type: none"> ➤ All mullions to have a set of #154 stabilizers ➤ Use QEL Devices for auto operator doors 	
Auxiliary Locks	Olympus	777 Door & 888 Drawer Locks	US26D
Key System	Schlage	20-740 Everest Primus Level 9	626
		<ul style="list-style-type: none"> ➤ SRJC Facilities Operations to verify Schlage Keyway 	
Flush Bolts	Ives	FB31P (Automatic) (metal doors) (Storage & Utility rooms)	US26D
		FB41P (Automatic) (wood doors) (Storage & Utility rooms)	US26D
		FB51P (Manual) (metal doors) (Storage & Utility rooms)	US26D
		FB61P (Manual) (wood doors) (Storage rooms)	US26D
Coordinator	Ives	COR x FL x MB (Storage & Utility rooms)	USP
		<ul style="list-style-type: none"> ➤ Use coordinator only where required by fire code 	



**SPECIFICATION GUIDELINE
Manufacturers and Products**

Substitutions or Alternates not permitted unless noted below.
Edit Date: March 30, 2016

DOOR HARDWARE

Description	Manufacturer	Model / Series	Finish
<u>Closing Device</u>			
Closer	LCN	4040XP RW/PA/TB ➤ Furnished and installed all door closers with thru bolts ➤ All door frames to be reinforced for soffit shoe ➤ The use of concealed overhead closers must be authorized by SRJC Facilities Operations on a project by project basis	689
Auto Operator	Horton	4000 Series 7000 Series	Alum Alum
<u>Electrical Accessories</u>			
Power Supply	Schlage	PS902 PS904 PS906 PS914	
Request to Exit	Von Duprin	RX	
Power Transfer	Von Duprin	EPT-10	SP28
Keyswitches	Schlage	653-04	630
<u>Stops & Holders</u>			
Door Holder	Ives	WS45 (Automatic Holders & Stops) FS43 (Automatic Door Stops & Holders)	US26D US26D
Door Stops	Ives	FS436/R435 (Interior Floor Stop) FS18S (Security Floor Stops) WS401/WS402 (Wall Stops) ➤ Backing required at wall holders locations	US26D Black US26D
<u>PROTECTIVE PLATES AND TRIM</u>			
Kick Plate	Ives	8400 Series	US26D
Mop Plate	Ives	8400 Series	US26D
Push/Pull Plates	Ives	8200/8300 Series	US26D
<u>ACCESSORIES</u>			
Latch Protector	Ives	LG12	US32D
Door Silencer	Ives	SR64	Gray



**SPECIFICATION GUIDELINE
Manufacturers and Products**

Substitutions or Alternates not permitted unless noted below.
Edit Date: March 30, 2016

DOOR HARDWARE

Description	Manufacturer	Model / Series	Finish
Threshold	ZERO	654A 655A 623A	Alum Alum Alum
<p>• Threshold Notes - Architect to coordinate with project conditions. Set thresholds in a full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Use ¼" fasteners, red-head flat-head sleeve anchors (SS/FHSL).</p>			
Auto Door Bot.	ZERO	360AA	Clear
Door Sweep	ZERO	328AA	Clear
Weatherstripping	ZERO	488S-Bk 8780N	Black
Meeting Stiles	ZERO	328AA 44STST	Clear Alum
Head & Jamb	ZERO	328AA 326AA 429A 142A	Clear Clear Alum Alum

End of Specification Guideline



224HD Full Mortise Aluminum Geared Continuous Hinge

- Handing required when modified
- Door Edge Protector
- 48" Maximum Door Width
- 1/16" Door Inset
- Beveled or Square Edge Doors

For Doors Weighing up to 450 pounds without reinforcing, 600 pounds with reinforcing

Standard lengths 83", 85", 95", 120"

Standard Mounting Hardware

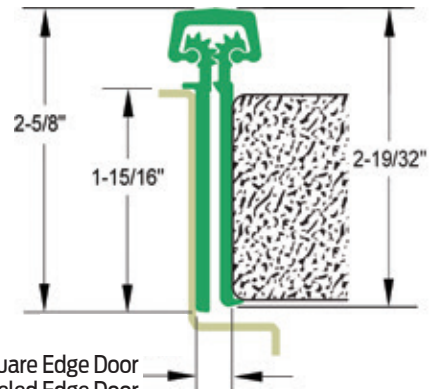
12-24 X 3/4" Steel Self Drilling, Self Tapping Screws

Optional WD - Wood Screws or SEC - Security Fasteners Available

Finishes

Clear (CL), Dark Bronze (DB)

Custom Anodizing and Painting are available, consult factory.



5/16" Clearance for Square Edge Door
1/32" Clearance For Beveled Edge Door

Electrical Cutouts

Ives Aluminum Geared Continuous Hinges are available with factory modified cutouts to accommodate most electrical frame to door requirements. Special templates are required.

When ordering indicate the following:

1. Opening size.
2. Handing. LH, RH, RHR or LHR.
3. Manufacturer and model number of the electrical product being used. Example; Von Duprin EPT2

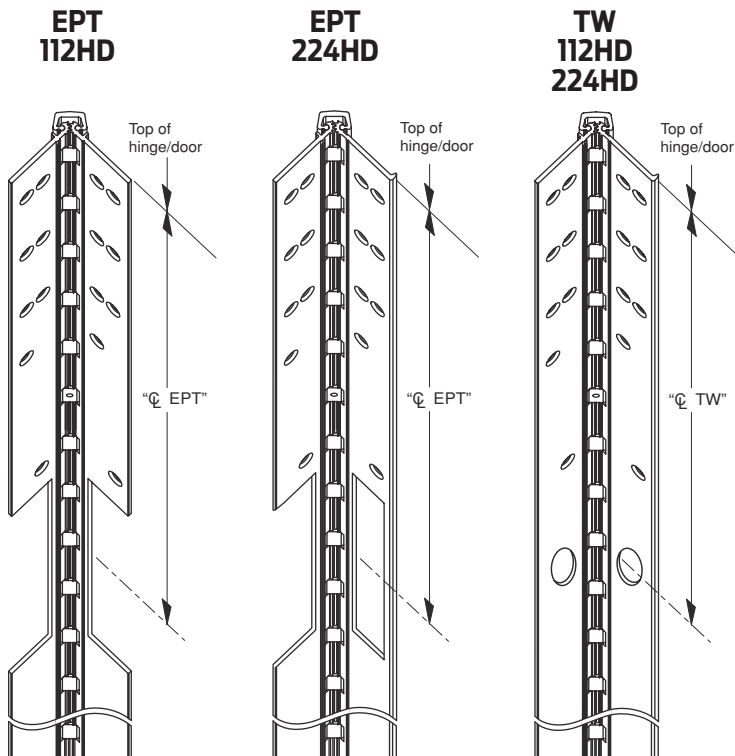
Because clearances may vary between door and frame manufacturer, and locations can be influenced by the door hardware it is always recommend contacting Ives Customer Technical for specific template information.

For your general information below are standard locations for Von Duprin EPT2 or EPT10, and monitor switch.

From Top Edge of Door to Center Line of Cut-Out

Standard Length	112HD EPT	224HD EPT	112HD/224HD TW
83"	30"	30"	41-1/2"
85"	32"	32"	42-1/2"
95"	42"	42"	57-3/4"
120"	67"	67"	81-25/32"

TWP option centered in hinge.



Note: See ordering guide in price book for proper placement.



112HD Full Mortise Aluminum Geared Continuous Hinge

- Non Handed
- Flush Mounted, No Inset
- 48" Maximum Door Width
- Beveled or Square Edge Doors

For Doors Weighing up to 450 pounds without reinforcing,
600 pounds with reinforcing

Standard lengths 83", 85", 95", 120"

Standard Mounting Hardware

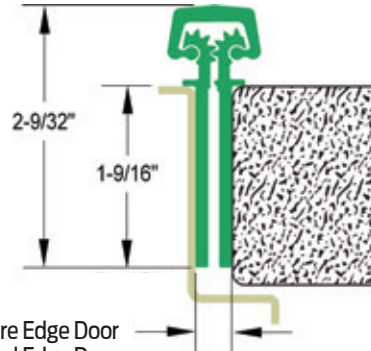
12-24 X 3/4" Steel Self Drilling, Self Tapping Screws

Optional WD - Wood Screws or SEC - Security Fasteners Available

Finishes

Clear (CL), Dark Bronze (DB)

Custom Anodizing and Painting are available, consult factory.



5/16" Clearance for Square Edge Door
1/32" Clearance For Beveled Edge Door



157XY Full Surface, Center Pivot Aluminum Geared Continuous Hinge

- Non Handed
- Narrow Frame
- 1/16" Door Inset
- 48" Maximum Door Width
- Beveled or Square Edge Doors
- A patented easy-to-install, heavy duty, full surface continuous hinge
- Lateral and vertical adjustability while the door is still hanging

For Doors Weighing up to 550 pounds

Standard lengths 83", 95", 119"

Standard Mounting Hardware

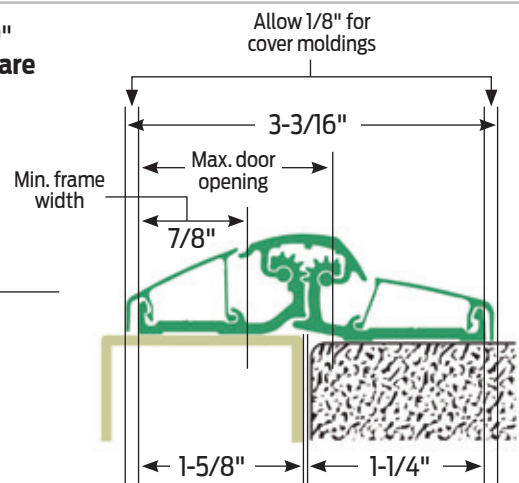
12-24 X 1/2" Steel Self Drilling and Tapping Screws,

Optional Wood Screws and Security Fasteners Available

Custom Paint Finish Available

Finishes

Clear (CL), Dark Bronze (DB)



Hinges & Pivots
A21

Pulls & Plates
B

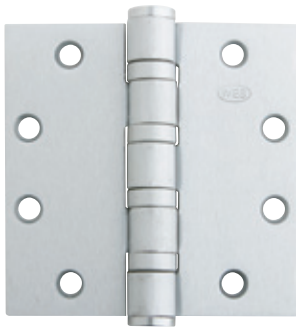
Flush Bolts & Coordinators
C

Latches, Catches & Bolts
D

Stops
E

Exterior Hardware
F

Miscellaneous Hardware
G



Meets ANSI/BHMA A156.1
 A8111 – Steel
 A5111 – Stainless Steel
 A2111 – Brass

5BB1HW

5 Knuckle, Ball Bearing, Heavy Weight Full Mortise Hinge

- For heavy weight doors
- High frequency usage
- 4 ball bearing
- Packed with wood and metal screws

Options

- NRP, Non-Removable Pin
- SH, Security Stud
- HT, Hospital Tip
- RC, Round Corners - 1/4" or 5/8" Radius
- SEC, Security Fastners - Pin-in-Socket

Dimensions

Size (Inches)	Size (mm)	Gauge	Size (Inches)	Size (mm)	Gauge
4.5 x 4	114 x 102	0.180	5 x 4.5	127 x 114	0.190
4.5 x 4.5	114 x 114	0.180	5 x 5	127 x 127	0.190



Meets ANSI/BHMA A156.1
 A8111 – Steel

5BB1WT

5 Knuckle, Ball Bearing, Wide Throw Full Mortise Hinge

- For medium weight doors
- Medium frequency usage
- 2 ball bearing
- Packed with wood and metal screws

Options

- NRP, Non-Removable Pin
- SH, Security Stud
- HT, Hospital Tip
- RC, Round Corners - 1/4" or 5/8" Radius
- SEC, Security Fastners - Pin-in-Socket

Dimensions

Size (Inches)	Size (mm)	Gauge
4.5 x 5	114 x 127	0.134
4.5 x 6	114 x 152	0.134
5 x 6	127 x 152	0.146
5 x 7	127 x 178	0.146
5 x 8	127 x 203	0.146

Finishes *brass*

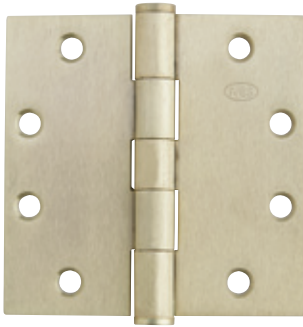
Ives Finish	US3	US4	US10	US10B	US10A	US11	US15	US26	US26D
BHMA	605	606	612	613	614	616	619	625	626

Finishes *steel*

Ives Finish	USP	US3	US4	US10	US10B	US10A	US11	US15	US26	US26D
BHMA	600	632	633	639	640	641	643	646	651	652

Finishes *stainless steel*

Ives Finish	US32	US32D
BHMA	629	630



Meets ANSI/BHMA A156.1
A8133 – Steel
A5133 – Stainless Steel
A2133 – Brass

5PB1 5 Knuckle, Plain Bearing Full Mortise Hinge

- For standard weight doors
 - Low frequency usage
 - Packed with wood and metal screws
- Not for use with a door closer.*

Options

- NRP, Non-Removable Pin
- SH, Security Stud
- HT, Hospital Tip
- RC, Round Corners - 1/4" or 5/8" Radius
- SEC, Security Fastners - Pin-in-Socket

Dimensions

Size (Inches)	Size (mm)	Gauge
3.5 x 3.5	89 x 89	0.123
4 x 4	102 x 102	0.134
4.5 x 4	114 x 102	0.134
4.5 x 4.5	114 x 114	0.134
5 x 4.5	127 x 114	0.134



Meets ANSI/BHMA A156.1
A8112 – Steel
A5112 – Stainless Steel
A2112 – Brass

5BB1 5 Knuckle, Ball Bearing Full Mortise Hinge

- For standard weight doors
- Medium frequency usage
- 2 ball bearing
- Packed with wood and metal screws

Options

- NRP, Non-Removable Pin
- SH, Security Stud
- HT, Hospital Tip
- RC, Round Corners - 1/4" or 5/8" Radius
- SEC, Security Fastners - Pin-in-Socket

Dimensions

Size (Inches)	Size (mm)	Gauge	Size (Inches)	Size (mm)	Gauge
3.5 x 3.5	80 x 102	0.130	5 x 4.5	127 x 114	0.146
4 x 4	102 x 102	0.130	5 x 5	127 x 127	0.146
4.5 x 4	114 x 102	0.134			
4.5 x 4.5	114 x 114	0.134			

Finishes brass

Ives Finish	US3	US4	US10	US10B	US10A	US11	US15	US26	US26D
BHMA	605	606	612	613	614	616	619	625	626

Finishes steel

Ives Finish	USP	US3	US4	US10	US10B	US10A	US11	US15	US26	US26D
BHMA	600	632	633	639	640	641	643	646	651	652

Finishes stainless steel

Ives Finish	US32	US32D
BHMA	629	630



ND Series

Grade 1 cylindrical lock

Overview

The ND Series has long been one of Schlage's best selling mechanical locks for good reason - it's tough, durable and fits a wide variety of applications.

Now we've made our trusted ND Series lock even better by making it easier to install. We've added these enhancements because we know that a lock installed correctly the first time will last longer and perform better. And the longer the lock lasts, the lower the cost of ownership over the life of the lock.

We've also beefed up our warranty to provide 10 years of coverage. The result: greater peace of mind that every door is safe and secured with a lock built to last.

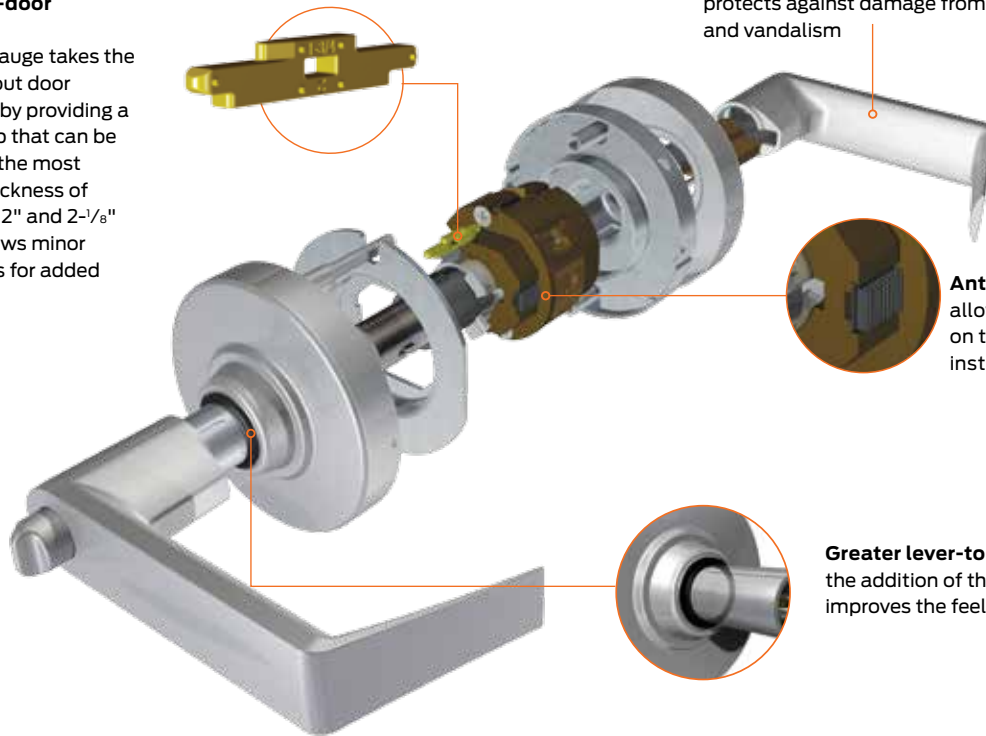


A simpler, smarter ND Series lock

Built-in durability exceeds ANSI/BHMA grade 1 cycle test requirements

Chassis-to-door alignment

the yellow gauge takes the guesswork out door adjustment by providing a positive stop that can be adjusted to the most common thickness of 1-5/8", 1-3/4", 2" and 2-1/8" and still allows minor adjustments for added equipment



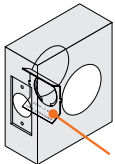
Optional Vandlgard® lever

protects against damage from excessive force and vandalism

Anti-rotation plate retention
allows the plate to be "snapped" on to the chassis making installation easier

Greater lever-to-spindle engagement
the addition of the soft durometer spacer improves the feel of the lever during actuation

ND Series continuous improvements



Reinforcement

Door reinforcement

Prevents the collapse of hollow metal doors when locksets are tightly mounted. The unit works with 1 3/8" and 1 3/4" thick doors.



New lever removal tool

The ergonomic design is bigger, stronger and works for both the ND and L series locks. Sold separately.



Chassis slide

In 2010, we redesigned the slide in order to increase the locks overall durability and improve component alignment.



Locking lug and key cam

In 2009 we improved the locking lug and keycam by making them stronger and more resistant to damage.

About Allegion

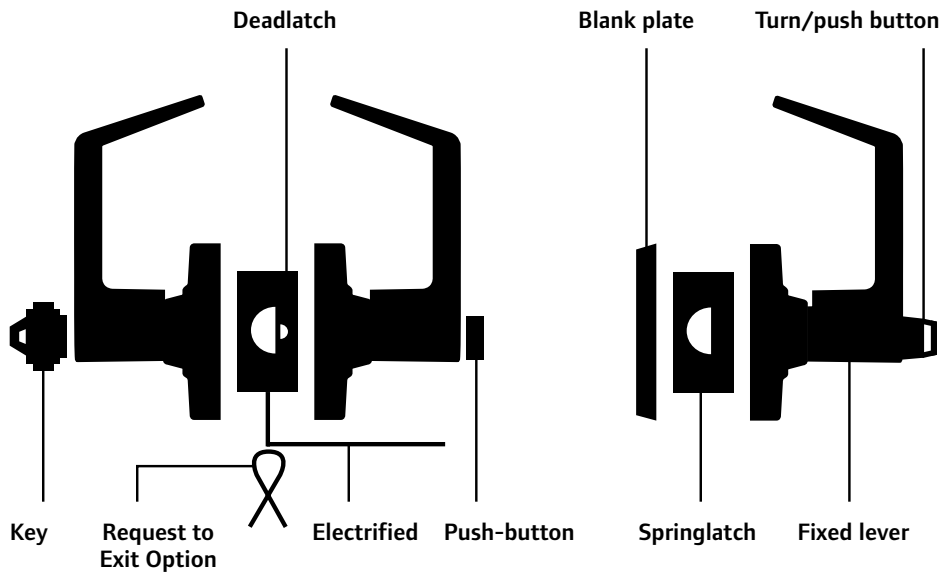
Allegion (NYSE: ALLE) creates peace of mind by pioneering safety and security. As a \$2 billion provider of security solutions for homes and businesses, Allegion employs more than 8,000 people and sells products in more than 120 countries across the world. Allegion comprises 27 global brands, including strategic brands CISA®, Interflex®, LCN®, Schlage® and Von Duprin®. For more, visit www.allegion.com

aptiQ ■ LCN ■ SCHLAGE ■ STEELCRAFT ■ VON DUPRIN



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allegion.com

Lock Functions | ANSI A156.2 Series 4000 Grade 1



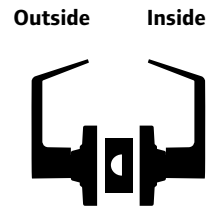
Non-Keyed Locks

SCHLAGE ANSI

ND10S **F75**

Passage Latch

- Both levers always unlocked.

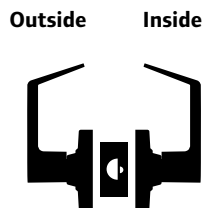


SCHLAGE ANSI

ND12D **F89**

Exit Lock

- Outside lever always fixed.
- Inside lever always unlocked.

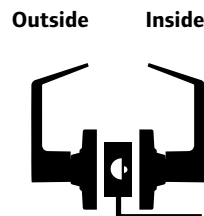


SCHLAGE ANSI

ND12DEL -

Electrically Locked (Fail Safe)

- Outside lever continuously locked electrically.
- Unlocked by switch or power failure.
- Auxiliary latch deadlocks latchbolt when door is closed.
- Inside lever always free for immediate exit.

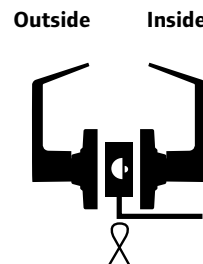


SCHLAGE ANSI

ND12DEU -

Electrically Unlocked (Fail Secure)

- Outside lever continuously locked until unlocked by electric current.
- Auxiliary latch deadlocks latchbolt when door is closed.
- Inside lever is always free for immediate exit.

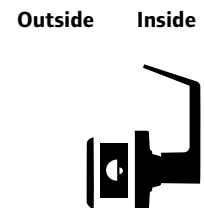


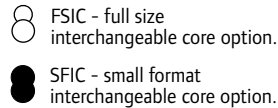
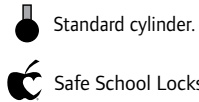
SCHLAGE ANSI

ND25D -

Exit Lock

- Blank plate outside.
- Inside lever always unlocked.





† **Caution:**
Double cylinder locks are a life safety hazard in times of emergency and their use is not recommended. Installation should be in accordance with existing codes only.

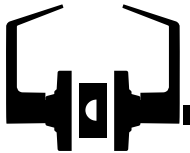
Keyed Locks

SCHLAGE ANSI
ND40S F76

Bath/Bedroom Privacy Lock

- Push-button locking.
- Can be opened from outside with a small screwdriver.
- Turn inside lever or close door to release button.

Outside Inside

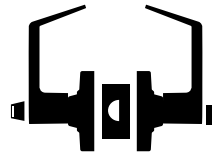


SCHLAGE ANSI
ND44S -

Hospital Privacy Lock

- Push-button locking.
- Unlocked from outside by turning emergency turn-button.
- Turn inside lever or close door to release button.

Outside Inside



SCHLAGE ANSI
ND170

Single Dummy Trim

- Dummy trim for one side of door.
- Used for door pull or as matching inactive trim.

Outside/Inside

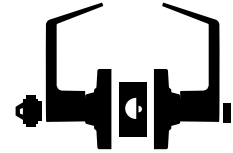


SCHLAGE ANSI
ND50PD F82

Entrance/Office Lock

- Push-button locking.
- Push-button locks outside lever until it is unlocked with key or by turning inside lever.

Outside Inside

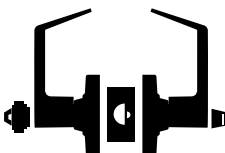


SCHLAGE ANSI
ND53PD F109

Entrance Lock

- Turn/push-button locking: Pushing and turning the button locks the outside lever, requiring use of a key until the button is manually unlocked.
- Push-button locking: Pushing button locks outside lever until unlocked by key or by turning the inside lever.

Outside Inside

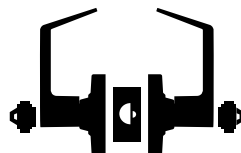


SCHLAGE ANSI
ND60PD F88

Vestibule Lock

- Latch retracted by key from outside when the outside lever is unlocked by key in inside lever.
- Inside lever is always unlocked.

Outside Inside

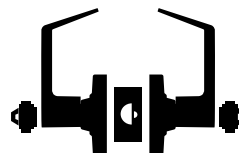


SCHLAGE ANSI
ND66PD F91

Store Lock†

- Key in either lever locks or unlocks both levers.

Outside Inside



SCHLAGE ANSI
ND70PD F84

Classroom Lock

- Outside lever locked and unlocked by key.
- Inside lever always unlocked.

Outside Inside



Lock Functions | ANSI A156.2 Series 4000 Grade 1

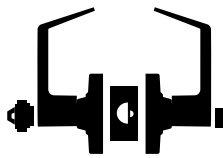
Keyed Locks (continued)

SCHLAGE ANSI
ND73PD F90

Corridor Lock

- Locked or unlocked by key from outside.
- Push-button locking from inside.
- Turn inside lever or close door to release button.
- When outside lever is locked by key it can only be unlocked by key.
- Inside lever is always unlocked.

Outside Inside

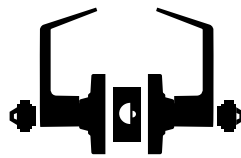


SCHLAGE ANSI
ND75PD -

Classroom Security Lock

- Key in either lever locks or unlocks outside lever.
- Inside lever is always unlocked.

Outside Inside



SCHLAGE ANSI
ND80PD F86

Storeroom Lock

- Outside lever is fixed.
- Entrance by key only.
- Inside lever always unlocked.

Outside Inside

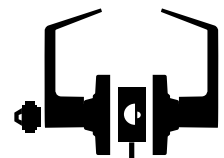


SCHLAGE ANSI
ND80PDEL -

Electrically Locked (Fail Safe)

- Outside lever continuously locked electrically.
- Unlocked by key outside or by switch or power failure.
- Auxiliary latch deadlocks latchbolt when door is closed.
- Inside lever always free for immediate exit.

Outside Inside

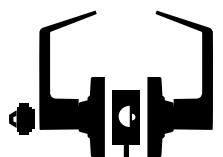


SCHLAGE ANSI
ND80PDEU -

Electrically Unlocked (Fail Secure)

- Outside lever continuously locked until unlocked by key or electric current.
- Auxiliary latch deadlocks latchbolt when door is closed.
- Inside lever always free for immediate exit.

Outside Inside

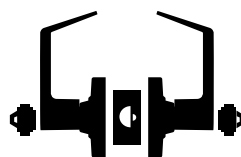


SCHLAGE ANSI
ND82PD F87

Institution Lock†

- Both levers are fixed.
- Entrance by key in either lever.

Outside Inside

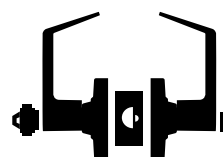


SCHLAGE ANSI
ND85PD -

Faculty Restroom Lock

- Outside lever is fixed.
- Entrance by key only.
- Push-button in inside lever activates visual occupancy indicator, allowing only emergency master key to operate.
- Turn inside lever or close door to release visual occupancy indicator.
- Rotation of inside spinner-button provides lock-out feature by keeping indicator thrown.

Outside Inside

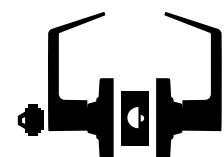


SCHLAGE ANSI
ND91PD F82

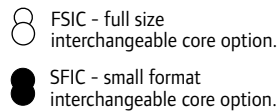
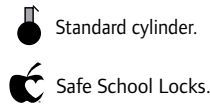
Entrance/Office Lock

- Push-button locking.
- Push-button disengages outside lever until locked with key or by turning inside lever.
- Vandlgard is designed to disengage outside spindle from latch when locked.

Outside Inside



Vandlgard Functions



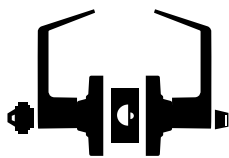
† Caution: Double cylinder locks are a life safety hazard in times of emergency and their use is not recommended. Installation should be in accordance with existing codes only.

SCHLAGE ANSI
ND92PD F109

Entrance Lock

- Turn/push-button locking: Pushing and turning button disengages outside lever, requiring using of key until button is manually unlocked.
- Push-button locking: Pushing button disengages outside lever until unlocked by key or by turning inside lever.
- Vandlgard is designed to disengage outside spindle from latch when locked.

Outside Inside

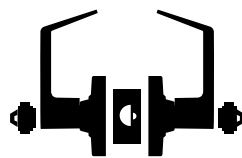


SCHLAGE ANSI
ND93PD F88

Vestibule Lock

- Latch retracted by key from outside when outside lever is disengaged by key in inside lever.
- Inside lever is always unlocked.
- Vandlgard is designed to disengage outside spindle from latch when locked.

Outside Inside

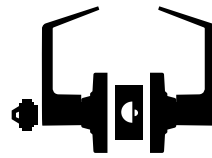


SCHLAGE ANSI
ND94PD F84

Classroom Lock

- Outside lever disengaged and unlocked by key.
- Inside lever always unlocked.
- Vandlgard is designed to disengage outside spindle from latch when locked.

Outside Inside

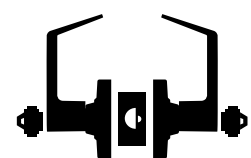


SCHLAGE ANSI
ND95PD -

Classroom Security Lock

- Key in either lever locks or unlocks outside lever.
- Inside lever is always unlocked.

Outside Inside



SCHLAGE ANSI
ND96PD F86

Storeroom Lock

- Outside lever always disengaged.
- Entrance by key only.
- Inside lever is always unlocked.
- Vandlgard is designed to disengage outside spindle from latch when locked.

Outside Inside



SCHLAGE ANSI
ND96PDEL -

Electrically Locked (Fail Safe)

- Outside lever continuously disengaged electrically.
- Unlocked by key outside or by switch or power failure.
- Auxiliary latch deadlocks latchbolt when door is closed.
- Inside lever always free for immediate exit.
- Vandlgard is designed to disengage outside spindle from latch when locked.

Outside Inside



SCHLAGE ANSI
ND96PDEU -

Electrically Unlocked (Fail Secure)

- Outside lever continuously disengaged until unlocked by key or electric current.
- Auxiliary latch deadlocks latchbolt when door is closed.
- Inside lever always free for immediate exit.
- Vandlgard is designed to disengage outside spindle from latch when locked.

Outside Inside

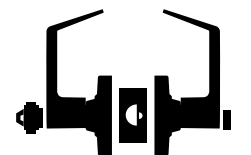


SCHLAGE ANSI
ND97PD F90

Corridor Lock

- Locked or unlocked by key from outside.
- Push-button locking from inside.
- Turning inside lever or closing door releases button.
- When outside lever is locked by key it can only be unlocked by key.
- Inside lever is always unlocked.
- Vandlgard is designed to disengage outside spindle from latch when locked.

Outside Inside



Specifications

Handing:

All ND-Series lever locksets are non-handed.

Door Thickness:

1⁵/₈" to 2¹/₈" (41mm–54mm) standard including Vandlgard® functions. 1³/₄" – 2" for function D85. See accessories (Page 21) for spacers required for 1³/₈" doors.

Backset:

2³/₄" (70 mm) standard. 2³/₈", 3³/₄" and 5" (60 mm, 95 mm, 127 mm) optional.

Faceplate:

Brass, bronze or stainless steel. 1¹/₈" x 2¹/₄" (29 mm x 57mm) square corner, beveled.

Lock Chassis:

Zinc plated for corrosion resistance.

Latch Bolt:

Steel, 1/2" (12mm) throw, deadlocking on keyed and exterior functions. 3/4" (19 mm) throw anti-friction latch available for pairs of fire doors.

Exposed Trim:

Levers: Pressure cast zinc, plated to match finish symbols.
Roses: Brass, bronze or zinc.

Strike:

ANSI curved lip strike 1¹/₄" x 4⁷/₈" x 1³/₁₆" lip to center standard. Optional strikes, lip lengths and ANSI strike box available. See page 21.

Cylinder & Keys:

6-pin Everest C123 keyway standard with two patented nickel silver keys per lock.

Keying Options:

Interchangeable core and Primus high security cylinders.
Master keying, grand master keying and construction keying.

Warranty:

Seven-year limited for all functions including Vandlgard.

Certifications

ANSI:

Meets or exceeds A156.2 Series 4000, Grade 1 strength and operational requirements. Meets A117.1 Accessibility Code.

Federal:

Meets FF-H-106C Series 161.

California State Reference Code:

(Formerly Title 19, California State Fire Marshal Standard)

All levers with less than 1/2" (64mm) returns comply; Schlage levers return to within 1/2" of door face.

MEA Certification:

All electrified locking (fail-safe, unlocked by switch or power failures) functions accepted for use in New York City by the City of New York, Department of Buildings (MEA 24-04-E).

All levers with less than 1/2" (64mm) returns comply with California Fire Safety Codes.

Florida Building Commission:

3/4" and 1/2" throw latch approved for Hurricane Resistance with Miami-Dade County, Florida.

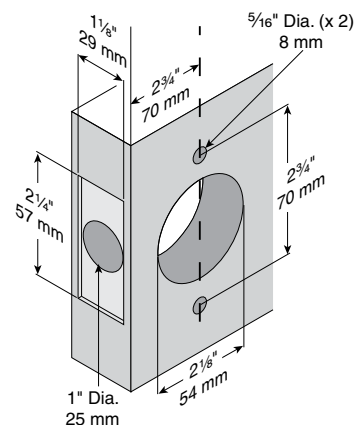
UL / cUL:

All locks listed for A label single doors, 4' x 8'.
Letter F and UL symbol.

ADA Compliant:

Schlage Lock Company offers a wide selection of locks designed to meet the Americans With Disabilities Act.

Door Preparation





Integrated security solution

with AD-300/301 Hardwired,
AD-400/401 Wireless devices
and C·CURE 9000

SOFTWARE HOUSE



Overview

Schlage AD Series locks seamlessly integrate with C · CURE 9000 to provide a cost effective and scalable access control solution to meet your security needs.

Schlage AD Series locks combine the components typically found around the door, such as the door position switch and the request to exit switch, into one unit which simplifies installation and saves money. And since they are designed to be modular, Schlage AD Series locks can easily be upgraded in the future to meet your changing security and technology requirements.

The AD Series is available in both hardwired and wireless configurations to suit the requirements of the facility. AD Series wireless locks provide many of the key benefits of a hardwired system including real-time monitoring, audit trails, centralized lockdown and instant access control management. In retrofit applications the Schlage AD Series wireless locks and devices, which eliminate the need to run wires direct to each opening, can help you extend the reach of your access control system.

AD-301 and AD-401 FIPS 201-1 Compliant solutions available using FMK reader. Please contact Software House to confirm they are able to support your FIPS 201 credential format.

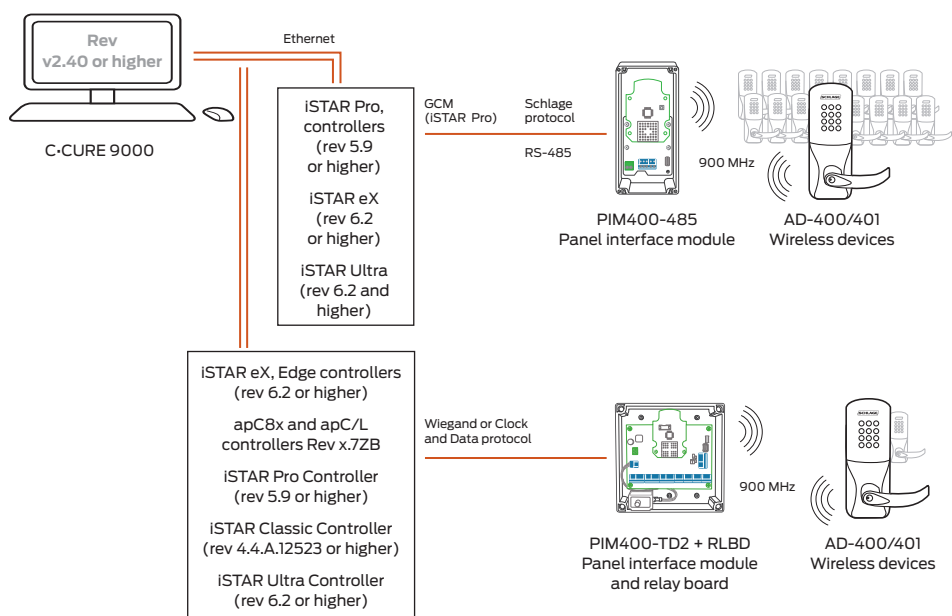
System Capabilities

Summary

- AD-400/401 Wireless
 - Secure 900 MHz wireless communication, AES-128 encrypted
 - Real time access control and monitoring
 - Patent pending wireless lockdown /unlock feature via PIM400 10 seconds or less (preserves up to 2 year battery life)
 - Powered by four (4) standard off-the-shelf AA batteries
- AD-300/301 Hardwired
 - Field configurable fail safe/fail secure
- Additional details on readers supported and chassis types available on page 3 and 4
- Weather Resistant, Exterior Operating Temperature: -31° to 151°F (-35° to 66°C)
- Additional wireless products also available
 - Wireless Portable Reader (WPR400) for muster stations, buses, etc.
 - Wireless Reader Interface (WRI400) eliminates running wires to remote doors, gate, and elevator applications
- ANSI/BHMA A156.25, ANSI/BHMA Grade 1, UL 294, UL 10C

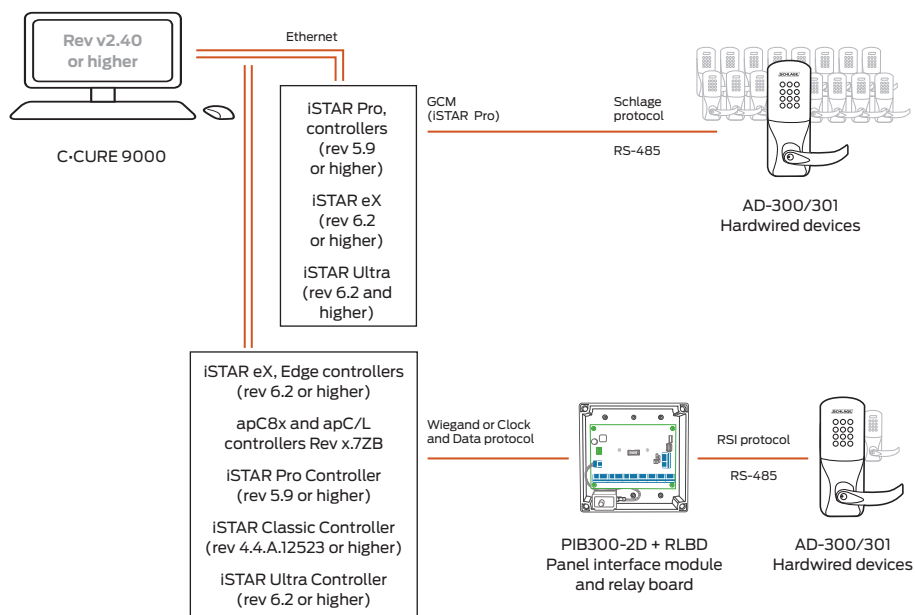
AD-400/401 via RS-485 and/or Wiegand with C · CURE 9000 and iSTAR Controllers

- iSTAR Pro and eX Controllers support up to 16 readers
 - Each connected PIM400-485 can support up to 16 AD-400/401 wireless devices
 - Each connected PIM400-TD2 can support up to 2 AD-400/401 wireless devices
- New ISTAR Ultra Controller has 2 RS-485 ports. Each port can support up to 16 AD-400 locks on up to 16 PIM400-485 and a maximum of 32 AD-400 locks total.
- iSTAR Pro supports wake on radio and pin functionality with CCURE 9000 2.10R2P1 and firmware 5.2.1.19705
- Wireless range up to 200' in typical building construction, up to 1000' clear line of sight



AD-300/301 via RS-485 and/or Wiegand with C · CURE 9000 and iSTAR Controllers

- iSTAR Controllers support up to 16 readers
 - When connected directly can support up to 16 AD-300/301 wired devices; daisy chained
 - Each connected PIB300-2D can support up to 2 AD-300/301 wired devices
- New ISTAR Ultra Controller has 2 RS-485 ports. Each port can support up to 16 AD-400 locks on up to 16 PIM400-485 maximum of 32 AD-400 locks total.



Note:

Please refer to AD-300, AD-301, PIB300-2D, AD-400, AD-401, PIM400-485, PIM400-TD2, and Relay Board RLBD data sheets for complete AD Series specifications.

System capabilities:

	AD-400/401 PIM400-485	AD-400/401 PIM400-TD2 + RLBD	AD-300/301 Direct RS485	AD-300/301 PIB300-2D + RLBD
Features				
Maximum number of readers supported by controller/PIM/PIB	16 /32 ⁴	16	16 /32 ⁴	16
Maximum number of readers per PIM400/PIB300	16	2	N/A	2
Maximum number of PIM400s and/or AD-300s per RS-485 port	Up to 16	n/A	Up to 16	N/A
Access control decision made by host or by lock database	Host	Host	Host	Host
Remote Linking capability via Host	No	No	N/A	N/A
Readers - see supported card formats below				
Keypad only	Yes	Yes	Yes	Yes
Magnetic stripe card	Yes	Yes	Yes	Yes
Multi-technology - 125 kHz proximity and 13.56 MHz smart card	Yes (smart cards up to 32 bits)	Yes (smart cards up to 32 bits)	Yes (smart cards up to 32 bits)	Yes (smart cards up to 32 bits)
PIV & PIV-I card compatible ^{1,3}	Yes	Yes	Yes	Yes
Card + PIN	Yes	Yes	Yes	Yes
Status monitors				
Request to exit	Yes	Yes	Yes	Yes
Door position	Yes	Yes	Yes	Yes
Mechanical key override	Yes	Yes	Yes	Yes
Request to enter	No	No	No	No
Low battery status	Yes	Yes	N/A	N/A
Communication status: RF/RS-485	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Remote lockdown/unlock	Yes (<10 sec)	Yes (<10 sec) ²	Yes	Yes
Deadbolt position	No	No	No	No
Interior push button	Yes	Yes	Yes	Yes
Lock functions				
Classroom/storeroom	Yes	Yes	Yes	Yes
Privacy	Yes	Yes	Yes	Yes

Please contact Software House for additional details on integrated features and credentials supported.

Supported card formats

Proximity cards (125 kHz):

- AWID®
- GE/CASI®
- HID®
- Schlage®
- XceedID®

Smart cards (13.56 MHz):

- aptiQ™ MIFARE Classic
- aptiQ™ MIFARE DESFire™ EV1
- PIV and PIV-I compatible³

Smart cards (13.56 MHz) - reads card serial number only:

- HID iCLASS®
- DESFire®
- MIFARE®
- MIFARE DESFire™ EV1

¹ 75 bit format output default. Configurable to other output formats.

² Wake-up on Radio over PIM400-TD2 on up to 2 doors requires configuration at PIM via HHD

³ FIPS 201 compliant option available: The AD Series can be used in applications which require approval by the U.S. Federal Government under HSPD-12 for FIPS 201 compliance. Specific components are required, please see the AD-401 data sheet or AD-301 data sheet for complete details. Contact Software House to confirm they are able to support your FIPS 201-I credential format.

⁴ iStar Ultra

Available AD Series reader modules



Multi-technology

- Proximity
- Smart card

KEYPAD

FIPS 201-1 compliant
option available (FMK)



Multi-technology

- Proximity
- Smart card



Magnetic stripe (insertion)

KEYPAD



Magnetic stripe (insertion)



Magnetic stripe (swipe)

KEYPAD



Magnetic stripe (swipe)



Handheld device (HHD)

Used to initialize,
configure, and test
AD Series Devices

Compatibility

AD Series electronic locks from Schlage are built from the ground up to provide more options, more functionality and more compatibility than any other solution on the market today. Designed to suite with the most popular lever styles and finishes, Schlage AD Series locks can be configured to accept most major key systems. See lever and cylinder compatibility data sheet (010432).

Mortise Lock
(AD-300/301-MS)
(AD-400/401-MS)



Cylindrical Lock
(AD-300/301-CY)
(AD-400/401-CY)



Exit Device Trim
(AD-300/301/400/401-993)



The AD Series exit trims are exclusively compatible with exit devices made by Allegion when using the low current request to exit switch (RX-LC part # 050281 for Von Duprin 98/99 & Von Duprin 22/22F Rim/SVR devices and part number 650359 for Falcon 25 Rim devices).

Lever styles

Standard cylinders shown, SFIC and FSIC also available.



Sparta



Rhodes



Athens



Tubular

Finishes

Warm tone finishes



605
Bright brass



606
Satin brass



612
Satin bronze



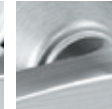
643e
Aged bronze



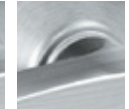
619
Satin nickel



625
Bright chrome



626
Satin chrome



626AM
Satin chrome with
antimicrobial

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About Allegion

Allegion (NYSE: ALLE) is a global pioneer in safety and security, with leading brands like CISA®, Interflex®, LCN®, Schlage® and Von Duprin®. Focusing on security around the door and adjacent areas, Allegion produces a range of solutions for homes, businesses, schools and other institutions. Allegion is a \$2 billion company, with products sold in almost 130 countries. For more, visit www.allegion.com.

aptiQ ■ LCN ■ SCHLAGE ■ STEELCRAFT ■ VON DUPRIN

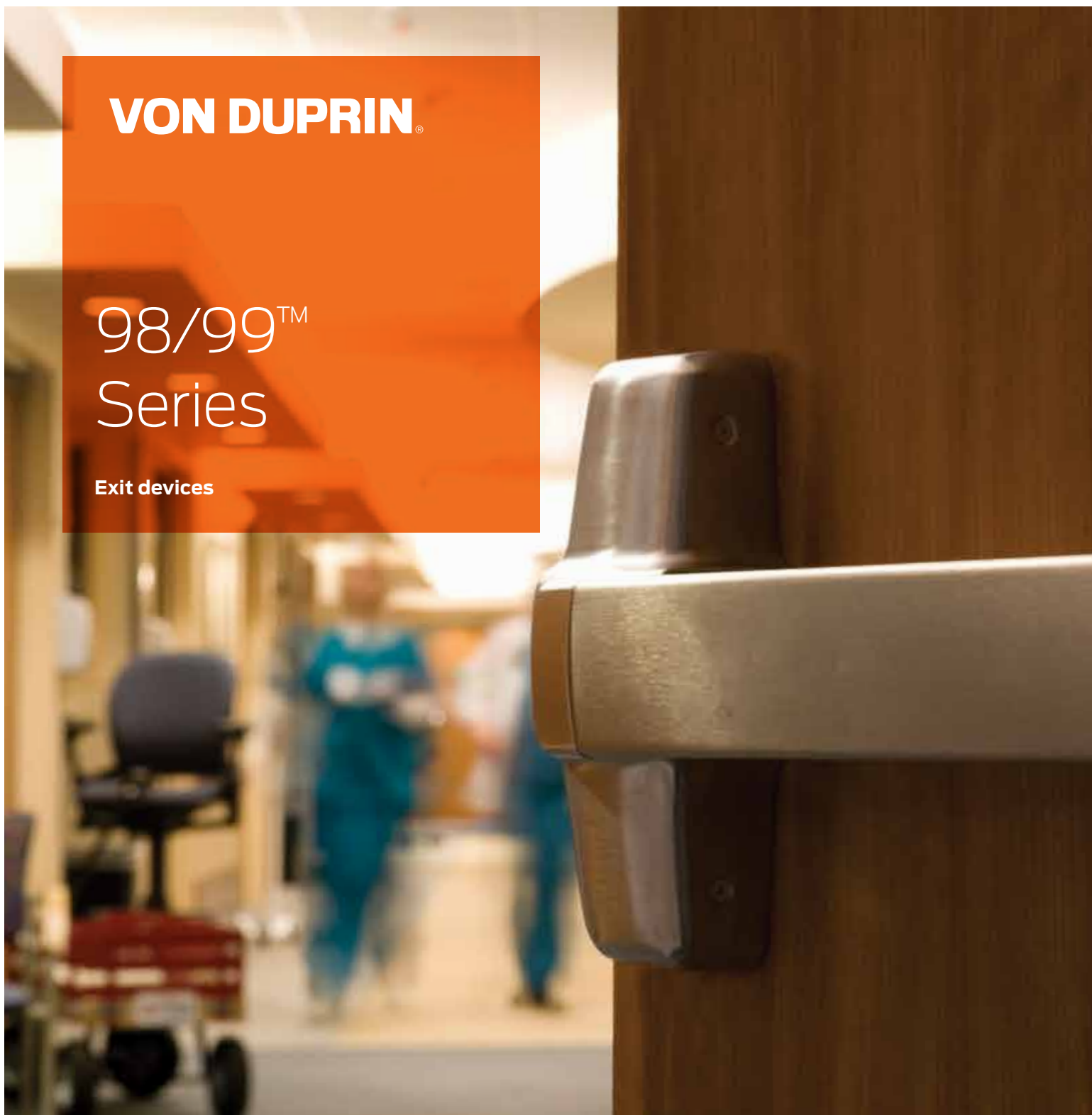


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www.allegion.com/us

VON DUPRIN®

98/99™
Series

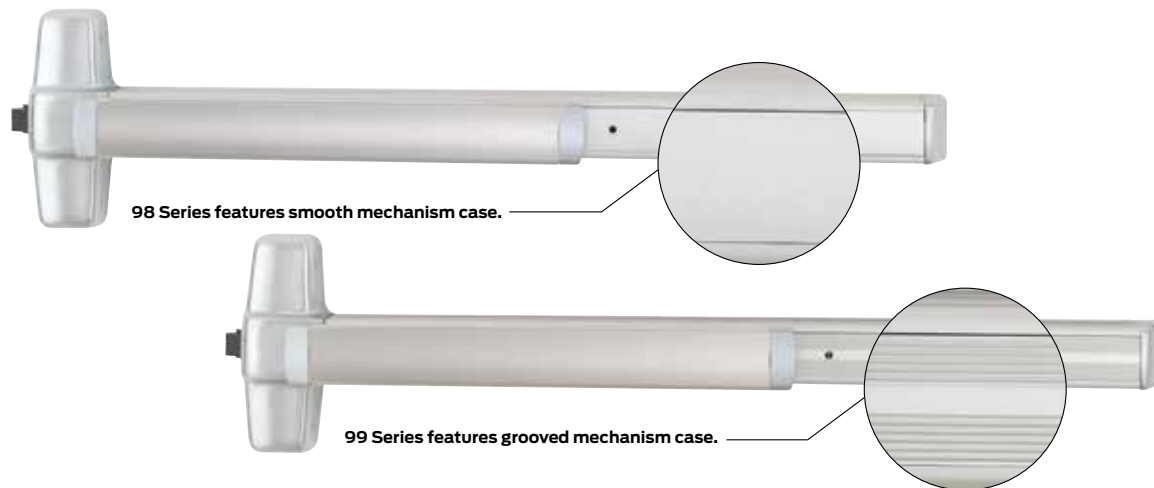
Exit devices



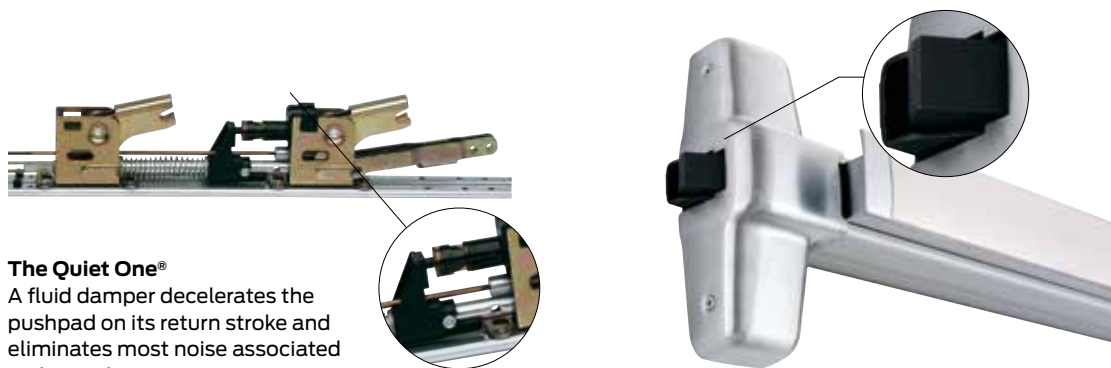
Introduction

Exit devices are a critical part of the fire and life safety egress system and will provide safe and reliable service when properly applied and maintained. Von Duprin designs and manufactures exit devices in accordance to ISO 9001 Quality Management System and meets or exceeds accepted U.S. domestic and International standards. All 98 and 99 Series exit devices are UL listed for panic hardware or fire hardware, and are certified to ANSI A156.3, 2008, Grade 1. Many models are also certified for Hurricane Resistant Applications. Consult your local Security & Safety consultant (SSC) or the Von Duprin factory for current listings.

It is intended that the information included in this publication, when properly used, will provide clear and reliable guidelines to the proper general selection and application. However, the scope of the information is necessarily limited.



Von Duprin exit devices are available in two external surface styles, designated 98 and 99 Series.



A fluid damper decelerates the pushpad on its return stroke and eliminates most noise associated with exit device operations. Furnished on all 98/99™ Series exit devices.

Deadlocking latchbolt provides security and improved performance at standard device cost.

VON DUPRIN
Administrative Offices
2720 Tobey Dr.
Indianapolis, IN 46219

Customer Service
877-671-7011
800-999-0328 - Fax

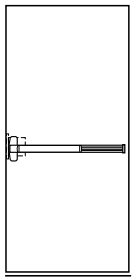
Technical Support
877-671-7011

Nomenclature – how to order

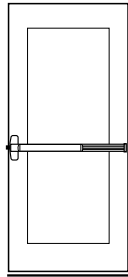
		EL	99	27	-L	-16	-F	LBR	3'	US3	RHR
None	Standard										
SD	Special dogging R/VR - panic only										
CD	Cylinder dogging - panic only										
CX	Chexit										
E	Electric locking mortise/lever										
QEL	Quiet electric latch retraction										
EL	Electric latch retraction										
LX	Latch bolt monitoring										
RX	Request to exit										
RX2	Double request to exit										
SS	Signal switch										
AX	Accessible device										
PL	Pullman latch										
PN	Pneumatic latch retraction										
WS	Surface vertical rod exit device										
XP	Heavy protection - rim										
WS	Tornado & hurricane tested										
98	Series 98-smooth										
99	Series 99-grooved										
None	Rim device										
27	Surface mounted vertical rod device										
47	Concealed vertical rod device										
47WDC	Concealed vertical rod wood door device										
48	Concealed vertical rod device										
49	Concealed vertical cable device										
49WDC	Concealed vertical cable wood door device										
57	Three-point latch device										
75	Mortise lock device										
AD	AD Trim (to come from client)										
DT	Dummy trim										
EO	Exit only										
HL	Hospital pull trim										
K	Knob										
K-BE	Knob - blank escutcheon										
K-DT	Knob, rigid - dummy trim										
K-NL	Knob, rigid - night latch										
L	Lever (classroom)										
L-BE	Lever - blank escutcheon										
L-DT	Lever, rigid - dummy trim										
L-NL	Lever, rigid - night latch										
NL	Night latch										
NL-OP	Night latch cylinder assembly, optional pull										
TL	Turn lever										
TL-BE	Turn lever - blank escutcheon										
TP	Thumbpiece										
TP-BE	Thumbpiece - blank escutcheon										
XX	Lever style 06 standard Optional 01, 02, 03, 05, 07, 12 (Handed), 16 (Omega), 17, 18, Accent, Asti, Merano, St. Annes										
F	Fire exit device										
-2	Double cylinder (rim & mortise only)										
LBR	Less bottom rod										
LBL	Less bottom latch										
SG	Safety glow (luminescent) touchpad										
ALK	Alarm kit										
ALK-AR1	Auto-reset 1½ minute alarm kit										
ALK-AR3	Auto-reset 3 minute alarm kit										
ALK-AR6	Auto-reset 4½ minute alarm kit										
CON	Allegion Connect										
2'	2' Device (2' door size) 27, 47 or 49 only										
3'	3' Device (2' 4"- 3' door size)										
4'	4' Device (2' 10"- 4' door size)										
Finishes	US3, US4, US10, US26, US26D, US28, 313, 315 US32D – 98 ONLY -AM Antimicrobial (available US26D and US32D)										
-LHR	Left hand reverse										
-RHR	Right hand reverse										

Popular double door applications

Single door applications

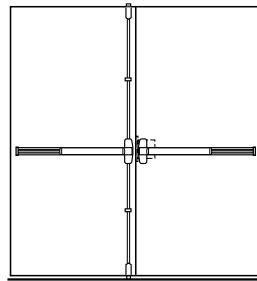


Single mortise lock device

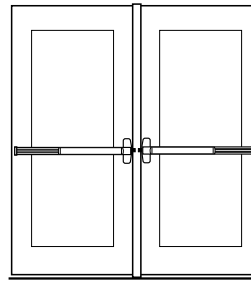


Single rim device

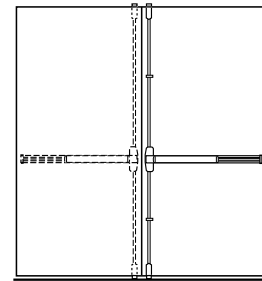
Double door applications



Mortise lock and surface mounted or concealed vertical cable/rod device combination—same direction

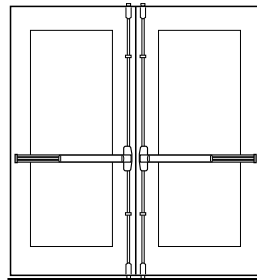
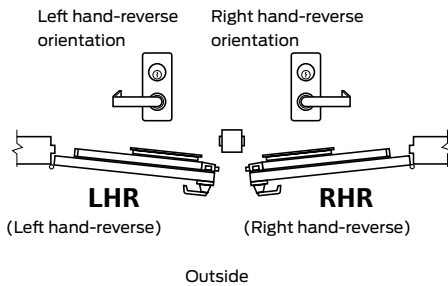


Two rim devices with mullion—same direction

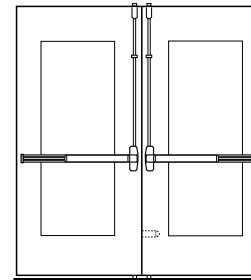


Two vertical rods—double egress

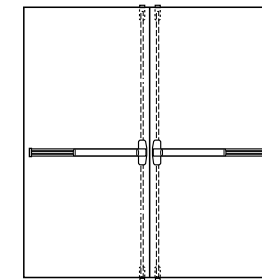
Door handing



Two surface mounted vertical rod devices—same direction (do not use with overlapping astragal)



Two fire exit hardware vertical cables/rods with auxiliary fire latch-LBR option



Two concealed vertical cables/rods

Outside trim operation

Trim operation lever or knob

Standard



Key locks and unlocks lever or knob, e.g., 996L (Classroom)

Night latch



Key retracts latch bolt. Lever or knob is rigid. Use NL suffix, e.g., 996LNL. (Storeroom)

Blank escutcheon



Lever or knob always active. Use BE suffix, e.g., 996L-BE. (Passage)

Dummy



Lever or knob rigid for pull operation. Use DT suffix, e.g., 996L-DT.

996L Breakaway™ lever



The 996L Breakaway trim has become the standard lever trim offering on the 98L/99L Series devices. The Breakaway design is especially effective in areas where vandalism to door hardware is a problem. The design intent is to discourage costly repairs from becoming necessary. The Breakaway feature is not available on the NL (night-latch) or DT (dummy trim) versions.

374T/376T Series thumbturn control



Standard operation, key locks and unlocks thumbturn. Optional operation, key unlocks thumbturn, re-locks when key is removed. This operation is created by changing the cylinder plate included with control. Use 1 1/4" mortise cylinder with a straight cam. Schlage cam reference B502-191. Use with a pull trim (990DT pictured).

98/99 Rim exit device



The 299 Strike ships standard, optional strikes available

98 and 99 Rim exit devices for all types of single and double doors with mullion, UL listed for panic exit hardware. Devices are ANSI A156.3 – 2008 Grade 1. The 98 device has a smooth mechanism case and the 99 device has a grooved case. The rim device is non-handed except when the following device options are used: SD (special dogging), -2 (double cylinder) or SS (signal switch). See Opposite page for available outside trim and device functions. Covers stock hollow metal doors with 86 or 161 cutouts on single doors (may cover cutouts on pairs – consult template).

Hex key dogging comes standard on 98/99 Rim exit devices



Finishes – US3, US3A, US4, US4A, US10, US26, US26D, US26D-AM Antimicrobial, US28, 313, 315 & 643E. US15 and US32D available with 98 Series only.

Specifications

Device functions	Device ships EO/DT/NL. Field selectable. For TP, K or L remove NL drive screw from device.	
Device lengths	3'	2'4" to 3' (711mm to 914 mm) Door size
	4'	2'10" to 4' (864 mm to 1219 mm) Door size
Device centerline from finished floor	39 ¹³ / ₁₆ " (1011 mm) 39 ¹¹ / ₁₆ " (1008 mm) with mullion	
Center case dimensions	8" x 2 ³ / ₄ " x 2 ³ / ₈ " (203mm x 70mm x 60mm)	
Mechanism case dimensions	2 ¹ / ₄ " x 2 ¹ / ₄ " (57mm x 57mm)	
Projection	Pushbar neutral – 3 ¹³ / ₁₆ " (97 mm) Pushbar depressed – 3 ¹ / ₁₆ " (78 mm)	
Latch bolt	Deadlocking, ³ / ₄ " (19mm) throw	
Fasteners & sex bolts (SNB)	Includes screw pack for 1 ³ / ₄ " (44mm) and 2 ¹ / ₄ " (57mm) thick metal or wood doors. Optional 425 SNB available, see page 9 for quantities.	
Electric options	LX	Latchbolt monitor switch
	RX	Pushpad monitor switch
	RX2	Double pushpad monitor switch
	E	Electric locking & unlocking trim
	EL	Electric latch retraction
	QEL	Quiet electric latch retraction
	SS	Signal switch
	CX	Chexit delayed exit
	ALK	Alarm exit kit
	WP-RX	Waterproof request to exit
	CON	Allegion Connect
Mechanical options	-2	Double cylinder
	AX	Accessible device
	GBK	Glass bead kit
	PN	Pneumatic latch retraction
	XP	Extra protection
	SNB	Sex bolts
	SEC	Security screws
Dogging feature	Hex key dogging standard	
Dogging options	CD	Cylinder dogging
	SD	Special center case dogging
	LD	Less dogging
	DI	Dogging indicator
	CI	Cylinder dogging indicator
Strikes	299 – Dull black	

XP
Extra protection

- 90° latch-to-strike contact
- Force resistance of 2,000+ lbs.

CD
Cylinder dogging

- Replaces hex key dogging
- Requires 1 1/4" mortise cylinder with inverted cam

QEL
Quiet electric latch retraction

- Bolt retraction via switch
- Converts exit door to push-pull operation

RX
Pushpad monitor switch

- Signals use of an opening
- SPDT switch to monitor pushpad

CX
Chexit delayed exit

- Meets NFPA 101 requirements
- Self-contained controls, locking, alarm

AX
Accessible device

- UL certified to meet new 5 lb. maximum operating force requirement
- Exceeds ANSI/BHMA requirements

EL
Electric latch retraction

- Enables remote unlatching
- Alternative to manual dogging

ALK
Alarm exit kit

- Unauthorized opening triggers 85-decibel horn
- Set in armed or disarmed mode by key




PN
Pneumatic latch retraction





- For areas where electrical devices banned
- Special linkage for mechanical or pneumatic dogging

CON
Allegion Connectors

- Common connectors to connect various door hardware all the way to the power supply

Standard trim

	EO No outside trim Exit only	DT  Dummy trim Pull when dogged	NL  Night latch Key retracts latchbolt	NL-OP  Night latch Key retracts latchbolt optional pull required
Product description	98EO 99EO	98DT 99DT	98NL 99NL	98NL-OP 99NL-OP
Trim description	—	990DT	990NL-R/V	110NL-MD 110NL-WD
Escutcheon plate size	—	3" x 14 ¹³ / ₁₆ " x 3 ³ / ₃₂ " (76x360x2mm)	3" x 14 ¹³ / ₁₆ " x 3 ³ / ₃₂ " (76x360x2mm)	—
Pull center to center	—	5 ¹ / ₂ " (140mm)	5 ¹ / ₂ " (140mm)	—
Projection	—	2" (51mm)	2" (51mm)	—
ANSI function	01	02	03	03
Cylinder type	—	—	Rim	Rim
Handing	—	—	—	—
Optional trim	x990EO x996EO	x996K-DT x996L-DT x696DT x697DT	x996K-NL x996L-NL x696NL x697NL	
Optional #425 SNB quantity for device	6	2	2	6

	L  Lever Key locks & unlocks	L-NL  Lever – night latch Key retracts latchbolt	L-BE  Lever – blank escutcheon Always operable (no cylinder)	L-DT  Lever dummy trim pull when dogged
Product description	98L 99L	98L-NL 99L-NL	98L-BE 99L-BE	98L-DT 99L-DT
Trim description	996L-R/V*	996L-NL-R/V	996L-BE-R/V*	996L-DT
Escutcheon plate size	2 ³ / ₄ " x 10 ³ / ₄ " x 2 ⁷ / ₃₂ " (70x273x21mm)	2 ³ / ₄ " x 10 ³ / ₄ " x 2 ⁷ / ₃₂ " (70x273x21mm)	2 ³ / ₄ " x 10 ³ / ₄ " x 2 ⁷ / ₃₂ " (70x273x21mm)	2 ³ / ₄ " x 10 ³ / ₄ " x 2 ⁷ / ₃₂ " (70x273x21mm)
Pull center to center	—	—	—	—
Projection	2 ⁷ / ₈ " (73mm)	2 ⁷ / ₈ " (73mm)	2 ⁷ / ₈ " (73mm)	2 ⁷ / ₈ " (73mm)
ANSI function	08	03	14	02
Cylinder type	Rim	Rim	—	—
Handing	Handed/Reversible	Handed/Reversible	Handed/Reversible	Handed/Reversible
Optional #425 SNB quantity for device	2	2	2	2

* Electrified lever operation available

Notes

98-F/99-F Rim exit device



The 299F Strike ships standard, optional strikes available



499F Strike with 9854/9954 mullion

98-F and 99-F Rim fire exit devices for all types of single doors up to 4' x 10' (1219mm x 3048mm) or 8' x 10' (2438mm x 3048mm) double doors with 9954 or 9854 mullion, UL listed for fire exit hardware. See page 76 for detailed information on UL listed fire exit hardware label and door opening size information. Devices are ANSI A156.3 – 2008 Grade 1. The 98-F device has a smooth mechanism case and the 99-F device has a grooved case. The rim device is non-handed except when the following device options are used: -2 (double cylinder) or SS (signal switch). See opposite page for available outside trim and device functions.

Finishes – US3, US3A, US4, US4A, US10, US26, US26D, US26D-AM Antimicrobial, US28, 313, 315 & 643E. US15 and US32D available with 98 Series only.

Specifications

Device functions	Device ships EO/DT/NL. Field selectable. For TP, K or L remove NL drive screw from device.	
Device lengths	3'	2'4" to 3' (711mm to 914 mm) Door size
	4'	2'10" to 4' (864 mm to 1219 mm) Door size
Device centerline from finished floor	39 ¹³ / ₁₆ " (1011 mm) 39 ¹¹ / ₁₆ " (1008 mm) with mullion	
Center case dimensions	8" x 2 ³ / ₄ " x 2 ³ / ₈ " (203mm x 70mm x 60mm)	
Mechanism case dimensions	2 ¹ / ₄ " x 2 ¹ / ₄ " (57mm x 57mm)	
Projection	Pushbar neutral – 3 ¹³ / ₁₆ " (97 mm) Pushbar depressed – 3 ¹ / ₁₆ " (78 mm)	
Latch bolt	Deadlocking, ³ / ₄ " (19mm) throw	
Fasteners & sex bolts (SNB)	Includes screw pack for 1 ³ / ₄ " (44mm) and 2 ¹ / ₄ " (57mm) thick metal or wood doors. Optional 425 SNB available for metal doors. 425 & 825 SNB required on wood doors without SLM blocking. See page 11 for quantities.	
Electric options	LX	Latchbolt monitor switch
	RX	Pushpad monitor switch
	RX2	Double pushpad monitor switch
	E	Electric locking & unlocking trim
	EL	Electric latch retraction
	QEL	Quiet electric latch retraction
	SS	Signal switch
	CX	Chexit delayed exit
	ALK	Alarm exit kit
	WP-RX	Waterproof request to exit
	CON	Allegion Connect
Mechanical options	-2	Double cylinder
	AX	Accessible device
	GBK	Glass bead kit
	PN	Pneumatic latch retraction
	XP	Extra protection
	SNB	Sex bolts
	SEC	Security screws
	SLM	Special Laminate Material Blocking
Dogging option	No mechanical dogging. EL and QEL option available	
Strikes	299F – Dull black, 499F with mullions	

XP
Extra protection

- 90° latch-to-strike contact
- Force resistance of 2,000+ lbs.

RX
Pushpad monitor switch

- Signals use of an opening
- SPDT switch to monitor pushpad

EL
Electric latch retraction

- Enables remote unlatching
- Alternative to manual dogging

ALK
Alarm exit kit

- Unauthorized opening triggers 85-decibel horn
- Set in armed or disarmed mode by key

QEL
Quiet electric latch retraction

- Bolt retraction via switch
- Converts exit door to push-pull operation

CX
Chexit delayed exit

- Meets NFPA 101 requirements
- Self-contained controls, locking, alarm

AX
Accessible device

- UL certified to meet new 5 lb. maximum operating force requirement
- Exceeds ANSI/BHMA requirements

SG
Safety glow

- Shows exit door location in darkness or smoke
- Developed to meet MEA standards

PN
Pneumatic latch retraction




- For areas where electrical devices banned
- Special linkage for mechanical or pneumatic dogging





CON
Allegion Connectors

- Common connectors to connect various door hardware all the way to the power supply



Standard trim

	EO	DT 	NL 	NL-OP 
	No outside trim Exit only	Dummy trim Pull when dogged (not recommended for fire device)	Night latch Key retracts latchbolt	Night latch Key retracts latchbolt optional pull required
Product description	98EO-F 99EO-F	98DT-F 99DT-F	98NL-F 99NL-F	98NL-OP-F 99NL-OP-F
Trim description	—	990DT	990NL-R/V	110NL-MD 110NL-WD
Escutcheon plate size	—	3" x 14 ¹³ / ₁₆ " x 3 ³ / ₃₂ " (76x360x2mm)	3" x 14 ¹³ / ₁₆ " x 3 ³ / ₃₂ " (76x360x2mm)	—
Pull center to center	—	5 ¹ / ₂ " (140mm)	5 ¹ / ₂ " (140mm)	—
Projection	—	2" (51mm)	2" (51mm)	—
ANSI function	01	02	03	03
Cylinder type	—	—	Rim	Rim
Handing	—	—	—	—
Optional trim	x990EO x996EO	x996K-DT x996L-DT x696DT x697DT	x996K-NL x996L-NL x696NL x697NL	
#425 SNB optional - HMD req. WD w/o SLM pkg.	2	2	2	2
#825 SNB req. WD w/o SLM pkg.	2 (if using trim)	2	2	2
#425 SNB req. w/ 499F	2	2	2	2

	L 	L-NL 	L-BE 	L-DT 
	Lever Key locks & unlocks	Lever – night latch Key retracts latchbolt	Lever – blank escutcheon Always operable (no cylinder)	Lever dummy trim pull when dogged (not recommended for fire device)
Product description	98L-F 99L-F	98L-NL-F 99L-NL-F	98L-BE-F 99L-BE-F	98L-DT-F 99L-DT-F
Trim description	996L-R/V*	996L-NL-R/V	996L-BE-R/V*	996L-DT
Escutcheon plate size	2 ³ / ₄ " x 10 ³ / ₄ " x 2 ⁷ / ₃₂ " (70x273x21mm)	2 ³ / ₄ " x 10 ³ / ₄ " x 2 ⁷ / ₃₂ " (70x273x21mm)	2 ³ / ₄ " x 10 ³ / ₄ " x 2 ⁷ / ₃₂ " (70x273x21mm)	2 ³ / ₄ " x 10 ³ / ₄ " x 2 ⁷ / ₃₂ " (70x273x21mm)
Pull center to center	—	—	—	—
Projection	2 ⁷ / ₈ " (73mm)	2 ⁷ / ₈ " (73mm)	2 ⁷ / ₈ " (73mm)	2 ⁷ / ₈ " (73mm)
ANSI function	08	03	14	02
Cylinder type	Rim	Rim	—	—
Handing	Handed/Reversible	Handed/Reversible	Handed/Reversible	Handed/Reversible
#425 SNB optional - HMD req. WD w/o SLM pkg.	2	2	2	2
#825 SNB req. WD w/o SLM pkg.	2 (if using trim)	2	2	2
#425 SNB req. w/ 499F	2	2	2	2

* Electrified lever operation available

98/99 Strike/Stile information

Device type	Standard single door		Standard double door		Optional single door		Optional double door					
	Strike	Trim/Stile	Strike w/ mullion*	Trim/Stile	Strike	Trim/stile	Strike w/mullion*	Trim/Stile				
98/99	299	990/996	696/697		990/996	696/697						
		4 1/2" (114mm)	4 3/8" (111mm)	299 x 4954	4 7/8" (124mm)	4 3/4" (121mm)	1439 or 1410	3 13/16" (97mm)	3 13/16" (97mm)	299 x 5654	4 7/16" (113mm)	4 1/4" (108mm)
							1606	4 1/16" (103mm)	3 15/16" (100mm)	1408 x 5754	3 13/16" (97mm)	3 13/16" (97mm)
XP 98/99	909		909 x 4954-XP						1606 x 1654	4 3/8" (112mm)	4 1/4" (108mm)	
98-F/99-F	299F	4 1/2" (114mm)	4 3/8" (111mm)	499F x 9954	4 7/8" (124mm)	4 3/4" (121mm)			499F x 9854			
XP98-F/XP99-F	909			954 x 9954-XP								
9875	575	4 3/4" (121mm)	4 3/4" (121mm)	575-2					576A-576B	4 3/4" (121mm)	4 3/4" (121mm)	
9875-F	575	4 3/4" (121mm)	4 3/4" (121mm)	575-2					576A-576B	4 3/4" (121mm)	4 3/4" (121mm)	
9857	299 (Top)	4 1/2" (114mm)	4 3/8" (111mm)	299 x 4954	4 7/8" (124mm)	4 3/4" (121mm)	1439 or 1410	3 13/16" (97mm)	3 13/16" (97mm)	299 x 5654	4 7/16" (113mm)	4 1/4" (108mm)
	299 (Middle)									1408 x 5754	3 13/16" (97mm)	3 13/16" (97mm)
9957	304L/284-L (Bottom)						1606	4 1/16" (103mm)	3 15/16" (100mm)	1606 x 1654	4 3/8" (112mm)	4 1/4" (108mm)
9857-F	299 (Top)	4 1/2" (114mm)	4 3/8" (111mm)	299F	4 7/8" (124mm)	4 3/4" (121mm)						
9957-F	299F (Middle)			499F x 9954								
	304L (Bottom)			304L								
		Strike	Application	Trim/Stile	Optional strike	Application	Trim/Stile					
9827	299 (Top)	Single door		990/996	696/697	260U (Top) 385A (Bottom)	Single door	990/996	696/697			
9927	304L/248-L-4 (Bottom)			3 11/16" (94mm)	3 5/8" (92mm)			3 11/16" (94mm)	3 5/8" (92mm)			
PL9827/PL9927	299 (Top)			Two vertical rod devices	3 11/16" (94mm)			3 5/8" (92mm)	260U (Stainless) 385A (Bottom)	Two vertical rod devices	3 11/16" (94mm)	3 5/8" (92mm)
9827-F	299 (Top)											
9927-F	304L (Bottom)	Vertical rod with Mortise lock device		4 3/4" (121mm)	4 3/4" (121mm)	304L (Bottom)	Vertical rod with Mortise lock device	4 3/4" (121mm)	4 3/4" (121mm)			
9847	338 (Top)											
9947	385A (Bottom)											
9847-F	338 (Top) 385A (Bottom)	Two vertical rods	4 1/4" (108mm)	4 1/8" (105mm)	304L (Bottom)	Two vertical rods	4 1/4" (108mm)	4 1/8" (105mm)				
9947-F		Vertical rod with Mortise lock device	4 3/4" (121mm)	4 3/4" (121mm)		Vertical rod with Mortise lock device	4 3/4" (121mm)	4 3/4" (121mm)				
9948-F												
9847WDC	338 (Top) 385A (Bottom)	Single door	4 1/4" (108mm)	4 1/8" (108mm)	304L	Single door	4 1/4" (108mm)	4 1/8" (108mm)				
		Two vertical rod devices	4 1/4" (108mm)	4 1/8" (108mm)		Two vertical rod devices	4 1/4" (108mm)	4 1/8" (108mm)				
		Vertical rod with Mortise lock device	4 3/4" (121mm)	4 3/4" (121mm)		Vertical rod with Mortise lock device	4 3/4" (121mm)	4 3/4" (121mm)				
9847WDC-F	338 (Top) 385A (Bottom)	Two vertical rod devices	4 1/4" (108mm)	4 1/8" (108mm)	304L	Two vertical rod devices	4 1/4" (108mm)	4 1/8" (108mm)				
9849	249 (Top)	Vertical cable with Mortise lock device		4 3/4" (121mm)	4 3/4" (121mm)		Vertical cable with Mortise lock device	4 3/4" (121mm)	4 3/4" (121mm)			
9949	349 (Bottom)											
9849-F	249 (Top) 349 (Bottom)	Two vertical cables	4 1/4" (108mm)	4 1/8" (108mm)		Two vertical cable	4 1/4" (108mm)	4 1/8" (105mm)				
9949-F		Vertical cable with Mortise lock device	4 3/4" (121mm)	4 3/4" (121mm)		Vertical cable with Mortise lock device	4 3/4" (121mm)	4 3/4" (121mm)				
9849WDC	249 (Top) 349 (Bottom)				Single door		4 1/4" (108mm)	4 1/8" (108mm)		Single door	4 1/4" (108mm)	4 1/8" (108mm)
9949WDC		Two vertical cable devices	4 1/4" (108mm)	4 1/8" (108mm)	Two vertical Cable devices	4 1/4" (108mm)	4 1/8" (108mm)					
		Vertical cable with Mortise lock device	4 1/4" (108mm)	4 1/8" (108mm)	Vertical cable with Mortise lock device	4 3/4" (121mm)	4 3/4" (121mm)					
9849WDC-F	249 (Top)	Two vertical cable devices		4 1/4" (108mm)	4 1/8" (108mm)		Two Vertical Cable Devices	4 1/4" (108mm)	4 1/8" (108mm)			
9949WDC-F	349 (Bottom)											

Strike options / Dogging options

98/99 Strike information

Strikes for rim devices

264 <p>Projection $\frac{9}{16}$" (14mm)</p>	299 <p>Projection $\frac{13}{16}$" (21mm)</p>	299F <p>Projection $\frac{13}{16}$" (21mm)</p>	499F <p>Projection $\frac{15}{16}$" (24mm)</p>	1408 <p>One per pair of doors</p>
1439-Blade stop <p>Projection $\frac{1}{2}$" (13mm)</p>	1410-Integral stop <p>Projection $\frac{1}{2}$" (13mm)</p>	1606 <p>Projection $\frac{3}{8}$" (10mm) Panic devices only</p>	1609 <p>- Requires coordinator - For panic exit application only, not fire rated</p>	

XP Strikes for rim devices

909 <p>Projection $\frac{13}{16}$" (21mm)</p>	954 <p>Projection $\frac{7}{8}$" (22mm) - For fire rated double door applications</p>
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Strikes for vertical cable devices

249 - Top strike <p>Projection $\frac{9}{16}$" (14mm)</p>	349 - Bottom strike <p>Projection $\frac{1}{8}$" (3mm)</p>
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Strikes for vertical rod devices

248L-4 <p>Projection $\frac{3}{8}$" (10mm)</p>	260U-Flush transom panic only 260U-F-Flush transom fire only <p>Projection $\frac{3}{8}$" (10mm)</p>	299 <p>Projection $\frac{13}{16}$" (21mm)</p>	299F <p>Projection $\frac{13}{16}$" (21mm)</p>
304L <p>Projection $\frac{13}{16}$" (21mm)</p>	338 <p>Mortise $\frac{5}{8}$" (16mm)</p>	385A <p>Mortise $2\frac{1}{2}$" (64mm)</p>	283 <p>For use with WDC devices when used with wood frames</p>

Strikes for mortise rod devices

575 <p>For use on $\frac{13}{4}$" (44mm) or $2\frac{1}{4}$" (57mm) Single door and $2\frac{1}{4}$" (57mm) double door with coordinator.</p>	575-2 <p>For use on $\frac{13}{4}$" (44mm) thick double door with coordinator and astragal.</p>	576A <p>Open back strike for $\frac{13}{4}$" (44mm) thick double doors without coordinator.</p>	576B <p>Open back strike for $2\frac{1}{4}$" (57mm) thick double doors without coordinator.</p>
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- Not for use with astragals
- For use on wood doors, contact door manufacturer

- Acceptable for 90 minute pair of hollow metal doors

98/99 Electrical options

EL Electric latch retraction

The EL feature allows for the remote unlatching of exit devices. A control station operator can flip a switch to retract the latch bolt and immediately change an exit door to push-pull operation. A powerful, continuous duty solenoid retracts the latch bolt, either for momentary unlatching, or for extended periods of time. The EL feature is an alternative to manual dogging.

If manual hex-key dogging is required, specify HD-EL. If cylinder dogging is required, the standard cylinder dogging is not available, but special center case dogging is available, specify SD-EL. SD-EL is not available on the 9875 or 9975 devices.

EL devices are also useful with automatic door operators, and may be applied to fire-rated applications when under the control of an **automatic fire alarm system**.

UL approved for Class II circuit applications.

The EL option does not include the power transfer from door to frame, the power supply, or the control operator. Refer to EPT-2 power transfer and the PS914 power supply.

The PS914 with the 9002RS option card is the minimum option card required. Other option cards available for other functions, see PS914 power supply for additional information.

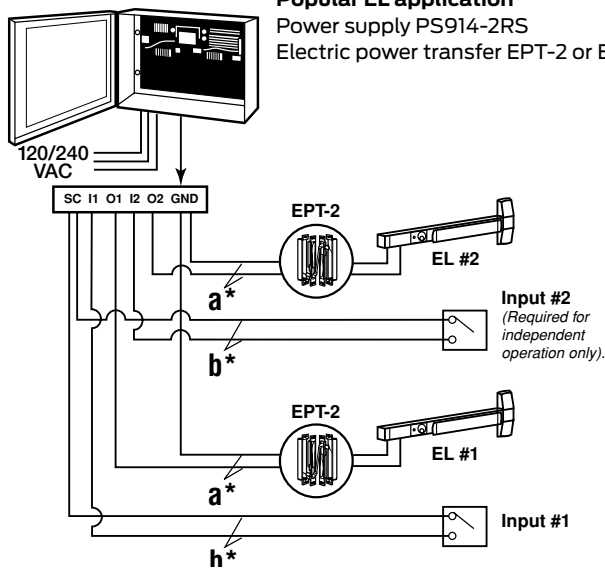
Solenoid specifications:
 Continuous duty – 24 VDC
 Current inrush – 16 Amps
 Current holding – 0.3 Amps

Solenoid resistance:
 -grn-yel 1.2 – 2.2 OHMS
 -grn-org 100 – 150 OHMS

To order, specify:

Standard – use prefix EL, example EL99L.
 Hex Key dogging – Use prefix HD-EL, example HD-EL99L
 special center case dogging – Use prefix SD-EL, example SD-EL99L

Popular EL application
 Power supply PS914-2RS
 Electric power transfer EPT-2 or EPT-10



Von Duprin exit device	EL Wire length (feet) ¹	Wire gauge (AWG)
EL 98/99 Rim	0-500	12
	0-300	14
All other 98/99EL device types	0-200	16
	0-250	12
	0-150	14
0-100	16	
Control Switch	0-1200	18

1. Wire lengths include an EPT, Door loop, electric hinge or pivot and are measured one way between the PS914/option board and the device.
 2. Table is applicable to devices that have shipped after August 2012.

QEL Quiet electric latch retraction

The QEL feature allows for the remote unlatching of exit devices. A control station operator can flip a switch to retract the latch bolt and immediately change an exit door to push-pull operation. Different than the popular EL, the QEL quiet operation is achieved using an electric drive motor which retracts the latch bolt either momentary unlatching or for extended periods of time. This feature is an alternative to manual dogging.

If cylinder dogging is required, the standard cylinder dogging is not available, but special center case dogging is available, specify

SD-QEL. SD-QEL is not available on the 9875 or 9975 devices.

QEL devices are also useful with automatic door operators, and may be applied to fire-rated applications when under the control of an automatic fire alarm system.

UL approved for Class II circuit applications.

The QEL option does not include the power transfer from door to frame, the power supply, or the control operator. Refer to EPT-2 power transfer and the PS902 or 914 power supply.

The PS902/914 with the 2RS, 4RL or 4R board is the minimum required. Other option boards available for other functions, see PS902/914 power supply for additional information.

The QEL has a low in rush current, so it can be used with standard Schlage power supplies. Calculate the peak current draw of all devices in the system to determine the required amperage of the supply.

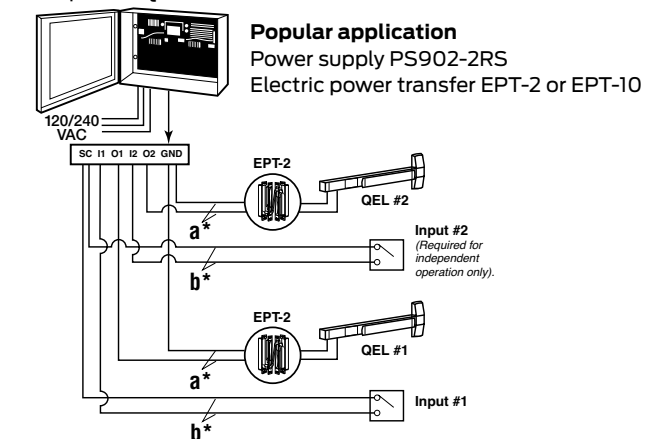
Schlage PS902	Schlage PS904	Schlage PS906
up to 2 amps	up to 4 amps	up to 6 amps

QEL Electrical load	
Voltage	24VDC
Current	1.0 A Inrush (0.5 sec.) / 0.14 A Holding

The -2RS option board is designed to control two electric latch retraction devices and provide time delay between the firing of outputs is required. The power transfer is also sold separately.

To order, specify:

Standard – use prefix QEL, example QEL99L.
 Special center case dogging – use prefix SD-QEL, example SD-QEL99L



a*	Distance (one-way)	Wire gauge
	200'	18 AWG
	320'	16 AWG
	500'	14 AWG
	800'	12 AWG

b*	Wire selection	Switch wire size
	1200 ft. Max.	18 gauge standard

98/99 Device options & accessories

Mullions

Removable steel mullions provide single door performance in double door openings with rim devices. Mullions are easily removed by loosening bottom set screw and removing top fitting cover. The top mullion fitting is attached to the frame and is concealed by the fitting cover.

Steel mullions are 2" (51mm) wide and 3" (76mm) deep, with a wall thickness of $\frac{1}{8}$ " (3mm).

Mullions are shipped with mounting screws and prepared for strikes. Strikes are not included except where indicated.

Steel mullions are available in SP28 and SP313 finishes. Consult factory for other powder coat finish options.

KR – Keyed removable steel mullions make removal faster and easier by a single operation of the mortise cylinder. Once mullion is removed, large equipment or furniture can freely pass through the opening. The unit will self lock when re-installed, without the use of the cylinder key. Uses a $1\frac{1}{4}$ " mortise cylinder with a straight cam (Schlage cam reference B502-191). Cylinders are sold separately. Prefix mullion model with "KR".

Removable aluminum mullions are $1\frac{1}{8}$ " (27mm) wide on face closest to the door and $2\frac{3}{8}$ " (60mm) at the widest point. The depth is $3\frac{1}{8}$ " (79mm) with a wall thickness of $\frac{1}{8}$ " (3mm).

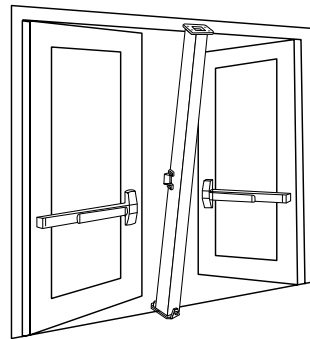
Aluminum mullions are available in US4, US10, US28, 313 and 315 finishes. Consult factory for other powder coat finish options. Aluminum mullion are not available keyed removable.

Stock hollow metal applications for devices mounted to cover ANSI 161 cutouts are higher than the standard mullion strike location. Consult the factory for special strike preparation or order a blank mullion. See below.

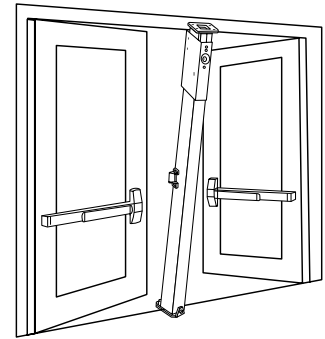
Blank mullions are furnished without strike preparation. They are used to mount devices at a strike height different from the standard mullion preparation.

To order, specify:

1. For keyed Removable option on steel mullions, prefix model number with "KR"
2. Model number
3. Height of opening
4. Finish
5. Handing if required
6. Centerline deviation (refer to device template for standard centerline)
7. Strikes, when required, should be ordered with device



Removable mullions



Keyed removable steel mullions

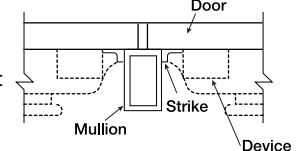
Steel mullions

1654 Prepared for two 1606 strikes. If 1606 strikes are not specified on the order, two per mullion will be added. Additional charges apply.

4954 Prepared for 264 or 299 strikes. For use with all Von Duprin Panic rim devices.



9954 Prepared for and must be used with two 268 strikes (88-F device), or two 499F (22-F, 98-F, 99F devices). UL fire labeled mullion for up to 3 hour opening using Von Duprin fire exit rim devices. This mullion is not easily removed due to special fittings.



98-F and 99-F devices are rated up to 10'0" (3048 mm).

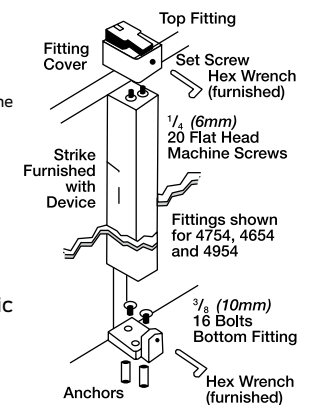
Note: If 268 or 499F strikes are not specified on the order, two per mullion will be added. Additional charges apply.

4754 Prepared for two 4263 monitor strikes.

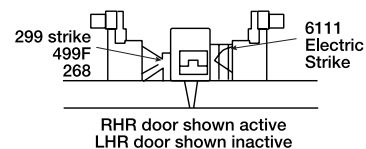
4854 Prepared for one 299 and one 6111 electric strike. Indicate handing for electric strike.



9854 Prepared for one 268 or 499F strike and one 6111 electric strike. Indicate handing for electric strike. UL fire labelled mullion for up to 3 hour openings up to 8' x 8' (2438mm x 2438mm) using Von Duprin fire exit rim devices



4854/9854 – Using one electric strike



VON DUPRIN®

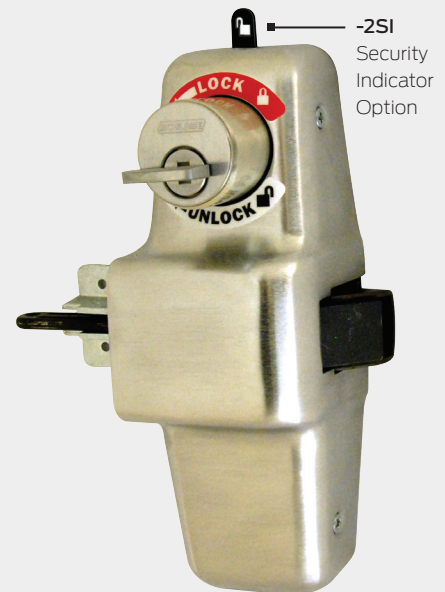
Security Indicators

Designed for high use and abuse institution environments, such as schools and hospitals, these Von Duprin products are recommended for the following applications:

- Visual Verification - Reduce the time it takes to tour your facility and ensure each door is secure by installing the Von Duprin security indicator to provide at-a-glance visual verification.
- Lockdown - Lock down high occupancy areas such as auditoriums, cafeterias and gymnasiums, from inside the room with the Von Duprin security indicator that provides positive visual confirmation.

The **CDSI/HDSI Dogging Indicator** provides an at-a-glance verification of the status of the door from inside of the room. Visible "LOCKED" and "UNLOCKED" indicators show whether the device is undogged or dogged. This feature can be used with Hex key (HDSI) or Cylinder dogging (CDSI) options on various device types – rim, mortise and vertical systems.

The **-2SI Security Indicator** provides an at-a-glance verification of the LOCKED/UNLOCKED status of the door from inside of the room. This option can be ordered as a new product or as a retrofit conversion kit to an existing 98/99 rim device. Indicator in "UNLOCKED" state presents a 1/2" x 1/2" metal flag (unlock icon, laser cut into flag) at top of device head. Indicator in "LOCKED" state has no flag present.



Features and Benefits

- Lockdown solution that meets fire and life safety codes for free egress.
- Modular conversion kits allow you to quickly and easily upgrade your existing devices

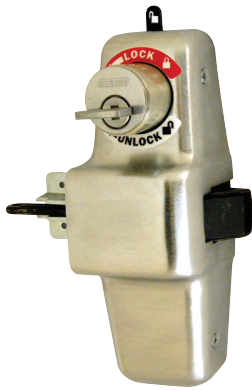
-2SI security indicator with double cylinder

- Thumbturn or key cylinder with LOCK/UNLOCK labels provide a clear direction of rotation to secure opening
- Available for 98/99 Series rim devices

CDSI/HDSI dogging indicator

- Hex or cylinder dogging options
- Visual indication of whether the exit device is dogged or undogged.
- Available for 98/99 & 33A/35A Series panic devices

Product availability



-2SI Security Indicator

NEW DEVICES

Options	Device	How to Order
Classroom Security Double Cylinder with Security Indicator	98/99 Rim only	Suffix = -2SI Double Cylinder with Security Indicator

Above applications available with L, TP, or K functions only. Specify handing. Rim cylinder (3216) sold separately. Rim cylinder with T-Turn available from Schlage, order part number XB 11-979

CDSI/HDSI Dogging Indicator

NEW DEVICES

Options	Device	How to Order
Cylinder Dogging Security Indicator	Panic devices: 33A/35A Series 98/99 Series	Prefix = CDSI
Hex Dogging Security Indicator	Panic devices: 33A/35A Series 98/99 Series	Prefix = HDSI

Above options can not be used with fire-rated devices and are recommended for use in combination with the following trim functions - DT, K-DT, L-DT, EO, NL, K-NL, L-NL, NL-OP

-2SI Security Indicator: Conversion options

CONVERSION KITS

Part Number	Description
051883	98/99-2SI Conversion Kit RHR
051884	98/99-2SI Conversion Kit LHR
971220-00	Lock/Unlock Label Only

Dogging Indicator: Conversion options

CONVERSION KITS

Part Number	Description
040070 / 040071	33A CDSI Conversion Kit 3' / 4'
040072 / 040073	33A HDSI Conversion Kit 3' / 4'
040074 / 040075	35A CDSI Conversion Kit 3' / 4'
040076 / 040077	35A HDSI Conversion Kit 3' / 4'
040078 / 040079	98 CDSI Conversion Kit 3' / 4'
040080 / 040081	98 HDSI Conversion Kit 3' / 4'
040082 / 040083	99 CDSI Conversion Kit 3' / 4'
040084 / 040085	99 HDSI Conversion Kit 3' / 4'

Allegion (NYSE: ALLE) creates peace of mind by pioneering safety and security. As a \$2 billion provider of security solutions for homes and businesses, Allegion employs more than 7,800 people and sells products in more than 120 countries across the world. Allegion comprises 23 global brands, including strategic brands CISA®, Interflex®, LCN®, Schlage® and Von Duprin®. For more, visit www.allegion.com

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010787, Rev. 2/15

98/99 Mechanical options

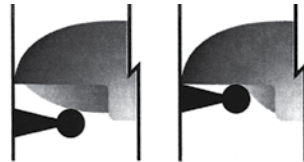
AX Accessible device

The AX device is a UL certified exit device designed to meet the progressive requirements of the California Building Code for accessible openings. This device meets the 5 lbs of operating force requirement called for in chapter 11B-309.4. The AX device also exceeds ANSI/BHMA requirements. Available devices include: AX98/99, AX98/99-F, AX98/9949LBL, AX98/9949-F LBL, AX98/9949-F LBLAFL. Additionally, all AX devices will be shipped with a new UL label clearly stating "Meets California building Code (2013) Sec. 11B-309.4" and an "AX" identifier label on device center case. See images below for reference.



XP Extra performance

For increased security the XP98/99 Rim exit device has a static load force resistance of more than 2,000 pounds, twice that of standard rim exit devices. The two-piece latch bolt forms a 90° latch-to-strike contact. The "smart" latch changes shape when subjected to external forces. This design enables the exit door to withstand an external attack and remain secure. Additionally, the patented latch bolt design provides a greater, longer-lasting latch bolt to strike contact which is not easily affected by the twisting motion of a weakened frame, resulting in an opening that will remain strong.



With a door loaded to 250 pounds, XP98/99 requires less than 40 pounds of pressure to open, 25% less than the safety code requires.

XP98/99 is available for panic or fire exit hardware applications. Dimensions, finishes and trim options are equal to the standard 98/99 series rim exit device.

Note: The 909 strike is to be used for all applications. The exception occurs with the use of fire rated double door applications, in this instance the 954 strike is required.

WS Surface vertical rod one-point and three-point exit devices

WS Multi-point exit devices for tornado application devices WS98/9927 (one-point) and WS98/9957 (three-point) surface vertical rod exit devices are designed, tested and certified to comply with the Federal Emergency Management Agency's publication FEMA 361- Design and Construction Guidance for Community Safe Rooms.

UL Listing – panic hardware UL 305; and fire exit hardware UL 10C: WS98/9927:

3 hour pairs of doors double egress, 90 minutes swinging same direction, 8'0" x 8'0" BHMA Grade 1, ANSI A156.3-2001

WS98/9957:

3 hours single doors, 4'0" x 8'0" BHMA Grade 1, ANSI A156.3-2001

Windstorm ratings:

WS98/9927:

Miami-Dade County/FBC compliance to TAS 201, TAS 202, TAS 203; design load rating +150/-150 PSF (245 MPH wind zone); Enhanced Hurricane Protection (EHPA) ASTM E1996, ANSI/ICC 500 (245 MPH wind zone).

UL-FEMA 361 certified 8'0" x 8'0" pairs, swinging same direction and 4'0" x 8'0" single non-fire rated flush hollow metal. UL-ANSI/ICC 500 certified for F5 tornado applications.

WS98/9957:

UL-FEMA 361 certified 4'0" x 8'0" single flush hollow metal (fire-rated and panic). UL-ANSI/ICC 500 certified for F5 tornado applications.

These devices are listed with Steelcraft Paladin™ PW-Series doors for tornados, and Steelcraft H-Series doors hurricane applications.

To order, specify: WS prefix, example WS9927-F

LBR Less bottom rod, panic and fire rated

LBR option is available, using a spring loaded auxiliary latch bolt installed in the lower door edge. When exposed to heat the auxiliary latch bolt releases, keeping the doors in alignment and closed during a fire. UL listed 3 hours on hollow metal doors double egress, 90 minute swinging same direction, and 20 minutes wood doors (consult wood door manufacturer). Fits door stiles as narrow as 3 5/8".

LBR devices must be ordered in pairs or must be used in conjunction with an approved automatic or constant latching flush bolt.

PL Pullman latch

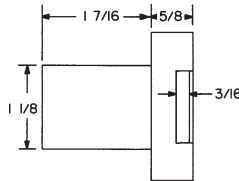
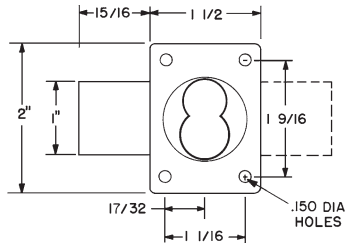
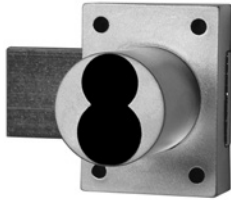
When PL is specified the standard latches are replaced with pullman style latches. Pullman latches are always extended and are most commonly used in conjunction with electric strikes and LBR-less bottom rod application. Not available with Fire rated devices.

Not recommended where security is of the utmost importance since latches do not deadlock.

► 777 Door Lock



For SCHLAGE
full-size
interchangeable
core cylinders



ANSI/BHMA
A156.11 Grade 1
E07121

Woodwork Institute
(WC) acknowledged
product

KEY REMOVABLE LOCKED OR UNLOCKED POSITION

Item	Function	Finish	Core	Description
777ICP-DR	Door	26D, US3, 10B	Standard/Classic or Primus/Everest	Lock body - For Schlage full-size IC

KEY RETAINING (KEY REMOVABLE LOCKED POSITION ONLY)

Item	Function	Finish	Core	Description
777IC-DRK	Door-KR	26D, US3, 10B	Standard/Classic	Lock body - For Schlage full-size IC
777P-DRK	Door-KR	26D, US3, 10B	Primus/Everest	

Key-retaining (KR): Cycle to "locked" position before inserting core.

SPECIFICATIONS

ANSI/BHMA: Passed ANSI/BHMA A156.11 Grade 1 performance requirements. Equivalent to E07121 (777ICP) / E07041 (888ICP)

Standard function: Key removable in locked and unlocked position.

Key-retaining function: Specify core type (Standard/Classic or Primus/Everest) when ordering

Body: Zinc die cast

Cylinder length: 1-7/16"

Barrel diameter: 1-1/8"

Finish: 26D, US3 or 10B

Packaged: Packed 10 per box

CYLINDER INFORMATION

Cylinder: Not included

Accepts: Schlage large format/full-size IC cylinders

- Schlage Quad, Numbered Section, and Schlage Classic IC cores

- Schlage Primus® and Everest large format IC cores

- Mul-T-Lock large format IC cores

Compatible electronic cylinders: VIDEX CyberLock LFIC cylinders

INCLUDED ACCESSORIES

7788-PA-D actuator to operate lock without core

10-350 plastic spacers (qty 3)

10-054 1/4" plastic bar strike

10-055 1/2" plastic bar strike

OPTIONAL ACCESSORIES

See the accessories section of this catalog for a complete list.

Spacers: 10-350 (1/8" thick), 10-348 (1/4" thick), 10-349 (1/2" thick)

Strikes: 10-052, 10-056, 10-057, 10-058, 12-2, 12-3, 12-4

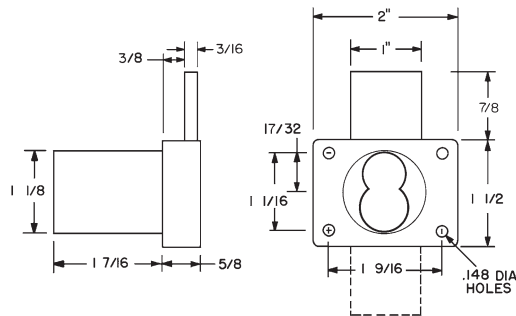
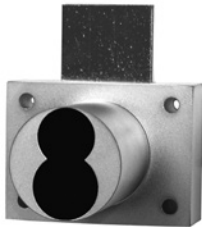
Trim ring: TR78

Through-bolt hardware: ETS1/ETS4/ETS5 trim plate, ETS1-PL trim pull and ETST1 template

► 888 Drawer Lock



For SCHLAGE
full-size
interchangeable
core cylinders



ANSI/BHMA
A156.11 Grade 1
E07041

Woodwork Institute
(WC) acknowledged
product

KEY REMOVABLE LOCKED OR UNLOCKED POSITION

Item	Function	Finish	Core	Description
888ICP-DW	Drawer	26D, US3, 10B	Standard/Classic or Primus/Everest	Lock body - For Schlage full-size IC

KEY RETAINING (KEY REMOVABLE LOCKED POSITION ONLY)

Item	Function	Finish	Core	Description
888IC-DWK	Drawer-KR	26D, US3, 10B	Standard/Classic	Lock body - For Schlage full-size IC
888P-DWK	Drawer-KR	26D, US3, 10B	Primus/Everest	

Key-retaining (KR): Cycle to "locked" position before inserting core.

A
Hinges & Pivots

B
Pulls & Plates

C2
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware



Meets ANSI A156.3 Type 25.
UL Listed 3 Hour Fire Doors 8'0" x 10'0"

FB31P Top and Bottom Bolts (Pair)

- Fully Automatic—inactive door is latched, bolts are extended when active door closes, door is unlatched, bolts retract when active door is opened.
- Low Actuation Forces—Top Bolt Has No Spring Tension.
- Fits standard ANSI A115.4 Door Frame Preparations.
- Non-handed.
- Bolt throw is 3/4" with a 7/8" vertical adjustment.
- Bolt backset is 3/4"
- Standard Rod Length is 12", which is measured from the center of the flush bolt body to the bolt tip. Optional rod lengths available for top bolt only on non-fire rated openings—18", 24", 36" and 48."

DP1 or DP2 optional dust proof strike available, see page C11.

FB31T Top Bolt Only FB31B Bottom Bolt Only

FB32 Top Bolt with Auxiliary Fire Latch

- FB32 Model with Auxiliary Fire Latch eliminates the bottom bolt and is UL Listed for Fire Doors.



Meets ANSI A156.3 Type 25.
UL Listed 3 Hour Fire Doors 8'0" x 8'0"

FB33 Top Bolt with Auxiliary Fire Latch and Retrofit Plate

- FB33 Model with Auxiliary Fire Latch eliminates the bottom bolt and includes a retrofit plate to cover existing bottom bolt prep. UL Listed for Fire Doors.

Dimensions

Body Size: 1" Wide x 6-3/4" Long x 2" Deep

Guide Size: 1" Wide x 1-27/32" Long x 27/32" High x 3/32" Thick

Strike Size: 15/16" Wide x 2-1/4" Long x 1/16" Thick

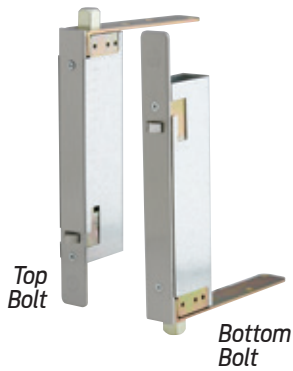
Rub Plate Size: 1-1/4" Wide x 1-11/16" Long x 3/64" Thick

Auxiliary Fire Latch Size: 1" Wide x 1-3/4" Long x 3-1/4" Deep

Retrofit Plate Size: 1" Wide x 6-3/4" Long x 3/32" Thick

Finishes

Ives Number	US3	US4	US10	US10B	US32	US32D
BHMA	605	606	612	613	629	630



Meets ANSI A156.3 Type 25.
UL Listed 90 Minute Fire Doors 8'0" x 8'0"

FB41P Top and Bottom Bolts (Pair)

- Fully Automatic—inactive door is latched, bolts are extended when active door closes, door is unlatched bolts retract when active door is opened.
- Low Actuation Forces—Top Bolt Has No Spring Tension.
- Non-handed.
- Bolt throw is 3/4" with a 7/8" vertical adjustment.
- Bolt backset is 3/4"

DP1 or DP2 optional dust proof strike available, see page C11.

FB41T Top Bolt Only
FB41B Bottom Bolt Only

FB42 Top Bolt with Auxiliary Fire Latch

- FB42 Model with Auxiliary Fire Latch eliminates the bottom bolt and is UL Listed for Fire Doors.



Meets ANSI A156.3 Type 25.
UL Listed 20 Minute Fire Doors 8'0" x 8'0"

Dimensions

Body Size: 1" Wide x 8-1/2" Long x 2" Deep

Guide Size: 1" Wide x 6" Long x 1/8" Thick

Strike Size: 15/16" Wide x 2-1/4" Long x 1/16" Thick

Rub Plate Size: 1-1/4" Wide x 1-11/16" Long x 3/64" Thick

Auxiliary Fire Latch Size: 1" Wide x 1-3/4" Long x 3-1/4" Deep

Finishes

Ives Number	US3	US4	US10	US10B	US32	US32D
BHMA	605	606	612	613	629	630

Hinges & Pivots
A

Pulls & Plates
B

Flush Bolts & Coordinators
C3

Latches, Catches & Bolts
D

Stops
E

Exterior Hardware
F

Miscellaneous Hardware
G

A
Hinges & Pivots

B
Pulls & Plates

C4
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware



Meets ANSI A156.3 Type 27.
UL Listed 3 Hour Fire Doors 8'0" x 10'0"

FB51P Top and Bottom Bolts (Pair)

- Constant Latching—inactive door remains latched until the active door is opened, releasing the automatic bottom bolt and then the top bolt can be manually released. Inactive door will relatch automatically when closed.
- Low Actuation Forces.
- Fits standard ANSI A115.4 Door and Frame Preparations.
- Non-handed.
- 3/4" bolt throw with a 7/8" vertical adjustment.
- 3/4" backset
- Standard Rod Length is 12", which is measured from the center of the flush bolt body to the bolt tip. Optional rod lengths available for top bolt only on non-fire rated openings—18", 24", 36" and 48".

DP1 or DP2 optional dust proof strike available, see page C11.

FB51T Top Bolt Only

FB52 Top Bolt with Auxiliary Fire Latch

- FB52 Model with Auxiliary Fire Latch eliminates the bottom bolt and is UL Listed for Fire Doors.

FB53 Top Bolt with Auxiliary Fire Latch & Retrofit Plate

- FB53 Model with Auxiliary Fire Latch eliminates the bottom bolt and includes a retrofit plate to cover existing bottom bolt prep. UL Listed for Fire Doors.



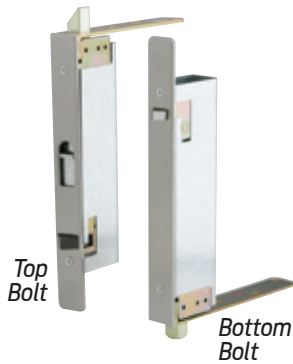
Meets ANSI A156.3 Type 27.
UL Listed 3 Hour Fire Doors 8'0" x 10'0"

Dimensions

- Body Size: 1" Wide x 6-3/4" Long x 2" Deep
- Guide Size: 1" Wide x 1-27/32" Long x 11/16" High x 3/32" Thick
- Strike Size: 15/16" Wide x 2-1/4" Long x 1/16" Thick
- Rub Plate Size: 1-1/4" Wide x 1-11/16" Long x 3/64" Thick
- Auxiliary Fire Latch Size: 1" Wide x 1-3/4" Long x 3-1/4" Deep
- Retrofit Plate Size: 1" Wide x 6-3/4" Long x 3/32" Thick

Finishes

Ives Number	US3	US4	US10	US10B	US32	US32D
BHMA	605	606	612	613	629	630



Meets ANSI A156.3 Type 27.
UL Listed 90 Minute Fire Doors 8'0" x 8'0"

FB61P Top and Bottom Bolts (Pair)

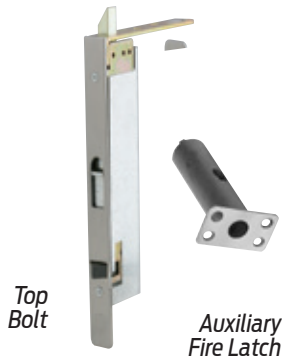
- Constant Latching—inactive door remains latched until the active door is opened, releasing the automatic bottom bolt and then the top bolt can be manually released. Inactive door will relatch automatically when door closes.
- Low Actuation Forces.
- Non-handed.
- Bolt throw is 3/4" with a 7/8" vertical adjustment.
- Bolt backset is 3/4"

DP1 or DP2 optional dust proof strike available, see page C11.

FB61T Top Bolt Only

FB62 Top Bolt with Auxiliary Fire Latch

- FB62 Model with Auxiliary Fire Latch eliminates the bottom bolt and is UL Listed for Fire Doors..



Meets ANSI A156.3 Type 27.
UL Listed 20 Minute Fire Doors 8'0" x 8'0"

Dimensions

Body Size: 1" Wide x 8-1/2" Long x 2" Deep

Guide Size: 1" Wide x 6" Long x 1/8" Thick

Strike Size: 15/16" Wide x 2-1/4" Long x 1/16" Thick

Rub Plate Size: 1-1/4" Wide x 1-11/16" Long x 3/64" Thick

Auxiliary Fire Latch Size: 1" Wide x 1-3/4" Long x 3-1/4" Deep

Finishes

Ives Number	US3	US4	US10	US10B	US32	US32D
BHMA	605	606	612	613	629	630

Hinges & Pivots
A

Pulls & Plates
B

Flush Bolts & Coordinators
C5

Latches, Catches & Bolts
D

Stops
E

Exterior Hardware
F

Miscellaneous Hardware
G

A
Hinges & Pivots

B
Pulls & Plates

C12
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware



Meets ANSI/BHMA A156.3, Type 21A.
UL Listed for installation on labeled frame.

COR Series Bar Coordinators

- The COR Series Coordinators are designed for use on pairs of doors when one door needs to close before the other.
- All COR units function easily. The active door lever, located nearest to the active stop, holds the active door open until the trigger mechanism is released by the closing of the inactive leaf.
- All COR units may not function correctly with swingclear hinges.
- All COR units are equipped with an adjustable override feature which allows the active door to close under extreme pressure.
- All COR units are compatible with Flush Bolts.
- The COR Series is available in five sizes for variable door opening widths.
- The COR Series does not cover the entire length of the stop, so a FL filler bar can be provided to maintain architecturally clean lines.
- COR Series Coordinator Channels and FL fillers are made of aluminum.
- Optional Filler Bars: FL20 - 20", FL32 - 32" and FL44 - 44", available to maintain clean line.
- Optional Mounting Brackets available: MB1, MB2, MB1F, MB2F, MB3F, MB1V, MB2V, and MB3V for other stop applied hardware.

For Openings Where Doors Are Same Size

Coordinator Number	Length of Channel	For Opening Widths	Common Applications
COR32	32"	34" - 52"	Pair of 2'0" Doors
COR42	42"	52" - 72"	Pair of 2'6" Doors
COR52	52"	62" - 92"	Pair of 3'0" Doors
COR60	60"	70" - 108"	Pair of 3'6" Doors
COR72	72"	84" - 132"	Pair of 4'0" Doors

For Openings Where Doors Are Unequal Size

The coordinator length should equal the active door width plus approximately 1/2 the inactive door width. The coordinator must be 6" longer than the active door width and shorter than the overall frame opening between stops.

Finishes

Ives Finish	US28	US26D	315AN
BHMA	628	713	711



FL Series Filler Bars

- The FL Filler Bars are available in three sizes for variable frame openings.
- FL Filler Bars are made of aluminum
- FL Filler Bars are field sized to frame opening.

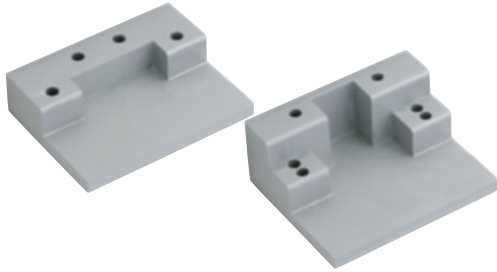
Filler Bar Number

Filler Bar Number	Length	Dimensions
FL20	20"	1-5/8" W x 5/8" D x 20" L
FL32	32"	1-5/8" W x 5/8" D x 32" L
FL44	44"	1-5/8" W x 5/8" D x 44" L

Finishes

Ives Finish	US28	US26D	315AN
BHMA	628	713	711

MB1 and MB2



Mounting Brackets

- Allows stop mounted hardware to be properly installed without damaging the COR coordinator, such as a parallel arm closer or a non-fire-rated surface vertical rod strike.
- Stop mounted hardware will need to be lowered to compensate for the height of the coordinator and mounting bracket.
- MB mounting brackets are made of aluminum

Product	Jamb Depth	Stop Width	Dimensions
MB1	4-3/4" Min.	Over 2-1/2"	4" W x 3" D x 15/16" T
MB2	4-3/4" Min.	Up to 2-1/2"	4" W x 3-1/4" D x 1-5/8" T

Finishes

Ives Finish	USP	SP28	SPBLK
BHMA	600	689	622

MB1F, MB2F and MB3F MB1V, MB2V and MB3V



MB1V

MB2V



MB3V

Fire Rated Mounting Brackets

- Allows for fire-rated stop mounted hardware to be properly installed without damaging the COR Coordinators, such as fire-rated surface vertical rod exit device strikes.
- Latch will need to be lowered to compensate for the height of the coordinator and mounting bracket.
- MB-V are designed for Von Duprin 8827-F soffit latch.
- Mounting brackets are made of steel.

Product	Jamb Depth	Stop Width	Dimensions
MB1F	5"	1-1/2" - 2-1/4"	4" W x 3" D x 1-5/8" T
MB1V	5"	1-1/2" - 2-1/4"	4" W x 3" D x 1-5/8" T
MB2F	5-7/8"	2-3/8" - 3-1/4"	4" W x 4" D x 1-5/8" T
MB2V	5-7/8"	2-3/8" - 3-1/4"	4" W x 4" D x 1-5/8" T
MB3F	6-7/8"	Over 3-3/8"	4" W x 3-1/2" D x 1" T
MB3V	6-7/8"	Over 3-3/8"	4" W x 3-1/2" D x 1" T

Finishes

Ives Finish	USP	SP28	SPBLK
BHMA	600	689	622

A
Hinges & Pivots

B
Pulls & Plates

C13
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware

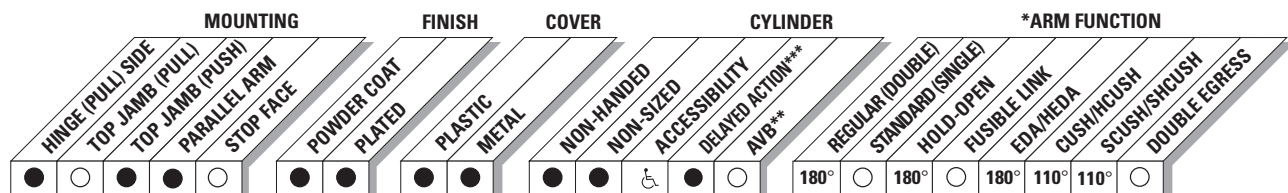


The 4040XP is LCN's most durable and flexible heavy duty closer designed for institutional and other demanding high traffic applications.

Certifications	Grade 1 - ANSI A156.4, UL 10C, ADA, 100 Hour Salt Spray, Meets BAA - Buy American Act	Cover	<ul style="list-style-type: none"> Plastic, Standard Metal, Optional
Body Construction	<ul style="list-style-type: none"> Cast Iron Body Full Complement Bearings 1-1/2" Diameter Piston 3/4" Diameter Double Heat Treated Pinion Journal 	Fasteners	Self Reaming and Tapping Screws (SRT)
Fluid	All Weather Liquid X Fluid	Mounting	Hinge (Pull Side), Top Jamb (Push Side), Parallel Arm (Push Side)
Handing	Non-Handed	Arms	Regular Arm
Templating	Peel-n-Stick templates - 2-1/4" x 5" Mounting Hole Pattern	Finishes/Colors/Powder Coat	<ul style="list-style-type: none"> Aluminum (689) Statuary Bronze (690) Light Bronze (691) Black (693) Dark Bronze (695) Brass (696) Custom colors optional
Size	Adjustable Spring Size 1-6, includes Patented Green Dial		<ul style="list-style-type: none"> Optional SRI primer - powder coat only Optional plated finishes
Warranty	30 years		

Special Templates

Customized installation templates or products may be available to solve unusual applications. Contact LCN Product Support for assistance.



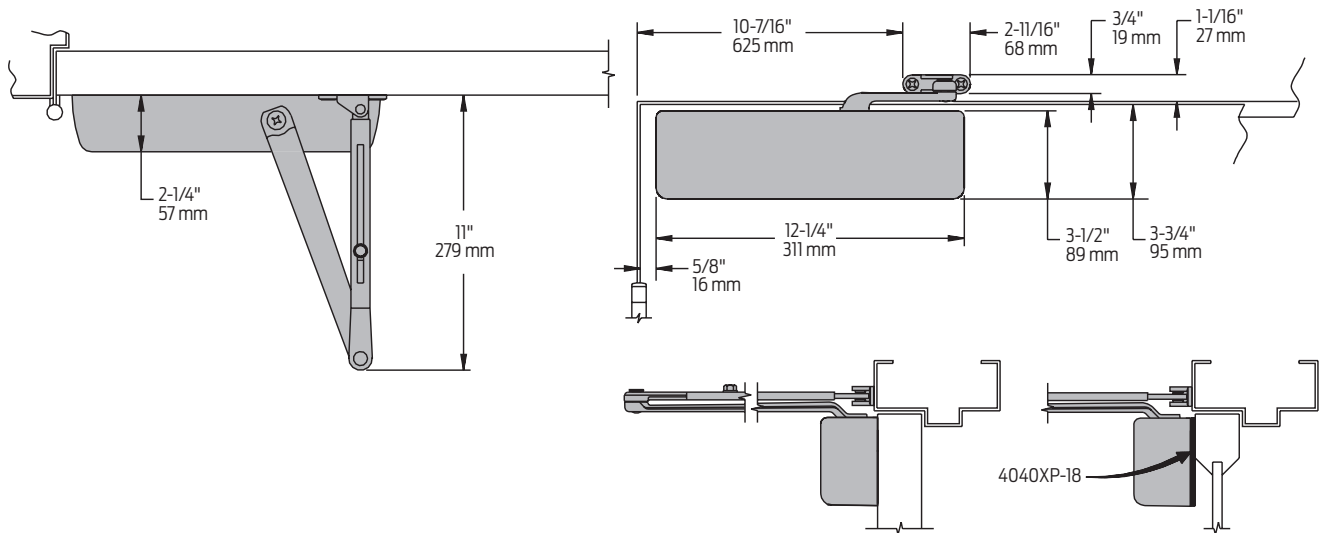
● AVAILABLE
○ NOT AVAILABLE

♿ Closer available with less than 5.0 lbs. opening force on 36" door.
 * Maximum opening/hold-open point with standard template.
 ** Advanced Variable Backcheck.
 *** Delay feature incorporates standard 4040 cylinder (not XP).

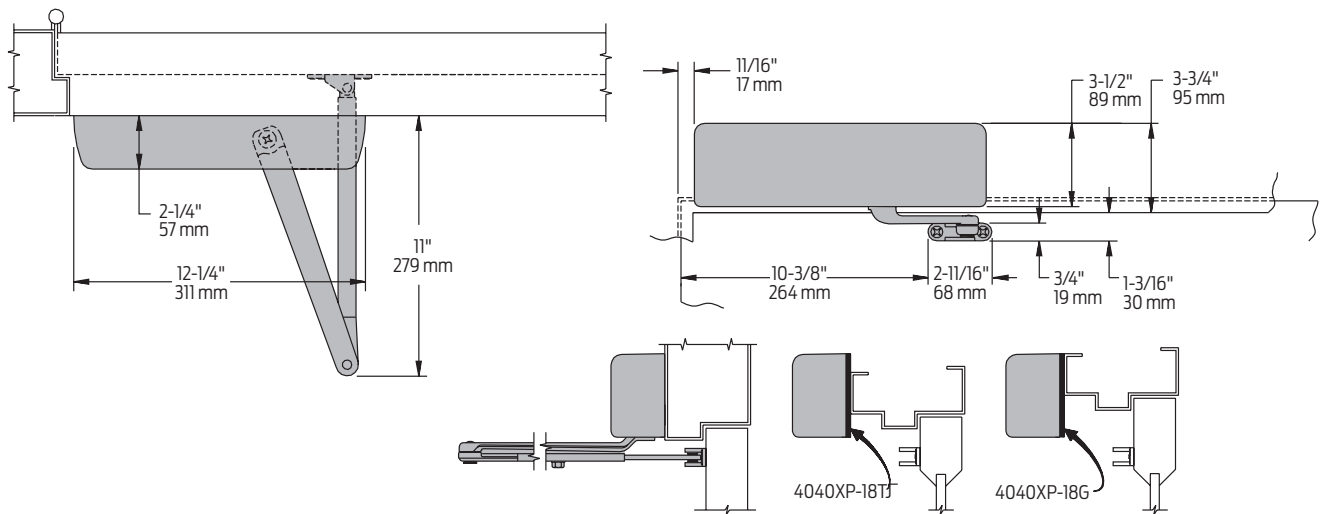
4040XP Series

Mounting details

Hinge (Pull Side) Mounting



Butt Hinges	<ul style="list-style-type: none"> Should not exceed 5" (127 mm) in width
Auxiliary Stop	<ul style="list-style-type: none"> Recommended at hold-open point or where a door cannot swing beyond 120°
Reveal	<ul style="list-style-type: none"> Should not exceed 3/4" (19 mm) for regular arm or hold-open arm
Top Rail	<ul style="list-style-type: none"> Less than 3-3/4" (95 mm) requires PLATE, 4040XP-18. Plate requires 2" (51 mm) minimum
Clearance	<ul style="list-style-type: none"> 2-3/8" (60 mm) behind door required for 90° installation
Delayed Action	<ul style="list-style-type: none"> Incorporates standard 4041 cylinder, without XP cylinder Delays closing from 120° to 70° Delay time adjustable up to approximately 1 minute
Maximum Opening	<ul style="list-style-type: none"> Templating allows up to 120°. Hold-open points 90° up to 120° with hold-open arm.

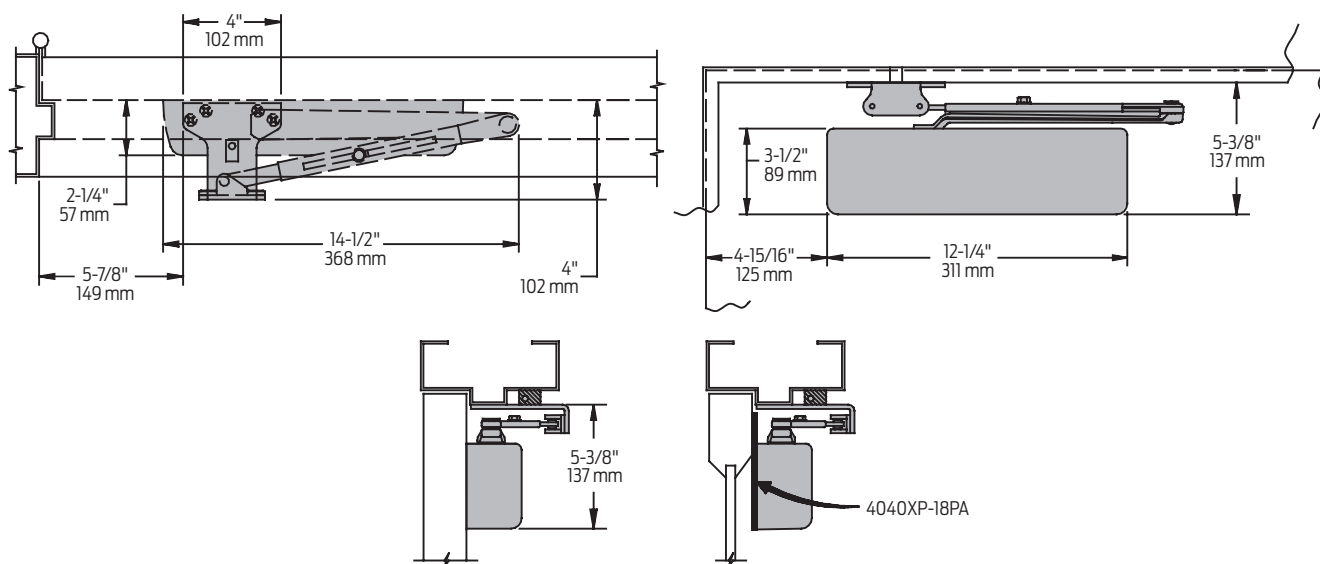


Butt Hinges	Should not exceed 5" (127 mm) in width		
Auxiliary Stop	Recommended at hold-open point or where a door cannot swing beyond 120°		
Reveal	Arm Type	Reveal	Max Opening
	Regular Arm	2-9/16"	Up to 120°
	Long	4-13/16"	Up to 120°
	Hold-Open	2-9/16"	Up to 120°
	Long Hold-Open Arm	8"	Up to 120°
Top Rail	<ul style="list-style-type: none"> Requires 1-1/4" (32 mm) minimum 2-1/4" (57 mm) minimum with closer on PLATE, 4040XP-18TJ 3" (76 mm) minimum with closer on PLATE, 4040XP-18G 		
Head Frame	<ul style="list-style-type: none"> Less than 3-1/2" (89 mm) requires PLATE, 4040XP-18TJ With flush ceiling, use PLATE, 4040XP-18G. Either plate requires 1-3/4" (44 mm) minimum 		
Maximum Opening	<ul style="list-style-type: none"> Templating allows up to 120°. Hold-open points 85° up to 120° with hold-open arm. 		
Delayed Action	<ul style="list-style-type: none"> Incorporates standard 4041 cylinder, without XP cylinder Delays closing from 120° to 70° Delay time adjustable up to approximately 1 minute 		

4040XP Series

Mounting details

Parallel Arm (Push Side) Mounting

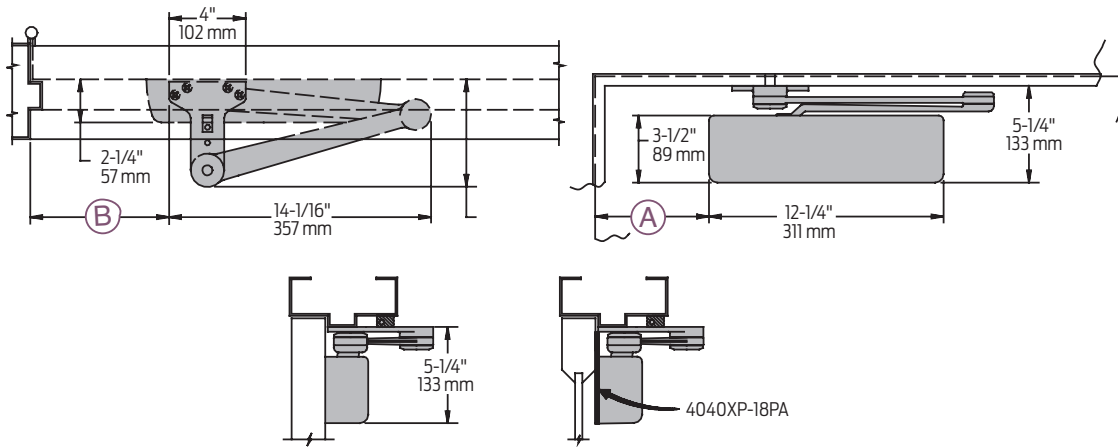


Butt Hinges	Should not exceed 5" (127 mm) in width
Auxiliary Stop	Recommended at hold-open point, where the door cannot swing 180°, or where CUSH-N-STOP arm is not used
Reveal	Should not exceed 7/32" (6 mm)
Top Rail	Less than 5-3/8" (137 mm) measured from the stop requires PLATE, 4040XP-18PA. Plate requires 2" (51 mm) minimum from the stop
Head Frame	Flush or rabbeted requires PA SHOE ADAPTER, 4040XP-419
Stop Width	Minimum 1" (25 mm). CUSH arm requires minimum 1-1/2" (38 mm)
Blade Stop	Clearance requires 1/2" (13mm) BLADE STOP SPACER, 4040XP-61.
Clearance	<ul style="list-style-type: none"> 4040XP-62PA shoe is 4" (102 mm) from door face. EDA shoe projects 5-1/2" (140 mm) from door face. CUSH shoe projects 6" (152 mm) from door face
Delayed Action	<ul style="list-style-type: none"> Incorporates standard 4041 cylinder, without XP cylinder Delays closing from 120° to 70°. Delay time adjustable up to approximately 1 minute.
Maximum Opening	<ul style="list-style-type: none"> 180° opening/hold-open points with all except CUSH arms 110° opening/hold-open with CUSH arms

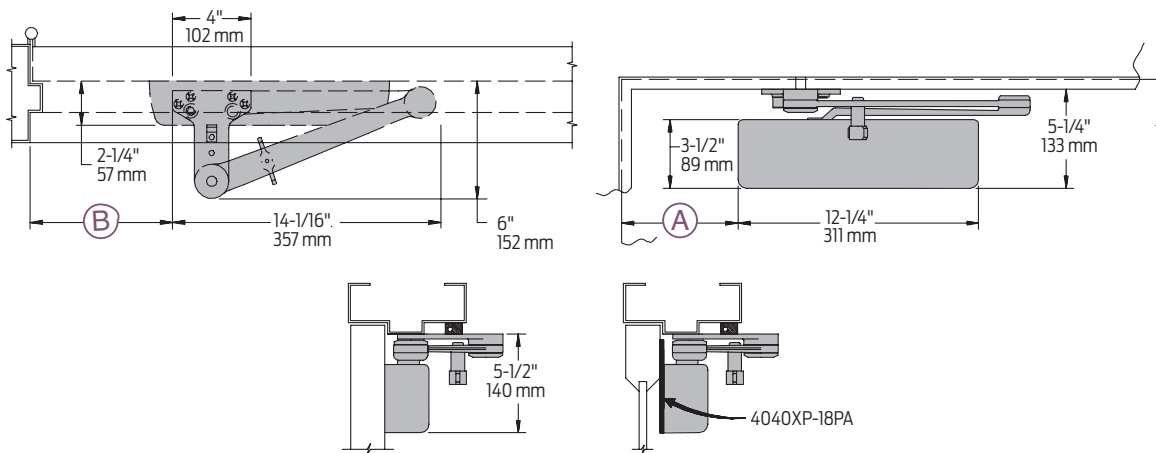
Notes:

- Optional mounting requires PA SHOE, 4040XP-62PA for regular or HOLD-OPEN arms
- Add prefix "P" to closer description (eg. P4040XP)
- P4040XP closer includes 4040XP-201 FIFTH HOLE SPACER to support PA SHOE

EDA mount



CUSH mount



Clearance	4040XP-62EDA is 5-1/2" (140 mm) from door face. 6" (152 mm) for CUSH	
Head Frame	Flush or rabbeted requires CUSH FLUSH PANEL ADAPTER, 4040XP-419	
CUSH ARM	Requires SHOE SUPPORT, 4040XP-30 for fifth screw anchorage for narrow frames	
Delayed Action	<ul style="list-style-type: none"> ■ Incorporates standard 4041 cylinder, without XP cylinder. ■ Delays closing from maximum opening to ; 115° with 180° template, 95° with 110° template, 85° with 100° template, 75° with 90° template. Delay time adjustable up to approximately 1 minute. 	
Maximum Opening	EDA arm can be templated for points at:	CUSH arms can be templated for opening/hold-open point at:
	110°: A = 6-3/8" (162 mm) B = 7-3/4" (197 mm)	85°: A = 7-15/16" (202 mm) B = 9-1/8" (232 mm)
	or 180°: A = 2-7/8" (73 mm) B = 4-1/4" (108 mm)	90°: A = 7-3/16" (183 mm) B = 8-1/2" (216 mm)
	Hold-open points up to maximum opening with HEDA arm	100°: A = 6-1/16" (154 mm) B = 7-1/4" (184 mm)
		or 110°: A = 5-1/16" (129 mm) B = 6-3/8" (162 mm)

Notes:

- 4040XP Series closers ordered with EDA or CUSH arms include 4040XP-201 FIFTH HOLE SPACER to support the shoe
- Spring Cush stop points are approximately 5° more than templated stop point
- Hold open at templated stop points

Cylinders



4040XP-3071
Cast Iron Cylinder Assembly

- Non-handed
- Heavy duty



4041-3071 DEL
Cast Iron Cylinder Assembly

- Used for delayed action closing
- Non-handed
- Heavy duty

Covers



4040XP-72
Plastic Cover

- Includes 4040XP-54 snap-on cover clip
- Non-handed
- Standard



4040XP-72MC
Metal Cover

- Handed
- Required for plated finishes and custom powder coat finishes
- Optional

Installation Accessories



4040XP-18
Plate

- Required for hinge side mount where top rail is less than 3-3/4" (95 mm)
- Requires minimum 2" (51 mm) minimum top rail



4040XP-18G
Plate

- Locates top jamb mounted closer flush with top of head frame face in flush ceiling condition
- Requires 1-3/4" (44 mm) minimum head frame



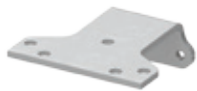
4040XP-18TJ
Plate

- Centers top jamb mounted closer vertically on head frame where face is less than 3-1/2" (89 mm). Plate requires 1-3/4" (44 mm) minimum head frame



4040XP-18PA
Plate

- Required for parallel arm mounting where top rail is less than 5-1/2" (140 mm), measured from the stop
- Requires 2" (51 mm) minimum top rail



4040XP-62PA
PA Shoe

- Required for parallel arm mounting

Arms

4040XP Series

Accessories



4040XP-3077
Regular Arm

- Non-handed
- Mounts pull side or top jamb with shallow reveal P4041 closer includes PA SHOE, 4040XP-62PA required for parallel arm mounting



4040XP-3077L
Long Arm

- Non-handed
- Includes LONG ROD AND SHOE, 4040XP-79LR for top jamb mount
- Optional



4040XP-3077ELR
Extra Long Arm

- Non-handed
- Includes EXTRA LONG ROD AND SHOE, 4040XP-79ELR for top jamb mount with deep reveal
- Optional



4040XP-3049
Hold-Open Arm

- Non-handed
- Mounts pull side or top jamb with shallow reveal, hold-open adjustable shoe
- 4040XP closer includes 4040XP-62PA shoe required for parallel arm mounting
- Optional



4040XP-3049L
Long Hold-Open Arm

- Non-handed
- Includes LONG HEAD AND TUBE, 4040XP-3048L for top jamb mount
- Optional



4040XP-3077EDA
Extra Duty Arm

- Non-handed
- Features forged, solid steel main and forearm for potentially abusive installations
- Optional



4040XP-3049EDA
Hold-Open Extra Duty Arm

- Handed
- Parallel arm features forged, solid steel main and forearm for potentially abusive installations
- Hold-open function is adjusted at the shoe
- Optional



4040XP-3077EDA/62G
Extra Duty Arm with 62G

- Non-handed
- Features forged, solid steel main and forearm for potentially abusive installations
- 62G shoe provides additional blade stop clearance
- Optional



4040XP-3049EDA/62G
Hold-Open Extra Duty Arm with 62G

- Handed
- Features forged, solid steel main and forearm for potentially abusive installations
- 62G shoe provides additional blade stop clearance. Hold-open function is adjusted at the shoe
- Optional



4040XP-3077CNS
Cush-N-Stop[®] Arm

- Non-handed
- Features solid forged steel main arm and forearm with stop in soffit shoe.
- Optional



4040XP-3049CNS
HCUSH Arm

- Non-handed
- Hold-open function with templated stop/hold-open points
- Handle controls hold-open function
- Optional



4040XP-3077SCNS
Spring CUSH Arm

- Non-handed
- For abusive applications features solid forged steel main arm and forearm with spring loaded stop in the soffit shoe
- Optional



4040XP-3049SCNS
Spring HCUSH Arm

- Non-handed
- For abusive applications features solid forged steel main arm and forearm with spring loaded stop in the soffit shoe
- Handle controls hold-open function
- Optional

Installation Accessories cont.



4040XP-30
CUSH Shoe Support

- Provides anchorage for fifth screw used with CUSH arms, where reveal is less than 3-1/16" (78 mm)
- Optional



4040XP-61
Blade Stop Spacer

- Required to lower parallel arm shoe to clear 1/2" (13 mm) blade stop
- Optional



4040XP-419
PA Flush Panel Adapter

- Provides horizontal mounting surface for parallel arm shoe on single rabbeted or flush frame
- Optional



4040XP-62A
Auxiliary Shoe

- Requires a top rail of 7" (178 mm)
- Shoe replaces -62PA for parallel arm mounting of regular arm with overhead holder/stop
- Optional



4040XP-54
Snap-On Cover Clip

- Used to secure 4040XP-72 Plastic Cover to cylinder body

How-to-order 4040XP Series closers

1. Select finish

- Standard Powder Coat _____
Aluminum, Dark Bronze, Statuary,
Light Bronze, Black, Brass.

Closer will be shipped with:

- Standard cylinder
- Standard cover
- Regular arm
- Self-reaming and tapping screws
unless options listed below are selected.

Closer options

Cylinder

- Delayed Action (4041 DEL)

Cover

- Metal (specify right or left hand) (MC)

Finish

- Custom Powder Coat (RAL) _____
(handed metal cover required)
- Plated Finish, US _____
(handed metal cover required)
- SRI primer (use with powder coat finishes only)

Arm

- Regular (REG)
- Regular w/62PA (Rw/PA)
- Regular w/62A (R/62A)
- Long (LONG)
- Extra Long (XLONG)
- Hold-Open (H)
- Hold-Open w/62PA (Hw/PA)
- Long Hold-Open (HLONG)
- Extra Duty Arm (EDA)
- Extra Duty Arm with 62G (EDA/62G)
- Hold Open Extra Duty Arm (HEDA)
(Handed)
- Hold Open Extra Duty Arm with 62
(HEDA/62G)(Handed)
- Cush-N-Stop (CUSH)
- HCush-N-Stop (HCUSH)
- Spring Cush (SCUSH)
- Spring HCush (SHCUSH)

Optional Screw Packs

- TB* w/Self-Reaming and Tapping (TBSRT)
- Wood & Machine Screw (WMS)
- TB*, Wood & Machine Screw (TBWMS)
- TORX Machine Screw (TORX)
- TB* & TORX Machine Screw (TBTRX)
* Specify door thickness if other than
1-3/4".

Installation Accessories

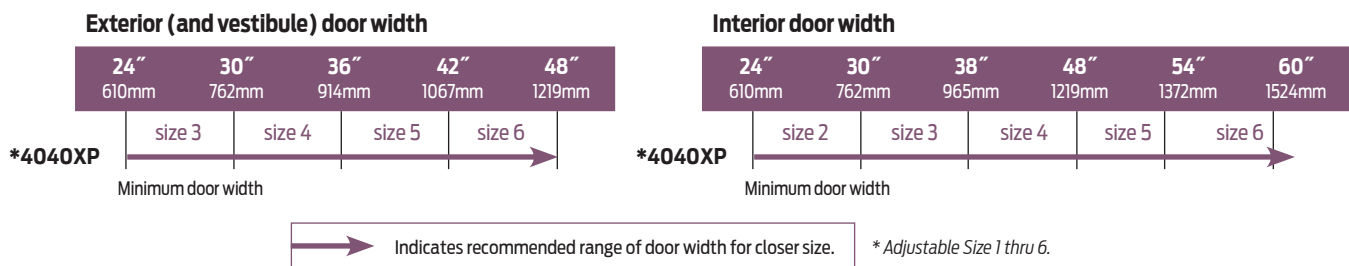
- Plate, 4040XP-18
- Plate, 4040XP-18TJ
- Plate, 4040XP-18G
- Plate, 4040XP-18PA
- CUSH Shoe Support, 4040XP-30
- Blade Stop Spacer, 4040XP-61
- Auxiliary Shoe, 4040XP-62A
- PA Flush Panel Adapter, 4040XP-419

Special Template

- ST- _____

Table of sizes

- 4040XP cylinders are adjustable from size 1 through size 6 and is shipped set to size 3
- Closing power of 4040XP Series closers may be adjusted 50%



Reduced opening force 4040XP Series closers

CAUTION! Any manual door closer, including those certified by BHMA to conform to ANSI Standard A156.4, that is selected, installed and adjusted based on ADA or other reduced opening force requirements may not provide sufficient power to reliably close and latch a door.

Refer to POWER OPERATORS section for information on systems that meet reduced opening force requirements without effecting closing power.

	DOOR WIDTH	36"	42"	48"
	8.5* lbs.	4040XP	4040XP	4040XP
5.0* lbs.	4040XP	4040XP	4040XP	

* Maximum opening force.

HD-Swing™

HEAVY DUTY SWING DOOR SYSTEM



The HD-Swing™ is a heavy duty swing door operator with flexible configuration options to satisfy your entrance requirements.

SERIES 4000



Innovative Features and Economical Performance

The **HD-Swing™** is designed for high traffic entrances providing safety, convenience and reliability. The variety of header designs available will satisfy any architectural requirement. Its state-of-the-art control allows the operator to be used for a fully automatic or ADA compliant entrance.

Whether the requirement is for a complete door package or automation of an existing swing door, **HD-Swing™** is the solution. The controls allow this operator to meet either ANSI A156.10 (power operated) or ANSI A156.19 (low energy) requirements. Complete door packages conceal the operator in the door header. All swing door panels feature Horton's premium corner block construction for years of trouble-free operation. Additionally, Horton's swing door systems break out for emergency egress. The door can also be manually operated, with power on or off, without damage to the operator.

Horton Automatics has the largest factory trained and certified distribution team in the industry to support the installation and servicing of all your swing door entrances.

Standard Features:

- ▶ Adjustable opening and closing speeds
- ▶ Adjustable time delay for closing (2–30 seconds)
- ▶ Push-N-Go™ – activation when pushed
- ▶ Automatic or manual operation
- ▶ Low-energy & barrier-free entry
- ▶ Obstruction sensing – Reduces opening force if door meets obstruction
- ▶ SoftTouch™ – Reopens the door if obstructed during closing cycle
- ▶ Control has multiple inputs/outputs for interfacing with safety and security devices
- ▶ Quadracoil™ closing spring for high reliability and durability

Specifier Options:

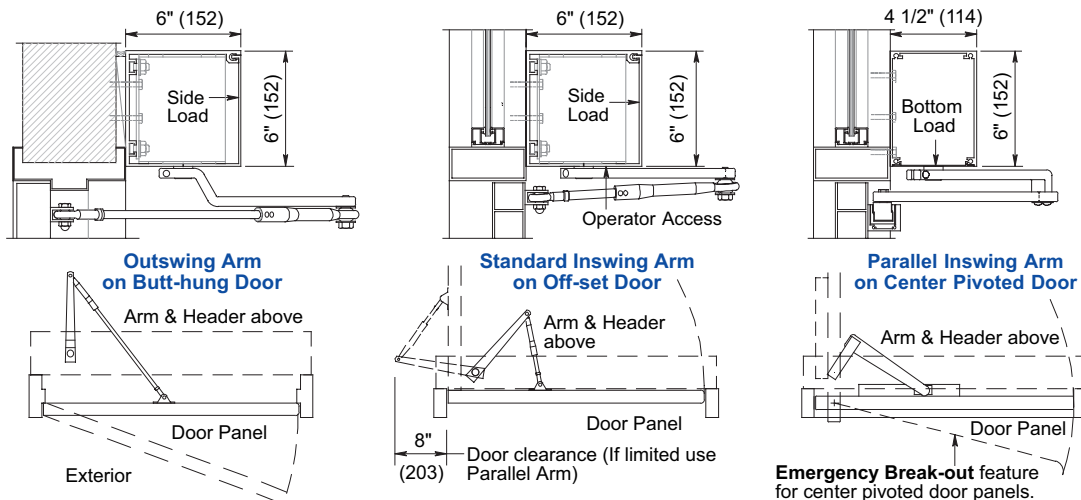
- ▶ Finish (Anodized aluminum, paint, metal clad)
- ▶ Configuration – bottom access, side access or full access headers
- ▶ Mounting options – overhead concealed or surface applied
- ▶ Door panels – narrow, medium and wide stiles
- ▶ Glazing options
- ▶ Muntins and bottom rails
- ▶ Overall dimensions
- ▶ Activation and safety packages
- ▶ Guide rails

HD-Swing™

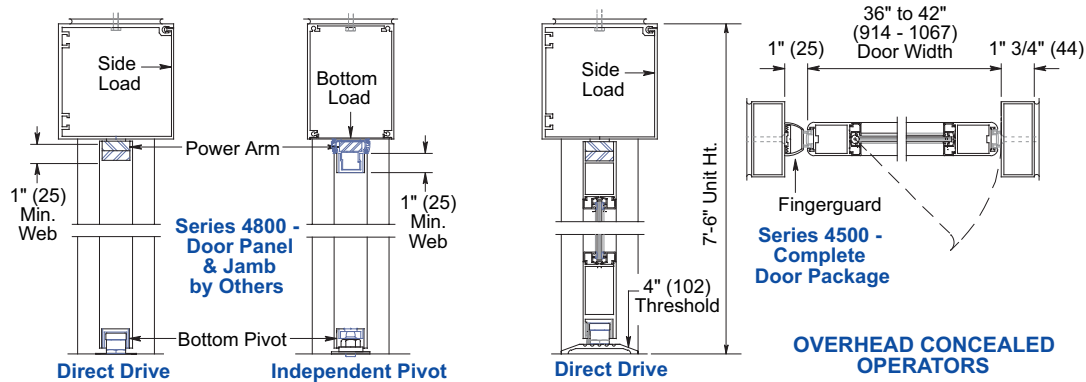
heavy duty swing door operator is designed for high traffic entrances providing safety, convenience and reliability. The variety of header designs available will satisfy any architectural requirement.

Series	Operator Mountng	Package Components	Header Profiles	Drive Arm
4100	Surface Applied	Operator, Controls & Header	6" x 6" (152 x 152) Side Load	Inswing, Outswing or Parallel
4900	Surface Applied	Operator, Controls & Header & UL listed Fire Exit Hardware	OR	Outswing
4500	Overhead Concealed	Complete Door Package		Direct Drive or Independent Pivot
4800	Overhead Concealed	Operator, Controls & Header	4 1/2" x 6" (114 x 152) Bottom Load	Direct Drive or Independent Pivot
4700	Surface Applied	Extra Heavy Duty* Operator, Controls & Header	6" x 6" (152 x 152) Side Load	Inswing, Outswing or Parallel

- Overhead Concealed operators are available as Single, Pair or Dual units. Center pivoted doors are required.
- Surface Applied operators are available as Single or Pair units.
- * Series 4700 designed to operate doors weighing several thousand pounds such as doors used in hospital x-ray treatment rooms.



SURFACE APPLIED OPERATORS



OVERHEAD CONCEALED OPERATORS



4242 Baldwin Boulevard
Corpus Christi,
Texas, U.S.A. 78405-3399
Tel: 800-531-3111, 361-888-5591
Fax: 800-531-3108, 361-888-6510
www.hortondoors.com

Horton Automatics reserves the right to alter its product and specifications without notice.

Horton Automatics, Ltd.
Unit A, Hortonwood 31
Telford, Shropshire, England TF1-7YZ
Tel: 01952 670169, Fax: 01952 670181
International Tel: ++44-1952-670169
International Fax: ++44-1952-670181

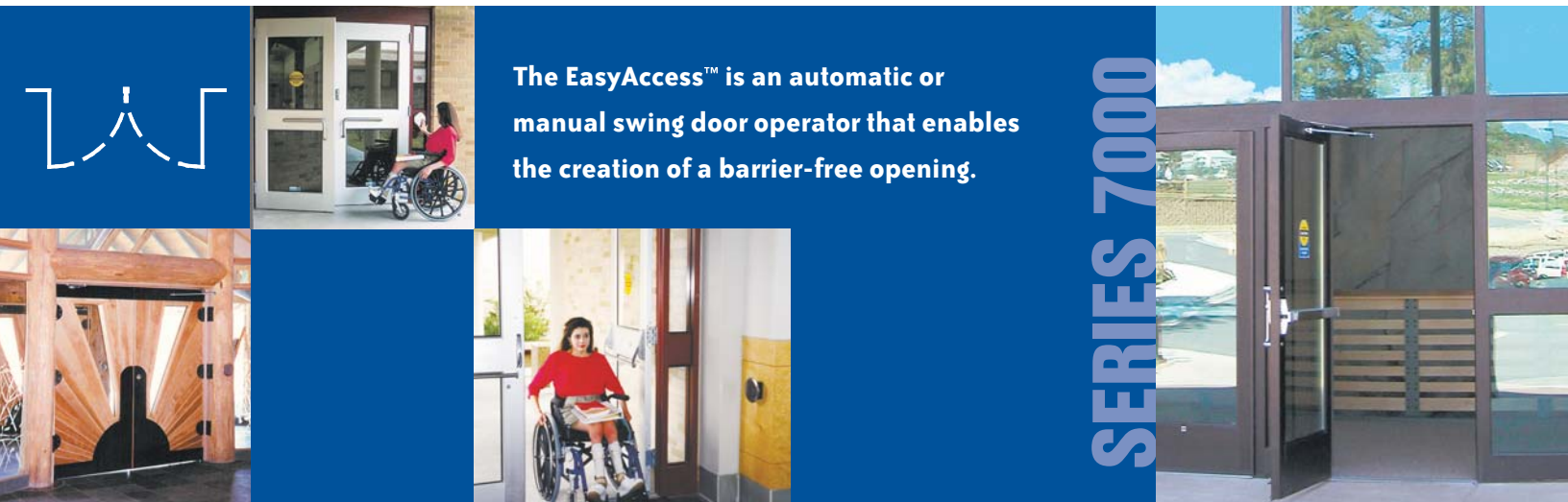


Form B504, Rev. 9/06
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EasyAccess™



SWING DOOR OPERATOR



The EasyAccess™ is an automatic or manual swing door operator that enables the creation of a barrier-free opening.

Innovative Features and Economical Performance

This low-energy, slow-opening swing door operator is easily installed on new and existing swing doors for ADA compliance and user convenience. It is designed for automatic or manual operation and meets ANSI A156.19 requirements when properly adjusted. The **EasyAccess™** is also available in complete door packages where the operator is concealed in the door header. All swing door panels feature Horton's premium corner block construction for years of trouble free operation. Horton's swing door systems break out for emergency egress.

Standard features of the control provide safe and efficient operation. When the door is obstructed in the opening cycle, opening force is immediately reduced, if obstructed in the closing cycle the door automatically reopens. Horton's Push-N-Go™ feature activates the operator if the door is lightly pushed. The door can be manually operated, with power on or off, without damage to the operator.

Horton Automatics has the largest factory trained and certified distribution team in the industry to support the installation and servicing of your swing door entrances.

Standard Features:

- ▶ Adjustable opening and closing speeds
- ▶ Adjustable time delay for closing (2–30 seconds)
- ▶ Push-N-Go™ – activation when pushed
- ▶ Obstruction sensing – Reduces opening force if door meets obstruction
- ▶ SoftTouch™ – Reopens the door if stopped during closing cycle
- ▶ Automatic or manual operation
- ▶ Low-energy & barrier-free entry
- ▶ Complies with ANSI A117, A156.19 and Americans with Disabilities Act of 1990

Specifier Options:

- ▶ Finish (Anodized aluminum, paint, metal clad)
- ▶ Configuration
- ▶ Overall dimensions
- ▶ Sensor, safety and security packages

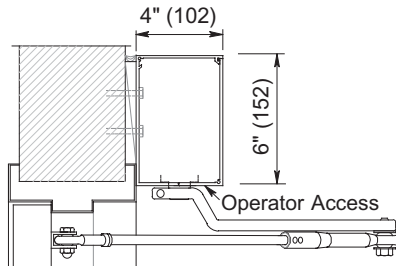


EasyAccess™

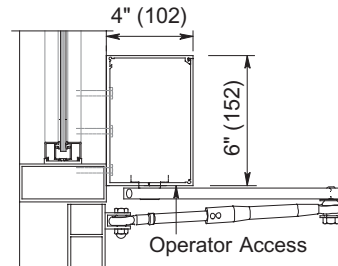
operator is mounted and concealed in an anodized aluminum cover

(standard finishes clear and dark bronze). It is powered open with a DC

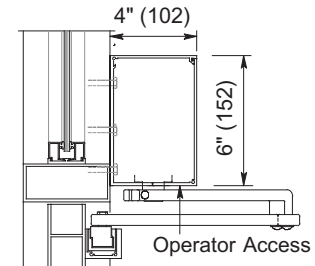
motor working through six reduction gears and closed by spring force.



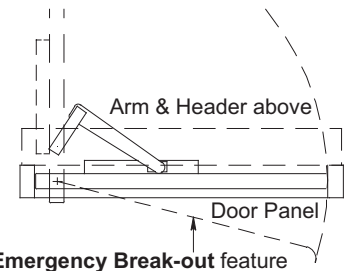
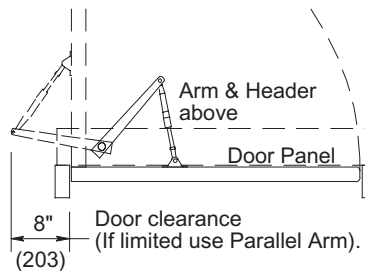
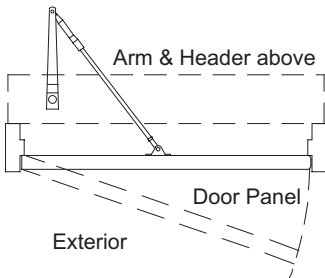
Outwing Arm on Butt-hung Door



Standard Inswing Arm on Off-set Door



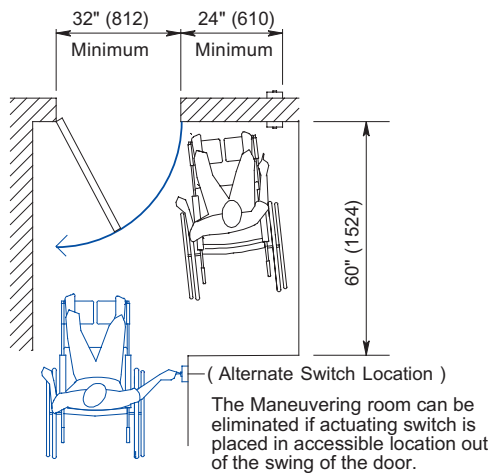
Parallel Inswing Arm on Center Pivoted Door



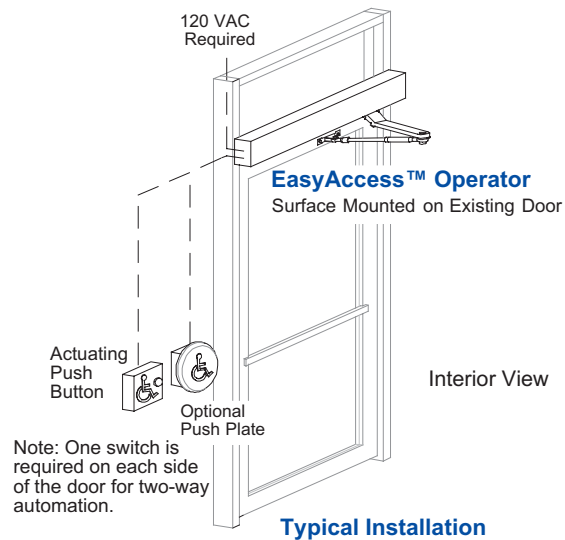
Emergency Break-out feature for center pivoted door panels.

*ANSI A156.19 defines low-energy operators,

APPLICATIONS



ADA Floor Space Requirements



Typical Installation

To meet ANSI A156.19* the force required to stop the door in the opening or closing cycle must be adjusted to less than 15 pounds of force, measured 1" from the lock stile of the door.



4242 Baldwin Boulevard
Corpus Christi,
Texas, U.S.A. 78405-3399
Tel: 800-531-3111, 361-888-5591
Fax: 800-531-3108, 361-888-6510
www.hortondoors.com

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Horton Automatics, Ltd.
Unit A, Hortonwood 31
Telford, Shropshire, England TF1-7YZ
Tel: 01952 670169, Fax: 01952 670181
International Tel: ++44-1952-670169
International Fax: ++44-1952-670181



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SCHLAGE

PS902

2 amp power supply



Photo as shown includes optional board(s). Please contact your local sales office or visit the support section on our website for configuration assistance.

Overview

The Schlage comprehensive line of power supplies and option boards was designed to address the changing needs of the access control market.

Installation is simplified by utilizing a flat mounting design and polarized locking connectors for option boards. This design eliminates the need for racks and side connectors. The flat mounting of the option boards also provides for easier access to the terminal blocks for connection of electrified devices (such as electrified strikes, electromagnetic locks, card readers, etc.).

Common to the line of PS900 Series power supplies is a constant output rating at both 12v and 24v settings, universal 120 VAC to 240 VAC input, and polarized option board connectors. New fire alarm interface board mounting allows outputs to be configured as switched (power cut) or unswitched (power continues) when signal is provided.

Features and benefits

- 2A @ 12/24 VDC constant output, field selectable with jumper
- Provides low-voltage, Class 2, filtered and regulated power
- Universal 120-240 VAC, fused primary input
- Single polarized option board connector
- AC input and DC output monitoring circuit with LED indicators
- Externally visible AC input indicator with isolated SPDT contacts
- High-voltage protective cover for AC circuitry
- Battery back-up board auto-selects voltage
- Optional Fire Alarm plug-in board available
- UL 294, ULC-S318, RoHS, and FCC Part 15 certified

SCHLAGE

PS904

4 amp power supply



Photo as shown includes optional board(s). Please contact your local sales office or visit the support section on our website for configuration assistance.

Overview

The Schlage comprehensive line of power supplies and option boards was designed to address the changing needs of the access control market.

Installation is simplified by utilizing a flat mounting design and polarized locking connectors for option boards. This design eliminates the need for racks and side connectors. The flat mounting of the option boards also provides for easier access to the terminal blocks for connection of electrified devices (such as electrified strikes, electromagnetic locks, card readers, etc.).

Common to the line of PS900 Series power supplies is a constant output rating at both 12v and 24v settings, universal 120 VAC to 240 VAC input, and polarized option board connectors. New fire alarm interface board mounting allows outputs to be configured as switched (power cut) or unswitched (power continues) when signal is provided.

Features and benefits

- 4A @ 12/24 VDC constant output, field selectable with jumper
- Provides low-voltage, Class 2, filtered and regulated power
- Universal 120-240 VAC, fused primary input
- Two polarized option board connectors eliminate need for racks and side connectors
- AC input and DC output monitoring circuit with LED indicators
- Externally visible AC input indicator with isolated SPDT contacts
- High-voltage protective cover for AC circuitry
- Battery back-up board auto-selects voltage
- Optional Fire Alarm plug-in board available
- UL 294, ULC-S318, RoHS, and FCC Part 15 certified

SCHLAGE

PS906

6 amp power supply



Photo as shown includes optional board(s). Please contact your local sales office or visit the support section on our website for configuration assistance.

Overview

The Schlage comprehensive line of power supplies and option boards was designed to address the changing needs of the access control market.

Installation is simplified by utilizing a flat mounting design and polarized locking connectors for option boards. This design eliminates the need for racks and side connectors. The flat mounting of the option boards also provides for easier access to the terminal blocks for connection of electrified devices (such as electrified strikes, electromagnetic locks, card readers, etc.).

Common to the line of PS900 Series power supplies is a constant output rating at both 12v and 24v settings, universal 120 VAC to 240 VAC input, and polarized option board connectors. New fire alarm interface board mounting allows outputs to be configured as switched (power cut) or unswitched (power continues) when signal is provided.

Features and benefits

- 6A @ 12/24 VDC constant output, field selectable with jumper
- Provides low-voltage, Class 1, filtered and regulated power (Class 2 when used with 900-8P option board)
- Universal 120-240 VAC, fused primary input
- Three polarized option board connectors eliminate need for racks and side connectors
- AC input and DC output monitoring circuit with LED indicators
- Externally visible AC input indicator with isolated SPDT contacts
- High-voltage protective cover for AC circuitry
- Battery back-up board auto-selects voltage
- Optional Fire Alarm plug-in board available
- UL 294, ULC-S318, RoHS, and FCC Part 15 certified

VON DUPRIN®

PS914

4 amp high in rush
power supply

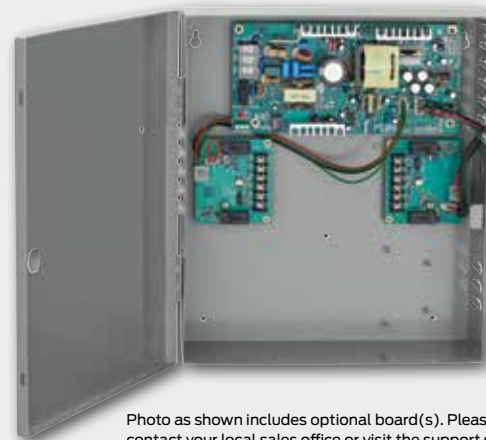


Photo as shown includes optional board(s). Please contact your local sales office or visit the support section on our website for configuration assistance.

Overview

Von Duprin power supply and option board products were designed to meet the specific requirements of electrified fire exit devices.

Installation is simplified by utilizing a flat mounting design and polarized locking connectors for option boards. This design eliminates the need for racks and side connectors. The flat mounting of the option boards also provides for easier access to the terminal blocks for connection of electrified devices (such as electrified panic devices, strikes, card readers, etc.).

Common to the line of PS900 Series power supplies is a constant output rating at both 12v and 24v settings, universal 120 VAC to 240 VAC input, and polarized option board connectors. New fire alarm interface board mounting allows outputs to be configured as switched (power cut) or unswitched (power continues) when signal is provided.

Features and benefits

- 4A @ 12/24 VDC constant output, field selectable with jumper
- Designed for use with electrified panic devices requiring high in rush current
- Provides low-voltage, Class 2, filtered and regulated power
- Universal 120-240 VAC, fused primary input
- Two polarized option board connectors
- AC input and DC output monitoring circuit with LED indicators
- Externally visible AC input indicator with isolated SPDT contacts
- High-voltage protective cover for AC circuitry
- Battery back-up board auto-selects voltage
- Optional Fire Alarm plug-in board available
- UL 294, ULC-S318, RoHS, and FCC Part 15 certified

98/99 Electrical options

RX Request to exit

The RX (2xit) feature is used to signal the use of an opening. This device is equipped with one internal SPDT switch which monitors the pushpad.

The device can be connected to a security console, or may be used as a single door alarm when used with a horn and power supply.

The RX switch option should not be used to control a load, but as a signalling switch (0.5 amps. resistive maximum).

The RX switch is available in a low current (LC) switch. Most commonly used in computer operated monitoring systems.

To order, specify:

- Standard – use prefix RX, example RX99EO
- Low Current – use prefix RX-LC, example RX-LC98EO

RX2 Double request to exit

The RX2 feature uses two RX switches.

To order, specify:

- Standard – Use prefix RX2, example RX299EO

WP-RX Waterproof request to exit

LX Latchbolt monitoring



The LX feature is used to signal the use of an opening. This device is equipped with one internal SPDT switch which monitors the latch bolt.

The device can be connected to a security console, or may be used as a single door alarm when used with a horn and power supply.

The LX switch option should not be used to control a load, but as a signalling switch (0.5 amps. resistive maximum).

The LX switch is available in a low current (LC) switch. Most commonly used in computer operated monitoring systems.

To order, specify:

- Standard – Use prefix LX, example LX99EO
- Low Current – Use prefix LX-LC, example LX-LC98EO

Electrical rating for all switches:

- Standard – 2 Amp maximum @ 24VDC
- Low Current (LC) - below 50 Milliamps @ 24VDC

Note: All switches can be either factory or field installed



SS Signal switch

Monitors pushpad and latch bolt

The SS feature is used to signal the unauthorized use of an opening. This device is equipped with two internal SPDT switches. One switch monitors both the pushpad and the latch bolt assembly, making the latch bolt tamper resistant, for positive security. An additional SPDT switch is connected to the 1 1/4" (32mm) mortise cylinder with straight cam for alarm "bypass." (Schlage cam reference B502-191). The device can be connected to a security console, or may be used as a single door alarm when used with a horn and power supply.

Pushpad reads: "Emergency Exit ONLY – Push To Open And Sound Alarm." Pushpad is only available in US32D finish with red silk-screened lettering.

The SS mortise lock device is furnished with both the signal switch device and the SS7500 mortise lock. The SS7500 mortise lock has the versatility and advantages of the 7500 lock with the addition of signalling functions to monitor latch bolt operation and the trim locking function. The SS7500 mortise lock is supplied standard with the SS mortise lock device.

To order, specify:

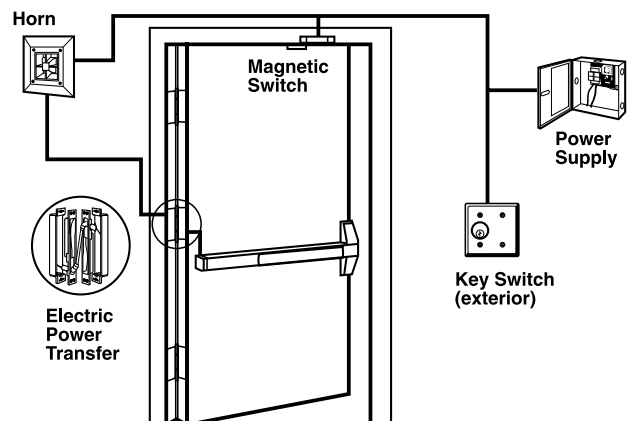
1. Prefix SS, example SS99L.
2. Handing required, LHR or RHR.

Electrical ratings:

Up to 2.0 AMPS @ 24VDC

Popular SS application

Unauthorized use of this opening will activate the local horn. The key switch permits inhibiting this system for authorized entry.



98/99 Electrical options

EPT Electrical power transfer PNT Pneumatic transfer

Electric Power Transfer provides a means of transferring electrical power from a door frame to the edge of a swinging door. The units are completely concealed when the door is in the closed position, and are ideal for installations involving abuse or heavy traffic.



Two models are available; EPT-2, two 18 gauge wires and EPT-10, ten 24 gauge wires. The EPT-2 and EPT-10 are U/L listed as "miscellaneous door accessory".

UL Listed for use on firedoors

Door applications:

- up to 5" butt hinges – 180° swing,
- 5½" butt hinges – 130° swing,
- 6" butt hinges – 110° swing,
- ¾" butt offset pivots 180° swing.

Not for use with swing clear hinges or center-hung pivots.

Finishes

- SP28 (sprayed aluminum)
- SP313 (sprayed duranodic).

Dimensions

Housing	9" x 1¼" x 1⅝" (229mm x 32mm x 38mm)
EPT-2	Two 18 gauge wires, Up to 2 AMPS @ 24VDC, with a 16 AMPS Maximum Surge
EPT-10	Ten 24 gauge wires, Up to 1 AMPS @ 24VDC, with a 16 AMPS Maximum Surge
PNT-1	⅝" Tubing

To order, specify:

1. EPT-2, EPT-10 or PNT-1.
2. Finish, SP28 or SP313.

E996L Electrified breakaway lever

E996L Electrified lever trim provides remote locking and unlocking. Furnished standard in fail safe (FS) condition, can be field converted to fail secure (FSE) where allowed. E996L is furnished standard with cylinder operation for nightlatch (NL) function, or with blank escutcheon (BE).

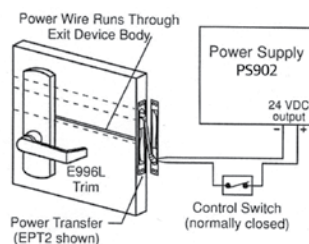


Specification:

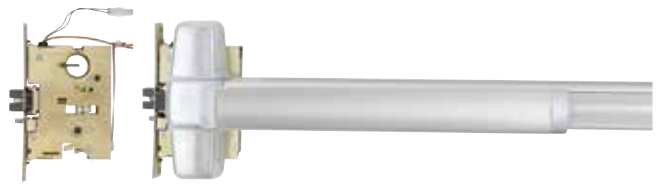
Solenoid – continuous duty 24VDC
Solenoid draw – 0.22 amp.

To order, specify:

1. Use "E" prefix, example E996L. When ordering with the exit device specify trim series with prefix "E", example 9927L-BE 3' US26D E996.
2. Device type, R/V (rim/surface vertical rod/concealed vertical rod) or M (mortise).
3. RHR furnished standard if not specified, field reversible.
4. Lever style (06 lever furnished standard). Other levers, no extra charge.



E Electric mortise lock device



The electric mortise lock device has all the versatility and advantages of the standard mortise lock device, plus the advantage of being electrically controlled by a remote switching device, an access control system or an automatic fire alarm system. The device features the E7500 mortise lock. The E7500 controls the locking of the outside trim. When unlocked, the door remains latched, preserving the fire rating of the door and making it particularly useful where codes permit locking but require unlocking during a fire emergency. The outside trim cylinder retracts the latch bolt for mechanical override, night latch function. Only available with TP, K or L functions.

The E7500 lock contains a SPDT signal to monitor the outside trim condition (locked or unlocked) and a second SPDT signal switch to monitor the latch bolt.

Standard features:

- Field reversible handing
- 24 VDC continuous duty solenoid

Optional features:

- Fail safe (locked when energized, unlocked when de-energized or during power failure). Specify with suffix "FS."
- Fail secure (unlocked when energized, locked when de-energized or during power failure). Specify with suffix "FSE"
- 24 VAC (with SO option)
- 12 VDC
- 12 VAC (with SO option)

Note: Some Fire codes will require "Fail Safe" (FS) operation for stairwell doors. Be sure to specify the correct operation for your application.

Electrical specifications:

- Solenoid — .60 AMPS @ 12VDC
.30 AMPS @ 24VDC
- Each switch — Up to 2.0 AMPS @ 24VDC Maximum

The E option does not include the power transfer from door to frame, the power supply or the control operator. (Refer to EPT-10 and PS902 or PS914 power supply)

To order, specify:

1. Use prefix "E," example E9975.
2. FS or FSE
3. Voltage and current.

Electric mortise lock device

Adaptable for openings where continuous latching is required while the trim may be electrically locked or unlocked from a remote location—stairwells, exterior doors, etc.

Minimum system requirements:

- PS902
- EPT-10



650 Series

Keyswitches



Overview

Schlage 650 Series keyswitches utilize an innovative magnetic spring design which allows installers to configure both clockwise and counterclockwise key turn direction as well as momentary or maintained action in seconds. Single gang and narrow stiles are available with numerous options which include heavy-duty plate, weather resistant cover (single gang size only), 2 LED lights – green/red, anti-tamper switch and Schlage Everest cylinder. In addition to the standard (626) satin chrome finish, there are five additional architectural finishes to choose from.

Features and benefits

- Easy to install and maintain
- Single gang and narrow stile offer ultimate flexibility
- Multiple options

Specifications

Innovative magnetic spring technology allows installers to configure models in seconds

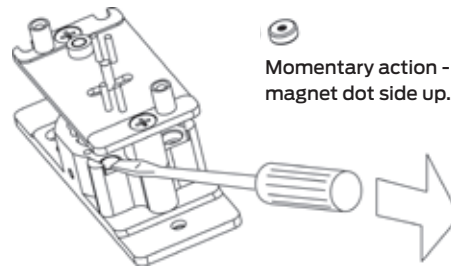
Standard keyswitch

- 5 amp@250 VAC
- Dual voltage
- SPDT contacts

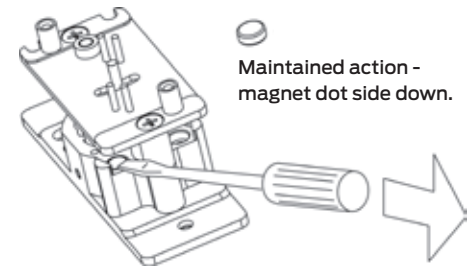
ATS switch closes when cover is on 0.025A@28VDC

LED indicator lights operate at 12/24 VDC 0.025A@28VDC

Momentary action



Maintained action



Ordering information

- **653-04** - SPDT maintained single direction
- **653-05** - SPDT momentary single direction
- **653-14** - DPDT maintained single direction
- **653-15** - DPDT momentary single direction
- **653-1414** - (2) DPDT maintained bi-direction
- **653-1415** - DPDT maintained x DPDT momentary
- **653-1515** - (2) DPDT momentary bi-direction
- **653-041** - SPDT maintained x key remove one position
- **653-0404** - (2) SPDT maintained bi-direction
- **653-0405** - SPDT maintained x SPDT momentary
- **653-141** - DPDT maintained x key remove one position
- **653-0505** - (2) SPDT momentary bi-direction

Options

- **L2** - 2 LEDs green and red, dual voltage
- **NS** - Narrow stile - stainless steel plate (1 3/4" x 4 1/2")
- **ATS** - Anti-tamper switch
- **HDP** - Heavy-duty plate 1/4" thick cast zinc (standard 626 satin chrome finish with anti-tamper plugs)
- **WP** - Weather-resistant cover fits 1 1/8" cylinder only (not available with NS and L2 options)
- **CYL** - 1 1/4" Schlage Everest® mortise cylinder and 1/8" spacer ring (keyed different)
- **CYL-KA** - 1 1/4" Schlage Everest mortise cylinder and 1/8" spacer ring (keyed alike)

Finish

- **SF-626** - Satin chrome (standard)
- **SF-605** - Bright brass
- **SF-612** - Satin bronze
- **SF-613** - Oil satin bronze
- **SF-625** - Bright chrome
- **SF-2** - Black powder coat

Note: 650 Series keyswitches operate with either a 1 1/8", 1 1/4", 1 3/8", or 1 1/2" cylinder having a straight type cam.

- 1 1/8" mortise cylinder fits direct in key switch - no blocking ring required.
- 1 1/4" cylinders require a 1/8" blocking/spacer ring, Schlage part number 36-079-012 or equivalent (included with the CYL and CYL-KA options).
- 1 3/8" mortise cylinder housing for SFIC cores - requires 1/4" blocking ring Schlage part number 36-079-025 or equivalent.
- 1 1/2" mortise cylinder housing for FSIC cores - requires 3/8" blocking ring Schlage part number 36-079-037 or equivalent.

All cylinders, except 1 1/4" as CYL or CYL-KA options, must be ordered separately.

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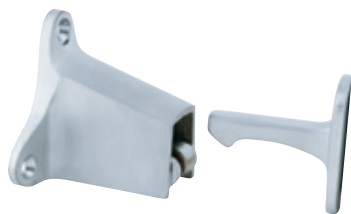
About Allegion

Allegion (NYSE: ALLE) creates peace of mind by pioneering safety and security. As a \$2 billion provider of security solutions for homes and businesses, Allegion employs more than 8,000 people and sells products in more than 120 countries across the world. Allegion comprises 27 global brands, including strategic brands CISA®, Interflex®, LCN®, Schlage® and Von Duprin®. For more, visit www.allegion.com.

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Meets ANSI/BHMA 156.16, L11291 for brass and L31291 for aluminum.

WS40 Automatic Wall Holder

- Constructed of sturdy cast brass, or aluminum.
- Holder is mounted on wall and strike is mounted on door.
- Roller on holder rides up seats itself on strike, with a heavy duty bumper pad deadening the sound and shock.
- Universal screw pack accommodates all types wall construction.

Dimensions

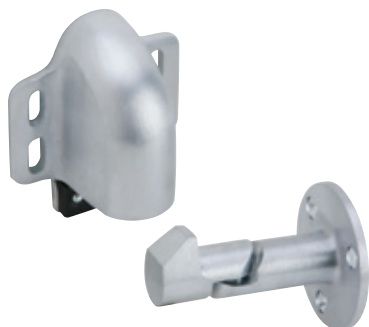
Base Height: 2"	Strike Height: 2-1/16"
Base Width: 2-1/2"	Strike Width: 3/4"
Base Projection: 2-1/4"	Strike Projection: 2"
Engaged Projection: 3-1/2"	

Finishes *brass*

Ives Number	US3	US4	US10	US10B	US26	US26D
BHMA	605	606	612	613	625	626

Finishes *aluminum*

Ives Number	US28
BHMA	628



WS45
Meets ANSI/BHMA 156.16, L11291 for brass and L31291 for aluminum.

WS45 WS45X Automatic Wall Holder

- Constructed of cast brass, bronze or aluminum.
- Spring loaded roller rides up the face of the strike, seating itself on the strike, holding the door firmly in the open position.
- A heavy rubber pad cushions the shock and absorbs the sound.
- With unit mounted on door and the strike on wall, vertical adjustment is available on body.
- The strike is adjustable 45 degrees left or right, both adjustments easily accomplished at time of installation or at a later date.

WS45 strike is furnished with wood screws for drywall mounting.

WS45X strike is furnished with a threaded stud and expansion shield for masonry type mounting.

Dimensions

Base Height: 3-11/16"	Strike Diameter: 2-3/8"
Base Width: 3"	Strike Projection: 3"
Base Projection: 2"	
Engaged Projection: 3-7/16"	

Finishes *brass*

Ives Number	US3	US4	US10	US10B	US26	US26D
BHMA	605	606	612	613	625	626

Finishes *aluminum*

Ives Number	US28
BHMA	628

A
Hinges & Pivots

B
Pulls & Plates

C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E15
Stops

F
Exterior Hardware

G
Miscellaneous Hardware



Meets ANSI/BHMA 156.16, L11241.

FS9 Floor Stop & Semi-Automatic Holder

- Semi-automatic floor-mounted holders accommodates with door to floor clearance of 1-1/2" or less.
- Cast from heavy-duty brass.
- Activate holder by flipping the engagement tongue forward. When door is opened, the hook (mounted on door) engages the tongue. To release, push firmly on door to disengage tongue.
- Universal screw pack accommodates all types of floor and door construction.

Dimensions

Overall Height: 3-1/2"

Base Dimensions: 2" wide x 3-1/2" long

Finishes

Ives Number	US3	US4	US10	US10B	US26	US26D
BHMA	605	606	612	613	625	626



Meets ANSI/BHMA 156.16, L11301

FS40 Floor Stop & Automatic Holder FS41 FS42 FS43

- Automatic door holders ideal for heavy-traffic situations that require a simple, fool-proof, Hold-Open device.
- Forged from brass.
- Unit is activated automatically when door is opened. A firm pull on door releases the mechanism.
- Strikes accommodate different door to floor clearances.
- Model numbers are determined by strike/door-to-floor clearances.
- Holder position on door is adjustable.
- Universal screw pack allows for installation in all types of door construction.

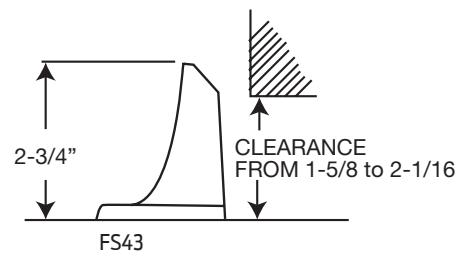
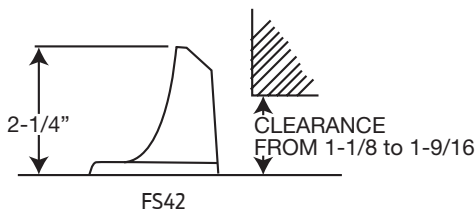
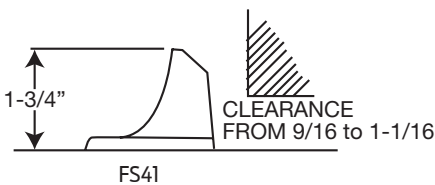
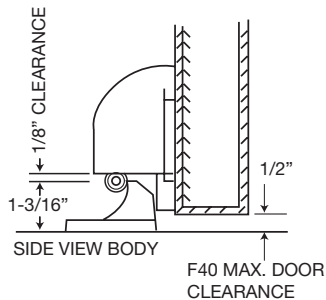
Dimensions

Door to Floor Clearance:	FS40	1/2" or less
	FS41	9/16" to 1-1/16"
	FS42	1-1/8" to 1-9/16"
	FS43	1-5/8" to 2-1/16"

Holder Dimensions: 3" Wide x 3-11/16" High

Finishes *brass*

Ives Number	US3	US4	US10	US10B	US26	US26D
BHMA	605	606	612	613 </td <td>625</td> <td>626</td>	625	626





FS436
Meets ANSI/BHMA 156.16, L12141 for brass or bronze and L32141 for aluminum.



FS438
Meets ANSI/BHMA 156.16, L12141 for brass or bronze and L32141 for aluminum.

FS436 Dome Stop
FS438 Dome Stop

- FS436 for doors without threshold.
 - FS438 for doors with threshold or undercut doors.
 - Heavy-Duty Cast Dome Stops constructed of brass, bronze or aluminum.
 - Packed with wood screw and plastic anchor.
- Replaceable gray, non-marring rubber bumper.

Dimensions

FS436

Overall Height: 1"
Base Height: 3/16"
Base Diameter: 1-3/4" x 2" Oval

FS438

Overall Height: 1-3/8"
Base Height: 9/16"
Base Diameter: 1-3/4" x 2" Oval

Finishes *brass*

Ives Number	US3	US4	US5	US10	US10B	US15	US26	US26D	B716
BHMA	605	606	609	612	613	619	625	626	

Finishes *aluminum*

Ives Number	US28
BHMA	628

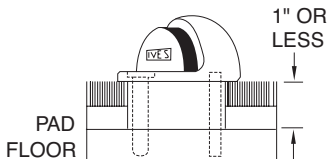
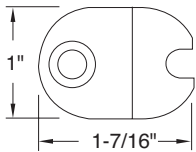


R435 Riser for FS436 Dome Stop
R437 Riser for FS438 Dome Stop

- Extruded aluminum, mill finish.
- R435 for conversion of FS436 Dome Stop to carpet installation.
- R437 For conversion of FS438 Dome Stop to carpet installation.
- Packed with wood screws, lead shield and stud. Specify Tampin (TPN) if required.

Dimensions

Available in 1/4", 3/8", 1/2", 5/8", 3/4" and 1" height.



A
Hinges & Pivots

B
Pulls & Plates

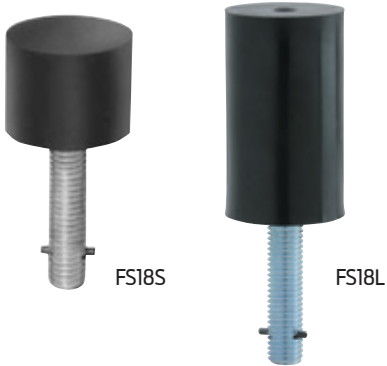
C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E3
Stops

F
Exterior Hardware

G
Miscellaneous Hardware



**FS18S
FS18L Floor Stops**

- Security Door Stops designed for use in high vandalism areas.
- Molded from black flame resistant, resilient material around a heavy-duty stud.
- Once grouted in concrete, leaves no exposed fasteners to be tampered with or removed.
- Ideal for jail or security cell areas where floor mounted stops are required.
- FS18L also ideal for concrete wall applications.

Dimensions

FS18S Height: 1-1/2" FS18L Height: 3-1/2"
 FS18S Diameter: 2" FS18L Diameter: 2"
 FS18S Stud Length: 2-1/2" FS18L Stud Length: 2-1/2"

FS434 Floor Stop

- Burnished wrought steel.
- For undercut doors up to 1-1/2".
- Packed with screws and plastic anchors.
- Replaceable soft, resilient gray rubber.



Dimensions

Overall Height: 2-5/8"
 Base Size: 1-1/2" W x 2-3/4" L

Finishes

Ives Number	USC
BHMA	604

430 Floor Door Stop

- Burnished wrought steel.
- For undercut doors up to 1-1/2".
- Packed with screws and plastic anchors.
- Replaceable soft, resilient gray rubber.



Dimensions

Overall Height: 1-5/16"
 Base Diameter: 1-1/4"

Finishes brass

Ives Number	B3	B4	B5	B10B	B15	B26	B26D
BHMA	605	606	609	613	619	625	626

Finishes aluminum

Ives Number	A3*	A5	A14	A92
BHMA	666		669	673

* only available in Slim-Pak of 25

A Hinges & Pivots

B Pulls & Plates

C Flush Bolts & Coordinators

D Latches, Catches & Bolts

E5 Stops

F Exterior Hardware

G Miscellaneous Hardware



WS401CCV & WS402CCV
Meets ANSI/BHMA 156.16 L12251 for brass

WS401CVX & WS402CVX
Meets ANSI/BHMA 156.16 L12101 for brass

WS401CVX Wall Bumpers
WS401CCV
WS402CVX
WS402CCV

- Constructed in heavy-duty cast brass.
- Special retainer cup makes rubber tamper resistant.

WS401CVX (401) – convex rubber bumper, packed with wood screw and plastic anchor.

WS401CCV (401-1/2) – concave rubber bumper which avoids damage to locks with projecting buttons, packed with wood screw and plastic anchor.

WS402CVX (402) – convex rubber bumper packed with screw and drywall anchor.

WS402CCV (402-1/2) – concave rubber bumper which avoids damage to locks with projecting buttons and is packed with screw and drywall anchor.

Dimensions

Base Diameter: 2-1/2"

Base Thickness: 3/8"

Overall Projection: 1"

Finishes

Ives Number	US3	US4	US10	US10B	US15	US26	US26D
BHMA	605	606	612	613	619	625	626



WS404CVX Wall Bumpers

- Compact size.
- Constructed in cast brass.
- Totally concealed mounting discourages vandalism or tampering.
- Unit furnished with grey convex rubber bumper.
- Packed with sheet metal screw, rawl plug and brad.

Dimensions

Base Diameter: 1"

Overall Projection: 17/32"

Finishes

Ives Number	US3	US4	US5	US10	US10B	US15	US26	US26D
BHMA	605	606	609	612	613	619	625	626

Hinges & Pivots
A

Pulls & Plates
B

Flush Bolts & Coordinators
C

Latches, Catches & Bolts
D

Stops
E11

Exterior Hardware
F

Miscellaneous Hardware
G

8400 Series Protection Plates

- Door protection plates are available in .050" thick brass, stainless steel or aluminum; and 1/8" thick high impact polyethylene in clear or black.
- Bevel edge options; specify B4E for all four edges.
- Mounting screw pack furnished standard, 16 screws per pack. Optional screw packs are available for TEK or TORK screw heads. Refer to the following chart for ordering.
- Specify NMH for no mounting holes. (Not available on 8402)
- Specify NMH-A for no mounting holes with adhesive. (Not available on 8402)
- Specify CS for counter sunk mounting holes.
- Specify ERS prepped with extra row of screws.

Kickplate Gasket Tape Tape is recommended when using a brass plate on a metal door to reduce tarnishing from electrolytic oxidation. One tape pack will cover an the perimeters of a 8" x 34" kickplate. Order 8401 Gasket Tape.



8400 Protection Plate 8402 (UL)* Protection Plate

*UL mark appears in upper right corner. Factory supplied screws must be used.

Number of screw packs required by plate size (specify TEK Screws or TORK screws).

	22"-25"	26"-33"	34"-41"	42"-48"
4"-8"	1	1	1	1
9"-16"	1	1	1	1
17"-24"	1	1	1	2
25"-32"	1	1	2	2
33"-40"	1	2	2	2
41"-48"	2	2	2	2

Finishes brass 24" x 48" max. size

US Number	US3	US4	US10	US10B	US15	US26	US26D
BHMA	605	606	612	613	619	625	626

Finishes stainless steel

US Number	US32	US32D
BHMA	629	630

Finishes aluminum

US Number	US28
BHMA	628

Finishes plastic

Clear and Black

Residential Grade Kickplates available Carded only, finishes PA28, PA3, PA619, PA716, B3, B505, B619, B716

A
Hinges & Pivots

B14
Pulls & Plates

C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware

8400 Series Protection Plates

- Door protection plates are available in .050" thick brass, stainless steel or aluminum; and 1/8" thick high impact polyethylene in clear or black.
- Bevel edge options; specify B4E for all four edges.
- Mounting screw pack furnished standard, 16 screws per pack. Optional screw packs are available for TEK or TORK screw heads. Refer to the following chart for ordering.
- Specify NMH for no mounting holes. (Not available on 8402)
- Specify NMH-A for no mounting holes with adhesive. (Not available on 8402)
- Specify CS for counter sunk mounting holes.
- Specify ERS prepped with extra row of screws.

Kickplate Gasket Tape Tape is recommended when using a brass plate on a metal door to reduce tarnishing from electrolytic oxidation. One tape pack will cover an the perimeters of a 8" x 34" kickplate. Order 8401 Gasket Tape.



8400 Protection Plate 8402 (UL)* Protection Plate

*UL mark appears in upper right corner. Factory supplied screws must be used.

Number of screw packs required by plate size (specify TEK Screws or TORK screws).

	22"-25"	26"-33"	34"-41"	42"-48"
4"-8"	1	1	1	1
9"-16"	1	1	1	1
17"-24"	1	1	1	2
25"-32"	1	1	2	2
33"-40"	1	2	2	2
41"-48"	2	2	2	2

Finishes brass 24" x 48" max. size

US Number	US3	US4	US10	US10B	US15	US26	US26D
BHMA	605	606	612	613	619	625	626

Finishes stainless steel

US Number	US32	US32D
BHMA	629	630

Finishes aluminum

US Number	US28
BHMA	628

Finishes plastic

Clear and Black

Residential Grade Kickplates available Carded only, finishes PA28, PA3, PA619, PA716, B3, B505, B619, B716

A
Hinges & Pivots

B14
Pulls & Plates

C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware

A
Hinges & Pivots

B6
Pulls & Plates

C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware



8200 Push Plate
8300 Pull Plate, Prep for Pull (less pull)

Available Sizes

- 3" x 12"
- 3.5" x 15"
- 4" x 16"
- 6" x 16"
- 8" x 16"

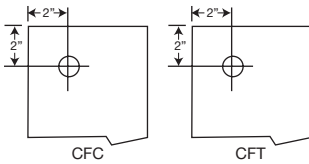
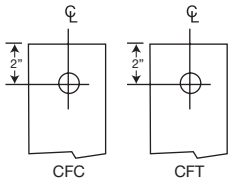
Special sizes are available. Consult factory.

Plates Cut for Cylinder or Thumbturns

Plates are available with cutout for cylinder or thumbturn; standard cutout is 2" from top and centered on plates up to 4" wide. For plates wider than 4" cutout is located 2" from outer edge, specify LH or RH. When pull location interferes with standard cutout location a detail drawing should be furnished with the order.

Standard cutout is 1-1/4" for cylinder and 3/8" for thumbturn.

Specify CFC for cutout for cylinder or CFT for cutout for thumbturn.



Finishes brass

US Number	US3	US4	US10	US10B	US15	US26	US26D*
BHMA	605	606	612	613	619	625	626

Finishes stainless steel

US Number	US32D*
BHMA	630

Finishes aluminum

US Number	US28
BHMA	628

** Available with Antimicrobial Coating, use suffix AM*

Hinges & Pivots
A

Pulls & Plates
B7

Flush Bolts & Coordinators
C

Latches, Catches & Bolts
D

Stops
E

Exterior Hardware
F

Miscellaneous Hardware
G



8302 Pull plate

Available mounting – Standard, F, G, H-I-L, or J see pages B15 and B16
Pulls have new heavy duty 5/16-18" mounting.

8300 Plate	8102 Pull
3-1/2" x 15"	6" centers
4" x 16"	8" centers
6" x 16"	10" centers

Finishes brass

US Number	US3	US4	US10	US10B	US26	US26D*
BHMA	605	606	612	613	625	626

Finishes stainless steel

US Number	US32D*
BHMA	630

Finishes aluminum

US Number	US28
BHMA	628

* Available with Antimicrobial Coating, use suffix AM



8303 Pull plate

Available mounting – Standard, F, G, H-I-L, or J see pages B15 and B16
Pulls have new heavy duty 3/8-16" mounting.

8300 Plate	8103 Pull
3-1/2" x 15"	8" centers
4" x 16"	10" centers
6" x 16"	7" centers

Finishes brass

US Number	US3	US4	US10	US10B	US26	US26D*
BHMA	605	606	612	613	625	626

Finishes stainless steel

US Number	US32D*
BHMA	630

Finishes aluminum

US Number	US28
BHMA	628

* Available with Antimicrobial Coating, use suffix AM



8305 Pull plate

Available mounting – Standard or F see page B15
Pulls have 1/4 - 20" mounting

8300 Plate	8105 Pull
3-1/2" x 15"	6" centers
4" x 16"	8" centers
6" x 16"	10" centers

Finishes brass

US Number	US3	US4	US10	US10B	US26	US26D
BHMA	605	606	612	613	625	626

Finishes stainless steel

US Number	US32D
BHMA	630

Finishes aluminum

US Number	US28
BHMA	628

* Available with Antimicrobial Coating, use suffix AM

A
Hinges & Pivots

B8
Pulls & Plates

C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware



8311 Pull plate

Available mounting – Standard or F see page B15
Pulls have 1/4-20" mounting.

8300 Plate
3-1/2" x 15"
4" x 16"
6" x 16"

8111-5 Pull
5-1/8" centers

Finishes brass

US Number	US3	US4	US10	US10B	US26	US26D*
BHMA	605	606	612	613	625	626

Finishes stainless steel

US Number	US32D*
BHMA	630

Finishes aluminum

US Number	US28
BHMA	628

* Available with Antimicrobial Coating, use suffix AM

9100 Series Push Bar and Pull Combinations

- Available in brass, stainless steel or aluminum.
- Standard fasteners furnished for 1-3/4" thick doors. Specify door thick if other than standard.
- Special lengths are available, contact customer service.

See page B17 for special mounting requirements.

Caution – the length of the pushbar should not interfere with the door jamb or cause a pinch point.

9100HD Push Bar

Available mounting – NO or NS see page B17
with heavy duty 3/8-16" mounting



Product No.	Projection	Clearance	Center to Center	Overall Length
9100-28	2-1/2"	1-1/2"	28"	29"
9100-33	2-1/2"	1-1/2"	33"	34"

Special lengths available, consult factory

Finishes brass

US Number	US3	US4	US10	US10B	US15	US26	US26D*
BHMA	605	606	612	613	619	625	626

Finishes stainless steel

US Number	US32	US32D*
BHMA	629	630

* Available with Antimicrobial Coating, use suffix AM



LG11 Lock Guard

- Designed for use on aluminum doors with latch-type locks or doors equipped with electric strikes.
- Unit is Handed - Specify left or right hand when ordering.
- No exposed fasteners on face of unit.
- Unique design provides maximum security, virtually eliminating the opening between door and frame at latch point.
- Available in 13 Gauge Stainless Steel or 12 Gauge Steel.

Dimensions

2-1/2" Wide x 9-1/2" High
 Stud center to center: 8-1/2"

Finishes

Ives Number	US32D	SP313
BHMA	630	695



LG12 Lock Guard

- Narrow design unit for use on rose or escutcheon 3-1/2" or less.
- For use with Type 86 Mortise and Type 161 Cylinder Locks (ANSI 156.13 Series 1000 and ANSI 156.2 Series 4000).
- No exposed fasteners on face of unit.
- Unique design provides maximum security, virtually eliminating the opening between door and frame at the latch point.
- Available in 13 Gauge Stainless Steel or 12 Gauge Steel

Dimensions

1-1/2" Wide x 9-1/2" High
 Stud center to center: 8-1/2"

Finishes

Ives Number	USP	US32D
BHMA	600	630

A
Hinges & Pivots

B
Pulls & Plates

C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F3
Exterior Hardware

G
Miscellaneous Hardware



Meets ANSI/BHMA 156.16, L03011.

SR64 Door Silencer

- For use on metal frames featuring pneumatic design that, once installed, forms an air pocket to absorb shock and reduce noise of door closing.
- Tamper-proof once installed on the frame.
- Proper installation also eliminates door rattle and provides constant tension for door latches or locks.

Packed in bags of 100.
 Grey Available in bulk pack of 2500.
 Each bag has an installation tool included.

Dimensions

Diameter: 1/2"
 Thickness: 1/8"

Finishes

GRY, TAN



Meets ANSI/BHMA 156.16, L03021

SR65 Door Silencer

- For use on wood frames, also feature pneumatic design to cushion shock and absorb noise.
- To prevent removal, a small brad should be driven into stop strip and through stem of silencer, as shown in the detail.

Packed in bags of 100.

Dimensions

Height: 3/4"
 Diameter: 3/8"
 Thickness: 1/8"

Finishes

GRY



SR66 Door Silencer

- Self Adhesive Rubber Silencers.
- Economical installation requires no drilling of frames.

Packed two sheets of 50 (100 minimum).

Dimensions

Diameter: 1/2"
 Thickness: 1/8"

Finishes

BRN, GRY, WHT

A
Hinges & Pivots

B
Pulls & Plates

C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E23
Stops

F
Exterior Hardware

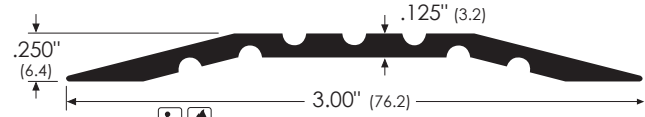
G
Miscellaneous Hardware

Utility Thresholds

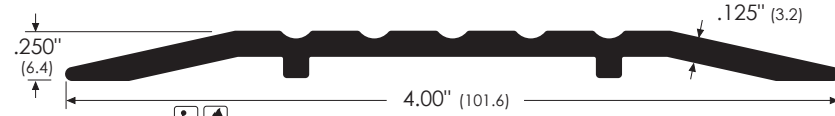


Note: A = Aluminum B = Bronze
 D = Dark Bronze Anodized STST = Stainless Steel
 Thresholds can be ordered with E (Epoxy Abrasive), EL (Epoxy Abrasive Photoluminescent) or V3 (Full Body Strength) options.

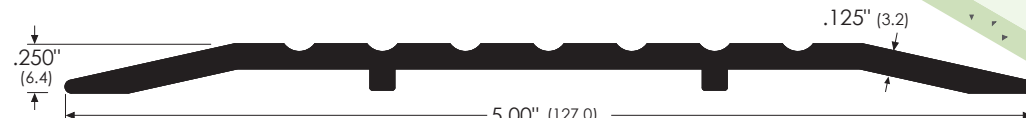
Thresholds



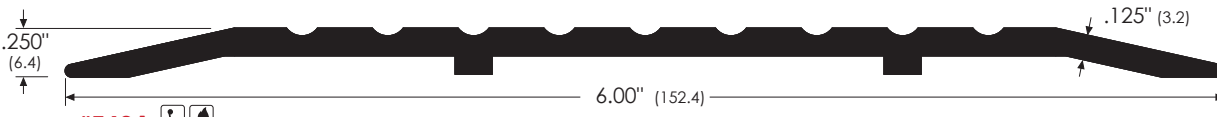
#63A
#64A 2.5" wide (not shown)



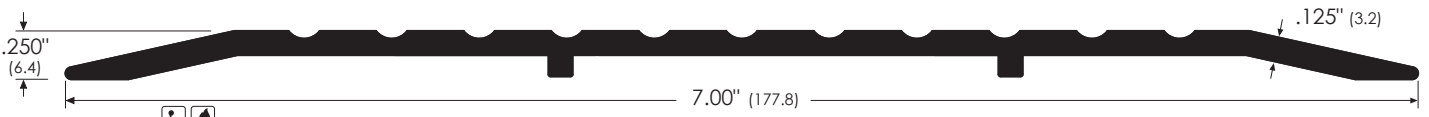
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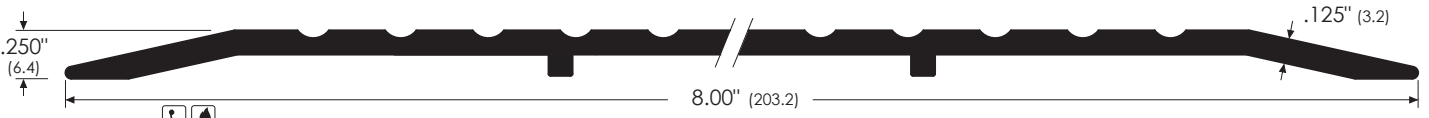
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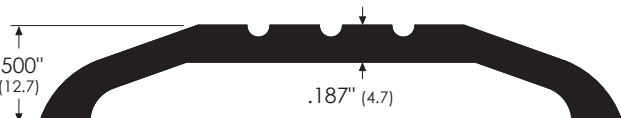
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#547A



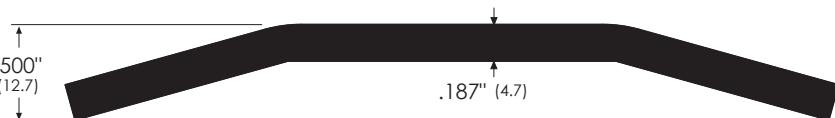
#548A



#653A



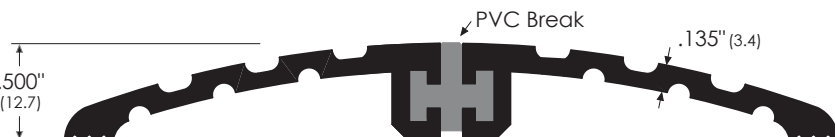
#654A #654B



#164STST "E" abrasive surface is suggested for public access area

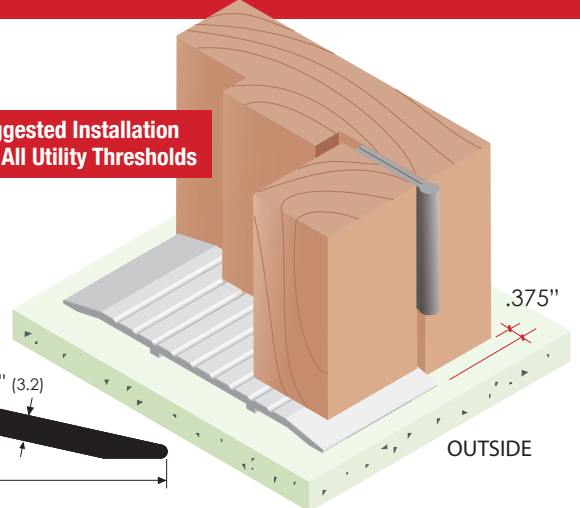


#164A #164B



#624A Thermal Break

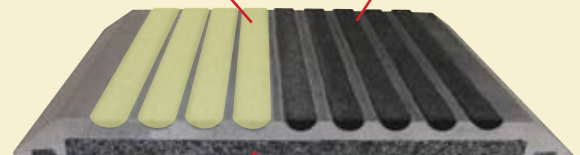
Suggested Installation For All Utility Thresholds



OPTIONS:

■ Non-Slip Epoxy Abrasive. Thresholds can be ordered with non-slip epoxy abrasive particles bonded into the grooves. The tread provides a coefficient of friction of 1.02 dry and 0.98 wet to comply with ADA, OSHA and most local building code requirements. To order, add -E or -EL after the item number. Example : #657A-E or #657A-EL

EL - Epoxy Abrasive Photoluminescent **E - Epoxy Abrasive**



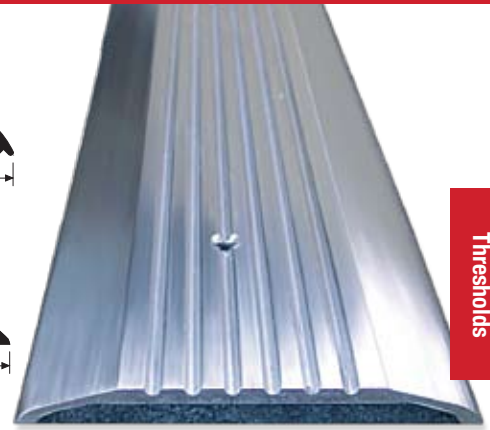
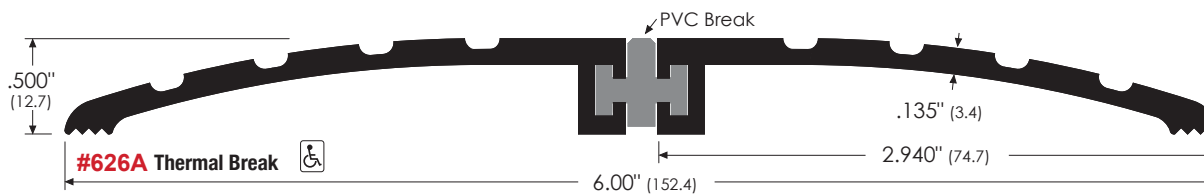
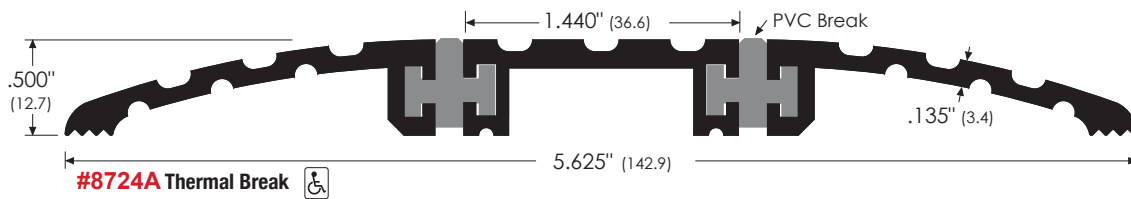
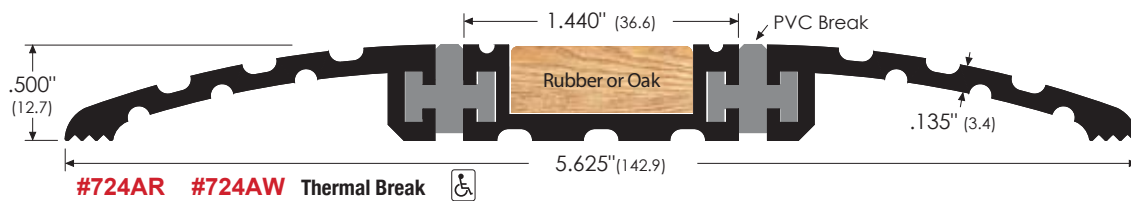
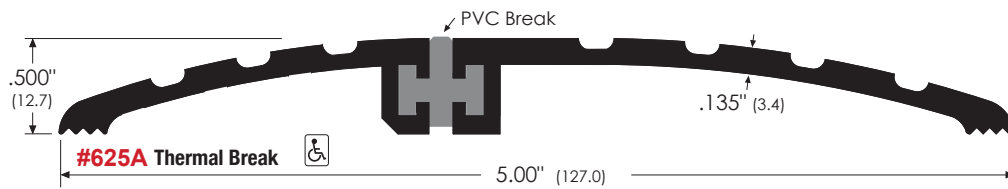
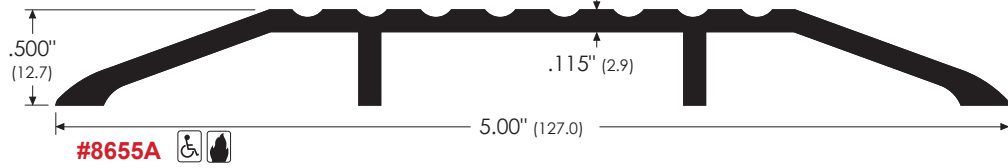
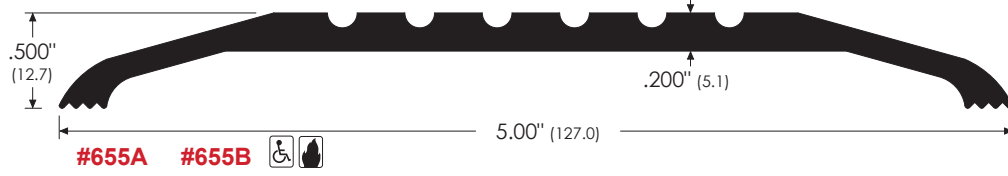
V3 - Full Body Strength

■ Full Body Strength. An aluminum composite filler containing aluminum oxide and silicone carbide. Ideal applications include heavy commercial traffic in supply rooms, manufacturing buildings, schools, cafeterias, automobile dealers, hospitals, industrial facilities. To order, add -V3 after the item number. Example: #657A-V3

Utility Thresholds



Note: A = Aluminum B = Bronze
R = Rubber W = Oak
Thresholds can be ordered with E (Epoxy Abrasive), EL (Epoxy Abrasive Photoluminescent) or V3 (Full Body Strength) options.



#655A-V3 Full Body Strength

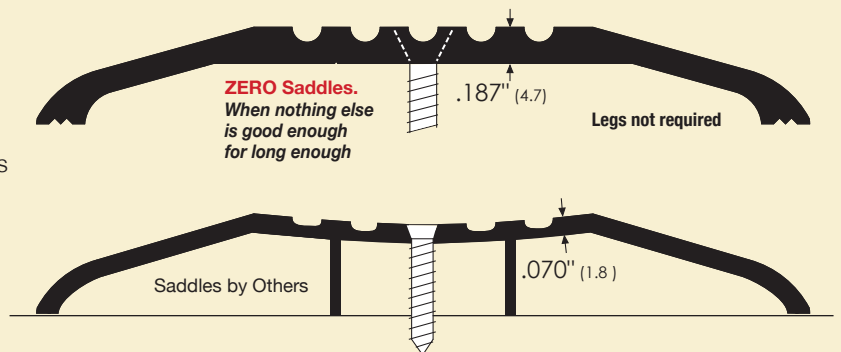


V3 (Full Body Strength option)

Thresholds

Which would you rather walk on or install?

Both pass the ANSI standard load test, but the ZERO threshold also passes the test of time and weight. The heavier-gauge material in our thresholds allows you to drill and screw right through and into concrete. Lighter-gauge thresholds can buckle and often loosen because screws cannot be tightened fully. Be sure you get the best....specify the heavier gauge when you need thresholds.

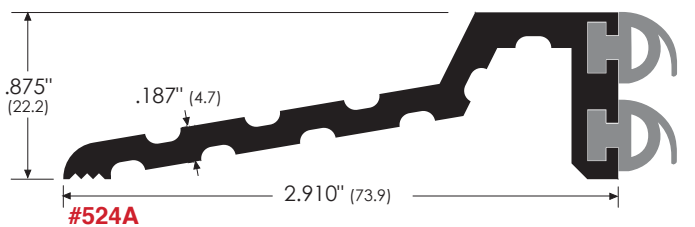
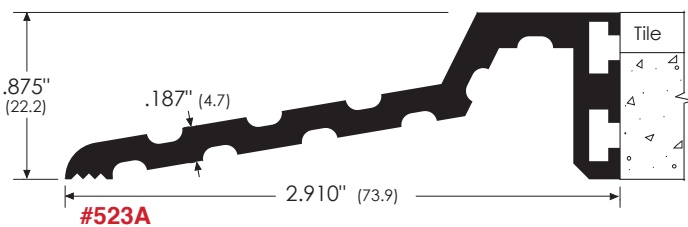
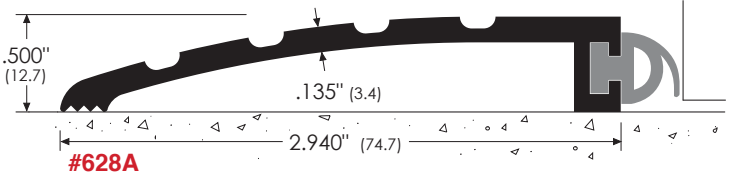
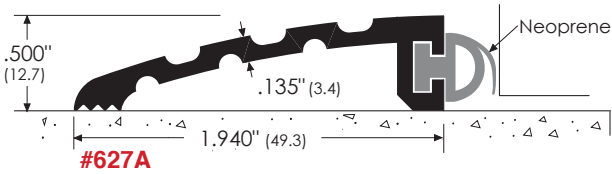
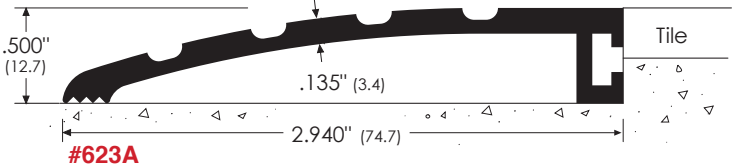
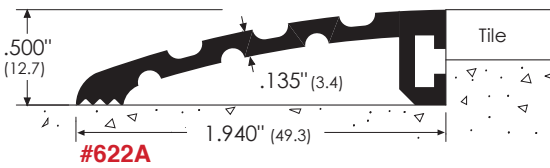
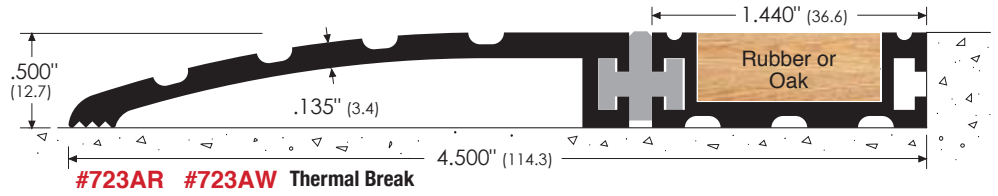
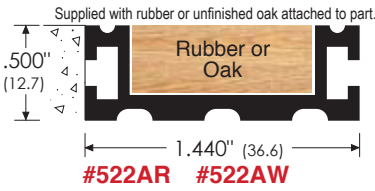
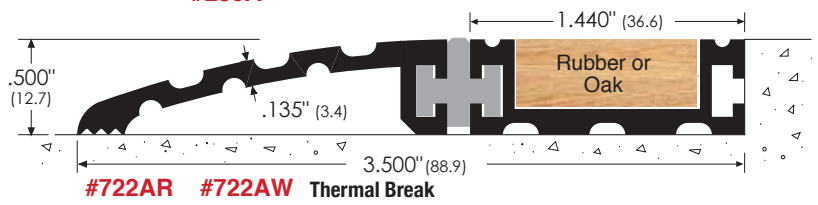
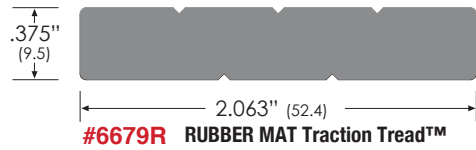
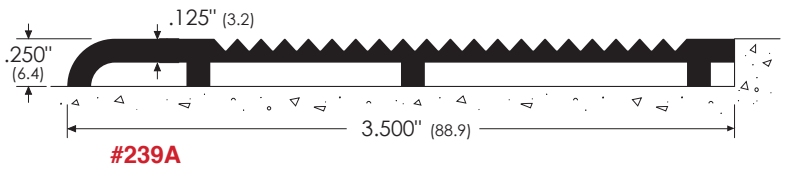
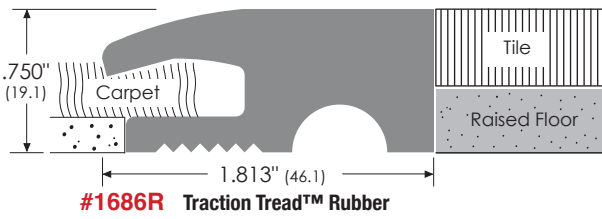
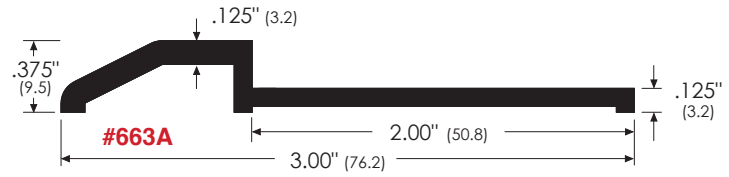
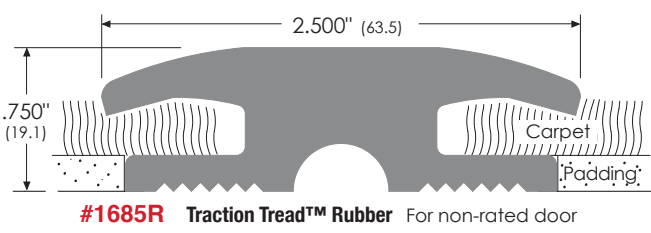
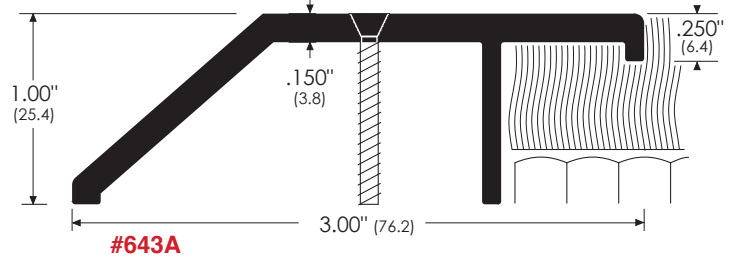
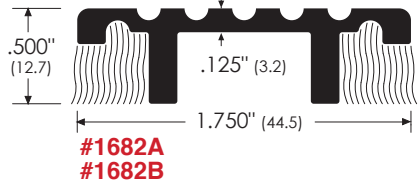
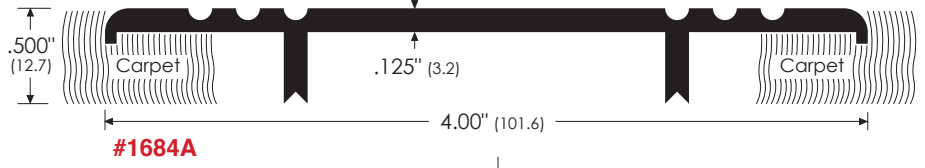
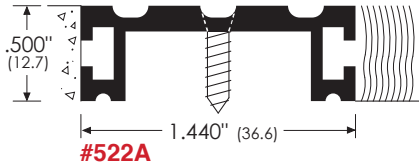


Carpet Divider and Thermal Break Threshold



Note: A = Aluminum B = Bronze
R = Rubber W = Oak
Thresholds can be ordered with E (Epoxy Abrasive), EL (Epoxy Abrasive Photoluminescent) or V3 (Full Body Strength) options.

Thresholds

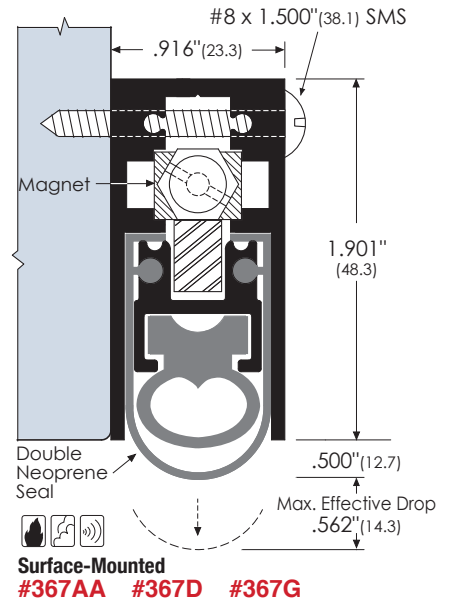
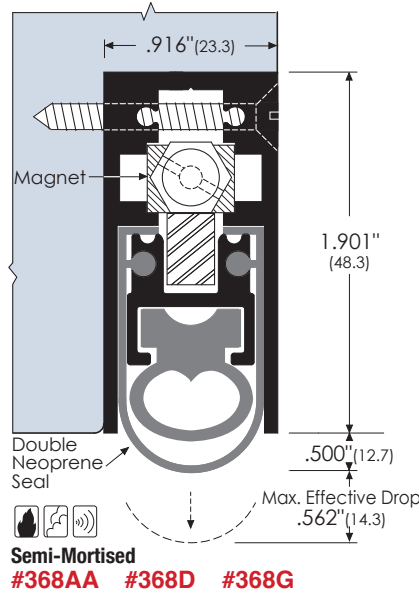
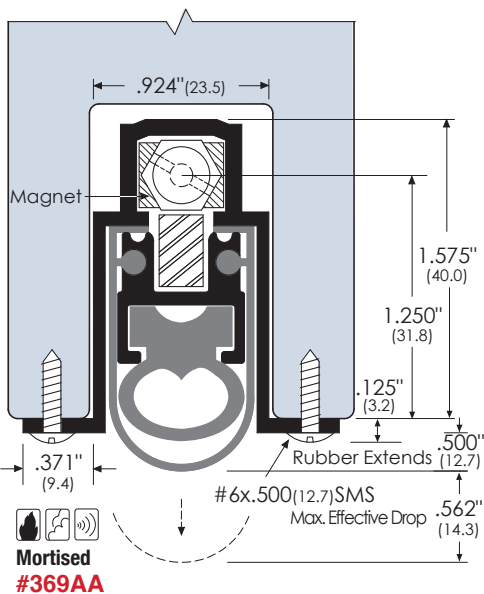
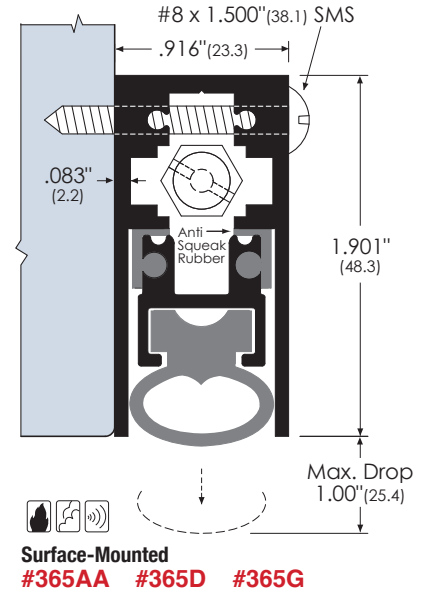
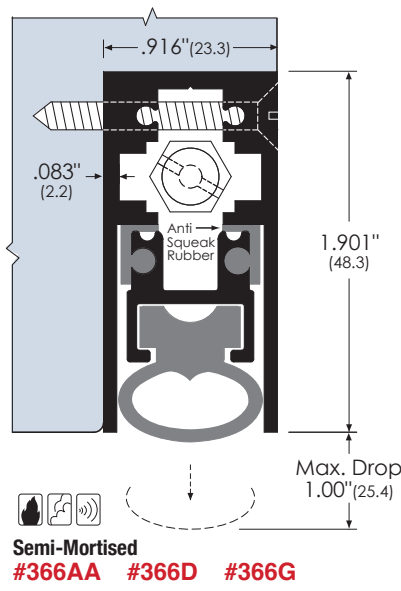
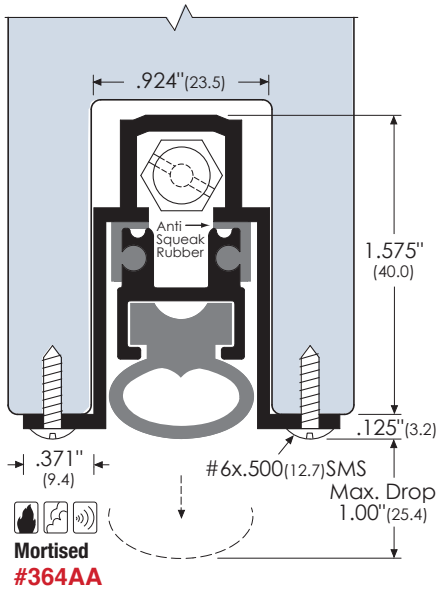
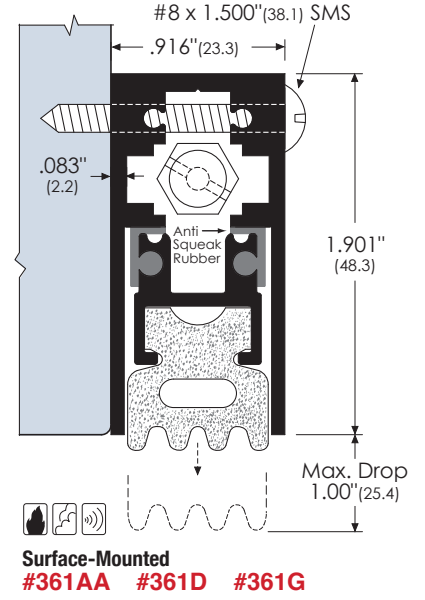
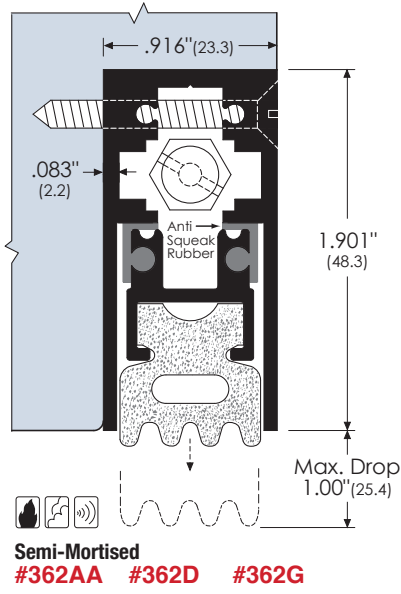
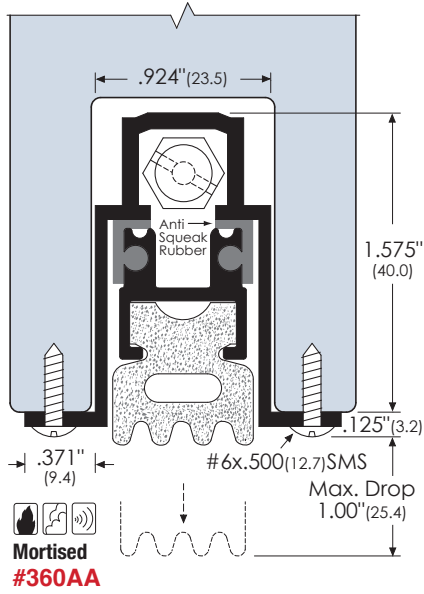


Sill Protection Automatic Door Bottoms - Heavy Duty



Note: A = Aluminum
AA = Clear Anodized
D = Dark Bronze Anodized
G = Gold Anodized

Door Bottoms



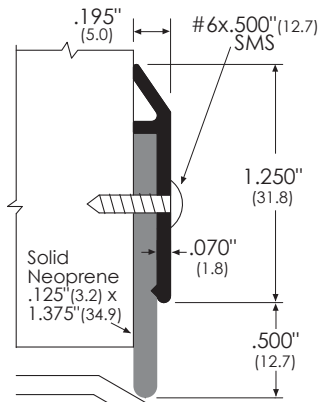
Sill Protection Sweeps



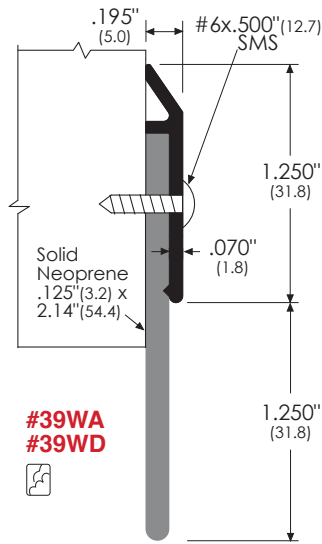
Note: A = Aluminum
AA = Clear Anodized
B = Bronze

D = Dark Bronze Anodized
G = Gold Anodized
PVC = Polyvinyl, clear

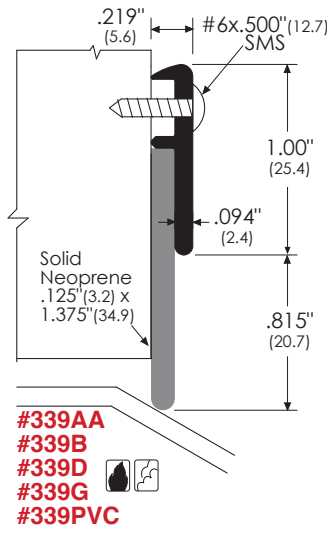
Door Sweeps



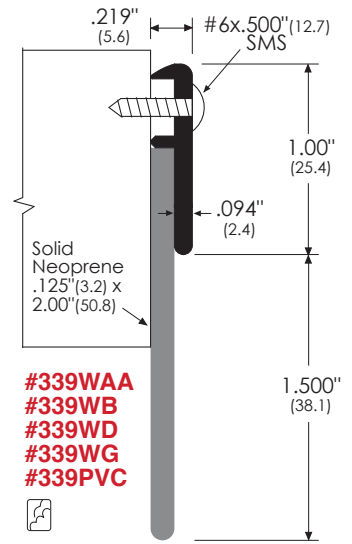
#39A
#39D



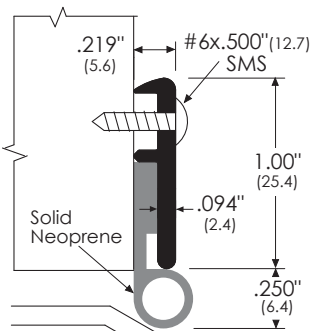
#39WA
#39WD



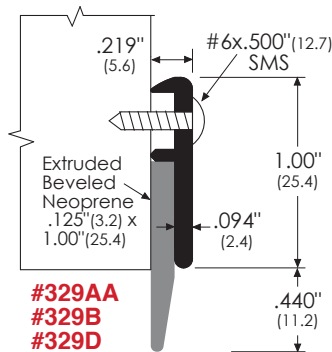
#339AA
#339B
#339D
#339G
#339PVC



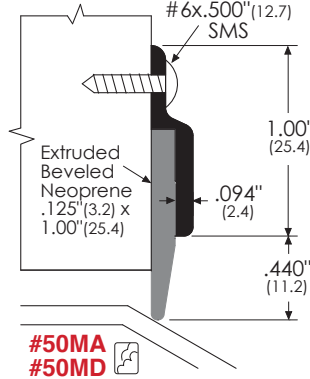
#339WAA
#339WB
#339WD
#339WG
#339PVC



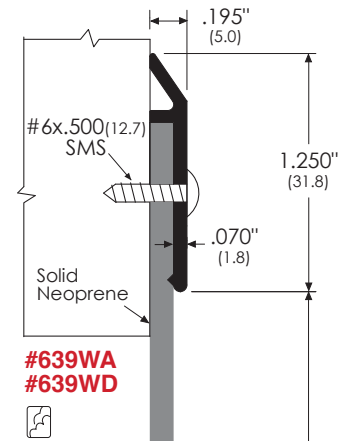
#328AA
#328B
#328D
#328G
#328PVC



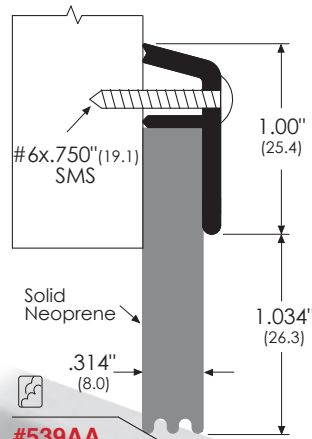
#329AA
#329B
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#329G
#329PVC



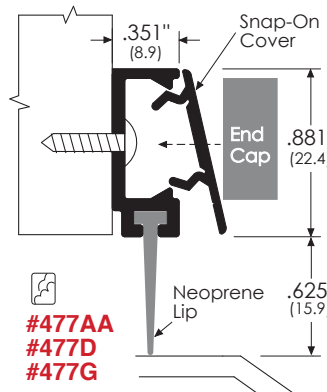
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#50MD



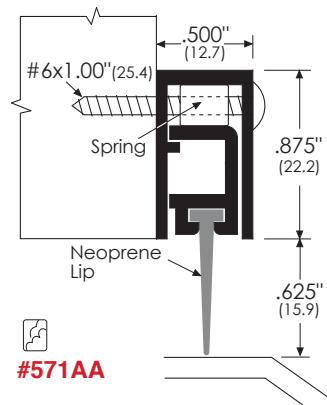
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#639WD



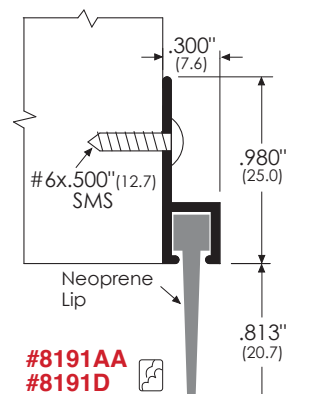
#539AA
#539D



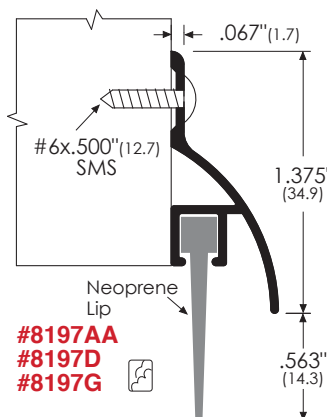
#477AA
#477D
#477G



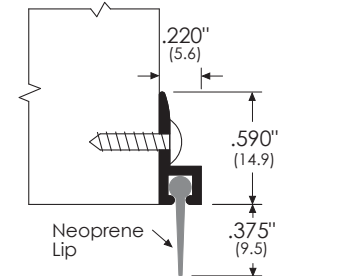
#571AA



#8191AA
#8191D



#8197AA
#8197D
#8197G



#8194AA
#8194D

Self-Adhesive Weatherstripping



Note:

N = Neoprene

S-Bk = Silicone, Black

S-Wh = Silicone, White

PSA* is equipped with 3M self-adhesive tape

All products are available with ZAG feature (Anti-Ligature)

S-Br = Silicone, Brown

S-Cl = Silicone, Clear

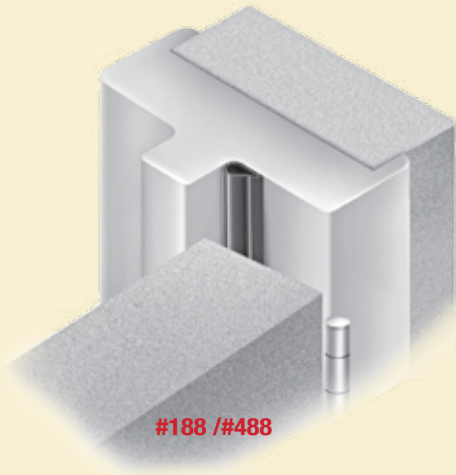
S-Gy = Silicone, Grey

FS = Intumet™ Rubber

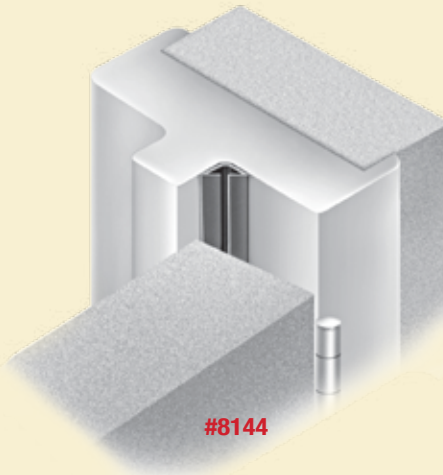
Y-Bk = Polyvinyl, Black

BIO = Antibacterial

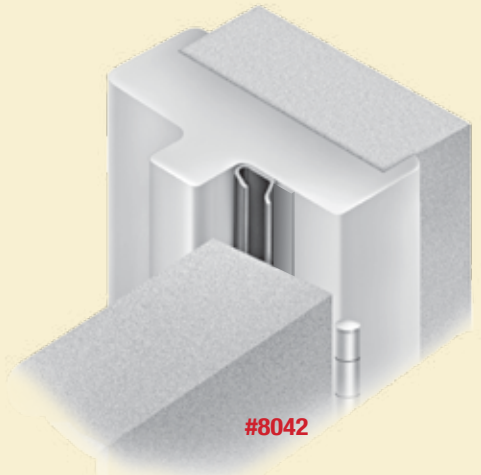
Gasketing, White



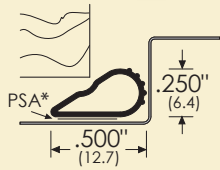
#188 / #488



#8144

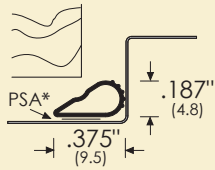


#8042



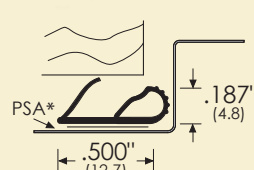
#188S-Bk #188S-Wh
#188S-Br #188FS
#188S-Cl #188BIO
#188S-Gy

ZERO Compress-O-Matic®

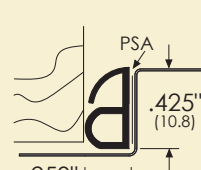


#488S-Bk #488S-Wh
#488S-Br #488FS
#488S-Cl #488BIO
#488S-Gy

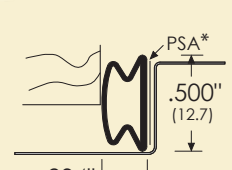
ZERO Mini-Matic®



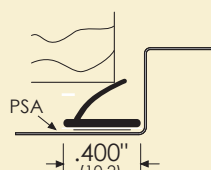
#8145S-Bk
ZERO Compress-O-Matic®



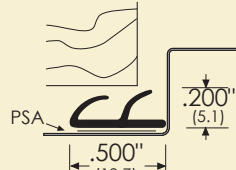
#824N



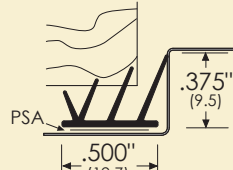
#8216S-Bk



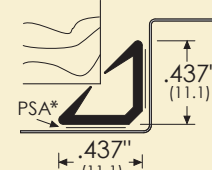
#117S-Bk



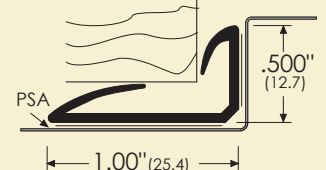
#8042S-Bk



#8150S-Bk

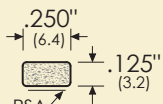


#8144S-Bk
#8144S-Wh
#8144 FS

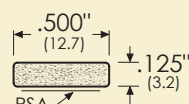


#8160Y-Bk

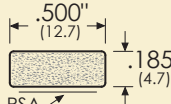
Closed Cell Sponge Neoprene



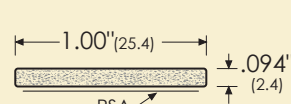
#8172N



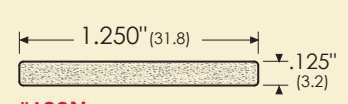
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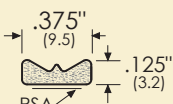
#312N



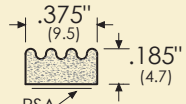
#8780N



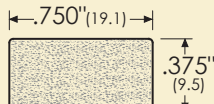
#139N



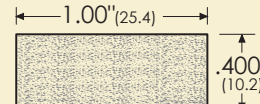
#826N



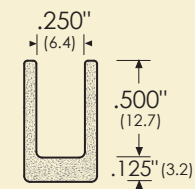
#926N



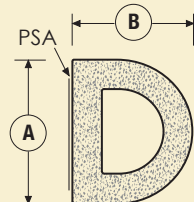
#318N



#3708N



#2070N



Part#	A	B
#810	.625" (15.9)	.625" (15.9)
#811	.750" (19.1)	.625" (15.9)
#812	1.00" (25.4)	.500" (12.7)
#813	1.250" (31.8)	.625" (15.9)

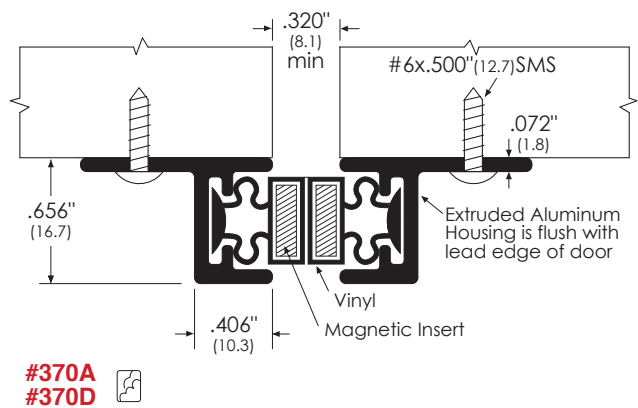
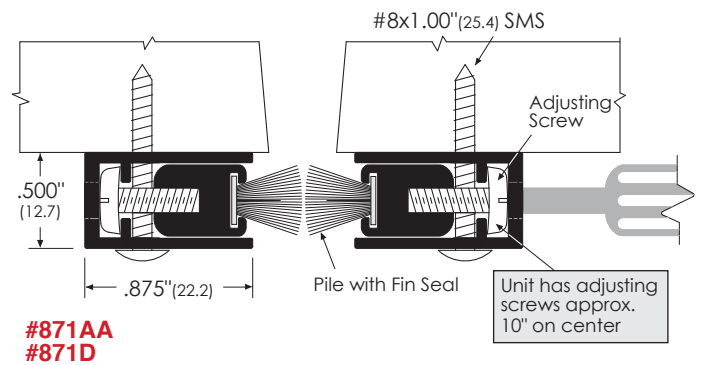
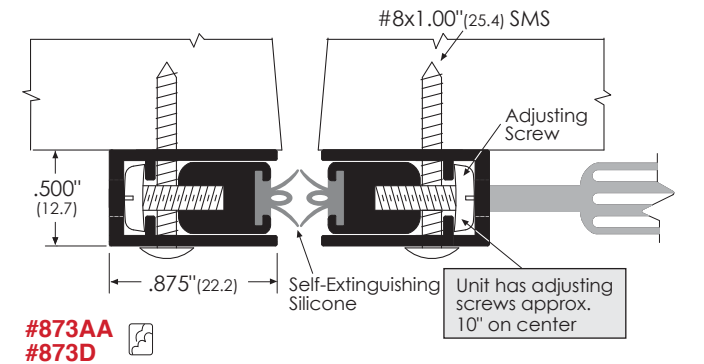
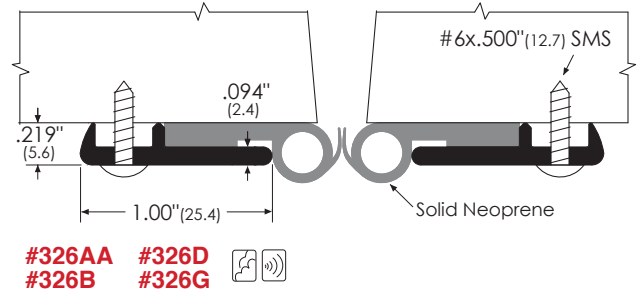
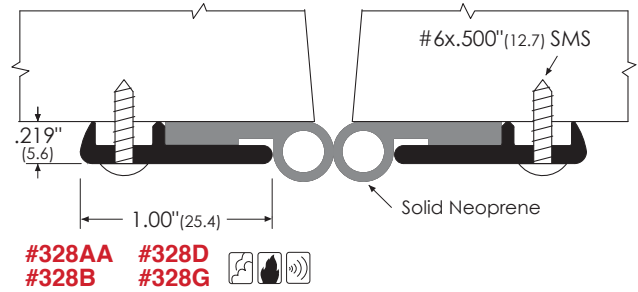
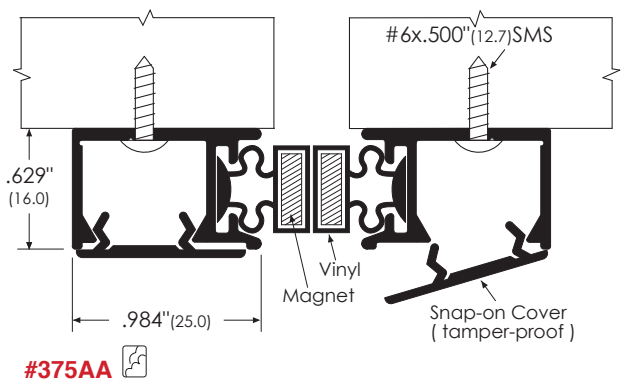
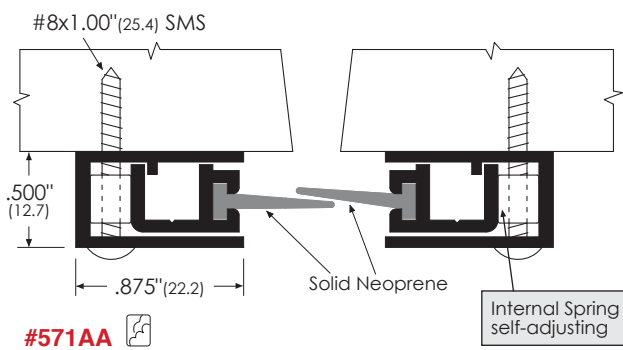
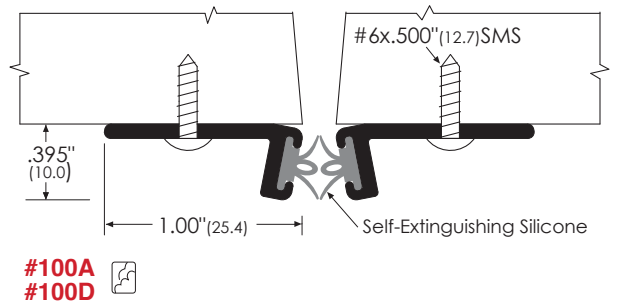
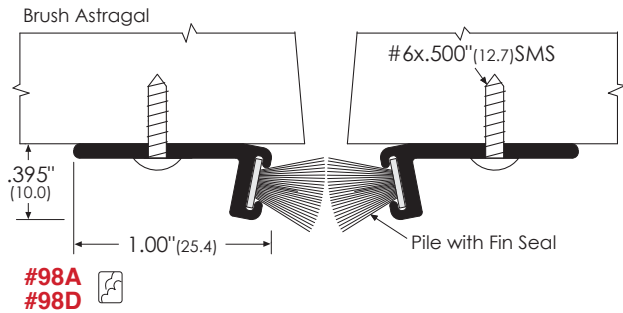
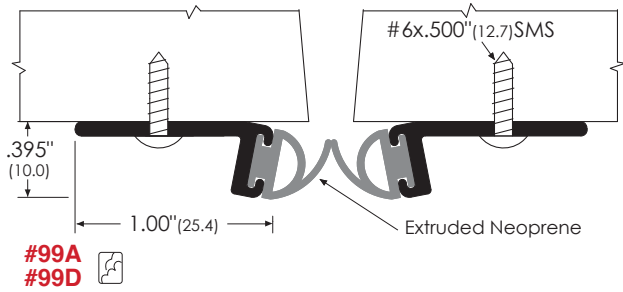


Door Seals

Meeting Stiles - Both Doors Active



Note: A = Aluminum
 B = Bronze
 G = Gold Anodized
 AA = Clear Anodized
 D = Dr. Bronze Anodized



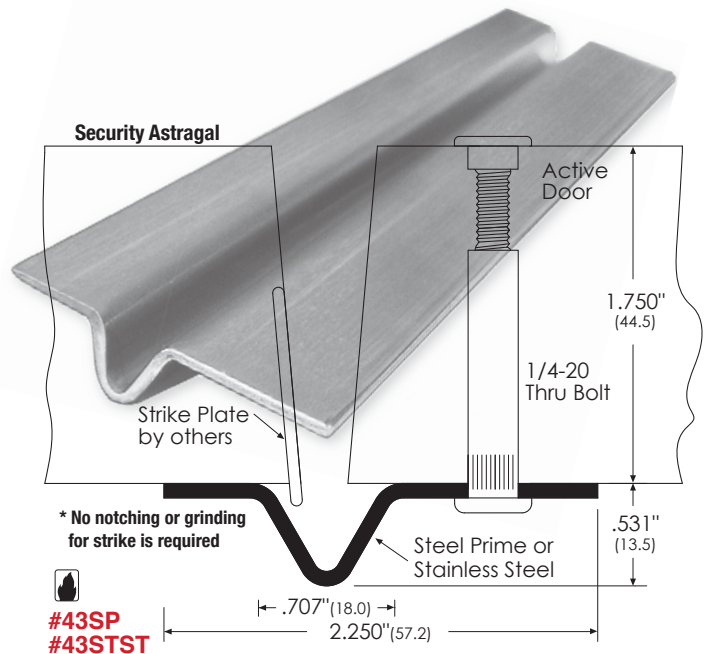
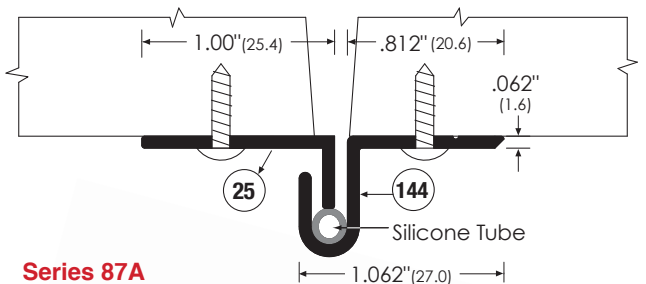
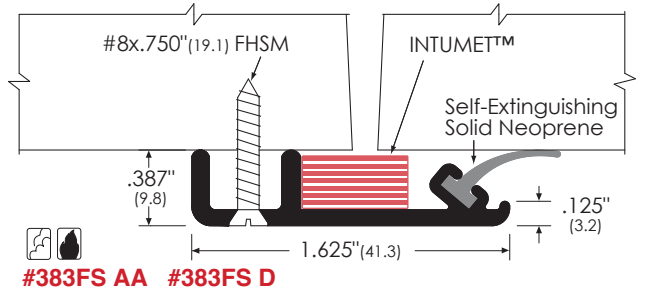
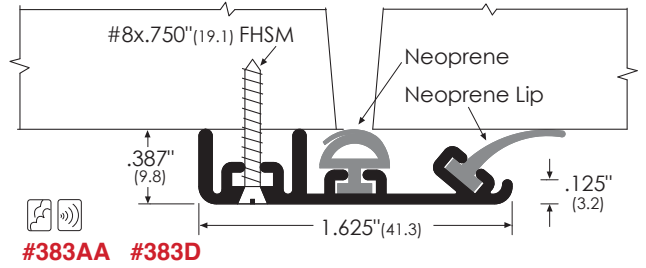
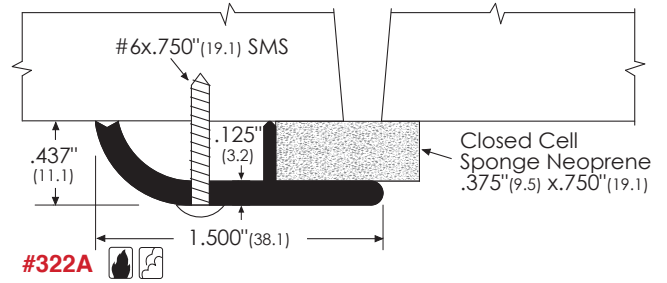
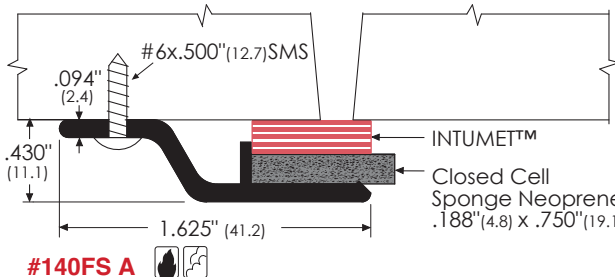
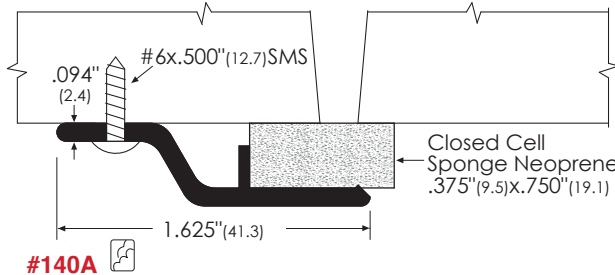
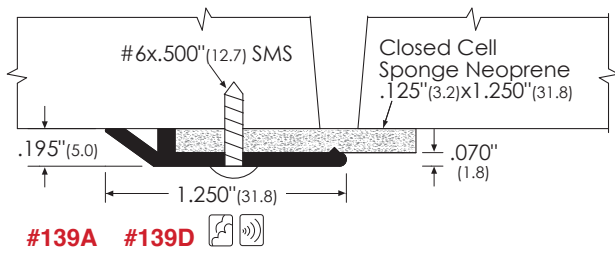
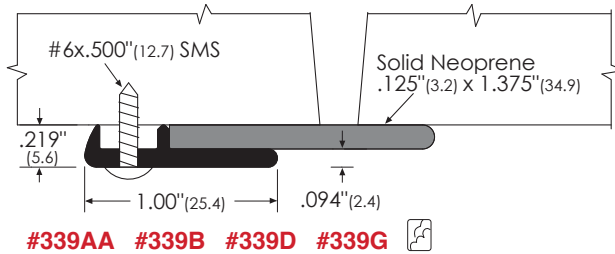
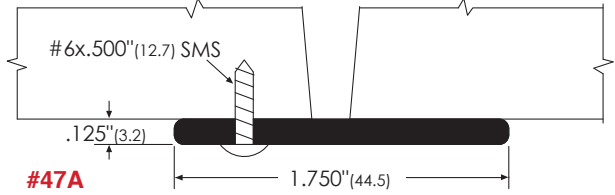
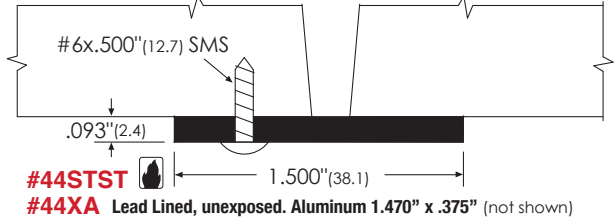
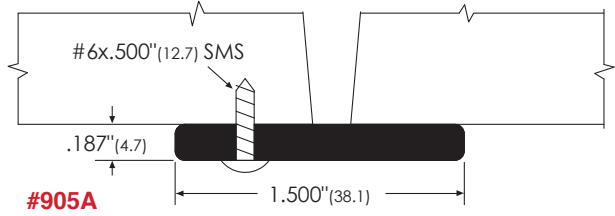
Meeting Stiles

Meeting Stiles - One Door Active



Note: A = Aluminum
B = Bronze
G = Gold Anodized
SP = Steel Prime

AA = Clear Anodized
D = Dark Bronze Anodized
STST = Stainless Steel
FS = INTUMET™ Rubber

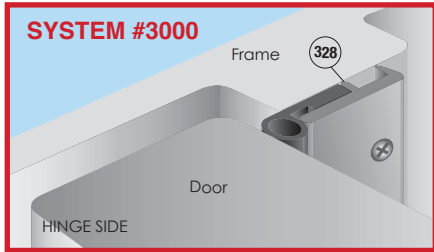


Meeting Stiles

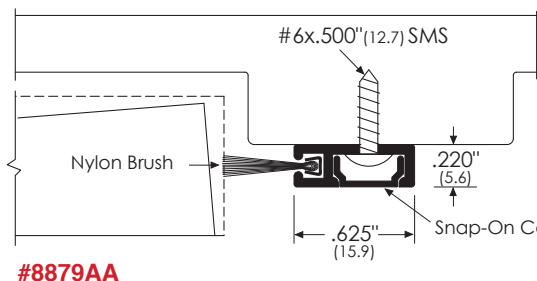
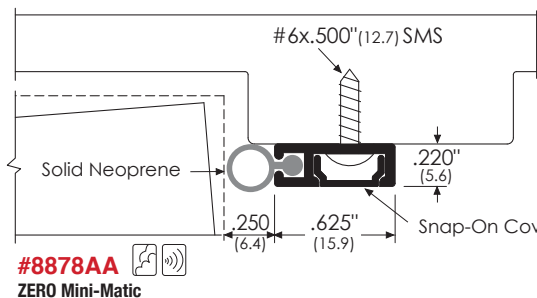
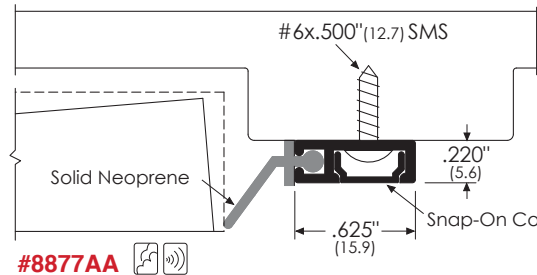
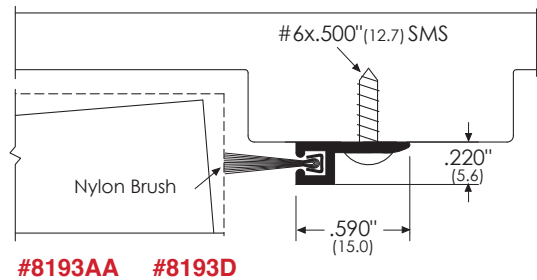
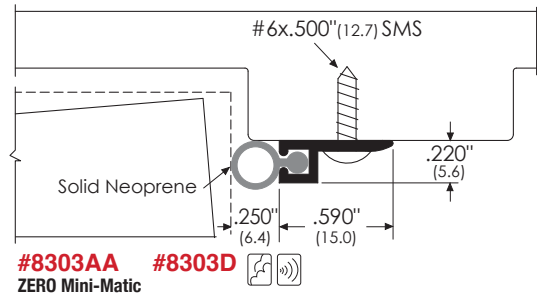
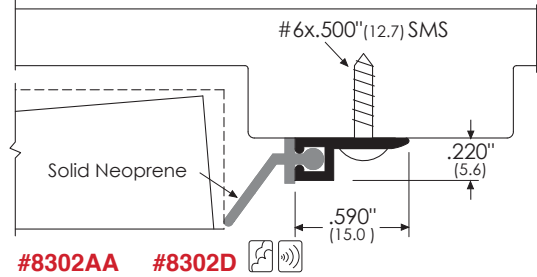
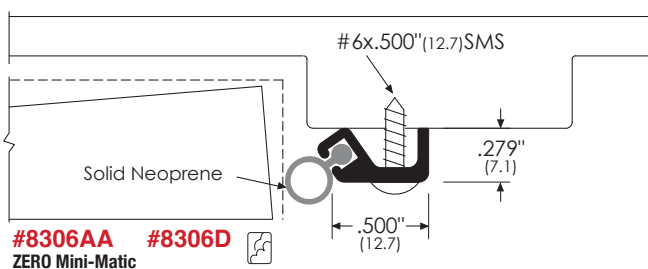
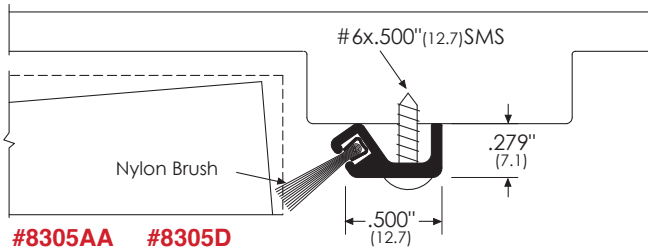
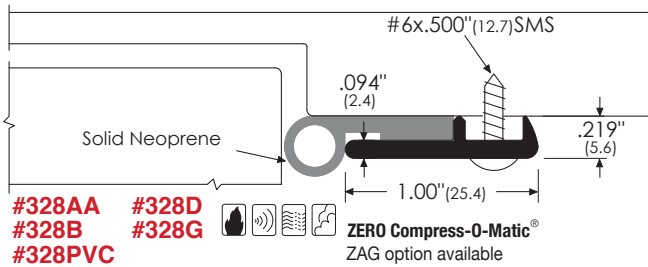
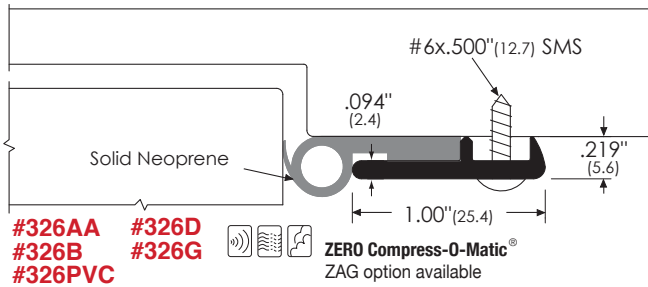
Head and Jamb Protection



Note: A = Aluminum
 B = Bronze
 G = Gold Anodized
 ZAG = Ligature-Resistant gasketing
 AA = Clear Anodized
 D = Dark Bronze Anodized
 PVC = Polyvinyl, clear



System #3000 consists of:
 #328 (hinge side)
 #326 (head & lock sides)



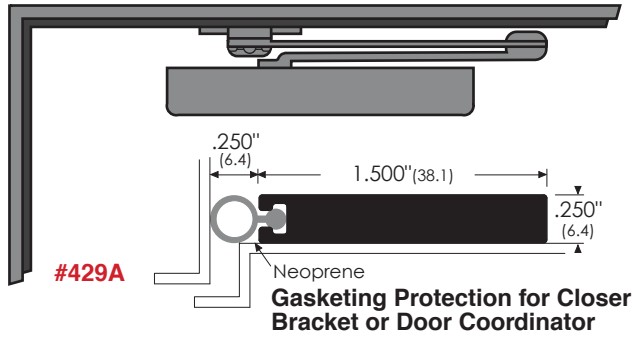
Head & Jamb



Head and Jamb Protection



Note: A = Aluminum
D = Dark Bronze Anodized
SP = Steel Primed
B = Bronze
G = Gold Anodized



STRIKE PLATE MOUNTING BRACKETS

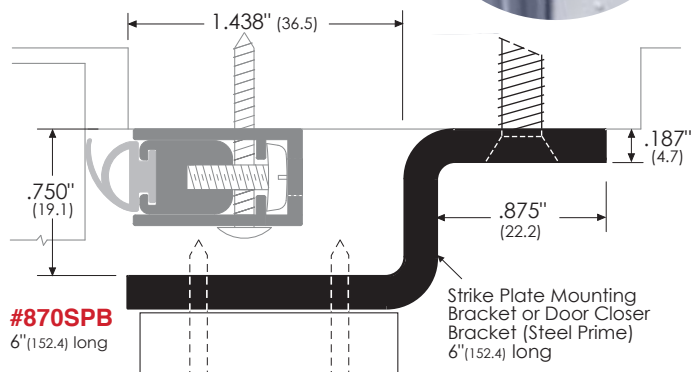
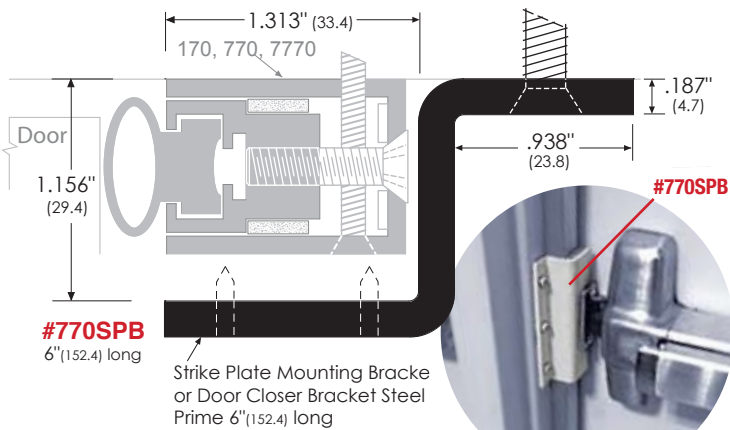
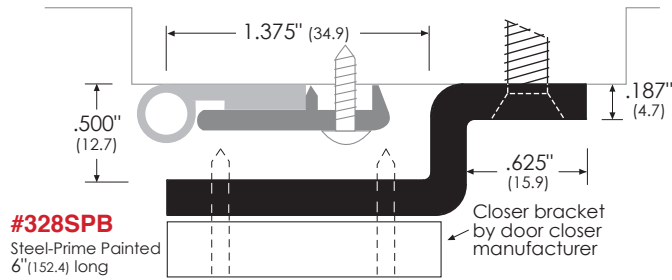
(Custom sizes available upon request)



#328SPB

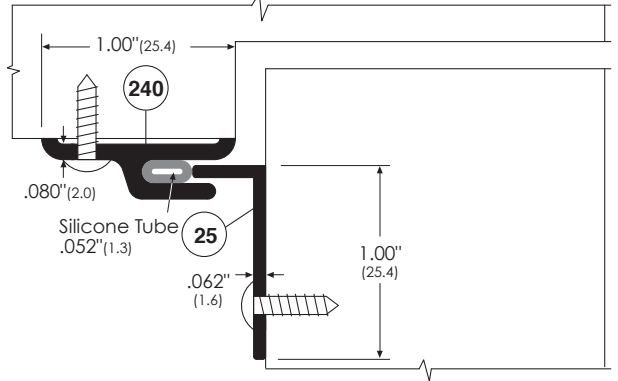
#870SPB

#770SPB



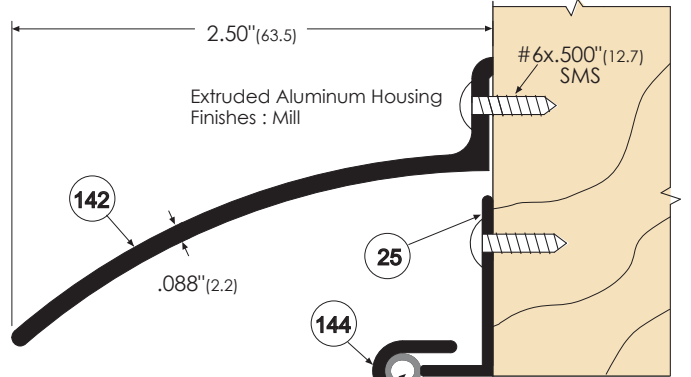
Series 42A Head and Lock-side Jamb

Security seal—when installed with tamper-proof fasteners (#7272ST).

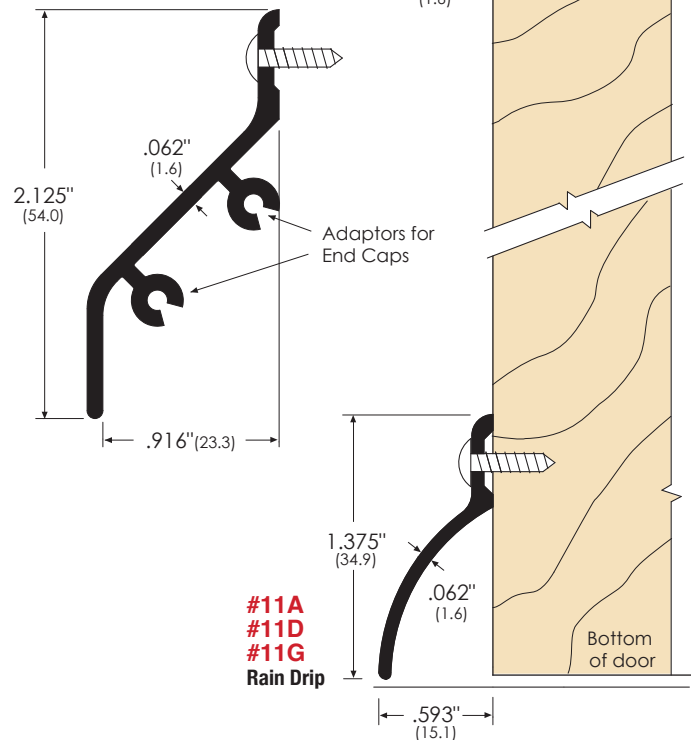


INTERLOCKING WATER SHED For Outswinging Doors

Series 148



#141A (Option for #142 or #11)



**#11A
#11D
#11G
Rain Drip**

Specialty Head & Jamb

Division 9

Finishes



Provide interior and exterior floor surfaces that do not pose slip or trip hazards.

09 2513 –ACRYLIC MODIFIED CEMENT PLASTER

Acrylic modified Portland cement plaster, three-coat application, for installation over metal lath shall be used for exterior plaster finish. Perform work in accordance with ASTM C 926. All plaster work shall be performed in accordance with requirements of California Building Code. Plaster Base Coat: Premium pre-blended cement-lime-sand mixture with fiber that has been specially formulated for the scratch and brown coat. Leveling Coat: fiber reinforced high-performance polymer modified dry cementitious base coat specifically formulated for use in embedding mesh. Open-weave fiberglass mesh, 4.5 oz. or 6 oz. with integral compatibility treatment for related materials. Integral color, fine finish coat texture.

09 3000 - TILING

In areas where durability and ease of cleaning are required the use of ceramic tile is encouraged. Ceramic and ceramic mosaic tile for floor and wall applications shall conform to the American National Standard Specifications for the Installation of Ceramic Tile (Compendium) and TCA (HB) - Handbook for Ceramic Tile Installation; Tile Council of America, Inc.. Tile can be manufactured from a variety of materials including ceramics, porcelain, glass and stone and have a variety of finishes at the discretion of the designer. When used as a flooring material, proper slip coefficients shall be maintained.

Tile wainscot shall be provided at Restrooms and in particular behind paper towel dispensers and electric hand driers.

Grout shall be as appropriate for the application and shall be sealed for durability and ease of maintenance.

09 6500 – RESILIENT FLOORING



Resilient tile and sheet flooring, resilient base, and resilient stair accessories. All flooring materials shall be compliant with Green Guard, Floor Score, or equivalent LEED low-emittance requirements. All flooring shall be non-PVC, bio-based polymer. Vinyl composition tile (VCT) shall not be used.

Linoleum Sheet Flooring or Tile: Homogeneous wear layer bonded to backing, with color and pattern throughout. Linoleum welding rod at sheet installations: Solid color linoleum produced by flooring manufacturer for heat welding seams, in color in color matching predominant flooring color Base: Rubber; top set, coved.

Rubber Stair Treads: FS RR-T-650, Composition A; full width and depth of stair tread in one piece; tapered thickness; nosing not less than 1-5/8 inch deep.

09 6600 – EPOXY RESIN TERRAZZO FLOORING

For use in areas of high traffic where superior wear is required such as building lobbies and corridors. Epoxy resin binder can be used with a variety of materials such as marble, glass, and stone aggregates or other materials to provide the desired finish. Use materials with recycled content such that the sum of post-consumer recycled content plus 1/2 of the pre-consumer content constitutes at least 20 percent, based on cost, of the total value of the materials in the project. Care should be taken to insure that a slip resistant finish, a standard coefficient of friction of 0.6 or higher, is achieved. The recycled content value of a material assembly is determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

09 6600 – EPOXY RESIN TERRAZZO FLOORING

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The recycled content value of a material assembly is determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

amount of volatile organic compounds contained in the product, for its intended application.

Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum ten (10) years documented experience.

Use only primers recommended by finish coat manufacturer as “best” for specified product.

09 6813 - TILE CARPETING



Carpet tile size 24” x 24”, Patterned level loop, 28 oz., solution dyed Antron nylon, with primary backing, directly adhered to prepared substrate. Twenty-year warranty, minimum. Provide certification that all carpet is certified CRI Green Label Plus. The use of recycled carpet is encouraged. Product shall meet requirements of CBC Chapter 11B requirements.

09 9113 - EXTERIOR PAINTING

Use only products conforming with local, State and Federal government requirements limiting the amount of volatile organic compounds contained in the product, for its intended application.

Use only primers recommended by finish coat manufacturer as “best” for specified product.

Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum ten (10) years documented experience.

09 9123 - INTERIOR PAINTING

Use only products conforming with local, State and Federal government requirements limiting the

Division 10

Specialties

10 1116 - VISUAL DISPLAY BOARDS

See Report from SRJC Demonstration Classroom Committee



Porcelain enamel marker boards, fixed and sliding: Porcelain Enamel Steel; Vitrified glass-hard ceramic surface fused to light gauge enameling grade steel at approximately 700°C. High resistance to impact damage, abrasion, scratching, and color fading, suitable for magnetic accessories, non-combustible, bacteria, mold and chemical resistant.

Core Material: 7/16" honeycomb .015 aluminum sheet backing, with aluminum frame mechanically fastened to each panel.

Accessories: Map Rail, standard continuous rail with cork insert and end stops, and map hooks and flag holder. Chalktrough, standard continuous solid type, with ribbed section and curved open ends with radius.

10 2113 - REINFORCED COMPOSITE TOILET COMPARTMENTS



Comply with ADA, Accessibility Guidelines for Buildings and Facilities, Federal Register Volume 56, Number 144, Rules and Regulations.

Reinforced Composite Material: composed of dyes, organic fibrous material, and polycarbonate/phenolic resins; non-ghosting, graffiti-resistant surface integrally bonded to core through a series of manufacturing steps requiring thermal and mechanical pressure. Edges of material shall be the same color as the surface., with solid integral color through the full depth of the panel.

Fire Resistance: Partition material shall comply with the following requirements, when tested in

accordance with ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building

Materials:

Smoke Developed Index: Not to exceed 450.

Flame Spread Index: Not to exceed 75.

Material Fire Ratings:

National Fire Protection Association (NFPA): Class B.

Toilet partitions constructed of High Density Polyethylene (HDPE) or High Density Polypropylene will not be acceptable.

10 2800 -TOILET ACCESSORIES

Dispensers for soaps and paper products for toilet rooms and showers will generally be owner furnished. Soap Dispensers shall be located over sinks so as to drip into the sink bowl. All other accessories such as grab bars, hooks, shelves, etc. shall be stainless steel. Consider providing coat hooks and mirrors separate from sink locations. Electric Hand Dryers shall be automatic sensor, warm air rapid drying energy efficient hand dryer (Green spec listed, Leed Credit EA) and shall be mounted on walls with ceramic tile wainscot.



All accessories shall be mounted so as to be complaint will all regulations regarding handicapped accessibility and the Americans with Disabilities Act.

Provide adequate floor space for freestanding waste paper baskets so as not to impede the flow of traffic or encroach on required ADA paths of travel.

Division 12

Specialties

09 2816 – ENTRANCE FLOOR GRILLES

At each building entry provide aluminum rail and frame walk off grilles. Grilles shall be installed in a recessed area of floor directly on the interior side of entry and shall be a minimum of 4 feet wide in the direction of travel. Rails shall include carpet inserts and be cushioned on the underside to reduce noise. Grilles shall be mechanically fastened to the floor so that they lay flat.

09 2816 – WINDOW COVERINGS



Window coverings shall be TPO (thermoplastic polyolefin), PVC-free, non-flammable, color-fast, shade cloth that is fully recyclable. Percentage of open weave, typically 1% or less, and colors shall be per designer as appropriate for the application. Provide blackout shade cloth in “mediated”/ AV Media rooms. All shade cloths shall be both antimicrobial and antifungal. Specify heavy duty, chain driven roller shade mechanisms. For shades wider than 60 inches consider motor driven operators.

Division 14

Conveying Equipment

14 2400 - HYDRAULIC ELEVATORS

Designer Qualifications: Perform design under direct supervision of a licensed Professional Structural Engineer experienced in design of this type of work and licensed in California.

Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum ten years documented experience.

Regulatory Requirements: Comply with ASME A17.1, applicable local codes, authorities having jurisdiction (AHJ), and DSA.



Accessibility Requirements: Comply with ADA Standards.

Maintenance Contract: Include requirements for a 3-year minimum maintenance contract.

Perform structural steel design, fabrication, and installation in accordance with AISC 360. Perform welding of steel in accordance with AWS D1.1/D1.1M.

Comply with seismic design requirements in accordance with ASME A17.1, applicable local codes, authorities having jurisdiction (AHJ), and DSA.



Elevator Safety Requirements: Comply with Elevator Safety Requirements for Seismic Risk Zone in accordance with ASME A17.1 and other related requirements.

Provide earthquake emergency operations in accordance with ASME A17.1 requirements.

Fabricate and install door and frame assemblies in accordance with NFPA 80 and in compliance with requirements of authorities having jurisdiction.

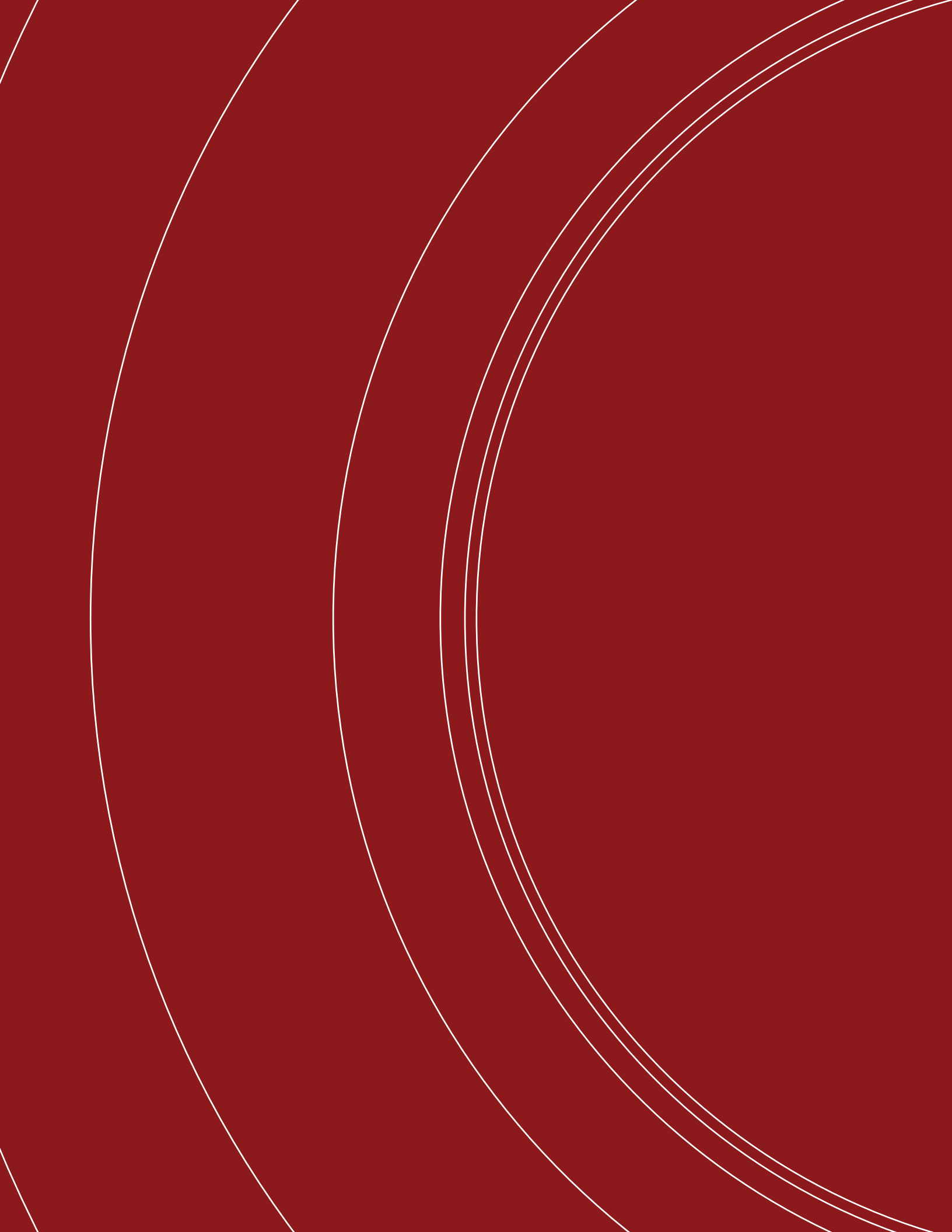
Perform electrical work in accordance with NFPA 70.

Comply with venting or pressurization of the hoistway design in accordance with HVAC system requirements and authorities having jurisdiction.

Comply with fire protection sprinkler system of the hoistway design in accordance with NFPA 13 requirements and authorities having jurisdiction.

Hydraulic elevators shall use mineral oil based hydraulic fluids.

The use of wheelchair lifts (vertical platform lifts or incline platform lifts) is acceptable in renovation projects when permitted by the Division of the State Architect.



5.4 Sustainability

Sustainability Standards



The SCJCD Sustainable Design & Construction Standards apply to all capital projects and should be included in all Requests for Proposals issued for new projects, including new buildings, major renovations, interior fit-outs, system upgrades and other related infrastructure projects. In addition, these standards should be referenced in contracts for design related and construction management services.

Application of these standards in projects is intended to help establish SCJCD as a recognized leader in green building and sustainable campus operations. They are an essential component of the District’s commitment to sustainability, including its desire to use its facilities as a teaching tool for behavior change and sustainable practices.

These standards identify a minimum level of design and process requirements for all new construction and renovation projects, while providing enough flexibility for individual project teams to meet project goals. The Standards also include recommendations (stretch goals) that project teams should attempt to achieve.

Recognizing that different project scopes represent different levels of sustainable design opportunity and operational impact, the sustainability standards are organized within four different project tiers.

Tier 1: Tier 1 projects include all new buildings and major building renovations with a comprehensive scope that includes room configuration modifications, new HVAC systems, envelope modifications, and new lighting.

Tier 2: Tier 2 projects are partial renovations or fit-outs of existing facilities in which systems within the renovated spaces are largely replaced (e.g. lighting, finishes, plumbing, and/or HVAC), but base building HVAC systems and the building envelope generally remain unaffected.

Tier 3: Tier 3 projects include renovations to systems with an energy impact but are focused only on those systems (e.g. renewable energy installation, HVAC upgrades, AHU replacement, lighting replacement, etc.)

Tier 4: Tier 4 projects have no or limited energy and GHG impact, such as installing bike lanes or other landscape renovation project or an interior project which only renovates finishes and furnishings.

Tier 1	Tier 2	Tier 3	Tier 4
New Building or Major Renovation	Interior Upgrades and Fit-Outs	System Upgrades	Non-Energy
New Buildings and Building-Wide Full-Gut Renovations	Partial Building Interior Upgrades and Fit-Outs HVAC, Lighting, and Materials Within the Scope	Limited Scope Projects w / Energy and GHG Impact	Limited Scope Projects w / No or Limited Energy and GHG Impact

Tier 1 Project Sustainability Standards

Tier 1 projects include all new buildings and major building renovations with a comprehensive scope that includes room configuration modifications, new HVAC systems, envelope modifications, and new lighting.

Sustainability Category	Criteria
1. Integrated Approach	<p>A. Implement a collaborative and integrated design process, engaging key SCJCD stakeholders, designers, engineers and construction team members.</p> <p>B. .20-50 year Life Cycle Cost Analysis, including total cost of ownership modeling, shall be used throughout the project development process for all major building envelope and systems decision making. Time horizon will be dependent upon project scope (20 year for major renovation, 50 years for new building).</p>
2. Ecological Site Design	<p>A. Optimize use of site specific passive design strategies including maximizing natural ventilation, fresh air, daylight, passive heating and cooling.</p> <p>B. Maximize stormwater capture through green infrastructure features (pervious pavement, bioswales, french drains and bioretention basins).</p> <p>C. Specify regional appropriate, native vegetation</p>
3. Energy Optimization	<p>A. Perform ongoing energy modeling throughout the project and complete comparison of modeled energy performance to actual performance one year after start of operations.</p> <p>B. Determine Net Zero Energy Ready target for the project. Provide on-project renewable energy to meet Net Zero demand or negotiate allocation of SCJCD renewable energy production.</p> <p>C. Provide project whole building life cycle assessment (LCA) including materials, construction impacts and operating energy usage. Greenhouse Gas (GHG) impact shall be reported as carbon dioxide equivalents (CO₂e).</p>
4. Water Management	<p>A. Design and install dual plumbing (purple pipe) reclaimed water systems for all non-potable uses (eg toilets, urinals, cooling tower, and irrigation uses)</p>
5. Responsible Sourcing	<p>A. Prioritize sourcing of locally produced goods and services</p> <p>B. Require publicly available environmental product declarations (EPDs) and ingredient disclosure for all major materials and product purchases</p> <p>C. To the maximum extent select goods and services compliant with SCJCD's Environmentally Preferable Purchasing (EPP) policy</p>

Tier 1 Project Sustainability Standards, continued

Sustainability Category	Criteria
6. Optimize Comfort and Well Being	<p>A. Provide at least 1 water bottle filling/hydration station per floor.</p> <p>B. Specify low emitting materials (including finishes, furnishings, flooring, ceiling, composite wood and insulation materials).</p> <p>C. Maximize natural light into classrooms, offices and learning environments</p> <p>D. Apply active design/universal design principles.</p> <p>E. Maximize opportunities for outside views and other biophilic features.</p>
7. Waste Management	<p>A. Recycling and compost collection bins shall be provided at a minimum 1:2000 sf ratio.</p> <p>B. Achieve 95% construction waste diversion from landfill.</p>
8. Built Environment as Teaching Tool	<p>A. Collaborate with curriculum development team to define experiential learning environments and opportunities for sustainability.</p>
9. Sustainable Operations	<p>A. Design, install and connect metering based controls for all systems including HVAC, lighting, water, gas electricity, renewable energy, and hot/chilled water. Metering and control network shall be BacnetIP Native/Compatible.</p> <p>B. Design, install and connect sensor network mesh capable of reporting occupancy, light levels and temperature as a minimum. Sensor network shall report conditions for each room or per 2000 sf in open space. Network shall be BacnetIP Native/Compatible.</p> <p>C. Projects are to be commissioned prior to occupancy and one year after occupancy. Commissioning shall be performed by an independent 3rd party.</p> <p>D. Minimum 3 year maintenance service contract shall be provide for all large appliances and advanced building controls.</p> <p>E. Building Operational Manual and training (for building operators and occupants) shall be provided.</p>
10. Sustainability Leadership	<p>A. Design and construct to LEED Silver certified minimum; stretch goals of LEED gold for major renovations and LEED platinum, Certified Net Zero Energy or Living Building Challenge Certified for new buildings</p>

Tier 2 Project Sustainability Standards

Tier 2: Tier 2 projects are partial renovations or fit-outs of existing facilities in which systems within the renovated spaces are largely replaced (e.g. lighting, finishes, plumbing, and/or HVAC), but base building HVAC systems and the building envelope generally remain unaffected.

Sustainability Category	Criteria
1. Integrated Approach	<p>A. Implement a collaborative and integrated design process, engaging key SCJCD stakeholders, designers, engineers and construction team members.</p> <p>B. 10-20 year Life Cycle Cost Analysis, including total cost of ownership modeling, shall be used throughout the project development process for all major building envelope and systems decision making. Time horizon will be dependent upon project scope.</p>
2. Ecological Site Design	<p>A. Optimize use of site specific passive design strategies including maximizing natural ventilation, fresh air, daylight, passive heating and cooling.</p>
3. Energy Optimization	<p>A. Perform ongoing energy modeling throughout the project and complete comparison of modeled energy performance to actual performance one year after start of operations.</p> <p>B. Determine Net Zero Energy Ready target for the project. Provide on-project renewable energy to meet Net Zero demand or negotiate allocation of SCJCD renewable energy production.</p>
4. Water Management	<p>A. Design and install dual plumbing (purple pipe) reclaimed water systems for all non-potable uses (eg toilets, urinals, cooling tower, and irrigation uses)</p>
5. Responsible Sourcing	<p>A. Prioritize sourcing of locally produced goods and services</p> <p>B. Require publicly available environmental product declarations (EPDs) and ingredient disclosure for all major materials and product purchases</p> <p>C. To the maximum extent select goods and services compliant with SCJCD’s Environmentally Preferable Purchasing (EPP) policy</p>
6. Optimize Comfort and Well Being	<p>A. Provide at least 1 water bottle filling/hydration station per floor.</p> <p>B. Specify low emitting materials (including finishes, furnishings, flooring, ceiling, composite wood and insulation materials.</p> <p>C. Maximize natural light into classrooms, offices and learning environments</p> <p>D. Apply active design/universal design principles.</p> <p>E. Maximize opportunities for outside views and other biophilic features.</p>

Tier 2 Project Sustainability Standards, continued

Sustainability Category	Criteria
7. Waste Management	<p>A. Recycling and compost collection bins shall be provided at a minimum 1:2000 sf ratio.</p> <p>B. Achieve 95% construction waste diversion from landfill.</p>
8. Built Environment as Teaching Tool	<p>A. Collaborate with curriculum development team to define experiential learning environments and opportunities for sustainability.</p>
9. Sustainable Operations	<p>A. Design, install and connect metering based controls for all systems including HVAC, lighting, water, gas electricity, renewable energy, and hot/chilled water. Metering and control network shall be BacnetIP Native/Compatible.</p> <p>B. Design, install and connect sensor network mesh capable of reporting occupancy, light levels and temperature as a minimum. Sensor network shall report conditions for each room or per 2000 sf in open space. Network shall be BacnetIP Native/Compatible.</p> <p>C. Projects are to be commissioned prior to occupancy and one year after occupancy. Commissioning shall be performed by an independent 3rd party.</p> <p>D. Minimum 3 year maintenance service contract shall be provide for all large appliances and advanced building controls.</p> <p>E. Building Operational Manual and training (for building operators and occupants) shall be provided.</p>
10. Sustainability Leadership	<p>A. Design and construct to LEED Silver certified minimum; stretch goals of LEED gold or Living Building Challenge Petal Certified.</p>

Tier 3 Project Sustainability Standards

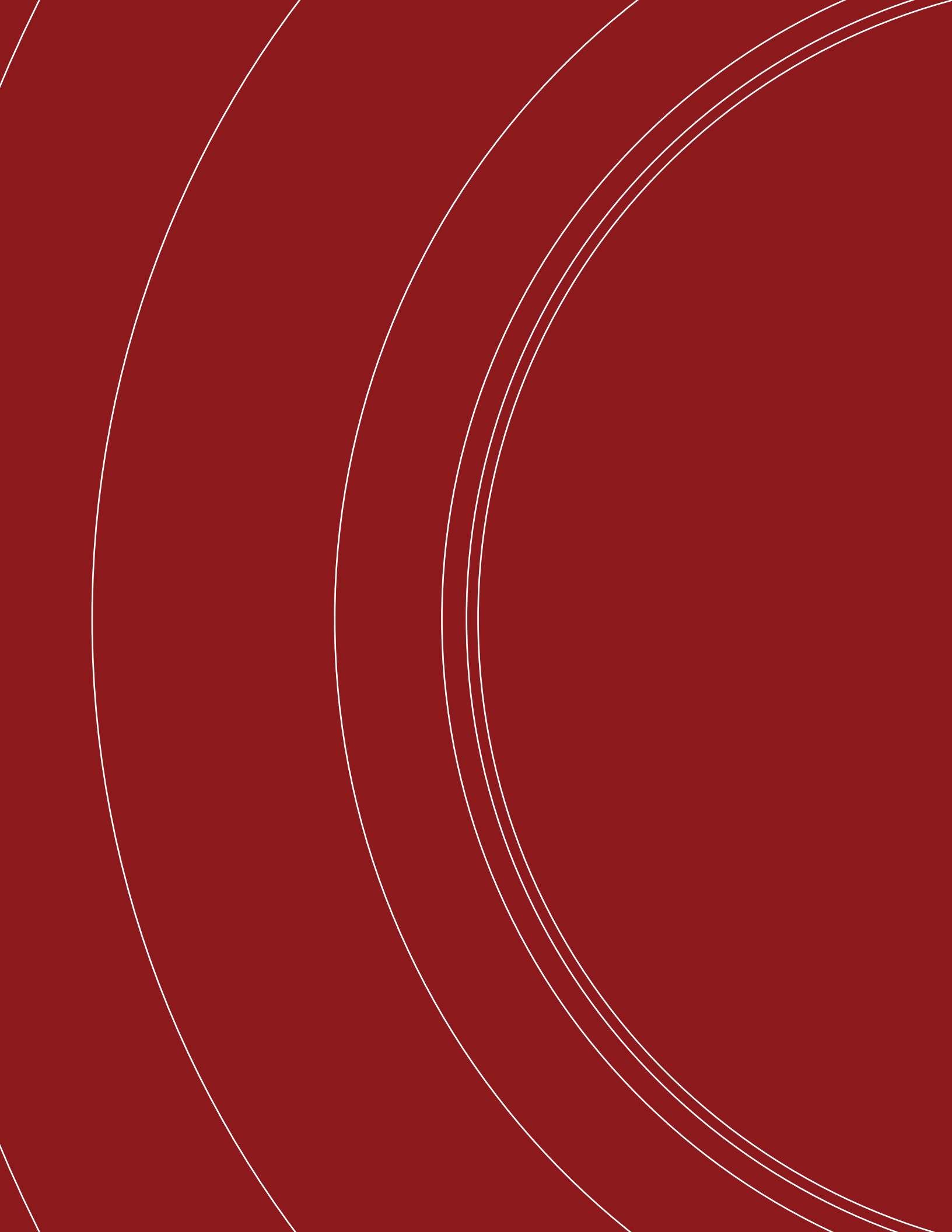
Tier 3 projects include renovations to systems with an energy impact but are focused only on those systems (e.g. renewable energy installation, HVAC upgrades, AHU replacement, lighting replacement, etc.)

Sustainability requirements for Tier 3 projects will be determined by the District on a project by project basis.

Tier 4 Project Sustainability Standards

Tier 4 projects have no or limited energy and GHG impact, such as installing bike lanes or other landscape renovation project or an interior project which only renovates finishes and furnishings.

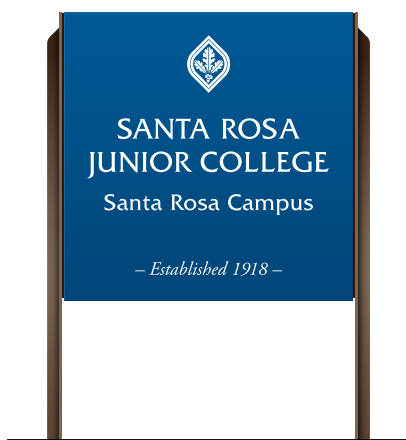
Sustainability requirements for Tier 4 projects will be determined by the District on a project by project basis.



5.5 Signage & Wayfinding

“An intuitive and
cohesive user
experience.”

Signage & Wayfinding



A1 - Campus ID



A2 - Campus ID (Dynamic)



A3 - Campus ID (Landscape)



D1 - Campus Map + Directional



D2 - Finger Post Directional



D3 - Campus Map



D4 - Vehicular Directional

Scale: 3/8" = 1'-0"

The Sonoma County Junior College District signage and wayfinding guidelines are intended to create a cohesive and engaging signage experience for all SCJCD users. The following details, usage and placement guidelines illustrate a unified system of identification, directional and regulatory signs for all five SCJCD campus exterior environments, and will:

- Enhance the overall first impression of the campuses
- Provide a visual language that reflects the pride and values that SCJCD exemplifies
- Bring a consistent and visual hierarchy to signage and wayfinding elements
- Simplify campus orientation and navigation, for both vehicles and pedestrians
- Incorporate modularity, flexibility, durable materials, vandal resistance and sustainability
- Consider the needs of all users, and all user's abilities



A4 - Parking Lot ID



A5 - Building ID (Wall-Mounted)



A6 - Building ID (Freestanding)

GARCIA HALL



A7 - Building ID (Lettering)

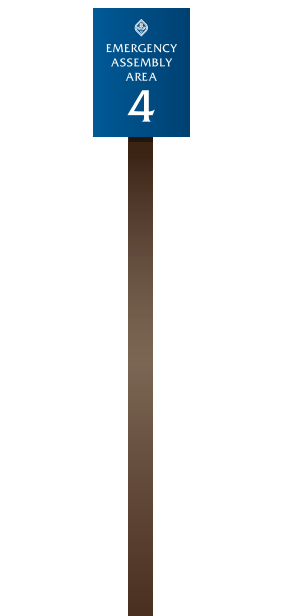
A8 - Parking Zone ID



R1 - Regulatory Sign



R2 - Parking Policy/Zone ID



R3 - Evacuation Assembly Area Sign

Materials Standards

Signage materials and detailing of the SCJCD program have been selected to reinforce the SRJC brand and respond to SRJC user needs while complimenting the unique architectural character of SCJCD campus' architecture and landscaping.

The signage materials and details in this program address:

Appropriateness

- Metallic bronze finish for sign supports works well with varied campus architecture and landscape
- Panel color reinforces SRJC brand standard
- Primary campus identification signs feature illumination for nighttime emphasis and visibility
- Vehicular-oriented signage uses high visibility reflective messaging

Accessibility

- Embedded map graphics panels have non-glare surface finish
- Map panels are oriented for viewing by both walking and wheelchair bound users
- Select sign types feature universal symbols and multi-lingual messaging
- Sign components details and heights address ADA clearance requirements

Durability and vandal resistance

- Stainless and vandal resistant hardware reduce long-term maintenance
- Embedded graphics panels are fade-resistant and easily cleanable if tagged
- Painted aluminum components resist corrosion
- Screen-printed messages will not fade or peel in hot weather

Sustainability

- Aluminum components may be made using recycled content
- Embedded graphics panels are backed with material containing recycled paper
- Vehicular-oriented signage uses self-illuminating reflective messaging, saving energy
- Sign components are modular, for ease of replacement and recycling at end of life



M1- I-Zone Embedded Graphic Panel



M2- Painted Aluminum



M3- Stainless Steel



M4- Dark Bronze



M5- Reflective Vinyl



M6- Opaque Vinyl



M7- Screenprinted Graphics



M8- Push-Thru Acrylic (For Internal Illumination)

Graphic Standards

Identity



SRJC Emblem

SANTA ROSA JUNIOR COLLEGE

Wordmark

Colors



SCJCD Blue



SCJCD Red



SCJCD Gray



Federal Blue

Typography

ABCDEFGHIJKLMNOPQRSTUVWXYZ &
abcdefghijklmnopqrstuvwxyz
0123456789

Typeface: Friz Quadrata Medium

Symbols



A1 - Campus ID

Usage

Freestanding campus welcome sign offers a unique, medium-scale opportunity to express the college identity in a consistent manner, presenting the college as a vibrant, creative environment committed to academic excellence and community service. This highly legible sign facilitates vehicular wayfinding, both day and night, through illuminated typography.

Placement

Campus identification signs are limited to key arrival points at campus perimeter. Place in landscaping, oriented facing on-coming traffic. Signs can be single-sided or double-sided depending on orientation to traffic.

Materials and Specifications

Typical fabricated M2 aluminum sign panel finished SCJCD blue with white M8 push-thru acrylic internally-illuminated lettering. Painted aluminum M4 bronze finish support posts embedded in below-grade concrete footings. Assemble with concealed, tamper-proof stainless steel hardware. Conceal electrical conduit in support posts, connected to buried conduit and dedicated circuit. Coordinate buried lighting cabling with landscape contractor.

Note: sign panel size may be scaled appropriately to suit final locations



Scale: 3/4" = 1'-0"

A2 - Campus ID (Dynamic)

Usage

Freestanding campus welcome sign offers a unique, medium-scale opportunity to express the college identity in a consistent manner, presenting the college as a vibrant, creative environment committed to academic excellence and community service. This highly legible sign facilitates vehicular wayfinding and provides changeable event information, both day and night, through illuminated typography and digital messaging display.

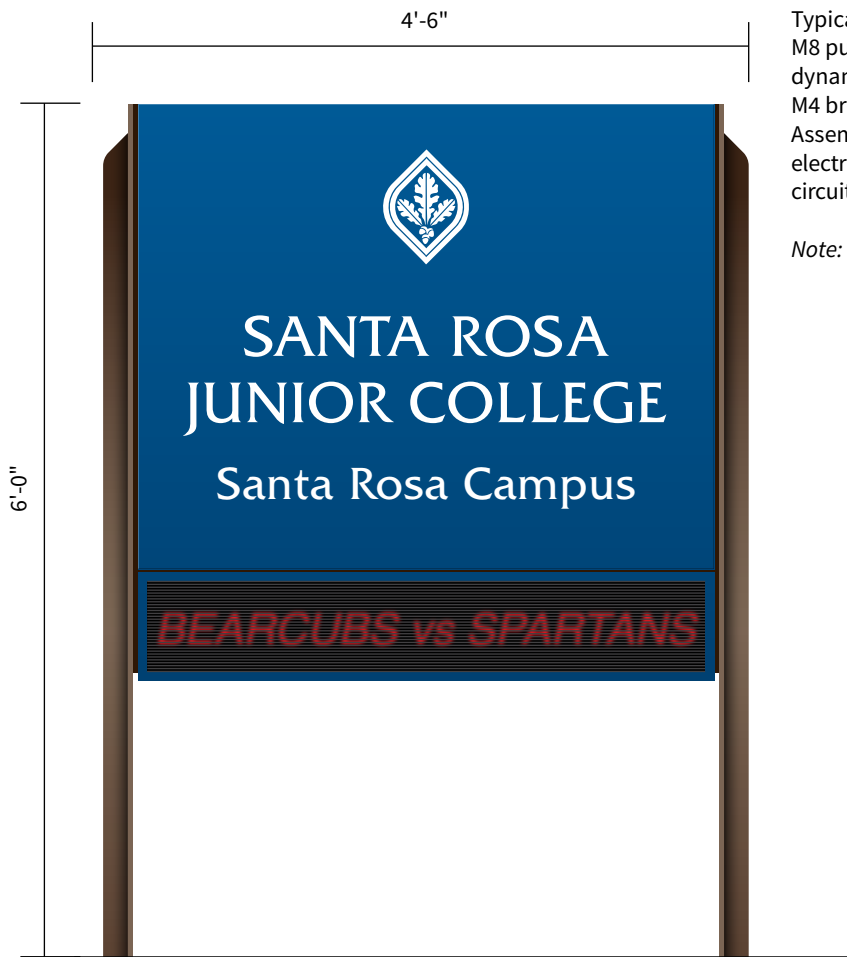
Placement

Campus identification signs with digital displays are limited to key arrival points at campus perimeter closest to main student services building. Place in landscaping, oriented facing on-coming traffic. Signs can be single-sided or double-sided depending on orientation to traffic.

Materials and Specifications

Typical fabricated M2 aluminum sign panel finished SCJCD blue with white M8 push-thru acrylic internally-illuminated lettering. Single-color LED dynamic display integrated flush into sign cabinet face. Painted aluminum M4 bronze finish support posts embedded in below-grade concrete footings. Assemble with concealed, tamper-proof stainless steel hardware. Conceal electrical conduit in support posts, connected to buried conduit and dedicated circuit. Coordinate buried lighting and data cabling with landscape contractor.

Note: sign panel size may be scaled appropriately to suit final locations



A3 - Campus ID (Landscape)

Usage

Landscape-type campus entry wall signs offer a unique, large-scale opportunity to express the college identity in a consistent manner, presenting the college as a vibrant, creative environment committed to academic excellence and community service.

Placement

Integrated into landscaping at Petaluma and Santa Rosa campus perimeter or primary vehicular entries.

Materials and Specifications

Existing sign wall locations are to be retained. Dimensional, natural finish metal emblem and letters pin-mounted to wall surfaces with 1/4" standoffs. Use M3 stainless finish letters against dark color walls (e.g. brick, masonry), and M4 bronze finish letters against light color walls (e.g. stucco, concrete). Walls where existing lettering has been removed must be repaired and cleaned to remove mounting adhesive and repair original mounting pins holes. Provide low-profile, landscape-type, energy-efficient LED up-lights to wash wall evenly with illumination for nighttime visibility. Coordinate lighting with landscape contractor.

Varies



Scale: NTS

A4 - Parking Lot ID

Usage

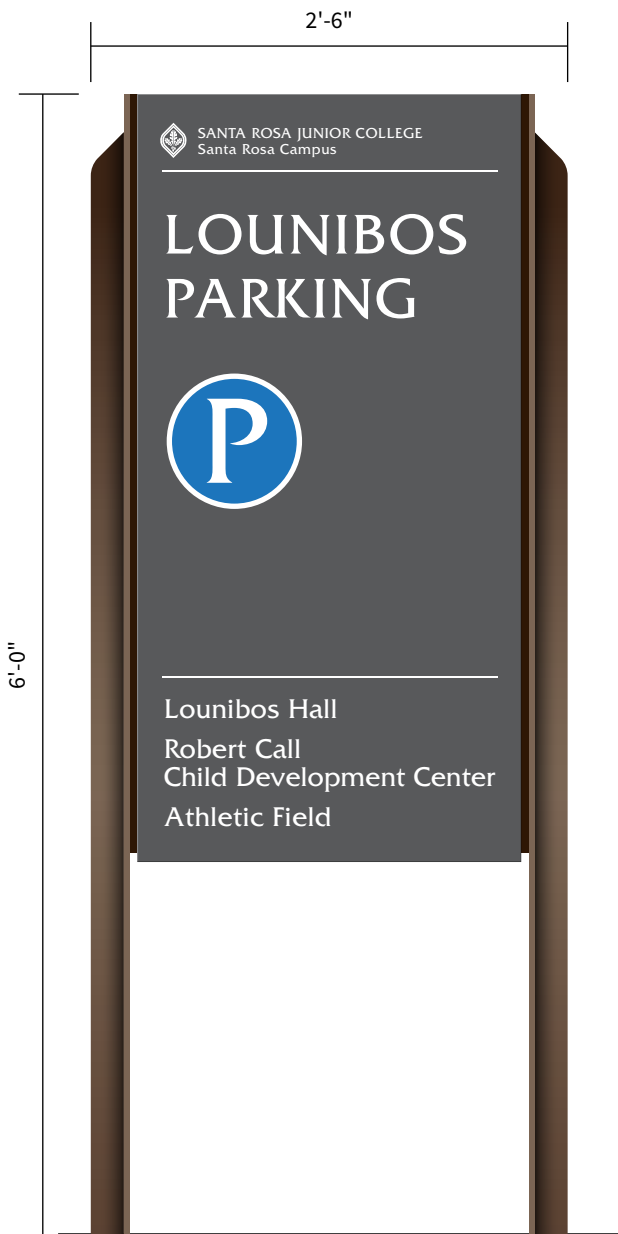
Parking lot identification signage throughout campus system will be replaced and augmented with strategically-located post and panel signs. This highly legible sign facilitates vehicular wayfinding, both day and night, through reflective typography and simplified messaging, including the universally-recognizable "P" parking symbol.

Placement

Parking lot signs orient vehicular traffic to lot entry points, and identify lots by name and building proximity. Signs are located at internal campus road entries to parking. Messages on reverse sides may provide campus exit information or additional directional messages and may include directional arrow to reinforce lot entry wayfinding. Place minimum 18" from curb, oriented facing on-coming traffic.

Materials and Specifications

Typical directional M2 aluminum sign panel finished SCJCD gray with M5 white reflective vinyl directional messages, federal blue symbol. May be double-sided. Painted aluminum M4 bronze finish support posts embedded in below-grade concrete footings. Assemble with concealed, tamper-proof stainless steel hardware.



Scale: 1" = 1'-0"

A5 - Building ID (Wall-Mounted)

Usage

Building identification on building walls is common on all campuses, and currently appears in a variety of panel types, typestyles, colors and finishes. Replacing entry plaques with a consistent graphic style and application will help to create a more cohesive identity for each campus building.

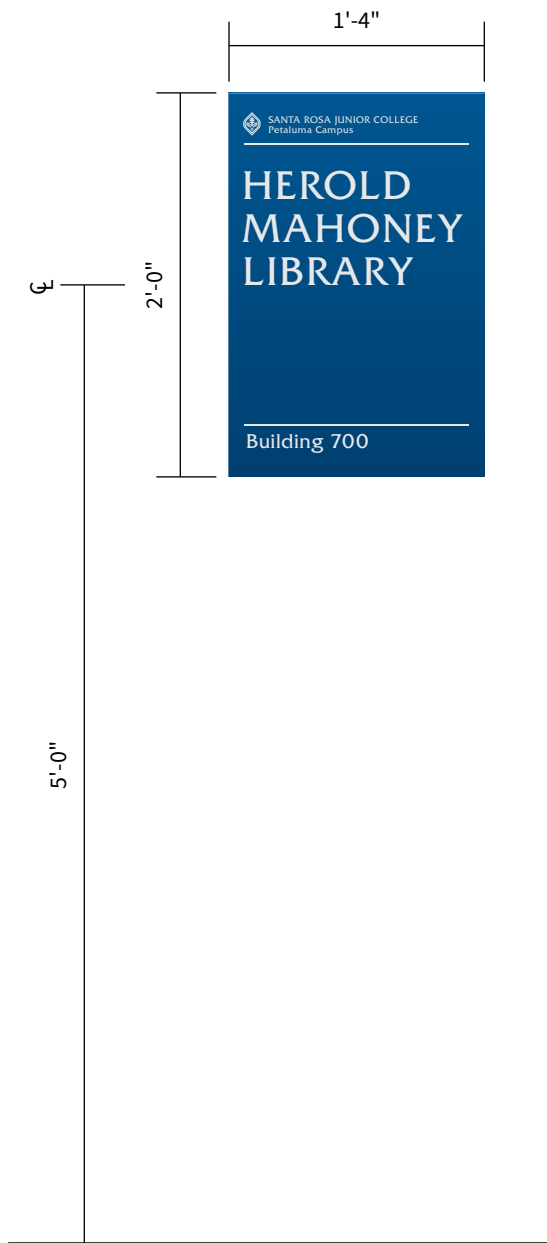
Placement

Plaques are located on the exterior building wall, placed on the “latch” side of the main building entry(s) door, generally on the right when facing entry. Architectural conditions may require placing sign plaque on a wall in advance of the entry, or to the left, as required for visibility from perimeter sidewalks and streets. Mount plaque 12" away from vertical edge of doorframe or opening, 60" to center of plaque to finish grade or paving. A building may have multiple primary entries, requiring a plaque at each entry, to be confirmed during implementation.

Materials and Specifications

Typical fabricated aluminum M2 plaque finished SCJCD blue. 1" thick pan assembly with M7 white screen-printed building name message and campus emblem. Mount to wall surface with tamper-proof hardware through panel returns into backer. Walls where existing plaque has been removed must be repaired and cleaned to remove mounting adhesive and conceal original mounting pins holes.

Note: sign panel size may be scaled up appropriately for visibility to building entries set back from perimeter streets/sidewalks.



Scale: 1" = 1'-0"

A6 - Building ID (Freestanding)

Usage

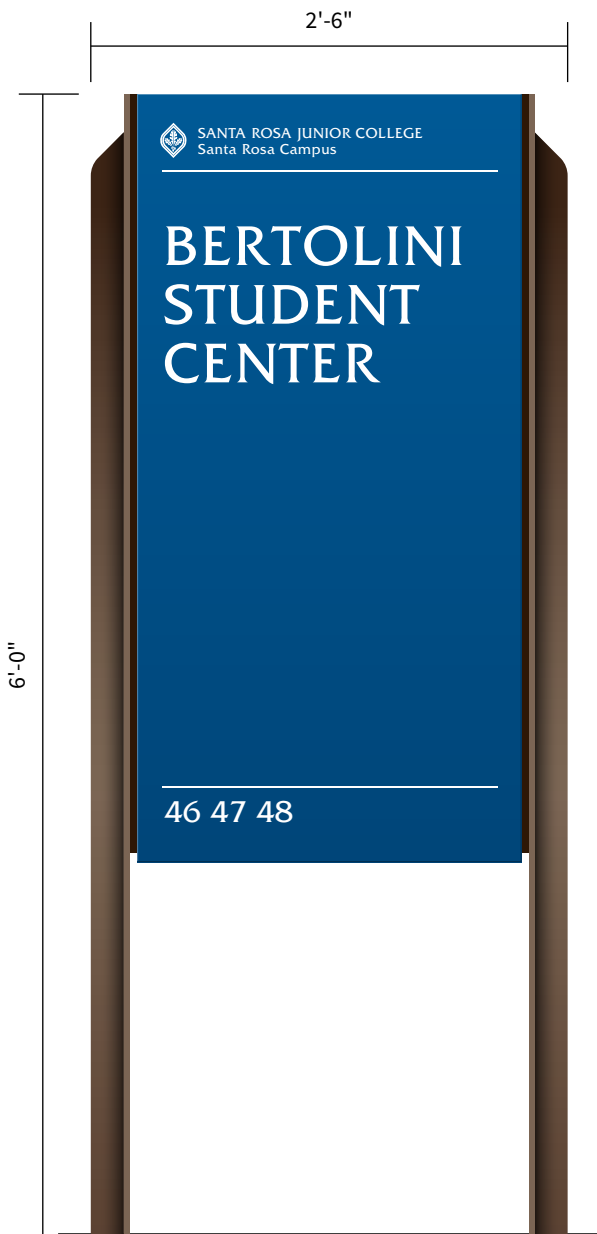
To supplement on-building identification plaques where building entry is not immediately visible from approach road or pathways, a supplemental freestanding building identification sign facilitates wayfinding.

Placement

Freestanding building identification signs are located at building driveway entries or along pathways leading to building entrances. Signs are generally single-sided, oriented to face approaching traffic. Place minimum 18" from curb, or 12" from pathways. A building may have multiple primary entries requiring an approach sign, to be confirmed during implementation.

Materials and Specifications

Typical identification fabricated M2 aluminum panel finished SCJCD blue with M5 white reflective vinyl messages. Painted aluminum M4 bronze finish 72"H support posts embedded in below-grade concrete footings. Assemble with concealed, tamper-proof stainless steel hardware.



Scale: 1" = 1'-0"

A7 - Building ID (Dimensional Letters)

Usage

Building identification on building walls is common on all campuses, and currently appears in a variety of typestyles, colors and finishes. Replacing dimensional lettering with a consistent graphic style and application (common typeface, material, letter case standard) will help to create a more cohesive identity for each campus building.

Placement

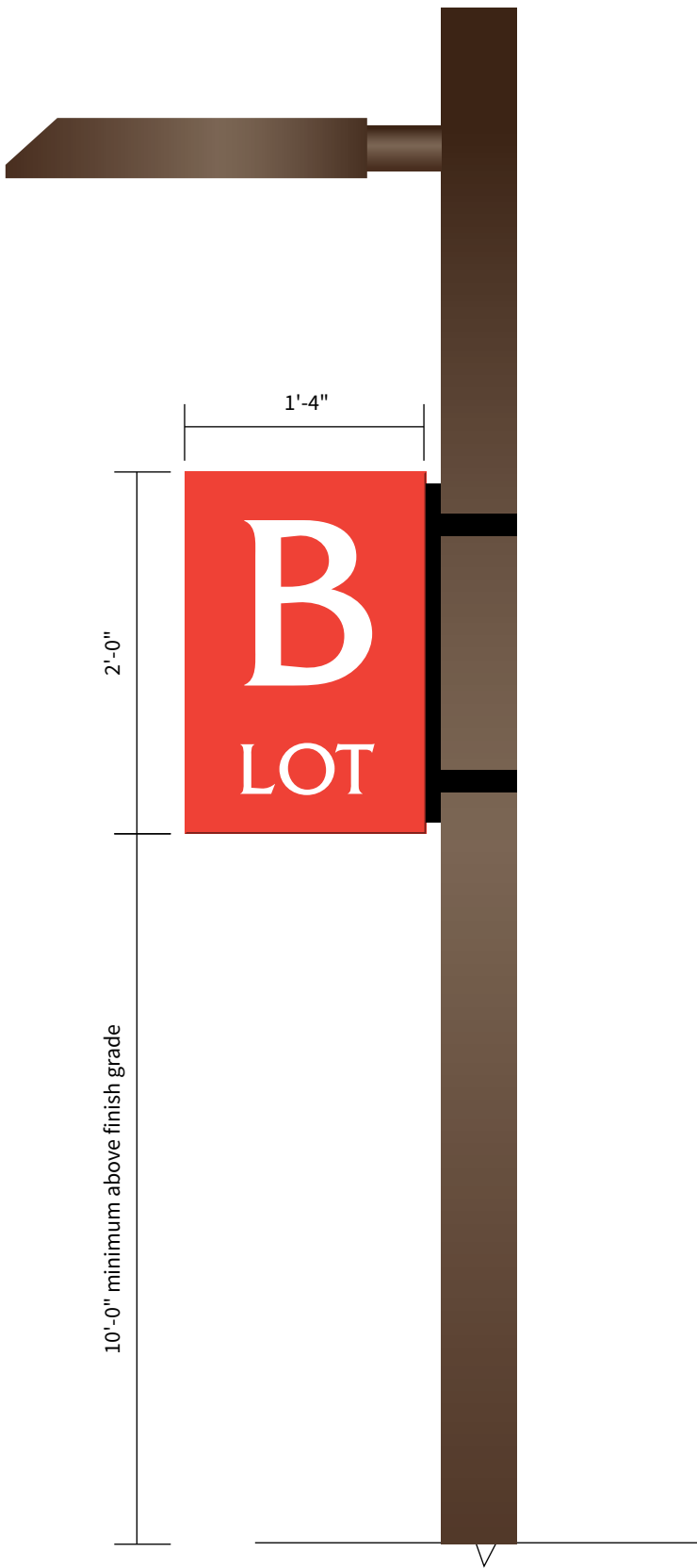
Lettering is to be located adjacent to building entries, placed to be visible from primary approach, sized for visibility from perimeter sidewalks and streets. Existing lettering that is compliant in typestyle and materials, has good approach visibility and is in good condition may be retained. Letterform sizes are generally between 4" and 9" cap height, wall-mounted between 60" and 72" from finish grade. Lettering locations, sizes, and replacement needs to be confirmed on a case-by-case basis during implementation.

Materials and Specifications

3/8" thick dimensional, natural finish metal letters pin-mounted to wall surfaces with 1/4" standoffs. Use M3 stainless finish letters against dark color walls (e.g. brick, masonry), and M4 bronze finish letters against light color walls (e.g. stucco, metal panel). Walls where existing lettering has been removed or relocated must be repaired and cleaned to remove mounting adhesive and repair original mounting pins holes.

Varies | GARCIA HALL

Scale: NTS



A8 - Parking Zone ID (Pole-Mounted)

Usage

This parking lot zone identification facilitates vehicular wayfinding in larger lots where a zone orientation grid would provide drivers with a memory tool when parking their vehicle. This zone number sign type is optional.

Placement

Parking lot zone ID signs are located within lots, attached to existing street light poles, and are an extension of type R2 Parking Policy/Zone ID signs. Place sign panel minimum 10'-0" head clearance height from pavement, oriented perpendicular to traffic lanes. Zone lettering, sign locations and quantities to be confirmed on a case-by-case basis during implementation.

Materials and Specifications

Typical informational painted M2 aluminum panel M2 finished SCJCD red with M5 white reflective vinyl parking zone letter. Double-sided. Assemble with standard traffic pole bracket, tamper-proof stainless steel hardware and post straps.

Scale: 1" = 1'-0"

D1 - Campus Map + Directional

Usage

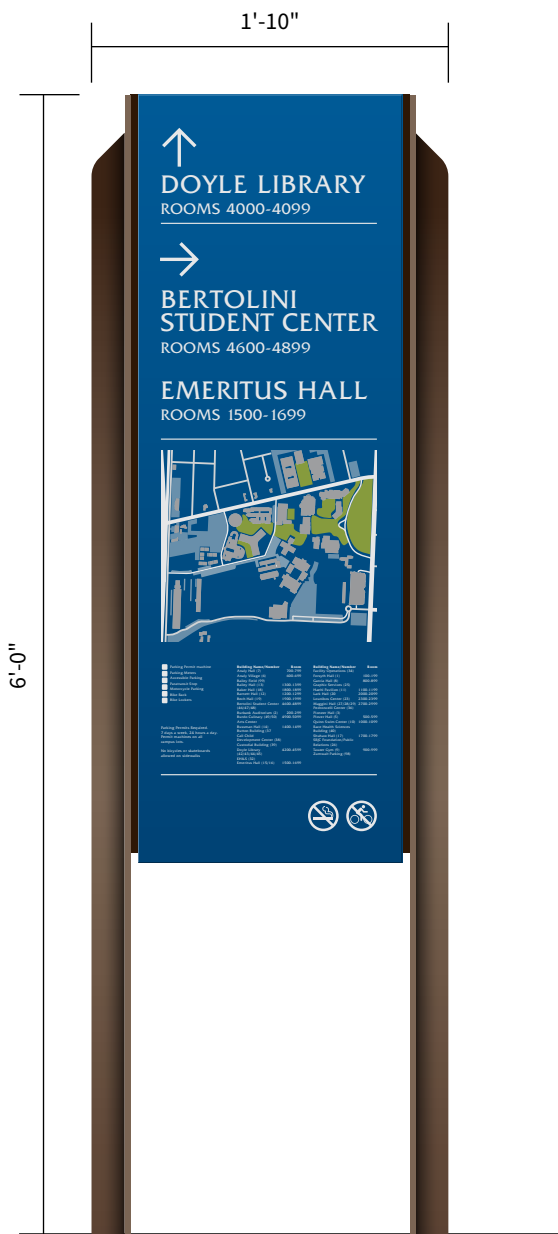
Maps are of vital importance to the wayfinding strategy for the campus. They should be strategically-located to provide guidance and reassurance to the user. Existing map signs used throughout campus system are to be replaced with new post and panel map signs. Where a location would benefit from directional information in addition to a campus map, to point toward nearby buildings for example, this combined map and directional sign facilitates pedestrian wayfinding. Future addition of a QR code or phone number on map graphic linked to a campus audio tour would engage visitors, including sight-impaired users.

Placement

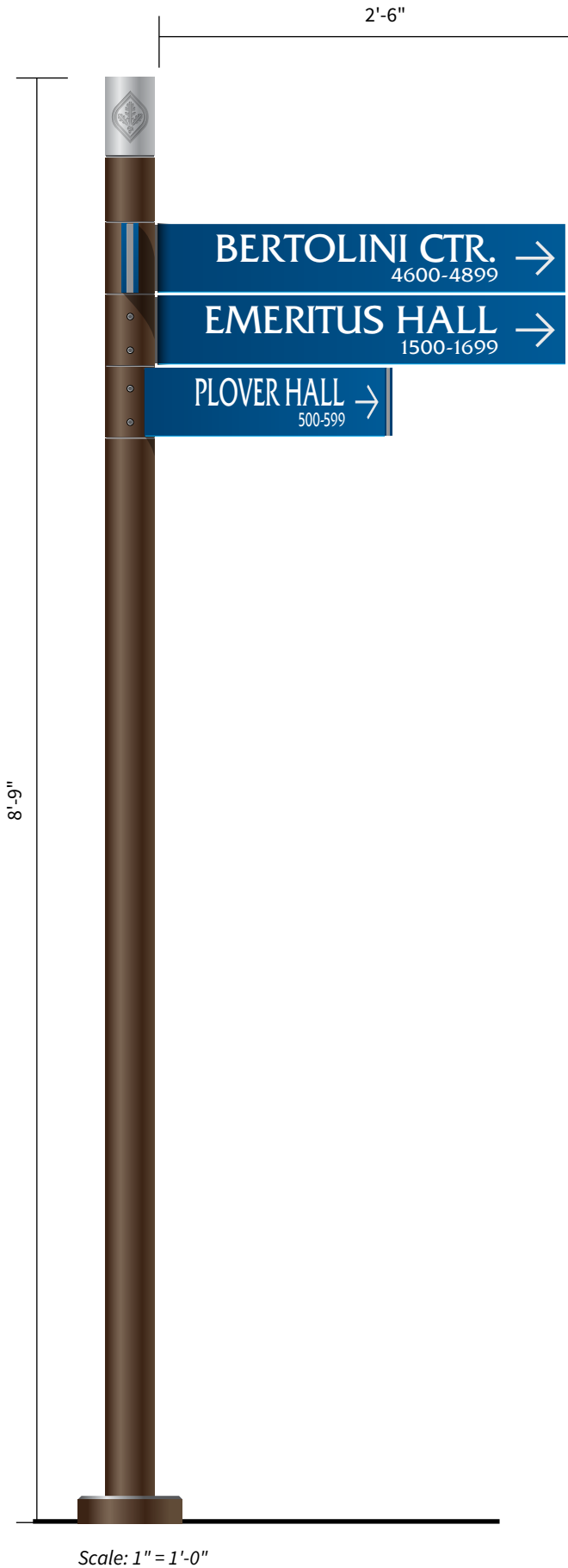
Place sign minimum 12" off pathways, oriented toward primary direction of travel so that pedestrians can approach map panel without blocking traffic. May also be placed in plaza hardscape areas, double-sided. Orient campus map graphic and "You are Here" to match viewer's orientation based on each placement location. Where possible, co-locate near existing building or pathway lighting for nighttime legibility.

Materials and Specifications

Typical directional/map panel M1 embedded non-glare graphic panel with directional messages, campus map and building directory captured by M2 painted aluminum frame. Back with M2 painted aluminum panel finished SCJCD blue, or may be double-sided. Painted aluminum M4 bronze finish support posts embedded in below grade concrete footings. Assemble with concealed, tamper-proof stainless steel hardware.



Scale: 1" = 1'-0"



Scale: 1" = 1'-0"

D2 - Finger Post Directional

Usage

Cross campus pedestrian wayfinding will be significantly improved with these strategically-located "finger post" directional signs. This taller, variable directional panel guidepost facilitates pedestrian wayfinding through better visibility and simplified messaging.

Placement

Finger post signs are located at pedestrian pathway intersections and major decision points, and may accommodate up to six directional message panels per location. Modular pole and panel attachment design allows panel directional to be oriented as required, in any direction up to 360°. Place post minimum 18" off pathways, with minimum 80" head clearance height per ADA. Where possible, co-locate near existing pathway lighting for nighttime legibility.

Materials and Specifications

5" diameter round M2 painted aluminum post finished M4 bronze with decorative M2 aluminum finish cap and SCJCD gray emblem, embedded in below-grade concrete footing. Stainless steel universal mounting hardware for panel attachment. Typical directional panel M2 painted aluminum finished SCJCD blue with M7 white screen-printed directional messages, double-sided. Eased panel corners.

D3 - Campus Map (Pedestal)

Usage

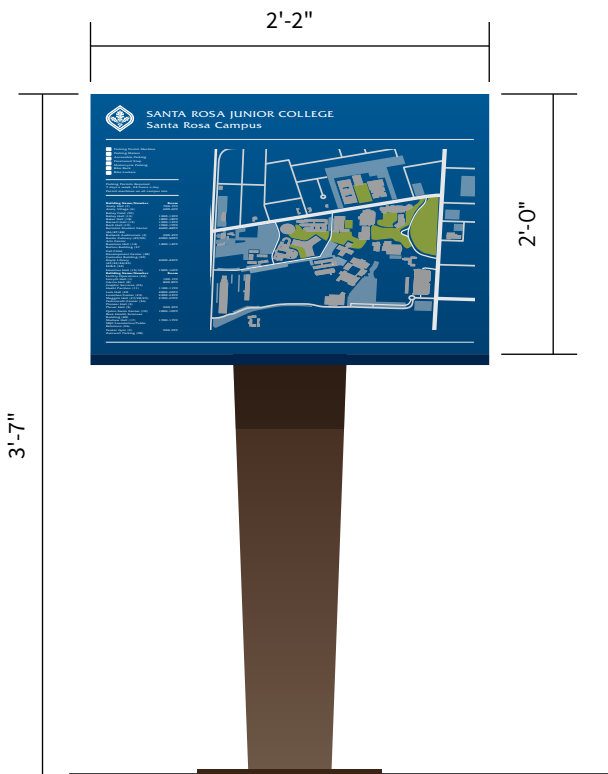
Maps are of vital importance to the wayfinding strategy for the campus. They should be strategically-located to provide guidance and reassurance to the user. Existing map signs used throughout campus system are to be replaced with new post and panel map signs. In locations where an overall campus map is sufficient, such as at campus perimeter, in quads or for orientation along a major pathway, this pedestal map sign type may be used. Future addition of a QR code or phone number on map graphic linked to a campus audio tour would engage visitors, including sight-impaired users.

Placement

Place leading edge of map panel minimum 4" off pathways for ADA clearance, with sign oriented parallel to primary direction of travel so that pedestrians can approach map panel without blocking traffic. If placing map panel in hardscape plazas, provide stainless steel cane strike bar oriented to, and directly below, leading edge of map panel. Orient campus map graphic and "You are Here" to match viewer's orientation based on each placement location. Where possible, co-locate near existing building or pathway lighting for nighttime legibility.

Materials and Specifications

Typical map panel M1 embedded non-glare graphic panel with campus map and building directory captured by M2 painted aluminum frame and back panel, finished SCJCD blue, single-sided. All edges and corners eased. Painted aluminum M2 support post finished M4 bronze embedded in below-grade concrete footing. M3 stainless steel 2"H cane strike bar where required, eased edges and corners. Assemble with concealed, tamper-proof stainless steel hardware.



Scale: 1" = 1'-0"

D4 - Vehicular Directional

Usage

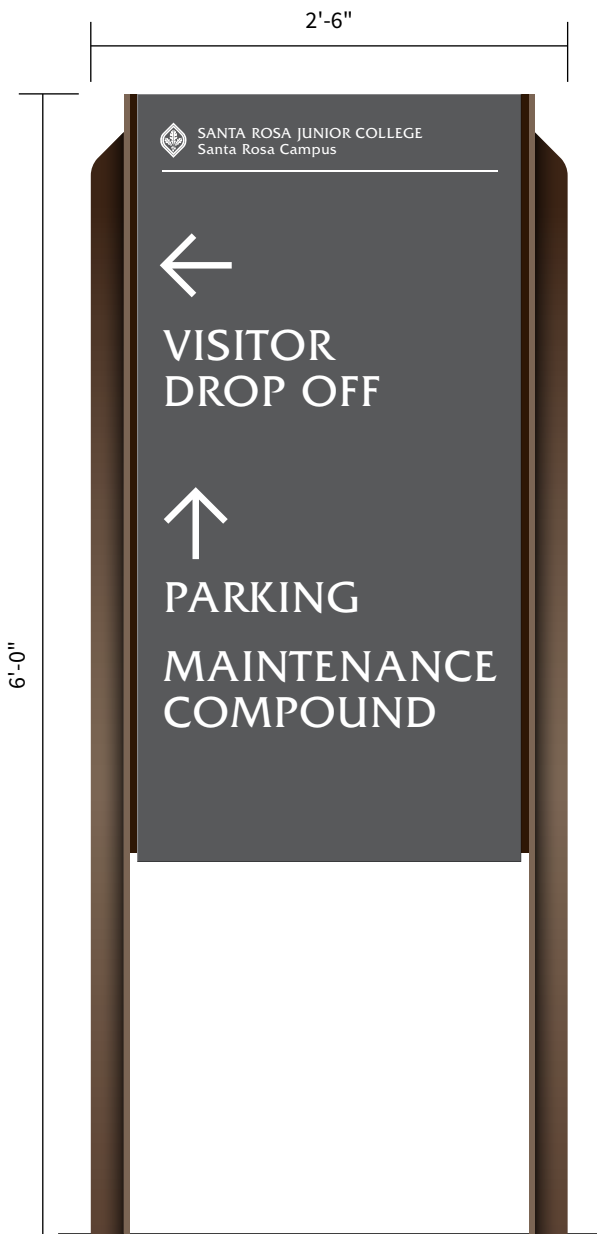
Vehicular directional signage throughout campus system will be replaced and augmented with strategically-located post and panel signs. This highly legible sign facilitates vehicular wayfinding, both day and night, through reflective typography and simplified messaging.

Placement

Vehicular signs are located at internal campus road intersections and major decision points, and provide directional messages to buildings, drop-offs, and parking. Messages on reverse sides may provide campus exit information or additional directional messages. Place minimum 18" from curb, oriented facing on-coming traffic.

Materials and Specifications

Typical directional fabricated M2 aluminum panel finished SCJCD gray with M5 white reflective vinyl directional messages. May be double-sided. Painted aluminum M4 finished brozne support posts embedded in below-grade concrete footings. Assemble with concealed, tamper-proof stainless steel hardware.



Scale: 1" = 1'-0"

R1 - Regulatory Sign

Usage

Regulatory information signs alert users to important campus regulations upon entry to each campus, but are to be placed sparingly and feature messages with a positive tone of voice. Typical messages may include smoking, bicycles and/or skateboarding restrictions, and feature symbols to aid non-English speaking visitors.

Placement

Regulatory signs are located at campus perimeter along pedestrian pathways leading into campus. Place minimum 12" from edge of pathway, oriented to be visible from primary pedestrian approach.

Materials and Specifications

Typical informational panel M1 embedded graphic panel with regulatory messages captured by M2 painted aluminum frame finished M4 bronze. Single-sided. Painted aluminum M2 48"H square support post finished M4 bronze, with integral top cap. Post embedded in below-grade concrete footing. Assemble with concealed, tamper-proof stainless steel hardware.



Scale: 1" = 1'-0"

R2 - Parking Policy/Zone ID Sign

Usage

This parking lot zone and regulatory information sign type facilitates vehicular wayfinding in lots, and provides parking usage warning. Simplified messaging, including Spanish/English multi-lingual messaging at Southwest Center, aids parking lot users.

Placement

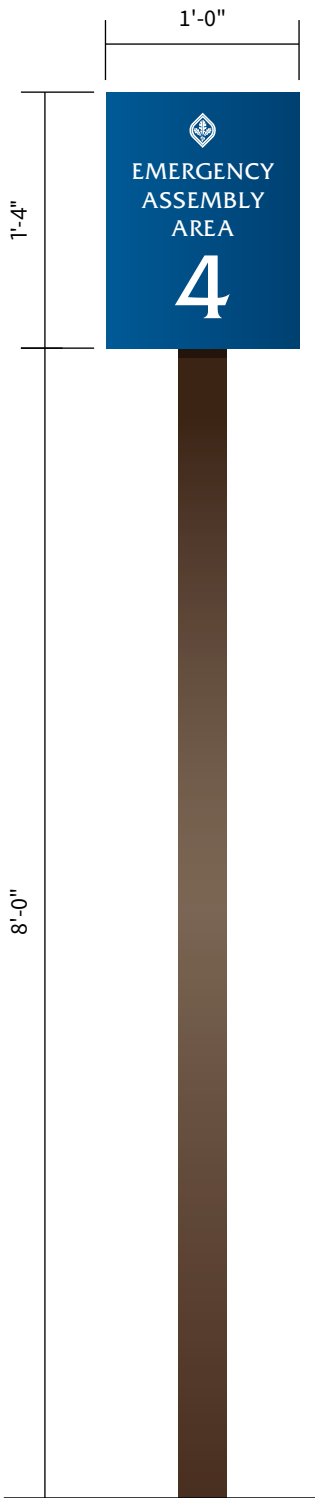
Parking lot regulatory signs are located at lot entries along internal campus roads, and may be paired with type A4 Parking Lot ID signs. Place minimum 18" from curb, oriented facing on-coming traffic. Zone number optional, used in larger lots where a zone orientation grid would provide drivers with a memory tool when parking their vehicle.

Materials and Specifications

Typical informational panel M1 embedded graphic panel with regulatory messages captured by M2 painted aluminum frame finished M4 bronze. Single-sided. Painted aluminum M2 square support post finished M4 bronze, with integral top cap. Post embedded in below-grade concrete footing. Assemble with concealed, tamper-proof stainless steel hardware.



Scale: 1" = 1'-0"



R3 - Evacuation Assembly Area Sign

Usage

This evacuation assembly sign is intended to identify authorized emergency gathering spaces on campus, often in open areas and parking lots away from buildings. Signs may be identified by number zone to correspond with evacuation instructions.

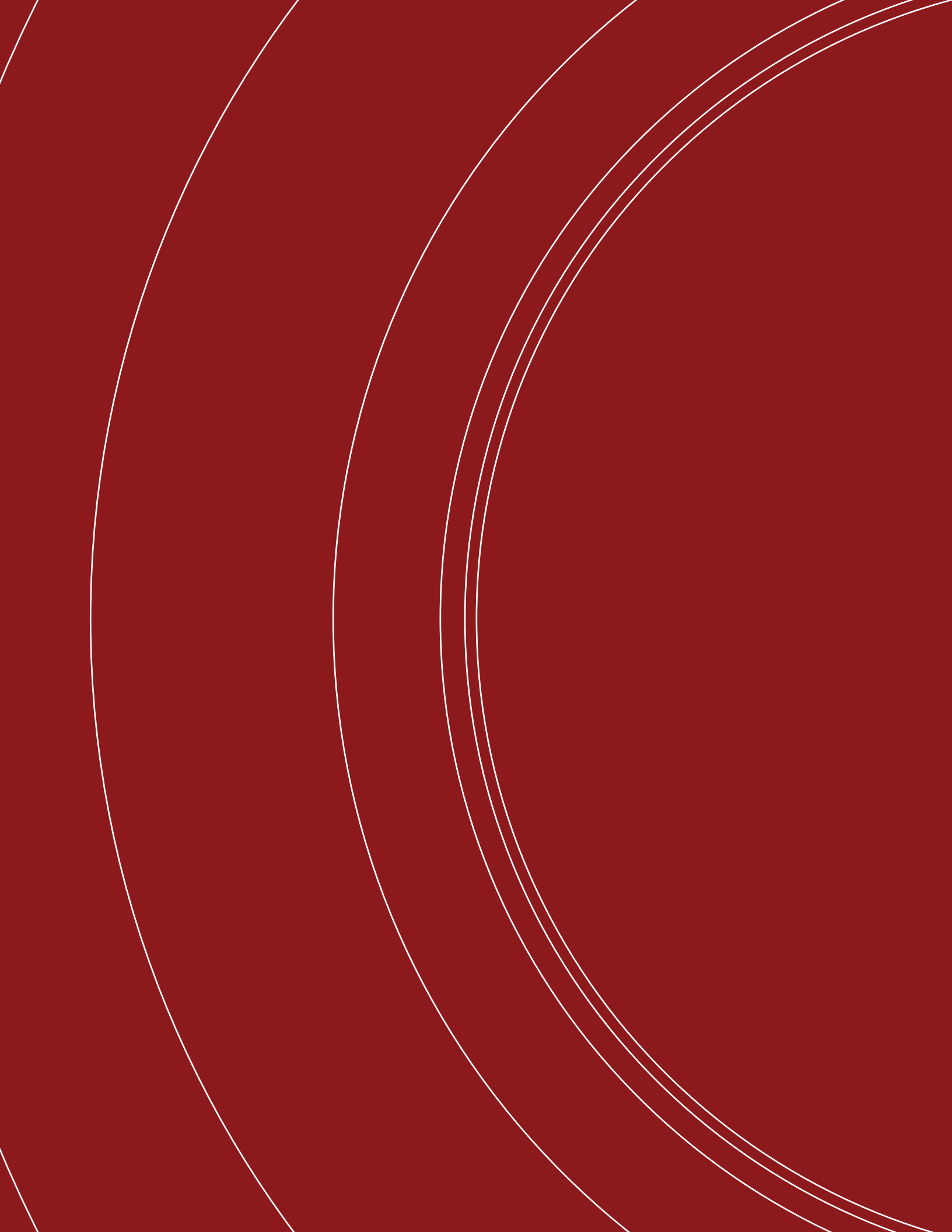
Placement

Signs may be mounted to freestanding poles when placed in open areas, or mounted to existing street light poles in parking areas. Orient signs toward occupants exiting buildings during emergencies. Mount signs minimum 8'-0" head clearance from finish grade (freestanding poles or street light poles). Zone numbering, sign locations and quantities to be confirmed on a case-by-case basis during implementation.

Materials and Specifications

Typical informational painted aluminum M2 panel finished SCJCD blue with M5 reflective white vinyl message, eased panel corners. Painted aluminum M2 square support post, with integral top cap, finished M4 bronze. Post embedded in below-grade concrete footing. Assemble with standard traffic pole bracket, tamper-proof stainless steel hardware and post straps.

Scale: 3/4" = 1'-0"



5.6
Mechanical /
Electrical /
Plumbing

Division 21

Codes & Guidelines Fire Suppression

CALIFORNIA FIRE CODE

NFPA GUIDELINES

CA STATE FIRE MARSHAL

DIVISION OF STATE ARCHITECT INTERPRETATIONS OF REGULATIONS



TECHNICAL GUIDELINES

Fire sprinklers systems shall be designed, installed, and tested per NFPA standards, California Fire Code, DSA, and State Fire Marshal requirements.

Installing contractor shall be CA licensed and have at least 5 years of experience in similar size and complexity projects.

System designer and Engineer of Record shall be licensed in CA and have at least 5 years of experience in similar size and complexity projects.

Testing and acceptance of fire sprinklers shall be done in accordance with NFPA standards California Fire Code, DSA, and State Fire Marshal requirements.

Water Based Fire-Suppression systems shall be provided for all projects, except in project areas where a Pre-Action sprinkler system and/or gas fire suppression system is installed. If required, a Pre-action Sprinkler System and/or Gaseous Fire Suppression will be utilized in limited building areas (IDF Room/or chemical storage areas). The requirements for these fire protection systems will be evaluated during the course of project.

Any Alternative automatic fire-extinguishing system, other than automatic sprinkler system, must be designed, installed, inspected, tested and maintained in accordance with the provisions the current version of the CBC.

Automatic fire-extinguishing system installed as an alternate to the required automatic sprinkler system shall be approved by the fire code official. Automatic fire-extinguishing system shall not be considered alternatives for the purpose of exceptions or reductions allowed by other

requirements of the current version of the CBC.

Halon or other CFC/HCFC suppression systems are not acceptable. Clean agent system shall be Inergen, FM-200 or other approved agents. System shall be designed and installed per NFPA standards and California Codes.

PERFORMANCE SPECIFICATIONS

Products and equipment prohibited from containing pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products or equipment within this specification contain these banned substances, provide complying products and equipment from approved manufacturers with equal performance characteristics.

Conform all work and materials to requirements of the local and State codes, fire marshal, the owner's insurance underwriter and any other authority having jurisdiction; and all Federal, State and other applicable laws and regulations.

Contractor responsible for obtaining and payment for all permits, licenses, and inspection certificates required in accordance with provisions of Contract Documents.

Fire protection system designs must bear the stamp and seal of the registered Professional Engineer who prepared the documents. The Engineer's stamp certifies that the work was done under the Engineer's supervision and control. Certification from NICET technicians, or other contractors, cannot replace the certification by the Engineer. Verify/coordinate with local building department for their specific requirements.

Division 21 (cont.)

Good work quality, free of faults and defects and in conformance with the Contract Documents.

Build and Apparatus built and installed to deliver its full rated capacity at the efficiency for which it was designed.

The entire system and apparatus shall operate at full capacity without objectionable noise or vibration.

For remodel projects, the existing system must remain fully operational, or provisions made to provide coverage while the new system is being installed. New installation switchover shall require minimal down time. Provide method to maintain fire protection or fire watch during any system down time. Include any related cost for materials or labor that is needed for providing continuous coverage.

Install equipment level and true equipment. Housekeeping pads and curbs shall account for floor or roof slope.

MATERIALS AND EQUIPMENT

Each piece of equipment furnished shall meet all detailed requirements of the Drawings and Specifications and shall be suitable for the installation shown. Equipment not meeting all requirements will not be acceptable, even though specified by name along with other manufacturers.

Where two or more units of the same class of equipment are furnished, use products of the same manufacturer. Component parts of the entire system need not be products of same manufacturer.

Furnish materials and equipment of size, make, type, and quality herein specified.

Equipment scheduled by performance or model

number considered the basis of the design. If other specified manufacturer's equipment is provided in lieu of the basis of design equipment the contractor is responsible for changes and costs which may be necessary to accommodate this equipment, including different sizes and locations for connections, different electrical characteristics, different dimensions, different access requirements or any other differences which impact the project.

Follow manufacturer's directions where they cover points not specifically indicated. If they are in conflict with the Drawings and Division 21, Fire Suppression Specifications, obtain clarification before starting work.

Cutting, patching, and repairing for the proper installation and completion of the work specified in this Division including plastering, masonry work, concrete work, carpentry work, and painting shall be performed by skilled craftsmen of each respective trade in conformance with the appropriate Division of Work.

Make additional openings required in building construction by drilling or cutting. Use of jackhammer is specifically prohibited.

Fill holes which are cut oversize so that a tight fit is obtained around the sleeves passing through.

Beams or columns shall not be pierced without permission of Architect and then only as directed.

All new or existing work cut or damaged shall be restored to its original condition. Where alterations disturb lawns, paving, walks, etc., the surfaces shall be repaired, refinished, and left in condition existing prior to commencement of work.

Division 21 (cont.)

SHOP DRAWINGS AND SUBMITTALS

Contract Drawings indicate the general layout of the piping, and various items of equipment. Coordination with other trades and with field conditions will be required. For this purpose, prepare Shop Drawings of piping, and equipment installations. Shop Drawings shall be new drawings prepared by Contractor and not reproductions or tracings of Architect's Drawings. Overlay drawings with shop drawings of other trades and check for conflicts. Drawings same size as Architect's Drawings with title block similar to Contract Drawings and identifying Architect's Drawing number or any reference drawings. All drawings shall be fully dimensioned including both plan and elevation dimensions. Shop drawings cannot be used to make scope changes.

Submit product data for review on scheduled pieces of equipment, on equipment requiring electrical connections or connections by other trades, and as required by each specification section or by Drawing notes.

Include manufacturer's detailed shop drawings, specifications and data sheets. Data sheets shall include capacities, RPM, BHP, pressure drop, design and operating pressures, temperatures, and similar data. Manufacturer's abbreviations or codes are not acceptable. List the name of the motor manufacturer and service factor for each piece of equipment. Indicate equipment operating weights including bases and weight distribution at support points. In the case of equipment such as wiring devices, time switches, valves, etc., specified by specific catalog number, a statement of conformance will suffice.

It shall be the Contractor's responsibility to provide submittals at one time and are in proper order. Ensure that the equipment will fit in the space provided. Assure that deviations from Drawings and Specifications are specifically noted in the submittals. Failure to comply will void review

automatically.

Provide record drawings in hard copy and pdf format. Drawings shall include the project specific title block and notations reflecting the as built conditions of any additions to or variations from the construction documents provided as part of the BIM coordination, RFIs, ASIs, Owner Changes, and Field Coordination.

PROJECT CONDITIONS

Prior to bidding, verify and become familiar with existing conditions by visiting the site, and include factors which may affect the execution of this Work. Include related costs in the initial bid proposal. Coordinate exact requirements governed by actual job conditions. Check information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work. Coordinate shutdown and start-up of existing, temporary, and new systems and utilities. Notify Owner, City, and Utility Company.

WARRANTY

Provide a written guaranty covering the work of this Division (for a period of one calendar year from the date of acceptance by the Owner) as required by the General Conditions. Provide manufacturer's written warranties for material and equipment furnished under this Division insuring parts and labor for a period of one year from the date of Owner acceptance of Work of this Division. Correct warranty items promptly upon notification.

Make provisions for the necessary openings in building to allow for admittance of equipment. Submit one copy of test reports and certificates specified herein to the Architect. Submit requests for product substitutions in accordance with the Instructions to Bidders and the General and Supplemental Conditions.

Division 21 (cont.)

WATER BASED FIRE SUPPRESSION SYSTEMS

Provide a complete automatic fire sprinkler/combination standpipe system.

As a minimum, sprinkler system shall comply with NFPA 13 and local Fire Marshal requirements.

Refer to Section 21 05 00, Common Work Results for Fire Suppression for additional requirements. Comply with Factory Mutual requirements for Hazard Class and System Design.

Hydraulically Calculated Sprinkler System: Sprinkler system to be hydraulically calculated grid system designed to provide:

LIGHT HAZARD OCCUPANCIES

0.10 GPM/Ft² density at most remote 1500 SF for public areas, living spaces, or designated by the local fire marshal with an excess of 10 psi additional pressure requirements incorporated into the design over specified pressure requirements.

ORDINARY HAZARD OCCUPANCIES

GROUP 1

0.15 GPM/Ft² density at most remote 1500 SF for mechanical rooms, kitchen, and parking areas, or designated by the local fire marshal with an excess of 10 psi additional pressure requirements incorporated into the design over specified pressure requirements.

ORDINARY HAZARD OCCUPANCIES

GROUP 2

0.20 GPM/Ft² density at most remote 1500 SF for mechanical rooms, kitchen, and parking areas,

or designated by the local fire marshal with an excess of 10 psi additional pressure requirements incorporated into the design over specified pressure requirements.

NFPA 13 (without the use of exceptions found in NFPA 13 systems minimum guideline) used for the location, sizing, and installation of piping and sprinkler systems unless local fire marshal or owner's insurance underwriter requirements are more stringent. Exceptions must be approved by the Engineer prior to usage.

WATER SERVICE PRESSURE BASIS OF DESIGN

Coordination was done to determine fire service water pressure used to develop the fire sprinkler system design information included herein.

Obtain current flow test information prior to starting their design of the fire sprinkler system.

Automatic sprinklers within elevator hoistways and machine rooms complies with ANSI A17.1-102.2 (c) 4 requirements.

Division 21 (cont.)

FIRE SUPPRESSION PUMPS

The fire pump installation in accordance with FM Global property Loss prevention Data Sheet 3-7N, Stationery Pumps for Fire Protection. FM approved and UL listed.

Conduct field acceptance performance test upon completion of pump installation. Perform test flowing water through calibrated nozzles, approved flow meters or other such accurate devices as may be selected by the authority having jurisdiction. Conducted as recommended in NFPA Pamphlet 20 in the presence of the authority having jurisdiction and with that authority's final approval and acceptance. Failure to submit documentation of factory and field tests will be just cause for equipment rejection.

Install equipment in accordance with manufacturer's instructions & NFPA 20. The supplier of the pumping system shall provide water storage tank fill valve installation supervision to ascertain that equipment is properly installed and functional. Two normally closed solenoid valves installed in series on the fill pipe to the storage tank, in addition to two pressure transmitters and pressure transmitter control panels to assure 100 percent redundancy for auto-fill and water shutoff.

Power wiring, as required, shall be the responsibility of the Contractor. Perform wiring in accordance with the manufacturer's instructions and applicable local, state, and federal codes.

Control wiring for remote mounted switches and sensor/transmitters shall be the responsibility of the Contractor. Wiring performed in accordance with the manufacturer's instructions and applicable to local, state, and federal codes.

Engage the system manufacturer or certified factory-trained representatives to provide startup of the fire pump system in accordance with

NFPA 20, Section 11-2. Certified factory-trained representatives to include a Pump Representative, Diesel Mechanic (if diesel engine included), and Controls Representative. Startup shall include verification of proper installation, system initiation, adjustment, and fine-tuning. Startup not considered complete until the sequence of operation, including all alarms, has been sufficiently demonstrated to the Authority Having Jurisdiction. Startup occurs only after hook-ups, tie-ins, and terminations have been completed and signed off on the manufacturer's startup request form.

Engage the system manufacturer or factory-trained representative to provide on-site training for the Owner. This training

Division 22

Codes & Guidelines Plumbing

CALIFORNIA PLUMBING CODE

CALGREEN CODE

CALIFORNIA ENERGY CODE

ASPE DESIGN HANDBOOKS

DIVISION OF STATE ARCHITECT INTERPRETATIONS OF REGULATIONS

TECHNICAL GUIDELINES



Plumbing fixture water use and performance requirements are (will be) included in the sustainability section of this document. All projects shall meet those water efficiency performance requirements.

Domestic hot water heaters shall be gas fired condensing, 96% minimum efficiency. Design team shall determine if tank or tankless type (with recirculating pump) should be used based on specific project LCCA calculation results. Design team shall present results to SCJCD for review and approval.

Solar thermal collector systems shall be investigated in any project that requires substantial domestic hot water use. Design team shall determine what type of collectors, water storage quantity, and other design features based on based on specific project LCCA calculation results. LCCA calculation shall also compare solar thermal and PV array produced domestic hot water to determine if solar thermal collector technology is the best option for the project. Design team shall present results to SCJCD for review and approval. Provide isolation valves at all bathrooms, men's and women's shall be independently isolated, as shall be unisex restrooms. Isolation valves shall be provided for domestic cold water and domestic hot water.

Provide isolation valves at all pantry and kitchen facilities. Isolation valves shall be provided for domestic cold water, domestic hot water, gas, and any industrial water connections to pantry or kitchen equipment.

Provide isolation valves at all laboratory classrooms, teaching labs, and supporting

lab spaces. Isolation valves shall be provided for domestic cold water, domestic hot water, gas, industrial cold water, industrial hot water, compressed dry air, vacuum, and de-ionized or reverse osmosis (purified) water.

Provide isolation valves at all plumbing equipment. Isolation valves shall be provided such that the equipment can removed from operation without requiring turning entire system off (where there is redundant equipment), or draining the system (unless required by the equipment manufacturer or for safety reasons).

Refer to Volume 4 and where appropriate implement low flow and gray water or black water treatment systems at the campus level. These strategies are intended to achieve the 2030 water efficiency goals of the Sonoma County Junior College Distract.

System design and equipment selection shall be done to minimize maintenance requirements. Where maintenance is required provide sufficient space to allow for manufacturers clearances and connection to adjacent equipment.

PERFORMANCE SPECIFICATIONS

Products and equipment prohibited from containing pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products or equipment within this specification contain these banned substances, provide complying products and equipment from approved manufacturers with equal performance characteristics.

Conform work and materials to local and State codes, and Federal, State and other applicable laws and regulations. Contractor is responsible for obtaining and payment for permits, licenses, and inspection certificates required in accordance with provisions of Contract Documents.

Division 22 (cont.)

All work will be of good quality, free of faults and defects and in conformance with the Contract Documents. Build and install apparatus to deliver its full rated capacity at the efficiency for which it was designed. Operate the entire plumbing system and apparatus at full capacity without objectionable noise or vibration. Install all equipment level and true. Use housekeeping pads and curbs to account for floor or roof slope.

MATERIALS AND EQUIPMENT

Meet detailed requirements of the Drawings and Specifications and suitable for the installation shown. Equipment not meeting requirements will not be acceptable, even though specified by name along with other manufacturers.

Where two or more units of the same class of equipment are furnished, use products of the same manufacturer. Component parts of the entire system need not be products of same manufacturer.

Furnish materials and equipment of size, make, type, and quality herein specified.

Equipment scheduled by performance or model number considered the basis of the design. If other specified manufacturer's equipment is provided in lieu of the basis of design equipment the contractor is responsible for changes and costs which may be necessary to accommodate this equipment, including different sizes and locations for connections, different electrical characteristics, different dimensions, different access requirements or any other differences which impact the project.

Follow manufacturer's directions where they cover points not specifically indicated. If they are in conflict with the Drawings and Division 22, Plumbing Specifications, obtain clarification before starting work.

Cutting, patching, and repairing for the proper

installation and completion of the work specified in this Division including plastering, masonry work, concrete work, carpentry work, and painting shall be performed by skilled craftsmen of each respective trade in conformance with the appropriate Division of Work.

Additional openings required in building construction shall be made by drilling or cutting. Use of jackhammer is specifically prohibited.

Fill holes which are cut oversize so that a tight fit is obtained around the sleeves passing through.

Do not pierce beams or columns without permission of Architect and then only as directed. Restore new or existing work cut or damaged to its original condition. Where there are alterations disturb lawns, paving, walks, etc., repair, refinish, and leave in condition existing prior to commencement of work.

PROJECT CONDITIONS

Prior to bidding, verify and become familiar with existing conditions by visiting the site, and include factors which may affect the execution of this Work. Include related costs in the initial bid proposal. Coordinate exact requirements governed by actual job conditions. Check information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work. Coordinate shutdown and start-up of existing, temporary, and new systems and utilities. Notify Owner, City, and Utility Company.

Division 22 (cont.)

WARRANTY

Provide a written guaranty covering the work of this Division (for a period of one calendar year from the date of acceptance by the Owner) as required by the General Conditions.

Provide manufacturer's written warranties for material and equipment furnished under this Division insuring parts and labor for a period of one year from the date of Owner acceptance of Work of this Division.

Correct warranty items promptly upon notification.

Division 23

Codes & Guidelines Heating, Ventilation, and Air Conditioning (HVAC)

CALIFORNIA MECHANICAL CODE



Design for safe maintenance, replacement and modifications of equipment to reduce the risk of injury to operations and maintenance staff.

CALGREEN CODE

CALIFORNIA ENERGY CODE

TECHNICAL GUIDELINES

Boilers for space water heating shall be gas fired condensing, 96% minimum efficiency. Space heating system shall be designed such that the boiler shall always operate in condensing mode. Provide hydronic system isolation valves at all HVAC equipment. Isolation valves shall be provided such that the equipment can be removed from operation without requiring turning entire system off (where there is redundant equipment), or draining the system (unless required by the equipment manufacturer or for safety reasons).

ASHRAE DESIGN HANDBOOKS

ASHRAE STANDARD 5.5 (THERMAL COMFORT)

ASHRAE STANDARD 62.1 (VENTILATION)

ASHRAE STANDARD 135 (BACNET)

PERFORMANCE SPECIFICATIONS

All products and equipment shall be prohibited from containing pentabrominated, octabrominated, and decabrominated diphenyl ethers. Where products or equipment within this specification contain these banned substances, provide complying products and equipment from approved manufacturers with equal performance characteristics.

DIVISION OF STATE ARCHITECT INTERPRETATIONS OF REGULATIONS

All work and materials must conform to the local and State codes, and all Federal, State and other applicable laws and regulations. It is the contractor's responsibility to obtain and pay for all permits, licenses, and inspection certificates required in accordance with provisions of Contract Documents.

Materials and equipment shall be new. Work shall be of good quality, free of faults and defects and in conformance with the Contract Documents.

Apparatus shall be built and installed to deliver its full rated capacity at the efficiency for which it was designed without objectionable noise or vibration. All equipment shall be installed level and true. Housekeeping pads and curbs shall account for floor or roof slope.

Refer to Volume 4 Planning and Design Guidelines for sustainability guidelines for metering, minimum equipment efficiency and energy requirement.

System design and equipment selection shall be done to minimize maintenance requirements. Where maintenance is required provide sufficient space to allow for manufacturers and code based clearances, connection to adjacent equipment, and to allow for proper inlet and out let flow to equipment.

On a case by case basis, consider a implementing a ducted return system on projects to improve air balancing, airflow, and pressure drop. Evaluate the materials in plenum spaces and the construction of the plenum on all projects to verify need for ducted returns.

MATERIALS, EQUIPMENT AND WORKMANSHIP

Each piece of equipment furnished shall meet all detailed requirements of the Drawings and Specifications and shall be suitable for the installation shown. Equipment not meeting all requirements will not be acceptable, even though specified by name along with other manufacturers.

Where two or more units of the same class of equipment are furnished, use products of the same manufacturer. Component parts of the entire system need not be products of same manufacturer.

Division 23 (cont.)

Furnish all materials and equipment of size, make, type, and quality specified.

Equipment scheduled by performance or model number shall be considered the basis of the design. If other specified manufacturer's equipment is provided in lieu of the basis of design equipment the contractor is responsible for all changes and costs which may be necessary to accommodate this equipment, including different sizes and locations for connections, different electrical characteristics, different dimensions, different access requirements or any other differences which impact the project.

All materials shall be installed in a neat and professional manner.

Follow manufacturer's directions where they cover points not specifically indicated. If they are in conflict with the Drawings and Division 23, HVAC Specifications, obtain clarification before starting work.

Restore new or existing work cut or damaged to its original condition. Where alterations disturb lawns, paving, walks, etc., the surfaces shall be repaired, refinished, and left in condition existing prior to commencement of work.

PROJECT CONDITIONS

Prior to bidding, verify and become familiar with all existing conditions by visiting the site, and include all factors which may affect the execution of this Work. Include all related costs in the initial bid proposal.

Where existing systems are to be adjusted, establish flow rates in all branches prior to making any modifications to system. Submit preliminary report indicating existing conditions prior to making any modifications to existing systems. Adjust central equipment as required and restore

all unmodified branches and outlets to original condition. Obtain existing system drawings from Owner and become familiar with extent and nature of existing systems.

Coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work.

Coordinate shutdown and start-up of existing, temporary, and new systems and utilities. Notify Owner, City and Utility Company.

Prior to the commencement of any cleaning work, the HVAC system cleaning contractor shall perform a visual inspection of the HVAC system to determine appropriate methods, tools and equipment required to satisfactorily complete this project. The cleanliness inspection should include air handling units and representative areas of the HVAC system components and ductwork. In HVAC systems that include multiple air handling units, a representative sample of the units should be inspected.

The cleanliness inspection shall be conducted without negatively impacting the indoor environment through excessive disruption of settled dust, microbial amplification or other debris. In cases where contamination is suspected and/or in sensitive environments where even small amounts of contaminant may be of concern, environment engineering control measures should be implemented.

Damage system components found during the inspection shall be documented and brought to the attention of the owner. Contractor shall conduct a site evaluation and establish a specific, coordinated plan which details how each area of the building will be protected during the various phases of the project.

Division 23 (cont.)

Qualified personnel should perform the HVAC cleanliness inspection to determine the need for cleaning. At minimum, such personnel should have an understanding of HVAC system design and experience in utilizing accepted indoor environmental sampling practices, current industry HVAC cleaning procedures and applicable industry standards.

Debris removed during cleaning shall be collected and precautions must be taken to ensure that Debris is not otherwise dispersed outside the HVAC system during the cleaning process.

Where the Particulate Collection Equipment is exhausting inside the building, HEPA filtration with 99.97% collection efficiency for 0.3-micron size (or greater) particles shall be used. When the Particulate Collection Equipment is exhausting outside the building, mechanical cleaning operations shall be undertaken only with Particulate Collection Equipment in place, including adequate filtration to contain Debris removed from the HVAC system. When the Particulate Collection Equipment is exhausting outside the building, precautions shall be taken to locate the equipment down wind and away from all air intakes and other points of entry into the building. Measures shall be employed to control odors and/or mist vapors during the cleaning process.

Cleaning methods shall be employed such that all HVAC system components must be visibly clean as defined in applicable standards (see NADCA Standards). Upon completion, all components must be returned to those settings recorded just prior to cleaning operations. Dampers and any air-directional mechanical devices inside the HVAC system must have their position marked prior to cleaning, and upon completion, must be restored to their marked position.

The contractor shall utilize service openings, as

required for proper cleaning, at various points of the HVAC system for physical and mechanical entry and inspection.

WARRANTY

Provide a written guaranty covering the work of this Division (for a period of one calendar year from the date of acceptance by the Owner) as required by the General Conditions.

Provide manufacturer's written warranties for material and equipment furnished under this Division insuring parts and labor for a period of one year from the date of Owner acceptance of Work of this Division.

Correct warranty items promptly upon notification.

INSTRUMENTATION AND CONTROLS FOR HVAC

Provide control work by single company with specialists in the type of work required, so that only one control manufacturer is responsible for all control and automation work for project.

Provide coordination with other contractors or subcontractors for work required by other trades for accomplishment of control work.

Prior to substantial completion, controls contractor must demonstrate to Owner that system is operating per the Specifications and final adjustments have been made as approved.

System, including components and appurtenances, configured and installed to yield a Mean Time Between Failure (MTBF) of at least 1,000 hours.

Provide a complete control system, consisting primarily of electronic direct digital control devices.

Division 23 (cont.)

System consists of modular and distributed microprocessor based control and monitoring units connected together by communications trunks. Capable of global data sharing and communication between controllers.

System architecture shall be distributed and not rely on central processing unit (CPU) for sharing point data between controllers, or for control functions requiring data from other controllers. Multipurpose controller(s) consisting of CPU, system program, memory, power supply, and input/output drivers which communicated with terminal equipment controllers through a communications network.

Provide operator's interface. Provide all equipment, installation, wiring, and accessories as required but not necessarily specified to accomplish operations as described.

Division 25

Codes & Guidelines Integrated Automation

CALIFORNIA ENERGY CODE

ASHRAE DESIGN HANDBOOKS

ASHRAE STANDARD 135 (BACNET)

TECHNICAL GUIDELINES

Building Controls System shall be BACNet (ASHRAE standard 135), open protocol (from controllers to programming language), and compatible with other BACNet manufacturer controllers (able to accept any other manufacturer controllers and control components that meet the BACNet standard).

All delivered systems shall comply with the latest version of the following standards:

- Air Movement and Control Association (AMCA)
- Americans with Disability Act (ADA)
- American National Standards Institute (ANSI)
- American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
- American Society of Mechanical Engineers (ASME)
- American Society for Testing and Materials (ASTM)
- Canadian Standards Association (CSA)
- American Standard Code for Information Interchange (ASCII)
- Electronics Industries Association (EIA)
- European Standards (EU)
- Facility Guidelines Institute (FGI) Guidelines for Design and Construction of Hospitals and Outpatient Facilities – 2014 Edition
- Factory Mutual (FM)
- Federal Communications Commission (FCC) Part 15 & 68
- Institute of Electrical and Electronic Engineers (IEEE)
- International Electrotechnical Commission (IEC)
- ISO 9001 – International Organization for Standardization
- National Fire Protection Association (NFPA)
- National Electrical Manufacturers Association

(NEMA)

- Occupational Safety and Health Administration (OSHA)
- Underwriters Laboratory (UL)

PERFORMANCE SPECIFICATIONS

In accordance to the scope of work, the system shall also provide a graphical, web-based, operator interface that allows for instant access to any system through a standard browser. The Integrated Facility Infrastructure “IFI” contractor must provide PC-based programming workstations, operator workstations and microcomputer controllers of modular design providing distributed processing capability, and allowing future expansion of both input/output points and processing/control functions.

Division 26

Codes & Guidelines Electrical

CALIFORNIA ELECTRICAL CODE

CALGREEN CODE

CALIFORNIA ENERGY CODE

NECA GUIDELINES

DIVISION OF STATE ARCHITECT INTERPRETATIONS OF REGULATIONS

TECHNICAL GUIDELINES

ELECTRICAL METERING

Electrical metering shall be provided for incoming electrical service and sub-metering of downstream systems. Metering shall allow measurement of energy by load type and/or area. Metering data shall be intuitively labeled and aggregated and shall be accessible via Internet/Ethernet.



RENEWABLE ENERGY READY

Provide the necessary connectivity, ratings and space allocation for each new building such that adjacent renewable energy sources or other power generation systems that Sonoma County Junior College decides to utilize in the future can be connected at the adjacent services. A spare 3-phase breaker shall be indicated at the electrical service equipment for connectivity and associated metering.

Facilities shall be assessed and provided with “Renewable Ready” infrastructure. Consideration shall be given and the designated area for future/proposed system locations shall be shown on floorplans. The locations should be coordinated with architectural and structural building elements and provided a maximum allowable live/dead load to permit the future systems installation.

Photovoltaic array locations shall identify proposed orientation (azimuth) and inclination. A solar shading study shall be provided to assess and minimize any adverse impacts to the solar resource potential.

Proposed locations shall be provided with a dedicated area for support systems and roof

anchors for fall protection (as required).

Electrical infrastructure and pathways for DC and AC circuits should be coordinated and indicated on project plans.

Indicate system capacities and required infrastructure on one-line diagrams.

ENGINE GENERATORS

Engine generators provide “standby” electrical power that services the following select building loads during interruptions to the building “normal” utility power supply: Emergency, Legally Required Standby, and Optional Standby classifications. Optional Standby power loads shall be coordinated with SCJCD to validate which additional loads are considered critical and to be placed on the Optional Standby power system.

LUMINAIRES

Lighting is a major electrical power load and must be holistically integrated into the overall design for optimum building energy performance. Integration of electric lighting with natural daylight shall be maximized to reduce electrical energy consumption. Lighting shall be provided through a combination of task and space lighting.

Easily accessed lamps, ballasts, LED drivers and system components for replacement. Where it is unavoidable to require special access, provide access for changing fixtures without the need to rent special lifting equipment.

Luminaires shall be selected for high CRI, high lumen maintenance and continuous dimming abilities.

Occupant comfort, both in sitting and standing postures, and intuitive, personal control.

Division 26 (cont.)

Occupant productivity and safety, particularly through placement and reflectance of lighting that does not cast shadows on work areas.

Enhanced aesthetics integrated with the building architecture.

LIGHTING CONTROL SYSTEM

Systems shall be based on a networked system architecture. The system shall be able to communicate via network wiring or wireless with digital centralized or distributed relay panels. The controls system shall allow for each fixture to be individually addressable, to permit maximum control and flexibility for future re-zoning with minimal impact to existing conditions.

Lighting controls should be integrated with an overall building management control strategy so that the control system takes a holistic approach to reduce redundancies and inefficiencies and utilize common elements.

LOW VOLTAGE TRANSFORMERS

Low Voltage Transformers shall meet the more stringent of NEMA Premium Efficiency or meet latest DOE efficiency requirements.

WIRING DEVICES

General purpose power is the means of delivering power from the distribution equipment to the point of use wiring devices, such as receptacles. Devices shall be located and specified to match the architectural aesthetics of each area, and be thoughtfully located for optimal functionality.

PERFORMANCE SPECIFICATIONS

The electrical system is responsible for providing

power and lighting throughout the campus and facility that is both safe and maintainable, reliable and well integrated with other systems.

The electrical system shall be designed with provisions so that energy production and storage systems can be easily interconnected to the facility and campus power systems.

Systems should be readily accessible and readily maintainable by facilities personnel and limit the need for specialized equipment. The distribution should be reliable so that any outages are localized and downtime minimized. The power and lighting shall be well integrated and concealed within building architectural elements without sacrificing required maintenance accessibility.

Life expectancy of electrical equipment assumes that preventive maintenance is routinely performed to ensure proper operation over the expected life and that equipment is not subject to extreme ambient conditions and temperatures or repeated switching operations.

Electrical system data and controls should be easily accessed and integrated with other building systems to promote a unified holistic building system and not separate and redundant systems.

All products and equipment shall be prohibited from containing pentabrominated, octabrominated, and decabrominated diphenyl ethers. Where products or equipment within this specification contain these banned substances, provide complying products and equipment from approved manufacturers with equal performance characteristics.

Division 26 (cont.)

All work and materials must conform to the local and State codes, and all Federal, State and other applicable laws and regulations. It is the contractor's responsibility to obtain and pay for all permits, licenses, and inspection certificates required in accordance with provisions of Contract Documents.

Materials and equipment shall be new. Work shall be of good quality, free of faults and defects and in conformance with the Contract Documents. Apparatus shall be built and installed to deliver its full rated capacity at the efficiency for which it was designed without derating or limitations.

Where electrical connections are required for equipment provided as Work of other Divisions, coordinate rough in and wiring requirements for that equipment with its supplier and installer prior to commencing work.

All equipment shall be installed level and true. Housekeeping pads and curbs shall account for floor or roof slope.

Refer to equipment sustainability guidelines for minimum efficiency and energy requirements.

MATERIALS, EQUIPMENT AND WORKMANSHIP

Each piece of equipment furnished shall meet all detailed requirements of the Drawings and Specifications and shall be suitable for the installation shown. Equipment not meeting all requirements will not be acceptable, even though specified by name along with other manufacturers. Where two or more units of the same class of equipment are furnished, use products of the same manufacturer. Component parts of the entire system need not be products of same manufacturer.

Furnish all materials and equipment of size, make, type, and quality specified. Equipment scheduled by performance or model number shall be considered the basis of the design.

If other specified manufacturer's equipment is provided in lieu of the basis of design equipment the contractor is responsible for all changes and costs which may be necessary to accommodate this equipment, including different sizes and locations for connections, different electrical characteristics, different dimensions, different access requirements or any other differences which impact the project. All materials shall be installed in a neat and professional manner.

Follow manufacturer's directions where they cover points not specifically indicated. If they are in conflict with the Drawings and Division 26, Electrical Specifications, obtain clarification before starting work.

Restore new or existing work cut or damaged to its original condition. Where alterations disturb lawns, paving, walks, etc., the surfaces shall be repaired, refinished, and left in condition existing prior to commencement of work.

PROJECT CONDITIONS

Prior to bidding, verify and become familiar with all existing conditions by visiting the site, and include all factors which may affect the execution of this Work. Include all related costs in the initial bid proposal.

Division 26 (cont.)

Where existing systems are to be adjusted, establish peak demand loads in all distribution equipment prior to making any modifications to system. Submit preliminary report indicating existing conditions prior to making any modifications to existing systems. Adjust distribution equipment as required and restore all unmodified circuits and devices to original condition. Obtain existing system drawings from Owner and become familiar with extent and nature of existing systems.

Coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work. Coordinate shutdown and start-up of existing, temporary, and new systems and utilities. Notify Owner, City and Utility Company.

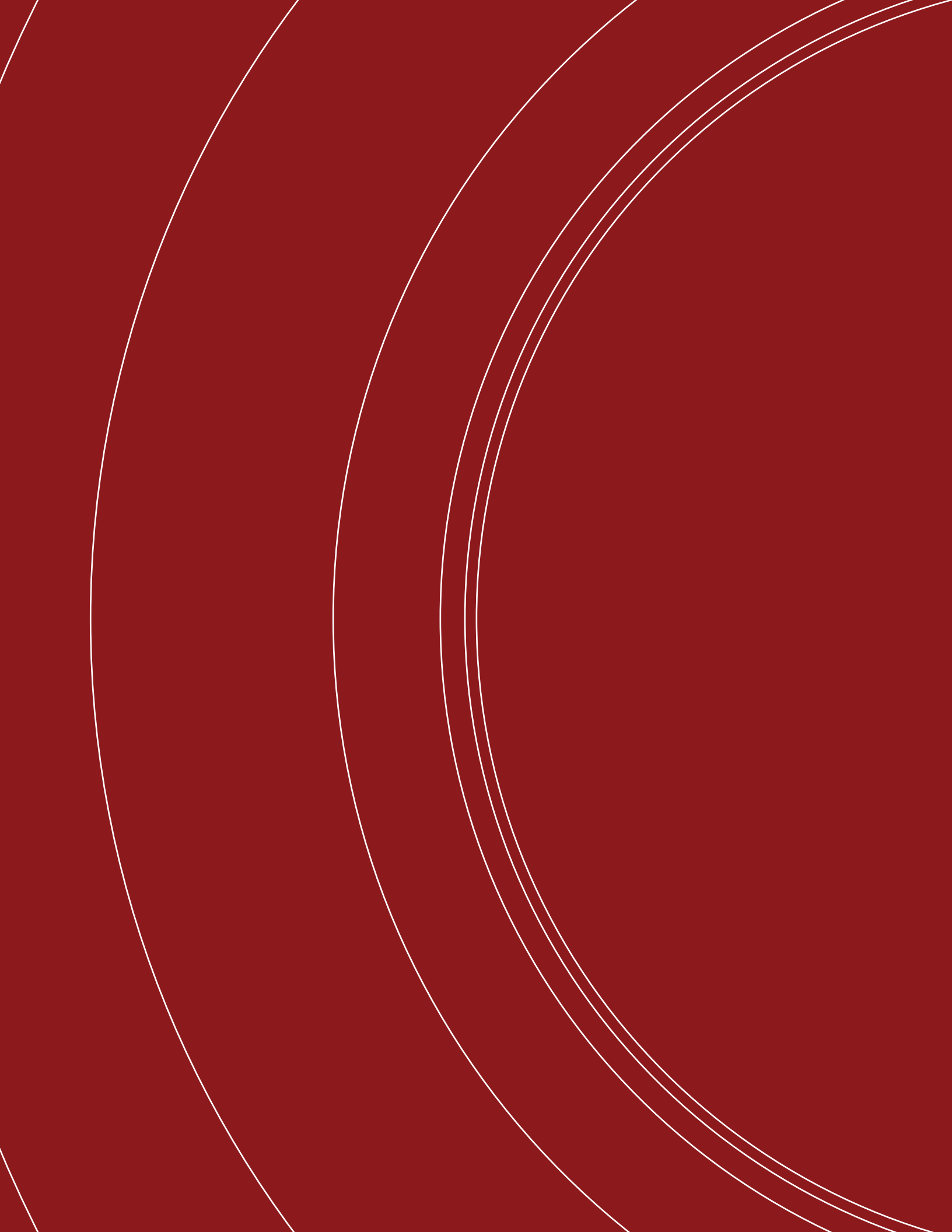
Damaged system components found during the inspection shall be documented and brought to the attention of the owner. Contractor shall conduct a site evaluation and establish a specific, coordinated plan which details how each area of the building will be protected during the various phases of the project.

WARRANTY

Provide a written guaranty covering the work of this Division (for a period of one calendar year from the date of acceptance by the Owner) as required by the General Conditions.

Provide manufacturer's written warranties for material and equipment furnished under this Division insuring parts and labor for a period of one year from the date of Owner acceptance of Work of this Division.

Correct warranty items promptly upon notification.



5.7 Civil

Division 31

Earthwork

31 1000 - SITE PREPARATION

Remove existing trees and stumps falling within limits of grading work. Erect tree protection fencing around trees designated to remain. Indicate Heritage Oaks to remain.

Provide protective fencing at perimeter of limits of grading.

Provide for temporary emergency and pedestrian access around the project limits.

Saw cut and remove existing roadway improvements at driveway connections and along utility routes under pavement to remain.

Provide and compact native backfill for trenches in landscaped areas, and granular backfill for trenches in surfaced and under-building areas.

Restore surfacing along trenches in existing surfaced areas.

31 2000 - EARTHWORK

Prepare and implement storm water pollution prevention plan.

Implement and maintain erosion control plan and devices.

Redistribute stockpiled strippings over landscape berms. Export all unsuitable and suitable excess material from site.

31 2316 - TRENCHING, BACKFILLING, AND COMPACTION

Obtain trenching permit for all trenches over five feet in depth.

Specify trench widths and depths. Provide suitable granular pipe bedding and spacing of utilities.

Division 32

Exterior Improvements

32 1216 - ASPHALT CONCRETE PAVEMENT AND BASE

Prepare subgrade in pavement areas.

Install 40" deep lean concrete moisture cutoff barriers at unconfined edges of all asphalt pavements adjacent to landscape planting areas.

Provide, spread, and compact ¾" maximum Class 2 aggregate base in lifts not exceeding 6 inches in compacted thickness.

Apply tack coat to vertical surfaces of concrete structures that will come in contact with asphalt pavements.

Provide, spread, and compact Type B, ½" maximum, medium asphalt concrete in non-decorative pavement areas.

Raise all utility structures that fall within pavement areas to final pavement grades.

32 12 23 - PAVEMENT MARKINGS AND SIGNS

Provide and install painted pavement markings in two coats.

Provide and install thermoplastic pavement markings with glass reflective beads.

Provide and install painted markings and signs in accessible parking stalls.

Provide and install reflective and non-reflective traffic signs per Caltrans Sign Manual Standards on 2" round galvanized steel posts set in concrete.

32 1600 - CONCRETE CURB, GUTTER, AND SIDEWALK

Provide and install Class "A" portland cement concrete curbs, 18" gutters, and sidewalks.

Install curb, gutter, and sidewalk, including curb ramps, on a layer of compacted class 2 aggregate base over prepared subgrade.

Install cross gutters where surface drainage crosses an intersection leg.

Division 33

Utilities

33 1100 - WATER DISTRIBUTION SYSTEM AND APPURTENANCES

Provide and install CI 150 PVC domestic water system piping and appurtenances.

Provide and install CI 200 PVC pipe and appurtenances on all fire system piping. Provide thrust blocking for all lines 6" and larger.

Provide and install CI 150 "Purple" pipe and appurtenances on all "recycled" water only. Provide thrust blocking for all lines 6" and larger.

Provide and install commercial fire hydrants, zone valves, fire department connections and appurtenances consistent with Local Fire Authority standards.

Pressure test and chlorinate all pressure water systems prior to making final connections to the existing public and campus utility systems.

33 3000 SANITARY SEWER SYSTEM AND APPURTENANCES

Provide and install ABS (ASTM D2680); PVC (ASTM D1784); or Class 50 Ductile Iron (ANSI A21.51) sewer pipe.

Provide and install four foot diameter precast manholes on precast or cast in place bases, with precast eccentric cones, grade rings, and asphalt coated cast iron ring and cover marked "Sewer".

Perform leakage and mandrel tests on all sewer lines prior to placing them in service.

33 4000 SITE DRAINAGE

Provide and install HDPE Type "S", PVC SDR 35, Class 50 DIP, reinforced concrete pipe or cast-in-place concrete storm drain pipe of various sizes.

Provide and install pre-cast concrete (large) and vertical pipe riser type (small) drainage structures at various locations.

Provide and install pre-cast flared end sections at culvert entrances and outlets at various locations.

Provide close mesh accessible grates in pedestrian areas; heavy duty grates in vehicular traffic areas; and standard duty grates in landscaped areas.

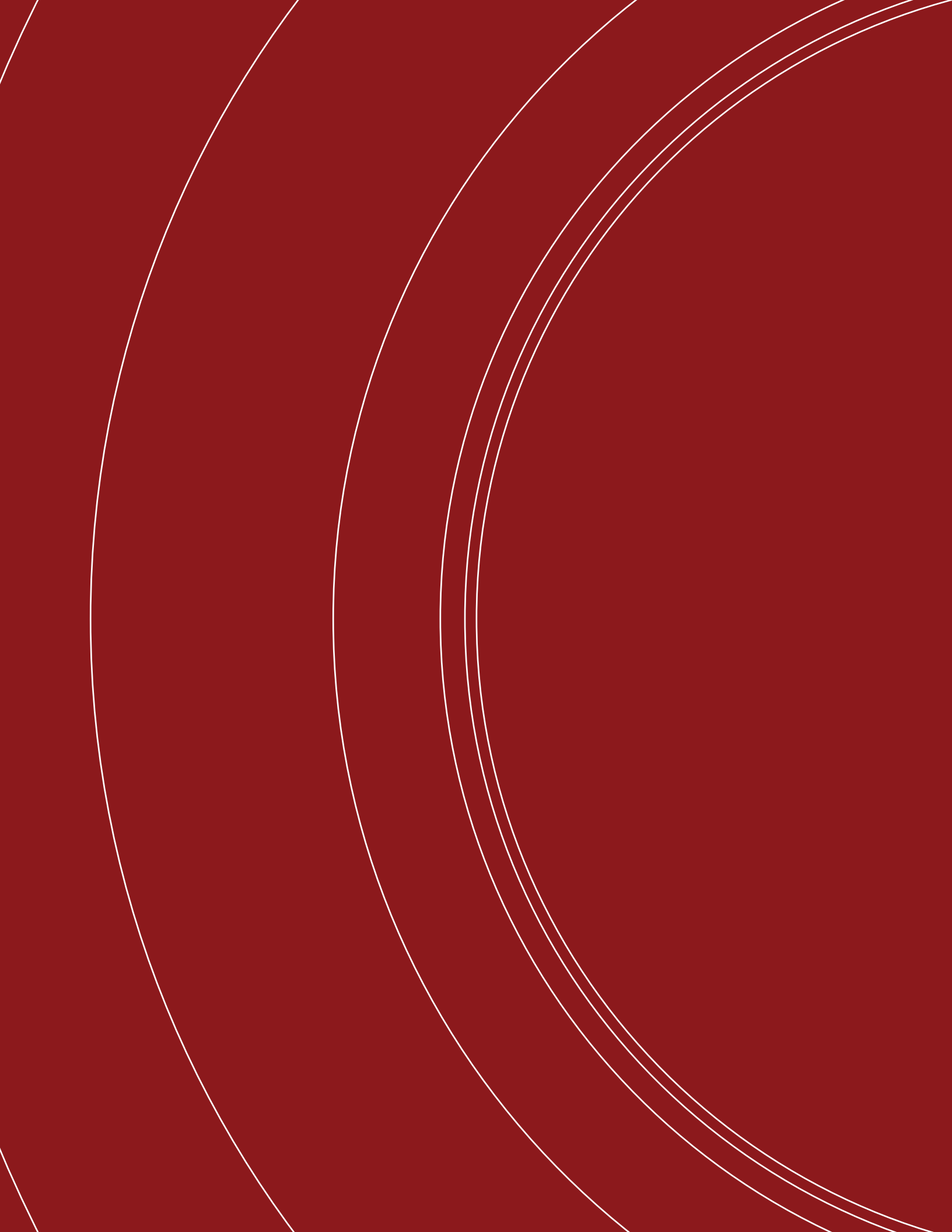
Provide guard bars as required to limit clear vertical openings at drainage structures to 4" maximum.

Provide and install four and five foot diameter storm drain manholes with precast or cast in place bases, precast eccentric cone sections, grade rings, and asphalt coated cast iron ring and cover marked "Storm Drain".

Connect all roof drains and downspouts to storm drain system using small diameter PVC or HDPE pipe.

Provide and install storm water interceptor structure(s) with offline storage capability to minimize potential contamination from urban runoff and infiltration of stored runoff.

Install and maintain erosion control devices at inlets until completion of finished surface improvements.



5.8 Audiovisual / Telecommunications

Audiovisual

consistency

flexibility

control

Purpose of this Document

This document is intended to be provided to design teams to create teaching spaces that provide educators with consistency in user experience, but also allow for design flexibility.

Demonstration Classrooms/Technology Updates

Creation of demonstration classrooms was underway during the writing of this document. These teaching spaces are allowing new technologies and applications of those technologies to be tested. Successes gained from this endeavor should be incorporated into future classroom designs.

Similarly, District IT/AV staff periodically updates audiovisual standards. The most current standards should be referenced and employed during facilities designs.

Typical Classroom AV Systems

- Casting: see Casting, below
- Control: A Utelogy system, or a Media Services-approved alternate, will be required. The selected system must provide network-based management. When multiple AV-equipped spaces – across a campus, or even multiple campuses – are equipped with network-based controls, they can be turned off at the end of classes, for example, to save electrical costs. In addition, system problems, like projector lamps near the ends of their lives, can be detected and replaced before they actually burn out.
- Projectors versus direct view displays (TVs): As prices for large-screen displays decline, it becomes more economical to provide these instead of projectors. Not all teaching spaces

benefit from direct-view displays, however. Classrooms where maximum marker board space is desirable, for example, and rooms requiring display of sizes that would be significantly costlier than projection systems, are good candidates for projection systems with roll-down projection screens.

- Lecture Capture Provisions: Lecture capture, and class streaming are used by SCJCD and many other institutions to involve students beyond the walls of the classroom. Cameras, to record images of instructors and classes, and microphones, to record their voices, are mounted to the walls and ceilings of classrooms. Lecture capture and streaming components are costly, however, so not all classrooms are likely to be provided with them. We recommend that all new classrooms, and all rooms being architecturally refurbished, be provided with relatively inexpensive infrastructure provisions for cameras and microphones: conventional electrical wall boxes and low-voltage cabling pathways. When it's time to install cameras and microphones, no architectural revisions will be required for them.

Auditorium AV Provisions

Auditoriums require a minimum set of capabilities in order to serve the variety of uses they provide to an educational institution. For example, voice and media sound amplification, with ALS (explained below), and visual media presentation, allow the presentation of everything from lectures to movies.

Additional capabilities facilitate various kinds of live performances, live streaming from the venue, etc.

Minimum capabilities:

- Voice amplification – using wired and wireless microphones, amplified via overhead loudspeakers, for intelligible and consistent sound distribution throughout the space
- Assistive listening – providing sound



amplification for hearing impaired participants and attendees

- Media, or program sound amplification – utilizing at minimum, loudspeakers close to the projection screen, for sound associated with video
- Display system – using a projector and projection screen to provide images of sufficient quality to allow good legibility in most seating locations
- Media playback system – providing connections for presenters’ devices (laptops, smart phones, and tablets)
- Lecture capture system – allowing recording of presenters’ media, images of presenters via cameras, and audio of both presenters and audience members
- Control system – making operation of the room as simple as possible by controlling all AV devices from a common “console”, like the Utelogy systems provided in classrooms
- Acoustics – attention to all aspects of acoustics is required for speech intelligibility and acceptable music reproduction

ray players, broadcast, satellite, and cable TV boxes, and other media devices allow presentation of various kinds of content

- Additional microphones – the presentation of dramatic and acoustic music performances frequently requires a greater inventory of wired and wireless microphones
- Sound/lighting booth – a special technical space with a direct view of the stage is generally provided in the design of auditoriums for dramatic and musical productions. Such a space is generally not required in auditoriums used primarily for lectures and panel discussions.
- Lighting provisions – presentation of dramatic and musical productions is enhanced through the use of stage-type lighting, generally controlled from a booth, like the one described above.



ADA (Americans with Disabilities Act) Provisions

Optional capabilities:

- Enhanced sound amplification system – providing compelling, full-range sound suitable for live theatrical and acoustical music amplification, though not necessarily amplification for rock band-type performances
- Media streaming – allowing viewing, and optionally participation, of off-site audiences and participants in real time, and viewing of recorded presentations after they are finished
- Intercom – providing voice communications between various locations for use during live performances
- Remote Viewing from Green and Dressing Rooms and Lobbies – displays and sound systems in these spaces allow presenters and others to view activities in an auditorium while preparing to enter it
- Additional playback capabilities such as Blu-

Specific larger teaching spaces and auditoriums provide ALS (Assistive Listening Systems) for students and event attendees with hearing disabilities. Students check out ALS headsets per semester and bring them to classes in ALS-equipped teaching spaces.

Closed-captioned video content on VHS tape allows students with hearing disabilities to read dialog.



Right: Utelogy Control Console

Upgrading for the Future

4K NOT RECOMMENDED

The term 4K refers to displays and projectors capable of displaying approximately 4,000 pixels (dots) of resolution horizontally, and about half of that vertically. These devices display four times the picture detail of common 1080 devices, like those in our living rooms, some of our classrooms, and in fact, many of our cell phones.

While four times the detail sounds like a great thing, its usefulness is limited in most classroom applications, because most students' distance from the rooms' displays would make it difficult or impossible for them to see the difference between "standard HD" and 4K.

In specific teaching applications – mainly rooms where students will be very close to displays – 4K may provide practical benefits. It is recommended that 4K be evaluated for use in non-standard teaching spaces on a case-by-case basis.

ACOUSTICS

The following list is not comprehensive; an acoustician should be involved in the design of teaching spaces. However, the following minimum acoustical criteria should be applied:

- Small Classrooms – up to 25 students
 - RT60: 0.5 to 0.7 seconds
 - Partition sound isolation \geq STC 50
 - MEP noise control \leq NC 30
- Medium Classrooms – 26 to 50 students
 - RT60: 0.6 to 0.8 seconds
 - Partition sound isolation \geq STC 50
 - MEP noise control \leq NC 30
- Large Classrooms – 51 to 75 students
 - 0.7 to 0.9 seconds
 - Partition sound isolation \geq STC 50
 - MEP noise control \leq NC 30
- Tiered Classrooms – 75 students and larger
 - 0.8 to 1.0 seconds for tiered classrooms

- Partition sound isolation \geq STC 50
- MEP noise control \leq NC 30
- Further, vibration must be controlled in ceiling systems supporting video projectors. Maximum vibration in teaching spaces with projection equipment must be no greater than xx.

ASSISTIVE LISTENING SYSTEMS (ALS)

A single assistive listening standard should be established. Multiple, mutually incompatible types are currently used. This prevents a student from being able to check out a single listening headset and use it in all ALS-equipped teaching spaces and auditoriums.

Pertinent rules in the Americans with Disabilities act, updated in 2014, must be followed. These must be considered when new teaching spaces are designed to ensure equal access for students with disabilities.

CASTING

Casting refers to wireless transmission of media content – audio, video, or both – from a user device, such as a laptop, tablet, or cell phone, to some kind of audiovisual system.

Casting should be provided in all for at least three reasons. First, it frees the instructor from the teaching position. Currently, VGA connections are provided at each classroom's teaching position, so that's where instructors' laptops have to be connected. Casting allows a teacher to share media from anywhere in the classrooms.

Second, casting allows instructors with mobility disabilities to share content more comfortably than they otherwise would. In many cases, it's more comfortable to use a tablet from one's wheelchair, for example, than from a standard-height lectern.

Finally, casting allows media to be shared from tablets and even cellphones, which don't always have audiovisual connection ports.



CONTROL

A touchscreen control panel or equivalent should be provided at each teaching space's instructor position. In addition to controlling typical audiovisual system functions, such as power on/off, volume up/down, source selection, etc., lighting and window covering controls should be provided for rooms with automated lighting and window covering systems.

Daylight harvesting should be used with caution in teaching spaces if at all. Because many teaching spaces will utilize video recording involving instructor and class cameras, varying artificial lighting levels could cause distracting artifacts in video recordings as lighting direction and color temperature vary. Steady lighting produces better video.

EMERGENCY NOTIFICATION

Visual messaging should be provided via all display systems as a supplementary means of alerting



building occupants during emergent situations.

LASER/HYBRID PROJECTORS



Projectors that don't use conventional light sources – essentially light bulbs – are becoming increasingly popular. Unlike older projectors, whose lamps last 2,000 to 4,000 hours, these devices' light sources last approximately 20,000 hours. An additional benefit: lamp-less projectors use less electricity, emit less heat, and have quieter cooling fans.



LECTURE CAPTURE SYSTEMS

Media services decision makers are faced with a wide variety of lecture capture solutions, and there is no obvious best product for all applications. Here are recommended evaluation criteria for the choice of lecture capture systems:

- Ability to capture video from two video sources – typically a camera and presentation content
- Ability to obtain class metadata (name and date of class, instructor, etc.) automatically via a software interface to the school's classroom management software
- Ability to initiate and conclude recording via simple instructor actions, like a single Start button push to begin capture, and an End button to conclude
- Automatic conversion of content for various viewing devices (tablets, cellphones, laptops) and saving of content to the institution's web servers
- Remote camera control ability



Left: Sennheiser Assisted Listening Receiver and Charging Base

Right: Emergency Notification

LIGHTING

The following objectives apply to all teaching spaces:

- Lighting design for teaching spaces should illuminate students' and instructors' faces evenly, because video recording will be used.
- Lighting systems for spaces with video projection should provide a separately controllable lighting zone for the front ¼ to 1/3 of the classroom so instructors will be able to dim this zone during projection.
- Lighting systems for spaces with video projection should provide the capability to obtain a maximum front wall illuminance of no more than 10 fc with a target value of 5 fc.
- Suspended lighting in rooms with projection must be coordinated to not cast shadows on the projection screen(s); Suspended fixtures may not be interposed between projectors and projection screens.

MEDIA SYSTEM COPYRIGHT MANAGEMENT

AV systems for teaching spaces must have HDCP (high-bandwidth definition content protection) and other forms of DRM (digital rights management) disabled, so instructors can share protected content with classes.



Left: Remote-Controllable Camera

OCCUPANCY SENSORS

Occupancy sensors should be provided in all teaching spaces. They should be interfaced with each room's control system to provide, at minimum, the following capabilities:

- After a District-administered time of inactivity, a message will be displayed on the room's control screen, and a notification sound, at a District-managed volume, will be heard. The message will prompt the users that the audiovisual system and lights will be turned off after a specified duration; that duration will count down.
- When the duration has expired, the audiovisual system and lights will be turned off.
- Interface with a District-administered data gathering application to track room utilization.

SCHEDULE DISPLAYS

Unplanned changes to classroom assignments often require staff to print a notice and tape it to the door of a classroom. Conference room schedules are often posted the same way. Scheduling displays provide an inexpensive way to take the paper and staff distraction out of scheduling changes. As well, interactive scheduling displays that let users book available rooms on the spot allow better management of conference room booking.

It is recommended that scheduling displays be considered for new and updated teaching and meeting spaces. Where these devices are deemed too costly as Day One provisions, Ethernet receptacles should be placed in accessible locations at the entrances to these spaces, to facilitate the addition of scheduling displays when needs change or funds become available.

PROJECTION SYSTEMS AND VIBRATION ISOLATION

Ceiling-mounted projectors, when used in large spaces, are sensitive to ceiling vibration. When a

projector vibrates, the projected image jitters, and this can be annoying to watch.

In a large teaching space, where there is a good chance that the ceiling above the room's projectors will vibrate, either from overhead foot traffic, roof-mounted mechanical equipment, or any other cause, care must be taken in the ceiling design to minimize the impact of this vibration on the projectors. Vibration isolators and/or dampeners should also be considered in these cases.

VGA

Very few computers and no tablets provide VGA connections; VGA is a dead-end technology. New AV systems should provide digital media connections: HDMI (High-Definition Media Interface) or Display Port. Inexpensive adaptors for these formats can be provided for the dwindling number of computers with only VGA connections.

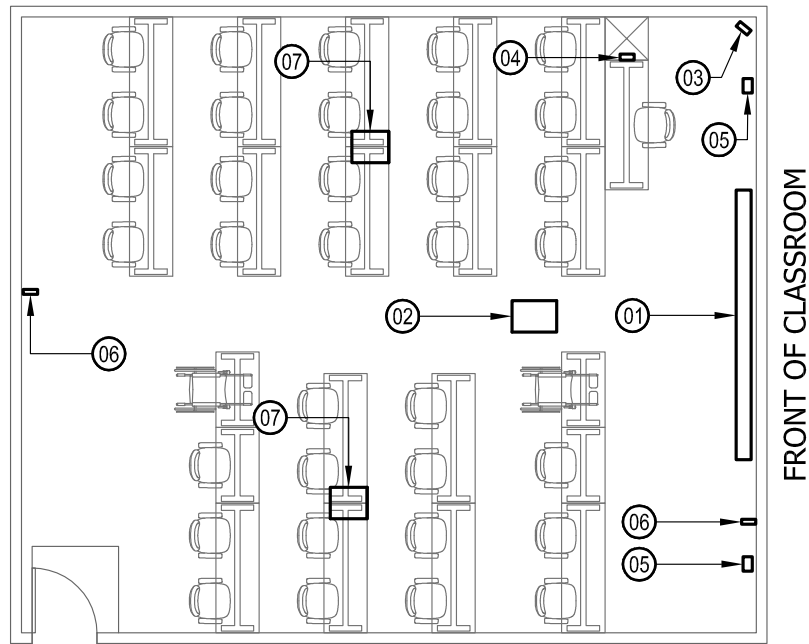


Above: Room Schedule Display

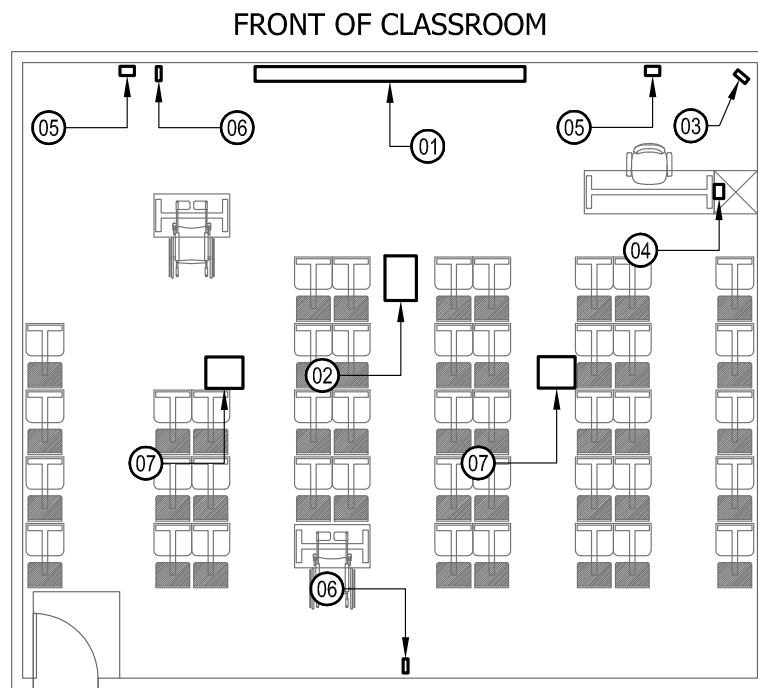
Below: Chief CMA 347 Vibration Isolator.

Sample Classroom Configurations

AV EQUIPMENT LIST	
TAG	DESCRIPTION
01	PROJECTION SCREEN OR DIRECT-VIEW DISPLAY; IN ROOMS WHERE THE FURTHEST VIEWERS WILL BE UP TO 25' FROM THE FRONT WALL, A 95" TO 100" DISPLAY IS RECOMMENDED. IN ROOMS WITH FARTHER VIEWING DISTANCES, A PROJECTION SYSTEM IS RECOMMENDED. DATA CONNECTIONS SHOULD BE PROVIDED AT ALL DISPLAYS
02	PROJECTOR; IN ROOMS WITH PROJECTION SYSTEMS, A PROJECTOR IN A FIXED (NOT MOTORIZED) CEILING MOUNT IS RECOMMENDED. DEVICES USING SOLID-STATE (NON-LAMP) LIGHT SOURCES, MINIMUM 1080P RESOLUTION, AND AT LEAST 6,000 ANSI LUMENS OF RATED BRIGHTNESS ARE RECOMMENDED. REFER TO THE LASER/HYBRID PROJECTORS SECTION OF THIS CHAPTER FOR ADDITIONAL INFORMATION. DATA CONNECTIONS SHOULD BE PROVIDED AT ALL PROJECTORS.
03	ASSISTIVE LISTENING SYSTEMS (ALS); THE EMITTER OF AN ASSISTIVE LISTENING SYSTEM SHOULD BE PROVIDED ON THE TEACHING WALL OF THE ROOM. IT MAY BE MOUNTED AT ANY HEIGHT ABOVE 80'. THIS COMPONENT OF THE ALS BROADCASTS SOUND FROM MICROPHONES WORN BY INSTRUCTORS TO HEARING-IMPAIRED STUDENTS' ALS RECEIVERS.
04	INSTRUCTOR POSITION CONNECTION PANEL; THE FOLLOWING CONNECTIONS ARE RECOMMENDED TO BE PROVIDED ADJACENT TO INSTRUCTION STATIONS; AMPLE ELECTRICAL AND TELECOM OUTLETS, AUDIOVISUAL CONNECTIONS FOR INSTRUCTOR'S LAPTOPS, AND OTHER PROVISIONS REFERRED TO IN THIS DOCUMENT.
05	LOUDSPEAKERS; THESE SHOULD BE PROVIDED ON THE TEACHING WALL, ABOVE 80'. THEY WILL BE USED TO AMPLIFY SOUND ASSOCIATED WITH PRESENTED MEDIA CONTENT.
06	CAMERA; IT IS RECOMMENDED THAT ALL NEW AND REFURBISHED CLASSROOMS BE PROVIDED WITH ELECTRICAL INFRASTRUCTURE (LOW-VOLTAGE CABLING PATHWAYS) FOR A CAMERA POSITION FACING THE TEACHING WALL AND A SECOND FACING THE CLASS. THESE SHOULD BE PROVIDED ABOVE 80'. REFER TO THE FUTURE STATE SECTION OF THIS CHAPTER FOR MORE INFORMATION.
07	MICROPHONES; SIMILARLY TO CAMERAS, IT IS RECOMMENDED THAT ALL NEW AND REFURBISHED CLASSROOMS BE PROVIDED WITH ELECTRICAL INFRASTRUCTURE (LOW-VOLTAGE CABLING PATHWAYS) FOR IN-CEILING MICROPHONES. WHEN CLASSROOMS ARE EQUIPPED FOR LECTURE CAPTURE AND DISTANCE LEARNING, THESE WILL PICK UP STUDENT'S VOICES.



FIXED FURNITURE CONFIGURATION FOR 36 STUDENTS



MOBILE FURNITURE CONFIGURATION FOR 45 STUDENTS

Telecommunications

Purpose of this Document

This document is intended to serve as a guideline of the telecommunications infrastructure requirements for new build-outs, including new buildings, existing buildings undergoing substantial renovations, and existing buildings with minor renovations only.

Telecommunications Spaces

MAJOR RENOVATIONS & NEW PROJECTS

Building Distribution Facility (BDF):

- Provide one BDF per building. Centrally locate the BDF within the floor space and stack vertically with the IDF room(s). The minimum recommended room size for a BDF is 10'-0" x 12'-0".
- The BDF is required to be a separate, dedicated room, not shared with other space functions. Equipment and infrastructure not directly related to the functions of the BDF is not allowed to be located in, or pass through the BDF.
- Provide a card reader and electrified lock set at the door for secured access.
- Provide a dedicated electrical panel within the room. Provide a minimum of two 120V/20A dedicated circuits to each equipment rack. Feed power receptacles from emergency power where available. The estimated total electrical load for the BDF is 6 kW.
- Provide a dedicated AC unit to cool the room and maintain a temperature range between 75 and 80° F, with 24x7x365 cooling, backed up on emergency power where available. The estimated total heat load for the BDF is 6 kW.
- Provide one row of lights at the front of the racks and one row of lights at the rear of the racks. Provide a minimum light level of 50 foot-candles.
- Provide a dedicated telecommunications

grounding busbar (TGB) and bonding conductors with connections to the equipment racks, cable runway, building steel, local electrical panel, and metallic conduits.

- Provide overhead cable runway mounted above the row of equipment racks to support cabling from the user space. The minimum recommended size of cable runway is 18" W.
- Provide a minimum of three 19" W x 7'-0" H 2-post equipment racks to support cabling and network equipment. Provide vertical cable managers between racks and on the ends of the rack row.

Intermediate Distribution Facility (IDF):

- Provide one IDF per floor, and approximately every 15,000 sq. ft. Centrally locate the IDF within the floor space and stack vertically with the BDF room. The minimum recommended room size for an IDF is 10'-0" x 10'-0".
- The IDF is required to be a separate, dedicated room, not shared with other space functions. Equipment and infrastructure not directly related to the functions of the IDF is not allowed to be located in, or pass through the IDF.
- Provide a card reader and electrified lock set at the door for secured access.
- Provide a dedicated electrical panel within the room. Provide a minimum of two 120V/20A dedicated circuits to each equipment rack. Feed power circuits from emergency power where available. The estimated total electrical load for the IDF is 4 kW.
- Provide a dedicated AC unit to cool the room and maintain a temperature range between 75 and 80° F, with 24x7x365 cooling, backed up on emergency power where available. The estimated total heat load for the IDF is 4 kW.
- Provide one row of lights at the front of the racks and one row of lights at the rear of the racks. Provide a minimum light level of 50 foot-candles.
- Provide a dedicated telecommunications

grounding busbar (TGB) and bonding conductors with connections to the equipment racks, cable runway, building steel, local electrical panel, and metallic conduits.

- Provide overhead cable runway mounted above the row of equipment racks to support cabling from the user space. The minimum recommended size of cable runway is 12" W.
- Provide a minimum of two 19" W x 7'-0" H 2-post equipment racks to support cabling and network equipment. Provide vertical cable managers between racks and on the ends of the rack row.

MINOR RENOVATION PROJECTS

Intermediate Distribution Facility (IDF):

- Provide one IDF per floor, and approximately every 15,000 sq. ft. The minimum recommended room size for an IDF is 8'-0" x 10'-0".
- Provide a card reader and electrified lock set at the door for secured access.
- Provide a minimum of two 120V/20A dedicated circuits to each equipment rack. Feed power circuits from emergency power where available. The estimated total electrical load for the IDF is 3 kW.
- Provide a dedicated AC unit to cool the room and maintain a temperature range between 75 and 80° F, with 24x7x365 cooling, backed up on emergency power where available. The estimated total heat load for the IDF is 3 kW.
- Provide one row of lights at the front of the racks and one row of lights at the rear of the racks. Provide a minimum light level of 50 foot-candles.
- Provide a dedicated telecommunications grounding busbar (TGB) and bonding conductors with connections to the equipment racks, cable runway, building steel, local electrical panel, and metallic conduits.
- Provide overhead cable runway mounted above the row of equipment racks to support cabling from the user space. The minimum

recommended size of cable runway is 12" W.

- Provide a minimum of one 19" W x 7'-0" H 2-post equipment rack or one 24"W x 30"4'-0"H wall-mounted equipment cabinet to support cabling and network equipment. Provide vertical cable managers between racks and on the ends of the rack row.

Pathways

MAJOR RENOVATIONS & NEW PROJECTS

Inter-Building Backbone Cabling Pathways:

- Provide 4" conduits from the Campus MDF to each BDF for inter-building backbone fiber optic and copper cabling. Provide conduits based on the quantity of backbone cabling, assuming a 40% fill rate and 100% spare. At a minimum, three 4" conduits to each building are recommended.
- Provide multi-cell fabric innerduct with pull tape in all empty inter-building conduits. A minimum of one three-cell fabric innerduct per conduit is recommended to adequately allow for future cabling to the building.
- Provide duct plugs to seal conduits at building entrances to prevent water and pest intrusion into the building.

Intra-Building Backbone Cabling Pathways:

- Provide 4" conduits/sleeves from the BDF to each IDF for intra-building backbone fiber optic and copper cabling. Provide sleeves/ conduits based on the quantity of backbone cabling, assuming a 40% fill rate and 50% spare. Provide one additional conduit for security cabling, and one additional conduit for AV cabling.
- Provide pull strings in all empty intra-building conduits.

Horizontal Cabling Pathways:

- Provide basket-style cable tray as the primary pathways along main corridors above accessible ceiling areas. Size cable tray based

on quantity of cabling assuming a 50% fill rate and 50% spare.

- Provide conduits as primary pathways above non-accessible or exposed ceiling areas. Size conduits based on quantity of cabling assuming a 40% fill rate and 50% spare.
- For secondary pathways above accessible ceilings, provide j-hooks to the primary pathways in areas with accessible ceilings. In areas with non-accessible or exposed ceilings, homerun device/outlet conduits back directly to the primary pathways.
- For standard wall outlets, provide one 1-1/4" conduit from the accessible ceiling space or primary pathways to a 5"x 5"x2-7/8" deep wall box with single-gang ring.
- For floor outlets, provide one 1-1/4" conduit from the device stubbed up to the accessible ceiling space or homerun back to the primary pathways to a flush-mounted floor box or poke-thru device.
- Provide conduit sleeves in locations where cabling passes through full-height walls. Size sleeves based on quantity of cabling assuming a 40% fill rate plus 50% spare. Provide firestopping for cable transitions through fire-rated walls and smoke barriers.

MINOR RENOVATION PROJECTS

Intra-Building Backbone Cabling Pathways:

- Provide 4" conduits/sleeves from the BDF to each IDF for intra-building backbone fiber optic and copper cabling. Provide sleeves/conduits based on the quantity of backbone cabling, assuming a 40% fill rate and 50% spare. Provide one additional conduit for security cabling, and one additional conduit for AV cabling.
- Provide pull strings in all empty intra-building conduits.

Horizontal Cabling Pathways:

- Provide basket-style cable tray as the primary pathways along main corridors above

accessible ceiling areas. Size cable tray based on quantity of cabling assuming a 50% fill rate and 50% spare.

- Provide conduits as primary pathways above new non-accessible or exposed ceiling areas. Size conduits based on quantity of cabling assuming a 40% fill rate and 50% spare.
- Provide solid side/solid bottom cable tray as the primary pathways along main corridors with existing non-accessible or exposed ceilings that are to remain in place. Size cable tray based on quantity of cabling assuming a 50% fill rate and 50% spare.
- For secondary pathways above accessible ceilings, provide j-hooks to the primary pathways in areas with accessible ceilings. In areas with new non-accessible or exposed ceilings, homerun device/outlet conduits back directly to the primary pathways.
- For secondary pathways in areas with non-accessible or exposed ceilings that are to remain in place, provide surface-mounted raceway or surface-mounted conduits from the outlet location to the primary pathways.
- For outlets in new walls, provide one 1-1/4" conduit from the accessible ceiling space or primary pathways to a 5"x 5"x2-7/8" deep wall box with single-gang ring.
- For outlets in existing walls that are to remain in place, provide surface mounted raceway from the accessible ceiling space or primary pathways to an extra-deep single-gang surface mounted outlet box with single-gang ring.
- For floor outlets, provide one 1-1/4" conduit from the device stubbed up to the accessible ceiling space or homerun back to the primary pathways to a flush-mounted poke-thru device.
- Provide conduit sleeves in locations where cabling passes through full-height walls. Size sleeves based on quantity of cabling assuming a 40% fill rate plus 50% spare. Provide firestopping for cable transitions through fire-rated walls and smoke barriers.

Backbone Cabling

MAJOR RENOVATIONS & NEW PROJECTS

Inter-Building Backbone Cabling:

- Provide singlemode and OM4 multimode fiber optic cable from the Campus MDF to the BDF. At a minimum, 48-strand singlemode and 48-strand OM4 multimode fiber optic cables are recommended to each BDF in order to support 10/40/100 Gb/s data rates in the backbone.
- Provide Cat. 3 UTP cable from the Campus MDF to the BDF. At a minimum, 50-pair Cat 3 cable is recommended to each BDF to support analog line requirements for connections such as fire alarm control panels, elevator phones, BMS, etc.
- Inter-building backbone cable should be run in a star topology, originating in the Campus MDF to each BDF

Intra-Building Backbone Cabling:

- Provide singlemode and OM4 multimode fiber optic cable from the BDF to each IDF. At a minimum, 24-strand singlemode and 24-strand OM4 multimode fiber optic cables are recommended to each IDF in order to support 10/40/100 Gb/s data rates in the backbone.
- Provide Cat. 6 cable from the BDF to each IDF. At a minimum, four Cat. 6 cables are recommended to each IDF. Terminate Cat. 6 cables on rack-mounted patch panels on both ends.
- Provide Cat. 3 UTP cable from the building BDF to each IDF only as required to support analog line requirements.
- Intra-building backbone cable should be run in a star topology, originating in the BDF to each IDF.

MINOR RENOVATION PROJECTS

Intra-Building Backbone Cabling:

- Provide singlemode and OM4 multimode fiber optic cable from the BDF to each IDF. At a minimum, 24-strand singlemode and 24-strand OM4 multimode fiber optic cables are recommended to each IDF in order to support 10/40/100 Gb/s data rates in the backbone.
- Provide Cat. 6 cable from the BDF to each IDF. At a minimum, four Cat. 6 cables are recommended to each IDF. Terminate Cat. 6 cables on rack-mounted patch panels on both ends.
- Intra-building backbone cable should be run in a star topology, originating in the BDF to each IDF.

Horizontal Cabling

ALL PROJECT TYPES

Cabling

- Provide Cat. 6 cabling for typical outlets, with a minimum of two cables per outlet.
- For Classrooms, provide Cat. 6A cabling for the following locations, at a minimum:
 - Two two-cable outlets above ceiling at opposite corners of the room.
 - One four-cable outlet at the media rack location.
- Terminate horizontal cable on rack-mounted patch panels at the BDF/IDF end, and on 8P8C modular jacks at the outlet end.
- Provide horizontal cable managers above and below the rack-mounted patch panels for management of patch cords.
- Run horizontal cabling in a star topology, originating from the BDF/IDF to each outlet.

Manufacturers

- Due to the complexities of supporting multiple manufacturers and product sets for horizontal cabling, it is recommended that the District standardize on a small (no more than three)

selection of cabling manufacturers and product sets to allow for more streamlined support of the horizontal cabling system in the future.

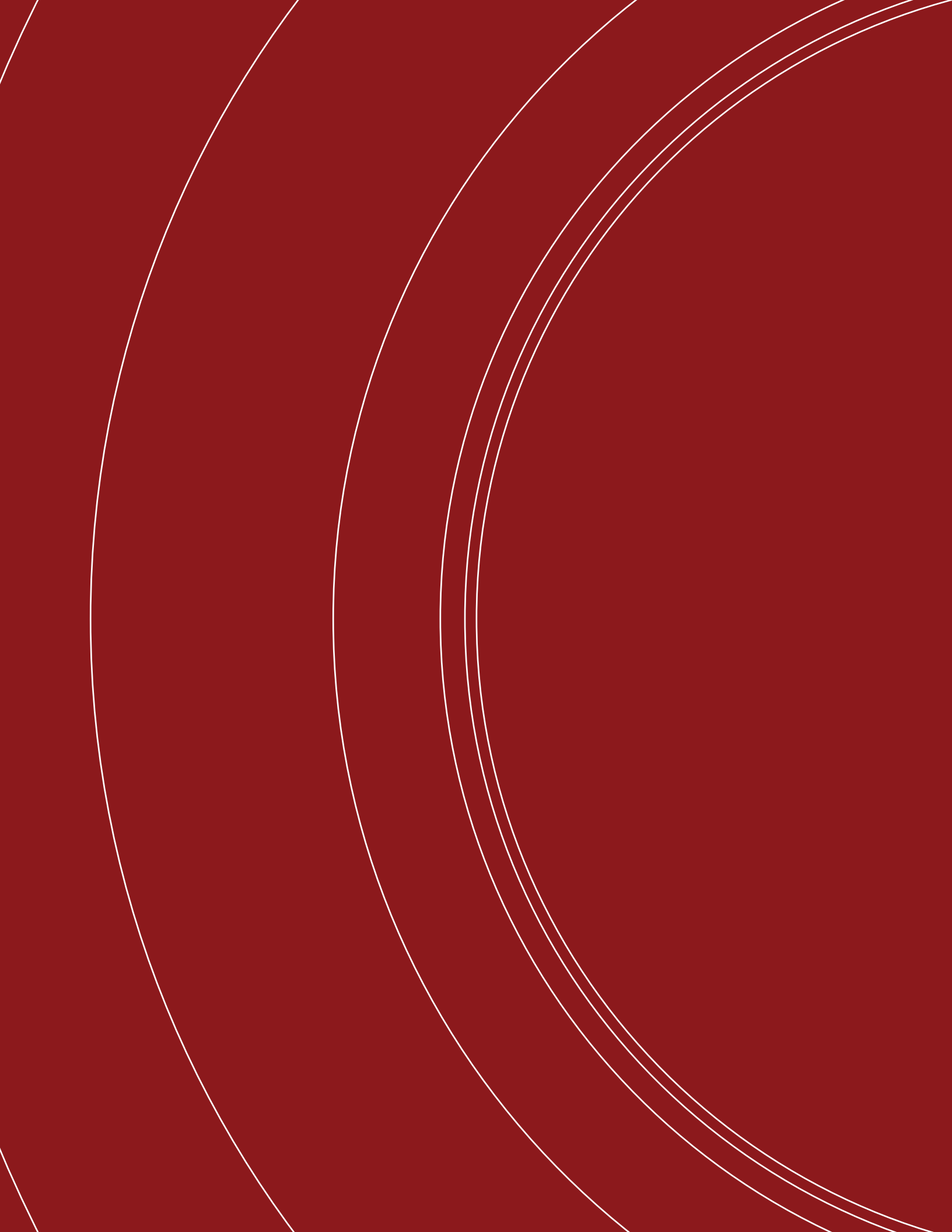
Upgrading for the Future

CATEGORY 6A HORIZONTAL CABLING

Due to the lifespan of the buildings, the infrequency of upgrades, and the future demands of technology, we recommend considering Category 6A for horizontal cabling to all typical outlets. Cat. 6A supports data rates of 10 Gb/s which may be required by future applications. At a minimum, we recommend planning for Cat. 6A cabling to all wireless access points to support the current 802.11ac Wave 2 standards. Cat. 6A cabling should also be planned for select locations in Classrooms, as discussed in the horizontal cabling section above.

PLANNING FOR 40/100 GIG BACKBONE

Due to the lifespan of the buildings, the infrequency of upgrades and the future demands of technology, we recommend planning for backbone cabling to support 40 and 100 Gb/s. This can be achieved either through singlemode fiber optic cabling or OM4+ multimode fiber optic cabling. Building flexibility to support 40 and 100 Gb/s into the backbone now will help prevent additional upgrades as technology demands increase. Building flexibility to support 40 and 100 Gb/s into the backbone now will help prevent additional upgrades as technology demands increase.



5.9 Security

Security Specifications

SECTION 13700

INTEGRATED ACCESS CONTROL, INTRUSION DETECTION, AND VIDEO SURVEILLANCE SYSTEM

REFERENCES

- A. Published specifications, standards, tests and codes and recommended standards of trade, industry or governmental organizations apply to Work in this Section including:
1. ADA – Title 3 of the Americans with Disabilities Act
 2. ASCII – American Standard Code for Information Interchange
 3. ASTM – American Society for Testing and Materials
 4. CCR – Titles 19 and 24 of the California Code of Regulations
 5. EIA – Electronic Industry Association
 6. NEMA – National Electrical Manufacturers’ Association
 7. NFPA – 2010 National Fire Protection Association Standards
 8. CEC – 2008 National Electrical Code with 2010 CA Amendments
 9. CBC – 2009 International Building Code with 2010 CA Amendments
 10. CFC – 2009 International Fire Code with 2010 CA Amendments
 11. CMC – 2009 International Mechanical Code with 2010 CA Amendments
 12. UL – Underwriters Laboratories, Inc.
- B. Electronic devices radiating “RF” energy shall comply with Federal Communication Commission regulations, particularly Part Fifteen, and shall meet Class “B” requirements. Provide FCC certificate numbers indicating that the FCC has approved the products.

SUBSTITUTIONS

All equipment, products and systems shall conform to the Specifications and Drawings. No substitute equipment, products or systems may be used unless previously accepted in writing by the Owner, Architect and Security Consultant.

Equipment, products and systems for which substitutions will not be accepted are clearly indicated in the paragraph where specified. Substitution requests for equipment, products and systems so noted will be rejected without review.

Manufacturers listed as acceptable are normally engaged in the type of Work specified. The listing of equipment and product part numbers or particular types of systems by specific manufacturers is to establish a minimum standard for

the performance, quality, and parameters of the equipment, products and systems specified. The Owner, Architect and Security Consultant must approve all substitutions in writing prior to any substitute equipment, products or systems being incorporated into this Project.

Any substitute equipment, products or systems incorporated into this Project without prior written approval from the Owner, Architect and Security Consultant will be considered defective and shall be rejected. Rejected items shall be promptly removed from the Project and replaced with the specified materials and equipment by the Security Contractor at no increase in Contract price and shall not be considered grounds for claims of delay.

PRODUCTS

ACCESS CONTROL SYSTEM

A. System Specifications

1. Access control system shall be Software House CCure Access Control.

B. Access Control Panels

1. ISTAR Controllers shall be used for all main access control panels.
 - a. Access control panels shall support all of the devices associated with that panel location as shown on the Drawings.
 - b. The Owner's existing Software House Access Control Server as the head-end for all access control devices.
2. RM-4 Dual Reader Interface Modules shall be used to monitor and control doors with a card reader associated with the access control panels.
3. I8 eight-point Input Control Modules shall be used to monitor all input devices.
4. R8 eight-point Output Control Module shall be used to control all output devices.

C. Card Reader Door Devices

1. Software House multi-technology card readers shall be used..
2. Locking hardware integral to the request-to-exit (REX) microswitch should be used whenever available. If locking hardware is not integrated with REX, Detection Systems DS160 request-to-exit motion detector with TP160 mounting plate shall be used.

D. Alarm Contacts

1. GE Interlogix 1076 concealed alarm contact in door frames and concealed magnets in door leafs at all card reader door locations and monitored doors shall be used.
 - a. Pairs of doors shall have alarm contacts on each door leaf and the alarm contacts will be wired in a series circuit.

SECURITY

A. Power Supplies

1. Altronix MAXIMAL75D power supplies to convert 115VAC 60Hz input into eight (8) 12VDC and eight (8) 24VDC independently controlled Class 2 Rated PTC protected power-limited outputs shall be used. Provide with batteries and power distribution modules to power all access control panels, intrusion detection sensors, electrically access controlled door locks and electric strikes, request-to-exit sensors (where occurs) and all associated security peripheral devices.

B. Electrified Locks and Hardware

- a. Wireless electrified locks shall be Schlage AD-400.
- b. Hardwired electrified locks shall be Schlage AD-300.
- c. Panic hardware shall be Von Duprin 98/99 Series with electrified retraction.

C. Emergency Call Stations

1. Talk-A-Phone VOIP-500E Emergency call stations shall be used.
 - a. Emergency Call Station: VOIP 500E
 - b. Tower Housing: WEBS-MT/R – Radius Emergency Phone Tower
 - c. Wall Mount Housing: ETP-WM Emergency Communication Wall Mount Housing

D. Intrusion Alarm Panel

1. Bosch D9412GV2 Control Panel and enclosure shall be used.

E. Intrusion Keypad Arming Stations

1. Bosch D1260 LCD Keypad Arming Stations shall be used.

F. Intrusion Alarm Communication and Monitoring

1. Bosch B420 Network Interface Module shall be used for intrusion detection panel communications.

G. Intrusion System Modules

1. Bosch D8128D OctoPOPIT Eight Point Expanders shall be used as needed for individual device input wiring.
2. Bosch D8129 Octo-relay Modules shall be used as needed for remote annunciation of system functions.

H. Intrusion Motion Detectors

1. Visonic Duo-240E Ceiling Mount Dual-Technology Digital Detector motion detection sensors shall be used.

I. Intrusion Alarm Contacts—Concealed

1. GE Interlogix 1076D concealed alarm contacts shall be used for monitored doors.

- a. Pairs of doors shall have alarm contacts on each door leaf and the alarm contacts will be wired in a series circuit.

2.01 VIDEO SURVEILLANCE SYSTEM

A. System Specifications

1. Video surveillance system shall be Genetec.
2. The video surveillance system shall provide a minimum of thirty (30) days of video recording.
3. Interior cameras shall be AXIS M3014 Fixed Mini-Dome IP Network Camera.
4. Exterior cameras shall be AXIS P3364-VE Fixed Dome IP Network Camera.

END OF SECTION