

CHAPTER 3

FENCES AND WALLS

Fence | Backstop

Fence | Chain Link

Fence | Metal

Fence | Netting System

Fence | Paddock

Fence | Post Anchoring Systems

Fence | Solid Wood Board

Fence | Temporary Installations

Wall | Cellular Retaining

Wall | Segmental Retaining

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PURPOSE

Backstops shall be used to separate athletic activities and surrounding areas.

GENERAL INFORMATION

Backstops shall be permanent, hooded, and flared/winged structures installed on diamond fields.

Backstop dimensions include 16 feet minimum horizontal wings (each), 20 feet minimum horizontal center panel, 12 feet minimum vertical height fence at the wings and rear of the hood and 20 feet minimum vertical height clearance at the front of the hood.

Related Standards: Field Diagram | Baseball, Field Diagram | Softball, Track/Warning Track, Infield Mix.

MATERIALS AND FINISH

Backstop chain link fabric mesh shall have a core wire diameter of 9 gauge for the wings and hood. Fabric mesh shall have a core wire diameter of 6 gauge for the center panels. The diamond mesh shall be 2 inch opening throughout, without knots or ties except as knuckling on the top and bottom of the fabric. Backstops shall include bottom rails.

Fabric shall be matte woodland/dark green in color. Within historic districts fabric shall be matte black in color.

Chain link fabric shall be PVC coated, Class 2b, thermally fused and bonded.

Backstop posts shall be 6 inches outside diameter, Schedule 40. Hood frame rails shall be 2 inches outside diameter.

Fence panels over 6 feet in vertical height shall have a middle rail. Mid-rails/braces shall be 1 5/8 inch outside diameter.

Backstops shall include 'kick boards' on the center panels. Kick boards shall be 1 foot-4 inch vertical height, 3/4 inch thick plywood the length of the center panels. Kick boards shall be primed and painted to match the fence.

INSTALLATION

Fence posts and supports shall be located outside the field of play for athletic facilities.

Posts shall be permanently mounted in concrete footings. Top of footing shall be sloped to shed water.

Footings shall be installed flush to adjacent finished grade.

Footings and supports shall be designed and sealed by a professional engineer.

Knuckling of fence fabric shall be 1 1/2 to 2 inches vertical height above the surrounding finish grade.

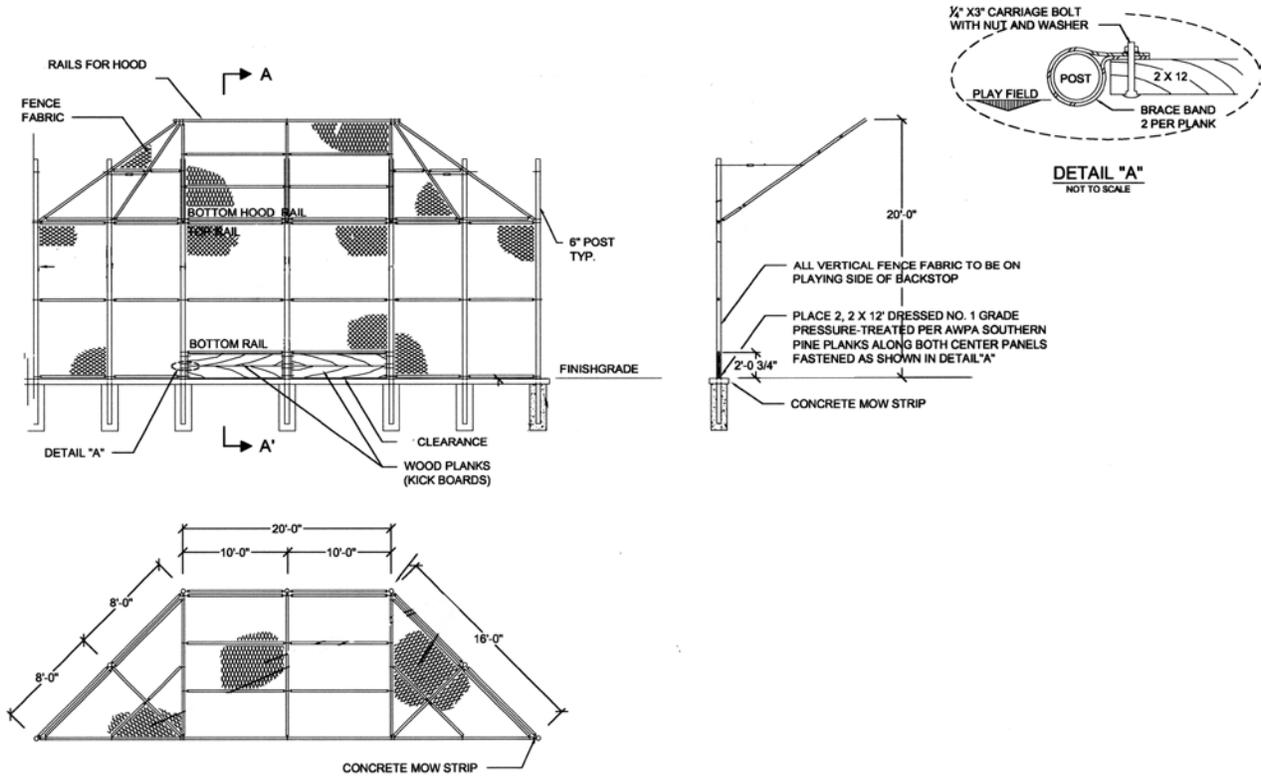
LIFE CYCLE EXPECTATIONS

A 5 year minimum warranty is required on metal framework.

Kickboards are anticipated to require replacement after 4 years of normal and ordinary use.

Backstop structures are anticipated to require replacement after 15-20 years of normal and ordinary use.

FENCE | BACKSTOP



Hooded chain link backstop

Not to scale



Hooded chain link backstop

FENCE | CHAIN LINK

PURPOSE

Chain link fences shall be used to separate athletic fields, ball courts, playgrounds and active recreation play areas from adjacent uses, and to secure property boundaries.

GENERAL INFORMATION

Fences shall be 3 feet-6 inches maximum height (playground and use-separation fences), 6 feet (field perimeters), or 12 feet (ball courts). A Special Use Permit is required for fences exceeding 6 feet in height. Additional temporary netting shall be 15 feet maximum vertical height from adjacent grade without a Special Use Permit.

Fenced park areas greater than one half acre shall have two entry points minimum.

Fences shall not prevent movement of wheelchairs and other devices along accessible paths.

Pedestrian entrances shall be 4 feet minimum horizontal width.

MATERIALS AND FINISH

Chain link fences shall be matte woodland/dark green in color. Within historic districts, chain link fences shall be matte black in color.

Chain link fabric shall be PVC coated, Class 2b, thermally fused and bonded.

Chain link fabric shall have a core wire diameter of 9 gauge. The diamond mesh shall be 2 inches without knots or ties, except as knuckling on the top and bottom of the fabric.

Fence end and corner posts shall be 6 inches outside diameter. Line posts shall be 2 ½ inches outside diameter. Rails/braces shall be 1 ⅝ inch outside diameter.

Chain link fence shall include a top and bottom rail. Fences over 6 feet in vertical height shall include a middle rail.

FEATURES

Fences surrounding diamond field outfields shall use a "Poly-Cap" system on the top rail.

Gates shall have a lockable fork latch, with a cane rod on double gates. Gates shall include a 2 foot horizontal width threshold the full length of the gate and adjacent posts.

Pedestrian gates shall be single gates 4 feet minimum horizontal width. Gate hinges shall be attached to gate posts via clamps and pins that ensure hinges do not rotate on the post.

Maintenance access gates shall be double gates a total of 16 feet horizontal width. Width variations shall be approved by the Director of Recreation, Parks and Cultural Activities. Gate hinges shall be attached to gate posts via clamps and pins that ensure hinges do not rotate on the post.

Dog parks shall include double entrance gates.

INSTALLATION

Fence posts and supports shall be located outside the field of play for athletic facilities.

Fences shall be permanently mounted into concrete footings, 1 foot-6 inches minimum diameter, 2 feet-6 inches minimum depth. Top of footing shall be sloped to shed water.

Footings shall be installed flush to adjacent finish grade.

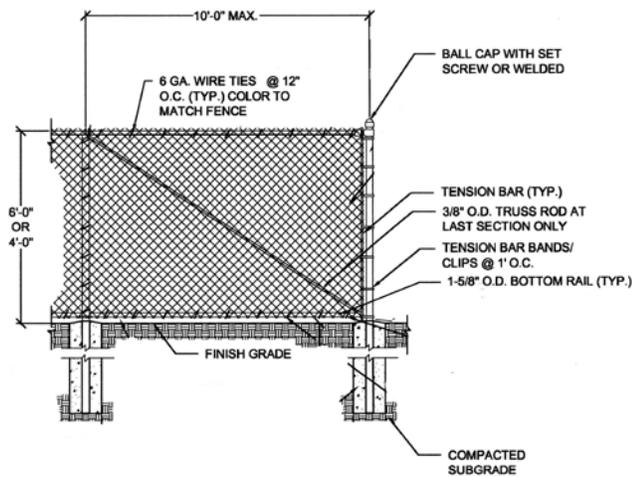
Fence fabric knuckling shall be installed 1 ½ to 2 inches vertical height above surrounding finish grade.

LIFE CYCLE EXPECTATIONS

A 5 year minimum warranty is required.

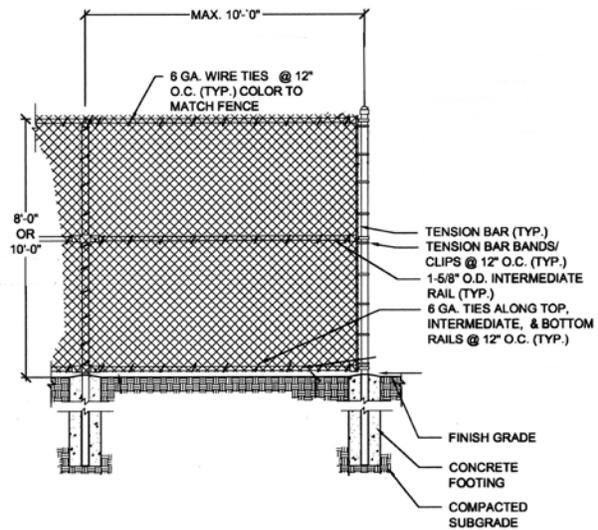
Chain link is anticipated to require replacement after 15-20 years of normal and ordinary use.

FENCE | CHAIN LINK



Chain link fence 4'

Not to scale

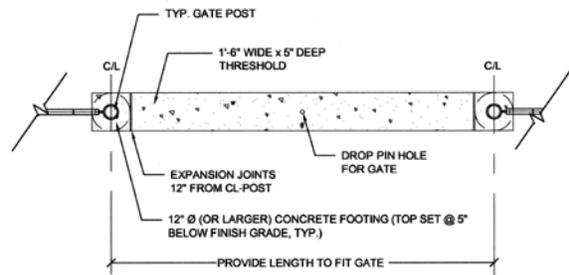


Chain link fence

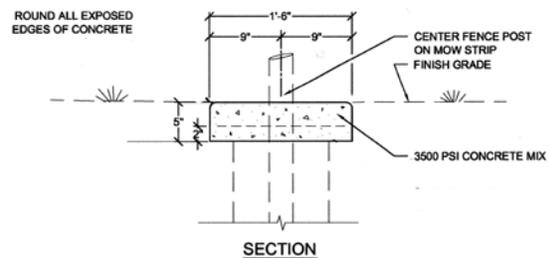
Not to scale



Chain link fence



PLAN



SECTION

NOTE: CONCRETE SURFACE SHALL BE RUBBED FINISH

Concrete threshold

Not to scale

FENCE | METAL

PURPOSE

Metal fencing shall be used in historic districts and special conditions of park use.

GENERAL INFORMATION

Fences shall be 6 feet maximum vertical height. A Special Use Permit is required for fences exceeding 6 feet in height.

Fences shall be 3 feet-6 inches minimum vertical height where installed for use-separation.

Fences shall not prevent movement of wheelchairs and other devices along accessible paths.

Pedestrian entrances shall be 4 feet minimum horizontal width.

MATERIALS AND FINISH

Metal fences shall be black in color.

Fencing shall consist of 2 ½ inch square line posts with a 14 gauge wall thickness, constructed of steel or other durable metal designed for exterior use.

Picketsets shall be ¾ inch solid bars constructed of steel or other durable metal designed for exterior use.

Corner and terminal posts shall be square steel tubing 3 inches square, with a ⅜ inch wall thickness.

FEATURES

Decorative post caps shall include a newell post ball cap sized to fit post top.

Fences shall include ornamental steel rings at a dimension of 3 ⅞ inches outside dimension or sized to fit picket spacing.

Access gates shall include a lockable fork latch. Double gates shall include a cane rod. Gates shall include diagonal bracing.

INSTALLATION

Shop drawings for fabrication are required to be approved by the Director of Recreation, Parks and Cultural Activities.

Fences shall be permanently mounted in concrete footings.

Footings shall be installed flush to adjacent finish grade. Top of footing shall be sloped to shed water.

Bottom of pickets shall be installed 1 ½ to 2 inches vertical height from the surrounding finish grade.

Fence panels shall step panel-to-panel, not slope, with the topography of the site.

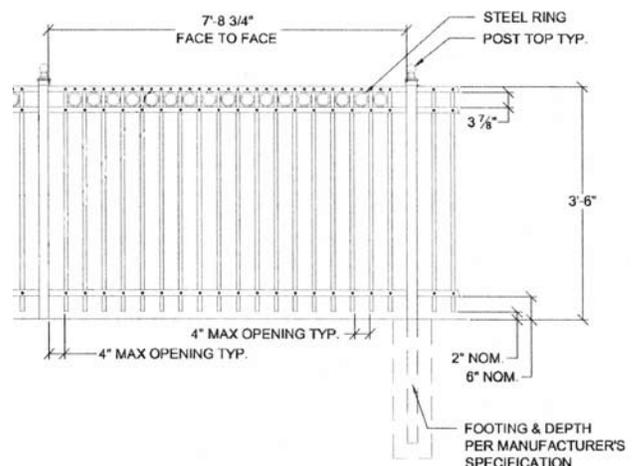
LIFE CYCLE EXPECTATIONS

A 10 year minimum warranty is required.

Metal fencing is anticipated to require replacement after 20-30 years of normal and ordinary use.



Metal fence



Metal fence

Not to scale

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FENCE | NETTING SYSTEM

CHAPTER 3: FENCE AND WALLS

PURPOSE

Stationary field netting systems shall be used as temporary or permanent flexible barriers to enhance separation of athletic fields, ball courts, playgrounds and active recreation play areas from adjacent uses.

GENERAL INFORMATION

Temporary netting shall be 15 feet maximum vertical height from adjacent grade without a Special Use Permit.

MATERIALS AND FINISH

Field netting shall be #36 knotted black nylon. Strands shall have a 200 pound minimum breaking strength.

Netting system shall include 4 inch outside diameter posts. Total post height of the netting and fence shall be 15 feet from adjacent finish grade. Posts shall be spaced 20 feet on-center.

Netting system shall include a top cable connected to each pole, and include adjustable turnbuckles on individual cable runs.

Netting fabric shall include grommets attached via metal clips to the cable and fence at intervals of 1 foot-6 inches on-center continuous. The fabric shall be attached to the poles by nylon lacing twine. Strands shall have a 200 pound minimum breaking strength.

FEATURES

Netting system may be installed in absence of a corresponding metal frame. This system requires provision of a top and bottom cable system. The bottom cable system shall be installed 2 vertical inches above the surrounding finish grade.

INSTALLATION

Netting system posts shall be permanently mounted into concrete footings. Top of footing shall be sloped to shed water.

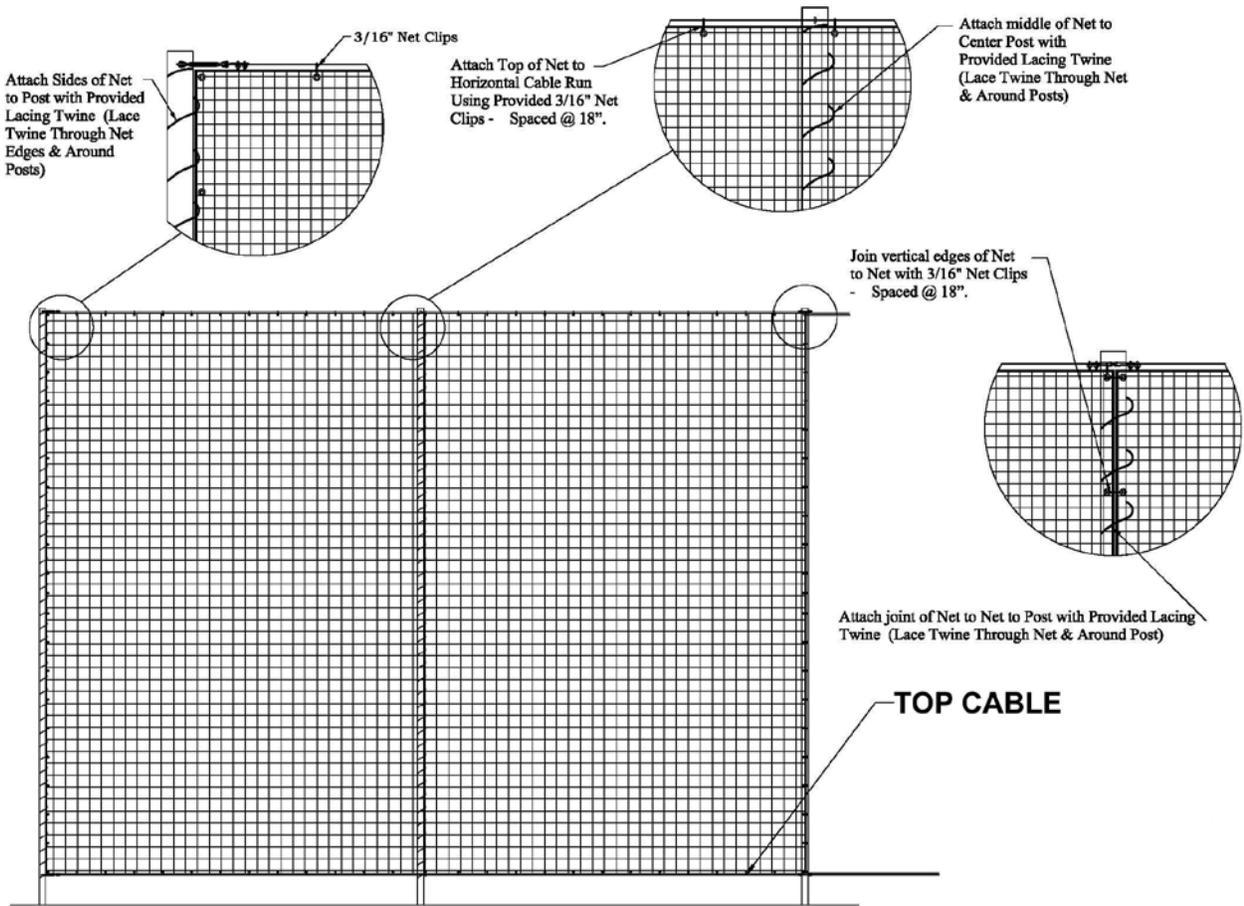
Footings shall be installed flush to surrounding grade.

LIFE CYCLE EXPECTATIONS

A 3 year minimum warranty is required.

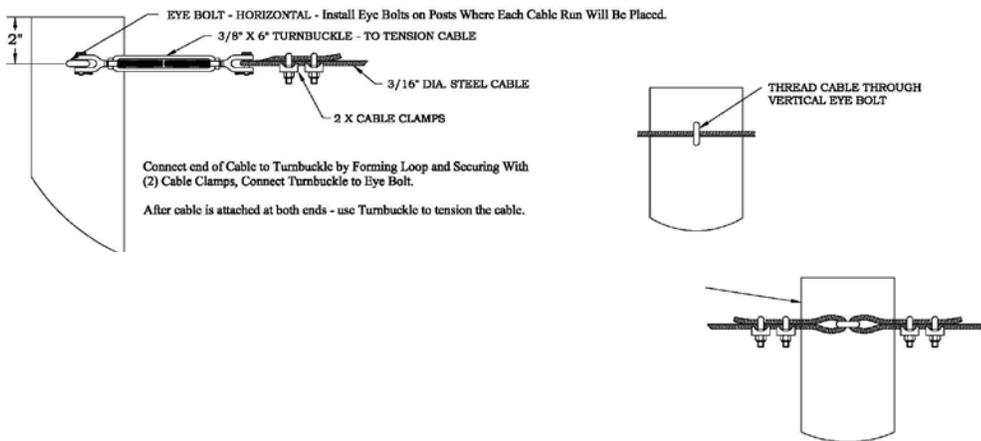
Netting is anticipated to require replacement after 5 years of normal and ordinary wear.

FENCE | NETTING SYSTEM



Fence netting system

Not to scale



Fence netting system

Not to scale

IMAGE FOOTNOTES

(1) <http://www.ballfabrics.com/sports-netting/category/sports-netting>

PURPOSE

Paddock fence shall be used on sites with historic context.

GENERAL INFORMATION

Paddock fence shall be constructed of vertical posts supporting two horizontal rails.

Paddock fence shall be 3 feet-6 inches maximum vertical height from post top to adjacent finished grade

Fences shall not prevent movement of wheelchairs and other devices along accessible paths.

Pedestrian entrances shall be 4 feet minimum horizontal width.

MATERIALS AND FINISH

Lumber materials shall be pressure-treated redwood or similar wood.

Pressure-treated lumber shall not be treated with Chromated Copper Arsenate (CCA).

Pressure-treated lumber shall be Alkaline Copper Quaternary (ACQ) or Copper Borate Azole (CA) type.

Where Alkaline Copper Quaternary (ACQ) lumber is used, fasteners shall be galvanized or stainless steel.

Posts shall be 4 inches by 4 inches. Rails shall be 4 inches by 4 inches, taper splits (nominal dimensions).

INSTALLATION

Fences shall be permanently mounted in concrete footings. Footing shall be 1 foot-6 inches minimum diameter, and 2 feet-6 inches minimum depth.

Footings shall be flush to adjacent finish grade. Top of footing shall be sloped to shed water.

Fences shall permit view of parks and activity centers from the public right-of-way.

Fences shall step, not slope, with the topography of the site.

LIFE CYCLE EXPECTATIONS

A 5 year minimum warranty is required.

Paddock fence is anticipated to require replacement after 10 years of normal and ordinary wear.



Paddock fence

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FENCE | POST ANCHORING SYSTEMS

CHAPTER 3: FENCE AND WALLS

PURPOSE

A fence post anchoring system shall be used for retaining and landscape walls where a fence or rail is required.

GENERAL INFORMATION

Walls 2 vertical feet in height from adjacent finish grade require a fence or rail.

The standard post system is the SLEEVE-IT System by Strata Systems, utilizing the cantilever design, or City approved equal.

Related Standards: Walls | Cellular Retaining, Walls | Segmental Retaining , Fence | Chain Link.

MATERIALS AND FINISH

Cantilever grid system shall be approximately 2 feet wide by 3 feet horizontal distance from the fence post.

Sleeve system shall be plastic, and integrated with the cantilevered mesh.

Sleeve and post footing top shall be flush to finish grade or hidden from view.

FEATURES

Sleeve lids/covers shall be installed during construction and prior to installation of the fence post and footing.

INSTALLATION

Install system in coordination with retaining wall or landscape wall construction.

Install system, including fence post and fence post footing, per fence manufacturer's recommendations and as coordinated with wall reinforcing.

Washed stone millings shall be installed between the back of wall cap to 6 inches on the opposite side of the fence fabric. Stone millings shall be 4 inches minimum vertical depth and placed over continuous underlayment of filter fabric.

LIFE CYCLE EXPECTATIONS

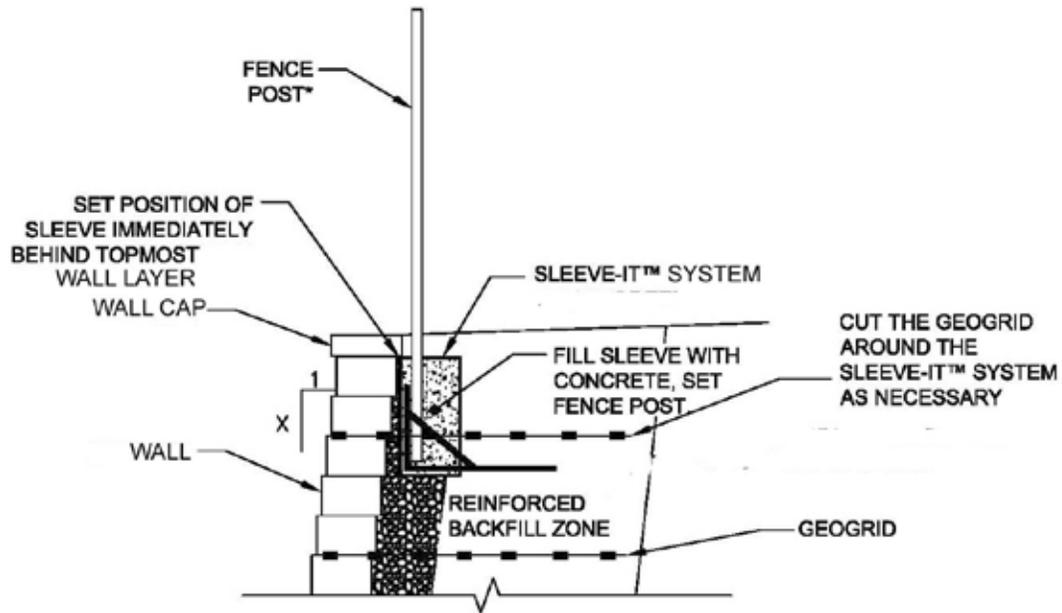
A 5 year minimum warranty is required.

Fence post anchoring systems shall require replacement at the time of wall reconstruction.



Fence post anchoring system for walls

FENCE | POST ANCHORING SYSTEMS



Fence post anchoring system (1)

Not to scale

IMAGE FOOTNOTES

(1) <http://www.geogrid.com/sleeve-it.html>

FENCE | TEMPORARY INSTALLATIONS

PURPOSE

Temporary fencing shall be used to separate temporary hazardous conditions, control pedestrian traffic flow, identify boundaries, and address other short-term control needs.

GENERAL INFORMATION

Fence height shall be 2 vertical feet minimum to 6 vertical feet maximum, including above-grade posts and fabric.

The standard temporary fences are Duro Fence manufactured by E.C. Shephard Company, and Deer Fence by Benner's Gardens, or City approved equal.

Fences shall not prevent movement of wheelchairs and other devices along accessible paths.

Fence openings shall be 4 feet minimum horizontal dimension.

MATERIALS AND FINISH

Fences shall be black in color.

Temporary fencing shall be constructed of welded wire construction or polypropylene plastic mesh.

Wire mesh shall be coated with durable PVC, thermally fused and bonded.

Wire mesh shall be $\frac{3}{8}$ inch thick with openings 4 inches by 2 inches.

Polypropylene plastic mesh openings shall be 1 $\frac{3}{4}$ inch square.

Polypropylene plastic shall be UV resistant.

Fence components shall be corrosion resistant.

INSTALLATION

Temporary fencing must be secured according to manufacturer's recommendations, including post installation and attachment.

Fencing shall close on itself or return around an end post to create a finished end suitable for adjacent traffic.

LIFE CYCLE EXPECTATIONS

A 5 year minimum warranty is required.

Temporary fence is anticipated to be recycled after 10 uses.

FENCE | TEMPORARY INSTALLATIONS



Polypropylene mesh temporary fence (1)



Wire mesh temporary fence (2)

IMAGE FOOTNOTES

(1) http://www.ceshepherd.com/wire_mesh_fence.html

(2) <http://www.bennergardens.com/just-fence.asp>

FENCE | SOLID WOOD BOARD

PURPOSE

Solid board fences shall be used to create a physical/visual barrier between properties.

GENERAL INFORMATION

Solid board fences shall be 6 feet maximum vertical height.

Solid board fences shall consist of 4 inch by 1 inch or 6 inch by 1 inch (nominal dimensions) mounted perpendicular to finish grade. Provide horizontal rails continuous; top, middle, and bottom.

Board to board spacing shall not exceed $\frac{1}{8}$ inch.

Support posts shall be 6 inch by 6 inch (nominal sizes) square posts throughout.

Gates shall not be installed in solid board fencing.

Fences shall not prevent movement of wheelchairs and other mobility devices along accessible paths.

Pedestrian fence openings shall be 4 feet minimum horizontal dimension.

MATERIALS AND FINISH

Lumber materials shall be pressure-treated redwood or similar wood.

Metal fence fasteners/materials shall be galvanized steel or aluminum treated for exterior, commercial use.

Pressure-treated lumber shall not be treated with Chromated Copper Arsenate (CCA).

Pressure-treated lumber shall be Alkaline Copper Quaternary (ACQ) or Copper Borate Azole (CA) type.

When Alkaline Copper Quaternary (ACQ) lumber is used, fasteners shall be galvanized or stainless steel.

Post tops shall be finished with a metal cap sized to fit the post top.

Fences shall not have decorative lattice or other patterns.

INSTALLATION

Fences shall be permanently mounted into concrete footings 1 foot-6 inches minimum diameter, 2 feet-6 inches minimum depth. Top of footing shall be sloped to shed water.

Footings shall be flush to surrounding finish grade.

Fences shall not completely obstruct the view of parks and activity centers from the public right-of-way.

Board bottoms shall be at least 1 $\frac{1}{2}$ to 2 inches vertical height from the surrounding finish grade.

Fences shall step, not slope, with the topography of the site.

When used to identify or mark property boundaries, the property lines shall be surveyed and verified prior to installation.

LIFE CYCLE EXPECTATIONS

A 5 year minimum warranty is required.

Solid board fences are anticipated to require replacement after 10 years of normal and ordinary wear.



Solid wood board fence

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WALLS | CELLULAR RETAINING

PURPOSE

Cellular confinement retaining walls shall be used in locations to retain grade where establishment of a vegetated natural slope is desired.

GENERAL INFORMATION

Retaining walls more than 2 feet vertical height require a City of Alexandria building permit.

MATERIALS AND FINISH

Cellular confinement system shall consist of a high density polyethylene sheet strip assembly cell which forms a flexible, 3-dimensional system when expanded. Approximate collapsed dimensions shall be 11 inches by 5 inches by 8 inches or 6 inches. Approximate expanded dimensions shall be 8 inches by 20 inches by 8 inches or 6 inches. Individual cell wall thickness shall be 0.047 inches minimum.

Back cells shall be filled with manufacturer approved materials. Front cells shall be filled consistent throughout with growing media and plants. Planting mix and growing media shall be approved by the Director of Recreation, Parks and Cultural Activities.

Reinforcing materials shall be installed per the manufacturer's recommendations.

Polyethylene color shall be tan.

FEATURES

Walls 2 vertical feet and higher shall be combined with a rail/fence system.

INSTALLATION

Walls shall be installed on prepared leveling base consistent with manufacturer's recommendations for the base materials and details.

A minimum of two courses of cells shall be installed below finish grade.

Install drainage materials, anchoring and reinforcing as required by the wall design.

Walls shall be inspected by the appropriate permitting authority and certified by the installer.

LIFE CYCLE EXPECTATIONS

A 10 year minimum warranty is required.

Cellular retaining walls are anticipated to require replacement after 40-50 years or more of normal and ordinary wear.



Cellular retaining wall construction

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WALLS | SEGMENTAL RETAINING

PURPOSE

Segmental retaining walls shall be used in locations requiring grade retention.

GENERAL INFORMATION

Retaining walls greater than 2 feet vertical height require a City of Alexandria building permit.

MATERIALS AND FINISH

Segmental retaining walls shall be constructed of concrete units, with a secure connection between courses.

Walls shall be graffiti resistant or be finished with a graffiti resistant coating.

FEATURES

Segmental wall unit faces shall be straight or split.

Walls shall have a cap course of matching finish, color and material.

Unit blocks shall be a neutral color.

Provide finished edges on all exposed sides of corner units.

Walls greater than 2 feet vertical height shall be combined with a rail/fence system.

INSTALLATION

Walls shall be installed on prepared subgrade, base materials and foundation as recommended by the manufacturer.

A minimum of two courses of block shall be installed below finish grade.

Install drainage materials and reinforcing as required by the wall design and height.

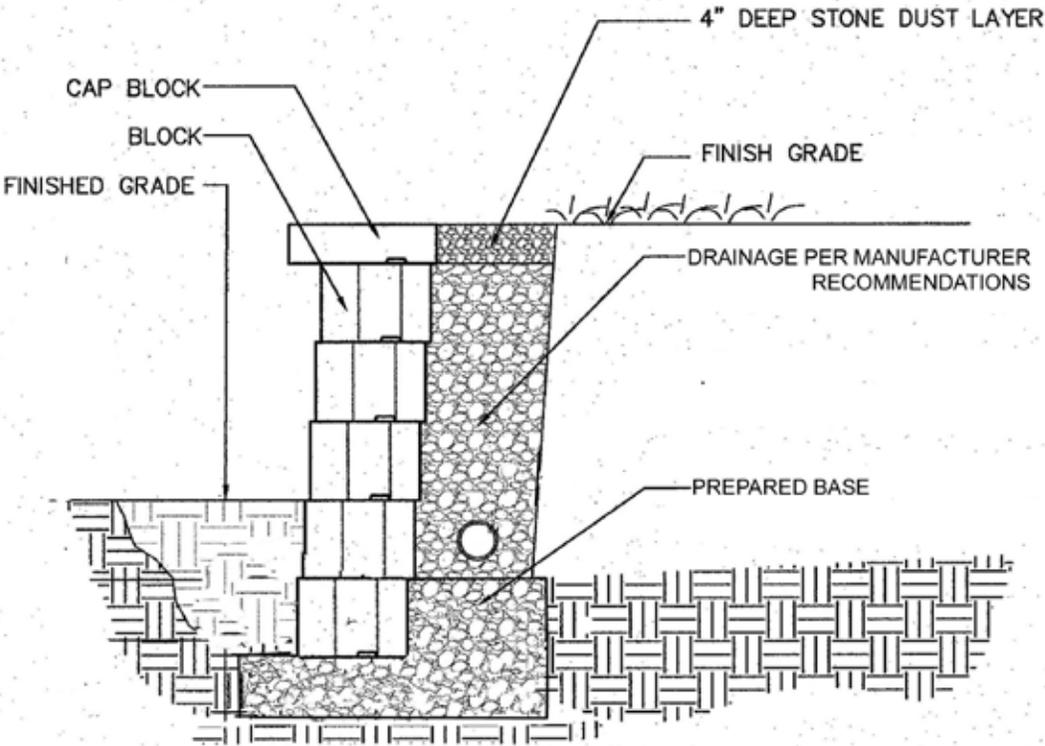
Walls shall be inspected by the City of Alexandria and certified by the installer.

LIFE CYCLE EXPECTATIONS

A 3 year minimum warranty is required.

Segmental retaining walls are anticipated to require replacement after 40 years or more of normal and ordinary wear.

WALLS | SEGMENTAL RETAINING



Segmental retaining wall section

Not to scale



Segmental retaining wall