

# CHAPTER 10

## MARINA AND WATERFRONT

Common Elements

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Marina Facilities

Maritime Lighting

Pilings

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Pump Out Station

# COMMON ELEMENTS

## Purpose

The Alexandria Waterfront Common Elements Design Guidelines were developed by Olin and completed on September 7, 2016.

Common elements are the standard materials, fixtures, elements, and applications that unify the design and appearance of the Waterfront and set it within the context of Old Town.

The design elements shall be implemented with current and future projects at the Marina and Waterfront Locations.

## General Information

Design guidelines for the common elements create standards for implementation of the Waterfront projects and are divided into three categories:

- Paving – colors and materials for streets, sidewalks, and the pedestrian promenade
- Lighting – consistent promenade lighting
- Art and history – historic shoreline and promenade banding that can display inscriptions related to Alexandria.

## Materials and Finish

Materials, treatments, fabrication requirements and color requirements can be found in the Alexandria Waterfront Common Elements Design Guidelines.



**ALEXANDRIA WATERFRONT  
COMMON ELEMENTS**  
DESIGN GUIDELINES  
SEPTEMBER 7, 2016



Design Guidelines Manual



Marina & Waterfront Concept by Olin

# DECKS AND BOARDWALKS

## Purpose

Elevated structures, such as decks and boardwalks, shall be provided where water bodies, unstable ground conditions, elevation changes, or other site conditions impede access, or for elevated pathways over protected natural scenic areas.

## General Information

Structures and foundations shall be designed with industry standard engineering practices and principles. Plans and shop drawings for structures shall be signed and sealed by a structural engineer registered and licensed to practice in the Commonwealth of Virginia.

Subsurface and hydrologic investigation shall be conducted by a geotechnical engineer licensed to practice in the Commonwealth of Virginia. Engineers shall utilize these reports in design of footings and foundations.

Elevated structures shall be ADA compliant, including railings and handrails, per local building codes.

Bridges located within the 100-year FEMA/ FIRM floodplain shall comply with design and/or performance requirements required for floodplains.

Elevated structures shall meet the static and dynamic design loads specified for each project. Loads include but are not limited to dead load, live load, concentrated load, vehicle load, wind load and snow load. Structures shall be designed to accommodate lightweight construction equipment and vehicles.

Structures located on designated multi-modal trail routes shall comply with the most current Alexandria Bicycle Transportation and Multi-Use Trail Master Plan and VDOT trail specifications. Deck and boardwalks shall be ADA compliant.

## Features

Walking surface of the deck shall have 6 feet minimum horizontal clear width.

## Materials and Finish

Structural members shall be marine grade weathering steel, fiberglass, concrete or silicate impregnated lumber.

Decking shall be concrete, silicate impregnated lumber or composite resin, and slip resistant.

Wood materials shall be used on a limited basis. Wood materials shall be installed crown side up. High exterior grade hardwoods or silicate impregnated lumber shall be approved by the Director of Recreation, Parks and Cultural Activities.

Piling foundations shall be concrete or timber. Foundations shall slope to shed water.

Metal components shall be rust and corrosion resistant. Electrolytic corrosion resulting from dissimilar materials, metals and finishes shall be avoided.

Surfaces shall slope to shed water.

## Installation

Structures shall be located along existing trails and paths when possible.

Approaches shall have a smooth transition and comply with current ADA standards.

Transitions shall not exceed ½ inch vertical dimensions. Where vertical dimensions are unavoidable, a transition plate of stainless or treated metal plate or transition shall be required.

## Life Cycle Expectations

A 1 year minimum warranty is required on decking surfaces.

A structural warranty of 10 years minimum is required.

Decking is anticipated to require replacement after 8 years based on normal and ordinary use.

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# DECKS AND BOARDWALKS



Observation deck



Composite boardwalk

# MARINA FACILITIES

## Purpose

Marina facilities shall be safe, efficient, and inviting to visiting boaters, tourists and citizens while minimizing environmental impact to the Potomac River and Chesapeake Bay watersheds.

## General Information

Facilities shall be designed and constructed by personnel specializing in marine/waterway design and construction.

Layout and design shall generally conform to the California Department of Boating and Waterways Layout and Design Guidelines for Marina Berthing Facilities, July 2005.

Designs shall allow for individual fixtures and accessory items to be readily replaced.

Restrooms and sanitary components shall comply with the Commonwealth of Virginia Sanitary Regulations for Marinas and Boat Moorings, as administered by the Virginia Department of Health.

Marinas shall incorporate best practices as detailed in the Virginia Clean Marina Guidebook.

Marinas shall comply with local and state permits regulating use and activity in Virginia Waterways, including but not limited to the Army Corps of Engineers, Virginia Marine Resources Commission, Virginia Department of Conservation and Recreation.

Marina facilities shall be ADA compliant. Guardrails and/or other barriers will be coordinated with Code Enforcement based on location and intended user activity.

Fire protection systems shall conform to the Virginia Statewide Fire Prevention Code.

Water safety systems shall be provided.

Construction may require the approval of the Alexandria Board of Architectural Review.

Related Standards: Park Structures, Site Furnishings, Surfacing, Signs, Utilities Systems.

## Materials and Finish

Electrical components and devices shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

Electrical systems shall conform to NFPA 303 Fire Protection Standards for Marinas and Boatyards.

Water life safety materials shall be durable, easy to maintain and resistant to vandalism.

Metal components shall be rust and corrosion resistant. Electrolytic corrosion resulting from dissimilar materials, metals and finishes shall be avoided.

Signs shall be readable, durable and prominently displayed.



City Marina

# MARITIME LIGHTING

## Purpose

Maritime lighting shall be provided for navigational marking, dock lighting and hazard marking. Lights include: Two Mile Lights, Blue Lights, One Mile Lights, and Pier Lights.

## General Information

Electrical components and devices shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

Lights shall meet IALA-AISM guidelines and standards on marine lights and flash patterns.

Lighting systems shall include emergency lighting system and nightlight connections.

Lighting options shall include lens color, lamp color, and flash patterns.

The standard light fixture is manufactured by Carmanah, Model M502 or Model M650.

Light performance shall be visible at 2 nautical miles maximum.

## Materials and Finish

Maritime lighting shall be waterproof, vibration proof and vandal proof.

Lights shall be solar powered LED lighting or energy saver rated. Lens shall be UV stabilized.

Lights shall include a function for battery operation.

Casing materials shall be UV-resistant and constructed from impact resistant polycarbonate.

Top of fixture shall be domed with self cleaning solar panels.

Bird deterrents shall be provided as needed.

## Installation

Install lights according to manufacturer's recommendations.

## Life Cycle Expectations

A product warranty of 5 years minimum is required.

Batteries are anticipated to require replacement after 5 years based on normal and ordinary use.

Bulbs and fixtures are anticipated to require replacement after 7 years based on normal and ordinary use.



Marina solar light

# PILINGS

## Purpose

Pilings shall secure docks and vessels.

## General Information

Piling shall be designed consistent with industry standard practices.

Piling load criteria shall be designed by a structural engineer registered and licensed to practice in the Commonwealth of Virginia.

Piling locations shall not obstruct navigation waters.

Pilings shall follow the rules for Use of Submerged Lands-Permitting, Dredging, and Construction, Subaqueous Guideline, VA Constitution Article XI.

## Materials and Finish

Pile diameters shall be round, 1 foot minimum outside diameter.

Piling material shall be fiberglass composite, wood timber, or steel.

Fiberglass pilings shall have a wall thickness of .0375 inches minimum.

Piling finish shall be a PPT thermoplastic finish with UV inhibitors.

Piling color shall be brown or neutral color.

Piles shall have caps made of fiberglass or polyethylene, secured by galvanized or stainless steel hardware.

Piling shall be impact resistant.

## Installation

Driving equipment shall minimize disturbance to submerged aquatic vegetation and animals. Pile driving requirement shall be determined by a structural and geotechnical engineer.

Required regulatory and building permits shall be obtained prior to installation.

Cut-off elevation of piles shall be determined by application, local conditions, design high water, design low water, weather data, and flood data. Generally, piles shall extend 4 feet minimum above docks and walkways.

## Life Cycle Expectations

A product warranty of 10 years minimum is required.

Piles are anticipated to require replacement after 10 years based on normal and ordinary use.



Marina pilings

# PROMENADE LIGHT

## Purpose

The promenade light shall be used to illuminate portions of the Marina and Waterfront Parks.

## General Information

The promenade lights shall be installed per the Alexandria Waterfront Common Elements Design Guidelines were developed by Olin.

Lighting in POS zoned properties requires a Special Use Permit.

The standards light fixture is the Cooper ECM/EMM Epic Medium.

The standard pole is Structura Bol-T-16-70-40-S4-C7-ARM/1GFCI-MOD, or City approved equal.

## Materials and Finish

The fixture shall be finished with polyester powder coat paint. Color shall be black.

The post material shall be a laminated Accoya Pole (Color =S4 -IPE) and aluminum anchor base shall be black.

Light poles/fixtures/luminaires shall be 16 feet total height from finished grade and installed with an anchor base.

Lamps shall be LED.

## Features

Light fixtures that require separate ballast boxes are not permitted.

Light fixture can be configured with one or two luminaires.

Color temperature shall be between 3,000K and 4,000K.

Light fixtures shall have an option for motion activated automatic dimming/brighting.

## Installation

Light poles shall be located so as not to be in conflict with vegetation or plantings.

Lights shall be located a minimum of 3 feet from the edge of all shared-use paths or pedestrian walkways.

Light pole foundations shall be flush to finished grade. Top of footing shall be sloped to shed water.

Connections installed beneath paving shall be sleeved.

Installation work shall be performed in conformity with USBC.

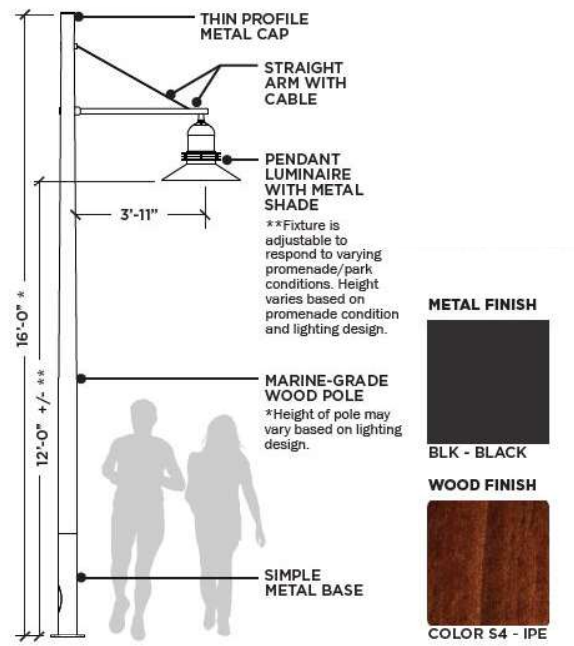
Lights shall have photocell and time clock activation.

## Life Cycle Expectations

A 5 year minimum warranty is required on street pole light fixtures.

A 3 year minimum warranty is required on poles.

Lights are anticipated to require replacement after 20 years of normal and ordinary use.



Promenade Light



# PUMP OUT STATION

## Purpose

Pump out stations shall be provided to remove sewage from on-board marine sanitation devices.

## General Information

Pump out stations shall meet Chapter 570 Commonwealth of Virginia Sanitary Regulations for Marinas and Boat Moorings, Section 270.

The standard vacuum pump out station is manufactured by Edson International, Model 210-2210 Series.

The pump out station shall have a 10 gpm minimum capacity.

Pump type shall be diaphragm or centrifugal power.

Motor shall be electric.

Suction and discharge opening size shall be regulated.

Pump out facilities shall include equipment for rinsing boat holding tanks. Backflow preventers shall be installed on the water service line when potable water is used.

## Installation

Pump locations shall be connected to approved discharge lines.

Pump out locations shall be fixed and not portable.

Locations shall be convenient to boat slips.

## Life Cycle Expectations

A product warranty of 2 years minimum is required.

Diaphragms and valves are anticipated to require replacement after 5 years based on normal and ordinary use.

Pump out stations are anticipated to require replacement after 10 years based on normal and ordinary use.



Pump out station