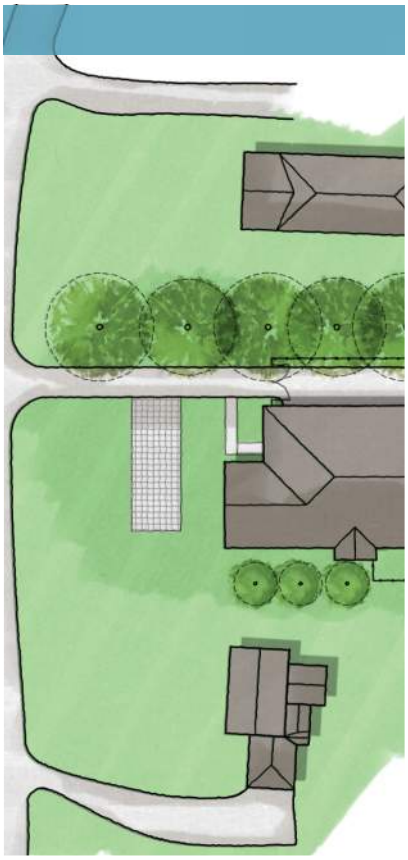

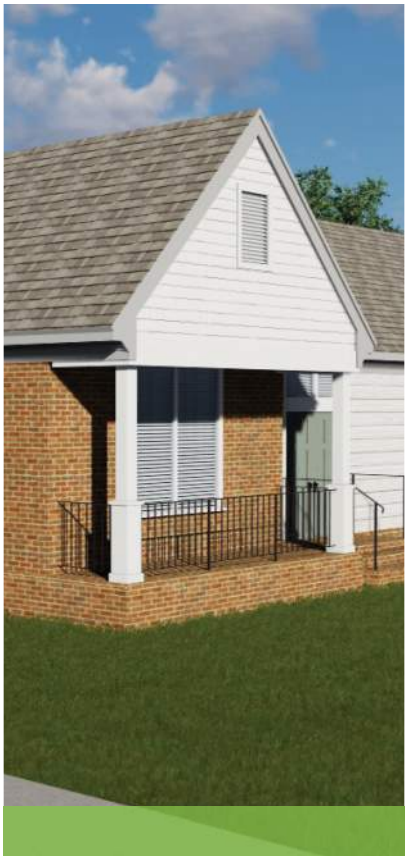

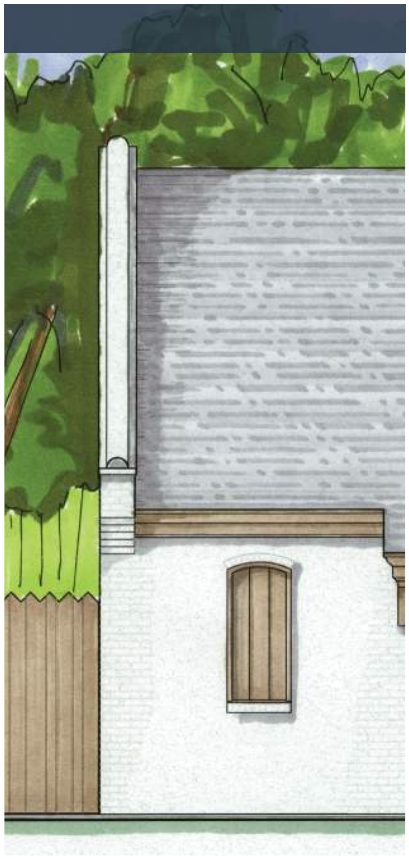

HAMPTON ROADS SANITATION DISTRICT

FACILITIES ARCHITECTURAL GUIDELINES

~~JUNE 30, 2016~~

REVISED FEBRUARY 13, 2023

HRSD

GuernseyTingle

ARCHITECTURE | INTERIORS | PLANNING

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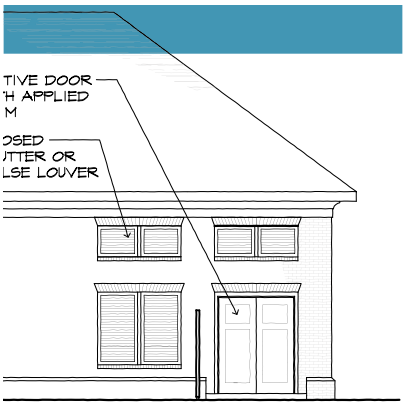

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BACKGROUND

Originally incorporated into the 2016 updates to the *HRSD Design and Construction Standards,* the Pump Station Design Guidelines were generated to address both new and renovated pump stations. In 2022, HRSD launched an update to include other infrastructure and support buildings, such as offline storage facilities (OLSF's) and pressure reducing stations (PRS's). Other updates have also been incorporated to address feedback and experience from previous projects.

These Guidelines shall be used by architects/engineers in the design of new Hampton Roads Sanitation District (HRSD) support facilities (pump stations, pressuring reducing stations, and offline storage facilities). They shall also be referenced when designing additions, renovations, and modifications to existing support facilities.

The Guidelines shall supplement the engineering, technical, and operational standards and requirements, including the current edition of the *HRSD Design and Construction Standards,* as directed by HRSD. Intended to be a "living document," these guidelines will be updated periodically by HRSD to address new materials, new building systems, new technology, and refinement of aesthetic design standards.

INTENT OF GUIDELINES

The Guidelines are intended to direct the aesthetic design of support facilities. Facility design should strive to achieve the following principles:

- Overall site and building design should respect the community in which the facility is located.
- Architecture should blend into the local context of the site and community where feasible. If the project site is remote or industrial, the aesthetic may be more utilitarian. A more urban or developed location requires more attention to the architectural style and composition.
- Building façade should show quality detailing and finely tuned proportions.
- Materials should be selected for durability and low maintenance.
- Building design should balance aesthetic form and operational function. Functionality drives the design of the facilities, but design can properly address unique conditions.

ENVIRONMENTAL JUSTICE

HRSD's facilities should implement the use of quality construction and materials. However, many facilities are being retrofitted into disinvested or distressed urban environments. In these cases, measures to alleviate the disparity with surrounding properties include massing that uses smaller-scale components, low-profile colors and landscaping, and similar materials to neighboring properties.

Additionally, climate resistance and sustainability are part of environmental justice ideology. Sustainable and environmentally sensitive materials and methods of construction should be utilized in all HRSD construction projects. Low-impact landscaping, long-life materials, and pervious pavers to mitigate stormwater are all examples of sustainable practices.

RENOVATIONS AND ADDITIONS

Renovations and additions to existing facilities should be harmonious with the existing facility in massing, materials, and character. Otherwise, if the entire facility is to be retrofitted/updated, the Architectural Guidelines should be followed as if it were a new construction.

CONFORMANCE WITH LOCAL DESIGN GUIDELINES

Designs shall meet the guidelines of the locality, including design standards, zoning ordinance regulations, overlay districts, and community character corridors. Designs shall also meet any guidelines adopted by the local community. If local design guidelines conflict with these Architectural Guidelines, the local guidelines shall take precedent.

PRE-DESIGN CONSIDERATIONS

Regional/Area Study

- Prior to commencement of design, the immediate region should be studied to determine characteristics of the surrounding area and local vernacular.
- If a prevailing style is apparent from the Area Study, consider characteristics and materials that will complement the local existing architecture.
- Consult local ordinances and guidelines to determine if there are any special regulations and restrictions. Examples beyond typical setbacks and regulations include height restrictions, fencing restrictions, and restrictions for site access such as driveways.
- In undeveloped or rural areas that may be developed in the future, a locality contact may be able to provide comprehensive plans, master plans, or other information on pending developments that could impact the design.

Conceptual Design

- Exterior elevations and 3D architectural renderings should include human figures for scale.
- When laying out the site and the building, a conceptual site plan can help determine the placement of above ground equipment, both building-mounted and freestanding. This includes, but is not limited to, generators, piping, bypass valves, vaults, meters and panels, odor control systems, control panels, emergency connections, and electrical transformers.
- A conceptual site plan, in conjunction with renderings, can aid in planning the proper screening and appropriate treatment of these exterior appurtenances.

SITE DESIGN

Site Layout and Views

- General site characteristics of neighboring properties should be considered in facility design.
- Consider views from adjacent streets, public spaces, and neighboring buildings and lots.
- Particular attention should be paid to sites located near cultural landmarks, significant buildings, and public spaces.
- Buildings should be sited to screen any visible electrical, plumbing, and mechanical items from primary views.
- If land is needed for future expansion, consideration should be given to interim use of this land as a park, greenspace, or other public/community use.
- Where possible, locate emergency pump connections away from primary views.

Building Setbacks

- Building setbacks shall follow local zoning requirements, and also reflect the setback already established by buildings on adjacent properties.
- Depending on scale and mass, it may be appropriate to site facilities further back than adjacent buildings to avoid overwhelming the adjacent structures.

Driveways and Hardscape

- Where appropriate, consider pervious pavement systems, in keeping with the environmental focus of HRSD.
- If secondary or emergency drives are required, consider the use of pervious paver or grass paver systems to visually reduce the amount of hardscape and paving.
- Concrete or asphalt paving should be used where heavy equipment or vehicle loading is expected.
- While the desire is to minimize paved areas, this should be balanced with the practicality of maintaining landscaping and green areas. For example, a narrow green space between the building foundation and the driveway will be challenging to maintain.
- Width of driveways should be the minimum needed for access by HRSD vehicles, and consistent with neighboring properties when possible. Site paving should be the minimum needed to maintain appropriate access for maintenance and operations. Consider the weight limits, specific widths, and turning radii for specialized vehicles that HRSD may need for particular sites.
- Edge treatment should be provided at all access drives visible to the public.
- Consider the use of hardscape for conformity with neighboring sites. Sidewalks, driveways, and walkways may be required for the building to blend with adjacent properties.

Fencing

- Fencing is the preferred method of securing the site, but a combination of fencing and landscaping should be used for visual screening if possible.
- Highly durable, low-maintenance materials such as powder-coated aluminum, closed-cell PVC, and fiber cement should be used for screen fencing. Some materials are available pre-finished or with solid thru-color for enhanced durability. The manufacturer should be consulted on color-matching if plugs or fasteners are required for installation of these materials.
- Security fencing should be decorative black aluminum fencing, 6' high.
- Consider the project location when determining fencing location and materials. In a rural setting, fencing may be needed to prevent public vehicular access, but pedestrian access prevention is not necessary. In some neighborhoods, fencing may be harmonious with adjacent properties.
- In general, fencing should be consistent with the character of surrounding properties.
- When landscaping is insufficient for screening unsightly elements of the architecture or site (louvers, exhaust, piping, monorail, etc.), screen fencing may be appropriate. However, elements that are low to the ground (manholes, concrete pad) or other less visually impactful elements may be left outside of fencing.
- When possible, fencing the buildings and other elements as necessary is preferable to fencing the entire site.
- Fencing should expose at least the front façade of the building – more if possible within design constraints.

Landscaping

- Landscaping should be used in lieu of, or in combination with, fencing for visual screening of site elements.
- Existing vegetation should be considered in site design as it can provide screening and visual softening of facilities.
- Often, surrounding sites do not have fencing; therefore, utilizing fencing is disharmonious with the local character and landscaping may be a suitable alternative for screening. Evergreen shrubbery is a recommended alternate to fencing where possible.
- Design landscaping that is sustainable, low maintenance, and drought resistant. Utilize native plants where practical.
- Decorative landscaping should be minimized, but may be needed as a tool for shielding unsightly facades or softening visible foundations on larger buildings.

BUILDING DESIGN // GENERAL

Building Massing

- In general, buildings should be designed to a scale and style that is sympathetic to residential structures, or sympathetic to adjacent contextual buildings.
- Smaller facilities should be designed to appear like traditional "outbuildings", with scale that is appropriate for those buildings.
- Avoid large monolithic walls and roof surfaces. Break larger masses down into smaller elements with plan offsets, gables, roof breaks, etc. Use porches and other residential elements where needed to soften larger mases.
- Large facilities in small-scale neighborhoods should be designed with smaller elements reflective of the neighboring buildings.
- Buildings should be carefully articulated with functional doors and louvers, placed in an organized method that is appropriate for architectural balance on the elevations, while supporting the functional requirements of the facility. Avoid haphazard placement of louvers, openings, and other elements on walls.

Building Façade Design

- Several factors may influence the overall height of a building: a high capacity pump station may require greater height for equipment, or a building location in a flood plain may require the floor to be raised significantly above grade. A variety of techniques should be used to achieve good proportions on the building façades.
- To avoid water infiltration, the first floor slab elevation shall meet the requirements of the most current edition of Section 10, Flood Elevation Requirements, of the *HRSD Design and Construction Standards*. Therefore, if the floor elevation will be raised, consideration should be given to how this will impact the building elevation's proportions.
- For taller buildings, consider simulating a half story above the first floor. Alternatively, a half story of false windows at grade can create an "English basement" aesthetic.
- A water table (a traditional masonry projection at the foundation line) of up to 4'-0" above grade can be utilized to break down the overall height of a building, regardless of the actual floor level.
- Head and sill heights, widths, and overall spacing of doors, windows, louvers, and other elements should be coordinated and provide visual balance.

BUILDING DESIGN // PRIMARY ELEMENTS

Exterior Wall Cladding

- Primary exterior wall finish shall be brick, in color and size to blend with adjacent structures. Where no structures are in the vicinity, brick should be standard size (6 courses per 16 vertical inches) or oversize (5 courses per 16 vertical inches).
- Where no structures are in the vicinity, brick should be a Tidewater Virginia traditional red blend, with a full range to include a percentage of flashed bricks.
- Mortar shall be straw or natural color. Mortar joints shall be grapevine or concave.
- Optional exterior cladding should be fiber cement siding (Hardiplank or equal), weatherboards, smooth finish with 6" to 7" exposure. Fiber cement siding should be factory finished or solid thru-color in a shade to blend with neighboring structures. The manufacturer should be consulted on color-matching after installation if plugs or fasteners are required to install these materials.
- If appropriate to the context of the site, other styles of siding (board-and-batten, shingles, etc.) may be used. Material and finish shall be the same as described above.

Roofing

- Sloped roofs (pitch 8:12 or greater) are strongly recommended, unless a different pitch is needed for compatibility with surrounding structures. In some instances, a lower pitch may be necessary to comply with local height restrictions.
- Sloped roofing materials shall be either standing seam metal or architectural shingles.
- Standing seam metal roofing colors should blend with adjacent structures. Where no structures are in the vicinity, the color should be medium or dark bronze. Roofing should have an 18" maximum exposure on panel size.
- Architectural shingles should be 40-year warranty asphalt-fiberglass shingles, with a medium to dark color to blend with adjacent structures. Where no structures are in the vicinity, the color should be slate blend, dark gray blend, or weathered wood blend.
- Gutters and downspouts are generally discouraged. However, in some instances, they may be necessary for adequate roof drainage and/or to prevent maintenance issues.
- Where ground gutters are needed, provide materials that blend with the building and landscaping.
- Fall protection anchors should be included in roof design.

Doors and Windows

- Depending on the needs of the pump station, functional doors will be located on various faces of the building. When they are highly visible it may be appropriate to clad them with an architectural finish. For less visible locations, painting doors to match the exterior siding will allow them to recede from view.
- Decorative doors could be located at the front of buildings to create a focal point for the building.
- Decorative windows & false widows should be used to break down mass of larger blank walls, and provide articulation to facades. Unless other window styles are needed to blend with adjacent structures, windows should be double-hung in appearance, with a width-to-height proportion in the range of 1:2 to 1:2.3. In general, primary windows should not be smaller than 2'-8" x 6'-2". Larger windows may be needed for larger scale buildings. Half story windows above should match the size of one sash of the double hung windows below.
- When windows are needed for natural light, care should be taken in areas of high vandalism. Second story windows or dormers can provide natural while mitigating security issues. When windows are added only for aesthetic reasons, glass can be blacked out and openings blocked up on the interior side.
- Brick inset windows and shuttered windows can be used to break up a blank façade. Sill and header details should match other building penetrations for visual uniformity, and sizing should fit into the overall proportions for the building. Shutters should be constructed from high durability low maintenance materials such as closed cell PVC, fiberglass, or fiber cement.

Trim and Cornices

- High durability and low maintenance materials such as closed cell PVC, fiber-cement, fiberglass, or composites should be selected for cornices, exterior trim, and columns.
- Cornices should be designed appropriately for different scaled buildings: while a small pump station may resemble an outbuilding and have only a crown moulding and short roof overhang, larger buildings will require larger cornices with multiple members.
- Use square or round porch columns with an 8" minimum width. Avoid overly ornate columns.
- 6" corner boards should be used at weatherboard siding.
- Handrails should be included with any stairs of more than 3 risers. Personnel entrances, porches, and other occupiable spaces should receive guardrails and handrails as required by code. Decorative, non-occupiable porch rails should be at an appropriate height, but not above 36", unless mandated by code.

Louvers

- Functional louvers have a very large impact on the exterior of a facility; therefore, their design must be carefully coordinated.
- All visible louvers should receive a high quality fluoropolymer finish and color to match other exterior elements.
- Where possible, the top of louvers should align with the top of adjacent windows, doors, or closed shutters. The widths of louvers should also correspond to adjacent architectural items. Placement of louvers should align with the overall spacing of exterior elements.
- Locate oversized and odd louvers on the rear elevations or behind screening elements.
- Where possible, fans should be mounted on the interior with only architectural louvers on the building exterior.

BUILDING DESIGN // OTHER ELEMENTS

Emergency Generators and Stand-by Pumps

- Locate generators and pumps within an enclosed building where feasible for both visual screening and noise control.
- Large generators can drive the overall size of the building. Additional care should be taken to break up large masses of the building if this is the case.
- If enclosure of equipment is not feasible, locate generators and pumps at rear of building or at least visible side of building, away from view by the public and adjacent properties.
- Provide screening of all generators and pumps located outside enclosed buildings, using screen walls, fencing, evergreen landscaping, or combination thereof.
- Care should be taken where generators or pumps must be elevated due to flood zone requirements. In these cases, enclosure in a building may be the only way to effectively screen equipment.

Monorails

- Locate monorails on rear elevations to decrease street visibility when possible.
- When monorails will be visible, consider ways to integrate them into the architecture of the building. A monorail can be simplified to a single column and beam, or can be disguised with roofs and architectural columns.

Odor Control

- Where possible, use the building to screen odor control systems from view by locating them in alcoves or at the rear of the building. Alternatively, provide high screen fencing, walls, or landscaping to screen odor control systems from view.

Noise Pollution Control

- Locate generators, blowers, and other noise-generating equipment within an enclosed building whenever possible. If this is not possible, evaluate neighboring sites when locating equipment.
- Exterior equipment should be oriented within alcoves and/or at the least intrusive location both visually and acoustically, using the building as a sound wall. Sound attenuation blankets on the building's interior may be a secondary method of noise reduction.

Signage

- Safety signage should be placed at the personnel entrance to the building. Wherever possible, locate the personnel entrance to the side of the building to lessen the visual impact of the safety signage.
- The location and size of HRSD property signage may vary depending on context and intent of signage.
- Locate street address signage on the front façade over the front door or other prominent location.
- A project's locality may have requirements for safety signage, as well. This signage should be as minimally intrusive as possible, while still meeting the requirements of the locality. For example, if the site is surrounded by security fencing, fence-mounted placards may not need to list safety equipment requirements, as this information is listed at the personnel entrance.

Wastewater Storage Tanks

- Storage tanks by their nature are composed of a very large mass. Surface-applied materials can help break up the massing.
- Consider a water table feature to provide a base for structures. A continuous water table or use of similar materials can help integrate tanks with the building's architecture.
- Locating large tanks behind buildings, walls, or berms, can help visually mask large tanks.
- Depending on the site, using subtle or obscuring paint colors can also help tanks visually "recede" into the background.

Other Equipment

- Building-mounted or exterior panels, meters, and HVAC/mechanical equipment should be located at the rear when possible. Landscaping and/or fencing may be necessary to screen them further.
- Consult building codes and other governing ordinances for clearance requirements at electrical and other applicable equipment.
- Freestanding panels should be screened by landscaping and/or fencing.

Exhaust Elements

- Exhaust elements should be placed at the rear when possible.
- A decorative masonry chimney may be used to help to disguise a number of smaller vertical exhaust and/or venting elements.
- Avoid large exhausts on the roof.
- Consider the location of SCADA equipment and antennae. Locate these on the least visible facade possible, as screening these with tall landscaping can cause interference with signals. Note that existing landscaping may also cause interference, which could impact the location of these elements.

Exterior Lighting and Security Cameras

- Lighting design will be a combination of the function of the project and the aesthetics of the area in which the project is located. Projects should be assessed on a case-by-case basis for lighting needs. Lighting must meet the requirements of the most current edition of Section 32, Electrical and Instrumentation, of the *HRSD Design and Construction Standards*. Depending on locality lighting ordinances, Dark Sky compliant light fixtures may be required to prevent light trespass onto neighboring properties.
- For these Guidelines, "ambient lighting" refers to lighting that is used for decorative purposes, or to help a project blend in with its surroundings. Examples may include porch lighting, decorative sconces, or decorative street lights. For ambient lighting, photocell sensors are suggested to utilize exterior lighting from dusk to dawn.
- "Security lighting" as used here defines lighting that is brighter than ambient lighting that is meant to illuminate an area to deter vandalism, trespassing, and theft. For security lighting, motion sensors may be appropriate to control lighting in high traffic areas or urban areas.
- "Safety lighting" as referenced in these Guidelines refers to utility lighting for HRSD workers to gain access for work in a safe, well-lit environment when necessary. Consider manual switching for these fixtures to minimize interruption in service during use.
- New and replacement fixtures should be LED lamp type fixtures. The color rendering index (CRI) of the lamp output should match the context of other fixtures in the vicinity. Ambient lighting will generally have a warmer CRI than security and safety lighting.
- If pole mounted lighting is required on the site, care should be given to placement, finish, and height of poles. Light poles should be factory finished aluminum and no more than 12 feet above grade. Style and color should match the building scheme, with the color usually dark bronze or black.
- Use full cutoff light fixtures to minimize spillover of light to adjacent properties. Locality requirements should also be consulted, as they will also stipulate illumination guidelines to minimize light pollution.
- If security cameras are needed, placement should be discrete and screened from view if possible.

BUILDING DESIGN // FLOOD MITIGATION

Due to rising sea level, water infiltration prevention has become a priority in construction. Construction must meet the requirements of the most current edition of Section 10, Flood Elevation Requirements, of the *HRSD Design and Construction Standards*.

New construction allows the flexibility of raising the entire building above the flood plain. However, this often means that new buildings may be significantly taller than existing neighboring buildings. Care should be taken to break up tall vertical masses to help them relate to the surrounding architecture.

Renovations and additions to existing buildings pose a different challenge, in that the exterior walls must be floodproofed to prevent water infiltration. Equipment that cannot be accommodated within existing structures must be located on the exterior.

In either instance, mitigation measures should be integral to the facility's design wherever possible. The mitigation methods that most commonly impact the architectural and site design are discussed below.

Equipment or Structure Elevation

- If a structure's floor elevation will be significantly raised due to the flood plain, the use of a water table and/or a change in materials should be used to help break up the facade's vertical mass.
- When equipment must be elevated due to flood zone requirements and cannot be incorporated into a structure's interior, measures to screen the equipment from view must be taken. Locate equipment using the building's massing as a screen. Otherwise, use landscaping or fencing as a screen.

Dry Floodproofing

- Dry floodproofing methodology involves enclosing a structure's foundation to protect it from water infiltration. This includes covering building openings within the flood plain via either permanent or temporary measures.
- Permanent measures include window wells or walls that enclose the structure.
- Temporary measures include sliding doors or gates, lift-out panels, and panels with buttressing systems, to allow passage through doors during non-flooding.
- Both permanent and temporary measures should be integral to the facility design and should not appear to be extraneous. Due to their specialized nature, this may involve using gate or panel materials on the building's exterior.

Floodwalls or Levees

- Floodwalls and levees, like dry floodproofing, serve to prevent water infiltration into a site and/or a structure. They can be implemented with new construction, and lessen the impact of operations for existing facilities. When possible, use like materials and details for the building and the floodwalls or levees for an integral and cohesive appearance.
- Earthen berms can be used to lessen the height and visual impact of floodwalls or levees, and should be considered if site permits.

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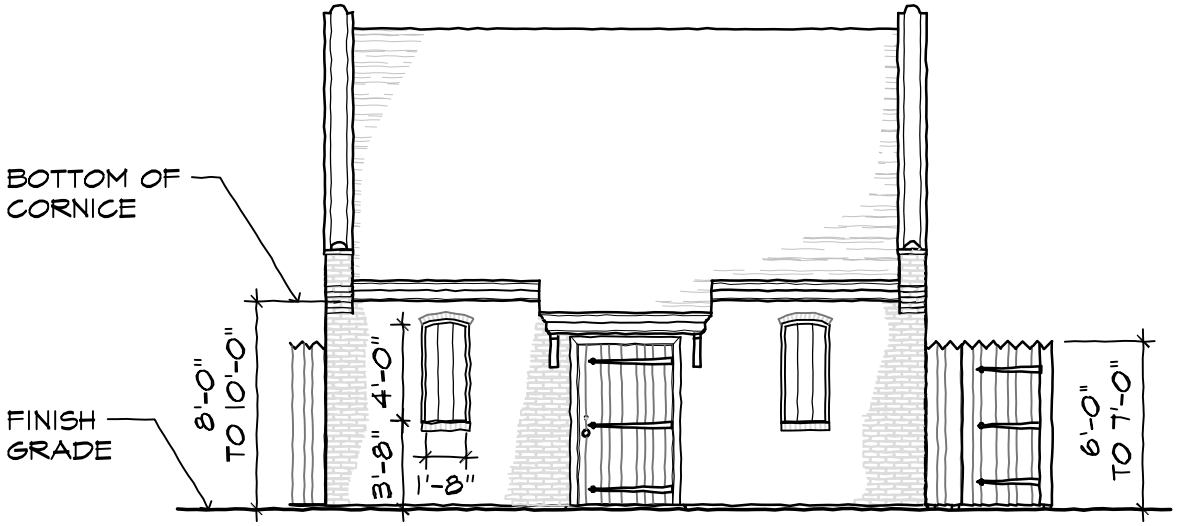
EXHIBITS // DRAWINGS

General Building Proportions

Small Facilities

The following example gives proportions and detail elements appropriate for small buildings.



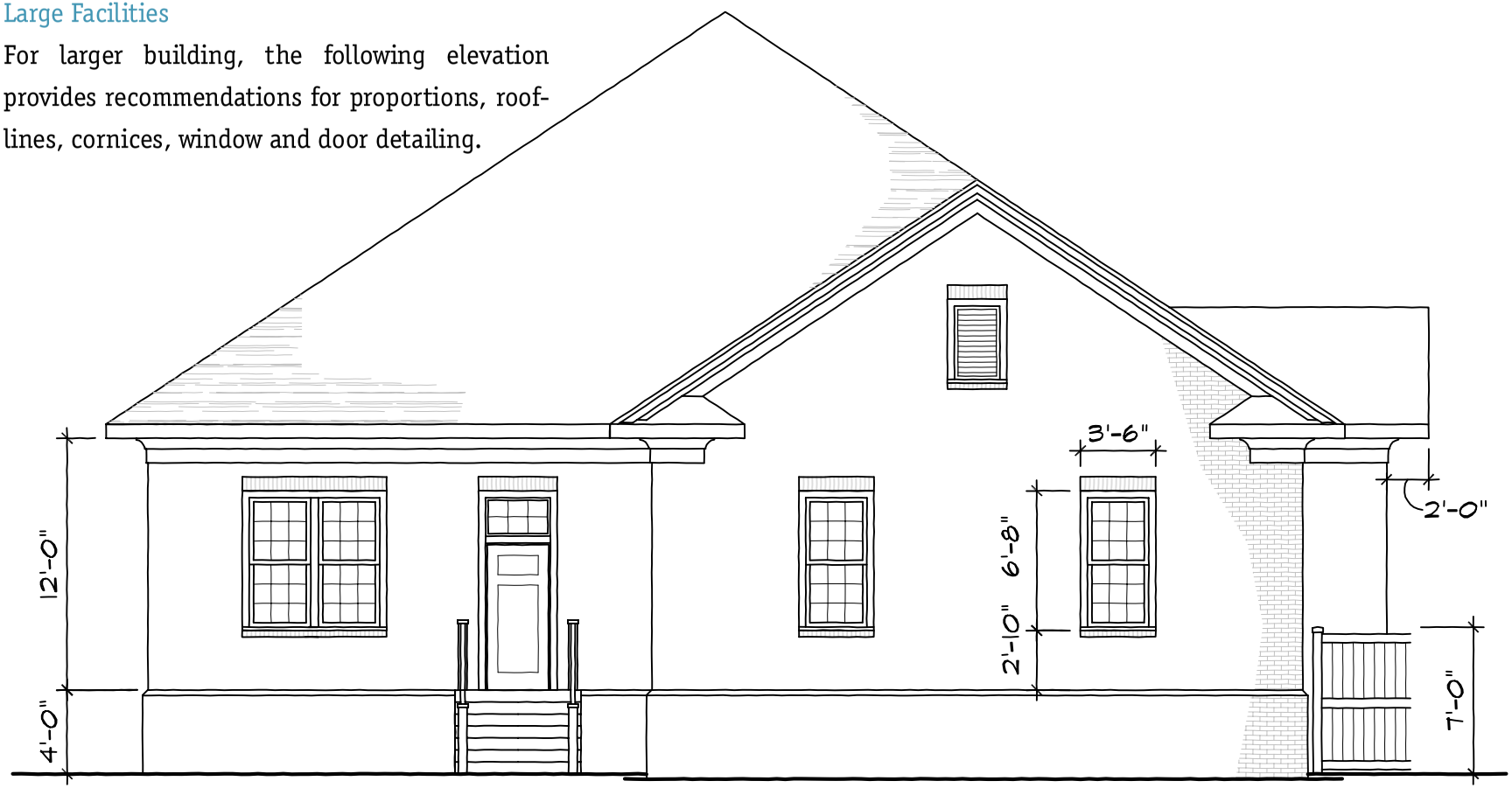
ELEVATION

EXHIBITS // DRAWINGS

General Building Proportions

Large Facilities

For larger building, the following elevation provides recommendations for proportions, roof-lines, cornices, window and door detailing.



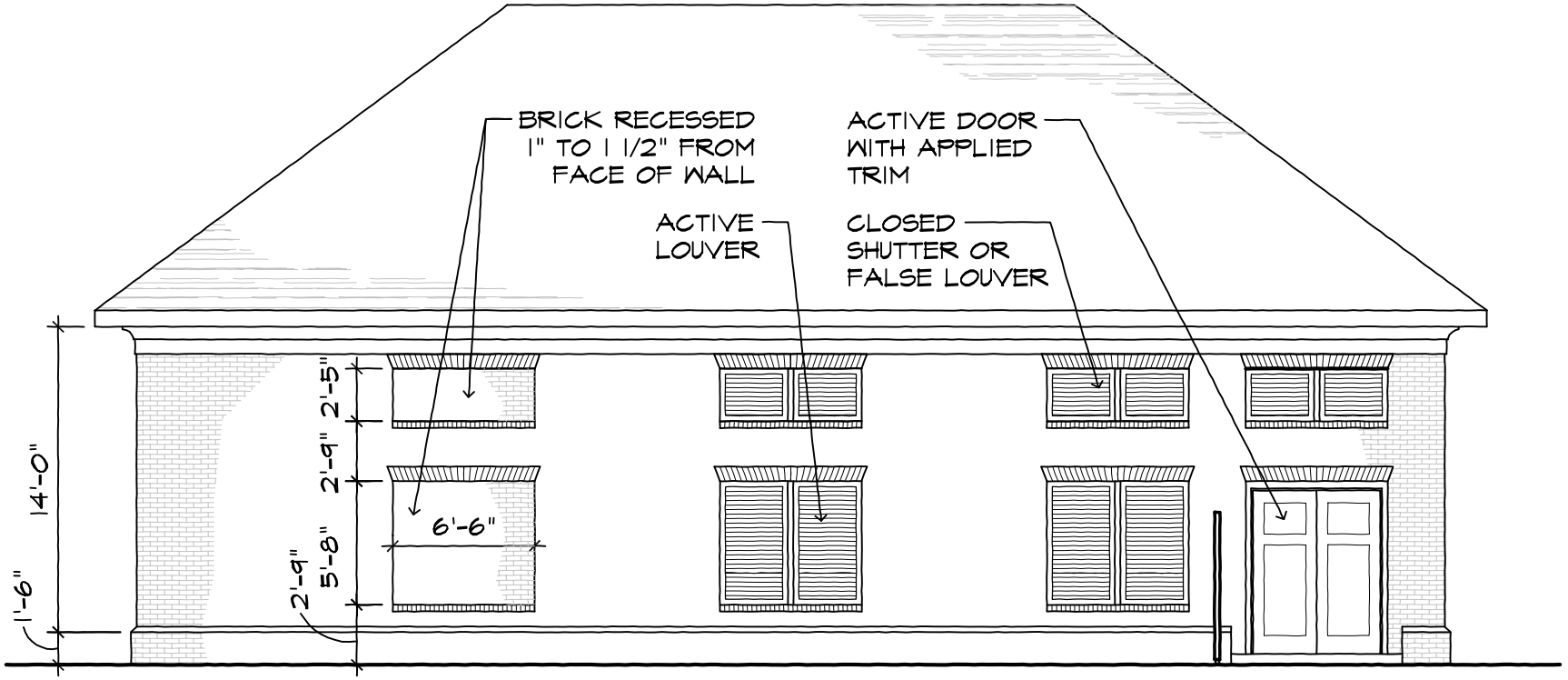
ELEVATION

EXHIBITS // DRAWINGS

General Building Proportions

Large Facilities

This elevation shows an example of proportions appropriate for a large building highlighting the use of faux brick windows, louver and door locations to create a visual grid. The placement of these elements helps to create a visual hierarchy and break up long spans of solid facades.

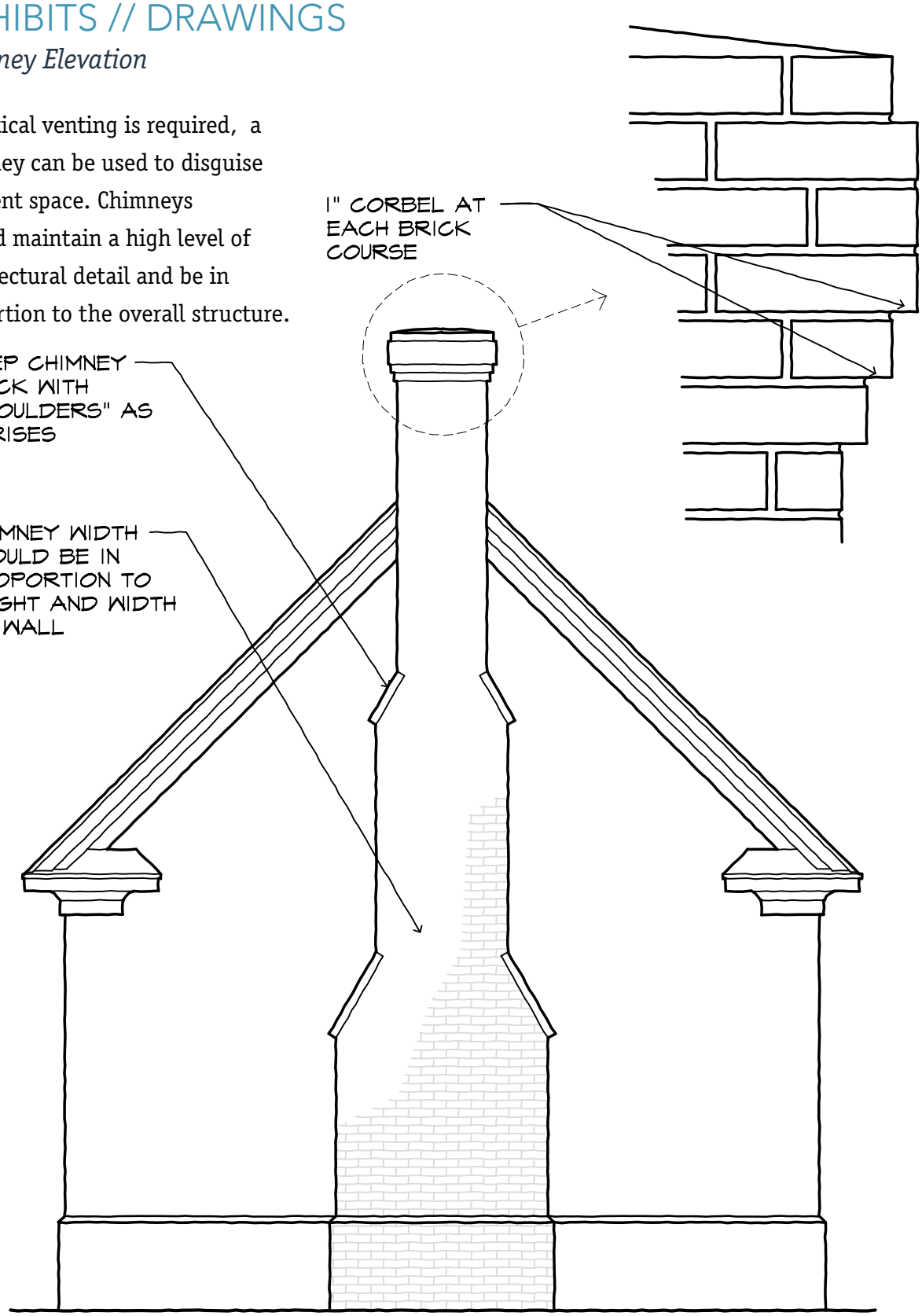


ELEVATION

EXHIBITS // DRAWINGS

Chimney Elevation

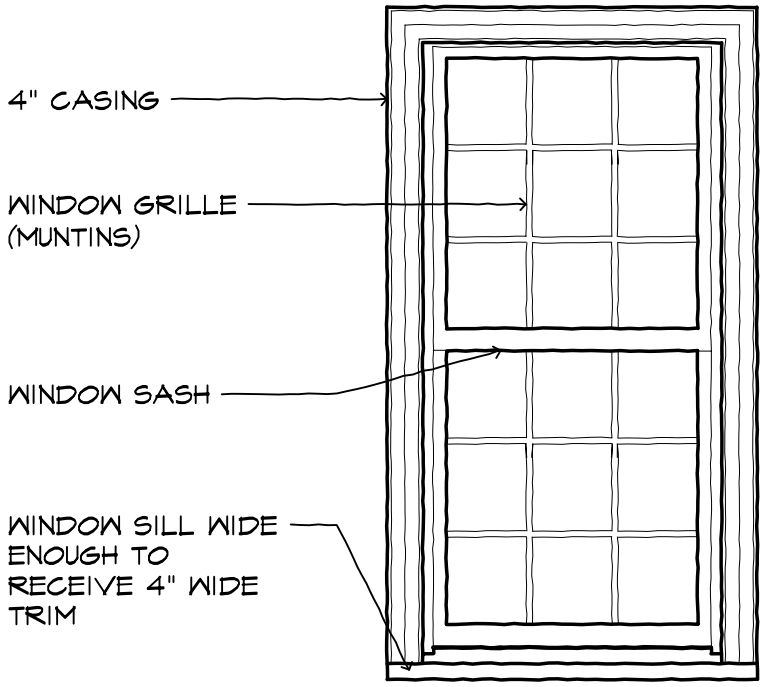
If vertical venting is required, a chimney can be used to disguise the vent space. Chimneys should maintain a high level of architectural detail and be in proportion to the overall structure.



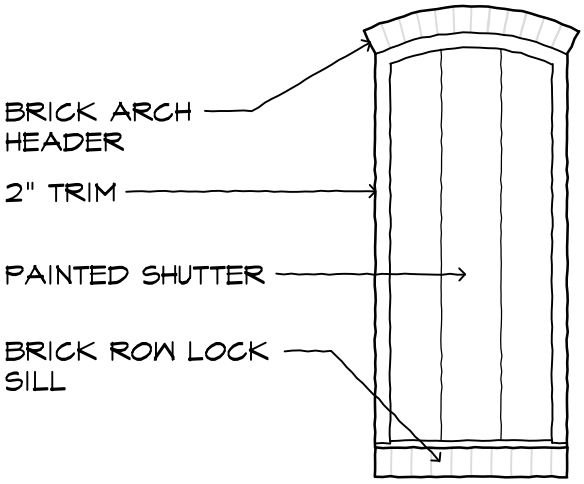
CHIMNEY ELEVATION

EXHIBITS // DRAWINGS

Window & Closed Shutter



WINDOW ELEVATION

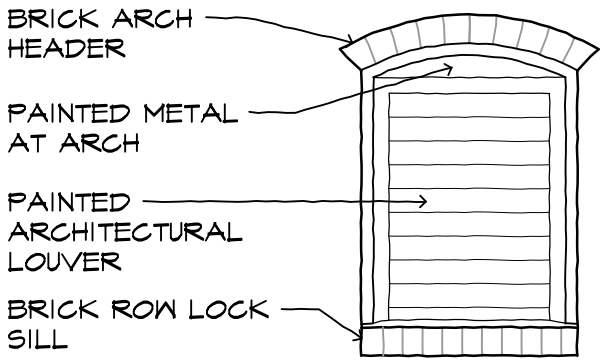


SHUTTER AND TRIM SHALL BE PLACED BEHIND FACE OF WALL BRICK.

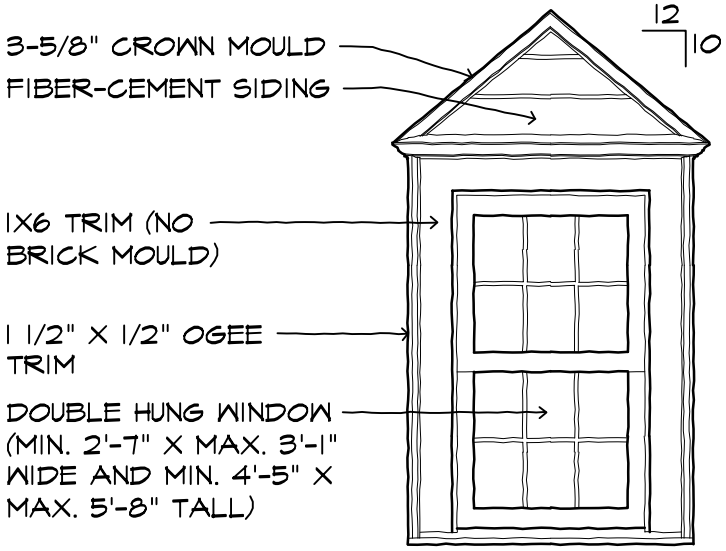
CLOSED SHUTTER ELEVATION

EXHIBITS // DRAWINGS

Architectural Louver & Dormers



ARCHITECTURAL LOUVER

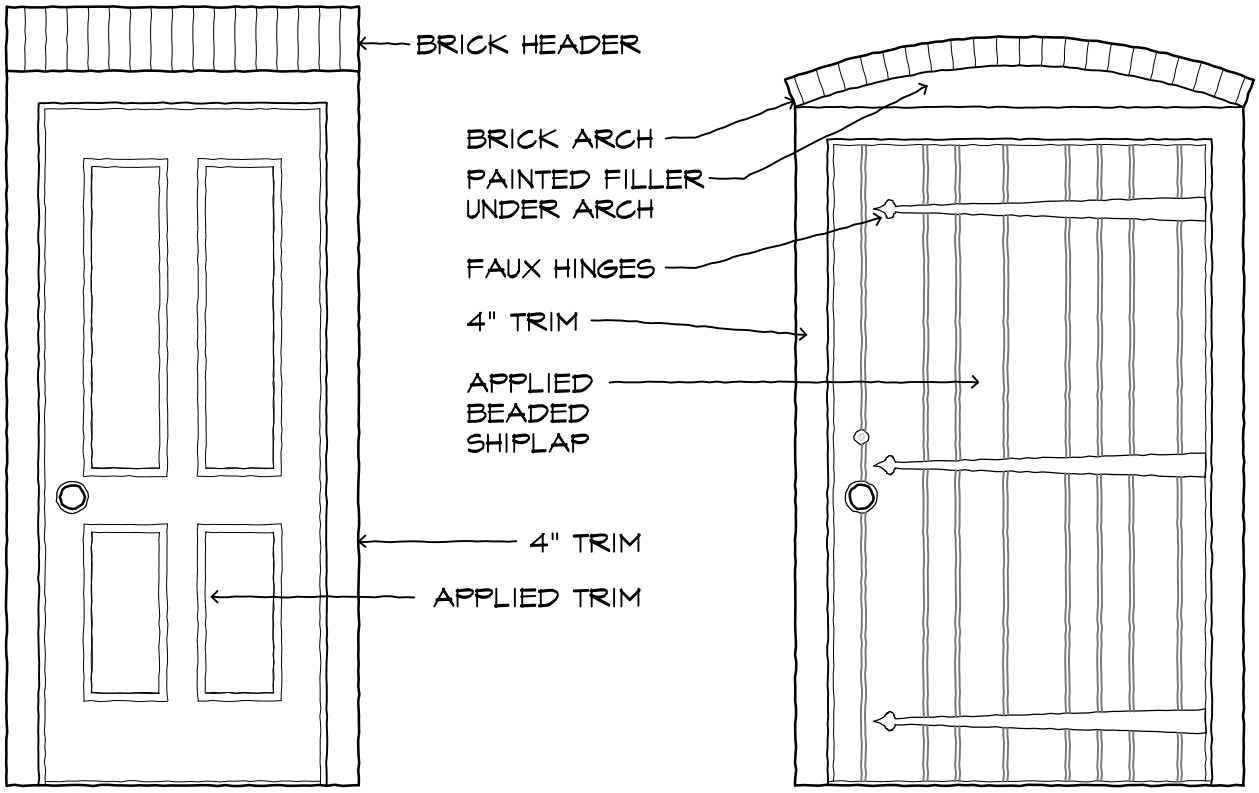


DORMER

EXHIBITS // DRAWINGS

Doors

Examples of architectural door treatments are below. Corrosion-resistant doors may be simply painted, or when desirable or highly visible, can receive decorative treatment applied to the front.



DOORS

EXHIBITS // DRAWINGS

Doors

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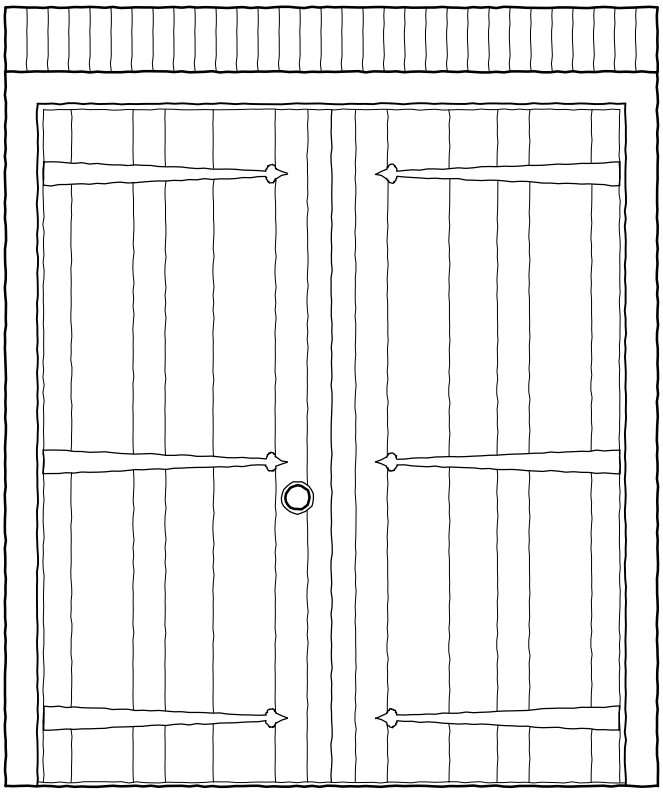
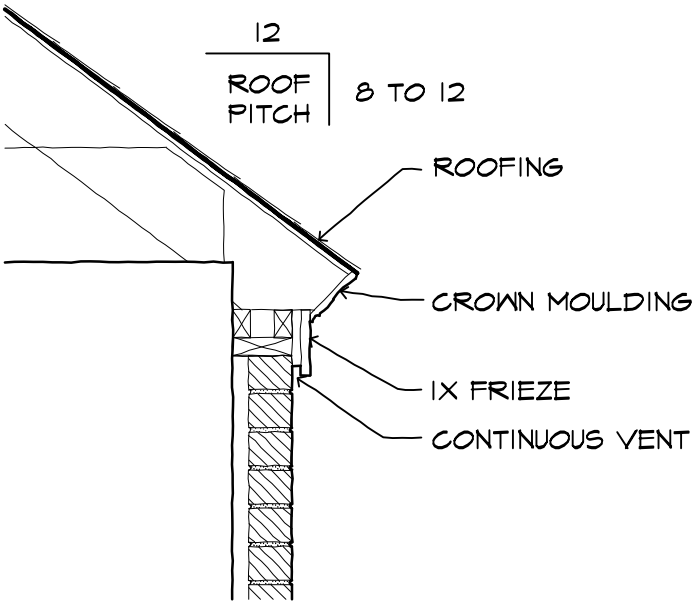


DOORS

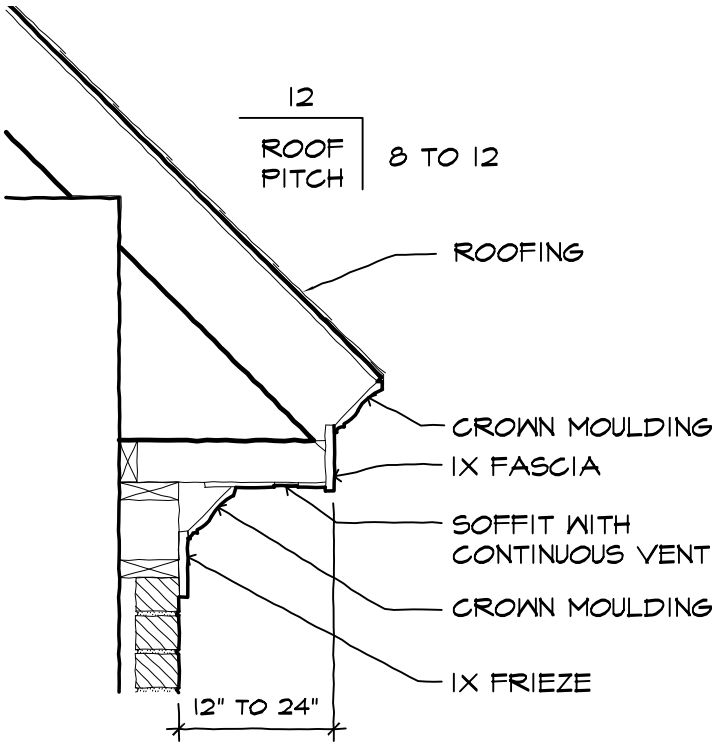
EXHIBITS // DRAWINGS

Cornice

The following cornice details are intended to give examples of the range of possibilities. Cornice details should be in proportion to the overall building scale.



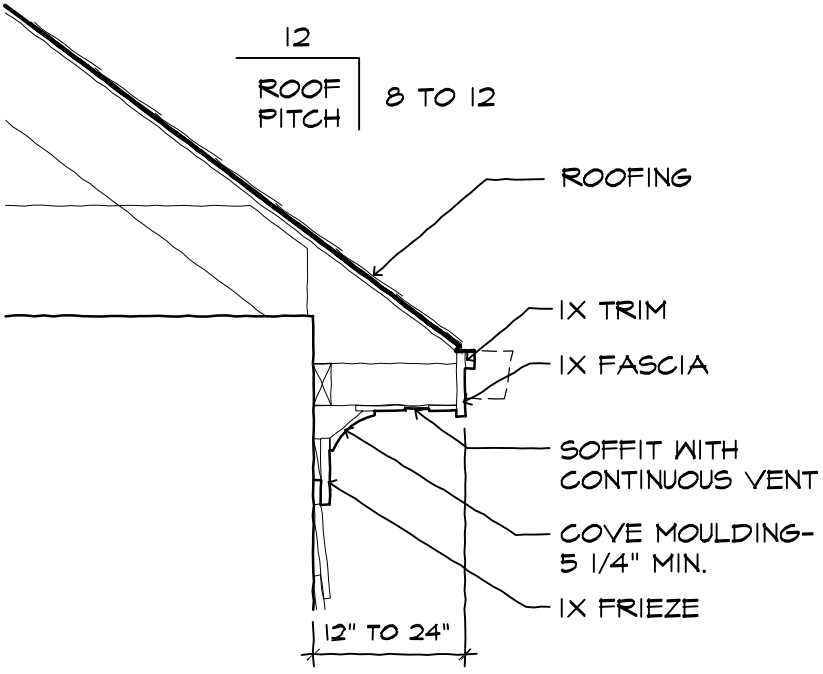
SMALL CORNICE



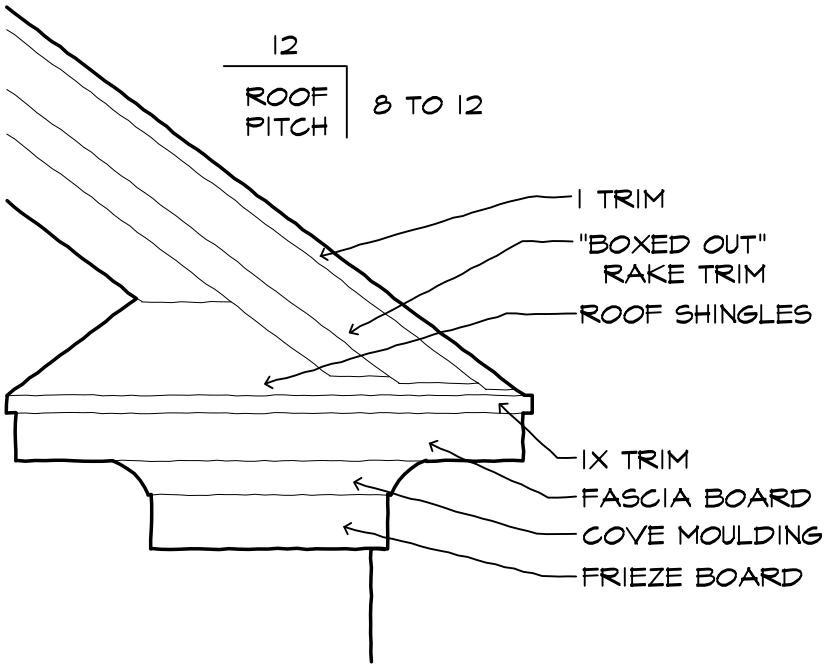
LARGE CORNICE

EXHIBITS // DRAWINGS

Cornice



LARGE CORNICE

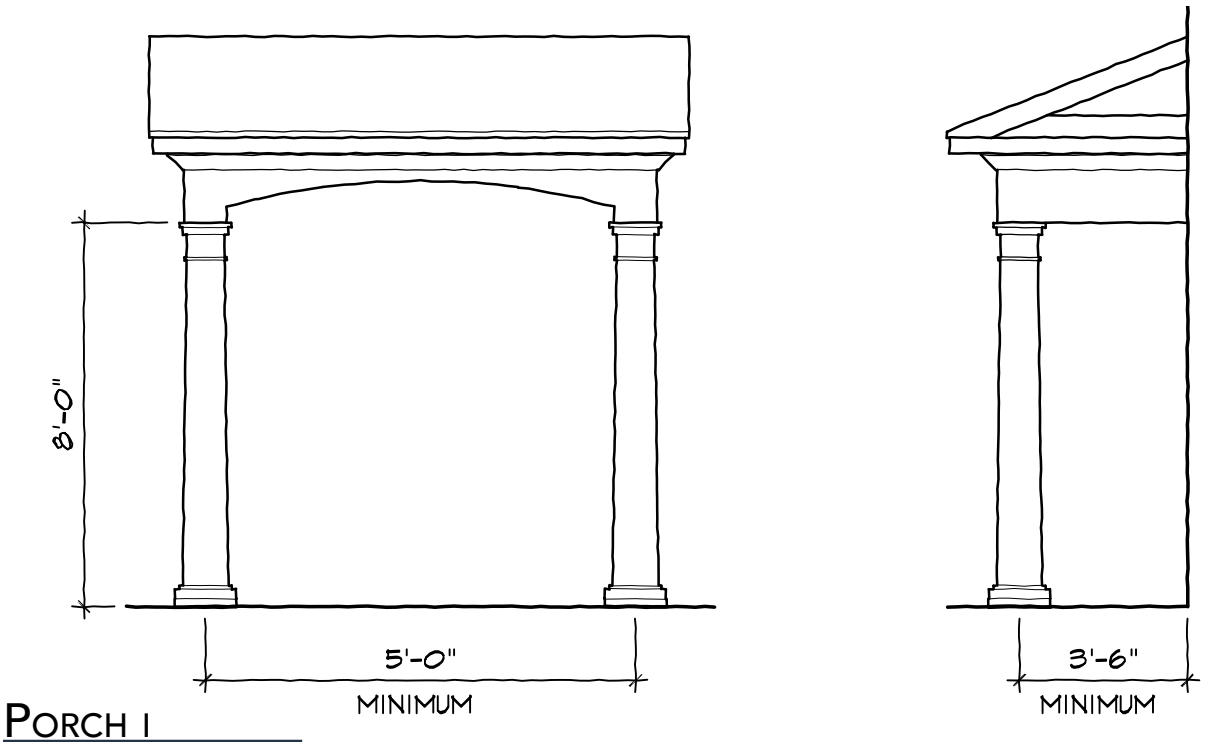


CORNICE RETURN

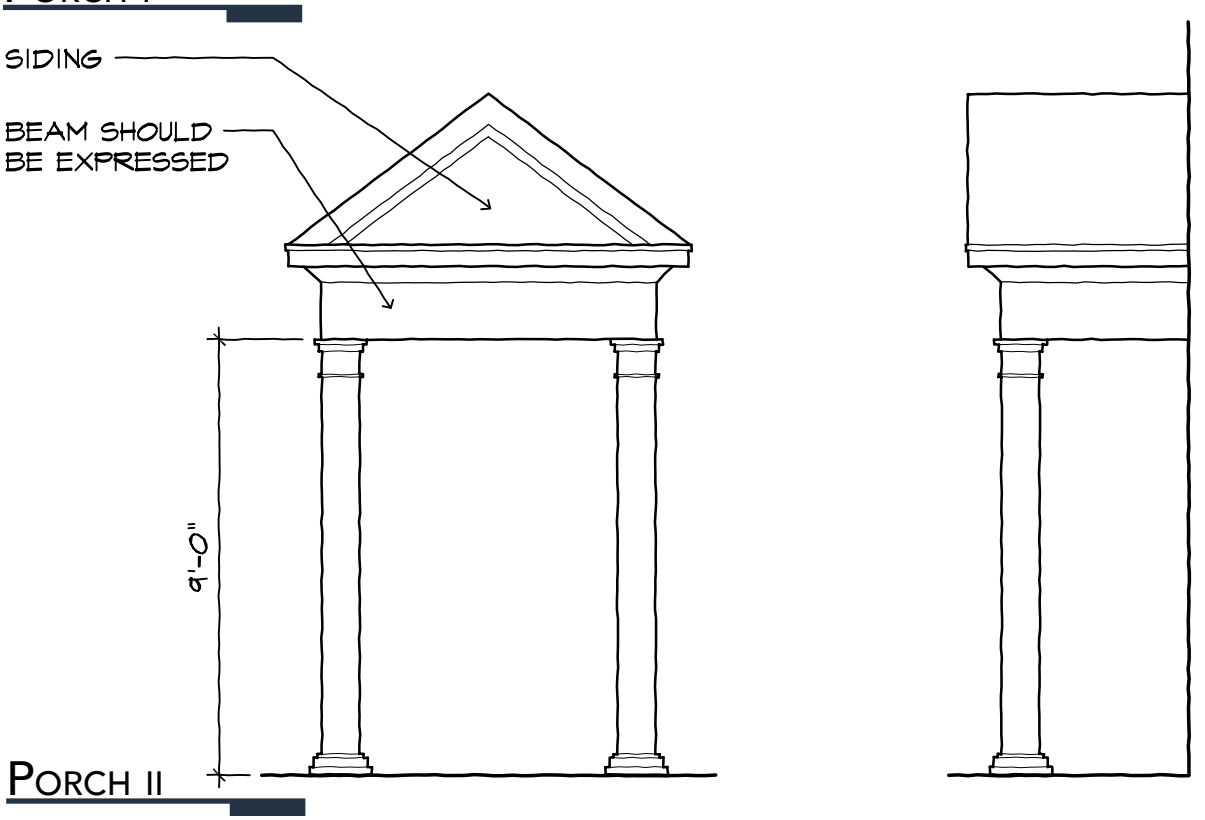
EXHIBITS // DRAWINGS

Porches

In some cases of high visibility or importance, a porch may be desired to maintain continuity in a neighborhood or hide unsightly but necessary elements.



PORCH I

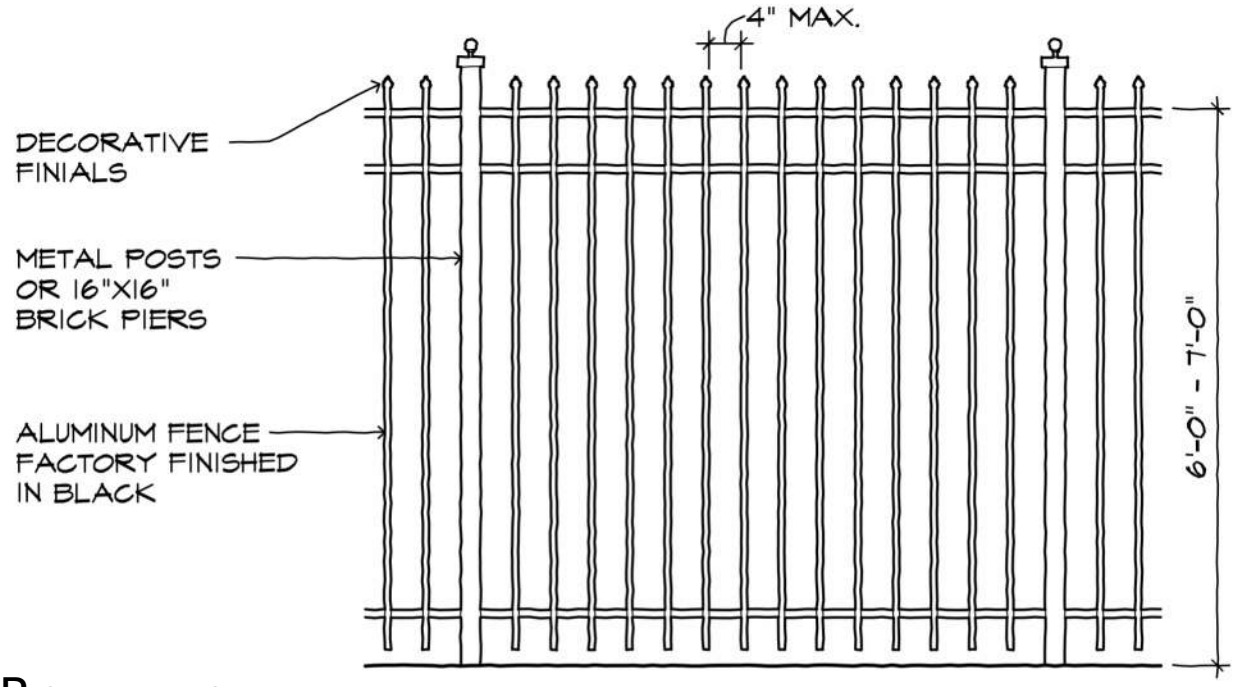


PORCH II

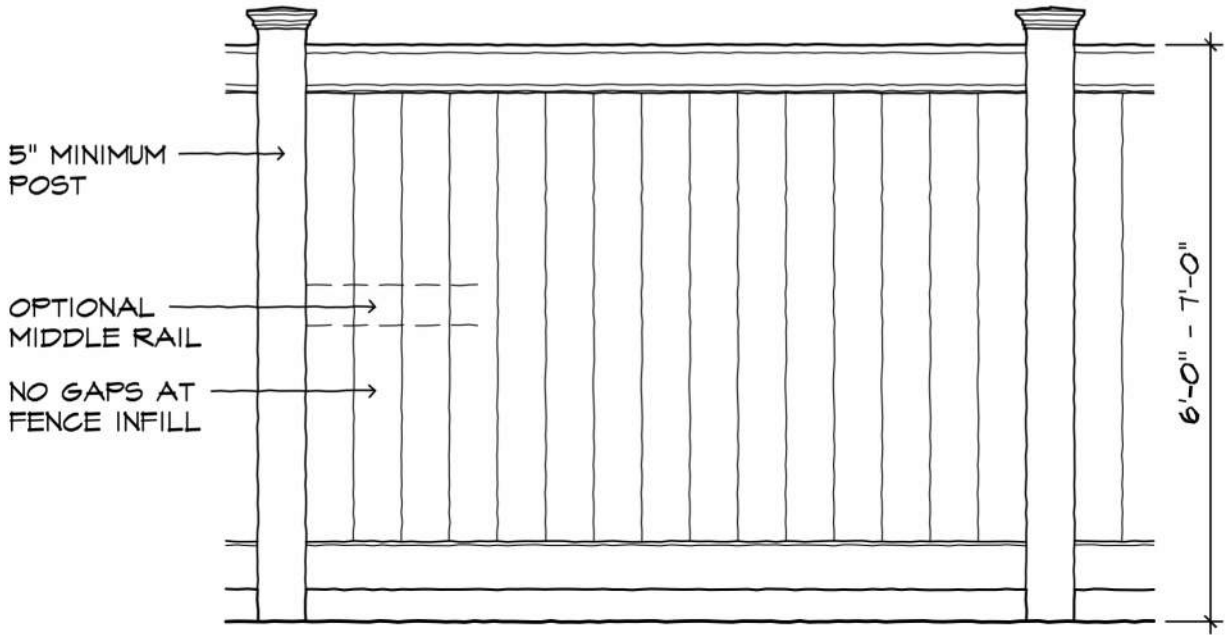
EXHIBITS // DRAWINGS

Fences

A picket fence should be used where visual screening is less important, but perimeter security is still required. A solid fence may be used where visual screening is of primary concern.



Picket fence



Solid Fence

EXHIBITS // DRAWINGS

Signage

Standard Property Sign

The Claremont Pump Station is completely submersible, and would not be easily detectable without property signage.

12″

26″

Combined Safety Sign

Standard safety signage to be displayed at personnel entrances.

12″

11″

Fence Sign

Typical information required by locality on perimeter security fencing (consult localities for specific requirements).

EXHIBITS // CASE STUDY I

Big Bethel Road Pressure Reducing Station

EXISTING CONDITIONS // STREET VIEW

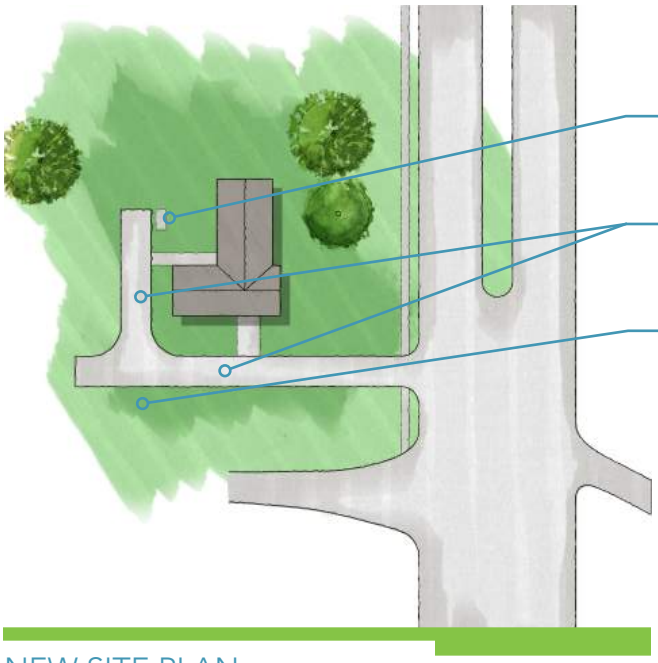
1. Immediate rural site in suburban surroundings.
2. No clear front setback created by neighboring properties, so location of pump station is acceptable.
3. Lack of established tree cover and close neighbors results in the pump station being highly visible.
4. Bright yellow fence should be eliminated or replaced with one more contextually appropriate.

EXISTING CONDITIONS // SIDE VIEW

1. Aluminum louvers of different styles and shapes should be standardized to the extent possible and painted to match brick or doors.
2. The roof slope is too low and displays a lack of detailing.
3. Electrical equipment is highly visible from the front facade and should be relocated away from views or screened.
4. Exhaust fans should be located inside with louvers visible on the exterior.

EXHIBITS // CASE STUDY I

Big Bethel Road Pressure Reducing Station



1

Relocate electrical equipment to rear.

2

Service entrance at rear, and side if necessary.

3

L-Shaped Massing is broken up by faux porch extension.

NEW SITE PLAN

NEW // STREET VIEW

1. Massing and material choices should reflect the surrounding areas.
2. Closed shutters at front facade are used to create visual interest.
3. Head heights for doors, windows, and louvers should be well coordinated.
4. Aesthetic front porches should be sufficient in depth.
5. Add handrails at front entrance to create focus on doorway.

EXHIBITS // CASE STUDY II

Atlantic Pressure Reducing Station, Virginia Beach, Virginia

EXITING CONDITIONS// STREET VIEW

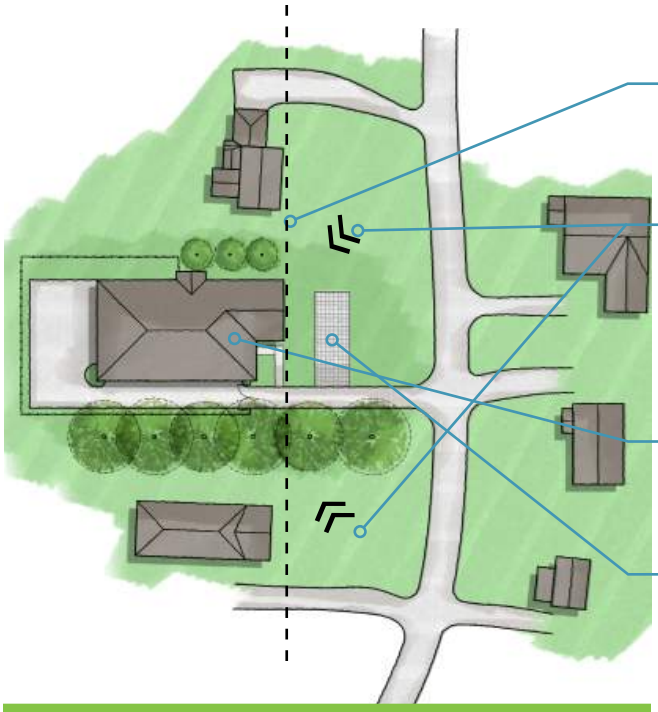
1. Existing pump station extends past the established set back line of the surrounding structures.
2. Massing shows no connection or response to adjacent houses.
3. Hip roof lessens the impact of such a large structure.

EXITING CONDITIONS// SIDE VIEW

1. The blank front facade of the existing pump station provides low architectural detail in contrast to the surrounding residential neighborhood.

EXHIBITS // CASE STUDY II

Atlantic Pressure Reducing Station, Virginia Beach, Virginia



1

New pump stations should respect the front setback established by existing adjacent buildings.

2

Corner views should also be considered in design. Where existing tree cover blocks the view, the architectural treatment can be lessened. Where no screening exists, attention should be given to side elevations.

3

Break up large massing into smaller elements with particular focus of the street side.

4

If hardscape is required at front, choose aesthetic and permeable pavers.

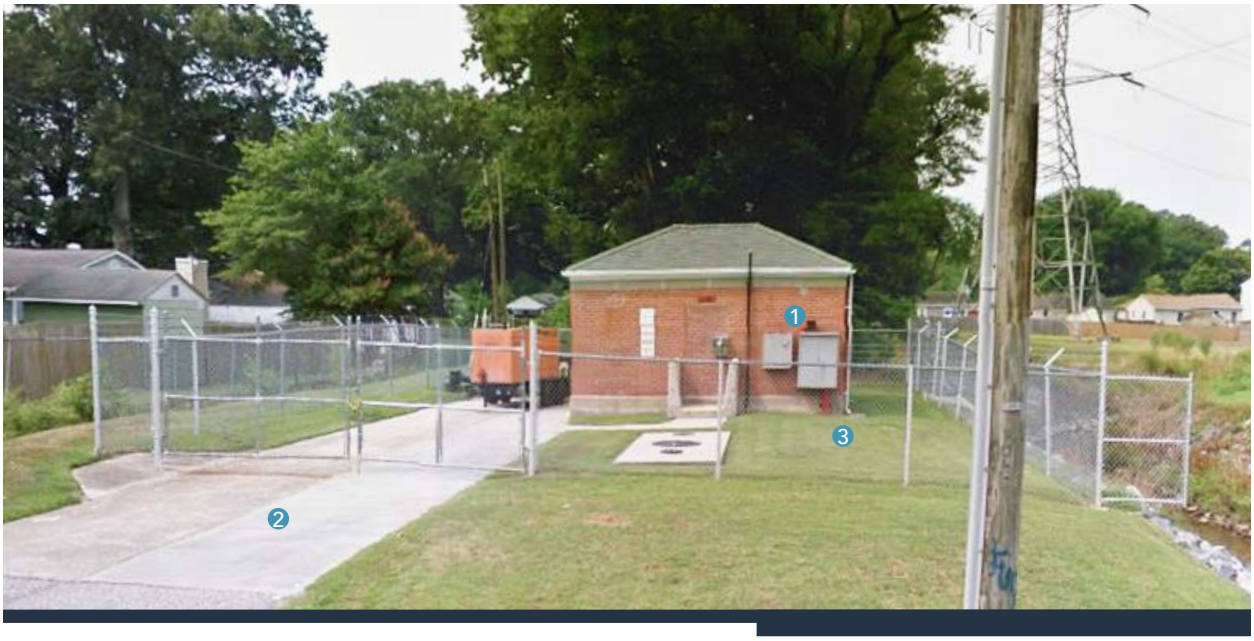
NEW SITE PLAN

NEW // STREET VIEW

1. The hip roof lessens the impact of the large building.
2. 3'-6" Water table.
3. 7'-0" Fence for additional screening and to match scale of pump station.
4. Narrow driveway can widen behind fence.

EXHIBITS // CASE STUDY III

Newmarket Creek Pump Station, Hampton, Virginia



EXISTING CONDITIONS // STREET VIEW

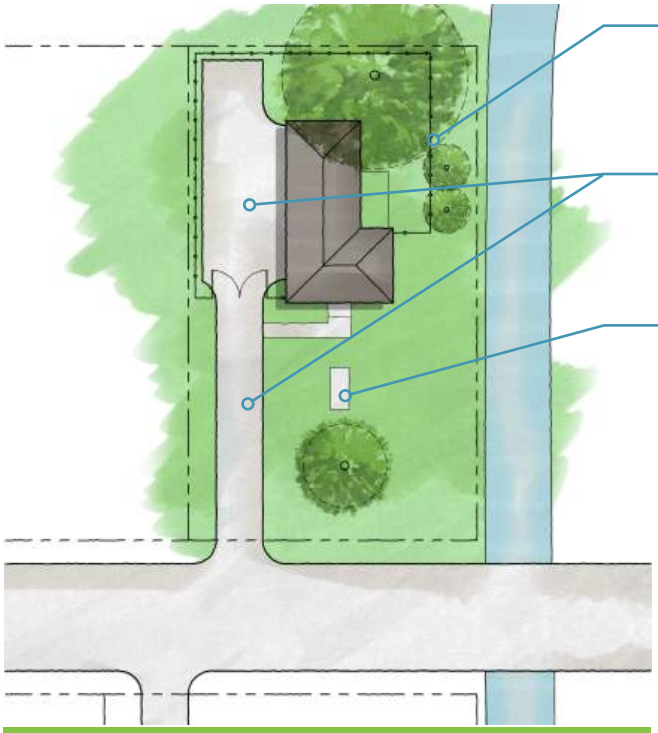
1. Electrical equipment could be moved to side or rear of pump station.
2. Driveway should be the same width as adjacent properties, or less - access at rear can be wider.
3. Fencing should be scaled back to front facade and replaced to match surrounding materials.

EXISTING CONDITIONS// SIDE VIEW

1. New vent piping should be added in a careful manner and not merely applied to exterior.
2. Existing flood protection was modified and should be removed.
3. Service doors can be painted to blend into brick.

EXHIBITS // CASE STUDY III

Newmarket Creek Pump Station, Hampton, Virginia



1

Fence as little of the site as possible. If possible, fencing should be set back from the front facade.

2

Maintain a narrow driveway but still allow for wide service pad in fenced area.

3

Small manholes or access hatches at grade may be left outside of fenced area if properly secured.

NEW SITE PLAN

NEW PUMP STATION // STREET VIEW

1. Faux or real entry door at front can be laminated with architectural treatment.
2. Closed shutters provide simple pattern at the front facade.
3. Fence is set back from front facade as much as possible.
4. If necessary, protruding elements can be painted to blend into surrounding brick.

EXHIBITS // CASE STUDY IV

Providence Road Pressure Reducing Station, Virginia Beach, Virginia

EXISTING CONDITIONS // STREET VIEW

1. This site had high visibility from four sides - Providence Road (elevated above the site) and Old Providence Road (the "front" entrance).
2. At Providence Road, fencing did little to screen view. Use of landscaping and vegetation could have improved screening.

EXITING CONDITIONS // SIDE VIEW

1. Doors, louvers, and exhaust items needed to be painted to match existing brick.

EXHIBITS // CASE STUDY IV

Providence Road Pressure Reducing Station, Virginia Beach, Virginia

OPTION 1 // STREET VIEW

1. An extended roof structure hid the monorail and helped to block the unbalanced facade.
2. Full and clerestory faux brick windows created a rhythm to the facade.
3. The hip roof lessened the impact of the large building.

OPTION 1 // SIDE VIEW

1. Louvers fit easily into the established grid of brick window openings.
2. Large cornice details were used to match the scale of building.
3. The hip roof lessened the impact of the large building.

EXHIBITS // CASE STUDY IV

Providence Road Pressure Reducing Station, Virginia Beach, Virginia

OPTION 2 // STREET VIEW

1. Painted doors blended into the brick and visually disappeared.
2. A simple column dressed in brick lessened the impact of the monorail.
3. Standing seam metal roof instead of shingles.

OPTION 2 // SIDE VIEW

1. Faux brick arches provided rhythm to the blank facade and allowed for well placed louvers.

EXHIBITS // CASE STUDY IV

Providence Road Pressure Reducing Station, Virginia Beach, Virginia

FINAL DESIGN // STREET VIEW

1. The long, linear site necessitated equipment located parallel to the road. Decorative split-rail fencing and landscaping screen equipment and define a street edge.
2. The building design reflects adjacent residential buildings.

AS CONSTRUCTED // STREET VIEW

1. Multiple gabled components and different siding materials/colors break up the massing of the large building.
2. Louver finish colors blend in with adjacent materials.
3. The faux porch, handrails, and front door help the building blend into the neighborhood.
4. Foundation landscaping grounds the tall building.
5. Faux windows with shutters are used to create visual interest.

EXHIBITS // CASE STUDY IV

Providence Road Pressure Reducing Station, Virginia Beach, Virginia

AS CONSTRUCTED // STREET VIEW

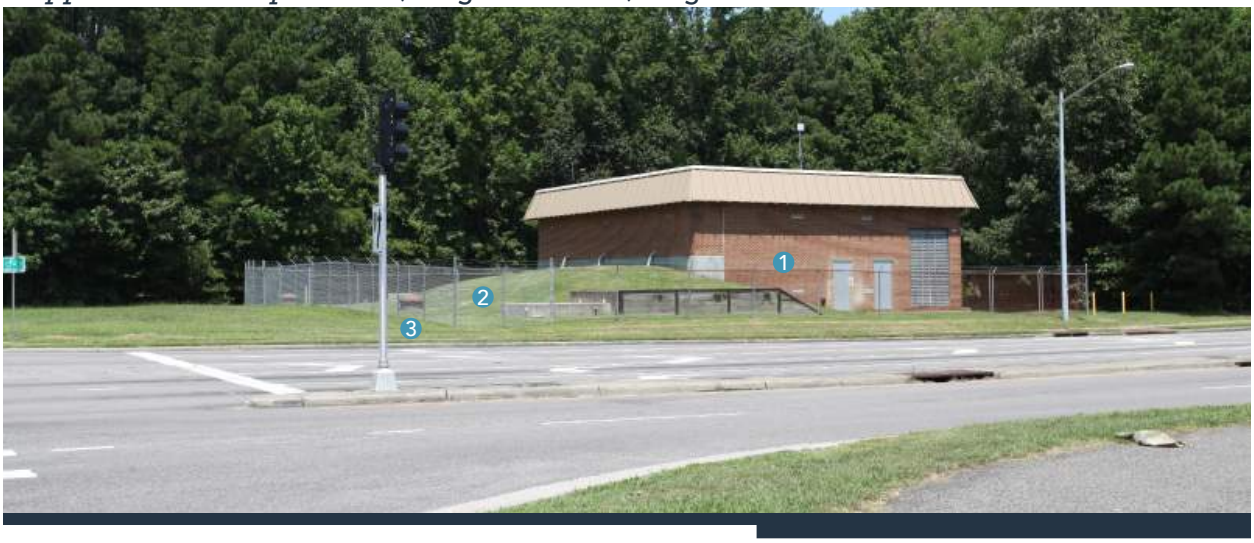
1. Multiple building elements break up the massing of the large building.
2. The generator enclosure mimics a garage, and the large louver is reminiscent of a residential garage door.
3. The faux porch element helps the building blend into the neighborhood.
4. Louvers are finished to match the window shutters to simulate a closed shutter detail.
5. Driveway paving extends to the foundation to eliminate a green strip that can be difficult to maintain.
6. Locating the personnel door to the side lessens the visual impact of required safety signage from the front.
7. Decorative split-rail fencing and landscaping screen equipment and define a street edge.

AS CONSTRUCTED // STREET VIEW

1. Multiple gabled components and different siding materials/colors break up the massing of the large building.
2. Generator exhaust has been located at the facade with the least visual impact.
3. SCADA antenna is located on the facade with the least visual impact.
4. Louvers are finished to match the window shutters to simulate a closed shutter detail.
5. Freestanding panels need screening. Additional landscaping is recommended.

EXHIBITS // CASE STUDY V

Shipps Corner Pump Station, Virginia Beach, Virginia



EXISTING CONDITIONS // STREET VIEW

1. The blank front facade of the existing pump station provides low architectural detail in contrast to the surrounding area.
2. Chain link fencing is not an appropriate fencing material. Use of landscaping and vegetation can soften the border with the street.
3. Above-ground equipment is not adequately screened from view.

OPTION 1 // STREET VIEW

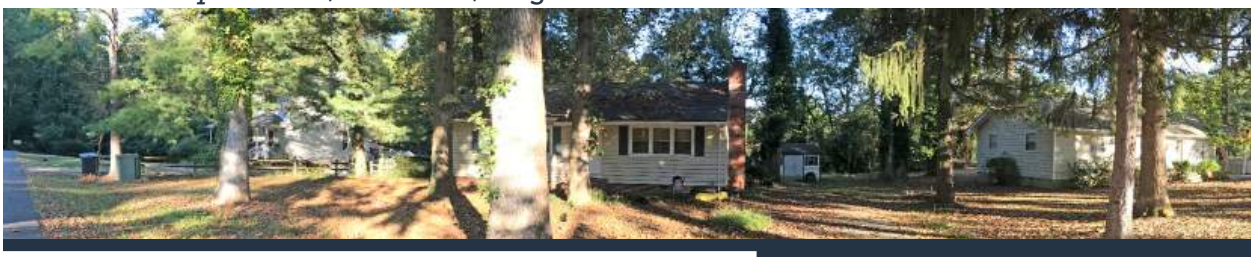
1. Painting the brick a neutral color makes the building less of a focal point.
2. An applied pilaster treatment articulates the facade. The pattern draws the eye to the corner, yet creates more symmetry along the front.
3. A parapet draws the eye up and adds height to the single-story building.
4. Landscaping is used to create a stronger street edge and screen above-ground equipment from view.

OPTION 2 // STREET VIEW

1. Painting the brick a richer color makes the building more prominent.
2. A pattern of pilasters creates visual interest and symmetry along the facade.
3. A parapet draws the eye up and adds height to the single-story building.
4. Landscaping is used to create a stronger street edge and screen above-ground equipment from view.

EXHIBITS // CASE STUDY VI

Urbanna Pump Station, Urbanna, Virginia



EXISTING CONDITIONS // STREET VIEW

Pump station should blend in with other modest-sized homes on this residential street.

OPTION 1

1. Driveway should lead to garage door to lend credibility as a "residence."
2. Personnel door on the front of the house necessitates safety signage on the front facade.

OPTION 2

1. Garage door is on rear of house; large paved turnaround space will be needed.
2. Personnel door on the front of the house necessitates safety signage on the front facade.

SELECTED OPTION

1. Consider a layout that does not necessitate two driveways. An alternative would be to use perviouspavers for the second driveway.
2. Provide appropriate landscaping and/or a fence to help screen the in-ground access area from the neighbor.
3. Personnel door on the side of the house eliminates safety signage on the front facade.

EXHIBITS // EXAMPLES

Arctic Avenue Pump Station, Virginia Beach, Virginia

ARCTIC AVENUE PUMP STATION

1. Front porch and trellis gives scale to the building and mirrors the surrounding shore architecture.
2. Aesthetic security fence is appropriate to surroundings and screening needs.
3. Since this pump station is quite visible, the monorail should be hidden or modified to reduce its visibility.

EXHIBITS // EXAMPLES

East Beach Pump Station, Norfolk, Virginia

EAST BEACH PUMP STATION

1. High quality details are used throughout this pump station.
2. The generator and paved areas could be better visually screened.
3. If possible, the chimney/vent stack should be better proportioned to the building size.
4. Electrical equipment could be moved off of the façade adjacent the main street.
5. Use appropriate fencing for screening or security. Fencing should be factory finished for durability and ease of maintenance.

EXHIBITS // EXAMPLES

Locust Valley Pump Station, Long Island, New York

LOCUST VALLEY PUMP STATION

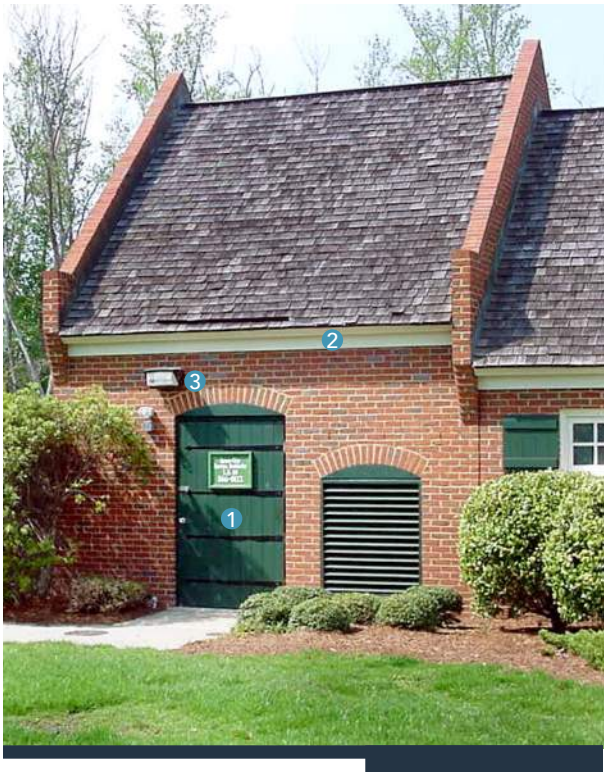
1. The close proximity of adjacent houses demanded attention in exterior detailing.
2. Permeable paving is appropriate for the residential context and for amount of expected wear.

EXHIBITS // EXAMPLES

Currituck County Waterworks, NC & James City County Pump Station

CURRITUCK COUNTY WATERWORKS

1. Architectural louver and door are similarly detailed and appropriate in height.
2. Large eave overhang is reflective of large building.
3. Half story closed shutters are used due to building height.



JAMES CITY COUNTY PUMP STATION

1. Architectural louver and door are similarly detailed and appropriate in height.
2. Small eave overhang is reflective of a small building.
3. Light fixture should be cutoff type, and less obtrusive.

EXHIBITS // EXAMPLES

Stonehouse Pump Station, James City County, Virginia

STONEHOUSE PUMP STATION

1. Fence hides elements from view, but could provide more screening by wrapping the corner.
2. Steep roof, short eave overhang, and covered entry demonstrate appropriate scale.

EXHIBITS // EXAMPLES

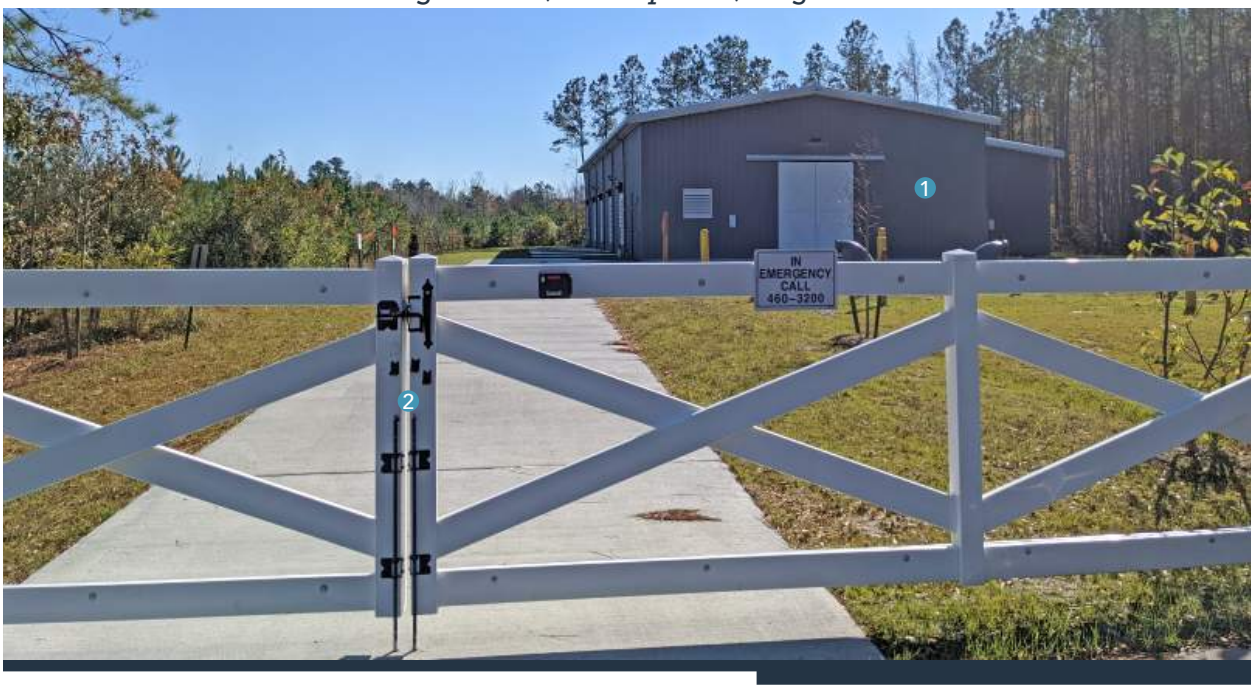
Mathews Pump Station, Mathews, Virginia

MATHEWS PUMP STATION

1. Facade materials, massing, and aesthetic reflect the existing storefronts nearby.
2. Nearby storefronts on Main Street. Existing buildings also define the pump station's setback from the street.
3. Generator is located on an inside corner at the rear of the building plan to screen it from view from the street.

EXHIBITS // EXAMPLES

Elbow Road Pressure Reducing Station, Chesapeake, Virginia



ELBOW ROAD PRESSURE REDUCING STATION

1. The building design mimics an agricultural building, which is suitable for the rural/agricultural setting.
2. The fence in this rural setting does not need to prevent pedestrian access, only vehicular access.
3. Odor control, SCADA antenna, and HVAC units are located on an inside corner at the rear of the building plan to screen it from view from the road.
4. Individual pump access pads have been used instead of continuous pavement. However, this condition can often make maintenance difficult.

EXHIBITS // EXAMPLES

Washington Street Pump Station, Hampton, Virginia

WASHINGTON STREET PUMP STATION

1. The existing structure was the only brick building on this residential block. Due to flood elevation requirements, the building was also raised significantly higher than the adjacent sidewalk and visually looked taller than neighboring homes.
2. The protruding exhaust fan on the front elevation was not appropriate.
3. Safety signage was prominently located.
4. A bollard seemed out of place in front of the "house."
5. The meter contrasted sharply against the brick veneer.
6. Dropping the new siding level below the water table and using raised landscaping beds visually lowered the building to street level. Raised beds also protect the building corner and eliminated the need for the bollard.
7. The exhaust fan was replaced with a louver in a low-contrast color and blends with the siding.
8. Safety signage is now more discreetly located at the personnel door/secondary "entrance."
9. The meter blends with the new siding color.
10. New materials and colors reflect the surrounding areas. Railing details and fencing blend with the features of neighboring homes (11).

EXHIBITS // EXAMPLES

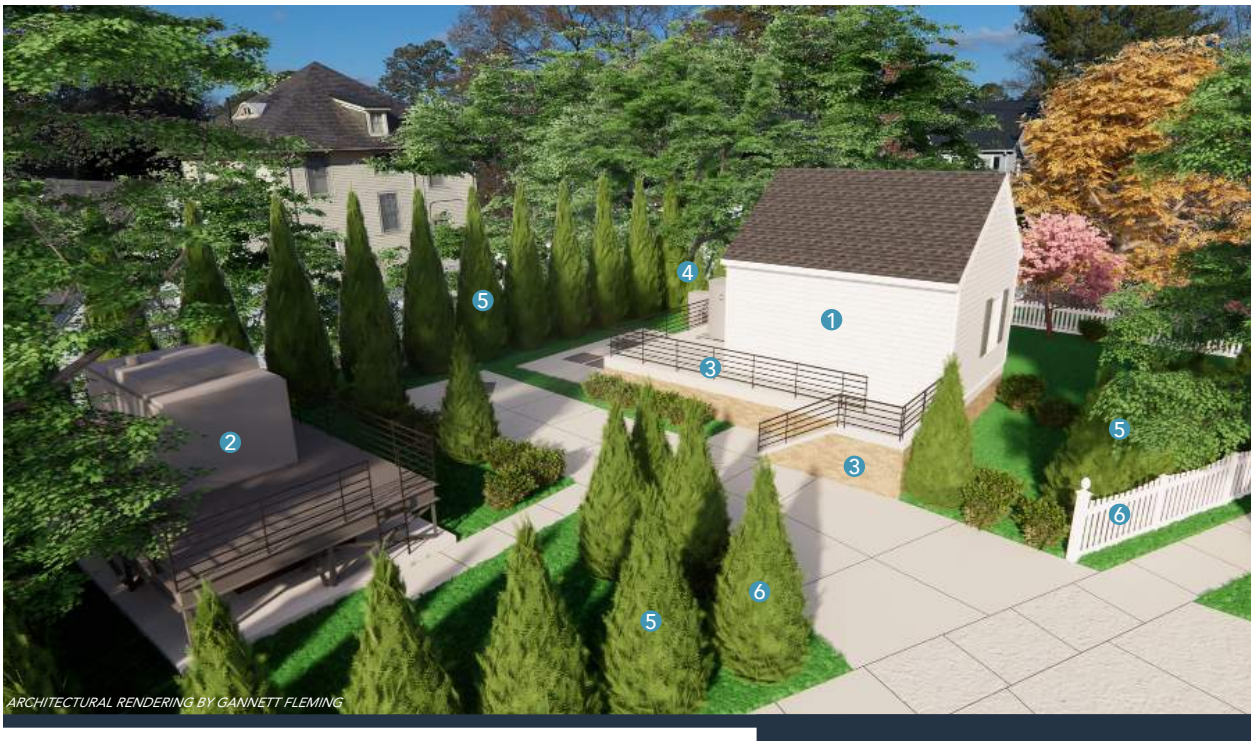
Monroe Place Pump Station, Norfolk, Virginia

EXISTING CONDITIONS // STREET VIEW

1. The building needs to be replaced for multiple reasons. It is too small to accommodate new equipment and moreover, the building and equipment need to be raised to address new flood plain requirements.

PROPOSED NEW WORK

1. Quality materials, a sloped roof, and simple design reflect the surrounding residential neighborhood's character.
2. Raised equipment has been located outside to minimize the building size, but is adequately screened from view with landscaping.
3. The building has been significantly raised, but the use of a brick foundation for the stairs and a quality railing make this a design feature.
4. Odor control has been discreetly located at the rear elevation.
5. Enhanced perimeter landscaping is used to significantly screen the facility from view from the neighbors.
6. A combination of attractive fencing and landscaping lends a residential flair to the site and creates an edge at the sidewalk, similar to neighboring sites.



ARCHITECTURAL RENDERING BY GANNETT FLEMING

EXHIBITS // EXAMPLES

Victoria Boulevard Pump Station, Hampton, Virginia

EXISTING CONDITIONS // STREET VIEW

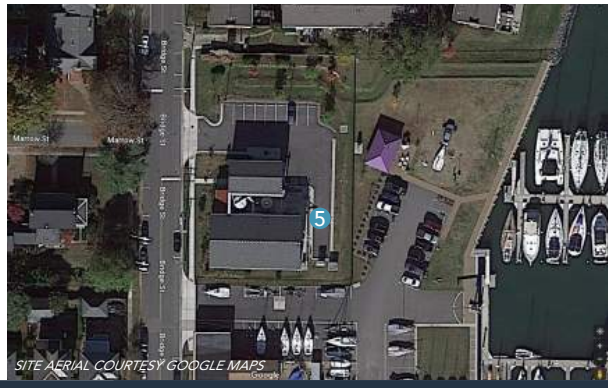
1. The building lacked articulation and did not relate to neighboring homes in scale or design.
2. The raised access, stairs, and railings were not integral with the building in material or style.
3. Building-mounted equipment was not adequately screened visually.
4. Tanks and other equipment were not screened from view from the street.
5. The flat roof made the small building appear squat.

NEW CONDITIONS // STREET VIEW

1. Columns and a front porch provide articulation and lend a residential appearance to the building.
2. The railing detail at the porch and the faux window help draw focus to the front door and provide visual interest.
3. A new sloped roof gives the building additional height.
4. Landscaping softens the yard and residential character.
5. Odor control equipment is not adequately screened from view.

EXHIBITS // EXAMPLES

Bridge Street Pump Station, Hampton, Virginia

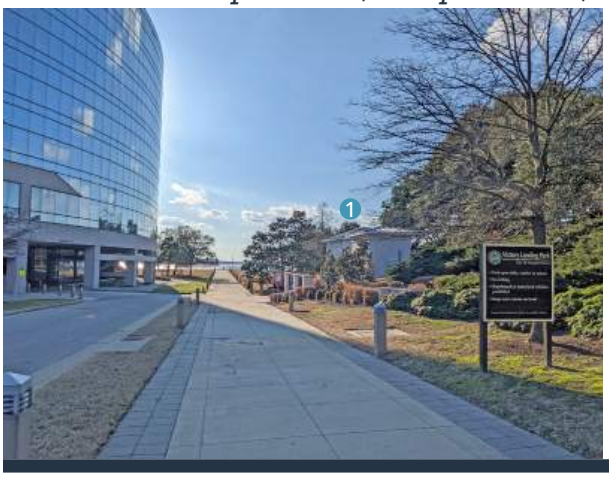


BRIDGE STREET PUMP STATION

1. Interior equipment had to be raised significantly to meet flood plain requirements, which necessitated a tall building. The architectural elements such as the porch, windows, and louvers were all "upsized" accordingly to match the large scale of the building. Quality material choices such as fiber cement shakes and a brick foundation are reflective of traditional architecture in the surrounding area.
2. Additional articulation such as a band board to give it a two-story appearance or a change in material could help break up the vertical masses into smaller elements.
3. Windows create rhythm and add visual interest to what would otherwise be a blank facade.
4. Odor control has been located in an alcove at the rear of the building out of site. Additionally, an attractive screen fence mimics the louvers and is an integral element to the design. The personnel door located in the alcove eliminates the need for safety signage at the front facade.
5. Typically, the raised platform and prominent monorail would be discouraged; however, it blends in with the industrial marina at the rear elevation in this instance.

EXHIBITS // EXAMPLES

25th Street Pump Station, Newport News, Virginia



25TH STREET PUMP STATION

1. The pump station meets the pedestrian scale of the walking path and urban park. The exterior architecture reflects the neighboring office tower's clean lines.
2. The composition and materials of the fence and railings integrate harmoniously with the building.
3. Enhanced landscaping is used to screen the tall foundation of the building, as well as a raised access area outside of the fenced area.
4. Landscaping and grading prevent access to most of the site, minimizing security fencing at the front.
5. A heavy cornice detail and generous overhang provide a horizontal element to temper the vertical masses of the small buildings.
6. Doors and louvers are painted/finished to closely match the walls, and thus, visually disappear.

EXHIBITS // EXAMPLES

Tabb Pressure Reducing Station & Offline Storage Facility, York County, Virginia

TABB PRS & OLSF

1. Quality materials such as brick and standing seam metal roofing reflect the adjacent high school's palette. The use of concrete panels, brick, and a dark green roof finish on the storage tanks integrates with the building's architecture.
2. Brick pilaster details break up the large mass of the tanks.
3. Enhanced perimeter landscaping is used to screen the facility almost entirely from view from the neighbors.

EXHIBITS // EXAMPLES

Floodproofing Measures

ELEVATED EQUIPMENT

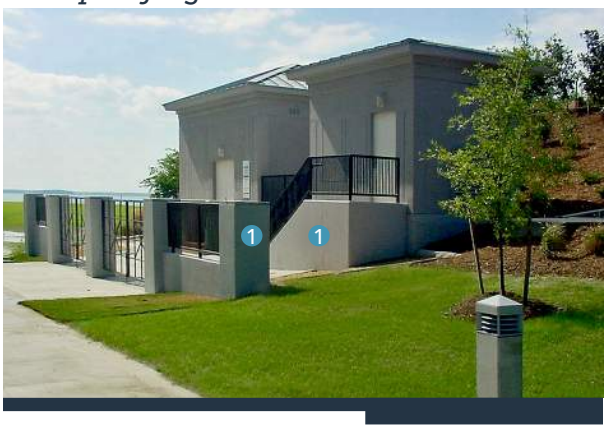
1. The generator retrofitted at Bay Shore Lane Pump Station (Suffolk) was elevated due to flood zone requirements. This is not appropriate for pump stations visible from public areas or adjacent to residential areas.

ELEVATED EQUIPMENT

1. Generators and equipment retrofitted at Bloxom's Corner Pump Station (Hampton) were elevated due to flood zone requirements.
2. A 3D study was done to determine if landscaping would adequately screen the raised equipment from view.
3. Ultimately, it was determined that a fence was needed, and the landscaping softened the fence. A 6' screen fence is appropriate in this instance as there were adjacent 6' screen fences at neighboring residences.

EXHIBITS // EXAMPLES

Floodproofing Measures

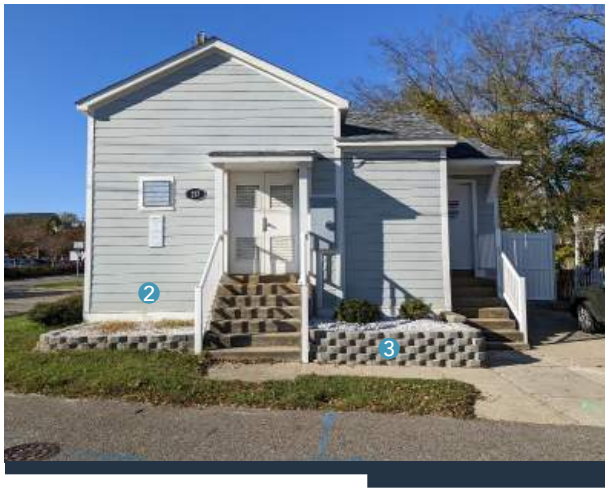


ELEVATED BUILDINGS

1. The 25th Street Pump Station (Newport News) is elevated due to flood zone requirements. The raised foundation detail is mimicked in the security fence/ wall detail and becomes an architectural feature, integrating fence and building.

ELEVATED BUILDINGS

1. The Washington Street Pump Station (Hampton) is elevated due to flood zone requirements, and therefore, stood out from neighboring homes.
2. During renovations, the siding level was dropped below the water table to visually bring the building closer to the street level.
3. Raised landscaping beds serve to visually eliminate the extensive water table, as well.



EXHIBITS // EXAMPLES

Floodproofing Measures

DRY FLOODPROOFING

1. At the 25th Street Pump Station (Newport News), the drop-in flood gates are integral to the architectural design of the building and the materials blend seamlessly with one another.
2. The drop-in flood gates at Hilton School Pump Station (Newport News) contrast sharply with the building design and are not integrated into the design.

INTEGRAL FLOOD WALLS/LEVEES

1. One way to visually integrate flood walls with the building is to use compatible materials and details for both.
2. Levees can also be designed to follow natural land features and/or building footprints to blend seamlessly with the building.

IMAGE SOURCE (RIGHT): WWW.DAILYMAIL.CO.UK/NEWS/ARTICLE-3380743/WHY-WAIT-MINISTERS-BUILT-20-000-FLOOD-DEFENCE-ENGINEER-FITTED-WALLS-GATES-PUMPS-COTTAGE-REALISE-DREAM-LIVING-RIVER.HTML

IMAGE SOURCE (RIGHT): WWW.FPRLANDSCAPING.CO.UK/PROJECTS/FLOOD-DEFENCE-MOREBATH

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