



Image Credit: SKI Architecture

# 4

# BUILDING DESIGN

- 4A Building Step Downs
- 4B Building Step-Backs
- 4C Building Modulation Along Richmond Highway
- 4D Building Modulation Along Livability Spine
- 4E Chamfered Corners at Transit Plazas
- 4F Roof Lines
- 4G Façades and Materials
- 4H Townhome Design



The Comprehensive Plan envisions a visually cohesive built environment. Central to implementing this vision is the manner in which buildings are designed - how buildings relate to the street and public spaces, how they integrate with and transition to surrounding land uses, and how multiple buildings combine to create a distinctive skyline and contribute to the character of the CBCs.

This chapter addresses building form and massing as well as transitions in height and scale. Included are strategies for integrating taller buildings into CBCs and techniques for fostering visual interest and variety through building form and massing. The chapter also includes guidance for façades and roof lines that are appropriate to the context of each CBC.

Unless otherwise stated, all building design recommendations for townhomes and stacked townhomes are located in Chapter 4, Section 4H.



#### REFERENCES FOR BUILDING DESIGN

[Volume I Urban Design Guidelines \(Sections 4A, 4C; see also 2E, 2H, 5A, 5C\)](#)  
[American Bird Conservancy, Bird Friendly Building Design Guidelines](#)  
[HUD's Noise Policy](#)  
[Fairfax County's Noise Recommendations in the 'Policy Plan' for guidance on noise mitigation](#)

## DESIGN PRINCIPLES

**Architecture should be context-sensitive and character-defining.** To reinforce and respond to differences in character between the North and South Areas (see Chapter 2), building design should incorporate distinctive façade treatments, roof types, roof lines and building forms. In general, architecture in North Gateway, Penn Daw, and Beacon/Groveton CBCs and adjoining SNAs should reflect a more contemporary aesthetic, while architecture in Hybla Valley-Gum Springs, South County, and Woodlawn CBCs, and adjoining SNAs, should have a more traditional style compatible with nearby historic resources.

**Buildings should “step down” in height and scale the closer they are to existing, smaller-scale residential neighborhoods.** Step downs can help improve transitions between higher-density redevelopment and lower-density neighborhoods.

**Buildings should incorporate variations in form and massing, including step-backs and terracing.** These variations create visual interest and variety, allow light to permeate down to the street, and create usable outdoor terraces.

**Design should break up the large horizontal and vertical massing of buildings.** Techniques such as façade breaks, roof line modulation, balconies, and variations in materials can be used to break up the large vertical and horizontal massing of buildings. On particularly long blocks, multiple buildings should be considered in place of a single building mass.

**Ground floors should engage the street and have active uses.** Buildings along Richmond Highway and internal CBC streets should adhere to a designated build-to line, or build-to range, along most of their frontage to create a consistent street wall. The urban design framework maps in Chapter 6: Distinguishing Elements identify locations of activated ground floor uses in each CBC. Uses or façade treatments that activate their respective streetscapes and public spaces should be provided in these locations.

**GRAPHIC 24: BUILDING STEP DOWNS FROM RICHMOND HIGHWAY AND BRT STATIONS TO ADJACENT NEIGHBORHOODS**

**BUILDING HEIGHT TRANSITIONS & STEP DOWNS**

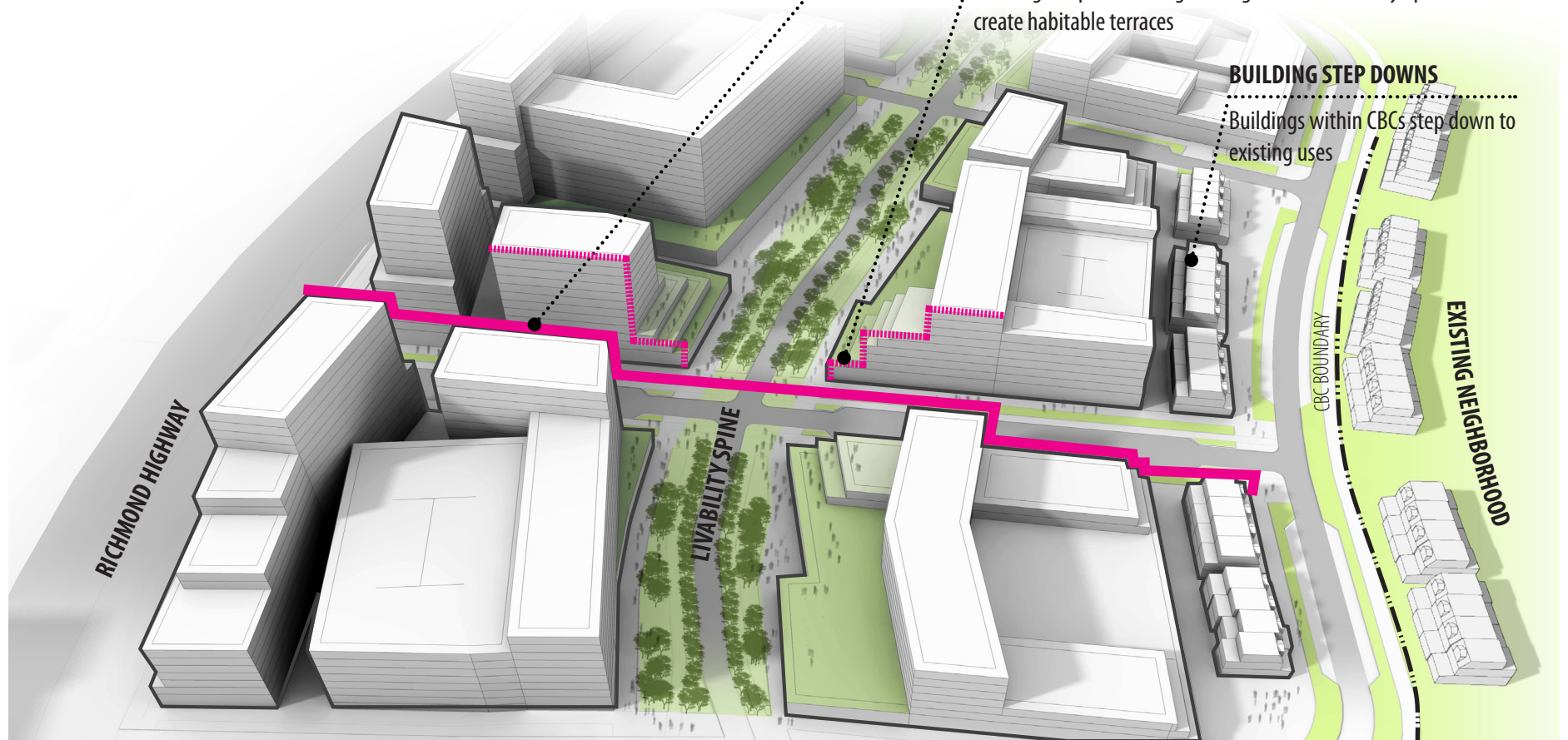
Buildings within CBCs step down from taller buildings along Richmond Highway to lower height buildings that are context-compatible with existing neighborhoods and/or parks

**BUILDING STEP-BACKS**

Buildings step-back along the edges of the Livability Spine in order to create habitable terraces

**BUILDING STEP DOWNS**

Buildings within CBCs step down to existing uses





## DESIGN STRATEGIES

### 4A BUILDING STEP DOWNS

- A. The tallest buildings in a CBC should be located adjacent to the BRT stations on Richmond Highway and should decrease in height (“step down”) closer to existing residential neighborhoods.(see *Graphic 24*) to ensure compatibility with residential uses. For building heights and transitions within each CBC, see building height maps in the Comprehensive Plan (Figures 27, 36, 46, and 61).

### 4B BUILDING STEP-BACKS

Step-backs are emphasized in order to create a distinctive façade design, activate space on upper floors to enliven the public realm, ensure light and air reach the ground, and be part of greening the environment.

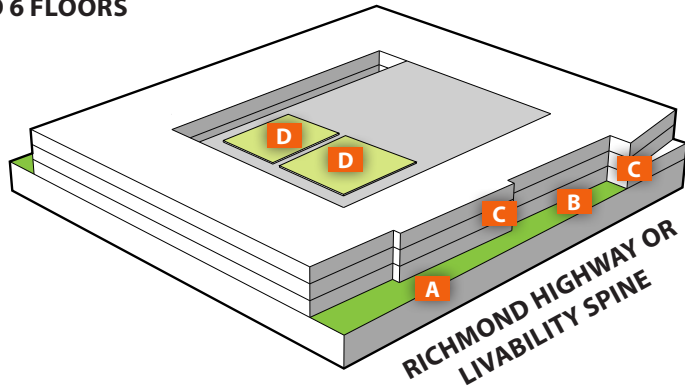
Step-backs are recommended based on the number of floors in a building and the adjacent street type.

- A. Building step-backs should be considered for properties adjacent to existing neighborhoods. Such step-backs are encouraged along the side of the building facing the existing neighborhood.
- B. Step-backs are particularly recommended when buildings are located along Livability Spines and along Richmond Highway.
- C. Step-backs along Richmond Highway and Livability Spines are recommended according to the following criteria (see *Graphic 25*):
- i. For building heights up to 6 floors: a step-back should occur at the second or third floor.
  - ii. For building heights of 7 floors or greater: a step-back should occur at the second, third, or fourth floor.
  - iii. Additional step-backs are encouraged for buildings above 10 stories.

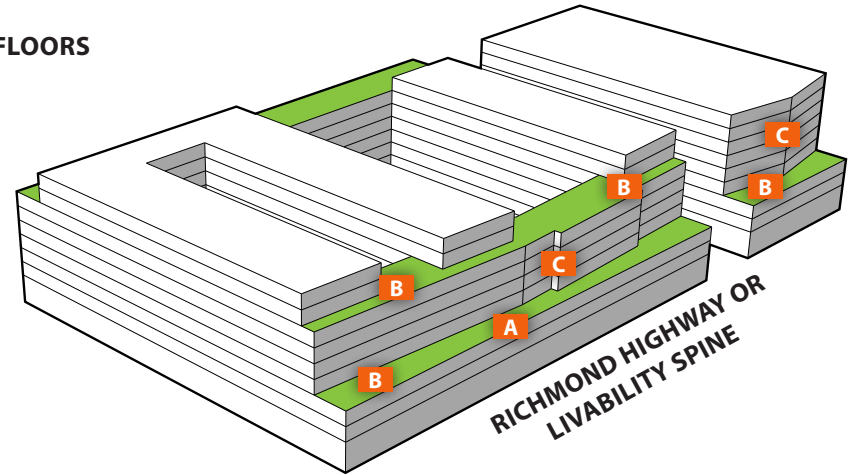
- D. The terrace areas that result from building step-backs should be occupiable, where possible, and should be used to increase activity along the street.
- i. Step-backs do not need to be continuous along the entire building frontage.
  - ii. The depth of step-backs should be at least 10-feet in width.
  - iii. For building heights of 7 floors or greater, step-backs are encouraged to be wider than 10-feet.
  - iv. Terrace areas created as a result of step-backs should be accessible from the adjoining floor or portion of the building.
  - v. Incorporation of green roof elements on terraced areas such as trees and other planting, is encouraged.

GRAPHIC 25: STEP-BACKS ALONG RICHMOND HIGHWAY OR LIVABILITY SPINE

UP TO 6 FLOORS



7+ FLOORS



- A** Building step-back
- B** Habitable green terrace created by building step-back
- C** Breaking up of building mass to avoid flat façades (refer to Sections 4C & 4D)
- D** Green roof, where possible

- A** Building step-back
- B** Habitable green terrace created by building step-back
- C** Breaking up of building mass to avoid flat façades (refer to Sections 4C & 4D)

KEY

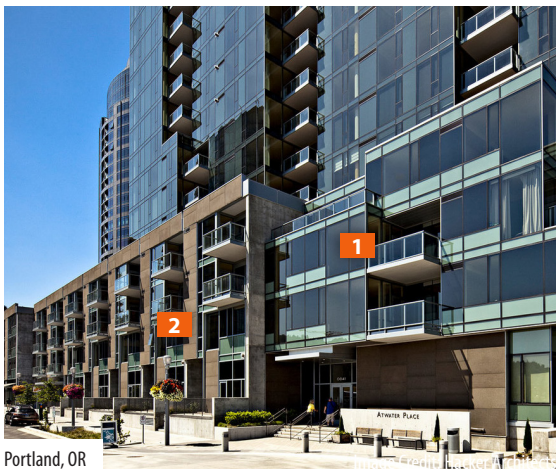
- Green roof
- Habitable terrace
- Internalized parking



## DESIGN STRATEGIES

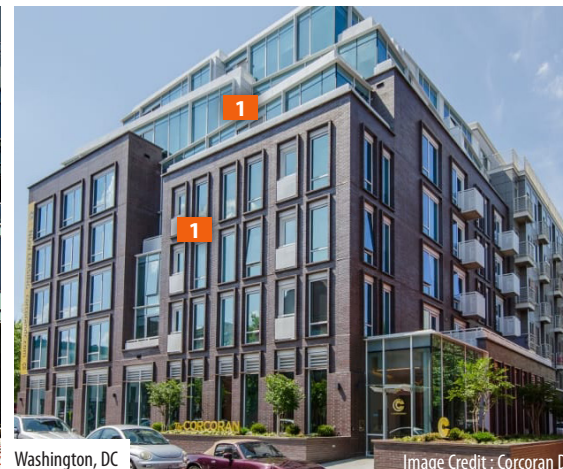
### 4C BUILDING MODULATION ALONG RICHMOND HIGHWAY

- A. At least 75% of each ground floor façade should be located at the build-to line.
- B. Breaks can occur along ground floors, upper floors, or both.
  - i. *Along Ground Floors:* Building modulation should occur within the dimension range of the Building Zone.
  - ii. *Upper Floors:* Greater flexibility should be allowed for the design of façade modulation on upper floors, where the depth of the façade breaks and setback from the designated build-to line may be greater than those at ground level.
- C. Corner and edge treatments should be used to distinguish a building from other nearby buildings. For example, while one building may have rectilinear or angular edges, another may incorporate curvilinear edges.
- D. Blocks longer than 350-feet in length should incorporate multiple freestanding buildings, rather than a single building mass along the length of the block.
- E. If the entire length of a block is developed, then there should be at least two breaks in the façade, and a maximum of 4 breaks along the length of a block to create variety in the building façades.



Portland, OR

- 1 Modulation of building form on upper floors
- 2 Ground floor building elements create a consistent street wall parallel to sidewalk area



Washington, DC

Image Credit : Corcoran DC

- 1 Differing building heights and a variety of building edges along a façade



Falls Church, VA

Image Credit: Bozzuto

- 1 Building modulation on upper floors (residential building wings)
- 2 Consistent street wall along ground floor



Portland, OR

Image Credit: Hacker Architects

- 1 Building façade modulation and step-back, while maintaining consistent street frontage

## DESIGN STRATEGIES

### 4D BUILDING MODULATION ALONG LIVABILITY SPINE

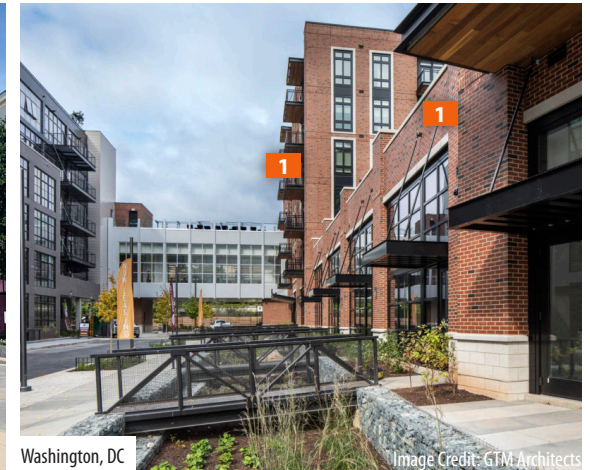
- A. Between 25% and 75% of each ground floor façade should be located at the build-to line. Any additional Building Zone space should be designed to support its adjacent ground floor uses and park spaces.
- B. Breaks can occur along ground floors, upper floors, or both.
  - i. *Along Ground Floors:* Building modulation should occur within the designated Building Zone to maintain consistent street frontage.
  - ii. *Upper Floors:* Greater flexibility should be allowed for the design of façade modulation on upper floors, where the depth of the façade breaks and setback from the designated build-to line may be greater than those at ground level.
- C. Corner and edge treatments should be used to distinguish a building from other nearby buildings. For example, while one building may have rectilinear or angular edges, another may incorporate curvilinear edges.
- D. Blocks longer than 350-feet in length should incorporate multiple freestanding buildings, rather than a single building mass along the length of the block, to foster architectural variety and pedestrian connectivity.
- E. Habitable balconies are strongly encouraged, particularly along the Livability Spine, because they contribute to street vibrancy and create usable exterior spaces.



Dallas, TX

Image Credit: Fairfax County

- 1 Public access to upper floor commercial uses directly from street level plaza



Washington, DC

Image Credit: GTM Architects

- 1 Differing building heights along a façade



Bainbridge, WA

Image Credit: Village of Shorewood

- 1 Building modulation and terracing



New York, NY

Image Credit: ShoP Architects

- 1 Residential balconies provide relief to building form and create extensions of habitable spaces
- 2 Multiple step-backs create a downward transition in height through a series of terraces

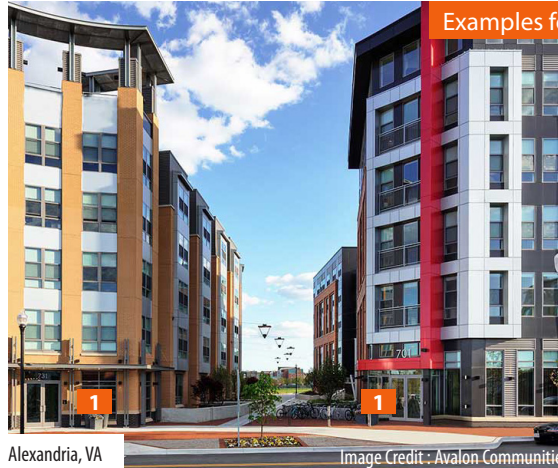
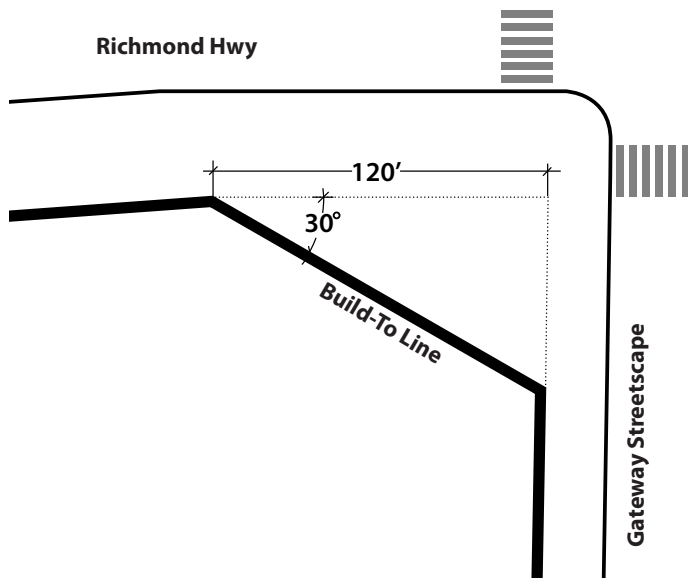


## DESIGN STRATEGIES

### 4E CHAMFERED CORNERS AT TRANSIT PLAZAS

- A. Building edges facing Transit Plazas should be chamfered (see Graphic 26) to provide spaces along ground floor level for a variety of programmed uses, such as outdoor seating, information kiosks, play areas, etc.
- B. Along chamfered building corners, some variation in building form is acceptable (for example, curved or modulated façades), as long as an approximately 30-degree angle is achieved.
- C. Other building corner treatments should follow the guidance in Sections 2E, 2H and Chapter 4 of the *Volume I* guidelines.

### GRAPHIC 26: BUILDING CHAMFERS



Alexandria, VA Image Credit: Avalon Communities

1 Building chamfers at major intersection frame the entry plaza (contemporary setting)

#### Examples for North Area



Portland, OR Image Credit: Kuda Photography

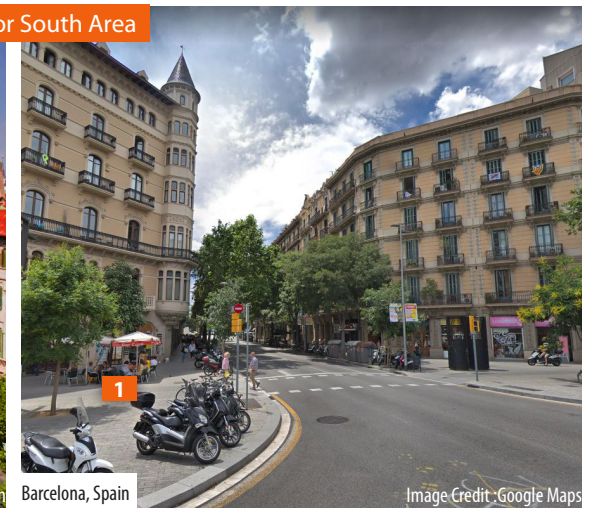
1 Angular building forms at corners create opportunities for programmed spaces at public plaza level, such as, landscaped outdoor seating areas, performance platforms, etc.



Barcelona, Spain Image Credit: Bonavidaben.com

1 Chamfered corners at major intersections (traditional built-form setting)

#### Examples for South Area



Barcelona, Spain Image Credit: Google Maps

1 Variety of programming along chamfered building corners at an intersection, such as, outdoor dining, information kiosks, bicycle and scooter parking, etc.



## DESIGN STRATEGIES

### 4F ROOF LINES

- A. In general, roof lines in the North Area should reflect more contemporary roof types and rectilinear forms, while those in the South Area should reflect a variety of roof types and forms that are compatible with the architecture of nearby historic resources. Roof line recommendations apply to all building types, including townhomes. Specific criteria for buildings in each area include the following:

#### North Area (North Gateway, Penn Daw, Beacon/Groveton)

- i. Contemporary roof types and forms are recommended. Roof lines should incorporate simple, primarily flat and/or angled lines.
- ii. The use of horizontal elements above fenestrations is encouraged as a means of breaking up vertical massing.

#### South Area (Hybla Valley-Gum Springs, South County, Woodlawn)

- i. Traditional roof types and forms that are context-sensitive to nearby historic resources are recommended.
- ii. A mix of roof forms and elements are encouraged, including flat roofs, roof pitches, side gables, dormers, and similar architectural roof treatments.
- iii. Roof overhangs are recommended to promote visual interest and variations in roof form, but should be proportional in size to other architectural features.

#### Examples for North Area



Atlanta, GA

Image Credit: RHL

- 1 A building with horizontal roof elements that break up vertical massing

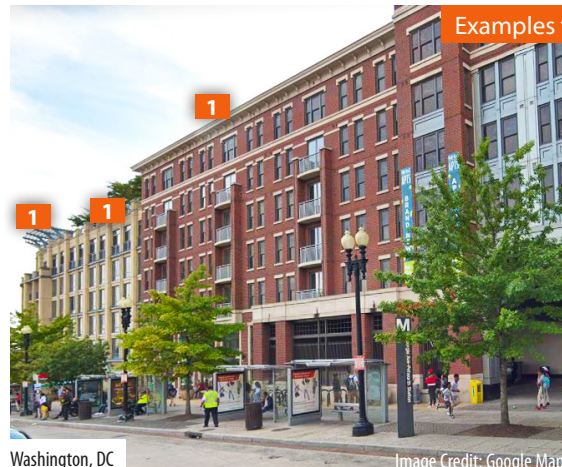


Washington, DC

Image Credit: Balfour Beatty

- 1 A building with a contemporary roof line that creates rectilinear forms

#### Examples for South Area



Washington, DC

Image Credit: Google Maps

- 1 Varied roof lines create visual interest along a streetscape



Washington, DC

Image Credit: Bernstein Properties

- 1 Example of a building with a traditional roof line and form, incorporating the architectural roof treatments that reflect the style of historic architecture in the area



## DESIGN STRATEGIES

### 4G FAÇADES AND MATERIALS

- A. Façade treatments that highlight and distinguish the bottom, middle and top sections of buildings are encouraged. Differentiation of building sections can be achieved through a combination of materials and massing.
- B. The use of multiple materials on façades is encouraged; changes in materials are recommended to occur in conjunction with step-backs and/or other changes or modulation in wall planes.
- The use of vinyl siding on façades should be avoided.
  - Expanses of glass façades, such as glass curtain walls, should be avoided to be consistent with the desired character and to ensure bird-friendly building design. For additional guidance on bird friendly design, refer to *Volume I* (Chapter 4).
- C. In general, the façades of buildings in the North Area should reflect a greater variety of materials and colors, while those in the South Area should incorporate warmer colors and façade treatments that are compatible with the nearby historic resources. Façade treatments and material recommendations apply to all building types, including townhomes. Specific criteria for each area follows below.

#### North Area (North Gateway, Penn Daw, Beacon/Groveton)

- Use of a variety of materials, combined with creative use of colors, is encouraged.
- Materials should be compatible with contemporary architectural features and may include stone, metal, wood, stucco, brick and related claddings.
- Façade treatments can incorporate limited use of motifs and ornamentation on building façades provided that such use fits with contemporary architectural styles and elements.

#### South Area (Hybla Valley-Gum Springs, South County, Woodlawn)

- Materials should be compatible with the architectural cladding of existing landmarks and the historic context of Mt. Vernon, Woodlawn Estate, historic Gum Springs, and related historic neighborhoods and places.
- Façade treatments should utilize warm color materials, such as red brick, stone, wood, stucco (as accent), and metal cladding/fascia.
- Façade treatments can incorporate the use of motifs and ornamentation on building façades, such as architectural accents, provided that it fits with traditional architectural styles and elements.
- Façade treatments may utilize contemporary materials as long as they are compatible with the history of the area and historical building design.



1 Exterior cladding and materials highlight bottom, middle and upper parts of a building as well as different elements in the façade



1 Example of contemporary form combined with traditional materials (stucco, brick) that are applied in a contemporary style

## DESIGN STRATEGIES

### 4H TOWNHOME DESIGN

Townhomes are residential buildings that are typically two to four floors in height, where units are placed side-by-side and share adjoining firewalls. “2-over-2s” are townhome variations in which two, two-story, units are stacked on top of one another.

#### A. TOWNHOME SETBACKS AND BUFFER AREAS ON RICHMOND HIGHWAY

- i. There are two distinct types of townhomes with associated criteria, depending on the location.
  - a. **Within Community Business Centers:** The setback from the right-of-way should be between 16-feet and 25-feet. An exception to this setback may be needed if noise levels exceed 65dBA and are not effectively mitigated through other design measures.
  - b. **Within Suburban Neighborhood Areas:** The setback from the right-of-way should be minimum of 30-feet. Setback areas create opportunities for linear green spaces and additional buffering in a more suburban environment, in contrast to higher density, more urban CBCs. Linear green spaces may help meet open space needs for rear-loaded units (see design strategy 4H.B.vi).
- ii. Townhomes should incorporate landscaping in front setback areas to provide both an attractive streetscape environment and privacy for residents. Landscape elements can include plantings, berms and high-quality walls and railings less than 4-feet in height. Grade separation should also be used to separate primary entrances from adjoining sidewalk areas, where feasible. This is particularly important along Richmond Highway.



Toronto, Canada

Image Credit: Urban Capital

- 1 Grade-separated entries provide privacy from street
- 2 Landscaped setback areas create an attractive streetscape environment

#### Examples for CBCs

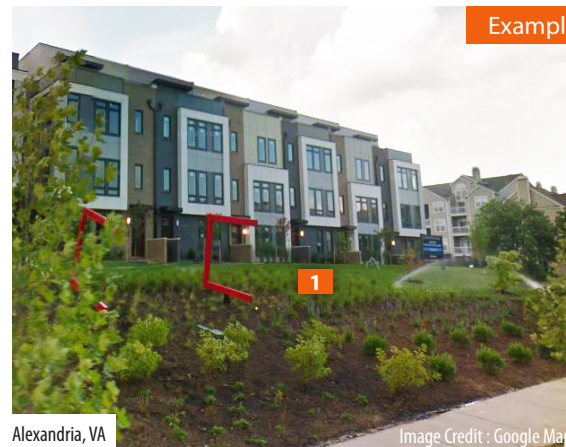


Portland, OR

Image Credit: Liveinthepearl.com

- 1 High-quality architectural walls and plantings screen service areas and provide privacy

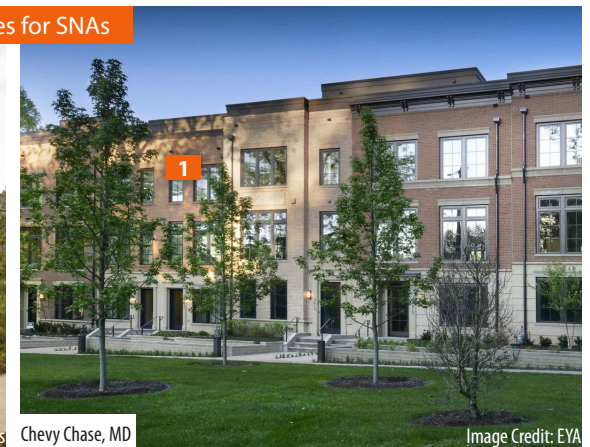
#### Examples for SNAs



Alexandria, VA

Image Credit: Google Maps

- 1 Large setback areas can include mounds, shade trees, planting beds, lawn, public art, and street furniture



Chevy Chase, MD

Image Credit: EYA

- 1 Lawn spaces with planting and walkways in front of townhome units



## DESIGN STRATEGIES

### B. TOWNHOME PLACEMENT AND ORIENTATION

- i. Building façades should be oriented toward primary streets and open spaces. Primary streets include Richmond Highway, Livability Spines, and Ecological Spines.
- ii. Building façades should be parallel to the edges of streets, adjoining plazas, and/or open spaces.
- iii. The sides of buildings facing primary streets should include doors, canopies, and windows to present a front façade appearance. Side and front building facades and cladding materials should match, specifically where sides are exposed to primary streets or open spaces. Architectural elements should be wrapped around building corners.
- iv. Corner units should include windows on both street-facing sides, while main entrances should be located on the primary street.
- v. Front façades of buildings should include porches, stoops, windows, and other architectural features to activate ground floor spaces. To promote visual connections between interior and exterior spaces, locate living rooms and other social interior spaces facing primary streets and neighborhood parks/community open spaces.
- vi. When rear loaded townhomes request waivers from privacy yard requirements, high quality community open spaces should be substituted nearby. Pedestrian access should be provided from community open spaces to both streets and adjacent residences. The Planting Zone should be considered as a location for meeting quality open space requirements.
- vii. Internal roadways should not terminate at public rights-of-way.
- viii. Drive aisles for parking lots should not be used for circulation other than accessing parking spaces.



Bethesda, MD

Image Credit: Trulia

- 1 Building elements wrapping around to the side at street corners; windows and fenestrations on the side provide relief and interest to building mass



Portland, OR

Image Credit: Pinterest

- 1 Range of building forms along streetscapes on both primary and secondary streets



Alexandria, VA

Image Credit: The Urbanist

- 1 Townhomes sited around quality open space serving all residents



Fairfax County, VA

Image Credit: Mosaicdistrict.com

- 1 Façade treatments applied to all street-facing sides of buildings
- 2 Access to alley and service areas framed by building elements and landscaping



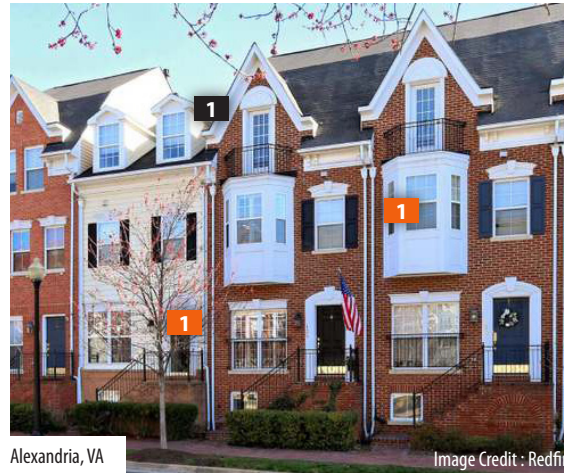
## DESIGN STRATEGIES

### C. TOWNHOME MODULATION

- i. Building step-backs, modulations and materials for townhomes should be consistent with design strategies 4A - 4D, 4F, and 4G in this section. In addition, creative façade breaks, use of materials, step-backs, offsets, bay windows and similar forms of building façade treatments are encouraged to increase visual variety and highlight individual units.
- ii. Where significant grade differences exist within a block, ground floor elements of contiguous building units or segments of buildings, such as porches, stoops, or fenestrations, should follow the street grade in order to maintain a similar relationship between ground floor elements and adjoining sidewalks along the same block.

### D. TOWNHOME PARKING / GARAGES

- i. Exposed garage doors on the front façades of buildings should be avoided.
- ii. Garage and service access should be located behind buildings, with access from secondary streets or alleys.
- iii. Garages and driveways between adjacent clusters of townhomes should be consolidated to create larger spaces for planting and to enhance the appearance of the streetscape.
- iv. Garages should be at least 20-feet wide (measured from inside wall to inside wall) if two cars are intended to be parked side-by-side.



Alexandria, VA

Image Credit : Redfin

- 1 Façade elements such as bay windows, different roof forms and fenestrations add to the range of diverse building elements



Charlotte, NC

Image Credit : Centricityliving.com

- 1 Buildings follow the street grade to maintain consistent relationship of ground floor elements, such as stoops and fenestrations, with sloped sidewalk areas and site grades



Cambridge, UK

Image Credit : Archdaily

- 1 High-quality building materials along alley/ service areas, framed by landscaping creating an inviting environment



Portland, OR

Image Credit : Gores Construction

- 1 Example of building façade modulation along alley/service areas