

# Design Guidelines for Mixed-Use and Residential Mid-Rise Buildings

March 2019









Credit: City of Burlington



Credit: City of Burlington



Credit: City of Burlington



Credit: Quadrangle Architects , DUKE, Toronto





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# 1.0 Introduction & Overview

The City of Burlington is situated in the Greater Golden Horseshoe, one of the fastest growing regions in North America. The City's 'urban area' represents the land where forecasted population and employment growth will be accommodated and the 'mid-rise' building form is anticipated to be a key element of this growth. Well-designed mid-rise buildings have many benefits for a growing city, especially one that is no longer sprawling but focused on strategically growing in place. They provide for a scale of building that is very important when transitioning from lower scale residential neighbourhoods to more intense communities. At the street-level, mid-rise buildings effectively frame streets, create a comfortable pedestrian environment, and line streets with uses that support a vibrant street-life including shops, restaurants and other amenities.

Mid-rise buildings contribute to complete communities, provide a mix of housing and activity, and are built at densities that improve the viability of transit. Some of the other economic, environmental, and social benefits include:

- Providing a form of housing that typically offers a more affordable option than traditional low-rise buildings and the option for people to 'downsize' while remaining in their community;
- Building at a human scale, which supports vibrant and walkable neighbourhoods, higher property values, and more tax revenues; and
- Developing land in a more sustainable way, which keeps people close to transit routes, schools, jobs, and other services.

Many of the areas envisioned for mid-rise developments are near or next to established residential neighbourhoods. As such, it is important to ensure that new mid-rise buildings are well-designed to enhance and fit within the community context, while balancing the need to provide for a wide range of housing and employment within a growing city.

These Guidelines represent best practices, developed to inform the urban design aspects of mixed-use and residential mid-rise buildings and implement the City's Official Plan objectives and policies related to design excellence and the creation of a high-quality built environment that supports complete, compact, and sustainable communities.

## Terms Defined

Find a definition for underlined terms in the Glossary included on page 24.

## 1.1 What is a Mid-Rise Building?

For the purposes of these guidelines a 'mid-rise building' is defined as any building between five (5) and eleven (11) storeys in height.

## Sustainable Design

Sustainable design should be at the forefront of all mid-rise building development. The City's Sustainable Building and Development Guidelines should be referred to for more detailed and specific guidance on sustainable design measures.

Credit: City of Burlington



Credit: City of Burlington



Credit: City of Burlington

## Examples from Burlington



## 1.2 Where do the Mid-Rise Building Guidelines Apply?

The Mid-rise Building Guidelines are applicable across the City, wherever mid-rise building forms are permitted by the Official Plan and Zoning By-law (with the exception of Employment Lands). This, generally, includes lands designated Mixed Use and Residential - High Density, including mixed-use and stand-alone multi-residential buildings, but does not apply to lands within an Employment Area land use designation. Where permitted, the suitability of a property to accommodate this building type should be considered on a site-by-site basis, to ensure the intent of these guidelines can be met. Sites that are too small to permit the setbacks outlined in these guidelines, or transitions to adjacent uses, may not be appropriate for mid-rise buildings as permitting this building type on 'small sites' creates shadowing, pedestrian level wind, and privacy concerns, and limits the development potential of adjacent properties. Where a conflict arises between the guidelines of this document and any area specific policies and/or design guidelines with respect to mid-rise building design, the area specific policies and/or design guidelines take precedent.

## 1.3 How to Use the Guidelines

The Mid-rise Building Guidelines provide guidance for developers and architects designing mid-rise buildings in the City of Burlington and will be used by City staff as a tool in the review and evaluation of development applications or City-initiated projects. The objective of the guideline is to provide best practices related to building height, massing, transitions, and building articulation to promote and encourage high quality mid-rise building proposals. These guidelines may be relied on to inform the design of mid-rise building forms associated with a tall building.

The guidelines are grouped by the main components of a mid-rise building as follows:

- Lower building; and
- Upper building.

Together, these components address all aspects of the building (see Fig. 1.1, next page), and should be referenced in their entirety in the design and review of all projects. The guidelines set expectations for high quality design outcomes but do not anticipate every design scenario. **It is not the intention of the guidelines to limit creativity. Where it can be demonstrated that an alternative built form achieves the intent of the guidelines, alternative solutions should be permitted and encouraged.** When additional advice is appropriate, the City may consider peer review by an independent third party.

## 1.4 Building Anatomy

The Lower building represents the first few storeys of a mid-rise building, including the ground floor and any additional floors with direct relationship to the street and public realm. Generally, this would include those storeys forming the streetwall and not those stepped back from the streetwall.

The Upper building is that portion of a mid-rise building above the Lower building, designed to fit with and achieve an appropriate relationship with the Lower building, the public realm, and neighbouring properties.

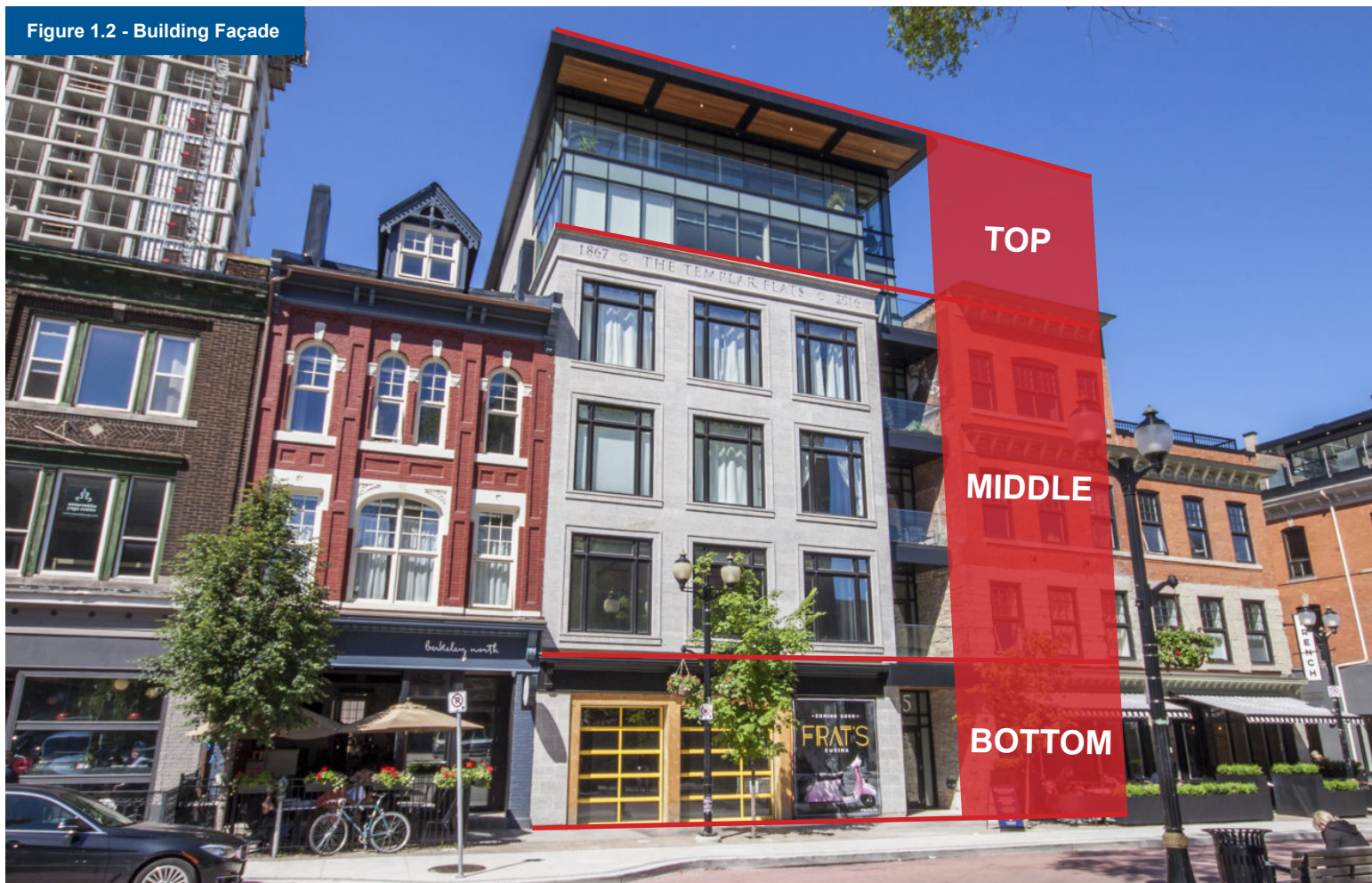


Figure 1.1. illustrates the key components of a mid-rise building – the lower-building and upper-building. The lower building can be arranged in a podium form (as in the photo) or through the use of upper storey step-backs to create a streetwall. The upper building will generally consist of those storeys above the streetwall. In some instances, a building may use a block form that does not have a clear distinction between the lower and upper building. In these instances, the façade design should reflect the different parts of the building (Fig. 1.2).

Credit: Ledcor Group, Crossroads, Vancouver



Additionally, all street facing building façades should be divided into three horizontal parts: a bottom, middle, and top to organize a complete façade expression and be arranged in a way that ensures harmonious proportion.



**This building façade is composed of three clear sections – bottom, middle and top.**

Credit: Core Urban Inc., Templar Flats, Hamilton

## 2.0 Lower Building

The lower part of the building contributes to a positive pedestrian experience at the ground level. It is important that the location and height of the lower building responds to its context to define the street edge and reinforce a human scale. Street level design elements such as clear glazing, and the organization of entrances and internal uses, further define the appearance of the building and create physical and visual connections between the private and public realms while promoting vibrancy and activity throughout the day.



Credit: Ledcor Group, Crossroads, Vancouver





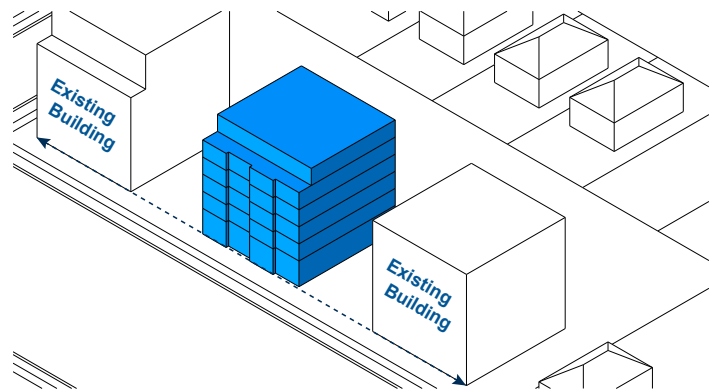
**Figure 2.1 - A mixed-use development with a lower building that frames the streets.**

Credit: Leducor Group, Crossroads, Vancouver

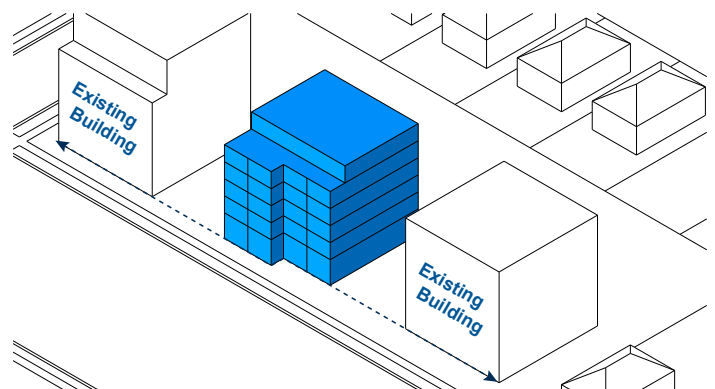
## 2.1 Building Placement

Building placement influences many aspects of the ultimate building design and its fit within the site and broader context. Placement can help to define the edges of streets and open spaces, reinforce a consistent streetscape, and provide for high quality connections and open spaces.

- 1) In general, buildings should be placed parallel to streets or public open spaces (within or along the edge of the site) to frame and define these spaces (Fig. 2.1). This will also increase the amount of private open space behind the building and separation from neighbouring properties.
- 2) Consider the building's orientation to maximize south-facing walls for optimal access to sunlight to habitable rooms and other environmental benefits such as energy conservation, solar access to open spaces or areas for stormwater management and planting.
- 3) Placement should consider existing site conditions and look to retain and enhance certain features as assets such as mature trees and topography.
- 4) Where there is a consistent pattern of street setbacks that is not planned to change, the building should be set back to align with its neighbours (Fig. 2.2).



**Figure 2.2 - New buildings should align with existing buildings.**

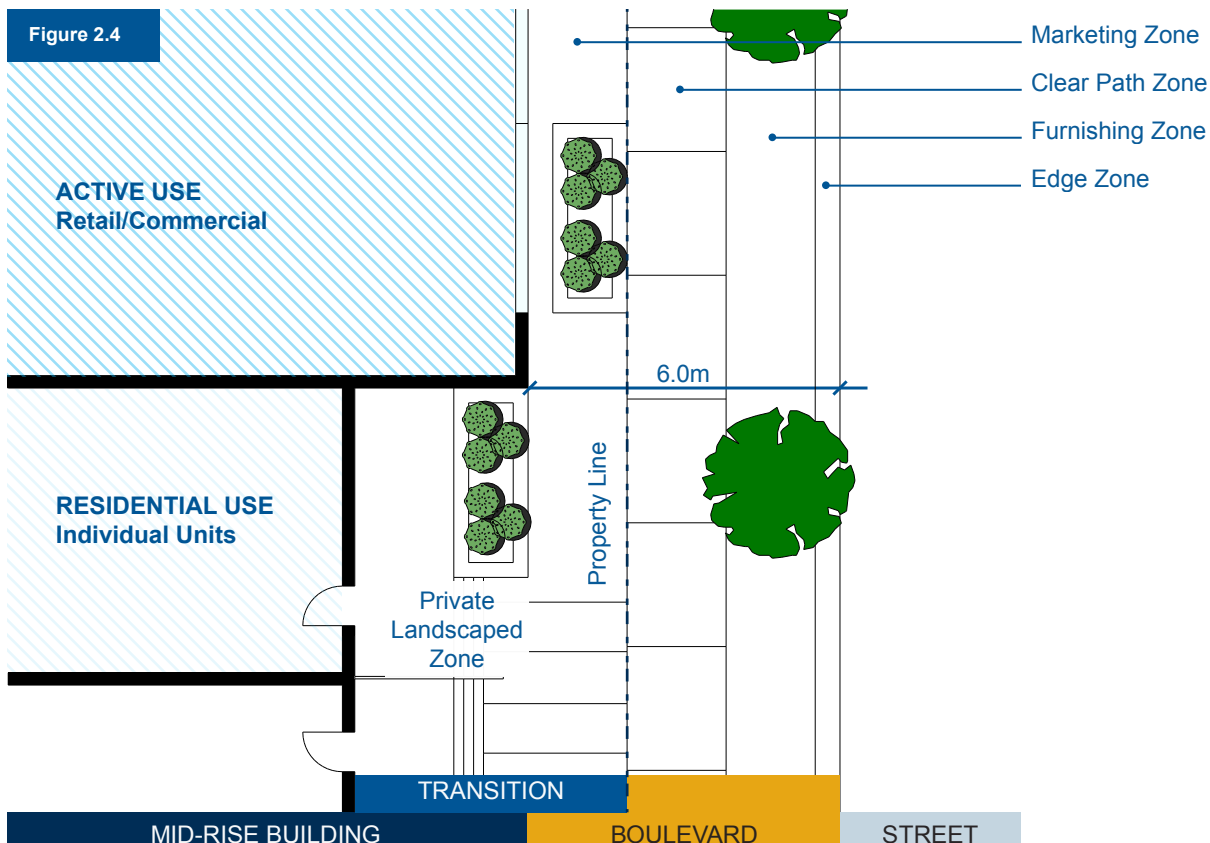


**Figure 2.3 - A new building can resolve the difference between different street (front yard) setbacks on neighbouring properties.**

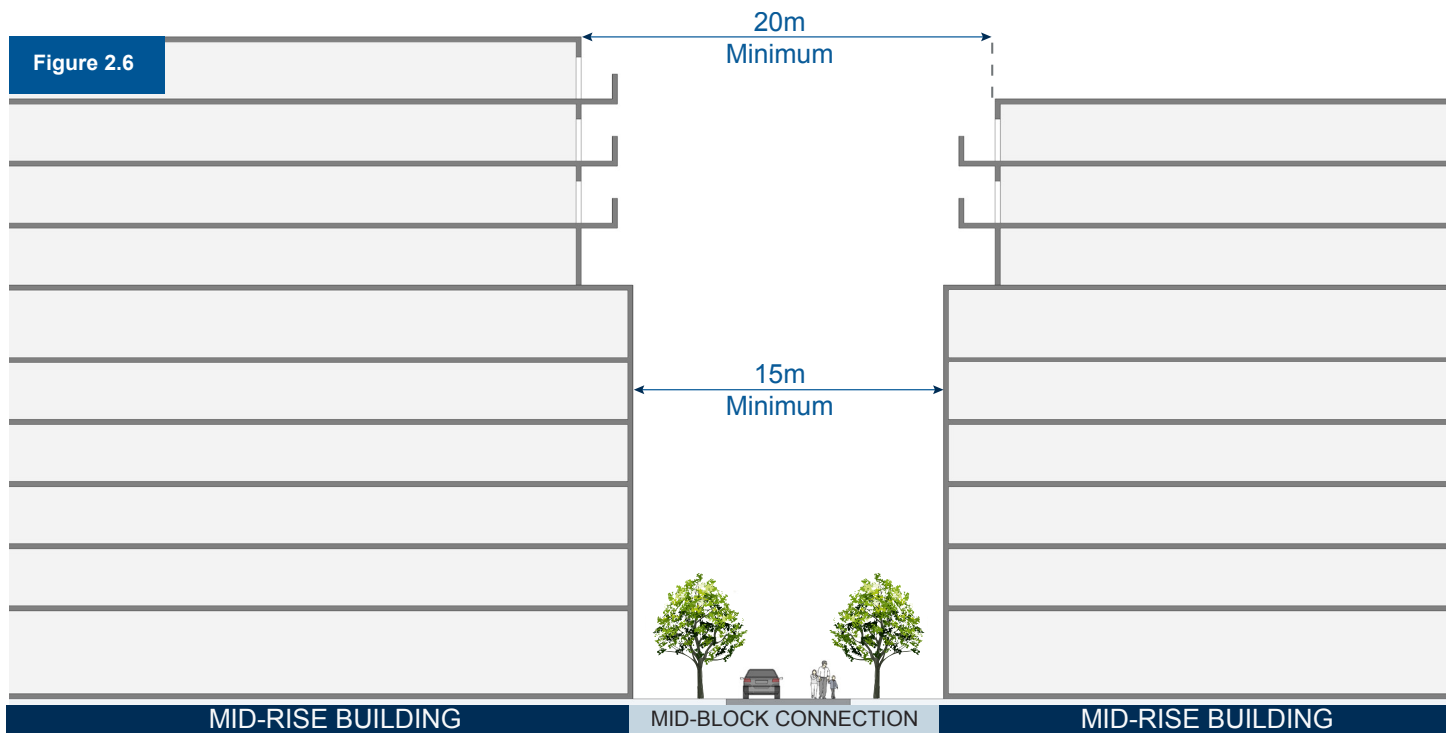
- 5) Where street setbacks are established but differ on each side of the development site, the building should reconcile the different setbacks (Fig. 2.3).
- 6) Where there is no consistent pattern of street setbacks, the building should be set back to create a boulevard that can accommodate wider sidewalks, street trees, landscaping, and active uses to establish a more pedestrian-oriented relationship between the building and the sidewalk. On streets where commercial / retail uses are required at the ground floor level, a minimum 6.0 metre boulevard is preferred, except where existing conditions preclude (Fig. 2.4). The intent is that a road widening will not be required to specifically achieve this guideline.
- 7) Where a building includes residential uses at grade, they should be differentiated from any active or non-residential uses through additional setbacks (Fig. 2.4). Front yards should incorporate landscaping and enclosure to provide privacy to individual units (hedges and fencing should be no taller than 1.5 metres).
- 8) On corner sites, the building should frame both streets (see Sections 2.1.4 - 2.1.6. above for guidance on alignment). The placement of corner buildings may be subject to a daylight triangle.
- 9) All buildings should have a public front ('face') and private back. Buildings should not expose their back onto the front of a neighbouring building to minimize impacts such as "back of house" activities on adjacent properties.



**Example of street related residential units.**  
Credit: City of Burlington







## 2.2 Building Separation & Spacing

The distance between buildings is a key factor in the success of any development, and in how the development is perceived to fit within its context. To ensure that buildings relate well to the street, neighbouring buildings and buildings within the site, careful consideration must be given to the space between buildings to protect for privacy, sunlight, and views.

- 1) In general, taller buildings should provide greater separation distances. Separation distances should generally range between 15.0-20.0 metres (see the guidelines below for specific scenarios).
- 2) Where windows are proposed within the lower building, a minimum separation distance of 15.0 metres should be provided between adjacent buildings (Fig. 2.6).
- 3) Where a continuous streetwall is desirable, side-yard setbacks are usually not required (Fig. 2.7). Continuous streetwalls are generally desirable within areas designated for mixed use, except where special site or block

conditions require breaks to access mid-block connections, public courtyards, or other open spaces (refer to Sections 2.2.7 and 2.2.8).

- 4) On sites with multiple buildings, a minimum separation distance of 15.0 metres should be provided between buildings that face each other. This area should be clear of building projections such as balconies and cantilevers to allow sunlight to access the lower levels of the building. Depending on the building form wider separation distances may be appropriate, especially if there are residential units at or below the ground floor level.



**Example of a continuous streetwall.**

Credit: City of Burlington

Figure 2.8



**Example of an appropriate separation between buildings relative to their height.**

- 5) Where there is a transition between a mid-rise development and a tall building, a minimum separation distance of 20.0 metres should be provided between the tower component of a tall building and the nearest part of the mid-rise building to minimize overlook and shadowing and pedestrian level wind impacts.
- 6) Where a site is large enough to support multiple buildings consider offsetting or angling the buildings away from each other to improve privacy between facing units.
- 7) The spaces between buildings provide opportunities for physical and visual connections, mid-block connections should be provided on larger sites to create pedestrian and cycling links and overall site permeability, circulation, and connections to parks, open spaces, trails, and neighbouring amenities and resources beyond the site (Fig. 2.8 & 2.9).

Figure 2.9



**Example of an appropriate separation between two buildings that face each other.**

Credit: Ockham Residential, The Isaac, Auckland

Figure 2.10



**Example of a semi-private courtyard framed by building placement and separation.**

Credit: Quadrangle Architects, Toy Factory Lofts, Toronto

- 8) The design and layout of mid-block connections should be carefully considered and be identified for their intended purpose as a space for public or private movement with suitable landscaping, lighting and signage. The design of these spaces should enhance the sense and perceptions of personal safety and minimize potential for crime and vandalism by allowing building components to overlook streets and open spaces where appropriate. Connections and open spaces within the site should also be clearly signed and well-lit (Fig. 2.10).



## 2.3 Built Form: Height & Massing

Built form refers to the overall size and shape of the building. Height and massing are critical to determining the degree of impact a building will have on neighbouring properties. For this reason, the building form must respond sensitively to its context to arrive at a high-quality design outcome.

- 1) When deciding on lower building height and massing consider the following:
  - the permitted minimum and maximum heights set out in the Official Plan and Zoning By-law;
  - the physical character of the surrounding area including the height and scale of adjacent buildings and the immediate streetscape;
  - the views into, out of, and through the site;
  - the potential shadowing impacts on neighbouring properties and adjacent public spaces – taller elements should be arranged accordingly;
  - the micro-climate (particularly pedestrian level wind impacts created by wind); and
  - the relationship of the building height to building depth and lot width. Use site characteristics such as width (narrow or wide), depth (deep or shallow) and number of frontages to inform an appropriate built form.

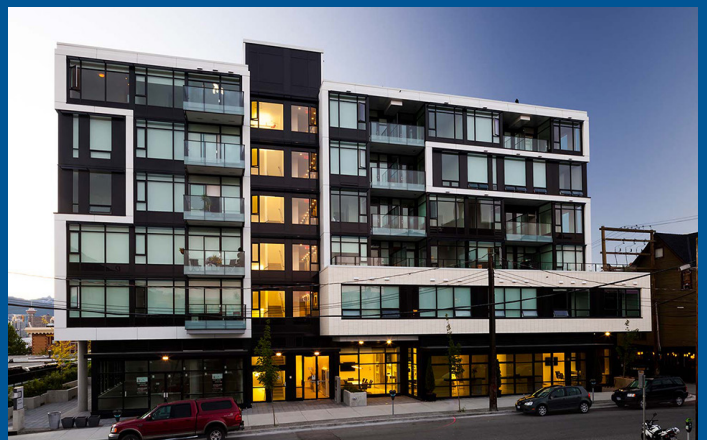
Figure 2.11 - Built Form



Credit: Slokker, North Shore, Port Credit Village, Mississauga.  
Photo courtesy of The Planning Partnership



Credit: Quadrangle Architects, 1181, Toronto



Credit: GBL Architects, Collection 45, Vancouver



- 2) Design buildings so that the massing reinforces the street edge.
- 3) In general, a building's form should reflect the existing and planned context in terms of street character (including the planned street function and right-of-way width), land use, and built form.
- 4) Where a streetwall is established, the lower building height and upper building step-backs should reinforce the existing streetwall to create a consistent streetscape.
- 5) Where a streetwall is not established, the streetwall for new mid-rise buildings should be limited to a height of 80% of the street width (up to a maximum of 6-storeys) with additional storeys stepping-back a minimum of 3 metres above the streetwall to maintain a human-scale and minimize shadowing. On streets with a planned right-of-way width of 26 metres or more, new mid-rise buildings up to 6-storeys do not require an upper building step-back.
- 6) In general, the building should not exceed a length of 60.0 metres apart from L-shaped building forms. Longer buildings, approaching and exceeding 60.0 metres, should either be broken up physically or visually using architectural and design elements that sufficiently differentiate the building mass to appear as separate building forms. This should include step-backs, colour and material variations, and unique building articulation.
- 7) Pushing (projecting) and pulling (recessing) building volumes from the main building form is encouraged to help break down the mass of larger buildings.
- 8) Balconies are encouraged and should be integrated into the building design and massing with inset or Juliette balconies. Projecting balconies should not be within the streetwall to avoid negative impacts to the public realm including additional building massing and shadowing.
- 9) Where ground floor commercial / retail uses are not required, projecting or semi-recessed balconies may be considered within the streetwall provided they are integrated into the overall building design, appropriately setback from the public right-of-way, and do not contribute to the visual bulk or become the dominant feature of the building façade (Fig. 2.11 top image).
- 10) Stepping back upper level building volumes is encouraged to assist with transitions between neighbouring buildings with lower heights (Fig. 2.11 bottom image).
- 11) A variety of scales, colours and textures should be used to create visual interest across the building façades.
- 12) The height and massing of the building should ensure a minimum of five hours of consecutive sunlight on the sidewalk across the street at the spring and fall equinoxes (approximately March 21 and September 21, respectively).
- 13) When adjacent to a public space such as a park, the height and massing of the building should ensure a minimum of five consecutive hours of sunlight over more than 60 per cent of the public space at the spring and fall equinoxes (approximately March 21 and September 21, respectively).



## 2.4 Street Level Design, Façade Articulation & Materials

How the building addresses the street is essential for establishing a positive first impression and successful interface between the public street and private building. The way a building performs in this regard is strongly influenced by the quality of its ground floor design, façade articulation, material use, and the location and treatment of building entrances.

- 1) The lower building should be constructed with the highest quality of architectural design and materials.
- 2) Where ground floor commercial / retail uses are required, the ground floor should be a minimum floor-to-floor height of 4.5 metres to accommodate internal servicing and loading areas, and active uses (Fig. 2.12).
- 3) Where ground floor commercial / retail uses are required, the ground floor should be predominantly clear-glazed (i.e. 50 – 70 per cent of the building wall) to provide visual connections and interest between the public and private realms, enhance safety and a sense of pedestrian scale along the street. Similarly, public elements of a mid-rise building with residential uses at grade, such as lobbies or amenity areas, should be predominantly clear-glazed (Fig. 2.12).

Figure 2.12 - Street Level Design



Credit: Brett Boardman, Rouse Hill Town Centre, Sydney



Credit: Quadrangle Architects, DUKE, Toronto



Credit: East Village retail centre, Sydney. Photo courtesy of The Planning Partnership

**Precedents demonstrating a variety of ways in which a mixed-use building with commercial / retail uses at the ground level can have a direct relationship with the street through the use of floor height and articulation.**

- 4) Materials should reflect their intended use and complement the established physical character of the streetscape where appropriate. Do not use materials that mimic other materials (e.g. stucco made to look like stone) or which deteriorate quickly. The use of EIFS and stucco is strongly discouraged.
- 5) The use of 'heavy' materials such as brick, stone, and metal should be used within the lower building to anchor the building. Other natural and sustainable materials such as wood is strongly encouraged.
- 6) Façade design should use architectural elements as well as materials to define unique components within the building and to create vertical and horizontal articulation.
- 7) In general, use quality materials that are long lasting, can be easily maintained, and wear well with age. Whenever possible, source local and/or recycled materials with a low embodied energy.
- 8) Use architectural elements and expressions such as canopies, doors, windows, lively colours and the highest quality materials at street level to highlight individual units, differentiate between residential and non-residential entrances in mixed-use buildings, and engage the street.

## Building Entrances

- 9) Design the main entrance to be clearly distinguishable from other entrances through its architectural design and treatment, high visibility, wayfinding and direct pedestrian access (Fig. 2.13).
- 10) Ensure that all main entrances are barrier free from the public sidewalk and on-site parking areas. Level access is preferred, where possible (Fig. 2.14).
- 11) Emphasize grade-related entrances with high quality landscape design.

Figure 2.13



**Vertical articulation, top element, projecting balconies, and canopy emphasize the main entrance.**

Credit: FRAM + Slokker, 80 Port Street, Mississauga. Photo courtesy of The Planning Partnership

Figure 2.14



**Example of a common residential entrance at grade that is accessible and clearly defined through articulation including double-doors, materials, colour, and a canopy.**

Credit: Quadrangle Architects , DUKE, Toronto



- 12) Buildings should maintain an appropriate relationship to the existing grade, especially at property lines. Design with existing grades and step buildings where there is a significant grade difference across a site. Avoid artificially raised or lowered grades, where possible.
- 13) Where there are residential uses on the ground floor, design their principal entrance from the street. An elevated grade difference is appropriate to increase privacy for the building occupants, however, the change in grade from the public sidewalk to the front entrance should balance between privacy and maintaining an appropriate relationship to the street. Additionally, privacy should be considered through careful landscaping such as low fencing/walls, raised planters, railings and lighting to clearly define the public, semi-private and private spaces.
- 14) The main building entrance should be designed to be pedestrian- and cycle-friendly with convenient, well-lit, and safe access. The main entrance should also provide for shelter from wind and rain through well-integrated weather protection elements such as canopies, extended eaves and overhangs. Canopies should be located above the ground floor and provide a width of at least 1.5 metres.
- 15) The location of building entrances should consider the location of adjacent transit stops.
- 16) On corner sites, the main entrance should be located at the corner. Where this is not possible, the building should address the street corner, both streets, and prioritize the primary street for the main pedestrian access.
- 17) Limit the height and use of retaining walls, particularly along street frontages, parks, open spaces, ravines and other areas of the public realm. Where retaining walls cannot be avoided, provide them in the form of low walls with a height of no more than 1.2 metres.

## 2.5 Site Design, Open Space & Streetscaping

**Site design, open space and streetscaping are imperative to the character and quality of a mid-rise development, its ability to fit within the surrounding area and enhance the public realm. This section includes guidelines that address specific elements of site design, open space and streetscaping such as access, parking, landscaping, and servicing. These elements should be well-designed and located to minimize their impact on the aesthetic quality and function of the site, neighbouring properties and the public realm.**

### Site Access & Servicing

- 1) All access points to the site should be located and designed to respond to the street and existing mobility networks beyond the site.
- 2) Pedestrian access should always be prioritized for the safety and enjoyment of residents and visitors.
- 3) Reduce the number and width of vehicle access points to avoid conflicts between pedestrian and vehicle traffic.
- 4) Access to parking, servicing and loading should be provided at the rear of the building, or a laneway if possible (Fig. 2.15). On corner sites, access should be provided from secondary streets provided the entrance facilities are well integrated into the rest of the frontage (Fig. 2.16).
- 5) At the block level, vehicular access should be consolidated where possible to serve multiple buildings within each block to minimize the number of interruptions in the streetwall and to reduce the number of potential conflicts with pedestrians and cyclists.
- 6) Servicing and loading should be accommodated internally within the building.

Figure 2.15



**Example of integrated entrance to below grade parking located away from the street and toward the rear of the building.**

Credit: City of Burlington

Figure 2.16



**Parking and servicing access from side street integrated within a mid-rise building with outdoor amenity area above.**

Credit: City of Burlington

- 7) Recess and screen garage doors and service openings from public view (Fig 2.17). When they face public streets and public or private open spaces design them using high-quality doors and finishes that complement the architecture of the building. Avoid free-standing parking ramps (Fig. 2.18).
- 8) Limit the extent of site area dedicated to servicing by using shared infrastructure and efficient layouts.

## Parking

- 9) Most on-site parking should be provided underground. In general underground or structured parking is encouraged before surface parking.
- 10) Underground parking structures should not encroach into required landscape buffers to ensure the long-term viability of mature trees and vegetation. Where underground parking structures must unavoidably encroach beyond the building footprint or into a landscape buffer, provide a minimum depth of 1.0 metre of uncompacted soil below grade to support opportunities for tree planting and other landscaping along the streetscape.
- 11) Where parking is provided within an above ground structure, it should be wrapped with retail / commercial or residential units along the street frontage.
- 12) Surface parking should be limited to visitor and retail / commercial parking and located at the rear of the building to be hidden from public view. Whenever possible, provide visitor parking in a convenient underground parking area adjacent to an elevator.
- 13) Any surface parking areas visible from the street should be buffered and screened with high quality architectural elements, setbacks or landscaping. On larger sites with surface parking areas, incorporate landscaped islands and high-quality landscaping to create comfortable and safe pedestrian walkways and amenity areas.
- 14) Provide for safe pedestrian and cyclist access to underground parking by using clearly visible, well-lit, convenient, and easily accessible access points from the street. Signage should indicate the barrier free path of travel.



Figure 2.17



**Below grade parking accessed from a local street or laneway.**

Credit: City of Burlington

Figure 2.18



**A freestanding parking ramp is a poor design outcome.**

Credit: City of Burlington

Figure 2.19



**Example of common outdoor amenity area above a parking facility.**

Credit: City of Burlington

## Outdoor Amenity Area

- 15) In general, maximize outdoor amenity areas at grade. The width to depth proportion of this area should not exceed 4:1 and it should be provided in one contiguous area to ensure the space is functional.
- 16) When outdoor amenity area is provided at grade, design it to:
  - be in a highly visible area to enhance the sense and perceptions of personal safety and minimize potential for crime and vandalism through natural surveillance;
  - have consideration for micro-climatic conditions such as access to sky-views and sunlight as well as shade in the summer;
  - be animated and framed by buildings with active uses such as at grade cafés;
  - include multiple activities and functions such as a play area, dog run, seating, shade structure, or water features;
  - incorporate high-quality landscaping to define areas and screen them from surface parking, mechanical equipment and other servicing areas to minimize noise and air quality impacts; and
  - where possible connect to abutting open spaces.
- 17) In general, the City encourages the creation of at grade amenity areas as privately owned publicly accessible spaces (POPS) such as courtyards, mid-block connections, urban squares and parkette features.
- 18) Common outdoor amenity areas should be located next to interior amenity facilities with direct physical and visual access between these spaces through doors and windows.
- 19) All common outdoor amenity areas should apply the principles of universal design and must comply with the City's Accessible Design Standards.

- 20) The roof of a lower building can be landscaped and used as common and private outdoor amenity area for the residents of a development (Fig. 2.19). Where possible utilize building rooftops as green roofs and/or usable private and shared outdoor amenity areas such as gardens.
- 21) Locate private outdoor amenity areas for family-sized units so that they have views and access to outdoor play areas, where possible.

## Site Elements

- 22) Site elements that require careful attention to location and design include but are not limited to: surface treatments such as walkway paving, ramps, stairs and steps, grates and vents; access stairwells, entry gates, privacy fences and screens, railings, decorative features, bike racks, mailboxes, garbage cans/chutes, pet waste collectors, ventilation shafts, and utilities such as transformers, gas meters, communication boxes, hydro poles, HVAC units, gas regulators, hydro meters, etc.
- 23) Use well-designed, high-quality site elements with long lasting materials and detailing, particularly where there is an interface with the public realm.
- 24) Locate all utilities within the building, at the back of the building (rear yard) or underground. When not located within the building or underground, ensure these elements are away from public view, organized neatly in discreet areas, and screened with high-quality architectural elements and landscape design. Options include recessing into the building façade, fencing, screening with landscaping or low walls (Fig. 2.20).

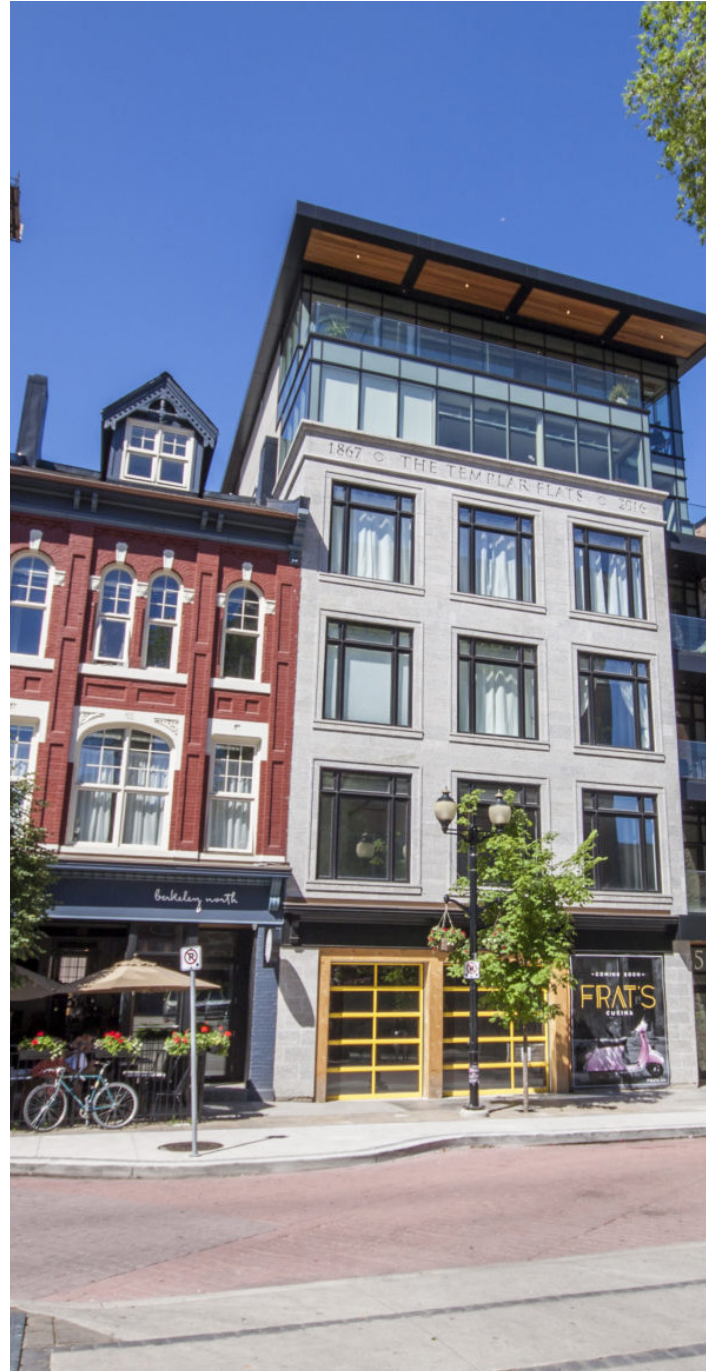
- 25) Avoid locating utilities and other equipment in areas that may impact pedestrian walkways, public or private open spaces, and the ability of trees to grow to maturity.
- 26) Where landscaping may impact sight lines, keep shrubs below 1.0 metre in height above the ground level and prune trees so that the lowest branches will be at least 2.0 metres above ground level. Limit any other landscape features that might cause obstructions to a maximum height of 1.0 metre.
- 27) Mechanical systems for individual units, such as air conditioners, should not be placed on porches or balconies where it will impact the usability of these spaces.
- 28) Design outdoor bicycle parking areas to be consistent with the overall building and landscape design (Fig. 2.21).





## Cultural Heritage & Public Art

- 29) All mid-rise developments should respect and be sensitive to cultural heritage resources including on-site resources and/or neighbouring resources.
- 30) Locate and design mid-rise buildings to conserve the character-defining attributes of cultural heritage resources.
- 31) Consider incorporating cultural heritage resources as part of the mid-rise development in a manner that is consistent with accepted principles of good heritage conservation and the City's Cultural Heritage Resources policies.
- 32) On-site retention in an adaptive re-use of heritage resources is encouraged. The retention of façades alone is strongly discouraged.
- 33) When a proposed mid-rise building is near a heritage property it should be designed to respect the materials, proportions, scale, setbacks, topography and views of the historic context.
- 34) Public art is encouraged within mid-rise development sites where appropriate (e.g. on corner sites, mid-block connections and sites with POPS). The selection and location of public art should reinforce the objectives of the City's Public Art Master Plan.



# 3 Upper Building

The upper part of the building contributes to the overall massing of the building form and its impact on the skyline and neighbouring properties. A variety of architectural and design elements such as horizontal and vertical articulation, upper floor step-backs, colour and materials should be used to visually describe the upper building and differentiate it from the components of the lower building. It is strongly recommended to architecturally integrate or hide structural elements such as the mechanical penthouse, elevator shafts, and telecommunication equipment from street-level.



Credit: Ledcor Group, Crossroads, Vancouver



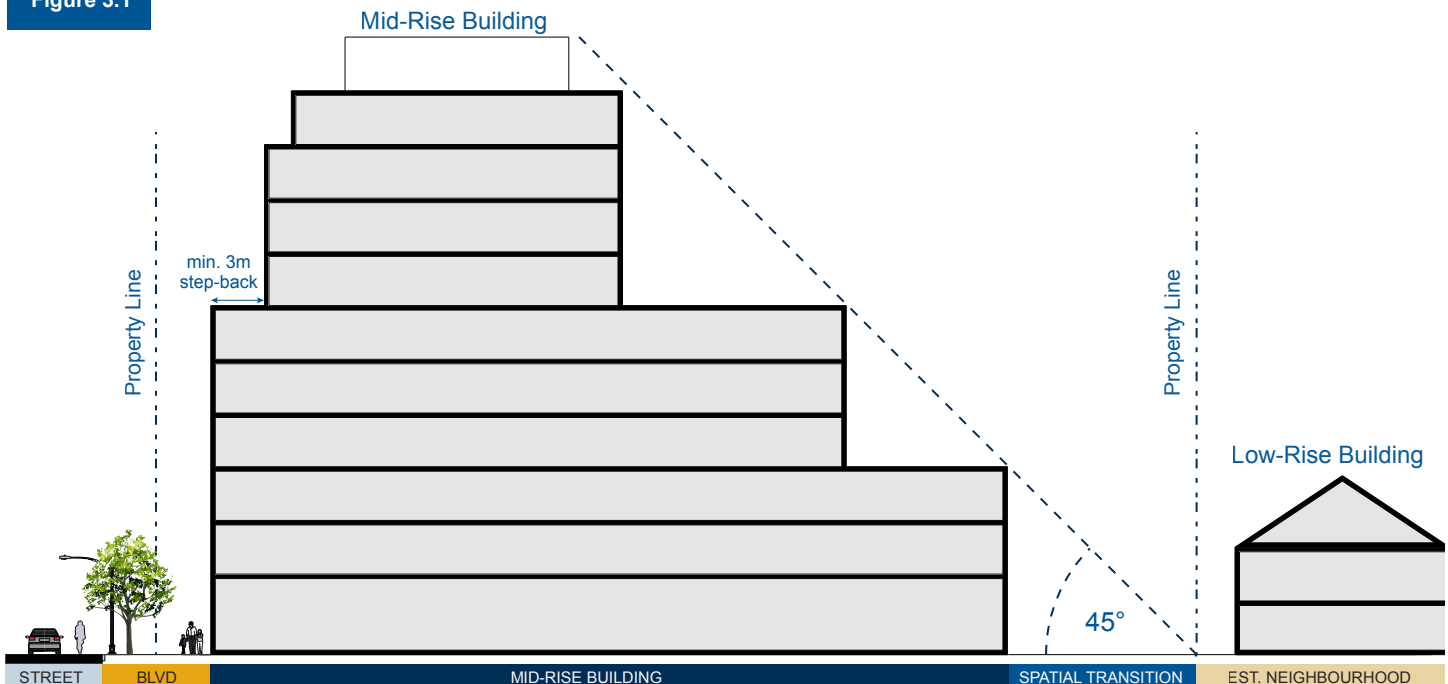
### 3.1 Built Form: Transitions

Like the lower building form, the upper building form should respond to its context to ensure high-quality design outcomes. Transitions should be used to reduce potential impacts related to a change in building height and massing such as shadowing, pedestrian level wind impacts, and overlook on neighbouring properties. Appropriate transitions are managed through upper massing step-backs, angular planes, and setbacks (in addition to building placement and separation).

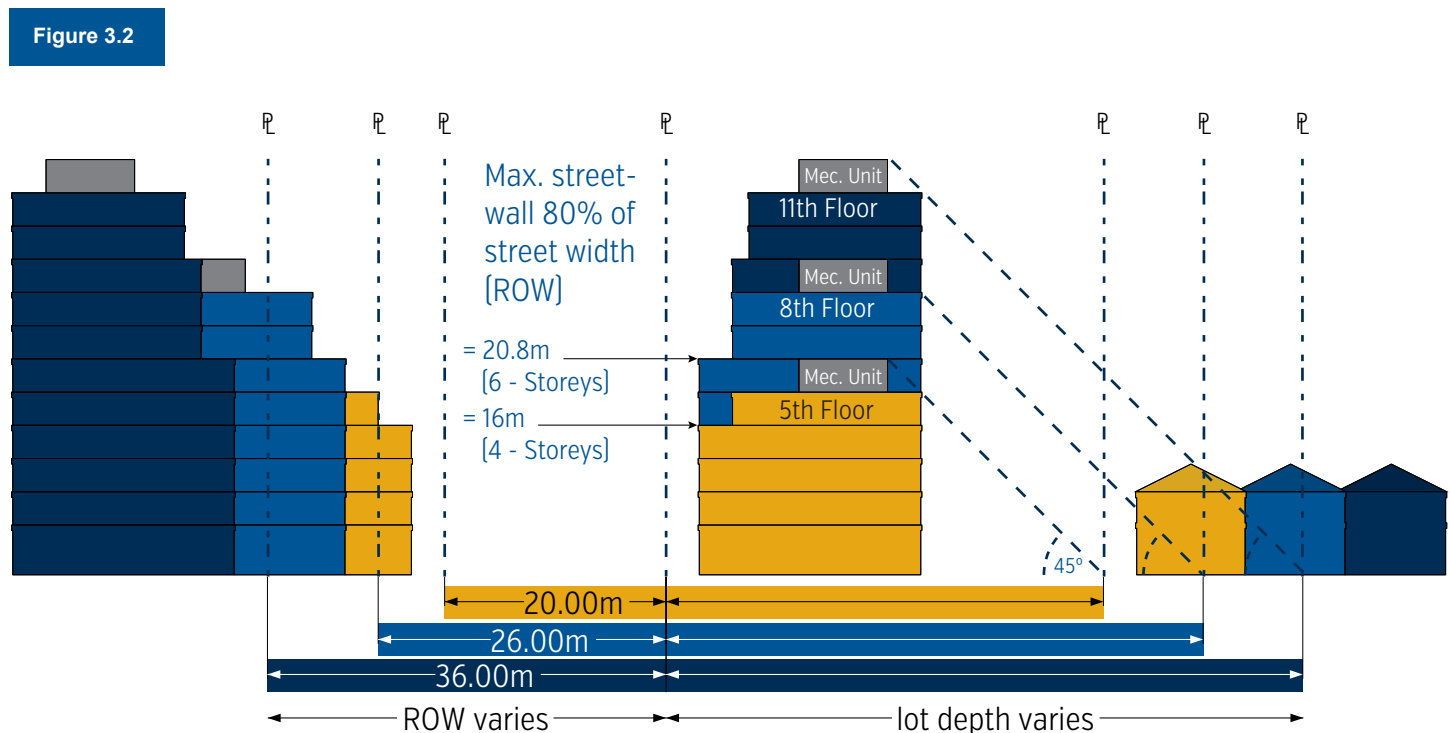
- 1) When deciding on overall and upper building height and massing consider the following:
  - the permitted minimum and maximum heights set out in the Official Plan and Zoning By-law;
  - the physical character of the surrounding area including the height and scale of adjacent buildings; and
  - the potential shadowing and pedestrian level wind impacts on neighbouring properties and private and public open spaces – taller elements should be arranged accordingly.

- 2) Where the building fronts a street, step-back the upper floors a minimum of 3.0 metres above the streetwall to protect access to sunlight and sky view for streets while limiting shadowing (refer to Sections 2.3.3 - 2.3.5 and Fig. 3.1). An additional step-back should be considered for buildings taller than seven (7) storeys in height. This additional step-back may be a minimum of 1.5 metres.
- 3) Where the building is on a site that is transitioning to a low-rise residential neighbourhood area (including properties designated Residential – Low Density and – Medium Density, Natural Heritage System, Parks and Open Space) a 45-degree angular plane should be applied from the shared property line (Fig. 3.1). The building form should fit entirely within this angular plane and utilize setbacks and step-backs to ensure any impacts related to the change in height, overlook, and shadowing, and pedestrian level wind impacts are mitigated. In cases where a Natural Heritage System requires an additional buffer, the angular plane should be measured from the original boundary of the identified natural heritage feature or area unless otherwise specified in an Environmental Impact Assessment.

Figure 3.1



- 4) When site topography results in a different grade at the street frontage than along the rear property line, the above angular plane direction should always be applied from the lowest grade elevation along the shared property line. This will ensure that properties with lesser scaled built environments are not subject to additional shadow impacts resulting from changes in grade.
- 5) Above the streetwall, or the sixth storey for taller buildings, a minimum building separation distance of 20.0 metres should be provided to reduce impacts such as overlook and shadowing (refer to Fig. 2.6, top of page 9).
- 6) Design the upper building to clearly distinguish it from the lower building and to further reduce the upper level building massing. This should include step-backs, colour and material variations, and unique articulation.
- 7) The design and placement of upper storeys should be carefully considered to minimize the size of shadows on neighbouring properties. A shadow study should be provided with mid-rise building applications in compliance with the Shadow Study Guidelines and Terms of Reference.



**Figure 3.2. demonstrates 5-, 8-, and 11-storey mid-rise building scenarios using right-of-way (R.O.W.) widths of 20, 26 and 36 metres, respectively, and rear transitions for varying lot depths abutting an established neighbourhood. Achieving the demonstrated built forms will be dependent on the application of the 45-degree angular plane requirement and consideration for contextual, regulatory and site-specific characteristics such as the buildings relationship to the existing and planned R.O.W., zoning permissions, and lot depth. The diagram also illustrates the maximum streetwall for each scenario, which correspond to 80% of the associated R.O.W. (up to 6-storeys).**



## 3.2 Upper Façade / Roof Design, Articulation & Materials

The arrangement of upper building elements, façade articulation and the use of high-quality materials provide a sense of scale and create visual interest. Each building façade should have varied treatment that complements the overall building design while responding to the conditions of the facing conditions. Avoid blank façades facing public streets or public open space.

### Materials

- 1) The upper building should be constructed with the highest quality of architectural design and materials and complement the lower building façades.
- 2) In general, lighter materials such as glass are encouraged in the design of the upper storeys to minimize perceived mass. Heavier materials such as metal, brick, or stone may be used to define unique components within the building elevations and to create vertical and horizontal articulation (Fig 3.3).

### Façade Articulation

- 3) Use architectural elements and expressions such as balconies, windows, and recesses and projections to highlight individual units and reinforce a variety of scales and textures within each component of the building (Fig. 3.4).

### Balconies

- 4) Balconies are encouraged within the upper building to provide private outdoor amenity areas and additional articulation. They may be inset or project but should have a minimum depth of 1.5 metres to provide functional space. Generally, balconies should be sized according to the number of residents the unit is intended to house.
- 5) Balconies and other projections should be contained within all angular planes and setbacks and shall not protrude into the public realm (over sidewalks).
- 6) Design the building top to clearly distinguish it from the lower portions and to further reduce the building massing. This should include additional physical building setbacks, step-backs, colour and material variations, and unique articulation.



## Roof Design

- 7) Building tops and mechanical equipment should be designed to integrate with the overall architectural expression of the building.
- 8) Where possible, rooftop amenity areas are recommended to create activity at the upper storeys of the building and be appropriately set back from the roof edge.
- 9) Telecommunication and cell phone towers on mid-rise buildings are strongly discouraged given their aesthetic impact on building design and visibility from the public realm. Where they are provided they must be either appropriately screened or set back so as not to be visible from public view.
- 10) Rooftop mechanical equipment should be architecturally screened from public view to protect or enhance views from other buildings and the public realm.
- 11) Where possible, rooftop mechanical equipment should be wrapped by residential units, or other occupiable space such as outdoor amenity areas.
- 12) Rooftop mechanical equipment should be set back, on all sides, no less than 3.0 metres from the edge of the floor below, and where an angular plane applies, fit within all angular planes (Fig. 3.5).

Figure 3.4



**Examples of façade articulation through the use of upper level step-backs, materials and colour that helps to break-up building massing and provide visual interest.**

Credit: Yuanheng Holdings, Cambie Star, Vancouver

Figure 3.5



**Example of a terraced building designed to fit within an angular plan and provide a transition to an existing low-rise neighbourhood.**





# Glossary

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<b>Active uses</b>	In general, refers to ground level uses that help to animate and create interest on the street. May include window displays, spill-out retail along the street edge, in public areas (e.g. lobbies, mid-block connections) or outdoor amenity space.
<b>Amenity areas</b>	An interior area within a residential building or an outdoor area exterior to the residential building which is designed and intended primarily for the leisure and recreation of the occupants of the building.
<b>Articulation</b>	Refers to the layout or pattern of building elements, including walls, doors, roofs, windows and decorative elements, such as cornices.
<b>Boulevard</b>	The boulevard is the area between edge of the curb and the front property line or building face.
<b>Built form</b>	The overall size and shape of a building, including all design elements.
<b>Daylight triangle</b>	Areas providing clear visibility for safe vehicular movement between streets, driveways, and other intersections. Daylight triangles also present an opportunity for enhancing the street and integrating several modes of transportation safely.
<b>Façade</b>	The exterior face of a building. Often used to describe the front façade of a building as the most important side of a building. On a corner lot, the façade includes all building walls facing onto a public street.
<b>Human scale</b>	The proportional relationship of the physical environment to human dimensions, acceptable to public perception and comprehension in terms of the size, height, bulk, and/or massing of buildings or other features of the built environment.
<b>Inset balcony</b>	A balcony that is located behind the face of the building.
<b>Juliette balcony</b>	A railing at a window opening that reaches to the floor and creates the appearance of a balcony when the window is open.
<b>Low embodied energy</b>	The amount of energy required to produce an item.
<b>Lower building</b>	The lower building represents the first few storeys of a mid-rise building, including the ground floor and any additional floors with direct relationship to the street and public realm. Generally, this would include those storeys forming the streetwall and not those stepped back from the streetwall.
<b>Low-rise building</b>	A building four (4) storeys in height or less.



<b>Massing</b>	The overall bulk, size, physical volume, or magnitude of a building project.
<b>Mid-rise building</b>	A building five (5) to eleven (11) storeys in height.
<b>Parkette</b>	Consists of a small land area that is designed to provide a variety of passive and visual benefits for the surrounding area.
<b>Physical character</b>	The distinctive qualities within a physical area which are defined by elements such as: scale, massing, vegetation, topography, lotting pattern, colour, texture, material and the relation between structures, spaces and landforms.
<b>Private realm</b>	Refers to any space that is within a private property line and is perceived as being private.
<b>Public realm</b>	All spaces to which the public has unrestricted access, such as streets, parks and sidewalks.
<b>Privately owned publicly accessible spaces (POPS)</b>	Spaces that are privately owned and which are intended for use by, legally required under city by-law to be open to, the public.
<b>Site</b>	A piece of land that is often considered for a future building project.
<b>Scale</b>	The proportion of a building or building element created by the placement and size of the building or element in comparison with adjacent buildings or building elements and to human dimension.
<b>Separation distance</b>	The space between two entities, such as elements of a building
<b>Setbacks</b>	Refers to the distance between a property line and the front, side or rear of a building.
<b>Step-backs</b>	Refers to an offset of one element of a building from another element below. Step-backs help to create a transition between built elements.
<b>Storey</b>	A habitable or occupiable level within a building, excluding raised basements.
<b>Streetscape</b>	The visual appearance of a street formed by the location of physical features such as buildings, pedestrian, cycling, transit and vehicular facilities and landscaping.
<b>Streetwall</b>	The condition of enclosure along a street created by the fronts of buildings and enhanced by the continuity and height of the lower building façades. Upper building façades, when stepped back, have less impact on the streetwall.
<b>Tall building</b>	A building twelve (12) storeys or higher.

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**Upper building**

The portion of a mid-rise building above the Lower building, designed to fit with and achieve an appropriate relationship with the Lower building, the public realm, and neighbouring properties.

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**Universal design**

The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. The principles of Universal design are contained in the City's Accessibility Design Standards.

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