



CITY OF CAMBRIDGE
COMMUNITY DEVELOPMENT DEPARTMENT

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To: Planning Board
From: CDD Staff
Date: October 4, 2017
Re: **Draft Volpe Site - Design Guidelines**

As part of the planning work being undertaken by the City in relation to the Volpe site, CDD staff have been working with urban design consultants, Michael Dennis & Associates, to prepare site specific architectural and urban design guidelines. The guidelines will be used by the Planning Board and CDD staff during the development review and approval process associated with the proposed PUD-7 zoning amendment.

These draft Volpe Site - Design Guidelines have been crafted to help realize the planning and design principles that emerged through the Volpe Working Group process, (available at https://www.cambridgema.gov/~media/Files/CDD/ZoningDevel/Amendments/2017/PUD7/zngamend_pud7_vwgprinciples_20170720.pdf?la=en) and incorporate key principles from the Kendall Square Design Guidelines. The set of guidelines has been developed in consultation with the City Council Ordinance Committee co-chairs and representatives from MIT.

A draft of the guidelines text is attached for the Planning Board's review and input. The document is organized in a similar fashion to many of the city's guideline documents with a series of goals, design objectives and guidelines focused on open space and built form. Diagrams and images are currently being prepared to further illustrate the design intent of each of the design objectives, and will be presented at the Planning Board meeting.

VOLPE SITE – DESIGN GUIDELINES

October 4, 2017

1.0 INTRODUCTION

The following architectural and urban design guidelines are incorporated by reference to the PUD-7 zoning district. These guidelines should be used by the Planning Board and CDD staff to evaluate the various stages of development plan and design review for the district.

Numerous studies and master plans, including the Kendall Square Planning Study and the Connect Kendall Square Framework Plan, show the potential of increasing Kendall Square commerce and housing, strengthening existing retail, expanding open space opportunities, improving access to and from surrounding neighborhoods/districts, updating transit capacity, and improving pedestrian accessibility and safety. Properly designed and implemented the Volpe site can create a unique and meaningful place for all of Cambridge.

The Volpe Site Design Guidelines articulate the design and site planning goals for the PUD-7 Zoning District, and measures to achieve them. The guidelines aim to create a positive mixed-use district where tall buildings with large floorplates can be good neighbors to public spaces, smaller existing buildings, and adjacent residential neighborhoods. Therefore, the guidelines are particularly geared to sensitively manage the impacts of bulk and height and animate major streets and public spaces through encouraging active ground floors and warm, inviting buildings that humanize the Volpe site.

However, the guidelines are not intended to impose a strict limitation on the building form and style. Other creative design solutions or measures, not noted here, may also be utilized if the Planning Board finds that they further the goals of these guidelines, especially in the interest of enhancing architectural richness in the area.

2.0 GOALS

The goal of the Volpe Plan is to create a functionally diverse and animated downtown development, predominately consisting of handsome background buildings that focus on and enrich the public street and open space system, enlivened by areas of variety and liveliness that articulate the urban pattern. An active pedestrian realm will extend throughout the site, and especially along its main streets and squares both during and after customary business hours. The combination of commercial and residential development throughout the site will maximize hours of activity and improve public security.

The site's interconnected network of public open spaces – its streets, squares, parks, and courtyards – should constitute its fundamental organizational principle. These spaces should be distinct places – visually and spatially coherent, memorable, and meaningful. They should be framed by the masses and facades of the surrounding buildings, and their form should be reinforced and enriched by the design of their landscape. They should enhance public life by constituting a safe and welcoming pedestrian environment. The design of public open spaces should support a wide range of outdoor uses, and should be enlivened by pedestrian oriented functions located in the ground floors of the surrounding buildings. These spaces should link together with each other, and with the surrounding districts to create a varied yet continuous

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public realm that gives the district permeability, porosity, a strong sense of place, and attractive and inviting connections to and from adjacent neighborhoods. Regardless of the details of ownership and responsibility for maintenance, the site's streets, squares, and parks should be public in use and character.

Development in the public and private realms should be integrated in as positive, secure, and elegant a manner as possible. Buildings fronting onto existing streets or public open spaces should complement and harmonize with adjacent, existing or planned architecture and open spaces with respect to use, scale, density, setback, bulk, height, landscaping, and screening. Each individual project should be carefully conceived and executed to the mutual benefit of its immediate neighbors and adjacent neighborhoods.

The site's buildings should be compatible with Cambridge's historic architecture and sense of place. The City seeks new buildings and additions that are timeless, and elegant structures that should always feel comfortable and inviting to the general public. This can be achieved in part through the design of properly scaled windows, masonry articulation, setbacks, and use of materials that are warm, inviting, and supportive of other proposed buildings and spaces.

The city will not support isolated, individual architectural statements that relate only to themselves. The city does support projects that are positive additions to East Cambridge.

3.0 OPEN SPACE AND SITE DESIGN:

3.1 The site should have a robust, flexible, gracious, active, and accommodating public open space system that brings together a variety of different types of spaces: large and small parks/natural areas, more contained plazas or squares, and pedestrian and vehicular streets to provide a multitude of places for use and enjoyment.

3.1.1 Objective

- The network of the site's streets, pathways, squares, parks, and other open spaces should organize the site's buildings and circulation, and connect the site to the surrounding districts. The combination and interconnection of these different kinds of public spaces will enrich the experience of the site's residents, users, and visitors.

Guidelines

- The site should offer streets, squares, and parks in a variety of sizes and characters.
- Streets and open spaces should create an arrangement of urban blocks, which should generally be small to maximize permeability through the site.
- Reinforce the spatial coherence of Third Street and Broadway and expand the pedestrian based retail of these streets.
- Extend the alignments of Broad Canal Way, Fifth Street, and Potter Street, through the site.

3.1.2 Objective

- The site's open spaces should be legible, beautiful, and memorable places, visually and programmatically rich, and usable and occupiable by the public. In effect, they should be public rooms at the scale of the city.

Guidelines

- The massing and facades of buildings that address streets, parks, and squares should frame them as legible spaces. *Diagram – lines define façade locations which define space*
- The massing and facades of buildings should reinforce a sense of entry and arrival by emphasizing the contrast in scale between the spaces and the streets that approach them. *Diagram – facades defining space Diagram – corners of blocks*
- Establish **Build-To Lines** to delineate the borders of city blocks and create continuity in the alignment of building facades. *Diagram: Build to lines*
 - Build-to lines should generally be located at parcel boundaries adjoining streets, squares, or parks, and/or at the inner edge of the public sidewalks.
 - Build-to lines should govern the location and alignment of the lower portions of buildings - their streetwalls and pedestrian frontages.
 - At residential buildings, build-to lines may be set back from the inner edge of sidewalks to allow for entrances, compact stoops, porches, and gardens.
 - At commercial buildings, building streetwalls may be recessed away from the build to line to allow for building entrances, small plazas, forecourts, outdoor dining, etc.
 - On Broadway, Third Street, and Binney Street, building streetwalls should be aligned on build-to lines for the majority of their length.

3.1.3 Objective

- The site's open spaces should be welcoming and engaging places for public and private use and connection. Landscape and streetscape design, building facades, and the programming of building ground floors should create a beautiful and programmatically rich and continuous pedestrian experience, and emphasize the public nature of the site's open spaces.

Guidelines

- Private development bordering publicly accessible open space and thoroughfares should present inviting elevations and imagery, with special attention at the ground plane and lower floors.
- See the "Built Form" section of these guidelines regarding the role of architectural design in defining and enlivening the site's open spaces.
- The outdoor public realm should connect with indoor public spaces.
- Public open spaces should incorporate broad open areas of grass or pavement, suitable for a wide range of uses.
- The contrast between flexible open areas and the more articulate and specialized areas of planting, seating, low walls, and trellises, pavilions etc. that frame them should emphasize the room-like quality of parks and squares, and accommodate individuals and groups large and small, and offer a variety of ways of being in the space.
- Individual works of art and their respective settings should work together in a harmonious, subtle way to help humanize public space and buildings at the pedestrian level.

3.2 Parks

3.2.1 Objective

- The site's parks should offer a connection to nature and provide opportunities for a range of activities, such as quiet enjoyment, recreation, outdoor dining or picnicking, temporary markets, organized public events, and public gatherings.

Guidelines

- Parks should feel welcoming and public, they should be bordered by public streets or active public uses. They are not to be designed as semi-private front yards of adjoining commercial or residential buildings.
- Park design should bring together various elements – such as trees, grass, gardens, playfields, flexible open areas, water features, pavilions, loggias, and paved areas – in configurations that accommodate a wide range of uses and enhance visual and functional relationships with adjoining streets, open spaces, and buildings.
- Play areas should be located near residential buildings where possible.
- Park edges should be defined by elements that reinforce a sense of place, such as alleés of street trees, bordering paths, other plantings and landscape elements.
- In addition to broad open grassy areas, parks should incorporate intimately scaled spaces. These spaces should be more specialized in form and provide a sense of shelter and permeability through the use of such elements as shade trees, loggias, trellises, pavilions, seating, low walls, fencing, and garden plantings.

3.2.2 Objective

- Parks should provide environmental benefits.

Guidelines

- Parks should be designed to provide habitat for native species, reduce the urban heat island effect, provide cooling, and absorb stormwater.

3.3 Squares and Plazas

3.3.1-Objective

- The site's squares and plazas should be foci of community life: they should be predominately pedestrian, enlivened by outdoor dining, temporary markets, outdoor events and performances, and by the retail and community functions in the ground floors of the buildings that frame them.

Guidelines

- Where appropriate, squares and plazas should incorporate planting, benches, water features, public art, appropriately scaled outdoor seating areas for restaurants, bars, cafes, and the general public, and areas appropriate for temporary retail – carts, trucks, stands, and tents.
- Landscape design should complement the sense of spatial enclosure provided by the buildings that frame the squares by incorporating bordering shade trees or other landscape elements.
- Vehicular traffic along or through squares, where it occurs, should be slow.

3.4 Streets

3.4.1 Objective

- The site's streets should be integral parts of the city's street network. They should create an integrated pedestrian circulation system with particularly strong connections to the public way, and between adjacent districts and residential neighborhoods.

Guidelines

- New streets should be located to connect with existing streets and open spaces, extending the pedestrian, bicycle, and, where appropriate, vehicular paths of the surrounding districts through the site.

3.4.2 Objective

- The site's streets should create a safe, pleasant and welcoming pedestrian realm.

Guidelines

- Façade-to-façade dimensions should be no wider than necessary.
- Sidewalks should be wide enough to be safe and inviting, and to accommodate street trees, pedestrian circulation, street furniture, and outdoor seating for restaurants where appropriate.
- Any on-street parking should be parallel.
- Service/loading areas and vehicular access to them should be discreet and out of sight.
- Travel lanes and curb cuts should be no wider than necessary.
- Curb cuts should be designed to minimize impacts on the public realm, particularly on Binney Street, Broadway and Third Street.
- Vehicular turnarounds and drop-off facilities are discouraged.
- Bicycle facilities should be designed and located to provide safe travel for pedestrians and cyclists.
- Vehicular traffic within the site should be slow, controlled by traffic calming measures such as raised crosswalks, woonerfs, etc.
- Street lighting should be provided by relatively low fixtures at frequent intervals.
- Reinforce the public space of the street with aligned and continuous curb-side street trees.
- Streets should be enlivened by the ground floor program of the buildings that border them. Retail and/or community spaces should be continuous on primary building frontages wherever possible.
- On retail streets, the pedestrian scaled zone should extend from the curb to the façade of the building, and in some cases into the building. This zone could be defined by such elements as shade trees, street furniture, outdoor dining, canopies, recessed ground floor entrances, display windows, and loggias.
- On residential streets, the pedestrian scaled zone should transition between the public and private realms with the use of shade trees, sidewalks, stoops, porches, trellises, and/or small fenced yards.
- Outdoor seating areas for cafes and restaurants, bicycle parking racks, street furniture, etc. should be arranged as a compact linear zone, so as to leave a clear pedestrian travel zone.

3.5 Universal Access

3.5.1 Objective

- The design of buildings and outdoor spaces (public and private) in and around the site should place special emphasis on universal access.

Guidelines

- Ensure that outdoor spaces provide comparable facilities for all people regardless of their ability to climb steps.

- Ensure that parks and plazas provide facilities serving people of all ages.
- Provide wayfinding signage throughout the site, and create direct accessible connections, to make mobility among destinations more convenient and efficient.
- Ensure that streetscape elements do not conflict with accessible parking.

3.6 Building Service, Vehicular Access, and Parking

3.6.1 Objective

- Design and locate loading/servicing areas and parking to support the quality of the pedestrian experience.

Guidelines

- Entrances to parking facilities and service areas should be coordinated with and not negatively impact adjacent development. Vehicle entries should be appropriately screened from public open space corridors, and integrated into the building forms to minimize visual impacts.
- Avoid creating loading servicing areas exceeding two bays or 30 feet wide.
- Loading bays should be provided with architectural doors designed to complement the overall façade composition.
- Where possible, consolidate and coordinate off-street loading areas and service roads serving multiple buildings.
- Occupied ground level spaces with windows should occur between loading/ servicing areas wherever possible to help diminish their impact.
- Locate parking primarily below grade.
- Consider linking service to multiple buildings with shared underground routes so as to minimize at-grade delivery traffic.

3.7 The New Volpe Building's Site

3.7.1 Objective

- The landscape design of the new Volpe Building's site should be as seamlessly continuous with the landscape design of the rest of the site as possible while providing required security for the building.

Guidelines

- Maximize public access and permeability of the Volpe Building's site.
- The design of vegetation, paving, lighting, and furniture should be coordinated across the overall site.
- Vehicular barriers at the security perimeter should be integral parts of the site design, and enhance the beauty and public usability of the site.
- Exhibits related to the Department of Transportation's mission, both within the building and on its site, should be considered.
- Look for potential synergies between the amenities and programmatic uses of the Volpe site, e.g. daycare facilities, and those of nearby publicly accessible open spaces.
- Service yards and other paved surfaces should be as small as possible, and should not undermine highly desired and sensitive pedestrian routes. Large vehicular areas such as service yards should maximize the use of permeable pavers.
- Employee parking spaces should be below grade.

3.8 Environmental Comfort

3.8.1 Objective

- Open spaces, and the buildings that frame them, should be designed to minimize undesirable environmental impacts.

Guidelines

Shadow

- Building form should defer to open space through necessary step-backs.
- Locate and design buildings to minimize shadows on existing and proposed open spaces while balancing the desire to locate taller buildings on the south part of the site. Buildings should not unreasonably reduce the amenity of existing or proposed open spaces by casting new or additional significant shadows on these spaces.
- Configure park space to maximize solar access, while balancing the need for logical pedestrian circulation and spatial organization of new buildings.

Wind

- Design and shape new buildings and open spaces to minimize negative wind impacts on streets and public spaces. Minimize the use of wind screens and landscaping within open spaces as sole mitigation strategies.

Vegetation

- Provide additional vegetative cover, improve stormwater infiltration, and reduce urban heat island effects. Both at-grade and rooftop vegetation should be considered.
- Special consideration should be given to preservation of existing, large trees including necessary relocation of healthy trees.

Noise and Lighting

- Mechanical noise should not impact the quality of life, either at ground level, or in residences. Design, select, locate, and acoustically screen equipment to protect neighbors from noise impacts.
- Lighting in buildings, especially those with late-night uses, should be carefully designed to minimize light pollution that could impact nearby housing/hotel residents.

Exhaust and Mechanical Equipment

- Kitchen exhausts for food service uses should not unreasonably impinge on the ground level pedestrian experience.
- Mechanical/utility rooms are not appropriate along major streets and should be located on secondary streets. Exterior transformers should be shielded from public view.

4.0 BUILT FORM

4.1 The site's architecture should follow a very high standard of design excellence, using materials and detailing appropriate to the building type and location. Considerations include site and building organization, relationship to other buildings, massing, scale, proportion, rhythm, unity and expression, architectural ambition, architectural language, and aesthetics. If possible, incorporate innovative technologies and sustainable design principles, and design for flexibility and adaptability.

4.1.1 Objective

- Architectural form should define urban space. It should enhance the quality and amenity of the public realm and sense of place, create legible and meaningful public places, and reinforce Kendall Square's existing and proposed street and open space patterns.

Guidelines

- Create a rich and varied, humanly scaled building with a continuous ground level pedestrian realm.
- Create strong streetwalls to frame streets, parks, squares, and plazas.
- Mitigate building bulk and adverse impacts on the microclimate, including shadows, wind, and urban heat island effects.
- Make positive contributions to the Cambridge skyline and important views.
- Building facades should create legible and visually rewarding public spaces by combining consistency and variety to express a rhythm and variation appropriate to the building's context.
 - Establish sufficient consistency in façade design and massing to create a strong urban pattern.
 - Look for opportunities to enrich that pattern by breaking or modulating it: respond to elements of adjoining buildings, spatial axes, views, significant corners, etc., or to elements of the building's own structure or program.

4.1.2 Objective

- The site's buildings should reinforce the site's varied urban conditions.

Guidelines

- Differentiate massing and materials, color, fenestration, bay patterns, etc. on the different facades of buildings in response to the varied types and character of streets and other open spaces adjoining the different sides of the buildings.

4.1.3 Objective

- The site's buildings should respond to a wide range of scales: intimate pedestrian, intermediate streetscape, and long-distance skyline views, and to the scale and use of existing neighboring buildings.

Guidelines

- Incorporate elements such as upper floor step-backs, or sensitively incorporate similar materials, and the architectural rhythm, bay size and scale of nearby structures into the new structures.
- Break down building massing to relate to the historic massing and character of East Cambridge; and to prevent a monolithic appearance.
- Depending on their heights, buildings should consist of up to four different, but integrated zones.

- **The Pedestrian Frontage Zone** – the building's ground floor, and often its second floor, accommodating pedestrian focused retail and community program.
- **The Streetwall** – the building's lower 3 to 8 floors above the pedestrian zone
- **The Tower** – the floors above the streetwall, generally repetitive vertically and accommodating much of the building's floor area.
- **The Building Top** – the expressive element on the skyline, accommodating building mechanical systems and potentially other programmatic elements.

The four zones perform very different roles in creating urban space and pedestrian amenity; the following guidelines differ accordingly.

4.2 Pedestrian Frontage Zone

Buildings should directly relate to the pedestrian realm and reinforce activity at the ground plane by providing easy access to retail and community functions. Ground floor (and second floor) facades should especially enrich public open space, and public or private passageways that connect with that open space.

4.2.1 Objective

- Create a welcoming pedestrian environment by maximizing retail and community functions to directly engage pedestrians, and by minimizing detrimental impacts on the pedestrian experience.

Guidelines

- Building frontages devoted to banks, trust companies or similar financial institutions should be limited to approximately 25 feet. Larger floor areas can be devoted to bank uses when fronted with other active retail uses.
- Commercial and residential lobbies are expected to consist of no more than 25 feet of frontage.
- Accommodate the access needs of all users, and incorporate 'visitability' measures where possible.
- Where retail is not provided as part of original construction, ground floor spaces on major public streets should be designed to accommodate retail in the future with:
 - Adequate floor-to-floor height (e.g. 15-20 feet) to allow food-oriented uses, with ducted ventilation, etc.
 - Leasable ground floor depth from façade averaging 40 feet where possible.
 - Ground floor level flush with or easily accessible from sidewalks.
 - Ground floor façade readily convertible to retail storefronts.
 - Venting and exhaust needs of food service uses accommodated.
 - Services such as interior power and HVAC zoned or easily convertible to enable convenient division and sublease of interior spaces to retail tenants.
- At Ground Floors of Residential Buildings
 - If programmatically feasible, building facades should incorporate multiple entrances to activate the street. Where appropriate, design buildings with individual units and front doors facing the street.
 - Residential buildings should attempt to accommodate active, ground floor uses that will enliven pedestrian activities.
 - Include row house units on the lower levels of multi-family buildings to create a rhythm of entrances and create a residential feel especially at side streets.
 - In parts of the street level façade that do not include residential units (e.g. common rooms and lobbies), incorporate 40 to 60 percent transparent glazing in the ground level façade with direct views between sidewalk and interior building spaces to expand the apparent width of public space at ground level.

4.2.2 Objective

- Provide shelter and visual interest at the pedestrian scale, and emphasize the horizontal continuity of the public realm.

Guidelines

- Break up the scale of the pedestrian frontage zone. Create variation in façade treatment at an intimate scale, variations such as angled display windows, recessed entrances, awnings, changes in mullion patterns, incorporation of operable windows, use of varied materials for solid walls, etc.
- Distinguish the pedestrian frontage zone from the streetwall and tower zones above.
 - Provide a high percentage of glazing, different materials or colors, and more detailed development of solid wall surface.
 - Ground floors should have ample floor-to-floor height, greater than that of the building's typical floors.
- Ground floor facades should allow flexibility to accommodate changing uses.
- Where the façade expression of the pedestrian frontage zone includes the building's second floor, the second-floor façade should be visually connected with the ground floor façade, differentiated from the Streetwall Zone above by its design, or serve as a mediating element linking the ground floor and the streetwall zone.

4.2.3 Objective

- Reduce the distinction between exterior and interior space at the ground level to extend the effective public realm indoors and to reveal indoor activity to the street.

Guidelines

- All retail/restaurant/first floor tenant spaces should preferably be at the same level as the adjoining sidewalk or publicly accessible open space.
- Building facades should maximize the visibility of ground floors containing retail, restaurant, and limited office space. Transparency is most important in the portion of the facade between about 2 feet to about 10 feet above the sidewalk level. Incorporate 60 to 75 percent transparent glazing in ground level façades along Broadway, Binney Street and Third Street and major public streets within the site, and as much transparent glazing as possible in ground level façades along secondary streets within the site.
- Future additions of storage rooms, toilets, restaurant kitchens, and other back-of-house facilities could limit transparency. Locate these areas to maximize visibility and transparency where it is desirable.
- Window and door glazing should have a high degree of light transmittance and should be low reflective. Low iron glass is preferred to maximize visibility between interior and exterior spaces.
- Incorporate large operable doors/windows in street-side restaurant dining rooms.
- Where appropriate, retail awnings should be provided to offer an active, vital marketplace image, while at the same time protect pedestrians during inclement weather.
- Avoid creating blank walls exceeding 20 feet in length.

4.3 Streetwall Zone: the building's lower 3 to 8 floors above the pedestrian zone, accommodating commercial or residential program, and playing a major role in defining the street as a linear volumetric space.

4.3.1 Objective

- Building streetwalls should create beautiful and memorable room-like urban places by spatially defining the width and perceptual height of streets and other open spaces.

Guidelines

- Emphasize the scale and room-like character of urban space by aligning building facades with each other, by step-backs of building mass above the streetwall, and by incorporating cornice lines that complement existing buildings on the same block or neighboring blocks unless specified otherwise in a PUD/Special Permit conditions by the Planning Board. Setbacks and cornice lines should relate to each other but can vary, where appropriate, to allow for overall urban design emphasis/richness.
- Permissible streetwall exceptions, subject to design review, include, but are not limited to, bay windows, entrance canopies, and at-grade open space amenities.
- Streetwall facades should use rhythmic patterns, carefully considered bay dimensions, detail, proportion, color, materials, and other architectural elements to create a coherent and visually rich pedestrian experience.
- In counterpoint to the generally repetitive nature of the streetwall, portions of facades may be differentiated to capitalize on significant visual axes, emphasize significant corners, express changes in interior program, or articulate primary building entrances.
- Streetwall facades should differentiate between primary streets and open spaces, and secondary streets by such means as differing levels of articulation and relief and changes of material or scale.
- The streetwall should be warm and inviting. This should be achieved through the use of traditional Cambridge materials, which typically consist of masonry.

4.4 Building Towers: the floors above the streetwall, accommodating much of the building's gross floor area.

4.4.1 Objective

- Building towers should enhance the quality and amenity of the public realm and sense of a cohesive place by their form and external appearance. They should be designed to minimize their sense of bulk, and to maintain vertical emphasis and continuity.

Guidelines

- Articulate tall buildings to avoid a monolithic appearance, and emphasize slender, vertically-oriented proportions. Changes in plane, material, fenestration pattern, color, etc. may be used to break up the bulk of building towers. Consider:
 - Emphasizing corners using taller elements such as towers, turrets, and bays.
 - Using at least two distinct finish materials and colors on each building.
 - Variation in forms to present different profiles to different vantage points, if appropriate.
- Orient slab towers to minimize their sense of bulk on the site, or design tall buildings as point towers

4.5 Building Tops: the building's expressive contribution to the skyline, screening and accommodating building mechanical systems and potentially other programmatic elements.

4.5.1 Objective

- Building tops should contribute to the district's profile on the skyline and should be designed as expressive architectural elements that appropriately celebrate the building's union with the sky.

Guidelines

- In general, chimneys, water towers, mechanical equipment, elevator bulkheads, skylights, and other necessary features appurtenant to structures, which are usually carried over roofs, should be designed in a coordinated, distinctive manner in concert with the upper

floors of the building and properly screened. Unscreened or unenclosed rooftop fixtures should not be visible from a public way within 200 feet.

- The penthouse design and materials should be of equivalent quality to the rest of the building and enhance the overall building design.
- All mechanical penthouses and other projections should be architecturally integrated within the overall form and individual elevations of the building. The penthouse should enhance, not detract from, the overall building appearance and balance.
- Rooftop mechanical vents may be designed to stand out as machinery, in which case they need to be carefully arranged to create a pleasing visual image.
- It may be possible to combine strategies of expressing certain mechanical components and enclosing others within the building's façade.

4.6 Building Massing

The three-dimensional form of the site's buildings should contribute to the definition of the site's open spaces, with particular emphasis on harmonious, architecturally integrated building forms that create a varied yet coherent pedestrian realm, and on minimizing the amount of shading and loss of sky view in open spaces.

4.6.1 Objective

- Building massing should give spatial definition to the site's streets and squares, and increase the compatibility of tall buildings with existing nearby buildings.

Guidelines

- Pedestrian frontages should align on the build-to line, with exceptions for recessed retail or other entrances and shopfronts.
- Streetwalls should align to the build-to line for 80% or more of the façade width.
- Streetwalls throughout the site should generally be compatible with the height of the Third Square Residential Complex.
- A taller streetwall may be appropriate on Broadway and Third Street and on wide streets.
- Buildings on Binney Street should have streetwalls compatible in height with the existing residential building on its north side.

4.6.2 Objective

- Buildings should incorporate a system of setbacks and step-backs, based on the four horizontal zones, to minimize the extent of cast shadows, loss of sky view, and undesirable wind conditions in the adjacent public streets and open spaces, and to create sensitive transitions to neighboring uses, especially to residential buildings, historic structures, and parks. Of particular concern are the Sixth Street Walkway, open space in the interior of the site and (depending on the ultimate scheme) the open space at the intersection of Broadway and Third Street. In addition, the height and bulk of buildings should be configured to minimize the visual dominance of building towers above a 6-8 story building base and above nearby low buildings.

Guidelines

- On the 6th Street Walkway, towers should be stepped back by 15' from the streetwall.
- On Broadway and Third Street, step back approximately 50% of the tower façade by at least 8'.
- On other primary streets, stepbacks between streetwall and tower should extend for a minimum of 80% of the tower façade width. The depth of the stepback should be determined based on the type of street (primary or secondary) or open space.
- On secondary streets, stepback 100% of the tower façade by a minimum of 10 feet.

- On towers greater than 100' in horizontal length, create vertical zones, differentiated by changes in plane of at least 8', to divide the building mass into major distinct building elements. In addition, change materials, fenestration pattern, or plane, etc. to mitigate the sense of bulk.
- In some cases, the direct extension of the tower's verticality through the streetwall to the ground plane may enhance the sense of place by creating a point of strong vertical emphasis.
- Building towers adjacent to the Third Square Residential complex should be stepped back a minimum of 15' from their streetwalls.
- In addition to stepbacks, reinforce the distinction between the building's streetwall and tower by the use of contrasting strategies of homogeneity and heterogeneity. Vary the design, scale, color, materials, massing, fenestration, etc. across the width of the streetwall or tower as vertical zones.
- Building Tops that are differentiated in material and design from the façade of the tower or streetwall below should be stepped back a minimum of 5' from the plane of the tower façade.
- Building towers on the south sides of major parks or squares should be stepped back from their streetwalls by a minimum of 20' to minimize shading of the open space and to preserve a view of the sky. Consideration should be given to also stepping towers on their east or west sides back from their streetwalls by a similar amount.
- Floorplates of the upper portions of tall buildings should be limited to create slender towers and consideration should be given to stepping back the upper portions of buildings. Adequate separation should be maintained between tall buildings above the streetwall to allow for views of the sky.

4.7 Connectors

4.7 1 Objective

- Connectors over public ways are not encouraged. Upper-floor connections should be considered only in circumstances where tenants need large floorplates that would otherwise result in excessive apparent building mass. Such connectors should be designed to maintain permeability of large floorplate buildings and allow light and views of the sky.

Guidelines

- All connectors should be recessed from public spaces and made highly transparent.
- Within blocks:
 - Set back at least 35' from public street façade
 - Provide ground level public passage at selected locations
- Over promenades or pedestrian walkways:
 - Set back at least 35' from public street façade
 - Provide approximately two stories or more clearance above ground
 - No more than 35' wide
- Connectors that allow connections between multiple tenants/uses in different buildings are not encouraged.
- Connectors across Binney Street, Broadway, or Third Street are not allowed.

4.8 Community Spaces

4.8.1 Objective

- Community spaces should be designed to be welcoming and inviting to the public.

Guidelines:

- Primary community spaces should be located on or within parks or squares to enhance visibility and pedestrian access, and permit overflow from events.
- Community spaces should have their own distinct visual identities. Their main entrances should be directly accessible from streets and other public open spaces.

4.9 Architectural Character

4.9.1 The site's buildings should maximize design quality and be compatible with Kendall Square, and surrounding historic streetscapes and buildings. They should create a beautiful and engaging environment by combining diversity and variety with a strong sense that the site's buildings are part of a community. New structures should be harmonious with and enhance Eastern Cambridge's historic character, and where appropriate, also be iconic and innovative.

4.9.2 Objective

- Architectural design should prioritize the definition and enrichment of open space. Of particular importance is the treatment of the ground plane and lower floors of the projects, which can be seen and experienced directly by the public.

Guidelines

- **Scale/Proportion of Elements:** Projects should relate to human dimensions and provide a sense of intimacy in all aspects of design from building concept development to construction details. Means to achieve this include the design and scale of building elements, such as size, rhythm and depth of windows; materials; cornices; projecting bay windows; expressed structural bays; entry points, signage; etc.
- **Details:** Development bordering the public domain should be rich in architectural details, pay special attention to the ground plane and silhouette. Overall form and individual elevations should be designed to emphasize human scale and presence through the use of properly proportioned features, including but not limited to punched windows, integral balconies, setbacks, passageways, etc.
- **Materials:** New buildings should be warm and inviting, particularly at the lower levels experienced closely by pedestrians. This should be achieved through the use of typical Cambridge materials (the unifying element), most importantly masonry. The choice of materials also should consider sustainability requirements. The highest quality of materials should be used at the pedestrian levels and base (6-8+ stories) of all buildings.
- **Facade Articulation:** Elegant highlights and subtle embellishments such as masonry stringcourses, lintels, sills and trim should be used to soften, refine and enliven masonry facades through contrasting articulation and cast shadows, and to create a desirable community of buildings. Key locations for articulation are at building entries, corners, building setbacks, top floor and silhouette. Particular attention to these materials should be given to the base and lower floors on major streets and open spaces within public view.
- **Balconies and Terraces:** New residential buildings should provide sheltered and human-scaled balconies at appropriate locations. The balconies should be detailed so that they are inviting, especially adjoining open space. All new buildings are encouraged to provide accessible terraces at building setbacks, both as important private amenities and for on-site rainwater retention.

- **Color:** The city encourages the subtle use of warm and inviting color in all Kendall Square buildings. The selection of colors should be sympathetic to the general historic palette.
- **Windows:** Masonry openings and fenestration systems should be detailed and articulated to enrich the building's appearance.
 - For reasons of public health, aesthetics and future energy concerns, the city desires operable windows to be used throughout residential and community buildings, and where possible in commercial buildings.
 - Strip windows are not acceptable.
 - Vision glass is not to be highly reflective or colored.
 - Building facades should be a maximum of 50% glazed overall.
- **Signs:** In general, signs should be designed to fit well on the buildings, to be legible but not overpowering, and to complement other elements applied to buildings, such as awnings, canopies, or artwork.

4.10 New Volpe Building

4.10.1 Objective

- The new Volpe Building should be part of the community of buildings on the site.

Guidelines

- Its design should follow these guidelines wherever possible.
- It should be as compact as possible to minimize the amount of open space within its security zone.

4.11 Energy Performance and Embodied Energy

4.11.1 Objective

- The site's buildings should be designed to minimize energy use and the embodied energy of their components.

Guidelines

- Maximize on-site power generation and consider alternative building mechanical systems.
- Avoid excessive use of glass both for its poor thermal performance and high embodied energy.
- Incorporate passive design strategies such as building orientation, external shading, operable windows, other approaches for natural ventilation/cooling, thermal mass, high performance insulation, etc., wherever possible.
- It is recommended that energy modelling be incorporated early in the architectural design process to optimize building energy performance.
- Designers should investigate the possibility of a district energy system