

Cascadia Center for Sustainable Design and Construction

1501 E Madison Street

Capitol Hill Design Review Board Recommendation Packet

November 17, 2010

DPD Project # 3011010



The Bullitt Foundation

Point32

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Project Goals



Cascadia Center Vision

The Bullitt Foundation is advancing the Cascadia Center for Sustainable Design and Construction as one of the nation’s first mid-rise commercial buildings to achieve “living building” status, a new benchmark for environmental sustainability. The Foundation and its partners will use the project to promote innovative sustainable building technologies and practices in Seattle’s urban neighborhoods, the Northwest and around the world. As the first urban building of its kind, the Center will serve as a community resource for urban sustainability education and help reduce the environmental impact of building construction and operations.

The creation of the Cascadia Center for Sustainable Design and Construction is a response to the impact of buildings, which currently account for an estimated 39% of carbon dioxide emissions, 65% of waste and 70% of electrical use in the United States. The development of the six-story, approximately 42,000 sf commercial building will set a new standard for performance-based design and advance new approaches for sustainable construction.

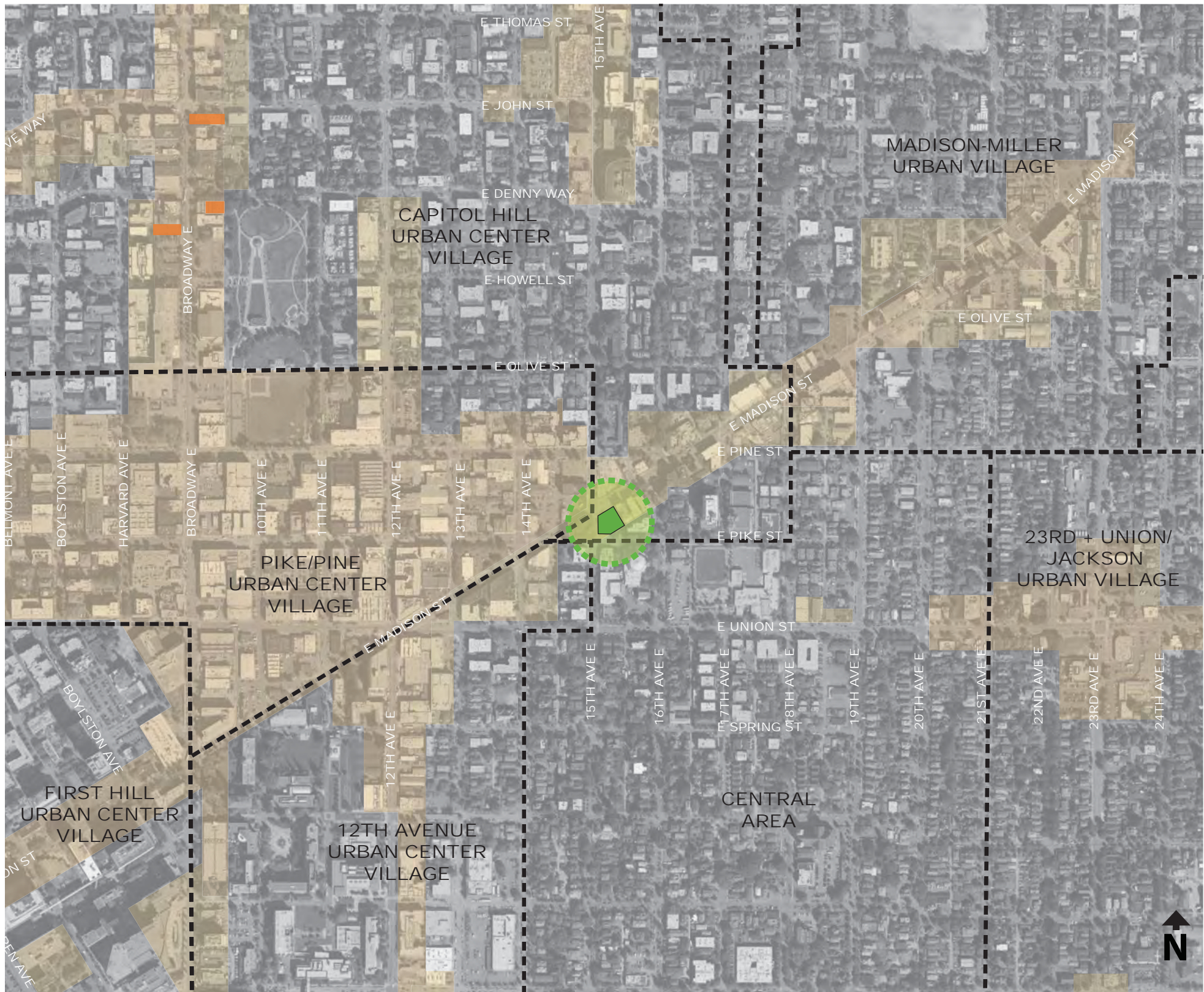
Advancing Urban Sustainability

The goals for the Cascadia Center are ambitious and forward thinking. In addition to meeting the equivalent of LEED Platinum and the 2030 Challenge, more challenging is the intent to achieve the goals of The Living Building Challenge. The Challenge is performance-based and evaluated after one year of the building’s operation. It has 20 imperatives, including: responsible site selection; 100% on-site renewable energy generation; 100% of water needs provided by harvested rainwater; and on-site waste management. Interactive building ‘dashboards’ will provide a continual feedback loop to building occupants. Highly efficient electrical and mechanical systems, a photovoltaic array and an innovative wastewater management system will be visible educational features of the building. Building occupants will rely largely on public transportation. The building to last 250 years, and be designed to adapt to changing needs and emerging technologies.

Contributing to the Neighborhood

The project site was chosen for its high visibility, accessibility and ability to meet neighborhood development goals of Capitol Hill and the Central Area. It will enhance Madison Street as a vibrant connector, and its proximity to McGilvra Place has led to early discussions with City agencies and community partners on the creation of useable green space and the opportunity to demonstrate new techniques in green stormwater infrastructure.

Neighborhood Centers



LEGEND: Future Light Rail Station Neighborhood Commercial Site

Aerial view showing Urban Village/Planning Area Boundaries and neighborhood commercial centers

This project offers commercial development at the important convergence of Capitol Hill, the Central Area, and Pike/Pine.

The site is located in one of Seattle’s most vibrant and visible mixed-use neighborhoods. It is home to several colleges and universities, public and private schools, medical centers and hospitals, locally owned shops and restaurants, parks, museums and a wide variety of housing. While located within the Capitol Hill Urban Center Village boundaries, the site is not specifically addressed in the Capitol Hill Plan.

The Central Area Neighborhood Plan includes the site within its planning boundaries, and identifies specific development goals for the neighborhood, including economic development that takes advantage of the strategic positioning of Madison Street as a neighborhood connector.

This project is immediately adjacent to the Pike/Pine Urban Center Village, and addressed within the Pike/ Pine Neighborhood Plan. It notes that Pike Street would benefit from slower traffic, consolidated parking and narrowing. A desire to expand McGilvra Place is recommended within the neighborhood plan.



Diagram from Pike/Pine Neighborhood Plan which proposes an expansion of McGilvra Place across Pike Street

Immediate Context

The location has many attributes, which make it a highly desirable property for urban infill development and achieving project goals.

The site is on major bus routes leading to and from Seattle’s downtown. It is just 0.6 miles from Sound Transit’s Capitol Hill light rail station in the Broadway business district (scheduled to be operational in 2016).

Madison Street is a heavily trafficked and rapidly developing corridor where a Living Building can command significant ‘drive-by’ attention. The building’s frontage on 15th Avenue will be visible for several blocks by travelers heading east on Madison and Pike Streets.

On Matt Lerner’s “walkability index” [<http://www.walkscore.com>], the site scores 97 out of a possible 100, reflecting neighborhood attributes such as mixed income and mixed use, density, access to transportation, parks, schools, local businesses and neighborhood services.

Beyond McGilvra Place to the west are stunning views of the Seattle skyline, and views of the Olympic Mountains. On clear days, Mount Rainer will dominate the view to the south.

The site’s adjacency to McGilvra Place presents an opportunity to create a more useable public space and feature green stormwater infrastructure that is complementary to the building project. These opportunities include the addition of new infiltration planters and planted bioswales to treat surface runoff and reduce non-point source pollution of downstream water bodies, new plantings, as well as eliminating physical barriers to the existing park.



Aerial photograph showing McGilvra Place directly west of project site

Immediate Context



- 1. SITE
- 2. Seattle Academy
- 3. Apartment Building
- 4. Former Taco Time Site
- 5. Apartment Building
- 6. The Apartments
- 7. 7-Eleven
- 8. Apartment Buildings, 1509-1523 Madison
- 9. Condominiums
- 10. Commercial Building
- 11. Commercial Building
- 12. Madison Market
- 13. Temple de Hirsch Sinai
- 14. First AME Church

The diverse character of the immediate area includes a variety of buildings exhibiting styles popular at the time of their development. Nearby buildings include early 20th century brick/terra cotta 4-5 story apartments, contemporary 7-story metal-clad mixed-use buildings, modern institutional buildings, as well as mid-century one-story auto-oriented commercial buildings of various materials.



9. Condominiums



12. Madison Market



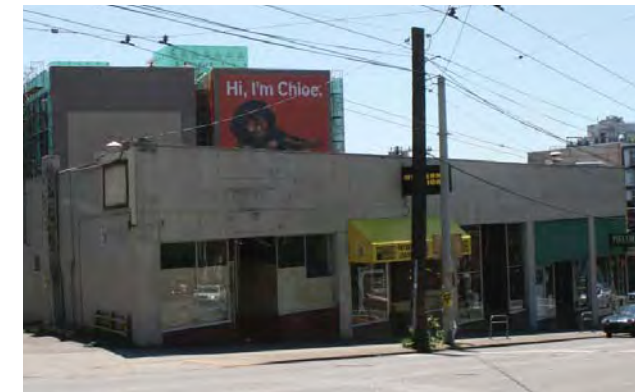
5. Apartment Building



2. Seattle Academy



13. Temple de Hirsch



10. Commercial Building on Madison Street



6. The Apartments / Retail

Streetscape



E MADISON STREETScape FACING SOUTH



15Th AVENUE STREETScape



E MADISON STREETScape FACING NORTH

Located at 1501 Madison Street, the site fronts East Madison Street, 15th Avenue East, East Pike Street, and an alley. It slopes uphill at an approximately 10% grade from 15th Avenue to the East, where it meets a neighboring apartment building. The 10,000 square foot site is currently occupied by a small, single-story wood-framed structure and associated surface parking lot.



Existing Conditions

Site Analysis



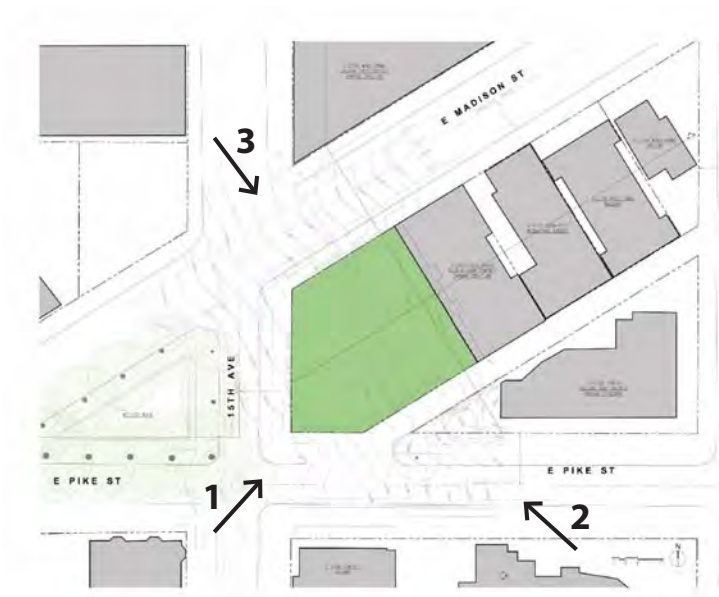
1. View of Site from Traffic Circle at 15th and Pike



2. View of Site from Southeast



3. View of Site from Northwest



Street Character

East Madison Street

East Madison is a major thoroughfare with two lanes of traffic in each direction. The street cuts through the rectilinear street grid and creates triangle lots and views to downtown along its length. At the site, there is no parallel parking allowed, narrow sidewalks, and very little room for planting. The change in grade along Madison is a challenge for access.

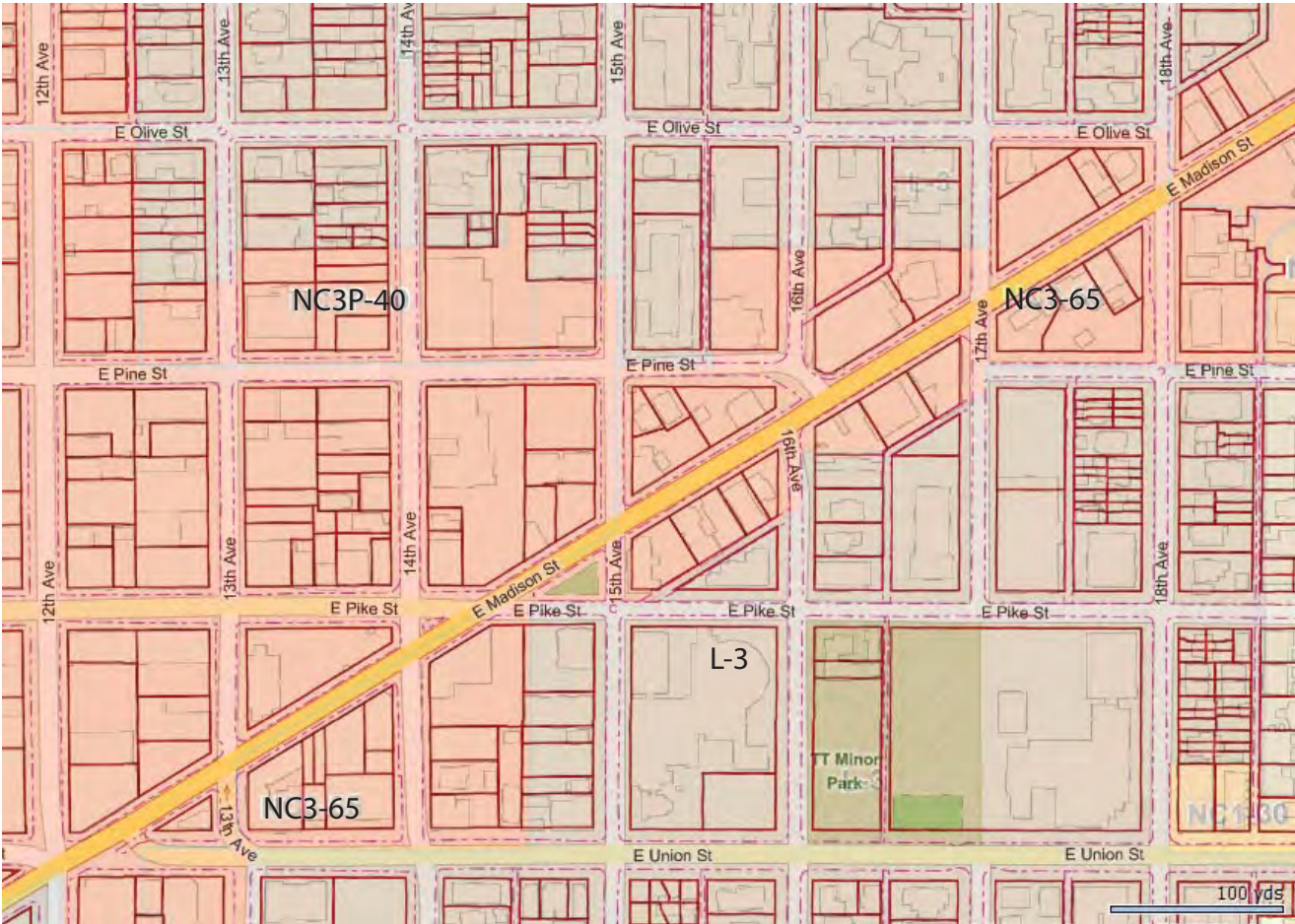
15th Avenue East

Between Madison and Pike Streets, 15th Avenue East has very limited automobile use due to right-turn-only and no-parking designations. Limited car use offers an exceptional pedestrian environment adjacent to the 100-year-old Sycamore trees across the street in McGilvra Place. The limited vehicle traffic and pleasant environment presents an excellent opportunity for enhancing the pedestrian experience. This proposal, currently named the “McGilvra Place Green Infrastructure Project”, is pursuing funding under the Parks and Green Spaces Levy Opportunity Fund.

Pike/Alley

At the site, E Pike Street is used by drivers travelling east into the Central Area. The street contains multifamily buildings facing the park, a school/temple and planting strips. The alley running parallel to Madison has brick paving.

Zoning & Land Use Code Analysis



Zoning Map

Land Use and Permitting

The neighborhood commercial zone (NC3-65') allows for a 65' building, and a total building area of 42,823 square feet for a commercial structure. The site falls within the Capitol Hill Urban Center Village.

Additionally, the project is an approved participant in the City of Seattle's Living Building Pilot Program. The Pilot Program allows for flexibility under the Land Use Code to improve performance in both energy and water self-sufficiency. Living Building projects are eligible for an expanded list of Land Use Code departures, including building height, floor area ratios and extent of solar equipment, for example, to accommodate solar energy or water collection systems and to improve daylighting, natural ventilation and the quality of the indoor environment.

Address	1501 E Madison St., Seattle, WA	Floor Area Ratio (FAR)	FAR of 4.25 for mixed use. 4.25 x 10,076 sf = 42,823 sf Above grade parking contributes to FAR.
Site Area	10,000 SF	Setback Requirements	No adjacent residential zoning, therefore no setback required from residential zoning. No setback required at Grade on Alley. Align with adjacent buildings per 23.53.030.G.8.
Site Zoning	NC3- 65	Utility Setback	Overhead power lines run along 15th Avenue parallel and close to the site property line. City Light typically requires a setback from the primary electrical distribution zone for maintenance purposes.
Overlay	Capitol Hill Urban Center Village	Landscaping	Green Factor score of 0.30 required in NC3 zone. Green Factor score of 0.40 required if project pursues DPD Priority Green permitting process.
Pedestrian Zone	No	Parking Location	Parking must be accessed from alley when available or feasible.
Adjacent Zoning South	L-3	Required Alley Width	The required alley width in this location is 20 ft. The actual alley width is 16ft.
Adjacent Zoning East	NC3-65	Required Parking	None required in Commercial Zones in Urban Centers per 23.54.015.B.2.
Existing Alley Width	16 feet		
Permitted Uses	Office, retail, serices, eating and drinking estblishments permitted outright per 23.47A.004, Chart A.		
Street Level Uses	23.47A.005, C. Another permitted use must separate parking from street level façade.		
Street Level Standards	Commercial depth = 30' average (15' minimum).		
Structure Height	Base Height - 65.0 ft Add for slope 1.5 ft (1ft for every 6% of slope) Total 66.5 ft (at low end of site).		
Rooftop features	H.4. May extend up to 15' above maximum height limit so long as all features do not exceed 25% of roof area b. Stair and elevator penthouses c. Mechanical equipment.		
Solar Collectors	A. May exceed total height by 7 ft with unlimited coverage, but must be set back 10 ft from north property line (setback may be reduced with shading study per 23.47A.012.D.6). B. May exceed total height by 15 ft, but limited to 20% coverage; 25% coverage if other features such as stair/elevator penthouses or screened mechanical equipment A shading study was done and reviewed by DPD staff. DPD determined that rooftop features and solar collectors comply with code.		

Proposed Design

Introduction

The proposed building has been informed by the performance based criteria of the Living Building Challenge and by a strong desire to enhance development through quality design, construction, and programming.

The project includes 42,773 square feet of gross building area which includes a partial basement, two-story ground floor zone built lot-line to lot-line, and four upper levels which set back approximately fifteen feet along the Madison and alley elevations. The PV roof canopy floats approximately four feet above the building roof as required for Fire Department access, and is sloped to be parallel to the existing grade. Slender steel colonnades support the PV roof canopy at upper floor setbacks.

The building program is divided between office spaces on the upper floors (3-6) and publicly-oriented spaces on the two ground floors (1&2). The varied program, the sloping nature of the site and the frontage on multiple public streets enabled us to create two main building entrances and to activate two facades. The entry off of 15th Avenue serves the ground floor tenants while the entry at Level-2 off of Madison Street serves the upper floor office tenants.

Since the Early Design Guidance presentation, the design has evolved in a few significant ways:

Greenhouse to Sunroom

While the design team and Board both liked the greenhouse as a means to evapotranspire greywater, the idea was not technically feasible. The design team found it could only evapotranspire approximately 50 gallons of water on a warm summer day. In the winter, the plants go into a state of dormancy and evapotranspiration rates are significantly lower. The estimated daily volume of greywater needing treatment is approximately 450 gallons, and the project doesn't have enough surplus power available to light or heat the greenhouse in the winter months to meet this demand. In lieu of the greenhouse we have revised the design to utilize the green roof at level 3 above Madison Street to filter the greywater prior to subsurface infiltration.

The greenhouse space itself has been repurposed as a sunroom. Since there is no remaining power in the energy budget to fully condition the space, it will be used as a seasonal conference and meeting space. The southeast wall of the sunroom will be a glass curtainwall with integrated photovoltaics. This PV array will contribute approximately 5000 kilowatt hours to our annual harvest, or, about 2% of our total energy budget. This critical part of the building's power production offsets the power lost when the vertical south array was made more transparent (see below). It is also intended as a demonstration site for state of the art PV technology.

Photovoltaic Panel Types and Configuration

In response to DRB comments, several changes have been made to the south vertical PV array. We have changed the panel type from an opaque panel to a transparent panel with a light transmittance factor of 7%. The individual PV cells are laminated between two layers of glass with about 1/4" of clear glass between cells. This change was made to address concerns from the DRB about the character of the south array. It should be noted that these panels do not perform as well as the rooftop panel type. The efficiency drops from 19.6 to 16.5%, and loses approximately 5000kw/hr/yr, or 2% of the power budget.



Also in response to DRB comments, we deleted the decks behind the south array. In their place is a single narrow maintenance walk perpendicular to the building, made of open steel grating. The walk is aligned behind a new open vertical slot. The slot breaks down the scale of the array and ensures that the layers of structure behind the panels are apparent from both sides. Because the panels are 7% transparent, the structure will be visible through the array. We have extended structural members just past the panels to soften the edges and to add interest to the array when viewed from the south.

Madison Street Stair

We have designed the Madison Street stair to function as an inviting alternative to the elevator for building occupants. The stair is completely glazed on the west, north and most of the east elevation to offer views down Madison Street, the downtown skyline and

Olympic mountains, as well as to allow passers-by to see occupants moving up and down the stair. This will give the building an ever-changing character. The structure itself is light, airy and constructed with steel structure and wood treads. Large operable sashes will animate the facade and provide natural ventilation in warmer months.

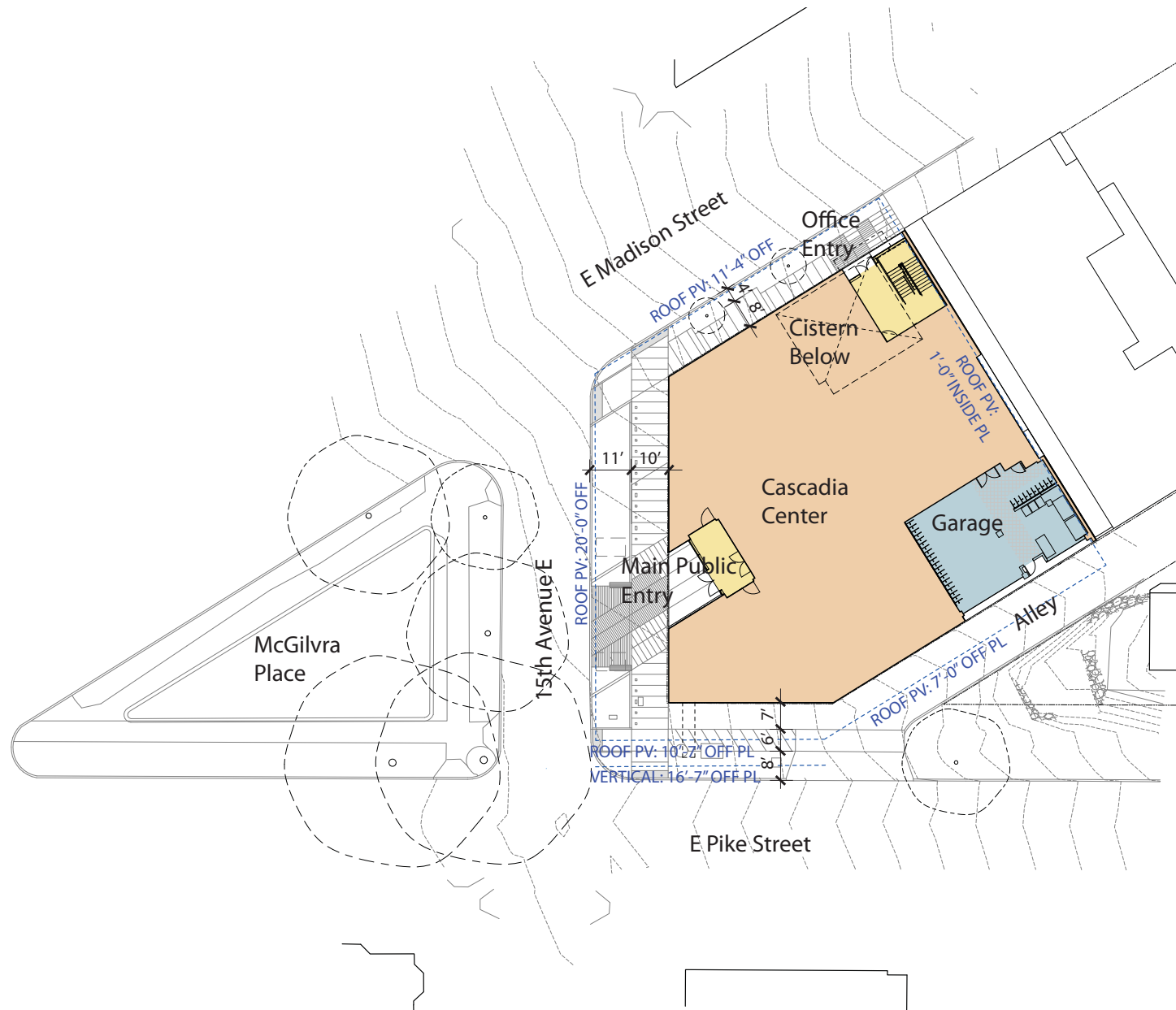
Ground Level Floor-to-Floor Height

Based on the Board's comments we have increased the floor-to-floor height at street-level from 11 to 13 feet. This action pushed our daylight factor requirements of the upper floors right to the edge of what is allowable for our daylight/energy balance calculations.

Garage

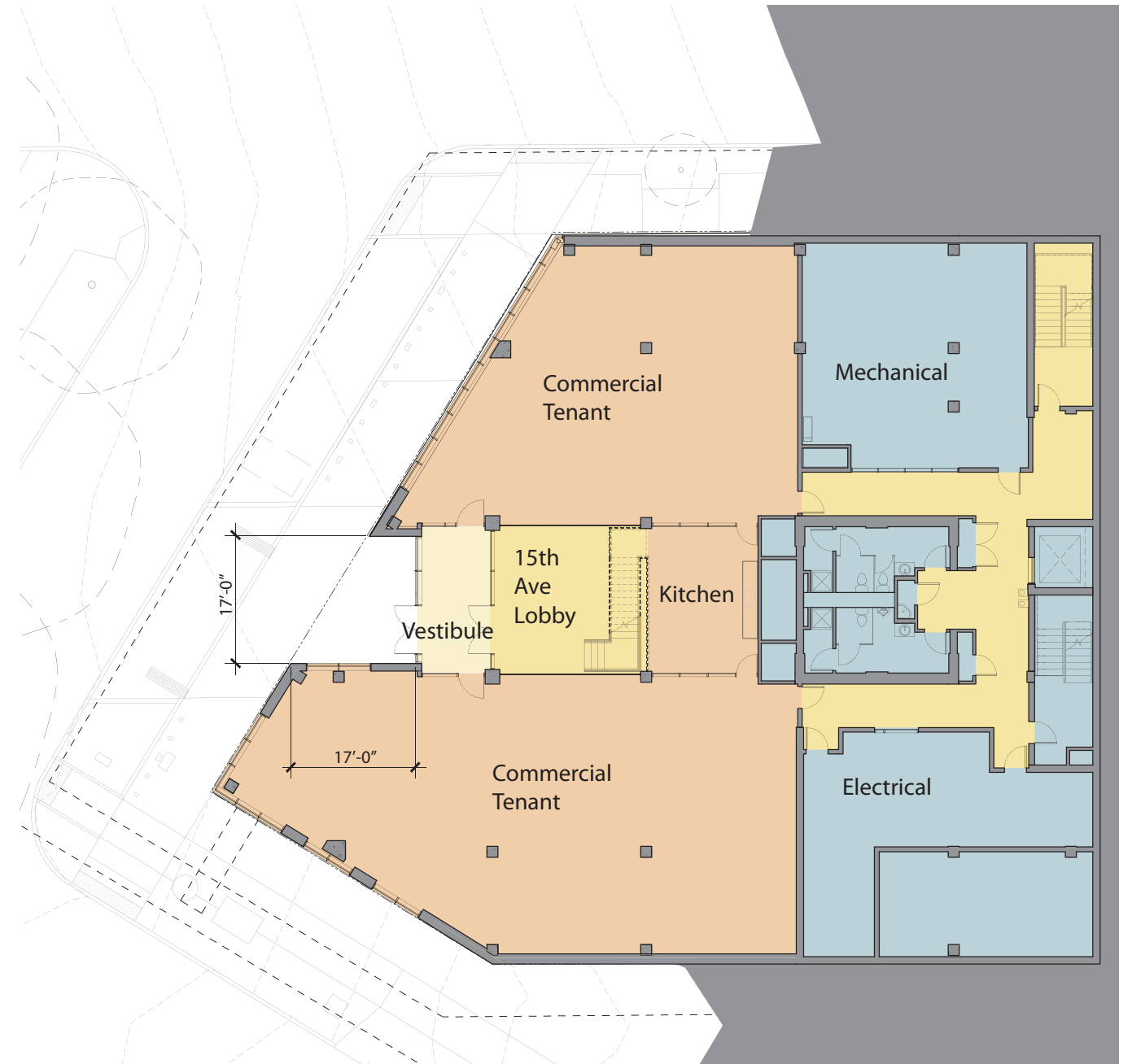
Vehicle parking has been eliminated from the garage. The garage now includes bicycle parking and a passenger loading area.

Proposed Design - Plans



Site Plan

- Main public entry on 15th Avenue opens to McGilvra Place across the street.
- Commercial office entry is located at the highest portion of the site along Madison.
- The garage is located far up the alley to allow office views beyond the alley to Pike St.
- Rooftop and vertical PV arrays showing dimensions from property line. Arrays do not go beyond the curb line.



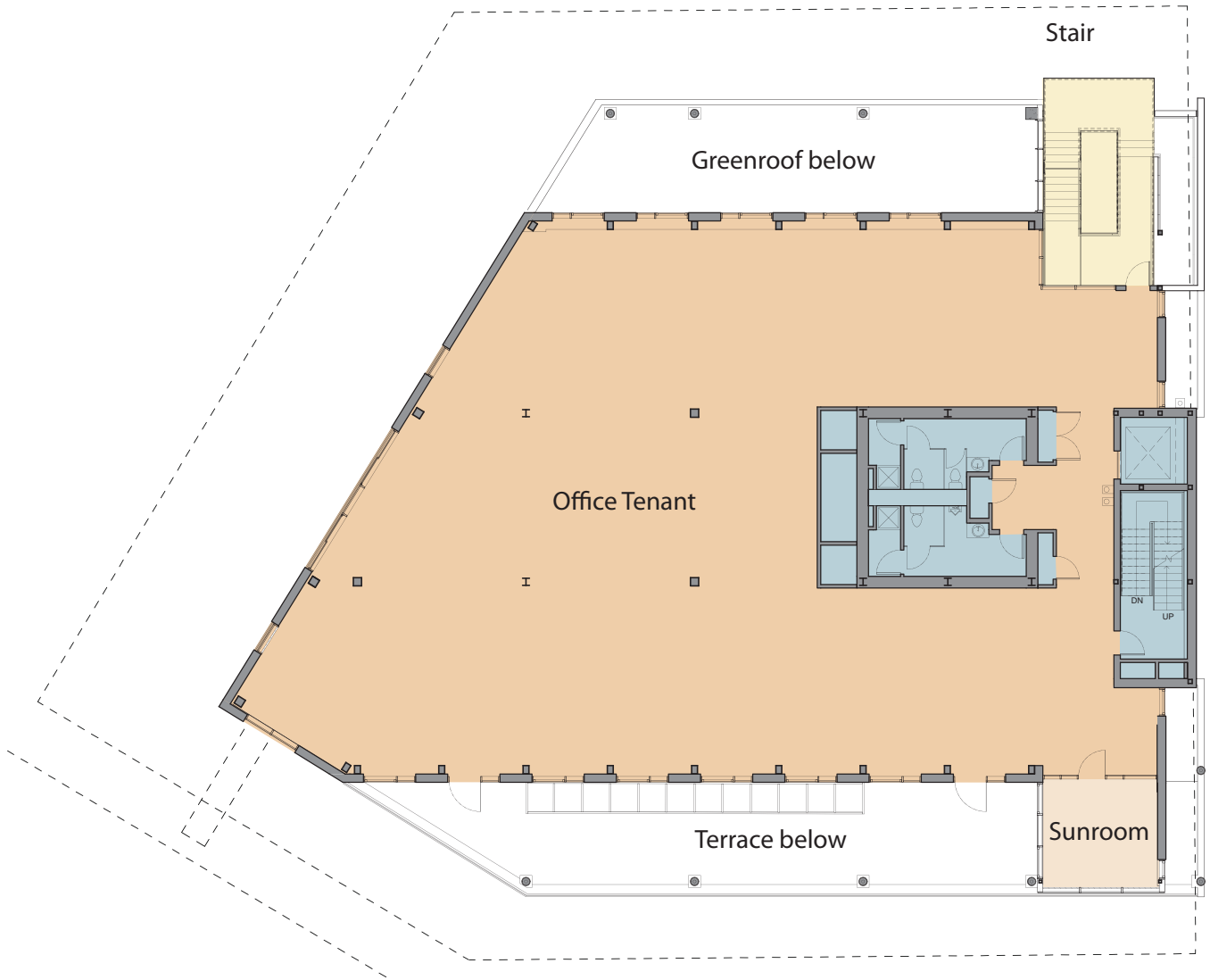
Level One Plan

- Entry from 15th Avenue gives access to two publicly-oriented commercial spaces, as well as a stair connecting to the second level.
- Floor to ceiling glass allows views into and out of the commercial spaces.
- Mechanical and Electrical equipment are on view from circulation corridors.



Level Two Plan

- A large, shared meeting room is accessible from both the Madison and 15th Avenue lobbies.
- A secure open air lobby off Madison provides access to the central stair which connects all levels of the building.
- Floor to ceiling glass allows views into and out of the commercial spaces.
- A garage off the alley contains passenger loading, bicycle parking and recycling.



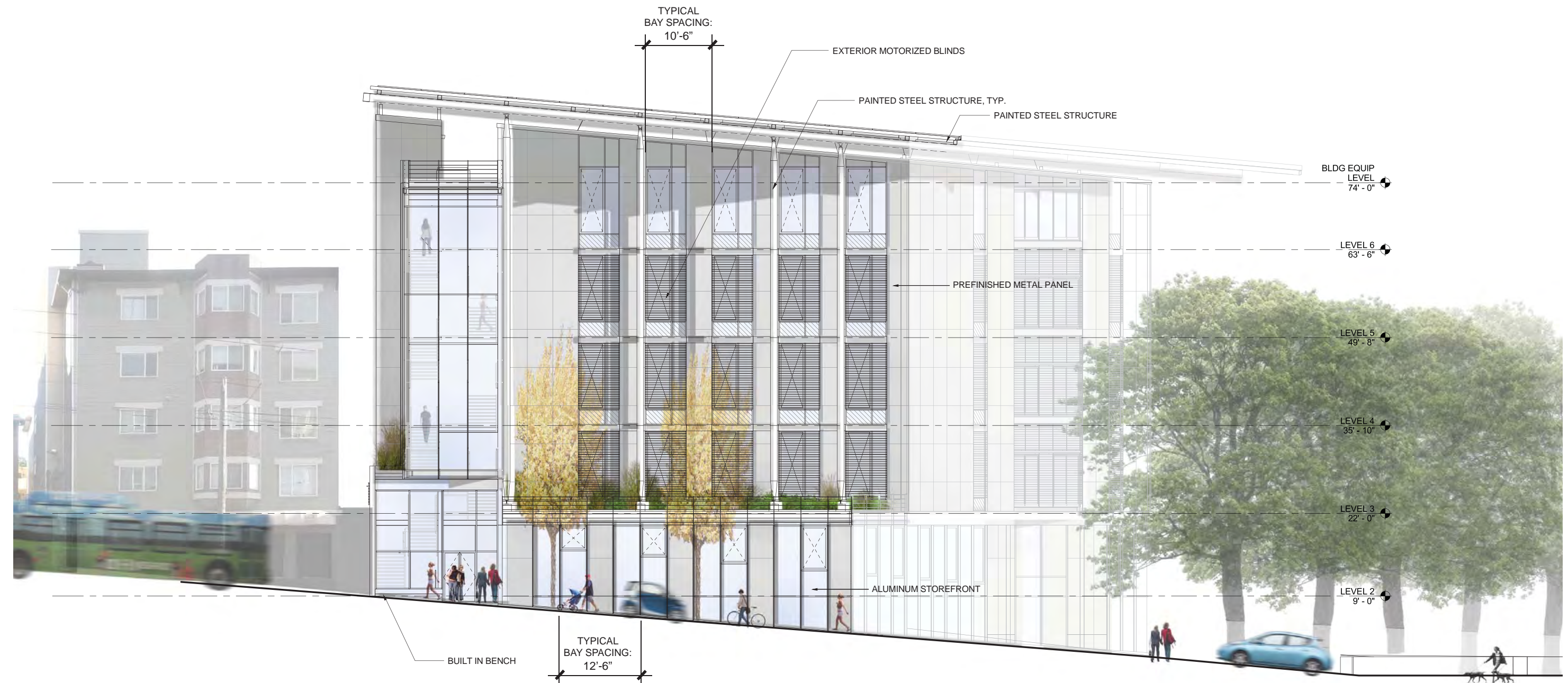
Typical Upper Level Plan, Levels 3 -6

- Open office plan benefits from light on three sides.
- An unconditioned sunroom can be used as a meeting space in shoulder seasons and will support photovoltaic panels.
- On the third level, a south terrace is available for office tenant use.

Proposed Design - Elevations

Northwest Elevation

- Prominent second level entry is marked by a 4-story stair projection.
- Stair has a light structure, operable sashes and is glazed on three sides to allow views into and out of the building.
- Clear glazing at the ground floors allows views in and out.
- A planted terrace is sloped and visible to the street.
- Motorized blinds and operable windows create a layered facade behind steel columns.
- Building entry is near the bus stop located just east of the site.



West Elevation

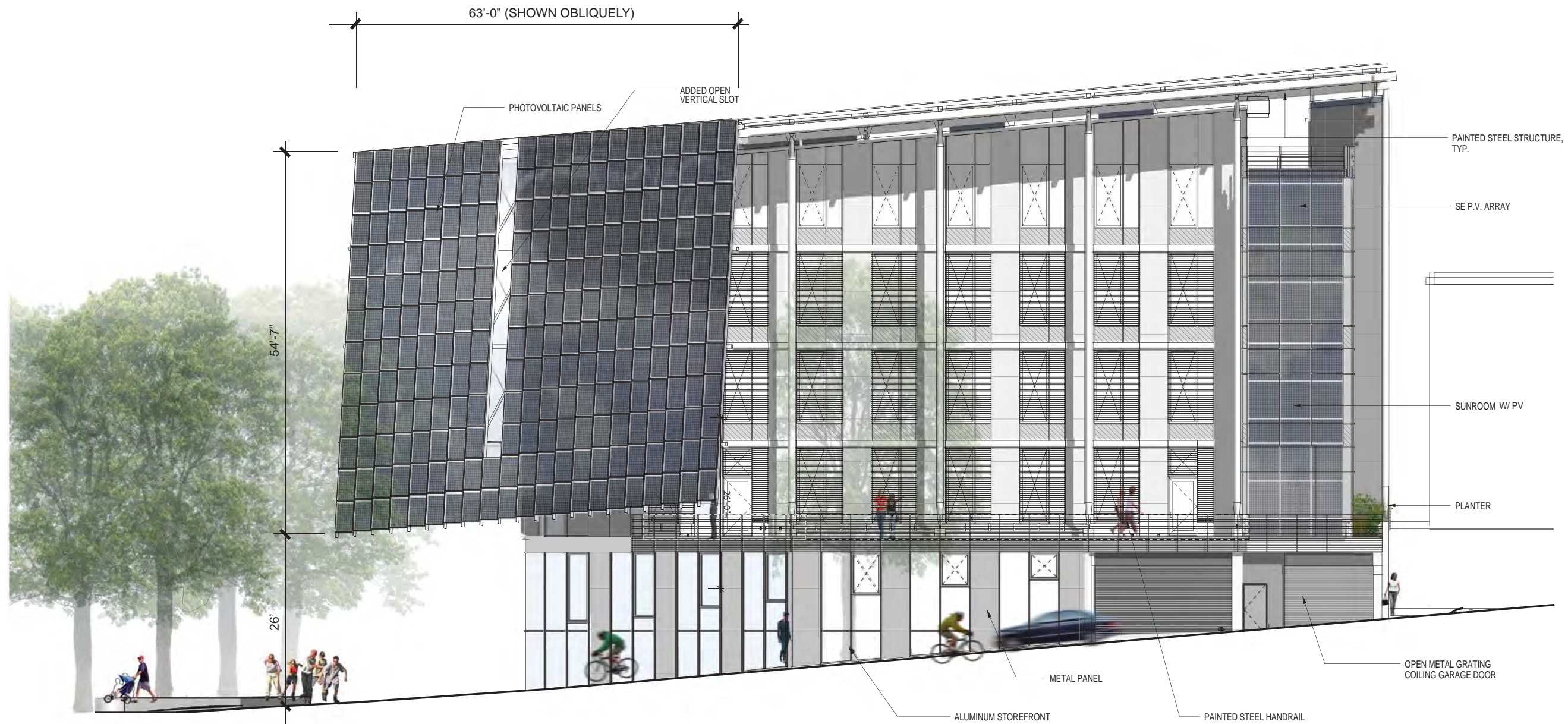
- Prominent entry is recessed below upper floors, providing weather protection.
- Solid metal panel walls block harsh western sun, while curtainwall includes exterior motorized blinds to actively control heat gain & glare.
- Full height glazing on upper levels above the entrance offers views to the park and downtown beyond.
- Glazed lower levels allow views in and out.



Proposed Design - Elevations

Southeast Elevation

- Vertical PV array has an open slot, and more translucent panels to allow filtered light & transparency. It is located 26' above sidewalk
- Third level south-facing terrace is available to office tenants.
- Garage entry is located within the least visible portion of the alley.
- Sunroom is clad in photovoltaic panels.



Northeast Elevation

- East facade elevation includes modulation, glazing and setbacks (0' to 5'-1") to minimize impact on shared property boundary to the east.
- Maximum allowable glazing, setbacks within the building form, and a highly transparent stairwell to the north further minimizes impact of the new structure.
- Cladding is a non-reflective painted metal surface which will brighten the area between the two buildings.
- Planters between levels 3 and 4 will further soften shared property boundary.
- The three centrally-located window bands will be glazed with obscured glass (below the Level 5 transom) to avoid privacy conflicts with apartment neighbors.



Proposed Design - Renderings

View from Northwest

- Four-story stair marks entry and animates the facade.
- Clear glazing at the ground floors allows views in and out.
- Planted terrace is sloped and visible to the street.
- Operable windows and motorized shading create a dynamic facade.



View from South

- Vertical PV array has a translucent effect and a vertical open slot to break up the massing of the array.
- Ground-level glazing wraps around the corner of Pike and 15th.
- A terrace on Level 3 provides access to the outdoors on sunny days.
- Maintenance walk is visible through the vertical array and will be constructed of a natural-colored material.



Design Guidelines

Three design schemes were presented to the Design Review Board on March 17, 2010. Comments received from the public and Board have resulted in modifications to the design, and the resulting design is presented on the preceding pages. In the following Design Guidelines section, Board comments are repeated verbatim from DPD meeting minutes, followed by our response to these comments and each particular Design Guideline.

Design Guidelines: Site Strategies

A-1 Responding to Site Characteristics

The siting of buildings should respond to specific site conditions and opportunities such as non-rectangular lots, location on prominent intersections, unusual topography, significant vegetation and views or other natural features.

A-10 Corner Lots

Building on corner lots should be oriented to the corner and public street fronts. Parking and automobile access should be located away from corners.

Capitol Hill-specific supplemental guidance:

- Incorporate residential entries and special landscaping into corner lots by setting the structure back from the property lines.
- Provide for a prominent retail corner entry.

E-3 Landscape Design to Address Special Site Conditions

The landscape design should take advantage of special on-site conditions such as high-bank front yards, steep slopes, view corridors, or existing significant trees and off-site conditions such as greenbelts, ravines, natural areas, and boulevards.

Capitol Hill-specific supplemental guidance:

- Maintain or enhance the character and aesthetic qualities of neighborhood development to provide for consistent streetscape character along a corridor.
- Supplement and complement existing mature street trees where feasible.
- Incorporate street trees in both commercial and residential environments in addition to trees onsite.
- Commercial landscape treatments that include street trees.

EDG COMMENTS:

The Board expressed much interest in the relationship between the proposed development and the park across the street to the west. The Board agreed that the open space at ground level was preferable in Option 2 in terms of the relation to the park. The entry along 15th appears more welcoming due to the proximity to the park. Option 3 diffuses the energy of a single entry focal point with the proposal of two principal entries. See D-1.

The Board acknowledges that both the building corners located at the intersections should be acutely addressed as both are important, but distinct edges.

(From E-1) The Board discussed at length and encouraged the possibility of relating the building design, if not actual function to the park across the street to the west.



Key Plan



RESPONSE:

Entry at McGilvra Place: The site occupies a prominent location along Madison Street near the peak of Capitol Hill at the intersection of several neighborhoods. In recognition of the unique opportunity that exists with the project's adjacency to McGilvra Place, the building's west-facing main entrance provides both a physical and visual connection to the park. This area has a level sidewalk grade which allows easy access and use.

The open space will include bike racks, seating and interpretive signage designed to communicate aspects of sustainability in the landscape. To protect and enhance McGilvra Place's mature sycamore trees, new street trees will only be planted in areas where they will not compete with existing vegetation, such as along Madison Street.

Diagonal "Corner": The project site is located where the diagonal of Madison Street intersects the predominant north-south grid of the city. As a result the site is truncated at 15th Avenue East. Due to this geometry and the location of McGilvra Place, the short length of 15th Avenue is the most important and distinct edge. The public entrance of the building is centered along 15th Avenue and creates a strong physical and visual connection to the existing green space, and is highly visible when travelling northeast on Madison (by foot or auto). In order to not detract from the prominence of the public entry, the façade at the intersection at Madison and 15th is very transparent, revealing the activities of the main floor tenants. At the intersection of Pike and 15th Avenue, the transparency of the ground floor continues but is buffered by a lush landscape of native low maintenance plants.



View looking northeast along Madison Street

- Main public entry relates to the park.
- Entire west facade is highly visible while travelling up E. Madison St.

Design Guidelines: Pedestrian Environment + Entries

A-4 Human Activity

New development should be sited and designed to encourage human activity on the street.

Capitol Hill-specific supplemental guidance:

- Provide for sidewalk retail opportunities & connections by allowing for the opening of the storefront to the street and displaying goods to the pedestrian.
- Provide for outdoor eating and drinking opportunities on the sidewalk by allowing for the opening the restaurant or café windows to the sidewalk and installing outdoor seating while maintaining pedestrian flow.
- Install clear glass windows along the sidewalk to provide visual access into the retail or dining activities that occur inside. Do not block views into the interior spaces with the backs of shelving units or with posters.

C-3 Human Scale

The design of new buildings should incorporate architectural features, elements and details to achieve a good human scale.

Capitol Hill-specific supplemental guidance:

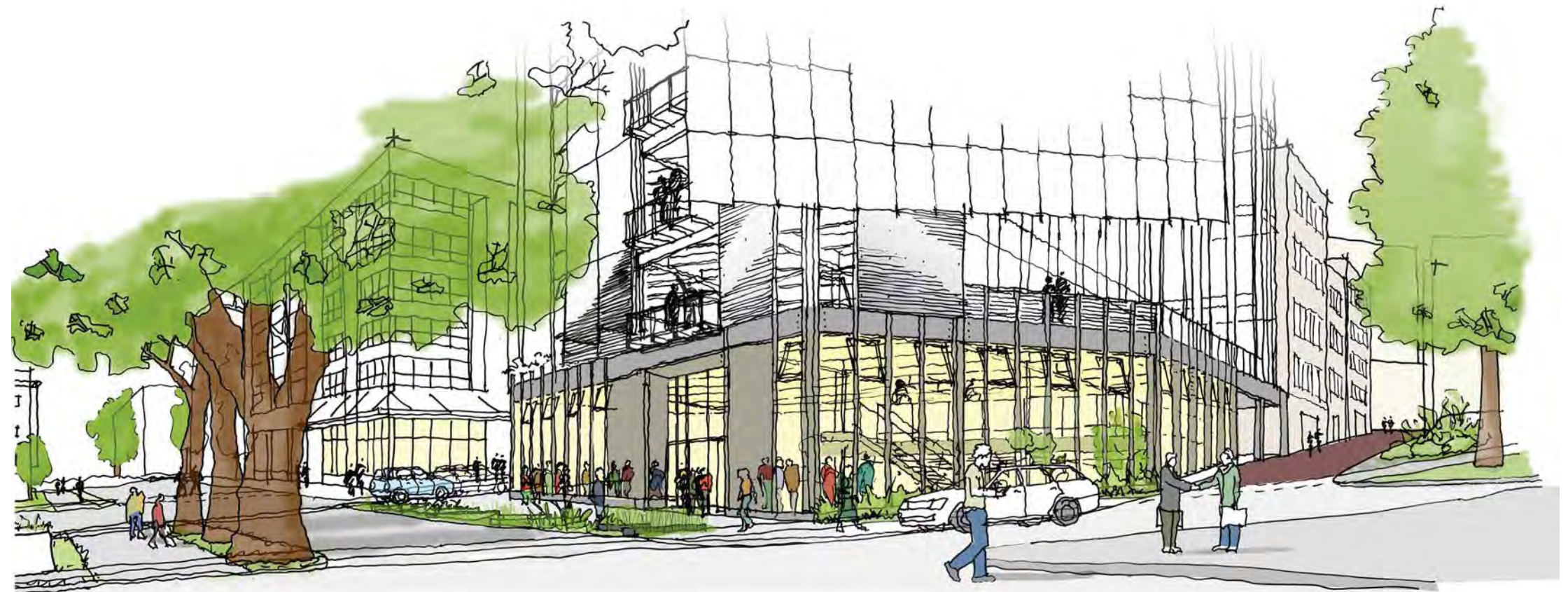
- Incorporate building entry treatments that are arched or framed in a manner that welcomes people & protects them from the elements & emphasizes the building's architecture.
- Improve and support pedestrian-orientation by using components such as: non-reflective storefront windows and transoms; pedestrian-scaled awnings; architectural detailing on the first floor; and detailing at the roof line.

D-1 Pedestrian Open Spaces and Entrances

Convenient and attractive access to the building's entry should be provided. To ensure comfort and security, paths and entry areas should be sufficiently lighted and entry areas should be protected from the weather. Opportunities for creating lively, pedestrian-oriented open space should be considered.

Capitol Hill-specific supplemental guidance:

- Provide entryways that link the building to the surrounding landscape.
- Create open spaces at street level that link to the open space of the sidewalk.
- Building entrances should emphasize pedestrian ingress and egress as opposed to accommodating vehicles.



EDG COMMENTS:

The Board reminded that the building needs to contribute to pedestrian experience, while being a Living Building. As such, access to the commercial uses at the ground floor should be clear and promote interaction.

The Board agreed that activation of both the Madison and 15th Avenue streetscape is desirable.

The Board feels that two main entries into the building proposed under the preferred option are less desirable than one main entry; therefore, the Board wants the design to create a strong entry feature at both locations. The architecture of the building should encourage interaction between the pedestrian and the ground floor uses with operable windows, views to and from the sidewalk and the interior uses and other pedestrian design features. The Board also indicated strong support for a crosswalk to be located at the corner of 15th Avenue and extend across Madison Street.

The Board encouraged the location of the entry area on 15th Avenue to maximize the spatial and visual relationship with McGilvra Place. The Board was less enthusiastic about and questioned the proposed secondary entrance off Madison Street. This secondary entry would require a dimensional departure to have the stair overhang the sidewalk above the first floor. These concerns were alleviated by the explanation that the need to discourage energy usage of the elevator favored a grand entry stair location at the highest point of the site off Madison Street. The stair design would also include interactive graphics or other informational displays regarding energy usage at the building.

The Board also encouraged the design to acknowledge the history of the site and neighborhood by incorporating reference(s) into the architecture, pedestrian environment, landscape design and/or educational information provided within the building.

The Board agreed that the stair feature proposed along Madison Street will require very specific treatment in order to give it the prominence and use that is intended. At the next meeting, the Board would like to better understand what will make this stair element an exceptional design. If the stair is proposed to be cantilevered over the sidewalk, the design should be extraordinary; otherwise such a projection is not compelling.

The relationship of the commercial and retail spaces, as well as the entry points to the sidewalk are a critical consideration. The Board looks forward to seeing greater details of this relationship.



Madison Street
Entry and Stair

Trees Not Shown
for Drawing Clarity

Operable
Windows

Exhibition Space
for Sustainable
Building Practices

8" Concrete
Curb

Wood Ceiling
Visible to Exterior

Transparent
Glazing at
Ground Levels

RESPONSE:

Ground-level Transparency + Detailing: The building will reinforce the increasingly pedestrian-oriented redevelopment patterns along Madison Street and the pedestrian nature of 15th Avenue. Although this is not a retail project, glazing at the ground levels will make visible activities within the building. Expansive fenestration at the ground floor is designed to maximize day lighting and provide transparency within the building. The ground floor is intended to house ongoing changing exhibits on sustainable building practices and energy conservation.

The lower floors of the building are composed of curtainwall construction with clear glazing and operable windows. At the base of the building, the curtainwall and metal panel infill wall are sloped with the grade and sit on a continuous 8" tall concrete foundation wall. The interior features large expanses of locally-sourced FSC certified wood paneling on the walls and the ceiling. These add color and warmth to the interior and will be visible to the public through the highly transparent facade. Two ground floor entries are provided to the building directly from the sidewalk and offer overhead weather protection for tenants and visitors entering and exiting the building.

Outdoor seating and bike racks will be provided for the public. Landscape features in the sidewalk right of way will include interpretive signage which describes the waste water and storm water strategies for the building.

Design Guidelines: Pedestrian Environment + Entries, cont'd



Fifteenth Avenue Entry: The 15th Avenue entrance will primarily be used by visitors. This entrance opens up to McGilvra Place across the street, and the paving is designed to create a continuous relationship between the entry and sidewalk. Because the 15th Avenue entry is recessed, an awning or canopy over the sidewalk is not necessary. Instead, a natural wood soffit will continue from the exterior to the interior and will add color and warmth to the entry. Building name signage will be located on the south entry wall and may include an accent color.

The recessed entry itself is gracious and sheltering, measuring roughly twenty feet wide by twenty feet high. The two-story scale of the space continues through to the interior where a double height entry lobby marks arrival. The vestibule is glazed, ensuring a strong connection between the interior and exterior, and to maximize daylight reaching ground level work spaces.

See also A-1 for plaza on 15th Avenue.



Fifteenth Avenue Entry

- Highly transparent building facade and floor-to-ceiling storefront window system will reveal uses inside the building and activate the pedestrian realm.
- Double-height building entry is set back to maximize daylight within interior spaces and provide weather-protection for those entering and exiting the building.
- An interior vestibule will moderate heat exchange and potential temperature variation between interior and exterior spaces.
- The entry is aligned with exterior seating, bicycle parking, sidewalk plantings and a small 'plaza' that extends across the parking strip for safe pedestrian drop-off and pick-up.
- Building name signage will be located on an entry wall and may illuminated by an accent color.



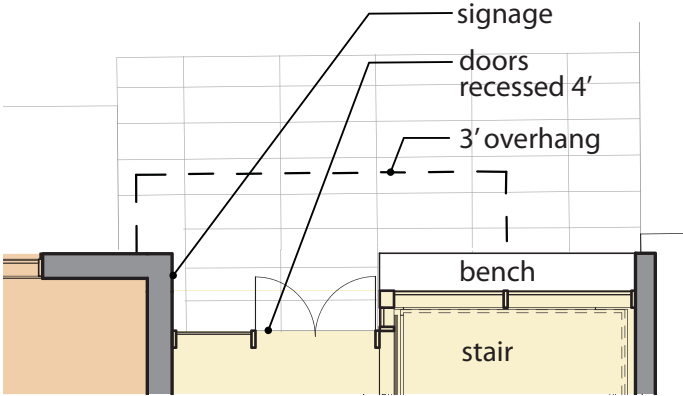
Madison Street Entry

- Double-height entry marks primary building entrance for upper level floors.
- Prominent placement & design of stairwell to encourage use & minimize energy demands typically associated with elevators.
- Entry stair is 20'-0" above the sidewalk and extends 3'-0" over the sidewalk to further mark entry and maximize natural light.
- Extensive clear glazing reveals activity within the building and provides views east & west from the stairwell along Madison St.
- Green roof will be visible to motorists and pedestrians traveling along the Madison street corridor.
- Stair overhang provides weather protection.
- Building name signage may be illuminated with an accent color.
- A 2' deep bench provides a resting place at the entry.

Madison Street Entry + Stair: The Madison commercial office entry and stair is located at the highest point on Madison in order to minimize travel distance to upper floors, and decrease demand on the elevator. For energy conservation reasons, the idea of an open air lobby with decorative gates is not feasible. Instead, the entire stair enclosure will be highly transparent glazed storefront and curtain wall. The entire vertical stair enclosure and entry will act as an unconditioned vestibule for each floor level.

The Madison entry is also nearly double-height, or 18' tall. A 2' wide bench and entry doors set back 4' from the sidewalk will create a welcoming entry. Building name signage will be placed on the west entry wall and will may be back lit with an accent color. The stair's upper levels project three feet over the sidewalk to provide overhead weather protection and create an inviting human-powered vertical circulation system in place of more typical energy consuming elevators. The under side of the stair will be natural wood identical to the wood soffit over the 15th Avenue entry. An overhead skylight filtered through exposed structural beams will illuminate the entry beyond, where office mailboxes and second floor tenant entrances are located.

The stair is completely glazed on the west, north and most of the east elevation, offering views down Madison Street and to the downtown skyline and Olympic Mountains beyond. The structure is light, airy and minimal, with steel stringers and wood treads. Large-scale operable sashes will provide natural ventilation in warmer months. The fully glazed stair will also allow passers-by to see occupants moving up and down the steps. This will animate the building, giving it life and an ever-changing character.



Plan at Madison Street entry



Madison Street entry and stair

Design Guidelines: Massing

B-1 Height, Bulk and Scale Compatibility

Projects should be compatible with the scale of development anticipated by the applicable Land Use Policies for the surrounding area and should be sited and designed to provide a sensitive transition to near-by, less intensive zones. Projects on zone edges should be developed in a manner that creates a step in perceived height, bulk, & scale between anticipated development potential of the adjacent zones.

Capitol Hill-specific supplemental guidance:

- Break up building mass by incorporating different façade treatments to give the impression of multiple, small-scale buildings, in keeping with the established development pattern.
- Consider existing views to downtown Seattle, the Space Needle, Elliott Bay and the Olympic Mountains, and incorporate site and building design features that may help to preserve those views from public rights-of-way.
- Design new buildings to maximize the amount of sunshine on adjacent sidewalks throughout the year.

D-2 Blank Walls

Buildings should avoid large blank walls facing the street, especially near sidewalks. Where blank walls are unavoidable they should receive design treatment to increase pedestrian comfort and interest.

EDG COMMENTS:

The Board noted that the mass of the structure proposed under the preferred option should be located along Madison and relieve the massing to the south by shifting the bulk from the south side and opening up more of a form transition down to the Lowrise zone. The Board agreed that the options were fairly similar and should have shown more variety. The Board also agreed that the PV overhang and vertical PV wall shown in the preferred scheme raises critical issues with regard to blank walls, bulk and massing. The extension of the PV panels into the ROW creates a far larger sense of building mass that should strive to minimize its presence over the ROW and on the eastern side. The Board also noted the building mass should follow the setback pattern established along Madison.

(From A-1) The Board noted that the design of each side of the building must respond to the unique characteristics of the context on each side.

(From E-3) The Board is concerned about the relationship to the residential building to the east and would like to see plans to create an attractive buffer between the two structures. This buffer should consider views to and from the abutting buildings to maintain privacy, daylight, landscaping, form and materials. See also, B-1, C-4, D-2, D-7.

(From A-10) The Board will continue to be interested in the shadow impacts from the proposed massing on neighboring properties. The Board raised concerns that the PV array that extends over the building and then downwards (the “mud flap”) along the southern vertical elevation must be eliminated or at least reduced in scale to alleviate the sense of a looming, blank wall. See B-1.

(From C-4) The Board strongly agreed that much more detail regarding the vertical PV array is necessary. What this array looks like to neighbors and pedestrians is crucial. The design of this array should be mindful of glare and blank wall effects. The Board noted a concern for the portion of the array that projects over the sidewalk and agreed that this feature should feel light and elegant, not heavy and oppressive. The Board was also concerned that the proposed deck projection at the southwest corner was a dominating feature over the public space and did not see either a design or Living Building Challenge imperative for such a projection. The Board wants to see further exploration of the PV arrays that will result in a less dominating element.

RESPONSE:

Building Massing: The new building is designed to be under the allowable FAR by 50 sf. The mass of the new building will respect adjacent development patterns along Madison Street, which is becoming increasingly built out along property lines. The ground floor massing (21’ tall) will be built out to Madison Street. While zoning does not require any setbacks, the upper four floors step back approximately 15’ from both the Madison Street and the alley sides of the building. Overall, the building will not block public right-of-way views to downtown and surrounding mountains.

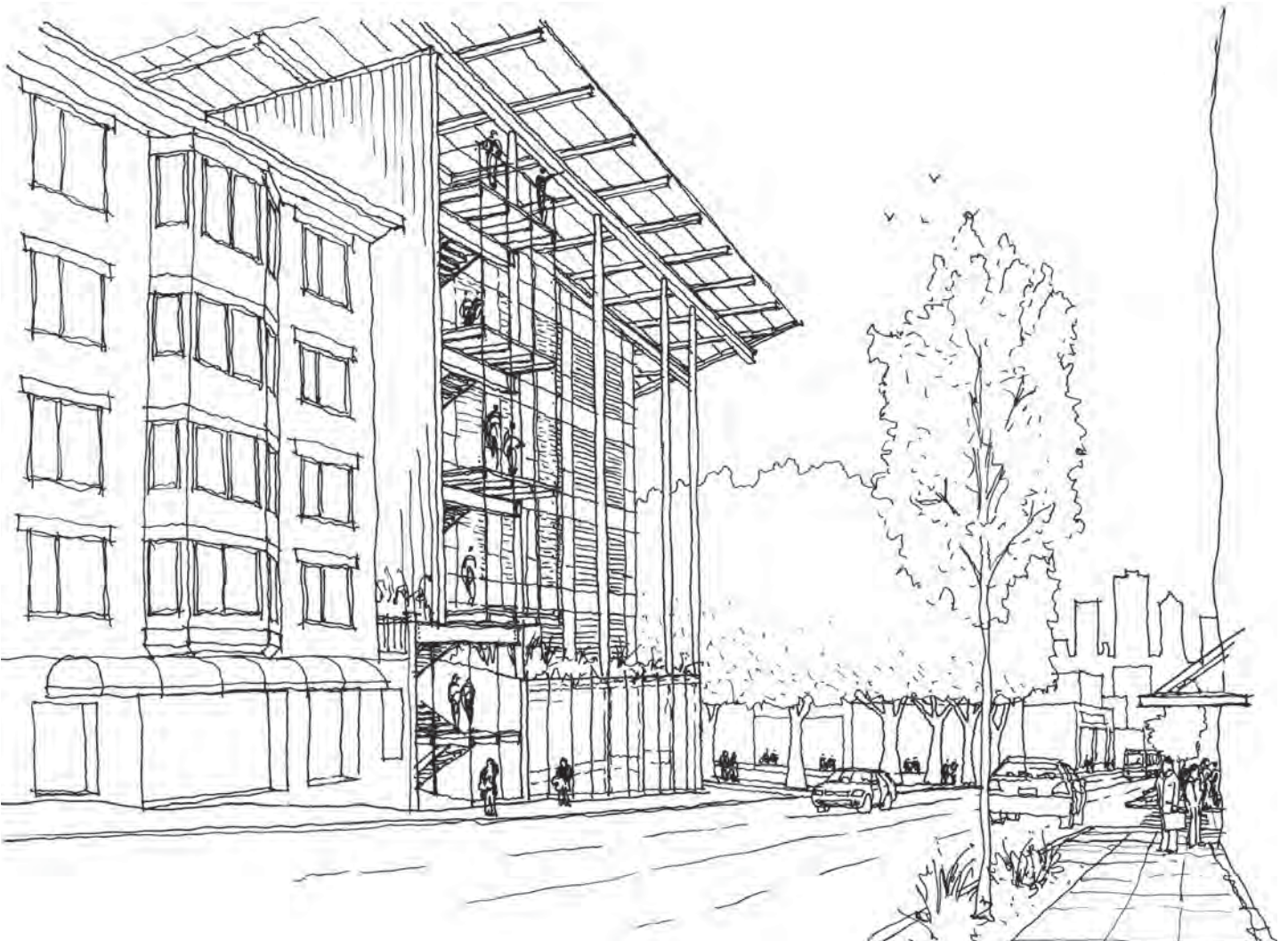
While the Board preferred the upper floor massing to be located along the Madison frontage, shifting the mass of the building any farther to Madison would require supporting a PV overhang almost 40 feet deep on the south side of the building. However, both the first and second level massing and the columns supporting the PV array, as well as the main stair will be built out to property lines to establish a street edge along Madison Street.

By distributing the open space on both the southeast and northwest sides of the building, a south-facing terrace and a northwest facing green roof for greywater treatment are created. (See E-2 for more information on the greenroof greywater treatment.) The terrace, which is across the alley from an L-3 residential zone, will reduce massing impact on the neighboring low rise zone.

It should be noted that living buildings require more mechanical and plumbing-oriented spaces than required for less energy efficient buildings. The design places much of this space below grade to minimize the building’s bulk and maintain consistency with adjacent development.

Shading: Shading studies were done with respect to the Pearl building to the north across E. Madison St., and the building bordering the site on the east, to determine the effects of the 10’ Living Building height departure and the rooftop feature departure for the PV array on top of the roof. Because the proposed building sets back 15 feet on the Madison Street frontage, the proposed building shades the Pearl less than a building built to the maximum allowable zoning envelop at 65 feet without this setback.

Similarly, along the east property line, the proposed building sets back between 5-1” and 1-6” up to 65 feet and then sets back up to 21’-6” above 65 feet. This modulation results in shadowing the adjacent building less than a building built to the maximum allowable zoning envelope at 65 feet.



Building base, stair form and columns help to build a street wall along Madison.



Space between 1523 and 1519 E. Madison St.



Space between 1519 and 1515 E. Madison St.



Entry between 1515 and 1509 E. Madison St.

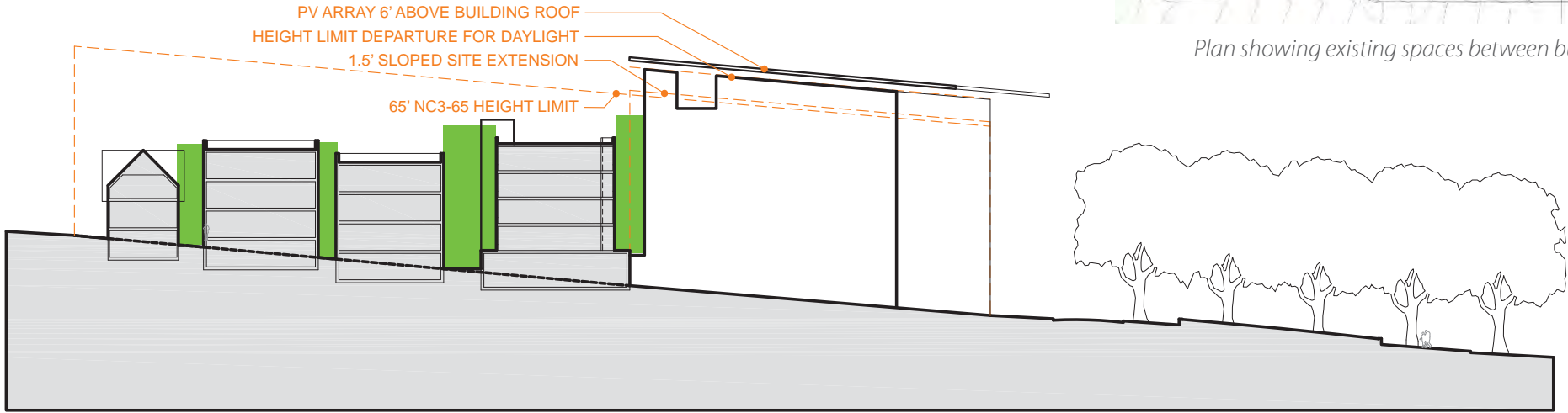


Plan showing existing spaces between buildings on the block.

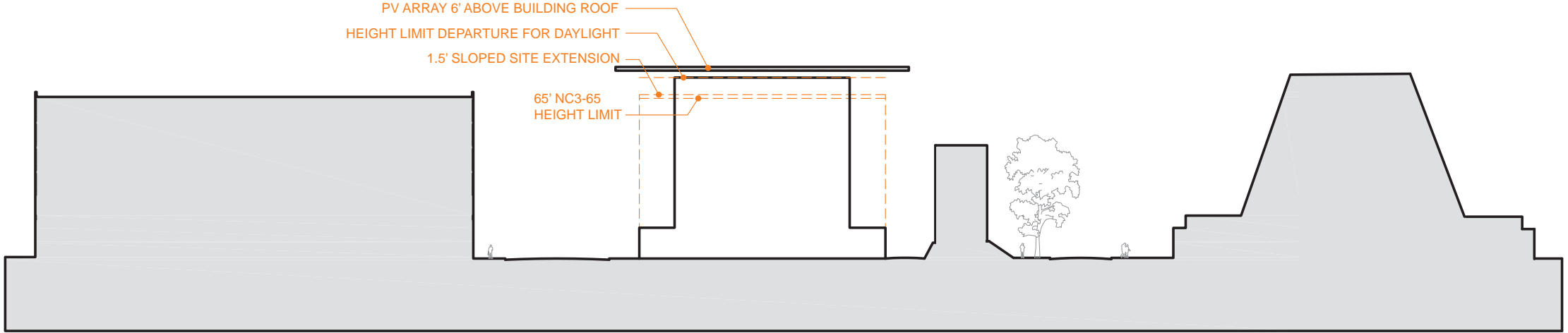
The studies then focused on the incremental impact of the PV array. The increase in shading from this feature is minimal. For example, there is approximately 100 SF of additional shadow from the PV array at noon on Jan 21 on the Pearl apartments over an allowable 65 feet tall building. There is no additional shadow from the PV array on the building to the east at noon on Jan 21.

Shared Property Line: The property to the east has the same NC3-65 zoning as the site and is not in a less intensive zone. The apartment building east of the site has windows and balconies set back 5' and 10' from the shared property boundary. While zoning allows our building to be located on the east property line, we are setting the building back 5'-1" (with the exception of the required exit stair) to preserve the apartment building's access to light and air and to minimize impact on the existing structure.

This is consistent with the pattern of development on the block, where small courtyards and lightwells bring light into apartment units. Within the gap between the two buildings, planters will create an attractive buffer for lower floor residents. In addition, the lightness of the exterior materials will further brighten the area between the two buildings.



Site Section cut parallel to 15th Avenue showing side setback patterns along Madison Street, looking South



Site Section cut parallel to Pike Street looking to the East

Design Guidelines: Massing, cont'd

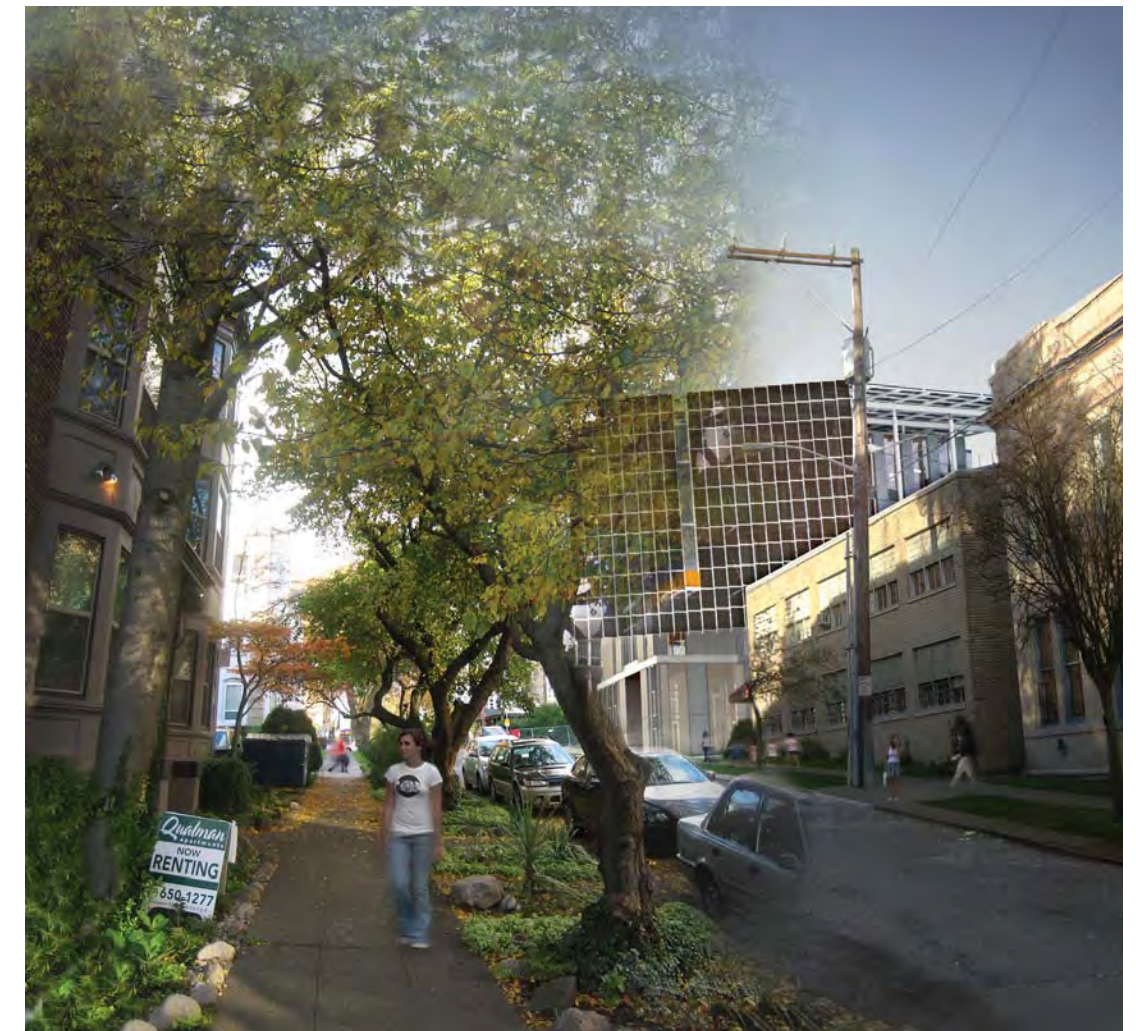


- Rooftop PV Array
- Steel PV Support Structure, Painted White
- Open Slot Added for Light & Views, Breaks-Up Mass
- Semi-Transparent PV Panels
- Sunroom
- Level 3 Terrace
- Garage Entry

White Support Structure

Maintenance Walk to Access PV Array

Bottom of PV Array 26' Above Alley



North Facing Pedestrian View on 15th Avenue

Photovoltaic Array Massing: At the EDG meeting, the Board was concerned about the size and opacity of the photovoltaic array. In order to respond to the Board's specific concerns regarding the south vertical array, a more efficient panel has been incorporated into the roof overhang to allow slightly more flexibility with the south vertical array. The size and configuration of the array proposed is the smallest possible required to reach net-zero energy. This PV array is critical to meeting the energy production goals of the project and it cannot be eliminated nor further reduced in size if the project is to be a Living Building.

Great care has gone into efficient panel layout to diminish its size, and to detailing that allows light to pass through it (while also producing energy efficiently). The

vertical PV array has an open frame and photovoltaic panels that allow filtered light to enter below. An open, vertical slot has also been added to the center of the array to break up the massing, introduce direct sunlight, and provide greater views through the array. The bottom of the array is 26 feet above the sidewalk. This array does not interfere with the pedestrian experience of the building in any way. It is also anticipated that the array will get smaller over time as photovoltaic technology produces more efficient panels.

Potential glare from the south facing vertical array has been studied. Some portion of the vertical array will be in direct sun from shortly after sunrise to just after 1:00pm throughout the year. Because the array is tilted 5 degrees from vertical, the sun reflecting off the surface

will be outside the 20 degree visual cone of influence that a driver heading northbound on 15th avenue east might experience. The sun does not strike the north face or underside of the vertical PV array, therefore there is no glare from that side of the array. There is no direct line of sight to the vertical array from either direction on Madison and there will be no glare impact.

The south array is sloped back toward the building approximately 5 degrees out of vertical. This 5 degree slope creates approximately 5'-6" of horizontal rain collection area. The rainwater will drip down the face of the panels and into the landscape area and street below, not unlike most sidewalk awnings in the city.

See C-2 for PV detailing.

Design Guidelines: Concept + Consistency

C-2 Architectural Concept + Consistency

Building design elements, details and massing should create a well-proportioned and unified building form and exhibit an overall architectural concept. Buildings should exhibit form and features identifying the functions within the building.

Capitol Hill-specific supplemental guidance:

- Incorporate signage that is consistent with the existing or intended character of the building and the neighborhood.
- Solid canopies or fabric awnings over the sidewalk are preferred.
- Avoid using vinyl awnings that also serve as big, illuminated signs.
- Use materials and design that is compatible with the structures in the vicinity if those represent the desired neighborhood character.

EDG COMMENTS:

The Board looks forward to seeing the details of how the PV panels fit together and how they will be integrated with the rest of the building design, particularly the underside of the PV and the vertical PV array on the south side. The Board agreed that the greenhouse feature is too tucked away in the southeast corner and should be more prominent.

The Board would like to have visibility of mechanical equipment included as part of the education experience of the Living Building.

The Board is interested in understanding what the building looks like at night.

(From C-4) The Board strongly agreed that much more detail regarding the vertical PV array is necessary. What this array looks like to neighbors and pedestrians is crucial. The design of this array should be mindful of glare and blank wall effects. The Board noted a concern for the portion of the array that projects over the sidewalk and agreed that this feature should feel light and elegant, not heavy and oppressive. The Board was also concerned that the proposed deck projection at the southwest corner was a dominating feature over the public space and did not see either a design or Living Building Challenge imperative for such a projection. The Board wants to see further exploration of the PV arrays that will result in a less dominating element.

(From E-2) The Board was concerned with the proposed location of the greenhouse feature. Such a program should seek to engage the public and be treated as a visual amenity to the pedestrian. The Board suggested shifting the greenhouse to a more visible, prominent location where it can be better appreciated or show how this feature would have prominence at the current location.

RESPONSE:

Photovoltaic Array Detailing: The Board expressed concern over the material and expression of the photovoltaic array. Because the PV canopy is the most distinctive component of the building and critical to meeting net zero energy goals, great care has gone into panel selection, detailing and layout.



Close-up of vertical and rooftop PV arrays.



West Facing Pedestrian View on East Pike Street



East Facing Pedestrian View on East Pike Street

Design Guidelines: Concept + Consistency, cont'd

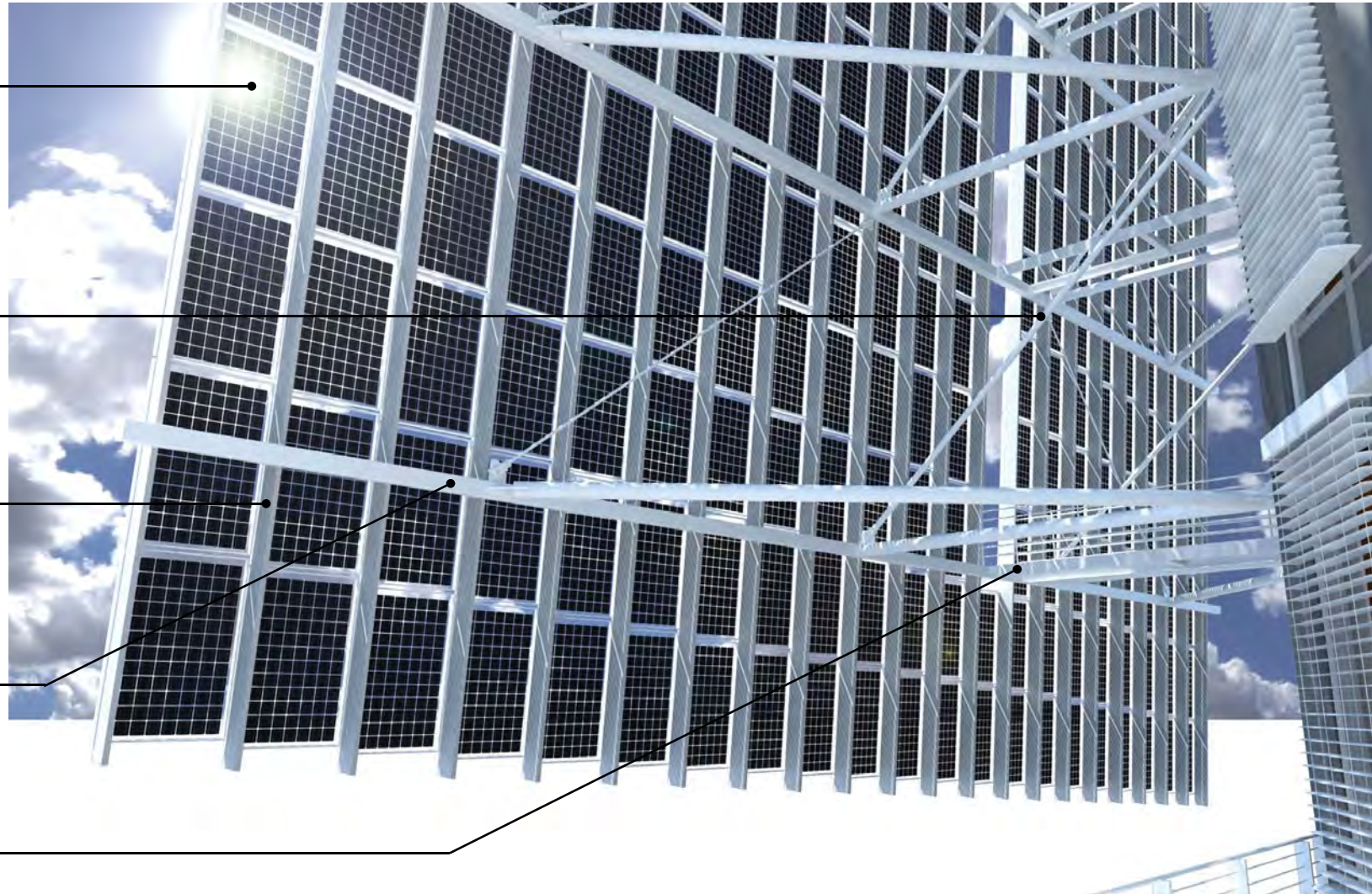
BI-FACIAL PHOTOVOLTAIC
PANELS SEMI-TRANSPARENT

STEEL CROSS BRACES
(PAINTED WHITE)

MATTE FINISH ALUMINUM
RAILS - ENGINEERED TO MAXIMIZE
POWER OUTPUT FROM BACK SIDE
OF BI-FACIAL PV PANELS

PAINTED STEEL CANOPY STRUCTURE
(WHITE)

MAINTENANCE WALK (PAINTED WHITE)



The Modern Wing, Renzo Piano



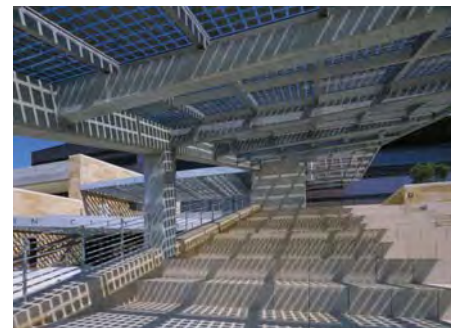
Colorado Courts, Pugh + Scarpa



*San Francisco Academy of Sciences,
Renzo Piano*



*San Francisco Academy of Sciences,
Renzo Piano*



Austin City Hall, Antoine Predock



Sun Ship, Rolf Disch - Solar Architektur



Colorado Courts, Pugh + Scarpa

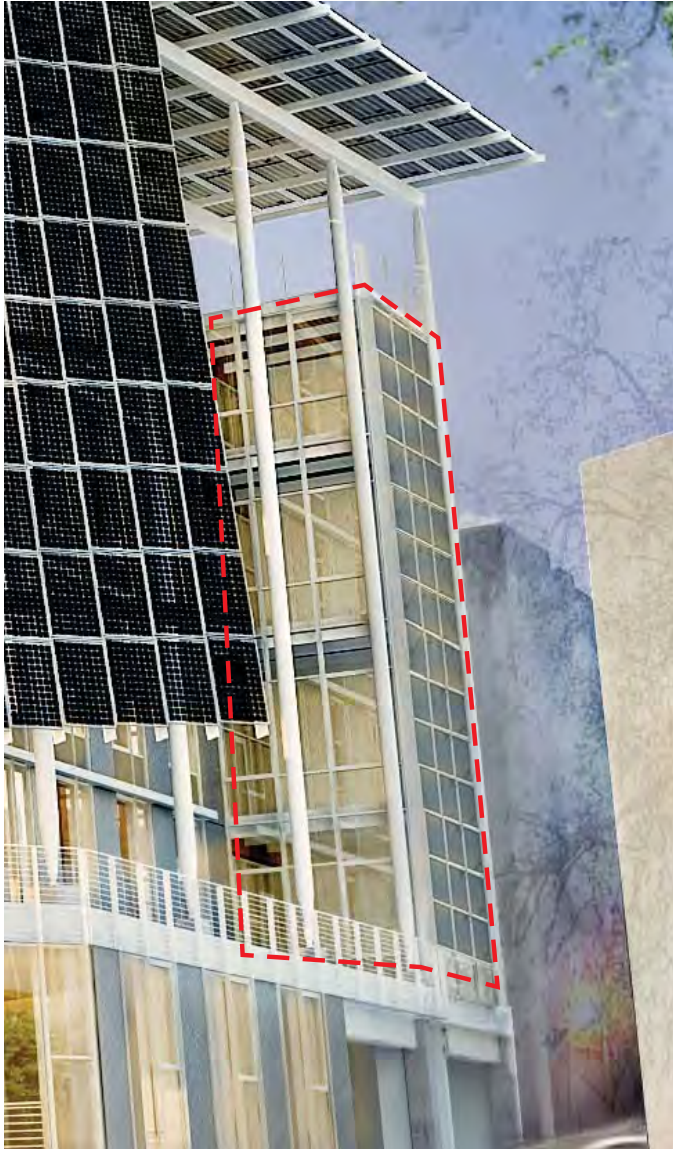
The array is lightweight and airy. The support structure is composed of stacked, bypassing steel members to create layers that lighten toward the edges. The steel support structure of the vertical south array employs tensile rods that take both gravity and uplift loads to further reduce the amount of material and overall weight of the structure. To accentuate the canopy's lightness, the steel will be painted white.

The steel structure supports a layer of extruded aluminum rails. These extrusions are designed to accommodate wire bundles within an open structural profile. This will keep the array orderly and well composed when viewed from below. The aluminum rail system will be sculpted in profile to facilitate bifacial solar energy collection.

The photovoltaic roof panels represent cutting edge technology and have the highest operating efficiency currently available. When viewed from the ground, the panels' translucent white interlayer silhouette individual silicon cells above. The net effect is luminous, dappled light. On the south array, the panels will have a clear interlayer and an overall visible light transmittance of 7%. Any shadow cast on the PV cells reduces the output of the array dramatically. Therefore, the south face is as smooth as possible. While these panels don't perform nearly as well as those on the roof, we have selected them in response to earlier DRB comments to reduce opacity and allow increased amounts of direct light to reach the spaces beyond.

The panelized rhythm of the building skin relates to the modularity of the solar array, and thereby unifies the two dominant building components.

Sunroom: As the design team worked through its details in concert with energy modeling, the greenhouse feature was determined to be unfeasible, as it required too much energy to process the building's greywater. Instead, a different strategy for treating greywater will be used. (See E-2 and LBC Water Petal.) Because of this, the greenhouse has been eliminated from the project. In its place is a three-season sunroom which provides a semi-conditioned space on each office floor. This room will include highly operable windows facing west, an opaque wall to the east to maintain privacy for the neighboring apartment residents, and an up-close experience of a PV array located on the southeast face.



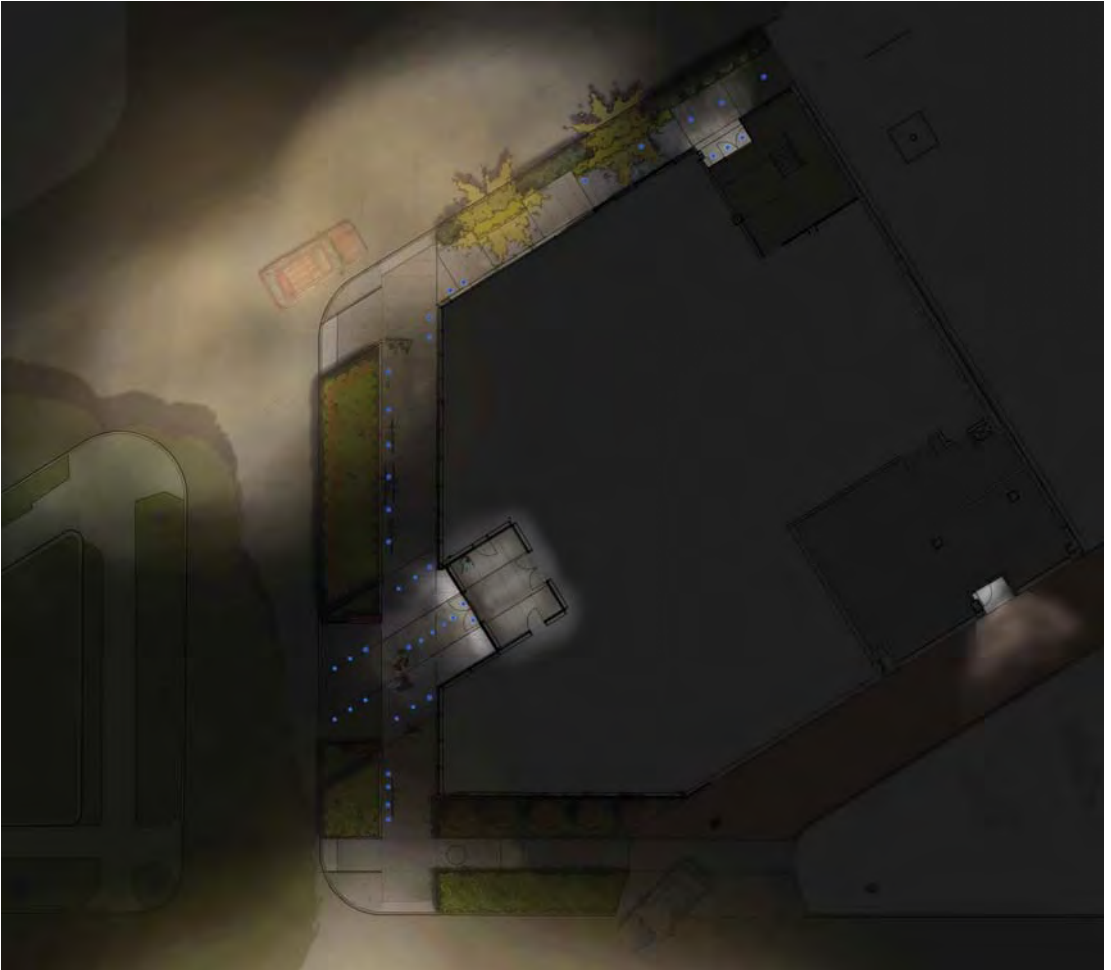
Sunroom



Proposed night lighting

Mechanical Expression: The Board indicated it was interested in how the mechanical systems of the building would contribute to the educational experience of the living building. Primarily, several photovoltaic technologies will be on display, including roof panels, bifacial panels, and the possibility of building integrated photovoltaics (BIPV) is being explored. Within the publicly accessible ground floor, windows into the mechanical and electrical rooms will display mechanical, plumbing and electrical systems to passers-by interested in fully exploring the building. Finally, a greywater treatment bioswale will be on display in the planting strip on 15th Avenue. To meet Living Building requirements, interpretive displays will highlight these elements for the public.

To achieve net zero energy requirements, most equipment and lighting will be turned off at night—roughly between 7:00 pm and 7:00 am. However, during the dark months of winter or during late-night meetings on the ground floor, the interior will be illuminated and provide visual interest to the street outside. In addition, emergency lighting at the entries will be on when it is dark, and there will be a minimal amount of exterior lighting along the sidewalks. This will illuminate the pedestrian realm without impacting adjacent properties.



Lighting Site Plan

- Lighting will be provided from overhead luminaires at both entries.
- Blue LED sidewalk luminaires are one of the most energy efficient lighting sources available, using 40% less power than warmer colors because the human eye is more sensitive to the blue spectrum.
- Street lights provide adequate illumination of the public realm.
- No lighting from this project will spill onto other properties.

Design Guidelines: Materials

C-4 Exterior Finish Materials

Building exteriors should be constructed of durable and maintainable materials that are attractive even when viewed up close. Materials that have texture, pattern, or lend themselves to a high quality of detailing are encouraged.

Capitol Hill-specific supplemental guidance:

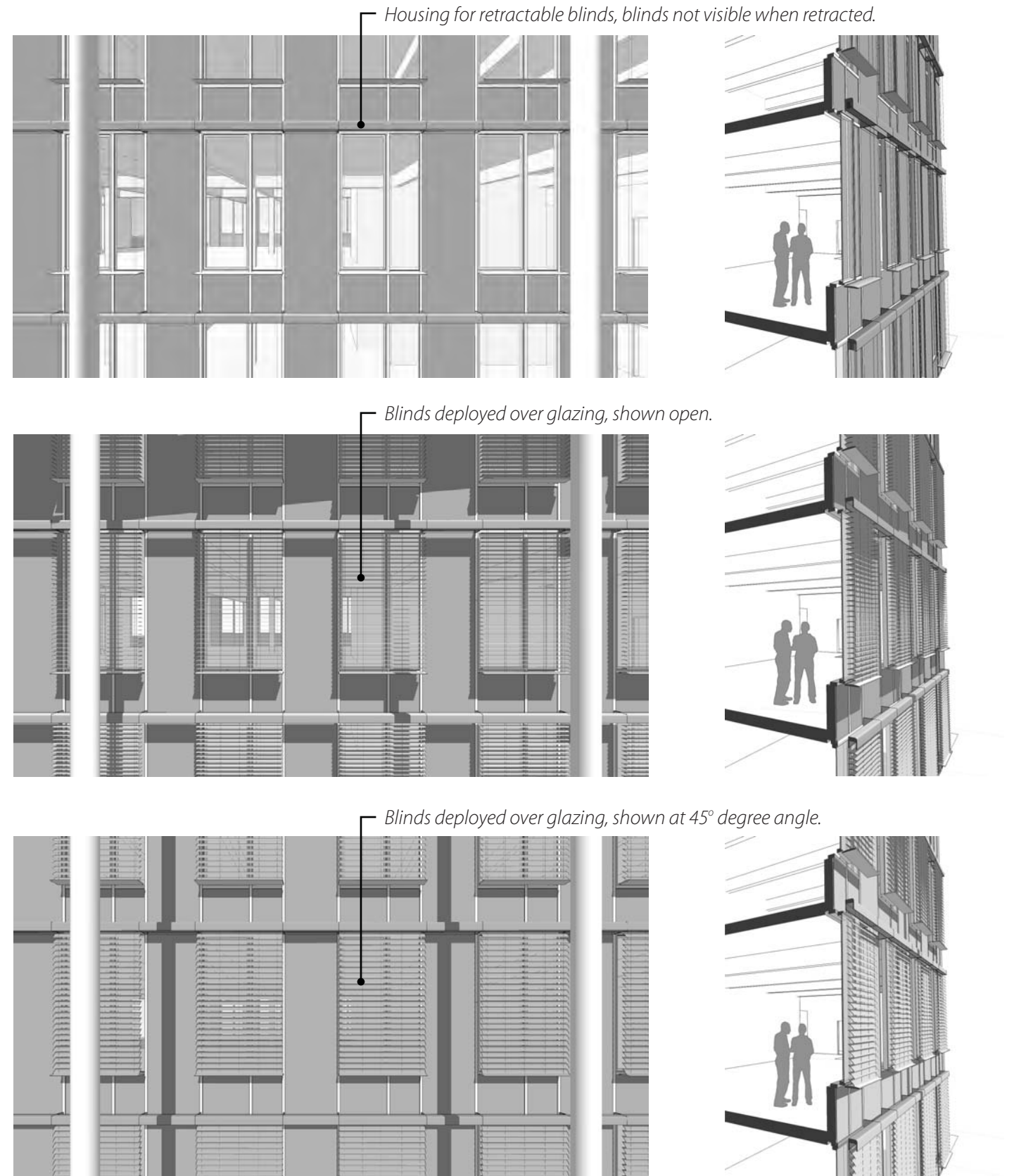
- Use wood shingles or board and batten siding on residential structures.
- Avoid wood or metal siding materials on commercial structures.
- Provide operable windows, especially on storefronts.
- Use materials that are consistent with the existing or intended neighborhood character, including brick, cast stone, architectural stone, terracotta details, and concrete that incorporates texture and color.
- Consider each building as a high-quality, long term addition to the neighborhood; exterior design and materials should exhibit permanence and quality appropriate to the Capitol Hill neighborhood.
- The use of applied foam ornamentation and EIFS (Exterior Insulation & Finish System) is discouraged, especially on ground level locations.

RESPONSE:

The exterior finish materials must meet the thermal performance criteria, the materials Red List and Radius restrictions of the Living Building Challenge. Extremely durable, long lived and a toxin free material palate has been developed in response to meet these criteria. The daylighting required for the interior; the nighttime flushing of the building to pre-cool it for the day; and the need to reduce solar heat gain outside the building results in an automated, dynamic, layered, and highly textured façade.

The facade consists of one of the highest performing glazing systems available in the world, with 50% of the glass area being operable. In addition, exterior motorized aluminum blinds will deploy independently as the sun moves around the building during the day. The opaque portions of the wall will be light in color to reflect as much light into the building and to enhance the performance of the south facing bi-facial solar panels that make up the vertical array. We must rely on any given material's innate color; any processing to add color that is durable requires adding some kind of toxin to the environment that we are obligated to avoid. For these reasons, an authentic, timeless and neutral material and color palate of clear anodized recycled aluminum curtainwall and matte finish metal infill panel has been selected. The outermost layer is the steel structure that supports the photovoltaic roof array and south façade which will be painted white in keeping with the light color of the rest of the building. These elements will weave together to create a unified whole, while the layering of the elements will allow the shadows cast across the façade to create a highly articulated, visually interesting and unique yet timeless expression.

As a result of the degree of transparency and the predominantly overcast sky of Seattle, the interior materials will be visible and be as much a part of the building's expression as the exterior. These materials will add color and warmth to the otherwise neutral palette. The ground floor public/educational space will feature a wood ceiling and large expanses of locally sourced FSC certified wood paneling. Brighter naturally-colored elements at the entry signage and vertical PV maintenance walk will also be included to accent to the otherwise neutral palette.





Photovoltaic Panels



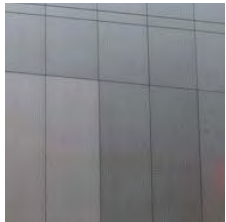
Motorized Blinds



Curtainwall



Wood ceiling



Metal panels



Greenroof



PAINTED STEEL STAIR STRUCTURE (WHITE)
W/ NATURAL WOOD TREADS (visible from exterior)

PHOTOVOLTAIC PANELS (WHITE FROM BELOW)

ALUMINUM RAILS

PAINTED STEEL CANOPY STRUCTURE
(WHITE)

NATURAL WOOD CEILING (visible from exterior)

NATURAL FINISH FLAT PANEL ALUMINUM (MATTE)

HIGH PERFORMANCE ALUMINUM WINDOWS
(MATTE ALUMINUM)

EXTERIOR MOTORIZED BLINDS
(MATTE ALUMINUM)

TRANSLUCENT GLAZING

PAINTED STEEL GUARDRAILS (WHITE)
W/ STAINLESS STEEL CABLES

GREENROOF GREYWATER TREATMENT
(See Level Three Landscape Plan)

HIGH PERFORMANCE CURTAINWALL W/ OPERABLE
WINDOWS (MATTE ALUMINUM)

CONCRETE CURB (NATURAL COLOR)

Design Guidelines: Materials, cont'd



1310 E. Union Lofts, Seattle, Miller Hull



Seattle Academy Gymnasium, Seattle, Miller Hull



Fisher Pavillion, Seattle, Miller Hull



Pike & Virginia, Seattle, Olson Walker



Wolcott Condominiums, Chicago, Miller Hull

Neutral Material Precedents

- Wood interiors add warmth and color to the exterior when viewed through windows.
- Extensive glazing reflects the surrounding environment and allows views to the activities within.
- Natural materials (concrete, glass and wood) are timeless and will not be "dated" during the long life of the building.



Banner Building, Seattle, Weinstein AU

Design Guidelines: Landscape

E-1 Reinforce Existing Landscape Character of the Neighborhood

Where possible, and where there is not another overriding concern, landscaping should reinforce the character of neighboring properties and abutting streetscape.

E-2 Landscaping to Enhance the Building and/or Site

Landscaping, including living plant material, special pavements, trellises, screen walls, planters, site furniture and similar features should be appropriately incorporated into the design to enhance the project.

D-8 Treatment of Alleys

The design of alley entrances should enhance the pedestrian street front.

EDG COMMENTS:

The Board supported the intent to preserve the existing alley paving materials and looks forward to seeing how the design integrates the new development with this old, brick alley. The Board is concerned that there is minimal outdoor space proposed for building tenants. Such spaces should be located away from Madison, the busiest, noisiest side of the site with the least solar access.

The Board was not supportive of the proposed deck at the southwest corner.

(From D-1) The Board expressed concern that the pedestrian environment appeared too oppressive and need to be further integrated into the ground floor of the building, and include wider sidewalks (greater than ten feet) and planting strips.

RESPONSE:

Alley: The design of the lower floors will take advantage of the openness of the alley at its diagonal relationship to the site. The entrance to the garage will be located on the northeast property boundary to maximize glazing on the remainder of the facade that faces the brick paved alley. Utility work will be necessary in this alley, but an effort will be made to replace the existing brick paving if allowed by SDOT. Landscaping will be added in the planting strip where the alley meets Pike Street.

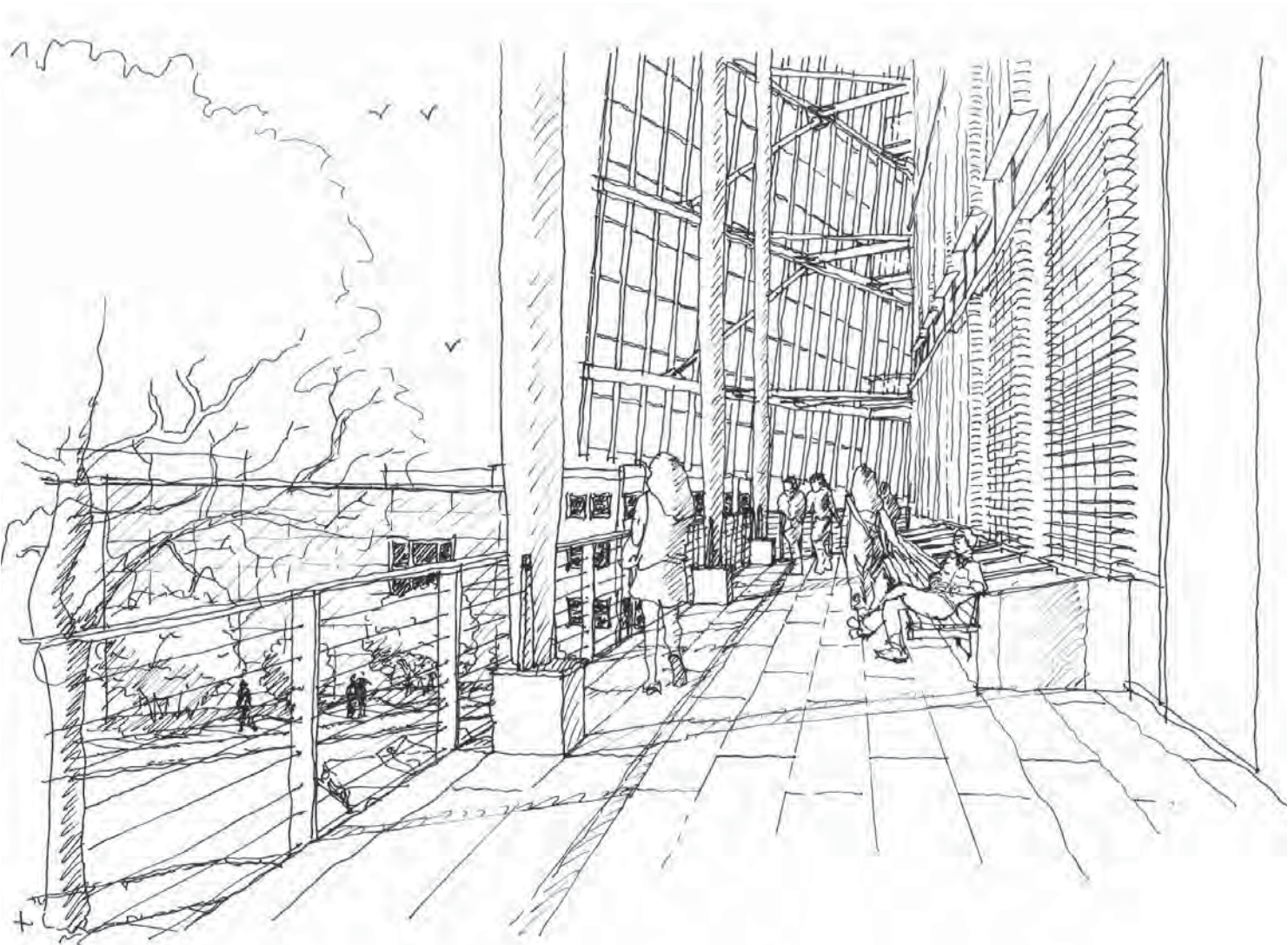
Terrace: On the south side of the building where sunny days can be enjoyed, a third floor terrace for office occupants will open to the quiet residential neighborhood to the south. This will be landscaped with potted herbs or indigenous plants.

Maintenance Access: As a response to the Board's comments, the southwest decks have been eliminated. In its place, a single, narrow maintenance walk is proposed.

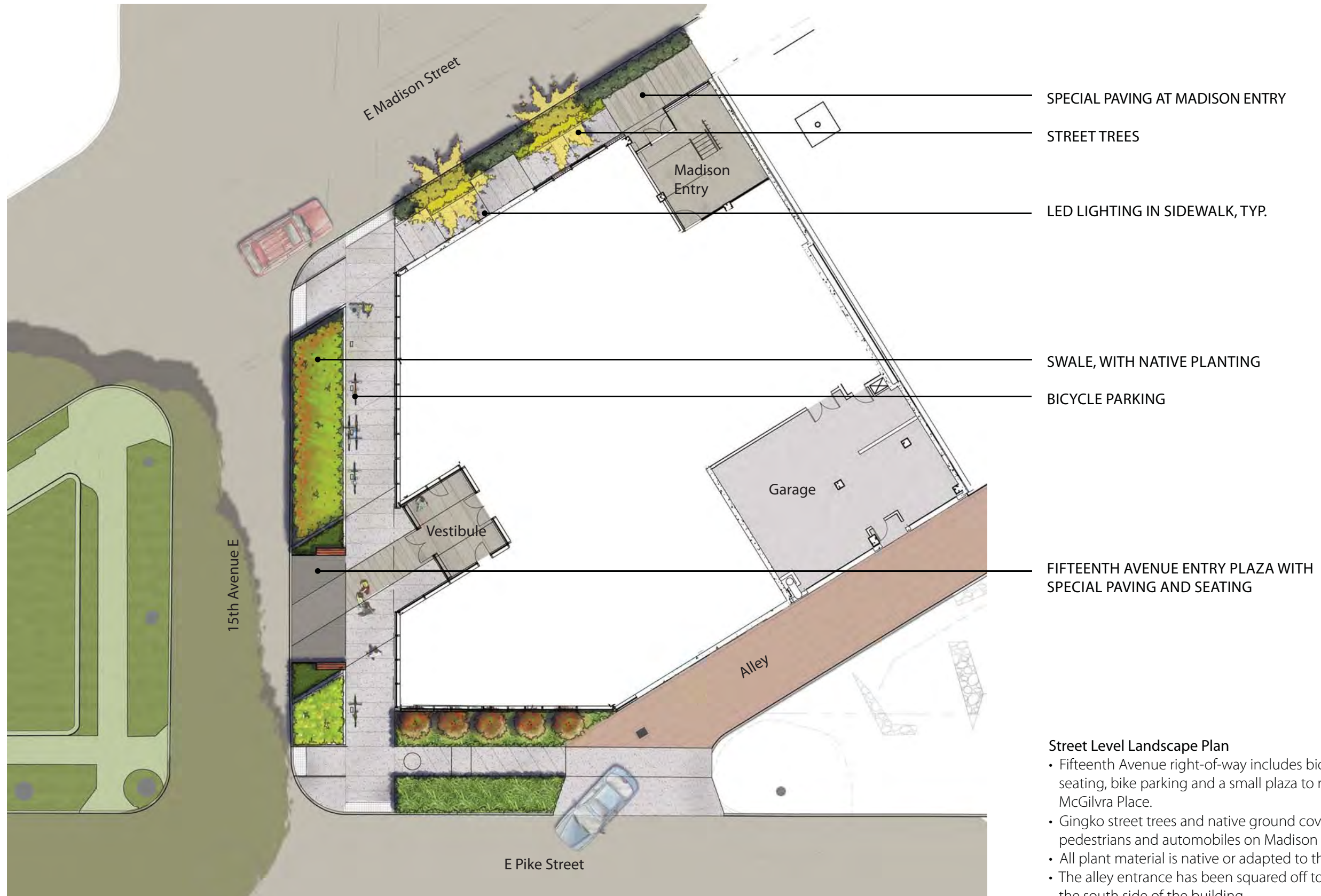
Greenroof: With the DRB's early recommendations in mind, the functional aspects (greywater filtration and evapotranspiration) of the former greenhouse have now been relocated to a green roof on the building's northwest facade (2nd story roof) and a vegetated swale running the length of 15th Avenue. This will be a prominent feature on the Madison Street frontage and will make visible the cleansing and distribution of greywater as a prominent feature of the building. This roof is angled for greater visual interest from the street.

Rights-of-Way: The existing curb cuts and surface parking lot will be removed, and sidewalk width will be expanded on both streets. The Board was concerned that the sidewalk width along Madison was not adequate. However, this aligns with the width of the sidewalk as it travels east up Madison street.

On Madison Street, a planting strip will help improve the character of the street and sidewalk for pedestrians. Where possible, landscaping associated with the project is intended as a demonstration site for green stormwater infrastructure and natural drainage systems. Understory plantings within the sidewalk zones will not compete with the mature sycamore canopy that stretches over 15th Avenue. Low to medium height sidewalk plantings will establish a physical separation between the pedestrian and vehicle realms without restricting views to and from these zones. These features are also consistent with new development along Madison and will improve the pedestrian experience along this thoroughfare.



Design Guidelines - Landscape



Street Level Landscape Plan

- Fifteenth Avenue right-of-way includes bioswales, special paving, seating, bike parking and a small plaza to reinforce the connection to McGilvra Place.
- Ginkgo street trees and native ground cover provide a buffer between pedestrians and automobiles on Madison Street.
- All plant material is native or adapted to the Pacific Northwest bioregion.
- The alley entrance has been squared off to allow for more planting on the south side of the building.

Street Level Planting

Plant material has been carefully selected to respond to the specific functional requirements of the building, unique site conditions and is either native or adapted to the Pacific Northwest bioregion.

East Madison: Gingkos are ancient survivors from pre-historic times and are extremely tolerant of air pollution, heat stress, resistant to insects, diseases, root fungus and very well adapted to urban conditions. Evergreen huckleberry and native groundcover provide a year-round buffer from vehicular traffic as well as seasonal interest.

15th Avenue East: The greywater infiltration planters located on the northern 2/3 of the street frontage will receive water regularly and consistently throughout the year. A uniform stand of Arctic Fire Dogwood and Coastal Strawberry will thrive in this consistently damp environment. A small runnel will direct stormwater runoff to rain garden areas (bioswales) at the south end and Equisetum hymale will provide a striking cue that this is the point where water enters the swales and will be wettest. Sedges and rushes will occupy the areas that experience fluctuations in moisture level. Common Camas will provide spikes of seasonal color in spring.

East Pike: The sunny south side beneath the solar array will loosely emulate coastal habitat with a consistent ground plane of Tufted Hair Grass and Stonecrop beneath and a small grove of Saskatoon Serviceberry.



Level Three Landscape Plan

- A greenroof on the north terrace will treat greywater and provide visual interest.
- A south terrace is available for office tenant use and includes planters.
- Planters are provided to soften the view from the east neighboring apartments.

Design Guidelines - Landscape

East Madison Street Plantings



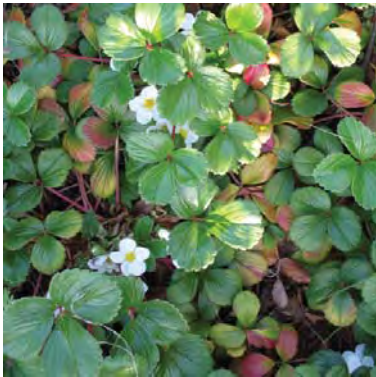
ginkgo biloba



ginkgo biloba



vaccinium ovatum



fragaria chiloensis



oxalis oregana



oxalis oregana

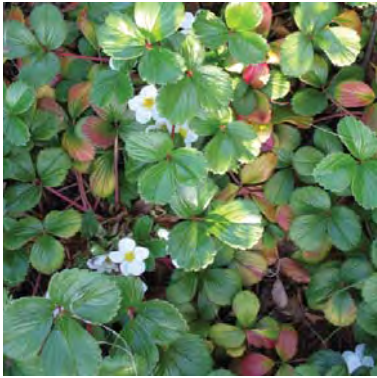


sedum oregonum

Fifteenth Avenue East Plantings



cornus sanguinea 'cato'



fragaria chiloensis



equisetum hyemale



juncus tenuis



carex deweyana



carex obnupta



camassia quamash

East Pike Street Plantings



sedum oregonum



deschampsia cespitosa



amelanchier alnifolia

Level Three - Vines



lonicera ciliosa



lonicera hispidula

Level Three - Ferns



athyrium niponicum 'pictum'



blechnum spicant



polystichum setiferum

Level Three - Woodland Mix



mahonia nervosa



oxalis oregana



trilium ovatum

Level Three - Greywater Treatment



equisetum hyemale

Street Level Details



special paving detail



runnel detail

Summary of Departures

In order to meet the stringent performance standards of the Living Building Challenge, buildings generally rely upon innovative building design techniques and features including natural daylighting and ventilation, solar capture, rainwater capture and use, wastewater treatment and reuse, and ultra-efficient heating, ventilation and air-conditioning (HVAC) systems. These innovative systems may also necessitate alternative building massing, non-traditional exterior and roof top features, or other elements that were not envisioned when existing codes were adopted.

Departures:

In recognition of the unique challenges and requirements for Living Buildings, the ordinance establishing this program expanded the list of departures available for Living Buildings and changed the criteria for granting departures. Departures are allowed if the departure results in a development that better meets:

- 1) the intent of adopted Design Guidelines, OR
- 2) the goals of the Living Building Challenge and would not conflict with adopted Design Guidelines.

In recommending any departure from development standards, the ordinance requires the DRB to consider the extent to which the anticipated environmental performance of the building would be substantially compromised without the departures. In addition to the standard Land Use Code departures, the following additional departures are allowed for buildings qualifying for the Living Building Challenge, and are relevant to the proposal:

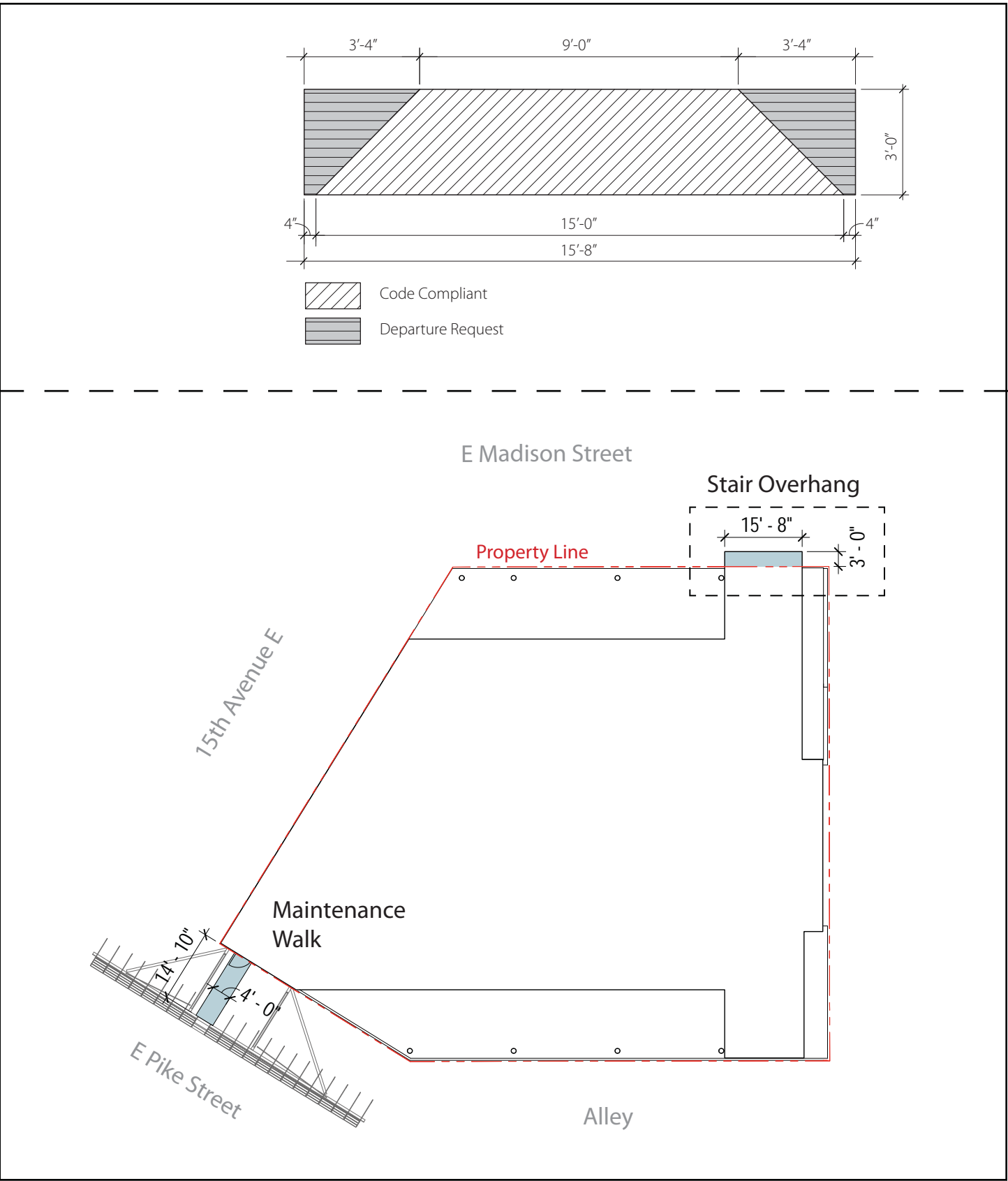
- structure height (up to 10 feet generally plus additional height for rooftop features) above height limit
- quantity of parking required; minimum and maximum parking limits

Since the EDG meeting, we have **eliminated the following departure requests:**

- FAR increase. The building is under the allowable FAR by 50 sf.
- Street Level Development standards to allow less than 13' floor to floor height at street level.
- Structural building overhang dimensional departure for decks behind south vertical PV array.
- Maintaining existing alley width (as this was granted by Administrative Review).

The final departures for the Recommendation meeting are:

1. Height increase for the structure and rooftop features.
2. Dimensional departure for structural building overhangs for Madison Street entry stair and for non-occupiable narrow maintenance walk.
3. Elimination of required loading berth.



Structural Overhang Diagram

	TITLE	CODE REFERENCE	PROPOSED DEPARTURE	RATIONALE	RELATED DESIGN GUIDELINE	RELATED LBC PETAL
1a	SMC 23.47A.012 Structure height	2. Scope of Departures. In addition to the departures allowed under Section 23.41.012.B (sloped lots), departures for projects participating in the Living Building Pilot Program established under Section 23.40.060 may also be granted for the following: f. Structure height, (up to 10 feet generally plus additional height for rooftop features) per 23.41.012.D.2.f.	To exceed the NC3-65 base height by 10'-0". Departure requested for 10'-0" of additional height.	Additional floor to floor height is required to achieve the day lighting criteria established by the Living Building Challenge. This increase in the floor to floor results in an additional 10 feet to the building's height but does not increase occupiable space above the zoning height limit of 65 feet.	B-1 Height, Bulk + Scale: Building steps back 15' from the southeast property line on levels 4-6 to help transition to the low-rise zone across the alley.	LBC 7. Net Zero Energy: Reducing the need for electric light is critical to meeting our energy requirements.
1b			Additional height for rooftop features: PV Array up to 6'-0" above roof. and skylight below top of PV array Departure requested for 6'-0" of additional height for PV Array and skylights.	Seattle Fire Department Access of 4'-0" between the roof and PV is required. Skylights are required for day lighting the top floor and are tucked under the PV roof canopy.	Given setbacks and design features on eastern facade, impacts on site to the east have been reduced and departures do not increase impact.	LBC 8. Healthy Air: Taller floor to floor heights and skylights are critical to meeting the day lighting requirements of the Living Building Challenge.
2a	**SMC 23.53.035 Structural Building Overhangs	A. Structural building overhangs are encroachments into public property that include cornices, eaves, sills, belt courses, bay windows, balconies, facade treatment and other architectural features. 4. balconies, and similar features that increase either the floor area of the building above grade, shall be limited as follows: a. The maximum horizontal projection shall be three (3) feet c. The maximum length of each bay window or balcony shall be fifteen (15) feet at the line establishing the required open area, and shall be reduced in proportion to the distance from such line by means of forty-five (45) degree angles drawn inward from the ends of such fifteen (15) foot dimension, reaching a maximum of nine (9) feet along a line parallel to and at a distance of three (3) feet from the line establishing the open area	The rectangular stair overhang projects over the Madison Street right of way by 3 ft. and it is 15 ft. 8 in. wide along both the building face and outer face. Max allowable at building face is 15 ft.; 15 ft. 8 in. is proposed, so departure is to exceed dimension at building face by 8 in.; and Max allowable at the outer face is 9 ft.; 15 ft. 8 in. is proposed, so departure to exceed dimension at outer face by 6 ft. 8 in.	The architectural feature departures meet several objectives. The stairwell on Madison Street is designed as a prominent architectural feature that will help achieve the energy reduction goals necessary to meet the Living Building Challenge. Set slightly proud of the north facade, the stairwell successfully marks the main entrance for the building's upper floors. With a high degree of transparency and views west to downtown and east down Madison Street, the stair is designed to be easily accessible and attractive to building users, thus lessening the dependence on elevators and energy.	D-1 Pedestrian Open Spaces and Entrances: The overhang protects pedestrians from the weather and emphasizes the Madison Street entry.	LBC 7. Net Zero Energy: Overhanging stair is a prominent feature meant to attract occupants to the stairs, and reduce elevator energy use.
2b			Dimensional departure for maintenance walk (to access the vertical PV array) needed from the 3 ft. maximum horizontal projection. The horizontal projection is 16 ft., so a departure is needed for an additional 13 ft.	The maintenance walk on the south facade is critical for maintaining the vertical PV array. This narrow, low profile walk will be aligned (and almost hidden) within the overall structural system necessary to support the vertical PV array. The walk is aligned behind a new open vertical slot which breaks down the visual scale of the array.	C-2 Architectural Concept + Consistency: Walk aligns with open vertical slot in the array, integrating them into a whole.	LBC 7. Net Zero Energy: Walk meets the maintenance needs of the energy-producing PV array.
3	SMC 23.54.035 Loading berth requirements and space standards	23.54.035.C.4.b. Standards for Loading Berths. Low demand offices @ 40,000-60,000 sf = one required loading berth. 23.41.012.D.2.g: The Living Building Pilot Project Ordinance allows for a reduction of the quantity of Parking required.	One loading berth is required; none is provided. Departure is from requirement for one loading berth.	The project places a high priority on encouraging alternative means of commuting. To that end an increase in the number of secure spaces for bikes better meets the goals of the Living Building ordinance than a dedicated infrequently used loading berth. Further, the required clear height of 14' for loading berths would necessitate decreasing the floor to floor heights of levels 3 through 6. This would prevent the project from meeting the day lighting requirement of the Living Building Challenge. Deliveries to the building in small vehicles may occur in the "passenger loading" area of the garage; however, garbage pickup and infrequent deliveries in large vehicles are proposed to occur in the alley adjacent to the garage. Per the traffic report (submitted to DPD with zoning corrections), the alley has limited use and no significant adverse impacts are anticipated due to loading in the alley.	D-2 Blank Walls: Eliminating the loading berth allows for more ground-level related human functions to be visible from the street, in lieu of presenting a blank garage door.	LBC 8. Healthy Air: Floor to floor heights on the upper floors (which are needed for daylighting) would need to be reduced to meet the loading berth height requirements.
	** The portion of the Photovoltaic Array that lies outside the property line will be reviewed under a Term Permit. The array directly above the roof plane is pursuing a departure for roof feature height as described under the LBC Pilot Ordinance. It is anticipated that as technology improves and PV becomes more efficient, the PV over the property line may no longer be required or may be reduced in size.					

Appendix : Living Building Challenge



NOTE: Revisions to the text shown in the Early Design Guidance Packet have been highlighted with a vertical line next to the paragraph.

Aspirations for Energy Independence and Sustainability

The most challenging aspect of the project will be a serious attempt to achieve the goals of “The Living Building Challenge Version 2.0” described by the Cascadia Region Green Building Council (www.cascadiagbc.org).

The Living Building Challenge

Living Buildings are required to be self-sufficient for energy and water needs and meet advanced standards for elements such as material use and quality of the indoor environment. The Living Building Challenge requires meeting 20 “Imperatives” within seven organizing “Petals”, including: responsible site selection; 100% on-site renewable energy generation; 100% of water needs provided by harvested rainwater; and on-site waste management. The program is performance-based and evaluated after one year of the building’s operation.

Seattle’s Living Building Pilot Program

Seattle’s land use code doesn’t currently allow for the unique characteristics required to meet living building standards. On December 14, 2009, the Seattle City Council adopted an ordinance that creates a pilot project to allow for entirely self-sustaining green buildings in Seattle. The Living Building Ordinance, (No. 123206) will allow up to 12 unique “living buildings” to be developed in Seattle over the next three years.

The goal of the Living Building Pilot Program is to encourage the development of buildings that meet the Living Building Challenge. The ordinance expands the list of departures available from code requirements so as not to discourage or prevent buildings from meeting this standard.

Site Petal

The intent of the Site Petal is to clearly articulate where it is acceptable for people to build, how to protect and restore a place once it has been developed, and to encourage the creation of communities that are once again based on the pedestrian rather than the automobile.

1. Limits to Growth

Projects may only be built on greyfields or brownfields and previously developed sites.

RESPONSE: The site is a previously developed urban property, and given its current state of limited development presents an opportunity for much greater density. It is not adjacent to any sensitive habitat areas.

2. Urban Agriculture

All projects must integrate opportunities for agriculture appropriate to the scale and density of the project using its Floor Area Ratio as the basis for calculation

RESPONSE: The site falls under Transect L5, Urban Center Zone (medium to-high density mixed-use development found in the first “ring” of a larger city). L5 transects are required to have 5% of the building’s floor area devoted to Urban Agriculture when the FAR is between 2.0 and 2.99. Our FAR is 4.25 and therefore there is no on site agriculture requirement.

3. Habitat Exchange

For each hectare of development, an equal amount of land must be set-aside in perpetuity as part of a habitat exchange.

RESPONSE: The Bullitt Foundation has already been responsible for preserving natural areas hundreds of thousands of times larger than the size of this site, so it expects to retroactively receive credit for this achievement.

4. Car Free Living

For Building and Neighborhood projects, the proposed development may not lower the density of the existing site or the catchment area of the Transect.

RESPONSE: The project is proposed to be 100% commercial office, balancing the predominate residential, retail and restaurant use in the area, which will provide more daytime uses in this location and the opportunity for ideal housing/jobs balance as required by the LBC. The User’s guide for this prerequisite has not yet been published, so further verification will be on-going.

The project increases the density from the existing one story restaurant and surface parking, and was chosen because it is close to existing public bus routes and to future light rail and streetcar systems. The Transportation Management Plan incorporates physical features and ongoing management programs such as: no on-site parking; secure & covered bicycle parking; shower & locker facilities; a Commuter Information Center in the lobby; an annually-updated employee commuter information packet; subsidized transit passes (at least 50%) for employees who commute by transit; subsidies for employees who bike or walk to work.



Water Petal



The intent of the Water Petal is to realign how people use water and redefine ‘waste’ in the built environment, so that water is respected as a precious resource.

5. Net zero water

One hundred percent of occupants’ water use must come from captured precipitation or closed loop water systems that account for downstream ecosystem impacts and that are appropriately purified without the use of chemicals.

RESPONSE: Clean roof water will be collected, stored in a cistern, and treated before pumping to fixtures to meet the overall water demand. Collected urine, greywater from sinks and showers, and compost from composting toilets will be stored in tanks located in the mechanical room and combined together to serve as fertilizer for on-site vegetation.

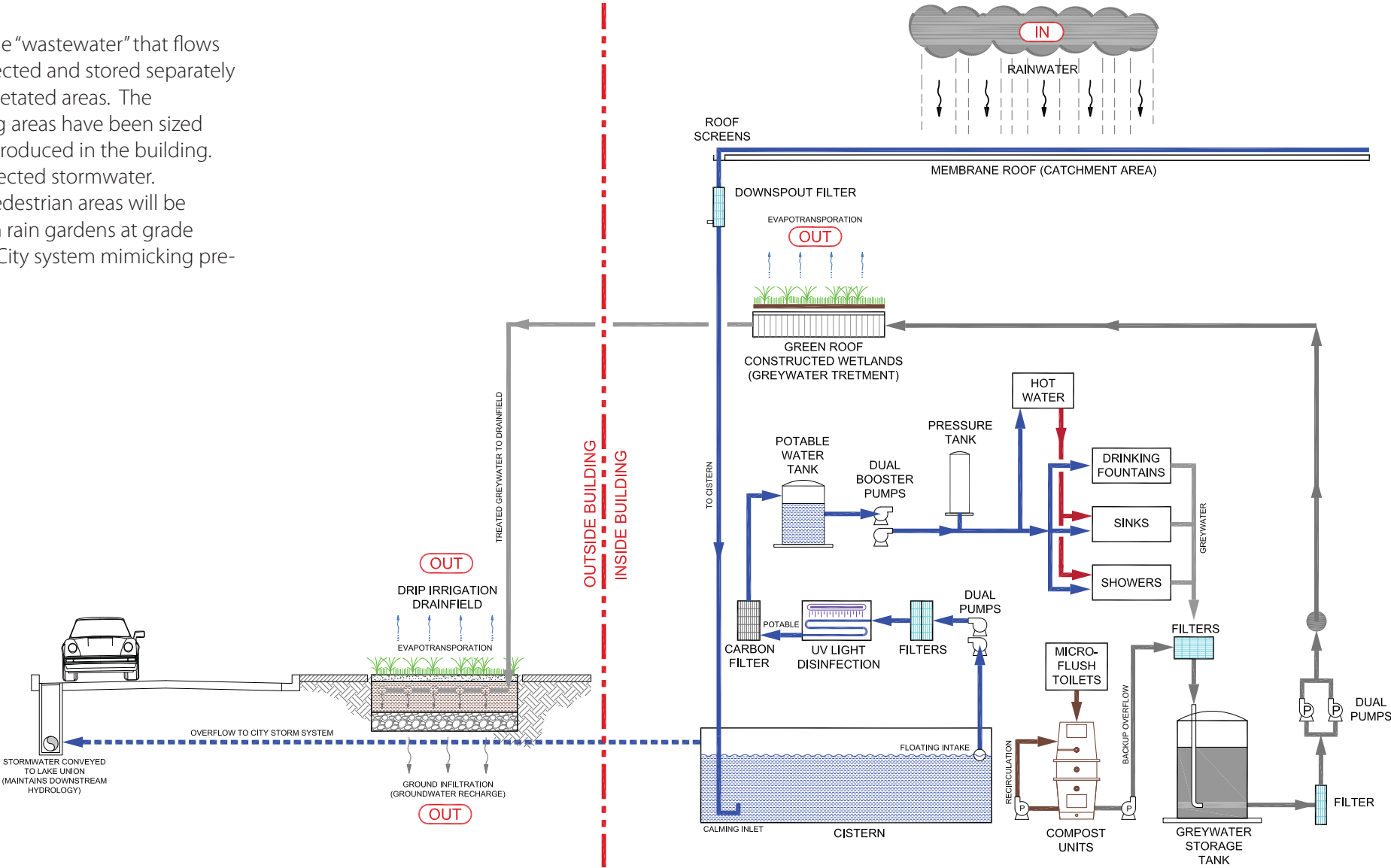
The green roof will be used to cleanse all greywater in the building, and the planting along 15th Avenue will infiltrate all greywater below grade. Stormwater will be collected in a cistern and used for all fixtures and uses within the building, as well as all irrigation on the project.

6. Sustainable Water Discharge

“100% of stormwater and building water discharge must be managed on-site and integrated into a comprehensive system to feed the project’s demands.”

RESPONSE: Although much of the rainwater falling on the site will be collected, stored, treated, and used for potable and non-potable uses within the building, the stormwater detention design strives to closely mimic the flows of the pre-development condition of the site. This will be achieved through an active detention volume discharged at a pre-development (old growth forest) design rate. By releasing the stormwater at this rate, it will help to mimic the pre-development hydrology of the downstream water bodies, particularly Lake Union.

As described in Imperative 5, the “wastewater” that flows within the building will be collected and stored separately before being distributed to vegetated areas. The greenroof and outdoor planting areas have been sized to handle the daily greywater produced in the building. All irrigation is provided by collected stormwater. Stormwater from street level pedestrian areas will be detained and infiltrated through rain gardens at grade before being released into the City system mimicking pre-development runoff rates.



Water Use Diagram

Energy Petal

The intent of the Energy Petal is to signal a new age of design, wherein the built environment relies solely on renewable forms of energy and operates year round in a pollution-free manner.

7. Net Zero Energy

100 percent of the building's energy use must be supplied by on-site renewable energy, on a net annual basis.

RESPONSE: This is a very serious challenge in Seattle. On-site renewable energy sources are limited to sunlight, subterranean heat, and wind, with the recognition that the vast majority of required energy will come from the sun. Because Seattle's sunlight is very limited, even when calculated on an annualized basis, every element will have to be drawn from the most energy-efficient designs, technologies, construction methods and materials.

Based on the amount of sunlight falling on the site and the energy conservation measures described within this Petal, the previous chart shows the energy use of the proposed building as compared to average and code-compliant office buildings of its type.

With the goal of net zero energy, we have identified the following strategies: optimize building form and orientation to take advantage of passive design; incorporate only the most efficient heating systems while eliminating cooling; utilize the most efficient solar energy technology; and provide a fully daylit interior to eliminate lighting loads.

Building Form, Orientation and Overall Design:

- Position building for balanced daylight and maximum solar gain from south and west-facing facades. Use very efficient windows.

- Create narrow floor plates to facilitate natural ventilation, achieve required daylight, and reduce build-up of internal heat in core areas.
- Maximize roof area and south-facing vertical wall area to accommodate solar panels and/or building integrated photovoltaic panels.
- Locate and make visible unconditioned circulation stairs on building exterior to encourage physical exercise and reduce energy demands.

Heating and Cooling:

- Widen acceptable temperature ranges in circulation spaces where people spend less time (stairwells, lobbies, corridors).
- Increase vertical and horizontal insulation to minimize seasonal heat gain and heat loss.
- Use passive ventilation as primary source of cooling and to regulate healthy air.
- Use ground source heat pumps and solar hot water

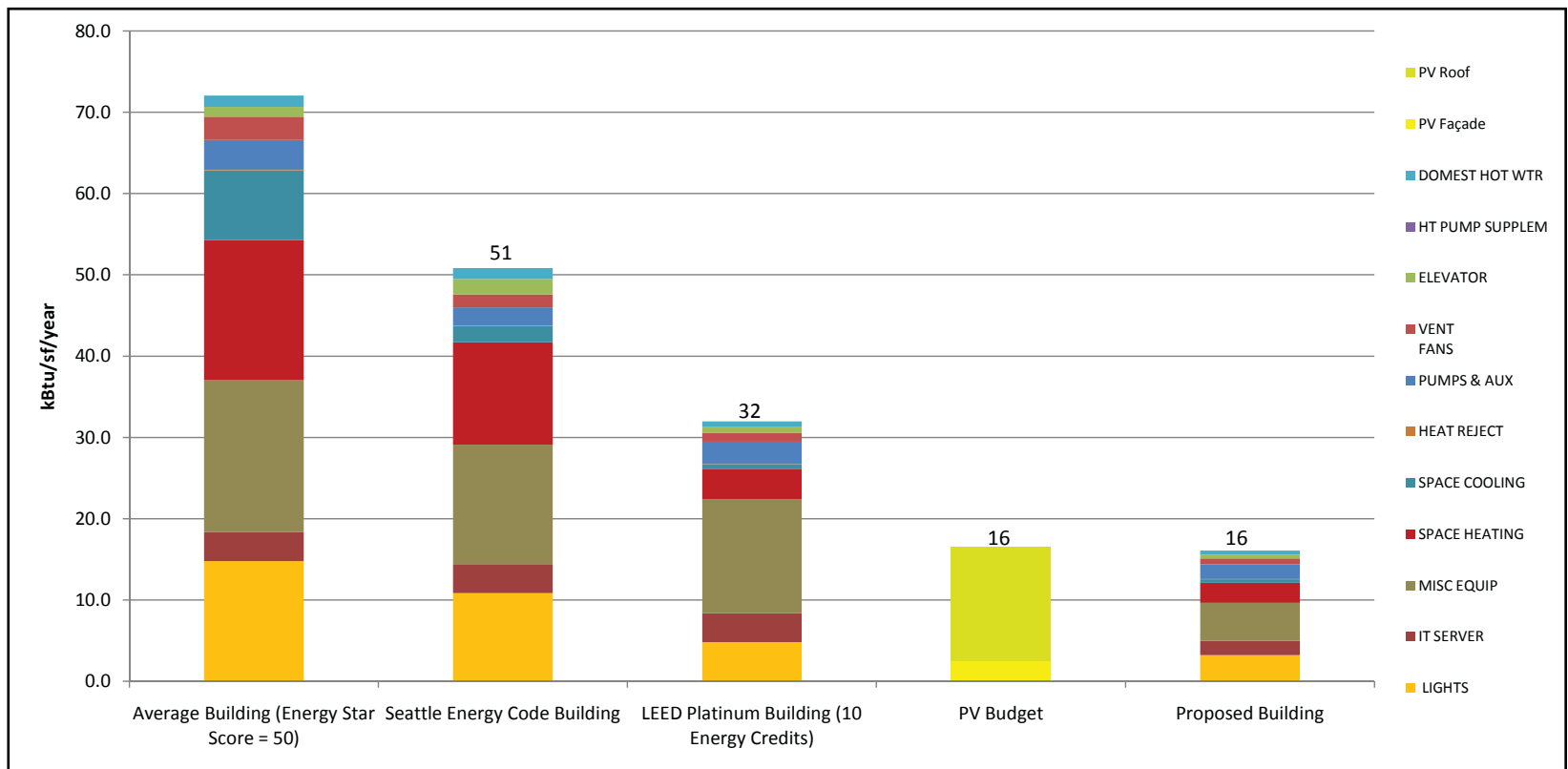
to increase efficiency and performance of heating and cooling systems.

- Rely on radiant heating & cooling delivered through in-floor, ceiling panel and/or radiator applications as determined by final building type, form and use.

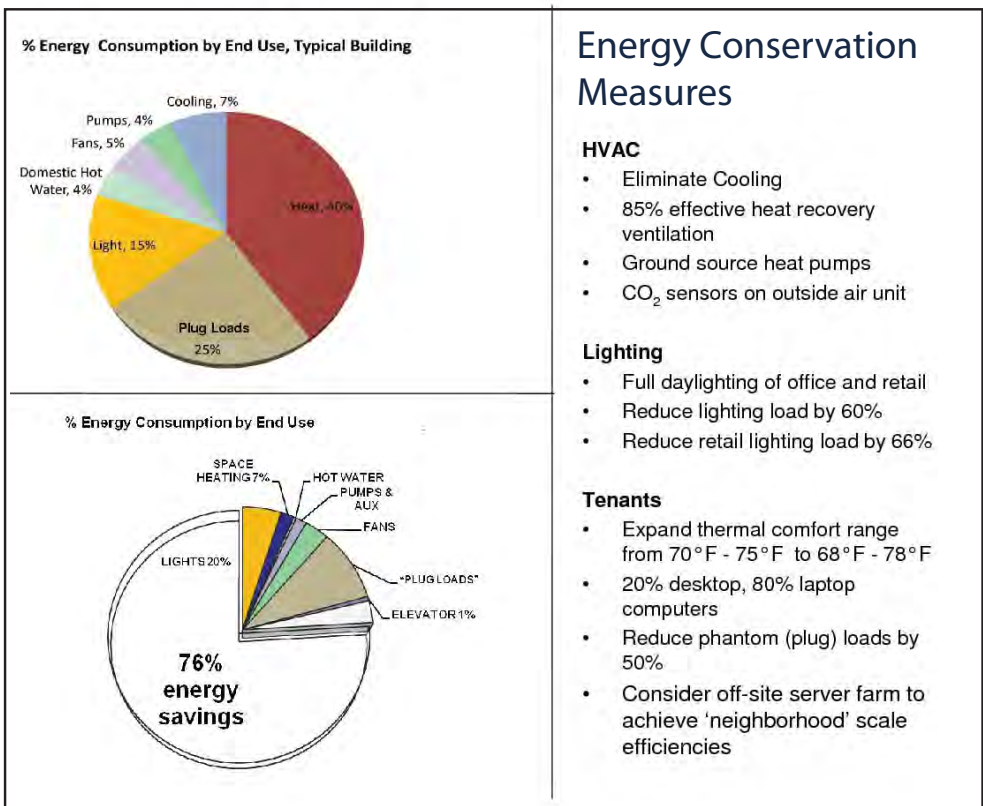
Solar Equipment:

- Maximize solar energy potential through building integrated and freestanding photovoltaic arrays.
- Sloped roof of southwest-facing pitch to maximize solar gain.
- Secondary use of photovoltaic panels as exterior element of building envelope (e.g. rainscreen).
- Provide flexibility as future technology develops.

Alternative technologies such as Concentrated Photovoltaics perform well in climates with a modest ratio of direct beam radiation such as Tuscon or Reno, as opposed to the cloudy sky we experience in Seattle.



Energy Use and Solar Budget--**UPDATED**



Energy conservation measures and energy savings compared to typical buildings

Energy Conservation Measures

HVAC

- Eliminate Cooling
- 85% effective heat recovery ventilation
- Ground source heat pumps
- CO₂ sensors on outside air unit

Lighting

- Full daylighting of office and retail
- Reduce lighting load by 60%
- Reduce retail lighting load by 66%

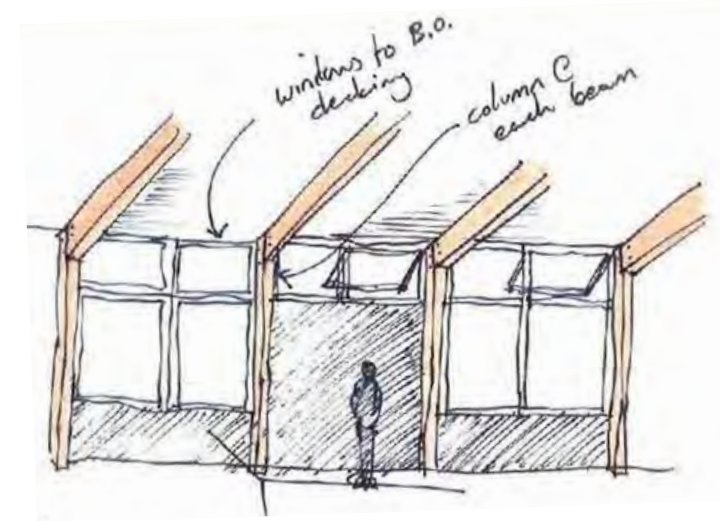
Tenants

- Expand thermal comfort range from 70°F - 75°F to 68°F - 78°F
- 20% desktop, 80% laptop computers
- Reduce phantom (plug) loads by 50%
- Consider off-site server farm to achieve 'neighborhood' scale efficiencies

Daylighting and Glazing:

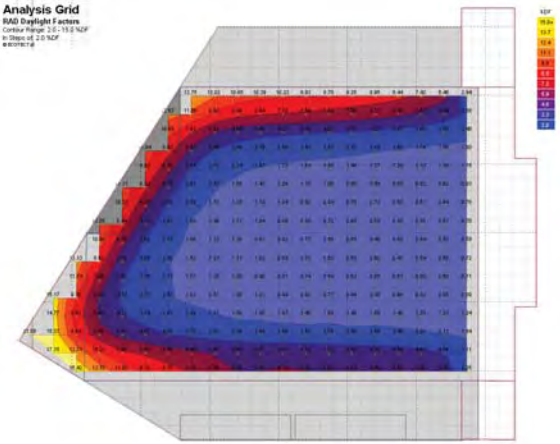
- Take advantage of sunlight and skylight to illuminate indoor environments at a level that is appropriate for programmatic and visual comfort.
- Incorporate sophisticated exterior shading devices to control solar load on the building skin and limit interior glare, as well as increased area for photovoltaic arrays.
- Reduce electric light use relative to the presence of daylight to minimize power consumption and interior heat gains.
- Employ the most efficient electric lighting systems that meet legitimate needs.
- Analyze energy performance of various glazing systems and impact on overall building design.

The three diagrams to the right compare daylighting levels for various design features. These were modeled on the third floor at 3:00 pm on an overcast day. Yellow represents the brightest, and purple the darkest daylighting. The first shows a theoretical best case daylighting scenario with a fully-glazed facade. The second diagram shows the proposed design with portions of opaque facade. In this case, the center of the building is barely meeting daylighting standards. The third diagram shows an increased floor-to-floor height which brings adequate daylight into most of the center of the building.

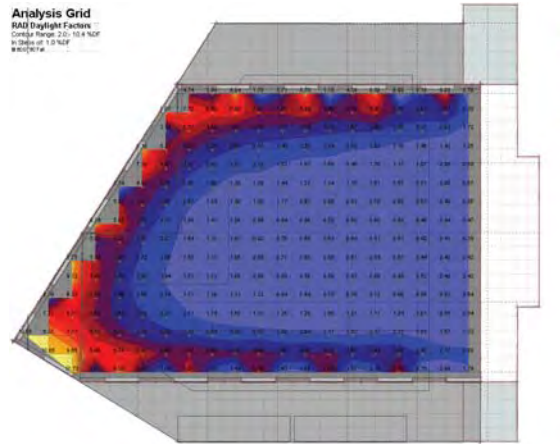


Sketch showing transom windows for maximum daylight.

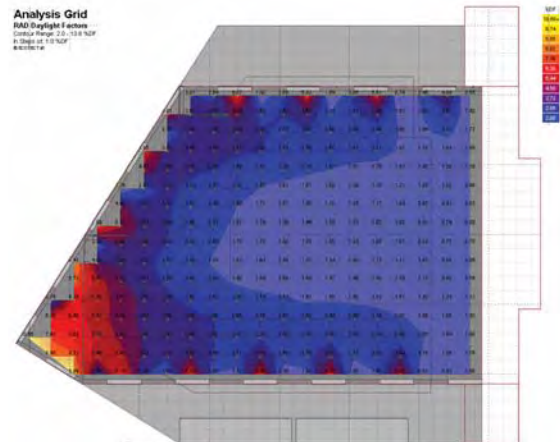
Best Case



Design Case



13'-6" Floor-to-Floor



Daylight requirements acheived using increased 13' floor-to-floor height

Health Petal

8. Healthy Air

Every occupiable space must have operable windows that provide access to fresh air and daylight.

RESPONSE: The building has been daylight modeled for conditions on overcast as well as sunny days to ensure all occupants benefit from natural light (see diagrams this page). Fresh air is delivered to all occupants mechanically through a ducted system. This ventilation strategy optimizes performance which reduces the energy demand on the building and addresses the noise and dirt emanating from Madison Street. The operable windows are automated and provide “nighttime flushing” to pre-cool the space which keeps the interior comfortable without the need for air conditioning.

9. Civilized Environment

To promote good indoor air quality buildings must meet the following criteria:

- Entryways must have an external dirt track-in system and an internal dirt track-in system contained within a separate entry space.
- All kitchens, bathrooms, copy rooms, janitorial closets and chemical storage spaces must be separately ventilated and exhaust directly to outside air.
- Ventilation rates must be designed to comply with ASHRAE 62.1-2007 and equipment must be installed to monitor levels of carbon dioxide (CO2), temperature and humidity.
- Smoking must be prohibited within the project boundary.

RESPONSE: The building will meet all of these criteria.

10. Biophilia

The project must be designed to include elements that nurture the innate human attraction to natural systems and processes. Each of the six established Biophilic Design Elements must be represented for every 2,000 m2 of the project:

- Environmental features
- Natural shapes and forms
- Natural patterns and processes
- Light and space
- Place-based relationships
- Evolved human-nature relationships

RESPONSE: The Cascadia Center is designed to expose building users and visitors to natural processes on site. First, the site was selected for its proximity to McGilvra Place and the opportunity to establish a strong connection between indoor and outdoor environments. The building’s orientation to the south and west, and reliance on solar energy will be expressed through the visible PV array; the amount of energy generated will be communicated through building dashboards in the lower floor entry lobby. Water processes will also become visible features within the building and on site, where planted bioswales will demonstrate sustainable water management. A portion of the public entry plaza proposed for the building’s 15th Avenue entrance will span the infiltration planters & rain gardens and provide a gathering place for visitors and tenants underneath the canopy of the existing Sycamore trees.



Materials Petal

The intent of the Materials Petal is to induce a successful materials economy that is non-toxic, transparent and socially equitable.

11. Red List

The building cannot contain any of a list of 13 materials that have been determined to be unhealthy at some stage in their life cycle. Although eliminating hazardous building materials is attainable, sourcing approved materials that are attractive, effective, durable, and affordable from appropriate distances may be more challenging to achieve.

RESPONSE: The building will meet these criteria. A general contractor is on the team to help identify alternative materials. The building industry is largely responsible for many of these materials and chemicals in use. For example, approximately three-quarters of all PVC is in building materials. Some of the other items on the list such as cadmium, lead, mercury and phthalates are also used as plasticizers and stabilizers for PVC.

Living Building Challenge recognizes that it is a tall order to eliminate the Red List in all cases due to current market limitations. There are several program exceptions that are footnoted in the LBC standard, and as a last resort, we will be able to use a product if there are no suitable alternatives. However, in this case we must communicate with manufacturers to share expectations about product ingredients. This involves sending a letter to the manufacturer stipulating that the product purchase does not constitute an endorsement – and include a statement that requests that the company stops using the Red List material.

12. Embodied Carbon Footprint

The project must account for the total footprint of embodied carbon (tCO2e) from its construction and projected replacement parts through a one-time carbon offset tied to the project boundary.

RESPONSE: The Foundation will assume responsibility for this requirement by paying the incremental cost of some renewable energy project that will actually cause less coal, oil, or gas to be burned.

13. Responsible Industry

The project must advocate for the creation and adoption of third-party certified standards for sustainable resource extraction and fair labor practices. Applicable raw materials include stone and rock, metal, and timber. For timber, all wood must be certified by the Forest Stewardship Council (FSC), from salvaged sources, or from the intentional harvest of timber onsite for the purpose of clearing the area for construction.

RESPONSE: The project plans to use all FSC certified wood.

14. Appropriate Sourcing

The project must incorporate place-based solutions and contribute to the expansion of a regional economy rooted in sustainable practices, products and services.

RESPONSE: This imperative identifies appropriate sourcing distances for materials and also applies limits to the location of the primary design team. The zones correlate with product density and function. Heavy materials that typically are used as structural components have the tightest radius. This encourages place-based and climate appropriate solutions for a building’s shell or an infrastructure project’s most commonly used material. On the opposite side of the spectrum, renewable energy technologies have the largest radius.

The distance that materials will travel to the construction site will follow these guidelines:

Ideas:	From anywhere
Renewable Technologies	15,000 km
Adaptable high performance assemblies	5,000 km
Consultant travel	2,500 km
Lightweight materials	2,000 km
Medium weight materials	1,000 km
Heavy materials	500 km



15. Conservation + Reuse

All projects teams must strive to reduce or eliminate the production of waste during design, construction and operation in order to conserve natural resources. All projects must comply with the following:

Project teams must create a material conservation management plan that explains how the project optimizes materials and in each of the following phases:

- Design Phase, including the consideration of appropriate durability in product specification
- Construction Phase, including product optimization and collection of wasted materials
- Operation Phase, including a collection plan for consumables and durables
- End of Life Phase, including a plan for Adaptable Reuse and Deconstruction.

During construction, teams must divert wasted material from landfills to the following levels:

Metals	95 percent
Paper and cardboard	95 percent
Soil and biomass	100 percent
Rigid foam, carpet, and insulation	90 percent
All others (weighted average)	80 percent

RESPONSE: To minimize wasted materials, we have considered impacts during the design, construction, operation, and end-of-life phases of development by developing a Material Conservation Management Plan. In it, we have considered appropriate durability of products. Our approach has been to design a 250+ year structure, a 50+ year thermal envelope and a 25+ year active technology in order for the building to be as flexible and adaptable over time as possible. As the design has developed, we have worked to implement these criteria with help from the general contractor. Please see Design Guidelines section C-4 for more information on proposed materials.

Equity Petal

The intent of the Equity Petal is to correlate the impacts of design and development to its ability to foster a true sense of community.

16. Human Scale and Human Places

The project must be designed to create human-scaled rather than automobile-scaled places, so that the experience brings out the best in humanity and promotes culture and interaction. In context of the character of each Transect, there are specific maximum (and sometimes minimum) requirements for paved areas, street and block design, building scale and signage that contribute to livable places.

RESPONSE: The building will be designed to engage and connect with both Madison Street and a new pedestrian plaza on 15th Avenue. It is envisioned that the building and site will become an active place for the community. Human scaled elements of the building will include fine-grained detailing, clear glass at the ground floor, and interpretive elements oriented towards passers-by.

17. Democracy + Social Justice

For all projects types located in Transect L3-L6, street furniture must be provided for and accessible to all members of society.

RESPONSE: The project will include universal design features such as entrances at grade, an elevator, and outdoor public seating associated with the 15th Avenue entrance.



18. Rights to Nature

The project may not block access to, nor diminish the quality of, fresh air, sunlight and natural waterways for any member of society or adjacent developments.

RESPONSE: The project conforms to the criteria for fresh air and sunlight and is not adjacent to a natural waterway, although natural storm drainage will be celebrated on the site through the use of infiltration and bioswales. The site occupies two corners and an alley, and abuts only one other building. The building is set back from the property to maintain access to fresh air and daylight. If the neighboring property is developed to its full zoning envelope, both buildings will have access to rooftop solar energy production.

The LBC recognizes development patterns in urban contexts and does not restrict development along shared lot lines. In an update to the LBC since the EDG meeting, the criteria for an L5 transect is that a development may not shade adjacent façades and rooftops above 15 meters on December 21 from 10am to 12 pm. Facades are defined as building frontages that face a public way. On December 21, the PV array of our project will cast a hypothetical shadow on the face of the building across Madison Street (Pearl Apartments) that slightly exceeds this criterion. The neighboring apartment building to the east does not fall under the category of an adjacent facade, and is therefore exempt from LBC shading restrictions.

Currently the International Living Building Institute is considering an exception for cloudy climates with respect to these criteria as it relates to shading the Pearl Apartments. In Seattle we only receive an average of 58 sunny days a year; most of those days occurring between May and September. Additionally, our mornings year-round are more cloudy than sunny due to the marine influence of the Pacific Ocean. Since Seattle does not receive significant measurable sunlight for 7 months of the year, there would be little solar energy to capture during those months and no significant amounts of sunlight on a southeast facing façade during the hours of 10 am and 12 pm.

Beauty Petal

The intent of the Beauty Petal is to recognize the need for beauty as a precursor to caring enough to preserve, conserve, and serve the greater good.

19. Beauty + Spirit

The project must contain design features intended solely for human delight and the celebration of culture, spirit and place appropriate to its function.

RESPONSE: The project provides an opportunity to create a place that is aesthetically pleasing as much as it is environmentally sustainable. The project will contain design features intended solely for human delight and the celebration of culture, spirit, and its Capitol Hill neighborhood. And, in our ideal outcome, it will contain features that are so obviously appropriate and functional in a Pacific Northwest context that they will blaze a fresh trail in regional design.

The Capitol Hill, Central Area and Pike/Pine neighborhoods each have rich cultural identities. And set in the greater context of the primeval forest and splendid waterways of the region, the project has much inspiration from which to draw. The building will celebrate its place and culture with natural light, wood to capture the Northwest spirit, and glazing to bring trees and the outside community “into” the building. While specific details have not yet been developed, we are inspired by natural trees, filtered light, flowing water and patterns of human use and development, as well as proximity to schools and neighborhood based institutions.



20. Inspiration + Education

Educational materials about the performance and operation of the project must be provided to the public to share successful solutions and to motivate others to make change.

RESPONSE: Given the public and private nature of the building, the design will need to consider issues of safety and security for building occupants and visitors. In addition, the Living Building Challenge requires that non-sensitive areas of the building must be held open to the public at least one day per year to facilitate direct contact with a truly sustainable building.

It is this project’s main goal to act as a road map for other projects, teaching people about the design decisions made and systems used. Examples of educational tools include: websites with real-time utilities tracking; 3D interfaces that highlight systems and their functionality; display areas onsite that publicize the project’s metering systems; and classes that will be taught onsite about the design and construction process.