Combined Basic Concept and Schematic Design Submission
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**Mission Bay Block 12E**

**Sustainability**

**LEED Checklist**

**Combined Basic Concept and Schematic Design Submission**

**Tuesday, March 5, 2013**

Preliminary Review Only - Required to Change

**Block 12E** will be LEED Silver Equivalent.

### Notes
- **Note:** The thermal comfort system requirements are based on average conditions and may need to be adjusted based on site conditions.
- **Note:** The water conservation measures have been calculated based on the average occupancy and usage patterns.
- **Note:** The solar energy generation is estimated based on the proposed roof area and the expected energy output.
- **Note:** The indoor air quality measures are developed to meet or exceed the required standards.
**WALKABLE STREETS**
Corner Plazas and Pedestrian Mews promote outdoor comfortable and inviting pedestrian.

**BIKE STORAGE**
Additional bike storage spaces are provided. Promoting alternate transportation and public health.

**STORM WATER HARVESTING**
Reduce the amount of storm water flowing from the site by capturing it with landscape design.

**DECIDUOUS PLANTS**
Provide shade in the public plaza for outdoor thermal comfort.

**PUBLIC TRANSPORTATION**
Close to SF MUNI system, helps reduce traffic congestion and pollution.

**HOUSING & WORK PROXIMITY**
The downtown location reduces commuting distance and promotes the city’s economy.

**PEDESTRIAN PRIORITY**
Reduce environmental impact by minimizing street parking while providing pedestrian friendly plazas and walkways.
Sustainability

- **Combined Basic Concept and Schematic Design Submission**

- **Porous Paving**
  - Permeable paving to slow water and reduce storm water run-off.

- **Water Efficient Landscape**
  - To limit use of potable water.

- **Universal Accessibility**
  - All roof decks are fully accessible.

- **Vegetated Roof Decks**
  - All roof tops are landscaped, therefore improving insulation, waterproofing, harvest storm water, and reduce heat island effect.

- **Deciduous Plants**
  - Provide shade in the public plaza for outdoor thermal comfort.

- **Storm Water Harvesting**
  - Reduce the amount of storm water flowing from the site by capturing it with landscape design.

- **Heat Island Reduction**
  - Use high albedo surfaces, vegetation, and light color surfaces to reduce the heat island effect.
**VEGETATED ROOF DECKS**
All roof tops are landscaped, therefore improving insulation, waterproofing, harvest storm water, and reduce heat island effect.

**HEAT ISLAND REDUCTION**
Use high albedo surfaces, vegetation, and light color surfaces to reduce heat island effect.

**WATER EFFICIENT LANDSCAPE**
To limit use of potable water.

**HIGH ALBEDO ROOF**
Use of highly reflective coating in order to lower absorption of solar energy.

**POROUS PAVING**
Permeable paving to slow water and reduce storm water run-off.
WATER EFFICIENT LANDSCAPE
To limit use of potable water.

POROUS PAVING
Permeable paving to slow water and reduce storm water run-off.
Introduction

A pedestrian wind review for this project was originally completed on August 2, 2012. Overall conclusions by RWDI at that time were that we did not anticipate any unsafe wind conditions, however, westerly and northwesterly winds were found to be potentially uncomfortable for pedestrians in localized areas at both grade and podium levels.

Additional testing was completed, incorporating suggested mitigation measures and an updated version of Block 11. The design team developed mitigation strategies and then tested a scale model of the proposed project in a wind tunnel to quantify and confirm the predicted conditions with mitigation options in place.

The current study involved wind simulations on a 1:300 scale model of the proposed building and surroundings as seen in the photos on following pages. These simulations were then conducted in RWDI’s boundary-layer wind tunnel at Guelph, Ontario, for the purpose of quantifying local wind speed conditions and comparing them to appropriate criteria for gauging wind comfort in pedestrian areas. The revised report describes the methods and presents the results of the wind tunnel simulations.
Pedestrian Wind Conditions

The results from the wind tunnel testing are graphically depicted in Figures 7 and 8. These predicted wind comfort conditions at each wind measurement location based on the summer and winter winds, respectively, for the Proposed configuration.

As can be seen in Figure 7 the summer wind conditions at most of the locations tested are predicted to be comfortable for strolling or better. The pedestrian walkway along the west side of the site (Locations 3 through 8) and the West Tower Lobby Entry (Locations 1 and 2) are predicted to be appropriate for their intended usage (i.e., comfortable for sitting, standing or strolling). The pool deck amenity area is generally expected to be comfortable for strolling which is less than ideal for the intended usage (i.e., for passive activities on pool decks we would prefer to see condition conducive to sitting or standing). There are a few areas where uncomfortable winds are predicted during the summer. They are at grade level near the north corner of the project (Locations 15 and 16); the north corner at podium level (Location 54); around the pedestrian bridge connecting the west tower to the mid-rise building (Locations 33, 34 and 55); and, at grade level across Long Bridge Street (Location 63).

The wind conditions during the winter months (Figure 8) are significantly better as is typical for the San Francisco wind climate. These conditions are for the most part expected to be comfortable for sitting or standing. Two locations are predicted as being suitable for walking (Location 15 and 55).

None of the locations tested predicted wind speeds to exceed the wind safety criterion.
Pedestrian Wind Conditions With Mitigation Measures

The effects of adding additional mitigation measures are graphically depicted in Figures 9 and 10 for the summer and winter months, respectively.

As seen in Figure 9 the results at the West Tower Lobby area (Location 2) are now predicted to be comfortable for standing with additional trees added. Even though the addition of these trees did show some benefits, these trees are not considered critical for wind mitigation.

The nine foot glass screen at the north corner (near Location 16) was not effective for wind control. This is a result of the location and orientation of this screen.

The addition of an eight foot tall porous screen and gate at the pool deck area did improve conditions locally at Locations 37 and 40, which are now predicted to be comfortable for standing. However, the extent of the benefit was less than expected and therefore this mitigation measure is not considered critical for wind mitigation.

None of the locations tested predicted wind speeds to exceed the wind safety criterion.
CONCLUSIONS

- No unsafe wind conditions are predicted.

- Many locations around the development at grade level are expected to have wind conditions that are appropriate for the intended usage. The only exceptions to this are the north building corner (Locations 15 and 16) and on the opposite side of Long Bridge Street at Location 63. In both instances additional mitigation strategies are suggested.

- The landscaped Level 5 open space (i.e., top of podium) is predicted to have a few areas where wind conditions are less than desirable for the passive pedestrian activities. In all cases, additional mitigation strategies have been discussed with the design team and are described in this report.

ADDITIONAL MITIGATION STRATEGIES

- **Penthouse Level Locations**

  The eight foot tall pinnacled screen and gate added to the pool deck as part of Mitigation Option 2 (Figures 9 and 10) was not as effective as hoped. It did improve wind control conditions locally at Locations 37 and 40. Based on these results this mitigation strategy is not considered critical.

  The 10 to 12 foot tall pinnacled screen located upstream of the pool deck was not as effective as hoped. It will provide some localized protection especially when winds are from the northeast (i.e., perpendicular to this screen). Unfortunately, the effectiveness of this screen is reduced whenever the winds blow from the west and therefore more opposite to the screen. To further improve conditions on the pool deck would require the following strategies:

  - the addition of larger trees upstream (i.e. to the west and northwest of the screen);
  - shifting the screen closer to the pool;
  - increasing the height of the screen;
  - the addition of smaller vertical pinnacled screens perpendicular to and downstream of the larger screen to provide localized areas of protection and/or;
  - strategically located overhead pinnacled trellises.

  See photos to the right for some relevant examples.

**RESPONSE:**

- No trees on Level 7 green roof.

- Block 11 is not in the scope of Block 12E.

- Additional trees added along Channel St. planters to mitigate the wind at ground level. See page 62, Landscape drawing L1.

- This area is not for public usage. For the aesthetic reason, no screens are added along the building perimeter. Additional plants are added under the tree in the planter between the units for wind mitigation. See page 63, Landscape drawing L5.
The landscape concept reflects the coastal and bay front aspect of the site, utilizing the strong forms of the boardwalks and docks of the San Francisco Bay. On the main podium landscape terrace at level 5, fingers of decking reaches out to the overlook areas in a similar fashion as the piers along the Embarcadero waterfront. Flanking these forms is a planting of grasses and sedges, abstracting the landscape typically found in the marshes and shoreline of the bay. The mounding of these forms brings a third dimension to the otherwise flatten ground plane. Gathering areas along these paths are protected from the wind via wind screens or translucent canopy structures. Smaller intimate gathering spots are punctuated with raised fire pits at the ends of the overlooks.

The main public social area occurs along the open space between the fitness center to the west, swimming pool deck area and the activity center to the east. Just outside of the fitness center is a larger deck space and lawn area where yoga and other fitness activities can be performed outdoors. The secured pool and spa area has the largest part of the pool deck located furthest to the north where there is the most unobstructed sunlight. Transparent windscreens are located along the north perimeter of the pool deck and raised planter walls to the south gives privacy to the podium level units. The activity room has an outdoor courtyard with seating and lounging with the majority of the open space laid out in a linear fashion towards the overlook.

A third overlook area to the southern side of the building (Long Bridge Street frontage) is linked to the swimming pool and spa area from the main exiting corridors of the two towers by a path, canted at the same angle as the decks to the north. This angle creates spaces non orthogonal relationship to the building form and maximizes landscape opportunities on the podium level. Seating is built into the planters in a ziggurat configuration.

The outer perimeter landscape along the private terraces of the building are raised rectangular planters with tree plantings. These rectangular planters follow the forms of the architecture with the cargo container motif.

On the Level 7 and Level 10 terraces, private outdoor patios service the individual units. These terraces are linked with a green roof planting open space that reflects a similar pattern of wave like shapes of varying textures and color. The recycle blue/green glass mulch amplifies the aquatic nature of the landscape. Raised planter at the Level 10 terrace provides additional screening from units across from each other. Overhead glass screens give wind and weather protection for the seating areas.

The roofs of the two towers will have extensive green roof plantings to reduce and filter stormwater runoff and to increase the buildings sustainability.

At the ground level along Channel, El Dorado, and Long Bridge Streets, the building face is set back from the back of walk, allowing a landscape zone in front of the ground floor units. Raised planters at the stoops accentuate the secondary entries to the individual ground floor units, putting a face to the sidewalks around the project. The building entry plazas are paved with a precast paver to highlight these entry points into the building. In-grade LED fixtures integrated into the paving pattern provide a dramatic note at the building entries. Landscaping along the pedestrian mews is limited to some paving and a raised planting bed in front of the corner unit along Channel Street. The remaining mews landscape shall be by others.
Enlarged Entry Plaza Plans
Landscape

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Landscape

Material Images

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Plants

Eucalyptus nicholii - Willow Peppermint
height: 25' - 40'
width: 20' - 30'

Olearia paiviiflora - Australian Willow
height: 20' - 30'
width: 15' - 20'

Tristania laurina - Water Gum
height: 25' - 40'
width: 10' - 20'

Lavatera assurgentiflora - Tree Mallow
height: 10' - 12'
width: 6' - 10'

Leptospermum petersoni - Lemon Scoried Tea Tree
height: 12' - 18'
width: 10' - 20'

Melaleuca decussata - Llaco Melaleuca
height: 12' - 18'
width: 10' - 20'

Melaleuca arenaria - Flax Leaf Paperbark
height: 30' - 40'
width: 10' - 20'

Juniperus pfitzeri - California Gray Rush

Leymus condensatus - ‘Canyon Prince’
Canyon Prince Wild Rye

Leymus arinarius - ‘Glaucus’
Blue Rye

Miscanthus sinensis ‘Strictus’
Porcupine grass

Hakea laurina - Sea Urchin
height: to 30'
width: to 20'

Fucus setoniana - Pineapple Guava
height: 18' - 25'

Carex alpina
New Zealand Hair Sedge

Carex divisa
Berkeley Sedge

Carex elata ‘B. Golden’
Golden Variegated Sedge

Carex elegansissima
Goldil Edged Sedge

Chondropetalum elephantinum
Large Cape Rush

Chondropetalum tectorum
Small Cape Rush

Achillea sp.
Yarrow

Armenia maritima
Sea thrift

Artemisia sp.

Dianthus deltoides
Morden Pink

Fragaria chiloensis
Wild Strawberry

Gallium odoratum
Sweet Woodruff

Oregano

Potentilla tabernaemontani
Spring Cinquefoil

Santolina chamaecyparissus
Lavender Cotton

Verbascum dumulosum
Mullein

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