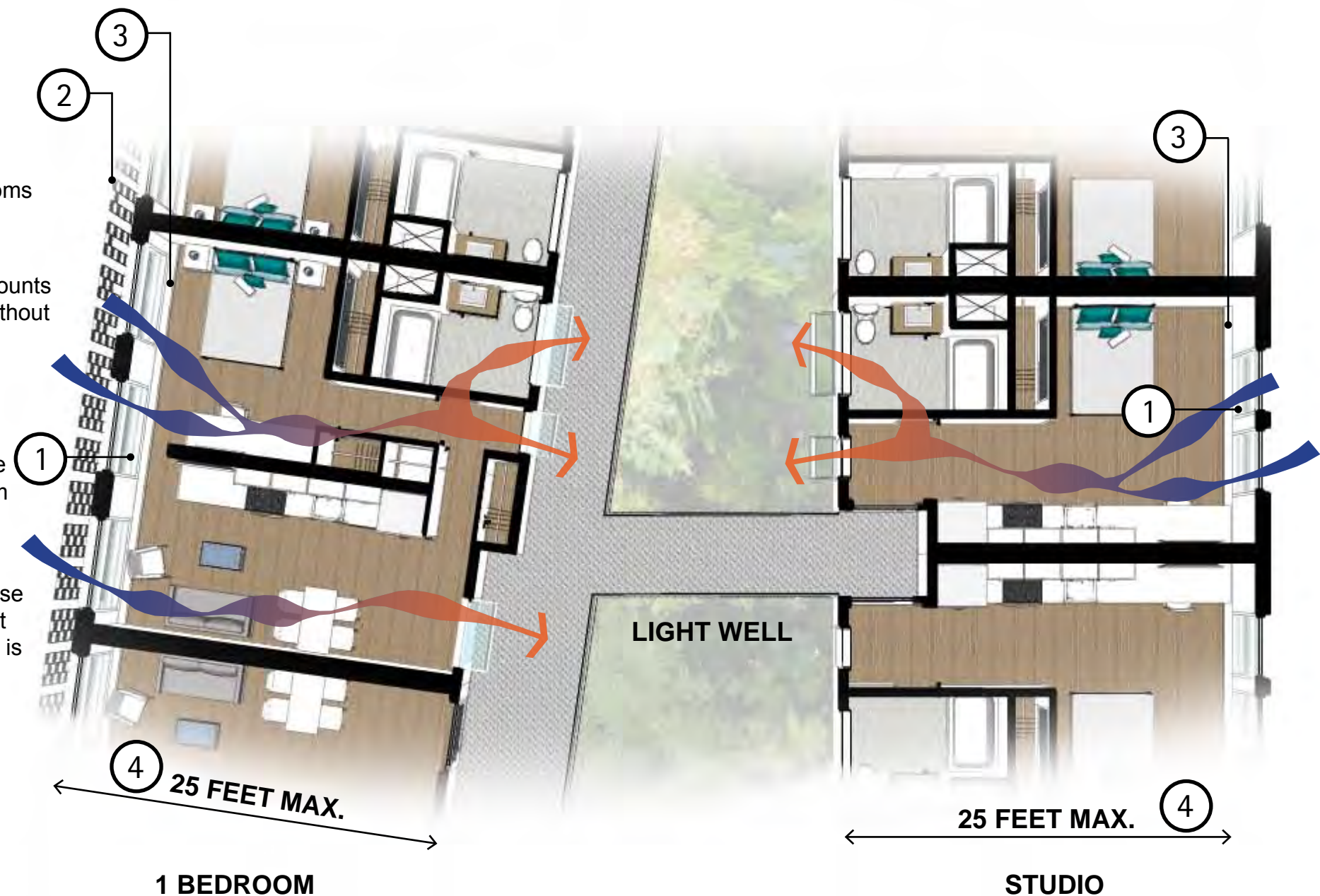


UNIT PLAN

- NATURAL VENTILATION / OPERABLE WINDOWS**
All single loaded corridor layout provides through units. Air flow moves through the units, with passive exhaust through bathrooms
- DAYLIGHTING**
The shading scrim allows for the exterior facades of the units to have substantial amounts of glazing. The units receive natural light without the unwanted effects of glare or heat gain
- BASEBOARD RADIATOR**
Radiant heat is provided for optimum occupant comfort. The hydronic system is connected to low energy heat pumps on the roof, which interconnect hybrid PV/T system
- UNIT DESIGN**
Units are designed to have all spaces in close proximity to the exterior wall to increase access to daylight and facilitate through unit air flow. Corridor to exterior wall dimension is no greater than 25 feet in all units.



PERSPECTIVE



CONCEPT NARRATIVE

To achieve net zero performance, consideration of building orientation is important, but must be balanced with daylight access and solar control. For residential uses, an east-west orientation would limit direct access to daylight for nearly half of the occupants.

The ØeMission Bay design response lifts the massing, leveraging opportunities to link major green spaces to the north and south, and encourages street level pedestrian flow. Air currents across the site are directed up into the courts and light wells. The facade shading strategy is born of solar insolation analysis. The northwest and southwest facade scrims are shaped by the intensity of the annual solar radiation striking the facade. The opacity of the translucent scrim, directly proportional to the insolation intensity, allows for maximum window to wall ratios while minimizing solar gain. Smaller openings on the eastern facades are designed to reduce thermal loads. The hybrid PV/solar thermal array further shades the facades and light wells.

All living units allow natural ventilation by cracking open the traditional double loaded corridor plan and introducing semi-enclosed light wells. Operable windows on opposing sides of the unit allow free cross flow of air. Light wells act as thermal chimneys, inducing convection currents upward, "pulling" air through the units. Heating is provided through high efficiency air-source heat pumps interconnected with the solar thermal panels on the roof, all of which combine to provide a very low energy solution. The podium is heated and cooled via in-slab radiant conditioning supplied by heat pumps for increased occupant comfort.

BUILDING SECTION

- HYBRID PV / T PANELS**
Area required for domestic hot water production uses a combined panel system (Hybrid PV/T) raising the efficiency of the PV and reducing the footprint of the array. The remainder of the array is made up of 100% PV panels
- 50% PV COVERAGE & POLYCHROMATIC GLASS**
PV cells covering half of these areas are laminated in polychromatic glass which effectively captures and distributes daylight into covered courts and light wells
- HIGH EFFICIENCY HEAT PUMP PLANT**
Each building has a very high efficiency system combining solar thermal panels with hot water produced with heat pumps and transferred to living units and podium functions via hydronic piping
- RADIANT HEATING AND COOLING**
Perimeter baseboard radiators provide heat to all living units. In-slab hydronic loop provides radiant heating and cooling for the podium functions. Both are connected to the rooftop heat pump plant
- COVERED LIGHTWELL**
PV array provides weather protection and creates a low pressure zone to promote convection and stack effect for natural ventilation through the units
- COLOR GRADATION FOR DAYLIGHT PENETRATION**
Light well walls are given lighter colors at lower levels, gradually darkening as they rise through the building
- CEILING FANS & LED LIGHTING**
Fans Creates air movement to lower perceived indoor temperature and augment air movement from convection. 100% LED lighting minimizes lighting power density
- NATURAL VENTILATION / OPERABLE WINDOWS**
Single loaded corridor layout provides through units. Air flow enters operable windows - moves freely through the units - passively exhausts through bathrooms into light well
- SKY GARDENS**
Each building has openings through the floor plan that are outdoor gardens horizontally connecting the courts to the light-wells and allowing daylight and airflow to reach the light wells
- HIGH PERFORMANCE ENVELOPE**
Roof, exterior walls, and elevated floors all receive mineral wool insulation and are completely sealed against infiltration of air and moisture. Window systems use U - .35 Glass Assembly with Tvis = 50% and SGHC = .23
Roof = R - 40
Walls = R - 13 (not including glass conductivity)
Floor = R - 13 (for elevated slabs)
- SHADING SCRIM**
An external perforated scrim, the form optimized by solar insolation analysis, is suspended outboard of exterior wall. Window opening sizes on west, north, and south are consistent based upon results of shading analysis

SITE PLAN

100% PV Coverage	A 13,203 sf PV, 2,000 sf Hybrid PV/T
50% PV Coverage	B 13,434 sf PV, 2,500 sf Hybrid PV/T
Hybrid PV/T	C 3,312 sf PV
	D 13,229 sf PV, 2,500 sf Hybrid PV/T
	E 10,930 sf PV, 3,000 sf Hybrid PV/T
Total 54,108 sf PV, 10,000 sf Hybrid PV/T	

GROUND FLOOR

