Bounded area is taller than the collector array platform by ~12'-3". This will cast partial shade across the platform during morning hours.

Bosch FKC-1S Flat Panel Collectors, 9 total. Collectors shown angled at 47.6° to horizontal.

Optional second row of collectors mounted behind the first.

Maintenance access walkway with safety railing installed in front and behind each row of solar collectors.

Shading Model for March 21 at 9:00am. Demonstrates shading across panels closest to east end of the array. This shading is typical of morning hours throughout the year.

Shading Model for March 21 at 12:00pm. From mid-March through late October, shading is typically absent on both rows of collectors from mid-day until late afternoon.

Shading Model for December 21 at 12:00pm. The back row of collectors is partially shaded by the front row throughout the day during the winter months, November through March.

Seattle Solar Thermal Systems: Effect of orientation on output
Seattle Solar Thermal Systems: Effect of tilt angle on output

Flat Panel Collector Array Layout
Single Row Arrangement (Option 3) and Double Row Arrangement (Option 4)
**SHADING ANALYSIS:**
The following charts show the % of the panel surface area that remains unshaded during each hour of the day. This analysis only considered the shading from the mechanical penthouse, the western stairwell (including screening), and the other solar arrays. Red cells indicate no shading, blue cells are completely shaded (or that the sun has set).

**CONCLUSION:** The combination of the proposed system orientation, mounting angle, and shading only result in approximately 10% less production than an "ideally oriented & unshaded" system. The front row is 96% unshaded and the back row is 84% unshaded.