

SUTRO TOWER®

connection

THE NEWSLETTER FOR THE SUTRO TOWER NEIGHBORHOOD | JANUARY 2019

Honey Bees Thriving at Sutro Tower

Three beehives placed at the foot of Sutro Tower were home to about 50,000 bees that pollinated flowers, citrus trees and other plants in the neighborhood in 2018. All the hives came through the year healthy, unlike the previous year when one of the two hives at the tower fell victim to a bee parasite in November, according to Bill Tomaszewski, head beekeeper for Planet Bee Foundation, which manages the hives.

The hives produced almost 50 pounds of honey. The harvest was scheduled so it could be a special field trip for 30 fourth and fifth graders from Denise Ebisuzaki's class at Clarendon School. The students walked up the hill from the school to the tower, then got a unique, hands-on lesson in apiology from Planet Bee Foundation staffers. They learned about the life of bees, the care of hives, and how to harvest the honey.

"It was so much fun working with the kids," said Zach Parlee, educator and outreach director for Planet



At the end of their field trip to Sutro Tower, everyone in the class left with individual jars of honey

Right: Students scraped honey off the hive box frames

Bee Foundation. "They'd already learned a bit about bees in class, so you could see the enthusiasm in their faces as we showed them the hives close-up and had them scrape honey right off the frames."

Each student (and chaperone) left with a jar of Sutro Tower honey from "the highest hives in the city."



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Permits for New Antennas, New Wind Load Plan

The San Francisco Planning Department is reviewing permit applications submitted by Sutro Tower, Inc. to install new antennas mandated by the Federal Communications Commission, and to reduce the wind load and weight of the tower for safety.

Nine new television antennas are needed so Bay Area broadcasters can comply with the FCC's nationwide "repack" project, which repurposes 30% of the current TV frequencies for use by wireless companies starting in 2020. TV broadcasters must repack their signals into a narrower portion of the frequency spectrum; this requires new antennas. When the \$18 billion repack project is completed, wireless companies will have the bandwidth to deliver 5G service nationwide.

More than 1 million Bay Area residents, including more than 100,000 San Franciscans, receive their TV signal directly from Sutro Tower's antennas, and the number of over-the-air viewers is growing. Cable and satellite viewership dropped 3.7% in 2017, according to S&P Global Market Intelligence's Kagan researchers, and a study by the research firm eMarketer estimated a further 3.8% drop in 2018. The eMarketer study, released in July 2018, said 9.8% of previous cable or satellite customers had "cut the cord" and gone to over-the-air or internet viewership by the end of 2017, and that the number will double by 2022.

The FCC's repack project facilitates this change by compacting the available frequencies for TV broadcasters and expanding the available frequencies for wireless users. The new TV



A photo-simulation of the top of the tower with the new "repack" antennas and open truss legs, and the 90-foot open truss test section as viewed from Twin Peaks

antennas must be in place on Sutro Tower early next year to meet the FCC's compulsory nationwide rollout schedule.

In order to accomplish the repack, significant reconfiguration of antennas on one of Sutro Tower's spires will be necessary. Such reconfiguration requires structural enhancement subject to newer building codes.

When Sutro Tower was first designed, wind forces were determined for winds having a 50-year return period, which means a 1/50th, or 2%, chance of occurring in any one year. The City of San Francisco now designates Sutro Tower an "essential services facility." Under current building codes, this requires the tower be designed to resist winds with a return period of 3,000 years (a 0.033% chance of occurring in any one year), resulting in much greater forces. To enable practical strengthening of the tower for the forces resulting from these 100 mph winds, 1,500 siding panels are proposed to be removed from the structure's legs to reduce weight and lessen wind forces.

"The safer approach is to remove the

siding to create open truss legs," said Ronald Hamburg of the structural engineering firm Simpson Gumpertz & Heger, who is Sutro Tower, Inc.'s engineer of record. Instead of adding 30,000 pounds with heavier siding panels, open truss legs will reduce the tower's weight by 140,000 pounds. "Taking wind load and weight off the tower increases safety factors," Hamburger said.

While changing to open truss legs, similar to the Eiffel Tower, Sutro will retain its historic red-and-white look.

This pleased San Francisco artists who depict Sutro Tower in paintings, posters, tattoos and other artistic formats. "Its form and color make Sutro an icon," said artist Tex Buss, in her studio on Guerrero Street. "Red and white shows it's not just a tower, but something someone can care about."

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RF Emissions Ren

Independent experts regularly measure the emissions from Sutro Tower's antennas at 200 points in the neighborhood up to 1000 feet from the tower to ensure compliance with federal guidelines limiting human exposure to radio frequency electromagnetic fields. These RF emission readings are submitted to the City and are posted online at www.sutrotower.com/safety-and-maintenance/safety-reports/.

RF emissions at Sutro Tower have always been well below federal safety limits.

The most recent readings were done in August by Rajat Mathur, vice president

Artists Discover Sutro Fog Collectors

The Futurefarmers art organization culminated a four-month-long, multi-media exhibition at San Francisco's Yerba Buena Center for the Arts with a participatory fog project and a video filmed partially at Sutro Tower's fog collectors.

Futurefarmers artists take "a collective, playful, inquiry-based approach" to environmentally-conscious projects, their website states.

So, on a suitably foggy day, after an earlier exploratory visit, a dozen of the artists, accompanied by their videographer, donned foil collars to emulate fog droplets as they circled the fog collectors that were installed at Sutro Tower three years ago by FogQuest (a non-profit that supports researchers seeking to capture the moisture from fog to provide water when rain is sparse). And on the last day of



Performance artists representing fog droplets at the Sutro Tower fog collector

Futurefarmers' Yerba Buena exhibition, called *Out of Place, In Place*, the group had a "Sea to Sutro" procession "embodying fog rolling through the city."

Amy Franceschini, a former Guggenheim Fellow who is now a visiting artist at California College of the Arts and Stanford University, founded Futurefarmers in 1995. She knew of the FogQuest fog collectors at Sutro and arranged the group's visit, since their

exhibition at Yerba Buena included what they called a new "speculative fog-harvesting machine," a live project constructed and activated over the course of the exhibition.

"It was such an honor to encounter the marvel of the tower," said Franceschini. "It was a joy to work within the complex ecology that Mt. Sutro avails: fog, bees, electromagnetism and sound."

Median Far Lower Than FCC Limits

and senior engineer at the wireless and radio engineering firm Hammett & Edison of Sonoma, accompanied by field technician Spencer McNairy. The results are on the website.

Radiation exposure limits are set by the Federal Communications Commission to be far lower than any level found by numerous scientific studies to have any negative effect on any persons, regardless of age, gender, size, or health. The radiation from Sutro Tower's antennas in the August readings was just 6.0% of the most restrictive FCC public exposure limit at the point of maximum exposure;

90% of the neighborhood measurement points had readings under 3% of the most restrictive limit.

Separately, Sutro Tower, Inc. has provided residents with their own field meter so residents can measure radio frequency emissions in the neighborhoods surrounding the Tower at any time. Siu Ling Chen, the Midtown Terrace neighborhood liaison to Sutro Tower, has had the equipment for more than three years. Neighbors can request emission readings inside and outside their homes, either from Sutro Tower, Inc. or from the Midtown Terrace homeowners association.



Rajat Mathur and Spencer McNairy take an RF emission reading near the tower

New Flagpole for Midtown Terrace Park

There's a new flagpole at Midtown Terrace Playground, courtesy of Sutro Tower, Inc.

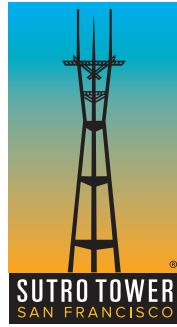
The new aluminum pole, 30 feet high with an interior lanyard, replaced a rusted, deteriorated steel pole that was "in dire condition from the wind and fog," according to Chuck Crane of ANC Flagpoles of Concord, which did the work. The new pole weighs 170 pounds. It is attached to the base of the removed pole and is additionally supported by five feet of gravel.

"It was a pleasure to do this job," said Crane, who has been putting up flagpoles for 50 years from Oregon to Bakersfield.

Chuck and Matthew Crane installed the 30-foot-tall flagpole



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Questions? Visit www.sutrotower.com/for-our-neighbors/, or contact Sutro Tower Chief Operating Officer Eric Dausman at 415-681-8850 or info@sutrotower.com.

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Aaron Eiland, an artist at Hybrid Design on Florida Street who won the 2017 International Design Award for a series of posters including one of Sutro Tower, was open to the change as long as the colors stay. "Red and white has more personality – gray is non-descript," he said. "Sutro's got unique style, shape and size. On this side of the city, Sutro is definitely the dominant icon. It's a unique experience to walk home and see it every day."

Sutro Tower workers have removed 90 vertical feet of white siding from the north leg, between 240 and 330 feet above ground, and painted the area's conduit and steel white. This is a test of both how open truss legs impact tower maintenance, as well as its visual impact from different distances.

There will be a public meeting for neighbors to discuss with Sutro Tower

Designer Aaron Eiland and his award-winning poster of Sutro Tower



representatives the permit applications for both the new antennas and the open truss legs. Details of the meeting will be mailed to each household in the Midtown Terrace, Twin Peaks and Forest Knolls neighborhoods, as well as posted on the website www.sutro-tower.com. The Department of Building Inspection and the San Francisco Planning Commission will review both applications.