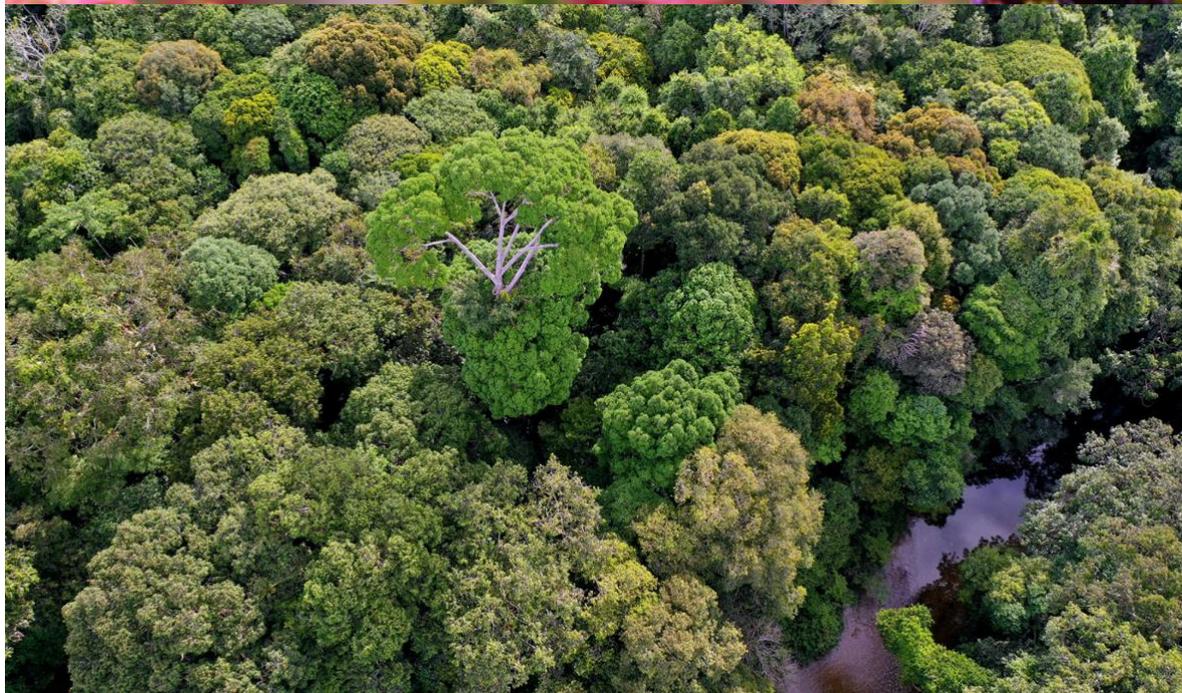


# Ecology and Biodiversity

*Solutions for preserving the biodiversity of the Bay Area  
and maintaining a healthy ecosystem*



# Beekeeping Regulation

*Protect tiny pollinators by changing from a code based on zoning and distance to a nuisance-based model*



## **The Impact**

Implementing a nuisance mitigation model for beekeeping allows beekeepers to have healthy colonies without the barriers imposed upon them by stricter codes. More bees and beekeeping means more pollination, which is essential to food security and maintaining a healthy ecosystem.

## **Description**

The nuisance mitigation strategy to regulate beekeeping means that residential hives are regulated upon complaint rather than regulations based on zoning, the number of hives and/or distance. According to a Burlingame city report, complaints of beekeeping being a nuisance are rare, with only one case from 2014 to 2018, which was resolved by the Beekeepers' Guild of San Mateo County.

## **Where It's Been Implemented**

Four of San Mateo County's 20 cities still have very restrictive beekeeping policies. The others have adopted a nuisance mitigation strategy to regulate beekeeping.

## **Key Drivers**

It is normal for bee populations to decline in the winter months due to reproduction slowing down. A typical loss used to be about 5 to 10 percent of the population, and up to 15 to 20 percent in a bad year. But in the U.S., losses now commonly reach 30 to 50 percent of the hive population every year. From 1947 to 2008, the total number of hives in the U.S. declined 60 percent, despite our agricultural needs growing with our population.

Bees are prolific pollinators that are essential to the functioning of the ecosystem as well as our agricultural efficacy and, thus, the stability and resilience of our food system. They are responsible for pollinating 70 percent of the top crops for human consumption.

## **Key Factors for Success**

In order to simplify having a nuisance based mitigation strategy when it comes to beekeeping, the Beekeepers' Guild started a beekeeping site evaluation program and a code enforcement team to handle complaints and reports by working with the beekeepers directly. Complaints are rare, with only about one or two every year. All have been resolved by the Beekeepers' Guild.

Another key to success is to educate the public and normalize beekeeping. In Redwood City, hives were established on top of the downtown public library in order to spread awareness of beekeeping and demonstrate how noninvasive it is, even in an urban setting.

## **Key Obstacles**

In the San Mateo County jurisdictions that still have beekeeping restrictions, the main pushback has been from city attorneys that want to avoid conflict that might arise from bees being in neighborhoods. Another obstacle is the people that are miseducated about bees and fear them. The Beekeepers' Guild works hard to educate and promote safe beekeeping.

## **Timeline to Implementation**

In Burlingame, the ordinance that previously restricted beekeeping was simply deleted, so the city defers to the California state nuisance mitigation strategy. This way, the jurisdiction doesn't have to spend time on drafting new ordinances.

## **References and Resources**

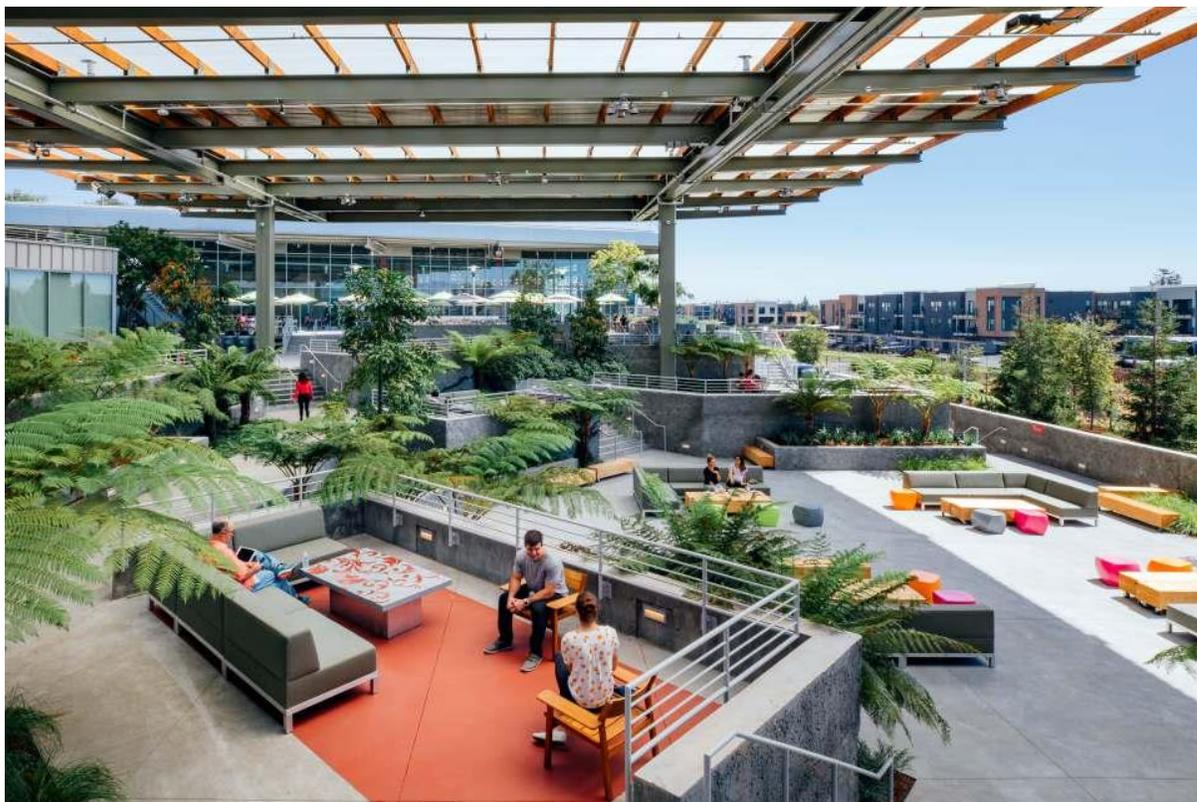
Nickie Irvine, Beekeepers' Guild of San Mateo County, nickieirvine@gmail.com., 650-401-8756

[Beekeeper's Guild of San Mateo County petition](#)

[Map of San Mateo County cities and their beekeeping ordinances](#)

# Rooftop Gardens and Green Roofs

*Install a rooftop garden on your building to improve insulation, energy efficiency, aesthetic appearance and carbon offsets*



## **The Impact**

Rooftop gardens, otherwise known as green roofs, can help trap heat during the winter months and keep the office cool during the summer, which reduces annual energy bills. Insulation provided by the garden also decreases noise pollution, leading to a more productive work environment.

## **Description**

Rooftop gardens, living roofs and green roofs are all variations of eco-friendly roof designs that are outfitted with greenery such as shrubs and native plant species. There is a range of intensities as well. Sedum green roofs are vegetated mats that are low maintenance and easy to install, while still being quite environmentally friendly. Semi-intensive green roofs involve planting shrubs and small plants. Intensive green roofs require some significant landscaping, but they can provide a beautiful area for employees to relax, and they act as a better carbon sink. Biodiverse roofing is the most intense type of green roof. While it may be less aesthetic than a typical rooftop garden, it provides a habitat for important species such as pollinators and birds, and the sustainability benefits are immense.

## **Where It's Been Implemented**

A number of businesses and facilities have implemented rooftop gardens throughout the Bay Area. Facebook headquarters in Menlo Park, Calif., offers an expansive example, with a nine-acre rooftop park (shown in photo) hosting 90 percent native flora, 350 deciduous trees and dozens of bird species.

San Francisco recently became one of the first cities to mandate the incorporation of solar or living roofs on new nonresidential construction smaller than 10 stories. More than 25 extensive green roof projects in the San Francisco Bay Area have been implemented by a single company called Symbios Design.

## **Key Drivers**

All types of green roofs can improve building insulation and lower energy costs, thus helping to reduce the carbon footprint of a company or organization. The long-term energy savings can be substantial. According to the EPA, the savings are about 23 cents per square foot of roof surface, due to increased energy efficiency.

## **Key Obstacles**

Greenery on rooftops requires some maintenance. The installation and consistent maintenance of a rooftop garden can be costly, but the return on investment is promising. Businesses contemplating a green roof should weigh these costs alongside the long-term cost savings, energy reduction and aesthetic benefits.

## **References and Resources**

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[San Francisco Ordinance](#)