



BOMA Georgia

FOUNDATION

A White Paper on

CRE and the Bee

Exploring the benefits of bees in the urban ecosystems and the role that commercial real estate can play in environmental conservation.

White paper collaboratively produced by the Building Owners and Managers Association of Georgia and the BOMA Georgia Foundation.

CRE and the Bee

Could something as tiny as a honey bee help boost your bottom line?

Many owners and managers of commercial properties across the United States believe it can. Of course, they're counting on thousands of honey bees to do their part, not just one. As a result, an increasing number of companies are installing beehives on the roofs of their urban and suburban buildings.

Although it's difficult to quantify, Al Scaramelli, Ph.D., P.E., the managing director of Beacon Capital Partners responsible for facilities operations, environmental and sustainability programs, said the honey bees on the roofs of Beacon's buildings, combined with other sustainability efforts, help tenants choose Beacon over the competition. Increased occupancy rates, of course, equal increased revenue.

"Our tenants are fascinated with the bees," Scaramelli said in an interview. "We are open about having bees on the roof and even give tours to small groups of tenants with a beekeeper."

In 2014, Beacon partnered with Best Bees to install beehives on the roofs of most of its buildings, becoming one of the first institutional property owners to introduce a large-scale beekeeping program in the United States. The cost of the program, Scaramelli said, is low compared to the return.

Beacon gives honey as gifts to potential tenants, Scaramelli said. They use honey, honey beer and gifts with bee motifs for their prospect "thank you" baskets. They also include copies of Noah Wilson-Rich's book, *The Bee: A Natural History* in the baskets. The goodwill the bees generate, he said, is huge.

Beacon started its sustainability efforts decades ago, Scaramelli said, because "it was the right thing to do." Is it, however, the right thing for every company?

This report provides information about bees and beekeeping in urban settings. Published by Building Owners and Managers Association of Georgia (BOMA Georgia) and Building Owners and Managers Association of Georgia Foundation (BOMA Georgia Foundation), it gathers pertinent information about the pros and cons of creating bee habitat on building roofs across the United States, shares best practices for hosting thriving bee hives and explains how other companies have leveraged their bees and sustainability efforts to stand out from the competition, gain corporate recognition and boost the bottom line.

The Buzz About Bees

Humans would be in serious trouble without bees. We rely on their help pollinating many of our fruits and vegetables. Bees pollinate more than 130 crops or about a third of the world's food supply – that's about one bite out of every three we take. They contribute \$15 billion dollars to the U.S. economy and almost \$100 billion worldwide.

Bees are fascinating for their variety, if nothing else. The 20,000 known species of bees inhabit all parts of the globe except Antarctica and can be loosely classed in four groups: solitary, bumble, stingless and honey bees. Honey bees have been studied more than the others, as humans have kept honey bees for centuries, gathering wax, honey, pollen, propolis and venom from hives.

The first bees developed from wasps about 100 million years ago, about the same time that flowering plants began to develop. Bee expert Noah Wilson-Rich, Ph.D., founder and chief scientific officer of The Best Bees and the Urban Beekeeping Laboratory & Bee Sanctuary, said in an interview that today's bees, unlike their wasp ancestors, are vegans.

Wasps, yellow jackets and hornets need aggressive attitudes and deadly stings to subdue and consume their prey. Bees, however, even wild bees, tend to be much less aggressive, and domesticated honey bees soon get used to having humans around tending their hives.

Bees, however, are in trouble from a variety of sources. Wilson-Rich wrote the following in his book *The Bee: A Natural History*, "The challenges faced by bees today – from habitat loss to pesticides and deadly diseases – threaten not only the bees themselves but potentially all of human life."

That's a serious warning from a scientist who has spent his professional life studying bees and honey bees in particular. So why are bees in decline?

Threats to Bees

In 2006, David Hackenberg, a commercial beekeeper with 3,000 active hives, was the first in the United States to report that worker bees in his commercial hives had simply disappeared. He and researchers could find no clues about where the bees had gone or what had caused them to leave the hive.

"It looked like the bees had just walked out," Dr. Gard Otis, a professor and entomologist at the University of Guelph in Ontario, Canada said in a TEDx Guelph Talk.

Ultimately, Hackenberg lost 80 percent of his hives with no explanation. He was not alone. Other commercial beekeepers began reporting losing hives at disturbing rates.

They did not find dead bees outside the hives, as they would with normal bee deaths. The queen and a few nurse bees remained with plenty of honey, so food wasn't an issue. The hives showed no evidence of parasites or disease. The problem became known as colony collapse disorder, and ultimately affected between 40 and 70 percent of commercial beehives.

Hives affected by CCD shared a specific set of characteristics, including a surviving queen. By 2011, those characteristics were no longer evident, and scientists declared that CCD was not an ongoing threat. That did not mean, however that bees were out of the woods. After 2011, beekeepers continued to report losing up to 30 percent of their hives each year, and by 2014, the queens were disappearing, as well.

Noah Wilson-Rich said in a TEDx Boston Talk, "Bees are dying. They were dying yesterday, they are dying today and unless we do something, they will continue dying tomorrow."

As scientists struggled to explain CCD, they did not find a single culprit. Instead, they found a host of problems that increased stress on bees and their immune systems, making it more difficult for bees to fight off environmental problems like climate change, pesticides, herbicides, mites, diseases and poor nutrition.

As bees die, the cost of the crops they pollinate continues to rise. And as pollinators die, our food keeps getting more expensive.

Can Urban Building Owners & Managers Help Bees?

All in all, bees are facing some stiff challenges, but one of the best defenses against bee loss is to build and maintain a network of healthy hives. Intuitively, many people think that rural bees are the answer. It turns out, however, that urban bees are better able to survive than their country cousins.

Noah Wilson-Rich and his team at the Urban Beekeeping Laboratory have conducted DNA tests on honey from beehives located in both urban and rural environments. The urban honey they tested contained nectar from 411 different plant species. The honey from rural areas contained only 52 species. Just like with humans, eating a variety of vitamins and minerals in a nutritious diet helps keep bees healthy.

Urban bees also survive the winter months better than rural bees. Since 1987, when the worst of the parasites – the Varroa mite – came to the U.S., urban bees have overwintered at a rate of 62.5 percent of hives, while rural bees have survived at a 40 percent rate. Even during winters in places like Chicago and Boston, bees can keep their hives at 90 degrees Fahrenheit. In the summer, they can keep the temperature from climbing higher than 90 degrees Fahrenheit.

Urban bees produce more honey, as well. Urban bees produce an average of 26.25 pounds of honey in the hive's first year. Rural bees produce an average of 16.75 pounds in the first year.



More and more U.S. communities are relaxing regulations to allow beekeeping in cities. Until 2010, New York City had a total ban on beekeeping, but now encourages beekeepers in the city. European governments, such as France, provide incentives for building owners to establish beehives on their roofs. Some cities, however, still prohibit or restrict beekeeping.

Urban beekeeping is an important part of the fight to save bees. Wilson-Rich said his company can help a client hide their beehives on roofs or can help decorate the hives with corporate colors. He has even devised “floating” beehives that rest on shelves near the ground, but high above people and pets.

So how hard is it to set up and maintain healthy urban beehives?

What’s Involved in Beekeeping?

Setting up hives, which look like stacked banker’s boxes, is simple and doesn’t require a large financial investment. BOMA members around the country have tended to use two different approaches – do it yourself and hiring professionals to install and maintain the hives.

To support backyard (or rooftop) beekeepers, most county extension offices have beekeeping courses or information about local beekeepers and classes. Often, local beekeeping clubs can supply the information a novice needs and can be valued resources for questions later in the process.

Ready-made beehives are available at Amazon.com for less than \$180, as well as other retailers. Beekeepers can also build their own hives. Books are readily available, such as longtime beekeeper Howland Blackiston’s *Building Beehives for Dummies*. Many other reference books on beekeeping are also readily available online and in bookstores.

Beekeepers need some specialized tools – such as smokers, bee suits, netted hats or tools to open the hives – that are not expensive and make the job easier. Novices feel more protected with nets and suits, but veteran beekeepers will often use minimal equipment.

Designating someone on staff to look after the bees can be an easy way to begin. Staff members will need time away from regular duties, however, to make sure everything is going well at the hives, so having a team of beekeepers may also be a good idea. If one of them leaves the company, the rest of the team is still in place. It’s also a good idea to determine who “owns” the bees on the front end.

Another alternative that BOMA members have used is to hire an individual or a company to manage the beehives. The Best Bees, based in Boston, has 65 beekeepers on staff and works with companies across the U.S. to install rooftop beehives. Although Best Bees is the only

national company providing beekeeping services, professional beekeepers are available in most cities.

No matter whether building owners administer the program in house or hire professionals, the bees will need enough flowers in the neighborhood to support the hive.

“You have to be careful not to have too many bees in one place because they’re competing for the same food sources,” Susan Hammer, general manager of 330 North Wabash, a 52-story Beacon property in downtown Chicago, said.

Buildings planted with bee-friendly plants, especially native plants, can help provide necessary nectar and pollen, and bees can complement existing rooftop gardens by helping to pollinate fruits and vegetables.

At the end of the summer, it’s time to harvest honey. The bees make more than they need, and the beekeeper can determine how much to take. The company that hosts the hives normally keeps the honey produced. Bars and restaurants use their own honey in the food and drinks they serve. The Four Seasons in Boston, for example, uses its honey for afternoon tea. Managers of office buildings use it in tenant packages and marketing campaigns.

One of the biggest reservations about keeping bees, however, is the possibility of a sting. Wilson-Rich said he understands when people are afraid of bees, but insists they are very passive insects.

“If you’re not a flower, these bees do not care about you,” he said.

He added that they die after they sting, so they’re not interested in being aggressive. Honey bees are vegans, and he said you have much more to fear from their carnivorous cousins – wasps, hornets and yellow jackets.

Al Scaramelli of Beacon Capital agrees. “Honey bees are really, really passive,” he said. “That’s why we’ll take any tenant that wants to go up to the rooftop to get together with a beekeeper.”

The beekeeper will let them get within a few feet of the hive. Scaramelli said he doesn’t ask anyone to sign a release because he knows “nothing will happen.” He said he doesn’t even think about it. In all the years Beacon has had hives on the roof, no one has been stung.

To overcome any reservations in the building, however, Beacon does a great deal of education about their bees. As part of the program, they distribute information to all their tenants. They host beekeeping events on Earth Day. They teach cooking classes using the honey from the bees and vegetables from their rooftop gardens. And they allow tenants to tour the roof with a guide.

So, setting up beehives requires some specialized knowledge, but classes are available throughout the country. Professional beekeepers are also available to manage bees in urban settings. For some, bees will be a natural extension of current sustainability programs and rooftop gardens.

What to Do If Bees Move Into Your Building

Recently, New Yorkers in Times Square watched a hive of bees search for a new home in a process called “swarming.” The swarm, a dark blanket of insects, clung to a hot-dog vendor’s umbrella at Forty-third Street and Broadway. It was an unusual sight, even for New York.

Very soon, a beekeeper from the New York Police Department went to work. (Yes, the NYPD has beekeepers on staff.) NYPD Officer Michael Lauriano used a special vacuum that doesn’t hurt bees to collect the swarm and relocate them to a hive he keeps at home. He and Officer Darren Mays are the NYPD beekeepers, and they answer an average of two bee calls per week during swarming season from mid-May to early July.

Very rarely, Lauriano said in the Sept. 17, 2018 issue of *The New Yorker*, does anyone claim the rogue swarm. Mays, in fact, keeps a hive on the roof of his Ridgewood precinct populated from a swarm he collected from a lamppost on Worth Street, downtown.

The officers speculate that the swarms they have handled came from hobbyist’s hives on roofs, terraces or gardens in the city. In March 2010, New York City relaxed its total ban on beekeeping, and city residents have enthusiastically become beekeepers since. The bees Lauriano and Mays handle generally are domesticated, are used to having humans around and are quite docile, especially during a swarm. Wild bees occasionally enter the mix, but tend to cluster in tree trunks, according to the article.

“Swarming” is the way bees handle overcrowding in a hive. Half of the hive’s population, which could be thousands of bees, and the old queen leave the hive and gather on trees or buildings or lampposts. They send out scouts to locate possible relocation sites. When the scouts return, they “dance” to indicate where the potential new hive is located. The bees use their special abilities to communicate and “vote” on the best location, choosing their new home. Bees, it turns out, are quite democratic in swarm decisions.

Sometimes, however, bees choose new hive sites that aren’t convenient to humans, including commercial and residential buildings. Cracks in building facades and soffits can allow bees the access they need to move into a building. They only need a gap larger than 3/8 of an inch (1cm) to start building a new hive.

Fortunately, an experienced beekeeper is often the answer to unwanted bees, and finding one is generally simple. A quick internet search will provide the names of beekeepers across the

country, and most county extension offices can provide the names of beekeepers and beekeeping groups in their areas.

Drastic methods, such as using insecticides to kill unwanted bees or blocking their entry and exit points, are not recommended for several reasons. First, with the decline of bee populations across North America, it is unfortunate to kill bees that could be safely relocated. Second, if they die within the walls, they leave honey, honeycomb and other organic materials that can rot, attract mold and fungus and create a noxious odor. Finally, if you kill the bees with insecticides and remove the honey and honeycomb, you shouldn't eat it because of residual poison that may be in it. All in all, contacting an experienced beekeeper is the best solutions for both bees and humans.

Company Profile – Parmenter Realty Partners

Adding Bees to a Wildlife Habitat Results in a Big Win

The team at Parmenter Realty Partners was looking for unique ways to increase the environmental sustainability of their properties. The answer presented itself when the building's chief engineer mentioned that he was a beekeeper and suggested establishing beehives on the roof of a Parmenter property.

Meghan Swanson, senior building manager at Parmenter, said adding bees to their property accomplished several goals. First, it added to the company's sustainability efforts and second, it increased their positive impact on the community. She added that distributing honey from Parmenter bees helped with already good community relations.

The new idea even helped 220 Ashford Center North, located in Atlanta, Ga., win an international TOBY award in 2016, BOMA International's The Outstanding Building of the Year Award. The company subsequently added a hive on the roof of another property in Atlanta.

The bees weren't the only natural improvements to the buildings. The property's chief engineer discovered that the National Wildlife Federation (NWF) rewarded businesses and homeowners for creating wildlife habitats on their properties. The addition of beehives to other sustainability efforts helped Parmenter win the NWF designation.



Company Profile – Nova Scotia Community College

Mason Bees Find New Homes at Nova Scotia College

Nova Scotia Community College (NSCC) takes its sustainability efforts seriously, so when Kelly Hutton, facilities manager at the Annapolis Valley Campus, heard that bees were in trouble, he resolved to act. Rather than establish honey bee hives, however, he decided to help Mason bees, a solitary bee that nests in hollow tubes like bamboo. Mason bees are substantially better pollinators than honey bees and require less work from their human sponsors.

“It was an easy decision,” Hutton said. “I could have built a bee house for them, but it was just as easy to buy a commercially-made bee house. They work just as well.”

The new bee houses were inexpensive, and it took Hutton less than an hour to get them ready. He didn’t need any protective gear because these bees are so gentle.

After he finished, it didn’t take long for female Mason bees to find the new digs. Hutton said he can tell that the bees are using the houses because they seal off the end of the tubes after they lay an egg. He watched all summer as the bees gradually filled the tubes.

“Nova Scotia is a large fruit producing region,” Hutton said, “and pollinating insects are in trouble. By providing the bees with good nesting sites, we’ve helped our farmers increase the apples, peaches and berries they can produce.”

Hutton doesn’t worry about the bees stinging students, staff or faculty members because Mason bees are generally so docile. They sting only as a last resort, and their venom is mild. Mason bees can be a great alternative for people who are allergic to honey bee stings.

NSCC is a community college serving the Canadian province of Nova Scotia with 13 campuses and three community learning centers. The college provides specialized, industry-driven training to nearly 20,000 full- and part-time students in 130 programs and boasts an 87 percent employment rate for its graduates.

NSCC has supported Hutton’s efforts with Mason bees as part of its successful sustainability program. Since the 2008-2009 school year, the 13 campuses have reduced emissions of harmful greenhouse gasses by 33 percent and reduced water consumption by 40 percent.

No sustainability program is effective if you can’t measure its progress. NSCC uses certification programs from industry and higher education to set goals and measure progress. The college enrolled in the BOMA BEST program in the 2008-2009 school year. All 13 campuses were BOMA BEST certified in 2009 and recertified in 2012. The campuses have recently undergone another review. The average score in 2009 was 75 percent, and in 2012, it was 83 percent.



Since 2008 all new buildings have been built to LEED standards and are certified through the Canada Green Building Council. NSCC has earned other sustainability certifications and updates its plans regularly.

Helping Mason bees may be a small part of a much larger plan, but NSCC takes its role as an environmental leader seriously. Kelly Hutton takes pleasure in knowing he's done his part to help Nova Scotia's pollinators thrive.

Company Profile – Beacon Capital Partners

A Honey of an Idea

The idea began with a trip to Europe and a hotel that had bees on its roof. As the report goes, the president of Beacon Capital Partners returned from an overseas trip and asked his team to explore adding honey bees to Beacon’s buildings.

It wasn’t a strange request. Beacon had worked for years to create sustainable buildings with employee-friendly environments. Their buildings were LEED and ENERGY STAR® certified. Their cleaning programs used green cleaning products and procedures. Every property had fitness facilities and Wired Score internet connectivity.

Al Scaramelli, Ph.D., P.E., the managing director of Beacon Capital Partners responsible for facilities operations, environmental and sustainability programs, said the company had not created green environments because of a study.

“We were doing it before there was any data out there because we always thought it was the right thing to do,” Scaramelli said. “Why waste resources when you don’t have to? Why not be more sustainable when you can?”

And so, he investigated adding bee hives to the roof vegetable gardens. Scaramelli said the results have been extraordinarily positive.

“To many tenants this [having a green building and bees] is an important selling point when it comes to making a leasing decision,” he said. “The location of the building has to be considered, the commute has to be considered, but when you get into the property, we have some differentiators that are easy to remember.”

Melissa Browne, head of Beacon’s marketing efforts, incorporated the bees and their honey into the company’s tenant recruitment and retention programs. When the honey is harvested each year, Beacon bottles it in branded jars and shares it with tenants. Beacon produces so much honey that they can make honey beer, as well, and they share the beer with tenants, too.

Browne includes honey and honey beer in baskets Beacon gives out to prospective tenants, along with glasses, coasters shaped like honeycomb and other bee-related gifts. Scaramelli said when prospects get back to their offices and are thinking about the properties they’ve seen; the honey baskets help them remember the differentiators at Beacon’s properties.

After a tenant has moved into the building, they get to tour the rooftop garden and beehives.

“We’ll take small groups of tenants up to the rooftop with a beekeeper,” Scaramelli said. “The beekeeper will show what the beehives look like. Tenants get to be up close and personal. We’ll tell them stories about the bees. People are just fascinated by the bees.”

Fascination, however, doesn’t mean that everyone is comfortable around bees or that everyone has a myth-free understanding of bees. That’s where Beacon offers education about the nature of honey bees.

“Honey bees are really, really passive,” Scaramelli said. “That’s why we’ll take any tenant that wants to go up to the rooftop to get together with a beekeeper.”

The beekeepers are employees of The Best Bees, a Boston-based company that installs and maintains bees for anyone who wants a hive. Beacon contracts with them to manage all the beehives on Beacon properties. The beekeepers offer educational tours of the roof to combat misinformation about bees and to help tenant become comfortable with having them around.

Beacon also provides written information about their bees in a brochure they’ve developed. Some of the points they highlight about bees include:

- The bees are not at street level or near building entrances.”
- Honey bees are very passive and will not sting unless they are intentionally injured or provoked.
- Bees fly directly into one specific opening [in the hive] and will not fly into intake air vents, cooling towers or other equipment [on the building].

“During Earth Day, we’ll have seminars and beekeepers in the lobby,” Scaramelli said.

On Earth Day and at other times during the year, Beacon will host cooking demonstrations using honey from their hives and vegetables grown in the rooftop gardens. They will even send vegetables home with tenants after the demonstrations.

Susan Hammer, property manager at 330 Wabash Ave in Chicago, said, “The roof is 52 stories high in the middle of Chicago, but the bees don’t seem to have any problem with the wind or cold.”

“And tenants just love the bees,” she added.

Plants on Hammer’s roof are low-growing varieties that don’t flower, but the bees find nectar up to several miles away in other gardens. In the winter, they can keep the temperature in the hive at 90 degrees by fanning their wings.

Hammer, a 30-year veteran in the industry, serves on the BOMA International TOBY Awards committee, and her building is a previous winner of international TOBY Awards. She credits Beacon's sustainability efforts for the recognition, but especially the honey bee program.

Scaramelli said that Beacon averages three to four hives on each of their rooftops, but Beacon's financial commitment to The Best Bees goes farther than just hive management. Best Bees is affiliated with The Bee Laboratory and has made a financial commitment to their research into honey bee health and habits.

Any large property, Scaramelli said, would find the cost of hosting honey bees at their property to be a small part of the budget. Cost shouldn't be a factor preventing an owner from keeping bees.



Company Profile – Jacob Javits Center

The Javits Center Goes Green in NYC

Alan Steel knew that sustainability efforts could help mitigate many of the problems convention centers faced.

As the president and CEO of the Jacob K. Javits Convention Center, Steel spearheaded a \$463 million renovation of existing space and a subsequent 1.2 million square-foot expansion of one of the busiest convention centers in the U.S. and focused the construction on becoming more sustainable. The Javits Center is operated by the New York Convention Center Operating Corporation and is owned by New York State.

“As a convention center, the Javits Center has a clear mission – to generate new business and create employment opportunities,” Steel wrote recently. “As a sustainable convention center, our role is rather broader. We seek to achieve our primary goal while reducing the impact of the building and its operations on the community’s health and environment.”

As part of its renovation, the Javits Center installed a 6.75-acre green roof on the existing sections of the building for better insulation. The roof also provided a rainwater capture system and retains up to 81 percent of rainwater, keeping it out of city sewers. The Center also has saved almost \$2 million between 2013 and 2016 with energy management initiatives, including the green roof. As a result of all its sustainable initiatives, the facility’s annual energy consumption has been reduced by 26 percent.

In 2016, the Center installed three beehives on the roof, and conducts tours of the roof garden for visitors during warmer months. Beekeepers from nycbeekeeping.org manage the hives and collect the honey each year. Called Jacob’s Honey, the honey has been incorporated into a new salad dressing now available at the Taste NY Bistro in the Javits Center.

In addition to bees, a variety of wildlife has also found refuge on the Center’s roof. Small creatures, like spiders, grasshoppers and beetles are living in the soil and the varieties of sedum planted on the roof. The bugs attract birds and bats looking for a meal. More than 24 species of birds and five species of bats have flown over, nested on or used the roof in some way since its installation. Migratory birds have used the flat green space as a rest stop during their journeys.

Wherever Javits employees have made changes, they’ve monitored the results so that they know what works and what doesn’t. They enlisted the help of scientists and societies to quantify changes in the Javits Center’s ecosystem, so that the methods can be shared with other convention centers and commercial buildings across the U.S.



Company Profile – The Best Bees and the Urban Beekeeping Laboratory & Bee Sanctuary

Noah Wilson-Rich

Professional Beekeeping Funds Vital Research

A little more than 10 years ago, Noah Wilson-Rich was working on his Ph.D. at Tufts in entomology. He was a honey bee researcher and wanted to continue his work after he finished his degree. He had two problems – research required money he didn't have and couldn't attract through grants, and he needed more data than a few beehives could provide. He needed hundreds of beehives that he could monitor regularly.

When Wilson-Rich met the leaders of Beacon Capital Partners, it was a perfect match. Beacon wanted to establish honey bees on their rooftops but didn't have the resources to manage the hives. Wilson-Rich founded The Best Bees to supply the expertise (and the bees) that Beacon didn't have.

The Best Bees provides a turnkey service. For a set fee, beekeepers from Best Bees installed and maintained the first hives on Beacon properties. As the relationship between the two companies deepened, Beacon contracted to have Best Bees install hives on all their properties.

Beacon provided business advice as Wilson-Rich expanded his vision to include a research arm and a safe place for urban bees to live. He named it the Urban Beekeeping Laboratory & Bee Sanctuary. Beacon contributed to the research Wilson-Rich conducts both monetarily and physically. Beacon's bees provided the data points for the lab's research.

The relationship between Beacon and Wilson-Rich's enterprise is positive and ongoing.

"We need bees for the future of our cities and urban living," Noah Wilson-Rich said.

His research is providing interesting information about urban bees.

Wilson-Rich tested both urban and rural bee honey to determine its DNA.

As previously reported, urban honey contained 411 different plant species, while rural honey contained only 52 species. A wide variety of diet is associated with better bee health.

The Urban Beekeeping Laboratory now partners with NASA, MIT, Harvard and National Geographic, and Wilson-Rich writes articles for the *New York Times*. Best Bees, however, is still available to any business or individual who is interested in keeping bees.

Most companies have three or four hives per property. Fees include installation, maintenance, and insurance for the beekeepers and the client.

Wilson-Rich stresses the docile nature of honey bees. The company boasts a 100 percent perfect safety record in 10 years, and Wilson-Rich said, “If it weren’t safe, it would be a bad business model.”

Best Bees employs 65 beekeepers across the country and will refer clients who are based outside of its area to local beekeepers who can provide a similar service.

“You’re going to be fine as long as you work with professionals, and you do it openly and in the right way,” Wilson-Rich said.

So why worry about the fate of honey bees? Wilson-Rich points out that up to a third of our food, both plants and animals, are affected by pollinators like honey bees. Without an ample supply of bees, farmers must rent bees at higher rates or resort to hand pollinating their crops. Consequently, he said, the price of over 130 fruits and vegetables is going up. We’ll be paying much more for food in the future or we’ll eat a less-varied diet full of carbohydrates.

One of the answers might be to establish thriving urban hives of honey bees. Increasing the total number of bees will help regardless of their location. Wilson-Rich said people want to talk about this issue. His staff has done town-hall meetings and education sessions for tenants, but regulations may vary from place to place.

Responses from governments have been inconsistent. For example, France provides incentives to start beehives, while Palm Springs, Calif., charges \$2,000 per beehive for permits. Officials in Nairobi, Kenya are educating beekeepers and training scientists, while Miami is taking people to court for keeping bees.

In the meantime, Wilson-Rich is working to understand bees. His research is exploring ways to make honey bees healthier through vaccines, yogurt and probiotics fed orally to bees. He encourages urban building owners to consider starting a hive or two. After all, tenants are crazy about bees, and bees help humans survive.



Sidebar – Honey bee Facts

Although all bees help pollinate plants, honey bees are the most studied and most closely associated with humans. Here are a few facts about honey bees from the American Beekeepers Federation:

- There are three members of a honey bee colony:
 - **Queen:** Mother to all the bees in the colony. She is a fertile female.
 - **Worker:** An infertile female that performs the labor tasks of the colony including feed preparation; guarding the hive; feeding the queen, drones and brood; and heating and cooling the hive.
 - **Drone:** The male that starts out as an unfertilized egg. Its only purpose in the colony is to mate with a virgin queen. They live to mate with the queen, but not more than one in a thousand get the opportunity to mate.

[From the American Beekeepers Federation website; www.abfnet.org.]

- On average, a worker bee in the summer lives six to eight weeks. Their most common cause of death is wearing out their wings. *[From the American Beekeepers Federation website; www.abfnet.org.]*
- The peak population of a colony of honey bees is usually at mid-summer (after spring build-up) and results in 60,000 to 80,000 bees per colony. A good, prolific queen can lay up to 3,000 eggs per day. *[From the American Beekeepers Federation website; www.abfnet.org.]*
- Drones fly on United Airlines. This is a corny joke among beekeepers because of the way queens and drones mate. When a queen is five- to six-days old, she is ready to mate. She puts out a pheromone scent to attract the males and takes off in the air. The males from miles around smell the scent and instantly volunteer in the mating chase, which is performed in the air. She only mates once. *[From the American Beekeepers Federation website; www.abfnet.org.]*

How to Help the Bees

If your company is not able to host a beehive, you can still help honey bees and other pollinators by helping to feed a neighboring hive. Here are suggestions from the National Wildlife Federation:

- **Plant native species.** As you consider your landscaping materials, use native species whenever you can around your buildings and homes. Native species tend to be hardier plants than some ornamentals and withstand drought and other harsh conditions better. They are great sources of foods for all sorts of bees, birds and insects. Wildlife will

choose native plants more often than ornamentals. Your local extension office or beekeeping club can help with specifics for your area.

- **Consider adding water to your landscape.** All animals need water to survive and some need it for bathing or breeding.
- **Create cover.** Small animals often need to hide. Enrich your landscape with features such as trees or bushes.
- **Use sustainable practices.** How you manage your garden can influence the health of the soil, air, water and habitat for native wildlife, as well as the human community. *[From The National Wildlife Federation website; www.nwf.org.]*

Resources

Books

Wilson-Rich, Noah, Kelly Allin, Norman Carreck and Dr. Andrea Quigley. *The Bee: A Natural History*. Princeton: Princeton University Press, reprint edition 2018.

Beekeeping Businesses

The Best Bees at <https://bestbees.com/>

TEDx Talks

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Put it into Action!

Have you or will you put this research into action? The BOMA Georgia Foundation would love to hear from commercial real estate professionals who have implemented bee keeping initiatives at their properties. Share your story by emailing geckert@bomageorgia.org.

Acknowledgements

Lead Author

Helen Anne Richards

Reviewers and Strategic Oversight

Gabriel Eckert, FASAE, CAE

Jacob Wilder CAE

