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Home Is Where They Know Your Name (and Face, Hands and Fingerprints)

Biometric technology is expanding to every corner of the home, using body identifiers to open the door, say hello, unlock the wine cellar and reveal the screening room.

By Amy Gamerman

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The great room of Mr. Pollack's home, purchased for \$1.825 million in 2012, then gut-remodeled and expanded in 2014. KELLY MARSHALL FOR THE WALL STREET JOURNAL

Chris Pollack hates carrying keys. So during the yearlong gut remodel and expansion of the Greenwich, Conn., home he bought for \$1.825 million in 2012, Mr. Pollack built a new entryway with a biometric access system: a wall-mounted Suprema BioLite fingerprint reader with a glowing scanner that cost about \$2,500 to install.

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“It’s almost instantaneous—you put your finger on the sensor and within a second it triggers the lock,” said Mr. Pollack, 49, managing partner of Pollack+Partners, which builds and oversees high-end residential projects. “It’s much easier than using a key. And I don’t like to have things in my pockets.”

Biometric technologies such as fingerprint locks and facial-recognition systems have made the leap from spy movies and high-security institutions to the home. Beyond the sci-fi cool, biometric design features offer the promise of a frictionless lifestyle where you need never fumble for house keys or even a smartphone app.

Inside Biometrics-Secured Homes

Fingerprint scanners and other security devices are being marketed directly to homeowners



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The technology behind these systems is based on algorithms that create a unique code for each user based on their bioidentifiers—mapping the ridges and whorls of a fingertip or counting the pixels between a set of eyes. That code can then be matched against the real thing in a split second when the user touches a scanner, looks at a digital camera or waves a hand.

At 15 Hudson Yards—an 88-story Manhattan luxury tower where prices start at \$4.36 million for a two-bedroom condo—residents can touch a fingerprint scanner to get access to the private spa, golf simulator and screening room on its two amenities floors. Residents who prefer not to use the biometric system can use a fob instead.

Miami's 2000 Ocean, a luxury tower set for completion in 2021, will employ digital video cameras with facial-recognition technology to screen and welcome residents to their homes: 64 residences with private elevator landings, priced from \$2.7 million to \$12 million.

“As you are going into the lobby, a passive facial-recognition system will alert the concierge that you are there. Once you are in the elevator you have to use facial-recognition or a fob to get to the private landing of your unit,” said Shahab Karmely, founder and principal of KAR Properties, the developer. “It’s a different level of security. You can leave your fob behind, someone can take your purse, but no one can take away your face.”

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A 13-foot island in the Pollack home's kitchen is made of Calacatta Gold marble. PHOTO: KELLY MARSHALL FOR THE WALL STREET JOURNAL

The home-security industry now markets facial-recognition products directly to private homeowners. And analysts expect to see broader, more personalized applications of these recognition technologies.

“Companies are looking to build off this biometric technology to create a home that is personalized: You press the lock with your finger. Knowing that you unlocked the door and are in the house, we are going to implement scenes that you like—how you like the lights or the temperature,” said Dina Abdelrazik, a senior analyst specializing in residential security and smart-home technologies with Parks Associates, a market-research and consulting firm.

Fresh from a divorce, Marco Campos bought a \$1.48 million penthouse in downtown Denver in 2015, then spent about \$500,000 to remodel it as the ultimate bachelor pad. Along with new retractable glass walls and a costly new entertainment system, he installed a \$1,500 Suprema BioLite fingerprint-recognition module for his front door that glows green at his touch.

“Fancy-schmancy, right?” said Mr. Campos, 43, the founder and managing principal of Campos EPC, an engineering and project-management company. “It’s welcoming

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when you come in, it's aesthetically pleasing and the technology is cool. And with a date, it's an impressive thing."

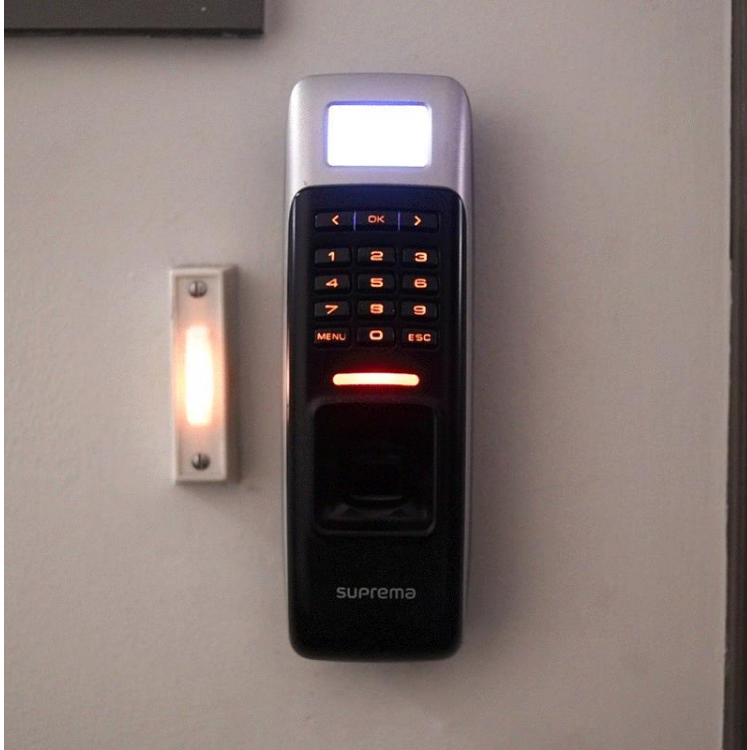


Marco Campos bought a penthouse in downtown Denver for \$1.48 million in 2015, then spent about \$500,000 to remodel it, including installing a biometric access system. PHOTO: MATT NAGER FOR THE WALL STREET JOURNAL

It's also easy to use, he added. Mr. Campos can add users to the system by touching the scanner to pull up a main menu, then entering their fingerprints—as he has done for his children and his mother.

It's also easy to delete users from the system, as his ex-girlfriends have discovered. "All it takes is 10 seconds," said Mr. Campos. "You can have a fight—which has happened—and you say, 'OK, you're out.' It's quick and easy, and I don't have to rely on someone to get a key back."

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Mr. Campos's Suprema BioLite fingerprint scanner opens his front door. PHOTO:MATTHEW NAGER FOR THE WALL STREET JOURNAL

Mr. Campos, who recently bought a larger home outside downtown Denver, is selling the penthouse for \$1.95 million. "I've matured and moved into a home more conducive for my family," he said.

How much a biometric-design element adds to a home's resale value is an open question. "In addition to all the automated features, this just takes it to the next level—but it did not play a part in determining the listing price," said Georgia Gallagher, a real-estate agent with LIV Sotheby's International Realty who has the listing for Mr. Campos's penthouse.

Some 31 listings on the U.S. market mention "biometric" features, nearly all in reference to door and elevator access, according to Realtor.com, the listings website operated by News Corp, owner of The Wall Street Journal, under license from the National Association of Realtors.

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More sophisticated biometric access systems are being integrated into new builds, said Chris Falkenberg, president of Insite Risk Management, which provides advanced security services for private clients. Commercial-grade systems—which can cost as much as \$30,000 to install—have the capability to track, log and regulate the visits of anyone whose fingerprints give them access to the home, such as a housekeeper or nanny. “You can disable their biometric access outside of work hours,” Mr. Falkenberg said.



In Beverly Hills, Calif., an 11,000-square-foot mansion with a biometric access system is listed for sale at \$22.995 million. PHOTO: AARON HOFFMAN

In Beverly Hills, Calif., developer Alexander Hakim is selling a \$22.995 million manse that bristles with high-tech features—starting with the monolithic metallic front door with an integrated fingerprint module. At the owner’s touch, an LED-illuminated handle pops out from the flat surface. “We definitely wanted to give that high-tech, James Bond kind of cutting-edge feel to the house,” Mr. Hakim said, adding that the Barema door with fingerprint reader cost \$35,000. (The Altman Brothers Team has the listing.)

Owners of older homes also are looking to retrofit their properties with biometric features. Mr. Pollack’s company has installed simple fingerprint scanners on wine

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rooms with rare vintages, game rooms with hunting rifles and even inside dressing rooms. The cost of the device and installation on a standard door averages between \$2,500 to \$3,000, he said.



The Beverly Hills home has an integrated fingerprint scanner on the metallic front door that ejects an LED-illuminated handle upon touch. PHOTO: SIMON BERLYN

“If you’re doing a wine cellar you don’t want to have to look for the key when you are entertaining,” Mr. Pollack said. “We’ve also done individual drawers for jewelry so you can just swipe your finger.”

There are some glitches—as Mr. Pollack and his four children have discovered. “I play golf and if you’ve got like a blister or callus on your thumb it won’t read it, so I use my index finger instead,” he said. “My daughter says it doesn’t work on her finger, but she does crew.” She uses a code instead.

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Kelly Murphy and Jack Targos live in a Manhattan building that uses a face-recognition system at the main door. PHOTO: BRYAN DERBALLA FOR THE WALL STREET JOURNAL

In New York City's Two Bridges neighborhood near Chinatown, a pair of six-story tenement buildings remodeled with upscale rental apartments now have a virtual doorman; a facial-recognition access system by FST Biometrics. Property manager Nelson Hom installed the system in both buildings at a cost of about \$40,000 in 2018.

A unit with a digital video camera over the main door recognizes each resident upon approach, welcomes them by name and unlocks the door in seconds. (The doors to the individual apartments have conventional deadbolt locks.) Annual service costs for the access systems at both buildings average about \$2,500.

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The two compete to see whose face the biometric scanner will recognize first. PHOTO: BRYAN DERBALLA FOR THE WALL STREET JOURNAL

“You’ll walk up, strolling in like you would in a futuristic movie, and it says ‘Hello Jack, you are welcome to enter’ and opens the door—it’s usually crazy seamless,” said Jack Targos, a 31-year-old vice president in Citi’s investment-banking division who leases a two-bedroom apartment in one of the redbrick buildings for \$3,500 a month.

In April 2018, Mr. Targos’s girlfriend, Kelly Murphy, a 27-year-old account director at an ad agency, moved in. In a show of commitment, he took her to get her face scanned by building management.

“We joke about which face it will pick up first, so we run to the door. He’s taller but I’m quicker,” Ms. Murphy said.

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The Beverly Hills house also has retractable glass doors. PHOTO: SCOTT FRANCES/RELATED-OXFORD

Privacy Worries Surround Use of High-Tech Home Devices

Many potential users are concerned about who else could get access to the personal information used for biometric systems, including their faceprints and fingerprints.

“The question is, where does that data go?” said Jennifer King, an information scientist and the director of consumer privacy at Stanford’s Center for internet and Society. “If you are a high-net-worth individual you are also vulnerable to your data being hacked or sold. It’s not a big jump to think of someone hacking into your home-security network and using your faceprint to get access to data.”

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ILLUSTRATION: DAVID DORAN

Most access systems encrypt users' data and store it on their own data centers, secured networks or on the devices themselves. Fingerprint access systems like the Suprema BioLite scanner convert dot impressions of a user's fingertip into a unique encrypted code. That code—not an image of the fingerprint—is then stored on the module. While users must connect to the network to add or delete users, the encoded identifiers themselves aren't transmitted, said Bob Carrino, U.S. director of sales for Suprema, a security-technology company. "It doesn't go anywhere; nobody can get into it and take anything," he said.

On a well-designed system, clients' biometric data is heavily encrypted and protected behind firewalls, making the threat of hacking remote, according to Chris Falkenberg, president of Insite Risk Management. "You would have to get malware past the firewall and do a phish to get into the system, compromise somebody in the

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house and somehow steal programming credentials from the installer--and then you'd need the encryption keys from the manufacturer," he said.

Some biometric-service providers are giving residents greater control over their data. Last year, Idemia, a biometric-identification company, released its compact MorphoWave, touch-free sensor that uses 3-D imaging to scan and match a user's four fingers with a hand wave. The wall-mounted sensors, at about \$4,600 each, are installed in luxury residential buildings in New York and Florida, said Gary Jones, Idemia's vice president in charge of biometric access products. Each set of fingerprints is translated into a template stored and encrypted in the reader itself, but residents can opt to keep their biometric template on a smart card that only they have access to. They scan the card, then wave their hand for a two-step verification process.