

SMOOTH OPERATOR

IT'S HARD TO BELIEVE A 4,600-SQUARE-foot house with 80 windows and doors could be green, much less LEED Platinum certified, with efficiencies that beat California's Title 24 energy standards by 55 percent. But this Oakland, Calif., residence has it all.

Before construction, the window plan was put to the test in a modeling program that calculated the impact (based on placement) of operable versus non-operable windows, explains builder Mike McDonald. "We were able to eliminate a lot of superfluous operable features that didn't contribute to cross-ventilation. This helped from a cost perspective, achieved a lower U value overall, and improved aesthetics. A lot of the windows we'd originally planned as operable didn't look as nice as fixed glazing."

The strategic window schedule combines thermally broken aluminum windows by AlumaTherm—a third of which are operable—with a NanaWall retractable wall system. Deep eaves and a dramatically cantilevered awning accentuate the window arrays while protecting interi-



or spaces from the hot summer sun. Other green features include: an Energy Star cool roof; a 600-square-foot "living roof" and deck; LED lighting; in-floor hydronic heating; solar electric power and thermal hot water; smart-home automation; energy-efficient appliances; on-site water recla-

mation tanks; permeable paving; concrete countertops made with fly ash and recycled glass; indoor air quality management system; drought-tolerant landscaping; zero-VOC paints; and locally sourced, sustainable products such as metal tiles made from discarded kiln shelves.

PROJECT: Margarido House, Oakland, Calif.; **BUILDER:** McDonald Construction and Development, Oakland, Calif.; **ARCHITECT:** Plumbob Architects, Philadelphia; **WINDOWS:** Alumatherm and NanaWall Systems



NICE SLICE

TOWNHOME "FOUR PACKS" ARE A COMMON infill solution in Seattle. This time around, CAST Architecture made the most of a split-zoned lot (a small sliver of which was designated commercial) by squeezing in an extra live/work space for a total of five units. But it wasn't easy, considering the commercial slice was only 10 feet wide. To create a feeling of spaciousness in the skinny unit, the architects vaulted the living room ceiling to 12 feet and glazed the entire end wall with a grid of low-E, thermally broken aluminum frame windows by Marlin, some of which are operable. This move facilitated natural daylighting and cross ventilation, contributing to a Built Green four-star rating.

"Thermally broken frames don't sweat when it gets chilly out, so moisture isn't a problem," notes architect Stefan Hamp-

den. "Aluminum is also beneficial in that it can be recycled over and over again. And these windows have a clear anodized finish so they never have to be painted."

All that—and it looks cool. Advanced framing with rim joists contributed to the window wall's sleek façade by eliminating the need for headers. "The nice thing about these windows is that instead of mulling units together to create groupings, the manufacturer built the whole thing up at once," Hampden adds. "That way you don't have the thickness of an extra flange in there, and you end up with a thinner profile."

Other green features include: high-efficiency boilers for radiant heat and hot water; R-26 wall and R-50 roof spray-in insulation; electric-vehicle charging stations; rain screen siding; and bamboo flooring pre-piped for solar hot water.

PROJECT: Fremont Townhomes, Seattle; **BUILDER:** Albion Group, Seattle; **ARCHITECT:** CAST Architecture, Seattle; **WINDOWS:** Marlin Windows

PHOTOS: TOP: MARINO REED; BOTTOM: STEFAN HAMPDEN