“I practice in temperate San Diego, where cooling a building is of primary importance. The Chilled Beam system is one that really captures my imagination; I want to understand it better and, hopefully, implement it. Essentially noiseless, the system eliminates drafts, takes up minimal space, and is highly efficient.”

“The most advanced system we have specified is a fully integrated, forced air/hydronic in-floor heat/geothermal/photovoltaic system in which the PVs power the geothermal pumps. When combined with insulation much higher than code, the setup allows the house to approach net zero throughout the year. The most advanced systems we’ve seen, however, turn mechanical systems into passive ones.”

“While HVAC systems have changed in the past decade with the rise of air-source heat pumps, so have building technologies and their energy performance. We’ve transitioned from slightly improved conventional construction to the Passive House standard, which proposes an 80% improvement on energy efficiency. Given the dramatic performance demands, mechanical system design has had to adapt.”

CEILING FANS WERE a mostly ho-hum product category until industrial designer Ron Rezek came along in the 1980s and shook things up with his contemporary Stratos model. Now there are high-tech and high-design options aplenty.

One innovative introduction is the minimalist AirVolution-D from San Bernardino, California–based MacroAir. The company says its line is the only one on the market using gearless, direct-drive technology, which translates into fewer problems and less maintenance. The gearless motor reportedly generates 50 percent more air movement than conventional motors, making it more efficient, too.

Also making a splash is Lexington, Kentucky–based Big Ass Fans, with its energy-efficient, ultrastylish Haiku fans. The sleek modern unit offers SenseME technology, an onboard sensor that monitors environmental conditions, detects occupancy, and stores user preferences.

Most ceiling fans today have sleek aerodynamic blades, but Exhale Fans in Corydon, Indiana, has eliminated them entirely. The company says its fans in all directions horizontally and at a 45-degree angle, creating a vortex that makes occupants feel cooler. There are 10 designer colors to choose from. —NFM

SNAPSHOTS

ROOFTOP HVAC UNITS
SPEC RATE BY BUILDING TYPE
(July 2014 to June 2015)

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Spec Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>25%</td>
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<tr>
<td>Gov’t Buildings</td>
<td>20%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>20%</td>
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<tr>
<td>Hotels</td>
<td>10%</td>
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<tr>
<td>Manufacturing</td>
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<tr>
<td>Office Buildings</td>
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<tr>
<td>Religious Buildings</td>
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<tr>
<td>Retail</td>
<td>10%</td>
</tr>
</tbody>
</table>

Snap back: HVAC

KEVIN DE FREITAS
Principal
Kevin deFreitas Architects
San Diego

GABRIEL KELLER
Principal
Peterssen/Keller Architecture
Minneapolis

MATTHEW O’MALIA
Partner
GO Logic
Belfast, Maine

Wind Instruments

Air Force
Available in four models, AirVolution-D features a gearless motor that generates 50 percent more air movement than a conventional one.