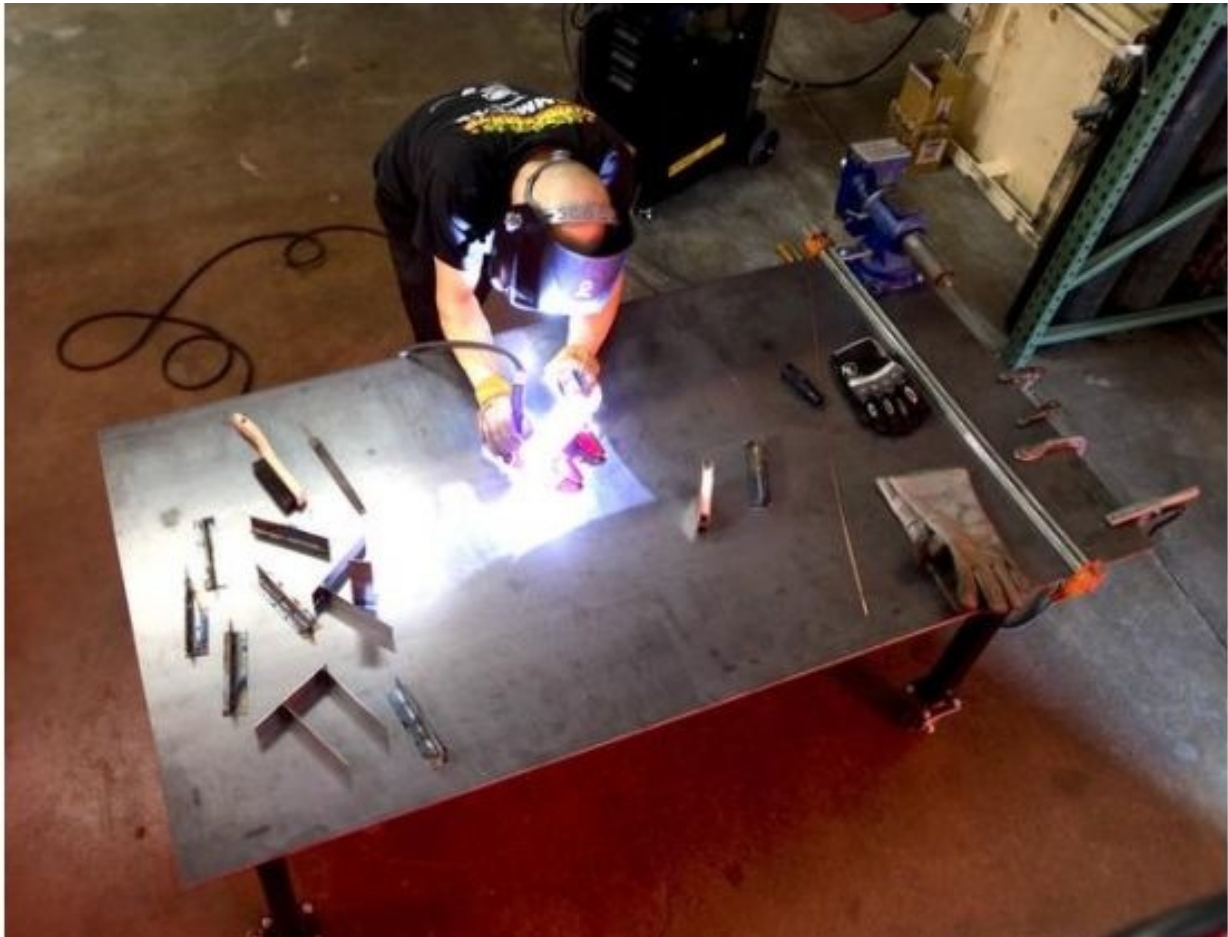


From saws to 3D printers, 'maker' spaces offer DIY experiences

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Dennis LaCrosse uses an arc welder at Urban Workshop, a large membership-based workshop in Irvine. More "Maker" spaces are popping up and more people get involved in the DIY movement.

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A sampling of DIY spaces in Orange County

- Factory eNova, 16540 Harbor Blvd., Fountain Valley, 909-346-3496. Website: factorynova.com
- OC Maker Space, 15641 Product Lane A12 Huntington Beach, 714-376-6027. Website: ocmakerspace.org
- Urban Workshop, 17161 Gillette Ave., Irvine, 949-296-2153. Website: urbanworkshop.net
- worklab CC, 16892 Bolsa Chica St. No. 201, Huntington Beach, 714-867-7522. Website: worklab.cc
- For a list of Maker spaces, visit makerspace.com/makerspace-directory.

What do a car-parts engineer, commercial landlord and prototype contractor have in common?

They love to create stuff from scratch using old- and new-school tools, from saws to 3D printers, and they're trying to get Orange County on board with this emerging DIY approach.

Together, these entrepreneurs are behind the region's growing presence of "Maker" spaces, membership-based shops where tinkerers and pros can transform ideas into physical items. For business or fun, they're producing everything from Statue of Liberty figurines to video-game controllers by tapping into their own craftsmanship instead of outsourcing the labor.

"We're getting our hands dirty again," said Steve Trindade, founder and owner of Urban Workshop, one such space that opened last month in Irvine.

Many peg the origins of the often-romanticized Maker movement to the Bay Area five or six years ago. But some locals saw an earlier revival, with the rise of high school robotics teams and Etsy, a wildly popular e-commerce site founded nine years ago.

Sensing the trend's entry into the mainstream, even large U.S.

companies are getting involved.

To help hawk its 3D printing inventory, struggling retailer Office Depot began offering equipment demos late last year in 150 stores in Orange and Los Angeles counties and other areas.

Competitor Staples in April launched a smaller-scale experiment: 3D printing services in two of its stores, in Los Angeles and New York. Home Depot is also getting in on the action, selling 3D printers in Huntington Beach and Los Angeles.

Local startups aren't worried about competing with these retailing giants because what they boast is more personal attention and community – through mentoring and classes.

“I guess (it's driven by) my desire to let people know they can make things with their own hands,” said Heesoo Lee, a former, longtime Pixar employee who started Huntington Beach-based space worklab CC early last year. “The current focus (in schools) is more on theory, and it's not practical.”

The emerging Maker community in Orange County, despite its size, already offers would-be members a lot of choices.

For one, they vary in equipment, which hints at their target audience.

At a grand-opening function in July, visitors saw sparks fly from welding tools and heard the buzzing of wood cutters at Urban Workshop, a 5,600-square-foot industrial space in Irvine.

Weeks later, others witnessed a similar, hustle-and-bustle scene of machine demos at the official debut of OC Maker Space, a 1,800-square-foot facility in Huntington Beach that's equally industrial in feel.

Both businesses also carry smaller-scale equipment, such as 3D printers and laser cutters. But it's clear from their set-ups that the heavy stuff is their specialty.

The atmosphere is calmer at smaller, more established worklab CC, which stands for "create collaborate" or "collaborative consumption." The startup stayed away from larger equipment largely because 3D printers and laser cutters have a much lower barrier of entry, said Lee, the founder.

It was also a matter of money. The insurance to cover mega-tools and any related incidents would've been too pricey, said Lee, whose background is in film-editing hardware.

Such businesses typically make their money from memberships, which in Orange County is as low as \$30 a month at Factory eNova (which doesn't include machine time) to as much as \$400 a month for a designated desk space and unlimited equipment access at worklab CC.

However, because the market is still new, Maker space operators treat the DIY stations as side businesses while they continue to work full-time by providing professional services.

Along with running Urban Workshop, Trindade, a mechanical engineer by trade, also operates Automotive Technology Group, which has done research and development work for Fisker and other boutique car makers. He's also co-owner of Truspeed Auto Sport, a professional Porsche racing team in Costa Mesa.

Lindsey and Shawn Zindroski, the founders of OC Maker Space, operate two separate prototype-making companies in Southern California. Four years ago, Lindsey Zindroski and industrial engineer Dustan Baker worked with Disney, which hired them to create and prototype entertainment-device cases used at one of Disney's resorts in Hawaii.

And Lee is the landlord of the building that houses worklab CC; he does prototyping work on a contract basis, too.

Full-time day jobs are often the source of most of their Maker lab equipment, which can cost up to five or six figures apiece.

Aside from cost, another major challenge for the Maker movement is attracting clients who have no manufacturing experience, Lee said.

Not everyone has the kind of hands-on expertise seen in Ismail and Isaac Degani, members of worklab CC and co-creators of camera equipment Snapjet.

The brothers had to learn how to use all of the shop's equipment, but their previous engineering experience certainly helped.

Using worklab CC's equipment, they developed a cordless, handheld device that scans photos from any mobile-device screen to produce crisp Polaroids, with the press of a button. Similar devices already exist, but the Deganis say Snapjet is easier to use and its design is more streamlined.

Most of the parts were made in-house, save for the optics that replace the standard lens, which they had made by an outside firm, they said.

The brothers considered outsourcing the whole production process, but reconsidered when they discovered they could do mostly everything themselves. The result was more control over the versions of their product. The space offered "quick turnaround (of products) so we could keep iterating," Ismail Degani said.

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