

Statewide makerspace network collaborates on face shields, masks

Across New Hampshire, volunteers, using 3D printers, help with effort to aid healthcare providers

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Volunteer Dan Bower at work at the MAXT Makerspace in Peterborough. (Photo by Lipofskyphoto.com)

In response to the Covid-19 coronavirus pandemic, makerspaces across New Hampshire state have mobilized an effort to manufacture protective face shields for health care workers, Roy Schlieben, executive director of MAXT Makerspace in Peterborough, said.

“We decided to look into it about two weeks ago and within three days we were printing stuff and we were in contact with the other makerspaces and got tied into the other things going on in the state,” Schlieben said. “Our members are also working on fabric masks.”

Schlieben said when they started working on it, everyone was looking for a way to help when they realized they could use the makerspace’s 3D printers and laser cutter to make face shields. Schlieben said he soon learned that other makerspaces in the state wanted to do the same.

The effort now has grown to include makerspaces throughout New England, including Claremont Makerspace, Makelt Labs in Nashua, Manchester Makerspace, MAXT Makerspace in Peterborough, Port City Makerspace in Portsmouth, in Massachusetts, Lowell Makes in Lowell and Artisans Asylum in Somerville, in Connecticut, Makerspace CT in Hartford, and in Vermont, Generator Makerspace in Burlington

The makerspaces started coordinating their efforts through the Slack app.

“This is really the first time we have collaborated statewide,” said Schlieben. “This is one area where we can really help.”

So far, the effort has only cost Schlieben about \$80 out of pocket buying supplies. Two donations totaling 14,000 pounds of PET plastic sheet are fueling the coordinated effort among New England makerspaces, municipalities, businesses and healthcare facilities to mass-produce and deliver face shields for the COVID-19 effort.

“All these companies are just coming together, and the makerspaces too. It’s not ‘how much can I make off of this?’ it’s ‘what can I do?’ ... ‘What can I do to get this PET to the frontlines?’” said Nat Fairbanks, a board member of Makelt Labs in Nashua.

He said it all started with a donation spearheaded by of Ray Dube, sustainability manager at Coca-Cola Beverages Northeast in Londonderry, who saw an opportunity to provide logistics and supply chain support to help Makelt Labs produce face shields for front-line healthcare workers,

According to a Coca-Cola press release, Dube connected Makelt volunteers with Coca-Cola plastic recycler UltrePet and packaging manufacturer EasyPak to donate and transport clean PET plastic sheeting to make the specialty shields. EasyPak donated approximately 6,000 pounds of clear PET sheeting, and Coke Northeast delivery trucks transported the Coke system’s first large-scale donation of PET sheets.

Fairbanks said Makelt Labs also helped coordinate with Coca-Cola to transport 6,000 pounds of plastic sheeting from Sonoco’s warehouse in North Carolina to Georgia Tech in Atlanta, where students will use the plastic sheeting to make more than 50,000 plastic surgical shields for healthcare workers in the Atlanta area.

‘Staggering’ response

The city of Nashua and local companies have helped as well, said Fairbanks.

For example, with that much plastic the Makelt Labs needed a forklift to move it into the makerspace as well as into vehicles when others came to pick it up for delivery to other locations. So a forklift is on-site this week, courtesy of a local business, Fairbanks said.

“It’s staggering how many people are contacting us to help,” he said.



The Zing machine is a laser cutter that cuts the clear plastic of the mask. (Photo by Lipofskyphoto.com)

Several businesses in Lebanon will be receiving some of the recent shipment of plastic, is being used to make face shields for Dartmouth-Hitchcock Medical Center and other Upper Valley area health facilities.

In addition, 1,800 pounds of the plastic is being delivered to New York City. “They are one of the big hotspots,” Fairbanks said.

Alex Nunn, general manager of Port City Makerspace in Portsmouth, said his makerspace got involved when contacted by former nurse Patty Pagels. Since then, the makerspace has been focused on using 3D printers to make a budmen version of the face shield, he said.

Pagels, a Hampton resident and former nurse, said she had only become a member of the Portsmouth makerspace in February when she took a welding class.

Knowing the need was out there, she enlisted some friends who had a 3D printer.

Pagels then went on Facebook and soon connected with the makerspaces and now coordinates between makerspaces and getting deliveries to local health care facilities and nursing homes.

“It’s so nice all these people are just donating their time, donating their filament,” she said. “As a former nurse it’s just an incredible feeling.”

‘Running 24/7’

Most of the 3D printing work is being done at home, since in recent years 3D printers have become so “cheap and ubiquitous” many members have one at home, Fairbanks said.

“We have at least 30 people working at home that are directly related to Makelt Labs,” Fairbanks said. “Another 30 are working directly with us, but are connected to other makerspaces.”

Meanwhile, the Peterborough operation had about 15 volunteers as of April 6, most of them already members of the makerspace. Schlieben said he put out the call for volunteers via an email blast to makerspace members. Some volunteers have had to be trained on the 3D printer, but it has been worth it, Schlieben said.

“We have a couple 3D printers at the makerspace running 24/7 now printing out parts,” he said. “Some people working at home are printing out parts.”

Volunteers are still welcome to join the effort, Schlieben said.

“I’m also involving anybody in the community around us if they have a home 3D printer they can start printing off parts,” he said. “The slowest part is printing, so the more people printing the better.”

To keep the social distancing guidelines volunteers are working alone and asked to wash their hands as much as possible.

“We’re only allowing one person at a time to work in the makerspace. We have gloves for people to wear,” he said. “If people have masks that’s encouraged, wash your hands before you come in.”

Assembly of the face shields takes place at the makerspace.

“Most of the people are making the parts at home and bringing them to the makerspace, and they can be assembled at the makerspace,” Schlieben said.

The project should be sustainable for about month, he said.

“As long as we are able to buy and get materials we can go for the next month or so,” Schlieben said. “As long as people still want the shields and we are ready to make them.”

Schlieben said they are using instructions from 3D printer manufacturer Prusa to make the protective face shields, which can be found online at [prusaprinters.org](https://www.prusaprinters.org).

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