As a tech hub, Seattle, Wash., USA, is probably best known as the home of Microsoft and Amazon. But Seattle is a steel town, too, and for generations, Nucor Steel Seattle Inc. and its predecessors have been supporting the region. Quite literally. The rebar it produces is the backbone of countless buildings and structures. Now in this time of crisis, it is propping up the community in another way — producing protective face shields for medical personnel on the front lines.

“We have made deliveries to facilities that have told us that they were on the verge of discontinuing operations because they did not have the gear needed to protect their people. Everyone has been incredibly appreciative,” said Patrick Jablonski, Nucor Seattle’s environmental manager.

The effort is but one example of the many ways in which the steel industry is contributing to the global fight against the COVID-19 pandemic.

Some companies have rounded up and donated critical personal protective equipment. Others are leveraging their manufacturing know-how and assets to produce much-needed supplies. And still others are reprioritizing their order books to ensure that steel intended for pandemic relief efforts is being shipped as quickly as possible.

In normal times, Nucor Seattle is focused on production of rebar and merchant products. But as the crisis emerged, along with reports of shortages, three Nucor teammates who coordinate the plant’s additive manufacturing (AM) program — mechanical engineers Mark Hanson and Ashley Pigott and rolling mill maintenance supervisor Daniel Ness — began to think about ways in which the mill could bring its resources to bear.

Given the versatility and repeatability of 3D printing, they decided to try printing face shields modeled on a National Institutes of Health–approved design. From a technical standpoint, it wasn’t much of a stretch for the team, Jablonski said.

“The great thing about AM is that there are not many changes needed to produce something different, so we were able to start printing face shield frames relatively quickly. Because we have a small AM footprint and only a handful of machines, our team began to use their own printers in addition to the ones at work to increase production,” he said.
“The challenging part has been optimizing production on a few different types of printers, sourcing some of the other materials like straps, filament and the shields themselves, and most importantly collaborating with others to continuously scale up to meet the need out there.”

They started out making 100 face shields per week, but it wasn’t long before they realized the scale of the problem exceeded their capacity. So they began enlisting help from area schools that have 3D printers. Soon, others joined in.

“Once the community learned of our growing efforts, members of the community with printers began reaching out to help.”

Today, with the help of area residents using personal 3D printers, high schools and technical schools, the effort is capable of producing 100 face shields per day.

“This has been the most humbling part of this effort; to see so many people and organizations come together so quickly to support one shared goal — to support health care workers,” Jablonski said.

Meanwhile, other producers are making an impact by doing what they do best — making quality steel efficiently.

Among those is SSAB Americas. Recognizing the key role steel plays in the supply chain, the company is giving top priority to steel orders tied to relief efforts and projects.

According to the company, orders arising from those efforts are given a special designation and are immediately inserted into the production cycle with expedited finishing, shipping and logistics to ensure the fastest possible delivery.

“While our primary concerns remain the health and safety of our employees, as well as maintaining our quality product and service commitments, we also want to ensure that we are supporting efforts to combat this pandemic for the greater good of our communities,” said Chuck Schmitt, president of SSAB Americas, the North American unit of Swedish steelmaker SSAB.

“As a critical manufacturing company, we are committed to doing our part to contribute to overcoming the challenges ahead.”

Another steel producer, North American Stainless (NAS), too, is readjusting production to meet orders.

“NAS operations are unique, as we are the only fully integrated stainless steel manufacturing facility in

Frames and assembled shields made at the Seattle mini-mill. This design was requested specifically from the University of Washington because it has a top shield and is recommended by the National Institutes of Health.
the United States, which provides distinct flexibility in how we utilize our production capacity to fulfill customer orders. Our customers have also been incredibly supportive, accepting minimal changes to schedules to accommodate emergency orders from key device manufacturers,” said Cris Fuentes, chief executive of North American Stainless.

Fuentes said the effort wouldn’t be possible without the dedication of the company’s 1,500 employees.

“We are incredibly proud of the way our NAS employees have answered the call, remaining dedicated to their important work during this uncertain time. Their health and safety are our top priority, alongside ensuring we can continue to operate and keep them employed,” he said.

The steel they are producing is finding its way into various critical products: mask decontamination units for the sterilization and reuse of N95 masks; ventilator components; air tanks to hold medical oxygen and other gases; and hospital beds and tables.

In fact, the company ramped up production to ensure that one business producing 500 beds a day has the materials it needs.

In other cases, steelmakers aren’t just enabling the production of beds, they’re actively donating them. So it is at Latin American steelmaker Ternium, which has provided not only ventilators and intensive care equipment, but in one case, an entire field hospital.

In Monterrey, Mexico, the company helped build a 100-bed facility for the community.

“The hospital will have all the necessary medical equipment to take care of the patients, such as 10 mechanical ventilators, which will be used in the intensive care area. Besides, it will have the required trained personnel such as doctors, intensive care physicians, nursing professionals, social workers and receptionists,” the company said.

But it isn’t just steel producers that are stepping up. Industry suppliers, too, have joined the fight.

For instance, Michigan-based coatings producer Allied PhotoChemical, which makes, among other things, protective UV-cured coatings for line pipe and drill pipe, is now producing hand sanitizer by the gallons. They began scaling the operation in April.

According to Michael Kelly, Allied PhotoChemical’s chief customer officer, hand sanitizer is easy to produce, but the company’s challenge has been the raw materials procurement and, even more so, figuring out how to bottle it.

“Typically, we don’t package in small containers, like 64-ounce sized. We’re typically (packaging) in drums and totes. So that was probably the biggest challenge — how do you fill small containers when you typically never fill small containers?”

With some ingenuity and manual workarounds, the company has met those challenges and has scaled up production to more than 2,000 gallons daily.

The company is donating the product to those on the front lines — food bank workers, police officers and ambulance crews. However, production is geared toward manufacturers, who are very much in need of safety supplies for their workforces.

“Our goal is to supply U.S. manufacturing customers because that’s where there is a need, and nobody is really filling that need,” Kelly said.

Although some efforts, like those at Allied PhotoChemical, are taking place at the industrial scale, others are playing out at a local level, and are no less impactful.

For instance, teammates at Nucor LMP, the steelmaker’s cold-finished bar mill in Missouri, started delivering meals on behalf of a local senior center.

Sales supervisor Benjamin Lipiec reached out to the center after lockdown orders went into effect. He and other teammates who are working from home are now delivering 175 to 250 meals per week to seniors.

“Since many of them are quarantined, our teammates are probably the only people they get to see on a daily basis. When you pull into their driveways, they are often standing at the doorway waiting to see who is delivering that day,” Lipiec said.

“It is truly a blessing to them and to us.”