

June 21, 2021

Mr. Kyle Herring, PE
Cape Fear Engineering
151 Poole Rd
Belville, NC 28451

**REF: Shallotte Water Transmission Main
PVC Resin Shortage / PVC Pricing via Force Majeure**

Dear Mr. Herring,

As I relayed to you in emails dated June 3rd, 2021, there is a significant PVC resin shortage in the US due to the winter storm events in Texas and subsequent power outages and freezing weather. Many of the PVC resin manufacturers have declared "force majeure" and cancelled resin contracts with the PVC manufacturers. This has affected the PVC manufacturers and PVC supplier's ability to honor their pricing as was quoted at bid time as well as their ability to deliver pipe in a timely manner.

As indicated in the June 3rd email, the PVC price has risen to \$106.40 / LF plus tax versus the \$63.50 / LF plus tax we were quoted at bid time. We have taken off the remaining pipe to be supplied and have come up with a total of 15,580 LF remaining. By continuing to use PVC on this project, we calculate that the increased cost would be \$713,408.20. Additionally, the PVC would not be available until late July at the earliest.

I have reached out to the ductile iron manufacturer and they have quoted the remaining DIP and they have quoted the remaining DIP at \$78.19 / LF plus tax for the push joint pipe and \$122.73 / LF plus tax for the restrained joint (Quote attached). This change would represent an increase in cost of \$365,046.00. DIP is available for delivery in mid July with the possibility of shipment of a few loads earlier.

Obviously, the DIP approach is far more cost effective and also provides the county with a more desirable product. To further bolster the case for using DIP, the PVC pricing and availability is subject to change due to the volatile nature of the market right now.

Since this situation is due to both "acts of god" and "force majeure", we feel that the county should grant a change order for the increased cost of materials. None of these events could have possibly been foreseen by Ralph Hodge Construction Company at bid time nor is there anything Ralph Hodge Construction Company could have done to prevent these events.

Therefore, it is our recommendation to switch to DIP with the corresponding change order so the project can move forward with as little delay as possible. We are also requesting a time extension of 56 days to account for the time from the notification from the PVC manufacturer (May 24th) to the estimated date of delivery of DIP (July 19th). This would be in addition to the 53 days we requested in our letter dated March 25th.

If you have any questions, please don't hesitate to call me.

Respectfully,



Ryan Walser
Vice President
Ralph Hodge Construction Company

From: [Miller, Ronald](#)
To: ryan@ralphhodge.com; [McLain, Tony](#)
Subject: RE: Shallotte Water Transmission Main
Date: Wednesday, May 26, 2021 3:04:28 PM

Confirming our phone conversation though, my 24" CL200 Fastite price today is \$78.19. The 24" CL200 FlexRing price today is \$122.73. Those numbers are good up until July 1. As you know shipping is problematic right now, hopefully will improve but we would do our absolute best to turn pipe around in 60 days. The day you get ok let me know as I need to enter this into production and also begin looking to see if we can borrow pipe from another order to meet your schedule. Each day is critical.

I hope we and you can pull this off. We want to help!

Ron

From: ryan@ralphhodge.com <ryan@ralphhodge.com>
Sent: Wednesday, May 26, 2021 12:52 PM
To: Miller, Ronald <RonaldMiller@american-usa.com>; McLain, Tony <TMcLain@american-usa.com>
Subject: Shallotte Water Transmission Main

Notice: This email came from an external source. Use caution opening any attachments or clicking any links in this email unless you were expecting it. Contact the sender and make sure this email is legitimate if you have any doubt.

Ron / Tony,

Wanting to see if you could look at supplying the pipe in Brunswick County. I have attached your original quote. We have already gotten the RJDIP for the bore and jacks. There is approximately 15,000 LF left. I'm not sure what is going to be Flex Ring and what would be Fastite. Lets just assume there is 12,000 LF of Fastite and 3000 LF of Flex Ring. I am just doing some preliminary pricing to see if it's worth exploring.

Thanks,

Ryan Walser
Vice President
Ralph Hodge Construction Company
O – (252) 237-3663
C – (252) 205-2874

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March 25, 2021

Mr. Kyle Herring, PE
Cape Fear Engineering
151 Poole Rd Suite 100
Belville, NC 28451

**REF: Shallotte Water Transmission Main
Brunswick County, NC
Request for Time Extension**

Dear Mr. Herring,

As I have indicated to you on numerous occasions, Ralph Hodge Construction Company (RHCC) has had difficulty acquiring 24" C900 PVC pipe. On March 5th, I forwarded an email to you showing the difficulty we have experienced. To summarize, RHCC released the material for this project in early January and were given a ship date of February 1, 2021. However, due to disruptions in the supply chain of resin, that ship date was pushed back to the end of February. Subsequently, the state of Texas suffered highly unusual and catastrophic weather events that shut down many resin plants further exasperating the situation.

On March 5th, we were informed that our pipe would not be available to us until at least April 15th. During the course of the resin shortage, many resin manufacturers and PVC manufacturers have declared force majeure and have pulled entire orders. We have been fortunate to date in that our order has only been delayed. The two main culprits are market forces and significant weather anomalies (acts of God). These factors are obviously completely out of the control of RHCC.

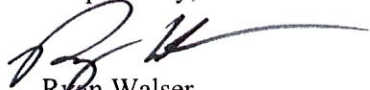
These delays of pipe delivery have delayed the pipe installation progress which is critical path. Article 43E of the General Conditions states,

"If the Contractor is delayed in the progress of critical path activities.....by any causes beyond the Contractor's control,.....then the Contract Time may be extended by change order for the time which the Designer and Owner may determine is reasonable. However, such delays **must** be on critical path activities that cause the anticipated project construction time to exceed the Time of Completion."

We are requesting a time extension on this project due to the aforementioned conflicts that are outside the scope of RHCC's influence. Since the pipe was originally scheduled to arrive on February 1st and we didn't receive the first shipment until March 25th, we respectfully request a time extension of 53 days. I have attached back up documentation to show the nature of the delays that have impacted the PVC industry and supply chain.

If you have any questions, please don't hesitate to call my office.

Respectfully,



Ryan Walser
Vice President
Ralph Hodge Construction Company

1830 Craig Park Court
St. Louis MO 63146
314.432.4700
www.coreandmain.com



Feb. 26, 2021

Dear Valued Customer,

Recent adverse weather conditions affecting the Gulf Coast, Midwest and other large portions of the country have significantly impacted polymer supply lines and production facilities. As such, several resin producers along with PVC and HDPE manufacturers have sent notice of Force Majeure to Core & Main.

As a result of this supply chain disruption, pricing and availability of certain products could be adversely impacted. We are committed to partnering with you to ensure we work through these issues, but it's unknown how long the disruption will continue.

Please contact your sales representative or your local Core & Main branch for additional details or clarifications regarding existing orders or quotations.

We value the trust that you place in Core & Main and will work diligently to continue to service your material needs in these unprecedented times.

Thank you for your understanding and thank you for your continued support.

Sincerely,

A handwritten signature in black ink that reads "Jack Schaller". The signature is written in a cursive, flowing style.

Jack Schaller
President
Core & Main

From: [Barnes, Brent](#)
To: ["Ryan Walser \(ryan@ralphhodge.com\)"](#)
Subject: FW: 24" DR 18 Project
Date: Friday, March 5, 2021 8:43:24 AM

Ryan,

It appears we are still having delays on the 24" C900 we ordered back in November for the Shallotte Transmission main. As you know we were expecting pipe to be delivered in early February, then it was pushed to the end of February by the manufacturer. I am now being told now it will be approximately April 15th before we will have pipe on the jobsite. You can see the response from National Plastics representatives in the emails below regarding the delays. The PVC and plastic resin industry as a whole is a real mess right now due to a massive interruption in the supply chain of raw materials. National has proposed an alternate solution of supplying some 24" PVC pipe they made in late 2018 and 2019. They are willing to extend the regular warranty on the PVC of 1 year to 5 years on this pipe as the integrity of the pipe is as good as new. National had approximately 10,000lf of this pipe on the ground as of last week. Let me know as soon as you can which option you would like to pursue as exiting pipe inventory is being depleted rapidly due to interruption of the raw material supply chain.

Thanks,
Brent Barnes
Core and Main

From: JW Amon [mailto:jwamon@preferredsources.com]
Sent: Friday, March 5, 2021 8:21 AM
To: Barnes, Brent <Brent.Barnes@coreandmain.com>
Subject: FW: 24" DR 18 Project

CAUTION: External

CAUTION: External

Brent,

I spoke with Jeff @ National and we put together an alternate option for this Shallotte Transmission job, see his comments below on the current situation on PVC Pipe/Resin. We working 24/7 to get pipe made and right now we are looking at April 15th to start running this 24". Please let me know if there is any questions or anything we can help out with.

Thanks!

J.W. Amon
Vice President
Preferred Sources, INC.
930 Culp Rd.
Pineville, NC 28134
Office: 704-504-3111

Cell: 980-722-0969

Fax: 704-504-3499

Email: jwamon@preferredsources.com

Website: www.preferredsources.com

From: Jeff Kurkoski <kurkoski@nationalpipe.com>

Sent: Thursday, March 4, 2021 3:02 PM

To: JW Amon <jwamon@preferredsources.com>

Subject: 24" DR 18 Project

JW,

As we are all aware there have been significant supply chain interruptions in the industry due to the severe weather that recently beset itself upon our southern states. While National is in very good shape, having secured all the resin we need, there were factors outside of our control that caused us to have to delay the production of an item or two. One of these was the 24" DR 18. Now, I understand that this delay presents a problem for both you and your customer. I believe I was able to arrive at a very workable solution.

We do have pipe from a previous run that we would be able to supply. The pipe was run in 2019 but has been stored properly and is just as serviceable as any pipe we would run tomorrow. To back this up, we would be willing to extend the standard warranty from one to five years for all pipe supplied to this project from National. I have attached an image of the exact product to be shipped to further illustrate its excellent condition. I think this is a great solution that puts pipe in your hands as soon as you need it.

As always, if you have any questions please do not hesitate to reach out to me personally at any point in time.

Thank you.





Jeff Kurkoski

National Pipe & Plastics

Office 1(800)836-4350

Cell 1(607)621-1749

Kurkoski@Nationalpipe.com



DELIVERING GOOD WATER TO YOU

Michael King

Sales Manager (Electrical&Retail)

Phone: 800-621-4404 x7955

Fax: 310-693-8275

Email:

michaelking@jmeagle.com

Alex Mckean

Sales Manager (HDPE)

Phone: 800 624-4404 x7956

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alexmckean@jmeagle.com

Rodney Naranjo

Director of Sales

Phone : 800-621-4404 x 7824

Fax: 310-356-3674

Email:

rodneynaranjo@jmeagle.com

JM Eagle

5200 West Century Blvd

Los Angeles, CA 90045

February 22, 2021

Notice of Declaration of Force Majeure

Dear Valued JM Eagle Partner,

As our business has been directly and indirectly impacted by the recent severe cold weather conditions leading to industry-wide supply chain disruptions, effective immediately, JM Eagle is declaring that we are operating under *force majeure* conditions nation-wide for the immediate time-being. *Force majeure* conditions will limit our ability to meet product demands including product orders in process. We sincerely regret any inconvenience to your company.

We see this decision as unavoidable. We are not able to predict how long we will need to operate under these conditions. We are doing our best to return to normal operations as soon as reasonably possible.

Your sales representative will be in contact with you to help you work through this difficult situation. Also feel free to contact me directly.

Best regards,

Rodney Naranjo

Rodney Naranjo
Director of Sales

Michael King

Michael King
Sales Manager

Alex Mckean

Alex Mckean
Sales Manager



NATIONAL PIPE & PLASTICS, INC.

American-made products since 1970

Corporate Offices
3421 Old Vestal Road, Vestal, NY 13850
800.836.4350 607.729.9381 Fax: 607.729.6130
www.nationalpipe.com

May 19, 2021

To whom it may concern,

This letter is meant to address questions regarding the state of the PVC resin and PVC pipe industry. The industry is experiencing upheaval that is primarily driven by February's Winter Storm Uri which devastated the Petro-chemical industry located in the Gulf Coast of the US and the latest rain event dumping 6+" on the gulf coast.

These storms caused extensive damage to our primary raw material suppliers (PVC Resin), forcing 3 of the 4 PVC resin producers to declare Force Majeure, one has recently rescinded their declaration. However, a major backlog of unfulfilled resin orders remains. Two of those 3 suppliers provide 100% of our resin. The remaining supplier is not taking any new customers. These Force Majeure declarations have resulted in a reduction of our contracted supply of PVC Resin by 25-30%.

We have not been given any indication of when we will be back to 100%. This reduction in available raw materials has forced National Pipe to reduce our production a commensurate amount.

To further complicate our industry's situation, the price of PVC resin has skyrocketed in the past 4 months, increasing the price of PVC pipe by nearly 40%. We have attempted to keep up with these increases by raising our prices for new orders as well as existing orders that cannot be shipped within the quoted terms.

These factors have resulted in an 8-10-week lead time for current orders, with longer lead times expected as the summer progresses.

We appreciate your understanding during these difficult times.

Regards,

Matt G Siegel
Vice President
National Pipe & Plastics



Formosa Plastics®

Formosa Plastics Corporation, U.S.A.
9 Peach Tree Hill Road
Livingston, NJ 07039
Telephone: (973) 992-2090

February 18, 2021

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Re: Excuse of
Performance Declaration

Dear [REDACTED] :

Formosa Plastics Corporation, U.S.A., on behalf of Formosa Plastics Corporation, Texas and Formosa Plastics Corporation, Louisiana ("Formosa"), is experiencing significant impacts to operations at its manufacturing plant sites, due to the severe weather which began the morning of February 15, 2021. As a result of this uncontrollable event, Formosa is declaring Excuse of Performance (*Force Majeure*) on all PVC Homopolymer Suspension Grade resins and Compound products.

Our teams are evaluating the impact of this event on our ability to produce and supply material. At this time, allocation of all of our PVC homopolymer suspension grade resins and compounds products will be implemented, and shipment delays are to be expected. Your account manager will update you on details of the allocation.

We understand the burden that this will put on your company and Formosa is making every effort to return back to normal production and distribution as quickly as possible. Thank you for your understanding and patience. Please feel free to reach out to your account manager for any additional information.

Thank You,

Dick Heinle
Vice President/General Manager
Formosa Plastics Corporation, U.S.A.
Vinyl Division



Formosa Plastics'

Formosa Plastics Corporation, U.S.A.
9 Peach Tree Hill Road
Livingston, NJ 07039
Telephone: (973)-992-2090

May 19, 2021

Subject: Torrential Rainfall -Force Majeure

Dear Valued Customer,

Formosa Plastics Corporation, in Point Comfort, Texas as well as Baton Rouge, Louisiana, has been impacted by torrential rainfall. Like many among the communities that have been affected, we are responding to the various impacts caused by the severe weather.

As weather is beyond our reasonable control, we are aware that its impacts include but are not limited to hindering our ability to access transportation services. We are currently evaluating the impact on our production and logistics capabilities and will remain vigilant in providing updates to all of our valued customers, carriers and partners.

As a result, Formosa Chlor Alkali is declaring Force Majeure on all of its products.

We understand the challenges this creates for your business. Formosa is making every effort to return to normal production as quickly as possible. Your sales representative will keep you apprised of the situation in an effort to minimize the impact of this supply disruption.

Sincerely,

Philip Chen
Vice President/General Manager
Chlor Alkali and Specialty PVC Division

1830 Craig Park Court
St. Louis, MO 63146
314.432.4700
coreandmain.com



May 7, 2021

Dear Valued Customer,

Price increases and supply chain issues continue to surface. Specifically, PVC pipe and fittings, ductile iron pipe and fittings, HDPE pipe, restraints, meters, hydrants and valves, as well as many other products, are experiencing significant shortages that could lead to extended lead times. Along with these supply chain problems, pricing continues to escalate. These problems exist with both domestic and import materials.

With demand high and supply limited, we anticipate a very challenging summer and balance of 2021. It is imperative that we work closely with you to plan and schedule jobs early on in order to avoid possible project delays.

Please continue to communicate with your local sales rep and Core & Main branch for continuous updates and communications regarding these pricing and supply chain issues.

We continue to value the trust you have placed in Core & Main and we will work diligently to service your material needs in this challenging environment.

Thank you for your continued support.

Sincerely,

A handwritten signature in black ink that reads "Jack Schaller". The signature is written in a cursive, flowing style.

Jack Schaller
President
Core & Main



DELIVERING GOOD WATER TO YOU

Michael King

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5200 West Century Blvd

Los Angeles, CA 90045

February 22, 2021

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We see this decision as unavoidable. We are not able to predict how long we will need to operate under these conditions. We are doing our best to return to normal operations as soon as reasonably possible.

Your sales representative will be in contact with you to help you work through this difficult situation. Also feel free to contact me directly.

Best regards,

Rodney Naranjo

Michael King

Alex Mckean

Rodney Naranjo
Director of Sales

Michael King
Sales Manager

Alex Mckean
Sales Manager



Feb. 26, 2021

Dear Valued Customer,

Recent adverse weather conditions affecting the Gulf Coast, Midwest and other large portions of the country have significantly impacted polymer supply lines and production facilities. As such, several resin producers along with PVC and HDPE manufacturers have sent notice of Force Majeure to Core & Main.

As a result of this supply chain disruption, pricing and availability of certain products could be adversely impacted. We are committed to partnering with you to ensure we work through these issues, but it's unknown how long the disruption will continue.

Please contact your sales representative or your local Core & Main branch for additional details or clarifications regarding existing orders or quotations.

We value the trust that you place in Core & Main and will work diligently to continue to service your material needs in these unprecedented times.

Thank you for your understanding and thank you for your continued support.

Sincerely,

A handwritten signature in black ink that reads "Jack Schaller". The signature is written in a cursive, flowing style.

Jack Schaller
President
Core & Main

Q1



AGC
THE CONSTRUCTION
ASSOCIATION

CONSTRUCTION INFLATION ALERT

The construction industry is currently experiencing an unprecedented mix of steeply rising materials prices, snarled supply chains, and staffing difficulties, combined with slumping demand that is keeping many contractors from passing on their added costs. This combination threatens to push some firms out of business and add to the industry's nearly double-digit unemployment rate.

The situation calls for immediate action by federal trade officials to end tariffs and quotas that are adding to price increases and supply shortages. Officials at all levels of government need to identify and remove or lessen any unnecessary or excessive impediments to the importation, domestic production, transport, and delivery of construction materials and products. Project owners need to recognize how much conditions have changed for projects begun or awarded in the early days of the pandemic or before and to consider providing greater flexibility and cost-sharing. Contractors should become even more vigilant about changes in materials costs and expected delivery dates and should communicate the information promptly to current and prospective clients.

This report is intended to provide all parties with better understanding of the current situation, the impact on construction firms and projects, its likely course in the next several months, and possible steps to mitigate the damage. The document will be revised to keep it timely as conditions change. Please send comments and feedback to AGC of America's chief economist, Ken Simonson, ken.simonson@agc.org.

2022

www.agc.org

Rising costs, flat project pricing

Figure 1 illustrates the threat to contractors from fast and steeply rising prices for materials, both for projects that have already been bid or started and for preparing -price or guaranteed-maximum-price bids. The red line shows the change since April 2020 in the price of all materials and services used in nonresidential construction, while the blue line measures the change—or lack of change—in what contractors say they would charge to erect a set of nonresidential buildings. This blue line, essentially a measure of bid prices, has remained virtually stable, rising only 0.5% from April 2020 to February 2021. In contrast, the red line, measuring the cost of contractors' purchases, has soared nearly 13% over the same 10 months.

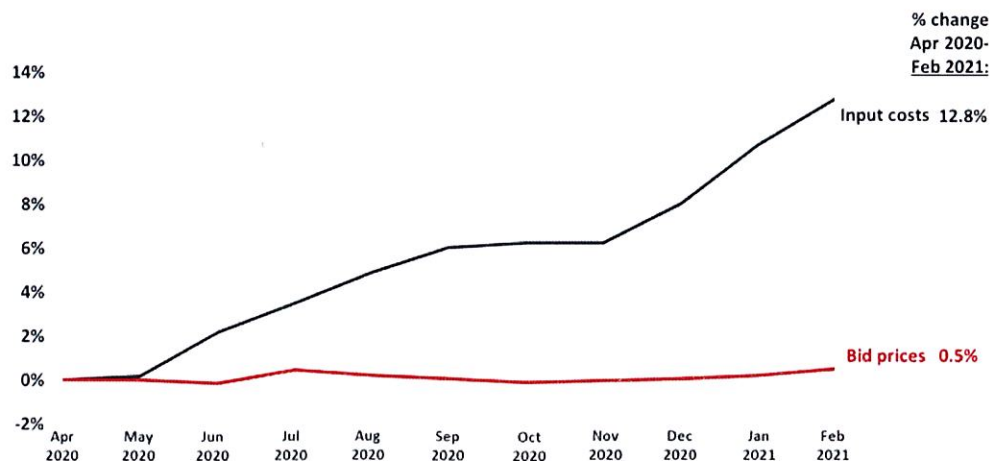
12.8%

Input costs for general contractors have soared nearly 13% from April 2020 to February 2021

In other words, if a contractor or subcontractor submitted a fixed-price bid in April 2020 based on materials costs at that time but did not buy the materials until February 2021, its cost for the materials would have risen an average of nearly 13%. Given that materials often represent half or more of the cost of a contract, such an increase could easily wipe out the profit from a project and create severe financial hardship for the contractor.

FIGURE 1

Change in construction input costs and bid prices
April 2020-February 2021



Source: Bureau of Labor Statistics, producer price indexes (PPIs) for new nonresidential building construction (bid prices) and inputs to nonresidential construction (input costs), not seasonally adjusted

In fact, Figure 1 understates the severity of the current situation for many contractors, in three respects. First, the two lines are calculated from producer price indexes (PPIs) posted monthly by the Bureau of Labor Statistics (BLS). The most recent PPIs are based on prices BLS collected around February 11.

Since then, numerous materials have risen even more steeply in price. For instance, the national average retail price of on-highway diesel fuel climbed from \$2.80 per gallon on February 8 to \$3.19 on March 22, a rise of 14% in just six weeks, according to a weekly truckstop survey posted by the Energy Information Administration. Private price-tracking services have reported similarly steep increases for a variety of steel, lumber, and engineered wood products.

Second, contractors are incurring costs not captured by this measure. Delayed deliveries, higher expenditures for personal protective equipment and other sanitation measures, and shortages of employees or subcontractors' workers on jobsites due to coronavirus impacts are all driving up contractors' costs. In some cases, project completions are being delayed, meaning contractors receive needed payments later and may incur penalties for missed deadlines.

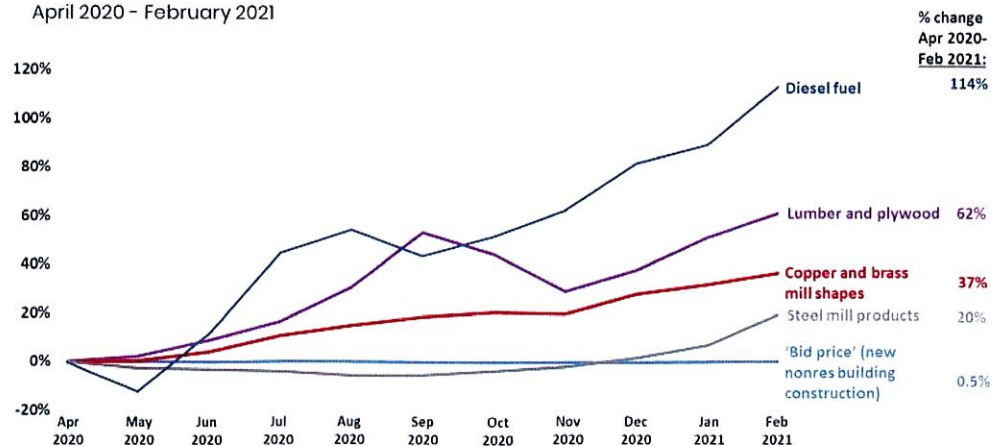
Third, many projects or subcontractors' packages are heavily weighted toward materials that have risen much more in price than the overall PPI for inputs. As Figure 2 shows, the PPI for diesel fuel (at the fuel terminal, not retail) increased 114% between April 2020 and February 2021. The PPI for lumber and plywood jumped 62%. The index for copper and brass mill shapes climbed 37% and the PPI for steel mill products rose 20%.

114%

Diesel fuel PPI (Producer Price Index) has increased more than 114% between April 2020 to February 2021

FIGURE 2

Price changes for construction and selected materials
April 2020 - February 2021



Source: Bureau of Labor Statistics, producer price indexes (PPIs) for new nonresidential building construction (bid prices), diesel fuel, wood, and metal products, not seasonally adjusted

270%

Due to extreme weather conditions and general demand, PVC prices have increased over 270% from March 2020 to March 2021

Some broad categories of products have not gone up dramatically, but narrower classes of products within those categories have. For instance, the PPI for plastic construction products rose "only" 6% from March 2020 to January. But an AGC member reported on March 5 that for polyvinyl chloride (PVC) "used in electric utility work the price from [March 2020] to January 2021 had a general increase of 85%." Following extreme winter weather in Texas that knocked out production facilities and created a surge in demand for pipe to replace broken lines, "Now that increase is 270% from March 2020" to March 4, 2021.

In recent weeks, producers and distributors of many additional materials have announced large price increases. Some have already been imposed, while others are scheduled to take effect in the next few weeks.

For example, a leading producer of spray polyurethane products, used for building sealants and insulation, announced on March 12 that it would increase prices 12-15%, "effective for all new and existing orders shipping after April 12." On March 4 another supplier

notified customers of two price increases of 10% each, effective on April 5 and May 1. On March 10, a major building-products distributor announced 19 broad categories of price increases, ranging as high as a 20% increase effective on April 5 for “all wallboard and glass mat products.”

In addition to sudden price increases, contractors are experiencing delivery times that have stretched or become completely unreliable. A producer of building mesh told customers on March 15, “Volatility in the costs associated with producing and shipping standard welded wire reinforcement has made it necessary for us to withdraw all previously issued price lists. The availability of SWWR has been negatively impacted by the shortage of raw materials; therefore, lead times previously quoted will require review.”

Not a short-term problem

Some might assume contractors will simply raise their prices to cover the added costs. But current conditions in the industry, as well as the record from previous episodes of escalating materials costs, suggest that the mismatch between materials costs and contractors’ prices is likely to persist for an extended period.

The pandemic has caused current production and delivery of many materials to fall short of demand. Initially, a wide range of factories, mills, and fabrication facilities were shut down on their owners’ initiative or because government orders deemed them to not be “essential.” In some cases, contractors—particularly homebuilders—canceled orders because they no longer saw demand for construction. Once production facilities were allowed to re-open, many of them had trouble getting up to full capacity because their own workers or those of their suppliers and freight haulers may have been ill, quarantined, or required to care for family members at home.

Imported products and components also were subject to production and shipping shutdowns in the early months of the pandemic. This particularly affected many products from China and northern Italy, ranging from kitchen cabinets and appliances to tile flooring to elevators. In recent months, production has increased but containers, ships, port space, and trucking capacity have all experienced bottlenecks that have slowed deliveries.

Dramatic shifts in demand triggered, at least in part, by the pandemic have added to price pressures and shortages of goods. Housing starts have increased between 15% and 20% from year-earlier levels, creating huge additional demand for wood products and other items that are also used in nonresidential construction. Restaurants that added decks and railings for outdoor dining, along with offices and other buildings undergoing remodeling, added to demand for these products.

A more recent source of price increases and extended lead times was the extreme winter weather that struck Texas in February. Widespread, unanticipated power failures and unusual freezing temperatures shut down petrochemical plants that normally operate around the clock. Frozen pipes burst, adding to the damage. Repairing the damage and getting complex facilities back to full operating rates is likely to take several months in some cases.

Loss of this production affects plastic resins and other “building blocks” for a wide range of construction products, including: PVC pipe and other hard plastic products like plumbing fittings

15-20%

Housing starting costs have increased between 15% to 20% from year-earlier levels

and fixtures; vinyl siding and vapor barriers; binders or "glue" for the particles and layers of plywood and oriented strand board (OSB), and adhesives for backing/facing for wallboard. Various types of cardboard, paper, and plastic packaging, tapes, and fasteners, including ones for shipping and protecting construction materials, also depend on resins. The freeze also added to demand for plastic pipe and fittings to replace broken water lines, adding to the demand-supply imbalance.

Yet another cause of higher prices and tighter supply is trade policy actions imposed in 2018-2020. Tariffs or quotas on steel and aluminum from many countries, along with tariffs on hundreds of parts and materials from China, drove up the cost of many construction products and limited the number of suppliers, which has led to longer delivery times. Failure to renew a longstanding softwood lumber agreement with Canada has added to lumber costs.

Although the ostensible purpose of some of the trade actions was to protect and create jobs in the U.S. manufacturing sector, steel in particular, very little capacity has been added so far. Many manufacturers merely raised their prices in tandem with the imposition of tariffs.

PAST EPISODES

12.9%

In the past price inflation, materials costs experienced an annual growth rate increase of 12.9% in September 2008

The construction industry has endured previous spells of rapid cost escalation. For instance, the PPI for goods used in new nonresidential construction accelerated from a 3.6% year-over-year rate of increase in January 2004 to 10.0% by October of that year and remained above a 5% annual rate for a total of 31 months, before subsiding to a 3.2% rate in October 2006.

Less than a year later, materials costs soared again, rising from a 1.6% annual growth rate in August 2007 to 12.9% in September 2008. The financial crisis that fall brought rates down rapidly but, again, only for about a year. The growth rate spiked from 0.4% year-over-year in December 2009 to 5.8% the following April and remained above or close to 5% until early 2012.

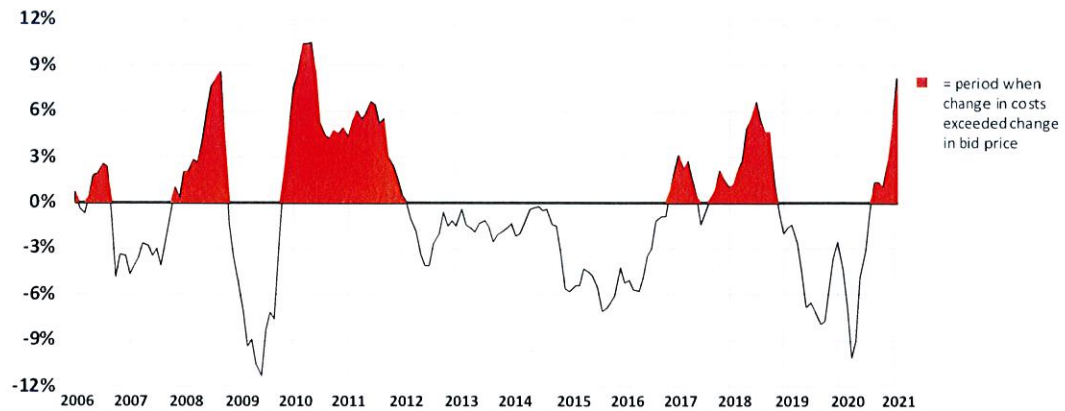
The most recent episode of high materials cost increases was from November 2018 through November 2019, when the year-over-year price change ranged from 4.9% to 9.2%.

While each of these price spikes eventually subsided, they caused enormous harm to contractors, who generally were not able to pass along the increases for an extended period. Not only were firms that had already signed contracts to deliver a project at a fixed price caught by the increases, but competition kept contractors from raising bids to match for a year or longer. A comparison of the year-over-year change in the PPI for materials with the PPIs for five types of new nonresidential buildings shows there were periods as long as 28 consecutive months with such price disparities. That is, contractors' bid prices rose less—or decreased—relative to the cost of the goods they purchased. For the most part, these months coincided with periods in which the value of nonresidential construction was stagnating or shrinking.

Figure 3 shows this comparison for one building type, new warehouse building construction. Periods in which the PPI for goods used in nonresidential construction exceeded the PPI for warehouse contractors' bid prices appear in red. The longer these intervals last and the higher the peak—i.e. the larger the gap between costs and bid prices—the more likely it is that some contractors will have financial difficulties. The current period already has one of the highest peaks.

FIGURE 3

Change in material costs vs. change in warehouse bid prices Jan. 2006 -Feb. 2021
Difference between year-over-year change in costs vs. bid prices



Source: Bureau of Labor Statistics, producer price indexes for goods inputs to nonresidential construction (material costs) and new warehouse construction (bid prices)

CURRENT DEMAND FOR CONSTRUCTION

The construction market currently is marked by a huge disparity. Residential construction spending—comprising new single- and multifamily structures along with additions and renovations to owner-occupied housing—jumped 21% from January 2020 to January 2021. Over the same 12 months, private nonresidential construction spending tumbled 10%.

Employment data show a similar story. Both residential and nonresidential construction employment plunged by 14-15% from February to April 2020. But over the next nine months, through January 2021, employment among residential building and specialty trade contractors rebounded to the same level as in February 2020, immediately before the pandemic struck. In contrast, in those nine months nonresidential building, specialty trade and heavy and civil engineering contractors added back little more than half of the employees they lost between February and April 2020.

AGC has surveyed its members repeatedly since March 2020 to gauge the impact of the pandemic on their businesses. Consistently, and as recently as March 2021, only about one-third of firms reported the volume of their business had matched or exceeded the levels of one year before, while an equal share predicted they would not return to that level for more than six months. The remainder either thought it would take 1-6 months to reach year-ago levels or didn't know. These results, like the spending and employment data, point to a large amount of downward pressure on contractors' ability to pass along material cost increases. (Full survey results are available here: <https://www.agc.org/news/2021/03/11/march-2021-agc-coronavirus-survey-results>.)

21%

Residential construction spending jumped 21% from January 2020 to January 2021

What can contractors and owners do?

While contractors cannot unplug ports or rescind tariffs, they can provide project owners with timely and credible third-party information about changes in relevant material costs and supply-chain snarls that may impact the cost and completion time for a project that is underway or for which a bid has already been submitted.

Owners can authorize appropriate adjustments to design, completion date, and payments to accommodate or work around these impediments. Nobody welcomes a higher bill, but the alternative of having a contractor stuck with impossible costs or timing is likely to be worse for many owners.

For projects that have not been awarded or started, owners should start with realistic expectations about current costs and the likelihood of increases. They should provide potential bidders with accurate and complete design information to enable bidders to prepare bids that minimize the likelihood of unpleasant surprises for either party.

Owners and bidders may want to consider price-adjustment clauses that would protect both parties from unanticipated swings in materials prices. Such contract terms can enable the contractor to build in a smaller contingency to its bid, while providing the owner an opportunity to share in any savings from downward price movements (which are likely at some point, particularly for long-duration projects). The ConsensusDocs suite of contract documents (www.ConsensusDocs.org) is one source of industry-standard model language for such terms. The ConsensusDocs 200.1 Materials Price Escalation Addendum offers the only standard contract document that addresses price escalation.

The parties may also want to discuss the best timing for ordering materials and components. Buying items earlier than usual can provide protection against cost increases but it comes with the need to pay sooner for the items and potentially paying for storage, security against theft and damage, and the possibility of design changes that make early purchase unwise.

Conclusion

The construction industry is in the midst of a period of exceptionally steep and fast-rising costs for a variety of materials, compounded by major supply-chain disruptions and stagnant or falling demand for projects—a combination that threatens the financial health of many contractors. No single or simple solution will resolve the situation, but there are steps that government officials, owners, and contractors can take to lessen the pain.

Federal trade policy officials can act immediately to end tariffs and quotas on imported products and materials. With many U.S. mills and factories already at capacity, bringing in more imports at competitive prices will cool the overheated price spiral and enable many users of products that are in short supply to avoid layoffs and shutdowns.

Officials at all levels of government should review all regulations, policies, and enforcement actions that may be unnecessarily driving up costs and slowing importation, domestic production, transport, and delivery of raw materials, components, and finished goods.

Owners need to recognize that significant adjustments are probably appropriate regarding the price or delivery date of projects that were awarded or commenced early in the pandemic or before, when conditions at suppliers were far different. For new and planned projects, owners should expect quite different pricing and may want to consider building in more flexibility regarding design, timing, or cost-sharing.

Contractors need, more than ever, to closely monitor costs and delivery schedules for materials and to communicate information with owners, both before submitting bids and throughout the construction process.

Materials prices do eventually reverse course. Owners and contractors alike will benefit when that happens. Until then, cooperation and communication can help reduce the damage.

No single or simple solution will resolve the situation, but there are steps that government officials, owners, and contractors can take to lessen the pain

Change Proposal
Brunswick County

Date: January 6, 2021
Designer: Cape Fear Engineering
Designer Rep: Kyle Herring, PE

Project Name: Shallotte Water Transmission Main
Contractor: Ralph Hodge Construction Company
Contractor Rep: Ryan Walser

The Contractor recommends the following change to the project with associated changes to the Time of Completion and/or total project cost:

Ralph Hodge Construction (RHCC) recommends the use of FPVC on the directional drills and on the open cut fusible pipe sections of the project. RHCC offers a \$40,000.00 credit from the project cost with no change in the time of completion. Additionally, RHCC has assurances from the FPVC manufacturer that some of the pipe is in stock and would therefore not delay the commencement of the drills. We have concerns that DR9 in this large size would not be readily available. Therefore, we recommend the change.

This change will: ADD SUBTRACT NOT CHANGE (circle as appropriate) the total project cost by \$ 40,000.00.

The total change to the Time of Completion shall be an: INCREASE DECREASE (circle as appropriate) of _____ days.

A breakdown of the proposed work is attached. No work shall be commenced until authorized by the Owner. All work shall be in accordance with the terms, stipulations, and conditions of the Contract Documents.

SIGNATURES:




Contractor

1/6/21

Date

Designer's Action: ☒ Recommend ☐ Do Not Recommend
 ☐ Recommend with the following changes

 KYLE HERRING, PE

Designer

01/25/2021

Date