

# Impacts of Pandemic-Induced Material Price Escalation on Construction Estimation and Bidding

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## CAL POLY

"Every contractor is experiencing challenges. These are unprecedented issues that are challenging the entire industry. Communication has become extremely important. This is something that we used to take for granted."

-Rudy Gutierrez, President & CEO, Shell Roofing Solutions

### Purpose

Over the last two years (2020-2022), the construction materials industry has experienced unprecedented supply chain bottlenecks, resulting in price escalation for materials. Unforeseen escalation can significantly impact the success of construction projects, especially projects in progress. To mitigate the potential risk that material price escalation poses to a project, contractors in California have been required to make large-scale changes in their preconstruction processes involving estimation and bidding. The purpose of this project is to analyze modifications in preconstruction processes to observe changes in industry trends and behavior that have resulted from the rapid increase in the price for materials since the beginning of the COVID-19 pandemic.

### Case Study Methodology

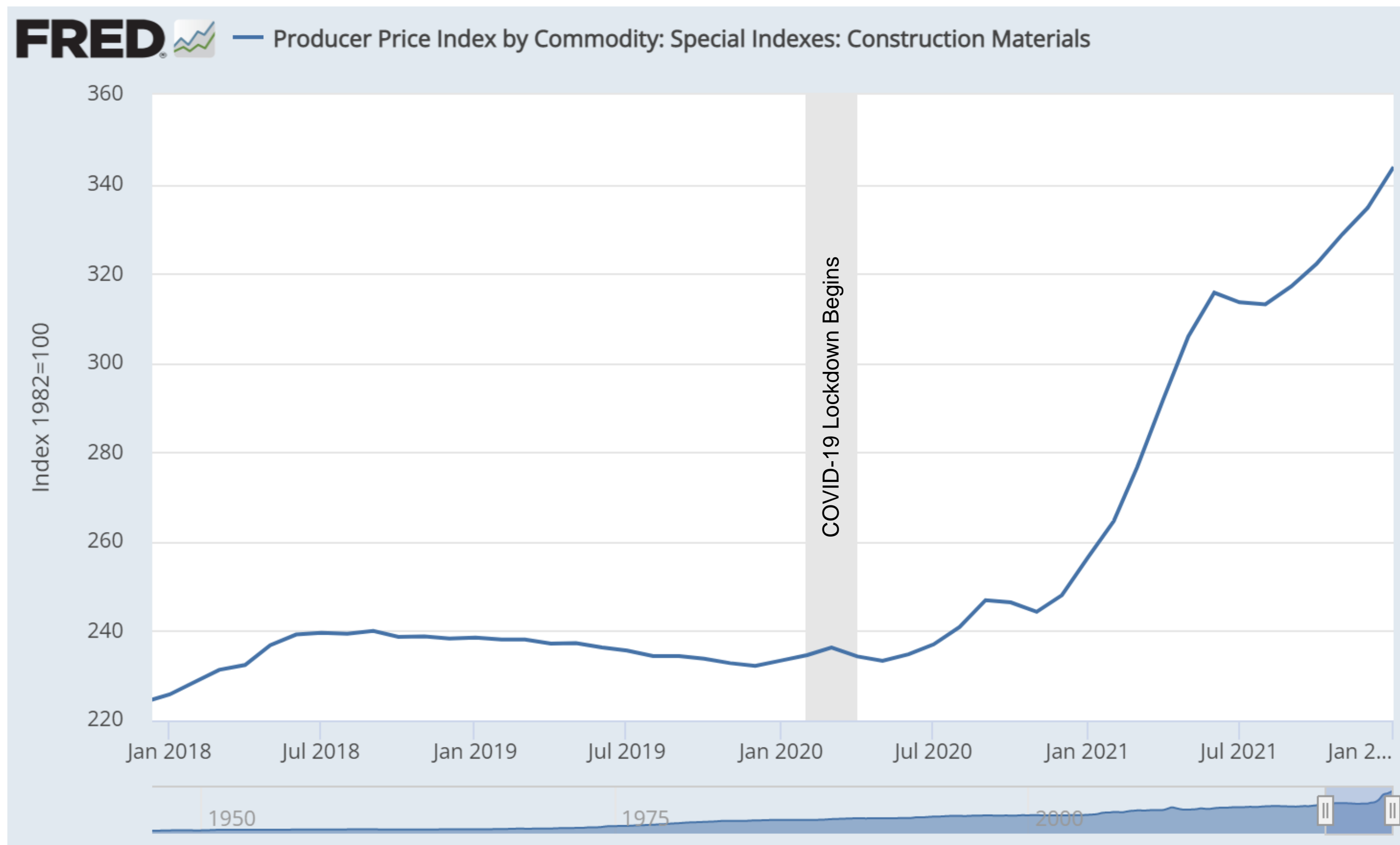
The research for this study included a literature review of past escalation events that established a foundation of knowledge of how these events have influenced contractor behavior. From this base knowledge, a questionnaire of thirteen questions was constructed and a group of eight preconstruction professionals from general contractors, subcontractors, and manufacturers/suppliers was sampled for interviews. A case-study approach was used for this research to best identify challenges that each individual company faced and alterations in each approach to estimation and bidding. These individual interviews were compared later to highlight similarities and to find trends in the modern construction industry.

### Results

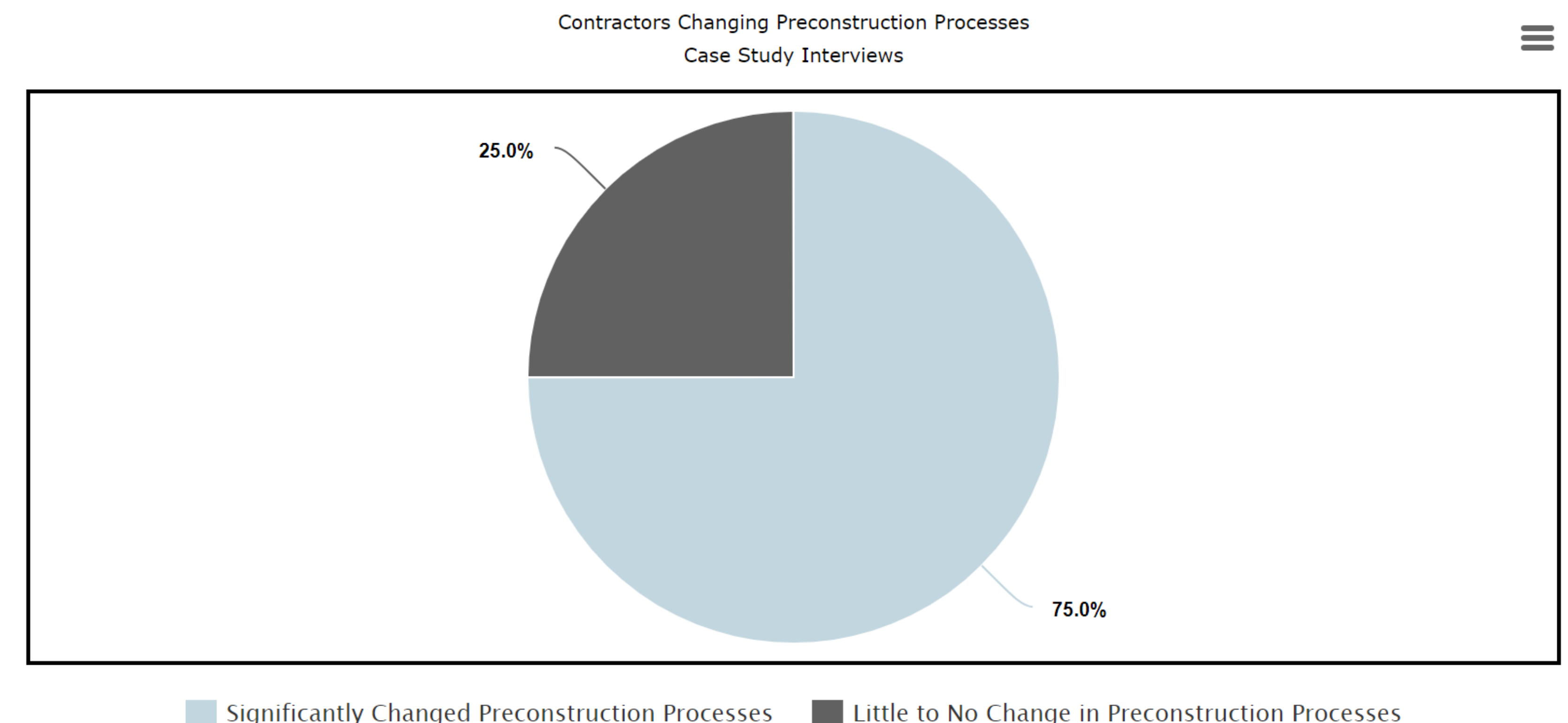
The responses to interview questions for the conducted case studies show that 75% of participating contractors and manufacturers have been required to make significant alterations to the way they approach preconstruction in a volatile materials market. These changes include materials hedging, developing escalation forecasting programs, expanding contingency budgets, creating escalation allowances, and early purchase of material to circumnavigate future escalated pricing. All programs shared by case study participants were effective within their individual company's preconstruction processes.

100% of participating contractors agree that a volatile materials market fosters a less competitive bid market. Successful contractors have maintained their market share and field crew sizes by forgoing profitability and bidding below anticipated escalation. While this solution has maintained gross revenue for successful contractors in the short term, it is unsustainable in the long run for contractors with large overhead expenses.

75% of participants agree that this escalation event will have long-term effects on the construction industry. It is commonly accepted by case study participants that the increased cost of construction will eventually cause demand for new construction to fall, allowing supply of materials to catch up to pre-pandemic levels, stabilizing materials market pricing. However, all case study participants agree that material pricing will likely never return to pre-pandemic levels, no matter how stable the market. Thus, this escalation event has probably permanently changed the price of many construction materials, which contractors will need to learn to estimate for accordingly in the future.



Producer Price Index by Commodity: Special Indexes: Construction Materials (US Bureau of Labor Statistics, 2022)



Percentage of contractors and manufacturers that say they have significantly changed or not changed their preconstruction processes during the material price escalation event of 2021-2022 (Case Study Interviews).