



White Paper / 2023

Construction Cost Escalation In Builder's Risk Claims



/ TABLE OF CONTENTS

- 3** Introduction
- 4** Evaluation and Measurement
- 7** Events Leading to the Current State of the Construction Market
 - The United States–China Trade Tariff Policy
 - Covid-19
 - 2021 - 2022 Key Events and 2023 Market Outlook
- 10** Conclusion

/ INTRODUCTION

The construction industry has experienced a period of volatility like many markets in recent years. Instability in construction supply chains and a series of compounding events have resulted in varied fluctuations in the market. This paper will provide context to the influence of cost escalation in builder's risk claims, provide a basic introduction to the application of escalation analysis, generally discuss methods to analyze escalation, and elaborate on events which have influenced the unique circumstances of the construction market.

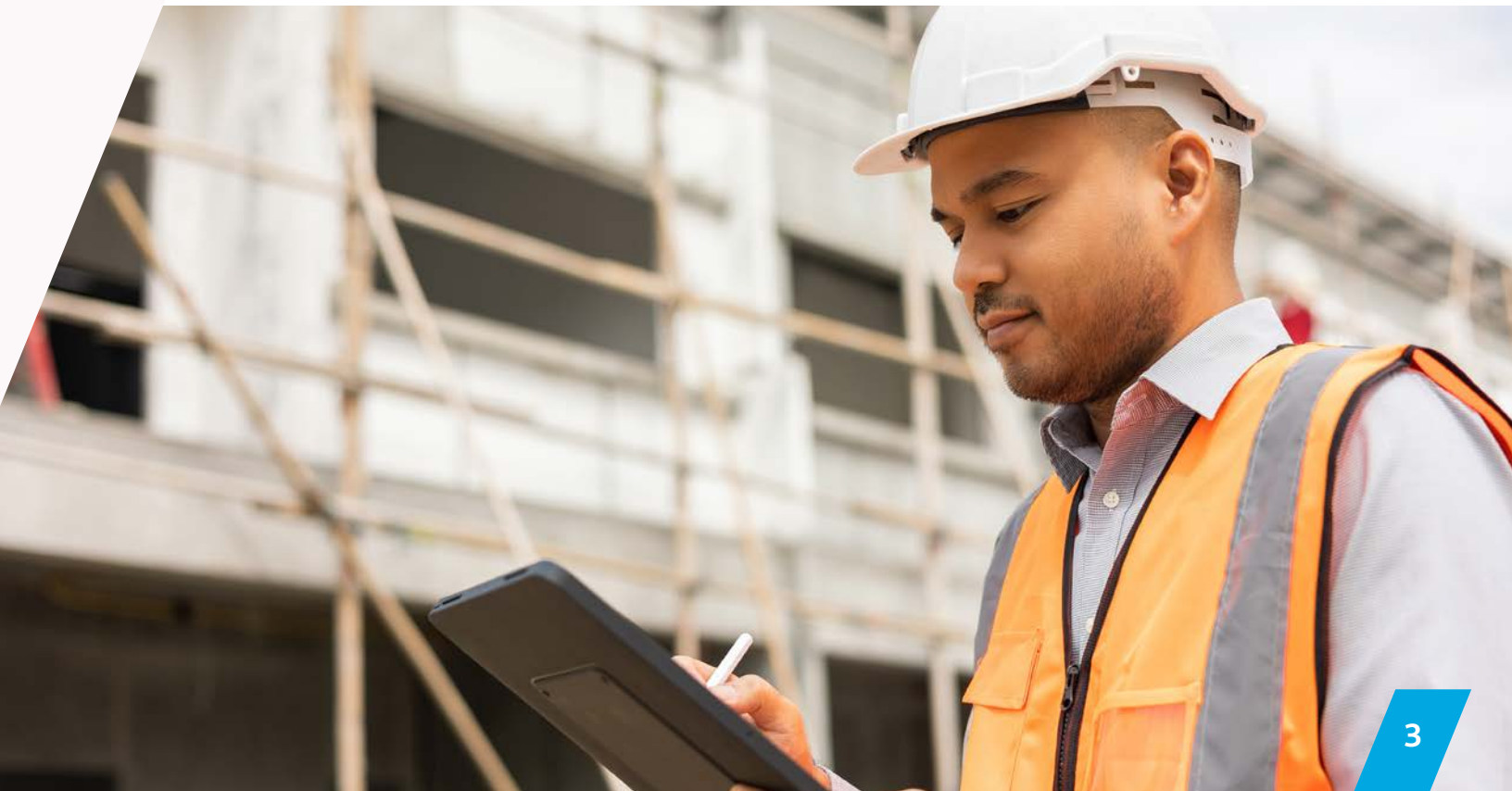
Cost escalation is the change in cost for a specific item or service over a period when compared to a baseline cost. It is similar to inflation or deflation; however, these terms more aptly refer to change in cost in a broad context. Escalation or de-escalation could be characterized as the inputs of many different markets which define the makeup of inflation or deflation.

In capital construction projects, escalation commonly refers to the change in cost for construction inputs which relate to the commodities and materials involved in the completed work. In some cases, construction contracts will contain provisions for the methods to be utilized when a cost escalation claim is made, or they will call for the elimination of cost escalation altogether as means of transferring risk from the recipient of goods or services to the provider.

This paper will discuss escalation in the construction industry more generally to include the cost of all construction inputs including labor, materials, equipment, general conditions, and accompanying markup. In the case of builder's risk claims, the threshold requirement which would elicit a cost escalation claim is physical damage to completed construction work.

Contractors prepare estimates with some level of cost escalation because they are developed from a prospective approach. In other words, an estimate is not prepared at the exact point in time when the work will take place. This implies that a contractor must forecast anticipated market conditions that will occur over the course of a given project, or more often it is the case that the prime contractor will defer portions of the escalation risk to subcontractors and vendors selected to perform/supply on the project. This transfer of risk is delegated in subcontract agreements and purchase orders which contains language essentially requiring the respective subcontractor/vendor to maintain pricing of their scope of supply through a certain date, typically tied to a performance date projected in the contractor's baseline schedule. If the prime contractor manages the risk in this way, then their exposure is limited to escalation on the cost of self-perform labor, and directly sourced material, equipment rental and operating costs projected at the time of bid.

When a covered builder's risk loss occurs which causes a delay to a project, the effect of cost



escalation can be compounded. When a delay occurs on a project, succeeding construction activities could be subject to a later performance or procurement date than would have been planned had the loss not occurred, potentially subjecting a contractor and/or its subcontractors/vendors to an increase in labor or material procurement cost. In builder's risk claims which involve lengthy periods of delay with wide ranging impacts, this is a potentially significant risk exposure. In builder's risk claims with limited delay and impact to succeeding construction activities, the exposure is lessened, and the option of mitigating material escalation becomes viable by procuring the materials¹ and storing them until the point in time when the work warrants delivery to the site.

EVALUATION AND MEASUREMENT

When a contractor prepares a builder's risk claim, it can be the case that escalation costs are embedded in the supporting documents which accompany the contractor's claim. As an example, if

¹ Note that material supplier cost escalation claims made against purchasing contractors typically relate to acceptance of goods by a certain date outlined in a purchase order. This paper acknowledges that these types of claims exist and can be included as an input cost for a claim made by a contractor against a prime party to a construction contract, or a carrier in the case of a covered loss and to the extent the policy affords such coverage.

a structural steel column was damaged and required replacement, the contractor will procure the steel column and provide the supporting invoice/quote for the damaged material supply. In smaller and less complex builder's risk claims, this is more often the task of an analyst whereby an auditing analysis of claimed costs and verification of scope is performed. In this case the cost escalation is the difference in cost from the point in time when the column was originally procured to the point in time when the procurement of the replacement column took place, however, this cost is inherently reflected in the supporting quote for the replacement procurement, and generally in these cases measurement of cost escalation is incidental to the review process.

In large and more complex builder's risk claims, when large portions of work have been affected, an escalation analysis should be considered as part of the review process at the onset of the claim. This metric provides a benchmark which is then measured against until the point in time when supporting cost documentation is provided by the contractor for review and evaluation.

Alternatively, it may be the case that a contractor has been subject to a loss and prepares a claim utilizing the existing pricing and subcontract agreements which have been documented during the course of construction for the purposes of presenting a claim in addition to escalation that would be associated with the damage to physical work. Typically, when a contractor prepares a cost escalation claim they will do so using either internal





costing data, market data resources, or the methods specified in a construction contract. If it is the case that the contractor has utilized internal costing data to prepare an escalation claim, a reviewing analyst could request the supporting calculations and basis of information upon which those calculations were performed; however, this will often require a comparative check to verify that the contractor's costing data is supported by actual market conditions to a reasonable degree. Cost escalation claims which are based upon a contractor's internal costing data can be more difficult to analyze when supporting evidence is not provided as the extent to which they have quantified their claim is not readily known.

The objective of an analyst in evaluating a cost escalation claim is most often concerned with either validating or invalidating a percentage applied to a base cost. A proper analysis of construction escalation requires that the analyst review market data resources to determine if the claimed percentage amount is within a reasonable order of magnitude. It is important to note that construction cost escalation claims are dealt with from a retrospective approach and therefore should be substantiated by supporting data which has been developed based on actual market resources.

The above paragraphs are intended to provide examples of how cost escalation has the potential to manifest and be part of a builder's risk claim. The fact is that construction projects are dynamic and unique and there are many uses and applications for understanding markets trends and how they can affect cost during the course of a construction project, particularly those that

span in excess of two years, although this paper will demonstrate that projects on even smaller scales have the potential to result in impactful cost increases since the inception of the work.

There are differing methods that can be employed to evaluate escalation, and a wide range of market data resources are also available to an analyst to perform a review. These resources generally include published economic data or the use of estimating software. When an estimating software is utilized, the analyst will prepare two separate estimates of the same scope and price them at separate points in time – the difference between the two estimates is the construction escalation. In order for this method to be employed, the estimating software must allow the analyst to specify the periods over which the measure of escalation is being reviewed. When an analyst utilizes estimating software, the analysis takes on the assumptions that are utilized during the market data collection process employed by the estimating software. The shortcoming to this approach is that the analyst must produce a detailed line-item estimate, which in some cases may not align with the basis of bid prepared by the contractor.

Alternatively, the reviewer might look to resources which publish periodic economic data related to the market under analysis. There are many different resources that publish cost indices which measure the cost of materials, labor, or the cost of construction paid for by the end user. Certain contractors also publish their own indices. The chart provided in Figure 1 below provides a comparison of five resources and evaluates the annual index percentage increase over an eleven-year period utilizing 2011 as the baseline

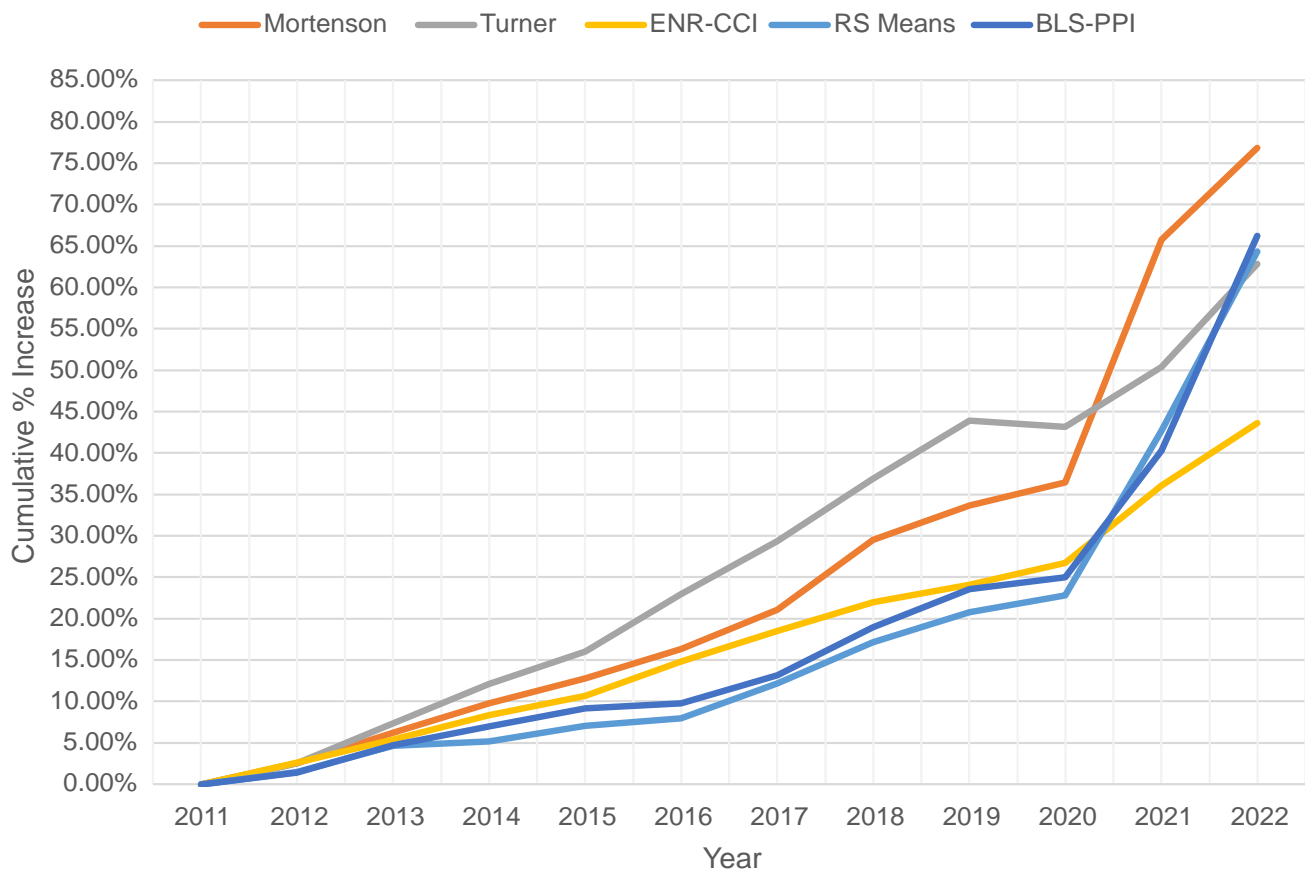


Figure 1: Year over 2011 Cost Index – Percent Increase vs. Time for Non-Residential Construction

index for each of the respective resources at a national level.

The data reflected in Figure 1 was obtained from the following resources:

- M.A. Mortenson Construction Company Cost Index (Mortenson)²
- Turner Construction Company Cost Index (Turner)³
- Engineering News Record Construction Cost Index (ENR-CCI)⁴
- RS Means Historical Cost Indices (RS Means)⁵
- Bureau of Labor Statistics Producer Price Input (BLS-PPI)⁶

2 Mortenson publishes national cost indices on a quarterly basis. Quarter 4 is being reported for each of the periods indicated.

3 Turner publishes national cost indices on a quarterly basis. Quarter 4 is being reported for each of the periods indicated.

4 ENR publishes national cost indices on an annual basis.

5 RS Means publishes national cost indices on an annual basis.

6 BLS publishes national cost indices on a monthly basis. December is being reported for each of the period indicated.

Notably, a significant increase was recorded in each of the cost indices from 2020-2022, and varied responses in each of the cost indices were measured by the cited resources, although RS Means and BLS-PPI depict similar index trends. Table 1 provides a summary of the index percentage increase for each of the cited sources at the end of 2020 compared to the end 2022.

	Cost Index	
	2020-Q4	2022-Q4
BLS-PPI	25.02%	66.25%
Mortenson	36.44%	76.83%
Turner	43.15%	62.84%
ENR-CCI	26.76%	43.64%
RS Means	22.84%	64.33%

Table 1: Year over 2011 Cost Index – Percent Increase 2020-2022

Taking for example the BLS-PPI cost indices, inference from Table 1 would indicate approximately a 25% increase in the cost of construction when comparing pricing from 2011 to 2020. When measuring from 2011 to 2022, however, a staggering 66% increase was recorded. To further elaborate on the information presented in the table above, an inference that a 41% increase occurred from 2020 to 2022 would not be correct as the baseline reference is the distinguishing factor in the calculation. The cost increase from 2020 to 2022 for BLS-PPI data series indicated when compared to the baseline index of 2020 (not the 2011 index) was approximately 33%.

To illustrate the point above, a hypothetical scenario will be considered. Suppose a large, nearly decade long project had been awarded on a lump sum basis and commenced in the year 2011 and was scheduled for completion at the end of 2020. The project was nearly complete, and a significant loss event took place in the year 2020 causing complete damage to all work performed on the project. The objective as part of the evaluation of the loss includes calculating the new cost of construction at the time the loss occurred. A simplistic approach would be to apply a 25% increase to the initial bid, based on the cost index percentage increase reported in the BLS-PPI data series.

Alternatively, in a case identical to that listed above, except that the project was scheduled for completion in 2022, then an increase of 66% would be applied to the base bid.

If the case were that a project commenced in the year 2020 and was scheduled for completion at the end of 2022. The project was nearly complete, and a significant loss event took place in the year 2022 causing complete damage to all work performed on the project then an increase of 33% would be applied to the base bid.

The above listed scenarios are hypothetical and have been presented in a vacuum which reflect aggregate national level cost trends in construction and should not be confused to imply that such increases apply to all construction projects. Furthermore, the above presented scenarios neglect to consider the element of time over which the work was performed and therefore take on the assumption that the affected work was implemented at the time of bid preparation, when in reality, certain portions of the work would have taken place at later times in the project. In other words, cost escalation exposure increases as work on a construction project advances because of the volume of work and the duration over which the work has been put in place will affect the overall measure of cost escalation.

Various factors can influence the costs of construction and there are various levels of granularity which

can be investigated based on the project specific requirements. These general trends in cost do, however, provide insight into the volatility that has occurred in the construction market in recent years when compared to a long-term period of stable increases in the cost of construction.

EVENTS LEADING TO THE CURRENT STATE OF THE CONSTRUCTION MARKET

UNITED STATES-CHINA TRADE TARIFF POLICY

In Q1 of 2018, the United States and Chinese governments began placing tariffs on trade imports. These policy changes impacted certain markets more heavily than others, and ultimately pushed manufacturers and material supply providers with direct sourcing from China to either seek out alternative sources of supply, or to accept the inflated costs brought on by the tariffs. The sources listed under Figure 1 of this report indicate cost increases ranging from approximately 3-7% as indicated in Table 2 below.

	Cost Index		% Increase
	2017-Q4	2018-Q4	
BLS-PPI	118.00	124.10	5.17%
Mortenson	122.3	130.80	6.95%
Turner	1058	1120	5.86%
ENR-CCI	10873	11186	2.88%
RS Means	217.70	227.30	4.41%

Table 2: Percentage Increase 2017-2018

As previously indicated, the indices represented in the table above are a broad measure of construction prices paid by the end user, and therefore this does not address the more pronounced impacts that were sustained by select markets/businesses which dependently procured material sourced from China which were affected by trade tariff policy and with limited options to source supply from a different market. In general, the tariffs imposed by the respective governments resulted in some pressure, but the supply chains affected by tariff policy which service the construction industry were able to curtail the impacts by seeking out supply from alternative sources. The impact of the tariffs, however, would be further compounded by events that would subsequently unfold.



COVID-19

There are without a doubt numerous dedicated papers and research articles developed to address the complex nature of the impact sustained by many markets during the pandemic. This paper is intended to be broader in nature and therefore will highlight key points and focus on the trends in the construction market that occurred during the course of the pandemic.

The first cases of Covid-19 were identified late in Q4 of 2019, and subsequently in Q1 of 2020 whole scale shutdown of economies throughout the globe ensued. At the onset of the pandemic the global market was subject to uncertainty, and the construction industry was no exception. In most cases throughout the United States, construction projects were exempt from complete shutdown as they were considered essential business, but this should not be confused to imply that construction projects did not experience shutdowns due to Covid-19 outbreaks, or that certain projects were halted due to site/project specific circumstances necessitating shutdown as an extension of the pandemic.

Mandates and guidance issued by various authorities compounded the complexities of project management and oversight of day-to-day operations on construction sites. Under ideal circumstances, establishing a proper balance between manpower, budget and schedule is a difficult problem constantly being tweaked at the project management level. The introduction of a pandemic exacerbated this balance. Something

as simple as isolated contraction of the virus by any project employee working on a site had the potential to lead to site-wide shutdowns as a result of contact exposure.

As the pandemic ran its course, the movement of materials and goods through supply chains was disrupted. Much like the previously described scenario of construction jobsite shutdowns, mills, and other manufacturing operations responsible for the production of construction commodities and manufactured construction materials experienced plant-wide shutdowns and/or input material shortages, drastically affecting the ability to efficiently produce and ensure supply kept pace with demand. The effect experienced at the project site was longer than expected lead times to procure materials. Combining the unpredictability of the supply chain in conjunction with an already constrained supply chain brought on by the trade tariff policies that continued through the pandemic resulted in remarkably difficult setting to ensure material was available on the project site when it was required.

The unpredictability to manage progress on the construction site caused by both labor force instability and material shortage inevitably led to delays on many project sites. The delays experienced on construction projects had the potential to compound risk exposure due to increased costs associated with material procurement driven as a result of limited supply and increased demand, as well as maintaining a presence on the construction site (often referred to as general conditions costs). Contracting firms that were engaged in capital



construction projects with contract terms which did not allow for recuperation of cost associated with escalation and/or excusable time extensions attributed to pandemic related delays were subject to potentially significant risk exposure.

The construction market at the onset of the pandemic and through the first several months remained surprisingly stable from a cost increase perspective up until the end of 2020. At this time, contractors began reeling with the increases in cost that were being recorded during the course of the construction.

2021 - 2022 KEY EVENTS AND 2023 MARKET OUTLOOK

As contractors continued navigating obstacles created as a result of tariff policies and the pandemic, new developments in the economic market began to emerge. Throughout the course of 2021, inflation surged and compounded the trajectory of costs that contractors began reporting in late 2020 and at the onset of 2021. The strain on the supply chains across many markets was further exacerbated by increased consumer demand.

In Q4 of 2021, U.S. Congress passed the Infrastructure Investment and Jobs Act (IIJA), a bill which provided for \$1.2 trillion in funding for a wide range of infrastructure projects. The ratification of the bill happened under unique circumstances – it created a pipeline of funding for future construction projects providing a steady supply of work for prospective

contractors, amidst an already tumultuous market. More recent studies suggest that the construction labor market is producing more jobs, while overall job gains are not keeping pace with market demand for labor meaning that while adequate funding is in place to implement new construction, the labor workforce supply is insufficient to meet the demand of new construction projects. Concerns have also been voiced by trade organizations with respect to language contained within the IIJA related to 'Buy American' provisions which according to the Office of Acquisition Management "establishes a domestic content procurement preference for all Federal financial assistance obligated for infrastructure project after May 14, 2022." Respective trade organizations argue that the prescribed sourcing of domestic materials has resulted in undue burden on those projects which seek to take advantage of the federal funding made available by the IIJA, and furthermore, that the specific requirements related to domestic procurement are unclear. To the extent that stringent domestic sourcing requirements will apply to projects which take advantage of IIJA, the scope of the supply chain will narrow significantly due to the limitation placed on procurement of material from international sources.

More recently, the Russian invasion of Ukraine has further constrained supply chains for specific raw material segments due to hampered international relations and/or the inability to physically maintain production operations. Various articles were published

at the onset of the conflict identifying likely price increases and material shortages for fuel, aluminum, copper, and downline supply/manufacturing operations which sourced these raw materials including petrochemical products such as PVC and roofing materials. The forecasted effect that was anticipated at construction sites were increases in transportation costs and a corresponding marginal increase across the board in the purchase price of construction commodities, increased operational costs for equipment on the jobsite, increased costs for material fabrication which require petrochemicals such as roofing materials and PVC, and increases in costs for material fabrication which require aluminum and/or copper. However, more recent articles and economic data suggest varied year over year pricing fluctuations which have resulted in both moderate price increases and decreases for the above listed inputs depending on the market of interest.

Contractor and trade organization sentiments in Q1 of 2023 suggested an optimistic outlook for the non-residential construction market on the whole. Initial forecasts anticipated pressure would ease for certain supply chains serving the construction market such as concrete, lumber, gypsum, and other architectural finishes during the course of 2023. Recent economic data, however, indicate moderate year over year increases in cost which suggests lingering instability in construction supply chains. Concerns over long-lead procurement items, such as mechanical and electrical equipment, elevators, generators, and similar permanent project equipment continue to remain a factor and present a significant risk in the case they have been affected as a result of a covered builder's risk loss.

CONCLUSION

There is little debate among professionals that the construction industry has experienced a recent period of volatility which has resulted in a considerable uptick in pricing in recent years. These varied economic conditions have the potential to result in varied risk exposure responses depending upon the extent and scope of damage sustained in builder's risk losses. Many resources are available to an analyst when assessing a builder's risk claim, and proper selection and application of data will serve to inform comparative measurements when evaluating the presentation of a claim. Understanding industry trends which influence published market data resources will assist an analyst in articulating factors which contribute to fluctuations in the cost of construction that should be considered in the context of evaluating builder's risk claims.



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