



PROPERTY

Cost factors
affecting insurance
construction

During 2020 and continuing into 2021, the United States (U.S.) faced unprecedented challenges related to the COVID-19 global pandemic. Many areas of service, retail, factories, and more were unable to work, resulting in widespread and intrusive uncertainty.



With this uncertainty, significant cost factors escalated. These impacted the insurance construction sector, and it is changing quickly. The areas that continue to change are in the labor market, materials availability, shipping delays and the longer timeline for restoration. Awareness of these factors is critical to planning and managing claims.

Even industries subject to only minimal disruptions were impacted by the coronavirus. Lack of trucking and the ability to transport raw materials used in production or to deliver finished goods to customers resulted in widespread interference and slowdown at many manufacturing facilities. These were pervasive and often eluded clear explanation as the points of disruption were so numerous and widespread, it was hard to identify a single fault in the system as the point of failure.

There are lessons to be learned by looking at key factors affecting the residential and light commercial repair and rebuild industry during these difficult times, and ultimately assessing what the implications are on the insurance industry.

Understanding how material prices relate to total project costs provides important background for cost assessments and provides context for a more meaningful discussion. Once the framework between typical insurance claim components and total cost is established, an assessment of key cost categories is provided. These categories include wood, electrical and plumbing, and labor.

To provide insights moving forward, a review of historical and current commodity indexes; trade publications and price indexes; and historic project data, receipts, and purchase records was conducted. As additional information becomes available in the coming months, these discussions will continue to evolve and shift to varying degrees.

Material prices versus total cost

Typically, material and supply costs represent a small portion of the total cost of any project. However, the percentage can vary. For example, framing for a home can account for 15% of a home's total price whereas 50% of deck's project cost may be allocated for materials. This dynamic can be seen to varying degrees across

all trades. The one common component is that with very limited exception, the cost of materials is typically far surpassed by the cost of labor for a given portion of a project. However, it is important to remember that all projects are different and will respond to increases in cost in different ways.

While the make-up of cost per claim varies by carrier and type of claim, there are some generalities that can be applied across the industry. For example, a roof claim is the most common type of loss to a residence. This is followed by losses attributed to water, fire, and vehicle impact. Each of these types of losses has a different cost attributed to materials, labor, and equipment. A roof is a very material heavy repair. But to date, increases in the prices of shingles have been relatively light in comparison to increases in the cost of wood.

The same type of dynamic can be seen in water restoration work. Drywall prices have remained essentially unchanged and equipment rental rates have been steady for years. While there has been some pressure for change in water restoration, the factors used to justify the changes are very different than what is currently driving wood materials prices.

While it is important to monitor industry trends to ensure accuracy, it is also important to be realistic when viewing increased component costs relative to the claims environment. For example, understand what percentage of claims are likely to include large amounts of framing versus how many will include complete reframing of a residential home.

A discussion of key cost components, including the latest trends and influences on pricing and what this means for insurance construction, will offer a deeper understanding of these issues. More specifically, wood materials, electrical and plumbing, and labor costs are explored.

Key cost components

Wood materials cost

There are two categories of wood materials: dimensional lumber and physical or sheet goods. Wood material costs were assessed in looking at each of these categories individually.

Dimensional Lumber

Softwood/dimensional lumber prices have been impacted by supply shortages related to disruptions from the industry's largest suppliers. Currently, 85% of all lumber imports comes from Canada, 5% from Germany, and an additional 6% from Sweden, Austria, and Brazil. The U.S. has very strict quality standards associated with its building lumber, and only 16 countries around the world produce goods that are eligible for use in U.S. construction. Only one of those major suppliers escaped significant disruption related to COVID-19.

A review of board foot (BF) pricing from a year ago shows an increase of 350%. This includes all grades and quantities. Most lumber traded in the U.S. is average quality. This wood is normally used in manufacturing dimensional type, or the even lower quality B grade type, used in various plywood and sheet goods.

The very best woods are the clear hardwoods. These are typically used to make furniture and gun stocks. Hardwoods represent only a fraction of the total market. A review of records indicates that a 1.5"x1.5"x3' piece of red oak had a retail selling price of \$8.83 in June 2020 while the exact same piece today would now cost \$12.54 - a 42% increase.

Many ask why there is such a difference between these types of price increases versus those on the commodities exchange. The reason is due to demand and stock-piled supply. In essence, the highest-grade woods take time to properly process, including exhaustive drying and grading, and they have a relatively limited use.

An average single-family home built in the U.S. may not have a single piece of red oak included in its construction. If it does, it will most certainly be limited to a fancy mantle, hand-railing or possible cabinet face. However, that same house will have thousands of feet of boards of lower grade softwood in its construction. The result is that the cost of building a house or completing a home's repair will see a disproportionate effect of increasing softwood cost versus increases in more specialty items like hardwoods and veneers.

Reviewing the year-over-year costs of common items, such as dimensional lumber including 2x4's and other common cuts, shows they closely track with the commodities indexes and do not appear to have a significant other component in their prices related to currency value slippage or increased ocean shipping cost. These factors are very limited in dimensional lumber production.



In June 2020, a 2x4 stud, the most common framing material, cost \$2.96. This year it costs \$8.25 – an increase of 278%. A 2x4 stud contains about 3.5BF of actual lumber. Last year the commodity value of that lumber was \$1.26 with the rest attributed to trucking and mark-ups. This year the value of the lumber in a 2x4 is \$4.43.

Given that the percentage share of raw materials cost appears to have increased about 10% beyond the actual commodity price, the current retail price reflects both the increase in commodity value currently observed as well as an additional 10%-11% that is reflective of currency weakness in relation to China or many of the secondary producers of lumber that could possibly be imported to the U.S.

While China can consume a larger array of lumber from more varied sources around the world, it is still competing on a global basis for a limited supply and is being assisted in this competition by the strength of their yuan in comparison to the dollar or the euro in secondary markets. This has the effect of excluding some that may otherwise make its way into U.S. dimensional lumber production. While the U.S. has lost 11.4% in value to the yuan, the euro has only lost 9.4%; this essentially provides a 3% premium for any transaction versus one with the U.S.

Sheet goods

Sheet goods are plagued with two additional issues beyond commodity price increases. They are affected by shipping and transit times as well as being largely produced in countries that have a relatively increasing exchange rate with the U.S.

In the last year, the value of the U.S. dollar has fallen 11.2% compared to the Chinese yuan. To illustrate, consider raw materials purchased on a commodities market by a manufacturer at what is in effect a 200% premium versus the year. This could arise because of production disruptions present in the countries that are the leading exporters of the raw materials, and that disruption could have resulted from COVID-19.

Meanwhile, China obtains source materials from many sources not available to the U.S. such as Baltic and Russian sources. A scarcity of the traditional Canadian and German sources still applies upward pressure to the commodity markets as it relates to the lower grade materials typically used for sheet goods. This raw material is then turned into sheet goods using chemicals, labor, and machines, all operating under the yuan currency. The finished product is then shipped to the U.S. on boats inside of steel containers and sold to U.S. wholesalers. The cost that the U.S. wholesalers must now pay reflects the 11% weaker U.S. dollar at each step of the transaction that occurs in or is controlled by China on the production ladder. The raw materials have increased in cost by 200%, the production cost has increased by 11%, and the shipping has increased by 11% each way.

In addition to the increases related to a weaker currency, the long transit time and market volatility must also be considered. Much like a gas station, the lumber industry largely operates in a closed supply mode; the price of the outgoing product must be calculated in such a way as to allow for its replacement.

The sellers of the finished sheet goods must ensure that the price they charge for a given product reflects what it could be worth when it arrives at its destination. Combining extreme volatility and long transit times, both at the beginning and end of production, dictate that allowances must be great. This factor alone contributes to price increases up to 33% increased cost for sheet goods. Notably, this additional cost will dissipate in the coming months as other alternate production facilities come back online closer to the final marketplace destination.

Using the following assumptions, another illustration is provided below.

- BF contained in sheet of plywood = 9BF (36x4x.75/12)
- Current commodity price \$1,267.00 per 1000BF or \$1.267 per BF
- June 2020 commodity price of \$3.61 per 1000BF or \$.36 per BF
- Current value of wood in sheet of plywood = \$11.40
- Previous Value of wood in a sheet of plywood = \$3.25

The actual wood cost in plywood only represents 11.8% of its retail price; the rest is composed of shipping to producer, production, glues and labor, shipping to wholesale customer, allowances for market conditions, etc.

	JUNE 2020	JUNE 2021
Wood component	\$3.25	\$11.40
Shipping to producer	\$6.75	\$7.49
Production cost	\$18.99	\$21.08
Shipping from producer	\$6.75	\$7.49
Other cost including market based	\$2.00	\$4.00
Total projected cost	\$37.74	\$51.46

- **March 2020** – ¾" 4x8 Sanded plywood = \$37.98
Retail Price per BF = 4.22
- **June 2021** – ¾" 4x8 Sanded Plywood = \$95.98
Retail price per BF = 10.66

Some wonder why the projected cost is so different from the actual cost in 2021, and the answer is transit time. The price at which a given product is sold must include the projected value at the end of the transit time. Since the only mills producing plywood in quantity are in China, the additional market dynamic of eight weeks must be factored into the pricing. Assuming current trends continue, the eight-week volatility could add another 25%-50% to the total cost of goods.

Based on current retail pricing, it appears that the current allowance is running about 46%. This is a factor that does not normally come into play as full Canadian and U.S. production are typically running, thereby eliminating the need for multiple ocean transits. Wood commodity pricing is traditionally very stable with only limited swings of 10%-20% over two-year timeframes compared with the 200% swings in 2021.

Summary of wood pricing discussion

Any discussion of wood pricing as it relates to residential construction should include framing considerations. It is necessary to look at what part of the house needs building or repair and how that relates to the cost of wood.

On an average basis, the cost of wood material, both dimensional and sheet goods, typically run between 10%-20% of the cost per square foot. An appropriate average falls into the 15%-16% of the square foot price range for most residential houses using wood material. Despite the news headlines touting a doubling of lumber prices, it is not going to double the cost of the home.

Electrical and plumbing cost

Electrical and plumbing costs also play a significant and interesting role in the total cost equation for building and repairs. Last year 125 feet of metal clad 10 gauge three conductor cable cost \$150.00 at one of the large home improvement retail stores. This year that same item goes for \$209.08 representing an increase of 39.3%.

At the same time, raw material copper components have increased 74% year-over-year. With this information, it can be surmised that the cost of the copper component of the wire was \$43.54 based on gauge and conductor count. Applying the increase in conductor cost to the wire at the rate specified on the commodity index, the adjusted retail price shows a net increase of \$31.66 for a new retail total of \$181.66. However, this amount does not reconcile with the actual retail pricing. The reason is there are two additional factors that must be included. They are an increased cost of production at 11% and an increased cost of shipping and transport at 11%. These are the same amounts used in the previous example related to wood and sheet goods. Considering the 22% combined increase, it becomes apparent the expected retail cost and actual retail cost are closely aligned with the current retail rate. This likely factors in some slight downward pressure from the consumer market.

Similar examples across this trade can be seen in the cost of steel connection boxes. The costs rose from \$2.27 to \$2.40 or an increase of 5.5% and plastic bushings rose from \$2.10 to \$2.45 for an increase of 16.6%. These items have a relatively flat component cost, likely due to large inventory already present in the U.S. and competitive disadvantages for China related to tariffs of steel products. Price pressure is falling due to the slippage in currency value or additional transportation cost.

Labor cost

In the last year, commerce and business throughout the entire world was disrupted. First, organizations faced the uncertainty of COVID-19, and this was followed by the lockdowns and civil orders

Prior to 2021, the average 2,000 square foot home would have needed 16,000 BF of framing lumber and 6,000 square feet of sheet goods. Using 2020 prices, this would have cost an estimated \$9,056.11. Now, it would cost almost \$30,756 or nearly 3 times as much. However, most of the other components, except labor have remained largely static in comparison. This means that while the cost of an average home may have increased by \$21,000 or more, as a result of lumber, the net increase in terms of total cost may have only risen by 17% as lumber is only a small percentage of the total construction cost.

preventing work. Then came back-to-back hurricanes taking aim at the insurance industry, followed by a freeze event. Through this chaos was the ever-present uncertainty of a second or third wave, combined with soaring lumber prices.

The equipment prices within the restoration industries had remained largely stagnant for the previous six years. Further, while rising 2% per year for the previous seven years, labor had fallen short by half compared to the wider construction labor market.

Since the onset of the COVID-19 global pandemic, this issue with labor in the industry has grown more difficult and dire. The construction industry has seen a 1.2% wage gain despite the limited positive outlook. COVID-19 placed the restoration industry workers at an additional deficit compared to their commercial counterparts. This combined with the general shortage of labor is leading to a very tight labor market for restoration companies.

In general, restoration companies are faced with accepting either a lower level of qualification or a lower operational margin when accepting insurance paid work. They are unable to compete for the traditional skilled restoration workers.

Reimbursement rates have remained static for the insurance industry but the demands for additional training and better performance are increasing. Much of the pressure being communicated by contractors regarding the need to increase cost related to wages is indeed real, but possibly misplaced or misdirected. Wages and reimbursement rates for the skilled restoration professionals should be increased now. The difficulties that many in the industry are experiencing regarding the availability of reliable and quality labor are real and directly related to wage.

The amount of increase that would likely have an impact on both reliability and quality is approximately 15%. While not ideal, this does create a distinction between what a worker can earn at a fast-food establishment versus what they can earn with a restoration contractor.

Currently, a remediation technician can expect to be paid approximately \$18.79 per hour on project costs obtained from a project in rural Kentucky. By way of comparison, a fast-food restaurant in the same area was offering hourly pay of \$15.00 or more. Warehouse and delivery establishments are paying \$20.00-\$25.00 per hour in many cases, and they do not require certification, ongoing training, or work in basements full of debris and potentially hazardous circumstances. A 15% increase in wages would amount to \$21.61 per hour but has the potential to greatly improve retention and performance.

Looking at this issue from a different perspective is also helpful. One of an insurance professional's most frequent complaints is about the unreliability and inconsistency of remediation technicians and restoration companies. Often, they are characterized as haphazard and unprofessional.

One of the reasons that they may be behind schedule or performing poorly is they are working with a new set of workers every day. A significant portion of each day is wasted familiarizing an individual with the project or locations of work. A 15% increase in wages represents one hour and twelve minutes of extra time. With slightly better trained and higher quality employees, this amount of time could be saved each day by using a better worker.

Labor summary

Currently, it is difficult to justify an increase in the price of labor based on traditional supply and demand principles. There are more people looking for jobs now than this time last year. Many people question what pressures are driving wages upward.

New factors to consider are market and political pressures. Some industry observers believe these pressures may be the byproduct of proposed government relief packages as well as the additional spending proposed for infrastructure and education.

There is also substantial pressure to participate in parallel labor

It is also helpful to look at the issue or labor cost combined with the pressures of 2020 and 2021. In many areas, workers have been able to replace the wages typically paid by restoration companies with unemployment assistance. In many cases and in many areas, a restoration worker was better off taking the automatic payment versus working.

While these additional payments are now stopping, they have a hidden burden that is about to affect the restoration companies. To receive the proper reimbursed rate from the carriers, workers must be certified. At their own expense, the restoration companies are going to have to recertify and retrain a whole new workforce. The costs of recertifying and retraining are on top of last year's certifications that have now expired or need continuing education (CE) credits that were never fully used.

These costs are not being reimbursed and are not recoverable on any one project. The result is that the restoration companies are hesitant to make investments in people during these uncertain times. Many hold off until the very last moment, virtually ensuring that the workers are under-skilled or under-trained exactly at a time when they need to be at their best.

markets that previously did not exist among skilled trades. The question becomes whether these workers will follow established norms and continue with their skilled work or explore alternative avenues of employment.

An example of this potential divergence can be seen with the following: In April 2015, Reuters reported that a popular fast-food restaurant was raising its average starting wage to \$10.00 per hour. In May 2021, that amount is \$17.00 per hour. During this same period, the wages of restoration workers have increased about \$2.60 per. Yet, what is expected from these professionals has increased many times over.

Overarching trends impacting insurance construction

In addition to increases in key cost components, there are overarching trends to be aware of that impact rebuilding and repair projects and the overall claims process. Transportation costs and delays, increasing periods of restoration, and increasing claims adjustment costs are areas to monitor as they relates to the overall insurance construction process.

Transportation costs and delays. Large international logistic providers indicate increased transportation cost and unprecedented durations are here to stay for the foreseeable future. Evidence suggests the

influences, increasing both cost and duration, are far outpacing any mitigating pressures. International shipping costs are expected to continue to rise during the coming year, with year-over-year increases in the 300%-500% or more range.

Trans-national and regular semi-transport costs are expected to stabilize with an increase of 33%-50% over 2020 costs. Fuel prices will continue to influence these costs.

The biggest impact that transportation will have is on project completion time. In relation to property insurance, additional transport time has by far had the largest impact of any inflation or COVID-19 related cost increase. This will continue for at least the next year and potentially through 2023.

The backlogs at the ports due to lack of suitable labor and equipment all owe their origins to the COVID-19 crisis. Solutions to these problems are complex and require significant time to implement. Moreover, they can be instantly derailed by potential or actual reinstatement of COVID-19 restrictions, making the future very uncertain.

Period of restoration

Delays in the period of restoration increased during the last year and are expected to continue. In the past, the construction industry was efficient, lean and did not waste time. Dozens of trades and hundreds of material suppliers worked together to carefully coordinate availability to ensure minimal downtime from start to finish. Now the delays that exist are compounding and creating scenarios in which projects are taking 300% longer to complete from groundbreaking to-ribbon cutting.

Stabilization in material prices and per hour labor costs are expected to materialize in the coming months, but the drastic increase in project durations and delays in starts will continue to climb through the end of 2021.

The only factors that could potentially adjust this outlook are a drastic improvement in logistical availability of materials or an influx of skilled workers. Until BOTH of those materialize, it is reasonable to expect a doubling, if not tripling, of typical periods of restoration of property insurance projects.

This dynamic is especially impactful when business income claims are considered. The cost of making the physical repairs to a facility are often greatly eclipsed by the daily cost of not having that facility in operation.

Going forward, construction companies must “right size” their labor force and be willing to be flexible in their scheduling. Companies may be moving crews between projects more often as projects progress. There will inevitably be more half days and early releases as there may not be another project to start until materials arrive.

The work that used to take 40 hours and five days to complete now takes 45 hours and twelve days. The extra cost of the five hours is easy to calculate but it is not easy to estimate the extra seven days of overhead expenses and time that are unrecoverable. Companies cannot calculate the delays to the plumbing crew and electrical contractors that are a result of the framers' delay. The unintended consequences and ancillary impact of these types of delays are significant.

Impacts to project duration based on current circumstances are different than in years past. In the past, if a material was delayed, it was possible to find suitable alternatives and alternative suppliers. That option is now gone and unlikely to return in the foreseeable

future. Now, there is downtime waiting for materials to arrive.

Smart managers and owners are keenly aware of these circumstances, their projected impact on costs, and current market challenges that are contributing to project durations being greatly extended. The contractors are more than ever carefully scheduling what crews they do have and are taking extra steps to ensure that they have the necessary resources to complete a project. They have increased their bids to account for the added costs as well. Contractors know how important keeping their commitments to customers is to their survival and are limiting the amounts of new work they are accepting and managing expectations on expected delivery dates.

Claims adjusting cost increases

Undoubtedly, the property claims world is changing and it is getting more complicated. In the past, it was not uncommon to have a project in which all parties were able to agree to the contractor's labor rates after a short meeting. The needed materials costs were well established and could be quantified easily. This left only the scope portion of a loss to be adjudicated by the parties before an agreement could be secured.

Project scope would then have the labor and material components applied and initial estimates would be established. The construction project would be monitored periodically and ultimately reconciled at the end for the final cost to be submitted to the carrier.

While this process was largely undertaken by building consultants or other professionals, it was overseen by a lead adjuster and internal carrier representatives. Periodic reports were written, and administration of the claim was completed by the adjuster, all of which added a cost to the carrier for the claims adjustment.

With the new claims dynamic in 2021, the process is no longer easy or well-established. There is debate about every piece and component of the cost, and this debate is often circular as circumstances may have possibly changed before an agreement could be reached.

Materials delays are impacting the duration and now the adjustment team is getting involved in discussions of additional business interruption costs because of the overruns in duration. A claim that could have been handled in three months in 2019 will now take nearly a year. This added duration to the adjustment expenses is now increasing at a rate comparable to the increase in duration of the project. Labor and materials cost may be up 30% but the adjustment cost may be double based on the additional duration and enhanced difficulty of suitable adjustment.

Future outlook

Looking at a component cost standpoint, with an emphasis on lumber market prices, we see prices that are at an all-time high, and they are expected to remain at these levels in the coming months. Only mild relief, in the form of 20% - 30% increases year-over-year, should be expected as supply returns to the market in the coming months.

The challenges related to a weak U.S. dollar and transactional limitations due to tariffs will remain for the foreseeable future. In terms of predicting other material pricing challenges, one only needs to look at where the materials are sourced, where they are made, and how long from the gathering of the materials to sitting on a store shelf elapses. If an item is mined or harvested in the U.S. or made in a factory in the U.S. and the time between mining and selling are measured in weeks, then the prices will likely only increase as a result of incremental wage pressure and transportation cost driven by fuel and rubber cost.

However if an item is grown in the U.S., gets shipped overseas, is combined with several chemicals and glues made from oil and formed into a new product, and then takes a long boat ride back to the U.S. stores shelves, it is very likely that the cost of that item will increase many times over in the coming year.

Labor will remain tight as the U.S. recovers from COVID-19. The truly skilled and trade labor will be robust, but this portion of the workforce is not as often involved in insurance losses. The middle tier skilled trades including remediation technicians will slowly increase in cost, with the largest increases being associated with geographical areas experiencing abnormal events such as hurricanes and freezing.

While the specter of increasing materials prices is real, be aware that most materials used for insurance restoration projects are less affected. Even when they are affected, the percentage of a total claim that the materials represent is relatively small and can generally be mitigated through more efficient labor or processes.

Ensuring future performance entails an awareness and understanding of key influences driving the building and restoration process. It will continue to be important to monitor pricing and process as they relate to overall projects and ultimately property insurance. Those who find ways to be flexible and nimble strongly increase their chances of success.



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