January, 2018

State of the U.S. Construction Industry

In this Issue

Welcome

The United States Federal Emergency Management Agency (FEMA) declared 137 disasters in 2017. Tragically, as a result of these disasters, many lives were lost and thousands of people continue to struggle with their lives disrupted. As we move into 2018, we hope for a full recovery for those displaced from their homes and businesses. The construction industry will play a major role in rebuilding both residences and critical infrastructure, and insurance will play a significant role in funding the recovery from those losses as well as insuring that work.

Fortunately the traditional insurance market and alternative risk capital sources remain well capitalized, demonstrating durability. Indeed, the Insurance Information Institute recently reported that despite the catastrophic losses, policy-holder surplus has reached an all-time high of nearly $720 Billion. Consequently, they calculate the industry as having "close to the strongest claims paying status in history." Given that insurance availability and pricing are forecast to be relatively stable, pricing and possible deductible increases are anticipated for property exposed to natural catastrophe loss; however, no dramatic wholesale market increases are expected. Non-natural catastrophe loss results, both realized and anticipated, including automobile liability, frame fires, construction defects, sub-contractor default, design and technology, social engineering, cyber, and employment practices, may also have a modest impact on the marketplace. However, any changes should be measured and targeted, given the ample available capacity and steadily improving analytics used in underwriting. In short, any corrections are expected to be much more targeted and less reactionary than in the past.

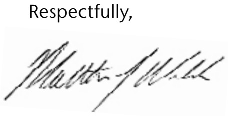
Realizing the insurance market has at times severely and broadly corrected in response to mega-catastrophes (e.g., as it was post-9/11) or engages in targeted pricing increases (e.g., as in New York due to Labor Laws), the best construction firms continue to utilize sophisticated risk management tools to help them protect their balance sheet and optimize margin over a sustained time period, while continuing to innovate. A recent McKinsey study, Reinventing Construction through a Productivity Revolution, suggests the global construction industry has a $1.7 trillion productivity capture opportunity through: *"reshaping regulation, rewiring the contractual framework to reshape industry dynamics, rethinking design and engineering processes, improving procurement and supply-chain management, improving onsite execution, infusing digital technology, new materials, and advanced automation, and reskilling the workforce."*

As the industry leader in Construction Risk Advisory and Brokerage Services, Aon has worked closely with clients to engage in advanced holistic risk practices and is poised to join them on their productivity journey. We have built a platform that empowers organizations to take on risk in ways that create economic growth, and enables people and firms to recover and thrive in the face of adversity. Only deep industry insights, founded upon relevant data and analytics, can truly help reduce the volatility in an industry challenged with an increasingly interconnected set of risks and solutions. This is central to our value proposition and systems, and Aon is committed to ensuring the industry is aware of these core dynamics.

We believe systemic risk trends in three major areas will ultimately shape new realities for all firms in the construction space. These can be broadly categorized as: 1) Regional, Political, & Economic Risk; 2) Macro, Global, & Workforce Trends; and 3) Delivery Methods, Innovation, & Technology. As the construction industry moves forward in these new frontiers, Aon is acutely aware of the changing headwinds and prepared to help our clients capture the opportunities that lie ahead.

With that in mind, we present our outlook for 2018, a high-level perspective on construction risk transfer in 2018 and a narrower look at the effects of natural catastrophes, construction industry sustainability, and cyber risk. We hope that the insights provided here will continue to impart additional perspective to the reader, exemplifying the scope of our proficiency and the comprehensive nature of our solution sets.

Respectfully,



Matt Walsh

Aon
Empower Results®

State of the Market Update*

Losses arising from natural disasters in 2017 were among the highest ever recorded. Total global economic cost was USD344 billion dollars as insurers covered USD132 billion of that total. Nine of the ten costliest insured loss events in 2017 impacted the continental United States. The predominant driver of damage resulted from one of the costliest Atlantic hurricane seasons on record, following the landfalls of Hurricanes Harvey, Irma, and Maria that left extensive damage across parts of the United States and the Caribbean Islands. Those three storms alone caused an estimated USD220 billion in damage and represented 62 percent of 2017's annual economic loss.

Nine of the ten costliest insured loss events in 2017 impacted the continental United States.

Other significant events during the year included the most destructive wildfire outbreak ever recorded for the state of California in the United States. The October outbreak caused nearly USD13 billion in economic damage across Northern California's Napa Valley region and was followed by another billion-dollar wildfire outbreak in Southern California in December. It is worth noting that the insurance industry was well positioned to handle the cost of the 2017 disasters.

The current market remains stable and is not imposing material changes except for projects that are located in high catastrophic areas (i.e., Named Windstorm, Flood and Earthquake). For these risks, the market may impose higher deductibles, lower sub limits, and a focus on the engineering and susceptibility of the project during the critical path and storm seasons.

Construction firms must examine their vulnerability, taking stock of the full picture, including labor options, supply chain diagnostics, and financial consequences.

Even through these challenging times, capital remained healthy. Global reinsurer capital was a record USD600 billion at the end of third quarter 2017. This is a broad measure to detail how much capital insurers had available to trade risk, and also ensured that both insurers and reinsurers were capable of withstanding the extensive losses of the previous year.

For additional reports and outlooks on the reinsurance market, visit Aon Benfield's Thought Leadership site

* Statistics and information in this section of the report called "State of the Market Update" were cited from Aon's Weather, Climate & Catastrophe Insight 2017 Annual Report.

1 Highly Favorable
2 Favorable
3 Fair/Average
4 Mildly Unfavorable
5 Unfavorable

CASUALTY

Overall, the U.S. market for construction remains competitive. While market competition and capacity remain abundant, the deterioration of underwriting results is evident in certain general liability portfolios. Long term construction underwriters with challenged portfolios continue to rebalance their business mix with changing coverage, deductible, premium and risk selection strategies. Generally, competitive alternatives are available for most insureds that demonstrate favorable loss histories and a commitment to disciplined loss control strategies.

Poor underwriting performance in automobile coverage is a continued macro trend across the general U.S. insurance marketplace. Most portfolios are realizing loss pressure, and larger fleets will likely be impacted by both primary rate increases and higher excess liability attachment points. The spike in losses stems from a host of interrelated issues, including increased mileage due to lower fuel cost, higher employment, continued use of communication devices (notably texting), rising healthcare costs, and the increased cost to repair vehicles with increasingly sophisticated electronic components. Due to a frequency of high severity in the automobile line, insurers are focusing on carefully underwriting large fleets and may put pressure on insureds to raise attachment points.

Driven by Labor Law claims, New York construction liability remains a challenging line, most notably for vertical construction. But the construction market in New York is very robust, so firms are focusing on aggressive and creative risk retention, loss prevention, and risk transfer mechanisms to ensure they can participate in the continued growth.

Casualty	Commentary	Rating
Overall Market	While market competition and capacity remain abundant, the deterioration of underwriting results is evident in certain general liability portfolios.	**Fair/Average**
Capacity and Pricing	Market competition and capacity remain abundant, however, the deterioration of the Auto Market and New York's vertical construction environment will continue to challenge underwriting results.	**Mildly Unfavorable**
Losses	Due to a frequency of high severity in the automobile line, insurers are focusing on carefully underwriting large fleets and may put pressure on insureds to raise attachment points.	**Mildly Unfavorable**

1 Highly Favorable
2 Favorable
3 Fair/Average
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5 Unfavorable

PROPERTY / BUILDER'S RISK

Due to large market losses in the U.S. as a result of the hurricanes in August through September, as well as earthquakes, wildfires and recent mudslides, the market has experienced a stabilization of rates generally across all project types.

- **Projects exposed to 'Cat Perils' (i.e, Named Windstorm, Flood and Earthquake) –** The treaty reinsurance market is driving changes for projects exposed to 'Cat Perils' (i.e, Named Windstorm, Flood and Earth quake). Carriers are already imposing increased rates, higher deductibles (percentage of Value at Risk at time of Loss) and elimination of aggregates for Cat Perils.

  Detailed underwriting information is critical as a means to secure the best possible terms. Carriers are increasing their modeling efforts and tracking aggregation of risks to include their operating property portfolio. Procurement efforts should begin as soon as possible so there is time for carriers to work through their internal requirements.

- **Frame Construction –** The consolidated market has experienced severe fire losses especially for concrete podium multi-story structures. In 2017, the market has sustained over $350 Million in losses. Rates are increasing in double digits and risk engineering and risk mitigation systems are being required on most new projects.

Property / BR	Commentary	Rating
Overall Market	Due to large market losses in the U.S. as a result of the hurricanes in August through September, as well as earthquakes, wildfires and recent mudslides, the market has experienced price stabilization of rates generally across all project types.	**Mildly Unfavorable**
Capacity and Pricing	National contractors with non-"CAT" exposures will continue to see competitive options. The severe losses experienced in Frame Construction however, continues to impose higher than previously seen rates and deductibles.	**Mildly Unfavorable**
Losses	Given the experience for Frame Constructing, the global insurance market must be approached thoughtfully to secure favorable terms and pricing.	**Fair/Average**

1 Highly Favorable
2 Favorable
3 Fair/Average
4 Mildly Unfavorable
5 Unfavorable

PROFESSIONAL INDEMNITY

The professional liability market for contractors and construction risks remains generally stable and competitive for both annual practice and project-specific policies. Insurance capacity is at an all-time high. An unprecedented number of insurance carriers and programs are active in the market, yielding some of the softest market conditions in recent history. The resulting overabundance of capacity is good for buyers. Insurance carriers, however, face a fundamentally difficult landscape. This is due to a pronounced increase in the frequency of large claims and cost of defense (especially on large construction defect-related claims). This situation, coupled with strong competition, is hampering insurer attempts to lift pricing in response to higher claims costs. It has also led at least one insurance carrier to suspend acceptance of new primary business until pricing improves.

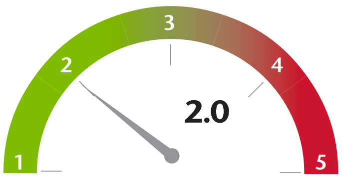
Since 2005, various forms of procurement have grown exponentially, including Design-Build (up well over 600% in that time frame according to the Design Build Institute), Public-Private Partnerships (P3) and Integrated Project Delivery (IPD). These unique delivery models added to the professional liability risks of contractors and led to the introduction of Construction Contractors Protective and Professional Insurance (CPPI). Today, the major U.S. construction firms purchase CPPI policies to cover professional liability risks, however, there appears to be a general lack of understanding around how the policy's various coverage parts (professional, protective, rectification) interplay in the event of a claim. It is important to have clarity here. When problems materialize on a project, how and when the policy is triggered impacts the insured's ability to collect and could ultimately result in significant unnecessary out-of-pocket expenses if not coordinated properly.

In addition, project owners are increasingly aware of the high toll professional negligence losses can take on their balance sheet in the form of cost overruns, rework, time delays, and unforeseen future expenses – all arising out of design and construction errors. Many of these exposures do not materialize until a project is put to its intended use.

Owners, regardless of industry and project delivery method, are increasingly using Owners Protective Professional Indemnity Insurance (OPPI) to protect their balance sheet above the insurance limits available from design-build contractors, construction managers, design firms, and consultants. The OPPI marketplace has expanded significantly in the past three years, and as many as a dozen carriers now offer coverage forms. Many others offer excess limit capacity which, like the contractor insurance market itself, has reached an all-time high. Uptake is particularly strong among owners of projects with construction values ranging from $50 million into the billions who purchase this unique, first party protection on a project-specific and rolling/multi-program basis. We anticipate OPPI will remain a viable solution for owners as construction project values increase in size and delivery methods, and technological advances and contractual terms continue to blur obligations between construction and design.

Professional Indemnity	Commentary	Rating
Overall Market	The professional liability market for contractors and construction risks remains generally stable and competitive for both annual practice and project-specific policies however loss experience may push markets in the future to lift pricing in response to higher claim costs.	**Favorable**
Capacity and Pricing	Insurance capacity is at an all-time high. Healthy competition has resulted in favorable rates and coverage enhancements for many Insureds in order to differentiate their offerings.	**Favorable**
Losses	Frequency of severity - increase of large claims and cost of defense (especially on large construction defect-related claims).	**Mildly Unfavorable**

Cyber and E&O



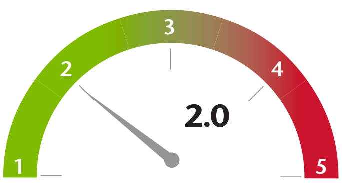
1 Highly Favorable
2 Favorable
3 Fair/Average
4 Mildly Unfavorable
5 Unfavorable

Capacity in the Cyber and E&O market continues to grow across geographies as these solutions evolve to become increasingly valuable to the insured. Coverage continues to broaden and available limits increase for middle market accounts, though not yet for large ones. Insurance carriers continue to differentiate offerings with new or enhanced coverage components and an emphasis on pre-arranged vendors. Retentions of all levels are available, while average premium rates reflect a decline.

As the construction industry increasingly adopts internet-connected solutions and remotely accessible systems, such as Building Information Modeling (BIM), telematics, industrial control systems, SCADA/PLC devices, IoT devices, and project management software, it is ever more vulnerable to a cyber attack. Despite the rising exposure, recent results of Aon's Global Risk Management Survey show that 75 percent of construction respondents neither purchased nor had plans to purchase a cyber program.

Cyber and E&O	Commentary	Rating
Overall Market	Insurance carriers continue to differentiate offerings with new or enhanced coverage components and an emphasis on pre-arranged vendors.	**Favorable**
Capacity and Pricing	Capacity is continuing to grow across geographies, with a growing number of insurers developing appetites for large, complex risks.	**Favorable**
Losses	No material change.	**Favorable**

ENVIRONMENTAL



1 Highly Favorable
2 Favorable
3 Fair/Average
4 Mildly Unfavorable
5 Unfavorable

The market for contractor's pollution liability insurance remains competitive. These products cover activities ranging from general and trade contracting, to large infrastructure projects delivered via public-private partnerships and integrated delivery programs. New insurance carriers have entered this marketplace, filling capacity gaps created by the mergers of other carriers. Fueled by increased activity in general construction projects throughout the U.S., carriers are aggressive in seeking market share. There is a steady flow of opportunities for high-rise residential and mixed-use projects in major cities in all regions of the country.

Rates and policy terms are tightening for site-specific environmental products, particularly development properties with sites impacted by historical industrial operations. Aon is seeing a significant increase in pricing and scrutiny from insurance carriers underwriting both development sites and large portfolio programs that include properties slated for development. Such scrutiny is resulting in coverage restrictions, such as Voluntary Site Investigation and Capital Improvement exclusions. Some carriers are declining to quote development projects altogether.

Overall, Aon insureds continue to benefit from favorable conditions in the environmental marketplace, with broad coverage and competitive pricing available. The consolidation of carriers has reduced the capacity available from a single carrier, but total available capacity remains unaffected. In addition, carriers previously exclusive to wholesalers are moving to retail brokerage, including Everest and Endurance. Total market capacity remains above $300 million; however, the departure of a major insurance carrier and consolidation of others have changed the landscape for 2017 and 2018.

Environmental	Commentary	Rating
Overall Market	Insureds continue to benefit from favorable conditions in the environmental marketplace, with broad coverage and competitive pricing available.	**Favorable**
Capacity and Pricing	The consolidation of carriers has reduced the capacity available, but new entrants are filling these capacity gaps providing a competitive advantage. Rates and policy terms are tightening however for site-specific environmental products, particularly development properties with sites impacted by historical industrial operations.	**Fair/Average**
Losses	No material change.	**Favorable**

Subcontractor Default Insurance (SDI)

1 Highly Favorable **4** Mildly Unfavorable
2 Favorable **5** Unfavorable
3 Fair/Average

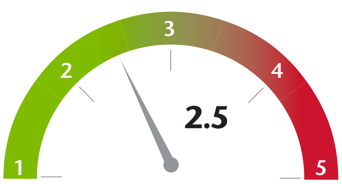
SDI continues to be a low frequency, high severity risk transfer instrument. Enrollment discipline and subcontractor management are the hallmarks of successful programs but many firms realized highly unfavorable results after the economic upturn began. Given this, the market for SDI is severely limited for firms seeking sizable capacity, with the product originator, and once largest underwriter, having severely downsized its portfolio.

There are a number of markets exploring the low and high end of the marketplace. The majority are entering with a focus on small and medium sized firms with relatively low capacity needs. Each of these markets has a distinct appetite which must be evaluated alongside the insured's current and longer-term goals. Geography, market segments, mega-projects, joint ventures, aggregation, retention size, and coverage period are among the issues on which insurance carriers deviate. Differences in carrier proposals must be carefully deciphered, and can include manuscript policy exclusions and other coverage qualifications, such as limitations on particular trade types or geographies. Significant variances in policy scope, performance, and functionality must also be considered to ensure a successful SDI program.

- Larger scale construction projects, with large value and longer duration subcontractor packages, continue to challenge existing SDI capacity.
- Increased insurance carrier emphases on insured engagement of third party services in the financial prequalification of subcontractors.
- "For Sale" Residential projects continue to be a challenge with many insurance carriers offering a shorter post project completion coverage period.

SDI	Commentary	Rating
Overall Market	Insurance carrier risk appetite will continue to challenge insureds with project-specific, residential, and large subcontractor enrollment projects.	**Mildly Unfavorable**
Capacity and Pricing	SDI, is severely limited for firms seeking sizable capacity, with the product originator, and once largest underwriter, having severely downsized its portfolio.	**Mildly Unfavorable**
Losses	While claims frequency has stabilized, claim severity continues to be market concern.	**Mildly Unfavorable**

PROJECTS



1 Highly Favorable **4** Mildly Unfavorable
2 Favorable **5** Unfavorable
3 Fair/Average

The Controlled Insurance Program (CIP) marketplace remains a valuable resource for a variety of project types. Ample capacity is available on both a domestic and global scale, including admitted and non-admitted (E&S) market options, keeping pricing stable and competitive. CIPs offering solely general liability solutions are abundant for most construction risks, including for-sale residential (or those with the potential to convert to it) – an exposure that has largely been excluded or limited in most corporate programs. Additionally, projects that provide GL-only CIPs are afforded consistent coverage through the statute of repose, broadening the policyholder's control of liabilities. This includes addressing many contractor policy deficiencies identified under the recent AIA review. A monoline WC (project specific) option is available, although domestic carriers prefer to pair WC with GL coverage, however, Monoline WC may be a fair compliment with E&S GL-only options.

Multiline CIPs remain an attractive vehicle for the growing number of complex projects with considerable scale and duration. In addition, with the increase in complex delivery models, such as design-build, project professional and GL may be necessary to address. There are domestic markets willing to respond to integrated solutions, but may require the option to underwrite both lines in order to provide the GL enhancements necessary for design-build delivery.

Additional observations of note:

- **Jurisdictional Considerations:** Insurance carriers have advised Aon that their New York construction books continue to experience significant unfavorable development for workers compensation and general liability losses. Rate increases can be expected with higher retention levels required to manage company exposure. Due to the current labor law environment, placing wrap programs on a standalone basis outside of existing contractor client/carrier relationships is challenging. Most primary markets are offering limited transfer with high retentions — typically $1 million or more — to fully fronted general liability programs with no risk transfer. We are beginning to see higher retention levels for workers compensation as well. The umbrella/excess casualty markets face capacity constraints at lower attachment points and are seeking corresponding rate increases to attach at lower thresholds. The majority of umbrella/excess casualty underwriters now seek attachments at $5 million minimum, with few as high as $10 million, forcing primary market selection be contingent upon lead excess conditions.
- **Stringent Underwriting Conditions:** The project-market-place is firming on underwriting dicipline, with pricing reflecting the insurer's comfort level. Insureds should expect greater scrutiny of risk management practices, operational philosophies, and safety messaging. In addition, more markets are voicing concern around stressed resources when responding to multiple bids for the same risk; a few even taking position to only respond for existing clients.

Projects	Commentary	Rating
Overall Market	The Controlled Insurance Program (CIP) marketplace remains a valuable resource for a variety of project types.	**Favorable**
Capacity and Pricing	Ample capacity is available on both a domestic and global scale, with most domestic markets willing to provide integrated solutions for complex delivery models.	**Fair/Average**
Losses	A higher focus around risk mitigation practices, operational philosophies and safety for most markets. In addition to Auto results, New York construction continue to experience significant unfavorable development for Workers Compensation and General Liability losses.	**Mildly Unfavorable**

Outlook for Natural Catastrophes – Considering the Aftermath

The U.S. experienced one of its most active years in recent history due to the frequency of hurricanes and wildfires. The last two quarters of 2017 triggered an evolution in claims procedures and lessons to be learned for the future. What was unique post Harvey, Irma, & Maria?

- Discussions with reinsurers about potential pre-funding of paid losses without formal proof of loss reports were a prominent theme as all parties sought to help families and businesses as quickly as possible. Almost all markets were able to pre-fund losses in the lower layers of catastrophe programs. However, it was necessary to receive periodic reports on actual and projected payments from clients to help facilitate pre-funding on higher layers.
- There were many variables that arose for each of the catastrophic events, including the hours clause, flood versus wind damage—with Hurricane Harvey, for example—and aggregation challenges. The California wildfires' 168-hour clause highlighted the issues raised around when the burning started and ended and whether the individual fires counted as one event or several.
- This was the first time that collateral markets were challenged with a notable volume of claims activity. Most funds are based on full limits and could efficiently pay claims. However, the funds based on full limits less outstanding premium, most of which were started at June and July with little time to accrue, found that collateral posted was exhausted quickly and actions were needed to obtain additional payments.
- Letter of Credit season was very late with a short window for clients to report and reinsurers to respond with their levels of liability—highlighting the importance of effective communications.
- Markets engaged with ecommerce solutions, such as ACCORD, received client information immediately and were able to respond quickly to enhance the settlement process.
- Due to the number and close timing of the events, loss adjusters were challenged to meet the needs of insurers. As a result, loss adjustment expenses were higher than anticipated and insurers experienced delays in receiving reports.

Aon Review:

Natural disasters cause huge amounts of economic damage each year, most of which is uninsured and, in some cases, uninsurable. During the last decade, earthquakes and flooding have accounted for more than half of all economic losses, while the former alone caused 52.8 percent of all catastrophe fatalities, some 355,000. The immediate and long-term economic impact of catastrophes is complex and often misunderstood, which compounds the difficulty of creating effective disaster recovery plans. The disruption of major disasters potentially extends far beyond the local economy and damaged infrastructure. Businesses around the world can find supply chains and markets upended as well. Businesses need to understand the financial risk that catastrophes pose to supply chains, talent, and markets across the world. With a clear understanding of the complex reverberations of catastrophes, businesses can better quantify potential losses and develop more effective strategies to mitigate risk.

Considering the aftermath:

Construction outlays following a disaster include not only repair and replacement projects, but also moving up the timeline on projects previously scheduled for the future. While hurricanes are devastating, the long term work of helping to rebuild these communities is typically a boom for subcontractors. Rebuilding efforts take years and impact housing, hospitals, schools, civil infrastructure and other public works projects. Meanwhile, although it's growing steadily, national construction employment remains less than prerecession levels. The vast majority of subcontractors continue to be challenged with a shortage of qualified salaried and trade craft professionals.

This was especially acute in the recent hurricane ravaged areas of Florida and Texas. Improved wages often attract unskilled labor from other industries; skilled labor is more difficult to attract. Moreover, newer practitioners may lack the knowledge to complete a scope of work intended for a highly experienced craftsman. Just as southeast firms shifted focus to New York and New Jersey following Hurricane Sandy, employees skilled in plumbing, drywall, electrical and other trades will relocate to states heavily hit by recent disasters. Smaller or newer firms may initially lack the financial capacity to facilitate workflows; they may not understand local norms or be familiar with geography. And firms supplying lumber, insulation, windows, concrete and other construction materials will be pressured to meet more immediate and accelerated schedule demands. Contractor balance sheets will almost certainly improve, but those working with an unfamiliar workforce will find safety, quality, and communications a challenge. Successful contractors, both prime and subcontractors will control their appetite and invest in systems and processes that improve project selection, logistical planning for construction materials and craft workers, oversight of quality, and operational management. Insurance markets, including those offering SDI in support of subcontractor non-performance, are taking notice.

Structured Solutions / Considerations:

Business both inside of and beyond state lines should maintain a proactive mindset assessing both the implications and preparation for a long period of disruption. Identifying ways to increase awareness, improve communication, and lower the insurance protection gap will help better prepare a major event. Enhanced contract wording and available weather products should be considered to ensure funds can be paid in a timely fashion. In addition, Aon's Claims Preparation, Advocacy, and Valuation specialists can be a key partner for disaster-impacted organizations by offering a full range of loss recovery solutions, including claims advocacy. Our risk consultants bring unparalleled industry experience in claim handling, advocating on behalf of our clients and helping them prepare, present, and even challenge a claim in a way that achieves a fast and favorable recovery.

✔	**Large Exposure Property Loss White Paper**	An overview of significant cat events which have prompted changes in coverage, adjustment and claim procedures/settlement, with an emphasis on business interruption. Access the Large Exposure Property Loss white paper
✔	**Complex Claim Preparation & Presentation**	Aon's Claims Preparation, Advocacy, and Valuation professionals can support hurricane-impacted organizations with a full range of loss recovery solutions. Access Complex Claim Preparation & Presentation Overview
✔	**Technology and Innovation**	Aon invests in technology platforms and information- based initiatives to help keep our clients apprised of environments where they wish to pursue work. Aon's Construction Risk Portal (CRP) is an essential tool to help our clients and colleagues navigate the risks associated with conducting work in specific locations. Our CAT Risk Analyzer is a dynamic, project risk analysis tool that combines aggregated data from CRP Risk Maps with windstorm and earthquake data from Aon Benfield's Impact Forecasting team. The project risk profile helps clients better understand the potential natural catastrophe exposures associated with a project location as well as the amount/limits of insurance, contingencies, and contractual language modifications required for risk transfer. The CAT Risk Analyzer also helps determine if a full Probable Maximum Loss (PML) study is prudent. Customized, state-specific PDF reports can be generated based on topics from the Risk Maps or CAT Risk Analyzer. These reports can provide estimating teams, division resources, owners and lending resources with greater clarity around the catastrophic risk associated with a project or region. To sign up and learn more please visit https://constructionriskportal.aon.com.

Sustainability of the Construction Industry

Construction accounts for a significant portion of GNP in most industrialized nations is growing in importance in developing countries – **Global average is around 11 percent, with the U.S. typically at 4.5 percent to 6.5 percent.**

We are witnessing a dramatic change in how the world's population lives and works, with the world's growing population increasingly concentrating in cities. Urbanization continues to be a significant economic, social and political factor in developed nations and is now becoming in developing nations as well. It will impact the quality of life and opportunities of people across every continent and in every nation. It will also fuel the growth of the design and construction industries worldwide.

Historically, as populations have concentrated in urban areas, the construction industry has struggled to keep up with the rest of the industrial world in terms of productivity, adaptation, and development of technology and techniques to keep up with the demands of an urban population. How will the construction industry sustain the pace of this new world?

Aon Review:
Several factors have ignited concerns over the sustainability of the construction industry and the design and engineering functions that support it. Among the most significant are:

1. The growing importance of mega-cities (populations exceeding 10 million) and the implications of these agglomerations for construction and engineering.

2. The consolidation of large contractors and specialized construction skills on a global basis, along with the need for additional new skills in delivery of services amid an aging workforce and inability to attract skilled new talent.

3. The industry's lack of productivity growth compared to other industrial segments. While productivity has increased in all segments of construction globally, construction has experienced a decline in productivity over the last 50 years, with profit margins stressed.

4. The absence of significant construction industry research and development activity (and hence innovation) and specifically its historically slow adoption of innovative techniques involving sustainable building materials and practices. The industry tends to focus on current projects rather than overall construction processes.

5. New procurement processes (P3, IPD, and others) have added complexity to construction work and spurred larger contractors to acquire or partner with entities that have the ability to share in the risk, financing and/or management of expensive large-scale projects with long-term contractual commitments for funding, operation, and maintenance.

6. Regulations have impeded progress in the construction industry due to the fragmented nature of building codes (and their enforcement), environmental requirements, and the influence of outside parties on the political process. Climate change, including water scarcity, will continue to be an issue – and eventually, a barrier to business as usual.

Structured Solutions/Considerations:
These factors do not exist in a vacuum and will have greater cumulative effects in combination rather than on their own.

Growth is expected for engineers and contractors as developed nations work to renew and upgrade infrastructure in cities and towns of all sizes. Billions of dollars will be committed annually to roads, bridges, transportation systems, airports, harbor and port facilities, schools, water supply and wastewater treatment systems in cities around the world for the next two decades and beyond. The use of sustainable materials and environmentally compatible operating practices will be necessary to handle these increased construction demands. Successful firms will develop contracting skills as well as analytical tools to identify cities and projects that provide the best opportunities to deploy resources.

So what's next? Aon's Construction Risk Portal will continue a series on the Sustainability of the Construction Industry with our next article on the contracting skills required to survive amid an increasingly urban and growing world population.

Some of the topics that will be addressed include:

- **Regulatory factors required to control urban growth**
- **Successful urban design**
- **Financial plans to assure project success**
- **Intelligent buildings for today and tomorrow**
- **Environmental issues, including climate change**
- **Development of new materials and processes**
- **Recognizing global patterns and trends**
- **Barriers to sustainable construction**

In addition, the Aon Infrastructure Solutions (AIS) practice is dedicated to providing risk advisory services to alternative project delivery (APD) market participants. This highly integrated team of advisors provides wide-ranging expertise, including construction risk management, corporate strategy, law, procurement, public policy, finance, and project management. To learn more about AIS and view related information please visit aon.com/risk-services/construction-services/infrastructure-solutions.jsp

Cyber Risk in Construction

Cyber risk has become a leading issue for many organizations. Awareness of cloud computing, social media, corporate Bring Your Own Device policies, big data, cyber disruption, cyber espionage, data theft, hacktivism, insider threats, and state-sponsored attacks has grown in an increasingly punitive legal and regulatory environment. Contractors now more frequently encounter contractual insurance requirements specifying cyber liability: Forward-thinking companies are being proactive in exploring and transferring cyber risk.

Aon Review:

Numerous factors can shape an organization's cyber risk profile, including:

- Risks associated with high-profile buildings or projects, such as government installations infrastructure, public-private-projects, and military projects, that could attract increased attention and attacks from hacktivists, hackers, and terrorist groups.
- Dependency on electronic processes, industrial control systems, IoT devices, or computer networks, such as electronic design and project-management tools; utilization of "the cloud," smart buildings, "connected" buildings and interactive features. These expose contractors, investors, owners, and tenants to injury and liability ranging from compromised data, system interference and outages, and regulatory compliance issues.
- Contingent bodily injury and property damage resulting from cyber incidents. A hacker with access to construction data or building controls could wreak havoc not only operationally but through the physical destruction or malicious control of data, servers, and infrastructure and/or by threatening the safety of people onsite.
- Your data and information can be vulnerable when held by third-party vendors via Building Information Modeling (BIM) programs, or by independent contractors or additional service providers; also when taken to jobsites or other third-party locations on laptops and portable devices (iPhones, iPads, etc.).
- Intentional acts by rogue employees / independent contractors or additional providers put data and information at risk.
- Disclosure of confidential information and trade secrets (including blueprints, contracts, and sensitive material), Personally Identifiable Information, and Personal Health Information (both third party and employee data) via a computer network (in your office or at an external location) or off-line (i.e., laptop, paper records, disk) is a significant exposure.

Structured Solutions/Considerations

Cyber exposure is a continuous risk management function that requires a proactive mindset. It is critical that organizations take strategic steps to mitigate exposure before a cyber event occurs.

Benchmark your cyber risk exposures today! Aon invites you to complete our free Cyber Diagnostic Tool to help quantify and benchmark your Network Security and Privacy exposures. Complete the 10 minute questionnaire and receive a tailored risk benchmarking report.

To access the Cyber Diagnostic Tool please visit aoncyberdiagnostic.com

An Aon Solution Spotlight

"A Professional Consortium"

As a proactive advocate for our clients and the construction industry, Aon is keenly aware that construction professional liability exposures, products, and risk transfer solutions are evolving at lightning speed. From the recent expansion of the carrier marketplace, changes in delivery methods and contractual obligations, high-profile complex claims, and the addition of ancillary coverages with multiple separate insuring agreements (i.e. the CPPI policy), contractors, owners, and design professionals alike must evaluate exposures with the support of knowledgeable professionals dedicated to this segment.

In response to this evolving risk landscape, Aon has created the **Construction Professional Consortium (CPC),** a platform to address the multi-faceted risk management needs of clients. CPC draws advisory, claims and broking consultants from our Construction Services Group, Professional Services Group and Environmental Services Group into one team focused entirely on construction-related professional liability exposures and solutions. The team includes consultative brokers with deep expertise that spans delivery methods, operational programs, international placements, and complex environmental hazards across all construction project types, including the most marquee and significant construction projects that are transforming North America. CPC's 'One Voice' methodology empowers clients with direct access to the proper specialist, regardless of geographic location. It differentiates Aon from its competitors by firmly placing the client's needs above all other interests. In addition, our direct relationships with the leading providers of professional liability insurance ensure that we deliver innovative, world-class solutions to protect our clients'balance sheets, projects, and reputation from professional negligence losses.

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Aon’s Construction Services Group (CSG)
CSG is Aon's largest industry practice and the leading provider of risk management and insurance solutions to global contractors, regional trade firms, and specialty contractors.

We leverage the placement volume, broking experience, and service infrastructure of Aon to provide industry-leading terms and conditions, pricing, and claims support to the infrastructure space. Our construction insurance professionals deliver customized service, informed by our deep knowledge of local construction marketplaces and regulations across all geographies.

For more information about our products and services, please visit us at www.aon.com/construction

Aon plc (NYSE:AON) is a leading global professional services firm providing a broad range of risk, retirement and health solutions. Our 50,000 colleagues in 120 countries empower results for clients by using proprietary data and analytics to deliver insights that reduce volatility and improve performance.

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