Managing Risk in the Construction Industry
SmartMarket Report

Executive Editor
Stephen A. Jones

Managing Editor
Donna Laquidara-Carr, Ph.D., LEED AP

Vice President, Marketing
Ed Walloga

Contributing Art Director
Alison Lorenz

Contributing Art Director
AD-BOUTIQUE, INC.

Contributors
Bruce Buckley
Katharine Logan

Research Project Manager
Susan Barnett, MRA, PRC

For further information on this SmartMarket Report or for any in the series, please contact:

Dodge Data & Analytics
Research & Analytics
34 Crosby Drive
Bedford, MA 01730
1-800-591-4462
Dodge.Analytics@construction.com

About Dodge Data & Analytics
Dodge Data & Analytics is a technology-driven construction project data, analytics and insights provider. Dodge provides trusted market intelligence that helps construction professionals grow their business, and is redefining and recreating the business tools and processes on which the industry relies. Dodge is creating an integrated platform that unifies and simplifies the design, bid and build process, bringing data on people, projects and products into a single hub for the entire industry, from building product manufacturers to contractors and specialty trades to architects and engineers. The company’s products include Dodge Global Network, Dodge SpecShare®, Dodge BuildShare®, Dodge MarketShare™, and the ConstructionPoints and Sweets family of products.

To learn more, visit www.construction.com.

We have a new email address.
Deliveries that you have been receiving from MHC Analytics, (mhc_analytics@mcgraw-hill.com) will now come to you from Dodge Analytics, (Dodge.Analytics@construction.com). Please add Dodge.Analytics@construction.com to your list of approved senders to ensure your deliveries are directed to your inbox and not your junk mail folder.
Introduction

Construction has always been an industry with a high level of risk. Increasing project complexity, large project teams and the inherent physical dangers of the work itself all contribute to this reality. However, too often the industry accepts high risk as a standard operating condition. As construction activity accelerates after the recession, improving risk management is as important as increasing productivity, safety and profitability, so we believe this study is both critical and very timely for the industry.

While built upon the foundation of the seminal risk management study Dodge Data & Analytics (then McGraw Hill Construction) conducted in 2011, this study takes a broader approach with over 500 respondents representing a wide range of building sectors, including general building, institutional, industrial and non-building (horizontal infrastructure).

The study reveals that risk continues to have an enormous impact on the construction industry, with three quarters (75%) of respondents reporting that they have experienced a dispute or claim in the last five years.

The findings also demonstrate that the experiences of risks differ between owners and contractors. Owners feel the greatest impact from planning/scope changes, schedule changes and cost escalation, while GCs and trade contractors are more concerned about labor procurement and contractual risks (from how risk is apportioned directly by the contracts, to issues like warranties, guarantees, etc.). These varying perspectives on risk lead to differing priorities when selecting the best risk evaluation and mitigation strategies.

One of the most important findings of the study examines which of the 10 risk evaluation and mitigation strategies are most effective and what key benefits respondents report experiencing from each. Not surprisingly, given the very different experiences of risk they report, owners and contractors also experience very different benefits from their use of risk management strategies.

That said, though, a clear pattern emerges in regard to the impact of collaboration on reducing risk. The two top strategies for all respondents—formal brainstorming with the team and regular project meetings with the full team focused on risk—enhance collaboration across teams and yield critical benefits like increasing reliability in overall project performance, reducing the cost of construction, improving project schedule and improving safety.

This is reinforced by the high value all players place on project delivery methods that encourage greater team integration as a means to drive expanded future use of risk management practices. Likewise, contractors in particular find the lack of cooperation among project team members to be a critical obstacle to their increased future use of these practices.

The most telling finding, though, comes from directly asking the respondents whether increased collaboration reduces risk. There is resounding agreement that this is the case, with 91% affirming this statement.

However, the concern about contracts also demonstrates that effective risk mitigation begins from the start, with how the project team is contracted and the delivery method selected.

We would like to thank our premier partner Alliant for helping us to bring these important findings to the industry. In addition, we thank Procore and e-Builder for their support, and we also thank all of our research partners for their efforts to engage the industry in the study.
The biggest risks faced in the construction industry can be addressed through better risk management and more collaborative approaches. With three quarters of owners and contractors reporting that they have experienced claims and disputes, it is clear that ineffectively managed risks take a high toll on the construction industry. As the data in the research demonstrate, risk evaluation and mitigation strategies can yield specific, valuable project benefits like greater reliability, reduced cost and reduced schedule.

**Disruptive Influence of Disputes and Claims**

Three quarters (75%) of those who participated in the study experienced a claim or dispute in the last five years, including 83% of the GC respondents. Thus, disputes and claims are still common practice in the construction industry, leading to disruption and increased costs for all parties involved.

- Claims arising from construction defects are the most common and the most costly claims and disputes for owners.
- Subcontractor default, termination or failure claims and disputes are the most common and most costly for GCs.
- Warranty issues are the most common for trade contractors, but they are nearly evenly split between warranty issues and claims arising from construction defects when selecting the most costly.

**Top Risks Faced in Construction**

Owners, GCs and trade contractors face a variety of hazard, strategic, operational and financial risks. While any risk can be serious, the chart at right shows the top five specific risks considered to have the greatest impact by respondents.

This list suggests that these top risks, unlike weather, political disruption or disaster, can be anticipated from experience and managed through established risk evaluation and mitigation practices.

It is particularly striking that concerns about contractual distribution of risk are included among the top five. This is a call to the industry that good risk management starts early, as the contractual obligations are being formed.

The data in the detailed analysis in the report also demonstrate that owners, GCs and trade contractors rate risks differently. Their varying perspectives suggest that a number of mitigation strategies will be required for effective management.
Most Effective Risk Evaluation and Mitigation Strategies

The industry has multiple risk evaluation and mitigation strategies, of which 10 were included in this study. While each has value for managing risk on projects, four were selected by the highest percentage of respondents as the most effective, as shown in the chart at right.

The study also looked at the specific benefits achieved from using each risk evaluation and mitigation strategy. Information on the strategies that the highest percentage find to have achieved top benefits like increased reliability in overall project performance, reduced cost and reduced schedule are provided on page 6, with the percentage of owners and contractors who identify the top strategies to achieve each benefit.

Key Triggers and Obstacles

Contractual issues are not only among the highest risks for respondents, but they are also behind the top triggers for increased use of risk management, demonstrating the importance of getting risk attribution right before the project begins.

The top obstacles preventing the use of more risk management practices are basic and fundamental: lack of cooperation across the project team and basic lack of knowledge.

Collaboration Reduces Risk

Many of the findings throughout the study point to the same conclusion: that increased collaboration is a fundamental strategy for reducing risk.

- Nearly all (91%) agree that collaboration reduces risk.
- The most effective risk evaluation strategy (formal brainstorming with team) and most effective risk mitigation strategy (regular meetings with the full project team) are means to enhance collaboration.
- Two top obstacles involve the lack of communication and information flow across the project team.
- One of the top triggers for increasing use of risk management practices is the use of delivery systems/contracting methods that encourage project team integration.
- The current approach to apportioning risks in construction contracts to specific parties discourages collaborative behavior. Shared risk and reward contracts may be a way to address this issue.
Top Risk Evaluation and Mitigation Strategies to Achieve Benefits

**Increase Reliability In Overall Project Performance**
- Regular Meetings of Full Project Team Focused on Risk
- Expert Input From Internal Resources
- Developing a Plan to Manage Risk
- Expert Input From Internal Resources

**Reduce Cost Of Construction**
- Expert Input From Internal Resources
- Formal Brainstorming With Team
- Expert Input From External Resources
- Developing a Plan to Manage Risk
- Formal Brainstorming With Team

**Improve Project Schedule**
- Checklists Forms Risk Registers
- Expert Input From Internal Resources
- Contingency Planning
- Formal Brainstorming With Team
- Regular Meetings of Full Project Team Focused on Risk
- Contingency Planning
MANAGING RISK IN THE CONSTRUCTION INDUSTRY

What are the primary risks lean practices are helping you to mitigate on large projects?
We’re doing jobs 10, 12, 15 months faster than we would have done the same project eight or 10 years ago. That doesn’t come without inherent risk. You have less time to coordinate the subcontract work, and there’s more of an overlap with the design phase—because the pressure on the designers in our industry is just as intense as it is on the contractor. So we’re trying to reduce the risks around delivering projects faster, and I think the only way to get there is through some truly effective lean planning practices.

Where do you start?
We’re construction managers, and we’re good at what we do, but we succeed on the capability of our trade partners who actually perform the work in the field. You have to develop a basis of trust—from the highest levels within the organization all the way down to the field level—so that the trade contractors and our staff are very quickly and easily aligned around the driving factors of the project, and what we need to do together to achieve those goals.

Developing a basis of trust is a key idea. How do you achieve it?
You don’t do it sitting across the table at a meeting when you’re reviewing a bid with a subcontractor, [although] you can form a basis then. We’ve been successful in these markets for decades. That’s the foundation. We have developed both company and individual relationships.

Another way is that we recognize that our subcontractors are in this business for profit, just like we are. We’re just filling a different role on the project, ultimately to bring to fruition the dream that our client has for it. So we don’t make it a transactional relationship where we’re just taking the lowest number and putting that guy on the job. We want to make sure that the contractor who has the best strategy, who engages with us early in a pre-construction effort, and who puts their best people on the project has an opportunity to have a successful project where they can help control the outcome.

And then, at the project level, we meet a lot. The focus of every meeting is action-oriented, where we’re asking subcontractors for their suggestions and advice to get where we need to go together. We don’t know everything, and we’re very open about the fact that they’re a critical part of the solution.

To summarize: It’s long-term development of the relationship. It’s treating contractors as partners and not a commodity. And the third thing is inviting them to be a part of the solution, not just dictating.

Can you illustrate that with an example of a problem solved?
On a recent hospitality project, we identified the biggest risk on the project was [the length of time needed for] completing the concrete. So we engaged early with all the major concrete frame subcontractors in the market, and said, “Look, we need to know what you think it’ll take.” Ultimately we partnered with a contractor who was able to take two and a half months out of our proposal schedule for the project without any additional cost. We could not have done that if we had just been looking for the low ball because they would have been looking to protect themselves and their schedule. But these guys knew us, we had been successful together on other projects, and so they trusted us enough to come in and have an open conversation about it.

We’ve identified a relationship of trust and communication with the subcontractors. What’s next?
Now we really need to make sure the appropriate plan for building the job is in place. We begin with
an early game schedule that creates a framework. We validate the overall sequencing with all the subcontractors, and the milestones come out of it. That’s when we start using what we call pull planning. Together we decide what week-by-week major activities have to happen to fill in a five- to six-month phase of the project.

For the pull planning process, we’re talking big boards with columns on them. The subcontractors have their Post-it notes, and they’re up there working with each other, low tech on a wall, but all of a sudden a guy looks up and he says, “Okay, I have 17 red stickers over those three weeks,” and he understands what his manpower looks like from this project.

If you put the decision-makers for the contractors together in a room, and the glass guy is talking to the framing subcontractor, and framing subcontractor is talking to the steel subcontractor, they not only have some accountability to each other, they also have an appreciation of how what they do affects the bigger picture.

The other thing that comes out of this collaborative discussion is identifying risks with the plan. The subcontractors are able to say, “Look, this works—as long as …” So when you leave the room you’ve identified the things that can keep the project from being successful. A bullet point list gets typed up and sent out, and says these are the action items, here’s who’s responsible, and here’s the date we’ve got to have resolution. The task of our guy at Balfour Beatty is to make sure that list becomes what we absolutely attack every day until we wipe it out.

Is there an achievement you can point to from using this process?

Recently we were on a project where we suffered several months of push on permitting because the city was backed up. When that happened, we had to decide as a group. (If we’re going to be managing risk, let’s not make any unilateral decisions!) We brought every contractor in, and we did a major phase plan for the entire project. It took us about a day and a half, and at the end of it, to a person, every subcontractor in that room said, “We can do this. We can support this schedule.” We were able to take what was about a 20 percent time impact on the schedule, and eliminate it.

How does this experience compare to traditional command and control?

I remember working in that command and control-type environment, dictating schedule on a job we did about 10 years ago, and I ended up spending all of my days in a reactionary mode trying to solve problems ... because we were trying to control too much.

Now we’re not just empowering our subcontractors, we [are also] empowering our [own] people better. I have assistant superintendents who are two years out of college, or recently promoted from a carpenter level, and they’re able to lead effective scheduling meetings and become good planners. They’re doing that because they don’t have to know everything. They just have to be willing to communicate openly with their subcontractors.

So the shift is to trust people. We hire good people to work for us. We talk about partnering with our trade partners. If we truly believe that, we have to trust that they’re going to do the right thing for the project as a whole. And that means now my time is spent looking ahead, helping to solve things before they happen.