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# What to Do When Projects Go Bad, Part 1

by Bill Spragins, Brian Dwyer and Ed Lee

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## *How to recognize problems early, right the ship and avoid making the same mistakes on future projects.*

Even the most promising design and construction projects can get quickly sidelined by a few missteps, a couple of bad decisions, misaligned expectations between the parties or any other number of challenges. In this three-part series, we'll explore some of the key issues that contractors, architects/engineers and owners encounter on their projects and describe common causes of these problems. We will also highlight the red flags that all project stakeholders should be aware of and outline the steps that organizations can take to 1) avoid making the same mistakes repeatedly and 2) right the ship on an existing bad project.

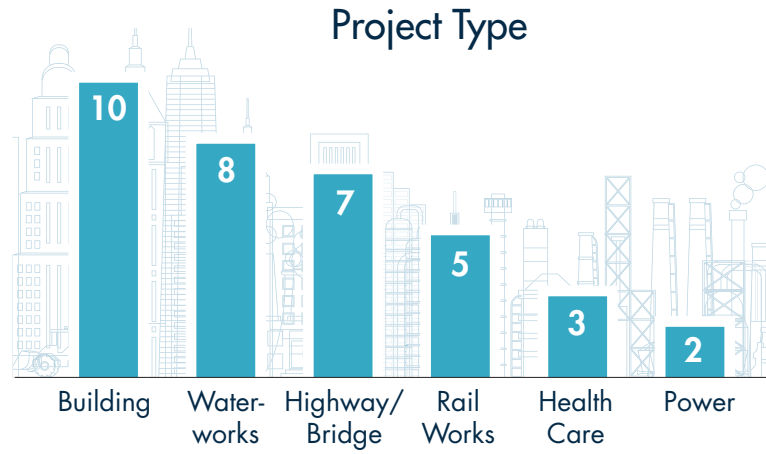
## Why Projects Take a Turn for the Worse

The risk-to-reward ratio in construction is among the most unbalanced of any mature industry. That's because the disproportionate downside risks associated with an extremely bad project far outweigh the upside gained from even the most successful projects.

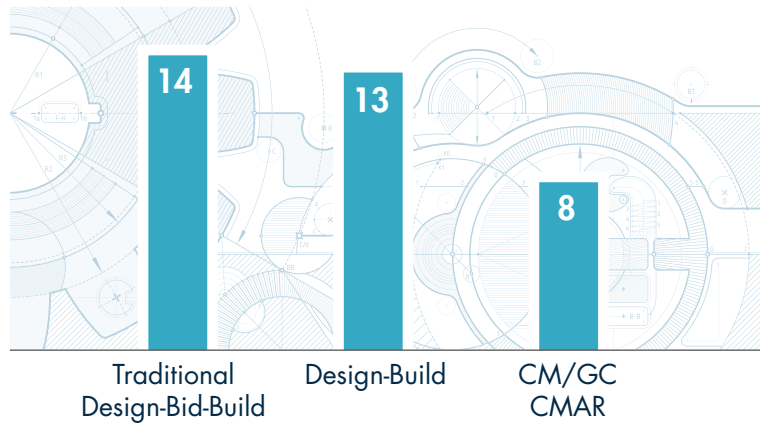
At their worst, truly disastrous projects can cost contracting firms and owner/agencies millions of dollars, push their best people to the breaking point, and cause long-term damage to reputations and key relationships. At a minimum, these mishaps can set back project schedules, overrun budgets, alienate business partners and harm customer relationships.

Drawing on FMI's experience implementing partnering processes on more than 1,400 different projects and an in-depth review of 35 projects from the last two decades, this article highlights a broad range of project types (depicted in Exhibit 1) that shared two common characteristics: They were behind schedule in various degrees and they had multiple unresolved issues, many of which involved unresolved changes or claims.

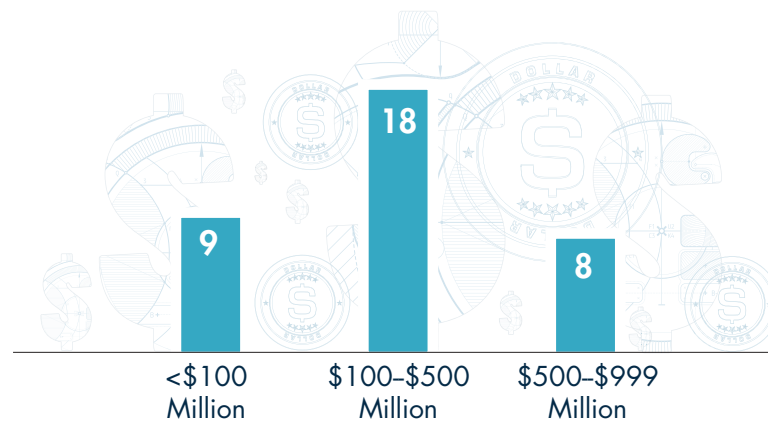
Exhibit 1.



### Project Delivery Method

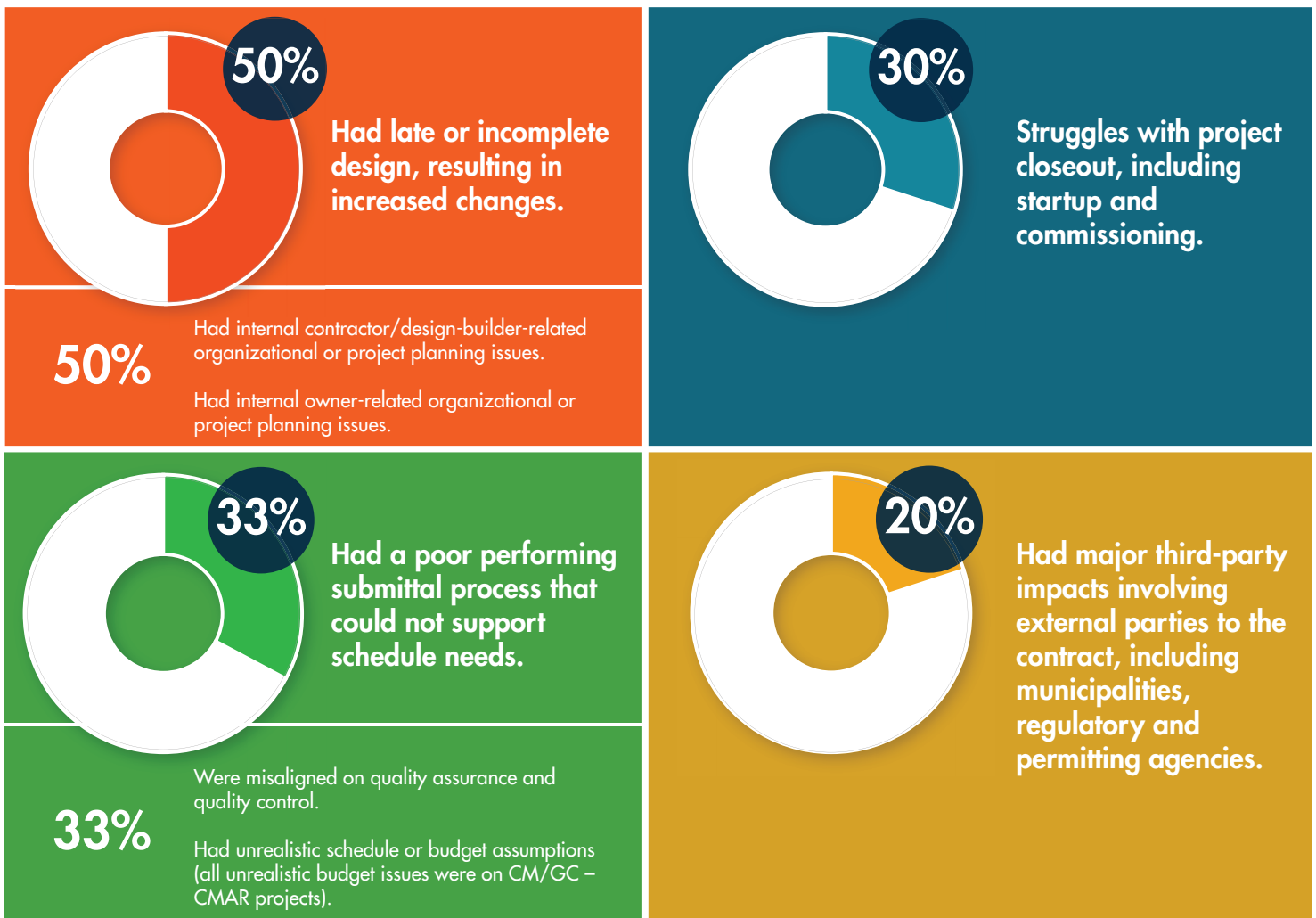


### Project Size



The question is, why were these projects behind schedule and plagued by multiple unresolved issues. Exhibit 2 shows a summary of key causal factors that we uncovered for these stressed projects.

**Exhibit 2. Key Causal Factors Leading to Stressed Projects**



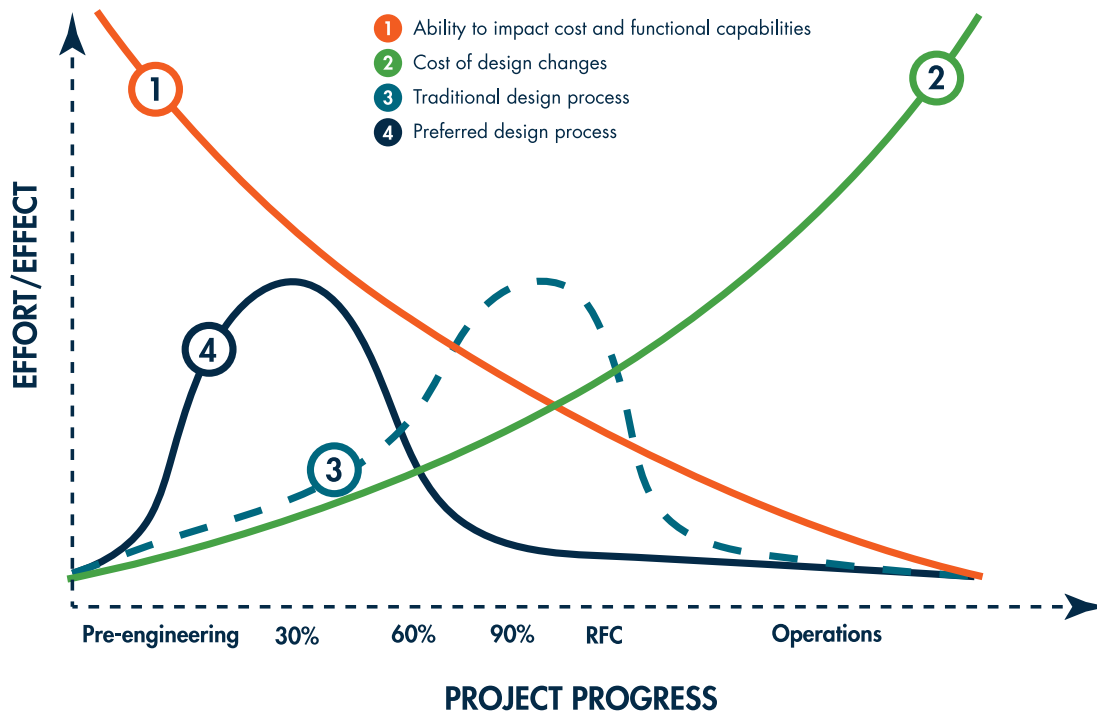
Source: FMI Partnering Project Database

## Main Causes of Project Stress

In Exhibit 3, the impact of late design and late changes on the project dynamics is obvious. For example, curve 1 shows that the “ability to impact cost and functional capabilities” is related to diminishing returns throughout the duration of the project. The trend toward tighter schedules and fast-track projects demands that the “traditional design process” (curve 3) move to the left and earlier in the design-construction cycle to the “preferred design process” (curve 4).

On the majority of the projects in FMI’s study, decision-making, approvals and other key processes would not support the schedule. As a result, the further the construction progressed, the higher the cost of the design changes (curve 2). All projects in this study with design-related issues were impacted by this key issue.

Exhibit 3. Project Effort and Impact



Source: Graphic originated by Patrick MacLeamy, FAIA

Half of the projects studied had late or incomplete design, a significant driver of the number of change orders. This is not necessarily a condemnation of architects or engineers, who are often limited by the allocated design budget and the owner's decision-making process. However, it's important to note that there is a natural upward pressure on budget and schedule on the following:

- Traditional design-bid-build projects that are either dormant or recently brought back to life (usually with an obsolete or incomplete design that needs to be revised to meet field conditions).
- CM-GC/CMAR projects where the scope of the project is misaligned with budget and schedule constraints.

In traditional design-bid-build, tension often occurs at the beginning of the construction phase, when the contractor enters the relationship and must match field conditions with the design. On CM-GC/CMAR projects, the tension is moved up in the cycle to the pre-construction phase, where owners, designers and contractors grapple with questions around scope reduction while trying to meet the project objectives and stay on budget. Now it's important to note that team dynamics will spiral downward quickly when there isn't a high level of trust among the owner, designer and contractor regarding the budget. Integrated Project Delivery (IPD) attempts to address this contractually, but regardless of the methodology, innovative leaders must think outside the box to keep their teams working collaboratively and avoid increased costs and mistrust.

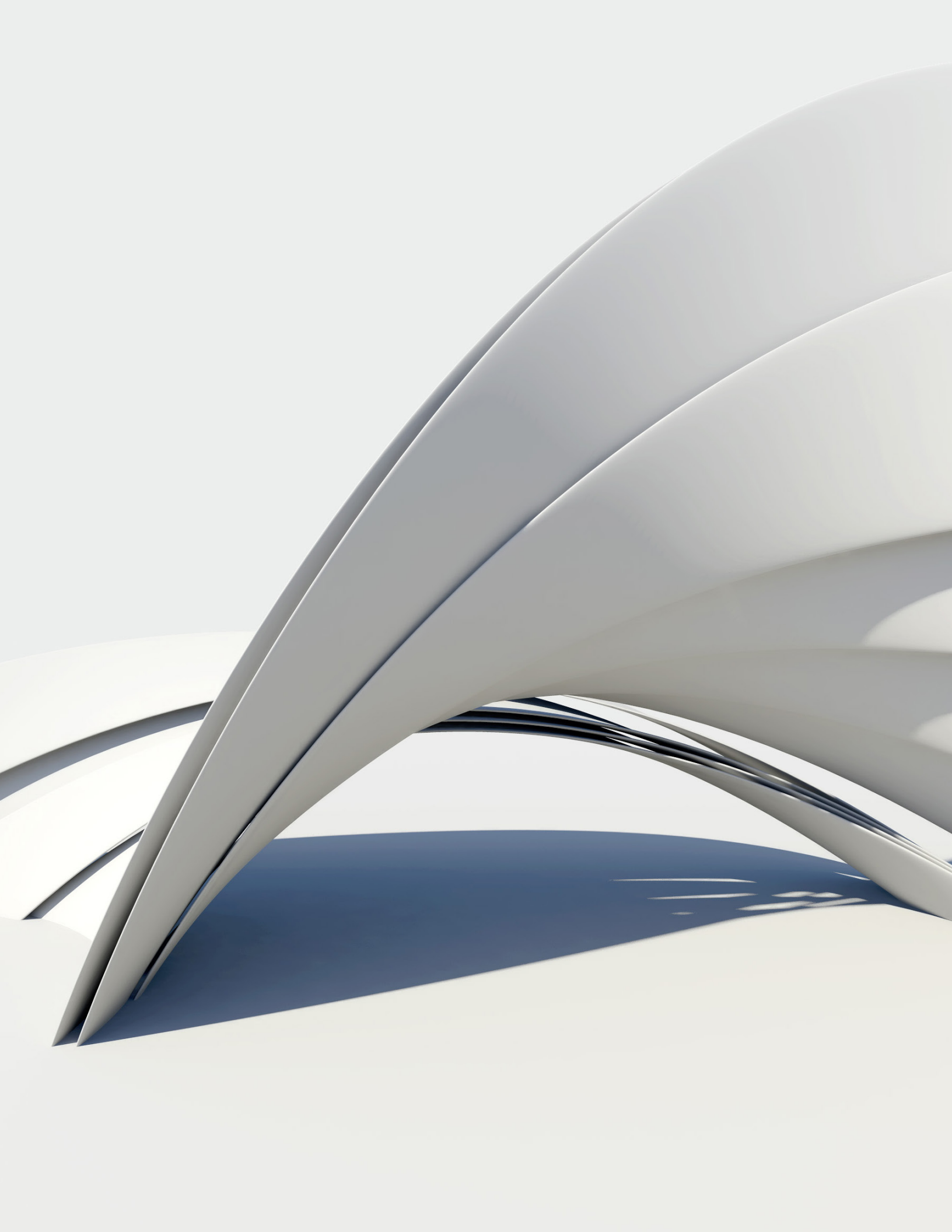
On certain types of projects (such as health care and technology), budgets tend to rise "naturally." These and similar projects are driven by end-user demands for the latest and greatest equipment or technology right up until project completion. Executives must take measures sooner than later to contain these demands on traditional design-bid-build or CM-GC/CMAR projects, including:

- Owners recognizing that they must lead the decision-making process and, as such, must streamline that process without relinquishing responsibility for control of the design to the contractor (or assume that the contractor and designer will naturally collaborate), unless the contract is structured in such a manner.



- Setting expectations with and including end-users early in the process and throughout the duration of the project. This requires a seasoned owner team that has the ability to say “no” to end users and not capitulate to demands (unless there is corresponding funding to support the changes).
- Differentiating between what the facility must have and what is merely a want or desire.
- Drawing a line in the sand on when all changes must end to support the schedule objective.







## In a League of Its Own: Design-Build

When it comes to project stress, design-build presents its own set of challenges that revolve around:

1. The differing roles assumed by the parties.
2. The number of decisions that must be made simultaneously.
3. The increased speed of decision-making associated with compression of the design and construction cycle.

With design-build, owners' use of a new alternative delivery system purely for procurement purposes—and without aligning the decision-making/approval processes within the organization to meet the schedule needs—can set up a project for failure. People within the organization may resist this fundamental shift and proceed the same way they have always operated. Or contractors may get sucked into the notion that alternative project delivery will be the Holy Grail of collaboration without thoroughly understanding the owner or organization that they're working with.

Misaligned expectations between the owner and design-builder regarding the level of control that the owner's team retains over design decisions can also derail a project. In our study, design-builders generally went into the design phase assuming they would have more influence over design decisions than they actually wound up having. This was particularly prevalent with structural issues where calculations, recalculations and constructability approaches were frequently debated.

Other design issues on stressed design-build projects include:

- Design-builders not designing to specific requirements or to other owner specifications, or performing inadequate quality control on packages, which can lead to an abundance of comments and ultimately the rejection of the package(s).
- Not putting an appropriate feedback and comment resolution process in place. Too many inappropriate comments at early design stages can add time to the design-build process because designers will be forced to deal with these queries and close them out before documents can be approved for construction.

- Unclear roles for reviewers in the design-build process and the basing of those reviews on preferences versus reviewing to spec. This can negatively impact schedule and budget because design-builders don't typically factor preferences into their budgets or schedule plans.
- Availability of decision-makers from the owner team and third parties (with review responsibilities) at task force meetings/technical work groups or other appropriate forums. The speed of decision-making requires reviewers to set aside the appropriate review time within set time frames. Late comments only cause schedule delays as the contractor is then forced to take a step back from the planned design and construction path.
- The ability to co-locate the owner and design representatives. Over-the-shoulder reviews between these representatives are paramount to keeping the design on schedule where the designers are still allocated appropriate time to complete their work. On-site representation of designers for critical periods of time during design or construction will positively impact the schedule.

## Change Processes

In construction, most disputes involve the fair and equitable resolution of financial issues. As such, the project team's ability to swiftly resolve disputes is one of the leading indicators of project success (or failure). The source of changes can come from any number of factors. For example, curve 2 in Exhibit 3 shows how an increasing number of changes and associated costs lead to design delays.

Over 40% of the projects in our study had spiraling budget costs due to changes. On some of these projects, up to 20% of the base contract dollar amount was tied up in unpaid changes or unresolved financial disputes. This directly impacts the cash flow of the contractor/design-builder. These issues exacerbate when a contractor is managing a contract that includes liquidated damages and that compels the company to move the work forward. Once there is written acknowledgement that a change exists, the contractor proceeds and the price of the change can be negotiated at a later date. The longer "open" changes go unresolved, the greater the probability of a dispute and increased tension among the project team, which can severely hamper collaboration.

To deal with the unresolved backlog of changes that has developed, the parties can take the following steps:

- If the owner's or contractor's project-level manager is not authorized to approve changes above a certain dollar threshold, the team should establish a disciplined escalation process. The latter should include strict time limits on how long a change will stay with the staff-level change order team before it gets escalated to senior management. This should keep the flow of issues moving and help prevent negotiations from stalling.
- Once the key issues/disputes have been escalated to off-site senior management, establish a regimented and disciplined change process and then keep the flow moving by following that process throughout the duration of the project. That way, the parties won't default to "scramble mode" when the backlog of changes and costs keeps increasing to an unacceptable cash flow position for the contractor.
- Both parties should staff the project with seasoned change personnel to organize, estimate and negotiate the changes. Then the project staff can focus on pushing the work in the field to project completion (i.e., schedule and resources). Too often the project managers are too busy to negotiate all of the changes and effectively drive the project to completion.

Contractors should always maintain focus on the development of big-picture solution(s) that will help meet the owner's objectives (e.g., facility functionality, safety, saving time and money). Put simply, do not submit only cost-added changes and, instead, focus on developing cost savings and value-added changes.

## Why Project Team Members Should Care

Using a straightforward periodic team evaluation survey as part of the partnering process of over 4,000 industry personnel across 90 projects, FMI focused on five relationship parameters to gain a sense of the perceived health of the project, positive initiatives and key project issues. Using confidential and anonymous surveys, contractors, owners and design teams ranked (on a scale of 1-5) the project team's effectiveness.

Exhibit 4 compares the results of 18 of these projects (all of which were in various states of stress) versus 53 other healthy projects. The results clearly illustrate the toll a stressed project takes on the relations and morale of all parties, as the overall average of these projects underperforms healthy projects by more than .56 and the areas of morale and trust lower by .60 each. (FMI considers any gaps of more than .30 as significant.)

### Exhibit 4. Team Evaluations: Comparison of "Performing Projects" to "Stressed Projects"

Evaluation Area	"Performing" Projects	"Stressed" Projects	Difference
Communication	3.97	3.49	.48
Timely Resolution	3.79	3.22	.57
Cooperation	4.06	3.51	.55
Morale	4.14	3.54	.60
Trust	3.97	3.37	.60
<b>Overall Average</b>	<b>3.99</b>	<b>3.43</b>	<b>.56</b>

1-5 Scale. 4 is Meeting Expectations, 5 is Exceeding Expectations. Averages are for all evaluations performed for duration of a project.

Source: FMI Partnering Project Database

In the next installment of this article series, we'll explore causes of project failure related to organizational and planning factors for owners, contractors and architects/engineers, and provide specific recommendations on how to avoid and/or rectify these situations when they occur.

For more information on FMI's partnering processes, please contact Bill Spragins at 303.398.7211.

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**Edward Lee** of Enhanced Construction Services, LLC is an alliance partner with FMI. Ed works with owners, purchasers of construction services, contractors, product developers, and users to build effective, collaborative relationships at executive and project levels.

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