



DELIVERING DISPUTE FREE CONSTRUCTION PROJECTS: PART I - PLANNING, DESIGN & BIDDING

A RESEARCH PERSPECTIVE
ISSUED BY THE
NAVIGANT CONSTRUCTION
FORUM™

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CONSTRUCTION FORUM™

Building on the lessons learned in
construction dispute avoidance and resolution.™



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GLOBAL CONSTRUCTION

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NOTICE

This research perspective was prepared by the staff of Navigant Consulting's Global Construction Practice and edited and published by the Navigant Construction Forum™. Navigant's Global Construction Practice has been involved in thousands of construction project disputes around the globe. Through involvement in these projects, a number of observations have been made – “lessons learned” if you will. The Navigant Construction Forum™ recently asked a group of professionals from the Global Construction Practice to reflect on the projects in which they have been involved and offer suggestions on what steps could have been taken by project owners, design professionals, construction managers and contractors that may have helped them avoid such disputes.

This research perspective is a product of their observations and recommendations and is properly attributed to the following members of Navigant's Global Construction Practice:

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PURPOSE OF RESEARCH PERSPECTIVE

The staff of the Navigant Construction Forum™ is frequently asked by project owners, design professionals, construction managers and contractors if we can provide recommendations on how to avoid disputes on future construction projects. When queried if they mean a “claim free” project the vast majority respond in the negative. Most owners, contractors and their representatives understand that it is nearly impossible to have a project with no changes, delays, site condition problems, labor issues, lost productivity, etc. Most are sophisticated enough to acknowledge that, when situations such as these arise, entitling contractors to additional time and/or money under the contract, and assuming they file a well-documented claim¹, then the issue can be resolved at the project level. What most refer to as a “dispute” is a claim that cannot be or is not resolved at the project level and legal action in the form of arbitration or litigation results.

Rather than attempt to create such a list on our own, the Navigant Construction Forum™ interviewed practitioners from Navigant's Global Construction Practice to solicit their recommendations. The interviewees are experienced in a wide variety of construction projects, from around the world, employing all types of project delivery methods. This research perspective is the product of their experience, observations and thinking.

The purpose of this research perspective is to summarize the list of suggestions and recommendations into bite size topics for the reader. The Forum has organized the recommendations by project phase – planning, design and bidding.²

This research perspective has generally been drafted with the traditional Design-Bid-Build (“D-B-B”) project delivery method in mind as this method typically tends to result in more claims than other methods. However, when a recommendation can be employed in the Design/Build (“D/B”) or the Engineer, Procure, Construct (“EPC”) methods it will be so noted.

For the purpose of this report the Forum generally uses the following terms:

- “Owner” – Includes the project owner and all members of the owner's team, including design professionals, geotechnical consultants, construction managers, etc.
- “Contractor” – Standard industry roles such as the constructor, general contractor or Construction Manager at Risk (“CM@R”) as those terms are generally used in the industry, as well as the project participants for which the contractor is responsible and liable for, such as subcontractors, suppliers, materialmen, etc. Where the contractor is acting in a D/B or EPC capacity, this will be noted.

The Navigant Construction Forum™ believes that implementation of many of these recommendations may reduce the number of claims on projects. If properly employed these recommendations may increase the likelihood that the project will close out with no follow-on legal action or dispute.

1. The term “claim” is defined for the purposes of this research perspective as a written statement from one of the contracting parties requesting additional time and/or money for acts or omissions under the terms of the contract for which proper notice has been provided; the claimant can demonstrate entitlement under the contract; and is able to document both causation and resulting damages.

2. Dispute avoidance during the construction and claims management and resolution phases of the project will be addressed in Part II of this research perspective, due to be released in the third quarter of 2013.

THE PLANNING PHASE

“Planning phase” in this report is defined as the activities related to the proposed project and the activities undertaken prior to commencement of full design. Such activities may include business case development, analysis and approval, decisions related to preliminary project size, scope and location, preliminary budgeting and scheduling, decisions concerning procurement methodology, estimates of project profitability and/or Return on Investment (“ROI”) calculations etc. If the project is to be performed utilizing the D/B delivery method, then the planning phase most likely will include preparation of the bridging documents. If the project is a process facility (i.e., oil, gas, chemicals, etc.) and will be executed using the EPC process, then the planning phase will likely include front end engineering design (“FEED”) also.

Some dispute prevention recommendations that may be employed during the planning phase of a project include the following.

Thoroughly Define Scope of Work – Regardless of the specific project delivery method, owners ought to spend sufficient time and effort planning and articulate clearly the full scope of work required to meet the needs of the owner. Project requirements should be addressed in the work scope so design professionals and constructors are fully aware of all project requirements. One major cause of claims and disputes in the industry is that the scope of work develops or expands during the construction phase. Originally unspecified needs are identified, leading to requests for change, delays and impacts. Proper planning at the project outset helps minimize the potential for this type of dispute.

Active Stakeholder Involvement – In order to accomplish the above it is necessary to identify all project stakeholders during the planning phase. A “stakeholder” is any party who will be involved in or use all or a portion of the constructed project. This is necessary in order to determine their needs and accommodate these needs in the planning phase. This helps avoid changes that crop up at the end of the project when stakeholders see the constructed project for the first time and demand modifications to accommodate their needs. End of the project change orders are extremely expensive and almost always lead to project delay. Active stakeholder involvement in the planning and design phases should help mitigate the call for changes at the end of a project and subsequent disputes.

Define Project “Success” – During the planning phase, the project owner must determine what is needed to make the project a “success”. Generally, owners define a successful project as one that is completed on time, within budget, with the designed quality and safely. However, owners often have further ideas concerning project success including such things as energy efficiency, carbon footprint reduction, sustainability, LEED certification, throughput of raw to finished product, total operating costs, cost per unit of production, etc. Specific well defined and measurable metrics such as these should be identified by senior management at the outset so all project participants know how the project will be evaluated. From these metrics, Key Performance Indicators (“KPIs”) can be established as a way to evaluate project performance throughout the delivery process (i.e., cost and cost trends, schedule and schedule trends, changes, variations, etc.).

Realistic Budget – Early project budgeting should be prepared based on the planning efforts, including all assumptions made by estimators when preparing these early budget estimates. Early project budgets should include expected accuracy ranges based on industry standards. For example, AACE International recommends a range of -20% to -50% on the low end and +30% to +100% on the upper end for a concept or screening estimate depending upon project type and preliminary plan development.³ Inclusion of estimating assumptions and a discussion of the range of accuracy are critical to realistic budgeting in order to avoid the planning fallacy, which can potentially mislead senior management and other key decision makers. The planning fallacy arises when “... managers make decisions based on delusional optimism rather than on a rational weighting of gains, losses and probabilities. They overestimate benefits and underestimate costs.”⁴ Realistic budgets help prevent cost overruns, provide direction to the design professionals and contractors if the project is to be executed using the D/B or EPC project delivery method and, in turn, reduce the potential for disputes.

3. See AACE International Recommended Practice No. 18R-97, Cost Estimate Classification System – As Applied in Engineering, Procurement and Construction for the Process Industries, 2011.

4. Dan Lovallo and Daniel Kahneman, “Delusions of Success: How Optimism Undermines Executives’ Decisions”, Harvard Business Review, July 2003.

Achievable Time of Performance – The owner ought to establish a realistic and achievable time of performance for the project based on the detailed scope of work and other business, regulatory and/or legal considerations. Owners should understand that schedules that are too short result in higher costs (as contractors bid overtime, added equipment, additional labor, etc.). Rushed projects also often lead to claims and disputes. Business considerations (i.e., time to market, international currency conversion shifts, competitive pressures, etc.) and legal considerations (i.e., government regulations, court orders, etc.) may impact the initial scheduling efforts, in which case the early budget estimates should be adjusted accordingly. Reasonable schedules go a long way toward preventing late project delivery which, in turn, reduces the chances of a dispute.

Manage to Budget – Once the preliminary budget has been established, the project must be managed to budget during both the design and the construction phases. Project change management processes ought to be established to avoid uncontrolled changes that impact the budget. Changes to the approved budget should only be allowed for overriding reasons (i.e., changes to government regulation or building codes, revisions to the underlying project business case, etc.). A cost monitoring, trending and control system ought to be established at the beginning of the project with routine cost updates, comparison to approved budgets and Estimates at Completion (“EAC”) analyses performed routinely. Managing the budget will help deliver the project on budget and reduce the likelihood of disputes.

Appropriate Project Delivery Method – Unless the owner is bound by statute, government regulation or corporate policy, one of the decisions to be made early in the planning process is the project delivery method to employ. The methods range from the traditional method of D-B-B to D/B or EPC, CM@Risk, Guaranteed Maximum Price (“GMP”), Multiple Prime, Integrated Project Delivery (“IPD”), Target Cost, etc. Each method has strong and weak points which should be considered in light of the size, scope, location, complexity and time to complete the project. Consideration of incentives and disincentives may also be considered when selecting a delivery method. Selection of the right project delivery method for the owner on a particular project is likely to lead to successful project completion with no disputes. Selection of an inappropriate project delivery method will almost certainly result in disputes.

Organizational Skills and Gaps – Once the project delivery method is determined, the owner should assess the capabilities of its internal organizational resources to identify gaps in the skills and resources required to properly manage the project using the project delivery method selected. If a skills gap exists, the owner ought to fill these gaps with added resources (either in house or outsourced). Managing critical or complex projects without qualified, sufficient staff is an avoidable invitation to disputes.

Risk Identification and Analysis – Once the project scope, budget and schedule are agreed upon with all stakeholders, formal risk management efforts should be initiated. All potential risks that may impact the project (either negatively or positively) should be identified and a risk register created. Risk identification employing individual expert assessment, multidisciplinary group assessment, risk checklists or risk records is the general starting point of risk analysis and management. There are some thirteen different risk analysis techniques that can be employed to help assess the potential impact of each risk.⁵ Risk analysis and risk management ought to continue throughout the life of the project. Performing routine risk reviews throughout the design and construction phases of the project should result in fewer claims and disputes as risks will be identified early, planned for and managed successfully should they arise.

THE DESIGN PHASE

The design phase, as used in this research perspective, is that period of a project when detailed design is performed and completed by the owner’s design team. The “design team” includes independent design professionals (as is typical in the D-B-B process) as well as designers employed in the D/B or EPC process. In design, concepts adopted during the planning phase become the architectural or engineering drawings, specifications, details, etc. required to construct the complete project. It is where project procedures and controls are turned into a Project Management Plan and where risk is allocated to the various project participants. From the viewpoint of dispute prevention, the design phase is absolutely critical. As the industry well knows, nothing prevents claims and disputes more effectively than high-quality design.

5. See Brian C. Fox and James G. Zack, Jr., “Hope is Not an Effective Risk Management Technique”, Navigant Construction Forum™, March 2012.

Some dispute prevention recommendations that may be implemented during the design phase of a project include the following.

Project Team – The owner should build and manage a high-performing team (including design professionals, construction managers and contractors) focused on successful project delivery. The team should be fully integrated around shared values and accountabilities. A collaborative environment focused on project success needs to be created and continued through project completion. Experience shows that teams that stay focused on project success have fewer claims and disputes.

Adequate Design Budget – Owners should understand that detailed design is not a commodity to be purchased at the lowest price. Good design of complex projects takes a team with a good deal of experience that exercises sound judgment. During the initial budgeting process the owner should provide sufficient budget to obtain a talented design team with the skills necessary to complete an excellent design. As noted earlier, nothing prevents claims and disputes more than high-quality design with few errors or omissions.

Sufficient Design Time – Experience teaches that rushed design leads to errors, omissions and other design-related problems which are later manifested as changes, claims and disputes during the construction process. Further, if design is rushed the quality control process is typically short-changed, which exacerbates problems encountered during construction, resulting in claims and disputes. In preparing the preliminary project design schedule owners may confer with several design professional firms to get a reasonable estimate of the time required to perform a quality design for the project. Adequate design time will help alleviate errors and omissions, thus reducing claims and potentially eliminating disputes at the end of the project.

Consider BIM/VDC – If the project is of sufficient size and complexity, the owner might consider requiring the use of Building Information Modeling (“BIM”) and Virtual Design and Construction (“VDC”). BIM is capable of performing clash detection during design which results in fewer problems and impacts during construction. VDC performs a similar function by animating the project schedule in order to allow contractors to

coordinate complex sequencing and phasing issues, evaluate site logistics, staging and workflows and identify hidden logic flaws in the project’s CPM schedule. BIM and VDC should also help reduce rework during the construction phase which in turn can help deliver the project on time and within budget, resulting in fewer claims and disputes.⁶

Site Investigation – Owners ought to perform or commission adequate site investigation, including examination of existing structures, and publish a thorough subsurface investigation and/or existing structure survey report. If the project involves rehabilitation of existing structures, then investigation of the structures is necessary and an existing conditions report is needed to document pre-existing conditions. On some underground projects, owners may want to consider using a Geotechnical Design Summary Report (“GDSR”) which provides interpretation between soil borings and provides, by contract, a right of reliance on the GDSR in the event of an alleged differing site condition (“DSC”).⁷ Such a report may result in fewer DSC claims, provide a mechanism for resolving such claims should they arise, and prevent end of the project legal disputes.

Project Management Processes – During the design process the owner’s team should prepare a Project Management Plan that details all processes and procedures required to manage the project and communicate with the project team. Processes concerning the following ought to be included in this management plan to establish a basic framework for management of the project.

- Project organization chart and staffing plan
- Project budget and work breakdown structure
- Roles, responsibilities and authority of team members
- Change order management process
- Payment application procedure
- Schedule management system
- Cost control process
- Earned value management system
- Document management process
- RFI/RFC management procedure
- Submittal management process
- Quality management system
- Safety management procedures
- Management information system
- Communications protocol
- Etc.⁸

6. Jason M. Dougherty, Nigel Hughes and James G. Zack, Jr., The Impact of Rework on Construction & Some Practical Remedies, Navigant Construction Forum™, August 2012.

7. See David J. Hatem, Subsurface Conditions: Risk Management for Design and Construction Management Professionals, John Wiley & Sons, Inc., New York, 1998.

8. See Construction Management Association of America, Construction Management: Standards of Practice, McLean, Virginia, 2010.

Additionally, an appropriate delegation of decision making authority concerning change orders and time extensions should be addressed, pushing a reasonable level of decision making authority to the project management level. Such delegation of authority will help avoid delays in decision making which can occur when all decision making authority is retained at the senior management level.

Incentivize Contractor Performance – Typically most contracts impose damages on contractors for failure to complete on time, failure to achieve project requirements, etc. Some industry studies indicate that incentives are more effective in achieving on time or early completion than disincentives (e.g., such as liquidated damages).⁹ In order to deliver projects ahead of schedule and with the desired quality, owners, who have the authority and ability to do so, may want to consider incentivizing contractors with respect to time and/or performance factors. Incentivized contractors should be less likely to file claims and thus disputes ought to be mitigated or alleviated altogether.

Use Standard Form Contract Documents – Unless the owner has a frequently used set of contract documents (i.e., General Conditions, Special Conditions and General Requirements) which have been used successfully numerous times and possibly litigated, it is advisable to use a standardized set of contract documents published by a national body or association. Examples include American Institute of Architects (“AIA”), Construction Management Association of America (“CMAA”), ConsensusDOCS published by the Associated General Contractors of America (“AGCA”) and Engineers Joint Contract Documents Committee (“EJCDC”) contract documents all of which have been frequently used and legally tested nationwide. Should the owner decide to modify a set of standard contract documents to accommodate their own requirements and needs they should retain legal counsel to harmonize the modifications with the remainder of the documents so as to prevent conflicts which may cause disputes.

Bonding Requirements – Public owners are typically required by regulation or statute to require bonds from contractors. The most common bond requirements include Bid Bonds, Payment Bonds, Performance Bonds, and in some cases, Warranty Bonds. The coverage limits on these bonds are also typically imposed by regulation or statute. Private owners may want to discuss the pros and cons of project bonding with legal counsel and insurance professionals. If the owner decides to require bonds, the bond requirements and limits should be clearly established in the bidding and contract documents. Bonds may help in certain disputes as this is a method of transferring the risk of some events to sureties.

Insurance Requirements – There are numerous risks associated with the construction of a project. Some of these risks are insurable thus transferring some risks to a third party, the insurance provider. During the design process the owner ought to consult with insurance professionals to determine what insurance coverage is needed. Typically, construction projects require Worker’s Compensation, Employer’s Liability, Bodily Injury, Property Damage, Commercial Motor Vehicle insurance, etc. Certain types of projects (e.g., underground projects, marine waterfront projects, physically remote projects) may also require additional specialty insurance (i.e., Underground, Explosion, Aircraft or Watercraft Liability, etc.) In certain circumstances (e.g., projects with especially high late completion damages or damages for failure to meet production or nameplate requirements), contractors may seek to obtain additional specialty insurance coverage (i.e., Efficacy or Liquidated Damages insurance, etc.). Discussions should address appropriate insurance limits for the project and other insurance issues such as Additionally Insured requirements, Waiver of Subrogation language and the potential for an Owner Controlled Insurance Program (“OCIP”) or a Contractor Controlled Insurance Program (“CCIP”), etc. Appropriate insurance coverage may mitigate claims between owners and contractors and transfer the risk of disputes concerning certain issues to insurance providers.

Biddability/Constructability Review – As design nears finalization (of either the complete design in the D-B-B process or a design package in the D/B, EPC or CM@Risk process), the owner should consider implementing a biddability/constructability review. This is a review in the first instance, to determine whether there is sufficient information for a potential builder to intelligently bid the project. In the second instance, the review determines whether there is enough information for contractors to successfully build the project should they win the contract. Such a review generally should be performed by construction experienced personnel who were not involved in the design – in order to eliminate self-reviews. This review may also include a drawing check by an independent party to determine more coordination issues to prevent Requests for Information (“RFIs”) and change orders (“COs”) during construction. These types of review are intended to reduce the need for changes during construction thus reducing the potential for claims and disputes.¹⁰

9. Ruifi Gao, Evaluation of Incentive/Disincentive Contracting Methods for Highway Construction, Purdue University College of Technology Directed Projects, 2010.

10. See P. Douglas Folk, “Constructability Reviews: An Effective Tool for Improving Construction Documents and Reducing Claims”, Construction Briefings No. 2006-4, 2006. See also, AACE International, Recommended Practice 30R-03 - Implementing Project Constructability, May 20, 2009.

Operations and Maintenance Review –

Design professionals, construction managers and contractors are rarely involved in the long-term operation and maintenance (“O&M”) of constructed facilities. As design approaches finalization (either on the complete design or a specific design package), an O&M review ought to be performed. The review should be performed by the owner’s O&M staff as they are the end users of the completed project. The purpose of such a review prior to construction is to make certain that the O&M needs of the owner’s staff are properly addressed in the design documents in order to avoid the need for expensive changes and delays at end of the project. Changes, claims, delays and potential disputes arising from such changes at the end of the work can be reduced if such a review is performed.

Change Order/Claims Prevention Review – If the owner is a serial builder (i.e., an owner who frequently builds new projects such as a developer, hotel chain, theater chain, medical group, etc.), then another claim and dispute prevention review that can be performed is a change order and claim review of recent past projects. The owner’s project team can review all change orders and claim settlements from recent projects to determine whether any action related to planning and design of the previous projects gave rise to these changes and claims. If so, a quick analysis can be made to determine causation. Once the causes of the change orders and claim settlement are isolated, the current planning and design documents can be reviewed for similar problems or issues. If the same or similar issues are identified in the current planning and design documents, action should be taken to correct the issues, thus preventing future changes, claims and potential disputes.

Freeze Design – As early as possible in the design phase the design should be frozen to prevent changes and minimize the disruption and impact that typically accompanies change. A robust change management and change control process is a prerequisite to enforcing the design freeze concept. Experience shows that contractors who build what they bid, with minimal changes, are much less likely to file claims and disputes.

Tailored Scheduling Specification –

The Scheduling Specification is the major project control specification related to time management. This is the one specification that provides the owner’s team with the information needed to properly monitor the time related aspects of the project during construction (as well as during design if the project is a D/B or EPC project). Experience indicates that there is no such thing as a “one size fits all” scheduling specification. The project scheduling specification must be reviewed for each project and tailored to meet the needs of the owner based on the size and complexity of the project as well as the capability of the owner’s team to manage the schedule and the owner’s tolerance for risk. This latter issue

should be addressed directly with the owner. It is axiomatic that the more involved the owner becomes in the contractor’s schedule, the more risk the owner assumes. The following is a sampling of the issues that should be considered during design. The Scheduling Specification should then be tailored to encompass the owner’s decisions on each issue.

- Ninety-day schedule – a short-term schedule required at the outset to cover the period before the Baseline Schedule is provided;
- Baseline or As-Planned Schedule submittal – how many days after the Notice to Proceed (“NTP”) should the Baseline Schedule be submitted;
- Baseline Schedule narrative required to explain the schedule;
- Use and ownership of Float – float owned by the owner, the contractor or jointly owned;
- Early completion schedules accepted – establish what constitutes an early completion schedule and whether the such a schedule is acceptable or not;
- Reduction of contract duration requirement – in the event that an early completion schedule is submitted and accepted;
- Level of schedule detail requirements;
- Restriction on activity durations – thirty days, forty-five days, unlimited;
- WBS coding and organization requirements;
- Establish Interim Milestone dates with enforceable liquidated damages for each milestone;
- Clearly identify physical, contractual and/or regulatory constraints– both in the Scheduling Specification and in the project schedule;
- Require specialty schedules – Submittal Schedule, Procurement Schedule, Delivery Schedule, etc.;
- Owner-furnished, contractor-installed (“OFICI”) identified in the contract – included in the schedule with realistic dates;
- Require resource loading – cost, manpower, equipment, etc.;
- Tie schedule to budget and monthly pay applications;
- Require Weekly Look Ahead schedule submittals in a specific format;
- Frequency of schedule updates;
- Require a schedule update narrative – that describes existing and potential delay impacts, including a contractor mitigation plan;
- Schedule revisions – when must the contractor revise or rebaseline the schedule;
- Recovery schedules – under what circumstances must the contractor prepare and submit a recovery schedule and what is the procedure for review and acceptance;
- Float suppression / float sequestering – defined, what actions may the owner take if these are discovered;

- Joint schedule update reviews with all major subcontractors; and,
- Detailed time extension requirements in the Scheduling Specification – list all supporting documentation. Require Time Impact Analyses for all change order proposals and a specific forensic scheduling method for all claims.¹¹

Detailed scheduling, strict specification enforcement and good schedule management should help identify problems and issues early enough to provide for resolution, reduce claims and minimize time-related disputes.

Payment for Changes Section – Like the Scheduling Specification, the Payment for Changes Specification (typically included as part of the Changes clause) is the major project control specification intended to control the cost of changes to the work. Similarly, the Payment for Changes Specification must be tailored to meet the needs of owners while at the same time being fair to contractors who will perform the changed work. Consideration of and decisions concerning the following cost issues should be made and included clearly in this section of the contract documents.

- Direct labor vs. field overhead personnel costs – defined by labor category (salary versus hourly) to avoid double counting when pricing changes;
- Fixed vs. negotiated overhead rates – stipulated or negotiated overhead rates for changes in the work of the contract;
- Fixed vs. negotiated profit rates – like the above, set forth rates in the contract or negotiate after award;
- Impact costs – what impact costs are recoverable, under what circumstances, how will it be calculated;
- Time extensions – tied to the Schedule Specification, how is it justified, when is it paid, how are damages calculated;
- Standardized format for change order proposals including supporting documentation;
- Owner authority to issue unilateral change orders to prevent contractors from holding changes hostage until the time and cost meet their satisfaction;
- Negotiated vs. stipulated markup percentages on subcontractor costs when subcontractors perform some of the work on change orders;

- Calculation of extended field office and home office overhead costs – when owed, how calculated and whether subject to markup;
- Equipment pricing – when in use, when idle, what manuals, owned or rented; and,
- Unallowable costs – what overhead costs are not allowed in overhead calculations when submitting change order cost proposals.

A clearly crafted clause dealing with payment for change order costs will go far to eliminate claims and disputes over recoverable costs.

Consequential Damages Clause – Generally consequential damages are defined as those damages that do not flow directly and immediately from the act of one party but only from some of the consequences or as a result of such act.¹² As such, consequential damages are generally not recoverable in construction claims. Most construction contracts have a Consequential Damages clause which lists those damages (costs) classified as consequential damages and as such are not recoverable under the contract. The owner, with the advice of legal counsel, may want to review their contract language and add to or delete from this particular clause various types of damages. For example, the AIA A-201 General Conditions prohibit the recovery of extended home office overhead by including this cost in the Consequential Damage clause.¹³ Properly crafted, this clause should help avoid disputes over certain types of costs.

RFI Specification – Requests for Information (“RFIs”)¹⁴ are common tools on most construction sites. They are a mechanism intended to allow contractors to submit questions to owners and their design professionals and/or construction managers to make certain the constructors understand the requirements of the contract. Once received, the owner’s team is required to respond in writing within a reasonable period of time so as not to delay the progress of the work. RFIs and the RFI process are subject to abuse by both owners and contractors. As such, the owner should see that an appropriately worded RFI Specification is included in the contract documents.¹⁵ This specification is intended to prevent abuses of the RFI system that sometimes occur on projects. A clearly crafted and enforced RFI Specification can help mitigate claims based on the number of RFIs, thus reducing the likelihood of disputes arising on this basis.

11. See, for example, Minnesota Department of Transportation, Standard Specifications for Construction, Division 1, Section 1803, PROGRESS SCHEDULES, Section 1806.1(5).

12. Black’s Law Dictionary, Revised 4th Edition, West Publishing Company, St. Paul, MN, 1968.

13. See AIA Document A201-1997, ¶4.3.10.

14. Sometimes referred to as Requests for Clarification (“RFC”).

15. For further discussion see Nigel Hughes, Christopher L. Nutter, Megan Wells and James G. Zack, Jr., Impact & Controls of RFIs on Construction Projects, Navigant Construction Forum, April 2013.

Pre-purchase Owner Delay – It is exceedingly rare that a construction project is completed in the absence of any owner caused delay. One mechanism used by some owners to prevent disputes over the cost per day of owner caused delay is to pre-purchase, as part of the bid process, the cost of a day of delay. Two ways to do this are the following:¹⁶

- **Time-Related Overhead Approach** –

The California Department of Transportation (“Caltrans”) has employed a unique mechanism on some of their larger projects (the San Francisco – Oakland Bay Bridge replacement project, for example). They use a Time-Related Overhead (“TRO”) bid item and specification to implement the approach. One line item in the bid form requires the contractor to fill in their daily time related cost and multiply this daily rate times the number of working days in the Time of Performance clause. The cost is stipulated to include Field Office Overhead (“FOOH”) as well as Home Office Overhead (“HOOH”) costs. The contractor is paid monthly as the project progresses based upon the number of work days consumed each month. If owner caused delays arise during the performance of the work, the TRO number is also used to price the delay once agreement is reached on entitlement, causation and the number of days of delay. The TRO number is subject to the contract’s Unit Price Adjustment clause only if the total number of days of all owner caused delays exceeds 149% of the original number of work days stipulated in the contract. This specification generally avoids the need for audit concerning delay costs and makes settlement of delay claims easier. Further, Caltrans ties this requirement to their Escrow Bid Document requirement (discussed below) such that the work sheets used to calculate and bid the daily delay costs are preserved in a neutral location for examination in the event that one or the other party has a need to review the calculation in order to settle a delay claim. While this approach does not mitigate delay claims *per se*, it prevents costly disputes over the cost of a day of delay.

- **Bid Your Delay** – A variant of the above is for the owner to insert a line item in the bid for “x” number of days of owner caused delay. (The owner stipulates the number of days in the bid form.) The contractor is required to fill in the cost per day and carry out the multiplication for that line item. The line items cost is then included in the total bid cost. The specification implementing this approach states that the Owner Caused Delay line item is an allowance. Thus, the number of days and payment therefor will be subject to upward or downward adjustment depending upon the number of days of actual owner caused delay at the end of the project; provided however, that the daily rate itself is not subject to adjustment.¹⁸ The U.S. General Services Administration (“GSA”) has successfully used the Bid Your Delay approach to contractually define delay damages, including HOOH damages, to which a contractor is entitled.¹⁹ Again, while this does little to prevent delay claims it substantially reduces the risk of disputes growing out of the project based on the cost of a delay of owner caused delay. Establishing the daily cost of delay at the time of bidding provides for quicker settlement of delay claims (assuming contractors file timely notices of delay and can prove critical path impact) thus reducing disputes over recoverable delay costs.
- **Bid Change Order Markup** – The U.S. General Services Administration has authored a specification to “bid the percentage markup” the contractor will accept as markup on change order costs. This specification was subject to judicial challenge in a 2010 Federal Court case and upheld by the Court. (See Footnote 13 below). Such an “as bid” method should reduce the potential for disputes related to change order markup.

16. See David W. Halligan and James G. Zack, Jr., Practical Problems with Pricing Delay Using Eichleay, Navigant Construction Forum, AACE Western Winter Workshop, 2010.

17. Caltrans Program Procedure Bulletin CPB 00-8, Contract Administration – Time-Related Overhead (TRO), December 15, 2000.

18. James G. Zack, Jr., “Claimsmanship”: Current Perspective, American Society of Civil Engineers Journal of Construction Engineering and Management, Vol. 119, No.3, September, 1993.

19. The Bid Your Delay approach to defining delay damages has been upheld by the Civilian Board of Contract Appeals (“CBCA”). See “Cross Motions for Partial Summary Relief Granted in Part, July 29, 2010: CBCA 420, 450, 451, 1307, 1855; Dick/Morganti, A Joint Venture v. General Services Administration”. It is interesting to note that the contract under consideration in these motions also required the contractor to “bid the percentage markup” it was to receive for added work. This particular contract closed a potential loophole under which a contractor might claim that the contract did not allow for the recovery of additional home office overhead incurred as a result of added work.

- **Predict the Weather** – Weather is a constant risk to timely project delivery on almost all construction projects. Typically, weather is considered a *force majeure* event entitling contractors to excusable, non-compensable time extensions. In this situation, most contracts provide that contractors will receive an appropriate time extension but no time-related damages as owners grant time and forego liquidated damages for the time granted. Under this approach, contractors are liable for what the industry refers to as “normal bad weather” but excused in the event of “abnormal bad weather”, “adverse weather” or “unusually severe weather”. These terms all generally refer to weather beyond the average normal bad weather based on a 5 to 10 year average for the location of the project. Pursuant to this theory most owners believe contractors should include normal bad weather in their Baseline Schedule. In practice, this is rarely done. Further, many claims arise over arguments concerning the elusive definition of “normal bad weather”. Considerable time and effort goes into researching weather data to resolve such time extension requests. The U.S. Army Corps of Engineers (“USACOE”) has authored a specification to deal with this issue.²⁰ During design, an analysis of weather data at the project’s location is performed and summarized into a “Table Of Monthly Anticipated Adverse Weather Delay Work Days Based On (5) Day Work Week” which lists the number of work days a contractor can expect to lose every month. This provides the contractor with a way to estimate the impact of normal bad weather and include it in their schedule. It also provides a measure point concerning abnormal or unusually severe weather making it easier to resolve weather delay claims. As a result, disputes concerning weather delays should be avoided.
- **Notice Requirements** – The owner’s team should review the contract documents and insert appropriate written notice requirements and provisions in contract clauses including Changes, Delays, Suspension of Work, Differing Site Conditions, etc. A reasonable period of time (typically between, say 5 and 7 calendar days) to provide such notices ought to be clearly established. Discussion with the owner and legal counsel should be held to decide whether e-mail notices are allowed or prohibited under the contract and the decision clearly included in the contract. Owners should recall at all times that notice requirements are for the benefit of the owner, not the contractor. Proper timely notice brings issues to the owner’s attention promptly allowing the owner to become aware of the situation and, to the extent appropriate, get involved in resolving the problem quickly and at a lower cost, thus avoiding end of the project disputes.
- **Risk Allocation** – Based upon the risk register initiated during the planning phase of the project, each risk should be reviewed and assigned in the contract to that party most capable of handling the risk should it arise during performance of the work. Owners should be cautioned to not try to pass on unquantifiable risks to contractors as that may cause good contractors to not bid the project or cause contractors to include large contingencies in their bid to protect themselves. The risk register should be reviewed frequently during the design phase. A robust risk management review system will benefit the project by identifying problems early thus enabling the owner and the contractor to resolve issues at a lower cost and with less impact. This should help avoid disputes in the long run.
- **Plan for Claim Management** – Claims (written requests for additional time and/or money) are inevitable on virtually all construction projects. Therefore, during design the owner’s team should plan for and include a claims management system in the contract documents. A recommended outline of a potential claims management system follows.
 - Require early claims identification through timely written notices within contractually specified timeframes;
 - Require submittal of complete claim submittals shortly (say, 30 days) after events conclude;
 - Provide for prompt acknowledgement of receipt of the claim;
 - Provide for a prompt claim review upon receipt;
 - Provide for prompt responses to claim submittals;
 - Set forth a two-step project based claim resolution process – first at the project level, and if that fails to resolve the issue, then at the executive level;
 - Include a Dispute Resolution Board (“DRB”) in the contract as a condition precedent to any formal legal action;²¹
 - Require mediation if the DRB recommendation is rejected by either or both parties; and
 - Mandate either arbitration (stipulating the arbitral institution rules to be followed and seat of the arbitration) or litigation (stipulating the venue) along with a clause identifying the law of the contract.

20. See USACOE Regulation No. ER 415-1-15, Construction Time Extensions for Weather, 31 October 1989. See also, Minnesota Department of Transportation, Standard Specifications for Construction, Division 1, Section 1803, PROGRESS SCHEDULES, Section 1803.2C.

21. See James G. Zack, Jr., “Planning for Dispute Management”, MODUS, Royal Institution of Chartered Surveyors, August 2013.

Planning prior to any claims or disputes arising should provide a logical stepped procedure to receive, analyze, respond to and resolve claims before reaching the dispute level.

Substantial/Mechanical Completion – As a general rule, late completion damages (either liquidated or actual) cease at the point of substantial or mechanical completion. A commonly disputed issue is what constitutes “substantial completion”. In the absence of a contractual definition, many courts have ruled that a project is substantially complete when “the owner can use the work for its intended purpose”. This is a very subjective definition which in and of itself can lead to a dispute. Accordingly, it is recommended that the owner’s team specifically define the term “substantial completion” in sufficient detail to alleviate any argument over what the term means and in such a manner that the owner can objectively decide when the project has reached this point. The same recommendation applies to the term “mechanical completion”, although in this case, this term should be accompanied by a series of specific startup and commissioning tests which must be completed successfully in order to achieve and claim mechanical completion. Regardless of the contractual term used, defining the term clearly in the contract will avoid disputes at the end of the work over this issue.

Liquidated Damages – Liquidated damages are generally defined as a reasonable estimate of the damages the owner is likely to incur if the project is not completed on time, as these damages are known or estimated at the time of bidding. Liquidated damages are generally upheld by courts and arbitration panels unless there is a finding that the damages listed in the contract constitute a penalty. To guard against such a result, the owner’s team should prepare a written estimate of liquidated damages during the design phase. The estimate should be based upon a reasonable approximation of the owner’s ongoing costs if the project completes late (i.e., continuing project management and inspection costs, field trailers, vehicles, etc.). The estimate should be filed and easily recovered should the amount in the contract be challenged later on. Having a well-thought-out and well-documented estimate supporting the value of liquidated damages included in the contract should put short shrift to any dispute over whether these liquidated damages should survive judicial scrutiny. While this may not preclude delay claims, it will likely avoid disputes concerning the cost of liquidated damages.

Actual Damages – In the event the owner elects to forgo liquidated damages, actual damages may be substituted. In this event, the owner’s team should clearly state in the contract documents that the contractor is subject to a claim of actual damages should the work be completed late. The owner, in this instance, must establish and implement a system to discretely and separately track all costs incurred due to the late project completion. Under this scenario, the owner is the claimant and thus has the burden of proving entitlement, causation and damages. Thus, to prevent a dispute over the actual damages claimed, the owner must be able to document the damages discretely based on contemporaneous records.

Escrow Bid Documents (“EBD”) – The owner may include an EBD clause in the bidding documents. Such a clause requires the apparent low bidder to provide hard copies of all bidding documents used, reviewed and relied upon during bidding shortly (say, 24 to 48 hours) after bid opening. The owner and contractor should jointly review these documents; the owner to check that all copies are legible and the contractor to see that everything relied upon is included in the EBD package. (EBD contract requirements generally state that any document not included in the EBD package shall not be used or relied upon in any claim or dispute related to the project.)²² The EBD package is then placed in the custody of a neutral third party only to be opened in the event of a claim or dispute relating to how the project was bid. The advantage for project participants is that the bid documents are safely preserved in the event of such a claim and can be used to validate or rebut the claim. If needed, the EBD documents may serve as a floor from which damages are calculated²³ Use of the EBD system is generally credited with minimizing claims along the lines of “I bid it this way and therefore you owe me time and money to do it your way.” If this type of claim is mitigated, there should be no follow-on disputes. In the event that such a claim does arise and the contractor can prove entitlement to the claim, the EBD should help the owner and the contractor to negotiate a reasonable settlement, thus mitigating potential disputes.

22. See *Avoiding and Resolving Contract Disputes During Construction: Successful Practices and Guidelines*, American Society of Civil Engineers, New York, 1991.

23. See David S. Gehrig, *Bracing for Construction Claims: Seven Things You’ll Wish You Had Done When the Claims Come*, Hanson Bridgett LLP, April 9, 2013. See also, James G. Zack, Jr., *Resolution of Disputes – The Next Generation*, APPA Annual Meeting, 1998.

THE BIDDING PHASE

If a project is executed in the classic D-B-B method, the bidding phase starts at completion of design and carries through to contract award. If the work is to be executed using the D/B or EPC project delivery methods, bidding will likely take place prior to the design phase. In either case, certain actions can be taken by both the owner and the contractor during this phase of the project to prevent disputes during the construction phase.

Some dispute prevention recommendations that may be utilized during the bidding phase of a project include the following.

OWNERS

Bid Inquiries – Owners should appoint a single individual to receive and respond to all questions from all bidders. This individual should be named in the Invitation to Bid (“ITB”). No other members of the project team are authorized to receive and/or respond to any bidder inquiries. This individual will be responsible for receiving all questions; recording the questions in a log; determining or finding out the correct answer; and responding with the questions and answers to all bidders of record. This should help keep all bidders on a level playing field, thus reducing the chances of change claims later on based on the argument that “during bidding I was/wasn’t informed that...” As a result, disputes of this type should be minimized.

Pre-Bid Conference and Job Walk – Pre-bid conferences accompanied by project site walks are common forms of communication between owners and contractors at some point during the bidding process. Owners can mandate that bidders must attend both the pre-bid conference and the job site walk in order to be considered responsive to the bidding requirements. It is recommended that owners make a written record all attendees at both events; of the presentation made; of all questions asked and all responses given; and provide this document to all bidders shortly after the conference and job walk are held. In the pre-bid conference owners ought to point out changes made to the standard contract documents used on previous projects. Owners ought to discuss some of the different general project requirements (such as the scheduling specification requirement or EBD requirement); some technical requirements (especially those going beyond typical requirements for projects of this type in this area); and other contractual and/or regulatory requirements the owner considers important. Such up-front communication on atypical project requirements should help mitigate claims and disputes during performance of the work.

Do Not Accept “Substantially Low” Bids – Many owners are required by statute, regulation or policy to accept the “lowest, responsive and responsible bid”. Notwithstanding such a requirement, owners may adopt and implement a formal written policy that, whenever the low bid is 10% or more below the second low bid, the owner will formally notify the apparent low bidder of this discrepancy and ask them, in writing, to review their bid and confirm that there are no bid errors. The apparent low bidder should be given 24 hours in which to respond, in writing, either that the bid is free of errors or there was an error. If the low bidder claims an error then owners ought to consult with legal counsel to determine the next step. If the low bidder declares in writing that there was no error in the bid, then they have precluded the opportunity to make such a claim at a later date, thus avoiding this type of dispute.

Best Value Selection Method – If owners can legally do so, they may want to employ the “best value selection method” instead of the traditional low bid method. In this method, price is not the sole determinant for contractor selection. The owner can ascertain contractor experience, qualifications and other factors set forth in the ITB to determine which contractor should receive the contract. Experience in the Federal government indicates that awarding contracts in this manner reduces claims and disputes and has other tangible benefits.²⁴

Validate BIM/VDC Skills – If the owner requires the use of BIM and VDC on the project, part of the bid package ought to include a submittal demonstrating the experience and the qualifications of the contractor and his subcontractors with the use of these tools. In this manner, owners have the opportunity to review such material and validate whether the contractor’s team can meet the requirements of the contract in this regard. If this is properly done such validation will help ensure that the selected contractor team can live up to the requirements of the contract concerning BIM and VDC. If they do meet such requirements, disputes over noncompliance with the use of BIM and VDC should be precluded.

Status of Design – Owners must properly represent the status of design at the bid phase (especially in EPC or D/B projects). D/B projects often prepare bridging documents prior to bidding, providing the preliminary design criteria for the project. EPC projects generally have FEED documents for a similar purpose. Owners must be thorough and accurate in representing the status and reliability of these documents in order to avoid claims and potential disputes later on. The failure to do so will likely result in claims and disputes.²⁵

24. See U.S. Army Material Command, The Best Value Approach to Selecting a Contract Source: A Guide to Best Practices, AMC Pamphlet 715-3, Vol. 5, 16 August 1994.

25. See, for example, the recently decided case of Fluor Intercontinental, Inc. d.b.a. J.A. Jones International v. Department of State, CBA 1559, 2013 WL 3271335 (Civilian B.C.A.), Granted in Part: May 24, 2013.

CONTRACTORS

Read the Contract – During bidding, contractors should assign a senior member of their staff to read the contract thoroughly. They should note all changes from previous contracts with the same owner; examine and identify all risk shifting clauses; note which risks are assigned to the contractor under the contract; and, in general, identify to the bidding team and senior management all of the difficulties involved in performing work under this contract. A simple way to avoid disputes on contracts is to fully understand the terms and conditions of the contract prior to bidding; include the necessary costs required to administer the contract exactly as written; and assume that the owner will enforce all provisions of the contract documents.

Do Not Underbid – Contractors who underbid a project in hopes of winning the contract, expecting to recoup the shortfall through change orders and claims, are at serious risk. The most obvious risk is that there will be very few change orders and thus very little recovery. A less obvious risk is that, should the contractor attempt to file claims to recover some or all of the underbid amount, the contractor may face a False Claim Act counterclaim by the owner if the project is a Federal contract²⁶ or a public contract in one of the 29 states that have adopted State False Claim Acts.²⁷

Bid Exclusions, Assumptions and Clarifications – Contractors bidding on privately funded projects should include all exclusions from the bid, all bid assumptions and clarifications. By doing so clearly and up front, owners and contractors can negotiate these issues to resolution prior to contract award thus alleviating the need for change orders, claims and/or disputes later on in the project.

Use Subcontractors With Proven Capability – Contractors bidding on large, complex and/or high-risk projects should strive to use subcontractors who have the proven capability to perform such work. Additionally, contractors should, whenever possible, subcontract with firms they have successfully worked with previously. Capability, prior experience and a good track record of working together successfully will most certainly help avoid claims and disputes.

Do Not Subcontract Solely on Price For Specialty Work – In today's construction industry, general contractors subcontract larger portions of the work than at any previous time. Especially when subcontracting specialty work (i.e., control systems, fire protection systems, etc.), an experienced specialty subcontractor with a higher price may be superior to an inexperienced subcontractor with a lower price. There's often a good reason for the higher price. More experienced subcontractors are likely to cause less rework and file fewer claims and disputes during performance of the work.

Do Not Accept Unquantifiable Risks – During the bidding process, contractors should determine what risks are assigned to the contractor under the contract. Contractors need to quantify such risks in terms of time and cost. If some risks assigned to the contractor are unquantifiable (i.e., No Damages for Delay clauses; the contractor may not rely upon soils reports; the Site Investigation clause makes the contractor responsible for all subsurface conditions; no Force Majeure clause; etc.) such risk assignment clauses may actually cause disputes. In such cases, contractors may want to reconsider the decision to bid the work.

Dispute Potential Index – If this is the first time contractors are bidding on work for a particular owner they may want to use the Construction Industry Institute's ("CII") Disputes Potential Index ("DPI") to predict the potential for disputes should they win the contract. This is a piece of software created by the CII based upon review and analysis of 159 construction claim situations that attempts to calculate the likelihood of a claim or dispute on a new project.²⁸ Contractors may use the DPI software in making their go/no bid decision. In the alternative, the outcome of the DPI analysis may provide some indication of what contingency may be included in the bid. If the contractor uses the DPI system and finds a "very high likelihood" of having claims and disputes, the wisest choice may be not to bid the work.

26. See Michael D. Germain, Beware the Less Obvious False Claims Act Violations – Underbidding and False Pricing Are Now Under Heightened Scrutiny, Building Solutions, Watt Tieder Hoffer & Fitzgerald, LLP®, Spring 2013.

27. See Odean Volker, Jeremy Kernodle and Nicole Somerville, Are You Afraid of the False Claims Act? You Should Be, Dallas Business Journal, August 16, 2013.

28. See Barry B. Bramble and Michael T. Callahan, Construction Delay Claims, 3rd Edition, Aspen Law & Business, Frederick, Maryland, 2000.

CONCLUSION

As discussed above, claims – requests for additional time and money – are common and likely unavoidable on most projects unless everything on the project proceeds exactly as planned from the outset, there are no problems with the design and no changes caused by the owner, the contractor or outside events. However, the Navigant Construction Forum™ firmly believes that, with proper prior planning, good design, selection of good contractors and good project management (by all parties) focused on project success, it is entirely possible to complete projects without any formal disputes (arbitration or litigation). The Forum believes that the implementation of many of the best practices set forth in this research perspective during the planning, design and bidding phases of a project will help avoid disputes on projects.

NAVIGANT CONSTRUCTION FORUM™

Navigant (NYSE: NCI) established the Navigant Construction Forum™ in September 2010. The mission of the Navigant Construction Forum™ is to be the industry's resource for thought leadership and best practices on avoidance and resolution of construction project disputes globally. Building on lessons learned in global construction dispute avoidance and resolution, the Navigant Construction Forum™ issues papers and research perspectives; publishes a quarterly e-journal (*Insight from Hindsight*); makes presentations globally; and offers in-house seminars on the most critical issues related to avoidance, mitigation and resolution of construction disputes.

Navigant is a specialized, global expert services firm dedicated to assisting clients in creating and protecting value in the face of critical business risks and opportunities. Through senior level engagement with clients, Navigant professionals combine technical expertise in Disputes and Investigations, Economics, Financial Advisory and Management Consulting, with business pragmatism in the highly regulated Construction, Energy, Financial Services and Healthcare industries to support clients in addressing their most critical business needs.

Navigant is the leading provider of expert services in the construction and engineering industries. Navigant's senior professionals have testified in U.S. Federal and State courts, more than a dozen international arbitration forums including the AAA, DIAC, ICC, SIAC, ICISD, CENAPI, LCIA and PCA, as well as ad hoc tribunals operating under UNCITRAL rules. Through lessons learned from Navigant's forensic cost/quantum and programme/schedule analysis on more than 5,000 projects located in 95 countries around the world, Navigant's construction experts work with owners, contractors, design professionals, providers of capital and legal counsel to proactively manage large capital investments through advisory services and manage the risks associated with the resolution of claims or disputes on those projects, with an emphasis on the infrastructure, healthcare and energy industries.

FUTURE EFFORTS OF THE NAVIGANT CONSTRUCTION FORUM™

In the third quarter of 2013, the Navigant Construction Forum™ will continue its analysis of construction industry issues. The Navigant Construction Forum™ will continue this research perspective on how owners and contractors can deliver dispute free projects with practical suggestions related to the construction phase of a project and claims handling during this phase.

Further research will continue to be performed and published by the Navigant Construction Forum™ as we move forward. If any readers of this research perspective have ideas on further construction dispute related research that would be helpful to the industry, you are invited to e-mail suggestions to jim.zack@navigant.com.