

IMPACT & CONTROL OF RFIs ON CONSTRUCTION PROJECTS

A Research Perspective Issued by the
Navigant Construction Forum™

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



Notice

This report was prepared by the Navigant Construction Forum™ of Navigant Consulting, Inc (“Navigant”). RFIs – Requests for Information – are a common form of communication in the construction industry. The intent of an RFI is to provide the contractor with a mechanism to pose a question to an owner or their construction manager and design professional(s) concerning a requirement of the contract documents that is not clear to the contractor. Upon receipt of an RFI, the owner, most often through their design professional or construction manager, provides a response to the question in writing. This process is a routine and necessary form of communication on virtually all construction projects today. However, it is not a process free of risk. This research perspective discusses how the RFI process has morphed from a form of communication to a basis for claims of delay and productivity impacts. The perspective goes on to identify ways through which owners can control the RFI process and diminish the abuse of the process through careful contract drafting, the use of technology and the employment of best management practices.

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Purpose of Research Perspective

The Navigant Construction Forum™ was recently tasked with researching the impact of RFIs on projects and what claims may grow out of the RFI process. The Forum decided to research and recommend actions that can minimize the impacts of RFIs taking into consideration contractual approaches, new technology and best management practices. As part of this research the Forum conducted a survey and reviewed papers and court cases related to RFI impacts. The Forum also had discussions with some Navigant senior consultants to gather their experience with such impacts. Further, the Navigant Construction Forum™ worked with ACONEX, “...the world’s most widely used online collaboration platform for construction and engineering projects...¹” who mined their databases for information on RFIs related to the 1,362 projects for which they have data.

The purpose of this research perspective is to summarize generally the impact of RFIs on construction projects and offer some observations on how to control the number of RFIs on projects and the RFI process in order to mitigate the impact of RFIs on projects. Additionally, based upon the literature survey and our in-house interviews the Navigant Construction Forum™ offers three recommendations on how to reduce the number of RFIs on projects which, in turn, should help reduce potential impacts and games sometimes played via RFIs.

1 <http://www.aconex.com/about>

Executive Summary

This research perspective is organized in the following way: The first section, “The Impact of RFIs on Construction Projects,” draws on data provided by ACONEX to assess how RFIs and the RFI processes impact large scale construction projects. The “Abuse of RFI Process” examines how contractors misuse RFIs in order to increase profits, a practice that has become widely institutionalized in the past decade. “RFIs in Action” applies that framework in the context of a claim case involving a laboratory building at a wastewater treatment facility. “Legal Decisions Concerning the Number of RFIs” examines the legal argument for cumulative impact as a result of a large quantity of RFIs. Finally, “Owners are Part of the Problem” explains how owners contribute to the abuse of RFIs by failing to adopt practices that contractually safeguard against the potential negative impacts of the RFI process.

The next section discusses how to reduce both the number and the impact of RFIs on future projects. The Navigant Construction Forum™ developed a framework that consists of three principal recommendations: First, the “Incorporation of Critical Definitions” identifies the specific definitions that should be articulated in the contract documents to prevent misunderstanding between owners and contractors. Second, “Electronic RFI Tracking and Monitoring” outlines the software applications that owners may wish to employ to optimize project management and to increase productivity. Third, “Best Management Practices Related to RFIs” summarizes the leading practices that owners and contractors may wish to adopt and implement for managing the RFI process.

The Genesis of RFIs

Requests for Information (“RFIs”) are a common project communication tool in today’s construction industry but this certainly was not always the case. It is unknown exactly when RFIs came into the construction industry. The following provides some historical perspective on the development of the RFI system we know today.

In the days of the “master builder”, which concept commenced around 2680 BC when the Egyptians constructed the Great Pyramids and was formalized in 1750 BC when the Code of Hammurabi gave “master builders” absolute responsibility for design and construction, there was no need for such a process. Why? Simply because the individuals who planned and designed projects also were in charge of the construction and, most likely, spent all their days on the site. They clearly understood the intent of the design and were in a position to execute to that intent eliminating the need to ask any questions.

Subsequently the industry changed as follows.

“In the mid-19th century, however, as construction became increasingly technical, the master builder was gradually replaced by three people: the architect who designs the building, the engineer who figures out how to build it safely and the ‘constructor’ who oversees the construction...and each has worked in increasing isolation from the others.”²

As the master builder concept gave way to the age of specialists in the construction industry it is likely that the RFI process was first implemented. The need for such a process apparently grew out of the separation of functions. The designer was no longer on the site every day and

² David F. Salisbury, *Experimental Course Trains A New Breed of Master Builders*, Stanford News Service, October 15, 1997.

the contractor was no longer involved in all of the details of the project's planning and design. Thus, a mechanism for asking questions of the designer - the RFI - was created and became widespread.

A more recent analysis indicates that the RFI process as we know it today developed in the last half century as a result of the growing legal need for "project documentation".

"The architect's documents in this part of the world have always been inherently conceptual. Additional information has typically been required by the contractor from the architect during the construction phase. Up until the 1970's this information was transferred informally during face to face meetings or by telephone. Most construction contracts were lump sum and the concept of the contractor delivering a 'complete' building was alive and well. No documentation of the discussions were needed or prepared. The proliferation of lawyers and claims in the 1950's and 1960's, coincidental with the invention of professional liability insurance, gave rise to the need for increased documentation. The casual questions, once asked and answered, now apparently were determined to need a method for documenting 'what, why, and when.' Thus the Request for Information was born."³

Over the past three decades project designs have become considerably more complex. Increased project complexity results in a greater likelihood that errors, conflicts, omissions and ambiguities may survive the design quality control review process. As a result, contractors need to review drawings, specifications, addenda, amendments and other contract documents very thoroughly, more thoroughly now than in the past. Just as design times have been compressed, so too have bidding times. Perhaps because of shortened bidding time or the emphasis on reducing overhead costs it seems this review is most often performed after bidding, not before.

As mandated by the contract requirements, if the contractor finds conflicts, errors or omissions they are required to notify the owner or the owner's representative to seek clarification or interpretation. Such inquiries and their responses need to be documented in the project records. Typically, such requests for clarification or interpretation are transmitted to the owner in the form of an RFI. Thus, RFIs are a tool of the construction industry created to identify problems and seek information and solutions. But, during the 1980's and 1990's a trend of a different sort developed concerning RFIs. The purpose of this research perspective is to identify current issues associated with the RFI process and offer three specific recommendations intended to reduce both the number and the impact of RFIs on future projects.

3 Grant A. Simpson and Jim Atkins, "Shootout at the RFI Corral", [AIArchitect This Week](#), American Institute of Architects, September 25, 2009.

TABLE 1 - TOTAL NUMBER OF PROJECTS AND RFIs BY REGION

REGION	# OF PROJECTS	# OF RFIs	AVERAGE RFIs/PROJECT
Americas	29	25,024	866
Australia & New Zealand	1,000	94,929	949
Asia	12	5,091	1,053
Europe	11	4,004	364
Middle East	103	125,009	1,220
Total	1,362	1,083,807	796

The Impact of RFIs on Construction Projects Summary of Industry Research

In order to better understand the use of RFIs on construction projects the Navigant Construction Forum™ reviewed the RFI-related project data provided by ACONEX. ACONEX is a global provider of online document management for the construction and engineering industry. Construction projects that employ this type of collaboration technology platform channel all project information and correspondence through a single online portal. Correspondence is categorized by type and additional metadata relating to the date, origin and destination of the correspondence is also captured.

The ACONEX data set was derived from 1,362 projects from around the world that were initiated during the period between 2001 and 2012. Each project in this data set had a minimum of 100 RFIs issued.⁴ As detailed in Table 1 above, the majority of the projects in this data set (some 79%) are located in Australia and New Zealand. ACONEX was originally an Australian-based firm but emigrated to the United States in the past few years. In total, approximately 1.1 million RFIs were submitted on these 1,362 projects for an average of 796 RFIs per project.

From the data in Table 1 above it is noted that three of the regions sampled showed an average number of RFIs per project in the range of -8% to +11% of the global average; whereas two of the regions are substantially outside of this range. The two regions that are substantially above the global average in this data set are Asia (32% above the global average) and the Middle East (53% higher).

⁴ In order to keep the sample size down to a manageable level projects with less than 100 RFIs were excluded from this data set.

A closer review of the ACONEX data set indicated that there were some outliers in the data on projects with a value of less than \$5 million and those with a value of more than \$5 billion. After the outliers in the data set were removed the Navigant Construction Forum™ analyzed the remaining data to determine the average number of RFIs per \$1 million of construction cost. For the 826 remaining projects within the ACONEX sample, the number of RFIs can be compared to the total

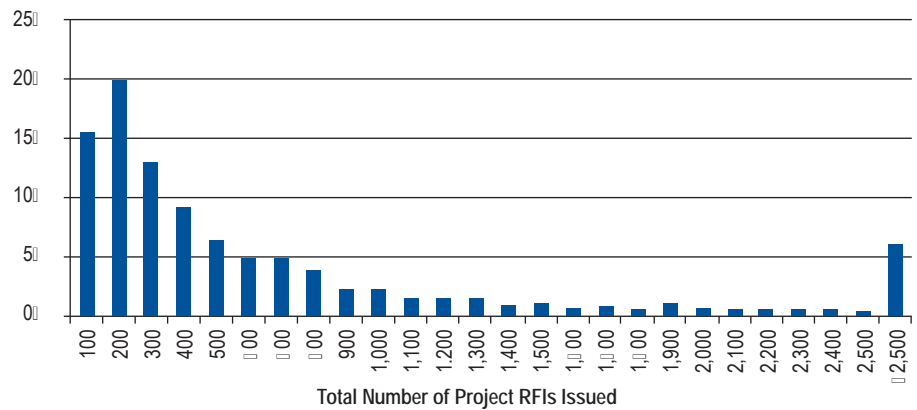
construction cost. As would be expected, Table 2 shows that larger projects with bigger construction budgets tend to have a higher number of RFIs. However, the ratio of RFIs to construction cost is significantly higher for smaller projects. Projects between \$5M and \$50M have an average of 17.2 RFIs per \$1 million of construction cost, whereas projects between \$1 billion and \$5 billion have an average of just 1.1 RFIs per \$1 million of construction cost. For all projects in the sample, the ratio is 9.9 RFIs per \$1 million of construction cost.

**TABLE 2 - NUMBER OF RFIs PER \$1 MILLION OF CONSTRUCTION COST
(PROJECTS WITH \$5 MILLION - \$5 BILLION CONSTRUCTION COST)**

CONSTRUCTION VALUE	# OF PROJECTS	# OF RFIs	AVERAGE # OF RFIs/\$1 MILLION
\$5 million - \$50 million	333	349	10.2
\$50 million - \$100 million	103	50	0.3
\$100 million - \$250 million	143	15	5.0
\$250 million - \$500 million	90	5	2.3
\$500 million - \$1 billion	30	101	1.0
\$1 billion - \$5 billion	50	100	1.1
Grand Total	826	617	9.9

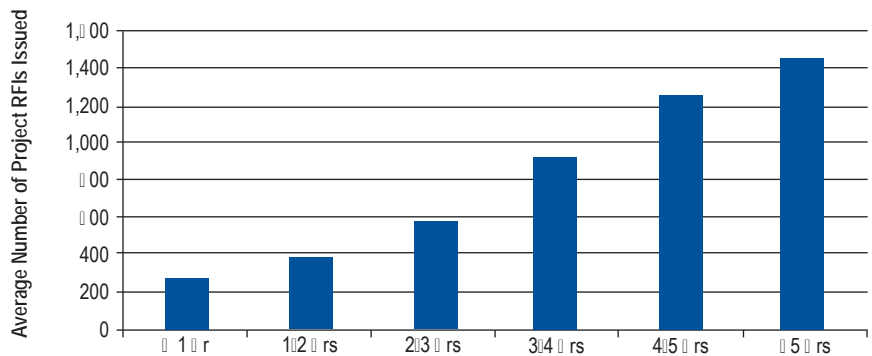
Chart 1 is a histogram of projects by the total number of RFIs and shows a skewed distribution, where approximately 50% of the projects in the sample had between 100 and 300 RFIs in total. However, there is a significant minority of projects (approximately 21%) where the number of RFIs runs into the thousands.

CHART 1 - DISTRIBUTION OF PROJECTS BY NUMBER OF RFIs

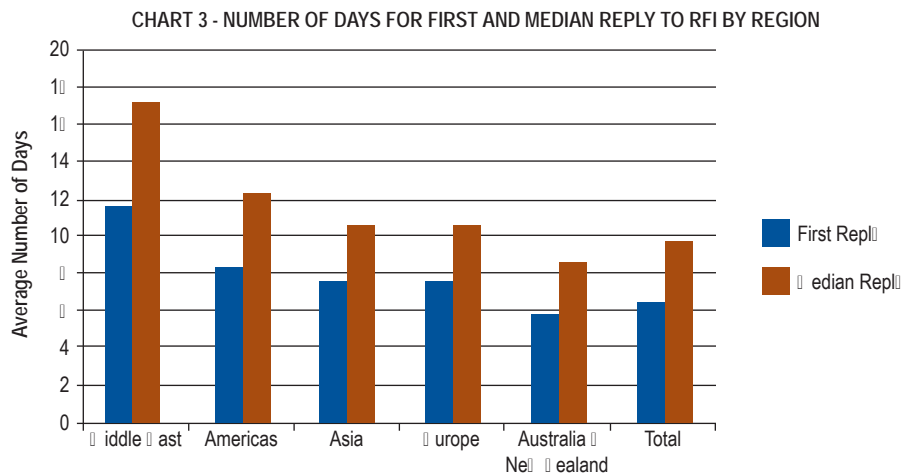


Intuitively, the number of RFIs issued on any project is directly related to the size and the duration of a project. Chart 2 demonstrates that projects with a duration of one year or less issued an average of 270 RFIs whereas projects with a duration of five years or more issued an average of slightly more than 1,400 RFIs.

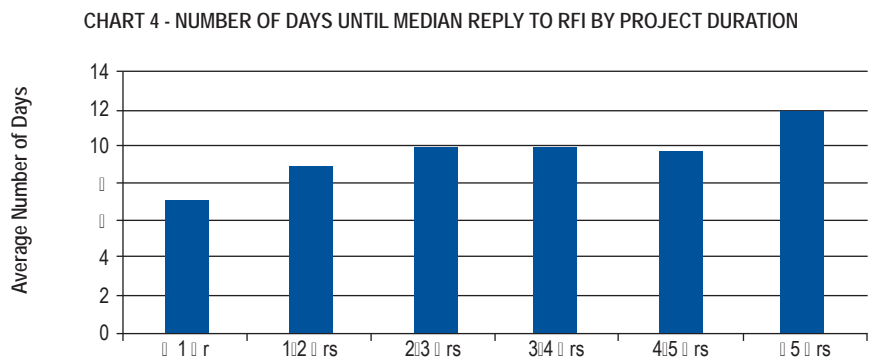
CHART 2 - NUMBER OF RFIs ISSUED BY PROJECT DURATION



The speed and efficiency of the project team related to the processing of RFIs should be monitored by an appropriate member of the project team (perhaps an RFI Coordinator) or, in some cases, the owner’s project manager, design professional or construction manager. One of the key metrics in this regard is the number of days that it takes to respond to an RFI. As detailed in Chart 3, the average performance within the sample data is an average first reply time of 6.4 days and a median reply time of 9.7 days. Based upon the ACONEX data, reply times across the sample are quickest in Australia and New Zealand and take the longest in the Middle East.



As detailed in Chart 4, the time it takes to reply to an RFI also depends upon the project size and duration. Analysis of the ACONEX data indicates that projects of one year or less achieve a median reply time of seven days, whereas projects with a duration of two years or more typically see a median reply time approaching 10 days.



Another metric typically tracked by project managers is the percentage of RFIs that receive no replies. This statistic is a leading indicator of fundamental problems with the project, such as an inefficient RFI management response system or the absence of adequate controls and procedures governing the processing of incoming RFIs and generation of prompt responses. As Chart 5 shows, the highest rate of no replies is in Asia with an average of 35 percent. By contrast, the Middle East has the lowest no reply rate at slightly less than 19%.

CHART 5 - PERCENT OF RFIs WITH NO RESPONSE BY REGION

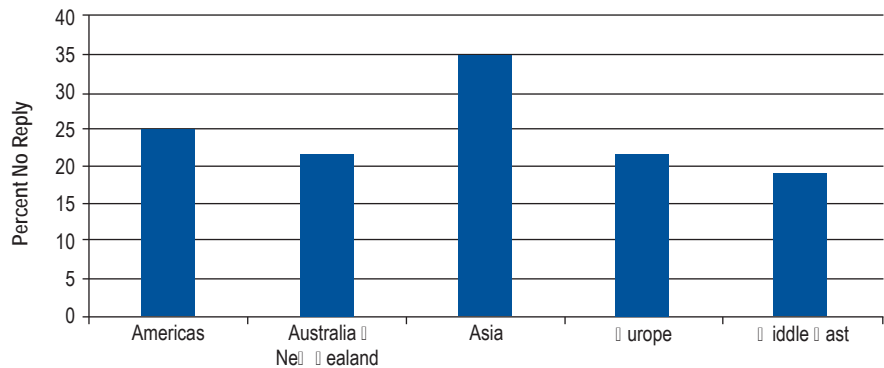
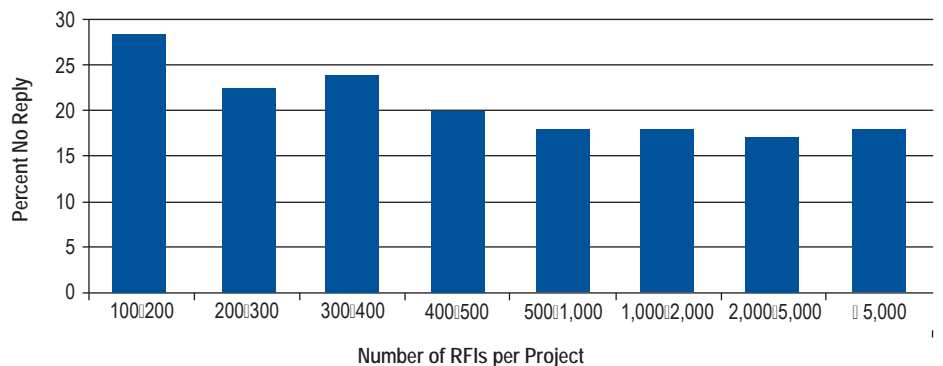


Chart 6 illustrates that smaller projects with fewer RFIs tend to have a higher percentage of RFIs with no replies. While the ACONEX data does not speak directly to this point, the Navigant Construction Forum™ believes that this may result from a lack of concern with or focus on the specifics of project documentation and/or a lack of formalized policies and procedures common on smaller projects.

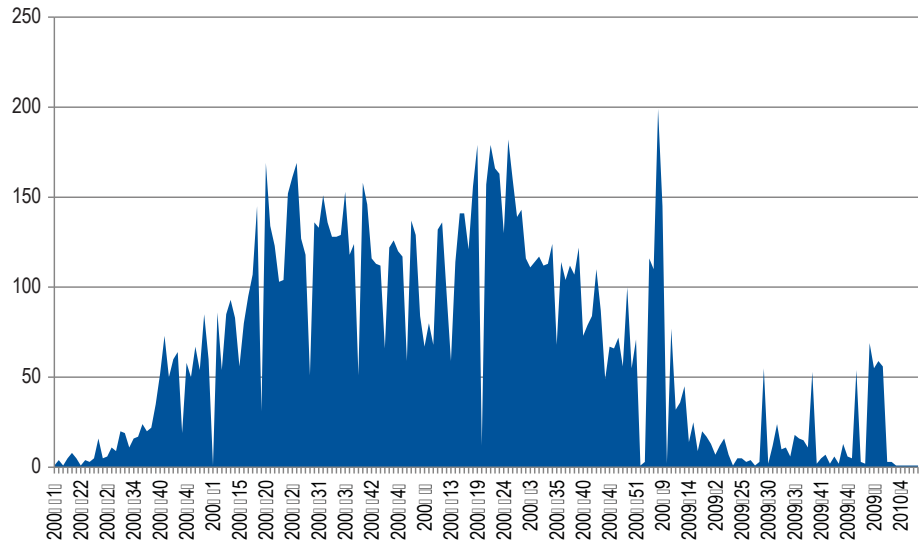
CHART 6 - PERCENT OF RFIs WITH NO RESPONSE ON SMALLER PROJECTS



Based on the ACONEX data set the average project has approximately 800 RFIs although some 21% of the projects in this sampling had more than 1,000 RFIs and a tranche had between 2,000 and 5,000 RFIs per project. The data also indicates that the longer the project duration the larger the population of RFIs, which is logical as longer projects tend to be larger and more complex.

To try to illustrate the workload that the RFI process imposes on a larger project, the Navigant Construction Forum™ reviewed the ACONEX RFI data related to a major convention center in Australia. Chart 7 documents the number of RFIs submitted per week on this project. The data indicates that the average number of RFI submittals per week was approximately 50 but many weeks show 100 RFI submittals per week and some weeks exceeded 150 submittals.

CHART 7 - RFI SUBMITTALS PER WEEK ON A MAJOR PROJECT



A more project-specific study of RFIs, and one that answers a different question, was performed by Hanna, Tadt and Whited in 2012.⁵ This study examined nine highway projects in southeast Wisconsin and provided the following data.

TABLE 2 - WISCONSIN HIGHWAY PROJECTS - RFI ANALYSIS⁶

CONTRACT	AWARDED CONTRACT VALUE	NO. OF RFIs	RFIs PER MILLION DOLLARS	RESPONSE TIME (DAYS)	ANSWERED WITHIN REQUEST PERIOD	REQUESTED RESPONSE TIME (DAYS)
Polk Ave	\$3,500	1	2.0	0.0	100%	13.0
ST 50 IC	\$2,290,4	10	0.3	12.4	20%	10.4
ST 142 IC	\$3,445,300	1	0.3	0	0	0.0
CT G IC	\$4,205,93	2	0.5	4.0	50%	0.0
ST Inline	\$4,552,255	1	0.2	13.0	0%	0.0
CT Grades/Ramps	\$5,500,133	0	1.1	10.0	0%	10.0
CT Inline	\$9,054,130	3	0.3	0.0	33%	0.0
Utilities	\$11,032,051	11	1.0	3.0	100%	0.1
2 nd St. Grades	\$11,300,909	1	0.1	0	0	0.0
College Ave	\$11,014,001	54	4.0	10.5	40%	0.0
CT C Inline/Ramps	\$24,504,503	00	3.2	0.0	0%	0.0
West Le	\$30,555,000	122	4.0	11.4	40%	0.3
CT CRA PS	\$31,004,501	20	0.0	10.9	50%	0.0
South Le	\$44,020,419	101	4.0	5.0	0%	0.1
Linton Ave	\$1,490,502	100	2.3	0.9	0%	0.0
North Le	\$102,000,200	153	1.5	5.2	0%	0.0
Witchell IC	\$102,405,401	210	9.9	10.0	40%	0.9
Core	\$314,059,250	20	2.0	0.1	20%	0.0
AVERAGE	\$47,627,259	93	2.5	7.7	55%	8.0

Although this is a smaller data sample than ACONEX's data this study does provide data on RFIs specifically related to highway projects.

Some of the overall trends found in the ACONEX data set are not supported by the data from this Wisconsin Department of Transportation ("DOT") case study. The ACONEX data is based on a sampling of a much larger number and variety of projects than the Wisconsin DOT study. The Navigant Construction Forum™ believes that this disparity may indicate that conditions, even within a specific client or project type, need to be taken into consideration when considering RFI issues.

5. Alad S. Hanna, Eric J. Tadt and Garret C. Whited, "Request for Information Benchmarks and Metrics for Major Highway Projects", *Journal of Construction Engineering and Management*, 138(12), pp. 1340-1352, American Society of Civil Engineers, New York, 2012.
 6. Eric Tadt, Alad S. Hanna and Garret Whited, *Best Practices from Wisconsin and ARRA Projects: Request for Information Benchmarks and Metrics*, University of Wisconsin - Madison, Construction and Materials Support Center, March 2012.

Interestingly, the Wisconsin DOT examined the number of RFIs received per month on various projects. They did so in order to estimate necessary staffing levels to handle RFI submittals at the Notice to Proceed (“NTP”), 25%, 50% and 75% project completion milestones. The results of this analysis are set forth in Table 3 below.

TABLE 3 - % OF RFI SUBMITTALS VS. % OF PROJECT COMPLETION

	NORTH LEG	WEST LEG	SOUTH LEG	CORE	LAYTON AVE	COLLEGE AVE	UTILITIES	CTH C
NTP	10%	23%	2%	4%	15%	9%	10%	0%
25%	55%	55%	40%	39%	100%	91%	91%	30%
50%	83%	85%	80%	83%	100%	90%	100%	92%
75%	94%	95%	100%	100%	92%	100%	100%	95%
100%	100%	100%	100%	100%	100%	100%	100%	100%

At least for these highway projects, by 50% project completion, more than half of these projects had issued up to 85% or more of the total number of RFIs for these projects. This may result from the fact that these are highway projects where complex issues tend to surface early in the project. On the other hand, process facilities (e.g., petrochemical, water or wastewater projects) which involve more complex operating and control systems may have an entirely different pattern.

A smaller, more discrete study of RFIs was included in a final thesis report comparing the construction of two facilities.⁷ This thesis reported the following on two data centers.

TABLE 4 - NUMBERS OF RFIs PER 1,000 SF & PER \$1 MILLION IN CONSTRUCTION COST

	DATA CENTER (OHIO)	DATA CENTER (SOUTH DAKOTA)
% of RFIs per 1,000 sf	1.1	1.0
% of RFIs per \$1 million	3.1	4.23

A wider ranging study than those reported above was included in a Master’s Thesis at the University of Washington.⁸ Although the purpose of this thesis was to examine the effectiveness of project partnering⁹ on Naval Facilities Engineering Command (“NAVFAC”) projects, one of the metrics identified to measure “success” of the process involved RFIs. This thesis, which was based upon a survey of 61 NAVFAC projects, showed the following with respect to RFIs.

⁷ Philip J. Corrie, *Final Thesis Report: Aloft Element Hotels at Arundel Mills*, Construction Management Department, Pennsylvania State University, April 2001.

⁸ Scott Loebe, *An Examination of the Effectiveness of Partnering in Naval Construction Projects*, Master of Science in Civil Engineering, University of Washington, 1994.

⁹ “Partnering” is generally defined as “...a process which allows people working together to find and build on their common ground and co-create solutions to problems seeking mutual benefit. By building a good working relationship, the partnering process can help create an atmosphere where trust and communication can flourish.” See Sue Dyer, *Partner Our Project*, Pendulum Publishing, Livermore, California, 1991.

TABLE 5 - TOTAL NUMBER OF RFIs ON PARTNERED & NON-PARTNERED PROJECTS

TYPE OF PROJECT	AVERAGE # OF RFIs	MAXIMUM # OF RFIs
Partnered Projects	192.0	1200
Non-Partnered Projects	55.9	335
All Projects	131.1	1200

TABLE 6 - NUMBER OF RFIs PER \$1 MILLION OF CONTRACT AWARD

TYPE OF PROJECT	AVERAGE # OF RFIs	MAXIMUM # OF RFIs
Partnered Projects	10.1	0.1
Non-Partnered Projects	15.0	0.0
All Projects	10	0.1

TABLE 7 - NUMBER OF RFIs PER \$1 MILLION OF WORK IN PLACE

TYPE OF PROJECT	AVERAGE # OF RFIs	MAXIMUM # OF RFIs
Partnered Projects	10	0.0
Non-Partnered Projects	14.2	5.0
All Projects	15	0.0

In addition to considering the quantity of RFIs, as the above-referenced studies did, it is often the impact of RFIs on construction time as well as the cost of receiving, logging, reviewing and responding to RFIs that is of more interest and concern to the professionals responsible for doing so. This is typically true on the classic design-bid-build (“DBB”) projects. Not often thought of or discussed in the literature, the same issue occurs between the field construction staff and the design staff on design/build (“D/B”) and engineer, procure, construct (“EPC”) projects.

In discussing this issue with several design professionals, the Navigant Construction Forum™ was advised that many RFIs can be reviewed and responded to in an hour, while others may take several days of review, research and response. On the whole, these design professionals suggested that the typical RFI probably consumes an average of approximately eight hours to receive, log, review and respond. This time includes both the administrative process of receiving, categorizing, logging in and out, etc., as well as the technical review and response time.

When asked about average cost per hour for RFI reviews the responses received indicated a wide range of costs – depending upon what discipline the RFI fell under, how complicated the RFI was, etc. Based on this informal survey Navigant Construction Forum™ calculated the following average cost per hour associated with RFIs in the 2012 – 2013 timeframe for the purpose of this research perspective.¹⁰

¹⁰ The Navigant Construction Forum™ interviewed senior staff from three design professional / construction management firms in the United States and received cost and schedule information related to RFI reviews on a confidential basis. The information received was averaged and forms the basis of the estimate included herein. These costs are not specific to any particular design discipline, industry sector or geographic area but are estimated costs solely for the purposes of this research perspective. Actual costs for a specific project and/or given design or construction management firm may vary widely.

ADMINISTRATIVE COST/HOUR

□ 25.00/hour □ ith 2.5 multiplier □ □ 3/hour

□ 40.00/hour □ ith 2.5 multiplier □ □ 100/hour

Median Administrative Cost/Hour = \$82/hour

TECHNICAL REVIEW COST / HOUR

□ □ 0.00/hour □ ith 2.5 multiplier □ □ 150/hour

□ 90.00/hour □ ith 2.5 multiplier □ □ 225/hour

Median Technical Review Cost/Hour = \$188/hour

AVERAGE TOTAL COST PER RFI REVIEW

& RESPONSE

Administrative time □ 4 hours □ □ 2/hour □ □ 32

Technical Review time □ 4 hours □ □ 1/hour □ □ 52

Average Total Cost per RFI Review and Response = \$1,080

Based upon the ACONEX data presented earlier plus the time and cost estimates set forth above the Navigant Construction Forum™ estimated the total cost of RFI reviews for the average project in this data set. The total cost of RFI reviews on the average project from the ACONEX data set is estimated as follows –

Average Number of RFIs per Project = 796 RFIs

Average Time per RFI Review & Response = 8 hours

Average Cost per RFI Review & Response = \$1,080

Estimated Hours Expended on RFI Reviews/Responses per Project = 6,368 hours

Estimated Total Cost of RFI Reviews/Responses per Project = \$859,680

Based on this estimated cost the Navigant Construction Forum™ believes there is a strong economic need and rationale for better control of the RFI process. This remainder of this research perspective discusses –

- » How the RFI process may be abused;
- » How the RFI process might be controlled by better contract drafting;
- » How technology could be employed to help control the process; and
- » What are the best management practices related to RFIs?

Abuse of RFI Process

Contractors looking for ways to increase profits on projects through claims have discovered a new use for RFIs. Rather than using RFIs only to seek information, contractors pursuing what amounts to a future claims strategy may use the RFI process for all project communications – not just contract document information requests. RFIs are routinely used in place of submittals, for substitution requests, to respond to notices of non-conformance, to transmit safety plans, to provide schedule submittals, and as a substitute for both daily project correspondence and telephone calls in an effort to build a paper trail to document impact and delay claims later on.

A paper that delved into this issue stated:

“In the last several years, contractors have developed a number of practices in an effort to increase their bottom line. It is now common to see contractors submitting an exceptional number of RFIs and then presenting unapproved change orders which they claim are the result of the design professional’s response to RFIs.

...

Articles, books and seminars for contractors provide a template for the presentation of claims for extras and delay damages. The RFI process provides a methodology for the contractor to document a deficiency in the contract documents and at the same time establishes a basis for an increase in the contract amount and/or time.”¹¹

This article went on to highlight five

“...RFI approaches which are designed to create issues where none exist ... including:

- » *Including clearly identifiable ambiguities in the contract documents which should have been addressed in the pre-bid process;*
- » *Submitting a significant number of RFIs with the purpose of establishing a paper trail to support their subsequent claim for damages related to a faulty design or poor construction documents;*
- » *Overwhelming the design professional with RFIs in the hope that the design professional fails to timely respond and thus establish a claim for delay damages;*
- » *Attempting to obtain approval for alternative construction methods or substitute items which are less costly than those specified; and*
- » *Performing work identified in the response to the RFI and then belatedly seeking a change order after the work has been done.”*

¹¹ See F. Seaman and Thomas F. Wainwright, “Defending Claims by Owners: Contractors for Damages Arising from RFIs and Approved and Unapproved Change Orders”, Proceedings of the 40th Annual Meeting of the Institute of Certified Professional Surveyors, Inc., 2002.

Another study of RFIs identified 14 categories of RFIs as follows.¹²

TABLE 8 – CATEGORIES OF RFIs

ADDED SCOPE	ADDITION OF ITEMS TO ORIGINAL PROJECT SCOPE.
Construction coordination	Original and coordination construction-related procedures, schedules and safety items.
Constructability issues	Difficulty in constructing an item as detailed or designed.
Change of stationing/phasings	Sequence of construction previously determined inadequate or in need of reorientation due to resource limitations and manpower orientation.
Design change	Request to modify a design to simplify efforts by construction team or to correct an error in construction.
Design clarification	Additional information requested to further understand and clarify components of the design and its related constituents.
Different method	Change in installation technique or construction process.
Design coordination	Original and coordination the design and related documents between entities.
Deleted scope	Scope or line items to be removed from the project.
Incomplete plans/specs	Error or omission in the plans/specifications.
Material change	Different material requested other than what is specified due to having excess material readily available or experience demonstrates another material has an improved performance.
Differing site conditions	Impediments discovered at the site that were previously unknown or were not in the condition as described in the contract.
Utility conflict	Utility pipes, lines or boxes prevent the construction strategy from proceeding as planned.
Value engineering	Cost reduction and construction improvement techniques.
Other	Any RFI submitted that does not fit into one of the other 14 categories including but not limited to payment methods, certification requirements, penalties, warranties and non-design related documents.

Based on industry experience, the Navigant Construction Forum™ would add the following to the description of the “Other” category.

- » Shop drawings, samples and other submittals;
- » Routine communications (i.e., confirmation of meeting dates, transmittal of meeting minutes, confirmation of telephone or face to face discussions, etc.);
- » Schedules and schedule update submittals;
- » Submittals of safety plans and reports; and,
- » Responses to owner issued non-conformance reports.

This article also went on to add two qualifiers to the discussion of RFIs as follows:

*“Lastly, the RFI was judged as **justifiable** or **not justifiable**. An RFI is justifiable if a question, concern or observation cannot be explained or answered in the contract documents. An RFI is unjustifiable if it questions means or methods, requests a design change that is not considered by the design team, or asks a question whose answer is provided in the contract documents.”*

12. Anna, Tadt and Whited, “Request for Information Benchmarks and Metrics for Major High-Rise Projects”.

This particular study concluded that some 13.2% of the total RFIs submitted fell into the “not justifiable” category. Based on the average number of RFIs per project, the average time expended per RFI, and the average cost per RFI previously presented, the unjustifiable category represents –

- » 105 RFIs (based on the ACONEX data of an average 796 RFIs per project)
- » 840 hours of administrative and technical review time involved, and
- » \$113,400 expended for the time to review and respond to unjustifiable RFIs.

So, what is the advantage to a contractor of accumulating unjustifiable RFIs?

By employing RFIs this way a contractor may be able to assert an expanded claim, arguing that the project was not fully designed at the time of bidding. Thus, “soft cost” claims based on increased project staffing, delay, impact and decreased labor productivity may be alleged. If the claimant can show a judge, jury, or arbitration panel that “...there were more than 4,000 RFIs on this project...” the trier of fact, without the benefit of a detailed analysis of the RFIs, may be more sympathetic and may be inclined to award such damages.

Typically, when a contractor asserts a claim of negligent design, the courtroom becomes a battlefield between opposing expert witnesses. This type of dispute is expensive and its outcome uncertain. The statistical approach attempting to demonstrate the impact of “inadequate or incomplete design” has been more successful than claims of design negligence. This results from the fact that cumulative impact claims require no expert witnesses to testify on design

negligence, are much less technically based, and appeal more easily to a trier of fact’s sense of “fairness”.

The construction industry often uses terms like “hard dollar contract”, “fully designed projects”, “lump sum contract”, etc. The public (which term includes many jurists, almost all jurors and unsophisticated arbitrators and mediators) has the faulty impression that every design detail of a construction project has been thoroughly planned, thought out and fully designed before the project is bid. This is never the actual case.

As engineering and architectural design has become more of a commodity over the years, the design and construction process has been increasingly equated with the manufacture of a new car. And, like a new car, the construction project is assumed to be 100% complete and 100% functional. Under that premise, when it is later revealed that there were thousands of RFIs on the project it is logical to assume that many required details were overlooked during the design. This is an inaccurate analogy as construction projects are not a manufactured product but are, instead, a complicated, custom assembly of components and systems and subject to many changes during the construction process. Yet, the tendency is to side with a contractor who claims –

- » “I bid on a fully designed project.”
- » “The additional field office staffing cost, the project delay and the decreased labor productivity suffered on the project were all a result of an incomplete design.”
- » “Since the owner is responsible for the design, the owner owes me.”

The argument is simple, logical and all too easily accepted on its face by those who do not understand the design and construction process. However, the argument is overly simplistic as illustrated below.

RFIs in Action – A Case Study

The Navigant Construction Forum™ examined an actual claim based on this approach in order to illustrate how a claim based solely on the total number of RFIs may misrepresent the reality of a project.

The claim involved a laboratory building at a wastewater treatment facility. The claim alleged delay and cumulative impact based on approximately 4,000 RFIs submitted during the course of the project. Upon closer analysis and examination of each the 4,000 alleged RFIs, it turned out that –

- » Nearly 500 RFIs were actually submittals or shop drawings required by the contract;
- » Approximately 1,700 RFIs were routine project correspondence (i.e., transmittal of meeting minutes, safety reports, schedule submittals, confirmation of field discussions or telephone conversations, etc.);
- » Some 150 RFIs were requests for substitution of materials and/or products to the convenience of the contractor;
- » About 200 RFIs turned out to be responses to owner-issued notices of non-conformance by the contractor;
- » 800 or so RFIs turned out to be the same RFI, previously asked and responded to, but resubmitted with slightly different wording and a different RFI number (the analysts labeled these RFIs “fishing expeditions”); and,

- » Approximately 300 RFIs were answered the day they were received with a one line response directing the contractor to look at a particular specification section, drawing or detail.

Of the remaining 350 RFIs all but 30 or so were responded to within one week. Of the group of RFIs responded to within one week there was no discernible schedule delay or resequencing of activities. Of the 30 or so RFIs that required more than one week for a response, several had already resulted in owner issued and settled change orders leaving an even smaller number of RFIs that could have, and should have, been analyzed for potential cost and schedule impact.

Given this set of facts it is doubtful that most would conclude that this job was “not fully designed” at the time of bidding. However, this is what construction claims analysts commonly encounter when faced with claims that all of a contractor’s loss of productivity and all project delay resulted from a large number of RFIs.

Legal Decisions Concerning the Number of RFIs as Proof of Delay and Impact

The contractor’s argument that the excessive number of RFIs on a project demonstrates that the owner is liable for additional time and cost has often proven to be successful without further or detailed analysis by either party. So successful, in fact, that some claim seminars include sessions on how to profit through the use of RFIs. Some examples of court cases based on large numbers of RFIs include the following.

In *Caddell Construction Co., Inc. v. The United States*¹³ the Court noted that –

“Even before receiving the Notice to Proceed, SSC and E.E.E. Detailing (“EEE”), SSC’s steel detailing subcontractor, began working on the project. EEE, however, was allegedly unable to proceed because it encountered missing and conflicting information on the structural steel drawings provided by the VA. EEE began generating Requests for Information (“RFI”) almost immediately in an attempt to clarify the plans and resolve any conflicts in the plans so that it could proceed with detailing. EEE forwarded the RFIs to SSC, who sent them on to Caddell, who then sent them to the VA. In the first month of the project, between March 19, 1996 and April 19, 1996, SSC/EEE sent approximately 180 RFIs to Caddell. By the end of the project, SSC/EEE had made in the neighborhood of 300 RFIs.”

SSC claimed that the VA did not respond to over half its RFIs for more than 30 days and that many of the responses were insufficient such that the detailer could not proceed. SSC contended that the alterations provided by the VA in response to their RFIs were made *“...because the overall plans were defective and because the VA did not fulfill its contractual responsibility to adequately respond to RFIs.”*

During the litigation...

“The majority of the plaintiff’s witnesses’ testimony at trial focused on the effect of the RFI process on the fabrication of steel. Essentially, plaintiff’s witnesses tried to show that the number of RFIs and the short time period during which they were generated indicated that the plans were faulty.”

The Court noted that

“...plaintiff’s witnesses pointed to the number and nature of the RFIs generated on the project as a basis for the conclusion that the plans were defective.”

In the end, however, the Court concluded that –

- » *“...a large number of RFIs is not an indication that the plans were defective...” and*
- » *“...in order for the RFIs to be evidence that the plans were defective, they must cumulatively demonstrate a serious deficiency in the plans.” (Underscoring provided.)*

In *Dugan & Meyers Construction Co., Inc. v. Ohio Department of Administrative Services et al.*¹⁴ *“...Dugan & Meyers had issued in excess of 700 requests for information, many of which produced no timely response...”* The Court also found that the

“...state offered no expert or lay testimony to rebut (Dugan & Meyers’s) evidence that the design documents were incomplete and inaccurate and constituted the underlying cause of the delay in achieving project completion.”

¹³ Fed. Cl. 40 (2001); U.S. Claims Ltr. IS 2 (5, September 1, 2001).

¹⁴ 113 Ohio St. 3d 22 (2001); Ohio 10 (4 N.J. 2d (2001); Ohio Ltr. IS 9 (1, April 25, 2001).

At the end of the litigation *Dugan & Meyers* did not prevail but only because –

- » Ohio Courts have rejected cumulative impact arguments, and
- » The contract contained an enforceable No Damages for Delay clause.

One commentator on *Dugan & Meyers* noted also that –

“...a new case teaches that proof of numerous contractor requests for information might be insufficient to support a contractor’s recovery of delay damages where the contractor fails to provide an identifiable design defect or set of design defects.”¹⁵ (Underscoring provided.)

In *Metric Construction Co., Inc. v. The United States*¹⁶ the U.S. Court of Federal Claims, however, determined that the Corps of Engineers’ response to a Metric filed RFI and Metric’s reasonable reliance on “... this material misrepresentation to its detriment...” constituted a constructive change, compensable under the Changes clause in the contract. Although the decision centered on the response to a single RFI (and not the large number of RFIs submitted on the project) the Court concluded that the Corps’ unclear response caused the damages claimed and awarded \$1.3 million in direct damages plus interest costs from March 30, 2004 to January 7, 2008.

In a 2007 paper by Stephen P. Warhoe,¹⁷ the author cited three older cases that address cumulative impact arising in part from a large number of RFIs. The cases cited include the following –

- » *Appeal of Bechtel National, Inc.*¹⁸,
- » *Appeal of Triple “A” South*¹⁹, and
- » *Appeal of Pittman Construction*.²⁰

The author went on to note that –

“The contractor will need to demonstrate that the large number of changes/RFIs did affect their work and was unforeseeable. The contractor should avoid attempting to demonstrate causation by simply stating the impacts are justified as the result of the large quantity of changes or RFIs.”

In a 2008 presentation made by the Claims Avoidance and Resolution Committee of the American Society of Civil Engineers’ Construction Institute the following comments were offered.²¹

“The government has a duty not to act in a way that will hinder or delay the contractor’s performance (‘refrain from willfully or negligently interfering with a contractor’s performance’).”²²

15 John S. Mrowiec, “Many RFIs Could be Insufficient to Recover Delay Damages”, *id est Construction*, The McGraw-Hill Companies, Inc., February 1, 2007.

16 100 Fed. Cl. 100, 200 U.S. Claims L. 1015, January 10, 2007.

17 “Is the Theory of Cumulative Impact a Probable Reality?”, *Cost Engineering*, AACI International, International, Washington, July 2007.

18 NASA Board of Contract Appeals No. 110000, December 22, 1979.

19 ASCE CA No. 40000, September 10, 1994.

20 GSCE CA No. 4923, No. 409000101 CA p. 1404, December 24, 1980.

21 Stephen A. Mess, Lawrence Lenahan, William Scott and John Ciccarella, *Best Practices on Construction Projects: Project Management Procedures – Request for Information*, American Society of Civil Engineers’ Construction Institute, Claims Avoidance and Resolution Committee, January 29, 2008.

22 *Malone v. United States*, 49 F.2d 1441, 1445 Fed. Cir. 1900, modified 50 F.2d 1000, 1900 S. 1000 Prods. Group, Inc. v. United States, 10 Cl. Ct. 1, 1979.

“For the government to be found liable for delay a plaintiff must demonstrate that the government caused the plaintiff a compensable injury. The government, therefore, is not liable for breach of contract, or causes of action that rely upon ‘severe defects’ in contract drawings, or government hindrance of performance, unless SCBI proves that the alleged defects, changes, or hindrances negatively impacted costs and performance of the contract.”²³

The Navigant Construction Forum™ submits that the technique of claiming cumulative impact resulting from a “large number of RFIs” to justify delay and lost productivity damages will not be something contractors will avoid as previously recommended but, instead, will continue to utilize in even greater volume unless positive action is taken to end the abuse of the RFI process.

Owners Are Part of the Problem

Few owners take the time and make the effort to adopt early measures that contractually safeguard against the potential negative impacts of the RFI process or establish an RFI processing and response system and implement that system in the field. Owners should examine their internal project processes to determine that they are fair and prompt. They should document and describe these processes in the contract documents. By identifying and documenting these processes contractors can more clearly understand what systems are in place and how the owner operates. The Navigant Construction Forum™ proposes a comprehensive framework that specifically outlines these contractual safeguards in the next section.

Discussion

The discussion that follows provides a framework of initiatives that safeguard owners against potential abuse, maximize control of the RFI process and mitigate the potential for negative impacts arising from the number of RFIs on a project. It is divided into three sections. The first section focuses on contract language intended to control the process. The second section examines the use of software to track and control the RFI process on projects. Finally, the third section contains a list of best practices concerning RFIs and the RFI process.

Recommendation 1 Incorporation of Contract Language

The Navigant Construction Forum™ postulates that owners should incorporate critical definitions that pertain to RFIs and the RFI processing system in the General Conditions of their contract documents. Articulating definitions can help mitigate the potential for misunderstanding between owners and contractors on the site over project procedures. For example, there are numerous terms and procedures that exist in any owner organization and are commonly used among owners and their representatives. However, they are not reflected in the contract documents. Thus, while the owner and their representatives are cognizant of the terms and the processes, contractors are not. Despite this lack of knowledge, owners frequently contend:

“The contractor should know how the Department operates. After all, the Department has been doing it this way for more than twenty years.”

²³ *Servidone Constr. Corp. v. United States*, 931 F.2d 1100, 1199-1001 *Boyajian v. United States*, 191 Ct. Cl. 233, 239-40, 423 F.2d 1231, 1235 (1969); *Southern Comfort Builders, Inc. v. United States*, No. 00-542C, U.S. Court of Federal Claims, 124 Fed. Cl. 2005 U.S. Claims L. 225 (Jul. 29, 2005).

This statement may well be true (but it is an unrealistic and risky expectation). In reality, however, contractors are required to adhere only to the standards set forth in the contract documents, not what is known to the owner but unrevealed to the contractor at the time of bidding.

To prevent misunderstanding concerning the RFI process, it is recommended that the owner, after consultation with legal counsel, include the following definitions in the General Conditions of the contract documents. The incorporation of these definitions in the contract documents may help decrease the abuse of the RFI process. Further, owners are able to draft a specification dealing directly with RFIs – when an RFI is to be used, how RFIs are to be used, the owner’s response time, etc. This specification should provide the owner with the authority to reject documents labeled as RFIs but that do not comply with the definition of the term. This specification is addressed in more detail herein below.

Definitions

The minimum definitions to be included are the following.

Drawing Clarification/Plan Clarification: An answer from the owner, in response to a written inquiry from the contractor, intended to make some requirement(s) of the drawings or plans clearly understood. Drawing clarifications/ plan clarifications may be sketches, drawings or be in narrative form and will not change any requirements of the contract drawings or specifications. Responses to contractor inquiries shall be as outlined in the Article, “Requests for Information”, of these General Conditions.

The “Drawing Clarification/Plan Clarification” definition describes the intent of a drawing or plan clarification system that actually exists on most project sites but is rarely described in contract documents. It sets forth what specifically comprises a drawing/plan clarification and establishes that it is used to make a point better understood. The definition also establishes that clarifications are not directed changes. However, if an owner does issue a clarification that directs the contractor to do more work than required in the contract, and the contractor gives appropriate notice of change, then the contractor may still assert a constructive change claim. Finally, by reference to the “Requests for Information” article the definition provides the owner’s response time in order to forestall delay claims due to any clarification response time.

Response to Non-Conformance

Notice: A Non-Conformance Notice will be issued by the owner identifying work that has not been performed in accordance with the requirements of the contract documents. Payment will not be made on any portion of the work for which a Non-Conformance Notice has been issued and the work not corrected to the satisfaction of the owner. Upon receipt of a Non-Conformance Notice the contractor shall provide a written Response to Non-Conformance Notice within five (5) working days after receipt of the Notice. The contractor’s response shall detail either (a) why they believe that the work was performed in accordance with the contract documents or (b) what corrective action they intend to take, at their sole expense, to correct the non-conforming work and when such corrective action will be performed.

If the contractor disputes issuance of the Notice the owner has five (5) working days in which to respond by either (a) withdrawing the Notice of Non-Conformance or (b) directing the contractor to correct the work. Such determination by the owner shall be final and conclusive of the matter. If directed to correct the work, the contractor shall do so within five (5) working days after receipt of such direction from the owner, or such other time as may be agreed upon by the owner and the contractor.

The "Response to Non-Conformance Notice" definition establishes a system for notifying the contractor when the owner determines that some portion of the work does not conform to contract requirements. The contractor is required to provide a specific Response to Non-Conformance Notice (which by definition is not an RFI) to such notices within a specific timeframe. Payment will not be made for work the owner believes does not meet the requirements of the contract. If the contractor believes they performed the work correctly, this system provides an appeal concerning the Notice of Non-Conformance. The owner has a specific timeframe to either withdraw the notice or order the work to be corrected within a specific timeframe. The contractor may, of course, make a claim concerning such direction but under this system the work will have to be corrected thus mitigating potential project delay and impact.

Project Communications: Routine written communications between the contractor and the owner shall be by letter, field memo, meeting minutes, FAX or e-mail. Such communications shall not be identified as Requests for Information nor shall they substitute for any other written requirement pursuant to the provisions of these contract documents.

The intent of the "Project Communications" definition is to distinguish between routine e-mail, project memos, meeting minutes and letters on the one hand and RFIs, submittals, substitution requests, etc. on the other. As discussed later, the definition allows the owner to reject routine project communications misclassified as RFIs.

Requests for Information: A written request from the contractor to the owner seeking an interpretation or a clarification of some requirement of the contract documents. The contractor shall clearly and concisely set forth the issue for which they seek clarification or interpretation and why a response is needed from the owner. The contractor shall, in the Request for Information, set forth their interpretation or understanding of the requirement including reasons why they have reached such an understanding. Responses from the owner will not change any requirement of the contract documents unless so noted in the Request for Information Response by the owner. Responses to contractor inquiries shall be as outlined in the Article, "Requests for Information", of these General Conditions.

The purpose of the "Requests for Information" definition is to establish that an RFI can be used only to seek interpretation of an issue from the owner. It requires the contractor to outline what issue needs clarification and why. This definition also places an affirmative duty on the contractor to set forth their understanding of the contract requirements so the owner can take that into consideration when providing a response. For example, if the owner reads the contractor's interpretation and agrees it presents an understanding of the minimum needs of the project, then the owner can respond to the contractor "You have a correct understanding of the requirements of the work. Proceed." The result is that no claim can reasonably arise due to such an owner response.

Requests for Substitution/Or Equal Submittals: A request from the contractor to substitute a material, article, device, product, fixture, form, type of construction or process called for in the contract documents with another item that shall be substantially equal in all respects to that so indicated or supplied. Requests for Substitution shall be made as required in the Article, “Requests for Substitution”, of these General Conditions.

This definition simply attempts to draw a clear distinction between an RFI and a Request for Substitution. The definition must be followed up in the contract documents with a description of the substitution/or equal process that identifies - when the contractor may submit such a request; what the contractor is required to submit; what sort of review will be undertaken; and probably a liability transfer clause in the event that a substitution/or equal request is accepted by the owner.

Submittals/Shop Drawings: When required by any technical specification included in these contract documents, the contractor shall transmit to the owner technical submittals, shop drawings or samples, including supporting catalogue cuts, manufacturer’s literature, sketches or drawings, calculations, and other pertinent data, in sufficient detail to enable the owner to review the information and determine that the contractor clearly understands the requirements of the contract documents.

The intent of this definition is to draw a distinction between submittals and shop drawings on the one hand and RFIs on the other. The contract documents should set forth details of the submittal system including how many copies are to be

submitted; what is the owner review time; what categories of responses might the owner issue, etc.

Schedule Submittals: The contractor shall formally submit all required schedules, schedule updates, schedule revisions, time impact analyses, etc. for review and acceptance in accordance with the General Requirement, “Construction Schedules”.

This definition also draws a distinction between scheduling related submittals and RFIs.

Value Engineering Change Proposal: A Value Engineering Change Proposal (“VECP”) may be submitted in writing by the contractor in accordance with the Article, “Value Engineering Change Proposals”, of these General Conditions. A VECP shall contain all information required in the VECP Article and shall not be submitted as an RFI.

Likewise, this definition distinguishes between VECPs and RFIs. The contract document must include a VECP clause that outlines in some detail the procedure for such proposals.

The Navigant Construction Forum™ submits that one reason contractors are able to play games with the RFI process is that owners often have no mechanism to reject or reclassify documents that are not truly RFIs and keep unjustified RFIs out of the RFI Log. Conversely, a contract that clearly defines and distinguishes Schedule Submittals, Substitutions/Or Equal Submittals, Project Communications and RFIs safeguards owners from foul play with RFIs. By reducing the number of RFIs on a project the contractor’s ability to lay the groundwork for a delay damage and disruption claim due to incomplete design and the need for so many RFIs is substantially reduced.

The RFI Clause

As noted above, definitions alone will not eliminate this tactic absent further contract language. A clause can be incorporated into the General Conditions to formally establish the RFI process and the timing concerning RFI reviews and responses. The Navigant Construction Forum™ proposes incorporating language such as the following, after consultation with legal counsel, as a way to defend against this type of claim.

Request for Information

- A. In the event the contractor determines that some provision or requirement of the drawings, specifications or other contract documents requires clarification or interpretation, the contractor shall submit a Request for Information in writing to the owner. Requests for Information may only be submitted by the contractor and shall only be submitted on the Request for Information form provided by the owner. Each Request for Information shall be limited to a single subject of inquiry.**
- B. The contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed and when it is needed. In the Request for Information the contractor shall set forth their own interpretation or understanding of the requirement along with reasons why they have reached such an understanding.**
- C. The owner will review all Requests for Information to determine whether they are Requests for Information within the contractual definition of this term. If the owner determines that the document is not a Request for Information the documents will be returned to the contractor without review, for resubmittal on the proper form and in the proper manner in accordance with the terms of the contract.**
- D. Responses to Requests for Information shall be issued within ten (10) working days of receipt of the request from the contractor unless the owner determines that a longer period of time is necessary to provide an adequate response. If a longer period of time is determined necessary by the owner, the owner will, within ten (10) working days of receipt of the request, notify the contractor of the anticipated response time.**
- 1. The ten (10) working days referred to herein will start on the date stamped received "In from Contractor" by the owner and ends on the date stamped "Out to Contractor" by the owner.**
 - 2. If the contractor submits a Request for Information on a schedule activity with ten (10) working days or less of float on the current project schedule, the contractor shall not be entitled to any time extension due to the time it takes the owner to respond to the request provided that the owner responds within the ten (10) working days set forth above.**
- E. Responses from the owner will not change any requirement of the contract documents unless so noted by the owner in the response to the Request for Information. In the event the contractor believes that a response to a Request for Information will cause a change to the requirements of the contract document the contractor shall provide written notice to the owner, in accordance with the requirements of the Changes article, stating that the contractor considers the response to be a change to the requirements of the contract. Failure to provide such written notice shall waive the contractor's right to seek additional time or cost under the Changes article of these General Conditions.**

A brief discussion of the intent and purpose of this General Conditions clause follows.

Item A of the RFI clause states that only the prime contractor may submit an RFI. RFIs will not be accepted from subcontractors, suppliers or materialmen. It requires all RFIs be submitted in writing on the RFI form provided by the owner. (The owner's standard form template should also be included as part of the General Conditions.) This allows the owner to create their own RFI form which includes all the information pertaining to the RFI that the owner wants to collect. (More detailed information on what information should be required is set forth below.) The subsection also mandates that each RFI shall only deal with one subject.

Item B requires the contractor to clearly articulate the issue and how it can be resolved, in the contractor's opinion along with the underlying contractual basis for their interpretation. If the owner agrees with how the contractor interprets the needs of the project and advises the contractor to proceed with their interpretation no claim for change should arise from the response.

Item C establishes the owner's right to review all RFIs to determine whether each request adheres to the definition of RFI in accordance with the definition in the contract documents. If they do not, the owner is contractually entitled to return the unjustified RFI to the contractor without review. This provision should help prevent large numbers of unjustifiable RFIs from entering the RFI log.

Item D establishes the owner's review time – in this sample specification ten work days ("wds") from receipt of the RFI.²⁴ (This timeframe, of course, may be modified by an owner using this specification.) The section also stipulates that if the

owner determines it will take longer than the specified review time to provide the requested information, then the owner is obligated to respond within ten wds, to advise the contractor when they can expect to receive a response. The section further states that, since the ten working day rule is in effect, if the contractor submits an RFI concerning a schedule activity that has ten wds or less float on the schedule, then the contractor is not entitled to a time extension due to the time it takes the owner to respond. This language differs from the traditional No Damages for Delay clause as it documents that the cause of any resulting delay is the contractor's late submittal of an RFI. This provision should cause contractors to review the contract documents and submit justified RFIs in a timely manner so as not to cause any delay to the project due to late submittal of RFIs.

Item E establishes that RFIs provide interpretations or clarifications and should not give rise to change orders. The section allows the owner to initiate a change to the contract requirements by noting in the RFI response that a change order will be issued. Such a response should include the owner's request for a formal change order request from the contractor and, assuming agreement can be reached, a change order will be issued by the owner. Moreover, if an RFI response is considered by the contractor to be a change, then the contractor must notify the owner in writing as soon as possible and in accordance with the applicable notice provisions in the contract documents. This language gives the owner the opportunity to reconsider the response and avoid claims of constructive change. Finally, the section stipulates that the failure to provide written notice of change forfeits the right of the contractor to make a claim arising from the RFI response.

²⁴ It should be noted that the owner must specify that the review and response time is in "work days" rather than "days" (a term typically used to prescribe calendar days) as most contracts are "calendar day" contracts.

The RFI Form

An owner employing this defined and controlled RFI system should create an RFI form and mandate its use in the contract. Any alleged RFI submitted on a form other than the contractually required form should be immediately rejected upon receipt and returned to the contractor with the instructions to resubmit on the contractually required form. It is proposed that the RFI form contain, at a minimum the following information –

- » Project name
- » Project number
- » Date of submittal
- » Chronological number of RFI
- » Name of submitter
- » Company
- » Telephone and fax information
- » Specification, drawing and/or detail number reference
- » Discipline and trades affected
- » Schedule activity number(s) RFI may impact
- » Priority (1 - 5 with 1 being the highest)
- » Subject name or RFI title
- » Information requested and why
- » Contractor proposed response
- » Potential cost impact – “Yes” or “No” and potential estimate, if any
- » Potential time impact – “Yes” or “No” and potential days, if any
- » Change order required – “Yes” or “No”
- » Date response is required consistent with the contract requirements (“ASAP” shall not be used)
- » Name of responder
- » Response by
- » Date of Response
- » Copied to

The RFI Review System

To complete the defense against abuse of the RFI process, the owner must also establish a formal in-house RFI review processing system. The Navigant Construction Forum™ recommends that the owner or their representative assign a single, knowledgeable individual from the project team to be in charge of the RFI review process – possibly titled the RFI Coordinator. The RFI Coordinator should receive all documents labeled “RFI” on the day they are received to determine if the document is actually an RFI as defined in the contract. If the document is a justified RFI, it should be logged into the RFI Log and processed and routed appropriately for a response. The RFI Coordinator should track all RFIs in process to determine that timely and accurate responses are made. (A more thorough discussion of electronic RFI management follows this section.)

The RFI Coordinator should establish and implement a system to classify RFIs upon receipt. Possible classifications include:

- » A/E issue
- » Answered by reference to specification or drawing
- » Change in means and methods
- » Change in staging, sequence, planning
- » Change of material, product or equipment
- » Constructability issue
- » Construction coordination issue
- » Deleted scope
- » Design change – change order to be issued by owner
- » Design coordination
- » Different method
- » Differing site condition
- » Incomplete plans and specifications
- » Previously asked and responded to
- » Response to Non-Conformance Notice

- » RFI submitted with 10 wds or less schedule float
- » Scope issue
- » Utility conflict
- » Value engineering

The Navigant Construction Forum™ proposes that, at a minimum, these categorizations must be included in the electronic RFI Log. Such a system of categorizing RFIs provides a documented defense if a claim of “too many RFIs” is later asserted. This is especially true with respect to RFIs with responses clearly set forth in the documents or RFIs asked more than once.

If, on the other hand, it is determined that the document submitted is not a justifiable RFI under the contractual definition, then the document should be returned the same day it is received. A standard form cover letter should be developed to ease the paperwork involved with such responses. The essence of the cover letter is that

“This document is not an RFI within the definition of the Contract Documents and therefore is being returned to you without a response. This document has not been entered into the project’s RFI Log. It is a _____. Please resubmit the document on the proper form for timely processing.”

Recommendation 2 Electronic RFI Tracking and Monitoring

The second recommendation is related to the use of an electronic RFI tracking and monitoring system to manage the RFI process. While electronic RFI processing, tracking and monitoring is becoming more commonplace, many owners, design

professionals, and contractors still rely on basic tools such as e-mail, spreadsheet logs and manually completed hard-copy forms to document increasingly complicated and document-intensive projects. This is inefficient and misses out on a significant number of benefits that can come from centralizing and standardizing the electronic RFI, and other project management processes.

There are numerous software solutions available today that can be modified and scaled to manage cost and commitment. By using appropriate software and knowledgeable, design or construction-trained professionals to operate it, the parties responsible for the potentially negative impacts associated with RFIs can be empowered to address critical project issues as they arise. If nothing else, an electronic RFI tracking system enables project participants to understand how construction phase questions and their responses may be affecting their own performance on the project.

System Compatibility

Unless it is otherwise dictated by the client or by contract, project participants usually have the option of using their existing software programs for the communications and drawing markups associated with the exchange of RFIs. As long as standard electronic RFI forms are utilized, information can be logged and linked centrally once it has been received via e-mail. In this way, older and otherwise seemingly incompatible programs can work together in concert with the RFI tracking software.

Benefits of an RFI Software System

The benefits of employing and utilizing an electronic RFI tracking and monitoring system are set forth below.

» **Centralization and Access**

The programs used for RFI tracking can either reside on a project server or, more commonly these days, on a service provider's server. A remote or cloud-hosted solution allows connected mobile devices to access and add project information from anywhere an internet connection is available. RFIs can be initiated from the job trailer or during a site walk and can be reviewed, forwarded and responded to with similar flexibility. Project information can be controlled and protected by limiting access to specific project participants. Since software licenses are usually priced based on the number of people/devices that need to access the information, the cost associated with implementing them is similarly scaled.

» **Standard Forms with Required Fields**

A common feature of most RFI tracking systems is the use of standard electronic forms and templates. These forms can be modeled on existing forms preferred by the owner or they can be new improved versions, better organized and more simplified for ease of completion and processing through the use of pull-down or drop-down menus. Additionally, this allows the owner to require completion of selected fields in order for the RFI to be initiated and submitted.

Required fields typically address the portion of the project that is in question, the parties to which the RFI is directed, the required duration for response, time and/or cost impact, and other challenges. The electronic forms also allow for contract documents, such as drawings and specifications, to be attached and marked up to illustrate the areas of ambiguities or conflict. If the project design is tied to a Building Information Model ("BIM") then the RFI can also be linked to the model.

» **Consistent Distribution and Notification**

The control and distribution of RFIs can also be streamlined by use of software. Once the RFI form fields have been completed, the request can be submitted to the system and vetted by the RFI Coordinator. If the document is truly an RFI under the terms of the contract, the RFI Coordinator will transfer it to the RFI Log and distribute it directly to all appropriate parties on the project team based on the content of the RFI. Communication regarding the RFI may be through the same program or it may employ an existing e-mail program to handle messaging. The RFI form and other attachments that support the RFI are automatically attached to any related e-mails and linked back to the RFI tracking system. Distribution lists and workflow models based on subject matter expertise, contract responsibility and other criteria can be established in advance of a request to ensure that appropriate individuals receive the RFI and are aware of it almost as quickly as it is generated.

Unlike traditional e-mailing of RFIs where various exchanges are held as groupings of individual messages with attachments, RFI tracking programs group all RFI related messages as they accumulate in back and forth exchanges. Similarly any documents, sketches, markups, or model modifications that are related to an identified issue will be grouped and linked to a specific RFI number. This same communication network can be used to monitor progress in responding to RFIs. If an RFI response time is too slow, either relative to the time allowed by contract or a specific time-sensitive project issue, automatic alerts or reminders can be set to manage the process' schedule.

» **Improved Monitoring of RFI Activity, Response Timing and Possible Impacts**

In these electronic monitoring systems RFIs are typically routed and tracked through a centralized software system, database and/or server so all activity associated with each RFI can be monitored. The current status of any RFI is available to the RFI Coordinator to alert them to bottlenecks and assist in determining how to address problems proactively. Common reasons for an RFI response delay include:

- › Additional information is still required even though a response has been submitted;
- › The designer is awaiting a reply from another technical consultant or manufacturer;
- › The RFI is untouched by the key respondent because they are addressing other issues;
- › A specific issue has gone back and forth several times without resolution;

If any of these factors are at play, they will be immediately apparent within the system without ever having to send an e-mail inquiry or make a call.

Most RFI software solutions utilize two different mechanisms for monitoring RFI activity-dashboards and reports. A dashboard is a regularly updated display of pre-selected project data and status items. (A sample dashboard is shown below.) If any RFI is not being responded to in a timely manner, an alert will appear on the dashboard to focus the attention of the RFI Coordinator on that specific RFI holdup. By displaying other key information on the dashboard at the same time, RFI activity may be monitored along with other important project metrics such as cost and schedule.



Source: D.R. McNatty & Associates, Mission Viejo, CA

Reports are either displayed or printed summaries of key data pulled from contemporaneous project data records. Helpful reports relative to RFI activity summarize response times, distribution by trade, systems or locations, as well as the response category (e.g., found in contract documents, drawing coordination issues, etc.). These metrics may be viewed and analyzed as frequently as project stakeholders feel is appropriate to help identify problem areas or uncover problems with the reviewing professionals themselves while there is still an opportunity to make corrections and to mitigate risk.

Additionally, using data provided by such electronic monitoring systems will allow the RFI Coordinator to calculate the Forward Thinking Index™ (“FTI™”) for the project.²⁵ In essence, the FTI™ is a measurement of how well the contractor is doing with respect to thinking ahead on a project. Additionally, this index calculation can be performed routinely during the project to see if the contractor is improving his score or not. As stated in this paper on FTI™ –

“As in many areas of life, timing is everything when it comes to RFIs. An RFI sent when the issue is at hand almost certainly results in a delay and can often lead to cost increases, while an RFI submitted well in advance has a greater likelihood of being resolved before an issue becomes critical lessening the chances for slowdowns or cost increases.

Through empirical data from completed projects, the authors determined that RFIs submitted at least 10 days in advance of a construction activity typically provide the time necessary to resolve issues. Using the empirical data generated from historic projects, the authors developed a formula to measure success in forward thinking.

The Forward Thinking Index™ is arrived at by calculating the total number of RFIs (x) minus the number of RFIs that create schedule delay (y). That difference (z) divided by the total number of RFIs (x) results in the FTI:

$$x - y = z \text{ and } z \div x = \text{FTI}$$

Example:

200 total RFIs – minus 50 RFIs that result in delay = 150 and

150 divided by the total number of RFIs = 0.750 FTI

Similar to baseball players’ batting averages, the FTI shows the percentage of ‘hits’ that helped the team avert delays. And as with batting averages, higher FTI scores are more desirable.”

» **Grouping Related RFIs into Issues**

One common and useful feature often associated with electronic RFI programs is the ability to create “issue” groups or RFI “topic” categories. As RFIs are issued, they may fall into certain categories that individual project participants are interested in tracking. As soon as those categories are identified, the associated RFIs can be tagged with those labels. Grouping RFIs contemporaneously with the project will:

- › Assist in quick identification of redundant inquiries on the same issue and, ultimately, the rejection of those unwarranted RFIs; queries can be performed to see how many and what types of RFIs on a given topic have been issued.
- › Help identify problematic areas in design or construction so they can be proactively addressed; if a large number of RFIs relate to a particular recurring design element, future incidents can/should be handled in advance of the issuance of an RFI.

24. David A. Hines, Jr., Shannon Frerier, Rob Stratton, David Simpson and Justin Reinato, Using the Forward Thinking Index™ To Reduce Risks Related to Requests for Information Process, Proceedings of the 20th Annual Conference of the International Group for Lean Construction, San Diego, CA, July 2012.

- › Allow the creation of user-preferred groupings that transcend the systems or disciplines that form the typical categories (e.g., structural RFIs can now be broken down into Structural Steel, Wood Framing, Rebar, etc.).
- › Facilitate the collection of materials that may be used for the analysis of change order requests or delay, impact and damage claims.

» **Early Identification of Potential Schedule Impacts**

Within many electronic RFI processing systems there exists the potential to create links between submitted RFIs and the construction schedule. This can be helpful in quickly identifying what, if any, impact a specific RFI may have on the progress of the work. For example, if an RFI identifies a conflict between a typical mechanical air supply duct and a specified ceiling finish height across an entire floor and that ceiling must be completed before any other work on that floor can proceed, the system will flag that RFI as “urgent” so that it can be prioritized over other less critical reviews. In projects where dozens of RFIs are issued in a given week, the ability to have priorities automatically set by schedule can be a key factor in avoiding project delay.

Overall patterns related to the timing of RFI issuances and responses relative to the project schedule can also be identified when the RFIs are linked to the construction schedule. If there is a pattern of late issuance of time-critical RFIs by the construction team or, alternatively, a pattern of non-responsiveness by the design team to time-sensitive RFIs, these trends can be easily identified. (Refer back to the earlier discussion of the FIT™.) They may be used to facilitate time-related negotiations or in resolving disputes related to the performance of various parties.

» **Early Identification of Potential Cost Impacts**

Links may also be established between RFIs and the value of the work. This is another way of establishing the importance of an RFI issue as well as its relationship to the overall value of the project. In other words, it is another risk metric. For example, if an RFI proposes an alternate, code-approved method of attaching plumbing lines to the building and that attachment will save the subcontractor significant labor, time and material costs, the system will identify that savings, possibly opening up the discussion with the subcontractor for a credit. Alternatively, if the change will impact other portions of construction where additional cost may need to be incurred (e.g., if plumbing chases need to be enlarged because of the new attachment method) then that too will be identified. By linking RFI subject matter to project cost data it becomes possible to anticipate previously unnoticed cost impacts before they occur.

» **Creating Links between RFIs and BIM**

In addition to the schedule and cost linking discussed above, if the project employs BIM for the overall design, RFIs may be linked directly to the model. While traditional RFIs may include marked-up drawings or attached sketches to identify design issues and proposed solutions, a BIM-linked RFI will highlight the unclear or problematic areas within the model itself so that the location and extent of the issue may be observed directly within the virtual building. For example, an RFI may be connected to a previously unresolved building-wide system clash within the model, such as a duct that was in conflict with an existing floor truss. In that case the BIM-linked RFI would show project personnel where the truss was located and where the conflict was occurring. The direct connection between the question being asked and the building model may help to streamline the process of resolving the conflict.

Recommendation 3 – Best Management Practices Related to RFIs

The Navigant Construction Forum™ has assembled a list of best practices for managing the RFI process. These recommendations are based largely on a review of four studies on this topic. The studies are listed below.

- » Best Practices from WisDOT Mega and ARRA Projects – Request for Information: Benchmark and Metrics²⁶;
- » Best Practices on Construction Projects – Project Management Procedures: Request for Information²⁷;
- » AIA Best Practices: The RFIs Role in the Construction Process²⁸; and
- » AISC Code of Standard Practice Committee’s Recommended Standard of Practice for “Requests for Information” (RFIs)²⁹.

The recommendations outlined in these studies align with the experience of the Navigant Construction Forum™. The Forum has found that adhering to the following best practices serves to limit the number of RFIs received and process those RFIs more efficiently.

Suggested Best Practices for Owners

- » Use one system of numbering RFIs consistently throughout the project.
- » Incorporate a required response time for RFIs in the contract documents.
- » Be prompt with RFI responses or thoroughly document the reason for the delay.
- » Monitor and manage RFIs through use of an electronic RFI log.

- » Require that all RFIs be accompanied by a lowest-cost suggested solution from the contractor.
- » Use e-mail to distribute RFIs and their attachments to all members of the project team at the same time so review and comment can occur concurrently.
- » Typical response time for an RFI probably should be 10 working days, depending upon the urgency and complexity of the issue and the amount of work needed to provide a response.
- » The owner should return all RFI responses with a written RFI Response Transmittal that documents the reviewers understanding of the RFI, the response, appropriate dates, etc.
- » Responses should be specific and include attachments and exact references as required. (Avoid responses such as “See architectural drawings”.)
- » Responses to RFIs ought to include references to design drawing numbers and specification sections and, when needed, a graphic depiction of the resolution.
- » Where RFI responses require new details or detail revisions, hand-drawn sketches may suffice and may expedite the RFI response time.
- » Incorporate all RFI responses into the design drawings concurrent with the processing of the RFI. The owner then has the benefit of having complete, up-to-date information on their drawings.
- » Responses to RFIs that require revisions to drawings and specifications should be incorporated into the contract documents by change order.
- » Do not let RFI paperwork languish!

26. Eric Tadt, Alanna and Garth Whited, Wisconsin Policy Research Program Project, Project # 009210/20, Construction and Materials Support Center, University of Wisconsin – Madison, March 2012.

27. Claims Avoidance and Resolution Committee, Construction Institute, American Society of Civil Engineers, January 2001.

28. Elaine A. C. AIA Partnering Committee, 11.04.05, March 2001.

29. William Andrews, ASSI – Essin Inc., The Proceedings of the North American Steel Construction Conference, Montreal, Canada, 2005.

Suggested Best Practices for Contractors

- » Generate RFIs as soon as the contractor recognizes the need for the information requested.
 - » Submit all RFIs as soon as an issue arises and at least 10 days before the response is required to minimize potential project disruption or delay.
 - » Each RFI should be limited to a single subject of inquiry.
 - » Each RFI should have an assigned priority.
 - » Avoid “batching” RFIs for submittal to the owner.
 - » All RFIs should have specific references to design drawings or specification sections.
 - » Where alternative resolutions to the RFI inquiry are apparent to the contractor, the inquiry should include a suggested resolution.
 - » When it appears that resolution of the RFI may adversely impact the project’s cost or schedule, this belief must be included in the RFI.
 - » When the receipt of a response to an RFI is time-dependent or schedule-critical, the RFI must be coded as such indicate a specific date by which the response must be received.
 - » When necessary for the owner to return an RFI to the contractor for additional information, the RFI should be re-issued with a revision number and revision date.
 - » Unless otherwise noted on the RFI response (such as “Pending Approval of the Building Department”), the contractor should assume that the RFI response constitutes a release for construction.
- » Provide a discrete coordination phase to tighten up the design documents.
 - » Initiate a peer review to solicit an independent evaluation of the contract documents.
 - » Before setting the construction budget, have the construction manager perform a constructability review to see that the design can be implemented.
 - » Develop specific scopes of work before final subcontractor awards and hold detailed scope review meetings.
 - » Try to resolve questions before the final bid.
 - » Make better use of pre-bid meetings. Hold a second pre-bid meeting approximately 10 – 14 days before bid. Require that all pre-bid meetings be attended by principals and/or chief estimators.

Final Notes

As has been shown, RFIs impact projects in numerous ways – the time required to review and respond to RFIs; the cost of RFI reviews; and the use of the RFI process to create claims. The RFI originated as a project communication tool, but has been turned into a basis of alleging impact damages by some contractors. This approach can be very effective against owners who do not take the time to include appropriate definitions of terms or the RFI process in its contract documents or fail to establish an aggressive internal RFI review system to proactively manage and control the process to minimize the risks of actual or alleged impacts.

As illustrated in this research perspective, it is possible to incorporate language into the contract documents and establish a good internal system that may substantially reduce such games and, more importantly, improve the project management process. There are electronic monitoring and tracking systems readily available to assist owners in managing the RFI process to reduce the impact of RFIs on projects. Finally, there are industry-recognized

Means of Preventing RFIs

The AIA Best Practices document³⁰ included six points a project team (including the contractor) can implement to prevent the inconsistencies that lead to the development and submission of RFIs in the first place:

best management practices related to the RFI process that can be implemented on projects and thus reduce the adverse impacts of RFIs.

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 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.



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Future Efforts of the Navigant Construction Forum

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.

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