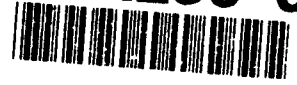


AD-A256 607



1

IMPROVING FUTURE CONSTRUCTION PROJECT QUALITY  
THROUGH ANALYSIS OF  
COMPLETED CONTRACT DOCUMENTATION

DTIC  
ELECTE  
OCT 27 1992  
S A D

By  
Kenneth C. Stagg

#N00123-89-G-0534

This document has been approved  
for public release and its  
distribution is unlimited.

Submitted in Partial Fulfillment  
of the Requirements for a  
Master of Science in Civil Engineering  
from the  
University of Washington  
Summer 1992

92-28039

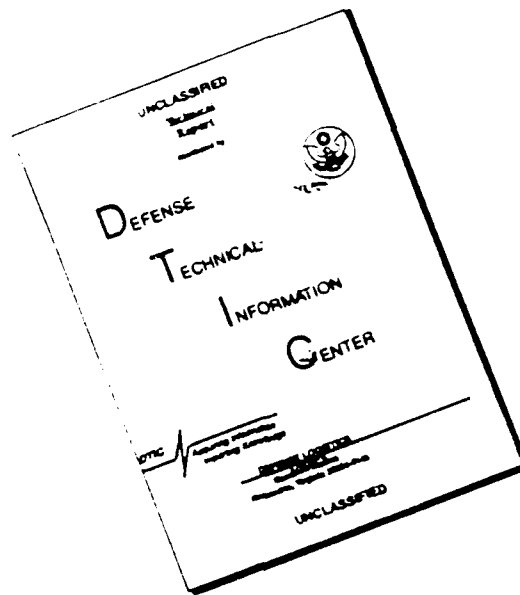


37025 168pg

92

9

# DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

## TABLE OF CONTENTS

LIST OF TABLES.....	iii
LIST OF FIGURES.....	iii
ACKNOWLEDGMENTS.....	iv
CHAPTER 1 - INTRODUCTION.....	1
CHAPTER 2 - LITERATURE REVIEW.....	3
2.1 IMPORTANCE OF QUALITY.....	3
2.2 PREVIOUS RESEARCH.....	7
CHAPTER 3 - RESEARCH METHODOLOGY.....	9
3.1 OBJECTIVE.....	9
3.2 SUMMARY.....	9
3.3 PROCESS.....	9
CHAPTER 4 - ANALYSIS.....	12
4.1 QUALITY DISTRIBUTION.....	12
4.2 CHANGE ORDERS.....	13
4.3 CORRESPONDENCE.....	15
4.4 ARCHITECT/ENGINEER VISITS.....	17
4.5 PAYMENTS AND PAYROLLS.....	17
4.6 SCHEDULES.....	18
4.7 DAILY REPORTS.....	19
4.8 QUALITY ASSURANCE.....	21
4.9 COMPLIANCE NOTICES.....	21
4.10 DISPUTES.....	21
4.11 SUBMITTALS.....	22
4.12 CONTRACT CLOSE-OUT.....	22
4.13 ROICC QUALITY RATINGS.....	23
4.14 PROBLEM AREA SUMMARY.....	24
CHAPTER 5 - CONCLUSIONS.....	26
5.1 METHODOLOGY.....	26

5.2 QUALITY IMPROVEMENTS .....	26
5.3 SUMMARY .....	27
CHAPTER 6 - RECOMMENDATIONS .....	28
6.1 QUALITY IMPROVEMENTS .....	28
6.2 FUTURE RESEARCH .....	30
REFERENCES .....	31
APPENDIX A: CONTRACT LISTING .....	33
APPENDIX B: CONTRACT REVIEW CHECK SHEETS .....	37
APPENDIX C: GLOSSARY OF TERMS .....	103

Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <i>perform 50</i>	
Distribution	
Availability Codes	
Dist	<i>A-1 23 (m)</i>

LD 2

## LIST OF TABLES

<u>Number</u>		<u>Page</u>
1	Project Breakdown	12
2	<i>Low Quality Project Problem Areas</i>	24

## LIST OF FIGURES

Number		Page
1	Differing Management Principles	4
2	Change Orders by Type	14
3	Change Order Rate by Cost	15
4	Correspondence Breakdown	16
5	Payment/Payroll Statistics	18
6	Project Completion Times	19
7	Problems Noted on Daily Reports to Inspector	20
8	Compliance Notices & Disputes	22
9	Submittal Rejection Rates	23

## ACKNOWLEDGMENTS

The author wishes to express sincere appreciation to Mr. Marv Danielson, Deputy Resident Officer in Charge of Construction at Naval Air Station Whidbey Island and Professor Charles T. Jähren of the Department of Civil Engineering, University of Washington. Mr. Danielson's cooperation in providing access to contract records and coordinating quality ratings was excellent. He demonstrated genuine interest in the research, actively participated in its review and served as a committee member. Professor Jähren, serving as the project committee chair, provided cogent guidance and support throughout the research process, ensuring correct and timely completion. Special thanks also to Professor Fred L. Mannering for serving as a member on the committee.

## CHAPTER 1 - INTRODUCTION

In my past experience as a construction contract administrator for the Navy, I administered many types and sizes of projects and noticed that a few projects resulted in either very satisfied or very dissatisfied customers, while most received no comment. Now, with quality issues in the forefront of society, I wish to answer the following question: Can future facilities be improved by studying the contract documentation of completed projects that were considered to be high or low quality? Of course the definition of quality encompasses different things to different people. For this research project, quality was judged by a committee of nine facility engineers, the people responsible for planning and upkeep of the completed construction projects, based on how well the facility meets the required function and its durability or maintainability.

The contract documentation will vary somewhat between organizations and will inevitably be more extensive for public projects. For most organizations, contract documentation follows a standard format progressing from pre-award through close-out files and includes such things as constructibility reviews, bid results, correspondence, changes, daily inspection reports, submittals, A/E visits and disputes.

The objective of this research was to develop and test a method that could aid in troubleshooting an organization's construction administration process to uncover recurring problems that should be eliminated; or solutions that should be institutionalized to improve the quality of future projects. The parameters used to select the contracts to be analyzed can be customized to meet the particular

circumstances of the organization under study. This paper will discuss the methodology and results of such a case study for the Naval Air Station, Whidbey Island located near Oak Harbor, Washington.



## CHAPTER 2 - LITERATURE REVIEW

**2.1 IMPORTANCE OF QUALITY** - It is well known that quality is playing an ever increasing role in the United States as higher quality goods and services from foreign markets produce keen competition for U. S. businesses. This has in turn put pressure on the Federal Government to improve the quality, timeliness and efficiency of services it provides. In 1988 President Reagan issued Executive Order 12637 which "...established a government wide program to improve quality" (Carr & Littman 1990). This program, known as Total Quality Management (TQM), is actively being pursued in the 19 largest executive branch agencies, including the Department of Defense. The Chief of Naval Operations, in a message to the fleet dated 01 September 1989, has mandated that TQM become a top priority of Navy leadership.

In the book *Excellence in Government, Total Quality Management in the 1990's* (Carr & Littman 1990), TQM is said to be a set of principles, tools and procedures that provide guidance in the practical affairs of running an organization. Coopers & Lybrand, a well known management consultant firm that has done extensive work for the federal government, defines TQM as:

**Involving everyone in an organization in controlling and continuously improving how work is done, in order to meet customer expectations of quality.**

Government organizations that use TQM agree that it is fundamentally different from traditional management. Some of these differences are summarized in Figure 1 (Carr & Littman 1990).

<u>Traditional Management</u>	<u>Total Quality Management</u>
Needs of users of products and services defined by specialists	Customer focus, where users of products and services define what they want
Errors and waste tolerated if they do not exceed set standards	No tolerance for errors, waste, and work that does not add value to products and services
Products and services inspected for problems, then "fixed"	Prevention of problems
Many decisions governed by assumptions and gut feelings	Fact-based decisions using hard data and scientific procedures
Short-term planning based around budget cycle	Long-term planning based on improving mission performance
Product or service designed sequentially by isolated departments	Simultaneous design of total product or service life cycle by teams from many functions
Control and improvement by individual managers and specialists	Teamwork among managers, specialists, employees, vendors, customers and partner agencies
Improvements focused on one-time breakthroughs such as computers or automation	Continuous improvement of every aspect of how work is done
Vertical structure and centralization based on control	Horizontal and decentralized structure based on maximizing value added to products and services
Short-term contracts awarded based on price	Vendor partnership of long-term buyer/seller obligations based on quality and continuous improvement

**Figure 1.- Differing Management Principles**

Unfortunately, TQM has been slow trickling down to field activities where specific guidance is lacking and management freedom has not been fully exploited. As an example, top managers at Signetics, Inc. found that quality improvement was going nowhere until specific goals were laid out for each division. Once this was done quality improvements came rapidly. Top leadership must set the proper tone and support for TQM to be successful, but actual quality improvements must come from the bottom - up (Harwood & Pieters 1990).

Quality is critical to the Navy construction program for many reasons. New construction funding has always been minimal, usually making up less than 1% of the Navy's annual budget. The operating forces demand and deserve high quality shore facilities. And finally, we must live with and maintain what we build for decades. Projects must be well thought out, carefully designed and quality constructed. The American Society of Civil Engineers' (ASCE) manual *Quality in the Constructed Project* (1990) elaborates on that theme establishing basic guidelines that, if followed, may not eliminate poor quality projects but will certainly increase the likelihood of high quality projects. Basic principles outlined by the ASCE include:

- An active owner that makes its objectives and expectations clear
- Selection of the proper design professionals for the particular project
- Development of a project team which includes the owner, designer and constructor
- Continuous and effective coordination and communication between parties
- Assigning clear responsibilities and assumption of risk
- Fee structures based on scope of duties and risk assumed

- Studying various alternatives and project impacts up front
- Proper management organizations for the design and construction phases
- The use of appropriate contractual methods.

The federal government is currently constrained from fully utilizing the ASCE guidelines in that the construction contractor is not known until the design is complete and bids are received and therefore unable to integrate valuable construction expertise into the design. Further, contractors cannot be prequalified to bid projects unless the work is of a highly specialized nature, which is not the case with the majority of projects. It is possible however, to improve team building with the customer, designer and Navy construction managers. An independent consultant can also perform a value engineering analysis if justified.

A study by Nam and Tatum (1992) showed that there are non-contractual methods of construction project integration that could be useful on federal projects. These methods can have mixed results or only produce subtle changes, but nonetheless should be pursued as they definitely represent sound business practice. These methods include proactive owner involvement and leadership, establishment of long-term business relationships between organizations, employing integration champions in technical, business and executive areas and increased professionalism of participants. The roots of quality begin with good teamwork and communications, proper matching of skills to tasks and personal integrity and pride.

I firmly believe in Proposition No. 1 in the paper by Kline (1990) that states TQM is best carried out in a more participative management atmosphere and that

professional people are Theory Y (McGregor 1960) individuals who want responsibility and bottom-up practices to motivate them and promote creativity.

**2.2 PREVIOUS RESEARCH** - The literature extensively covers methods and success stories for quality improvement in the manufacturing industry which in a broad sense can apply also to the construction industry. Seven widely accepted tools for quality improvement include the use of flow charts to outline the process to be analyzed (Burr 1990), cause-and-effect diagrams to analyze relationships and obtain more information about processes and their output (Sarazen 1990), control charts to provide a statistical means to control process variation (Shalmin 1990), histograms as a graphical method to more easily see data trends (Juran Institute 1989), check sheets to gather data in an organized and useful manner (Juran Institute 1989), Pareto charts, named after the Pareto Principle (more commonly known as the 80/20 rule), which identifies what causes are responsible for most of the problems (Burr 1990) and finally scatter diagrams for analyzing the relationship between two variables (Burr 1990).

Nothing was found directly relating to contract file review for the purpose of quality improvement. The Navy regularly audits contract files for the purpose of determining compliance with statutes, regulations and directives which can actually hinder motivations to seek quality improvements, i.e. too much emphasis on documentation rather than the process and the desired final result. An audit by the Department of Defense Inspector General (1984) found generally inadequate inspection of construction projects and insufficient use of value engineering. While these post construction audits often contain useful information, by TQM

standards this is too late in the process to be correcting problems. We should be gathering such information and looking for ways to improve the process in order to produce designs that meet customer and regulatory requirements, and are easily built and inspected with properly trained constructors and inspectors.

## CHAPTER 3 - RESEARCH METHODOLOGY

**3.1 OBJECTIVE** - To see if a structured review of completed project contract documentation could be beneficial to troubleshooting quality problems and improving future project quality.

**3.2 SUMMARY** - The method consists of the following steps:

- Establish where or for whom quality improvement is desired
- Decide who will rate existing quality conditions
- Select appropriate list size of completed projects ensuring files are accessible
- Have selected personnel rate projects on the list
- Develop a comprehensive and objective checklist to use for file reviews
- Review files and collect data on checklists
- Analyze data for indicators or trends responsible for high or low quality

**3.3 PROCESS** - The first step is to determine where the quality improvement is desired and who can best judge the quality of completed projects. My primary focus was on improving quality in the eyes of the facility owner with secondary emphasis on the construction managers ratings. In the case study, facility owners (the customer) were represented by a nine member panel of Public Works Department engineers and one facility manager from the Family Housing Department. Construction managers were employed by the Resident Officer in Charge of Construction (ROICC). The ROICC is but one part of the Naval

Facilities Engineering Command whose mission is to support the operating forces with quality facilities built on time and within budget. Naval Air Station, Whidbey Island was chosen for this case study, with the customer rating completed project quality either high, medium, or low. Mr. Marv Danielson, the Deputy ROICC at Naval Air Station, Whidbey Island, in consultation with his staff, similarly rated the contracts for quality with regard to ease of administration. It is important to note that this process is very flexible and can be tailored to meet the goals of any organization or department within an organization whether public or private.

Next comes the determination of sample size. The Navy keeps completed contract records for seven years. The files are kept at the ROICC for one to two years and are then sent to the assigned Federal Records Archive Center for the balance of time. Naval Air Station, Whidbey Island was selected as the case study site for this research based on its reasonable travel distance from my home and the close proximity of the Federal Archive Center in Seattle. The Deputy ROICC compiled a list of completed projects going back three years. This resulted in a total of 50 contracts, of which 33 were rated high or low quality by the customer, (Public Works or the Housing Dept.) and/or the ROICC (Appendix A). This was a sufficient number of contracts for analysis and memories of the projects were fresh enough to accomplish meaningful quality ratings.

While the project listing was being prepared, the review checklist was developed (Appendix B). It was keyed to the file format used by ROICC Whidbey and designed to pull as much practical data as feasible. Measurements were made



as objectively as possible by quantifying data rather than using terms such as "frequent" or "rarely".

Once the review checklist was completed, the author reviewed only those contracts rated high or low quality by the customer or the ROICC, filling out blank checklists for each. This took from 1 1/2 to 6 hours each depending on the size of the contract. Twenty five contract files were located at the ROICC Whidbey office and the remaining eight at the Federal Archive Center. The data was then analyzed to find commonalties that could be linked to the high or low quality ratings.

## CHAPTER 4 - ANALYSIS

**4.1 QUALITY DISTRIBUTION** - A total of 50 completed projects were rated for quality by the customers and the ROICC, as outlined in section 3.2. Out of these, 17 (34%) were rated high quality by the customer while only 7 (14%) were rated low quality. Of the remaining 26 projects rated medium by the customer, eight were rated high and one was rated low by the ROICC. Table 1 shows the breakdown of customer rated projects by type in the high and low quality categories. While it is encouraging to see the high quality projects outnumber the low by a two-to-one margin, there is room for significant improvement in the percentage of high quality projects.

**Table 1. - Project Breakdown (Customer Rated)**

	Repairs	Modifications	New Construction	Totals
<b>High Quality Projects</b>				
Number	7	4	6	17
Percent of Projects	47%	18%	35%	100%
Total Value (\$1,000)	\$1,184	\$651	\$29,233	\$31,068
Percent of Value	4%	2%	94%	100%
<b>Low Quality Projects</b>				
Number	4	2	1	7
Percent of Projects	57%	29%	14%	100%
Total Value (\$1,000)	\$1,716	\$109	\$4,253	\$6,078
Percent of Value	28%	2%	70%	100%

New construction made up a larger portion of the high quality jobs. Factors attributable to this include more freedom for the design professional and less opportunity for conflicts due to unforeseen site conditions. Also new construction contracts are usually larger jobs that attract better organized and more qualified contractors. The design-build method was used very successfully to construct one project, a new commissary store. This method shifts responsibility for design errors and constructibility to the contractor - an incentive for quality design. The contractor was selected by a committee using a point system based on price and the technical adequacy of his proposal. Because this project was not funded by congressional appropriations, the owner was allowed to have a restricted bidders list.

The low quality jobs by contrast were mainly repair and modification work. These jobs, besides being more difficult to design because of built in constraints and hidden problems, are also harder to construct due to usually having to work around facility operations, equipment and personnel. The following sections will elaborate on differences found between low and high quality projects in relevant project files

**4.2 CHANGE ORDERS** - Change order types and frequencies are an indication of the project design quality. This includes the adequacy of customer input as to what is required, the design firms field investigation and the technical adequacy of the plans and specifications. The data found in the change order files is consistent with the customer quality ratings. Figure 2 shows that design errors were the most frequent cause of changes, with low quality projects having a 50% higher

occurrence rate. In addition, the comments in the A/E files indicated that the scope of the errors were generally much smaller on the high quality projects.

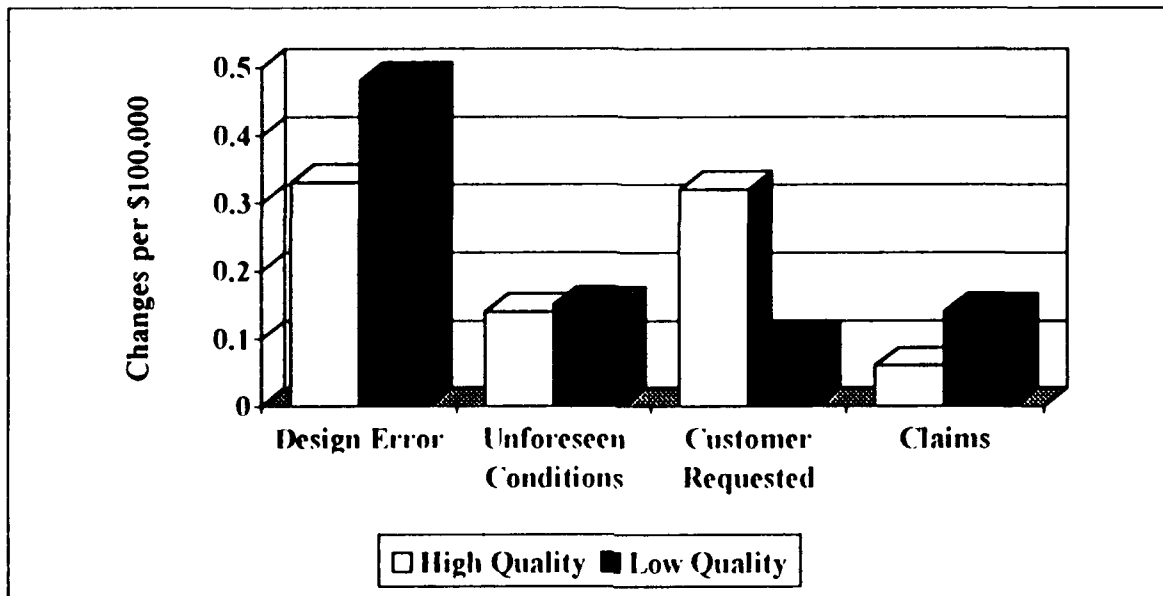


Figure 2.- Change Orders by Type

Changes for unforeseen conditions were not significantly different although from comments it was noted that the ones associated with high quality projects were not due to poor site investigation while the ones associated with low quality projects were. Customer requested changes were actually higher for the high quality jobs. Most of these changes occurred on two large and complex projects - the hospital addition and the new C-9 Maintenance Hangar. Although TQM principles would correctly call this poor planning, the customer apparently did not consider that in selecting their quality ratings. The other changes relate little to customer quality, but rather deal with the contractor/ROICC interface which will be addressed later. The higher cost of changes stemming from deficient design of

the low quality projects is indicated by the much higher average change order rate per project (Figure 3 ) as compared to the high quality projects. The scope of design errors on the low quality projects was also generally larger in relation to project size.

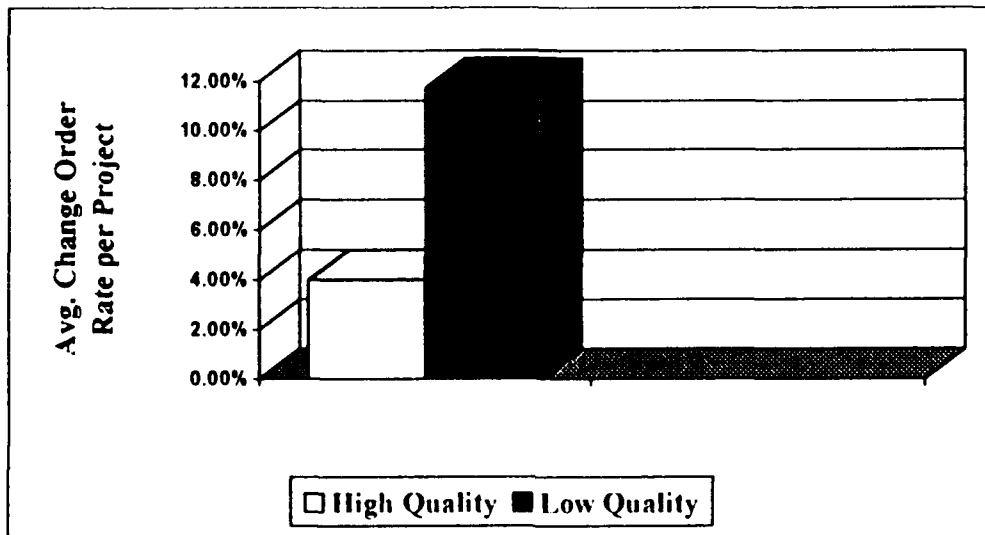


Figure 3.- Change Order Rate as Percent of Cost

**4.3 CORRESPONDENCE** - Project quality issues are generally reflected in the correspondence file. Problems with the design or workmanship are usually well documented. This analysis indicates that high quality projects generated substantially less correspondence dealing with problems and clarifications with the plans and specifications (Figure 4). Better design and the contractor's willingness/ability to interpret the plans and specifications are both likely reasons for this finding. There was twice the volume of routine correspondence on the high quality projects compared with the low quality projects. This can be

attributed to the same two projects that generated numerous customer change orders - the hospital addition and the new C-9 Maintenance Hangar.

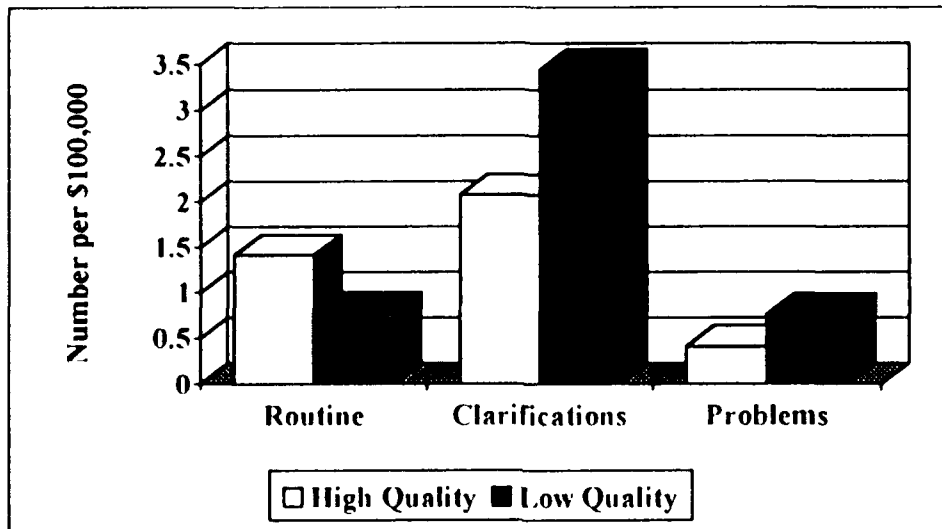


Figure 4.- Correspondence Breakdown

Both of these projects had contractors with numerous ideas for alternative materials or methods, relayed through correspondence. Many were approved by the Navy. Three of the low quality projects had adversarial overtones in the correspondence, ie. "I'm putting you on notice that...", which usually occurred when the contractors were alleging faulty plans or specifications in hopes of receiving additional compensation. When the ROICC repeatedly asked for justification supporting the contractors position, the issues were dropped. For the most part though, all projects had a professional and cooperative tone in the correspondence.

**4.4 ARCHITECT/ENGINEER VISITS** - The type and magnitude of discrepancies noted during these visits can further indicate quality problems related to the contractors performance. The government separately funds field visits during construction, if required. All the new construction projects and a few repair projects with some unique features had A/E field visits. The number of discrepancies noted per visit was relatively consistent between the high and low quality projects, but the type of discrepancies varied from mostly cosmetic, ie. paint touch-up, on the high quality jobs to failing to meet specifications, ie. missing ventilation components or ponding on concrete slabs, on the low quality projects. There were about 25% more field visits per \$100,000 of construction for the low quality projects, however there was not a clear correlation between the number of field visits and project quality. The main project responsible for the increase was the Flight Simulator Bldg. Addition (Contract 86-0171), which was plagued by a poor design and an uncooperative contractor.

**4.5 PAYMENTS AND PAYROLLS** - It was thought that payment deductions and late payroll submissions might occur more often in the low quality projects due to poor workmanship and management. In this case study, the processing of payments and compliance with payroll submission requirements does not appear to be a factor in customer satisfaction. Rather it is a matter of the contractor/ROICC working relationship. The trends in Figure 5 suggest that better communication in the field between ROICC inspectors and the project superintendent on satisfactory work in place and stored material inventories, before invoice submission, would reduce the frequency of deductions by the ROICC and improve ROICC/contractor

relations. The higher rate of invoice disagreement on the high quality projects can be attributed to the larger size of invoices that were associated with the much larger projects.

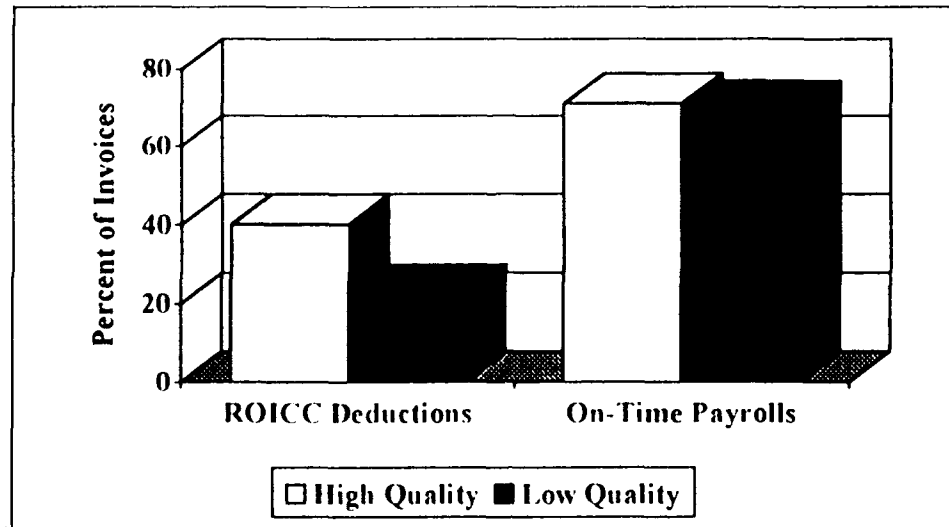


Figure 5.- Payment/Payroll Statistics

Good communication and a method of mutually tracking completed work then becomes even more critical on larger projects. Submitting payrolls on time seems to be equally troublesome although on the low quality projects the prime contractor is usually the one with late payrolls whereas on high quality projects, which again were larger, the subcontractors were generally the problem.

**4.6 SCHEDULES** - Early project completion may be linked to higher quality by an efficient contractor who meets specifications the first time and/or a quality design with few errors or customer additions. Only two projects had late completions (Figure 6). There is normally ample time given to complete the work



and time extensions are granted for justified delays. Bar charts or lists were used on all but three projects which were multi-million dollar new construction projects using CPM. It can be seen from the data that 41% of the high quality projects finished early while none of the low quality projects did so. This appeared to be the result of organized and efficient contractors familiar with Navy contract requirements, that were in most cases working with well prepared plans and specifications.

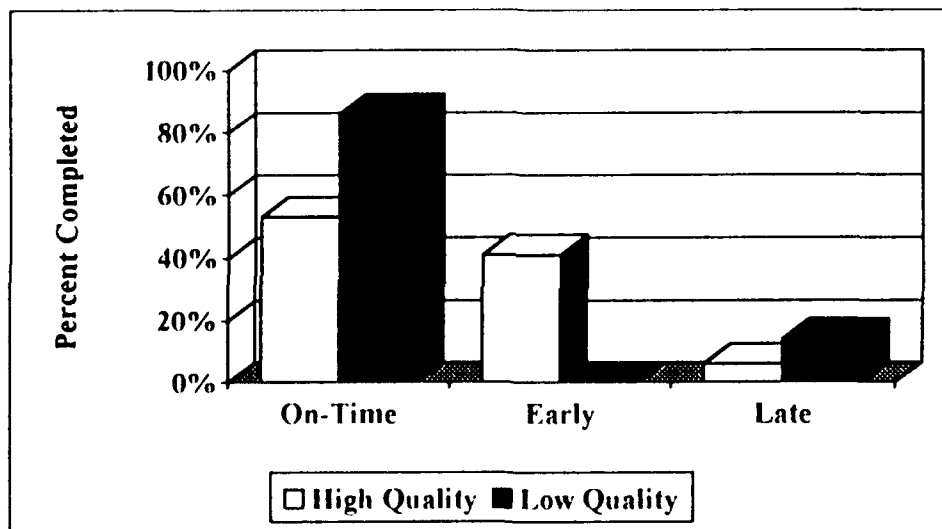


Figure 6. - Project Completions

**4.7 DAILY REPORTS** - Daily reports filled out by the contractor and reviewed by the government inspector are the first place quality or other problems should be documented. Unfortunately, there is a general lack of documentation by government inspectors on the daily reports. Although Figure 7 shows low quality projects had higher rates of non-conformance or instruction by the inspector, the number of instances noted was low in relation to the poor workmanship noted

elsewhere in the files. There are several factors that could be influencing this. According to the Deputy ROICC and from the authors personal experience, most inspectors generally do not like to write and they rarely do detailed inspections for conformance to the specifications, American Society for Testing & Materials

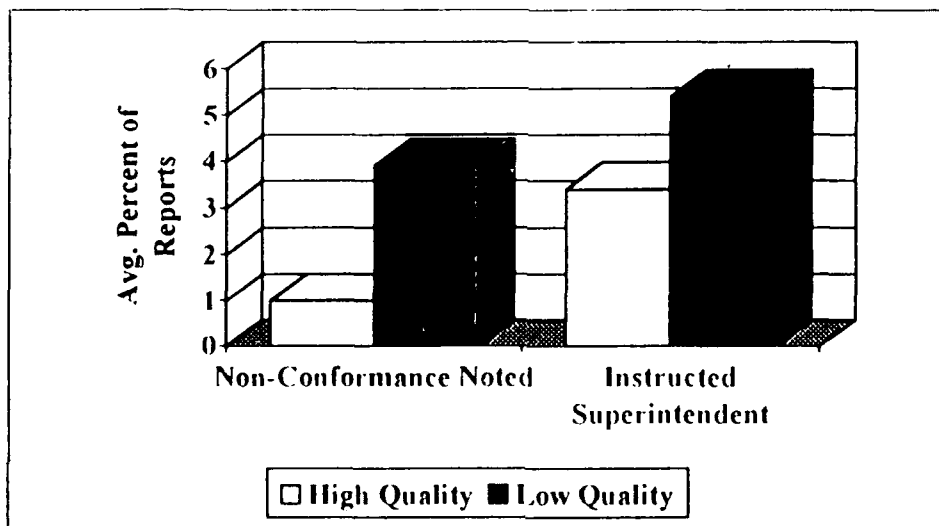


Figure 7. - Problems Noted on Daily Reports to Inspector

methods, American National Safety Institute guidelines, or other such publications. Further, they are not usually experienced in all the trades they are called upon to inspect. A final cause, one I've observed personally, is where higher authority issued guidance discouraging wording on the daily reports such as "electrical outlets have been installed in accordance with project specifications". This is because of the legal ramifications that could be experienced if the outlets later failed and the inspector missed something. Therefore the inspectors nearly always write "no comment" or "work appears adequate" at the bottom of the daily reports.

**4.8 QUALITY ASSURANCE** - Checklists were developed as part of a Quality Assurance Plan to improve project quality. These are required on most projects, but were rarely done and the ones that had been done were incomplete with no follow-up. Quality is no doubt a concern of the ROICC, but this particular method was apparently not perceived as a valuable tool to improve quality, but rather just another paperwork burden.

**4.9 COMPLIANCE NOTICES** - Compliance notices can relate to the contractor's commitment to quality in that they show 1) the contractor failed to meet specifications and 2) repeated attempts by the ROICC to get the problem fixed have failed. Four projects reached the point requiring formal notices (30 total) to correct outstanding deficiencies (Figure 8.). Three were high quality projects, one of which was responsible for 12 notices and was rated low by the ROICC for quality of contract administration. The one low quality project received 16 notices. This appears to be a sporadic problem in this study and no overall correlation to customer quality can be drawn. Apparently some contractors choose to delay correcting deficiencies until it is convenient for them, rather than the ROICC.

**4.10 DISPUTES** - Disputes were related mostly to the ROICC's quality rating for ease of contract administration rather than the quality of the finished product. There were four disputes out of six million dollars of low quality work and eight disputes out of 31 million dollars of high quality work (Figure 8.). The much higher rate for the low quality projects is a logical result of more ambiguous plans

and specifications and less cooperative contractors. All things considered, disputes occur a small percentage of the time and all were settled at the disputes review board or contracting officer level.

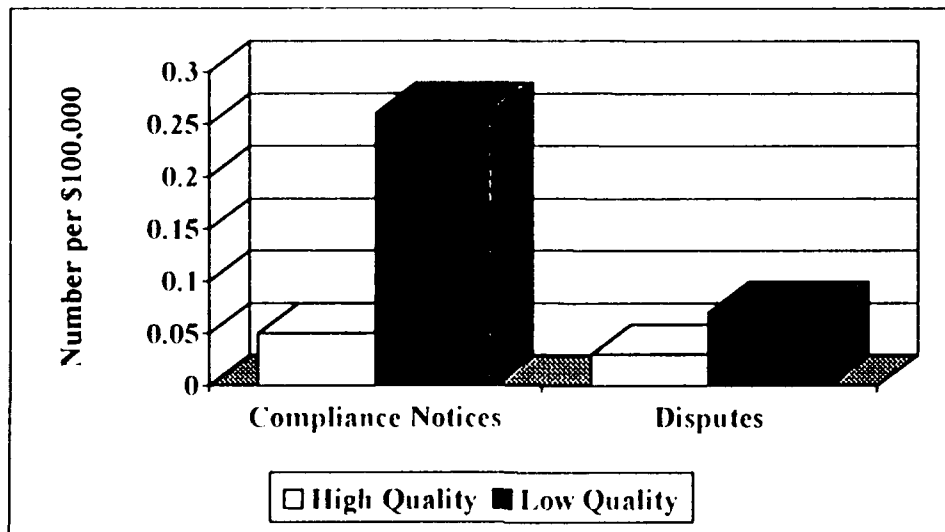


Figure 8. - Compliance Notices & Disputes

**4.11 SUBMITTALS** - Submittal rejection rates measure how well the contractor reads and complies with material specifications and can indicate the degree to which quality is considered. Figure 9 demonstrates that contractors associated with low quality projects had nearly five times the rejection rate as those associated with the high quality projects. This suggests that these contractors and their subcontractors place a low priority on contract compliance.

**4.12 CONTRACT CLOSE-OUT** - The close-out file contains items such as final inspection punchlists and who attended, warranty information, receipt of as-builts and operations manuals and other administrative documents.

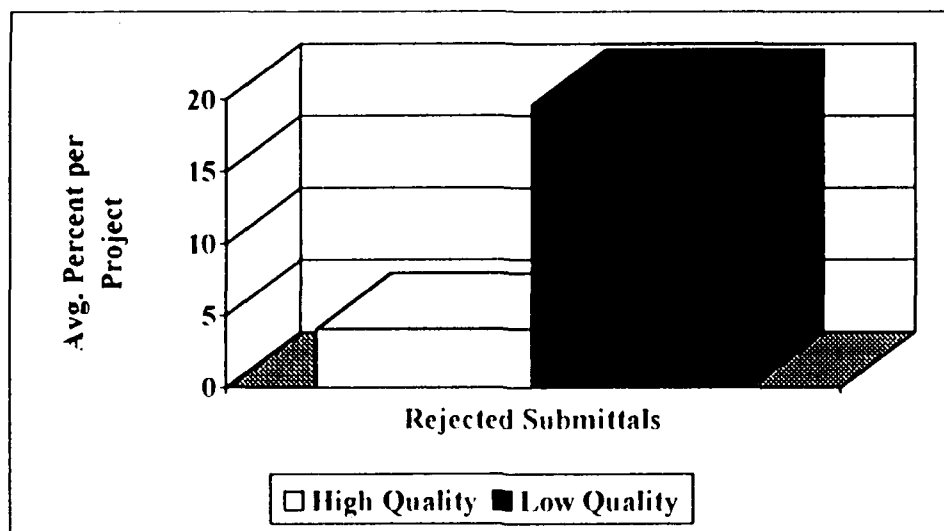


Figure 9. - Submittal Rejection Rates

Because of several variables such as timing and the personnel involved, no correlation to quality could be drawn from this information. Final punchlist length was a function of contractor thoroughness, *contract time remaining* and whether the government inspector performed pre-final inspections to reduce the final inspection punchlist. About half of the contractors on the high and low quality projects waited longer than 60 days to submit their final invoice and release of claims. There could be numerous reasons for this and no speculations were made.

**4.13 ROICC QUALITY RATINGS** - As mentioned previously, the ROICC ratings were primarily used to aid in forming conclusions on why the customer rated a project either high or low quality. The data makes it clear that although error-free contract documents are desirable, the ROICC can still consider it a high quality project if the designer is responsive in clarifying ambiguities and correcting errors. The contractors attitude is also a key factor in that problems raised were

not in and of themselves a sign of poor quality to contract administrators. The validity of the problems and the cooperation in coming to a win-win solution is where the quality distinction comes in. In this study the five projects the ROICC rated low quality either had a designer that was slow providing solutions to field problems, a contractor willfully being difficult, i.e. presenting problems while not attempting to find solutions, or a contractor unfamiliar with government contract documentation requirements and unwilling to learn how to deal with them.

**4.14 PROBLEM AREA SUMMARY** - The low quality projects were near evenly split with each experiencing poor design, poor workmanship or both (Table 2). The poorly designed projects included lack of site investigation by the designer, poor coordination between disciplines involved in preparing the plans and specifications, and poor communication of customer requirements and expectations.

**Table 2. - Low Quality Project Problem Areas**

Project Number	90-4842	90-4825	90-4817	89-5707	89-1175	88-8141	86-0171
Poor Design	X	X	X				X
Poor Workmanship	X			X	X	X	X
Poor Contractor Relations					X	X	X
Poor Contract Administration	X						
ROICC Rating	Med	Med	Med	Med	Low	Low	Low

Of the four projects with poor workmanship documented by architects and inspectors, three contractors appeared to be uncooperative and concerned mainly with financial matters. This is based on the correspondence files which showed

repeated failures by contractors to correct problems identified by the ROICC and numerous requests for additional compensation for allegedly faulty plans that were eventually abandoned due to lack of justification. The low ratings by the ROICC coincide with this, as can be seen by the poor working relationship with the contractor and the adversarial correspondence tone. One small purchase contract for \$15,000, which lacked provisions requiring bonding, progress schedules or daily reports to the inspector, was awarded to a contractor who used it as a "fill in" job and had little concern for the project. The one project shown with poor contract administration had a series of problems: 1) the contractor did not appear to be fully qualified for fire alarm work based on numerous failed operational tests 2) the government's contract administrator was an inspector who was fully not qualified for the position and 3) a design with poor field investigation as documented on the designer's performance evaluation.

## CHAPTER 5 - CONCLUSIONS

**5.1 METHODOLOGY** - This method of analyzing historical data proved useful for troubleshooting government construction project quality. The results identify and substantiate broad problem areas, thus meeting the objectives of the project. If more detailed analysis was required, interviews could be held with project participants to pinpoint specific circumstances surrounding particular problems. This method is based on the principle of learning from past mistakes and is supported by TQM experts (Car & Littman) as a tool for improving quality. Any organization that has a complete paperwork trail, documenting their product or service from inception to delivery, could use this method to improve their performance. Manufacturing industries have been the traditional users of methods similar to this in the recent past and service organizations are just now looking to embrace TQM to improve quality and efficiency (Culp & Smith). An important element of this method is basing the analysis on the customer for whom quality is to be improved.

**5.2 QUALITY IMPROVEMENTS** - The two broad areas that require improvement to bring about consistently higher quality for the customer include more thorough project planning and design to meet customer needs and better incentives to promote more contractor responsibility for quality control. These are not new concepts, but the research shows that both are equally required for a high quality result. The new ASCE guidelines for quality in the constructed project



(1990) support these concepts wholeheartedly. Specific findings supporting this include:

- Half the low quality projects had high change order rates related to design errors or unforeseen conditions
- Correspondence files for low quality projects contained twice the documentation related to problems with design or workmanship as did the high quality projects
- Architect site visits on the low quality projects revealed more serious workmanship defects and non-conforming work
- Daily reports indicated four times the rate of non-conformance to plans and specifications on the low quality projects
- Contractors on low quality projects had submittal rejection rates five times that of contractors on high quality projects

**5.3 SUMMARY** - Collected data from completed contract files consistently demonstrated that:

- The methodology was successful in identifying broad problem areas responsible for poor quality
- In this case study, poor design from both lack of customer input and technical adequacy, along with poor contractor workmanship and attitude were equally responsible for poor quality projects

## CHAPTER 6 - RECOMMENDATIONS

**6.1 QUALITY IMPROVEMENTS** - If quality improvements are to be realized on more projects, changes must be made to ensure the processes by which we procure design and construction services consistently includes quality as a top concern. It will likely take fundamental shifts in management practices and regulatory processes. Specifically, steps must be taken to ensure sufficient lead time is given to establish customer requirements, conduct a comprehensive site investigation, and thoroughly design and coordinate plans and specifications. End of the year rushes and haphazard reduction of project scope to meet fiscal constraints must be avoided.

Contractors must be selected using some form of qualification criteria in addition to the lowest price. Research by Whitehurst (1991) came to the same conclusion. Contractors stated that they desire to do quality work, but federal competitive bidding regulations often counter that goal by forcing them to cut corners to win bids or not bid at all. Several recommendations follow with the intent of improving the two problem areas identified as responsible for poor quality:

- a. Select the proper design team with proven experience on the type of project being undertaken

- b. Include a sufficient design fee for site investigation and do not use as-builts alone to determine existing conditions for critical utility locations or areas where new construction meets existing
- c. Take time to understand customer requirements and expectations for the project. Use consultants to help customers who are not sure what they require
- d. If the project scope exceeds budget, get with the customer to explain trade-offs and reduce scope instead of quality
- e. Package similar small projects into one larger project to attract more and better qualified contractors
- f. Seek regulatory change to the Federal Acquisition Regulations to allow bidding on a combination of price and contractor qualifications.
- g. Allow more use of design - build contracts as was done on the Commissary project in this study (section 4.1).
- h. Incorporate the method of contract review in this research as a continual process for quality improvement troubleshooting and progress monitoring.

The many success stories in the literature claim that quality does not come at a high price. The savings from doing things right the first time more than pay for effort to achieve it. The benefits to the Navy or other public agencies include happier and more productive customers, lower facility operations and maintenance costs and in some cases lower initial construction costs.

**6.2 FUTURE RESEARCH** - Similar research could be done, concentrating on the design process, to hone in on obstacles impeding quality designs. Another area to explore would be the development of a contractor qualification criteria to use in competitive bidding that would weed out the poor performers in a fair and equitable way. Finally, reputable designers and contractors should be surveyed to determine what methods they use to ensure quality on private sector projects for knowledgeable clients. These methods may then be incorporated in public work where feasible.

## REFERENCES

Burr, John T., "*The Tools of Quality, Part I - Going With the Flow(chart)*", *Quality Progress*, June 1990

Burr, John T., "*The Tools of Quality, Part VI - Pareto Charts*", *Quality Progress*, November 1990

Burr, John T., "*The Tools of Quality, Part VII - Scatter Diagrams*", *Quality Progress*, December 1990

Carr, David and Littman, Ian, *Excellence in Government - Total Quality Management in the 1990's*, 1990 Coopers and Lybrand, Arlington, Virginia

Carr, David and Littman, Ian, "*Quality in the Federal Government*", *Quality Progress*, September 1990

Culp, Gordon and Smith, Anne, *Applying Total Quality Management in Service Organizations*, Unpublished Paper, HDR Engineering, Bellevue, Washington

Harwood, Charles C. and Pieters, Gerald R., "*How to Manage Quality Improvement*", *Quality Progress*, March 1990

*Inspection Procedures and Value Engineering Studies in the Real Property Construction Program*, Audit Report, Office of the Inspector General, Department of Defense, December 21, 1984

Kline, Donald H., "*Four Propositions for Quality Management of Design Organizations*", *Journal of Management in Engineering*, Volume 8, No. 1, January 1992

McGregor, D., *The Human Side of Enterprise*, 1960 McGraw Hill, New York, New York

Motiska, Paul J. and Shilliff, Karl A., "*10 Precepts of Quality*", *Quality Progress*, February 1990

Nan, C. H. and Tatum, C. B., "Noncontractual Methods of Integration on Construction Projects", *Journal of Construction Engineering and Management*, Volume 118, No. 2, June 1992

*Quality in the Constructed Project, A Guideline for Owners, Designers and Constructors*, Volume 1, American Society of Civil Engineers 1990

Roy, Ranjit K., "Quality Questions, Quality Answers", *Quality Progress*, January 1990

Sarazen, J. Stephen, "The Tools of Quality, Part III - Control Charts", *Quality Progress*, July 1990

Shalmin, Peter D., "The Tools of Quality, Part III - Control Charts", *Quality Progress*, August 1990

Stevick, G. E., "Preventing Process Problems", *Quality Progress*, September 1990

The Juran Institute, Inc., "The Tools of Quality, Part IV: Histograms", *Quality Progress*, September 1990

The Juran Institute, Inc., "The Tools of Quality, Part V: Check Sheets", *Quality Progress*, October 1990

Whitchurst, Donald E., *Identifying Problems Encountered When Contracting with the Naval Facilities Engineering Command*, Unpublished Report, University of Washington, Department of Civil Engineering, Autumn 1991

COMPLETED CONTRACT LISTING

Contract Number	Contract Title	Contractor	Quality		Rating
			Customer	ROICC	
90-4869	Install Smoke Detectors, BEQ	C.A.E. & Associate.	MED		HIGH
90-4868	Install Smoke Detectors, BOQ	C.A.E. & Associates	MED		HIGH
90-4842	Fire Alarm System Repairs	S & S Security Systems, Inc	LOW		MED
90-4838	Paint Exterior Housing Units	EVCO National, Inc	HIGH		HIGH
90-4825	Repairs to Hotwell	J. P. Francis & Associates	LOW		MED
90-4820	Plumbing Repairs, Building 385	Pacific North Industries	HIGH		MED
90-4817	TSSA Installation, Building 126	Tri-West Contractors, Inc.	LOW		MED
90-4814	Modifications to Overhead Cranes	HECO Pacific Manufacturing, Inc	HIGH		MED
90-4809	Repair Utility Tunnel Hangar 6	Tachon, Inc / Sublett J. V.	MED		MED
90-0059	Reroof Victory Homes	Gilnett Construction Co.	MED		MED
89-5707	Modifications to Building 135	American Geometrics	LOW		MED
89-5614	Modifications to Power Distribution System	Novak & Associates	MED		MED
89-1175	Repairs to Building 13	Triax Pacific, Inc.	LOW		LOW
89-1172	ATSS Local Area Network Expansion	REP-SAC Corporation	MED		MED

COMPLETED CONTRACT LISTING

Contract Number	Contract Title	Contractor	Quality Rating	
			Customer	ROICC
89-1167	Upgrade Hangar Bay Lighting	Triad Electrical Contractors, Inc.	MED	MED
89-1147	Electrical Repairs to Fuel Tanks	Intermountain Electric, Inc	MED	MED
89-1139	Install Surge Valves, Building 198	Novak & Associates	MED	MED
89-1132	Repairs to Steam Condensate System	J P. Francis & Associates	MED	HIGH
89-1130	Repairs to Mess Hall Steam System	J P. Francis & Associates	MED	HIGH
89-D026	Modifications to Sewage Treatment Plant	Quantum Construction, Inc	HIGH	HIGH
89-D021	Repairs and Improvements to BEQ 11	P&L Generral Contractors, Inc.	MED	HIGH
89-D020	Repairs and Improvements to BEQ 8	P&L General Contractors, Inc	MED	HIGH
88-9992	Repairs to Fire Damaged Units	Chicago Construction Corporation	MED	MED
88-8148	Replacement of Air Compressor #2	Glantz Supply, Inc.	MED	MED
88-8841	Replace High Risk PCB Transformers	Webb Electric Company of Florida, Inc.	LOW	LOW
88-8137	Install Smoke Detectors, BEQ	Pro Alarm Co., Inc.	MED	MED
88-8135	Fuel Tank Cleaning and Storage Pad	Diamaco, Inc.	MED	LOW
88-8134	Repair Floor Hangar 7	Floorpro, Inc.	HIGH	MED



COMPLETED CONTRACT LISTING

Contract Number	Contract Title	Contractor	Quality Rating	
			Customer	ROICC
88-8133	Paint Hangar Bay Interior, Hangar 7	Diamaco, Inc.	HIGH	MED
88-8125	Replace Lighting System, Bldg 369	Mountain States Mechanical, Inc.	HIGH	MED
88-5728	Provide Walks, Curbs, Pkg. at Victory Homes	Kreig Construction, Inc.	MED	MED
88-5727	Install Dishwashers in all Capehart Housing	Coyote Corporation	HIGH	HIGH
88-5725	LP-2 Antenna Repairs	Orion Utility Construction, Inc.	MED	MED
88-5717	Weatherization of Building 410 & 2642	American Construction & Energy, Inc.	HIGH	MED
88-5716	Weatherization of Building 386, 2544, & 2681	Solar Dynamics	MED	MED
88-5690	Aircraft Parking Apron (MCON P-071)	D. A. Zuluaga Construction, Inc.	HIGH	HIGH
88-5695	Repairs to Building 117, Indoor Playing	P&L General Contractors	MED	MED
88-4839	Paint Exterior Housing Units & Carports	Yun's Painting Co.	HIGH	HIGH
88-4372	71 OPQ (Civil)	D. A. Zuluaga Construction, Inc.	MED	HIGH
88-3373	Replace OCTV at NAVAIRES	S&S Security Systems, Inc.	MED	MED
87-7645	Build Commissary	Eldred & Essex Construction Co.	HIGH	HIGH
87-7569	Location Navy Exchange	Eberharter & Grant, Inc.	HIGH	HIGH

COMPLETED CONTRACT LISTING

Contract Number	Contract Title	Contractor	Quality		Rating
			Customer	ROI/C	
87-7567	Enlisted Club Addition at NAVAIRES	P&L General Contractors, Inc.	HIGH	HIGH	HIGH
87-6637	Repairs to Building 117	The Westec Co	HIGH	MED	MED
86-0332	Repairs and Improvements to 11 Farmhouses	P&L General Contractors	MED	HIGH	HIGH
86-0180	Aircraft Maintenance Hangar (Hangar 12)	The Eberharter Construction Group	MED	MED	MED
86-0171	Flight Simulator & System Training Bldg. Addition	Lugo Construction, Inc.	LOW	LOW	LOW
85-5828	Wholehouse Improvements to 71 OPQ	Intermax, Ltd	MED	MED	MED
84-5064	C9 Aircraft Maint Hangar & Air Passenger Terminal	Davis Constructors & Engineers	HIGH	LOW	LOW
84-4258	Hospital Addition & Alterations	Pease & Sons, Inc.	HIGH	HIGH	HIGH

## CONTRACT FILE CHECKLIST

Contract No / Title 90-4869, Install Smoke Detectors BEQ  
 Contractor C.A.E. & Assoc Designer Bouillon, Christofferson, Schairer  
 AROICC LT Zulick CA Inspector Terry Armstrong  
 Quality Rating ROICC High PWD Med

### A. Pre-award

Contract Type SBA Set Aside-Negotiated

No. of Bids 0 Low High

Gov't Estimate 98K No. of Amendments 2

Constructibility Review Yes  No

### B. Contract

Award Amount 101K Bid Position

### C. Changes

Number of Changes 2 Rate 26%

Type Customer Requested Unforeseen Conditions 1 Admin    

Delays     Design Error or Omission     Other 1

Field Changes 2

### D. Correspondence

Tone Cooperative  Adversarial

Type Routine 4 Clarifications Warnings Problems 1

### E. Architect/ Engineer

Field Visits 0 Discrepancies Noted

### F. Payments

Disagreement on amounts 0 out of 2 invoices

Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 0 out of 2 Wage Violations None

### H. Schedule

Type Bar Chart Completed On Time

### I. Daily Reports

Frequency of Non-conformance 0 out of 66 Reports Rate 0%

Tone Cooperative  Adversarial

Instructions to Contractor 2 out of 66 Reports Rate 3%

J. Quality Control

QA Checklist Reports - 2 Discrepancies Noted Administrative items  
and improperly marked conduit

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 1 Rate 5%

N. Closeout

Final Inspection Punchlist Length 4 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed Jun - Nov 91

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual  Other

P. Comments

Change order number 1 issued to complete work on another contract for \$2.6K. Correspondence focused on whether ceiling material contained asbestos. Conduit was rerouted to avoid possible asbestos. Daily reports misnumbered - only 66 vice 178. KTR rated "outstanding" on ROICC evaluation. A/E rated "above average" on ROICC evaluation.

## CONTRACT FILE CHECKLIST

Contract No / Title 90-4868, BOQ Smoke Detectors, Bldg 2527  
 Contractor C A E & Associates Designer Bouillon, Christofferson, Schairer  
 AROICC/CA LT Zulick Inspector Terry Armstrong  
 Quality Rating ROICC High PWD Med

### A. Pre-award

Contract Type SBA Set Aside-Negotiated  
 No of Bids N/A  
 Gov't Estimate 52K No of Amendments 2  
 Constructibility Review Yes  No

### B. Contract

Award Amount 47k Bid Position

### C. Changes

Number of Changes 1 Rate 2%  
 Type Customer Requested 1 Unforeseen Conditions \_\_\_ Admin \_\_\_  
 Delays Design Error or Omission Other \_\_\_  
 Field Changes 0

### D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 4 Clarifications Warnings Problems \_\_\_

### E. Architect/ Engineer

Field Visits 0 Discrepancies Noted

### F. Payments

Disagreement on amounts 0 out of 3 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 3 out of 3 invoices Wage Violations None

### H. Schedule

Type Bar Chart Completed 2 weeks early

### I. Daily Repotts

Frequency of Non-conformance 0 out of 22 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 0 out of 22 Reports Rate 0%

J. Quality Control

QA Checklist Reports 2 Discrepancies Noted Missing documentation

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 2 Rate 10%

N. Closeout

Final Inspection Punchlist Length 3 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed June - November 1991

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual Other

P. Comments

Daily Reports misnumbered - only 22 vice 166 Contractor rated "outstanding" by ROICC A/E rated "above average" by ROICC

## CONTRACT FILE CHECKLIST

Contract No / Title 90-4842, Fire Alarm System Repairs

Contractor S & S Security Systems Designer Bouillon, Christofferson & Schairer

AROICC LTJG Zulick CA R Martin Inspector R Martin/Terry Armstrong

Quality Rating ROICC Med PWD Low

A. Pre-award

Contract Type H/P

No of Bids 4 Low 44.8K High 81.4K

Gov't Estimate 45K No of Amendments 0

Constructibility Review Yes  No

B. Contract

Award Amount 44.8K Bid Position Low

C. Changes

Number of Changes 2 Rate 19%

Type Customer Requested \_\_\_\_\_ Unforeseen Conditions \_\_\_\_\_ Admin 1

Delays \_\_\_\_\_ Design Error or Omission 1 Other \_\_\_\_\_

Field Changes 0

D. Correspondence

Tone Cooperative  Adversarial

Type Routine 2 Clarifications \_\_\_\_\_ Warnings \_\_\_\_\_ Problems \_\_\_\_\_

E. Architect/Engineer

Field Visits 0 Discrepancies Noted

F. Payments

Disagreement on amounts 1 out of 3 invoices

Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 1 out of 3 invoices Wage Violations No interviews  
documented

H. Schedule

Type None \_\_\_\_\_ Completed \_\_\_\_\_ On-Time

I. Daily Reports

Frequency of Non-conformance 1 out of 60 Reports Rate 1.6%

Tone Cooperative  Adversarial

Instructions to Contractor 1 out of 60 Reports Rate 1.6%

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted None

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 1 Rate N/A - See Comments

N. Closeout

Final Inspection Punchlist Length None

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed Fall/Winter

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond Individual Other

P. Comments

Public Works rated A/E unsatisfactory on field investigation for design. No contractor safety plan or accident prevention plan. Only 22 of 60 daily reports signed by ROICC inspector, done sloppy and incomplete. No contractor quality control plan. Submittal file incomplete. A/E had contract for 3 site visits but none were documented. Test reports sloppy and incomplete. Payrolls sloppy and do not match daily reports. Only 5 of 27 payrolls certified as required.



## CONTRACT FILE CHECKLIST

Contract No / Title 90-4838, Exterior Painting Officer Housing  
 Contractor EVCO National Designer Stafford Architects  
 AROICC LTJG Barton CA D J Powell Inspector R C Hoover  
 Quality Rating ROICC High Housing High

A. Pre-award

Contract Type IIP

No of Bids 10 Low 173.6K High 398.3K

Gov't Estimate 400.2K No of Amendments 0

Constructibility Review Yes  No

B. Contract

Award Amount 173.6K Bid Position Low

C. Changes

Number of Changes 3 Rate 2%

Type Customer Requested 1 Unforeseen 1 Conditions 1 Admin 1

Delays Design Error or Omission Other \_\_\_\_\_

Field Changes 0

D. Correspondence

Tone Cooperative  Adversarial

Type Routine 3 Clarifications 1 Warnings Problems \_\_\_\_\_

E. Architect/Engineer

Field Visits 1 Discrepancies Noted 0

F. Payments

Disagreement on amounts 0 out of 4 invoices

Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 4 out of 4 invoices Wage Violations 0

H. Schedule

Type Bar Chart Completed On-time

I. Daily Reports

Frequency of Non-conformance 7 out of 146 Reports Rate 5%

Tone Cooperative  Adversarial

Instructions to Contractor 31 out of 146 Reports Rate 21%

J. Quality Control

QA Checklist Reports = 1 Discrepancies Noted = 1 - no contractor\_deficiency log

K. Compliance Notices

Number = 0 Description

L. Disputes

Number = 0 Description

M. Submittals

Number rejected = 0 Rate

N. Closeout

Final Inspection Punchlist Length = 56 handwritten pages

Customer Present at Final Inspection = Yes

Release of Claims Received = Yes, timely

O. Other

Time of year performed = Summer/Fall

Special constraints = Work hours \_\_\_\_\_ Access \_\_\_\_\_ Phasing \_\_\_\_\_

Type of Surety = Corporate Bond \_\_\_\_\_ X Individual \_\_\_\_\_ Other \_\_\_\_\_

P. Comments

Commanding Officer not happy with initial paint job on his house. Inspector couldn't get superintendent to pre-inspect work before walk-through to reduce punchlist items. Nice complete submittal log.

## CONTRACT FILE CHECKLIST

Contract No / Title 90-4825, Repairs to Hotwell, Building 3384

Contractor J. P. Francis & Associates Designer Bouillon, Christofferson & Schairer

AROICC LT Zulick CA R C Hoover Inspector Ron Martin/Terry Armstrong

Quality Rating ROICC Med PWD Low

### A. Pre-award

Contract Type FFP

No. of Bids Low 81.1K High 113.9K

Gov't Estimate 58.8K No. of Amendments 0

Constructibility Review Yes  No

### B. Contract

Award Amount 81.1K Bid Position Low

### C. Changes

Number of Changes 4 Rate 17%

Type Customer Requested Unforeseen Conditions 1 Admin 1

Delays Design Error or Omission 2 Other \_\_\_\_

Field Changes 2

### D. Correspondence

Tone Cooperative  Adversarial

Type Routine 6 Clarifications 2 Warnings Problems 2

### E. Architect/ Engineer

Field Visits 1 Discrepancies Noted 0

### F. Payments

Disagreement on amounts 4 out of 7 invoices

Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time out of invoices Wage Violations

### H. Schedule

Type Bar Chart Completed On Time

### I. Daily Reports

Frequency of Non-conformance 1 out of 48 Reports Rate 2%

Tone Cooperative  Adversarial

Instructions to Contractor 7 out of 48 Reports Rate 15%

J. Quality Control

QA Checklist Reports 3 Discrepancies Noted Missing electrical submittal,  
no test lab report on site

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 3 of 16 Rate 19%

N. Closeout

Final Inspection Punchlist Length 3 items  
Customer Present at Final Inspection Yes  
Release of Claims Received Yes, timely

O. Other

Time of year performed November 1990 - August 1991  
Special constraints Work hours Access Phasing  
Type of Surety Corporate Bond Individual Other \_\_\_

P. Comments

*Correspondence problem included contractor's unjustified request for time extension and rejected submittals for schedule of prices, progress schedule and safety plan. A/E rated poorly by public works. Only 1 of 3 required A/E site visits documented.*

## CONTRACT FILE CHECKLIST

Contract No / Title 90-4820, Plumbing & Sanitation Repairs, Bldg. 385  
 Contractor Pacific North Industries Designer The Tsang Partnership, Inc.  
 AROICC CA R K Loken Inspector Terry Armstrong  
 Quality Rating ROICC Med PWD High

A. Pre-award

Contract Type FFP  
 No of Bids 2 Low 62K High 83K  
 Gov't Estimate 60K No of Amendments 0  
 Constructibility Review Yes  No

B. Contract

Award Amount 62K Bid Position Low

C. Changes

Number of Changes 2 Rate 1%  
 Type Customer Requested Unforeseen Conditions Admin 1  
 Delays Design Error or Omission 1 Other  
 Field Changes 1

D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 3 Clarifications Warnings Problems

E. Architect/ Engineer

Field Visits 0 Discrepancies Noted

F. Payments

Disagreement on amounts 0 out of 4 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 2 out of 4 invoices Wage Violations None

H. Schedule

Type Bar Chart Completed On-Time

I. Daily Reports

Frequency of Non-conformance 0 out of 67 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 0 out of 67 Reports Rate 0%

J. Quality Control

QA Checklist Reports = 0 Discrepancies Noted

K. Compliance Notices

Number = 0 Description

L. Disputes

Number = 0 Description

M. Submittals

Number rejected = 2 Rate = 5%

N. Closeout

Final Inspection Punchlist Length = 37 items

Customer Present at Final Inspection = Yes

Release of Claims Received = Yes

O. Other

Time of year performed = November 1990 - March 1991

Special constraints = Work hours = Access = Phasing

Type of Surety = Corporate Bond =  Individual = Other = \_\_\_\_\_

P. Comments

Public Works rated A/E "above average" for good quality design services. ROICC rated A/E "average"

## CONTRACT FILE CHECKLIST

Contract No / Title 90-4817, TSSA Installation  
 Contractor Tri-West contractors Designer Tsang Partnership, Inc.  
 AROICC/CA DJ Powell Inspector R C Hoover  
 Quality Rating ROICC Med PWD Low

A. Pre-award

Contract Type FFP  
 No of Bids 2 Low 94K High 100K  
 Gov't Estimate 61K No of Amendments 0  
 Constructibility Review Yes  No

B. Contract

Award Amount 94K Bid Position Low

C. Changes

Number of Changes 2 Rate 0%  
 Type Customer Requested Unforeseen Conditions \_\_\_ Admin 1  
 Delays 1 Design Error or Omission Other \_\_\_\_\_  
 Field Changes 4

D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 7 Clarifications Warnings \_\_\_ Problems 1

E. Architect/ Engineer

Field Visits 0 Discrepancies Noted

F. Payments

Disagreement on amounts 2 out of 6 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 6 out of 6 invoices Wage Violations None

H. Schedule

Type Bar Chart Completed On-Time

I. Daily Reports

Frequency of Non-conformance 0 out of 21 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 1 out of 21 Reports Rate 5%

**J. Quality Control**

QA Checklist Reports 1 Discrepancies Noted None

**K. Compliance Notices**

Number 0 Description

**L. Disputes**

Number 0 Description

**M. Submittals**

Number rejected 0 Rate

**N. Closeout**

Final Inspection Punchlist Length 17 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 3 1/2 months later

**O. Other**

Time of year performed December 1990 - March 1991

Special constraints Work hours Access Phasing \_\_\_\_\_

Type of Surety Corporate Bond  Individual Other \_\_\_\_\_

**P. Comments**

A/E received "excellent" evaluation by Public Works and "above average" by ROICC Nice complete submittal log



## CONTRACT FILE CHECKLIST

Contract No / Title 90-4814, Modification to Overhead Cranes, AIMD  
 Contractor HECO Pacific Manufacturing, Inc Designer Bangor Public Works  
 AROICC/CA LT Zulick Inspector Ron Martin  
 Quality Rating ROICC Med PWD High

A. Pre-award

Contract Type HB converted to RFP, FFP  
 No of Bids 1 Low 175K High  
 Gov't Estimate 93K No of Amendments 3  
 Constructibility Review Yes X No

B. Contract

Award Amount 73K Bid Position Negotiated

C. Changes

Number of Changes 4 Rate 2.5%  
 Type Customer Requested Unforeseen Conditions 1 Admin 1  
 Delays Design Error or Omission Other 2  
 Field Changes 0

D. Correspondence

Tone Cooperative X Adversarial  
 Type Routine 4 Clarifications 3 Warnings Problems 4

E. Architect/Engineer

Field Visits 0 Discrepancies Noted

F. Payments

Disagreement on amounts 0 out of 1 invoices  
 Paid on time All Price Schedule is Field Measurable N/A

G. Payrolls

Submitted on Time 1 out of 1 invoices Wage Violations None

H. Schedule

Type Bal Chart Completed 1 week later

I. Daily Reports

Frequency of Non-conformance 0 out of 0 Reports Rate 0%  
 Tone Cooperative Adversarial  
 Instructions to Contractor 0 out of 0 Reports Rate 0%

J. Quality Control

QA Checklist Reports 1 Discrepancies Noted None

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 1 Rate 8%

N. Closeout

Final Inspection Punchlist Length 0

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed March - May 1991

Special constraints Work hours Access Phasing \_\_\_\_\_

Type of Surety Corporate Bond  Individual Other \_\_\_\_\_

P. Comments

Only 1 bid received, scope reduced to one crane vice four during negotiation with the contractor. Contractor removed crane to California to rehab then returned and reinstalled.

## CONTRACT FILE CHECKLIST

Contract No / Title 89-5707, Modifications to Building 135

Contractor American Geometrics Designer In-House

AROICC/CA LT Van De Voorde Inspector Ron Martin

Quality Rating ROICC Med PWD Low

### A. Pre-award

Contract Type LFP Small Purchase

No of Bids 3 Low 15K High 25K

Gov't Estimate 19K No of Amendments 0

Constructibility Review Yes  No

### B. Contract

Award Amount 15K Bid Position Low

### C. Changes

Number of Changes 1 Rate 15%

Type Customer Requested 1 Unforeseen Conditions \_\_\_ Admin \_\_\_

Delays Design Error or Omission Other \_\_\_

Field Changes 0

### D. Correspondence

Tone Cooperative  Adversarial

Type Routine 1 Clarifications Warnings Problems \_\_\_

### E. Architect/ Engineer

Field Visits 0 Discrepancies Noted

### F. Payments

Disagreement on amounts 0 out of 4 invoices

Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 4 out of 4 invoices Wage Violations 0

### H. Schedule

Type Bar Chart Completed 6 weeks early

### I. Daily Reports

Frequency of Non-conformance 0 out of 0 Reports Rate %

Tone Cooperative Adversarial

Instructions to Contractor 0 out of 0 Reports Rate %

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 2 Rate 50%

N. Closeout

Final Inspection Punchlist Length None

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 7 months later

O. Other

Time of year performed October 1989 - March 1990

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond Individual Other Not required

P. Comments

Contractor's progress on job was slow Poor workmanship noted on floor coverings and cove base No quality control plan required No daily reports required.

## CONTRACT FILE CHECKLIST

Contract No / Title 89-1175, Repairs to Building 13  
 Contractor Triax Pacific, Inc Designer Tsang Partnership  
 AROICC/CA ENS Cook Inspector David Wright, ENS Cook, Terry Armstrong  
 Quality Rating ROICC Low PWD Low

### A. Pre-award

Contract Type FFP  
 No of Bids 5 Low 1370K High 4784K  
 Gov't Estimate 1348K No of Amendments 2  
 Constructibility Review Yes  No

### B. Contract

Award Amount 1370K Bid Position Low

### C. Changes

Number of Changes 9 Rate 18%  
 Type Customer Requested 2 Unforeseen Conditions 4 Admin 3  
 Delays Design Error or Omission Other \_\_\_  
 Field Changes 13

### D. Correspondence

Tone Cooperative Adversarial  (By Triax)  
 Type Routine 9 Clarifications 33 Warnings Problems \_\_\_

### E. Architect/ Engineer

Field Visits 6 Discrepancies Noted Approximately 10 per visit

### F. Payments

Disagreement on amounts 1 out of 13 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 12 out of 13 invoices Wage Violations 0

### H. Schedule

Type Bar Chart Completed On Time

### I. Daily Reports

Frequency of Non-conformance 4 out of 278 Reports Rate 1.4%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 1 out of 278 Reports Rate .4%

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted

K. Compliance Notices

Number 0 Description

L. Disputes

Number 1 Description Adjustment of \$218K for erroneous bid from roofing subcontractor, denied

M. Submittals

Number resubmitted 12 Rate 25%

N. Closeout

Final Inspection Punchlist Length 23 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed January - October 1990, June - July 1991 for exterior painting

Special constraints Work hours Access Phasing \_\_\_\_

Type of Surety Corporate Bond  Individual Other \_\_\_\_

P. Comments

A/E site visits revealed poor workmanship and items not to specifications.

Correspondence had 43 handwritten pages on pre-final punchlist. Numerous letters from contractor claiming delays due to differing site conditions, only about 25% were valid.

Late Daily Reports to Inspector. Contractor fined for illegal disposal of asbestos and prefilter on personal monitoring device to falsify readings.

## CONTRACT FILE CHECKLIST

Contract No / Title 89-1132, Repairs to Steam Condensate System  
 Contractor J. P. Francis & Associates Designer Van Gulick/Oliver  
 AROICC Lt Van De Voorde CA D J Powell Inspector D. J. Powell  
 Quality Rating ROICC High PWD Med

### A. Pre-award

Contract Type FFP  
 No of Bids 7 Low 938K High 1781K  
 Gov't Estimate 1361K No of Amendments 1  
 Constructibility Review Yes  No

### B. Contract

Award Amount 938K Bid Position Low

### C. Changes

Number of Changes 8 Rate 26%  
 Type Customer Requested 1 Unforeseen Conditions 3 Admin 1  
 Delays 1 Design Error or Omission 2 Other \_\_\_\_  
 Field Changes 2

### D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 5 Clarifications 3 Warnings Problems \_\_\_\_

### E. Architect/Engineer

Field Visits 10 Discrepancies Noted None

### F. Payments

Disagreement on amounts 6 out of 15 invoices (2 were math errors)  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 13 out of 15 invoices Wage Violations None

### H. Schedule

Type Bar Chart Completed On-Time

### I. Daily Reports

Frequency of Non-conformance 0 out of 480 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 0 out of 480 Reports Rate 0%

J. Quality Control

QA Checklist Reports 21 Discrepancies Noted No welders certification,  
felt wrap on piping was needed

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 10 Rate 17%

N. Closeout

Final Inspection Punchlist Length 37 items  
Customer Present at Final Inspection Yes  
Release of Claims Received Yes, timely

O. Other

Time of year performed April 1990 - May 1991  
Special constraints Work hours Access Phasing \_\_\_\_  
Type of Surety Corporate Bond Individual Other \_\_\_\_

P. Comments

*Almost no correspondence between ROICC and Contractor. Most  
correspondence was between ROICC and station coordinating and advertising work to be  
done. ME rated above average on evaluation. Superintendent on the ball per daily  
reports. Lots of progress photos taken by Contract Administrator. Customer requested  
change order of \$198K accounted for high change order rate. Nice complete submittal  
log*



## CONTRACT FILE CHECKLIST

Contract No / Title 89-1130, Repairs to Mess Hall Steam System  
 Contractor J. P. Francis & Associates Designer Bouillon, Christofferson, Schairer  
 AROICC/CA D. J. Powell Inspector Terry Armstrong  
 Quality Rating ROICC High PWD Med

A. Pre-award

Contract Type FFP  
 No of Bids Low 259K High 540K  
 Gov't Estimate 272K No of Amendments 2  
 Constructibility Review Yes  No

B. Contract

Award Amount 259K Bid Position Low

C. Changes

Number of Changes 2 Rate 3/6%  
 Type Customer Requested 1 Unforeseen Conditions \_\_\_ Admin 1  
 Delays Design Error or Omission Other \_\_\_  
 Field Changes 1

D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 2 Clarifications 3 Warnings Problems \_\_\_

E. Architect/ Engineer

Field Visits 2 Discrepancies Noted None

F. Payments

Disagreement on amounts 0 out of 6 invoices  
 Paid on time 5 of 6 Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 6 out of 6 invoices Wage Violations 0

H. Schedule

Type Bar Chart Completed 4 months early

I. Daily Reports

Frequency of Non-conformance 0 out of 121 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 0 out of 121 Reports Rate 0%

J. Quality Control

QA Checklist Reports 1 Discrepancies Noted None

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 0 Rate

N. Closeout

Final Inspection Punchlist Length 3 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed Septemer 1989 - January 1990

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual Other \_\_\_\_\_

P. Comments

Lack of maintenance work by Public Works impaired contractor's ability to efficiently perform his work, i.e., leaky steam pipes to be insulated and corroded steam traps. Presence of asbestos prevented Public Works from completing repairs. Contract scope should have included leak repairs and pipe-fitting replacement.

## CONTRACT FILE CHECKLIST

Contract No / Title 89-D026, Ault Field Sewage Plant Modifications  
 Contractor Quantum Construction, Inc Designer Reid Middleton, Inc.  
 AROICC LT Zulick CA R K Loken Inspector Terry Armstrong  
 Quality Rating ROICC High PWD High

### A. Pre-award

Contract Type FFP  
 No of Bids 6 Low 149K High 290K  
 Gov't Estimate 248K No of Amendments 1  
 Constructibility Review Yes  No

### B. Contract

Award Amount 149K Bid Position low

### C. Changes

Number of Changes 2 Rate % 0  
 Type Customer Requested \_\_\_\_\_ Unforeseen Conditions \_\_\_ Admin 1  
 Delays 1 Design Error or Omission \_\_\_\_\_ Other \_\_\_\_\_  
 Field Changes 2

### D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 2 Clarifications 9 Warnings \_\_\_\_\_ Problems \_\_\_\_\_

### E. Architect/ Engineer

Field Visits 1 Discrepancies Noted

### F. Payments

Disagreement on amounts 1 out of 5 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 4 out of 5 invoices Wage Violations None

### H. Schedule

Type Bar Chart Completed On-Time

### I. Daily Reports

Frequency of Non-conformance 1 out of 33 Reports Rate 3%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 2 out of 33 Reports Rate 6%

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 0 Rate

N. Closeout

Final Inspection Punchlist Length 3 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed March - May 1991

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual Other

P. Comments

Very little correspondence, mainly required letters and some minor clarifications on justified delays from weather and suppliers. A/E evaluations were "average" and "below average" for ROICC and Public Works respectively. ROICC said project was delayed due to A/E dealing directly with material supplier. Public Works disliked A/E switching project managers three times and giving project a low priority.

## CONTRACT FILE CHECKLIST

Contract No. / Title 89-D021, Repairs & Improvements to BEQ 11  
 Contractor P&L General Contractors, Inc Designer Gabbert, Browelett, Peterson  
 AROICC LTJG Barton CA D J Powell Inspector D J Powell  
 Quality Rating ROICC High PWD Med

### A. Pre-award

Contract Type FFP  
 No. of Bids 10 Low 455K High 610K  
 Gov't Estimate 602K No. of Amendments 5  
 Constructibility Review Yes  No

### B. Contract

Award Amount 455K Bid Position Low

### C. Changes

Number of Changes 7 Rate 23%  
 Type Customer Requested 1 Unforeseen Conditions 3 Admin 2  
 Delays Design Error or Omission 1 Other  
 Field Changes 5

### D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 8 Clarifications 2 Warnings Problems 5

### E. Architect/ Engineer

Field Visits 11 Discrepancies Noted None

### F. Payments

Disagreement on amounts 1 out of 13 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 9 out of 13 invoices Wage Violations 1

### H. Schedule

Type Bar Chart Completed 2 months early

### I. Daily Reports

Frequency of Non-conformance 0 out of 304 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 0 out of 304 Reports Rate 0%

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 8 Rate 7%

N. Closeout

Final Inspection Punchlist Length

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 8 months later

O. Other

Time of year performed July 1990 - April 1991

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual Other

P. Comments

Customer requested change for \$88K accounted for high change order rate. Correspondence dealt with concerns over roof system meeting specifications and manufacturer's warranty requirements, roof flashing was blown loose in wind storm; and problems with payrolls. A/E evaluation "above average" rating by ROICC. Daily Reports thorough. Contract Administrator took many progress photos. Nice complete submittal log.

## CONTRACT FILE CHECKLIST

Contract No / Title 89-D020, Repairs & Improvements to BEQ 8  
 Contractor P&L General Contractor, Inc Designer Gabbert, Browelett, Peterson  
 AROICC CA D J Powell Inspector D J Powell, Terry Armstrong (in  
 beginning) and Dave Wright (sometimes)  
 Quality Rating ROICC High PWD Med

### A. Pre-award

Contract Type FFP  
 No of Bids 10 Low 497K High 641K  
 Gov't Estimate 638K No of Amendments 5  
 Constructibility Review Yes  No

### B. Contract

Award Amount 499 Bid Position 2nd low

### C. Changes

Number of Changes 4 Rate 3%  
 Type Customer Requested Unforeseen Conditions 2 Admin 1  
 Delays Design Error or Omission 1 Other  
 Field Changes 4

### D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 8 Clarifications 2 Warnings Problems 4

### E. Architect/ Engineer

Field Visits 11 Discrepancies Noted None

### F. Payments

Disagreement on amounts 1 out of 13 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 9 out of 13 invoices Wage Violations None

### H. Schedule

Type Bar Chart Completed 3 weeks early

### I. Daily Reports

Frequency of Non-conformance 0 out of 342 Reports Rate 0%  
 Tone Cooperative  Adversarial

Instructions to Contractor 0 out of 342 Reports Rate 0%

**J. Quality Control**

QA Checklist Reports 2 Discrepancies Noted None

**K. Compliance Notices**

Number 0 Description

**L. Disputes**

Number 0 Description

**M. Submittals**

Number rejected 9 Rate 8%

**N. Closeout**

Final Inspection Punchlist Length 8 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

**O. Other**

Time of year performed July 1990 - April 1991

Special constraints Work hours Access Phasing \_\_\_\_\_

Type of Surety Corporate Bond  Individual \_\_\_\_\_ Other \_\_\_\_\_

**P. Comments**

*A/E evaluation "above average" by ROICC Correspondence same as for 89-D021 - roof and labor payroll problems Thorough daily reports, lots of project photos. Nice complete submittal log*



## CONTRACT FILE CHECKLIST

Contract No. / Title 88-81-11, Replace High Risk PCB Transformers  
 Contractor Webb Electric Co Designer Public Works  
 AROICC LT Van De Voorde CA R K Loken Inspector Ron Martin  
 Quality Rating ROICC Low PWD Low

### A. Pre-award

Contract Type JFP  
 No. of Bids 5 Low 220.3K High 357.9K  
 Gov't Estimate 400.1K No. of Amendments 0  
 Constructibility Review Yes  No

### B. Contract

Award Amount 220.3K Bid Position Low

### C. Changes

Number of Changes 7 Rate 9%  
 Type Customer Requested Unforeseen Conditions 1 Admin 2  
 Delays Design Error or Omission 3 Other    Claim 1  
 Field Changes 3

### D. Correspondence

Tone Cooperative Adversarial   
 Type Routine 8 Clarifications 6 Warnings Problems 13

### E. Architect/ Engineer

Field Visits N/A Discrepancies Noted

### F. Payments

Disagreement on amounts 3 out of 8 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 7 out of 8 invoices Wage Violations None

### H. Schedule

Type Bar Chart Completed On-Time

### I. Daily Reports

Frequency of Non-conformance 1 out of 62 Reports Rate 1.6%  
 Tone Cooperative Adversarial   
 Instructions to Contractor 7 out of 62 Reports Rate 11%

J. Quality Control

QA Checklist Reports 4 Discrepancies Noted Contractor inspection plan  
documentation

K. Compliance Notices

Number 0 Description

L. Disputes

Number 2 Description Additional electrical work, Unforeseen conditions  
and government delays

M. Submittals

Number rejected 1 Rate

N. Closeout

Final Inspection Punchlist Length 3 items concerning patching grass

Customer Present at Final Inspection Yes

Release of Claims Received Conditional based on unresolved Claim #2

O. Other

Time of year performed February - April 1991

Special constraints Work hours  Access  Phasing

Type of Surety Corporate Bond  Individual  Other

P. Comments

Designed in-house Numerous correspondence on unforeseen conditions and government delays asserted by Contractor Documented poor communication between Superintendent James Webb and ROICC Inspector Ron Martin Final inspection was 31 May, yet daily reports stopped on 9 April Close coordination required for outages necessary to remove and/or replace transformers Length of outages was specified in the contract Outages did not go smoothly, rescheduled numerous times Appears Contractor did not review contract well and was not organized Asserted many unsubstantiated claims for additional money and time Contractor's superintendent felt inspector was telling him how to do his job while inspector felt superintendent was unwilling to share his reasoning for his actions

## CONTRACT FILE CHECKLIST

Contract No / Title 88-8135, Fuel Tank Cleaning & Storage Pad  
 Contractor Diamaco, Inc Designer Reid Middleton, Inc.  
 AROICC/CA Ron Martin Inspector Ron Martin  
 Quality Rating ROICC Low PWD Med

A. Pre-award

Contract Type FFP  
 No of Bids 3 Low 81K High 98K  
 Gov't Estimate 88K No of Amendments 1  
 Constructibility Review Yes  No

B. Contract

Award Amount 81K Bid Position Low

C. Changes

Number of Changes 2 Rate 9%  
 Type Customer Requested Unforseen Conditions \_\_\_ Admin \_\_\_  
 Delays Design Error or Omission 1 Other \_\_\_  
 Field Changes 0

D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 2 Clarifications Warnings 3 Problems \_\_\_

E. Architect/ Engineer

Field Visits 3 Discrepancies Noted 0 (design problems discussed)

F. Payments

Disagreement on amounts 2 out of 5 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 4 out of 5 invoices Wage Violations None

H. Schedule

Type Bar Chart Completed On-Time

I. Daily Reports

Frequency of Non-conformance 0 out of 23 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 2 out of 23 Reports Rate 9%

**J. Quality Control**

QA Checklist Reports = 0 Discrepancies Noted

**K. Compliance Notices**

Number = 0 Description

**L. Disputes**

Number = 0 Description

**M. Submittals**

Number rejected = 5 Rate = 30%

**N. Closout**

Final Inspection Punchlist Length = 8 items

Customer Present at Final Inspection = Yes

Release of Claims Received = Yes, 4 months later

**O. Other**

Time of year performed = July - December 1990

Special constraints = Work hours = Access = Phasing =

Type of Surety = Corporate Bond =  Individual = Other =

**P. Comments**

Daily Reports not submitted until after job completed Contractor progressed slowly, neglecting administrative matters

## CONTRACT FILE CHECKLIST

Contract No / Title\_ 88-8134, Repair Floor Hangar 7  
 Contractor Floorpro, Inc Designer Tsang Architects  
 AROICC/CA ENS Cook Inspector Rick Ragan  
 Quality Rating ROICC Med PWD High

### A. Pre-award

Contract Type LLP  
 No of Bids 8 Low 23K High 89K  
 Gov't Estimate 72K No of Amendments 1  
 Constructibility Review Yes No X

### B. Contract

Award Amount 23K Bid Position Low

### C. Changes

Number of Changes 0 Rate 0%  
 Type Customer Requested Unforeseen Conditions Admin  
 Delays Design Error or Omission Other  
 Field Changes 0

### D. Correspondence

Tone Cooperative X Adversarial  
 Type Routine 7 Clarifications Warnings Problems 1

### E. Architect/ Engineer

Field Visits 0 Discrepancies Noted

### F. Payments

Disagreement on amounts 0 out of 1 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 1 out of 1 invoices Wage Violations 0

### H. Schedule

Type None Completed On time

### I. Daily Reports

Frequency of Non-conformance 0 out of 0 Reports Rate %  
 Tone Cooperative X Adversarial  
 Instructions to Contractor 0 out of 0 Reports Rate %

**J. Quality Control**

QA Checklist Reports 0 Discrepancies Noted

**K. Compliance Notices**

Number 0 Description

**L. Disputes**

Number 0 Description

**M. Submittals**

Number rejected 0 Rate

**N. Closeout**

Final Inspection Punchlist Length None

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

**O. Other**

Time of year performed September - October 1989

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond Individual Other Not required

**P. Comments**

## CONTRACT FILE CHECKLIST

Contract No / Title 88-8133, Paint Hangar Bay 7 Interior  
 Contractor Diamaco, Inc Designer Tsang Architects  
 AROICC/CA ENS Cook Inspector Rick Ragan  
 Quality Rating ROICC Med PWD High

A. Pre-award

Contract Type FFP  
 No of Bids 24 Low 39K High 326K  
 Gov't Estimate 112K No of Amendments 0  
 Constructibility Review Yes  No

B. Contract

Award Amount 75K Bid Position 3rd low

C. Changes

Number of Changes 0 Rate 0%  
 Type Customer Requested \_\_\_\_\_ Unforeseen Conditions \_\_\_\_\_ Admin \_\_\_\_\_  
 Delays \_\_\_\_\_ Design Error or Omission \_\_\_\_\_ Other \_\_\_\_\_  
 Field Changes 1

D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 1 Clarifications 1 Warnings \_\_\_\_\_ Problems \_\_\_\_\_

E. Architect/ Engineer

Field Visits 0 Discrepancies Noted

F. Payments

Disagreement on amounts 0 out of 5 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 5 out of 5 invoices Wage Violations 0

H. Schedule

Type Bar Chart Completed 6 weeks early

I. Daily Reports

Frequency of Non-conformance 0 out of 53 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 0 out of 53 Reports Rate 0%

**J. Quality Control**

QA Checklist Reports Discrepancies Noted

**K. Compliance Notices**

Number 0 Description

**L. Disputes**

Number 0 Description

**M. Submittals**

Number rejected 0 Rate

**N. Closeout**

Final Inspection Punchlist Length 5 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

**O. Other**

Time of year performed April - May 1989

Special constraints Work hours Access Phasing .....

Type of Surety Corporate Bond  Individual Other .....**P. Comments**



## CONTRACT FILE CHECKLIST

Contract No / Title 88-8125, Replace Lighting System Building 369  
 Contractor Mountain States Mechanical Designer blunt, Hamm & Urquhart Engineers  
 AROICC/CA LT Sweet Inspector Jim Quinn  
 Quality Rating ROICC Med PWD High

### A. Pre-award

Contract Type FFP  
 No of Bids 11 Low 45K High 79K  
 Gov't Estimate 76K No of Amendments 2  
 Constructibility Review Yes  No

### B. Contract

Award Amount 45K Bid Position Low

### C. Changes

Number of Changes 1 Rate 0%  
 Type Customer Requested  Unforeseen Conditions  Admin   
 Delays 1 Design Error or Omission  Other   
 Field Changes 2

### D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 8 Clarifications Warnings Problems 2

### E. Architect/ Engineer

Field Visits 0 Discrepancies Noted

### F. Payments

Disagreement on amounts 0 out of 2 invoices  
 Paid on time All Price Schedule is Field Measurable

### G. Payrolls

Submitted on Time 2 out of 2 invoices Wage Violations 0

### H. Schedule

Type Bar Chart Completed On Time

### I. Daily Reports

Frequency of Non-conformance 0 out of 10 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 0 out of 10 Reports Rate 0%

J. Quality Control

QA Checklist Reports = 0 Discrepancies Noted

K. Compliance Notices

Number = 0 Description

L. Disputes

Number = 0 Description

M. Submittals

Number rejected = 0 Rate

N. Closeout

Final Inspection Punchlist Length = 6 items

Customer Present at Final Inspection = Yes

Release of Claims Received = Yes, timely

O. Other

Time of year performed = March 1989

Special constraints = Work hours \_\_\_\_\_ Access \_\_\_\_\_ Phasing \_\_\_\_\_

Type of Surety = Corporate Bond \_\_\_\_\_ X Individual \_\_\_\_\_ Other \_\_\_\_\_

P. Comments

Problems discussed in correspondence file included slow progress and overhead lighting not meeting specifications

## CONTRACT FILE CHECKLIST

Contract No. / Title\_88-5727, Install Dishwashers, Capehart  
 Contractor Coyote Corp Designer Decker/Fukui  
 AROICC/CA ENS Barton Inspector David Wright  
 Quality Rating ROICC High Housing High

A. Pre-award

Contract Type IIP  
 No of Bids 14 Low 429K High 988K  
 Gov't Estimate 677K No of Amendments 3  
 Constructibility Review Yes  No

B. Contract

Award Amount 429K Bid Position Low

C. Changes

Number of Changes 2 Rate 2%  
 Type Customer Requested Unforeseen Conditions 1 Admin 1  
 Delays Design Error or Omission Other \_\_\_  
 Field Changes 2

D. Correspondence

Tone Cooperative Adversarial  
 Type Routine 3 Clarifications 12 Warnings Problems \_\_\_

E. Architect/ Engineer

Field Visits 0 Discrepancies Noted

F. Payments

Disagreement on amounts 0 out of 8 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 8 out of 8 invoices Wage Violations None

H. Schedule

Type List Completed 5 weeks early

I. Daily Reports

Frequency of Non-conformance 0 out of 153 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 1 out of 153 Reports Rate .7%

J. Quality Control

QA Checklist Reports 1 Discrepancies Noted None

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 0 Rate

N. Closeout

Final Inspection Punchlist Length No documentation

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed December 1990 - May 1991

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual Other

P. Comments

ME rated "above average" by ROICC - very expedient on submittals and answers to verbal inquiries. Contractor recommended for Certificate of Commendation.

## CONTRACT FILE CHECKLIST

Contract No / Title 88-5717, Weatherization of Building 410 & 2642  
 Contractor American Construction & Energy Designer Gabbert, Broweleit, & Peterson  
 AROICC CA D J Powell Inspector Terry Armstrong  
 Quality Rating ROICC Med PWD High

### A. Pre-award

Contract Type FFP  
 No of Bids 2 Low 62K High 89K  
 Gov't Estimate 159K No of Amendments 1  
 Constructibility Review Yes  No

### B. Contract

Award Amount 62K Bid Position Low

### C. Changes

Number of Changes 2 Rate 19%  
 Type Customer Requested Unforeseen Conditions \_\_\_ Admin \_\_\_  
 Delays Design Error or Omission Other \_2  
 Field Changes 2

### D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 2 Clarifications 4 Warnings \_\_\_ Problems \_\_\_

### E. Architect/ Engineer

Field Visits 1 Discrepancies Noted 0

### F. Payments

Disagreement on amounts 1 out of 4 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 4 out of 4 invoices Wage Violations \_0

### H. Schedule

Type Bar Chart Completed 2 weeks early

### I. Daily Reports

Frequency of Non-conformance 0 out of 24 Reports Rate \_0%  
 Tone Cooperative  Adversarial \_\_\_  
 Instructions to Contractor 1 out of 24 Reports Rate 04%

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 1 Rate 14%

N. Closeout

Final Inspection Punchlist Length 4 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed December 1988 - February 1989

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual Other

P. Comments

Substituted type of hangar door seals because of easier installation plus added door seals in various places. A/E was rushed to do design. Reason for changes was a criteria change. Contractor was bad about communicating his work plans to the inspector in advance.

## CONTRACT FILE CHECKLIST

Contract No / Title 88-5699, Aircraft Parking Apron  
 Contractor D. A. Zuluaga, Inc Designer Seiffert & Forbes  
 AROICC LT Van De Vonde CA D J Powell Inspector Ron Martin  
 Quality Rating ROICC High PWD High

### A. Pre-award

Contract Type SBA Set-Aside, FPP Negotiated  
 No. of Bids None  
 Gov't Estimate 1944 No. of Amendments 3  
 Constructibility Review Yes

### B. Contract

Award Amount Bid Position 2243K

### C. Changes

Number of Changes 8 Rate 2.7%  
 Type Customer Requested 3 Unforeseen Conditions 3 Admin 1  
 Delays 0 Design Error or Omission 1 Other 0  
 Field Changes 8

### D. Correspondence

Tone Cooperative X Adversarial  
 Type Routine 6 Clarifications 17 Warnings 0 Problems 1

### E. Architect/ Engineer

Field Visits 11 Discrepancies Noted 10-15 minor items during each visit

### F. Payments

Disagreement on amounts 2 out of 9 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 9 out of 9 invoices Wage Violations 0

### H. Schedule

Type Bar Chart Completed On Time

### I. Daily Reports

Frequency of Non-conformance 3 out of 240 Reports Rate 1.3%  
 Tone Cooperative X Adversarial  
 Instructions to Contractor 8 out of 240 Reports Rate 3.3%

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted 0

K. Compliance Notices

Number 0 Description

L. Disputes

Number 1 Description Piping bid did not meet specs, denied

M. Submittals

Number rejected 0 Rate

N. Closeout

Final Inspection Punchlist Length 3 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 6 months later

O. Other

Time of year performed Mar 89 - Nov 1989

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual  Other

P. Comments

Daily reports thorough and typewritten



## CONTRACT FILE CHECKLIST

Contract No / Title 88-4839, Paint Exterior Housing Units  
 Contractor Yuns Painting Co Designer Stafford Architects  
 AROICC CA R K Loken Inspector Ron Martin  
 Quality Rating ROICC High Housing High

### A. Pre-award

Contract Type FFP  
 No. of Bids 3 Low 289K High 497.4k  
 Gov't Estimate 518K No. of Amendments 0  
 Constructibility Review Yes  No

### B. Contract

Award Amount 289K Bid Position Low

### C. Changes

Number of Changes 6 Rate 36%  
 Type Customer Requested 1 Unforeseen Conditions 1 Admin 2  
 Delays 1 Design Error or Omission 1 Other  
 Field Changes 1

### D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 2 Clarifications 3 Warnings Problems

### E. Architect/Engineer

Field Visits 0 Discrepancies Noted

### F. Payments

Disagreement on amounts 2 out of 10 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 10 out of 10 invoices Wage Violations None noted

### H. Schedule

Type Bar Completed 3 weeks early

### I. Daily Reports

Frequency of Non-Conformance 1 out of 148 Reports Rate 7%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 6 out of 148 Reports Rate 4%

Quality Control

QA Checklist Reports 0 Discrepancies Noted None Noted

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 4 Rate See Comment

N. Closeout

Final Inspection Punchlist Length 1 Item

Customer Present at Final Inspection Yes

Release of Claims Received Yes, timely

O. Other

Time of year performed Jan-Sep 90

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond X Individual Other

P. Comments

No safety plan on file Overspray on a few cars Submittal file incomplete; only 1,2,4,10,11 present KTR rated satisfactory on evaluation Work seemed as good as contract 90-4838, except job may not have been as visible since it wasn't officer housing. High change order rate due to adding additional houses to contract.

## CONTRACT FILE CHECKLIST

Contract No. / Title\_88-4372, 71 OPQ (Civil)

Contractor D. A. Zuluaga Construction Designer Tonkin/Koch Architects

AROICC/CA\_D.J. Powell Inspector Jim Quinn

Quality Rating ROICC High Housing Med

A. Pre-award

Contract Type FFP

No of Bids 6 Low 205K High 233K

Gov't Estimate 183K No of Amendments 2

Constructibility Review Yes  No

B. Contract

Award Amount 205K Bid Position Low

C. Changes

Number of Changes 5 Rate 16%

Type Customer Requested Unforeseen Conditions 3 Admin \_\_\_

Delays 1 Design Error or Omission 1 Other \_\_\_

Field Changes 0

D. Correspondence

Tone Cooperative  Adversarial

Type Routine 4 Clarifications 1 Warnings \_\_\_ Problems \_\_\_

E. Architect/ Engineer

Field Visits 2 Discrepancies Noted None

F. Payments

Disagreement on amounts 1 out of 8 invoices

Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 8 out of 8 invoices Wage Violations None

H. Schedule

Type Bar Chart Completed On Time

I. Daily Reports

Frequency of Non-conformance 0 out of 220 Reports Rate 0%

Tone Cooperative  Adversarial

Instructions to Contractor 5 out of 220 Reports Rate 2.3%

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 1 Rate 7%

N. Closeout

Final Inspection Punchlist Length 14 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 6 months later

O. Other

Time of year performed November 1988 - June 1989

Special constraints Work hours Access Phasing \_\_\_

Type of Surety Corporate Bond X Individual \_\_\_ Other \_\_\_

P. Comments

Civilian off-base housing Rehab of curbs, sidewalks and lighting.

## CONTRACT FILE CHECKLIST

Contract No. / Title 87-7645, Build Commissary  
 Contractor Eldred & Essex Designer ARA Architects  
 AROICC/CA ENS Cook Inspector Jim Quinn, ENS Cook  
 Quality Rating ROICC High PWD High

### A. Pre-award

Contract Type Design Build, FFP  
 No. of Bids N/A Low High  
 Gov't Estimate N/A No. of Amendments  
 Constructibility Review Yes No

### B. Contract

Award Amount 4632K Bid Position N/A

### C. Changes

Number of Changes 11 Rate 1%  
 Type Customer Requested 6 Unforeseen Conditions 1 Admin 4  
 Delays Design Error or Omission Other  
 Field Changes 4

### D. Correspondence

Tone Cooperative Adversarial  
 Type Routine 8 Clarifications Warnings Problems

### E. Architect/ Engineer

Field Visits N/A Discrepancies Noted

### F. Payments

Disagreement on amounts 5 out of 15 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 11 out of 15 invoices Wage Violations 1

### H. Schedule

Type Bar Chart Completed 1 month early

### I. Daily Reports

Frequency of Non-conformance 7 out of 353 Reports Rate 2%  
 Tone Cooperative X Adversarial  
 Instructions to Contractor 9 out of 353 Reports Rate 2.6%

**J. Quality Control**

QA Checklist Reports 0 Discrepancies Noted

**K. Compliance Notices**

Number 0 Description

**L. Disputes**

Number 0 Description

**M. Submittals**

Number rejected 0 Rate

**N. Closeout**

Final Inspection Punchlist Length 9 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 3 months later

**O. Other**

Time of year performed June 1989 - June 1990

Special constraints Work hours Access Phasing \_\_\_\_\_

Type of Surety Corporate Bond X Individual \_\_\_\_\_ Other \_\_\_\_\_

**P. Comments**

CQC job All but 2 of Daily Reports to Inspector problems were safety related.

## CONTRACT FILE CHECKLIST

Contract No / Title 87-7569, Location Navy Exchange  
 Contractor Eberhaster & Gaunt, Inc. Designer Jan H. Kaier  
 AROICC/CA LT Van De Voorde/ LTJG Zulick Inspector Lloyd Reiman/David Wright  
 Quality Rating ROICC High PWD High

A. Pre-award

Contract Type FFP, Restricted Bidders List  
 No of Bids 6 Low 1914K High 2115K  
 Gov't Estimate 1700K No of Amendments 3  
 Constructibility Review Yes  No

B. Contract

Award Amount 1914K Bid Position Low

C. Changes

Number of Changes 21 Rate 4%  
 Type Customer Requested 7 Unforeseen Conditions 1 Admin 5  
 Delays \_\_\_ Design Error or Omission 6 Other 2 -  
Credit for deficient flooring and adjustment for less piles driven  
 Field Changes 7

D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 12 Clarifications 49 Warnings \_\_\_ Problems 11

E. Architect/ Engineer

Field Visits 10 Discrepancies Noted 95 (combination of A/E & ROICC  
 input)

F. Payments

Disagreement on amounts 8 out of 15 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 9 out of 15 invoices Wage Violations None

H. Schedule

Type Bar Chart Completed 3 months early

I. Daily Reports

Frequency of Non-conformance 2 out of 252 Reports Rate 8%

Tone: Cooperative  Adversarial

Instructions to Contractor: 11 out of 252 Reports Rate 4.4%

J. Quality Control

QA Checklist Reports: 21 Discrepancies Noted: 11 - soil compaction, roof damage, administrative items

K. Compliance Notices

Number: 1 Description: Foreign fasteners for gypboard

L. Disputes

Number: 1 Description: Additional temperature controls for ventilation for #2, denied

M. Submittals

Number rejected: 3 Rate: 4%

N. Closeout

Final Inspection Punchlist Length: 95 items

Customer Present at Final Inspection: Yes

Release of Claims Received: Yes, 1 year later

O. Other

Time of year performed: February 1990 - January 1991

Special constraints: Work hours Access Phasing \_\_\_

Type of Surety: Corporate Bond  Individual Other \_\_\_

P. Comments

A/E evaluation "above average" by ROICC - responsive during construction and clear design except for a few mechanical problems. Difficulty getting punch list completed in a timely manner



## CONTRACT FILE CHECKLIST

Contract No / Title: 87-7567, Enlisted Club Addition at Navaires  
 Contractor: P&L General Contractor Designer: Johnson Braund Design Group  
 AROCC: LT Van De Voorde CA: R. K. Loken Inspector: Terry Armstrong  
 Quality Rating: ROICC High PWD High

### A. Pre-award

Contract Type: FFP, Restricted Bidders List  
 No of Bids: 2 Low: 1685K High: 2083K  
 Gov't Estimate: 1468K No. of Amendments: 2  
 Constructibility Review: Yes No

### B. Contract

Award Amount: 1685K Bid Position: Low

### C. Changes

Number of Changes: 29 Rate: 3.6%  
 Type: Customer Requested: 6, Unforeseen Conditions: 3, Admin: 3  
 Delays: 1, Design Error or Omission: 14, Other: 2, Phasing  
 change and structural engineer on site for beam removal  
 Field Changes: 4

### D. Correspondence

Tone: Cooperative  Adversarial  
 Type: Routine: 12 Clarifications: 5 Warnings: 0 Problems: 1

### E. Architect/ Engineer

Field Visits: 11 Discrepancies Noted: 27 minor items

### F. Payments

Disagreement on amounts: 6 out of 16 invoices  
 Paid on time: All Price Schedule is Field Measurable: Yes

### G. Payrolls

Submitted on Time: 13 out of 16 invoices Wage Violations: 3

### H. Schedule

Type: Bar Chart Completed: On Time

### I. Daily Reports

Frequency of Non-conformance: 1 out of 381 Reports Rate: 3%  
 Tone: Cooperative  Adversarial

Instructions to Contractor 2 out of 381 Reports Rate 5%

J. Quality Control

QA Checklist Reports 4 Discrepancies Noted 8 - documentation, safety violations, roof and piping details

K. Compliance Notices

Number 1 Description Ponding on sidewalk

L. Disputes

Number 0 Description

M. Submittals

Number rejected 2 Rate 3%

N. Closeout

Final Inspection Punchlist Length

Customer Present at Final Inspection 43 items, Phases A, B & C

Release of Claims Received Yes, ten months later

O. Other

Time of year performed Nov 89 - Nov 90

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual  Other

P. Comments

Very little correspondence for a job of the size - 13 letters to P&L of which only one was a problem (non-compliance notice)

## CONTRACT FILE CHECKLIST

Contract No / Title 87-6637, Repairs to Building 117  
 Contractor The Westec Co Designer Stafford Architects  
 AROICC/CA ENS Barton Inspector George Pate, ENS Barton, Ron Martin  
 Quality Rating ROICC Med PWD High

A. Pre-award

Contract Type FFP  
 No of Bids 5 Low 454K High 1030K  
 Gov't Estimate 502K No of Amendments 3  
 Constructibility Review Yes  No

B. Contract

Award Amount 454K Bid Position Low

C. Changes

Number of Changes 11 Rate 1%  
 Type Customer Requested 2 Unforeseen Conditions \_\_\_ Admin 4  
 Delays Design Error or Omission 3 Other \_\_\_  
 Field Changes 3

D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 7 Clarifications 25 Warnings \_\_\_ Problems 2

E. Architect/ Engineer

Field Visits 4 Discrepancies Noted problem with air-handling unit,  
 lighting and finish on gym floor

F. Payments

Disagreement on amounts 8 out of 13 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 9 out of 13 invoices Wage Violations None

H. Schedule

Type Bar Chart Completed On Time

I. Daily Reports

Frequency of Non-conformance 0 out of 311 Reports Rate 0%  
 Tone Cooperative  Adversarial

Instructions to Contractor 9 out of 311 Reports. Rate 3%

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted

K. Compliance Notices

Number 0 Description

L. Disputes

Number 1 Description

M. Submittals

Number rejected 7 Rate No Submittal Log

N. Closeout

Final Inspection Punchlist Length 14 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 7 months later

O. Other

Time of year performed September 1989 - September 1990

Special constraints Work hours      Access      Phasing     

Type of Surety Corporate Bond  Individual  Other

P. Comments

## CONTRACT FILE CHECKLIST

Contract No. / Title 86-0332, Wholesite Repairs & Improvements to 11 Farmhouses  
 Contractor P & L General Contractor Designer Tonkin/Koch Architects  
 AROICC/CA ENS Barton Inspector Rick Ragen/ENS Barton  
 Quality Rating: ROICC High Housing Med

A. Pre-award

Contract Type FFP  
 No of Bids 3 Low 682K High 1129K  
 Gov't Estimate 600K No of Amendments 1  
 Constructibility Review Yes  No

B. Contract

Award Amount 682K Bid Position Low

C. Changes

Number of Changes 25 Rate 6.5%  
 Type Customer Requested 4 Unforeseen Conditions 11 Admin 4  
 Delays Design Error or Omission 6 Other \_\_\_  
 Field Changes 3

D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine  Clarifications Warnings \_\_\_ Problems \_\_\_

E. Architect/ Engineer

Field Visits 4 Discrepancies Noted 40 items, all minor in nature

F. Payments

Disagreement on amounts 0 out of 15 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 15 out of 15 invoices Wage Violations 0

H. Schedule

Type Bar Chart Completed 9 weeks early

I. Daily Repotts

Frequency of Non-conformance 0 out of 356 Reports Rate 0%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 0 out of 356 Reports Rate 0%

J. Quality Control

QA Checklist Reports  Discrepancies Noted Better documentation on  
daily reports to Inspector

K. Compliance Notices

Number 0 Description

L. Disputes

Number 0 Description

M. Submittals

Number rejected 2 Rate No Submittal Log

N. Closeout

Final Inspection Punchlist Length Approximately 10 times at each quarters

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 4 months later

O. Other

Time of year performed January 1990 - January 1991

Special constraints Work hours Access Phasing X

Type of Surety Corporate Bond X Individual Other ---

P. Comments

Each set of quarters had its own start and finish dates

## CONTRACT FILE CHECKLIST

Contract No. / Title 86-0171, Flight Simulator & System Training Building Addition  
 Contractor Lugo Construction Designer WJA Architects & Planners  
 AROICC \_\_\_\_\_ CA T O Lenda Inspector George Pate  
 Quality Rating ROICC Low PWD Low

### A. Pre-award

Contract Type FFP  
 No of Bids 6 Low 4253K High 5490K  
 Gov't Estimate 3800K No of Amendments 5  
 Constructibility Review Yes X No \_\_\_\_\_

### B. Contract

Award Amount 4253K Bid Position Low

### C. Changes

Number of Changes 37 Rate 3.8%  
 Type Customer Requested 3 Unforeseen Conditions 3 Admin 4  
 Delays 1 Design Error or Omission 23 Other 3  
 Field Changes 3

### D. Correspondence

Tone Cooperative \_\_\_\_\_ Adversarial X  
 Type Routine 14 Clarifications 167 Warnings \_\_\_\_\_ Problems 29

### E. Architect/ Engineer

Field Visits 24 Discrepancies Noted 100+

### F. Payments

Disagreement on amounts 6 out of 24 invoices  
 Paid on time Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 18 out of 24 invoices Wage Violations 1

### H. Schedule

Type CPM Completed On time

### I. Daily Reports

Frequency of Non-conformance 93 out of 442 Reports Rate 21%  
 Tone Cooperative \_\_\_\_\_ Adversarial X  
 Instructions to Contractor 22 out of 442 Reports Rate 5%

J. Quality Control

QA Checklist Reports 0 Discrepancies Noted

K. Compliance Notices

Number 16 Description Faulty compaction, concrete work, steelwork, misc.

L. Disputes

Number 1 Description Requirement for Specialized Inspection Personnel

M. Submittals

Number rejected 3 Rate 4%

N. Closeout

Final Inspection Punchlist Length 106 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 2 years later

O. Other

Time of year performed October 1988 - December 1989

Special constraints Work hours Access Phasing \_\_\_\_

Type of Surety Corporate Bond Individual  Other \_\_\_\_

P. Comments

"Other" changes included a claim payment, adjustment for indefinite quantity portion of contract for extra piping and a value engineering proposal. 38 CQC meetings held Daily report stated superintendent took offense to gov't inspector inspecting masonry block for rebar claiming the inspector did not trust the contractor's CQC representative



## CONTRACT FILE CHECKLIST

Contract No / Title 84-5064, C-9 Aircraft Maintenance Hangar  
 Contractor Davis Constructors & Engineers Designer Wurrz, Wisecarver & Pruett  
 AROICC/CA LT Van De Voorde Inspector Jim Quinn, Bernard Gresham, Bob Hoover  
 Quality Rating ROICC Low PWD High

### A. Pre-award

Contract Type FFP  
 No of Bids 7 Low 5247K High 6081K  
 Gov't Estimate 5740K No. of Amendments 1  
 Constructibility Review Yes  No

### B. Contract

Award Amount 5247K Bid Position Low

### C. Changes

Number of Changes 46 Rate 23%  
 Type Customer Requested 9 Unforeseen Conditions 19 Admin 3  
Delays Design Error or Omission 14 Other 1  
 Field Changes 95

### D. Correspondence

Tone Cooperative  Adversarial  
 Type Routine 116 Clarifications 175 Warnings Problems 19

### E. Architect/ Engineer

Field Visits File Missing Discrepancies Noted

### F. Payments

Disagreement on amounts 19 out of 30 invoices  
 Paid on time All Price Schedule is Field Measurable Yes

### G. Payrolls

Submitted on Time 30 out of 30 invoices Wage Violations

### H. Schedule

Type CPM Completed 2 weeks early

### I. Daily Reports

Frequency of Non-conformance 22 out of 702 Reports Rate 3%  
 Tone Cooperative  Adversarial  
 Instructions to Contractor 63 out of 702 Reports Rate 9%

J. Quality Control

QA Checklist Reports CQC Job Discrepancies Noted None

K. Compliance Notices

Number 12 Description Various, only log found, no details

L. Disputes

Number 4 Description Unforeseen conditions, all were settled before becoming claims

M. Submittals

Number rejected 42 Rate 9%

N. Closeout

Final Inspection Punchlist Length 143 items

Customer Present at Final Inspection Yes

Release of Claims Recieved Yes, 6 months later

O. Other

Time of year performed May 1987 - May 1989

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual  Other

P. Comments

Contractor quality was good, but he worked the ROICC staff hard with many variances and requests for equitable adjustment of which a dozen or so were unjustified.

## CONTRACT FILE CHECKLIST

Contract No. / Title 84-4258, Hospital Addition & Alterations

Contractor Pease & Sons Designer Decker/Fukui

AROICC/CA LT Spangler/LT Van De Voorde Inspector Bob Hoover, Rick Ragan,  
Bernard Gresham

Quality Rating ROICC High PWD High

A. Pre-award

Contract Type FFP

No of Bids 11 Low 13,512 High 14,700

Gov't Estimate 13,963 No of Amendments 3

Constructibility Review Yes  No

B. Contract

Award Amount 13,512 Bid Position 2nd Low

C. Changes

Number of Changes 142 Rate 7.7%

Type Customer Requested 64 Unforeseen Conditions 12 Admin 1

Delays Design 1 Error or Omission 62 Other 1 Claim 1

Field Changes 85

D. Correspondence

Tone Cooperative  Adversarial

Type Routine 241 Clarifications 368 Warnings \_\_\_ Problems 87

E. Architect/Engineer

Field Visits 61 Discrepancies Noted Various, most minor

F. Payments

Disagreement on amounts 20 out of 40 invoices

Paid on time All Price Schedule is Field Measurable Yes

G. Payrolls

Submitted on Time 7 out of 40 invoices Wage Violations 4

H. Schedule

Type CPM Completed On time

I. Daily Reports

Frequency of Non-conformance 6 out of 1163 Reports Rate 5%

Tone Cooperative  Adversarial

Instructions to Contractor 46 out of 1163 Reports Rate 4%

J. Quality Control

QA Checklist Reports 0 (CQC) Discrepancies Noted

K. Compliance Notices

Number 0 Description

L. Disputes

Number 1 Description Extra CQC Personnel settled by DRB

M. Submittals

Number rejected 325 Rate 19%

N. Closeout

Final Inspection Punchlist Length 2300 items

Customer Present at Final Inspection Yes

Release of Claims Received Yes, 6 months later

O. Other

Time of year performed April 1988 - June 1991

Special constraints Work hours Access Phasing

Type of Surety Corporate Bond  Individual Other

P. Comments

## Glossary Of Terms

A/E - Architect/Engineer; design firm hired to prepare project construction plans, specifications and cost estimates

AROICC - Assistant Resident Officer in Charge of Construction; Naval Officer contract administrator

CA - Contract Administrator; civilian

CQC - Contractor Quality Control; Contractor approves submittals and inspects own work. Specified system on contracts over \$500,000.

FFP - Firm Fixed Price construction contract(usually sealed bid)

ROICC - Resident Officer in Charge of Construction; Navy organization responsible for review and administration of construction contracts for naval installations.

SBA - Small Business Administration; represents disadvantaged and women owned business concerns on selected government construction contracts.