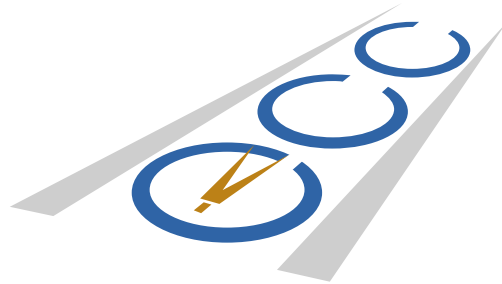


**Engineering & Construction Contracting
Association
Issue Buster Series
Study Profile Summary Report**

*Issue Buster #1
"Getting What You Paid For"*



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ISSUE BUSTER #1
“GETTING WHAT YOU PAID FOR”
STUDY PROFILE SUMMARY REPORT

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1. EXECUTIVE SUMMARY

The vision and mission of the **Engineering and Construction Contracting Association (ECC)** is to **promote thought leadership** and **create value** for the Process, Industrial and related industries through its Annual Conferences. In pursuit of this goal, in 2003-2004 the ECC Board implemented an **“Issue Buster”** program initiative which is intended to be an ongoing annual activity to study selective, important industry issues and/or challenges and present the results of these studies at subsequent Annual Conferences.

During an interesting and energetic “Getting Beyond Agreeing to Disagree” Point/Counter-Point session at the 2002 ECC Conference, several important and long-term industry issues were debated. Prominent among these was a segment devoted to “Getting What You Paid For.” The “Getting What You Paid For” issue was characterized as follows.

“Owners want the Contractor’s “A-Team” but Contractors are having trouble retaining highly qualified employees with their lean margins. Are Owners willing to pay for the best and will they get their money’s worth?”

This issue stimulated considerable interest at both the 2002 and 2003 Conferences, which ultimately led to it being identified as one of the three topics selected for study during the “launch” of the ECC Board’s new Issue Buster program in 2003-2004. The Board requested that Issue Buster #1 (IB#1) – “Getting What You Paid For” – be addressed by the two primary Point/Counter-Point debaters, William Smith (former Senior Vice President, Eli Lilly and Company) and Craig Martin (President, Jacobs Engineering), assisted by Louis Cabano (President, Pathfinder, LLC). This group will hereinafter be referred to as the Issue Buster #1 Team (IBT#1).

Recognizing that the “Getting What You Paid For” issue has been an industry enigma for years and a matter which tends to get bogged down in unquantified generalities and platitudes, IBT#1 attempted to dimensionalize the value of the “A-Team” contributions, albeit in an “order of magnitude” manner, and then test the Owner’s attitude toward paying more to realize these potential benefits. On the basis of this strategy, IBT#1 set out the following primary objectives for this study:

- 1. Frame out the “order of magnitude” value-added potential perceived by industry leaders if Contractor “A-Teams” are used to develop and execute Owner capital projects.**
- 2. Ascertain if “A-Teams” are recognized by Owners and Contractors.**
- 3. Assess whether Owners are willing to pay more for the Contractor’s “A-Team” and if so, approximately how much and under what requisite conditions.**

Recognizing that one of the principal reasons IB#1 has been debated but not resolved for so many years, is the fact that collecting accurate, comparable data to precisely quantify the benefits of a Contractor’s “A-Team” performance is extremely difficult, if not impossible in any practical, cost-effective and statistically precise manner. Consequently, it was decided to approach this quantification objective by asking recognized and experienced industry leaders, primarily from Owner and Contractor ECC Conference attendees, for their experienced judgment in this regard. Realizing that this approach is certainly less precise and convincing than the more desirable hard, statistically sound, quantified data gathering approach, the IBT#1

understood that only significant or overwhelming consensus perceptions could be used to help resolve this matter.

IBT#1 study results indicate that:

- **There is a clear, quantitatively framed and recognized cost incentive for using and paying for the Contractor's "A-Team"**
 - ~50% of both the Owner and Contractor communities perceive that there is a 10% TIC value (~75% see 5% or more)
 - Clearly both Owners and Contractors recognize significant "A-Team" benefits

- **The "A-Team" is recognized in the Contractor's proposal and in the associated Contract but to different degrees by Owners and Contractors**
 - 20% of Owners believe that they recognize "A-Team" quality 100% of the time, while an additional 60% believe that they recognize it 75% of the time.
 - Contractors, on the other hand, tend to believe that most Owners only recognize "A-Team" quality 25-50% of the time.
 - Obviously there is an apparent disparity in perception.

- **Owners responded favorably to payment of reasonable premiums for improved performance by Contractor's "A-Team"**
 - Owners appear inclined to consider premium payments for "A-Team" stimulated improved performance if delivered.
 - Most favored a 5-10% premium range.

We now have some general dimensions as to the impact of the Contractor's "A-Team" and see that it is very significant, potentially offering an Owner an approximate 4 to 8 fold return on their added investment for the "A-Team." It certainly appears that this is a performance improvement opportunity which simply cannot be left unmined. Clearly the next step must be to investigate, design and implement contract development techniques and execution models which provide the basis for mutual benefit from this golden opportunity.

Findings with regard to other tangentially relevant matters are included in the Observation notes included at the close of each of the topical area descriptions presented in Subsections 4.1 through 4.7.

As a result of this Study effort, IBT#1 recommends that, subject to collective agreement of the ECC Conference participants and the ECC Board, a follow-on activity be undertaken to design a full contracting model for Reimbursable Contract services that allows Contractors to receive premium rates for "A-Team" personnel, *if* their efforts result in superior Contractor performance that more than offsets the Owner's additional service costs. This could be done by a new Issue Buster initiative, by a separately supported group of industry leaders or by a commercial firm experienced in such matters. If such a contracting model can be formulated and adopted by the industry, it certainly should motivate Contractors to engage and develop even more highly skilled personnel and Owners to willingly pay higher service rates if they realize the bottom line benefits of the superior performance.

2. BACKGROUND AND OBJECTIVES

2.1 ECC Issue Buster Program

The vision and mission of the Engineering and Construction Contracting Association (ECC) is to **promote thought leadership** and **create value** for the Process, Industrial and related industries through its Annual Conferences. In pursuit of this goal, in 2003-2004 the ECC Board implemented an “Issue Buster” program initiative to study selective, important industry issues and/or challenges and present the results of these studies at subsequent Annual Conferences. The primary goal of the Issue Buster program is to provide Conference attendees with continuing, substantive, value-added takeaway concepts or solutions to these vital industry issues. This program was intended to help move beyond the traditional annual re-hashing of such important matters without any perceivable progress toward a successful resolution.

2.2 Issue Buster #1

During an interesting and energetic “Getting Beyond Agreeing to Disagree” Point/Counter-Point session at the 2002 ECC Conference, several important and long-term industry issues were debated. Prominent among these was a segment devoted to “Getting What You Paid For” which was moderated by Ed Merrow (President, IPA) and debated by prominent industry representatives:

- William Smith, III (former Senior Vice President, Eli Lilly and Company)
- Craig Martin (President, Jacobs Engineering)

The “Getting What You Paid For” issue was characterized as follows.

“Owners want the Contractor’s “A-Team” but Contractors are having trouble retaining highly qualified employees with their lean margins. Are Owners willing to pay for the best and will they get their money’s worth?”

This issue stimulated considerable interest at the 2002 Conference, the full extent of which became even more evident during separate Post-Panel discussions that year. Interest continued at the 2003 Conference, which ultimately led to this issue being identified as one of the three topics selected for study during the “launch” of the ECC Board’s new Issue Buster program in 2003-2004. The Board requested that Issue Buster #1 (IB#1) – “Getting What You Paid For” be addressed by the two primary Point/Counter-Point debaters, William Smith and Craig Martin, assisted by Louis Cabano (President, Pathfinder, LLC). This group will hereinafter be referred to as the Issue Buster #1 Team (IBT#1).

2.3 Study Objectives

Recognizing that the “Getting What You Paid For” issue has been an industry enigma for years and a matter which tends to get bogged down in unquantified generalities and platitudes, IBT#1 attempted to dimensionalize the value of the “A-Team” contributions, albeit in an “order of magnitude” manner, and then test the Owner’s attitude toward paying more to realize these potential benefits. On the basis of this strategy, IBT#1 set out the following primary objectives for this study:

1. **Frame out the “order of magnitude” value-added potential perceived by industry leaders if Contractor “A-Teams” are used to develop and execute Owner capital projects.**
2. **Ascertain if “A-Teams” are recognized by Owners and Contractors.**
3. **Assess whether Owners are willing to pay more for the Contractor’s “A-Team” and if so, approximately how much and under what requisite conditions.**

IBT#1 took this opportunity to collect additional information from Owner and Contractor industry leaders on a number of related matters. These related matters are tangentially relevant but not necessarily strictly germane to these three primary study objectives listed above.

This Study Profile Summary Report (ECC IBS #001) is intended to provide interested Process, Industrial and related industry ECC Conference attendees/practitioners with an overview of the background, approach, findings, conclusions and recommendations of the ECC Study Team effort to help move this important issue forward toward an improved participant performance environment and mutual bottom line benefit.

IBT#1 does not represent itself or its team members to be professional opinion data collectors or statisticians. This Study as well as its findings, conclusions and recommendations are presented on a “best efforts” basis. An independent third party firm was asked to confirm the objectivity of the Study. They characterize “the survey approach taken as a valid way to gather opinions and information from a group such as the ECC and that the information collected can be used as an indicator of ECC membership views on the “A-Team” issue and provide a baseline for taking remedial actions.”

3. APPROACH AND METHODOLOGY

3.1 Data Collection

At the inception of this Study, IBT#1 confirmed that there was no single accepted industry-wide definition of the “A-Team.” The IBT#1 acknowledged this but concluded that while various industry leader definitions would vary somewhat, they would not vary widely enough to seriously affect the Study’s conclusions. Therefore, IBT#1 decided to allow each Study participant to use their own perceptions in responding to Study inquiries. IBT#1 concluded that trying to force a new, precise definition on the Study participants would probably generate more confusion than clarification.

However, for consistency among IBT#1 members, the Team aligned around the following “A-Team” concept/definition:

The “A-Team” is a select combination of Contractor Project Team personnel assembled with the specific expectation that this group:

- Can perform an exceptionally challenging specific task with an above average probability of success, or
- Has a high probability that it will perform its intended task in a “better than average” manner
- Usually based on past individual and/or group performance results

Recognizing that one of the principal reasons IB#1 has been debated but not resolved for so many years, is the fact that collecting accurate, comparable data to precisely quantify the benefits of a Contractor's "A-Team" performance is extremely difficult, if not impossible in any practical, cost-effective and statistically precise manner. Consequently, it was decided to approach this quantification objective by asking recognized and experienced industry leaders, primarily from Owner and Contractor ECC Conference attendees, for their experienced judgment in this regard. Realizing that this approach is certainly less precise and convincing than the more desirable hard, statistically sound, quantified data gathering approach, the IBT#1 understood that only significant or overwhelming consensus perceptions from among this group could be used to help resolve this matter.

On this premise, IBT#1 developed and applied separate exploratory questionnaires for the Owner and Contractor communities. The Owner survey questionnaires contained 20 questions, while the Contractor survey questionnaires contained 17 questions. A number of questions were similar on both questionnaires, but posed from opposite sides of the table. Copies of sample questionnaires can be reviewed upon request.

Appropriate survey questionnaires were submitted to a "best efforts" balanced, cross-section of primarily ECC Conference attendee industry leaders. Survey participants were asked to assume a "Competitive Reimbursable" contracting situation when responding to all questions, unless otherwise directed.

3.2 Response Profile

The IB#1 survey effort can be profiled as follows:

- Issued 109 surveys
- 90 received by addressees
- 30 responded – 33%
- 19 Owner responses - represent feedback from 15 separate Owner companies (Oil & Gas, Petrochemical, Chemical, Pharmaceutical, Pipeline)
- 11 Contractor responses - represent feedback from 11 separate Contractor companies
- Included both domestic and international companies

1 Supplier and 1 Consultant also completed surveys but their input was not included in the results due to limited population representation.

3.3 Analysis and Summarization

Survey responses were separately reviewed and summarized by IBT#1 as well as the independent third party Advisor. IBT#1 analyzed the feedback information and prepared the following Study results, again with follow-on oversight assistance, comments and presentation suggestions by IBT#1's independent Advisor.

4. FINDINGS AND CONCLUSIONS

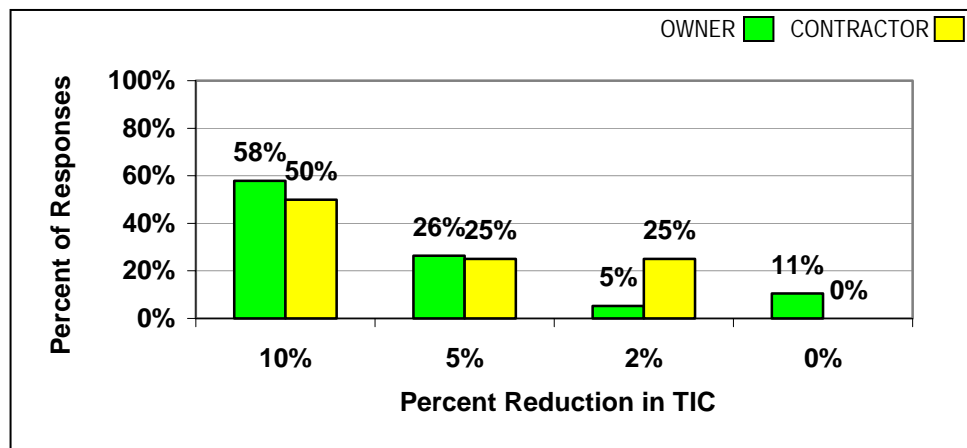
Survey results were aligned by relevance to each of the following principal focal points/building blocks of the Study:

1. Quantify benefit of "A-Team"
2. How is "A-Team" characterized?
3. Are "A-Team" needs expressed in Owner's inquiry?
4. Is "A-Team" recognized in Contractor's proposal & final contract?
5. Owner approach to Contractor bid evaluation
6. Owner's willingness to pay for "A-Team" staffing/performance
7. Contractor staffing considerations

Study results are presented in the following subsections in accordance with this topical alignment and, for the most part, the format used in the slide show presentation made at the 2004 ECC Conference in Colorado Springs, Colorado on 29 October 2004.

4.1 Quantify Benefit of "A-Team"

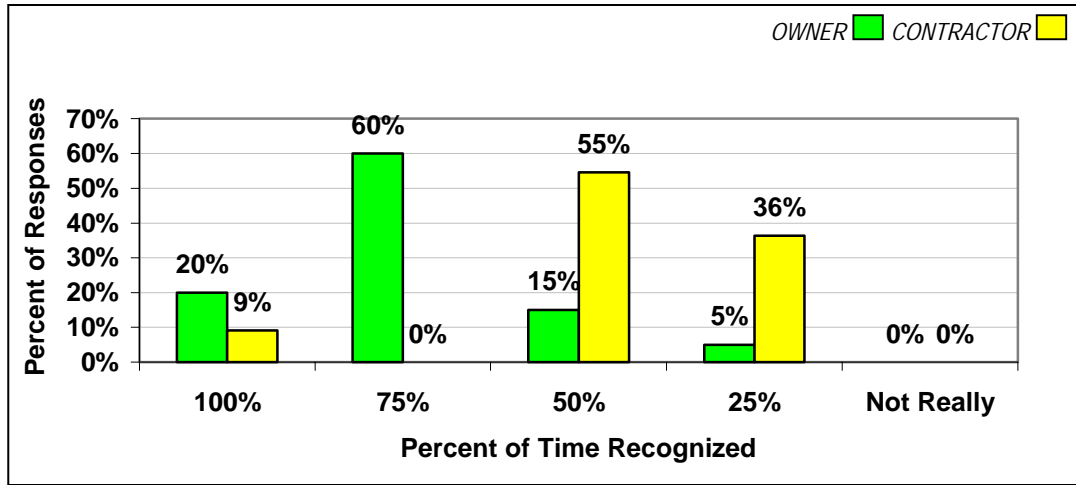
4.1.1 Contractor "A-Team" Impact on TIC



OBSERVATION:

- ~50% of both Owner & Contractor community perceive 10% TIC value.
~75% see 5% or more.
- Clearly both Owners & Contractors recognize significant "A-Team" benefits.

4.1.2 Owner Recognition - from Owner & Contractor Perspectives




OBSERVATIONS:


- 20% of Owners believe that they recognize "A-Team" quality 100% of time, while additional 60% believe that they recognize it 75% of time
- Contractors, on the other hand, tend to believe that most Owners only recognize "A-Team" quality 25-50% of time
- We have an apparent disparity in perception!

4.2 How is "A-Team" Characterized?

4.2.1 Owner "A-Team" Evaluation Characteristics

Importance 	Proven Winner
	Experience with similar work
	Owner's previous experience with individual
	Technical knowledge in their field
	Experience with proposing Contractor
	Education, expertise & professional overall career experience/accomplishments
	Contractor's characterization
	Reference checks
	Salary, position & grade

4.2.2 Owner "A-Team" Evaluation Methodology

Importance 	Personal interviews
	Resumes
	Reference checks
	Matching to Owner pre-established criteria
	Contractor's proposal

OBSERVATIONS:

- *Owners appear to rely more on direct interviews rather than Contractor representations*
 - *Owners prefer "proven winners" with whom they have previous experience*
-

4.3 Are "A-Team" Needs Expressed in Owner's Inquiry?


4.3.1 Owner Perspective

- Owner Demand for "A-Team"
 - One-third of Owners expect "A-Team" on all projects
- Definition of Staffing Quality Requirements
 - 80% of Owners feel they adequately define Contractor staffing quality requirements in most of their inquiries
 - ~15% believe they provide adequate definition 100% of the time

OBSERVATIONS:

- *Most Owners believe they are adequately defining Contractor staffing quality requirements during their contract development stages.*

4.3.2 Contractor Perspective - Assignment of Best Personnel


Priority 	Turnkey Lump Sum
	EPC Competitive Lump Sum
	Negotiated Lump Sum
	Reimbursable with Incentive
	Target Price
	Reimbursable

OBSERVATIONS:

- *Contractors assigned best personnel to projects where their financial exposure/interests are most significant*

4.3.3 Contractor Perspective


Contractors constitute their proposed project teams based on:

Importance 	Type of contract
	Owner's stated requirements
	Project's technical scope
	Experience of personnel
	Project size
	Experience with Owner
	Personnel capability
	Personnel availability
	Cost per manhour

OBSERVATIONS:

- *Beyond type of contract considerations, Contractors focus on the Owner & scope requirements.*

4.3.4 Contractor Perspective – Specific Personnel Selection Criteria

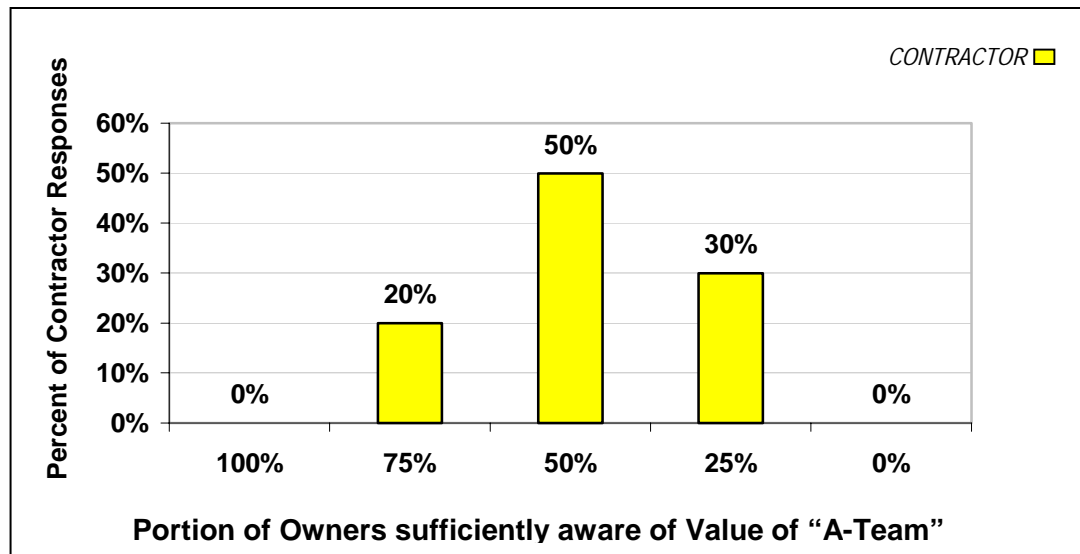
Importance 	Sustained history of high quality performance
	History of similar projects
	Creativity and cost effective innovation
	Client impressions and feedback
	Compatibility with client
	Discipline supervisors evaluation
	Annual/periodic performance reviews
	Salary grade

OBSERVATIONS:

- Contractors look first for those who have “walked the walk” successfully

4.4 Is “A-Team” Recognized in Contractor’s Proposal and Final Contract?

4.4.1 Contractor Perspective of Owner’s Recognition of Value of Contractor’s “A-Team”



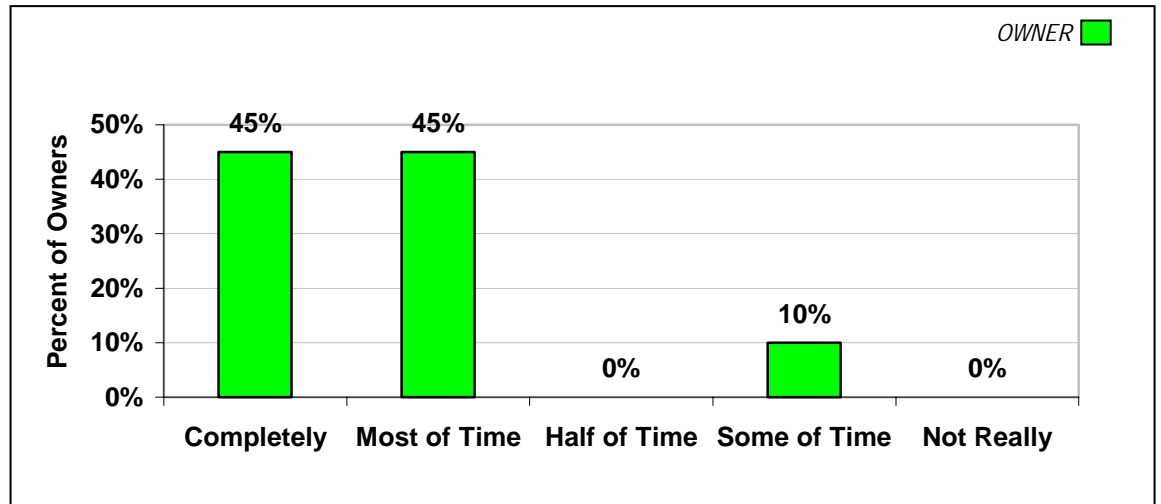
OBSERVATIONS:

- Contractors do not appear confident Owner population uniformly recognize “A-Team” benefits

4.4.2 Special Contractor Measures to Ensure "A-Team" Recognition

Importance ↑	Dedicate section of proposal to "A-Team's" fit for purpose
	Carefully customize resumes for each specific project situation

4.4.3 Owner Carefully Evaluates Quality of Contractor Personnel



OBSERVATIONS:

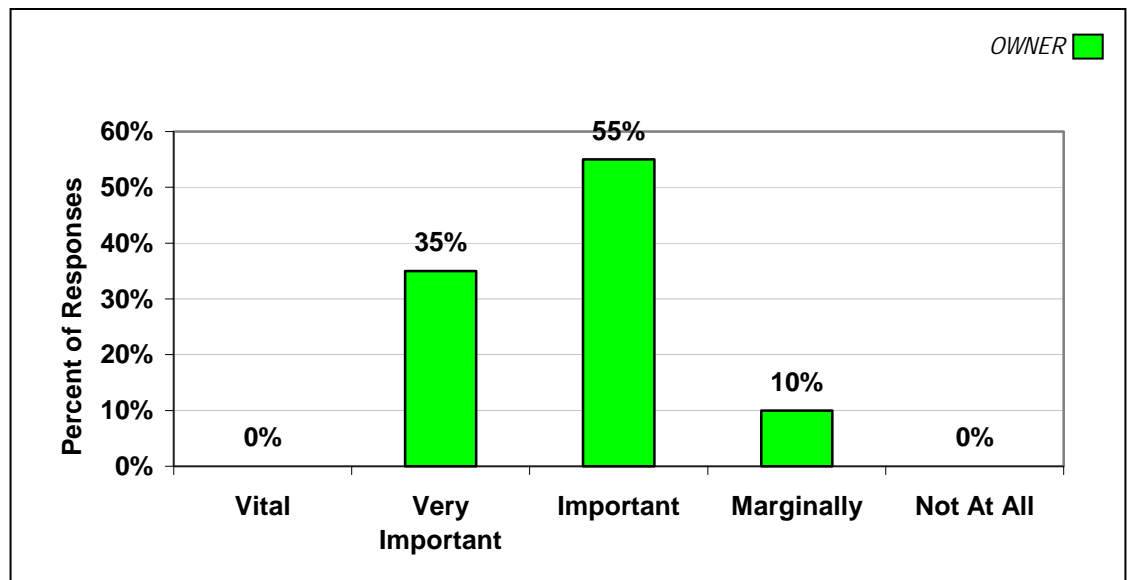
- Most Owners believe that they recognize and actively evaluate Contractor's proposed "A-Team" personnel

4.5 Owner Approach to Contractor Bid Evaluation

4.5.1 Evaluation Criteria

- ~70% of Owners use “normalized hours” to estimate Contractor’s reimbursable service cost while 30% use Contractor’s estimate
- 40% of Owners believe that they always equitably weigh increased cost of “A-Team” personnel. All other Owners responded that they “sometimes” perform such weightings.
- Almost 80% of Owner population and 100% of Contractor population believe that “Reverse Auction Bidding” for professional services aggravates the bidding process. Only 5% of responding Owners feel it helps.

4.5.2 Owner Perspective of Importance of Contractor Hourly Rate and Markup

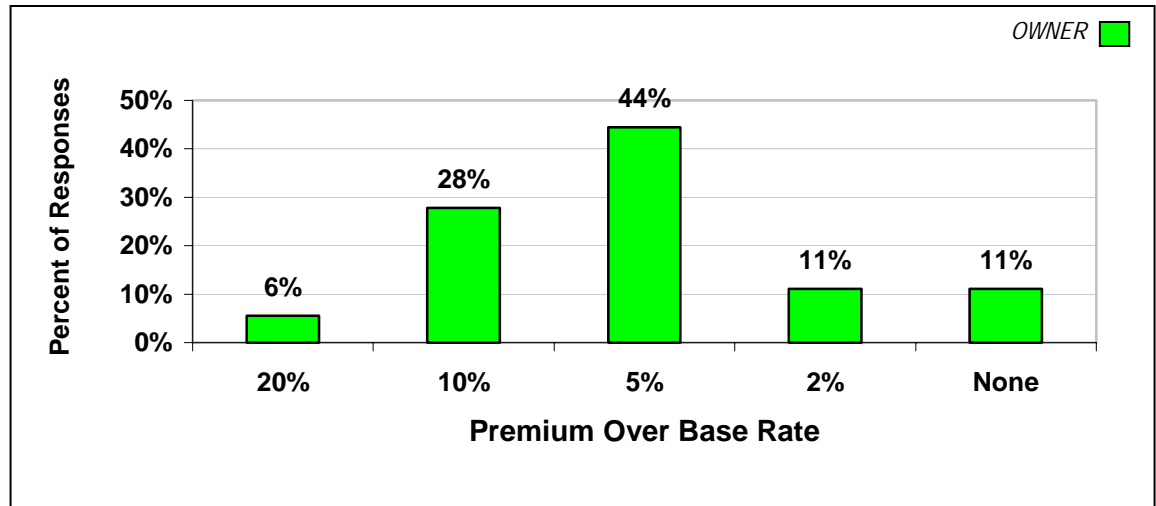


OBSERVATIONS:

- *Normalized hours tend to neutralize any "A-Team" proficiency/efficiency advantages*
- *Owner trade-off analysis between "A-Team" and increased service costs are not consistently evaluated/treated*
- *90% of Owner population believe Contractor’s hourly rates & markup are important to very important in bid evaluation*

4.6 Owner's Willingness to Pay for "A-Team" Staffing/Performance

4.6.1 Owner's Response to "Reasonable Premium for Improved Performance" by Contractor's "A-Team"



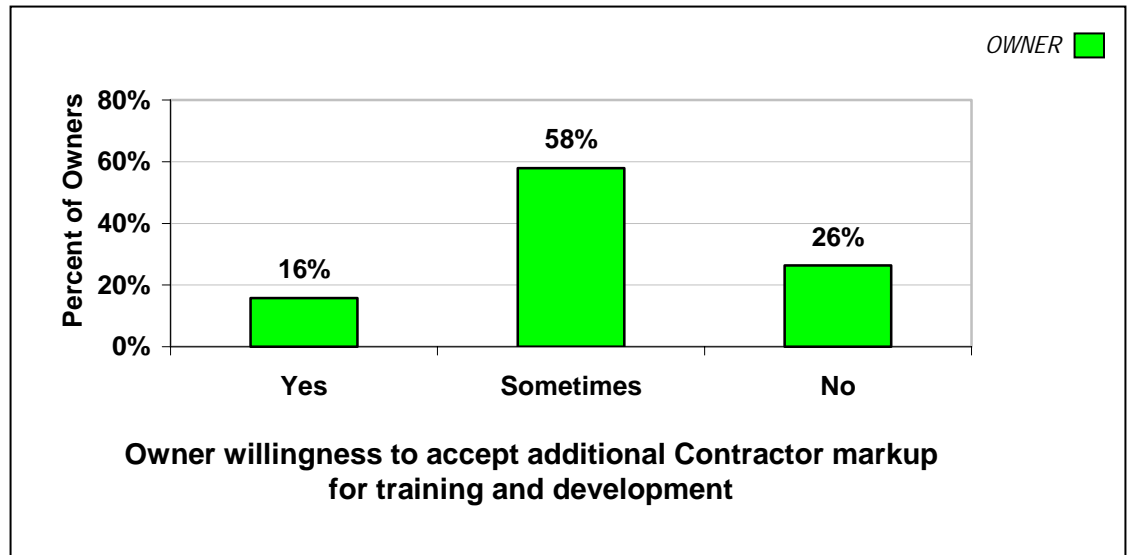
OBSERVATIONS:

- Owners appear inclined to consider premium payments for "A-Team" stimulated improved performance
- Most favored 5-10% premium range

4.6.2 Reason for Using Low Cost Engineering Centers

- ~80% of Owners believe that Contractor's use of Low Cost Engineering Centers is solely driven by average cost/hour rate considerations. 56% of Contractors have the same perception
- None of the Contractor or Owner respondents believe that use of Low Cost Engineering Centers is solely driven by engineering efficiency considerations
- Remainder of both populations believe it was a combination of average cost/hour and other considerations

4.6.3 Owner's Willingness to Support Personnel Development & Training of Contractor Personnel




OBSERVATIONS:

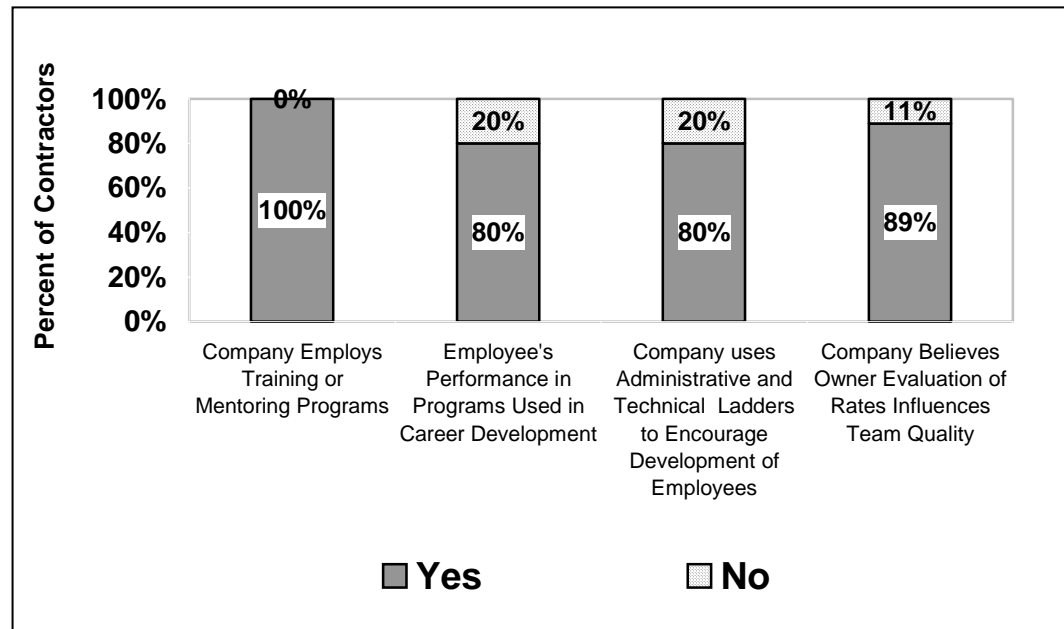
- Owner support for Contractor employee development & training seems inconsistent with industry sustainability concerns to maintain long-term competencies & capabilities

4.7 Contractor Staffing Considerations

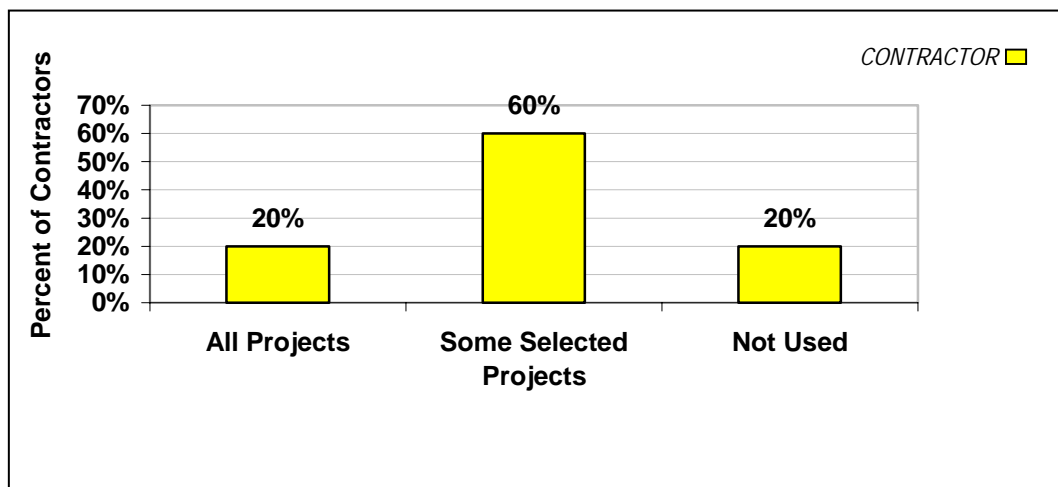
4.7.1 Ranking of Contractor Criteria for Establishing Long Term Staff

Importance 	Core Competencies
	Personnel Utilization Curves
	Billable
	Sales Forecasts
	Contract to Permanent Employee Ratio
	Termination/Hiring Costs

4.7.2 Contractor Criteria for Establishing Long Term Staff



4.7.3 Contractor's Use of Completion or Performance Bonuses to Recognize Superior Employee Performance



4.8 Summary Conclusions

IBT#1 concludes that with regard to the three primary objectives of this Study, namely:

1. **Frame out the “order of magnitude” value-added potential perceived by industry leaders if Contractor “A-Teams” are used to develop and execute Owner capital projects**
2. **Ascertain if “A-Teams” are recognized by Owners and Contractors**
3. **Assess whether Owners are willing to pay more for the Contractor’s “A-Team” and if so, approximately how much and under what requisite conditions**

...the results indicate that:

- **There is a clear, quantitatively framed and recognized cost incentive for using and paying for the Contractor’s “A-Team.”**
 - ~50% of both the Owner and Contractor communities perceive that there is a 10% TIC value (~75% see 5% or more)
 - Clearly both Owners and Contractors recognize significant “A-Team” benefits
- **The “A-Team” is recognized in the Contractor’s proposal and in the associated Contract but to different degrees by Owners and Contractors**
 - 20% of Owners believe that they recognize “A-Team” quality 100% of the time, while an additional 60% believe that they recognize it 75% of the time.
 - Contractors, on the other hand, tend to believe that most Owners only recognize “A-Team” quality 25-50% of the time.
 - Obviously there is an apparent disparity in perception
- **Owners responded favorably to payment of reasonable premiums for improved performance by Contractor’s “A-Team”**
 - Owners appear inclined to consider premium payments for “A-Team” stimulated improved performance if delivered
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We now have some general dimensions as to the impact of the Contractor’s “A-Team” and see that it is very significant, potentially offering an Owner an approximate 4 to 8 fold return on their added investment for the “A-Team.” It certainly appears that this is a performance improvement opportunity that simply cannot be left unmined. Clearly the next step must be to investigate, design and implement contract development techniques and execution models that provide the basis for mutual benefit from this golden opportunity.

Findings with regard to other tangentially relevant matters are included in the Observation notes included at the close of each of the topical area descriptions presented in Subsections 4.1 through 4.7 above.

5. RECOMMENDATIONS AND PATH FORWARD

As a result of this Study effort, IBT#1 recommends that, subject to collective agreement of the ECC Conference participants and the ECC Board, a follow-on activity be undertaken to design a full contracting model. This contracting model would be designed for Reimbursable Contract services and would allow for Contractors to receive premium rates for "A-Team" personnel, *if* their efforts result in superior Contractor performance that more than offsets the Owner's additional service costs. This could be done by a new Issue Buster initiative, by a separately supported group of industry leaders or by a commercial firm experienced in such matters.

There are a number of incentive or merit based Reimbursable Cost contracting platforms that have been used by various Owners and Contractors over the years. These should be screened and evaluated to select those that appear to have the most promise. From this group and with further study and development, a cross-functional Owner and Contractor Task Force should arrange for and direct the design of a model that most equitably and effectively captures the "A-Team" value-added benefit. The model should probably provide a cascaded fee improvement scale that is assessed on project end results. These results would be based on performance criteria established at the outset of the job and measured over the life of the project.

If such a contracting model can be formulated and adopted by the industry, it certainly should motivate Contractors to engage and develop even more highly skilled personnel and Owners to willingly pay higher service rates if they realize the bottom line benefits of the superior performance.

The questions before the house are:

- a) **Is a More In-depth Analysis Necessary?**
Do the results of this Study effort adequately establish the magnitude of the "A-Team's" value added potential, or do we need engage in a more complex and extensive industry survey to satisfy this question?
- b) **How Do We Capture and Institutionalize this "Opportunity?"**
Should the ECC Issue Buster program institute a follow-on initiative to pursue the contracting model design that would capture this opportunity, or should this be handled as a break-out initiative performed by a cross-functional group of Owner and Contractor leadership representatives or by a commercial firm experienced in such matters?
- c) **Who's Got the Ball?**
Follow-on guidance for this issue will depend on the feedback received from the participants at the 2004 ECC Conference in Colorado Springs, CO on 28-29 October 2004. The results of this feedback will be available on the ECC website by 30 November 2004. If you would like to participate in this follow-on effort, please send an email to the ECC Association (board@ecc-association.org), attention IBT#1.

On behalf of the 2003-2004 ECC Board and IBT#1, may we extend our appreciation and thanks to all those who participated in this effort. All clearly demonstrated their commitment to the continuous improvement of our industry.