The Beck Group
History, Business Discussion, and the Future

April 16, 2001

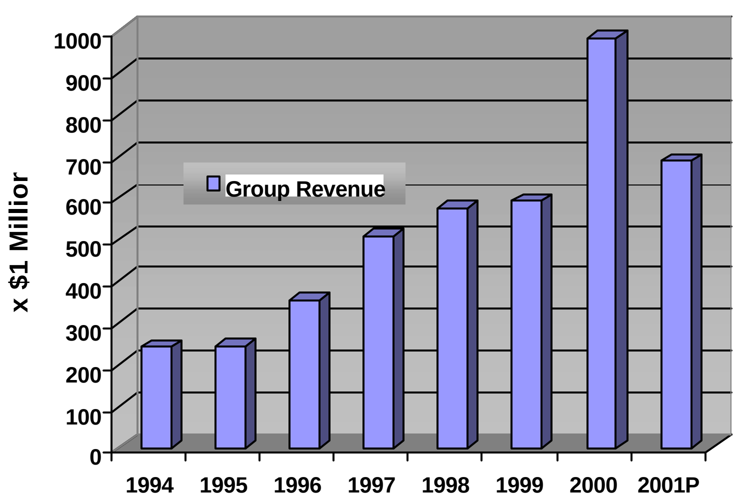
INTRODUCTION

The Beck Group consists of a family of partnerships offering development, design, construction, and project finance services in the delivery of building projects throughout the southern two-thirds of the United States. The firm maintains full service offices in Tampa, Atlanta, Dallas (headquarters), Austin, Phoenix and Los Angeles, with support offices in San Francisco, Denver, San Antonio, Houston, and Mexico City. More than 80% of our projects are negotiated with clients on a repeat basis. A growing part of our business increasingly results from “on-call” arrangements, covering a variety of projects in specific geographic areas over periods of time, with corporate/institutional users.

RECENT HISTORY

During the 1970’s and 1980’s, we delivered a majority of our services to real estate developers. While profitable during much of that period, we experienced substantial losses in the late 1980’s due to a combination of factors including:

- Much too rapid growth in volume resulting in operating weaknesses,
- Developers and financial institutions who could (or would) not fund payment on major projects despite our obligations to complete, and
- The passage of the 1986 tax law, combined with the banking crisis during the late 1980’s, which severely weakened our customer base.



In 1991, we substantially reorganized the firm and returned to profitability during the ensuing years. We significantly flattened the organization structure to become more responsive to the needs of our clients while converting our client base from developers to over 80% corporate/institutional users today. The latter has enabled us to

This business summary was provided by The Beck Group as the basis for class discussion in Massachusetts Institute of Technology course 1.961, "e-Commerce and the Internet in Design and Construction," and is intended to be used solely for that purpose. Rev 5/7/01 increase the diversity of services that we offer while minimizing the potentially negative impact of competing with developer-clients, thereby establishing the platform upon which we could begin integrating the disciplines and eliminating the inherent waste between the "silos". Over the past ten years, we have completed in excess of $4 billion of projects wherein we either integrated two or more disciplines or acted as a provider of a single discipline. Extraordinarily loyal customers combined with outstanding personnel were key factors in our survival. While the general improvement in our markets has significantly contributed to our recent success, the changes we instituted have resulted in a greater focus on customers' needs, increasingly better trained managers with an enlightened perspective, and improved operating discipline. In 2000, we successfully completed over a billion dollars in projects representing an annually compounded increase in volume in excess of 30% over the past five years.

FINANCIAL OBJECTIVES

Our financial objectives are to earn a 3.5% gross construction margin, a 15% margin on design and a 1.5% net margin overall before taxes. Development and financing margins are more transactional in nature and do not easily lend themselves to such benchmarking. Given the diverse nature of these businesses, it is difficult to come up with a combined set of meaningful metrics. However, a key management objective is to limit overhead expenses to no more than 1/3 of gross profits at the district level and a like amount at the group support level. Over the past several years, The Beck Group has generally achieved each of these objectives, part of which is clearly a function of an excellent economy.

CONSTRUCTION OPERATIONS

All pricing on major projects is performed by estimating personnel (with an average tenure in excess of 15 years) and supervised by one or more Leaders. Smaller projects (less than $750,000) are often estimated by Project Managers. Project Managers, to whom our Superintendents report, are responsible for one or more projects, depending upon their size. Average tenures with our firm range from 12 years for Superintendents to 14 years for Project Managers. Our project teams are responsible for purchasing (in conjunction with an estimator), subcontracting, scheduling, job cost, deliveries, job supervision, owner relations, commissioning, and all other activities related to the construction of a project. They are also responsible for job specific Quality Assurance Programs, our Customer Assessment Surveys, partnering (all projects), and 11-month walk-throughs.

At this time, our mix of work includes retail, entertainment, distribution, office, medical, server farms, data centers, call centers, and other specialty types. 42% of our work in 2001 was performed for corporations competing in some form of technology space…mostly telephony and digital-related businesses. Over $400 Million was performed last year through long-term contracts or “on-call” agreements (IBM, SBC Communications, AT&T, etc.). In combination with our construction management services, we expect to continue to grow our “on-call” engagements as a way of improving our risk/reward profile as well as weathering downturns. Our Los Angeles office performs mostly retail, hotel, and specialty work. Both our Atlanta and Tampa offices have recently focused on retail and office projects with the latter developing a presence, as well, in large county schools in Florida. The Texas offices engage in a wide variety of projects. In addition, we continue to augment our design/build capability for which we see promising opportunities in the future. While each area has a separate leader, personnel and marketing resources are shared in a team-based environment.

DEVELOPMENT & FINANCE OPERATIONS

In 1991, we began to successfully market our development and finance services to many of our existing construction clients. Margins for these services as well as the return per dollar invested in G&A (General & Administrative costs) are significantly better than those experienced in pure construction or design, particularly given the risks assumed in each case. In addition, we gain considerable control over the entire development process which not only permits us to earn a reasonable construction fee, but reduces the overall delivery risk due to better coordination between disciplines due to common goals and higher trust levels. Most of our development and project financing today focuses on generic office, call centers, and other digitally related facilities all of which is of a build-to-suit nature for credit rated corporations. We do not engage in speculative development.

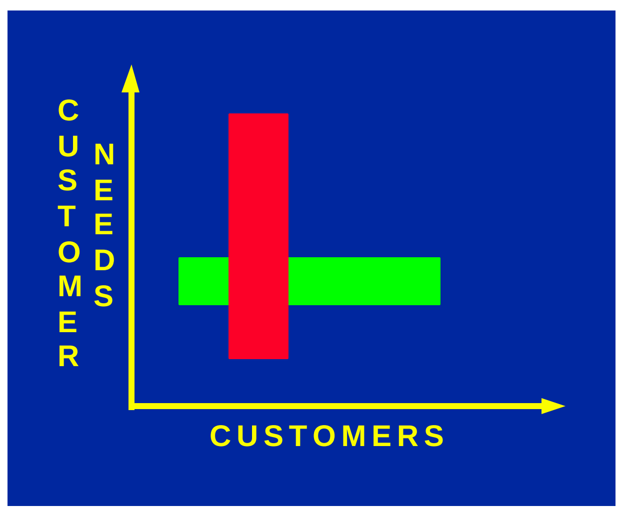
DESIGN OPERATIONS

In November of 1999, Beck merged with Urban Architecture which had built a strong practice in the Texas region and a national presence in church design. Initially, we elected not to co-locate the firms for fear of overwhelming the design group with a much larger construction organization…in retrospect, a mistake in that it has impeded the integration process. However, the cost of co-locating today is prohibitive given our existing leases and our current concern over the economy. The objective of the merger was to internally integrate the key disciplines in the Dallas area on projects where Beck acts as both the designer and the contractor. An associated benefit of the merger includes the opportunity to improve our standalone design and construction services resulting from a deeper understanding of the other discipline. Special care was taken not to separately account for profits between the disciplines, but rather to reward leaders of both disciplines on an equal basis, as a percentage of a common bottom line, so as to begin to tear down the “silos” and encourage mutual ownership of the process.

Given that we have no clear roadmap for how best to proceed in this integration effort, we have allowed each office to approach the process in whatever way they believed would best achieve results as quickly as possible. The idea is to learn from innovating in parallel by sharing knowledge as opposed to trying various methods on a sequential basis and adjusting afterwards. Consequently, Atlanta chose to integrate by recruiting several senior architects who would then manage third-party design-build projects utilizing outside architects, but using a contractual model which jointly rewards all participants based upon a single bottom line for the project. Tampa has chosen an integration model which reflects some of each of the strategies described above.

MARKETING & SALES

Only 18% of our sales in 2000 were generated from select developer clients; the remainder was a result of work performed for corporations and institutions. All marketing and sales activities are spearheaded by our local offices in each region, but carefully coordinated on a national basis. Typically, individual offices may have a key relationship with a customer and will manage that relationship across the nation on behalf of all offices. However, design, development, and construction projects are managed by the local office regardless of which office has the relationship. So often, this kind of approach sounds good on paper, but must rely upon artificial means to deliver a seamless service across boundaries by establishing an account manager’s right to overrule an office or requiring a CEO to force district managers to conform. Our approach is to combine a team-based compensation system with a passionate emphasis on teamwork, especially within the Leadership Group. This integrated approach to marketing & sales recently resulted in 26% of annual revenues for one Beck entity being sourced by another Beck entity in a different geographic area. We intend to



continue to exploit this competitive advantage over local competitors (by targeting and winning the project before it gets to market) as well as against national participants who are often constrained by internal barriers.

We ultimately seek to concentrate our resources on fewer customers (red zone) by providing a broader range of higher value services, at better margins, using our increasingly intimate knowledge of their needs. As part of this effort, we have developed preference matrices as a tool to rate the desirability of customer and project characteristics. While highly subjective and occasionally adjusted, this rating system clearly identifies the prospects on which to focus our resources. In addition, we have deployed account leaders (with associated teams) to coordinate and disseminate intelligence and information about opportunities associated with our most important customers. We believe that our intimate knowledge of our customers' processes and needs is another competitive advantage that our competitors cannot easily replicate, subject to our ability to capitalize upon such knowledge through operational excellence.

SUPPORT SYSTEMS

Most support personnel, aside from project accountants and assistants in districts, reside in the Dallas office and are generally referred to as Group Support. Accounting, Treasury, MIS, and Risk Management each have their own department managers reporting to our CFO. Group Support's mission is to provide the necessary support to the field and monitor certain control policies relating to bonds, insurance, payments, etc. On smaller projects and "on-call" engagements, most project accounting is performed in the office as opposed to in the field on larger projects.

Five years ago, we deployed a new project accounting system to integrate all job cost, payroll, accounts payable, and general ledger into one, real-time system. We refined an accounting package within a file server environment incorporating a single database. The flexibility of the system allows us to not only track costs in multiple ways depending on project requirements, but customize information for customers as well. We have found that the comprehensiveness and flexibility of our support systems are sometimes a determining factor in winning and managing projects.

RISK MANAGEMENT

Given the continuing decline in industry margins, risk management, in various forms, has become a key focus. The following offers a general description of some of the procedures which we have deployed:

- As referred above, we use a preference matrix to narrow our focus on only those prospects with the right culture, characteristics, etc., based upon information that we have available to us at the time. In narrowing the number of customers that we serve, we try to select those who will and can pay for services, and are reasonably fair when controversies arise.
- In 1992, we established the Sustained Quality Improvement Council (SQI) which has the mandate to make any internal changes to improve the quality of our operations and services. Indirectly, many of the innovations implemented by this group have reduced risks through Quality Assurance Reviews, partnering all jobs, and Customer Surveys throughout the project duration.
- Over the past five years, we have performed many of our services for investment grade, publicly traded corporations. We maintain a standard policy of verifying financing by our CFO.
- We maintain various forms of insurance which usually exceed contract requirements.
- Subcontracts in excess of $100,000 are bonded unless specifically waived by the Chief Operating Officer. Increasingly, we are also utilizing other forms of guarantees in lieu of bonds.
- No payments are made to subcontractors until HCB insurance and bonding requirements are met, utilizing our forms.

While our first line of protection is the skill and ability of our people in managing projects, we are constantly seeking better methods to identify/control construction and payment risk without creating unnecessary procedures.

OUR FUTURE OPPORTUNITY

For the first time in too many years, our industry is faced with the wonderful prospect of fundamental and revolutionary change that will offer some participants the opportunity to differentiate themselves, with resulting improvements in return on risk. Just as those farmers, who refused to innovate at the beginning of the industrial age, were increasingly relegated to commodity status, participants in today's real estate industry are facing the same kinds of choices and future prospects. Some contractors, architects, etc., will increasingly compete for work based upon man-hours and the competitiveness of their fees. Such participants will be driven to specialize in a specific trade or seek product niches as a subcontractor or specialty consultant, respectively. Other firms, such as Beck, will seek to move up the "food chain" and compete directly with developers, program managers, etc., by providing higher value-added services by integrating their field and design expertise with their pricing knowledge. Increasingly, customers are realizing that the greatest waste in value is not between bidders, but rather in the inefficiencies between disciplines which result in a myriad of discontinuities and wasted costs in the delivery process. Paper plans, shop drawings, uncoordinated and unfinished documents, meaningless value engineering, etc., etc. are but a few of such examples causing delays and excess costs in the field. The Lean Construction Institute (LCI) estimates that field labor productivity losses could exceed 25% due to such factors as insufficient or poorly coordinated information to do the work when planned (http://web.bham.ac.uk/d.j.crook/lean/iglc4/ballard1/ballard2.htm).

The opportunity is clearly to seamlessly integrate both the knowledge and delivery processes across disciplines and eliminate the extensive waste. Many purveyors of technology insist that the industry merely needs a better technological solution. Many such vendors provide some form of document management, sharing, or communication technology which can speed up the

process to some degree, but misses the key point entirely. The issue is not about communicating more quickly, but rather about eliminating the inefficiencies in the process caused by each "silo" either causing other disciplines to process unnecessary work adding no value to the process or having little motivation to perform their own work in such a way as to maximize the benefit for the whole. Architects never finish their documents because they can neither afford the cost nor are required to do so in order to meet industry standards. One can make a good case that the better the communication tools available, the more likely designers will finish documents to a lesser degree and resolve issues during construction through a more efficient RFI process. Ironically, we could end up with even greater productivity losses than currently documented by LCI due to a faster RFI process.

Other technology providers are working on much more important tools which try to make the design process more efficient. Object-based design tools are emerging which will permit the designer to design with objects, like beams and curtainwalls, instead of drawing each line or arc. Objects are the collection of lines and arcs which define a specific building element. Others (like REVIT) are adding further intelligence by creating parametric objects which can be sized in accordance with the designer's intentions. But to make such technologies work for the mass market, the process must permit the other disciplines to "react" to the initial design through a sophisticated conflict-checking engine, thereby allowing all disciplines to continue as standalone enterprises. For independent firms, this approach will offer a significant improvement over conventional methods, but much of the current waste will continue to be expended in the field (where, by far, the majority of the costs are) because each discipline will continue to optimize for itself. For instance, shop drawings would still be required to finish design during construction since architects would not be financially motivated to research and incorporate sufficient detail, let alone, take the time to understand each fabrication process. Perhaps sophisticated API's will ultimately enable fabricators to provide sufficient information to designers early in the design process…but that remains to be seen.

Over the past six years, The Beck Group has developed a <u>rule-based</u>, parametric, object-based design technology which integrates the knowledge of the various disciplines into a single configurator which enables objects to self-design and price themselves. With the exception of a very few firms like Beck, there is little demand for this type of solution since architects do not want to be responsible for either engineering or accurate estimates, nor do contractors wish to take on design responsibility. As one firm with a common bottom line for all of the disciplines, Beck has fewer concerns about such issues and seeks a platform upon which we can integrate knowledge from the relevant disciplines before design for a specific project begins. In addition, an extension of this approach permits the designer to use very detailed objects in the design and concurrently benefit from cost reductions derived from eliminating the engineering and administration required to produce shop drawings, for example. Such an approach also lends itself to capturing value by clarifying real-time information within the supply chain.

But ultimately, this is not a technology issue! The hard part is to get professionals who have been trained for so long in their respective disciplines to adopt new processes utilizing any of the technologies described above. Or even try to develop and adopt a common set of values and goals between disciplines within an internally integrated environment. Many don't want to change late in their careers, others are afraid of the consequences in that they may become redundant, and most have a hard time seeing a reasonable return on their investment in training. Through experience, we have learned that the human factor is the hard part…the technology will ultimately be figured out.

RECENT DEVELOPMENTS

During the fall of 1998, 40+ people assembled in multiple meetings to define a long-term strategy for The Beck Group. Participants represented different positions from various geographical locations and businesses within the Group. The instructions were fairly simple…achieving consensus was more difficult, but well worth the effort. The objective was to develop the Mission, Vision, and Goals for The Beck Group in accordance with the following definitions:

> **MISSION** – A dream which serves as the driving force for everything we do. "Free the world," "Go to the moon," "A can of Coke within reach of everyone in the world" are all good examples. What do we want to leave as our collective legacy? Keep it short so that we can all memorize it, but make sure that it conjures up a meaningful passion in all of us.
>
> **VISION** – What does our world look like when we finally arrive, having relentlessly pursued our Mission? Tell me what I have to look forward to. Is it a place that I passionately want to reach as soon as possible? Do I believe it is worth fighting for or would I rather just "go through the motions"?
>
> **GOALS** – These are our long-term targets required to accomplish our Mission and arrive at our Vision. Goals define our sense of purpose, are generally not perfectly attainable, and should provide the basis for all of our Objectives. The latter are the dateable and quantifiable "rungs of the ladder" established annually to measure our progress.

The results of this planning effort are articulated below and are even more applicable today, in an increasingly changing environment, than when first conceived.

MISSION

Revolutionize Our Industry…Create the Future!

VISION

An environment where extraordinary demand for Beck's superior products, services, and innovative solutions will result in unique and rewarding experiences for our customers and our people.

GOALS

- ***Position ourselves in those industries in which we can be the best in class by substantially redefining the rules of engagement and delivering superior customer satisfaction.***
- ***Reduce project delivery time by 50%, without increasing project cost, while gaining more personal time.***
- ***Maintain a commitment to Research and Development that fosters entrepreneurial ventures in order to create new businesses and product categories that lead to our vision.***
- ***Create an empowered atmosphere that cultivates excitement and passion in every employee to become a stakeholder.***

In pursuing our Mission, by redefining the rules of engagement, it is essential that we clearly understand our strategy, pursue it with a sense of urgency, and eliminate the barriers caused by our existing "baggage." The part about change that we hate doing is stepping out of our comfort zone, making those difficult personnel decisions, sweating through our own retraining, etc. And yet, the increasing rate of technological innovation requires us to change or have our heads handed to us by those who know no better than to reject the way we have done it for years in favor of a radically better way. In fact, it is precisely this increasing rate of innovation, colliding with a much slower evolution of people and business models that is causing awesome disruptions in so many industries around us.

The underlying strategy around which we are pursuing our future is to integrate the key real estate disciplines in such a way as to eliminate the enormous waste in time and cost, thereby creating an order of magnitude improvement in value for our customers. Our Vision is to create *rewarding experiences for our customers and our people* by providing an integrated solution which offers superior value in such a way that customers cannot easily replicate by simply purchasing services separately in the market, nor can competitors quickly adopt. The result is a sustainable differentiation of our services allowing us to win the kinds of projects that we want to design and build with those customers who both respect our work and value our relationship.

We have identified the following Strategic Opportunities as key steps to getting there:

BECK BUILDING SYSTEMS - (AKA *BUILDING BLOCKS*)

In our highly technical and ever-changing environment, competitive advantage will accrue to those who are able to operate as a member of a carefully crafted network of firms which have synthesized individual capabilities to create a whole that is far more effective than the sum of the parts. Cost control and cost reduction are necessary, but no longer sufficient. Superior performance and fast reliable response to ever-changing customer needs are the true differentiators. Building Systems can be accomplished only if we all truly believe that partnering with our suppliers of materials and services will improve the process for the entire team. We may not see an immediate payoff. But we must have faith that building a core of understanding and value with our customers and suppliers will reward everyone. When we work together to eliminate redundancy and waste, combine capabilities and develop new value, we will have achieved a sustainable advantage.

Building System's goals are to: 1) effectively manage the design process, 2) leverage our negotiating position, 3) form alliances with customers and possibly competitors, 4) identify specific systems by coordinating with all Beck offices, DESTINI, and Studio **i**, 5) identify customers with large purchasing requirements, 6) negotiate pricing and delivery, and 7) expand to additional customers and suppliers. Perhaps, the "Holy Grail" is to provide such clarity in the supply chain so as to provide deep, real-time information on a just-in-time basis during the initial design process for a specific project.

Studio i

The intention of Studio **i** is to do everything differently…to re-invent the process of producing a project. The studio started as a small group of people with diverse experience. Our first mission was to understand each other's tasks and training. Construction issues were addressed from the schematic phase into document production, while maintaining design integrity throughout the construction process. By working side by side, solving the same problems at the same time, we can create more than just contractual simplicity…we actually solve many problems before they arise.

We anticipate being able to minimize submittals and streamline approvals; use supplier agreements to simplify materials and systems selection; utilize DESTINI, when possible, to create a common data base; and inform all team members about design concerns. The benefit to our customers will be to build better buildings faster and at less cost. This is the leading-edge effort which is directly focused at integrating people's minds, behavior and collective knowledge….the hardest part of the process.

DESTINI

DESTINI is the DESign ESTImating INtegration INItiative. The DESTINI Team initially narrowed its focus of development to a 2 to 5-story office building. A set of applications have been developed that will produce a full-scale 3D model, DD (Design Development) level drawings, outline specifications and a detailed budget. The 3D model allows us to represent the building concept in varying degrees of realism from GL (Graphics Library) renderings to photo realistic renderings to movie paths through the model. The DD level drawings will present the building concept in a traditional 2D representation. The outline specifications document the scope of the components used in developing the building. Detailed budget information is generated instantaneously as the basis for a GMP (Guaranteed Maximum Price) for the project. DESTINI will assist The Beck Group to reduce the delivery time and cost waste experienced in the field due to insufficient and uncoordinated information.

We have learned through experience that one cannot assign people daily operating tasks, along with responsibility for long-term efforts, and expect to accomplish the latter in any reasonable period of time. Consequently, all participants in these efforts are assigned on a full-time basis, obviously requiring a significant financial investment.

Our Strategic Opportunities are closely linked together. Studio **i** develops substantially improved procedures to integrate design and construction, creating a platform to best utilize our technology while sharing better work practices with design/build teams throughout The Beck Group. Studio **i** also assists Beck Building Systems to ensure flexibility and design quality in manufactured components. DESTINI models these components and works with subcontractors to update unit prices allowing Studio **i** and other design/build teams to create the best designs, with extremely accurate estimates, on a real-time basis.

HOW DOES THIS GET US TO OUR VISION FOR 2010?

As we continue to build the overall strength of the organization, we develop a perpetually sustaining environment committed to continuous learning, innovation, and time/cost improvements. Through continued success within our existing and future business units, we develop new customers to whom we can sell new services and better procedures based upon their trust in us…a much simpler challenge than even selling existing services to new customers. In addition, we earn the necessary financial resources to invest in training, new ideas, and our Strategic Opportunities.

If we don't change, we will continue to be "stuck" competing for jobs based upon the lowest fees and general conditions, or the "prettiest team" at the interview. If demand for new space does decline due, in part, to the evolution of Internet-related innovations, we would increasingly be forced to react to competitors placing too few people on a job by reducing the number of people that we assign to jobs as well…talk about burnout!

Faster delivery of better designed components at less cost (including higher maintenance reliability), better processes which eliminate redundant and routine activities (like checking shop drawings three times or constantly reworking a curtainwall spec to get it in budget), and integration technology (no more uncoordinated door schedules or incomplete documents)…they are all achievable and will substantially increase value for the customer. For example, let's simply evaluate the effect on the delivery schedule by virtually eliminating the plan production process with a true, object-based, rule-driven technology (DESTINI). According to data collected on 24 recently completed office buildings (Exhibit "A"), a $20 million project (at $67/SF) requires about 19 months to design and build, including overlap. Assume design production requires about 65% of the 500 man-hours per $1 million of job cost required to design a project. Also assume a six-person design production team working 50 hours per week. According to these assumptions, design production would require about five months. But even if we only saved four months, the result would constitute a 20% reduction in delivery time without considering time and cost savings in estimating, scoping, procurement, shop drawings, etc. That is an order of magnitude improvement which would *revolutionize the industry* and create value for our customers and ourselves… and it is only one of many examples of how we can do it by integrating the disciplines.

Our most recent experience on a 200,000 square foot project for SBC Communications integrated all of the disciplines and deployed Studio i, DESTINI, and Beck Building Systems. The result was an 11-1/2 month total delivery time…a near 30% reduction in the schedule (without unusual overtime) as compared to a conventionally delivered project…and everyone involved with the project frequently points to a variety of additional improvements to take advantage of on the next project. While DESTINI in its current state of development could only provide some very quick and accurate studies for the precast and curtainwall facilitating much earlier delivery of both, the real benefit was derived from simply integrating the decision process from subcontractors through designers…not rocket science, but so foreign and difficult to accept for the industry mindset!

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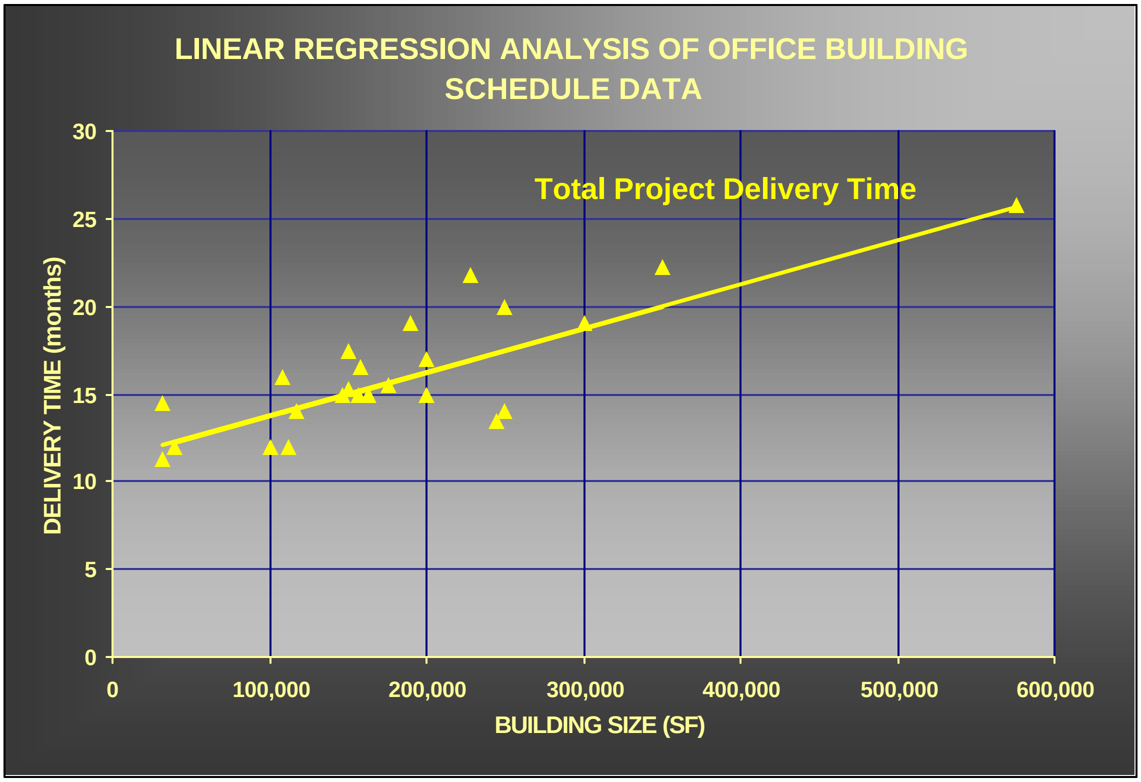
Exhibit "A"


LINEAR REGRESSION ANALYSIS OF OFFICE BUILDING SCHEDULE DATA
Total Project Delivery Time
DELIVERY TIME (months)
30
25
20
15
10
5
0
0
100,000
200,000
300,000
400,000
500,000
600,000
BUILDING SIZE (SF)