

Technical Services

Our Team is proud of its success and reputation for consistently delivering projects of the highest quality, on time and within the Clients guidelines. Our pre-construction planning process, combined with our involvement from the early stages of conception, allow us to expertly plan, set timelines and estimate cost for the project. Our Cost Management System is a proprietary system that incorporates general project information such as a project directory, project information, technical data, estimating reports, value engineering items, outline specifications, subcontractors listing, trade scope comparisons, and provides a single source document for the total range of the project requirements.

Our Cost Management System provides tremendous flexibility to accommodate specific client requirements and utilizes several different software packages within the standard shell for efficient cost and document control.

Technical Services					
Project ABC					
Shell & Core					
Assembly Summary					
No.	Description	Gross sf		Cost/sf	Amount
01	Foundations & Substructure	35,615	sf	\$4.67	\$166,207
02	Superstructure	35,615	sf	\$24.76	\$881,944
03	Exterior Closure	35,615	sf	\$22.32	\$794,802
04	Roofing	35,615	sf	\$3.06	\$108,919
Total	Shell	35,615	sf	\$54.80	\$1,951,873
05	Interior Construction	35,615	sf	\$12.16	\$433,061
06	Interior Finishes	35,615	sf	\$6.98	\$248,588
07	Interior Specialties				
Total	Interior Improvement				
08	Elevators/Escalators				

The System provides the following range of capabilities

- Flexible reporting of costs
- Accurate costing, reliability and speed
- Variable levels of detail to support user's reporting requirements
- CSI, Trades and Systems activity-based costing
- Estimating models for different Construction types
- Historical data supporting Estimating models

Following the conceptual design phase, a Cost Management Team is assigned to the project. Throughout the entire process, from the pre-construction phase to completion, each Project Team is supported by groups of experienced specialists in architectural, mechanical, electrical and structural estimating.

The Team Approach

In providing Cost Management Services, our Team seeks to participate as a full member with our Client and Consultants Teams. Each of the Principal Team Members brings specific expertise to the program. Through the interface of the Team and integration of their capabilities, program objectives are realized.

“ The Team approach to Planning, Design and Construction is the main concept of our service and philosophy”

Start-up

We work closely with our Clients to establish a profile of the Members that reveals habits, usage desires, and economic abilities in regard to the eventual use of the building. We then establish a written program and select a design team. Next, we construct a conceptual design taking into consideration the site, space relationships and circulation patterns. Finally, we develop a detailed estimation taking every aspect of the project into consideration.

The Process...

1. Interview the Client to establish goals
2. Design a conceptual layout for the building to be constructed
3. Incorporate specific program requirements for the building
4. Factor in special considerations for site conditions or site logistics
5. Establish additional finish requirements

Technical Services											
Sample Estimate with Expanded Form											
CSI Summary											
No.	Description	Gross sf	Cost/sf				Basic Space	Required Up-Grade	Alternate Options	Total	
			Basic	Req'd	Alt.	Total					
01	General Requirement	271,552 sf	\$0.00	\$0.00	\$0.00	\$0	\$0	\$0	\$0		
02	Site Work	271,552 sf	\$3.07	\$0.00	\$0.35	\$3.42	\$833,878	\$0	\$83,940	\$927,818	
03	Concrete	271,552 sf	\$6.00	\$0.00	\$0.33	\$6.33	\$1,629,312	\$0	\$90,000	\$1,719,312	
04	Masonry	271,552 sf	\$0.02	\$0.00	(\$0.02)	\$0.00	\$4,770	\$0	(\$4,770)	\$0	
05	Metals	271,552 sf	\$1.20	\$0.00	\$3.50	\$4.70	\$325,862	\$0	\$90,432	\$1,276,294	
06	Wood & Plastics	271,552 sf	\$2.70	\$0.02	(\$2.39)	\$0.33	\$733,190	\$5,000	(\$648,880)	\$89,310	
07	Thermal & Moisture Protection	271,552 sf	\$1.58	\$0.00	\$0.95	\$2.53	\$429,612	\$0	\$257,944	\$687,557	
08	Doors & Windows	271,552 sf	\$0.46	\$0.08	\$0.11	\$0.65	\$124,500	\$21,360	\$30,000	\$175,860	
09	Finishes	271,552 sf	\$0.15	\$0.35	\$0.14	\$0.65	\$40,733	\$96,192	\$39,110	\$176,035	
10	Specialties	271,552 sf	\$0.00	\$0.04	\$0.04	\$0.08	\$100	\$10,500	\$10,000	\$20,600	
11	Equipment	271,552 sf	\$0.00	\$0.00	\$0.71	\$0.71	\$0	\$0	\$192,000	\$192,000	
12	Furnishings	271,552 sf	\$0.00	\$0.00	\$0.00	\$0.00	\$0	\$0	\$0	\$0	
13	Special Construction	271,552 sf	\$0.00	\$0.00	\$0.48	\$0.48	\$0	\$0	\$130,000	\$130,000	
14	Conveying Systems	271,552 sf	\$0.00	\$0.00	\$0.00	\$0.00	\$0	\$0	\$0	\$0	
15	Mechanical	271,552 sf	\$1.27	\$0.40	\$0.51	\$2.18	\$344,603	\$108,160	\$139,110	\$591,874	
16	Electrical	271,552 sf	\$0.47	\$0.20	\$1.44	\$2.11	\$127,043	\$54,080	\$392,104	\$573,227	
Total		271,552 sf	\$16.92	\$1.09	\$6.15	\$24.16	\$4,593,605	\$295,292	\$1,670,991	\$6,559,887	Gross Bldg Floor Area

Conceptual Estimate will include:

- A list of all cost items broken down by areas, phases, systems, CSI and trades
- A list of documents including issue dates
- A list of qualifications, assumptions and allowances
- A list of excluded work, if any
- A comparison of the project to similar building types

Conceptual Estimate

Our main focus at this time will be to prepare a conceptual estimate based on programming documents and defined assumptions mutually agreed to by the Client and the O'Brien Robinson Design Team. We have developed a unique approach to provide and present our estimates.

Typically, most consultants and contractors provide estimates, and a list of qualifications and exclusions.

Our Team provides a factual account of the project status, presenting meaningful information to allow Team Members to make timely decisions. Furthermore, as each document is produced in the different phases of the design and construction document process, a library of information is created, taking into consideration key decisions and value added options.

“Our cost control and cost estimating methods are founded upon early involvement in the pre-construction phase. During the early schematic phase, we will work closely with the owner and the architect in providing cost data for all alternative configuration schemes, and will form the basis for the project budget. During the early phases of the project, while the greatest number of options are open, decisions can be made which have the greatest impact on the final project costs.”

To provide continuous cost control methods throughout pre-construction, our Team will examine each issue of drawings and specifications and each change to ensure adherence to the budget.

To confirm continuing compliance at various drawing levels and at document completion, we will prepare detailed line item estimates, on each and every sub-trade and clarification, based on quantity takeoffs derived from the drawings and specifications as they exist. As a cross-check to the budget, we will test the market by initiating discussions with specific subcontractors. This process will help to also develop subcontractor interest in bidding on the project.



As part of our activities during the pre-construction phase, we will continuously monitor the progress of the design and immediately flag any deviation from the Conceptual Estimate resulting from each issue of the drawings and specifications.

Design Development Estimate

This estimate will be based upon a detailed takeoff of the final design development or preliminary drawings. It will be prepared with sufficient detail to provide a thorough review of the various design elements and will facilitate changes, substitutions or reductions of current design should this prove necessary or desired. This estimate will verify that increases in project cost are either not occurring or that they are being considered and documented.

Construction Documents Estimate

This estimate will incorporate a detailed contract estimate for each of the various items of work. It will be summarized in accordance with the procurement plan of contract packaging and will be based on an analysis of the construction drawings and specifications, a detailed quantity survey of the materials required, and carefully appraised unit prices for labor and material. It will provide the final check on the budget and can serve as the basis of a Guaranteed Maximum Price.

Construction Market/Analyses

As part of our pre-construction services, we analyze construction market factors that impact the construction of the facility. We will specifically analyze:

- Current availability of skilled subcontractors who can provide services for this project
- Availability of specialized craftspeople
- Projections of future construction workloads
- Local labor conditions, including the capability of local business enterprises
- Management and financial capability, quality and workload of potential bidders

Based on this market analysis and our analysis of the overall project requirements, we will develop a list of qualified and mutually acceptable subcontractors.

Bid Procedures

To procure the requisite trade-by-trade subcontracts, we will prepare bid packages and utilize the following:

- Define the scope of work to be included in each bid package and review the bid package for completeness of that scope.
- Solicit bids via the submission of the bid package from pre-approved subcontractors.
- Prepare bid comparison sheets and review all bids with the Owner or the Owner's Representative
 - * Completeness of the scope not only compared to target budget and schedules, but also as it relates to other bid packages.
 - * Adherence to the overall schedules of the project.
 - * Elimination of ambiguities in defining the bid package and clarification of confusing areas.
 - * Base pricing and unit pricing
 - * Acceptability of any proposed alternates and how these should be structured.
 - * Negotiation with bidders to ensure that all parties have a complete and thorough understanding of their performance, quality and financial responsibilities.
- Recommend award of contract to the lowest responsive bidder based upon the above criteria.

Historical Data

Throughout the pre-construction process our Team will evaluate the current project with historical data from similar projects in size and scope. We have a comprehensive and reliable database of historical experience to base our historical cost analysis.



Technical Services									
Analysis of Warehouse Building - Tiltup Concrete Bldg.									
Assembly Summary									
Project	Industrial	Industrial	Industrial	Industrial	Industrial	Industrial	Industrial	Industrial	Industrial
City, State	Orange, CA	Vista, CA	Tempe, AZ	Laguna Hills, CA	Lake Forest, CA	Fontana, CA	Rancho Dominguez, CA	San Jose, CA	La Mirada, CA
Date	Jan-90	Jan-90	Aug-97	Jan-99	Oct-97	Feb-97	Sep-97	Jul-97	
Gross Building Area (sf)	33,795	94,723	156,528	24,809	37,708	466,800	271,552	130,439	
Office Floor Area (sf)	2,196	0	0	3,710	28,725	21,860	10,816	6,121	
Warehouse Floor Area (sf)	31,599	94,723	156,528	21,099	8,983	384,940	260,736	124,318	
Gross Site Area (sf)	85,418	276,680	472,269	54,014	85,418	1,856,580	961,702	329,257	
Height of Building (ft)	21.522.5	19.5, 21.5, (3) 23.5	30, 40	34	32	30	31	36	
No. of Building (ea)	4	5	2	1	1	1	1	1	
No. of Floor (ea)	1	1	1	2	2	1	1	1	
Schedule (month)	?	?	6	?	4	8.5	8	6.5	
No. Description	Cost/GSF	Cost/GSF	Cost/GSF	Cost/GSF	Cost/GSF	Cost/GSF	Cost/GSF	Cost/GSF	Cost/GSF
01 Foundations & Substructure	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
02 Superstructure	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
03 Exterior Closure	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
04 Roofing	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Shell	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
05 Interior Construction	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
06 Interior Finishes	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
07 Interior Specialties	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Interior Improvement	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
08 Elevators/Escalators	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
09 Stairs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Conveying Systems	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
10 Plumbing	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
11 HVAC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
12 Fire Protection	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Mechanical	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
13 Electrical/Lighting/Low Voltage	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Electrical	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
14 Equipment & Appliances	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
15 Special Construction	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Our team will access Historical Data to:

- Evaluate current cost pricing against similar projects
- Establish guidelines for design-build projects
- Provide reliable cost information for project finance
- Provide baseline cost for value engineering

Cost Control

We will initiate project cost control procedures, including development of cost reporting. We will continually monitor the project budget, anticipated costs, and prepare monthly reports with the respect to the contract cost.

Schedule of Values

We will assist in developing a reliable schedule of values format. This form will provide a basis for the payment requisitions and provide financial safety for the client during the construction phases of the project.

Change Order Management

The most important element in a construction cost reporting system is its ability to monitor financial changes affecting the project. We will undertake a detailed review of all change orders submitted by the subcontractors, assess the scope, schedule impacts and present them to our Client with a written evaluation report. Historically we have achieved substantial savings by way of our Change Order Management procedure.

Value Engineering Studies

An important activity during the pre-construction phase is "Value Engineering Studies."

The value engineering process will identify areas where significant contributions can be made to reduce costs, speed up construction and enhance the project's value. This will be achieved through meetings and discussions with the Client, architect, engineers, and discussing alternatives with the specialty contractors and investigating current market trends, extensive reporting and regular feedback to the project team.

When appropriate, detailed reports and recommendations will be produced so the architect and the Client can consider the implications of the options and make the proper decisions. This documentation is one of the forms of continuity we will bring to the project.

In conjunction with the Client and the architect, we will review the design of the project on a continuous basis through the production of construction documents to assure that the design is the most cost-effective and consistent with the project goals.

In all cases, we will look for possibilities to improve quality, expedite schedules and optimize costs.

For the analysis of major building systems and subsystems, we along with the Team Members, will use life cycle cost analysis and recommend those systems that most closely meet your requirements for first cost versus life cycle cost.



Value Engineering Workshop

Value Engineering Workshop is a collaborative effort between our Client, Design Team, Pre-construction and Project Management Teams, Subcontractors and Consultant Teams. The workshop report will identify recommendations and options selected by the Team. Alternative options will be recommended for the following systems:

- Site work and associated infrastructure.
- Parking requirements.
- Foundations.
- Building configuration and structure.
- Building skin and architectural finishes.
- Roofing systems.
- Mechanical systems.
- Electrical systems.
- Acoustical details and materials.
- Vertical transportation.
- Fire protection systems.
- Security systems.
- Communication systems.
- Life safety and building management systems.
- Interior systems/Finishes
- Materials and finishes maintenance capabilities.
- Specialized work and Systems
- FF&E

Value Engineering Goals

- To maintain the client goals and needs
- To maintain aesthetics and design vision
- To produce VE proposals
- To define value and lower cost
- To evaluate schedule impact
- To evaluate life cycle costs
-

The value engineering ideas will be proposed to reduce the cost or increase the value of the project.

Sample of Value Engineering Ideas

Legend

5 - Excellent	A - Accepted
4 - Very Good	R - Rejected
3 - Good	S - Study Required
2 - Fair	I - Incorporated in Design
1 - Poor	

ARCHITECTURAL	RATING	A	R	S	I
A. Concrete pavers vs. terrazzo	5				
A.2 Pre-cast alternative to stone	3				
A.3 Stone back-up framing options	5				
A.4 Roofing - substitute for clay tile	3				
STRUCTURAL					
S.1 Use eccentric braced frame	4				
S.2 Shear wall to roof - deleted moment frame	4				
S.3 Reduce roof framing system weight	4				
MECHANICAL					
M.1 Evaluate secondary chilled water pumps	4				
M.2 Eliminate all butterfly valves	2				
ELECTRICAL					
E.1 Review mech. load assumptions & criteria	5				
E.2 Eliminate fluorescent dimming	4				

The above mentioned techniques were recommended by the Society of American Value Engineers (SAVE).

Workshop approach will consist of the following phases:

1. Information and selection phase

The project team will review detailed cost estimate and evaluate all trades to be selected for future studies. We will conduct brainstorming sessions with the Client and Design Team to create alternates and ideas in the areas of the largest potential return.

2. Evaluation and development phase

We will conduct feasibility studies of all the alternatives created during information and selection phase. We will evaluate all ideas and establish the following factors:

- Cost impact
- Performance
- Time impact
- Quality and reliability impact

3. Presentation and final selection phase

We will prepare written proposals evaluating advantages and disadvantages of each selected alternative, noting the savings which can be achieved by implementing and incorporating value engineering ideas in the final documents.

