Judicial Branch Capital Construction Program White Paper – Courthouse Construction Costs

The purpose of this White Paper is to summarize the independent reviews of seven different estimating firms responding to reports or claims that California courthouse construction costs are in excess of a "typical" courthouse model as identified by RS Means. Each firm was asked to respond to the same seven questions that are identified in the body of this report.

The following summary relies on the technical expertise and business experience of the reviewing firms as well as Vanir's own professional judgment. When specific facts or calculations are quoted from the reports, the originating firm's report will be indicated in parenthesis.

Leyland Saylor Associates (LSA)
Don Todd Associates (DTA)
O'Connor Management, Inc. (OCM)
Faithful Gould (FG)
Davis Langdon (DL)
Cumming Corporation (CC)
Sierra West Group (SWG)

Executive Summary

It is conclusive from the above prepared reports and from Vanir's own analysis that the report stating "courtrooms can be constructed for less than $269 in California" is not a reasonable expectation.

It is inappropriate to use the unadjusted cost per square foot for the typical RS Means model for a "courthouse" without first understanding the components, systems and general design requirements of the building.

The referenced unit cost is based on a building model that specifically excludes many elements of construction and is not consistent with the latest security standards, program requirements, energy efficiency goals, and building codes for a courthouse built in a seismically active region like California.

While RS Means is a useful estimating tool, it must be used as intended, coupled with regional knowledge.

Please note two critical points about the RS Means model:

- It is for a very specifically described, simple building that is substantially different from current California courthouse design.
- **The RS Means amount is not intended to represent a comprehensive construction cost estimate.** The cost per square foot is for the "base" building only, exclusive of site work and other significant elements. Additive amounts are provided by Means for many common building elements that are not included in the base cost per square foot numbers being quoted.

The attached summary table was prepared using Vanir's professional judgment along with other project information provided in the reports. It illustrates that when the "base" RS Means model is properly adjusted, the historical construction cost experienced by the Judicial Branch Capital Construction Program (the Program) is within range; $587/square foot average for the Program's historical costs versus $540/square foot estimated after adjusting the elements of the RS Means 'base' model with reasonable allowances for necessary components of a California courthouse. This adjustment does not take into consideration any change order contingency.

It should also be noted that special conditions and unique requirements of individual projects need to be added to this adjusted base model and can increase costs above the model estimate. The following summary and narrative only includes the major elements of construction that are generally common for all courthouse projects in California. Unique elements of construction that invariably occur on most projects are not included in this analysis.

RS MEANS BASE MODEL WITH ADJUSTMENTS

Item	Cost Per Bldg SF	Comment
RS Means Base Model	**$150**	60,000 SF 3 story building, 2011 RS Means Square Foot Costs
California City Adjustment	$15	Adjust to California per Means: Average of 7 California Cities in the Means Manual vs. National 30 City Index
California Prevailing Wage Rate	$8	City adjustment does not fully factor in the cost of California prevailing wage rates.
California Base Cost per Means	**$173**	Excludes Contractor Overhead and Profit
Common Additives per RS Means Manual – using RS Means values		
Basement Construction	$11	Additive per RS Means Manual
16 foot floor to floor heights	$14	Additive per RS Means Manual
Additional Perimeter Walls	$5	Additive per RS Means Manual. The building in the Means Model is a 100' x 200' rectangular building. Means recognizes this configuration may not always be possible, so provides for an added cost.
Items Excluded from Means Model – using Vanir & Study Report derived values		
Site Development Costs	$60	RS Means excludes these costs.
Built-In Casework, Finish Carpentry & Equipment	$20	RS Means excludes these costs.
Fire Alarm System	$3	Fully automatic and addressable fire alarm system not included in Means Model
Changes required to meet code or functional needs– using Vanir & Study Report derived values		
Foundations	$15	Additional Foundations required to meet seismic codes
Super Structure	$15	Additional costs required to meet seismic codes and progressive collapse criteria
Exterior Glazing	$8	Additional cost to meet title 24 and security requirements
Exterior Wall Finishes	$8	Additional cost for durable exterior finishes for security. These exterior finishes also increase the useful life and require less maintenance and repair.
Roofing	$5	Reflective roofing with additional insulation to meet title 24
Interior Systems	$5	Cost adjustment for higher level of security. This includes holding cells, secure corridors and added courtroom protection
Plumbing	$5	Fixtures per code minimum of 1 per 513 SF vs. 1 per 665 SF in Means Model
Fire Protection	$3	Design per "NFPA 13" vs. "light hazard" in Means Model
HVAC System	$25	Systems designed to meet title 24 which produce higher first cost yet yield lower lifecycle cost
Main electrical service	$1	1600 amp service vs. 800 amp in Means Model
Emergency generator	$2	300 kW generator vs. 15kW in Means Model
Building power and lighting	$15	Lighting with sensors to meet title 24. Additional power required for computers and electrical devices
Communications and security	$22	Minimal costs of less than $1.00 per SF in Means Model. Typically includes full telephone and data systems along with security systems
CALIFORNIA BASE PLUS ADDITIVES	**$415**	
California sales tax (8.25%)	$17	Sales tax on material (assumes 50/50 ratio of material to labor)
SUBTOTAL	**$432**	
General Requirements, Overhead & Profit	$108	Per RS Means Manual: 25% Contractor Fees
CALIFORNIA CONSTRUCTION COST	**$540**	

The First Three Questions

The first three questions asked of the seven firms were around a common theme:

- **"What is the basis for construction costs published by RS Means and how do they derive their construction costs?"**
- **"Can RS Means data be applied to determining California construction costs appropriately?"**
- **"Why are the construction costs higher in California and what factors influence the cost in California?"**

It is appropriate to address these three questions with a singular analysis combining the responses from the firms.

NOTE: Unless specifically noted otherwise, all pricing quoted in this White Paper is expressed in costs per square foot of building area.

Origination of the Means Model

The original basis of the RS Means Model was developed in the 1980's and is based on construction costs in the northeast (LSA). The Model is based on a 60,000 SF building size. This Model assumes an extremely basic building design and provides a limited amount of additive prices and adjustments allowing the estimator to increase the Model to fit a particular design.

There are many design elements that are identified in this White Paper that are not addressed in the RS Means Model, and for which no specific additive pricing is identified.

RS Means Base SF Cost

RS Means provides a table to adjust the square foot costs of the Model based on regional labor and material price differences. The RS Means Base Model value adjusted for California was analyzed by some of the responding firms as follows:

All California cities:	$205.60/SF (DL, excluding AE costs)
Hanford:	$197.58/SF (CC, excluding AE costs)
San Francisco:	$258.98/SF (DTA, including AE costs, $242.04 without AE costs)

A recent news article quoted a cost of $269/SF for the Model, which is presumably the highest base unit price anywhere in the country (New York City). For clarification, please be aware that the Means $269/SF amount includes an allowance for architectural services. Since the Program comparison amount does not include architectural services, we have excluded these costs in the comparison studies.

AOC Average SF Budget Cost

For comparison, the average hard cost/SF budgeted for courthouses constructed under the Program is $587/SF. This price includes all hard costs, site development costs, telecommunication and data infrastructure.

Explaining the Difference

COMMON ADDITIVES PER THE RS MEANS MANUAL

The RS Means Model quantifies additive amounts to adjust the unit cost of the "base" Model based on particular design elements such as:

- **Basement construction**
- **Floor to floor heights in excess of 12'**
- **Lengths of building perimeter walls beyond the bare minimum**

Note: The additive amounts identified in this section are calculated using RS Means as the basis.

Basements: The typical courthouse in California has a basement level. This provides a secure entrance for prisoner exchange, judges and staff and is not included in the Means model. Means identifies an additive amount if the building has a basement.

Additional costs for basements per RS Means Manual: $11/SF

Floor to floor heights: The "base" Means model is based on 12 foot floor to floor heights. This is a bare minimum dimension requiring low ceiling heights. Typically, in California, the actual heights are significantly greater. Floors with courtrooms may have floor heights of 18 to 20 feet. Even for floors without courtrooms, a 12' story height is very difficult to maintain in a modern building; 14' floor to floor height is more typically the minimum. The additional height adds to the total steel or concrete required. The added height also affects many other elements of the building, including the overall quantity of building materials, the foundation system, the HVAC design loads, and the electrical requirements.

Additional costs due to increased story heights per RS Means Manual: $14/SF

Increased length of perimeter walls: The Means Model assumes a very basic 100 foot by 200 foot rectangular structure. Designing a facility with this shape and length to width ratio is often not a viable option, especially in urban courthouse locations where the shape of the building must accommodate the surrounding environment. Means recognizes this and provides an additional cost factor for increased perimeter wall length.

Additional costs due to increased perimeter wall length per RS Means Manual: $5/SF

ITEMS EXCLUDED FROM THE RS MEANS MODEL

The RS Means Model completely excludes the following items of construction:

- **All site development costs**
- **All fixed furniture and equipment costs**
- **Fully automated and addressable fire alarm systems**
- **Sales tax**

Note: All of the unit prices that follow were developed based on Vanir's expertise and the data provided in the study reports. These unit prices are conceptual in nature and are intended to provide an order of magnitude of probable cost estimates. Some of the study reports contained historical data for various building elements, which are summarized in the appendix. Vanir's estimating staff reviewed the range of the historical costs and then applied their professional judgment and experience with similar facilities to assign an appropriate value to add as a typical additive amount to the base RS Means Model. All amounts are indicated as costs per square foot of building area.

Site Development Costs: The RS Means Model does not include any site development costs. Typically these costs may include on and off-site roadway improvements required by the municipality, utilities to the building, site drainage, parking lots, hardscape, landscaping and construction of a building pad. These costs are highly variable. Factors affecting the cost include: size of the site, accessibility to the site, distance required for utility hook-up, geotechnical data and terrain.

Evaluation of an appropriate average additional allowance for site costs: $60/SF

(Note: The cost amounts identified by Vanir in this section are based on a review of the data contained in the study reports and on Vanir's professional judgment. See attached appendix for summary of study report historical values.)

Built-In Casework, Finish Carpentry and Equipment: The RS Means cost model excludes all casework, finish carpentry and equipment. The Program's courthouse projects in California include all fixed casework and equipment within their construction costs. Items include: window coverings, courtroom casework, fixed courtroom seating, judge's bench, break room casework, storage shelving, projection screens, signage, fixed artwork, audio visual equipment and cabinets, and security screening equipment and casework.

Evaluation of an appropriate allowance for casework, finish carp & equip: $20/SF

Fire Alarm System: A fully automated addressable fire alarm system is not included in the RS Means base costs.

Evaluation of the additional allowance for a fire alarm system: $3/SF

Sales Tax: California Sales Tax is not included in the RS Means base costs. This sales tax can range from 7.25% to 9.75%. For this analysis, we have used 8.25%.

Evaluation of an appropriate additional allowance for sales tax: $17/SF

ADDITITIVE AMOUNTS TO THE RS MEANS MODEL REQUIRED TO MEET CALIFORNIA CODE OR FUNCTIONAL NEEDS

There are many items required in modern California courthouse construction not included or anticipated in the RS Means Model. These include:

- **Structural Requirements for California Seismic Code and Progressive Collapse Design Criteria**
- **Exterior Glazing changes due to Security, Title 24 Energy Code and LEED Requirements**
- **Exterior Wall finishes due to enhanced security and maintenance requirements**
- **Increased roofing costs due to Title 24 Code and LEED Requirements**
- **Interior systems cost due to courtroom security requirements, holding cells and secure corridors.**
- **Plumbing costs to meet current codes**
- **Fire Protection design to meet NFPA 13 requirements, as opposed to the RS Means light hazard criteria**
- **HVAC systems designed for Title 24 Code and LEED, with better life cycle costing considerations**
- **Main Electrical services required to meet current code standards**
- **Emergency Generators design to meet essential facility needs**
- **Building power and lighting systems designed to meet Title 24 Code and LEED standards**
- **Communication and security systems required for courthouse operations**

Note: All of the unit prices that follow were developed based on Vanir's expertise and the data provided in the study reports. These unit prices are conceptual in nature and are intended to provide an order of magnitude of probable cost estimates. Some of the study reports contained historical data for various building elements, which are summarized in the appendix. Vanir's estimating staff reviewed the range of the historical costs and then applied their professional judgment and experience with similar facilities to assign an appropriate value to add as a typical additive amount to the base RS Means Model. All amounts are indicated as costs per square foot of building area.

Structural Requirements - Foundations: Foundation sizes and reinforcing requirements are higher in California due to seismic concerns. Most of the courthouses are located in population centers near the coast which are the most intense seismic areas of the state. Many of these locations require special foundations such as piles, mat foundations or base isolation schemes due to unstable soil conditions. Slab on grades are typically 5" or 6" in concrete thickness with steel reinforcing vs. 4" thick concrete with wire mesh in the Means model.

Evaluation of the additional costs for the substructure: ***$15/SF***

Structural Requirements - Superstructure (columns, beams and slabs above foundation level): Superstructure costs are higher than the RS Means Model to meet California seismic code standards and progressive collapse requirements.

Evaluation of the additional costs for the superstructure: ***$15/SF***

Exterior Glazing: Title 24 Code along with design changes brought about after the Oklahoma City courthouse explosion now require increased natural light, more energy efficient windows and increased levels of glazing security. These changes triple the cost for exterior window systems and further increase the Means model.

Evaluation of the additional costs for exterior glazing: ***$8/SF***

Exterior Wall Finishes: The exterior walls in the Means model consist of plaster veneer over CMU. The California courthouse walls are designed to be energy efficient, durable and secure. To achieve these objectives they are constructed of durable materials. Walls typically have pre-cast concrete and/or stone veneer along with metal panels. The installation of auto-open doors at main entrances, secure access doors and hardware elsewhere add to the total. South and west facing windows frequently require sunscreens to meet required Title 24 energy savings which are not in the Means model.

Evaluation of the additional costs for exterior wall finishes: ***$8/SF***

Roofing: The RS Means cost model is based on standard built-up roof with gravel ballast. The courthouses in California typically have single-ply roof over several inches of rigid insulation to meet Title 24 and LEED Requirements. Some designs are also including the use of "Green Roofs" such as in the San Andreas Courthouse to meet LEED goals.

Evaluation of the additional costs for roofing: ***$5/SF***

Security Program Requirements: Interior costs must be increased above the Means cost model to allow for increased security needs. This includes holding cells, secure corridors and added courtroom protection.

Evaluation of the additional costs due to security program requirements: ***$5/SF***

Plumbing: The RS Means model is based on 1 fixture for every 665 SF. Current code requires 1 fixture per 513 SF. Current designs also use automatic flush valves and low flow fixtures to meet LEED requirements which are not included in the Means model.

Evaluation of the additional costs due to plumbing codes: ***$5/SF***

Fire Protection: The RS Means model is based on "light hazard" while California requires systems designed to meet NFPA 13.

Evaluation of the additional costs due to fire protection: ***$3/SF***

Heating, Ventilation and Air Conditioning Systems (HVAC): The RS Means cost model is based on packaged, multi-zoned units with gas heating and electric cooling. These systems, typically used on commercial projects, are a low first cost system with high energy usage with limited control and zoning capability. A packaged unit system design would have extreme difficulty meeting Title 24 energy requirements along with mandated LEED goals. While the systems typically used in the Program's buildings have significantly higher first costs, these costs are offset with lower life cycle costs for operation and maintenance.

Evaluation of the additional costs due to HVAC Title 24 & LEED: $25/SF

Main Electrical Service: The RS Means model is based on an 800 amp service. Per Cumming, this will not meet current code for a 60,000 SF building. The San Andreas project for example had a 1600 amp service for a 53,250 SF Building (SWG).

Evaluation of the additional costs due to increased electrical service: $1/SF

Emergency Generator: The RS Means model includes a 15kW emergency generator. A 300kw generator is more in order provide required back up security power.

Evaluation of the additional costs due to increased emergency power: $2/SF

Building Power and Lighting: The RS Means Model lighting is based on switched fluorescent fixtures. The California Title 24 energy requirements impact the lighting costs. Typically buildings have more efficient fixtures, motion sensor switches and added task lighting. While these systems result in reduced energy expenses over the life of the building, they increase the initial construction costs compared to the RS Means cost.

Evaluation of the additional costs due to more efficient lighting: $15/SF

Communications and Security: The RS Means Model provides only a minimal amount for communication and security. Communication represents the largest electrical difference between the Means model and California costs. The model only allows $0.78 for alarm systems, internet connections and emergency lighting. Typically, courthouses have full telephone and data systems, security systems which include closed circuit cameras with monitoring station, assisted listening systems, and audio visual systems included within the electrical scope. These systems can easily add over $20 per square foot of cost to the project. Cummings reported that the Communication, Security and Radio/CATV/AV systems on the Hanford project cost $ $40.56 /SF (CC).

Evaluation of the additional costs due to communication requirements: $22/SF

OTHER ISSUES

Prevailing Wage: While RS Means provides a location factor to adjust costs, the index does not take into account the increased California in labor costs due to prevailing wage requirements for public work projects.

Evaluation of the added costs impact of prevailing wage above the national average: $8/SF

SUMMATION

As tabulated in the summary on Page 2 above, the properly adjusted RS Means Model is an amount of $540/SF. **This reflects a properly adjusted RS Means "base" model cost.**

This adjusted base model cost requires ***additional*** adjustment for individual sites, as unique conditions and special requirements that must still be specifically accounted for.

Fourth Question: What are the labor rate comparisons between California and other states?

Labor rates are clearly higher in California than in other states. This fact is easily documented and the seven reports contain varying analysis. Cumming provides a comparison of Sacramento area rates with the RS Means 30 year average showing the rates to be 30.2% higher.

Fifth Question: What data base or source of data does your firm use to develop conceptual statements of probable Construction Costs?

All of the queried firms indicated their reliance on in-house data bases populated with data from past projects. These firms' practices are similar to Vanir, where past projects over the history of the companies are used to maintain estimating databases. When preparing a conceptual estimate, the historical information is compiled to produce a cost and quantity model specific for the project, which is then priced using current market costs to produce a budget estimate. The overall estimate is then compared to historical total square foot cost to verify the reasonableness of the numbers. Good practice dictates ongoing discussions with the design team during this effort so that the estimate reflects project specific scope. These discussions may lead to additional items not in the original model being added or eliminated as necessary.

(Note: A summation of each company's response is included in the appendix.)

Sixth Question: How is your cost database maintained?

Similar to Vanir, all of the queried firms continually update their data bases to reflect current market conditions by getting feedback as projects are bid and through contacts with local subcontractors, manufacturers, and dealers.

(Note: A summation of each company's response is included in the appendix.)

Seventh Question: Do you use RS Means? If not, why?

All of the queried firms, except for one, reported that they use RS Means as a reference tool. Note that there are several different RS Means publications. Most of the firms noted a greater reliance on the RS Means "Cost Data" publications rather than the "Square Foot Costs" publications. Since any "Square Foot Costs" estimate must presume a specific design, these values, if used at all, must always be used with caution and very careful evaluation.

Vanir uses both RS Means "Building Cost Data" and the Saylor Publications, Inc. "Current Construction Cost" manuals. Both of these are used almost exclusively to provide "productivity" rates. We generally do not use material cost information as the published numbers can quickly become obsolete. The labor information provided in the RS Means publication is not California specific. We find it more accurate to get the prevailing wage rates directly from the Department of Industrial Relations for the County where the project will take place.

We believe it is impossible for a single manual to incorporate all possible variations in costs that fluctuate due to varying work conditions, schedule constraints and access issues. Our certified professional estimators use their experience to adjust productivity output to match project conditions.

(Note: A summation of each company's response is included in the appendix.)

Appendix

Historical System Costs Provided by the Studies

SITEWORK: Examples of typical site costs were provided in some of the reports. Don Todd details a project where site costs prorated into the size of the building were $49.27/SF. Cumming provides a project where the site costs were $86.75/SF.

BUILT-IN CASEWORK, FINISH CARPENTY AND EQUIPMENT: Examples of typical costs were provided in some of the reports. These costs range from $14.88/SF (DTA), $21.08/SF (SWG), $39.50/SF (DL) to $42.36/SF (CC).

SUBSTRUCTURES: Historical SF pricing on substructures (basement and foundations) was provided by three of the study firms. These raw costs range from $17.57 (SWG), $19.11 (DTA), to $21.58 (CC). The RS Means allowance for the substructure included in the base model is approximately $5/SF.

SUPERSTRUCTURES: Historical SF pricing on superstructure was provided by four of the study firms. The increases in superstructure costs are due to a combination of increased story heights, seismic considerations and progressive collapse. These costs range from $42.76 (SWG), $50.66 (DTA), $60.90 (CC) to $72.56 (DL). The RS Means allowance for the superstructure included in the base model is approximately $24.21/SF.

EXTERIOR WALL SYSTEMS: Historical SF pricing on exterior wall systems was provided by four of the study firms. These costs range from$24.10 (DL), $41.72 (DTA), $72.20 (SWG) to $93.34 (CC). The RS Means allowance for the exterior wall system included in the base model is approximately $17.23/SF.

ROOFING: Historical pricing on roof systems was provided by four of the study firms. These costs range from $7.27 (DTA), $7.62 (CC) to $9.08 (DL). A fourth higher amount was included by Sierra West with is

due to the installation of a green roof and not included. The RS Means allowance for roofing included in the base model is approximately $2.02/SF.

INTERIORS: Historical SF pricing on interior finishes was provided by four of the study firms. These costs range from $63.38 (FG – average of 5 projects), $67.06 (SWG), $81.88 (CC), to $82.91 (DTA). The RS Means allowance for interiors included in the base model is approximately $51.09/SF.

PLUMBING: Historical SF pricing on Plumbing systems was provided by four of the study firms. These costs range from $9.97 (SWA), $10.60 (DTA), $17.01 (DL) to $21.43 (CC). The RS Means allowance for plumbing included in the base model is approximately $8.73/SF.

FIRE PROTECTION: Historical SF pricing on Fire Protection systems was provided by four of the study firms. These costs range from $6.30 (SWA), $5.68 (DTA), $5.84 (DL) to $6.42 (CC). The RS Means allowance for fire protection included in the base model is approximately $3.56/SF.

ELECTRICAL: Historical pricing on electrical systems was provided by four of the study firms. These costs range from $45.31 (DTA), $55.93 (SWG), $80.50 (DL) to $86.86 (CC). The RS Means allowance for electrical included in the base model is approximately $11.41/SF.

HVAC: Historical pricing on HVAC systems was provided by four of the study firms. These costs range from $34.00 (DTA), $50.56 (DL), $53.01 (SWG) to $67.51 (CC). The RS Means allowance for HVAC included in the base model is approximately $19.50.

Individual Company Answer Summaries to the Fifth Question: What data base or source of data does your firm use to develop conceptual statements of probable Construction Costs?

Cumming: In house cost database and pricebook guide. This crew driven model can be adjusted for city location, urban or rural setting, access, laydown area, labor base costs, fringe benefits, worker's comp, labor availability, proposed delivery method, productivity factors, material availability, sub/supplier OH&P, sales tax, local labor laws.

Davis Langdon: Internal cost database populated with over 2,600 projects.

Don Todd Associates: In-house database, experience.

Faithful + Gould: In-house database (60 yrs) updated with real cost data, to obtain gross $/SF to compare similar projects.

O'Connor Construction Management: Comprehensive database built on current prevailing wage rates for location, researched material prices, RS means productivity rates and taxes specific to job location. Costing is derived from multiple sources: in-house cost database; off the shelf cost information (RS Means, Saylor, etc) for reference only since the market changes too rapidly; solicitation of multiple quotes for specialty items from suppliers; historical cost data from bid results.

Leland Saylor: Own database based in California containing 3,000 projects across building types which include: water treatment plants, schools, offices and courthouses.

Sierra West Group: Own proprietary database built from projects, planned and completed over the years.

Individual Company Answer Summaries to the Sixth Question: How is your cost database maintained?

Cumming: On a monthly basis by tracking market driven factors through own internal econ report. Key indicators tracked and accounted for in the database are national and regional workload, US$ exchange rates, energy costs, commodities, credit markets, and international impacts.

Davis Langdon: Internal database is updated and maintained by research department on an ongoing basis.

Don Todd Associates: Database is updated from time to time through contacts with local subcontractors, manufacturers, and dealers to make sure that the prices of materials used are current. On a regular basis, they check the labor prevailing wage rates in the locality of the project being developed. Equipment rental rates are checked from time to time through various publications, like Caltrans Equipment Rental Rates.

Faithful + Gould: In-house experts who accumulate and store cost data gathered in various offices and they feed this cost data back into the estimating database for future use by cost estimators.

O'Connor Construction Management: Full time staff member maintains a comprehensive database of construction labor, material and equipment costs with an eye towards the bid results of the current jobs for market conditions and an analysis of the contract schedule of values.

Leland Saylor: Saylor continually updates its costs for all factors and receives 300 bids per year.

Sierra West Group: Sierra West Group produces the LSI Index which ENR recognizes as THE California construction inflation index. The quarterly update of the LSI Index is integrated into both the Sierra West Group internal database and the Current Construction Cost databases. The firm also utilizes the experience of contractors and suppliers in the project area to keep current on the latest material and labor cost in the construction industry.

Individual Company Answer Summaries to the Seventh Question: Do you use RS Means? If not, why?

Cumming: RS Means is used in the analysis of crew productivity, trade line % variances, and workers comp analysis.

Davis Langdon: RS Means is not used since they do not feel the cost data is appropriate to the unique nature of individual projects in various locations across the country.

Don Todd Associates: RS Means Building Construction Cost Data is used as a work item cost reference. This Cost Data is used as a reference to check the price of cubic yard of concrete, linear feet of pipe or

square feet of carpet of tiles. Their experienced estimators do not "directly" use the cost per square foot provided by RS Means Square Foot Costs Data to develop conceptual statements of probable construction cost for a particular type of building; instead they use in-house database and own experiences with other similar projects.

Faithful + Gould: RS Means cost data is used by estimating department since they have the capacity to adjust standard RS Means' cost by applying localized wage rates, material costs and productivity. Estimators used the RS Means cost data as a basis for starting a pricing exercise but the estimators always fall back to their historic cost data, compare it to RS Means and make the adjustments required in order for the costs to be reflective of the specific market and project pricing.

O'Connor Construction Management: Rs Means publications are used in numerous ways. Their database "productivity" rates are based on RS Means productivity rates. RS Means Labor Rate book is another great resource for determining labor rates in various parts of the country and for benchmarking workers compensation rates by trade and state. RS Means unit price and assemblies cost books also contain valuable information. However, they have found that RS Means SF Costs Books is an unreliable source to benchmark construction costs in California; since in most instances, they have found the cost to be significantly low for estimating construction costs in California.

Leland Saylor: Saylor uses RS Means "unit cost" data as a guide or check on individual line items, after modifying the costs for labor rate, geographic area, seismic codes and variety for other factors. However, it is difficult, if not impossible, to build a square foot guide that would be appropriate for all building types and all geographic regions. Saylor feels that no guide is capable of predicting specific projects without a professional estimator's judgment, except in very simple and common types of work. Saylor and RS Means are valuable references and are some of the many tools used to 'assist' the estimator in the production of an estimate, but cannot be used on a stand-alone basis to determine appropriate costs.

Sierra West Group: The Sierra West Group does not utilize the RS Means Square Foot Cost Book on a regular basis for cost estimating. The RS Means is another reference manual to refer to when they are analyzing costs, nor a resource for costs. RS Means is not user-friendly to inexperienced users.