

PROPOSAL FOR CONSULTING SERVICES

SUBMITTED TO: CABA

SUBMITTED BY:
REED CONSTRUCTION DATA/RS MEANS
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PROPOSED SCOPE OF SERVICES

Part I TECHNICAL SCOPE AND DEFINITION

Phase A: Discovery and Cost Research

RS Means recommends an initial discovery task for the project that will provide an understanding of engineering dynamics for smart and intelligent buildings for the three levels of integration required including non-integrated, partially integrated, and fully integrated buildings.

The output of the initial discovery is to determine the implementation costs associated with an intelligent office building based upon buildings over 200,000 square feet in size. Means would propose to research and calculate costs for the following:

BUILDING AUTOMATION

- 1. HVAC
- 2. Lighting Control
- 3. Power Monitoring
- 4. Intrusion Detection
- 5. Door Access Control & Security
- 6. Public Address System
- 7. Elevators
- 8. Digital Video Surveillance

DIGITAL AND ANALOG DATA BANDWIDTH ENERGY MANAGEMENT INTEGRATED LOAD SUPPLY

Once all of the associated cost research was completed for the office building sector, agreed to and reviewed by the technical team (Tom Keel, Phil Waier, Gene Spencer and John Chiang) an analysis of other vertical sectors would be conducted including universities, government, healthcare and residential. Each engineer on the team would be assigned a particular vertical market(s) segment for analysis.

For the additional vertical analysis, our sister company Reed Construction Data maintains a proprietary database of construction projects at three phases: planning, bid and post bid.

At any one time, there are over 100,000 building projects in the Reed Connect electronic database representing vertical building types across the U.S. and Canada.

The profile of each project includes the following:

Location of project by state
Stage of Project: Planning & Post Bid
Total cost of project
Square Foot in project
General Contractor and/or Architect of the project
Plans and Specifications for the Project (electronically)

Means will abstract from Reed Connect "plans and specifications" electronic files a best practices understanding of current smart building technology integration for the vertical building types to classify all the verticals. We will establish 2004 as the baseline year. In this way going forward, CABA can assess the growth of the market as a result of increased specification and volume in the market.

The output of Phase A will provide an assessment of best practices; identification of architects, general contractors and engineers specifying smart buildings; and profile information with regard to total project value, square foot and scope of projects in MSA's and "hot corridor" markets across the U.S. and Canada. All of this activity becomes baseline information to monitor the results of the industry consortium program. Additionally, we will research and define the costs associated for the three levels of integration for the office building market only. Lastly, for the purposes of cost research and data collection, there will be an assessment of appropriate Building Automation mapping and classifications/reclassifications as determined by the technical team.

Phase B: Predictive Cost Models

The next phase of the project will develop predictive cost models based upon all the verticals (office/commercial, university, government, healthcare, residential) for associated costs to develop smart buildings at different levels of integration. Costs associated with planning, engineering, implementation and life cycle will be assessed. RS Means has extensive experience developing cost models for industry and government based upon its square foot methodology as well as data is the RS Means *Square Foot Cost Data Publication* and RSMeans *Assemblies Cost Data Publication*.

To accomplish this requirement, RS Means will provide:

• Quantity take-off and estimates mapped to Means lines with detailed breakdown of material cost and labor according to 1-16 CSI Divisions and/or the new Masterformat CSI Divisions 21-28. For this project CSI Divisions 15, 16 and 21-28 will be used extensively. Means engineer team members were chosen for their expertise in these divisions.

- Cost Model built into CostWorks which is a RS Means proprietary cost estimating system
- Costs modeled for the three levels of integration to the verticals across location factors in the U.S. to determine installed costs for 900+ zip codes

The models will be built in Means CostWorks electronic database system using Means' Square Foot Data methodology. In CostWorks, project parameters are defined and the system is built from the quantity take off.

Design documents and specifications will either be provided by the client or abstracted from the Reed Construction Data/RSMeans proprietary database of plans and specifications.

Means will research the elements/fabrication costs and design a cost model. A complete material takeoff will be performed for major configurations with the variety of design options identified. The cost model will be built using an assemblies approach supplemented by detailed unit prices where applicable. The assemblies and unit prices required for each cost model would be identified using *Means Assemblies* and *Building Construction Cost* databases. Appropriate quantities will be attached to the required assemblies and unit prices.

The models are to be cost engineered based on the most typical size requirement with output on a cost per square foot basis. The model will be built utilizing CostWorks a proprietary software offer of RS Means. Costing will be done on a national average basis. Following this task, the cost estimates output from the models will be localized using our standard CCI (City Construction Cost Index) indexing system, which is driven by the first three digits of a zip code. There are indexes for approximately 930 zip code locations. This enables the cost drivers of the model to be localized to different areas of the country.

The CostWorks system fully automates Means Cost Data in a windows environment. It is easy to use and most importantly updated annually. CostWorks utilizes both RS Means detailed unit price cost data as well as assemblies which can be compiled into separate cost lists which are quantified to create estimates or estimating models.

The output of Phase B is the following:

• Cost engineered models (three phases of integration and all verticals)

- Hard copy report of cost estimates and cost models for approval
- Model built in Means CostWorks with site license provided

Web ex orientation for use of CostWorks

TECHNICAL TEAM FOR THE PROJECT

Means Engineering Department staff includes four licensed P.E.'s, architect, cost estimators and engineer/editors (each with over a decade of engineering and construction field experience) as well as a four person in-house IT group. Three Engineer/Editors have extensive QA/QC experience within the construction industry.

Senior Engineers within the Engineering Department hold specific CSI Division responsibility. Additional responsibilities include supervision of cost researchers assigned to the Division as well as seminar instruction, estimating and consulting projects. The designated project team is Phil Waier, PE (technical) and Laura Dempsey (business). Other RSMeans members of the technical team include John Chiang, Electrical Engineer and Gene Spencer, Mechanical Engineer. (note: see end of document for executive profiles).

REED CONSTRUCTION DATA/RS MEANS Company Qualifications

The RS Means Company, Inc. (Means) is exclusively in the business of researching, analyzing and reporting on construction costs and wage rates for commercial, industrial, institutional and residential markets. Means retains the country's largest professional research staff in this specialized area.

Means' approach to organizing, researching and reporting construction information is considered to be the industry standard. Our proprietary relational database system, populated by construction cost elements researched at their most detailed level, gives Means the unique capability of providing relevant cost information for the entire life cycle of a project - from early planning, to design, construction, labor and facility maintenance. Our Engineering project teams effectively conduct cost modeling and benchmark research for clients nationwide.

Over the years Means has developed a comprehensive offering of products and services tailored to meet the needs of our loyal customers. What began as one book over 50 years ago has evolved into over 25 annual cost publications, 15 CostWorks CD titles, 70 reference publications, databases which integrate into virtually any software application, 15 educational seminars and a diverse range of custom consulting services. No other cost provider is able to match this ability.

The following describes Means' unique capabilities...

- Means has been in the business of researching, publishing and selling construction cost information and related services for over 50 years. In addition to maintaining a database of 70,000+ unit prices, 25,000 systems/assemblies, 100+ building models covering all facets of construction, Means developed and maintains the current UPB
- Means Unit Price database is organized in the Construction Specifications Institute (CSI) MasterFormat. Each line item includes coding, description, material, labor, equipment, crew and productivity information
- Means cost publications are researched and distributed annually, supplemented by updates of their City Cost Indexes on a quarterly basis
- Means has been researching and publishing quarterly Construction Cost Indexes for the past 25 years. These indexes are arranged historically. Compiled over a time sequence these will demonstrate construction trends of key materials and trades for cities throughout the U.S. Regular users of *Means Construction Cost Indexes* use the information as a forecasting tool for construction planning. Means' market basket survey capability coupled with CMD's Project News provides a wealth of information for economic forecasting and analysis.

In twelve locations across the country, senior engineers conduct technical seminars for design/owners as well as construction management professionals. Seminar topics include Unit Price Estimating, Value Engineering, Mechanical and Electrical Estimating, Repair & Remodeling Estimating, Square Foot Cost Estimating, Facilities Maintenance and Repair Estimating, Managing Facilities Construction & Maintenance, Advanced Project Management, Scheduling & Project Management, Developing & Managing Facility Assessment Programs and Plan Reading & Material Takeoff.

Means was formed in the early 1940's when civil engineer Robert S. Means began recording construction costs in a notebook - in a standardized form - useful for estimating upcoming projects. His concept was novel and so reliable, others soon sought out his advice, and in 1942 the first edition of Means' *Building Construction Cost Data* was published. What began as a notebook - has become the most comprehensive construction cost database in North America.

Over a quarter-million construction professionals seek the cost advice of Means each year for the purpose of applying comprehensive data to reliable, accurate cost estimating and cost management. Means hierarchical database system contains over 70,000 unit-price line items and 25,000 assemblies of typical building systems as well as hundreds of commercial and residential square foot building models.

Means is the only cost data provider to link all the basic components of commercial construction – wages, equipment rental rates, building material prices, and productivity in a relational database system. The proprietary methodology for defining how components interrelate is the key to accurate estimating and planning.

Means headquarters, a 24,000 square foot facility near Boston, is staffed with experienced cost professionals: estimators, researchers and statisticians, database and computer systems specialists, trainers and educators, account managers, and a team of consulting engineers and contractors - each an expert in site, structural, architectural, mechanical and/or electrical costs.

Supplying this staff with raw cost data is an extensive North American network of contractors, manufacturers, wholesalers, distributors, labor experts, and independent estimators. Means cost professionals participate actively with industry and academic associations. This unique industry-wide collaboration enables Means' staff to keep pace with the latest trends and technology, uncovering construction material price shifts as well as changes in the cost of labor and equipment to install. All reported cost changes and predictions are researched, analyzed and validated by Means' in-house staff.

Maintaining a long-term commitment to a strong technical staff is at the core of Means business model and the key component of our ability to deliver industry leading cost data. All of Means operations are automated and integrated with state-of- the-art computer systems and software applications. Means is currently staffed with 86 full and part time employees. Collectively, the Engineering Department possesses years of experience in disciplines including civil engineering, structural engineering, mechanical engineering, electrical engineering, architecture, construction management and cost estimating.

Means is part of Atlanta-based Reed Construction Data an assembly of dynamic companies with a common focus on providing product, project, and cost & estimating data to the construction industry. Together, these companies provide powerful tools to expediently research, assess and evaluate construction projects and associated companies. Clients include firms, professionals and product manufacturers in the architectural, engineering, construction and facility management (AEC/FM) community that compete in domestic and global markets.

In May 2000, the group was acquired by Reed Business Information (formerly Cahners Publishing), a Division of Reed Elsevier. Reed Business Information www.reedbusiness.com.com is the largest business-to-business publisher in the United States. Offices are located throughout the United States as well as Hong Kong, Singapore and London. Reed Elsevier, traded publicly, is a worldwide publishing and information provider whose activities include scientific, professional and business publishing. Reed Elsevier's principal operations are in North America and Europe with annual sales in excess of \$8 billion and 35,000 employees.

RSMeans is indisputably the largest and most-quoted publisher of commercial construction cost information in the world. Our customers rely on us for accurate, thorough construction cost information specific to the type of work they do. It is estimated that RS Means currently holds greater than a 70% market share in the sale of construction cost information.

Currently, Means publishes over 25 annual cost publications covering new construction, renovation and facilities maintenance. Different publications include various levels of detail from unit price to assemblies to square foot building models. Each and every cost publication includes reference tables, crews, trades, equipment and city cost indexes.

These 2005 publications include the following:

Building Construction Cost Data

Building Construction Cost Data - Metric

Building Construction Cost Data - Looseleaf Edition

Building Construction Cost Data - Western Edition

Means Mechanical Cost Data

Means Square Foot Costs

Assemblies Cost Data

Means Electrical Cost Data

Electrical Change Order Cost Data

Light Commercial Costs Data

Plumbing Cost Data

Assemblies Cost Book and Unit Cost Book

Heavy Construction Cost Data

Heavy Construction Cost Data – Metric

Open Shop Building Construction Cost Data

Building Construction Cost Data – Western Edition

Site Work & Landscape Cost Data

Facilities Maintenance & Repair Cost Data

Facilities Construction Cost Data

Repair & Remodeling Cost Data

Residential Cost Data

Interior Cost Data

Concrete & Masonry Cost Data

Labor Rates for the Construction Industry

Means Construction Cost Indexes

Square Foot Costs

Yardsticks for Costing

Means database and software publishing experience spans the last 17 years.

Means published its first software estimating system in the early 1980's and continued to publish estimating software with data through 1990.

Over the past five years we have gained extensive experience in the integration of our construction cost database into many different kinds of software platforms. Means CostWorks CD Library provides users with an easy-to-use database tool to access and estimate with Means digital cost data. MeansDataTM is also integrated into 30 different estimating and CAD software systems available in to the construction industry. Additionally we have worked with many clients to integrate our data directly into internally developed software applications.

RS Means has an organization-wide dedication to the construction industry. This is evidenced by the stringent and formalized performance management system in place today. Certain levels of academic achievement, professional license requirements and experience are enumerated in job-family descriptions for all engineers.

Means participates with major construction industry conferences such as the Construction Specifications Institute, American Institute of Architects, National Society of Professional Engineers, National Association of Home Builders, International Facility Managers Association, A/E/C Systems and the Association for the Advancement of Cost Engineering. We have engineers and business professionals who sit on national industry committees for such organizations as ASTM, ANSI, CSI and NSPE.

The Engineering Department staff includes four licensed P.E.'s, architect, cost estimators and engineer/editors (each with over a decade of engineering and construction field experience) as well as a four person in-house MIS group. Three Engineer/Editors have extensive QA/QC experience within the construction industry.

Executive Profile – Phillip R. Waier, PE

As Principal Engineer for RSMeans, Mr. Waier specializes in advising clients in government and legal sectors. He is currently Program Manager for the U.S. Army Corps of Engineers electronic global cost estimating database and Lead Consultant for Pentagon and General Services Administration engagements. As a commercial cost construction authority, he examines material and local cost factors and recently completed a study to determine national asphalt and cement usage for Portland Cement Association. He has technical responsibility for RSMeans cost estimating data guides including *Means Building Construction Cost Data* and *Means Facilities Maintenance and Repair Cost Data*. Mr. Waier also serves as an expert witness in class action suits involving commercial and residential building products. Joining RSMeans in 1989, he previously held engineering and management positions with Mobil Oil Corporation, Janus Incorporated and Charles T. Main/Metcalf and Eddy, Inc. Mr. Waier earned an M.S. degree in Civil Engineering at Villanova University and is a Registered Professional Engineer in Massachusetts and Rhode Island.

Executive Profile - John H. Chiang

Mr. Chiang is an Electrical Engineer/Editor and Cost Engineer at RSMeans. Mr. Chiang has cost estimation expertise in the residential, commercial and industrial sectors. He is responsible for the technical editing of annual cost data books, including *Asia Pacific Corporation, European Construction Costs* and *Means Electrical Cost Data Handbooks*. Mr. Chiang is currently working on projects for the Sheraton Grande Hotel, the U.S. Post Office, U.S. Department of Energy, and Alcan Cable Corporation. He is technical lead for RSMeans "time and motion" studies for building product manufacturers that track installed costs and productivity for new product introductions. He also consults on life cycle cost studies and benchmark cost indices. Previously employed as a Project/Cost

Engineer at Windell & Trollope USA, Mr. Chang joined RSMeans in 1989. He holds a Master's degree in Industrial Engineering from the University of Texas and is a Registered Professional Engineer in that state. Mr. Chiang is a member of both the National and Massachusetts Society of Professional Engineers, and a Senior Member of the Institute of Electrical and Electronics Engineers.

Executive Profile – Eugene Spencer

Mr. Spencer is a Senior Engineer consulting with clients in both government and corporate sectors. He has over 30 years of experience in private and government construction and facilities maintenance on complex projects such as hospitals, medical research facilities, and high-rise buildings and utilities installation. Mr. Spencer is lead technical engineer in the development of a facilities maintenance assessment tool for General Motor's facilities throughout the US. In addition, he has participated in developing a model to predict flood damage on highways, for the U.S. Army Corps of Engineers. Mr. Spencer's background as Facilities Manager, Mechanical, Electrical and Plumbing Engineer, and Construction Manager enables him to provide solutions to multifaceted problems in design, construction, maintenance and operations. Prior to joining RSMeans in 2003, Mr. Spencer was a Project Manager for Daniel O'Connell Sons Construction, and he has held similar positions at Bechtel, Morrison Knudsen, Turner Construction and the U.S. Navy's CEC Corp. He earned a B.S. degree in Civil Engineering at Arizona State University.