

State College Area School District  
Office of Physical Plant  
Ed Poprik, Director

V-C

To: Board of School Directors  
From: Ed Poprik  
RE: **Construction Management Options for High School project**  
Date: May 19, 2014

V-C1

Recommend that the Board of School Directors approve the tentative RFP for Construction Management Services (CM) and additionally approve release of the RFP if the May 20, 2014 High School Debt Referendum is passed.

V-C2

Recommend that the Board of School Directors approve the tentative Job Description for Clerk of the Works (COTW) and additionally approve advertisement of this position's availability if the May 20, 2014 High School Debt Referendum is passed.

**Background:** Based on the aggressive project development calendar, Construction Management strategies may need to be implemented very shortly after the referendum vote. All actions and considerations in this regard are, of course, contingent on approval of the referendum.

The CAC for Facilities reviewed and suggested revisions to the draft documents that had been presented to the Board at the May 5 meeting. The revised documents are attached.

*Construction Management Options-May 19, 2014*

An interview and selection process similar to previous hires for CM services is anticipated, with the CAC for Facilities conducting interviews that are open to the public and making a recommendation to the Board. If approved, the following draft schedule is planned for the CM process:

May 21	Release CM RFP
June 4	Responses due back
June 9 – 18	Conduct Interviews
June 23	Present recommendation to Board

An internal hiring process for the COTW position would be conducted with the following timeline as a goal:

May 21	Advertise COTW position
June 18	Responses due back
June 25 – 31	Conduct Interviews
July 14	Board Hires candidate (tentative)

**Attachments:**

- 1) Draft RFP
- 2) Draft Job Description
- 3) SCASD Design Review Standards

## **Request for Proposals - Construction Management Services**

**State College Area School District  
May 21, 2014**

Provide the information to the school district by responding to the following points, in the order stated below. Provide three (3) hard copies of the submitted materials, along with an electronic copy (in .pdf format, max size 7 MB). The deadline for submission is June 4, 2014.

### **Introductory Scope:**

In July of 2012, the State College Area School District employed the firm of Crabtree Rohrbaugh and Associates to develop scenarios for a potential High School Project. A final scenario was developed to a “pre-schematic” design phase. (See web site). On May 20, 2014, the voters approved a referendum to fund this project.

Continued development of this project will commence immediately with a goal of releasing bid documents in the Spring of 2015.

The total project cost for the High School will be \$115,000,000.00; with construction costs anticipated to be around \$90,000.00.

Duration of the scope of work is projected to be from June 2014 through September 2018. (See attached)

This project will be bid according to Pennsylvania Department of Education regulations, with the Construction Manager (CM) acting in an agency capacity. The District will work with the selected CM to determine the final number of Prime Contractors; however, it is anticipated that the work will be broken into 10-20 primes.

More information on this project can be found at:

<http://www.scasd.org//site/Default.aspx?PageID=20967>

**Request for Proposal:**

- 1) A single page cover letter describing your firm's interest and unique qualifications for this project.
- 2) Please identify the project team(s) and structure(s). (The on-site staff members responsible for the construction phase will be expected to be present at the final interview and will be identified specifically in the final contract documents.)
- 3) For a project of this size, location, and duration please discuss your initial thoughts around the separation of work and multiple prime contracts. Further detail the strategies that you will use to help develop the final related contract documents.
- 4) As these will be LEED projects, please detail your previous successes and involvement in the certification and commissioning processes.
- 5) Describe your firm's abilities in regard to utilizing BIM for this project.
- 6) Provide a recent example of a site logistics plan for a similar project.
- 7) Please describe your approach to Value Engineering and provide a specific project as an example, including reports provided and a summary of the findings that were implemented as well as those rejected.
- 8) Please describe your strategies for managing change orders and provide a specific project as an example, including reports provided to the owner and a summary of the budget impact.
- 9) In order to evaluate the experience of the firm; please identify at least 3 but not more than 5 similar projects that the staff assigned to this project have performed within the last 5 years. Provide a brief self-appraisal of your performance with regard to the project meeting: budget, completion time, and customer requirements. Please also include contact information for each project.  
*(If applicable, this can be combined with items 6, 7, and 8).*

10) Fee:

All fees will be stated as “fixed fees” rather than percentages. The district plans on utilizing AIA document C132-2009 SP as a basis for the final, negotiated contract. Specific clarifications, additions, amendments, and modifications that will be applied to this document are described below. It is incumbent for all firms to understand all aspects of this fee and scope; therefore, all questions must be formally submitted by May 30 and answers will be distributed to all parties.

3.2.2 through 3.2.9: The district also has its own Design Review Standards (30/60/90%) process (attached), which will be incorporated into the final contract. While these Design Review Standards are intended for the architect’s design development submissions, the CM will provide a cost estimate update, constructability review, and value engineering report in response to each phase. Included with the fixed fee should be all costs associated with the project cost estimate, value engineering, and a constructability report at each of the three above-mentioned reviews.

11.6.1.2 and 11.6.1.10: No support for the CM in terms of job trailer or office supplies, services, and equipment will be provided for in the general bid contracts, so these costs must be reflected in the fixed fee as well.

**Staffing-**

1.1.12 and 3.3.2: A project manager, who will be available throughout the project, will be appointed.

During pre-construction, staffing needs will vary dependent on the stage of development; the CM will provide adequate staffing to meet the requirements of the project and the schedule.

During the construction phase, the project manager will have 100% of their workload dedicated to the project. If a change in the project manager is required, the owner will be granted the right to approve the replacement. In addition to the project manager, the CM will provide a project superintendent and a project engineer. At minimum, the CM will provide at least 2 staff members on-site at all times when construction is in progress. Additionally, adequate administrative support will be

provided either on-site or another location. Finally, specialty support for technical issues will be supplied as necessary, and back-up or supplemental staff will be added for times when the primary staff is not available or requires additional support. These requirements are minimums and the CM will provide any additional staffing to meet the requirements of the scope of services.

5.5: The District will provide 1 full-time Clerk of the Works (COTW) in support of the construction management efforts. The CM firm will work in concert with the district's COTW to manage day-to-day activities. Due to the importance of a coordinated effort, the CM will provide a desk for the COTW in the CM supplied office space.

**Pre-construction** - the CM will be a full participant in the integrated design process and be expected to attend all meetings to achieve this requirement. Development of a phasing plan will be part of this responsibility.

3.2.11: The CM will use the technical specifications supplied by the architect to develop the "front-end" documents and the separation of work for the prime contractors as part of a complete set of bidding documents. In conjunction with project estimates, the CM will also provide a suggested list of bid alternates to use in post-bid budget reconciliation.

3.2.14: The CM will aid the district in development and evaluation of a Commissioning (CX) RFP. The CM will then aid in coordination of the CX services throughout the duration of the project.

### **Construction phase –**

Added service to be included in the base bid: The CM will establish an electronic submittal process and manage it throughout the course of the project. The vehicle for this process must be a jointly accessed on-line system available to the district, the architect, and all prime contractors. Schedules, meeting minutes, technical submittals, change order requests, and progress payments will be included at a minimum. At the end of the project, all files from this system will be delivered to the owner in electronic format. All costs associated with this endeavor are to be funded by the CM.

Added service to be included in the base bid: The CM will collect and manage the background checks as required by PA statutes. Additionally, they will actively monitor the status of all workers on the site.

3.3.5: Utilizing schedules provided by the multiple prime contractors, the CM will develop, and regularly update, a coordinated construction schedule.

3.3.6: At a minimum, the CM and COTW will jointly lead bi-weekly project meetings, and on opposite weeks, bi-weekly phasing meetings throughout the scope of the project. Meeting minutes will be the responsibility of the CM.

3.3.17: The CM will assist the COTW in developing and maintaining a change order log based on a pre-determined contingency. All change orders will be classified as either “Document, Regulatory, Owner requested, or Unforeseen conditions.” The CM will review and advise the owner regarding each change request.

#### **Post Construction –**

3.3.24: Adequate participation in project closeout, punch list development, and commissioning will be expected. For the purposes of this fee, do not include the costs of the commissioning agent.

8.2.4: All disputes will be settled through litigation as opposed to arbitration.

#### **Other meetings (beyond standard project related services)-**

Added service to be included in the base bid: Attendance at meetings of the CAC for Facilities, approving authorities, and the Board of School Directors will be periodically required. These are generally evening meetings lasting several hours. For the purposes of this proposal, include 48 meetings in the base fee and include a per-meeting cost for adds or subtracts to the meeting total in item 7B.

10A) Please indicate your fixed fee for this project. The fee will be all-inclusive for services from schematic development through project closeout.

10B) Please list a per-meeting fee for “other” meetings. (All direct, project related meetings are included in the base fee, regardless of number required).

10C) List any additional services or costs that could be incurred, including reimbursable expenses and include a fee schedule. (11.4: All indirect costs will be billed 1X, that is, no mark-up).

Attachments:

Draft Phasing Plan  
SCASD Design Review Standards (30/60/90%)



**State College Area School District**  
**131 West Nittany Avenue**  
**State College, PA 16801**

## **JOB DESCRIPTION**

**Job Title:** Clerk of the Works

**Effective Date:** XXX

**Reports to:** Director of Physical Plant

**Department:** Physical Plant

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**Job Summary:** Observe the construction projects on-site to protect the School District against defects and deficiencies in the contractor's work. The Clerk of the Works insures that the School District has a construction administrator on the premises on a full-time basis to protect the interest of the School District in all project related matters. This position supplements, rather than replaces, the work of the Construction Manager and Architect.

This position is a fixed term contract for the period July, 2014 through July, 2018, with the possibility of extension.

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### **Qualifications:**

- \*Education:** Degree in construction management, engineering, architecture or related field preferred.
- \*Experience:** Five (5) years related experience preferred.
- \*Skills:** Must possess comprehensive knowledge of construction practices, construction documents, and related codes.

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### **Essential Duties and Responsibilities:**

- 1) On a full-time basis (40 hours per week, or more if necessary) conduct on-site observations and comprehensive checks of work in progress as a basis for determining conformance of work, material and equipment with the contract documents.
- 2) Serve as liaison between the School District, Construction Manager, and Architect, and maintain a professional relationship with the Prime Contractors and all sub-contractors on the job.
- 3) Monitor that tests, which are required by the contract documents or Government regulations, are appropriately scheduled by the responsible contractor and performed and observed.
- 4) Verify that the Construction Manager maintains, orderly files for correspondence, reports of job conferences, documents, and including all addenda, change orders, payrolls, additional drawings issued subsequent to the award of the contract, and all other pertinent information.
- 5) Keep a daily log, recording hours on the job site; weather conditions, list of visiting officials and jurisdiction, daily activities, decisions, observations in general, photographs, videos, and specific observations in more details as in the case of observing test procedures.
- 6) Verify that the Construction Manager does not permit the installation of any materials and equipment for which shop drawings are required unless such drawings have been approved and issued by the Architect.
- 7) Do not authorize deviations from contract documents. Do not conduct any test personally. Do not enter into the area of responsibility of the Contractor's field superintendent. Do not expedite job for Contractor. Do not advise, or issue direction relative to, any aspect of the building technique or sequence, unless a specific technique or sequence is called for in the specification. Do not approve shop drawings or samples.

- 8) Report any observed variances, conflicts or potential problems to the Construction Manager and Supervisor immediately.
  - 9) Aid the school district in evaluation of any suggestions or modification, which may be submitted by the Contractor to the Construction Manager and Architect.
  - 10) Be alert to the construction schedule and to conditions which may cause delay in completions and report same to Supervisor and the Construction Manager.
  - 11) Attend all required conferences held on or off the job site and report all results to the Supervisor. Additionally, attend evening meetings, such as Board of School Directors and Citizen's Advisory Committee(s), as directed by Supervisor.
  - 12) Monitor and verify that the Construction Manager is maintaining required background checks and payroll information and records.
  - 13) Along with the Construction Manager, accompany local, state, or federal inspectors through the project, record the outcome of these visits and report same to the Supervisor.
  - 14) Receive samples which are required to be furnished at the job site; record date received and from whom, notify the Architect of their readiness for examination; record Architect's approval or rejection; and maintain custody of approved samples.
  - 15) Aid Construction Manager in maintaining a project directory of Contractors and Sub-Contractors.
  - 16) Review and advise the School District on the requisitions for payment as submitted by the Contractor and approved by the Construction Manager and Architect.
  - 17) Aid the Architect, Construction Manager, and School District in the review and documentation of Change Order requests.
  - 18) When the School District occupies (to any degrees) the building prior to actual completion of the work by the Contractor, be especially alert to the possibilities of claims for damage to completed work prior to the acceptance of the building.
  - 19) During the course of the work, verify that the Construction Manager collects warranties, certificates and maintenance operation manuals, and at the acceptance of the project, assemble this material for review by the Architect and delivery to the School District.
  - 20) Coordinate with the Construction Manager in reviewing, scheduling and verifying that all required training is completed as outlined in the project documents.
  - 21) After Substantial Completion, aid the Architect and Construction Manager in management of the punch list.
  - 22) Work closely with the School District Administration to avoid conflicts between work being performed and daily district activities.
  - 23) Aid the Architect and Construction Manager in the review and documentation of all items related to LEED certification, including but not limited to the Commissioning process.
  - 24) Coordinate the delivery and installation of the School District owned and purchased furniture and equipment.
  - 25) Verify that the Construction Manager reviews and marks-up, as needed, as-built drawings prior to delivery to the School District.
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**Ancillary Duties:**

- 1. Any other duties as assigned by supervisor.

**Physical Demands:**

Light Work – Exerting up to 20 pounds of force frequently, and/or a negligible amount of force constantly to move objects. If the use of arm and/or leg control required exertion of forces greater than that of sedentary work and if the worker sits most of the time, the job is considered light work.

Check the essential physical requirements of the job:

- |   |  |  |  |
|---|--|--|--|
| <input checked="" type="checkbox"/> Visual acuity (color, depth perception and field of vision) |  |  |  |
| <input checked="" type="checkbox"/> Seeing  | <input checked="" type="checkbox"/> Hearing            | <input checked="" type="checkbox"/> Talking  |  |
| <input checked="" type="checkbox"/> Climbing  | <input checked="" type="checkbox"/> Balancing          | <input checked="" type="checkbox"/> Stooping |  |
| <input checked="" type="checkbox"/> Kneeling  | <input checked="" type="checkbox"/> Crouching          | <input checked="" type="checkbox"/> Reaching |  |
| <input checked="" type="checkbox"/> Standing  | <input checked="" type="checkbox"/> Walking            | <input checked="" type="checkbox"/> Pushing  |  |
| <input checked="" type="checkbox"/> Pulling   | <input checked="" type="checkbox"/> Fingering          | <input checked="" type="checkbox"/> Grasping |  |
| <input checked="" type="checkbox"/> Tactile sense   | <input checked="" type="checkbox"/> Repetitive motions |  |  |

Lifting:	50 lbs.	75 lbs.	100 lbs.
Floor to Waist:	<input checked="" type="checkbox"/>	_____	_____
Waist to Shoulder	<input checked="" type="checkbox"/>	_____	_____
Overhead	_____	_____	_____
Carry 20 feet	<input checked="" type="checkbox"/>	_____	_____

**Work Environment:**

Subject to inside and outside environmental conditions  
Must be able to work in extreme cold (10 degrees or less) and extreme heat (90 degrees or more)  
Subject to physical hazards, including conditions that may affect the respiratory system and/or skin  
Must be able to wear a school district supplied hard hat  
Must supply and wear own steel toed shoes and other safety related apparel

**Temperament:**

Must be able to work in an environment with frequent interruptions  
Able to receive oral communication and convey details or important instructions to other workers accurately, loudly, or quickly

**Cognitive Ability:**

Ability to follow written and verbal directions  
Ability to read and write  
Ability to communicate effectively  
Ability to organize tasks  
Ability to handle multiple tasks  
Ability to exercise good judgment

**Specific Skills:**

Must possess leadership skills  
Must possess supervisory skills  
Must possess computer skills  
Must possess or obtain an "OSHA 10-hour card"  
Ability to operate various office equipment  
Ability to operate various maintenance equipment and vehicles

**I have read and understand the job description for this position. I am able to perform the functions of the position (without accommodation or with reasonable accommodation).**

(Signature)

(Date)



### **State College Area School District**

The following is a guideline for project design submittals to the Facility Committee of the State College Area School District. During the design process the committee must review three progress stages. They have been designated as 30%, 60% and 90%. If deemed necessary, the committee may require a final review after 90%, bringing the total reviews to four. At each review, members of the committee, along with representatives of the building in question, will be present. The group size will range from 10 to 20 (possibly more). 7 days prior to the review, members will be provided with .pdf copies of the drawings and .doc copies of any applicable specifications. The presentation should be sensitive to the size of the group and be presented with full size documents, reduced copies of key portions for each member and as many visual aids as necessary to accurately portray the project to the entire group.

Following the presentation a written list of questions and concerns will be forwarded to the design professionals within five working days. This list should be responded to specifically in writing at the following review. Verbal review of the response may be in the form of a preface to the next review or incorporated into the review itself (this will be dependent on the nature and extent of the questions).

The presentation will generally take place at one of the committee's regular monthly meetings. These meetings are held once monthly at 4:00 p.m. The meeting should last two hours but depending on the size and complexity of the project, multiple meetings may be required. If a complete written submission is not ready one week in advance, the design professional must at minimum submit an outline of the presentation along with the following; key areas for consideration, any expected deviation from submission requirements, and any unusual circumstances or problems. As many members of the design team as possible should be present to answer questions during the meeting. A thorough and well-presented submission will ensure that the design phase proceeds smoothly.

## **30% REVIEW**

This review may be the first exposure many at the meeting have had to the project. An overview of steps leading to the project and general description of work should precede the presentation of required documents. This phase should present several alternate solutions to the project requirements. If only one plan is presented, the process of identifying this solution must be identified and the plan justified.

Many elements are required but the key aspects of each review (30/60/90) are:

1. Plancon process (if applicable)

A thorough report of rationale used in determining if the project will be submitted for Plancon. If the project is determined to be submitted for reimbursement, progress on the process must be reviewed.

2. Program conformance analysis

Provide a general review describing how proposed design meets the functional, statistical, and educational requirements of the program. Describe any departures from program or any recommended changes and reasons thereof.

Include the appropriate stage of development for the Owner's Project Requirements (OPR) and Basis of Design (BOD) as required by LEED.

3. Schedule

Provide an update of the project schedule to reflect the completion of scheduled activities and refinement of the remaining design activities as well as construction phase milestone dates. Also, included should be:

- a. remaining dates for design phase submittals.
- b. bid calendar including dates of advertisement, pre-bid meeting, bid opening, and bid award.
- c. completed and scheduled meetings with code and zoning officials. List all required approvals and critical dates.
- d. completed and scheduled meetings with users' groups.
- e. important milestones that must be completed by the district.

4. Project Cost Estimate

Based on the documentation, an update of the project cost budget. Included should be:

- a. construction cost, including site costs
- b. soft costs, including fees for design, consultants and project administration.

The documentation prepared by the architect at the completion of the 30% phase will usually consist of the following.

- A. Site plan showing the relationship between new and existing structures, traffic flow, existing and proposed topography, landscaping features, roads and walks and major utility connects, typically at 1-inch = 20 feet scale. Utilities requirements (type, estimated load, proposed routing and connection locations):

Electric (Normal)	Gas
Water	Storm Water Management
Sanitary	Telecommunications
Fire Protection	

- B. Typical floor plan(s) at 1/16-inch scale. May be single line in this phase.
- C. Plans of special floors or areas at 1/8-inch to provide understanding of the design direction.
- D. Roof plan; 1/16-inch scale.
- E. Elevations. Not fewer than two (2) in schematic form at 1/16-inch or 1/8-inch scale as appropriate.
- F. Diagrammatic sections; 1/8-inch scale.
- G. Equipment and furnishings. Indicate any special equipment that influences design; show other equipment and furnishings as required for "proof-of-scheme."

The following reports are normally prepared as a part of the 30% review:

A. Material/Systems Outline:

1. Structural Systems. Describing proposed materials, foundation types, modules, design loads, and design criteria to be employed.
2. Building Envelope. Describing wall systems, window types, glazing types, provisions for cleaning and thermal characteristics and roof systems. (Waterproofing/weatherproofing requirements.)
3. Principal Interior Finishes. Describing finishes for typical areas, areas subject to heavy use or traffic, toilet areas, and food service areas, and any special finishes; for example, entry lobby, etc.
4. Mechanical Systems. Outline tentative selection of energy heating-cooling systems and control methods, including relationship to existing systems, if appropriate. Provide design data statement (temperature, humidity, etc.), block load data, proposed location of outdoor components.
5. Electrical Systems. Outlining tentative distribution method, typical lighting types and levels, fire protection, emergency and communication systems.
6. Telecommunications. Description of systems and capabilities. Service line location.
7. ADA requirements. State where standards for ADA are being met and any areas where standards have not been complied, and give reasons for noncompliance.

B. Interrelationship Review. Describe provisions for compatibility among structural, mechanical, and electrical systems; size and location of mechanical-electrical equipment spaces.

C. Code Analysis. Providing written statement describing methods proposed to comply with governing codes and regulations, including zoning, occupancy, life safety, fire resistance, fire protection, and structural adequacy.

## **60% REVIEW**

At this review questions or concerns posed from the 30% review must be addressed. Also, updates of the four key aspects (Plancon process, program conformance analysis, schedule, and project cost estimate) must be presented.

Additionally, the following documentation is required: .

- A. Site Development. 1 inch = 20 feet, similar to schematic submittal, plus the following:
  - 1. Entry and exit conditions, on-site roadway and final traffic flow with percent grades.
  - 2. Parking layouts, if applicable.
  - 3. All underground utilities and services.
  - 4. Proposed planting plan showing species, size, quantity and spacing of plant materials.
  - 5. Established elevations.
  - 6. Lighting layouts.
  - 7. Completed sewer planning module.
  - 8. Soil Erosion and Sedimentation Control Plan Draft.
- B. Floors Plans. 1/8-inch scale minimum, including designated room names and numbers, dimensions, door swings, and typical material indications. Tabulate design loads on drawings.
- C. Plans of Special Floors or Areas. Floor plans of special areas at 1/4-inch scale minimum.
- D. Reflected Ceiling Plans.
- E. Roof Plan. 1/8-inch scale, include penthouses, major mechanical equipment, expansion joints, and all projections visible from ground level.

- F. Elevations. 1/8-inch scale minimum for all exterior walls of building; include floor elevations and enlargement of special details or wall configurations.
- G. Sections. 1/8-inch scale minimum; number as required to reasonably illustrate floor relationships, construction thicknesses and profiles, vertical circulation, and special features.
- H. Typical Details. Plans should not be smaller than 1/2-inch scale, including exterior wall sections.
- I. Finish Schedules. Format is intended for construction documents; schedules must show construction document room numbers.
- J. Equipment and Furnishings. Expand schematic design requirements. Include a list on a room number basis, noting both new and existing equipment to be used. With existing equipment, note location and what, if any, modifications to the equipment will be necessary to adapt it to its new location.
- K. Mechanical/Electrical Provisions. Single line drawing to illustrate duct work, principal piping, riser diagrams and single line diagrams, lighting layouts, and other typical systems; provide double line drawings in equipment rooms and restricted areas at scale as required to illustrate adequacy of area and clearances.

The following reports are normally a part of the design phase documentation:

- A. Structural Provisions
  - 1. Design Data
    - a. Design criteria employed
    - b. Live, dead loads
    - c. Confirm system(s)
    - d. Confirm foundation type
    - e. Confirm special provisions for concentrated loads, openings, and equipment loads
    - f. Subsurface waterproofing methods, if applicable

B. Mechanical/Electrical Provisions

1. Confirm systems selections by analysis reflecting initial cost, useful life, rate of return, building construction and configuration, weather conditions, building occupancy, utility costs, and maintenance costs. Make analysis in accordance with the format shown in ASHRAE Guides, "Owning and Operating Cost Data and Summary." (This will be performed only if the district contracts for this additional service).
2. Integrated Systems (when applicable). Describe interrelationships, efficiency of control, and operation restrictions.
3. Energy and Utility Summary. Calculate estimated consumption of electricity, water, steam and gas, and flow capacities of drainage systems; provide breakdowns for major areas' subsystems or equipment loads. (This will be performed only if the district contracts for this additional service).
4. Lighting Fixtures. Provide manufacturer's name, description, illustration and characteristics for typical lighting fixtures, including exterior; designate areas where special fixtures or layouts are contemplated.

C. Code Analysis Review

Review analysis made during schematic design to confirm or supplement previous conclusions and update meeting reports with zoning or building code officials.

D. Acoustical Report

Outline provisions for sound control and attenuation in typical area; describe provision (or Consultant's report) for severe acoustic problems; describe provisions for isolation of sound due to motor-driven equipment, etc.

E. Area Volume Statistics

Check calculations made during schematic design, and tabulate any significant changes.

F. Outline Specifications and Related Documents

Provide brief description of proposed conditions of the contract and technical specifications, following the 50 division format of the "Uniform System for Construction Specifications."

## **90% REVIEW**

At the 90% review all questions and concerns from the 60% review must be addressed. Also, a complete and thorough update of the four key aspects (Plancon process, program conformance analysis, schedule, and project cost estimate) must be presented.

The following are requirements in addition to the items outlined in the 30% and 60% reviews:

### A. Civil and Site Work Drawings

#### 1. Site Survey

Incorporate, but qualify that its inclusion is for bidders' convenience only.

#### 2. Landscaping

Incorporate on the drawing as required schedule of planting materials.

#### 3. Stormwater Management and Underground Drainage

Include invert elevations; show foundations (if any) on drainage drawings. Include profiles, geotechnical criteria, infiltration and/or detention parameters.

### B. Structural Drawings

#### 1. Design Loads

Tabulate on drawings; identify design criteria; avoid duplication of any information or requirements stated on specifications.

#### 2. Protection

Show relationship to adjacent structures and methods of protection.

### C. Architectural Drawings

#### 1. Fire Protection

Identify location and extent of fire-resistive walls and partitions; identify rated door openings on schedules.

2. Elevators

Note characteristics on drawings, including speed, capacity, and electric current requirements (establish capacity allowance as appropriate).

3. Equipment

Show all equipment included in construction contract. Show equipment not on contract when anchorage is required or when advisable to facilitate delivery, location, or adjacent or related construction and the like.

D. Food Service Equipment

1. Base Drawings

Include for equipment other than free-standing with legs or manufactured bases.

2. Rough-in Drawings

Include, showing sizes, characteristics, and locations of mechanical and electrical services.

E. Mechanical Drawings

1. Equipment Rooms

Not less than 1/4-inch scale, showing multiple plan levels, when required, for clarity.

2. Sections

Include for equipment, piping, and duct work in restricted areas.

3. Duct Work

Show double line on plans, sections, and details. Provide one line riser diagrams.

4. Supports

Coordinate hangers, bases, and supports with other drawings.

F. Electrical Drawings

1. Panel Schedules
2. Motor Control Schedules

Include size and type starters, interlock devices, and disconnects.

G. Laboratory Equipment

1. Elevations

Include wall elevations for equipment in typical and special rooms. Include sections for special equipment.

H. Graphics

1. Both interior and exterior.

I. Engineering Calculations

The following reports are normally required at the completion of the 90% review:

A. Confirmation of reports submitted during design development phase as follows:

1. Code analysis review
2. Acoustical report for specialty areas such as music rooms and gymnasiums.
3. Area volume statistics

B. Changes--Since Approval of Design Development

Document any others not included hereinabove.

C. Conformance

Confirm conformance with requirements of City Code Agencies and Public Utilities.

The following specifications and related documents are required:

A. Cover, Title Page, and Table of Contents

Include official project title, Owner and User credits, architect's and consultant's credits, location, date, and official project number(s).

B. "Front End" Document

Appropriate general conditions, general provisions (special conditions) and the "Bidding Documents"

C. Technical Specifications

The architect is responsible for the technical (Division 2, etc.) specifications.

D. "Bidding" Documents

Documents, such as "Invitation to Bid," "Instructions to Bidders," Bid Bond Forms, Performance Bond Forms, Safety Program requirements, Project Schedule information, and other requirements.

At the completion of 90% review the committee will again formulate a written list of questions and concerns. Additionally, it will be determined if a written response is sufficient or a "final committee review" is required.