

### 3. PROFESSIONAL FEE GUIDELINES

Professional services required for University projects are defined in the following documents:

- Standard Form of Agreement Between Owner and Architect AIA B141, 1977 Edition.
- Supplements and Amendments to Standard Forms of Agreement Between Owner and Architect, AIA B141, 1977 Edition, with Appendices.
- Standard Form of Agreement Between Owner and Architect with Construction Manager AIA B141/CM 1980 Edition.
- Supplements and Amendments to Standard Form of Agreement Between Owner and Architect, with Construction Manager with Appendices.
- Standard Form of Agreement Between Owner and Construction Manager B801, 1980 Edition.
- Supplements and Amendments to the Standard Form of Agreement Between Owner and Construction Manager B801, 1980 Edition.

In addition to the above listed documents defining professional services each institution has their own requirements:

- ASU-Main: University Design Review Board Requirements; April 27, 1993.  
Consultant Manual for Architects, Engineers, Construction Managers,  
Revised; December 1994.
- ASU-West: Newly Formed, Design Review Board Requirements. (Not published as of January 1,  
1995).
- NAU: Appendix A, Guidelines for Professional Consultants; August 8, 1994.
- UofA: Planning and Design Review Advisory Committee (P.A.D.R.A.C.) Requirements; May  
18, 1993. Exhibit "C", Scope of Construction Management Services; Not dated. Scope  
of Consultant Services; Not dated. Design and Specifications Guidelines for Construction  
Projects; Revised November, 1992.

Included herein is a summary of the services required by the above documents. All of the required services are in the guidelines displayed in the matrices which follow,

The cost of reproduction of deliverables which consist generally of the required review materials and reports at each phase of the professional services are included in the professional fee guidelines. The cost of reproduction of the Contract Documents for use by contractors during the Construction Phase and for Bidding Purposes is not included.

The professional fees for normal engineering services as defined by the agreements are included in the guidelines. For the purposes of clarification, the following engineering services are considered "normal":

Structural Engineering

Mechanical (HVAC and Plumbing) and Fire Protection Engineering

Electrical Engineering

Professional fees for special consultants not considered "normal" (if required) are in addition to the fees included in the guidelines. Examples of special consultants include the following:

Food Services Equipment Consultant

Telecommunications Consultant

Acoustical Engineering Consultant

Vibration Consultant

Theater Equipment Consultant

Laboratory Equipment Consultant

Hospital Equipment Consultant

Civil Engineering Consultant

Landscape Architect

Radiation Shielding Consultant

Interior Design

Signage and Graphics

Professional fees for those services which the documents define as the Owner's responsibility are not included in the guidelines. Generally these services consist of the following:

Site Survey

Exploratory Borings and Geotechnical Analysis

Legal Fees

Accounting Fees

Fees for review of documents by regulatory agencies and for construction permits etc. are not included in the professional fee guidelines.

Construction Management services may be utilized for major projects. The services required of Construction Managers are defined in the Agreements and the Supplements to the Agreements. The manning level required on site during construction is not specifically defined in the documents. The consensus of the on site manning requirements displayed below has been used to formulate the guidelines for construction management fees. Adjustments are required when the manning level differs from the consensus or when services are different than those defined when the agreements are negotiated.

FIELD STAFF REQUIRED DURING CONSTRUCTION					
(MAN HOURS/WEEKS)					
PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)					
	\$ 1,000	\$ 2,000	\$ 5,000	\$ 10,000	\$ 20,000 +
ARCHITECTURAL ENGINEERING SERVICES (MAN HOURS/WEEK)					
ARCHITECTURAL	8	10	12	16	24
STRUCTURAL	3	4	6	8	12
MECHANICAL/PLUMBING	4	4	6	8	12
ELECTRICAL	1	4	6	8	12

PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)												
	\$ 2,000 - \$ 5,000			\$ 5,000 - \$ 10,000			\$ 10,000 - \$ 20,000			\$ 20,000 +		
CONSTRUCTION MANAGER SERVICES (MAN HOURS/WEEK)												
	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD
HOME OFFICE	8	2	0	16	8	0	24	12	8	32	12	8
FIELD PROJ MGR	30	26	20	40	30	24	40	38	30	40	40	40
ASST MGR	0	0	0	0	0	0	24	0	0	40	20	0
SECR	8	4	0	20	10	8	32	12	10	40	20	12

SCOPE OF ARCHITECTURAL/ENGINEERING SERVICES REQUIRED WITHOUT A CONSTRUCTION MANAGER

**01. PRE-PROGRAMMING PHASE**

- A. Architect must have an informal session with DRB or Facilities Department to ascertain their input on campus-related concerns on the site and building.
- B. The Architect may be required to prepare a site constraints/opportunities analysis and preliminary building size and conceptual alternative configurations ready for submission to DRB or Facilities Department for the informal session.
- C. ASU-Main: Weekly meetings with Building Committee and user.

**1. PROGRAM PHASE**

- A. The Owner must present the Architect with a facilities program which defines the requirements for spaces to be included in the facility.
- B. Architect must expand and re-define the facility program into a complete architectural program which accounts for required circulation and unassigned space and studies adjacencies and traffic flow.
- C. Architect must prepare a written report containing information in points A and B and the specifics required in Appendices of the Supplements and Amendments contract.
- D. Architect is responsible for a program phase cost estimate.
- E. Meetings:
  - 1. ASU-Main: Weekly meetings with Building Committee and user.
  - 2. UofA: Meetings with F.D.C. Coordinator and user departments.

**0.2 PRE-DESIGN PHASE**

- A. The Architect shall have an informal session with the DRB or the Facilities Department in order to ascertain their specific design criteria on the site and building within the framework of the architectural program.
- B. The Architect must submit a site analysis to include campus context, relationship to campus systems, campus land use plan and a building program criteria to the DRB or Facilities Department at the session. The UofA requires the AE to:
  - 1. Prepare a minimum of three different concepts.
  - 2. Contact University Personnel to discuss and agree to system appropriate for the project.

C. ASU-Main:

1. Kick-off meeting with Design Project Manager to review University Planning and Construction and Arizona Board of Regents Policies and Procedures.
2. Weekly meetings with Building Committee and user.

2. **SCHEMATIC DESIGN PHASE**

- A. The Architect shall provide a preliminary evaluation of the program and the project budget requirements.
- B. The Architect will prepare Schematic Design Documents based on approved program from Pre-Design Phase and the minimum requirements set in Appendices of the Supplement and Amendments Contract.
- C. The Architect will submit a statement of Probable Construction Cost.
- D. The Architect shall give a formal presentation to the DRB or the Facilities Department on the completed schematic design of the project.
- E. A building code analysis, a building massing study and exterior elevations with material choices noted are required for the presentation along with requirements in Appendices.
- F. The Architect shall assist the Owner in preparation of ABOR Project approval submission.
- G. ASU-Main: Schematic Design submittal to be signed off by Building Committee, City, State or Federal Agencies involved.

NAU: Plan Review to insure that design proceeds according to Land Development and Lighting Codes, special to NAU

3. **DESIGN DEVELOPMENT PHASE**

- A. The Architect shall prepare Design Development Documents according to the minimum requirements set in Appendices of the Supplements and Amendments Contract.
- B. The Architect must submit a further Statement of Probable Construction Cost.
- C. The Architect must have a formal presentation to the DRB or the Facilities Department on the completed design development of the project.
- D. Material and color selections, building code analysis and a model are required for the presentation along with the requirements in Appendices.
- E. ASU-Main: Design Development submittal to be signed off by Building Committee, City, State or Federal Agencies involved.

NAU: Code compliance review of Design Development.

**4. CONSTRUCTION DOCUMENTS PHASE**

- A. The Architect shall prepare Construction Documents consisting of Drawings and Specifications for the construction of the project.
- B. The Architect is responsible for the adequacy, fitness, completeness, suitability and correctness of the documents.
- C. The Architect shall assist the Owner in preparation of the necessary bidding forms, contracts and forms of agreement.
- D. The Architect shall advise the Owner of any adjustments to Statements of Probable Construction Cost.
- E. The Architect shall prepare and file documents that require approval of government authorities.
- F. The Architect shall assist the Owner in preparation of ABOR pre-bid notification.
- G. ASU-Main: 100% presentation to the Building Committee.  
NAU: Code compliance review just prior to release of bid documents.

**5. BIDDING OR NEGOTIATION PHASE**

- A. The Architect shall assist the Owner in obtaining bids or negotiated proposals.
- B. It is the Architect's responsibility, at no cost to the Owner, to revise all or any part of the drawings and/or specifications of the project to reduce the project cost to within the budget.

**6. CONSTRUCTION PHASE**

- A. The Architect and his consultants are required to make weekly field observations, and from those observations, the Architect is to submit weekly progress reports to the Owner.
- B. The Architect shall render interpretations necessary for the proper execution of progress of work.
- C. The Architect must administer Contracts for Construction.
- D. The Architect shall issue Project Certificates for Payment.
- E. The Architect shall be the initial interpreter of the requirements of the Contract Documents.
- F. The Architect shall receive and review Contractor's submittals such as Shop Drawings, Product Data and Samples and take appropriate action upon them.
- G. The Architect shall prepare Change Orders for Owner's approval.
- H. The Architect shall prepare a Punch List.
- I. The Architect shall have follow-up inspections when punch list items have been accomplished.
- J. The Architect shall conduct an inspection to determine the Dates of Substantial Completion and Final Completion and shall issue appropriate Project Certificates for Payment.

- K. Final as-built drawings to be on computer, CAD disk.
- L. ASU-Main: Monthly meetings with the Building Committee. Facilities Management Team to make periodic site visits on their own schedule and report to the AE, who must respond in writing with action taken.

**7. POST CONSTRUCTION SERVICES**

- A. The Architect shall conduct a post construction evaluation and inspection prior to expiration of the warranty and guarantee period and issue a written report to the Facilities Department.
- B. ASU-Main: AE shall assist in the preparation of the following:
  - 1. Reconciliation of the project account.
  - 2. Completion of ABOR forms 7-7 and 7-8.
  - 3. Vice President for Administrative Services project summary report.

SCOPE OF ARCHITECTURAL/ENGINEERING SERVICES REQUIRED WITH A CONSTRUCTION MANAGER

**01. PRE-PROGRAMMING PHASE**

- A. Architect must have an informal session with DRB or Facilities Department to ascertain their input on campus-related concerns on the site and building.
- B. The Architect may be required to prepare a site constraints/opportunities analysis and preliminary building size and conceptual alternative configurations ready for submission to DRB or Facilities Department for the informal session.
- C. ASU-Main: Weekly meetings with Building Committee and user.

**1. PROGRAM PHASE**

- A. The Owner must present the Architect with a facilities program which defines the requirements for spaces to be included in the facility.
- B. Architect must expand and re-define the facility program into a complete architectural program which accounts for required circulation and unassigned space and studies adjacencies and traffic flow.
- C. Architect must prepare a written report containing information in points A and B and the specifics required in Appendices of the Supplements and Amendments contract.
- D. Architect is responsible for a program phase cost estimate, if estimate is not within 5% of the estimate prepared by the CM, AE and CM must reinvestigate and correct.
- E. Meetings:
  - 1. ASU-Main: Weekly meetings with Building Committee and user.
  - 2. UofA: Meetings with F.D.C. Coordinator and user departments.

**0.2 PRE-DESIGN PHASE**

- A. The Architect shall have an informal session with the DRB or the Facilities Department in order to ascertain their specific design criteria on the site and building within the framework of the architectural program.
- B. The Architect must submit a site analysis to include campus context, relationship to campus systems, campus land use plan and a building program criteria to the DRB or Facilities Department at the session. The UofA requires the AE to:
  - 1. Prepare a minimum of three different concepts, which are within the budget.
  - 2. Contact University Personnel to discuss and agree to system appropriate for the project.

C. ASU-Main:

1. Kick-off meeting with Design Project Manager to review University Planning and Construction and Arizona Board of Regents Policies and Procedures.
2. Weekly meetings with Building Committee and user.

2. **SCHEMATIC DESIGN PHASE**

- A. Based on approved program, the Architect shall, with the Construction Manager, review site use and improvements, selection of materials, building systems and equipment, construction methods and methods of project delivery.
- B. The Architect shall provide a preliminary evaluation of the program and the project budget requirements.
- C. The Architect will prepare Schematic Design Documents based on approved program and Concept Design from Pre-Design Phase and the minimum requirements set in Appendices of the Supplement and Amendments Contract.
- D. The Architect will provide Schematic Design studies for the Construction Manager's review and upon completion of the phase, the Architect shall provide approved documentation for the Construction Manager's use.
- E. The Architect will submit a statement of Probable Construction Cost, if not within 5% of the estimate by the CM, AE & CM must reinvestigate and correct.
- F. The Architect shall give a formal presentation to the DRB or the Facilities Department on the completed schematic design of the project.
- G. A building code analysis, a building massing study and exterior elevations with material choices noted are required for the presentation along with requirements in Appendices.
- H. The Architect shall assist the Owner in preparation of ABOR Project approval submission.
- I. ASU-Main: Schematic Design submittal to be signed off by Building Committee, City, State or Federal Agencies involved.

NAU: Plan Review to insure that design proceeds according to Land Development and Lighting Codes, special to NAU

3. **DESIGN DEVELOPMENT PHASE**

- A. The Architect shall prepare Design Development Documents according to the minimum requirements set in Appendices of the Supplements and Amendments Contract.
- B. The Architect shall provide Design Development Documents for the Construction Manager's review and upon completion of the phase, the Architect shall provide approved documentation for the Construction Manager's use.

- C. The Architect shall submit a further Statement of Probable Construction Cost, which will correlate with the CM Estimate within 5% as in the schematic phase.
- D. The Architect must have a formal presentation to the DRB or the Facilities Department on the completed design development of the project.
- E. Material and color selections, building code analysis and a model are required for the presentation along with the requirements in Appendices.
- F. ASU-Main: Design Development submittal to be signed off by Building Committee, City, State or Federal Agencies involved.

NAU: Code compliance review of Design Development.

#### 4. CONSTRUCTION DOCUMENTS PHASE

- A. The Architect shall prepare Construction Documents consisting of Drawings and Specifications for the construction of the project.
- B. The Architect is responsible for the adequacy, fitness, completeness, suitability and correctness of the documents.
- C. The Architect shall assist the Owner and Construction Manager in preparation of the necessary bidding forms, contracts and forms of agreement.
- D. The Architect shall prepare and file documents that require approval of government authorities.
- E. The Architect shall assist the Owner in preparation of ABOR pre-bid.
- F. ASU-Main: 100% presentation to the Building Committee.  
NAU: Code compliance review just prior to release of bid documents.
- G. The Architect shall submit a further Statement of Probable Construction Cost, which will correlate with the CM Estimate within 5%.
- H. The Architect shall participate with the Construction Manager in constructability review of Contract Documents.

#### 5. BIDDING OR NEGOTIATION PHASE

- A. The Architect shall assist the Construction Manager in obtaining bids or negotiated proposals.
- B. It is the Architect's responsibility, at no cost to the Owner, to revise all or any part of the drawings and/or specifications of the project to reduce the project cost to within the budget.

#### 6. CONSTRUCTION PHASE

- A. The Architect and his consultants are required to make weekly field observations, and from those observations, the Architect is to submit weekly progress reports to the Owner.
- B. The Architect shall render interpretations necessary for the proper execution of progress of work.

- C. The Architect in cooperation with the Construction Manager shall provide administration of the contracts for construction.
- D. The Architect shall issue Project Certificates for Payment.
- E. The Architect shall be the initial interpreter of the requirements of the Contract Documents.
- F. The Architect shall receive and review Contractor's submittals such as Shop Drawings, Product Data and Samples and take appropriate action upon them.
- G. The Architect shall take appropriate action on Change Orders prepared by the Construction Manager for the Owner's authorization.
- H. The Architect shall prepare a Punch List.
- I. The Architect shall have follow-up inspections when punch list items have been accomplished.
- J. The Architect, assisted by the Construction Manager shall conduct inspections to determine the Dates of Substantial Completion and Final Completion and shall issue appropriate Project Certificates for Payment.
- K. Final as-built drawings to be on computer, CAD disk.
- L. ASU-Main: Monthly meetings with the Building Committee. Facilities Management Team to make periodic site visits on their own schedule and report to the AE, who must respond in writing with action taken.

**7. POST CONSTRUCTION SERVICES**

- A. The Architect shall conduct a post construction evaluation and inspection prior to expiration of the warranty and guarantee period and issue a written report to the Facilities Department.
- B. ASU-Main: AE shall assist in the preparation of the following:
  - 1. Reconciliation of the project account.
  - 2. Completion of ABOR forms 7-7 and 7-8.
  - 3. Vice President for Administrative Services project summary report.

## SCOPE OF CONSTRUCTION MANAGEMENT SERVICES

It was during interviews for the update of the cost control guidelines that it was found that the services required from the Construction Manager were not standard for each University and consequently the fee in the guidelines was not appropriate. The result is the following three levels of Construction Management Services and the corresponding fee schedule.

### I. CONSTRUCTION MANAGEMENT - FULL SERVICE

#### 1. Preconstruction Phase

- A. Assist the owner in hiring the architect and reviewing architectural proposals.
- B. Preliminary evaluation of the Program and Project budget requirements. Before the project gets into full action the CM is to define milestones, identify items on the critical path and prepare to monitor progress.
  - (1) With the AE's assistance prepare preliminary estimates for early conceptual and schematic designs based on area, volume or other standards.
  - (2) Assist the owner and AE in achieving a mutually agreed upon Program, Project budget requirements, schedule and other design parameters.
  - (3) Provide cost evaluation of alternative materials and systems.
  - (4) Provide analysis of market conditions, inflation and constructability of various systems.
- C. Review designs during their development.
  - (1) Advise on construction staging, site use and improvements, materials, building systems and equipment.
  - (2) Provide recommendations on construction methods, availability of materials and labor, time requirements for procurement, installation and construction and factors relating to cost.
    - (a) alternative designs or materials
    - (b) preliminary budgets
    - (c) possible economies
    - (d) constructability issues
  - (3) Coordinate review of design phase submittals from the AE. Organize and convene round table discussion of comments with reviewers and AE and distribute these back to the reviewers. Assist in resolving conflicting comments. Follow up on unresolved issues and note status of these at weekly meetings.
  - (4) Review for completeness and constructability and recommend owner's approval of design phase submittals.
  - (5) Review of Design Phase Submittals: The CM shall provide written review comments to each Design Phase Submittal on the owner's standard form or a reasonable facsimile thereof.
- D. Provide a Project Schedule that coordinates and integrates Construction Manager's services, AE Services and Owners responsibilities. Indicate progress and critical path analysis for the project.

- E. Prepare detailed estimate of Construction Cost based on Schematic Design Documents and update and refine the estimate as Design Development and Construction Documents are prepared. Advise the owner and the AE if it appears the Construction Cost may exceed the budget and make recommendations for corrective action. The estimates independently prepared by the CM and the AE are to be within 5% of each other. When they are not, the CM and AE are to coordinate and resolve.
- F. The CM shall coordinate Contract Documents regarding Drawings and Specifications as they are being prepared and recommend alternative solutions whenever design details affect construction feasibility, cost or schedule.
- G. Advise on responsibility for assignment of safety precautions and programs; temporary project facilities; and equipment, materials and services for common use of Contractors.
- H. Advise on the separation of the Project into Contracts for various categories of Work. Advise on method to be used for selecting Contractor and awarding Contracts. If separate contracts, review drawings and specifications to ensure that:
  - (1) Work of separate contracts is coordinated.
  - (2) All requirements have been assigned to the appropriate separate contract.
  - (3) Likelihood of jurisdictional disputes has been minimized.
  - (4) Proper coordination has been provided for phased construction.
- I. The CM will develop a Project Construction Schedule providing for all major elements. A Schedule needs to be provided for each set of Contract Bidding Documents, if the project is separated into various work category contracts.
- J. The CM shall provide an analysis of the types and quantities of labor required for the Project. Identify requirements for equal employment opportunity programs.
- K. The CM will conduct pre-bid conferences and develop bidder's interest in the project.
- L. The CM will assist the Architect in receiving bids, prepare bid analysis and make recommendations to the Owner.
- M. Convene weekly meetings of the Project Team and issue minutes prior to the following weekly meeting.
  - (1) Follow up on and track resolution of issues that arise at weekly meetings.
- N. Schedule and document special meetings as required to resolve issues that arise.
- O. Communications:
  - (1) Review existing procedures for communications, establishing new procedures as required.
  - (2) Meet at least once a week or as needed to review project status with owner's Project Manager.
  - (3) Convene weekly progress meetings and issue minutes.
  - (4) Work closely with User Group Representatives and AE to resolve issues through prescribed communication channels.

- (5) Coordinate and resolve issues with various University entities through prescribed communication channels.
- P. Coordinate with AE and owner on connections to owner and public utility services and obtain fee information for these connections. Coordinate with local utilities and authorities, as required.
- Q. Resolve majority of daily project management issues. Work closely with Project Manager, particularly in matters of University policy, Project Budget breakdown, Project Schedule, Arizona Board of Regents (ABOR) approvals, Optional Bid Items, etc. Make recommendations as appropriate.
- R. Provide Project Manager with regular monthly breakdown on status of project budget based on approved budget, committed and uncommitted funds (3 or 4 column format). Obtain information on funds committed/expended from Coordinator on a monthly basis and verify accuracy.

Verification of Accuracy of Funds Committed/Expended: This portion of the work relates to the Land Acquisition, Construction, Consultant Fees, Contingencies, Telecommunications, Surveys/Tests/Inspections and Printing/Advertising lines in the project budget. This work shall track expenditures from these lines and shall project future needs (refer also to the Cash Flow work, below). The FDC and Facilities Management lines are not included in this work.

Cash Flow Analysis. The CM prepare a baseline Cash Flow forecast at the outset of the Project, shall report actual versus forecast during of the Project, shall report actual versus forecast amounts and offer explanations for differences. The Cash Flow shall cover all phases of the project, be organized per the owner's Project Cost Summary line items and shall be updated monthly.

- S. Prepare monthly billing for construction management services with proper documentation and review it with Coordinator prior to formal submittal. Maintain a detailed computer based project accounting system of all construction management cost.
- T. Review of AE and Contractor Payment Applications. The CM shall review the invoices and backup information submitted by the Design Consultant (AE) related to the design work actually accomplished and advise the Coordinator, accordingly. The CM shall review AE proposals for additional services and advise the Coordinator. During the construction phase, the CM shall similarly review contractor Pay Applications and Change Order requests and advise the Construction Project Manager.
- U. Advise Project Manager on construction staging areas, haul routes, public utility, City and County service and construction permitting and coordination with other work. Ensure construction contract documents include clear direction to bidders on these items.
- V. Review owner's Design and Specification Guidelines with Project Manager and assure they are implemented.
- W. Act in the best interests of the University at all times.

2. Construction Phase

- A. The CM, in cooperation with the Architect, shall provide administration of the Contracts for Construction.
- B. Coordinate the work of separate Contractor's with each other and with the activities and responsibilities of CM, Owner and Architect.
- C. The CM shall review the Contractor's proposed cost-loaded construction schedule to verify that it meets the requirements of the Contract Documents. The CM shall advise the owner regarding acceptance of the schedule.
- D. The CM schedule and conduct pre-construction, construction and progress meetings. Prepare and promptly distribute minutes.
- E. The CM shall update the Project Construction Schedule to show current conditions and revisions required.
- F. It is the responsibility of the CM to revise and refine the approved estimate of Construction Cost, provide regular monitoring, showing actual cost of activity in progress and estimates for uncompleted tasks.
- G. Recommend necessary or desirable changes to the AE and Owner, review requests for changes, assist in negotiating Contractor's proposals, recommend desirable changes, prepare and sign Change Orders for Architect's signature and Owner's authorization.
- H. Determine in general that the Work of each Contractor is being performed in accordance with the requirements of the Contract Documents. Endeavor to guard the Owner against defects and deficiencies in the Work. As appropriate, require special inspection or testing, or make recommendations to the Architect regarding special inspection or testing, of Work not in accordance with the provisions of the Contract Documents whether or not such Work be then fabricated, installed or completed. Subject to review by the Architect, reject Work which does not conform to the requirements of the Contract Documents.
- I. Assist in obtaining Building Permits and special permits, verify that Owner has paid applicable fees, assist in obtaining approvals from authorities.
- J. Assist the owner in selecting testing laboratories.
- K. The CM shall transmit to the Architect, Shop Drawings, Product Data, Samples and Submittals which have been recommended for approval.
- L. The CM shall keep a daily log containing a record of weather, Contractor's work on site, number of workers, work accomplished, problems encountered and similar relevant data.
- M. The CM shall document the construction effort photographically, paying particular attention to essential building functions and work that will become enclosed as the work progresses. It is expected that this effort will require at least weekly attention. A professional photographer is not required nor expected.

- N. The CM shall prepare a detailed monthly report giving construction status, photos, current state of the budget, list of change orders etc. and a statement that the project can still be completed within the budget.
- O. The CM shall prepare for the Architect a list of incomplete or unsatisfactory items and a schedule for their completion. Assist Architect in conducting inspections and coordinate the correction and completion of the work.
- P. Make recommendations when work is finally complete, assist the Architect in conducting final inspection, secure and transmit to Owner all required guarantees, affidavits, releases, bonds and waivers, keys, manuals, record drawings and maintenance stocks.

II. CONSTRUCTION MANAGEMENT - AVERAGE SERVICE

1. Preconstruction Phase

- A. Preliminary evaluation of the Program and Project budget requirements.
  - (1) With the AE's assistance prepare preliminary estimates for early schematic designs based on area, volume or other standards.
  - (2) Assist the owner and AE in achieving a mutually agreed upon Program, Project budget requirements and other design parameters.
  - (3) Provide cost evaluation of alternative materials and systems.
- B. Review designs during their development.
  - (1) Advise on site use and improvements, materials, building systems and equipment.
  - (2) Provide recommendations on construction methods, availability of materials and labor, time requirements for procurement, installation and construction and factors relating to cost.
    - (a) alternative designs or materials
    - (b) preliminary budgets
    - (c) possible economics
    - (d) constructability issues
- C. Provide a Project Schedule that coordinates and integrates Construction Manager's services, AE Services and Owners responsibilities. Indicate progress and critical path analysis for the project.
- D. Prepare detailed estimate of Construction Cost based on Schematic Design Documents and update and refine the estimate as Design Development and Construction Documents are prepared. Advise the owner and the AE if it appears the Construction Cost may exceed the budget and make recommendations for corrective action.
- E. The CM shall coordinate Contract Documents regarding Drawings and Specifications as they are being prepared and recommend alternative solutions whenever design detail affect construction feasibility, cost or schedule.
- F. Advise on responsibility for assignment of safety precautions and programs; temporary project facilities; and equipment, materials and services for common use of Contractors.

- G. Advise on the separation of the Project into Contracts for various categories of Work. Advise on method to be used for selecting Contractor and awarding Contracts. If separate contracts review drawings and specifications to ensure that:
  - (1) Work of separate contracts is coordinated.
  - (2) All requirements have been assigned to the appropriate separate contract.
  - (3) Likelihood of jurisdictional disputes has been minimized.
  - (4) Proper coordination has been provided for phased construction.
- H. The CM will develop a Project Construction Schedule providing for all major elements. A Schedule needs to be provided for each set of Contract Bidding Documents.
- I. The CM shall provide an analysis of the types and quantities of labor required for the Project. Identify requirements for equal employment opportunity programs.
- J. The CM will conduct pre-bid conferences and develop bidder's interest in the project.
- K. The CM will assist the Architect in receiving bids, prepare bid analysis and make recommendations to the Owner.

2. Construction Phase

- A. The CM, in cooperation with the Architect, shall provide administration of the Contracts for Construction.
- B. Coordinate the work of separate Contractor's with each other and with the activities and responsibilities of CM, Owner and Architect.
- C. The CM schedule and conduct pre-construction, construction and progress meetings. Prepare and promptly distribute minutes.
- D. The CM shall update the Project Construction Schedule to show current conditions and revisions required.
- E. It is the responsibility of the CM to revise and refine the approved estimate of Construction Cost, provide regular monitoring, showing actual cost of activity in progress and estimates for uncompleted tasks.
- F. Recommend necessary or desirable changes to the AE and Owner, review requests for changes, assist in negotiating Contractor's proposals, prepare and sign Change Orders for Architect's signature and Owner's authorization.
- G. Determine in general that the Work of each Contractor is being performed in accordance with the requirements of the Contract Documents. Endeavor to guard the Owner against defects and deficiencies in the Work. As appropriate, require special inspection or testing, or make recommendations to the Architect regarding special inspection or testing, of Work not in accordance with the provisions of the Contract Documents whether or not such Work be then fabricated, installed or completed. Subject to review by the Architect, reject Work which does not conform to the requirements of the Contract Documents.

- H. Assist in obtaining Building Permits and special permits, verify that Owner has paid applicable fees, assist in obtaining approvals from authorities.
- I. Assist the owner in selecting testing laboratories.
- J. The CM shall transmit to the Architect, Shop Drawings, Product Data, Samples and Submittals which have been recommended for approval.
- K. The CM shall keep a daily log containing a record of weather, Contractor's work on site, number of workers, work accomplished, problems encountered and similar relevant data.
- L. The CM shall prepare for the Architect a list of incomplete or unsatisfactory items and a schedule for their completion. Assist Architect in conducting inspections and coordinate the correction and completion of the work.
- M. The CM shall prepare a detailed monthly report giving construction status, photos, current state of the budget, list of change orders etc. and a statement that the project can still be completed within the budget.
- N. Make recommendations when work is finally complete, assist the Architect in conducting final inspection, secure and transmit to Owner all required guarantees, affidavits, releases, bonds and waivers, keys, manuals, record drawings and maintenance stocks.

### III. CONSTRUCTION MANAGEMENT - LIMITED SERVICE

#### I. Preconstruction Phase

- A. Preliminary evaluation of the Program and Project budget requirements.
  - (1) With the AE's assistance prepare preliminary estimates for early schematic designs based on area, volume or other standards.
  - (2) Assist the owner and AE in achieving a mutually agreed upon Program, Project budget requirements and other design parameters.
  - (3) Provide cost evaluation of alternative materials and systems.
- B. Review designs during their development.
  - (1) Provide recommendations on factors relating to cost:
    - (a) alternative designs or materials
    - (b) preliminary budgets
    - (c) possible economics
    - (d) constructability issues
- C. Prepare detailed estimate of Construction Cost based on Schematic Design Documents and update and refine the estimate as Design Development and Construction Documents are prepared. Advise the owner and the AE if it appears the Construction Cost may exceed the budget and make recommendations for corrective action.
- D. The CM will develop a Project Construction Schedule providing for all major elements.

2. Construction Phase

- A. The CM shall schedule and conduct pre-construction, construction and progress meetings. Prepare and promptly distribute minutes.
- B. The CM shall update the Project Construction Schedule to show current conditions and revisions required.
- C. Determine in general that the Work of each Contractor is being performed in accordance with the requirements of the Contract Documents. Endeavor to guard the Owner against defects and deficiencies in the Work. As appropriate, require special inspection or testing, or make recommendations to the Architect regarding special inspection or testing. of Work not in accordance with the provisions of the Contract Documents whether or not such Work be then fabricated, installed or completed. Subject to review by the Architect, reject Work which does not conform to the requirements of the Contract Documents.
- D. The CM shall transmit to the Architect, Shop Drawings, Product Data, Samples and Submittals which have been recommended for approval.
- E. Assist Architect in conducting inspections and coordinate the correction and completion of the work.
- F. Make recommendations when work is finally complete, assist the Architect in conducting final inspection, secure and transmit to Owner all required guarantees, affidavits, releases, bonds and waivers, keys, manuals, record drawings and maintenance stocks.

## METHOD

Fees for Professional Services vary depending on the complexity of the Project, its size (expressed in terms of construction cost) and the duration of the design and construction phases. It has been traditional to set fees as a percentage of construction cost partially because the scope of the project is difficult to define precisely at the point in time when professional consultants are selected and retained. The fees for construction period services depend on the above factors but especially on the duration of the construction period. The Agreements and Supplements to the Agreements require a fixed manning level for the duration of the construction period.

Projects involving rehabilitation of existing structures require greater effort to assess existing conditions and to research existing documents to determine the configuration and make up of the existing structure and its systems.

Reimbursable expenses are in addition to the compensation for Basic Services and include actual expenditures incurred by the Architect and/or CM for travel, long distance communications, reproductions (excluding reproductions for the office use of the Architect), postage and handling of drawings and specifications.

The following table displays categories of use which are considered to be of approximately equal complexity.

### GROUP I

Classroom Series	100	B-110 through B-126
Office Series	300	B-310 through B-360
Study Facilities Series	400	B-410 through B-450
Special Use (Athletic) Series	500	B-520 through B-529
General Use Series	600	B-610 through B-612, B-631, B-650, B-660, B-680
Support Facilities	700	B-720 (Maintenance Shops)

### GROUP II

Residential Series	900	B-910 through B-950
--------------------	-----	---------------------

### GROUP III

Laboratory Series	200	B-200 through B-240*
Special Use (Non-Athletic Series)	500	B-530, B-540, B-570, B-571, B-580, B-581
General Use Series	600	B-620, B-630, B-632
Support Facilities	700	B-710 (Data Processing, Computer Room)
Health Care Series	800	B-810 through B-890

\* Added April 29, 2002

## GROUP IV

Support Facilities	B-730, B-740
Parking Structures	A-10, A-11 & A-12

The recommendations have been calculated for the following different conditions:

Arch/Eng Services New Construction

Arch/Eng Services Renovation

Construction Manager New Construction

Construction Manager Renovation

Percentage fees for design phase services were established based on historic data and analysis. The numbers were adjusted to account for service required by the Agreement. Traditional breakdown for construction period services were considered and modified to account for the required manning levels and estimated duration of the construction period.

A comparison was done of the Architectural/Engineering services required when a CM is retained and when a CM is not retained. The major difference lies in the cost estimate (Statements of Probable Construction Cost) required of the Architect. The Architect is responsible in both cases to revise the documents at no additional cost to the Owner in case the bids for the work exceed the budget. It is prudent, therefore, for the Architect to accomplish an independent detailed review of all estimates of probable construction cost. The documentation required of the Architect in order that the CM can carry out his functions is in addition to the documentation required when there is not a CM retained. The Construction Manager performs many functions which the Agreements do not require of the Architect in either case.

The services required of the Architect when there is a Construction Manager employed are not any less than those required when there is not a Construction Manager. When the University determines that the Architect should provide some of the services which would otherwise be provided by the Construction Manager the fees for such services will be in addition to the amounts listed in the guidelines.

<b>ARCHITECTURAL/ENGINEERING FEES AS A % OF CONSTRUCTION COST NEW CONSTRUCTION</b>					
<b>PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)</b>					
<b>GROUP</b>	<b>1,000 - 2,000</b>	<b>2,000 - 5,000</b>	<b>5,000 - 10,000</b>	<b>10,000 - 20,000</b>	<b>20,000 +</b>
GROUP I	9.4%	8.0%	7.3%	6.5%	6.3%
GROUP II	8.6%	7.5%	7.0%	6.1%	5.8%
GROUP III	12.8%	10.5%	9.3%	8.6%	8.5%
GROUP IV	7.7%	6.3%	5.6%	4.8%	4.7%

<b>ARCHITECTURAL/ENGINEERING FEES AS A % OF CONSTRUCTION COST RENOVATION WORK</b>					
<b>PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)</b>					
<b>GROUP</b>	<b>1,000 - 2,000</b>	<b>2,000 - 5,000</b>	<b>5,000 - 10,000</b>	<b>10,000 - 20,000</b>	<b>20,000 +</b>
GROUP I	11.7%	9.1%	8.4%	7.5%	7.4%
GROUP II	10.9%	8.5%	7.9%	7.2%	6.7%
GROUP III	15.7%	11.9%	10.6%	9.9%	9.8%
GROUP IV	9.8%	7.3%	6.4%	5.7%	5.6%

<b>CONSTRUCTION MANAGER FEES AS A % OF CONSTRUCTION COST NEW CONSTRUCTION</b>												
<b>PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)</b>												
GROUP	2,000 - 5,000			5,000 - 10,000			10,000 - 20,000			20,000 - 30,000		
	SERVICE			SERVICE			SERVICE			SERVICE		
	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD
GROUP I	4.8%	3.5%	2.7%	4.6%	3.3%	2.3%	4.0%	2.6%	2.0%	3.4%	2.4%	1.8%
GROUP II	4.8%	3.5%	2.7%	4.6%	3.3%	2.3%	3.9%	2.5%	2.0%	3.3%	2.3%	1.7%
GROUP III	5.4%	4.0%	3.0%	5.0%	3.6%	2.5%	4.4%	2.7%	2.2%	3.9%	2.8%	2.1%
GROUP IV	4.4%	3.2%	2.5%	3.9%	2.8%	2.0%	3.4%	2.2%	1.7%	2.9%	2.0%	1.5%

<b>CONSTRUCTION MANAGER FEES AS A % OF CONSTRUCTION COST RENOVATION WORK</b>												
<b>PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)</b>												
GROUP	2,000 - 5,000			5,000 - 10,000			10,000 - 20,000			20,000 - 30,000		
	SERVICE			SERVICE			SERVICE			SERVICE		
	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD
GROUP I	5.1%	3.7%	2.8%	4.8%	3.4%	2.4%	4.3%	2.8%	2.2%	3.6%	2.6%	1.9%
GROUP II	5.1%	3.7%	2.8%	4.8%	3.4%	2.4%	4.3%	2.7%	2.2%	3.6%	2.5%	1.8%
GROUP III	5.8%	4.2%	3.2%	5.3%	3.8%	2.7%	4.7%	3.0%	2.4%	4.2%	2.9%	2.2%
GROUP IV	4.7%	3.5%	2.6%	4.2%	3.0%	2.1%	3.8%	2.4%	1.9%	3.2%	2.2%	1.6%