Qualification and Selection of Construction Managers with Suggested Guidelines for Selection Process

By The Committee on Construction Management

Abstract: Construction management (CM) is a long-used practice of the construction industry that began to achieve status as a system in the early 1970s. Today CM is a unique alternative system of contracting that competes with the general contracting and design-build contracting systems as a means of delivering projects. The CM system breaks down into several forms that have separate variations. CM services are provided by construction managers using different practitioner formats. In essence, CM services comprise a menu from which a form and its variation are selected. For these reasons, users (owners) often have difficulty understanding the services available and determining the combination of services that best suits their requirements when engaging a construction manager. The guidelines presented are in fundamental form in order to accommodate both first-time users of CM services and repeat users seeking additional CM information. Those in the latter group can except the fundamentals and abbreviate the selection process as they see fit.

Introduction

A construction manager is a business entity that facilitates the use of the construction management project delivery system on a construction project. The term construction manager (CM) is also used to identify individual practitioners that are part of a CM organization.

The construction management project delivery system, or CMS, is an alternative to the general contracting system (GCS) and to the design build system (DBS). The GCS is referred to as traditional in the industry. All three systems use the same construction industry resources, but they differ significantly in the manner in which the resources are contracted for. The design build system and the more recent construction management system are both considered to be contracting innovations of traditional construction industry practices.

The contracting characteristics of the three basic systems, GCS, DBS, and CMS, are shown in Appendix I.

Relationships

The CMS was developed as an alternative to its precedent systems. It is user-oriented and optionally involves the owner in project delivery and its practices to a greater extent than the GCS, or, especially, the DBS. To facilitate user involvement at any selected level, a CM is hired by the owner to provide the necessary contracting/construction expertise required to fully deliver the project. The CM becomes an extension of the owner's abilities in contracting and construction, just as design professionals (AE) become extensions in areas of design. The favorable

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economics of the CMS compensate for what appears to be additional costs paid to the CM in the form of fees. The CMS is applicable to public and private projects and obtains similar rewards from both.

A peer relationship is created between the CM and AE through appropriate provisions in their separate agreements with the owner. A functional delivery team consisting of owner, AE and CM is established that has a common owner-oriented project goal. The team plans, designs, documents, executes, and manages project delivery, with each member asserting responsibility in his areas of expertise. The collective effort economizes and expedites the process, and generally improves its end result.

Forms and Variations

There are numerous forms and variations of the CMS from which owners may choose on a project basis. Each form and variation has inherent characteristics that accommodate unique owner requirements and constrictions. Users who anticipate using the CMS must understand and select the appropriate CM form and variation to match their requirements and constrictions. To successfully accomplish this goal, an owner should consult a CM practitioner whom he trusts, or better still, should enlist the aid of one of the growing number of independent CMS consultants.

The basic forms of the CM project delivery systems and their variations are described in Appendixes I and II.

The several forms and variations of the CMS all emanate from the basic or pure form of CM commonly referred to as Agency CM (ACM). This form has significance in that it retains a strict agency posture throughout project delivery. Although the CM is not designated as the owner's overall agent, the provisions of the owner/CM contract create agency in certain performance areas. Worthy of note is the fact that the contract does not permit any conflicting relationship beyond agency. All other forms of CM depart from this pure agency posture.

Owners must realize that a departure from the ACM form to other forms (to accommodate individual project requirements and owner constrictions) increases the potential for conflict of interest in the providing of services by the CM. Departure should not be construed as undesirable, because owners can benefit substantially from other forms of the CMS. However, the potential must be recognized and acknowledged contractually by both the owner and the CM to prevent misconceptions from developing during performance of services. The provisions of the owner/CM agreement can successfully facilitate all CM forms and variations. It helps to understand that the potential for conflict of interest is generated by the nonagent services conveniently added to the basic agency arrangement.

A commentary on the potential for conflict of interest in all forms of project delivery, including the CMS, can be found in Appendix III.

Compatibility

It should also be noted that not all CM's are qualified to provide all forms and variations of the CMS. Each form and variation has different

requirements and depends on different performance capabilities from the CM. The determination of the CM's suitability is dependent upon the available resources of the CM in added areas of performance. The compatibility of the construction manager, with the owner's specific project delivery requirements and constrictions, must be substantiated and satisfactorily resolved by the owner as a prerequisite to the start of the CM selection process.

Consideration must also be given to team member compatibility. The success of all forms and variations of the CM system is dependent on a collective professional effort. Care should be taken to select a CM and an AE that have mutual respect for one another and that can relate to the owner at a high performance level.

Some Miscellaneous Observations

A CM's qualifications are significantly different from those of architects, engineers, and general contractors. Owners considering the use of the CM system should be aware of what is important and what is not.

A prototype CM organization doesn't currently exist. A CM firm can be any organization that has the unique combined resources necessary to proficiently execute the form and variation of CM best suited for or selected by the owner. All organizations that call themselves CMs are not equally equipped to provide services. Additionally, unlike the practice of engineering and architecture, CM services are not universally governed by law. CM standards of practice are in the formative stages, and the professional status of the CM firm and the persons it employs remains for the future to determine.

The financial strength of the CM firm is only important when using a form of CM that requires the CM to provide explicit services as constructor or contractor. When using a GMPCM form or an XCM form (other than design XCM), CMs should be evaluated financially as one would evaluate general contractors. When using agency CM or design XCM, CMs should be evaluated financially as one would evaluate design professionals when considering services.

A record of proficient performance as a design professional or contractor is not an automatic indication of proficiency as a CM. Although many CMs are also architects, engineers, and general contractors, or are parts of unique organizations spawned by one of these professions, successful CM execution requires much broader disciplines than those inherent to the sole practice of architecture, engineering, or contracting. A proficient CM firm must essentially have the basic resources and qualities of all three: a multidisciplinary organization that assimilates the compound expertise of a design-build firm.

CM firms have flexible geographic mobility. Their performance is insignificantly effected when functioning in locations other than where their headquarters are located. In fact, CM performance is often enhanced by a new geographic orientation as a result of the investigations the CM firm undertakes in a new area. Familiarity with local conditions and contractors may mitigate the objectivity of the CM rather than enhance it. Objectivity in decision making and an inquisitive approach to project

delivery is essential to successful CM operations. Owners should not overvalue the hometown advantage by selecting a CM firm simply because it is locally based.

A CM firm with extensive CM experience on a variety of project types is often a better choice than a firm whose limited experience is on the specific project type. The CM's prime contribution to the success of the project is essentially vested in his ability to manage. The technical aspects of the project are essentially vested in the expertise of the AE and the owner. The CM system of checks and balances in decision-making provides sound direction, as long as all the expertise is available from the team members. In practice, advantages are found in a CM with varied project type experience; that CM can close the experience circle through his ability to relate solutions from one project type to another. This ability is not available from the CM whose experience has been limited to a narrow spectrum of project types. A CM should be considered first a manager and then a technical consultant.

The CM firm should be hired by the owner as early in the project as possible. It is recommended that the AE and CM firm be hired at approximately the same time. This permits exposure to one another before agreements are signed and essentially ensures compatibility. It permits the meshing of responsibilities in their respective agreements with the owner, and provides the opportunity for a collective start. The nature of the CM firm's preconstruction services make an early team start very desirable. The CM firm's expertise in conceptual estimating can be a valuable help to the owner and design professional during feasibility.

Services of a CM Firm

The services to be provided by the CM firm are determined by the CM form and variation selected by the owner. All services should be prescribed in the owner/CM agreement. Standard document series are available. It is advisable to review the different series to ensure that the ones finally selected conform as closely as possible to the CM form and variation decided upon. All standard documents must be amended to reflect the services unique to each project. Be sure to remain with a single document series once it is selected. Do not mix series. Most documents address this consideration, pointing out that mixing could create problems between contractually interfacing parties. The use of proprietary documents should be approached with similar care. It is *not* advisable to use amended non-CM documents.

A current list of standard CM document series is included in Appendix IV.

The services of a CM can be identified with the phases of project delivery. Simply stated these phases are: (1) predesign; (2) design; (3) construction; and (4) occupancy. During predesign and design, the CM provides services signally unique to traditional industry practices. In the GCS, the input to these phases is essentially design-oriented. The contributions of the CM efficaciously broaden the orientation by incorporating comprehensive construction and contracting input.

During the construction phase, the CM performs and accentuates the management services provided by the general contractor for his own

benefit in the GCS. They are reoriented by the CM to benefit the owner. Most CM service contracts extend into the occupancy phase at least one year from the date of substantial completion, or coincide with the duration of the warranties, guarantees, and surety bonds stipulated in owner/contractor agreements, providing the owner with call-back coordination services during occupancy.

A fundamental matrix, showing common CM services and the phases of project delivery in which they are performed, is included in Appendix V.

CMS Functions

Cost Management.—By continuous repeating cycles of cost estimating and budgeting by the CM, and by evaluations and decisions of the team, project cost elements remain current and viable throughout design and during construction.

The CM must be a proficient estimator with capabilities ranging from conceptual design to construction documents and must be knowledgeable in the requirements and mechanics of project budgets. The CM must have a complete and accurate understanding of project expenditures beyond the costs of construction.

Value Management.—Alternate design and detail solutions suggested by team members, costed by the CM, and evaluated by the team enhance the economics of decision-making during design and construction. Design is ultimately based on owner requirement, team experience, project expedience, and the time value of money.

Knowledge of engineering applications including mechanical, electrical, structural, site and foundations, and architectural applications, is necessary to suggest alternatives to the team. An understanding of financing, replacement, and maintenance costs is a necessity.

Decision Management.—The CM team structure provides a forum for decision-making that virtually eliminates unilateral decisions. When dealing with the complexities of construction project delivery and its abundant intrinsic alternatives, the team's decision-making process provides a stabilizing system of checks and balances unavailable in either general contracting or design-build contracting. The success of the system largely depends on the existence of a genuine peer relationship between team members.

In order to function effectively in the team environment, the CM must be capable of establishing and maintaining a peer relationship with all team members and others who will regularly be involved in the project. The relationship must be founded on the CM's ability in all areas of team decision-making, and cannot be simply established by contract.

Schedule Management.—A fundamental (but demanding and comprehensive) function of the CM requires that the total project and all of its elements be scheduled in significant detail. The CM is the scheduler for the owner, the team, and the interfacing of the performing contractors on site.

The scheduling capabilities of the CM must be second nature. Computerized scheduling is essential if schedules are to be updated frequently. The CM must not only be an excellent scheduling technician;

he must know what types of schedules will be most effective in every situation, and how to make scheduling work effectively on the project. The CM must have a grasp of the time requirements for all facets and elements of project delivery, as well as intimate knowledge of production rates of geographically located construction trades.

Information Management.—Project documentation is the responsibility of the CM, except in the area of design. The unique contractual relationship establishes the owner as the prime source of project documentation and information as opposed to the contractor in other systems. Documentation and information are valuable aids to the owner during the course of the project, and after it has been completed.

The proposed management information system (MIS) must be a complete and integrated package that provides the appropriate amount, level, quality, and reporting frequency of the information required by the owner. The MIS should be computerized to facilitate frequent updates, accurate for accounting dependency and record credibility, and be convenient in format and easy to interpret. The system should be compatible with any existing information system of the owner, to facilitate possible integration, and complete enough to stand alone as the sole record of the project.

Risk Management.—Capital expansion, unlike most other business pursuits, relies heavily on the collective efforts of many diversified business entities, most of which are independent trade contractors possessing unique skills. The entities are conveniently mobilized for a relatively long period of time to collectively accomplish the construction of a facility. The project is based on a unique design created by architects and engineers that are similarly mobilized.

The complex interaction of numerous independent contractors generates an unusually high potential for liability among them, which must be mitigated as a means of minimizing owner exposure to liability. By equating risk exposure to risk value, the CM identifies the risks, evaluates them, and appropriately disposes of them in the owner's best interests. Most of the risks of project delivery are operational, rather than financial, in nature. They pertain to the process of project delivery and not directly to its costs. However, if operational risks are not handled properly by the CM, they could, in consequence, result in financial liability to the owner.

The risks involved are both static and dynamic. This means that the CM must have the resources and experience to deal with both. Knowledge of insurance and bonding will assist in protecting against static loss, while intimate knowledge of the construction industry and all of the elements of project delivery will assist in protecting against dynamic loss.

The CM must not only have the required knowledge, but also must have the managerial resources and experience to install and execute a project risk-management program that provides maximum protection for the owner. When evaluating this facet of CM project delivery, the owner must realize that the transfer of risk is very costly and can never be complete, regardless of the project delivery system used. Risk management is a CM's economic alternative.

Contract Management.—The process of project delivery requires the

assessment, selection, mobilization, and use of the many consultants, contractors, fabricators, suppliers, and service organizations that comprise the construction industry. The success of a project is dependent upon how well these elements are managed at all levels. The CMS allows the owner to select his CM on demonstrated management ability and expertise. This is unlike the GCS, where the ability to estimate produces the low bidder, who automatically becomes the manager whether he is a good one or not. The CM as an extension of the owner's authority provides the expertise to effectively bring the necessary forces of the industry together and to manage the entire delivery process.

The CM must have experience in all the facets of contracting that might emerge on the project. Some of these include awareness of contract language/requirements, contract procedures, labor relations, passive and active contract enforcement, liability and property forms of insurance, contracting forms of surety, standards of performance, contractor procedures, construction safety, testing and quality practices, dispute resolution, contractor qualification, purchasing practices, the Commercial Code, design office practice, subcontracting, consultant practices, and the other unstated facets inherent to project delivery.

Quality Management.—A major requirement of project delivery is adherence to the specified quality level desired by the owner. In order to ensure that the constructed project will serve the owner from the practical and economical perspectives the owner, CM, and AE must collectively establish and state the owner's standards prior to the start of design. With the standards in place, the CM must install a quality management plan (as an integral part of the project delivery process) and suitably express its requirements in the contract documents. The project's quality management plan must accurately reflect and convey the owner's quality standards.

In order to contribute to the establishment of quality standards, the CM must possess expertise in specifying materials and equipment. To develop a quality management program that effectively monitors both the design and construction processes, the CM must have an intimate knowledge of the functions of both the design professional and trade contractors. These abilities must be adequately available in any CM considered by an owner.

Constructor/Contractor Services.—Certain forms and variations of the CMS require the CM to perform some independent contractor services beyond those inherent to the pure ACM form. When one of these forms is selected by an owner, it is necessary that the CM have abilities and resources in nonagent areas. The constructor forms require CM qualifications that match those of the general contractor. The CM, in addition to his fiduciary responsibilities, must have the ability to construct selected project elements by using his own forces.

The contractor forms introduce the added facet of subcontracting divisions of work and surety bonding. To provide these requirements, the CM must have sufficient financial strength to hold trade contracts and obtain labor, material, and performance bonds from an established surety. Both CM forms, constructor CM and contractor CM, are contingent upon performance by a CM whose business style is similar to that of a general contractor.

Design Services.—One form of the CMS, design XCM, uses the project's design professional as the CM. When this form is selected, owners should purposefully differentiate AE talents from CM talents.

Combined Services.—When combined services are considered by the owner, the proficiency of each service should be evaluated independently. Owners must use prudence and remember that design, CM, construction, and contracting services are all very different. The qualifications for performance of each are not automatically connected. If a single organization survives the required measurement of each (based on independent evaluations), then combined service could be considered appropriate. However, the final decision on combined services should be based on specific project needs and an assessment of the permissible potential for conflict of interest, an intrinsic quality of combined services.

Caution.—CM services are literally an extension of the owner's ability and capacity to deliver a project. By engaging the services of a CM, the owner gainfully mitigates the risks inherent to project delivery through an agreement to expertly manage them. He does not transfer any risks as he does when engaging a general contractor. Therefore, the services of the CM (though different in content) should be considered from the same perspective as those of the design professional and *not* the general contractor.

Activities of the CM.—The generic activities of the CM consist of: administrating; advising; assisting; budgeting; checking; consulting; coordinating; documenting; estimating; evaluating; expediting; managing; planning; recording; reporting; and scheduling. A representative listing of specific services provided by a CM can be found in Appendix VI.

Partial Guidelines for Selecting a CM

The process of selecting a CM has a format closely resembling that of selecting a design professional or any other consultant being considered by an owner. However, some forms and variations of CM, as well as some local laws and regulations, mandate a selection process that more closely resembles that of selecting a contractor. Before initiating a selection process, the owner should seek guidance to ensure the propriety, legality, and protocol of the process he intends to use.

Process.—The following steps form the selection process.

1. Determine the form and variation of the CM system to be used for the project.
2. Determine if any specific laws or regulations govern the selection process for the project.
3. Draft a concise physical description of the project, indicating time constraints and the amount of the budget.
4. Draft a brief description of the CM form/variation to be used on the project.
5. Issue a request for interest in the project by CM firms in the form of an advertisement or an invitation.
6. Screen responses based on the preliminary information provided by interested CM firms.

7. Issue an initial request for proposal (IRFP) from 5 to 10 of the most promising respondents.

8. Screen responders to the IRFP, and develop a "long list" of those worthy of further consideration.

9. Issue a second request for proposal (RFP) to those on the long list, requesting uniform and specific information.

10. Screen respondents to the second RFP, and develop a "short list" of those worthy of an interview.

11. Request final information from those selected from the short list, and conduct individual interviews with that group only.

Steps.—The steps are explained as follows:

Steps 1 and 2: Determination of CM Form and Variation.—Determination of the CM form and variation that is to be used is not a part of the selection process, but is a necessary issue that requires resolution prior to the start of the process. It is also necessary to determine which contract document series is appropriate for the form and variation of CM contemplated. The same comments apply to step 2, the laws and regulations that govern the conduct of the selection process itself.

Steps 3 and 4: Descriptive Information about Project.—Before seeking CMs it is necessary to define the project to the extent possible at the current stage of its development. The purpose of this information is to provide criteria with which to match up CM firms with the requirements of the proposed project. The intent is to provide CM firms with an opportunity to summarily decide whether or not to show further interest in the project. The more complete the information, the more definite their reaction can be.

Minimum information should include the project's type, location, size, budget, schedule, unique characteristics, and design commitments, if any. It is mandatory that the selected CM form and variation be explicitly stated, the documents that will be used must be identified, and a clear description of the services being sought from CMs must be provided.

There is no advantage in withholding information about the project. The amount of information provided by the owner should only be controlled by practical publishing considerations.

Step 5: Issue Advertisement or Selective Solicitation for CM Services.—There are several ways to inform CMs about the project. One is to publish a notice in a construction periodical or other printed media source, such as a daily newspaper. Another is to obtain a listing of CM firms from a consultant or CM practitioner and to contact as many as necessary (by telephone or by letter) to obtain the recommended numerical response. On public projects, regulations and laws often dictate the manner in which advertisement and solicitation must be done. Without regulation, each owner can use his own judgment to determine both the conduct and extent of his initial contact with CMs. A typical advertisement or notice is included in Appendix VII.

Step 6: Screen Responses to Determine Interest and Compatibility.—The goal of the advertisement or solicitation is between 5 and 10 respondents that clearly state their genuine interest in the project, and indicate form and variation compatibility. The less certain the owner is about each respondent's status (regarding these *two* very important conditions), the greater

the pool of respondents becomes. The more certain he is, the smaller the pool becomes.

During the screening process, it is important to recognize certain conditions and criteria that eventually will help in the final selection of the c.m.

1. Fees for CM services should *not* be addressed in any way until the interview stage of the process has been reached. CM services are professional services in the business sense of the word. The efforts of the selection process should be totally oriented toward the scope and quality of services, and should not be prematurely influenced by fee discussions.
2. *All* communications with *all* respondents and *all* potential respondents should be kept uniform one to the other to create a fair and equitable professional atmosphere throughout the course of the selection process. It is important that none of the construction managers are given an unfair advantage, or that any get the impression that one may have an unfair advantage.
3. Communication that is initiated by CMs that are included in or excluded from the selection process should be ignored by the owner without exception. It is advantageous for the owner to remain in total control of the selection process at all times and that he not be influenced by pressures from those with special interests.

Note that the practice of CM has attracted different types of practitioners with a wide variety of business styles and backgrounds. While CM is a professional service, in many cases individual practitioners are not professionals and may not conduct the selling of their firm's services to an assumed level of professional standards and ethics. These precautions are provided to preclude potential problems in the overall selection process.

Step 7: Issue Initial Request for Proposal (IRFP).—The IRFP is the first screening device used in the selection process. It should be strategically prepared to effectively surface the prime candidates for further scrutiny. It is suggested that the IRFP be in questionnaire form to preclude the respondents from providing a lot of unwanted prose. The IRFP should essentially formalize the original information provided by the respondents to the owner solicitation or advertisement.

When forwarding the IRFP to the group of 5–10, it is important to enclose a time schedule for the owner's selection process. Specific dates should be dedicated to the remaining steps to be taken and the dates that are selected should be adhered to if at all possible. An example of an IRFP is in Appendix VIII; a selection process schedule is in Appendix IX.

Step 8: Screen Respondents to IRFP.—A screening process should be established to uniformly compare the responses to each question in the IRFP. In situations where competition is a legal requisite, a rating system can be devised that will satisfy this requirement. It's suggested that a similar rating system be established by owners even if they are not subject to competitive constraints. The information can best be sorted and evaluated if it is systematically handled. Without a formal system, the

information will become unwieldy and hinder the results of a well-intended selection process.

An example of a simple rating system is in Appendix X.

All CM firms that responded to the IRFP should be notified of the owner's long list decision by the date specified in the selection process schedule.

Step 9: Issue RFP to Those on Long List.—This second RFP complements the IRFP by requesting information from those on the long list that was not required until now. It is very important that all remaining evaluation information required for selection be accumulated from this questionnaire.

Specific responses pertaining to the handling of the project, such as a proposed management plan and staffing plan, should be requested. Resumés of personnel to be assigned to the project, the proposed contract documents to be used on the project, and the CM/owner agreement should be requested for review unless the documents to be used have already been specified by the owner.

Essentially all information deemed to be necessary to make a decision on a single firm should be included in the RFP, so that the final interview consists mainly of questions and answers pertaining to information already provided. A sample of an RFP is included in Appendix XI.

Step 10: Screen Respondents to RFP and Develop Short List for Interviews.—As soon as it is determined which firms are to be interviewed, all of the firms on the long list should be formally contacted and advised of the decision. Plans should be made as soon as possible for interviewing those on the short list.

A procedure similar to that suggested in step 8 should be used in this final screening process. The next step is interviews and selection. One of the CM firms on the short list will be the CM. It is important that impressions relating to potential team compatibility and confidence in each firm's ability to perform be established.

If additional information is required from any of those on the short list, contact should be made and the information obtained. As recommended in all other steps, care must be exercised not to favor any of the contenders if additional contacts are made. A fair and successful selection process is highly dependent on an arms-length relationship with all of the firms under consideration. Maintaining this posture in the late stages of the process is sometimes difficult but very advantageous to the owner.

Interview dates should be established to easily accommodate the number of firms on the short list. There are advantages and disadvantages to firms being interviewed relative to their position in the interview schedule. Do not solicit or accept requests from the CM firms for preferred interview times. Use a mechanical selection method that favors no one, and hold the firms to the scheduled dates and times.

It is best not to schedule more than two interviews on any one day. If it is necessary to move faster, then it is best to spread three or four over the full course of a day. No more than four interviews should be scheduled in one day. The reason for this is to prevent confusing the information of one firm with that of another.

Select interview dates and times that have a potential for full atten-

dance by the group responsible for selection. It is unfair to those being interviewed and detrimental to the selection process if absenteeism occurs (in whole or in part) during the interviews. An accurate comparison of the competing firms cannot be based on partial information. It is to the owner's advantage to participate fully.

Step 11: Conducting Interviews with Those on Short List.—The interview process will be a success if the owner is properly prepared for the task. It has already been established that the CM process is not simplistic and that it's not readily understood by many users of the system. It is assumed that those who are to conduct the interviews have educated themselves by reading the information that has been submitted in the IRFPs and RFPs. One of the reasons for a comprehensive request for proposal process is the perceived need of owners to learn more about the CM system, as well as to learn more about the competing CM firms before final selection occurs.

Format.—The interview for each competing CM firm should take approximately an hour and a half. The first 30 minutes should be allocated to a free presentation by the CM firm. During this period, the CM should be allowed to "sell" his candidacy as he sees fit. The next 15 minutes should be devoted to the CM's response to the last owner inquiry that was forwarded to each firm prior to the interview. During this period, the CM should address specific issues directly applicable to the project. The next 15 minutes should be used by the owner to question the CM on his presentation, or on anything connected with the information previously provided in the RFPs. The CM should be excused for the next 15 minutes to permit the interviewers an opportunity to compare notes and formulate any further questions that should be asked in the final scheduled 15 minutes of the interview.

The time limits are not intended to be rigid within the one and one half hours allotted, but it is suggested that each of the interviews be restricted to the stated time period and that the use of the time be as outlined here. Every effort should be made to retain the comparative intentions of the process throughout interviews.

Fees.—Each CM should present his fee for the project in a sealed envelope before he begins his presentation. It is strongly suggested that the owner not open these envelopes until all interviews have been completed. The intent is to provide an opportunity to initially rate candidates on their performance potential without the encumbering distraction of fees. There is ample time to consider the fee issue during the final phase of the selection process.

Questions.—It is assumed that the process as outlined will automatically provide the interviewers with pertinent and meaningful questions during the interviews. It is generally useful to frame a specific series of questions prior to the start of the interview process. These questions should be addressed to each of the firms, to generate specific comparative criteria for final evaluation. Some sample questions can be found in Appendix XII.

Decorum.—It's important that the owner remains in charge of each interview and that it is conducted in an effective and efficient manner. The ground rules to be observed should be formulated and made known well ahead of the dates for interviews. On public projects, it is man-

datory that all competitors are treated with an even hand. This criterion benefits the interviewers and should be practiced on private projects as well.

Decision.—It is recommended that discussions relative to a decision on the CM not be initiated until the final interview has been completed, and a day or so for reflection has elapsed. During this time, no contact should occur with those interviewed, but a free exchange of comparative data between the interviewers is encouraged. When decision time is at hand, interviewers and others involved in the project should meet to compare notes, score sheets, and impressions, and to come to agreement on the ranking of the CM firms. Once this is accomplished, fees should be revealed and further discussions of the best candidates based on fee information should occur. The firms should be reranked based on this new information.

As soon as possible, and within the schedule set for the selection process, notify all CM firms that were interviewed informing them of the ranking. Let them know that you intend to enter into an agreement with your first choice, and thank them for their interest and time. Hold to your decision in the face of the contacts you may receive from the firms that were not ranked first. Feel free to answer nominal queries concerning your decision.

Visitation.—Before discussing the terms of an agreement, it is recommended that the owner visit the offices of the CM firm being considered. If you would be dealing with a branch office operation, visit both the branch and the main offices to see the entire operation. Find out how each office would be involved, who would be responsible to you in each case, and how intercommunication would occur. Review the staffing plan, if one was previously submitted, and be satisfied that it will serve the purpose. Feel free to requestion the CM on unclear responses provided during the interview and make sure the CM's participation is as you perceived it to be at that time.

Negotiations.—Thoroughly review the terms of the owner/CM agreement with the CM. Have those present who you think can help clarify any discussions of the provisions or any modifications to them. Make certain that the document covers the necessary interactions of the owner, design professional, and CM in sufficient detail to avert future confusion. It is suggested that a memorandum of understanding or a responsibility chart be developed, to provide greater definition of interacting responsibilities of the team members. All team members should contribute to its formulation. This document can be an attachment to each team member's agreement with the owner. A sample responsibility chart can be found in Appendix XIII.

Fee.—It is assumed that the first ranked CM firm reached its position with due consideration of both ability and fee. Consequently, negotiation of fee amount is not normally expected. However, if the fee amount is deemed by the owner to be excessive or deficient, negotiations are definitely in order and recommended. The time for fee discussions is *after* a clear understanding of services and requirements has been reached.

Fee Structures.—There are several ways to arrange fees for CM services. All are derived from similar arrangements common to the industry. Essentially they include lump sum, cost plus, and combinations of

both. Some variations of CM have propagated incentive and merit fee structures. Typical CM/owner fee forms are discussed in Appendix XIV.

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APPENDIX I.—CONTRACTING CHARACTERISTICS OF VARIOUS SYSTEMS

Three Systems of Project Delivery

General contracting is the traditional system. The owner hires an architect or engineer to design and document the project for bidding by general contractors. A contract is awarded to the selected general contractor who hires trade contractors as subcontractors to construct the project.

Design-build contracting, an expedient form of general contracting, is sufficiently unique to be considered a system. The owner engages a design-build contractor to design and construct the project using a single contract. As design is produced, subcontractors can proceed with construction.

These following systems are shown in Figs. 1(*a–b*):

1. Solid lines indicate that a contract exists between the parties connected.
2. Dashed lines indicate that an administrative tie exists between the parties as a contract requirement.
3. The circled $ indicates that an independent contract is essentially in force between the parties.
4. The circled A indicates that an agency relationship is essentially in force between the parties.

Agency Construction Management (ACM)

The CM contracting system is signally represented by the agency form

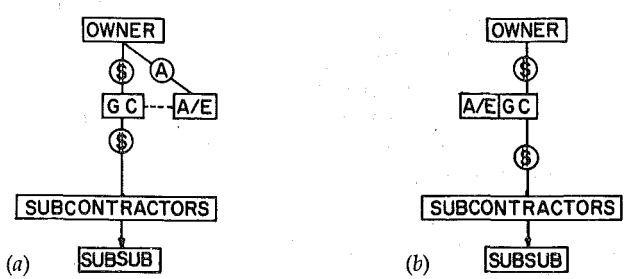

FIG. 1.—(*a*) GC and (*b*) Design-Build Contracting Systems

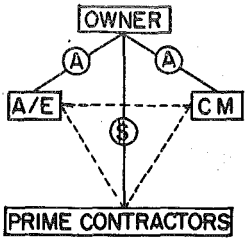

FIG. 2.—CM System (Represented by ACM Form)

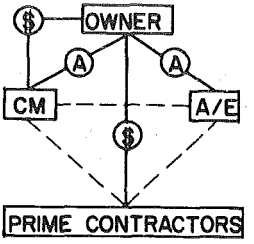

FIG. 3.—Basic Form of GMPCM

because of the CM's single role as agent throughout the course of the project. In this form the CM does not become engaged in other project delivery functions, i.e., design services, contracting, or doing construction work with his own forces. The ACM functions as a member of the project team with the design professional and the owner. All contracts for design services, construction, and construction support services are directly with the owner (see Fig. 2).

Guaranteed Maximum Price Construction Management (GMPCM)

GMPCM is referred to in a broad sense as "contractor" CM because at a late point in design the CM's agency agreement with the owner is amended to provide a guaranteed maximum price for the total cost of construction. The CM firm becomes involved in a dual role of CM and general contractor once the GMP is given.

The dual role introduces several options to the GMPCM format. Because the CM assumes contracting risk, he is generally permitted to mitigate the risks through various discrete options. He may negotiate with the owner, or compete with bidders, for all or portions of the work to be done by his own forces, and the owner may allow him to hold some or all construction contracts. Savings clauses or other fee incentives may be included in his contract with the owner.

GMPCM requires exact contract definition and mutual understanding of CM responsibilities. There are standard documents available that can be conveniently modified for use. The basic GMPCM form, without construction and contracting options, is shown in Fig. 3.

Extended Services Construction Management (XCM)

XCM permits the CM to perform a multirole as either an AE/CM or a CM/CONTRACTOR and/or CONSTRUCTOR. XCM is used as the descriptive because, in each variation, the initially contracted services are extended to include one or more additional services, creating a compound role for the CM. In the case of an AE/CM combination, the design agreement is supplemented to include CM services. In the case of CM/CONTRACTOR and/or CONSTRUCTOR, the CM agreement is supplemented to include the appropriate construction and/or contracting functions [see Figs. 4(*a–c*)].

Owner Construction Management (OCM)

OCM places the owner in the performance position of the CM. The owner absorbs the CM responsibilities according to his in-house capabilities. If the total requirement exceeds his capabilities, he strengthens them by adding appropriate staff for the project or hires specific services from a CM firm. Fig. 5 shows the basic OCM form.

Fitting the Categories

ACM, GMPCM, and OCM have at least one individual characteristic that makes them unique forms of the CM system. XCM can stand on its own or combine with GMPCM or OCM. When in combination with either, XCM loses its individuality and becomes a variation of the form with which it is combined. ACM, by definition, has no opportunity for combination and is the only CM form that has no variations.

CM Forms and Variations

The diagrams depicting the four categories are the basic or common forms of the system. There are combinations of all forms (except ACM) that create contractually unique variations. It is desirable to be able to identify the variations of the CM system, as well as its basic forms, and to compare what contractually occurs when they are created. To effectively do this, we can refer to the degree of *potential* for conflict of interest created when the CM's responsibility as an agent combines with additional responsibility, particularly as an independent contractor.

The ACM form epitomizes the absence of this potential by virtue of its exclusive agency relationship between the CM and the owner. All other forms and their variations combine second relationships that gen-

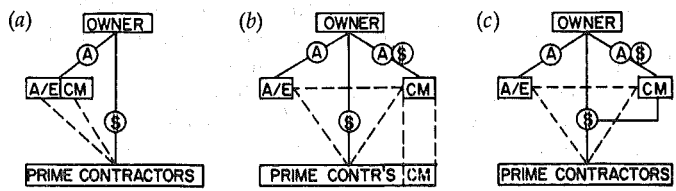

FIG. 4.—Common Variations of XCM Form: (*a*) Design XCM; (*b*) Constructor XCM; (*c*) Contractor XCM

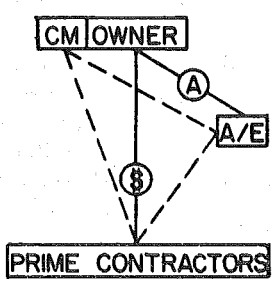

FIG. 5.—Basic Form of OCM

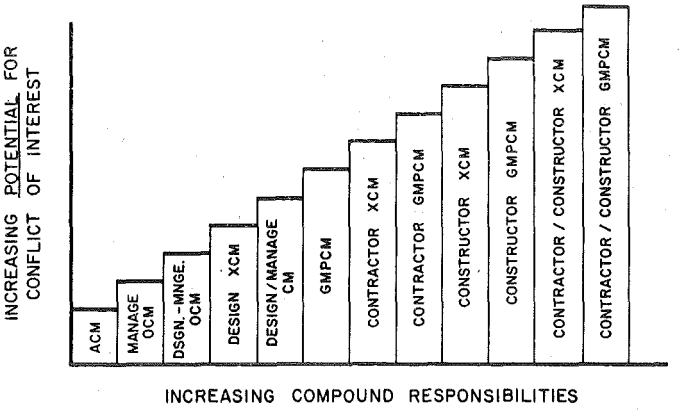

FIG. 6.—Relating Potential for Conflict of Interest in CM

erate a potential for conflict of interest that should be clearly understood and recognized by owners in order to evaluate what the CM system has to offer. The presence of the potential does not make other forms and variations questionable or suspect in their use, but simply highlights the fact that the potential will have to be philosophically and contractually addressed by owners when using them.

The basic form in each category is the contracting configuration with the least potential for conflict of its respective variations. Fig. 6 shows the forms and variations in a relative (not measured) perspective of their potential.

Fig. 7 compares the potential for conflict of interest between the three contracting systems. It should be noted that owner CM is perceived to contain a potential for conflict of interest in spite of the obvious single-party involvement. Even though OCM is an exclusive owner program, the absence of outside CM services precludes the owner from some of the major attributes of CM's contemporary expertise, lessening the ef-

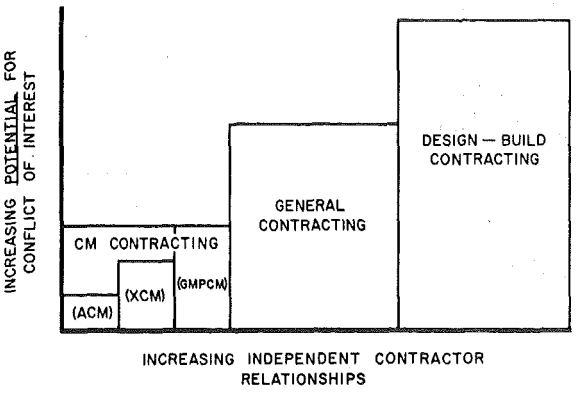

FIG. 7.—Potential for Conflict of Interest in Systems

fectiveness of the CM system as measured against the ACM form.

It has been pointed out that: (1) Checks and balances in the decision-making process; (2) intimate familiarity with construction industry practices; (3) carryover design solutions from other project types; (4) highly honed construction and contracting resources; and (5) the manage-for-pay incentive are all instrumental in the success of the CM system. It is doubtful if the performance level of external CM services can be achieved by a cloistered and inbred owner organization, unless a significant and constant annual construction volume is maintained and state-of-the-art CM expertise is infused on a continuous basis.

Innovative Limits

When reviewing the forms and their variations, the question is bound to arise whether or not some of the variations are actually general contracting or design-build contracting instead of CM. To satisfactorily address this point, it is necessary to identify one unique characteristic of each of the systems that unequivocally separates it from the others.

In the case of design-build, it is the single responsibility arrangement combining design and construction services under one contract with the owner.

In the case of general contracting, it is the separation of design activities and construction activities characterized by the design-bid-build performance sequence.

In both systems however, the agency relationship that is present or implied in all forms and variations of CM is missing.

Additionally, the CM process in all its forms and variations facilitates

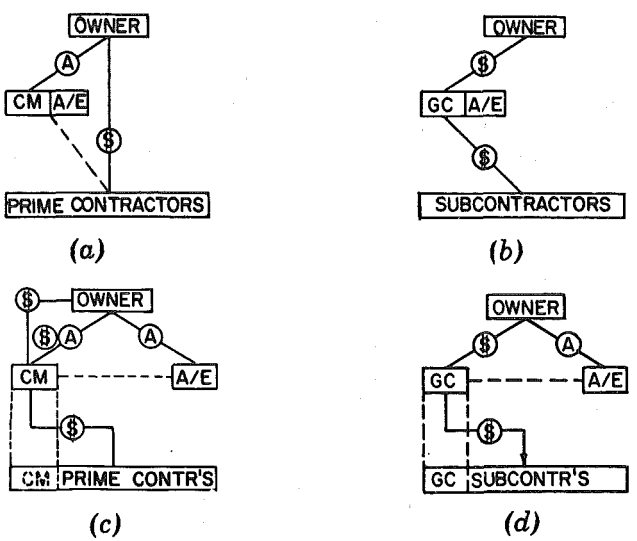

FIG. 8.—Innovative Limits of CM Compared to Design-Build and GC: (*a*) Design/Manage CM; (*b*) Design-Build Contracting; (*c*) Contractor/Constructor GMPCM; (*d*) General Contracting

owner access to *all* of the major material and equipment costs and the contracting costs at the performing (trade) contractor level. This is unequivocally *not* the case in either the design-build or general contracting systems.

It is only possible to show the existence or nonexistence of the required agency relationship in a diagram. This has been done in Fig. 8 to compare Design/Manage CM (Design XCM) with design-build contracting and Contractor/Constructor GMPCM with general contracting.

APPENDIX II.—FORMS AND VARIATIONS OF CM SYSTEM

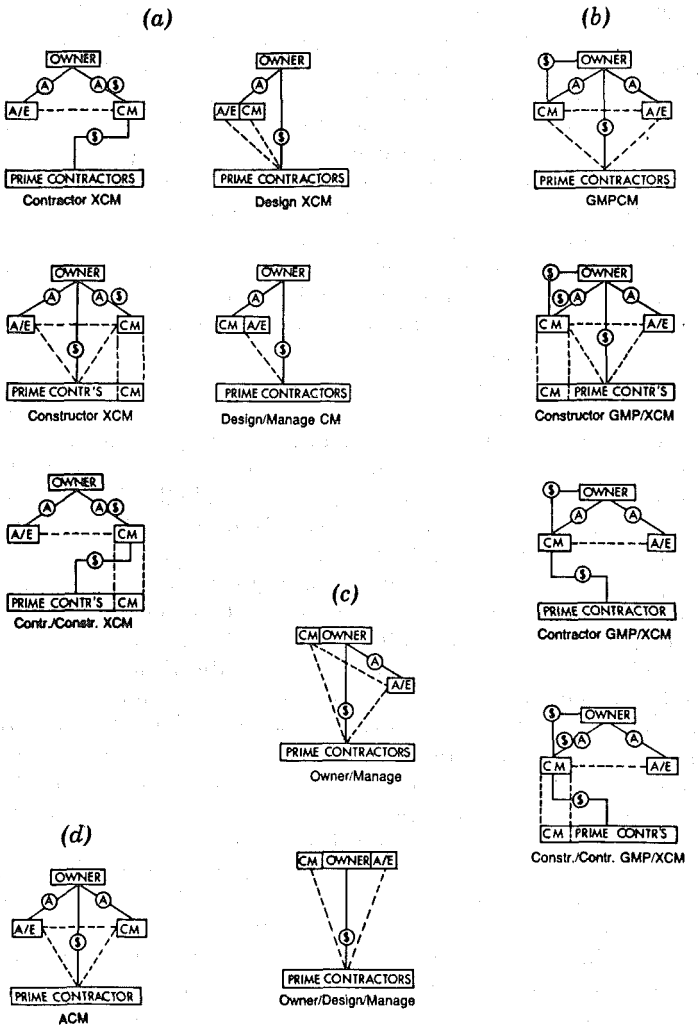

FIG. 9.—CM System: (*a*) Extended Services Forms; (*b*) GMP Forms; (*c*) Owner Forms; (*d*) Agency Forms

APPENDIX III.—POTENTIAL FOR CONFLICT OF INTEREST FACTOR IN PROJECT DELIVERY PROCESS

The increased involvement of owners in the process of delivering projects requires a higher level of understanding by owners of the factors that influence their efforts. One of the factors is the *potential* for conflict of interest that is present in *all* project delivery systems.

Proprietary business entities within the construction industry can be loosely classified as either independent contractors or agents. Contractors, with their risk-taking involvements on projects involving a lump sum contract, are good examples of an entrepreneurial business entity operating as an independent contractor. Architects and engineers, when engaged by owners to provide design and contract administration for the bidding and construction of a project, are equally good examples of a service business entity operating essentially as an agent. While it can be argued that both are taking risks and are providing services, there is sufficient distinction between the involvements to support the "potential for conflict of interest factor" as it is explained here.

In essence, the lump sum contractor derives his profit from the difference between his contracted amount and the dollars he must spend to meet the requirements of the contract. In performing the work, the contractor has the opportunity to use his efficiencies to produce profit, but he is also in a position to "regulate" quality and effort during the performance of his obligations.

When the project is completed, the work of the contractor can be measured against the plans and specifications to determine contractual performance. Any "successful" regulation of quality or effort by the contractor may or may not be evident. Any nonconformance or misdirection of effort is built into the completed project. While this is a sensitive area for discussion, it is a universally recognized contracting problem that exists in the construction industry.

The performance of the architect or engineer cannot be measured as definitively as the contractor's. Standards of practice and professional performance equal to that of his peers provide the criteria by which design services are ultimately judged. Unless the design professional is providing services under a percentage-of-construction-cost fee structure, there is little opportunity to substantially enhance his financial position through the use of questionable practices in either the quality of design or the performance of his services. In any case, the design professional does not have access to the opportunities available to the contractor with regard to economic gain through self-serving actions. Cutting corners in either design or the provision of services will ultimately be harmful to the design professional because they will be obvious sooner or later.

A clear understanding of the roles of the contractor and the design professional in the process of project delivery produces a contrast in their proprietary involvements. It becomes obvious that there is a greater potential for conflict of interest in the contractor's performance than in the design professional's. Note that the term "potential" has been intentionally used to qualify the statements. The contracting systems, and *not* the contractors, generate the potential that must be faced.

The contractor is termed an independent contractor as a result of the terms of the agreement entered into with the owner. An independent contractor is a party who contracts to do a specified task for another party and functions free from the influence, guidance, and control of the other party while performing the task, and is responsible to the other party for the end result.

The design professional performs essentially as an agent of the owner (at least to the extent specified in the terms of the agreement). Agency requires the highest duty of care and loyalty on the part of the agent to the owner. In providing services an agent is subject to the influence, guidance and control of the one he serves. The law recognizes agency as a fiduciary relationship—one held in trust or confidence by both parties.

Construction managers, by virtue of the several contractual forms of the CM system, have opportunities to function as independent contractors or agents, or, in some forms of CM, simultaneously as agent and independent contractor. In the latter case, the entrepreneurial instincts of the CM usually disqualify the fact of agency in the opinion of the court. It is considered highly unlikely that the conditions of agency will prevail on a project where the CM is involved in a dual role with an owner.

From this intimate perspective, owners should be able to identify exposure to potential conflict-of-interest situations in all forms of project delivery. It is important to understand that the degree of potential changes with the system of contracting, and in the case of CM, in the form and variation used. It is equally important to understand that the *potential* cannot be avoided, but the *conflict* can. The potential for conflict of interest is inherent to every contracting system, bar none. The owner's requirement is to understand the nature of the potential and the extent to which it exists, and then to deal with it contractually and procedurally as a means of protection through mitigation. A clear understanding of this phenomenon will avoid problems during the course of the project.

Appendix I can be used to assist in the evaluation of contracting systems and CM forms and variations. The charts and the narrative provide a perspective with regard to conflict of interest. Absolutely no attempt is made to establish a finite degree of difference in the potential. Only as indication is provided that potential exists and differs from one system, form, and variation of CM to another.

The basis for the relationships is the changing independent contractor/agent responsibilities of the contract parties. An agency relationship lowers potential and an independent contractor relationship raises it. Construction involvement raises the potential faster than contracting activities.

It should also be clearly understood that potential is something that is possible, but not actual—something that has capacity for existence, but is not yet existing.

Consequently, it is entirely possible that under performance conditions a variation of CM with a theoretically high potential for conflict of interest will provide more satisfactory results than one with a much lower potential.

Appendix IV.—Standard Documents Used for Construction Management Projects

CM Documents Published by the American Institute of Architects:

A 101/CM Standard Form of Agreement between Owner and Contractor
A 201/CM General Conditions of the Contract for Construction
A 311/CM Performance Bond and Labor and Material Bond
B 141/CM Standard Form of Agreement between Owner and Architect
B 801 Standard Form of Agreement between Owner and Construction Manager
G 701/CM Change Order
G 722 Project Application and Project Certificate for Payment
G 723 Project Application Summary

CM Documents Published by the Associated General Contractors of America:

No. 8 Standard Form of Agreement between Owner and Construction Manager
No. 8a Amendment to Owner-Construction Manager Contract
No. 8b General Conditions for Trade Contractors under Construction Management Agreements
No. 8d Standard Form of Agreement between Owner and Construction Manager (Owner Awards All Contracts)
No. 8f Change Order/Construction Manager Fee Adjustment

CM Documents Published by the Engineers Joint Contract Documents Committee (ASCE *Affiliation*)

1910–15 Standard Form of Agreement between Owner and Project Manager for Professional Services

Appendix V.—Fundamental Matrix of Services Provided by CM

Construction Management		Construction management services	Provide design services	Provide construction services	Hold construction contracts	Provide guaranteed maximum price
Form	Variation					
Agency construction management (ACM)	none	•				
Extended services construction management (XCM)	Design extended services CM (design XCM)	•	•			
	Construct extended services CM (construct XCM)	•		•		

APPENDIX V.—CONTINUED

Construction Management		Construction management services	Provide design services	Provide construction services	Hold construction contracts	Provide guaranteed maximum price
Form	Variation					
Guaranteed maximum price construction management (GMPCM)	Contract extended services CM (contract XCM)	•			•	
	Construct-contract extended services CM (constr-contr XCM)	•		•	•	
	Construct guaranteed maximum price CM (construct GMPCM)	•		•		•
	Contract guaranteed maximum price CM (contract GMPCM)	•			•	•
	Construct-contract guaranteed maximum price CM (constr-contr GMPCM)	•		•	•	•

APPENDIX VI.—COMPREHENSIVE LIST OF SERVICE ACTIVITIES OF CONSTRUCTION MANAGER

1. The development of the project budget from information provided by the owner and AE.
2. The design of the management plan and strategy based on the owner's parameters for the project.
3. The scheduling of project delivery from design through construction.
4. The application of value management, including direction in constructibility and contractability decisions.
5. The formation of contract conditions to facilitate the use of the CM project delivery system, format, and variation.
6. Review the contract documents prior to issuance to bidders for proposals.
7. The determination of divisions of work to facilitate the multiple bidding process.
8. The prequalification of contractors and the identification of owner direct purchase items.
9. A survey and analysis of the labor pool and contracting practices in the area of the project.
10. Team leadership during the time that the expertise of the CM is germane.
11. The development of bidding competition to generate the most favorable pricing conditions.
12. Communicate with bidding contractors to clarify conditions and

resolve discrepancies in bidding documents.

13. Assistance to the owner during the bidding process to ensure that the receipt of proposals is properly conducted.

14. Review proposals to determine if those being considered are complete and in the owner's best interests.

15. Leadership in negotiations with contractors on behalf of the owner.

16. Administrative assistance in the signing of contracts and the accumulation of required documentation.

17. The organization and chairing of preconstruction meetings with contractors.

18. The development and implementation of the on-site construction schedule.

19. The coordination of contractors at the site on a full-time basis.

20. The chairing of periodic project and progress meetings with contractors.

21. The organization and administration of a contractor system for expediting material and equipment.

22. The establishment and administration of a project reporting system.

23. The institution and coordination of the progress payment procedure for contractors.

24. The procurement and control of construction support requirements for the project.

25. Assistance to the owner and contractors with respect to any labor relations efforts connected with the project.

26. The design and implementation of the project's quality management program.

27. The administration of contract changes and the project's change order procedure.

28. Cost tracking, and the administration of the owner's cost accounting program.

29. Assistance in the resolution of disputes arising from the performance of the contracts.

Appendix VII.—Typical Advertisement or Notice for CM Services

CONSTRUCTION MANAGEMENT SERVICES

The _____ Building Authority is seeking the services of a construction manager for _____ project in _____, _____, _____.

1. The project consists of a 4-level service and parking structure and an 18-story office tower, located in the downtown area of the city.

2. The work consists of: demolition of seven existing five-story masonry structures; excavation; underpinning, and protection of three adjacent structures; construction of the 220,000 sq ft facility including tenant improvements and two skywalk connections to neighboring buildings.

3. The architect selection process is to be conducted concurrently with the CM selection process. The project is funded and will proceed immediately, with full occupancy scheduled for _____, _____.

4. The Construction Manager will be required to provide a guaranteed maximum price at approximately 80% completion of design, and is not permitted to bid or perform any of the construction work involved.

5. Construction managers with experience on urban high rise projects are invited to express preliminary interest by sending a FIVE-PAGE (maximum) qualification letter to:

_____ Building Authority
_____ _____ Street
_____, _____ _____

The authority will review all properly submitted responses that are post-marked on or before _____, _____ and advise all respondents of their status for further consideration no later than _____, _____.

The date of this notice is _____, _____.

NOTES TO USER:

1. A brief, general description of the project.
2. A brief explanation of the work involved.
3. An insight to the current status of the project.
4. A description of the form and variation of CM services required.
5. The overall qualifications required.

APPENDIX VIII.—INITIAL REQUEST FOR PROPOSAL

Submitted To: _____
_____
_____

Submitted By: _____ a Corporation _____
_____ Partnership _____
_____ Individual _____
Other _____

Business Organization

1. How many years has your firm been in business under the name stated above? _____
2. How many years has your firm provided construction management services? _____
3. What other services does your firm provide under the name stated above? _____
_____
4. If a corporation, please answer the following:
   Date of incorporation _____
   State in which incorporated _____
5. If a partnership, please answer the following:
   Date of organization _____
   Names of partners and percent of participation:
_____
_____
_____

6. If individual, please answer the following:
   Date of organization _____
   Name of owner _____
7. If other, please explain. _____
8. Address of main office _____
9. Locations of branch offices, if any.

CM Organization

1. The number of permanent employees _____
2. How many are permanently assigned to CM services _____
3. List in-house personnel in the following categories:
   Field managers or superintendents _____
   Project administrators or managers _____
   Resource personnel _____
   Support or administrative persons _____
   Principals or officers _____
   Total _____
4. How many of the permanent employees have been hired in the past two years? _____
5. What has been your number turnover (layoffs *or* replacements) during the past five years? _____
6. Designate the technical level of all in-house personnel by category.

	Registered	Degreed nonregistered	Nondegreed
Engineers, civil			
Engineers, mechanical			
Engineers, electrical			
Architects			
Value managers			
Planners			
Estimators			
Attorneys			
Business administration			
Computer science			
All other			

7. List the professional and trade associations that are represented by in-house personal memberships.

8. Of all in-house employees, how many are classified as minority employees? _____
9. When performing CM services, what portions of your CM services do you normally contract out? _____

Experience

1. List your specific experience as a *construction manager* in the following project categories.

	Number of projects	Largest ($) project
Commercial		
Industrial		
Health care		
Educational		
Correctional		
Hotels		
Process		
Services		
Civil works		
Total		

2. What has been your annual volume of CM projects during the past five years, based on construction costs?
   $ _____ $ _____ $ _____
   $ _____ $ _____
3. How many CM projects have you completed or still under way in the following areas of the United States?

	Number of projects completed	Number of projects under way
Northeast		
Southeast		
North Central		
South Central		
Northwest		
Southwest		
Alaska and Hawaii		
Totals		

4. How many different architectural/engineering firms have you worked with on the CM projects listed in response to number 1? _____

5. On how many of the CM projects listed in number 1 have you provided the following services in whole or in part?

Held contracts for construction work	_____
Performed construction work	_____
Provided a guaranteed maximum price for work	_____
Performed construction support work	_____
Provided design services for the work	_____

6. On how many of the CM projects listed in number 1 did you enter into litigation/arbitration with the owner? _____
7. On how many of the CM projects listed in number 1 did any of the contractors enter into litigation/arbitration with the owner? _____

Current Work Load

1. Express the current work load of your CM organization on a project basis, broken down as follows:

	Number of projects	Dollar value
Feasibility/planning	_____	_____
Schematics/preliminary design	_____	_____
Design development/final design	_____	_____
Contract documents	_____	_____
Out for bids	_____	_____
Construction	_____	_____
Occupancy/start-up	_____	_____
Warranty/guarantee	_____	_____
Complete, but not closed out	_____	_____
Totals	_____	_____

2. Based on your current staff and average projects, what is the estimated annual volume capacity of your CM organization? $ _____
3. If the project that is the subject of this inquiry put your work load above your estimated capacity, how would you sufficiently increase your capacity to handle it properly?

	Yes	No
Add staff by direct hire	_____	_____
Contract services out	_____	_____
Both	_____	_____

4. Based on your current staff and assuming an average project, what is the largest single project your CM organization can effectively handle? $ _____
5. If the project that is the subject of this inquiry was larger than the maximum size you think you can handle, how would you sufficiently increase your staff to handle it properly?

	Yes	No
Add staff by direct hire	_____	_____

Contract services out _____ _____
Both _____ _____

6. Provide the following information on no more than seven of your largest current projects.

Project type	Location	$ size	Completion date

References

1. Provide the following information on owners that have used your services more than once. (Attach a separate sheet.)

   Owner's name
   Owner's address
   Owner's phone number
   Project's involved

2. List the following information on five of the seven projects listed in number 6. (Attach a separate sheet.) Do not use project already listed.

   Project
   Owner's name
   Owner's address
   Owner's phone number
   Project's architect/engineer
   AE's address
   AE's phone number

3. Provide the following information on project architects or engineers that you have worked with on more than one CM project, for the same owner or different owners. (Attach a separate sheet.)

   Architect's/engineer's name
   Architect's/engineer's address
   Architect's/engineer's phone number
   Projects involved

Certification of Information Provided

All of the information provided herein is to the best of my knowledge complete and accurate, and can be accepted by the solicitor as a valid response to the questions asked.

Firm: _____
Signed: _____
Name: _____
Title: _____
Date: _____

APPENDIX IX.—MAXIMUM TIME SCHEDULE FOR CM SELECTION PROCESS

Legend : - week days; | - weekends; ? - indeterminate - varies; O - preparation days; and X - action days.

		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
		:::::||:::::||:::::||:::::||:::::||:::::||:::::||:::::||:::::||:::::||									
Determine project budget	?????										
Determine CM suitability	?????										
Determine CM form and variation	?????										
Search laws and regulations	?????										
Draft project description	-----	XX									
Determine time constraints	-----	XX									
Issue invitation/advertisement	-----	oooox									
Screen invitation/advertisement responses	-----	-----	-----	XXXXX							
Issue initial RFP	-----	--ooo	ooooo	ooooo	X						
Screen IRFP respondents	-----	-----	-----	-----	-----	-----	XXX				
Telephone references	-----	-----	-----	-----	-----	-----	XXX				
Issue RFP to long listed CMs	-----	-----	-----	-----	ooooo	ooooo	oooX				
Screen RFP respondents	-----	-----	-----	-----	-----	-----	-----	-----	XX		
Develop short list of firms	-----	-----	-----	-----	-----	-----	-----	-----	--XX		
Request final information	-----	-----	-----	-----	-----	-----	-----	-----	--ooX		
Issue interview invitations	-----	-----	-----	-----	-----	-----	-----	-----	----X		
Conduct interviews	-----	-----	-----	-----	-----	-----	-----	-----	-----	---XX	
Telephone references	-----	-----	-----	-----	-----	-----	-----	-----	-----	----X	X
Rate those interviewed	-----	-----	-----	-----	-----	-----	-----	-----	-----	---XX	X
Open fee envelopes	-----	-----	-----	-----	-----	-----	-----	-----	-----	----X	X
Negotiate with choice CM firm	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-X
Agree on contract terms	-----	-----	-----	-----	-----	-----	ooooo	ooooo	ooooo	ooooo	-XX
Sign contract	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----X
		:::::||:::::||:::::||:::::||:::::||:::::||:::::||:::::||:::::||:::::||									
		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10

J. Constr. Eng. Manage., 1987, 113(1): 51-89

Appendix X.—Typical CM Firm Rating System for IRFP Responders

Rating Factors	Score	Weight	Total
1. Longevity of business organization			
2. Longevity of CM service organization			
3. Versatility of available services			
4. Depth of in-house CM organization			
5. Technical level of organization			
6. Industry association involvement			
7. Project type match-up			
8. Project size match-up			
9. Experience based on volume of work			
10. Experience based on project numbers			
11. Demonstrated geographic versatility			
12. Project size versatility			
13. Project type versatility			
14. Experience with different architects			
15. Versatility as construction manager			
16. Dispute avoidance record			
17. Capacity to absorb new project			
18. Capacity to accept this project			
19. Stability of personnel turnover			
20. Quality of listed owner references			
		Total score	

NOTES TO USER:

*Each owner can determine the weight of each rating factor based on the unique conditions of the project at hand.

*The factors listed here generally coincide with the questions asked in the initial request for proposal—in Appendix IV.

*Scoring should be on an even number scale. One to four is valid.

*Multiply the score by the weight to get the total. Highest score indicates the most desirable CM firm.

Appendix XI.—Typical Request for Proposal

(The IRFP was designed to determine the overall suitability of responding CM organizations. The RFP is designed to determine specific suitability for the project at hand. The project information previously supplied to interested firms for their response to the IRFP, may or may not need enhancement depending upon how complete the initial information was.)

Submitted to: _____

_____

_____

Submitted by: _____ a: Corporation _____

_____ Partnership _____

_____ Individual _____

Other _____

The information provided by the construction manager must address the specifics of the owner's project as far as possible. Some of the interoretive project conditions have been simulated in order to obtain comparative answers from respondents. It is requested that all questions be answered on the basis of the information as provided.

Provide your proposed management plan for the project based on:

A design time of _____ months (weeks).
A construction time of _____ months (years).
Occupancy of area (building) _____ on _____, _____.
Occupancy of area (building) _____ on _____, _____.
Occupancy of the entire project on _____, _____.

Submit your proposed organization.

An on-site organization chart with position titles identified.
An off-site organization chart with position titles identified.
Job descriptions of all positions shown on both charts.

Provide a two-page narrative of how the organization will function during design and construction.

Provide a schedule (bar chart or other) showing how the major elements of the project will meet the time requirements.

Using no more than one page each, explain how you propose to accomplish the following functions:

Cost management—Estimating, Budgeting, Cost Reporting.
Value management—Value Engineering, Life Cycle Costs.
Decision management—Checks and Balances, Expertise.
Schedule management—Systems, Types, Applications.
Information management—Communications, Documentation.
Risk management—Insurance, Bonding, Decisions.
Contract management—Dividing, Bidding, Coordination.

Using no more than one page, identify any unique aspects of this project and briefly explain your approach to each.

Provide an estimate of the manhours (mhs) you would expect to use on this project to accomplish:

Preconstruction activities _____ mhs
Construction activities _____ mhs
Total project _____ mhs

Certification of Information Provided

All information provided herein can be considered by the solicitor to be provided in good faith and attainable on the project as proposed by the CM firm named here.

Firm: _____
Signed: _____

Name: _____
Title: _____
Date: _____

Appendix XII.—Samples of Typical Owner-Construction Manager Interview Questions

The interview is primarily an opportunity to assess owner, CM, and AE compatibility. The team must have mutual confidence and trust in order to extract the maximum from the CM system. The information on the CM's ability and capacity was essentially obtained from the IRFP and RFP. The interview is the time to see and talk to the people that will actually be providing services.

1. The spokesman for the CM firm should be asked to identify himself and introduce the principle staff members that will be assigned to the project at the site and in the CM firm's managing office. These are the people the owner and AE will be working with throughout the project.

It is suggested that the owner obtain resumés of proposed principle staff members from each CM firm as final information, several days prior to the interview. The resumés should be screened by all owner personnel that plan to participate in the interview process. The owner should require the CM firm to bring key project personnel to the interview.

It is helpful for the owner to match up the CM firm's principle staff members with the organization chart provided by each CM firm as part of the RFP, as they are introduced. It is probable that each CM firm's project organization will differ, and that the titles of the positions will be different. Matching the names to the chart will facilitate identification during and after the interview.

2. One or more questions should be addressed to each of the CM contingent. Questions should be framed to clarify or substantiate the facts contained in the IRFP the RFP and the final information provided prior to the interview.

For example, it would be appropriate to ask the person assigned to lead the project at the site how he intends to carry out his responsibilities during construction. Or, ask the person that will lead the total CM effort how he intends to remain involved in the project during design and construction, and to provide some idea of his visibility in day-to-day project activities. Or, inquire of a managing office-staff person how accurate the estimating function has been on other projects the CM firm has done.

Many CM firms have excellent marketing and sales personnel that understand their services and recite them eloquently. The interview should not concentrate on a sales pitch and it may be advisable to exclude the CM's sales person from the interview. Spend the time talking to the people that will be *directly* involved in project activity. The CM should be made aware of this when the interview is arranged.

3. The interview is a good time to request the names, addresses, and phone numbers of *additional* references. The ones previously listed in the IRFP were understandably the best references the CM firm could find. The people at the interview should be asked to provide references that can attest to their own individual performances on other projects.

Not all key personnel need be asked to provide additional references, but it is advisable to get one or two from the designated field man and the person who would be in overall charge of the project.

4. If the owner is using a formal rating system to evaluate the CM firms, it is advisable to keep the pattern of the questions at each interview similar so that comparisons are simplified.

This can be accomplished by preparing a list of core questions ahead of time. These would be used, along with random additional questions, during each interview. The core questions should address the seven major service functions and the estimated manhours the CM firm indicated in the RFP.

5. The interview can best be concluded by providing 5 or 10 minutes for a CM spokesman to express anything else that wasn't covered, or that might help the CM in his efforts to be selected.

This provides an opportunity for the CM to point out some of his attributes that were not previously mentioned. The limited time frame of the interviews does not permit all of the time the CM would like to have. However, it is adequate time for its purpose if the CM organizes it effectively.

6. As the interview is concluded, the owner should ask the CM for his fee envelope. All fee envelopes should remain *unopened* until all interviews have been completed.

The CM firms should be given the opportunity to insert the fee amounts *after* the interview if the CM chooses, in case new information affecting the fee is revealed during the interview. The sealed envelope containing the fee should be given to the owner before the conclusion of business on the day of the interview. A printed owner fee form shall be used by each CM firm. Only the information requested is to be entered on the form.

APPENDIX XIII.—OWNER/AE/CM RESPONSIBILITY CHART (PRECONSTRUCTION PHASE ONLY)

Owner/AE/CM Responsibility	Owner	AE	CM
Addenda—procedural	Review/approve	Review/analyze	Generate/write
Addenda—technical	Review	Generate/write	Review/analyze
Advertisement-bids	Issue/pay	Review/comment	Generate/write
Bid opening	Attend/witness	Open/read	Check/record

Bid reviews	Review	Review/comment	Analyze
Bidders lists	Review/approve	Review/comment	Generate
Bidding allowances	Review/approve	Analyze/write	Generate
Bidding alternatives	Review/approve	Generate/write	Generate
Bidding documents	Approve/pay	Assemble/print	Distribute
Bonding requirements	Establish	Review/comment	Analyze
Budget updates	Review/approve	Analyze	Provide
Budget, project	Establish	Analyze	Analyze/codify
Contract awards	Review/approve	Recommend	Review/comment
Contract drawings	Review/approve	Generate	Review/comment
Contracting methods	Review/approve	Review/comment	Generate
Contracts, construction	Provide/sign	Review/comment	Review/comment
Costs, construction	Review/approve	Analyze	Determine
Design development documents	Review/approve	Generate	Review/comment
Design parameters	Establish	Analyze/codify	Analyze
Insurance values	Establish	Review/comment	Analyze
Letters of intent	Issue	Write	Review
Meetings, prebid	Attend/comment	Participate	Conduct
Notice to proceed	Issue	Review	Write
Project manual	Approve	Assemble	Review/comment
Proposal forms	Review/approve	Analyze	Generate/write
Bidder qualification	Review/approve	Analyze	Generate
Quality standards	Establish	Analyze/codify	Generate
Schedule updates	Review/approve	Analyze	Provide
Schedule, design	Review/approve	Provide	Comment/codify
Scheduling, construction	Review/approve	Analyze	Generate
Schematic drawings	Review/approve	Generate	Review/comment
Specs, front end	Review/approve	Generate/write	Generate
Specs, outline	Review/approve	Generate/write	Analyze
Specs, technical	Review/approve	Generate/write	Review/analyze
Value engineering	Review/approve	Analyze design	Generate
Work scope descriptions	Review	Analyze	Generate
Work scopes	Approve	Review/comment	Generate

Appendix XIV.—Typical Construction Manager/Owner Fee Arrangements

The fee arrangements between owners and CMs are more varied than the forms and variations under which CM is performed. Certain forms and variations of CM require the use of unique fee arrangements to accommodate dual responsibilities. The following represents the more common fee arrangements and are provided as a guide only.

Agency CM Fee Forms: Lump Sum, with or without Added Cost Clause.—Used on small to medium size, straightforward, *new* projects where the required involvement and responsibilities of the owner, AE, and contractors are readily predictable.

Projects such as warehouses, light industrial plants, local shopping malls, office buildings, minor civil works, medical offices and clinics, and elementary and high schools can effectively use this type of fee arrangement.

A contingency clause is generally included to reimburse the CM for extended project time resulting from acts or occurrences not under his direct control. It should stipulate a daily or weekly lump sum amount that does not include overhead or profit, for field personnel required after a specific completion date named in the contract.

Lump Sum Plus Reimbursables.—Used on any of the projects that accommodate a lump sum fee, and larger or more complex projects where the involvement and responsibilities of the owner, AE, or contractors are *not* readily predictable.

Hospitals, process plants, high-rise buildings, university facilities, jails, prisons, luxury hotels, regional malls, heavy industrial plants, civil engineering projects, etc., fit well under this fee arrangement.

The Lump Sum portion of the fee arrangement usually covers the cost of the construction manager's services prior to the start of on-site construction, including his fee, general overhead, and profit for the *total* project. The owner reimburses the CM for the *costs* incurred during the construction. Variations to this format can change the phases covered by lump sum and reimbursables.

The reimbursable portion is based on predetermined, listed rates for personnel, equipment, and specific services listed in the agreement. The reimbursable portion is usually limited to a not-to-exceed amount and consists of costs only; the fee, general overhead, and profit have been paid for in the lump sum portion of the total fee.

When using this CM fee form, it is important to define what will be included in each portion. This is especially true when requesting and analyzing fees during the CM selection process. Requiring the CM to provide man-hour requirements, as suggested in the guide to a selection process, will help sort out potential confusion.

Reimbursable.—The total flexibility of this CM fee arrangement makes it applicable to any project regardless of the CM form or variation used. The CM is reimbursed for the services he provides on an hourly or per diem rate basis plus all expenses incurred in the providing of services. This fee arrangement is characterized as: (1) cost expended plus a percentage of cost expended; or (2) cost expended plus a stipulated lump sum.

Owners should be aware that this type of fee arrangement is not tied to predetermined performance by the CM with regard to his manpower use. Due to its open-ended character, this fee should only be used when none other will fit the situation.

Fee Enhancement Arrangements.—Occasionally the CM's fee arrangement is materialistically enhanced by the owner in hopes of improving the CM's performance. Two forms of fee enhancement are sometimes used: incentive and performance.

Incentive arrangements are usually connected to either the cost of the project, the time schedule for the project, or sometimes both. Additional fees (specifically named in the CM/owner agreement as to amount and payment conditions) may be earned by the CM for completing the project below a budgeted amount, or in a shorter time period than originally scheduled.

When considering incentive fees, owners should realize that the establishment of both budget and schedule is the normal prerogative of the CM. Caution should be taken in establishing both the budget and the schedule to ensure that economic returns under incentive clauses are not inadvertently or strategically included in either the budget or the schedule.

Performance rewards can be connected to many aspects of the CM's

performance and, consequently, are not as simple to measure as time and cost incentives. Additional fees are contractually set aside as a reward for effective performance as seen from the owner's perspective. Due to the nebulous criteria, the CM must depend essentially on the owner's good faith for reward. Owners, having made the commitment, must retain sufficient funds in the budget to cover the eventuality and not be tempted to expend them for other project purposes.

An ethical question arises with regard to the dual level of performance inferred by this fee arrangement. Does an owner have to pay for improved performance, or is a CM obligated to provide his best performance when the original agreement is made? Owners should seriously question the purpose and eventual worth of performance incentives from both an ethical and value-to-be-received perspective before including them in a CM fee arrangement.

Extended Services and Guaranteed Maximum Price CM Fees

Fees for the forms and variations of the CM system are generally combinations of an ACM fee arrangement and one that reflects the particular form or variation being provided.

The arrangements include:

1. Lump sum, with or without a contingency clause to cover any extended services or increased time resulting from acts or occurrences caused by other than the CM.
2. Lump sum plus reimbursables, where the reimbursable portion usually covers the CM's cost and expenses during either the preconstruction or construction phase of the project, and sometimes both.
3. Fee enhancement provisions may or may not be included. However, their inclusion is more common with CM forms and variations than they are with the ACM form.
4. Financial risk enhancement: CM's assume varying degrees of financial risk when providing services beyond those required by the ACM format. The assumption of risk entitles the CM to proportionally higher fees.

Extended Services CM

Design XCM.—If the owner/AE agreement for design services was entered into without consideration for CM services, a second agreement, or an amendment to the design agreement, is required to cover CM services. The fee for each service is not related in terms of amount, and it should never be assumed that the combining of AE and CM services will produce total fee savings. Design XCM is a combination of standard AE services and standard ACM services, and fees should be negotiated within that divided context.

If the design XCM variation is selected at the outset of the project, a combined AE/CM agreement with a single fee covering design and CM services is negotiated. The fee amount for design services and the fee amount for CM services should be generated and analyzed separately, as if the services were not to be provided in combination. It is important

that this concept of separate services prevail, even though one firm is to provide them under a single agreement. There is *no* overlap of services between the two.

Contractor XCM.—This CM variation combines ACM services and the holding of trade contracts by the CM. A single fee covering ACM services, increased to compensate the CM for the financial risk involved in holding contracts, facilitates the fee agreement. The determination of risk value for fee purposes is based on the unique terms of the agreement with respect to the type, size, and number of contracts to be held by the CM.

Constructor XCM.—This CM variation combines ACM services and the construction of part of the project by the CM's own forces. The fee must reflect the ACM services plus the CM's exposure to the loss or gain connected with the performance of the construction requirements. The fee amount reflects the CM's exposure to the unique project conditions and particularly the fee arrangement under which the CM is to be paid for services.

If the CM's exposure to construct risk is eliminated, as it would be if a cost plus percentage (or lump sum) fee arrangement were used for the constructor portion of the agreement, no increase in CM fee should be expected. In this situation the CM/constructor has no exposure to loss from constructor services; in fact, he will earn a profit from the plus provision of the cost-plus-fee arrangement.

Contractor-Constructor XCM.—This variation combines ACM services with contracting and construction services. The CM fee is established to reflect the risks involved in providing the contracting and construction functions as explained for contractor XCM and constructor XCM.

GMPCM Fee Forms

The GMP form of CM and its three variations include a risk element that usually warrants an increase in the CM's fee. In addition to the fee for ACM involvement, the CM is entitled to a premium for assuming financial responsibility for the construction budget. The determination of the premium amount is based on the obligations placed on the c.m. by the provisions of the owner/CM agreement.

The GMPCM form obligates the CM to pay for the cost of construction overruns on a total project basis. Some GMPCM agreements, i.e., those involving fast track or phased contracting techniques, obligate the CM to pay for cost overruns on a phase budget basis. Other GMPCM agreements obligate the CM to pay overruns on a budget line item basis. The two latter agreements provide very little performance flexibility and are very demanding on the CM's budgeting and estimating skills. The fees for providing a GMP on the total budget can be expected to be considerably less than the fees for providing a GMP on either a phase or line item basis.

Contractor, Constructor, and Contractor-Constructor GMPCM.—Variations further complicate the determination of fair and equitable fees for CM services. It is appropriate to individually consider each element of the total services with respect to the CM firm's exposure to financial risk. The determination of fees for the GMP variations follows the steps

prescribed for ACM and XCM previously stated.

The CM variation obviously deserving of the highest fee is contractor-constructor GMPCM, which, in analysis, is a combination of contractor-constructor XCM and GMPCM, and represents the maximum degree of services directly related to construction available from a CM. Fee development must consider ACM services, contracting services, construction services, and the provision of a guaranteed maximum price for the total project.

Comments on Interpretation of CM Fee Amounts.—When reviewing proposed fees, it is important to recognize that CM services vary in both quality and quantity from one CM to another. These two variables must be properly evaluated when comparing fees during the final analysis of the selection process.

When requesting fee amounts, owners should require a breakdown of the man-hours to be expended in each of the obvious categories of CM service. Each CM firm should be requested to provide uniform man-hour cost information for the personnel he plans to use in the provision of services. From the fee amount, the man-hours, and the wages of personnel, the owner can realistically compare the real *value* of the proposed services of each CM firm.

The value of each CM firm's services should be rated on: (1) the number of man-hours to be devoted to the project and/or each category of service; and (2) the average man-hour cost of services in total or by category. Analysis of this information (along with prior client reference information) will provide a quantitative/qualitative evaluation base for each CM and provide valuable support during fee negotiations. Estimated man-hours are required in the RFP but may be expanded by using the categories listed in the RFP and submitted with the sealed fee proposals, to further assist in evaluation.