GUIDE

NPCA Guide to Hiring a Consultant or Engineer Introduction

Structural design, drawing preparation, plant or process design, compliance - the list of technical issues faced by precasters is seemingly endless. Whether you have your own engineering staff that needs occasional extra support or contract for engineering services, the hiring of a consultant is often a difficult task. This publication provides guidance for precast concrete manufacturers in locating, contracting and developing mutually beneficial relationships with consultants and professional engineers.

The best time to develop a relationship with an engineer or consultant is before you require one. That way, when the need arises you won't be under unrealistic time pressure to hire an engineer or consultant. It is a good idea to do some research and evaluate candidates early, so they will understand your company and be ready when you need them.

Precasters should note that not all consultants are engineers. Safety and regulatory consultants, for example, may have extensive backgrounds in their specialty areas, but are not necessarily engineers. It is important to know what type of professional service is appropriate for your specific need and to determine whether you require an engineer or a consultant. Companies are usually forthcoming with this type of information.

When assessing your need for engineering or consulting services, note that there are classifications of engineers on construction projects. Precasters often work directly with "specialty engineers" for professional services such as the design of a precast concrete product. Specialty engineers are usually responsible for a portion of the project, whereas an "engineer of record" is the registered professional engineer or architect who is responsible for developing the design drawings and specifications for the entire project under compliance with local governing state laws and building codes.

Advantages To Outsourcing Your Engineering Needs:

1. A precaster may require the services of an engineer only on a limited basis.
2. Engineering firms carry professional liability insurance and errors and omissions insurance. Precasters who do not carry this coverage and are designing products are essentially "self-insured" for errors and omissions.
3. In projects with an elevated level of risk, it may benefit the precaster to have an independent engineer carry the liability even if the precaster has in-house engineers.
4. An independent engineer may be able to provide a fresh point of view or a particular level of expertise to a design or process.
5. External engineers can provide value-added benefits by bringing their experience from other jobs to your projects.
6. External engineers need to stay current with codes and design specifications. Most states require professional engineers to obtain continuing education units each year.
7. A precaster's staff, engineers, and drafters may be overbooked already. External firms may have the necessary manpower to meet tight deadlines and provide additional capacity during peak times. When the consultant's work is completed their engineers are reassigned to other projects.
8. A precaster's staff engineers may not be licensed in all the states where the precaster intends to sell products.

Before You Begin

Here is an example of information that an engineering firm or consultant would typically need:

1. Scope of services required
2. Project name
3. Project location
4. Budget
5. Project specifications, geotechnical reports and drawings (if applicable)
6. Deadline for completion of all work

7. Assumptions and limitations such as:
    a. Maximum weight of section
    b. Fixed wall and or slab thickness
    c. Desired concrete strength
    d. Preferred type of reinforcing (bar or welded wire reinforcing (WWR))
    e. Preferred shipping or handling method

Hiring An Engineer

Hiring an engineer is not a difficult process. If you have an existing relationship with an engineering firm or consultant, this is a good place to start. If they cannot perform the work required, they may be able to refer you to another firm or consultant.

If starting from scratch, develop a list of potential companies (see the resource list in the following section). Plan to interview each company to learn about their capabilities and style. If you have a specific project, send out Requests for Proposals (RFPs). When evaluating a company, consider the following:

- Prior experience with precast designs and projects
- Qualifications of the professionals who will be assigned to your project
- Appropriate license
- Stability of the company
- Other projects that may interfere with your deadlines
- References
- Professional liability insurance coverage

Request for Proposals (RFPs)

An RFP may be sent to solicit proposals from several engineering firms for specific projects. It is important that each company receive the same information including any questions that may be asked from any of the solicited companies. It is common practice that any additional questions and answers are forwarded to all bidders. This helps preserve the fair and complete nature of the bids and makes direct comparison of the bids easier. You should consider all the factors mentioned above, not just the price. A low-cost bidder who cannot deliver on time may cost you the job altogether.

Where to Begin Your Search

- Perform an internet search
- Check the NPCA website, precast.org
- Consult The Blue Book of Building and Construction, thebluebook.com
- Contact engineering associations such as the American Society of Civil Engineers, National Society of Professional Engineers and local engineering societies
- Talk with other precasters who may have been faced with similar needs
- Contact local municipalities to obtain references from building departments, city engineers and sanitary engineering departments

Compensation And Contracts

There are two common types of contracts when hiring engineers and consultants: lump-sum and cost-plus. The term “fee” usually includes cost of services, expenses and a reasonable profit. Both are explained below with pros and cons noted. The contract type that fits your project best will depend on the specific situation and the parties involved.

Lump-sum (Fixed-fee)

As the name suggests, this represents a fixed payment for a well defined set of services rendered. Fixed-fee contracts work best for projects that have few uncertainties and a tightly defined scope of services. As with any contract, the terms should be clearly defined. Benefits to the precaster of a lump-sum contract include knowing the total cost in advance and reducing cost overrun potential. However, fixed-fee contracts may have some buffer built in for uncertainties and could require more time to put in place, which may slow down the project and may reduce options to the precaster. Reimbursable expenses may either be included with or in addition to the lump-sum fee.

Cost-plus (Time and Expenses)

Under a cost-plus contract, the consulting company submits invoices for all costs including travel expenses, hourly labor charges and other expenses defined in the contract. Hourly billing rates are typically set according to the expertise level of the individual performing the work and may include overhead and profit. This is a fair process in the sense that a precaster does not have to worry about being overcharged for uncertainties, while the engineering firm does not worry about omissions or underbidding a job. This also allows work to commence quickly - even before the scope has been completely defined - and may aid in securing contracts with rigid time constraints. This method also tends to allow for further research and cooperation between the engineering firm and the precaster, which may reduce overall costs.

A hybrid version of the lump-sum and cost-plus contracts is called an “Hourly, Not to Exceed” contract and can be useful when there is some degree of uncertainty in the scope. The client is charged only for the time spent on the project but a cap is set on any contingencies.

Summary

It is a good idea for every precaster to develop a relationship with an engineer or consultant. Chances are good that sometime - probably when time is critical - you will need these types of services. Developing this relationship early also gives the engineer or consultant time to become familiar with your design standards, processes and products. Below are some additional suggestions for developing a successful relationship with an engineer or consultant.

General Suggestions:

1. Establish clear communication channels. The path of communication should be clearly identified. List who should be copied on correspondence, who will be involved with the review process and who within your company will have the final sign-off and approvals.
2. Agree upon costs and billing cycles. A payment schedule is just as important as total cost. Identify your contact in the engineering firm and establish how projects will be billed and the terms of payment.
3. Define the scope. Clearly define in writing the scope of the work, deadlines, services to be performed and your expectations.

It is also a good idea to have all your products reviewed by an engineer so that you will know the limitations of each product. Some products may have more than one application and may be used by customers in ways for which they were not originally designed.
Knowing and communicating design limitations of each of your products may limit your liability should a product become subjected to loads for which it was not designed. Such loads may include service loads, hydrostatic forces and handling stresses.

Another cost-saving note: The design of some products can be standardized if they are used repetitively for the same application. This reduces the need to “re-engineer” the product every time.

Overall, working with an outside engineer or consultant is not only a necessity in the precast concrete industry, but it can also benefit your company.

For more information or assistance in locating an engineer or consultant in your area, contact NPCA Technical Services at (800) 366-7731 or visit precast.org.

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