

How Structural Engineers Can Help Fabricators Be More Profitable

Needham and Associates recently conducted a seminar for the Indiana Fabricators Association on this subject. The presentation was focused around communication and its importance in completing projects in a timely fashion. During the discussion period following the presentation, a number of points and questions were addressed that we thought would be helpful to both engineers and fabricators.

Points:
Engineers must inform owners and architects as to the realities of construction and set expectations that match what is actually possible to accomplish.

This is a time consuming task for which the engineer seldom receives any direct compensation. The payoff for the engineer for informing the owner and architect is in the reduction of Construction Administration costs. The fabricator benefits by being presented with a job that is economical to fabricate. The owner profits from being educated with a project completed on time with minimal changes or change orders.

Engineers need to be familiar with shop fabrication practices to facilitate the development of reasonable criteria for the fabricator to follow.

If there is a local Fabricators Association in your area, we recommend using the association to conduct educational seminars for engineers designing and /or specifying steel structures. If not, fabricators can inform the structural engineers about their own shop capabilities. As engineers, we have a responsibility to be aware of the capabilities and limitations of the steel fabrication shops we will be working with. When designing a steel structure, engineers should verify that unusual details are plausible by contacting local fabricators or the American Institute of Steel Construction.

American Institute of Steel Construction
 312-670-2400
<http://www.aisc.org>

We do a lot of design-build work, but we keep getting saddled with extra items because of changes in the mechanical or electrical system that adds pieces and/or additional load to the structure.

True design-build works best as a team approach.

There must be clear and constant communication between all parties involved. Frequently the cause of changes in the mechanical or electrical system is the fact that a revised design is cheaper. It is vitally necessary that any additional costs in the structural system (including any added engineering costs) be accounted for to determine the net savings. Somebody has to remind the team that spending \$6,000.00 on changes to the structural system to save \$5,000.00 on the mechanical system doesn't make economic sense.

"We talked about engineers providing structural models to fabricators and detailers

in order to use automated detailing programs. Every time I get a model, it isn't accurate and I have to verify every part with the final drawings!"

Engineers! If you provide a model for the fabricator / detailer's use, it has to be accurate. The problems are that the structural model does not need to be dimensionally perfect to produce results acceptable to the engineer, and changes are frequently made to the design after the model is run. Fabrication tolerances are considerably closer, because the steel has to physically fit together in the field. If sizes or splice locations were changed manually, somebody on the fabricator's end has to check every piece to insure that the correct size is used. This generates more work rather than less. The use of structural models for detailing (Electronic Data Interchange, EDI) has been studied within AISC for some time. The simple fact is that getting a structural model accurate enough for detailing is a fairly time intensive process for which the engineer is not getting paid, unless he is working for a very enlightened owner. Until software improves or owners change, it seems that the most viable EDI is for the engineer to provide an electronic copy of the structural drawings.

(cont. on back.)



3. Select Materials and Produce Documents

- Hopefully 50% Do This Well....but not Always!
- We have Competitors Who Leave Job and Gender Sizes Up to Fabricator, this is wrong!
- We have Competitors Who Don't Provide Dimensions and Elevations on Structural Drawings, this is wrong!
- We have Competitors Who Don't Provide Structural Sections or Details, this is wrong!
- We have Competitors Who Aggressively Over-design, this is wrong!
- We have Competitors Who Just Plan to a Bad Job!

This is an excerpt from the Needham Structural Engineers Presentation available online.

New Web-based Project Management by SBS

SBS has succeeded in providing clients with custom AutoCAD software solutions. We attribute our success to our working knowledge of the services and products that our clients are offering. Now we are preparing to branch out and utilize our knowledge in a new product. In the next few months, SBS will be offering a web-based project management system that encompasses a broad range of services. This website will offer:



- Project Management
- Client Contact Management
- Invoicing and A/R Management
- Corporate Calendar
- Corporate Policy and Manuals Management
- Timesheet Management
- Risk Management
- Scheduling and Task Management
- AutoCAD Library/Block Management with iDrop Technology

The risk management features on the website are based on models provided by Jerry Novacek, President of NovaCon Group. (Previously a consultant with Zwieg-White.) Currently this website is used internally by Needham and Associates, and is ready for beta testing by other clients. If you are interested in more information about this website, please feel free to contact us. tgallup@bldg-design.com

Needham Receives Excellence in Concrete Award

The Excellence in Concrete Awards are presented each year by the Concrete Promotional Group (CPG), to recognize outstanding work in concrete construction. The 2002-2003 Awards were presented on May 19, 2003 at the Arrowhead Stadium Club.

Karen S. Hand, P.E. attended the banquet for Needham and Associates and received the Excellence in Concrete Award in the division of Site Cast Tilt-Up Concrete. The winning project was the DCDI Building in Lawrence, Kansas.

General Contractor:

Harris Construction

Concrete Contractor:

Lithko Contracting Inc.

Owner:

Douglas County Development, Inc.

Architect:

GLPM Architects

Structural Engineer:

Needham & Associates

khand@needhamassoc.com



Photos of DCDI building in Lawrence, KS.

How Structural Engineers Can Help Fabricators Be More Profitable ... cont.

The following questions are from attendees of the Indiana Fabricators Association Seminar.

Questions:

"Most of our work is for architects, so we have very limited contact with the owner. How can we inform the owner of reasonable expectations?"

You will likely have to depend on the architect to do it for you or you may want to talk with the owner directly. But first you have to inform the architects about the realities of structural steel fabrication. The key is to show the architect how a well-informed owner with reasonable expectations can make his job easier as well.

"As a fabricator, how can I "market" my capabilities to engineers?"

Aside from one-on-one marketing, you can use the local fabricator's association to present programs to engineers on typical shop fabrication practices, shop limitations and economics. This allows the fabricator to maintain the confidentiality of personal costing information. The Kansas City Steel Fabricators Association, for example, presents several programs a year for engineers. These are usually breakfast meetings

"As a presenter, I learned some new things during the discussion period. Thanks are due to all those who joined in." Jeff Needham

(We have posted the presentation on our website should you wish to see the visuals used in the program.)

<http://www.needhamcompanies.com/htms/newsletter.htm>

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