

THE DELTA ADVANTAGE

Design Topics for Precasters

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Estimating Engineering Fees

By Ronald Thornton, PE

Enclosed is an update to the partial listing of our specialized precast engineering services along with the typical range of fees associated with the various tasks provided. This list was created three years ago and in several cases, due to increased efficiency, fees have come down since that time. Please keep in mind that fees can vary considerably for similar tasks due to factors such as the complexity of the product to be designed or detailed, the amount of detail needed, and the quality or completeness of the information provided for us to work from. Regrettably, we often have to expend considerable time tracking down such items as design specifications, soil parameters, site layouts, and other information in order to properly complete our assigned task.

We highly recommend that these fees be used as a guide for estimating only. A lump sum fee will be provided on our Request for Engineering Services form for each project you send us and will be based on the scope of services requested. Fees do not include any overnight delivery or extra blueprints or other reproductions. Unless requested otherwise, we typically provide one stamped copy of drawings and design computations.

As a reminder, the following information should be provided with your Request for Engineering Services so that we can do a better job of expediting your project:

- Complete name of project.
- Scope of services being requested and realistic time frame when needed. A priority list is helpful if the project can be delivered in phases.
- All necessary plans and specifications for the project.
- Required design loadings.
- Soil investigation reports for retaining walls and foundations.
- Depth of water table for underground structures.
- Any fabrication or shipping restrictions such as wall thickness, weight, width, etc.
- Contact for additional information, if needed, such as the engineer-of-record, architect, or contractor.
- State or commonwealth where drawings and design computations are to be sealed.

DP_Vault Tips

Now that we have several users of this program out there, we thought it would be helpful to add this feature to our newsletter. Therefore, let us start off with just a few suggestions for eliminating red flags in DP_Vault:

- Shear Check – Shear capacity is a function of concrete strength and depth of the member as measured from the compression face to the centroid of the flexural reinforcing. Therefore, in order to turn the shear light from red to green one must either increase concrete strength, make the member thicker, or, if possible, decrease the bar cover.
- Flexure Check – Flexure is the ability of the member to resist bending and is primarily related to the area-of-steel and depth to reinforcing. Ways to turn off the red light in flexure include tighter bar spacing, increased bar size, or provide a thicker member.
- Cracking Check – Crack widths are limited according to AASHTO by the value “Z” which is computed from steel stress, bar spacing, and bar cover. “Z” can be improved by increasing the bar size, reducing the bar spacing or, if possible, using less bar cover. You may find that a smaller bar with tight spacing will have better crack control than a larger bar with wider spacing given the same area-of-steel.

Please do not hesitate to contact us if you would like additional information about DP_Vault.

Here we grow again

Delta is pleased to announce the newest addition to our precast engineering staff, Nancy Youmans. Nancy previously worked for Hawk Engineering and Binghamton Precast & Supply Corp.

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Delta Engineers, P.C. provides specialized services to the precast/prestressed concrete industry including:

- *Structural design and analysis*
 - *Erection plans*
 - *Detailed shop drawings*
 - *Plant automation consulting*
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Featured Project

County Rd 102 Bridge, Town of Johnstown, NY
Produced by: Miller's Ready Mix Concrete, Mayfield, NY
Structural Design and Shop Dwg's by: Delta Engineers, P.C.



This project consisted of five 20' span x 8'-6" rise x 6'-2" long units. 3-Sided precast bridge elements such as this provide abutment and deck all in one. We see a significant increase on the number of these units being specified as spans up to 40' and even skewed bridges can be readily accomplished.