theDELTAadvantage

DESIGN TOPICS FOR PRECASTERS

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Shop Drawings: A Critical Production Tool

By Ronald Thornton, PE

As a producer, you want to equip your production crew with all of the tools necessary to build products as effectively and efficiently as possible. Your batch plant is fully automated. You have high-production steel molds, rebar cutters and benders. You probably even have a few of those fancy new rebar tie contraptions so that your guys can stitch up a cage faster than a cowboy can rope a calf. Yet, with all of these latest and greatest tools and equipment at their disposal, production crews often lack one of the most important tools they need to assure that your products are made correctly. A well detailed, accurate, and properly scaled shop drawing should be available for every product that comes out of your plant. Drawings should be produced to-scale and be clear, legible, and easy to read and understand. Last, but certainly not least, drawings need to be conveniently at the disposal of every person involved in making the product. This includes those cutting and bending rebar, setting forms, tying cages, placing concrete, and performing pre-pour and post pour inspections.

Why is drawing scale important? Think of your drawing as a road map. If you have ever opened Google Maps or MapQuest on your computer, the first thing you see is a picture or satellite image of the entire USA on your screen. The image may be perfectly accurate but it lacks the detail you need to help you get from point A to point B. As you zoom into your particular state, you might find the major highway that gets you from one city to the next but you need to zoom in even further to see the street level detail necessary to get you to your final destination.

The same holds true for a set of highway or building plans. A typical set of plans will start out with a small scale map showing the general project location. This will be followed by increasingly more detailed drawings to allow various contractors and building trades to effectively zoom in on the portion of the project they need to work on. Drawing scales will become larger with each level of detail.

However, project plans will typically only zoom in so far. Particularly when it comes to manufactured products. The plans may point to a series of manholes, utility structures, or perhaps a pump station and provide the general size, location, and elevations, for each of these products; but the specific manufacturing details are not provided. At this point it becomes the manufacturer's responsibility to zoom in further and provide all of the additional details needed to ensure that the product fits into the project and meets the specification requirements. Manufacturer's submittal drawings become an extension of the project plans in order to fully complete the drill-down process from big-picture to street level detail.

Info-Exchange

Delta Engineers has implemented a new data transfer service as part of its Newforma Project Management System. The Info-Exchange server provides us with the ability to transfer files of any size to and from our clients without having to rely on e-mail attachments. Several clients currently have their own personal directory on our server to which they can directly and securely upload plans, specifications, and other documents related to their projects. Delta will post completed design calculations and drawings to the server for download by the client. The software automatically creates transmittals and stores record copies of all transferred files. Please contact Delta Engineers for additional information about this service.

Featured Project

Pump Station #19 Reconstruction
Owner: City of Gonzales, LA
Precast Producer: Gainey's Concrete Products, Holden, LA
Specialty Precast Design: Delta Engineers, Architects, and Land Surveyors, PC

The inside dimensions of this large structure measure 13'-6" x 18' x 25'-7". Shear reinforcement provided in the lower riser walls coupled with 6500psi concrete helped to keep the wall thickness to 12". As a quality control measure, Gainey's Concrete Products took the time to "dry-fit" the members in their yard to be certain that they would fit properly at the site.

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