Engineering Support for WFP: A Detailed Examination [MINUTES]

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Panel Discussion (Q&A)

Question 1:

"Adapting Processes to Meet Customer Requirements", how is this different in a WFP environment and what will engineering firms need to do to provide support?

Answers:

Scott: Basically, if the successful contractor lands an EPC contract the number of internal processes they need to change shouldn't have that much of a dramatic effect. They can bring in some early construction input from personnel that they have from previous construction projects and realign their internal structure to align themselves with the workface planning model. For a company that lands an EP or CM contract their would need to be improved alignment and integration between the EP and CM contractors as laid out by the owner in order to facilitate the workface planning model.

Question 2:

"Data Requirements" how does this change in a WFP environment and what are the implications?

Answers:

Scott: With the core of WorkFace Planning being the 3D model which could have the capability to link all aspects of the project, data requirements are now becoming more weighted electronically. Materials Management and Procurement can now have electronic input into the 3D model and it is important to know and understand your WFP software and 3D model so that data input will go smoothly

Question 3:

3D models are being used on most projects these days what are some of the implications and how should they be addressed?

Answers:

Scott: In my opinion one of the implications for using 3D models are that a lot of people are not aware of the software's capabilities. Ideally the 3D model can and should contain almost every aspect of information required to build your project. The model can have the capability to link to all the drawings

associated by clicking on an element within it as well as the materials required (and availability) within an FIWP defined within the model. Some fabricators can even provide electronic files of what they've built which can be used to populate the model; it can be made one of the deliverables in the contract. The model can also be used for tracking the progress of each FIWP for Project Controls purposes. Consistency across file names and types are key as well as a good 3D Model Administrator. Models may be also used for tracking daily progress by FIWP. Great idea to stay neutral of brands as most of the Modeling companies will be present.

Question 4:

Projects are becoming more complex. How should engineering firms deal with the issues of Integration, Change Management and RFIs in a WFP world?

Answers:

Scott: Most firms and owners probably don't want to hear this but budget and hours need to be allocated to effectively deal with these opportunities. Change and design clashes and interfaces are inevitable and often times construction is held up by waiting on responses to RFI's or a path forward on an upcoming change. The firm that is equipped to deal with these issues promptly is better than the one that cannot allocate any time to resolving these opportunities. The way to think is that the ultimate client is construction, they need to be kept satisfied and moving, especially with the costs of labour in Alberta. The owner will not only see the hours wasted on a non-productive labour force but also any extra hours from a trend that the engineering firm may submit to cover the costs of handling change.

Sarab: At this day and age all design activities are supported by electronic means. Each smallest measurable field installation component is uniquely identified in engineering databases. Its at most important to integrate engineering information with construction tracking tools. Once the design parameters are 'tagged' with FIWP information these provide a unique integration of Engineering efforts with Construction. This approach allows a simplified grass root level approach to complex project.

A detailed plan needs to be implemented by Project Management Group to provide guidelines to engineering and document control groups to track and distribute any changes against FIWP. Any change is critical and impact of these changes can be softened through adequate communication with parties. Similarly field generated RFI's can be tagged to WFIP and back to design deliverable.

Question 5:

Integration and Change management in a time of increasing complexity (Multiple Models, Owners, Engineers, Contractors) how should engineering firms deal with this issue?

Answers:

Scott: For an EP contractor it should be very straight-forward. It's easy to bring those guys in for early construction input. Just lay out the Path of Construction. Obviously when you have EP and C it's a little more different in that the constructor isn't always identified until later down the road. That said, trying to identify the constructor as early as possible is quite critical in making it easier for the engineer to accommodate workface planning.

Gary: We live in a complex and changing world. What works today may not work tomorr.w We have to be flexible and work together in this dynamic situation to adapt our processes. Nothing is cut-and-dry and everyone is asking and demanding more: faster, better, cheaper. Exponential growth of the players in the game. Take what you're doing, figure out what worked and what didn't, but keep it simple. Don't develop a Ferrari for a Volkswagen scenario. Open communication with owner. Owner may decide to give you the construction input early, right or wrong. The point is discussion at square one and both parties must be open enough to discuss openly without fear of retribution to ensure alignment. Nail scope from the beginning is important but doesn't always happen.

Questions from the audience:

Question:

Do you see the price of EP contracts going up with the need to adapt to WorkFace Planning?

Answers:

Gary: Ultimately everything we're trying to work on is getting better, quicker and cheaper.We're always looking to lower our costs so I think we have to be flexible and adaptive, but we have to find ways to meet demands.

Question:

But have you seen EP prices go up? Have you captured any data on that?

Answers:

Lloyd: A number of owner companies are reluctantly finding that as they start asking for more information and seeing the impact of going to the field with less engineering than they need, they're spending a little more (strategically) on engineering. Strategic spending on engineering can get benefits on execution.

Scott: I agree with Lloyd, the essence of WorkFace Planning is doing planning at the front-end so it's probably smart money to spend a little more on your engineering. The cost of labour in Northern Alberta for example can get very expensive.

Question:

Owners are a little more reluctant to spend that up-front cost but it sounds like it's progressing that way…

Answers:

Lloyd: it's a slow progressing.

Gary: You have to be able to show the savings after the spending. I believe a lot of owners will see there is a return / benefit for them.

Question:

As an owner we're encountering resistance to doing this up-front planning from a firm. What would motivate a firm to do this?

Answers:

Sarab: There are obviously rejections made but I think the approach is you need to sell it – what is in there for engineering from construction input. Providing the input and how the sequence needs to come out and synergy as deliverables are coming up; problem is always we don't have the right tools to install… that's where selling the job comes in; we're not going to tell you how to do the engineering; we're trying to bring an EPC structured schedule…

Lloyd: it does take an extra effort to motivate them to do things this new way. I'm confident this new way introduces improvements. I think they fight because they're comfortable with how they used to do it but it takes them time to adjust and be comfortable with this new way. We're further ahead on this with the contractors but with the engineers we're still seeking traction.

Question:

Have we done any economics in doing construction input as early as possible?

Answers:

Lloyd: our previous co-chair said: we're talking about projects so much bigger than we're used to talking about, it kind of jars the senses, but we're finding that projects continue to get bigger and bigger and therefore so do the planning efforts.