

## A New Concept in Practice Q & A

Q: Can you discuss the selection criteria / process used by the owner to award you the Wexford Medical Mall project?

*A: Astorino was selected through relationships. The Owner was interested in exploring the possibility of using a single source delivery method because it needed to do a lot of work in a relatively short period of time and, most importantly, wanted single accountability. Knowing that we had a good deal of success as a one stop shop, they consequently asked if we could help; and, of course, we did.*

Q: Who is financially responsible if the GMP is exceeded?

*A: Astorino. Although assigned to Astorino Development by the A133, privity aside, as a single profit center the two sister companies cannot sue one another.*

Q: Did all your contractors and subs already have BIM capabilities or did they need to buy into it and gear up to collaborate that way?

*A: All subs were required to have existing BIM capabilities; this was part of the pre-qualification process.*

Q: Did the subcontractors actually work in the BIM model? If so, did you find it difficult to locate subcontractors with that ability?

*A: The subcontractors worked in BIM and their experience was part of the pre-qualification process to bid on the project. Not everybody around the region was able to work in this capacity, but we did have multiple bids for each discipline.*

Q: How did you integrate the permit process?

*A: As a full service firm, Astorino Design and/or Construction are totally responsible for all forms of approval. Accordingly, both designers and subcontractors relied on maintaining model accuracy to ensure that the 2D output from the 3D model was correctly supplemented in producing documents for their intended use; in this case, for permitting.*

Q: Did you create a video of the construction process that you would be willing to share for viewing?

*A: Unfortunately, there is no video of the construction process.*

Q: How do you bid and descope subs?

*A: The Subcontractors were given a set of traditional 50% CDs, representing 100% design intent scope, along with written clarifications, assumptions and/or qualifications. Their instructions were to provide an all-in number for the total cost of assisting in the completion of the deliverables as well as the completion of the described summary of work for their related trade. We then scoped them out, with a full complement of our design and construction staff, evaluating their proposals to ensure that they had amply understood and provided a cost that was: 1) inclusive of everything estimated during the bid period and/or discussed at the scope out sessions; and, 2) within the cost range of our Control Estimate. We then selected the most responsive bidder for each of the contracted trades.*

Q: How many BIM "grinders" did you have assembling this comprehensive model?

*A: On the Design Team there was a Project Architect and two additional architectural team members for the Core & Shell Package and the same team structure for the Interior Fit-out Package. We also had one Structural Engineer, two Mechanical Engineers, two Plumbing Engineers and two Electrical Engineers, all working full time on the model.*

Q: How soon in the process would you bring the subcontractor on board?

*A: The Trade Contractors were brought on board once the Design Team evolved the BIMs to a stage that was representative of 100% of the design intent scope, representing traditional 50% CDs. Had we had the opportunity to do it earlier, we would have preferred getting the subs involved at the end of the traditional SD Phase to fully assist us in the development of the design.*

Q: To clarify - the subs would be brought on board at the SD Phase for pre-construction services. When would the job be bid?

*A: If we could have brought the subs on board earlier, we would have bid the established scope of work at the end of the traditional SD Phase to enable them to fully assist us in the development of the design. To that end, we would have used the same method of selection described above in the Bid and Scope Out Question.*

Q: If as an architect you managed the BIM process in construction, what percentage of your fees was used for it. Did you get paid extra and by whom?

*A: The fee for our team members to work on the BIM during the construction phase was a separate line item fee under construction services, not an additional architectural fee even though a shared resource was used on the project.*

Q: Did you all use a project management software package like ebuilder or prolog project manager. Your thoughts on those packages?

*A: Our team used Newforma as a Project Information Management solution throughout the design and construction process.*

Q: Did the 22 month duration include only core and shell, or was any tenant space build out included?

*A: The 22 month duration included both the core and shell and the interior fit-out portions of the project.*

Q: Was Astorino-360 created as a separate and distinct Professional Corporation?

*A: Astorino 360 is a collaborative process established during the formation of Astorino, a full service AEC firm, comprised of two separate entities: L.D. Astorino Associates, for the design side; and Astorino Development, for the construction side; both under single ownership and thus a single profit center.*

Q: Was space programming and any other pre-design part of the 22 month duration?

*A: Yes, these services were included in the 22 month duration.*

Q: Was the full team using the same BIM platform?

*A: No, the Design Team (Architecture, Structure, MEP and Medical Equipment) all used Revit. Landscape Architecture used both Revit and AutoCAD while the Civil Engineers used Civil 3D. On the construction side there was a wide range of different BIM applications used to model.*

Q: Was the IFC file format used to exchange information?

*A: The BIM Execution Plan defined that model exchanges occur via multiple formats: RVT, DWG and IFC. Since most construction team members were working in AutoCAD based modeling applications, DWG file formats worked extremely well for the exchange of information.*

Q: Were the design models updated based on the construction models?

*A: No, the Design Intent Models were updated from a conformance perspective; thus, any changes issued by the Design Team were updated in their model. Accordingly, the Construction Team was responsible for maintaining their models to reflect the as-built conditions.*

Q: What BIM software was used by the different disciplines and sub-contractors? How were models shared?

*A: BIM Authoring Applications by discipline are as follows:*

*Architecture/Interiors – Revit Architecture*

*Structural Engineering – Revit Structure*

*MEP Engineering – Revit MEP*

*Landscape Architecture – Revit Architecture and AutoCAD*

*Civil Engineering – Civil 3D*

*Medical Equipment – Revit Architecture*

*Construction Management – Navisworks*

*General Contractor – Revit Architecture*

*Steel Fabricator – SDS/2*

*Mechanical Contractor - Autodesk Fabrication CADmep*

*Plumbing Contractor - Autodesk Fabrication CADmep*

*Fire Protection Contractor – SprinkCAD*

*Electrical Contractor – Revit MEP*

*Millwork Contractor – Revit Architecture*

*Models were shared via Newforma and federated in Navisworks for use in the trade coordination and the construction sequencing processes.*

Q: What source are you using for the frustrations mentioned regarding traditional project delivery?

*A: The 2007 CMAA Industry Report, the 2002 Economist Magazine and the 2005 CMAA Owner's Survey.*

Q: How much was the total contingency?

*A: The total construction contingency was \$2,400,000.00*

Q: What was the contracted role of the GC vs. the A/E-developer (i.e., who was liable for overall GMP, who held the trade subcontracts, etc.)?

*A: The contracted roles were as commonly described in the AIA CMC family of documents. Although the GMP responsibility was assigned to Astorino Development by the A133, privity aside, as a single profit center the liability remained Astorino's as the two sister companies cannot sue one another. As the CMC, Astorino Development held the Subcontracts.*

Q: When the contractor and the architect are separate entities, when is the best time to bring a contractor on board to establish the GMP and collaborate?

*A: It is our opinion that, to foster true collaboration, it is best when all stakeholders are brought to the table as early as possible; therefore, we believe that subcontractors should be introduced as soon as the CM is brought on board, which is typically during the traditional DD Phase.*

Q: Where can I get a copy of the presentation?

<http://network.aia.org/technologyinarchitecturalpractice/resources/viewdocument/?DocumentKey=6e68c49f-dba4-4974-b7c3-56605e5b9176>

Q: You state that the Schedule was a total of 22 months. Given the complexity of the Contracts, was the preparation of the Contracts a part of the 22 months or did it precede it?

*A: The Main Agreement, which was the overall Governing Contract for all of the contemplated work, was crafted as soon as the Owner expressed its interest in using a single source delivery. As the Owner's traditional form of contract structure had to be amended to suite the Type 2 prescribed collaborative approach, it took approximately three months for both sides to draft, review and agree on the overall conditions of this method of delivery and was done prior to the start of any work. However, the Affiliate Contract, specific to the Wexford Project, was derived from the Master and took approximately one week of collaborative, non-stop, closed door sessions to complete and was done within the 22 month period.*

Q: How much time was spent to prepare and complete the Contracts?

*A: Approximately three months for the Master and approximately one week for the Affiliate.*

Q: The Owner got their building on budget. Did you and the subs all meet your budgets? Did you ALL make a profit?

*A: Although some of the budgets were exceeded, the overage was ultimately taken from Astorino's portion of the shared savings incentives. Consequently, not only did the Owner not pay for any additional costs, but it also received 50% of the untapped construction contingency. Yes, profits were realized as the fees remained untouched.*