



Tobin Center for the Performing Arts

San Antonio, Texas

By Paul Sipes | Based on an interview with Michael Fresher, Tobin Center for the Performing Arts

50% of contingency funded
Owner enhancements

65% PPC consistently

No schedule delays

INSIDE:

- project information
- successes
- lessons learned
- insights into:
 - team integration
 - utilizing technology
 - practicing lean
- interview excerpts



PROJECT INFORMATION

PROGRAM

- 183,000 SF
- Renovation of historic Municipal Auditorium façade incorporating new 1,700 seat performance hall

TEAM / BUDGET / SCHEDULE

- Owner: Tobin Center for the Performing Arts
- Architect: LMN Architects / Marmon Mok
- Construction Manager: Linbeck Group, LLC/Zachary Construction Joint Venture
- Construction Cost: \$117,000,000
- Schedule: 40 months

CHALLENGES

- Complex acoustical requirements
- Educating craftsmen and subcontractors on unique requirements / special needs
- Tie-in to historical structure
- First in US “operable” audience floor

SUCCESSSES

- ✓ A collaborative Joint Venture project team that acted as one.
- ✓ Developed construction sequence that allowed demolition of existing building and excavation for new building to commence without significant delay to project schedule.
- ✓ Collaborated with exterior framing subcontractor to create Synchro 4D model which led to a prefabrication opportunity for exterior framing around the stage house and reduced overall schedule durations for this work two weeks and eliminated safety concerns.
- ✓ Construction of the first flexible floor system in the United States which enhances the potential number of uses for the facility.
- ✓ Over 100 site tours during construction to introduce the community to the building and increase financial contributions to Tobin Center.
- ✓ Sponsored children’s art contest allowing students to create art on 4x4 sheets of plywood which were used as construction fencing.

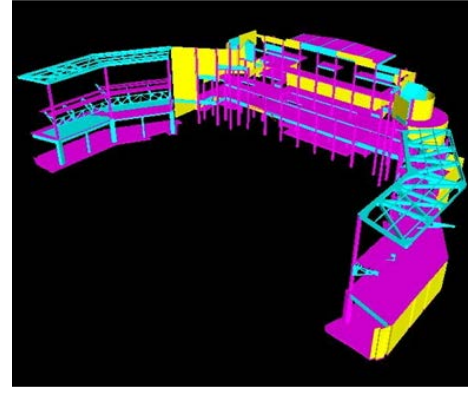
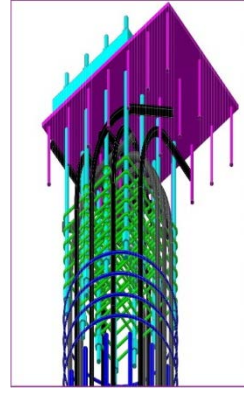
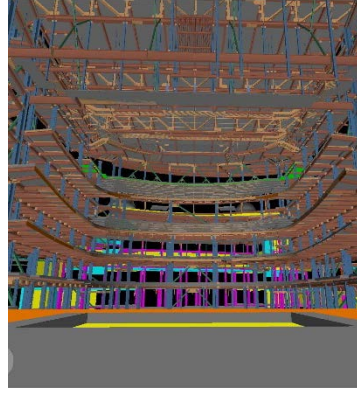
LESSONS LEARNED

DOs

- ✓ Maintain clear communication with all team members
- ✓ Utilize BIM for planning and coordination
- ✓ Use Lean Last Planner system to produce predictable work flow
- ✓ 65% PPC consistently

DON'Ts

- ✗ Work in a vacuum
- ✗ Forget to focus on the overall mission and goals of the project



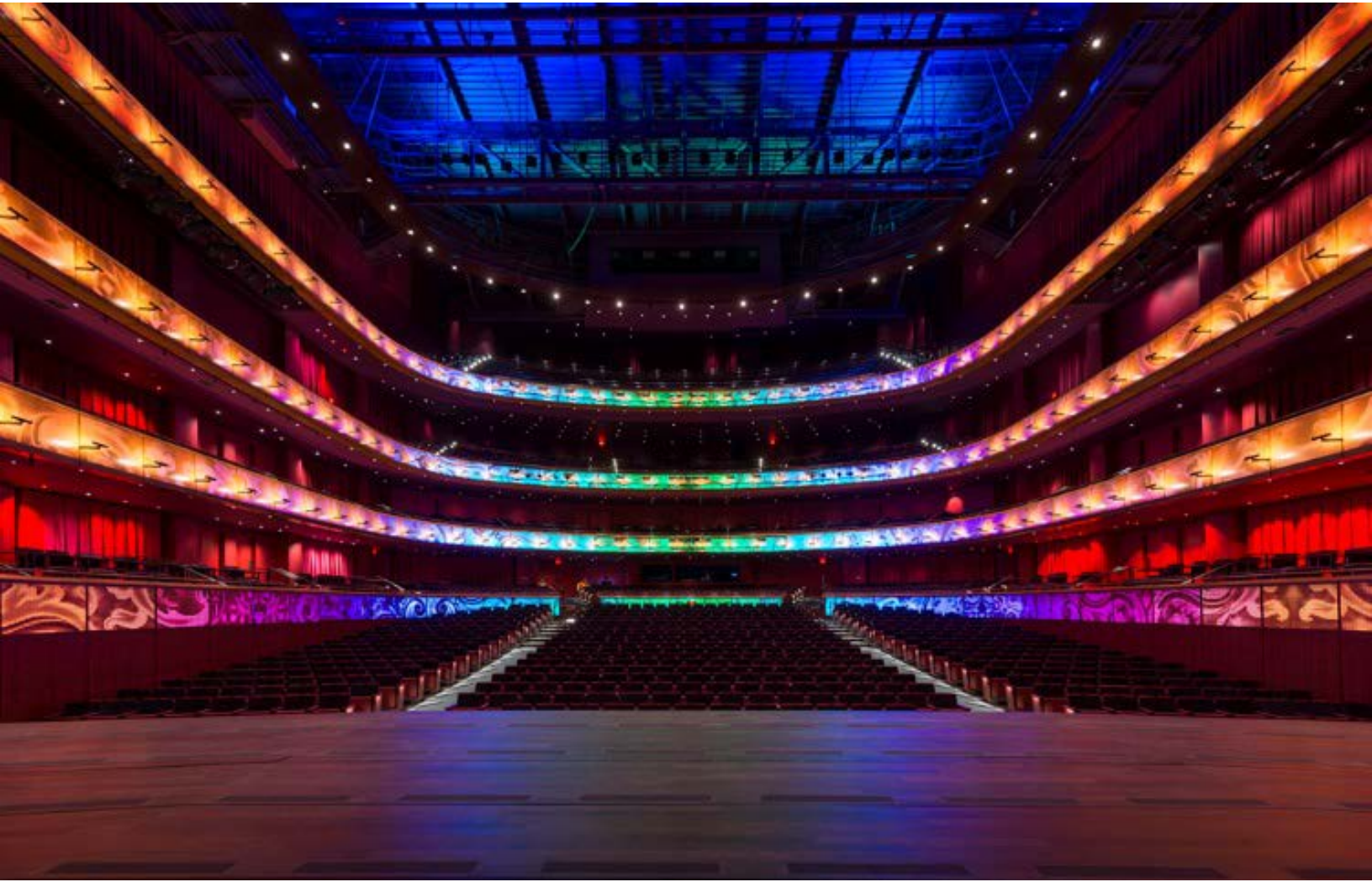
INSIGHTS INTO:

TEAM INTEGRATION

- The Linbeck/Zachary Joint Venture was formed to leverage complementary strengths of two 75 year old companies.
- Linbeck brought award-winning performing arts experience; Zachary brought extensive San Antonio contracting experience. Both firms brought experience with large, complex projects.
- Neither partner was assigned specific scopes of work; the team collaborated as one.
- This integrated approach eliminated confusion and nonproductive time dealing with political issues relative to the JV.

UTILIZING TECHNOLOGY

- We created a 4D model of the enclosure of the building which was linked to the project's schedule using Synchro through collaboration with our exterior framing subcontractor. This allowed the team to review the schedule logic and sequencing of the scheduled work with other trades in order to offer positive input to develop a coordinated work flow.
- We discovered a prefabrication opportunity for the exterior framing around the stage house and the exterior framing installer prefabricated the cold form metal framing into 72 panels in lieu of the conventional "stick framing" of the enclosure.
- The framing system design engineer used our 3D building model to design panels and provide clip details for attaching the panels which reduced our overall scheduled duration for this work and eliminated safety concerns.
- We also recognized that the piers and pier caps would be very challenging to construct without rework if they were not well coordinated. We created 3D models for each of the unique pier and pier cap details which were shared and reviewed with our formwork, reinforcement placing, and concrete placing subcontractors.
- Based on model reviews, we constructed a full-size mock-up of one of the pier caps and developed a template and identified nine pier sizes that were engineered too small in diameter which helped us avoid a costly coordination issue.
- Since a portion of the existing structure was remaining in place, we performed a laser scan of the existing structure which generated a "point cloud" that was used to create a 3D model of the existing structure within a 1/16" tolerance. The model was used to review existing structural conditions and design connection details for the tie-in of new steel and we were able to use this model as part of our BIM coordination of the MEPF systems.



“I think it was really the collaboration between the Owner, The Projects Group, Linbeck, and Zachary that really drove the project, those four were the collaborators.”

“We’re into our second year and our foot’s not off the pedal, we’re booking like it was our first year. We are fully booked out through ’17-’18 right now and again a good percentage of that credit goes to how the building was designed and built and then our ability to adapt and to exploit the features of the building to be able to do three events all in one night all starting at the same time. 5,000 people on campus with no parking and we manage to pull that stuff off.”

“We are the #3 building in world for our size and we’re #1 in Texas for our size, it’s not just because we’re booking it and running it, it’s because of the way it was built.”