



# Find Your Niche

## Putting Your Expertise on a Pedestal

by Sean D. Shields

**O**ur customers hire us primarily for our wood engineering expertise," said Larry Zhou, President of Universal Timber Structures (UTS) in Auburndale, FL. Their customers want the trusses, but Zhou drives home the point: that their engineering and design knowledge and capabilities is what truly differentiates them among their competition. Why the focus on engineering services? "Trusses are trending toward becoming a commodity," said Zhou. "We provide value through focusing on the design needs of each customer and giving them exactly what they want."

One simple example is their involvement in the construction of the Corpus Christi Catholic Church in Celebration, FL. The engineering expertise and value proposition evident in this project are universal and applicable to any project no matter what structural building component is used. In this case, UTS supplied large timber trusses for the main building, and traditional metal plate connected wood trusses for the secondary buildings.

### Establishing Their Niche

UTS started more than 40 years ago as a large timber truss installer. In the 1980s, the market for heavy timber waned, as the market shifted more toward steel and concrete. To regain market share, in the 1990s, UTS ownership invested in computer-controlled production equipment to create a more consistent quality product. During the 2000's, UTS has expanded to offer full design-build services for both large timber trusses and metal-plate connected wood trusses.

"Big timber isn't a huge market; we may only work with a customer once every two to three years," said Zhou. "So offering a unique set of services to go along with our products is essential." UTS focused on providing excellent engineering services, relying on computer-controlled timber production and fully-automated truss fabrication equipment to ensure the final product conformed exactly to the design specifications.

"Over the past ten years, our reputation has steadily grown," said Zhou. "Now, we do projects all over the world." While UTS is primarily known for their large timber products, they also provide metal plate connected wood trusses for the projects that require them. "There are many buildings, like this church, where the main building uses timber trusses, but secondary structures like bathrooms and classrooms have lower profile ceilings where [metal plate connected wood] trusses are the best framing method," said Tom Petrino, VP of Sales for UTS.



## “Realizing the Concept” Meeting

One key aspect to their business approach is being involved, to the greatest extent possible, in the initial design and engineering phase of the project. In the case of the church in Celebration, UTS had worked with both the architect and the general contractor in the past. The architect had made initial concept drawings and the congregation had selected the drawings they liked best, which featured distinctive “hammer-beam” trusses exposed throughout the sanctuary.

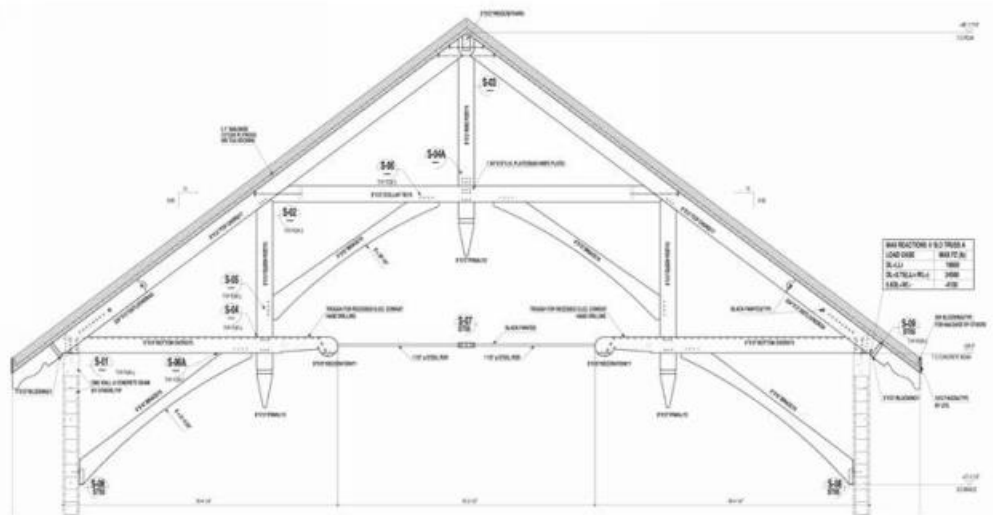
At that point, the engineering firm contacted UTS and invited them to meet together with the architect.

It was the kind of “realizing the concept” meeting UTS has with many of its customers. “We looked at the design ahead of time and did some initial analysis,” said Petrino. “We talked about the challenges in the layout, sought answers to our questions about the kinds of materials they wanted to use, what types of connections they wanted, etc. Essentially, we wanted to know the look and feel they are going for.”

In addition, UTS uses these meetings to identify any framing layout issues they see during their initial review of the architectural drawings. “Many times, we identify opportunities to optimize the layout to minimize the number of trusses needed or materials required for the project,” said Petrino. “This is typically when we get a sense for budgeting constraints they may have on the project, which we also try to help them out with.”

## Building Information Modeling

After the initial meeting, the UTS engineers draw up initial plans for the building. They work through all the connection



details, figure out truss spans in the context of layout configurations and determine optimal timber member sizing. The engineers identify opportunities for layout and material optimization, and recommend alternative approaches, depending on the customer’s priorities and preferences (see figure above).

It should be pointed out that all of this initial work is done free of charge to the potential client. “We have confidence that because of our approach we have a great chance of getting the job,” said Petrino. “Being part of the design-build project early on puts us on the inside track. Many times, they end up listing our company in the specifications when it goes out to bid.”

During this process, UTS uses building information modeling (BIM) software to render a three-dimensional image of the building. “We use BIM for two main reasons: one, the modeling helps us show our client what their designs look like in 3D; and two, it enables our engineers to see that all the geometry works out the way it’s expected.” Due to their approach, Zhou and his team relish the tough jobs. “The more complicated the structure, the more we like it because we know our process can deal with it.”

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## From Bid to Production

Once they get the project, it's just a matter of working out the contract and putting the shop drawings together. After the drawings are approved, they order the necessary materials. "Unlike dimensional lumber, large timbers aren't just sitting on a shelf somewhere," said Petrino.

Typically, it can take from six to eight weeks to get the timber materials needed for fabrication. Often, the project calls for specialized connections that need to be custom made. "We typically tell our customers that, from the signed contract, it takes three to four months to be ready to install," added Petrino. "That usually works out well for them to get the building ready with the foundation and walls."

## Installation

"We supply and install the complete roof system," said Petrino.

"Including the trusses and tongue-and-groove roof decking, as well as the nail-based roof insulation to get the R-value the customer wants." UTS also designs the roof system so that sprinklers can be installed above the decking, allowing the sprinkler head covers to be flush with the ceiling profile.

Thanks to all of the early design meetings and collaborative engineering made possible through the BIM software, the biggest challenge UTS faced during this church installation was with the truss-to-wall connections. "As with any project, we know what we have to do, but as the system gets more complicated there are more opportunities for there to be problems," said Petrino. "In this case, some of the anchor bolts weren't quite right, but it wasn't a huge problem to overcome."

## Conclusion

UTS's success has come out of their ability to take their company's unique strengths—engineering acumen, computer-controlled production equipment, building information modeling and 40 years of installation experience—and leverage them to establish their niche in the large timber industry. This approach carries over into the commercial, multi-family and residential projects they undertake, where all the advantages of engineered structural building components are used. Further, their tailor-made approach to meeting each customer's unique needs allows them to ensure they are, in the end, well compensated for the value addition they provide their customers. **SBC**



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