

## The Situation

For many years, the process of connection design has been a manual, time consuming effort in which communication challenges and the possibility of human error (for a variety of reasons) are ever-present. There is lack of efficiency throughout, and areas at all stages where both time and money are freely spent, because frankly, there just wasn't another way to do it.

GIZA set out to change all that, offering an alternative solution to the traditional methods of detailing and connection design. GIZA fully integrates with TEKLA®, and is based on the principles of *accuracy*, *efficiency*, and *clarity*. Developed by engineers and detailers for engineers and detailers, you can feel confident in the output.

To demonstrate efficiency and accuracy, GIZA set two teams of equally matched detailers and connection design engineers on a mission to complete the same project – one using GIZA and one following traditional, manual methods. The same starting materials were given to both teams, and all time, activity and output was closely monitored.

# Case Study:IDS

We developed GIZA because we knew there was a better, more efficient way to approach connection design and detailing. After using it ourselves for a number of years, we decided to put it head-to-head against the traditional process. What we've discovered in terms of the amount of time saved, accuracy, and quick identification of potential failures has confirmed our belief in how innovative this software is. It's a game changer in this industry.

Tom Vossmeyer, P.E. CEO | International Design Services, Inc.

The results highlight the impact of leveraging GIZA, and demonstrate why the old days of connection design are over.

### The Connections

For the purposes of these studies, both teams were given the exact same connection in the design drawings. The each case study has a different joint that is composed of members of varying sizes and shapes. The connection schemes also involve a variety of bolted and welded connection types. The goal of these studies was to design the connection for the loads specified, produce the connection design calculations that can be reviewed by any structural engineer, and to model the connection in TEKLA® Structures incorporating the connection design output.

## The Work Flow

Following the GIZA path, the team maintained a much shorter process than that of the traditional connection design and detailing process. Whereas both work flows began with the detailer auto-connecting joints using TEKLA® Components, the next steps were drastically different, with the GIZA process being significantly shorter, more automated, and requiring less oversight than the traditional flow of tasks. Quite simply, once the default settings and loads are set up in TEKLA®, GIZA gathers the information from the connection joint and saves this information to a \*.gza file. This file is sent to the connection design engineer who then makes all the necessary changes in GIZA to make the connection sufficient. The file is sent back to the detailer who imports it back into TEKLA® where the joint is updated, incorporating the fully designed connection. Connection design, capacity checks, and shop drawing compliance all happen within the system.

#### The **Results**

Our side-by-side tests resulted in significant improvements in time, accuracy, and clarity.



We had two identically equipped teams (in knowledge, skill, and information needed to perform the work) design the same connections. Upon analysis, we found that the time our professionals entered for the connection detailing using GIZA for all steps involved was, on average, FIVE TIMES FASTER than the traditional design method.

Keep in mind: Each case study represents one connection. In construction, time savings is very important. Not only can you expedite your overall construction time lines leveraging GIZA, you can save money.

ACCURACY

includes a "pass/fail" feature, connection problems are quickly identified and rectified within the system. Because all files are shareable and easy-to-read, the detailer and connection design engineer can work closely to arrive at the appropriate calculations. All limit state checks are easily identified, and connection materials are adjusted accordingly. Connection design calculations are transparent and shareable.

Giza seamlessly transfers the connection design information into the modeled joint wherein no additional

steps of checking is required in the shop drawing unlike in the traditional method. Because the system

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