STRUCTURAL BUILDING COMPONENTS MAGAZINE
November 2003

Industry Veterans Hark Back to Early Plates by Libby Maurer

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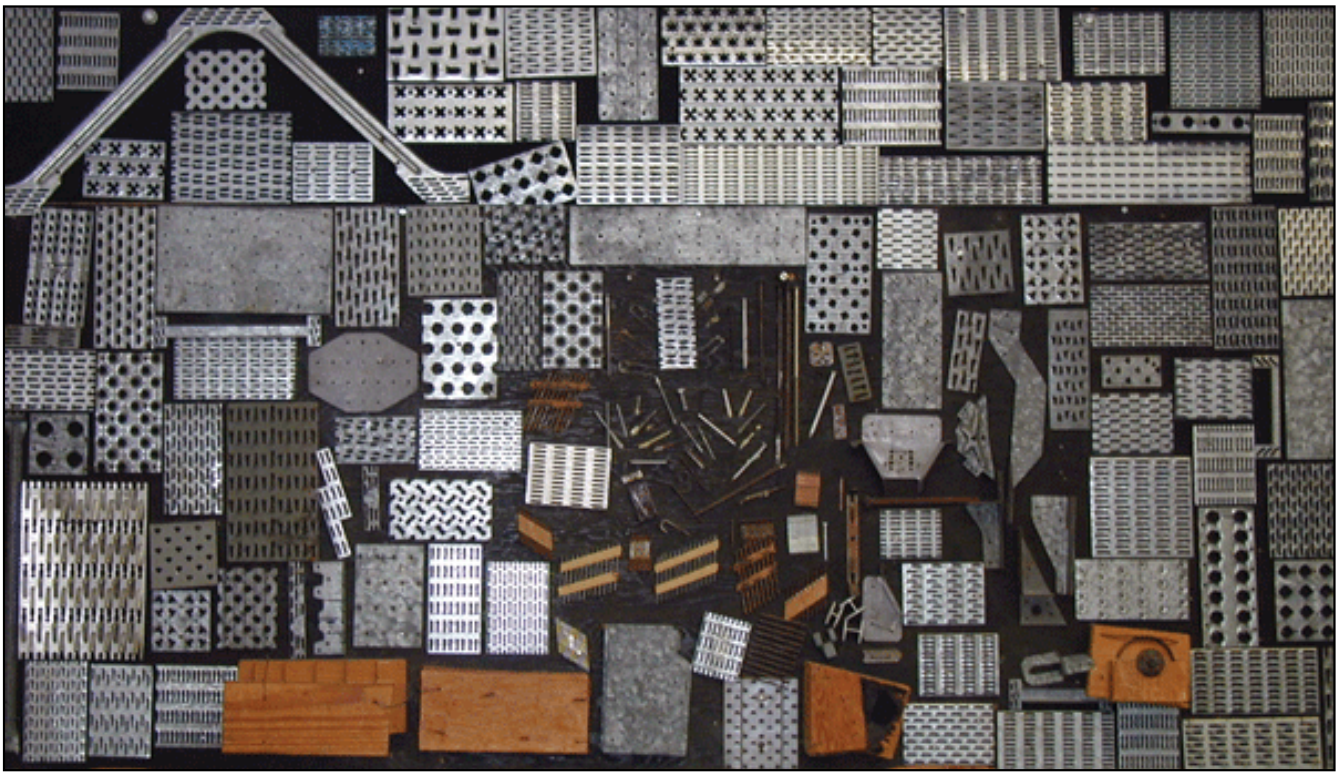
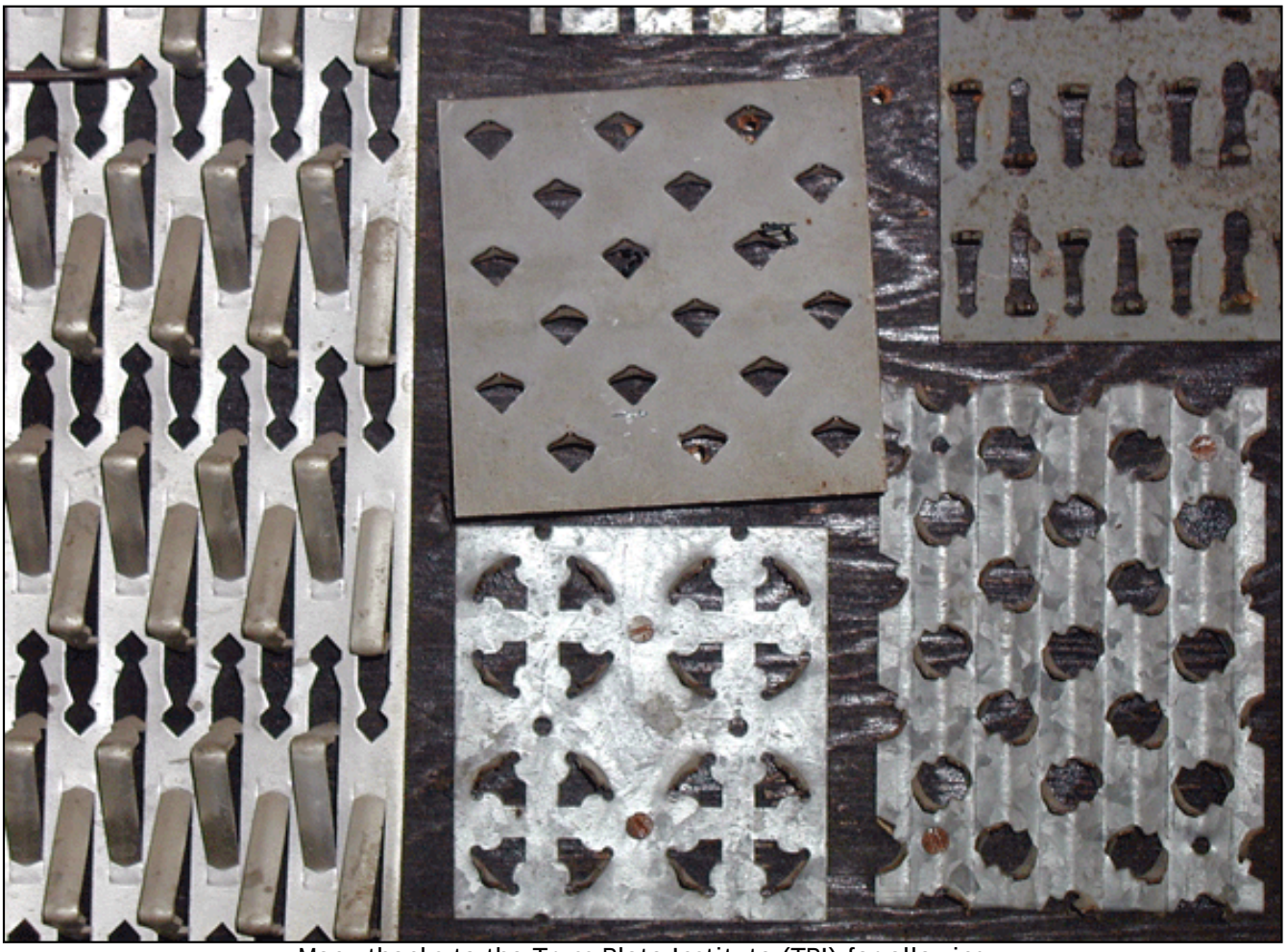


No, it wasn't the common dinner plate that brought utility and success to the wood truss industry. It wasn't plate tectonics or license plates either. It was the evolution of the galvanized steel truss plate that initially drove the functionality of the wood truss and eventually allowed for the emergence of a now nearly $9 billion/year[1] industry.

The modern steel truss plate as we know it looks radically different from its predecessors, especially

those that lived in the advent of the industry—over 50 years ago. Although the industry itself is a mere half-century old, the plate has seen many changes along its journey. Thanks to this fifty-year evolution, today's plate is the most durable, has the best all around strength properties and is the most reliable that the industry has ever seen.



Many thanks to the Truss Plate Institute (TPI) for allowing SBC Staff to photograph its truss plate collection.

In April 2003, a group of four industry veterans gathered at SBC headquarters in Madison, WI, to reminisce and recount the history and events that shaped our industry. Among the numerous discussions between participants Eric Lundquist, Charlie Vaccaro, Dionel Cotanda and Tom Whatley was an enjoyable trip down memory lane to pay tribute to the truss industry's inaugural connector plates. Join us as we take a look back at the truss plate's beginnings as the "glue" that has held the industry—and the truss—together.

THE CONCEPTION

The early days of World War II created a demand for the hurried construction of a large amount of military housing. After the war, there was this same need for housing in general. To satisfy this demand, engineers in many cases chose dimensional lumber, connected with glued and nailed plywood gussets, or simply nailed joints, to form "wood trusses" to speed the jobsite time for framing roofs.

To shorten the labor intensive process of cutting the plywood gussets and gluing or nailing them to the dimensional lumber, a light gauge metal plate was devised. The early plates were predrilled to receive nails—still somewhat labor intensive, but an improvement.

Looking to reduce the labor and increase truss production in 1952, A. Carrol Sanford was the Detroit architect who invented the light gauge metal truss plate with teeth punched from base metal called the Gri-P-Late. His first plate was triangular in shape with a diamond-tooth. Sanford's plate had to be nailed and could be imbedded into the lumber by a mechanical device. His metal connector plate became a forerunner of today's modern, highly engineered and tested quality connector.

In 1955, J. Calvin Jureit, founder of Gang-Nail Systems Inc. (now MiTek Industries), created the Gang-Nail plate, the first metal connector plate for trusses that did not need supplemental nail fastening. The plates were pressed into the lumber using a concrete vertical hydraulic press and steel table precision jigs. Along the way, companies such as Ronel, Anchor Lock and Templin also jumped on the metal plate bandwagon with their no-nail designs. Thus, the nail-less plate we all know was born and made quite an impact on the structural wood components side of the construction sector.

When the panel was asked which early plate design was closest to the plate we now use, Vaccaro enthusiastically remembered Juriet's mark on modern plate design. "What design did we follow? We followed Juriet's plate. If you look at today's plate and put it next to Juriet's old plate, you'll see that's the one that evolved into what we use today. The difference was we were able to reduce that plate's thickness to make it more economical."

Cotanda thought back to the late sixties, when automation hit the scene in a big way. "When I was heading the truss plant at Robbins in '67, we had a nailing operation and added a hydraulic press, even though we knew that roller pressing would be more efficient. But that machine could not press any plate currently on the market. At the time, there was no plate that could be used in both roller and hydraulic press applications." It wasn't until about five years later that the first plate that could be embedded by either a roller or hydraulic press application. The plate that could, ComboLock™, was developed by James Poole, who was Chief Engineer for TCT Engineering Inc. (now Robbins Engineering, Inc.) at Bowman's Seattle facility around 1972-1973. ComboLock™ is still widely use today.

The panel was asked to name all the companies with early plate designs. Between the four, they came up with nearly thirty different plates! We asked why the majority of the early plate manufacturers didn't stay in business. According to Cotanda, the industry was changing so rapidly that people like Templin, who were content with their product, the Truss-Lock plate, didn't recognize the need to stay ahead of the curve like the front-runners. They lost a lot of ground by not constantly staying competitive and were eventually overshadowed by those who were willing to take up that challenge.

Whatley made an important observation about the early plate designs that have come essentially full circle to eventually look very similar in appearance. "It is amazing how all the different designs of plate manufacturers over the course of the last fifty years have eventually resulted in a structurally similar plate design," he said.

AUTOMATION DROVE THE MARKET

The group commented on a trend that began in the industry's early history, when automation often preceded the advent of products that could be used with these innovations. "What happened was that we had automation moving into the truss plant at a rapid pace and now we needed to produce products that could handle this new automation," explained Cotanda.

Vaccaro cited an example of just that, automation that came well before the plate that could employ it. "Sanford invented the Roller Master, the industry's first gantry system, but the Gri-P-Late wasn't able to be rolled into wood members. So Sanford had to invent a plate that the Master could roll. Someone suggested a plate with a twisted tooth might be rollable on the Master." Vaccaro remembered, "Now we had a plate that could be rolled. Almost overnight, that plate took over for the Gri-P-Late. It also began the trend of creating automation first and a product to be used by that automation second."

Even an article in the December 1960 issue of Building Supply News appealed to entrepreneurs by marketing automation's debut in truss plants as an easy way to break into the business. The article begins, "It's easy to get into the profitable roof truss manufacturing business, because among the two dozen present fabrication systems there is one to fit every size yard or market potential."

Putting all the talk about innovations in automation into perspective, Cotanda said, "First we had the emergence of one product that could be used in virtually any automated application. Then computers entered the arena and allowed us to do a multitude of analysis to be more competitive and imaginative with our designs. Now we are able to go around and say 'if you can draw it, we can truss it.'"

The trend seemed to reverse itself in the mid to late 70's, when the advances in computer technology came from truss

manufacturers, not plate suppliers. The first serious innovations in computer technology came from component manufacturers and consequently, that early market was actually component manufacturer-driven, recalled Whatley. How many people remember the HP and Texas Instruments programmable calculators? We went from catalogue drawings to computer based designs fairly rapidly in this time period.

Vaccaro searched his memory through four decades of industry history to conclude, "I feel the reason [our industry] is so sophisticated today is because we were so oppressed—there was never a time when we didn't have to prove ourselves—and our product—to the construction industry. That constant challenge just pushed us to become more advanced more quickly." When you look at where we've been and where we'll be in the future, it's easy to see there's no stopping us now.

YESTERDAY'S PLATES SHAPED TODAY'S TRUSS

There are currently fewer than ten metal connector plates on the market for use in wood truss construction. An article in the December 1960 issue of Building Supply News listed the industry's "leading metal connectors." Take a look at the earliest plates:

"Here are 15 types of truss connectors available to lumber dealers. Some are nailed, some pressed automatically, and some fastened by rollers."

- Anchor Lock, Anchor Lock of Florida
- Dura-Plate, Duralite of Ohio, Inc.
- Trusset Plate, Empire Roof Trusses
- Gang-Nail, Gang-Nail Sales Co.
- H-Brace, H-Brace, Inc.
- Hydro-Nail, Hydro Air Engineering
- Hercules Truss Plate, International Truss Plate
- Penhurst Connector, Penhurst Machine Co.
- Ronel Barbgrip, Ronel Corporation
- Sanford Gri-P-late, Sanford Truss, Inc.
- Templin Truss-Lock, Templin Associates
- Tim-Plate, Timber Fabrication
- Gismo Gusset, Truss Prefab, Inc.
- Truss-O-Matic, Truss-O-Matic, Inc.
- Tru-Raf, Truss Connectors of America, Inc.

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[1] According to the 2003 ITC 332 Report Survey "U.S. Structural Building Components—Market Size and Employment" performed by ITC and SBC Magazine.

SBC HOME PAGE

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