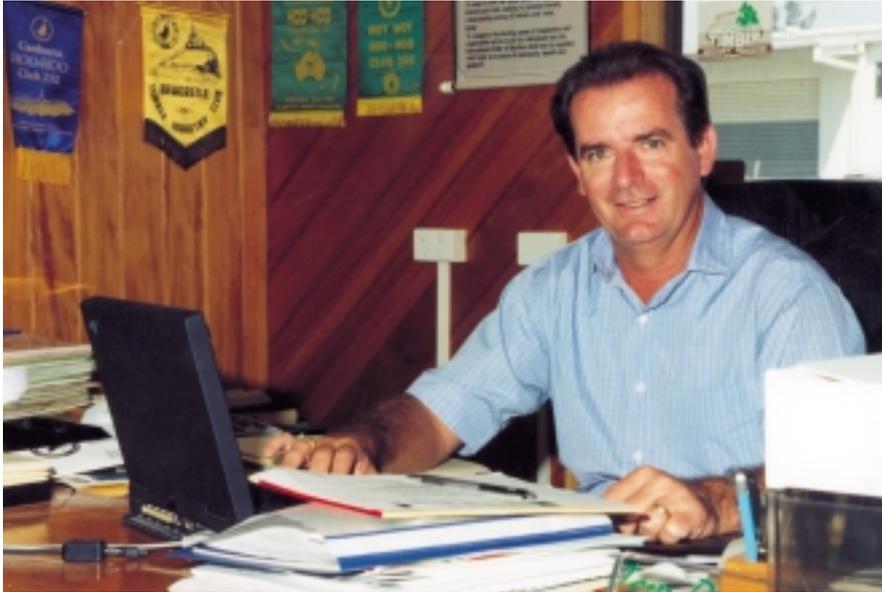


DO YOU KNOW YOUR REAL COSTS?



by **TOM DONOHUE**

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in his address to Frame Australia, Melbourne, July 17, 2000*

To answer this question, I would like to look at where truss pricing started, where it has progressed today and where it can go in the future!

So back to the "GOOD OLD TRUSS DAYS" of the late 1960's and early 1970's.

Computers had not found their way into truss plants, so all pricing was based on price books developed from Standard Truss designs sheets. The price books included Gable Trusses, Truncated Standard Trusses, Truncated Girder Trusses, Standard Girder Trusses, Saddle Trusses, Hip and Creeper Trusses.

We would do a manual truss take off, extend the price - add cartage and ancillary prices and presto, you have your quote.

How was the price book compiled?

For each truss span and type, the timber and plate sizes were obtained from standard truss designs - timber lengths obtained from cutting and jig setting tables. The timber and nail plates were priced and a mark up of between 200% and 400% applied. These mark ups gave Gross Profits of between 50% and 75%.

Jobs sold at Gross Profits of 50% to 60% were usually to resellers while the higher margins went to direct builder sales. The important factor was we did not know our real costs, but this was not an issue because the mark up was large enough so that we made a good profit even though we did not know exactly how much. The market was also a sellers market so there was no competitive pressures. This was "truss heaven".

GOOD OLD DAYS - late 1965 to 1975

1. Simple roof and truss shapes.
2. Truss plants owned by Hardwood producers.
3. No computers so pricing was manual and kept simple.
4. Price books based on material costs plus large mark ups.
5. Did not know real costs at quote time.

This simple method of pricing was a good start, but it was not able to cope with the change that was about to take place in the Truss Industry.

In the early 70's Kiln Dried Stress Graded Pine started to be the material of choice and as a consequence roof trusses

changed from 900 to 600 centres.

Therefore with more trusses per jig set up the pricing method needed to reflect the change and incorporate a saw and jig set up cost. A new system using plant minutes per set up and production for saws and jigs was devised.

This new pricing system allowed the material costs plus wastage to be added to direct plant labour costs for saw set up, saw run, jig set up and jig run. This also allowed for indirect costs, such as power, rent and other overheads.

This pricing system took our industry another step towards a more accurate price and knowing our real costs.

POST "GOOD OLD DAYS"

1. Material and direct labour costed
2. Saw and Jig set up costed
3. Dry Pine became the material of choice
4. 600 truss centres
5. Disadvantage
 - major TIME & MOTION STUDY needed
5. Advantage
 - Selling more items/house lot
 - Price more accurate

During early 70's Rod Harris developed a new plant management system which has stood the test of time - its name was "The EqA System".

WHAT IS AN EqA?

An EqA is a unit of production, it is the amount of work required to make one standard "A" type truss of 7000mm average span, having one splice in the bottom chord. The Standard "A" type truss has been used as the basis for the "EqA", as it is the most common truss produced in the truss plant and the production information is easily obtained. Cutting the truss components is not included in the EqA unit. Sawing is generally in proportion to the amount of work in the production pressing cycle and is taken into account in the total plant cost.

The set up time for the jig system is based on the time in Plant Minutes it takes to set up the jig converted into

ANOTHER MITEK ADVANTAGE

EqA, for example, a jig is capable of pressing 20 EqA per hour so if the jig took 15 plant minutes to set up then this converts to 5 EqA for the set up of that truss type.

The determination of the EqA rate for each press is simply the number of standard "A" type trusses of 7000mm average span with one splice in the bottom chord that can be produced on the press in a straight run per hour or per day without time for setting the jig

system or for sawing the timber components.

These rates will vary from plant to plant due to differences in jig system, handling and production efficiencies.

An EqA value is then applied to all other truss shapes and additional features so that a consistent number of EqA is produced by the same jig each day regardless of truss types being produced.

We need to calculate the dollar value for

each EqA and this is based on the simple formulae:

\$ per EqA = Total cost of labour, overheads & expenses per day divided by Total number of EqA

Now we have the tools needed to price any truss roof type.

A truss price consists of the following:

1. Cost of timber and wastage
2. Cost of connectors and wastage
3. Cost of labour and overheads
4. A margin for profit

GOOD TRUSS COMPANY PTY LTD

1 Leased - 2 acres and buildings \$48,000 per annum

2 Plant & Equipment - owned

	Deprec. %	Total	Wall Frames	Deprec'n.	Trusses	Deprec'n
a. C Clamp	20	40,000	0	0	40,000	8000
b. Table Press	20	54,000	0	0	54,000	10800
c. Computer Pull Saw	20	45,000	0	0	45,000	9000
d. Manual Saw	20	15,000	15,000	3000	0	0
e. Forklift	25	30,000	13,500	3375	16,500	4125
f. 2 Wall frame machines	20	20,000	20,000	4000	0	0
g. Miscellaneous Tools	25	6,000	2,700	675	3,300	825
h. Ute	22.5	12,000	5,400	1215	6,600	1485
Total		222,000	56,600	12265	122,100	34235

3 Labour Costs

	Total	Wall Frames	Trusses
Manager	\$60,000	27,000	33,000
Estimator (Truss)	42,000		42,000
Detailer (Truss)	45,000		45,000
Estimator (Frames)	40,000	40,000	
Detailer (Frames)	45,000	45,000	
Sales Representative	38,000	17,100	20,900
Credit/Debtor Officer	45,000	20,250	24,750
Receptionist	30,000	13,500	16,500
Foreman (Truss & Frames)	37,000	16,650	20,350
Sawyers (3 Truss) + (1 Frames)	75,000	18,750	56,250
Jigs (5)	136,000		136,000
Wall Framers (4)	92,000	92,000	
Forklift Operator (1)	23,000	10,350	12,650
Yard Orderperson (1)	23,000	10,350	12,650
Total	\$731,000	310,950	420,050

4 Leased Vehicles:

	Value	Leased Cost	Wall Frames	Trusses
Managers Vehicle	30,000	9,000	4050	4950
Sales Representative - Vehicle	25,000	7,500	3375	4125
Plate Marker	45,000	13,500	13,500	
		30,000	20,925	9,075

5 Fringe Benefits:

		Total	Wall Frames	Truss Plant
Managers Vehicle	25/40,000 kms p.a. equals 11%	3107	1398	1709
Rep. Vehicle	+ 40,000 kms p.a. equals 7%	1648	742	906
		4755	2140	2615

6 Turnover per annum \$3.3 million

7 Truss Production 240 EqA per day

8 Wall frame Production 240 LM per day

Our profit margin can be calculated as a percentage of the first three items - using say a mark up of 10% to 20% on materials + labour and overheads but it is better to use a larger mark up of 30% to 50% on labour and overheads only. This produces a more consistent profit/day.

So now let's determine Item 3 - "Cost of Labour and overheads" for a company called the Good Truss Company, which has two (2) truss jigs and two (2) pre-nail wall frame machines.

(See Table 1 and 2)

The labour and overhead cost per lineal metre of wall frames will be the daily operating costs divided by the number of lineal metres produced per day i.e. \$2065.75 ÷ 240 EqA = \$8.61 per l.m.

The same with the truss plant, daily operating costs divided by the number of EqA produced per day i.e. \$2536.15 ÷ 240 EqA = \$10.57 per EqA.

These two figures provide you with the means to quote trusses and frames using what it will cost on average to produce each unit.

If a company does a monthly or quarterly Profit & Loss Report, then the selected expenses should be collated on a spread sheet and divided by the number

of EqA or L/M units produced in the period to provide a constant up to date \$/EqA and \$/LM that can be used in quoting.

We have now completed all the elements needed to be able to price trusses and at the same time provide standards units to control production scheduling, incentives and the ability to see what "ifs".

WHAT IF?

For example - what if we put a new computer saw into the plant?

New Saw Costs	\$350,000.00
- lease per day	\$435.00 per day
Savings	
- 1 man + o'heads	\$100.00 per day
Nett increase	\$335.00 per day
Truss plant current cost per day	= \$2536.15
New truss plant cost per day	= \$2871.15
New EqA cost	= \$11.96
Old EqA cost	= \$10.57
Difference	= \$1.39 per EqA

How many truss plant Managers look at the advantages of the machine and do not do the sums as to the effect on their costs?

ADVANTAGES OF AN (EQA) UNIT SYSTEM

1. Provides average production costs
2. Control on profit
3. Provides breakeven position
4. Means of Scheduling your presses
5. Incentives

Disadvantages:

1. Saws, and other processes only included as an overhead
2. Average costs - not always the best way to cost simple or difficult jobs
3. No production scheduling of saws or detailing
4. Change equipment and you have to re do your time and motion study

This brings us to the future pricing system. As everyone knows a truss plant has to be in balance, i.e. Quoting, Detailing, Timber Pulling, Sawing, Pressing and Delivery all need to be balanced.

We are manufacturing a roof truss by handling the materials into, out of and onto machines and the ultimate truss pricing system will measure these processes and thereby enable us to cost these processes. As our machines become more computer controlled our time and motion studies will be provided via their output so we will have constant monitoring of our times and costs.

So the pricing system of tomorrow will measure all processes from when the timber packs arrive on a delivery truck until the finished product is loaded on to a truck for delivery to the client.

Standards for each process will be used to enable costing and will take into account:

1. What machine (Press or Saw) is to do the process
2. Complexity of shape
3. Material and Grade being used
4. Types of handling devices used at jigs etc.
5. Detailing times

This system will allow all areas to be scheduled and also monitored to achieve maximum output from the machinery. We will then know our real costs. This will truly be "truss heaven" for pricing.

	Year	PRENAIL 45%	TRUSS PLANT 55%
Accountancy	12,000	5,400	6,600
Advertising & Signs	4,000	1,800	2,200
Bad Debts	33,000	14,850	18,150
Cleaning	4,000	1,800	2,200
Depreciation-Equipment, Furniture & Vehicles	46,500	12,265	34,235
Electricity	15,000	6,750	8,250
Entertainment	2,500	1,125	1,375
IT	4,755	2,140	2,615
General Expenses	12,000	5,400	6,600
Insurance	10,000	4,500	5,500
Leasing Charges	30,000	20,925	9,075
Motor Vehicle Expenses	10,000	4,500	5,500
Forklift Expenses	5,000	2,250	2,750
Postage	1,500	675	825
Printing & Stationery supplies	12,000	5,400	6,600
Rent	48,000	21,600	26,400
Repairs & Replacements	20,000	9,000	11,000
Superannuation – Productivity	58,500	26,325	32,175
Telephone – Fax	20,000	9,000	11,000
Trade Waste Disposal	10,000	4,500	5,500
Training Programme	2,000	900	1,100
Wages	731,000	328,950	402,050
Workers Compensation	21,900	9,855	12,045
Total	1,113,655	499,910	613,745