

TIMBER FRAME HOUSING MANUFACTURE IN WALES
ITS CAPACITY AND CAPABILITY
March 2019



**STRUCTURAL
TIMBER ASSOCIATION**
Member

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1.0. Introduction and Background

This report has been commissioned to update the research carried out during the summer of 2017, to revisit the impact of Timber Frame house building in Wales.

The growing influence and drive to accelerate the application of modern methods of construction (MMC) in the housing sector has helped to underpin the growth of Timber Frame housing in the UK, with the NHBC reporting Timber Frame having 32.8% market share in Wales for the year 2018. The last full years statistics show Timber Frame Housing accounting for 28.4% of all new builds in 2016. This ranged from a high of 83% of all new builds in Scotland to 17.4% uptake in Northern Ireland. For the same period Wales recorded 30.7% of all new builds in Timber Frame.

The proposition made in the 2017 report that Timber Frame and other Structural Timber materials are no longer seen as 'a quirk of fashion', but as a serious and compelling proposition to address many of the issues that Government faces, remains squarely centre stage. Given the critical and continued shortages of housing on the one hand and the environmental challenges of carbon reduction, cost and speed of build and life-time affordability in the energy cost performance in affordable homes; then Timber Frame more than meets all of these pressing needs.

Coupled with the above, the Welsh Assembly government were keen to build up 20,000 new homes in the life of this Parliament to relieve the pressure on communities and are considering launching a further scoping study during 2019 to once again challenge the issues around housing shortages and the range of responses to this crisis. The Hollmans research completed in the period 2011-2031, pointed to an additional 174,000 houses or flats needed in Wales. That equated to 8,700 new homes each year. 60% of which were expected to be in the private sector (5,200 a year, 104,000 over the period), and 40% in the social sector (3,500 a year, 70,000 over the period). Recorded build programmes have so far fallen very short of this ambition

He suggested an alternative projection giving a higher estimate of need and demand: 240,000 units over the period, or 12,000 a year; of which 58% would be in the market sector (7,000 a year, 140,000 over the period) and 42% in the social sector (5,000 a year, 100,000 over the period). Either way there is an acute shortage of materials that traditional methods of construction will be slow to meet for a range of reasons including skills, speed of build etc. At the time of updating this report for 2019 anecdotal evidence suggests lead times of as long as nine months for bricks on some developments in England

This paper is prepared to highlight to the Assembly and the Housing Market in particular that the Timber Frame sector is strong and active throughout Wales, that it has the capacity to deliver the needs of both the public and private sector demands for housing and that it is confident in its ability to respond to demand. It further notes that Timber Frame meets many of the essentials that the Assembly's 'Well-being of Future Generations (Wales) Act 2015. The adoption of Timber Frame as a building system provides high quality, affordable, energy efficient homes from largely sustainable materials that minimise the negative impact of carbon on the environment. All contributing to the provision of desirable homes improving the health and well-being of their occupants amongst others.

It notes however that for off-site manufactured product to be truly successful, a number of changes are necessary, not least of which is an acceptance by clients that investment in

manufacturing capacity requires far greater transparency of forward demand and commitment to the supply side that it will be committed to and delivered.

Feedback for the 2019 report again highlights the need for skills development. And the acceleration of the apprenticeship programme

2.0. Approach

Egan Consulting have been commissioned to complete review of Timber Frame Manufacturing capacity in Wales and on the sectors confidence as measured by forecast of capacity and demand thorough to 2022, building on the report of July 2017.

As with the 2017 report, research was undertaken to identify as many companies as possible who were either engaged in manufacturing of Timber Frame panels only, or in manufacturing and erection and finally who were fully vertically integrated by providing the fully turnkey service of design, manufacture, erect and complete build service.

We have contacted both STA member companies along with many who are not members of the association. We have, once again, contacted the same sample population of twenty-three business throughout Wales and have responses from eight of them for the 2018 report.

The same methodology has been used, as in 2017 when data collected form those responding was used as the basis from which to extrapolate an overall market size for Timber Frame activity in Wales. The baseline assumption in defining a 'housing unit' has been an assessment of the number of metres squared of Timber Frame panelling per property and this is determined as 80 metres (Source STA)

We are confident therefore that the estimates are reliable for the purposes of providing a sense of the scale of the capability of Welsh businesses involved in Timber Frame manufacture.

3.0 Sector Performance in 2018

In 2018, only 5819 (Source Stats Wales) were completed in Wales, down from 6660 (Source ONS) in 2016. On a more positive note, NHBC shows 5463 registrations for the period 2018. This number grows to 6828 registrations when we take account of the fact the NHBC numbers typically account for only 80% of all properties built in any year.

It is estimated that Welsh Timber Frame manufacturers output was 3242 units during the year, with an estimated 1932 units for the private sector and 1036 to the social housing markets. Chart 1 below shows the volume splits. For the 2018 report we are including all other types of Timber Frame Construction under the heading 'Non-Housing' whilst still a small component of total Timber Frame activity, it is beginning to register as a significant contributor to the total revenues generated.

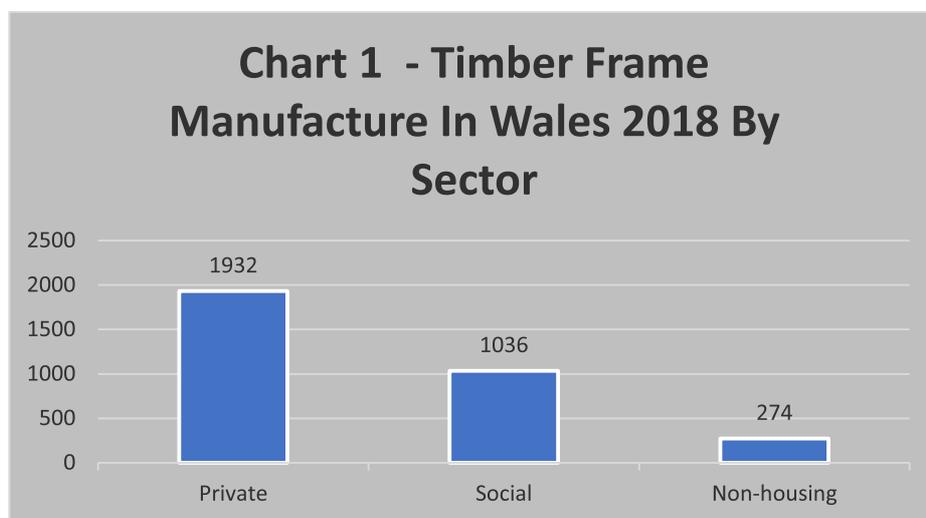
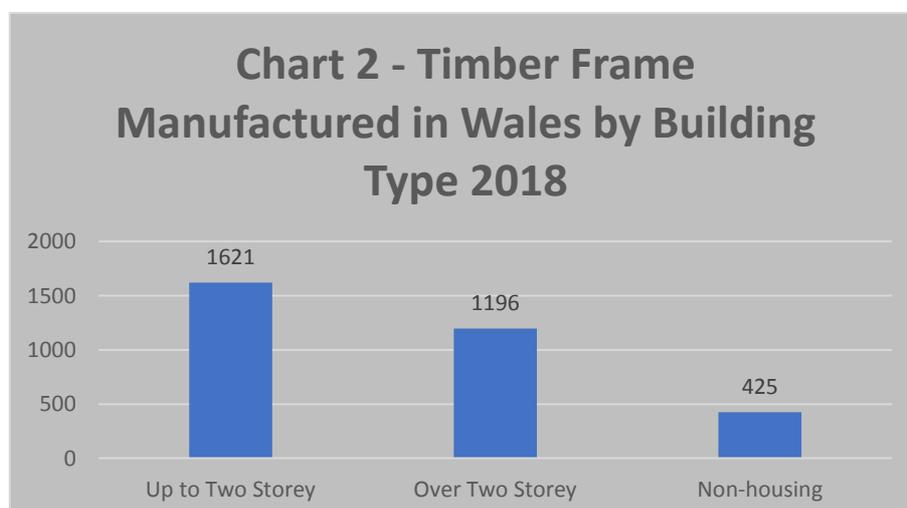
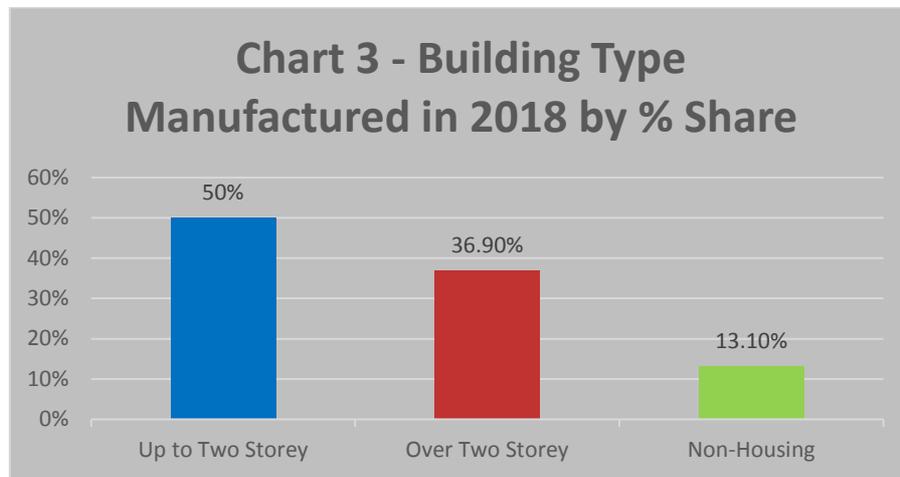


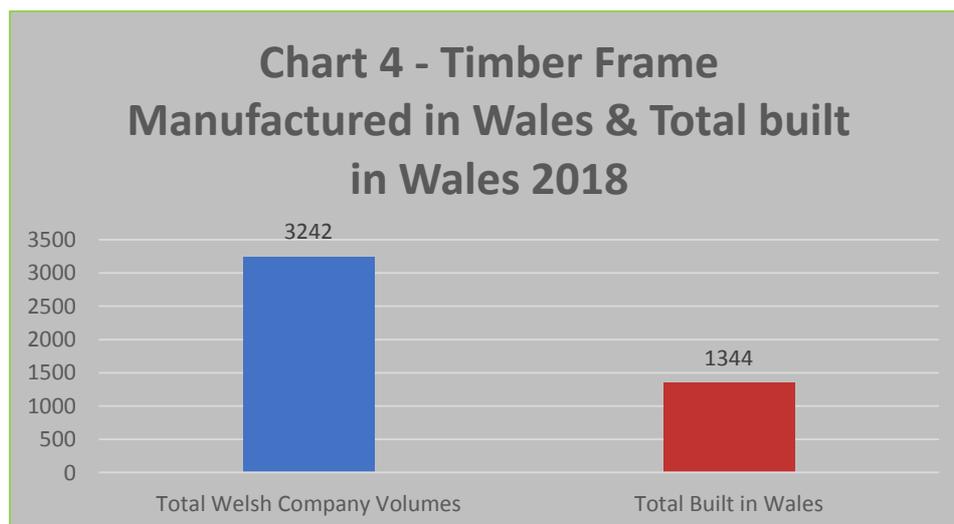
Chart 2 illustrates the number of housing units produced, splitting them to show traditional one and two storey units along with those defined over two-storey as predominantly being apartments. We note however that many homes are being built as three-storey to accommodate their overall smaller footprint. This has not been reflected in the type designation for this report. It does however illustrate the growing importance of non-housing projects utilising Timber Frame as a material of choice.



Similarly, chart 3 reflects these splits as a percentage of the total number of units manufactured in Wales, with non-housing now taking 13.1% of the total produced.

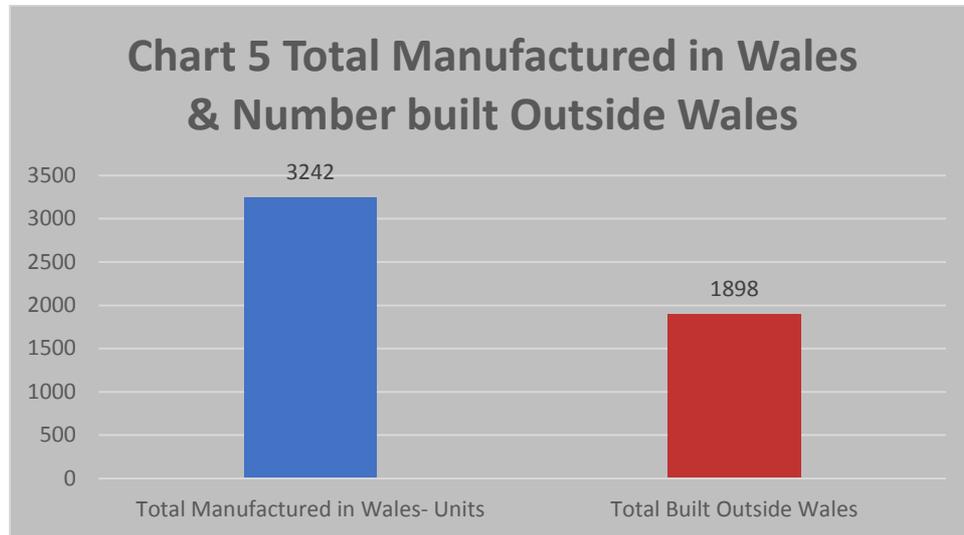


In total, charts 4 and 5 shows the estimated number of Timber Frame homes manufactured in Wales in 2018 as being 3242, with 1344 of these being built in Wales, it means that 58.5% (59% in 2016) of all product manufactured in Wales was exported to other parts of the UK. For the 2018 report ALL product exported from Wales was built in England. The sentiment reported by businesses contributing to this years' report continue to echo the concern around competitiveness in Wales with clients placing 'unreasonable pressure on their supply-chains. This provides the added incentive to 'run down the M4 and especially now that tolls have been removed' to look for business elsewhere. As reported last time, this continues to raise the environmental impact of 'carbon miles' and more significantly in the short to medium term product manufactured in England and elsewhere, imported into Wales reduces the opportunity for additional job creation in the home market and in particular erector teams who travel into Wales to erect the 'imported product.

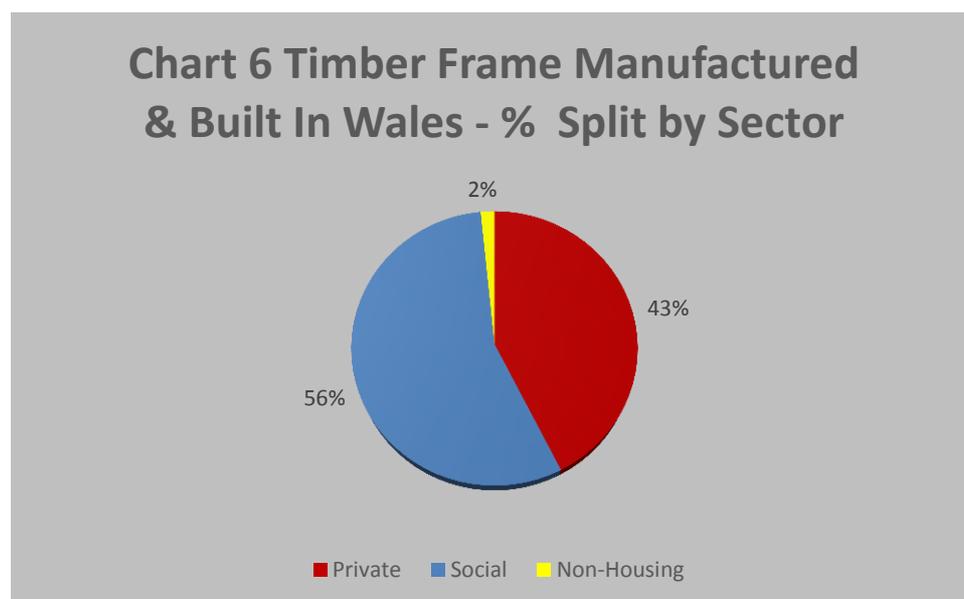


Whilst the above comments are 'heart felt' by those who report them, it's interesting to note that timber Frame activity has grown equally for both the domestic Welsh market and for that exported to England. Welsh Timber Frame grew in volume terms by 23.3% for 2018 over

2016 levels (1090 for 2016 and 1344 for 2018) of activity and by 24.3% (1527 for 2016 and 1898 for 2018) for volumes manufactured in Wales but built elsewhere.

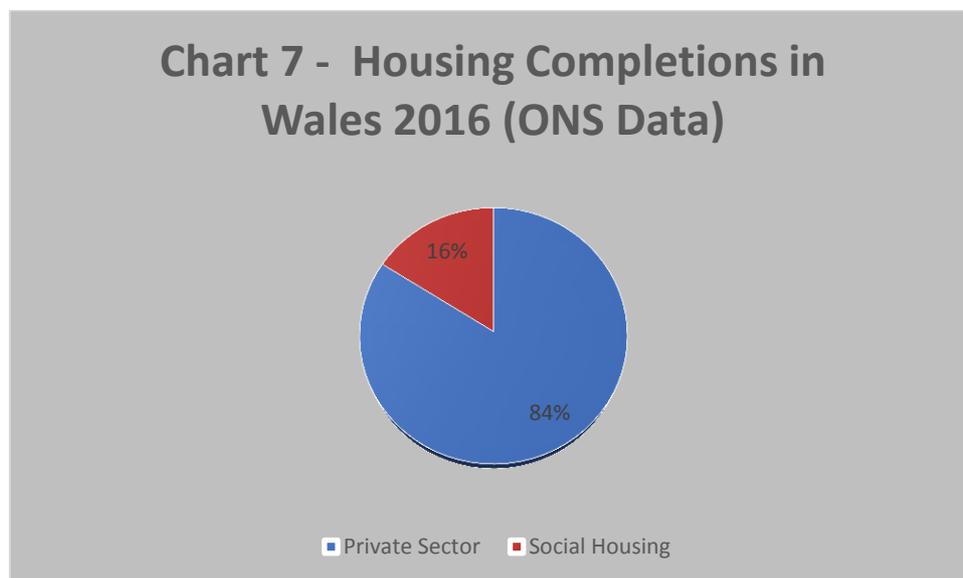


The split between Private and Social housing has shifted significantly for 2018 with a single business reporting a large increase in social house building. In chart 6 below, only 43% of Timber Frame houses were manufactured and built in Wales for the private sector, down from 59% in 2016. Similarly, Social manufacture and build has increased significantly to 56% from 42% in 2016



Social housing has continued at a level significantly below the Assembly's ambitions with 1210 being built in 2016. All of which were commissioned by Housing Associations. This number fell again in 2017 to 1170 and early estimates for 2018 suggest that the number could be as small as 1070 (Q1 to 3 have been recorded as just 820 completions). This information has been extracted from BCLG. There are clearly challenges to the achievement of the assembly's target of 20,000 new affordable homes with the shortfalls in 2016, 2017 and 2018 suggesting that to achieve the target the annual build rate should now be over 8000 units per annum.

Chart 7 amplifies the point of concern above where 84% of completions are for the private sector. Clearly, little progress has been made in increasing the volume of social house building, which of course requires all stakeholders to respond to the continued housing shortage in Wales and across the rest of the UK.

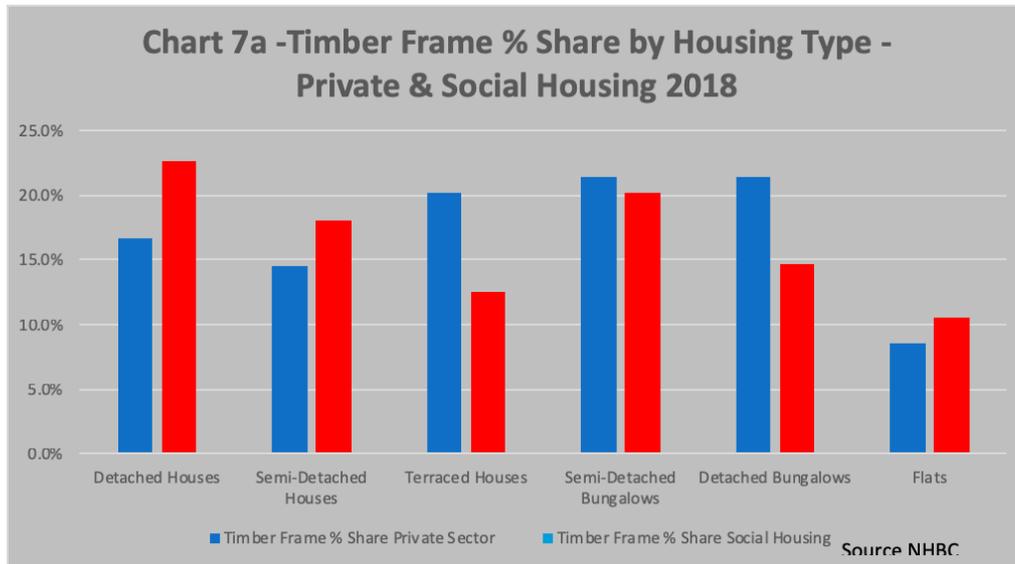


With the 2018 capacity of the Timber Frame manufacturing sector in Wales estimated as 3370 units an increase of 12.7% over the 2990 reported for 2016, but currently forecasting growth to 6611 units in 2022, there lies a continued commitment to Timber Frame manufacture in Wales. Indeed, were this forecast capacity be delivered it represents an effective doubling of capacity (96% growth) during the same period. Clearly the sector is 'open for business' and has the capacity to respond to much of the demand for housing. It has the advantage of being able to respond quickly, and as indicated our 2017 report there is a very significant potential for the sector to provide the accelerated growth needed to meet Assembly targets for social/affordable housing during this Parliament.

Chart 6 above the significant change in the sector split of Timber Frame over the last three years. In 2018 the proportions changed to 45% of Welsh Timber Frame manufacture being devoted to the private sector, a fall from the 82% reported for 2016. Similarly, the proportion devoted to social housing grew to 56% from 18% three years earlier. We reported last time that the industry was uneasy about its relationship with RSL's and whilst this continues to be reported as an issue, the shift in volumes can only suggest efforts to work more closely together. Indeed, Welsh manufactured Timber Frame to social housing has grown from circa 445 units in 2016 to 752 in 2018, an increase of 69%.

Chart 7a shows the average split of homes by type for Great Britain, as analysed by the NHBC. For the purposes of this report we have assumed that the split for the Welsh market will be in line with the that of England and Scotland, so is generally representative of the marketplace.

The chart shows clearly that the take-up of Timber Frame as a method of construction is stronger in the social housing sector for the main housing types i.e. detached and semi-detached homes.



The industry relationships will be discussed further when we review 'industry feedback on market conditions in Wales. As with the 2017 report the underlying message remains one of being reluctant to commit to working with RSL's as there continues, on the face of it, an extremely traditional/conservative/'squeeze till the pips squeak' approach to procurement by them. A more balanced view of the relationship between value and cost recognising that the desire to make a profit is not in itself a bad thing. However, the issues of an integrated supply chain, working in partnership and collaboratively and the effective working of framework agreements remain an area for improvement.

In summary then the Welsh Timber Frame manufacturing sector can be characterised as a sector that:

- 1 Produced revenues of at least £53M
- 2 Produced 3242 housing units
- 3 Built 1344 of these in Wales
- 4 Split 572 units to the private sector and 751 to the social housing sector
- 5 Had a capacity of 3770 units in the year, so had a capacity loading of 86% or could have produced a further 528 housing units in the year.
- 6 Employing some 338 in their manufacturing plants
- 7 Keen to do business win Wales but continues with the tendency to look over 'the bridge' for business rather than work in what are seen as very commercially challenging conditions in its domestic market

4.0 Forecast Activity 2019-2022

The sector is populated entirely by SME's in Wales, with contributors to this research ranging from circa £550K of sales revenues to a large company having sales of circa £11m. It has not been possible to canvas all of the long tail 'Dan in a Van' players who provide joinery/erection services, so this report may be considered a little conservative, although most of the key players in Wales have contributed to the research.

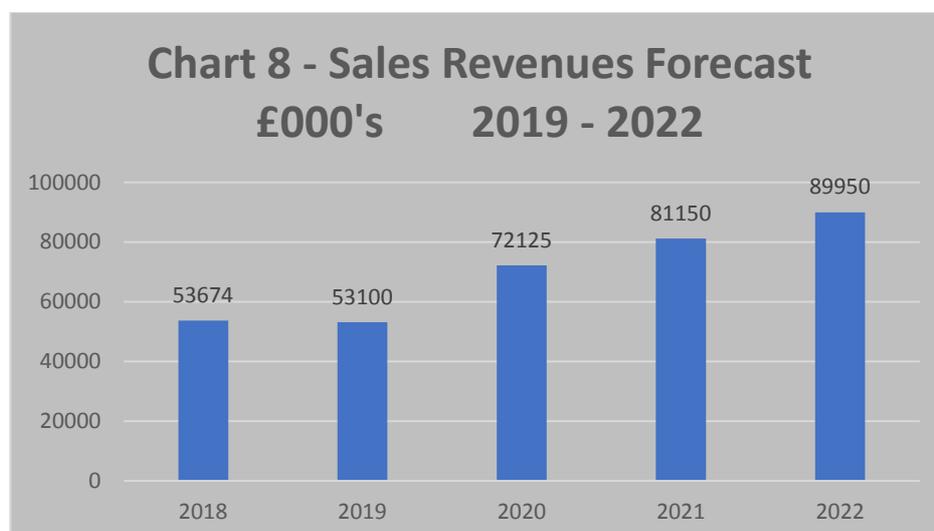
More particularly, SME's identify the need for development of both technical, business and leadership skills to develop the sector going forward.

4.1 Revenues

Sales revenues, that were forecast in 2017 to be circa £40m in 2018, were actually reported at £53.7m and forecast to grow to £89.95m by 2022. This is a very significant uplift from the numbers forecast in 2017, when revenues were forecast to be circa £50m in 2020. Its notable however, that the forecast for 2019 is effectively flat in relation to 2018 performance. This we believe to be a reflection of the uncertainty surrounding BREXIT. As with the 2017 report the research suggests that much of this will be accommodated through better utilisation of existing and newly installed capacity by multi-shifting etc. along with some businesses being prepared to lay down additional capacity. Once again, the sector is keen to stress the importance of addressing the issues raised in 2017, namely:

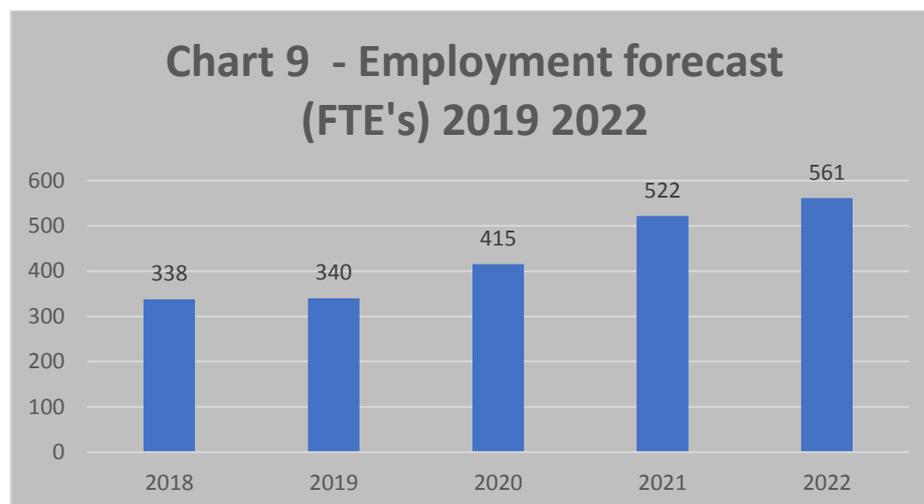
- a commitment to recognising the investment necessary achieve this
- greater transparency and commitment to forward demand by clients
- a change in the working practices of the RSL's to recognise how off-site manufacturing works
- an acceptance by the RSL's that better outcomes for all can be achieved through a better balance of the COST v VALUE equation. The mind-set that characterises the sector as in it for a quick profit benefits no-one. Indeed, anecdotes indicate that the sector has proved resistant to approaches from RSL's to work with them on projects.
- A preparedness to work collaboratively and in the spirit of the 'team
- A willingness to make framework contracts work.
- Get BREXIT sorted to provide some clarity

Notwithstanding the issues referred to above chart 8 indicates the forecast growth in revenues expected by the sector for the years 2018 actual and 2019 to 2022 forecast



4.2 Employment

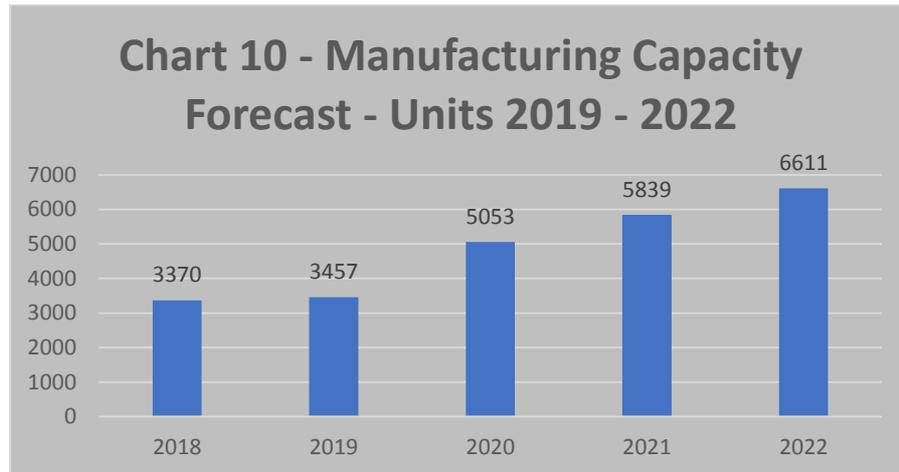
The skills issue remains high on the agenda of businesses engaged in the sector, with gaps at all levels from craft skills to technical and leadership. Growth in employment has been slower than forecast and indeed has fallen back a little from the 359 reported for 2016 to 338 in 2018. It is unclear as to the impact that 'contract labour' has had as most businesses have not been able to provide a commentary on the extent to which sub-contract labour has been employed. We have therefore report headcount on the basis of full time employed as we did in 2017. Taken at face value therefore employment in the sector is expected to grow to 561 in 2022, an increase over 2018 levels of 66%. These numbers look only at those employed in manufacturing and not in any of the site-based activities e.g. erecting/joinery etc.



4.3 Capacity

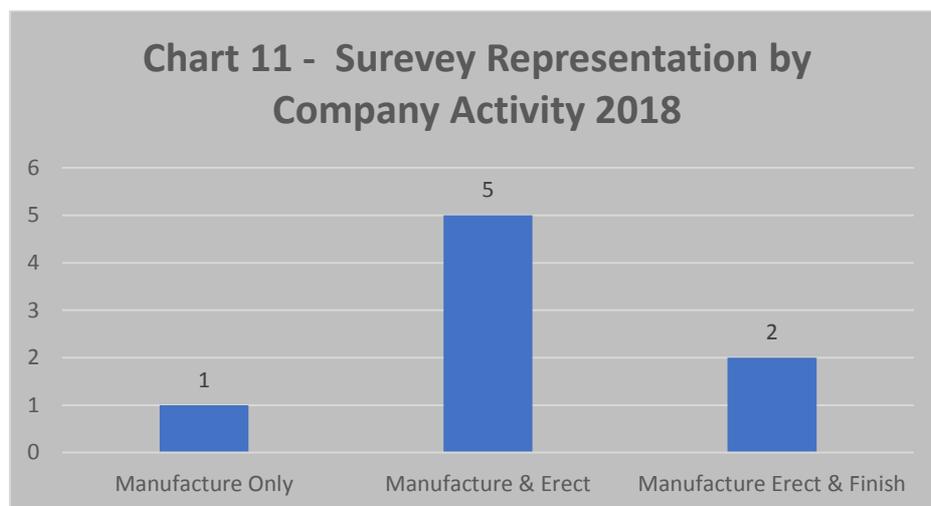
Despite the fall in Welsh house building in 2018, the medium-term outlook from the sector is positive, albeit a little more restrained for 2019 where capacity is only expected to expand by 87 units or 2.6%. Thereafter stronger expansion is forecast, with capacity rising to 6611 (Chart 10) by 2022 or 96% growth. This of course relied heavily on the acquisition of skills and the other resources necessary to expand at this rate.

The sector anticipates that much of this capacity will be sold outside Wales, although the recent news around job losses at Jaguar Land Rover and the withdrawal of Honda from its site in Swindon does add to the general short-term uncertainty reported.



However, the companies contributing to the research are generally bullish when it comes to the medium-term demand for housing, largely driven by the political discourse highlighting the critical shortage of housing in the UK.

Chart 11 represents the participants in this research project reflecting the eight companies who contributed directly to the piece.



5.0 Commitment to Investing in Growth

The experience of those participating is illustrated by chart 11 above. Their experience ranges from the design and manufacture of the components of a build, to its erection on site and finally to handing over the finished property to the client.

To this end they have been able to give an insight into some of the issues they face in the house building market and in Wales in particular.

We have no agenda in presenting these comments other than reporting what has been said by contributors.

Would You Expand your Capacity if Demand was There?

The response to this question was pretty well an exact mirror of the responses in 2018. Most, greater than 90%, confirmed that they would and were generally prepared to go so far as doubling output. Limiting factors were related to the availability of funds to seed the investment, so support from their banks is crucial and increasingly scarcity of skills.

Only one respondent stated that they would not expand beyond where they currently are. It was clear that for this particular business, that it has created a specialist niche and efficiency service and profitability were the most important strategic objectives for it.

Whilst the forecast to 2022 was optimistic, for this year 2019, capacity is only expected to grow by 2.6%. There is hope (just) that matters will be clearer as we approach 2020 when BREXIT will be resolved

Would you Consider Expanding Your Current Factory?

Again, questions relating to investment in expanding the infrastructure of the factory got a more cautious response and this was clearly driven by the issue of underlying profitability, financing related to a lack of certainty to forward demand and the short-termism of the client side, particularly in social housing.

However, when pressed respondents agreed that they would expand to meet forecast demand. Only two were not prepared to expand their factory. They are prepared to expand the existing footprint to its maximum capacity, but not to increase the overall footprint. Uncertainty and what is basically a lack of trust featured in the discussion on this question. The traditional conflict based relationships featured and are flagged as a precursor to building new relationships within the industry. As referred to earlier the RSL's featured strongly as the source of this dis-satisfaction on the supply side of the industry. That said, social housing manufacture and building in Wales expanded by 66% in 2018

Transparency and visibility of future demand was once again raised as an issue. As with 2017, the question reflects the apparent lack of commitment, partnering or collaboration for the longer-term good within the industry. LEAN manufacturing is at its best when relatively stable and constant demand is in place. This is not how the Timber Frame manufacturing sector works and this, it is claimed, the lack of certainty acts as a barrier to investment and innovation. It raises the question around the need to keep factories running, which in turn demands that customers commit to future volumes, which implies that greater collaboration is necessary and challenges the whole notion that manufacturing must invest in innovation to drive costs down. This latter point is often misunderstood by clients of the housebuilding sector, who see it as an imperative to challenge only price, rather than collaborate to improve productivity, raise quality and reduce overall costs as the way to deliver project cost reduction.

Would You Build a New Factory in Another Part of the UK?

Of those who answered, two thirds responded positively, in being prepared to invest in capacity in another part of the UK, one indicated that it would consider another facility from 2020 and the remaining two were not prepared to do so.

Would you be Prepared to Invest in Innovation and Other Products to Meet Demand?

The majority of manufacturers are prepared to consider such investment, but indicated the same concerns/constraints as referred to above with reference to commitment/transparency/relationships throughout the supply chain.

6.0 Notable Comment & Feedback from Participants

There is no order of priority to the comments below, other than it's a list of the key points raised through the process of understanding the key drivers of decisions made by businesses in the Timber Frame sector.

A summary of the points made highlighted the following:

- Concern that little attempt is made to support local business when clients (and in this case RSL's in particular) source suppliers.
- BREXIT remains an overarching cause for uncertainty and is seen as the main reason that other issues do not currently get air-time, so slowing down progress on many outstanding issues.
- That unreasonable price pressure is placed on the supply side by clients (again RSL's) to reduce costs. Most businesses referred to companies who had gone out of business as a result of being too reliant on RSL's and fell under the pressure to constantly reduce cost further.
- Uncertainty resulting from larger corporates declaring slowdowns or closures e.g. Honda
- Too much cost pressure from RSL's – we won't work with them now
- Pressure to use home grown timber but its wasteful and more difficult to work with – pushing costs up.
- Frameworks don't work. Clients/RSL's set them up but then revert to the traditional competitive tendering process, so there is little point in participating.
- RSL's trying to procure land at unrealistic prices - Unrealistic price expectations.
- Planning departments 'dragging it out' are they protecting their jobs!!
- It would help if we had government backed early stages finance.
- We need resources for education and skills training
- RSL's and others demand a higher standard of build in Wales, which all comes with a premium that the client is not prepared to pay for.
- We need less bureaucracy and more standardisation
- Recognition for Value Adding and less risk
- Large developers seem to get planning permissions that smaller local business just does not get. Why?
- We really need continuity of demand if this model is to develop and be successful
- The client/contractor needs to recognise the huge impact that delays on site places on manufacturers