The rise of light steel frame building has been unprecedented. From award-winning malls to multi-million rand housing, the adoption of this form of construction is gathering pace. We speak to the major players in this industry to see how LSFB can continue to grow.

Do you believe that architects and designers are qualified and knowledgeable enough to design LSFB structures?

Charlene Lamb, Lafarge: Theoretically, architects and designers have the qualification capacity to design LSFB structures or any other alternative technology solution. The challenge is that the system, albeit standard in the Western world, is relatively 'new' in the context of the South African-built environment, which has always favoured traditional masonry-type building resolutions, so research, information and sustained utilisation is critical to build a local industry knowledge base.

Uwe Schluter, MiTek Industries: In general architects and designers are knowledgeable enough to design LSFB structures – especially since these structures are in principal and concept not much different to conventional structures up to two storey units. This specific trait is also the reason why LSFB structures have become so popular in Australia, New Zealand and the USA.

John Barnard, SASFA: Light steel framing does not impose real constraints on the designer, and the LSFB can be used for almost any building type. However, lack of in-depth knowledge and experience with detailing may lead to sub-optimal capturing of the benefits available when using LSFB.

The Institute of Steel Construction and SASFA has embarked on a series of workshops with architects (as detailed above) to provide information to assist them in designing using steel – be it heavy hot-rolled, or light steel framing.

Furthermore, SASFA has prepared a set of standard details for different types of light steel-framed walls, which will assist architects and draughtsmen with detailing. These will be included in a handbook that is being prepared on light steel frame building.

Can you give us an example of a recent successful project where your products were specified?

Lafarge: A customer of ours, Rajesh Bhula from Ormed Interiors, is currently using our Lafarge Light Steel Frame along with other Lafarge Gypsum products at a Crowne Mines project where a new mall is being built. The whole building is structured using Lafarge Light Steel Frame. The project began in May and was open to trade on the 1 December, 2012. 2 000 linear metres of Lafarge Light Steel Frame was used along with 6 000m² of Lafarge Gypsum cladding, with the 15mm firecheck plasterboard used inside and 15mm polystyrene used outside.

MiTek Industries: MediClinic Milnerton in Cape Town (completed during 2012), as well as future MediClinic projects. The MiTek Ultra-Span (light gauge steel) unique profiles enable very large clear spans to be achieved in an economical manner whilst also being totally non-combustible – a much desired aspect for commercial and public projects.

SASFA: LSFB was used for most of the external walls of the Riverwalk Office Park head office for Deloitte in Garsfontein, Pretoria. The project was so successful that it was voted one of the winning projects in the LSFB category during the recent Annual Steel Awards. On top of that, it was judged to be the best entry in the architectural category. The architect was Boogertman and Partners, the light steel manufacturer Vela Steel Building Systems and the erector GDS, both members of SASFA.

Saint-Gobain was involved with the supply and installation of the external insulation and finishing system, consisting of 60mm-thick polystyrene panels, covered with two layers of colour-impregnated polymer plaster. The excellent thermal insulation offered by LSFB walling enabled the project team to significantly reduce the capacity of the aircon plant – apart from lower installation costs, this will provide savings in electricity costs for the life of the building. As an additional bonus, the use of LSFB walls running past the edge of the slabs instead of being built on the slabs, resulted in an additional 260m² of useable floor area.

Do you think that LSFB can and will be a success in South Africa?

SASFA: The simple answer is yes. I do believe that it can and will be a success – it is my job to assure
that. All industries develop and go through changes – look at cell phones and home computers 20 years ago and today. But if you consider the construction industry, the biggest changes have been in energy efficiency requirements.

The intermediate results of research done by the Council for Scientific and Industrial Research (CSIR) on LSFB are looking very promising in terms of heating and cooling loads, with LSFB outperforming ‘heavy’ buildings. In terms of thermal performance, the CSIR analysis shows that the an LSFB house uses 20-80% less energy than a brick building to heat up to the comfort levels stated in SANS204. This is a real, tangible benefit of LSFB.

I don’t believe that LSFB will take over the world, but it is definitely a viable building method.

Sinethemba Gqibitole, Arcelor Mittal: LSFB has all the attributes to make it a viable alternative building method in Southern Africa – it is structurally sound, makes use of high strength galvanised steel sheet, results in minimal wastage of materials and a quick building process, is energy-efficient through good insulation, is dimensionally accurate, and so on.

Quality control in the building process is largely managed in the factory-based manufacturing processes (steel frame, insulation, cladding and lining), which is a great improvement on the conventional building process.

Arcelor Mittal is one of the Founder Members of SASFA, the Southern African Light Steel Frame Building Association, which is coordinating the development of this industry.

With their focus on quality, we are convinced that LSFB will be a success in South Africa.

Mitek: LSFB is already becoming more and more acceptable, especially in the roof structure application where its high strength-to-mass ratio has ensured that quite a few very large projects have been successfully completed using LSFB, as well as in Affordable Housing where LSFB roof structures are becoming a favourite choice.

We believe that over time LSFB will most definitely capture a substantial share of the roof structure market. Its utilisation in steel frame walling will, however, be much slower, due to the fact that it represents an entire alternative building method, and not just a simple change from timber roofs to LSFB roofs – it is therefore much more reliant on specification from architects and developers in order to succeed.

Q: Have you found that architects and clients are insisting on LSFB solutions in current and future projects?

SASFA: They are definitely beginning to grow into it. Architects who have had exposure to this method are not turning back. Its use for multi-storey building has increased, meaning that it is currently being employed in many commercial buildings. We have only been active in South Africa for five years and have just been letting it grow organically, but as SANS 10-400XA became compulsory in November, we will be seeing many changes in the building industry and I believe that it will certainly encourage architects to look at LSFB. And SANS 10-400XA is only the ‘soft’ version of the standards. The bar will be raised to improve energy efficiency when it is revisited in a few years time.

There are currently 34 companies in South Africa doing LSFB profiling – the capacity in linear metres is 57 million linear metres per year, approximately 58 000 tons of steel. This is on a single shift basis, so the figures could be doubled to cater for growth. In terms of trusses, the current production capacity is 2,2 million square metres a year.

The industry has grown by 10% in the past 12 months – fantastic growth in challenging times.

Arcelor Mittal: We are seeing more and more LSFB projects being built, whether affordable or luxury housing, or multi-storey commercial or office buildings. It looks as if the architects are aware of the benefits offered by LSFB, and are becoming increasingly confident in going this route. Arcelor Mittal has sufficient manufacturing capacity for the high strength galvanised steel sheet used to cater for future growth in demand.

Mitek: In this past year there has been an increase in enquiries from both professionals as well as end-users about the use of LSFB methods and applications. We naturally encourage this, and through our own marketing campaigns and relevant editorial try to stimulate this trend further. To date the increase in total LSFB demand has, however, not been anywhere near as large as our production capacity, which I am sure will suffice in its present state for a few years to come.

Q: How has the need for energy-efficient buildings driven the Light Steel Frame Building market?

SASFA: Architects evaluate new building solutions and new materials on an ongoing basis and it is rather obvious that LSFB offers an energy-efficient value. The speed of construction, meaning shorter time on the building site, means not only time savings, but also possible cost savings. The price competitiveness of this building method is also set to improve – it wouldn’t be growing at the rate that it is if it wasn’t a viable option.

Arcelor Mittal: With the publication of SANS 10-400 XA, designers will have to adapt conventional building methods to achieve the standards required. LSFB to SANS 517 fully complies with the new requirements and we look forward to an increase in interest in LSFB.

Mitek: Unfortunately the new code has not yet fully taken effect or is not yet being applied in all circumstances. We do, however, believe that from 2012 the effect of this new code will be seen more evidently with many more projects being planned and built in compliance with it, and the utilisation of LSFB will subsequently also increase.

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