

The Russian LGSF Market and Double Wall Innovation

HOW A RUSSIAN COMPANY INTRODUCED A NEW DOUBLE (LGSF) WALL TO MEET MARKET EXPECTATIONS AND DEMANDS

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The Russian light gauge steel market is like many in the world where LGSF struggles for market acceptance against traditional construction. Typical Russian residential construction consists of mid-rise apartment buildings and houses constructed of solid stone or brick. There is generally no hollow “knock” sound from the walls (a favorite test of amateur construction ‘experts’ around the world that is associated and seen as a weakness of (steel) framed walls).

Traditional mindsets in Russian construction mean new technologies like light gauge steel frames are fundamentally harder to introduce. However, occasionally, individuals are open to new ideas of building as long there are certain benefits as a result, generally associated with the price!

Nadya and her husband, Alexander, have worked in the Russian LGS industry since

Nadya Postoeva, a pioneer of Cold Formed Steel technologies in the Russian market.

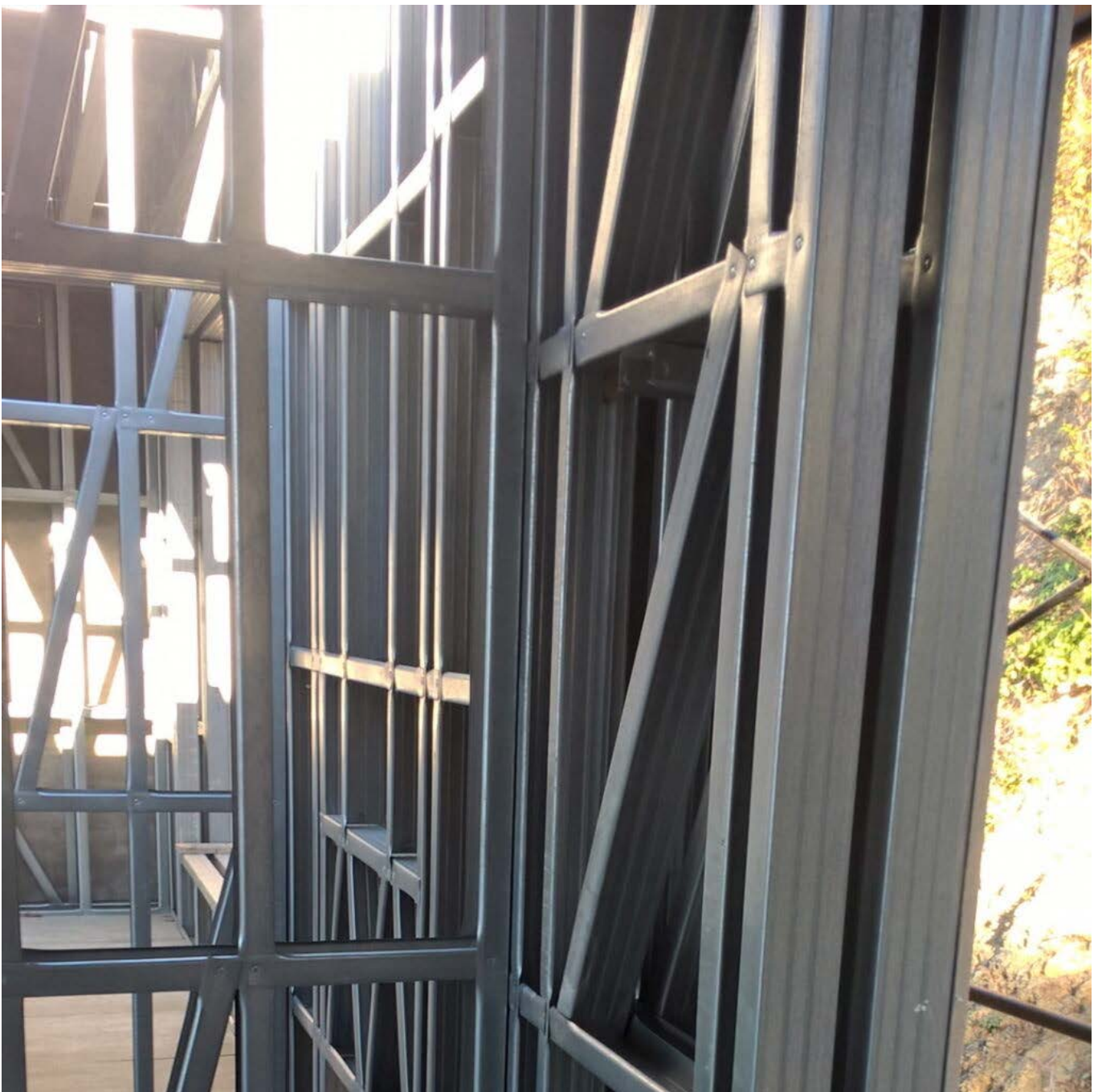
2010. Initially, they intended to position themselves as a small construction company buying and using frames from local CNC machine operators. “The most difficult problem with LGSF both in Russia and throughout the post-Soviet era is the mentality of people. However, it is worth mentioning that this applies to many people in other countries too. Somewhere at a genetic level, a person has a desire to live in a solid

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stone house. Not in the houses of Nif-Nif and Nuf-Nuf (a tale of three piglets),” said Nadya. A reference to being able to blow your house down in Russian folk law.

“At the beginning and still now, we hear unflattering remarks about LGSF buildings and frames. Being a newer technology in a very traditional market, people do not understand it. For us, it is about educating the market and finding suitable solutions. Initially, in Russia, LGSF buildings were seen as only fit for animal sheds and temporary buildings. Some even believed that mobile cellular communications would not work from the inside (due to the steel in the walls), which of course, we all know is rubbish,” said Nadya.

Some customers would come to us, and they did not want not to use basalt (rock) wool insulation and the like in the framed walls and preferred a more solid, lightweight concrete. However, we only had 89 mm (3.5in) profiles. Using this size of profile, it was not wide enough to meet most of the buyer’s expectations (i.e., thermal requirements and wall thickness), so we developed and offered the customer the option of a “Double Wall LGSF”. That way, clients could have walls of any desired thickness from 220mm (8.66in) to any depth required, depending on the insulation materials available, including lightweight concrete, ecowool, basalt heaters, and fiberglass, etc.



Depending on requirements, the Double Wall can be erected to any thickness.



Wider erection of frames/walls allowing for greater insulation area.

From the moment we introduced and offered this thicker twin-wall option, our company quickly began to receive customers in different areas of the construction market. In addition, the way our Double Wall system is manufactured, it negates thermal bridging (in Russia, we refer to this as “cold bridges”) and the way our walls are constructed, steel consumption for structures only increased by around 10 – 15% said Nadya.

Russia is also extremely diverse and has different climatic zones from conditions of the Far North with temperatures of minus 60 degrees Celsius (minus 76°F) to subtropics, and some regions have very high snow and wind loads. A single profile 89mm (3.5in) wall structure could not satisfy different customer’s requirements.

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LGSF Double Wall residential building (note the snow/thermal conditions).



A Double Wall residential property with exterior facade being applied.

Some might argue that a wider profile (i.e., 150mm-250mm (5.9in -9.8in) can be used for filling with lightweight concrete. But in this case, the building will not be monolithic – this is the first thing. Secondly, to meet the requirements of different regions with a variety of climatic standards, it would be necessary to have many production lines or a multi-profile LGSF machine, which requires considerable financial investment. The LGSF double wall system negates this cost, said Nadya.

The LGSF Double Wall system has provided an alternative solution for regions requiring a higher thermal solution and thicker walls, and not only just in Russia. The system has also been used in Canada, Africa, and the UAE, where thicker walls are more desirable and marketable.



The Russian Light Gauge Steel Frame market includes low-cost housing, medium-high end housing, and larger commercial applications.

The primary issue that remains problematic in Russia is logistics. It is the largest country in the world by landmass, and the delivery distances and transport costs between regions significantly affect the price of frames for the buyer. So we have developed specific production and distribution zones with other manufacturing companies in these regions, said Nadya.

“We patented the Double Wall system in Russia in 2012, and it has gained in popularity since then. Thus, we should have a monopoly on design, production, construction of buildings, and structures using our Double Wall LGSF system in Russia. However, there are buildings constructed using our system by companies that do not have our license or approval”. In Russia, like elsewhere, this is a violation of intellectual property rights and is regulated by both the civil and criminal codes of the Russian Federation. However, copying our system proves one thing; the system is interesting, attractive, economically feasible, and promotes LGSF!” said Nadya.



LGSF wall awaiting insulation and infill.



Light weight concrete applied to the inside of a Double Wall structure.

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Insulation product being pumped into a Double Wall structure

The Double Wall system has been used widely throughout Russia and also neighboring countries including the Ukraine, Belarus, and Kazakhstan in the following applications:

- Private residential buildings
- Low-rise apartment buildings
- Kindergartens
- Social facilities
- Frames/walls in high-rise buildings
- In modular designs and applications





The Double Wall System can be used in many building applications and types including residential, commercial, apartments, and as a facade on buildings.

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The Double Wall system also preserves all of the advantages of LGSF, including its lightweight, perfect geometry, convenient and hidden location of electrical and plumbing sockets, fast production and assembly, seismic capability, and moisture resistance.

In Russia, LGSF machines and roll formers are mostly provided from the West with their respective CAD design software licenses. They are, however, expensive due to the low value of the ruble and high Russian import taxes.

There is no shortage of steel coil in Russia with high-quality G350 widely available with gauges available down to 0.75 (22ga) BMT typically used in LGSF construction. Russian plants Lipetsk Metallurgical and Magnitogorsk supply coil along with Arcelor Mittal from Kazakhstan. There are also local steel producers in Ukraine who also supply the Russian market. Price averages around USD\$1,000 per mt.

The system can be applied to many different applications and structures.

Internal LGSF structure showing the additional wall thickness achievable.

“Currently, we are the agents in Russia and the CIS countries for the Australian company, SFS International. They manufacturer CNC machines for the production of light gauge steel frames for various building applications. At the moment, it is the only manufacturer that supplies the machine with software (that automatically calculates and engineers the frames according to loads and norms in the country of construction) for free. This cost-efficient system has helped emerge, new manufacturers, removing the barrier of the high cost of software, and assist in evolving LGSF technology. The buyer of machines from this manufacturer receives consulting support from us and from the community, which uses the LGSF Double Wall system. Also, the buyers of our system are never out of work as we provide manufacturing opportunities. As an example, we are working on a village project in Kazakhstan of 78,000 m² (256,000ft) now. Production and construction will be carried out by a company from Kazakhstan, which acquired an SFS machine and software system from us” said Nadya.



Commercial application of the Double Wall System



Standard finishes being applied to a Double Wall structure

“Lastly, in our opinion, LGSF technology has great prospects both in Russia and all over the world. The classic single-wall profile can be considered for buildings that need to be erected rapidly without great thermal commitment. If the project is to erect a large building for permanent residence or for investment,

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then definitely we prefer the Double Wall system with lightweight concrete or ecowool. It is impossible to say that the Double Wall system is a “house for piglets.” It is only important to understand, fall in love with LGSF, and learn how to promote it best and sell it in your market. Then the owners of the equipment (machine and software) will be able to print money due to the speed, accuracy, and quick turnaround of projects,” concluded Nadya.

