



# LGSF

**MODERN TECHNOLOGY  
OF FRAME CONSTRUCTION**

**FAST, HIGH-QUALITY  
AND ENERGY-EFFICIENT**



# ABOUT US

ProfStalProkat Manufacturing and Trading Company has been successfully operating on the market for over 20 years.

During this time, the company has proved itself as a reliable and serious partner with powerful, stable production. Modern equipment of manufacturing lines and strict system of technological control ensure high-quality and commercially viable products.

The enterprise is located in Tula region, and the company's offices are located in three cities of Russia, such as Moscow, Smolensk and Tula. The company produces structural shape using Light Gauge Steel Framing (LGSF) technology of PROFSTAL-DOM® trade mark. All shapes are manufactured according to technical specifications.

Monthly manufacturing capacity is 1,000 tons of finished products.

Annual manufacturing capacity of frame-cladding wall (FCW) is 400 000 m<sup>2</sup>.

**Our company makes the top three leaders in light gauge steel framing manufacturing in Russia.**

**Our clients include the Ministry of Emergency Situations, Russian Railways, Stroy-TransGaz, Renaissance Construction, ENKA İnşaat ve Sanayi A.Ş., EvrazHolding TC and others.**

LGSF structures manufactured by ProfStalProkat are used in the following projects, which we are proud of: two buildings of the medical center for patients with coronavirus infection in New Moscow, a low-rise complex under VERIZINO-2, the program for young families, in Vladimir, the State Budgetary Educational Institution Secondary General School in Ola settlement, the preschool educational institutions in Tula, Oktyabrskoye settlement, Stupino, Malakhovka, residential buildings under the resettlers program in Arkhangelsk, the Olympic Stadium in Sochi, the 2018 FIFA World Cup stadiums, Luzhniki Stadium, SpartakArena Stadium, Lakhta Center in St. Petersburg, Skolkovo buildings, LEROY MERLIN Shopping Center, Luchi and Klinskaya Residential Complexes and many others.

Monthly manufacturing capacity is **1000 tons of finished products**

Annual manufacturing capacity of frame-cladding wall (FCW) is **400 000 m<sup>2</sup>**

## LGSF TECHNOLOGY

The construction technology is based on a frame made of Light Gauge Steel Framing (LGSF). It has been used in Russia for over 20 years, broadening every year its area of application in social, commercial, industrial and housing construction relative to the share of application of classical construction technologies. With proper use, LGSF provides a combination of high performance and minimal cost of building construction.

The galvanized cold-bent shapes underly the LGSF technology since they help to erect the supporting frame of the future building. By virtue of well thought-out and calculated configuration of the structures, the required level of strength is achieved with an extremely low mass of the building, that allows us to use sparingly developer's money.

LGSF shapes are manufactured in factory environment, which ensures high accuracy of geometric dimensions. High-strength steel grade 350 with galvanized coating of up to 450 g/m<sup>2</sup> is used for manufacturing. Its thickness varies greatly and can reach 4 mm. Installation of LGSF frames is performed using self-tapping screws and bolted connections, which ensures both the speed of work and the reliability of connections and units.



# KEY BENEFITS



## Extensive architectural capabilities

LGSF technology allows us to build frame buildings for various purposes: residential, retail, office, commercial, industrial buildings, attics. It can also be used as enclosing structures for high-rise buildings.



## Summer and winter construction

Being the so-called dry construction method, the installation of buildings using LGSF technology can be performed throughout the year. This is especially important for an investor when the return on investment is a determining factor, as well as in housing construction.



## High speed of construction

Due to the high-precision manufacture of structures and ease of installation, the construction speed is one of the key benefits of LGSF. We install the frame as soon as possible, usually up to a month, then close the perimeter and start working on the interior decoration of the premises.



## Easy erection and construction control

Due to the lightness of elements, as well as dimensional accuracy, marking and thought-out drawings, the frame assembly reminds a large designer assembly. A screwdriver, tape measure and level are the main tools we use for installing.



## Light weight of structures

The name "light weight structures" writes itself. For example, the weight of one square meter of the supporting steel frame of a residential building amounts to 35-50 kg, of a large-span building - 15-25 kg/m<sup>2</sup>. The load on the foundation is much lower than during construction with other technology, which significantly reduces costs.



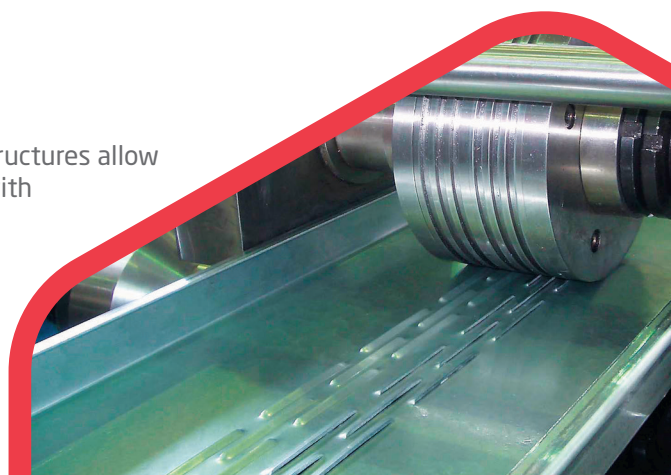
## Ease of finishing works

Construction of buildings made of brick, foam concrete and other materials does not provide a perfectly flat surface of walls, floors and ceilings. It requires additional costs for leveling for finishing. In a building constructed with LGSF technology, the plane of the walls, floors and ceilings is perfectly flat due to the very structure of the frame.



## Profitable logistics

The low weight and compactness of the structures allow us to transport them over long distances with significant savings on delivery.



# ENGINEERING DOCUMENTATIONS

confirming the high quality, mechanical strength, durability and fire resistance of structures of the PROFSTALDOM® trademark

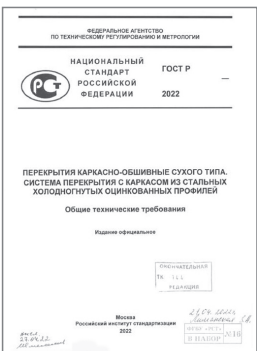
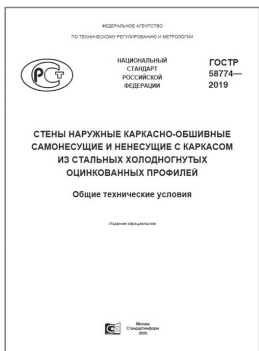
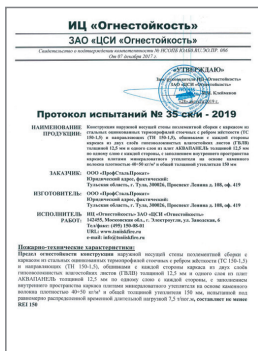
Every year more and more attention is paid to the issues of dynamic and sustainable development of the country's territories. The President of Russia has set the task to intensify the construction industry as much as possible in the coming years, as well as the construction of housing and social facilities. The declared indicators can only be achieved with the help of modern technologies and building materials.

Steel and modular construction with steel framing can become the impetus and effective solution for a real breakthrough in the industry.

Market participants, together with the Steel Construction Development Association, have developed two key standardization documents regulating the construction of LGSF, namely **GOST R 58774-2019** (External self-weight and non-bearing walls with the steel frame of cold-formed zinc-coated profiles. General specifications) and **GOST R 70192-2022** (Dry-type frame-sheathing ceilings. Ceiling system with a frame of galvanized cold-bent steel shapes). In addition, the Code of Conduct **SP 260.1325800.2016** (Gauge steel framing made of galvanized cold-bent shapes and corrugated sheets), describing the design rules and calculation methods while working with LGSF technology, has been in effect since 2016.

We are an industrial partner of KNAUF. Together we have developed technical solutions for low- and multi-storey buildings of various purposes. Close cooperation with the world leader in the manufacturing of building materials allowed our company to obtain specialized dealership for world-famous and unique KNAUF products.

The ProfStalProkat company has conducted tests for the fire resistance limit of structures made of galvanized steel shapes with sheet materials and KNAUF Insulation: ceiling panels, external supporting wall, roof. According to the results, it was not less than REI 90. External self-supporting wall: thickness 225 mm REI 150. Internal self-supporting wall: thickness 225 mm, firewall KO 45. The company also has studied the corrosion resistance and durability of the LGSF frame. This study was conducted by the Moscow Steel and Alloy Institute. The study indicates that, in environments of low and medium aggressiveness, the service life of LGSF structures is **at least 50 years**.

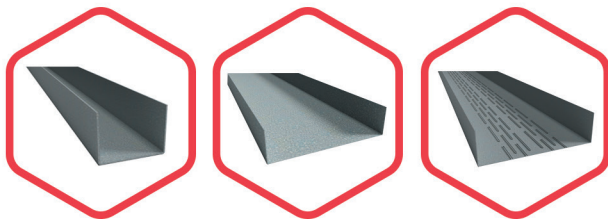


# LGSF SHAPES

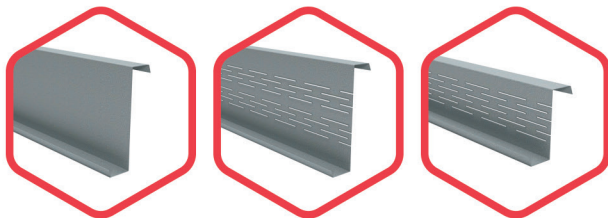
Our manufacturing has an automated line that allows us to produce shapes in the thickness range of 1-4 mm. All shapes are made of galvanized steel with a zinc content of 275 g/m and higher, which significantly increases the corrosion resistance of structures.



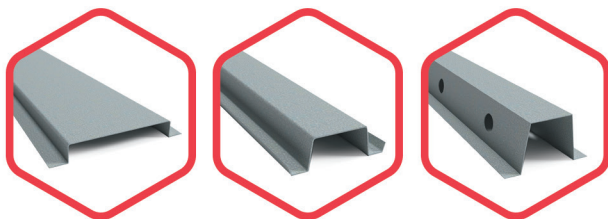
**C-Section (rack section, PS, TS, TSS, PSR)**  
is used in supporting structures of quickly erected buildings made of LGSF, such as columns, racks, roof trusses, beams, ceilings. Perforation on the shape walls is available.



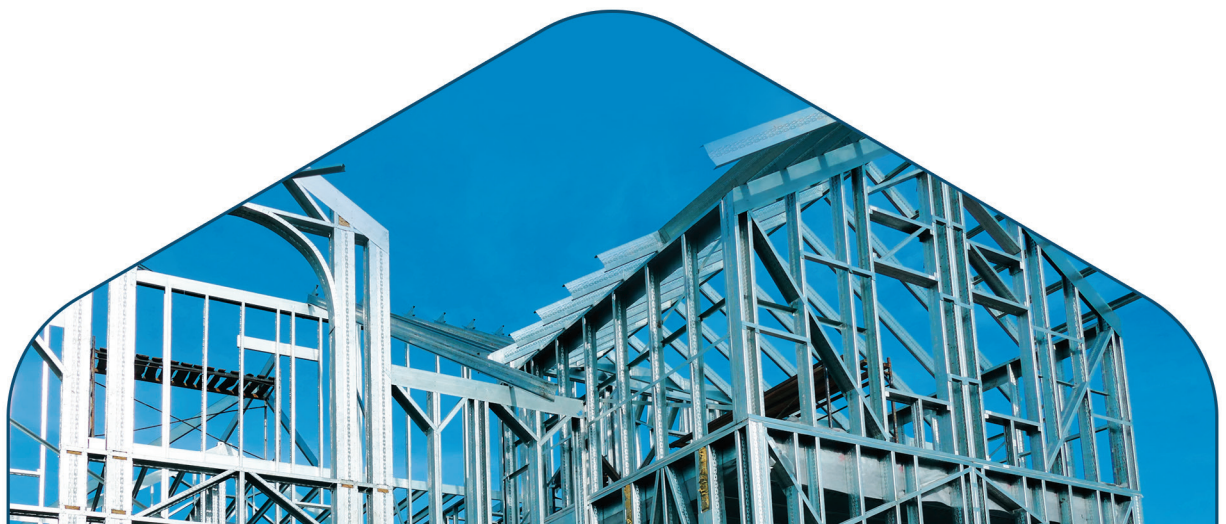
**U-Section (U-channel, PN, TN)**  
is used in partitions and ceilings, as well as in the installation of suspended ceilings, ventilated facades, wall panels covered with sheet material. Perforation on the shape walls is available.



**Z-Section (Zet-Section, BS, TBS)**  
LGSF is most often used for the construction of roof systems and wall enclosures of buildings, used as roof and wall purlins, the frame elements to which enclosing structures are attached. Perforation on the shape walls is available.



**Facade Section (cladding, OP, OPP)**  
is used as a component of construction made of Light Gauge Steel Framing (LGSF), as well as an independent component of the cladding, subfacade structures, additional reinforcing components. Perforation on the shape walls is available.



# FRAME-SHEATHING WALL

**Frame-sheathing wall (FSW) is a combined enclosing structure of a building.**

The FSW structure with element-by-element assembly, made of steel galvanized thermal rack sections with a stiffening rib (TS 150-1.5) and channels (TN 150-1.5) with an internal sheathing of 2 gypsum-fiber sheet layers, an external sheathing of AQUAPANEL and additional facade cladding made of galvanized cassettes, belongs to the fire hazard class K0 (GOST 31251).

The FSW structure provides the use of heavy facade claddings (such as marble, stone, massive facing panels, etc.). They are mechanically attached to the supporting frame of the FSW, which requires minimal installation costs.

The FSW includes the necessary characteristics of durability, strength, energy efficiency, prescribed in modern construction standards.

**According to the type of readiness, frame-sheathing walls are divided into:**

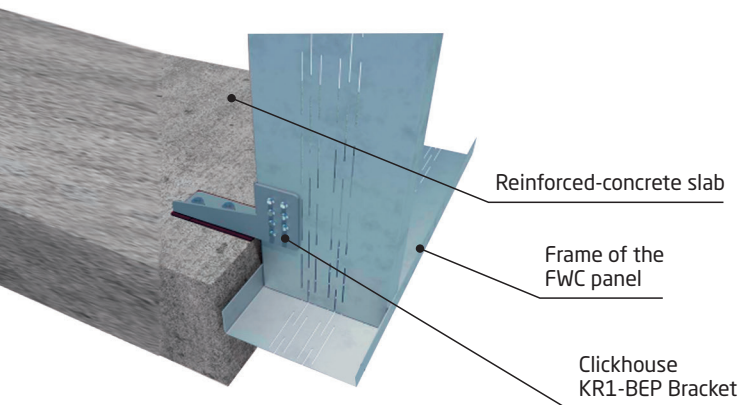
**Element-by-element assembly**



**Partially finished**



To attach the FSW to a reinforced concrete base, special brackets have been developed, which are manufactured according to technical specifications with the GOST-R certificate



**Fully finished**

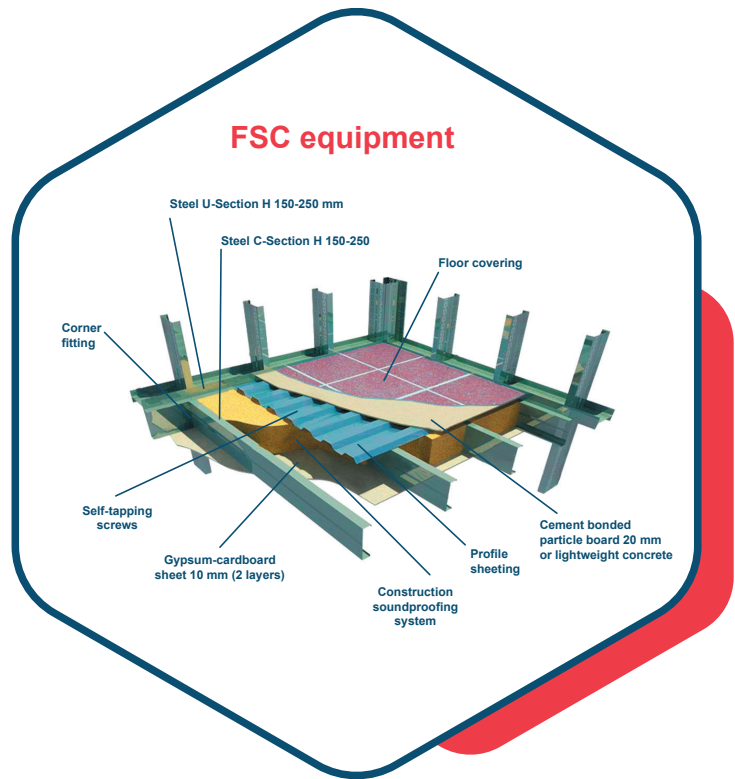




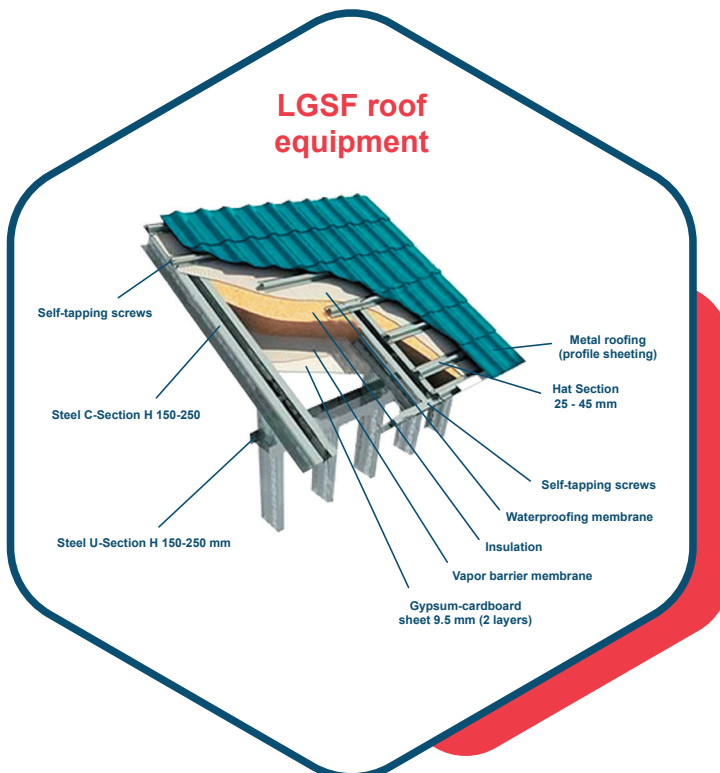
# FRAME-SHEATHING CEILING

Frame-sheathing ceiling (FSC) is a combined multilayer supporting structure consisting of the following elements:

- a frame made of galvanized cold-bent galvanized LGSF shapes;
- profiled sheeting;
- upper and lower sheathing;
- soundproofing layer;
- steel sheathing shapes;
- fasteners.



# ROOF FRAME MADE OF LGSF



The LGSF frame is a perfect solution for construction, renovation and extension of the roof space: all-season installation, durability, fire safety and stability during operation and lots of other advantages of metal roofing. The LGSF roof equipment consists of:

- a frame made of galvanized cold-bent galvanized LGSF shapes;
- steel sheathing shapes;
- vapor barrier and wind protection;
- lower cladding;
- external cladding;
- fasteners.

# CONSTRUCTION WITH LGSF

Due to rapid construction, affordable logistics of structures to the site and easy installation, the range of application of LGSF technology in construction is virtually endless.

## OBJECTS WITH LGSF SUPPORTING FRAMES

Municipal Budgetary Preschool Educational Institution Child Development Center No. 5 (240 places), Tula, 2017



Municipal Budgetary Preschool Educational Institution Preschool No. 5 (100 places), Oktyabrskoye settlement, Crimea, 2016



Building of the infectious disease center for patients with coronavirus infection, New Moscow, 2021



Verizino-2 Residential Complex, Vladimir, 2014



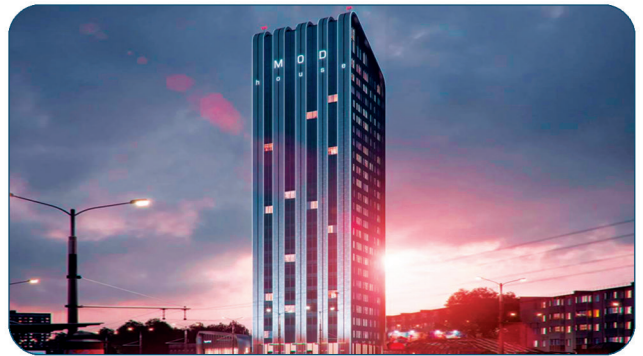
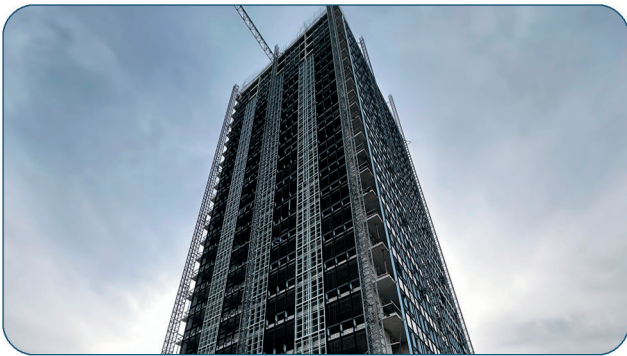
# CONSTRUCTION WITH LGSF

## OBJECTS WITH REINFORCED CONCRETE-MONOLITHIC FRAMES - ENCLOSING FSW STRUCTURE

Municipal Budgetary Preschool Educational Institution No. 24 "Firebird" (200 places), Moscow region, 2017



23-storey Premium Residential Building MOD House, Minsk, 2024



Trade and Office Center, Yaroslavl region, 2021



Multifunctional Hotel Complex "The Veil", Astana, Kazakhstan, 2020



# CONSTRUCTION WITH LGSF

## OBJECTS WITH METAL FRAMES MADE OF CONSTANT SECTION BEAM - ENCLOSING FSW STRUCTURE

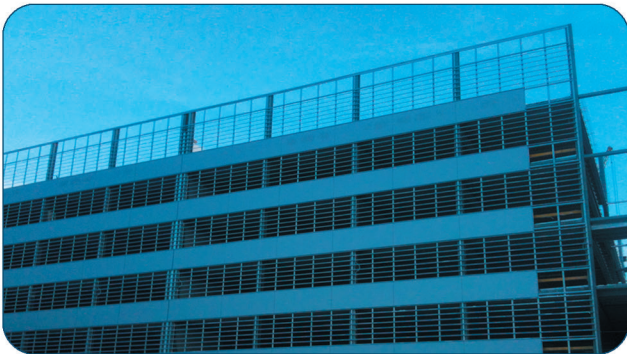
Trade and Office Center, Khabarovsk, 2018



Trade and Office Center, Cherepovets, 2016



TATNEFT Multistorey Car Park, Kazan, 2018



Secondary General School (825 places), Ola settlement, Magadan region, 2022



# CONSTRUCTION WITH LGSF

## MODULAR

Hotel on the territory of Stupino Kvadrat industrial park, Moscow region, 2020



Neurosurgery and Obstetric Center, Kaliningrad, 2022



## INDIVIDUAL RESIDENTIAL CONSTRUCTION

Individual residential building, Tula region, 2021



Individual residential buildings for flood victims in Irkutsk region, 2020



# CONSTRUCTION WITH LGSF

## SUPERSTRUCTURES AND ATTICS

Kuban Institute of Professional Education, Krasnodar, 2021



Residential building, Norilsk, 2020

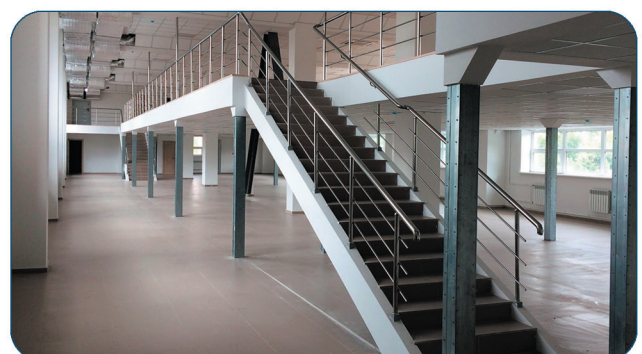
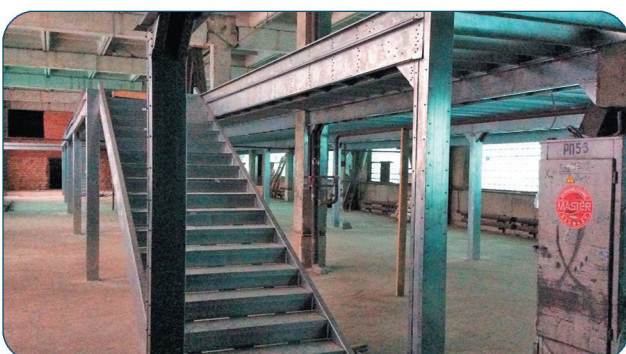


## RENOVATION OF BUILDINGS

Governor's House Architectural Monument of the mid-19th century, Tula, 2021



Conversion of an industrial building into an office with a mezzanine floor, Moscow, 2017







# PROFSTALDOM®

The construction technology is based on a frame made of Light Gauge Steel Framing (LGSF) that has been used in Russia for over 20 years. Broadening its area of application in construction every year, LGSF provides a combination of high performance and minimal cost of building construction.



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