TSMCERAMIC | Saving energy for life

Российская Нанотехнологическая Продукция

Russian Nanotech Products

TSMCERAMIC

multi-purpose energy-efficient liquid coatings

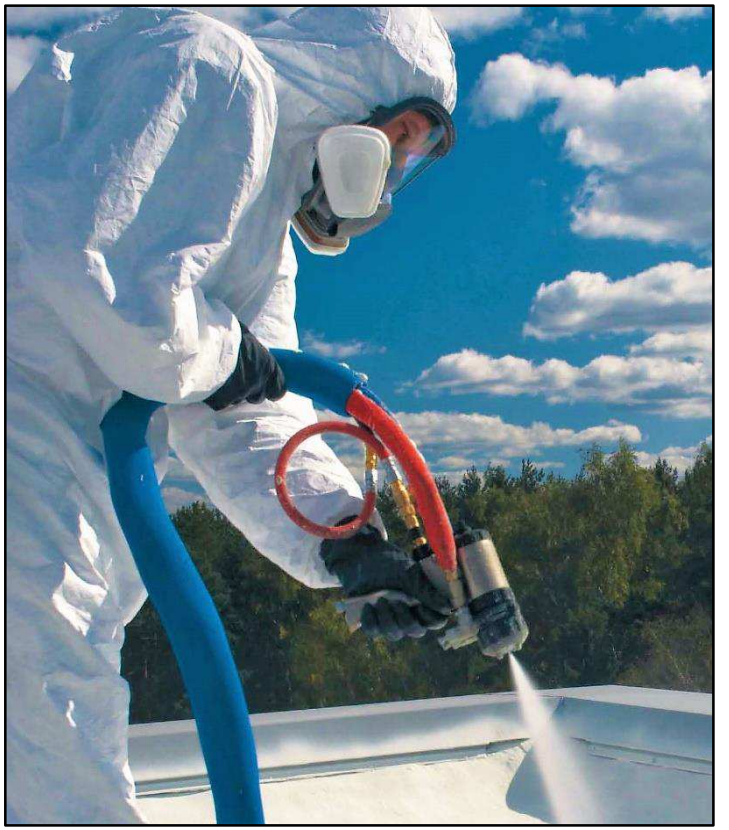
TSMGROUP Products

2019

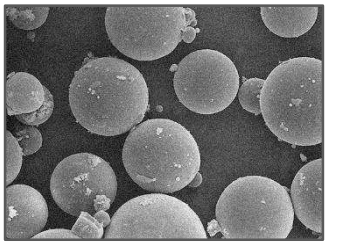
XXI TECHNOLOGY

TSMCERAMIC is an up-to-date efficient heat insulation materials designed by Russian scientists with the use of nanotechnologies. This material is universal for integrated barrier protection of various types of surfaces.

It has record low coefficient of heat conductivity approved by GOST 7076-87 that distinguishes TSMCERAMIC among other conventional heat insulation materials such as an expanded foam or a glass wool.

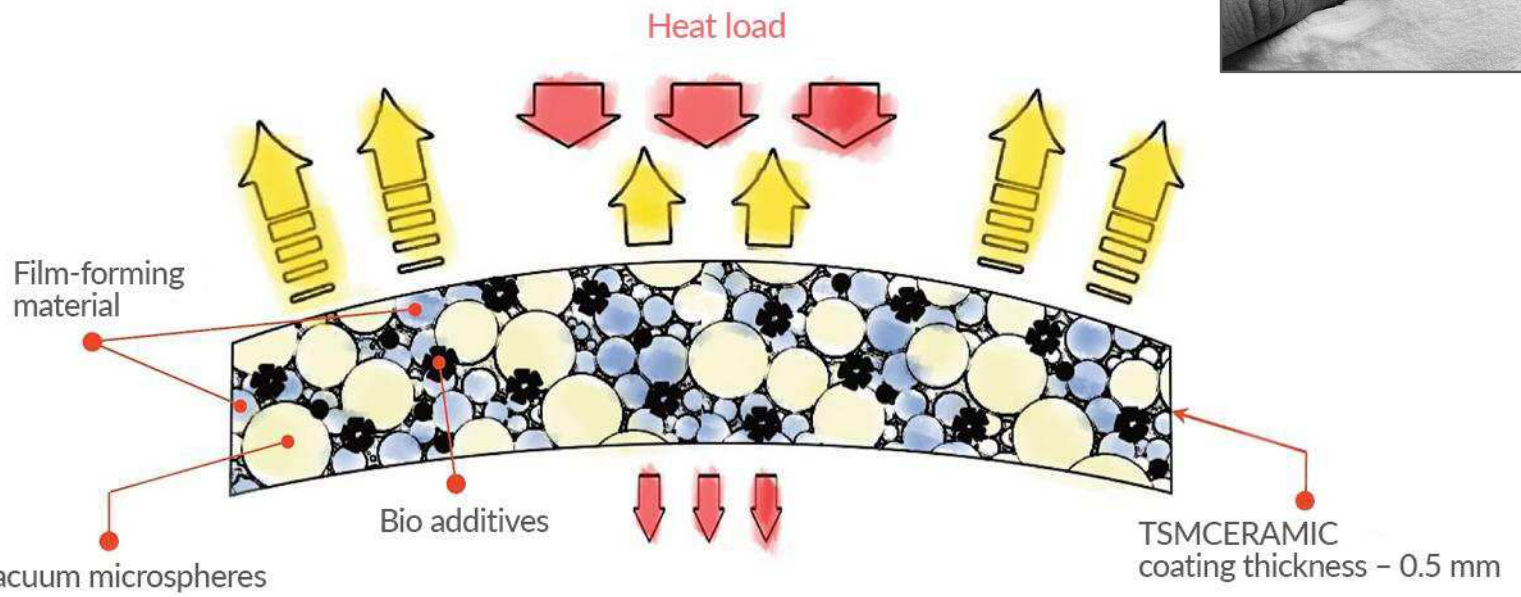


EFFICIENT NANOTECH HEAT INSULATION



Use of this material gives an exceptional energy saving effects thanks to ceramic hollow (vacuum) microspheres contained therein.

These microscopic particles form the basis of heat insulation creating a thick barrier and reflect heat energy without absorbing it as other conventional heat insulation materials.



UNIVERSAL INNOVATION

Consistency of TSMCERAMIC resembles a traditional paint allowing easy and quick application of the material to a surface using an airbrush or common brush.

This material is very adhesive and can be applied to all types of surface: from concrete and bricks to wood and plastic. Its thin consistency allows using this material freely to protect various objects of unusual form and design.

UNIVERSAL INNOVATION

Thickness of ready layer: from 0.5 to 3 mm.

Extra load to surface: not more than 0.4 kg/m2 (layer-1 mm).

Additional treatment of surface: no.

Special knowledge and skills: no.

Use in hard-to-reach areas: yes.

Service life: over 30 years.

Warranty: 10 years.

Operating temperature: from -60°C to +260°C.

Environmental compatibility: «full circle»
(from production and application up to disposal).

MULTI-PURPOSE COATING

The unique composition of TSMCERAMIC contains special polymer and bio additives which allow to both enhance heat insulation properties of the material and give it extra functionalities:

Water-proofing (water proof – moisture penetration not more than 0.03g/cm3).
Corrosion protection (prevents formation of condensate and protects from rust).
Noise insulation (1 mm of coating reduces noise level by 2dB).
Fire safety (does not conduct electricity, does not sustain combustion).
Protection from parasites (prevents origination of fungi, mildew, etc.)
Weather proofing (used at t° from -60°C to +260°C, resistant to atmospheric precipitation, temperature drops, and UV exposure).

MATERIAL FOR DECORATION

Smooth and dense texture of TSMCERAMIC allows using this material for finishing works. It also can be shaded to different colors (RAL palette), creating endless possibilities for facade decoration works – from simple color shading to artistic painting. This material is also suitable for identification painting of engineering communications, pipelines, etc.

ADVANTAGES

Benchmarking analysis of TSMCERAMIC and conventional heat insulation materials

Characteristics	Expanded polystyrene	Glass wool	TSMCERAMIC
Heat conductivity, Wt/m°C	0.032-0.05	0.038–0.055	0.001-0.003
Operating temperature	from -180°C to +80°C	from -40°C to +250°C	from -60°C to +260°C
Resistance to water and corrosive environment	Resistant to weak acids, alkali. Unstable to UV, aromatic hydrocarbons, formaldehydes.	Low water-proofing quality.	High water-proofing quality, resistant to seawater, acidic and alkality solutions, atmospheric precipitation and UV exposure.
Fire behavior	Average flammability	Weak flammability	Non-flammable
Environmental compatibility	High toxicity when burning, unable to be disposed of.	High toxicity (emits phenols, dirt, dust, etc. while decomposing).	Environmental compatibility of “full circle” from production and application to disposal.
Criminology	High level (can be reused)	High level (can be reused)	None (cannot be reused)
Load to surface	Load bearing capacity must be controlled.	Load bearing capacity must be controlled.	Near-zero (not more than 0.4kg/m2).
Lifecycle rated/actual	30/15	50/15	30/30
Warranty, years	3-5	3-5	10

BENEFITS

COST CUTTING

For conducting and reducing terms of construction works:

- ✓ Easy and quick application to any surface.
- ✓ No need for extra treatment of surface, special equipment and skills.
- ✓ Effective in usage (layer thickness – 2-3 mm).

For further operation of a facility:

- ✓ Long-term (over 30 years) of integrated protection against water, corrosion, mildew, dirt, etc.
- ✓ No extra load to walls and basement (not more than 0.4 kg/m2, layer – 1 mm).

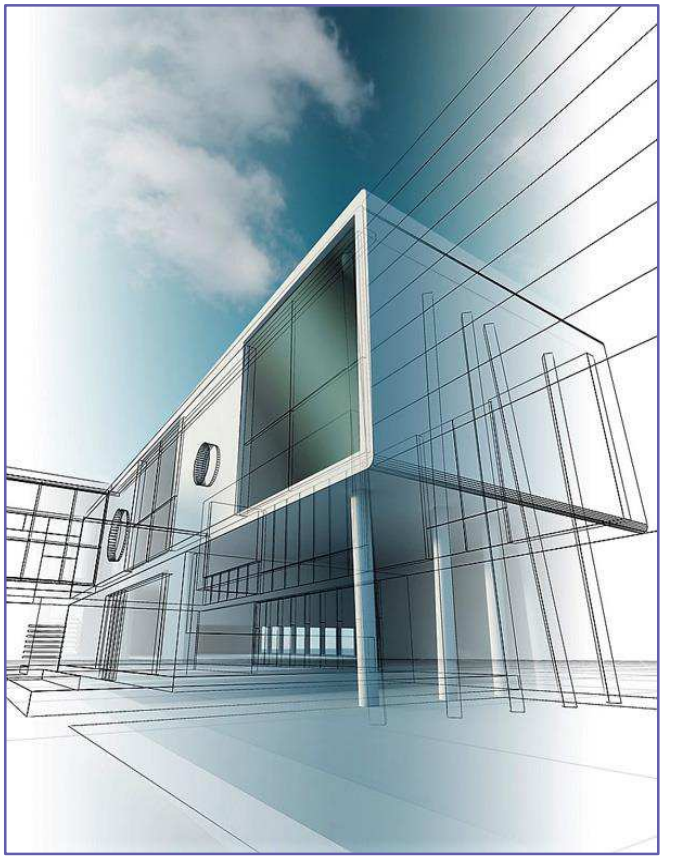
BENEFITS

USABILITY

- ✓ Can be used in hard-to-reach areas and unusual surfaces.
- ✓ Allows easy addressing and adjusting construction defects.
- ✓ Suitable for combined usage with conventional heat insulation and paintwork materials.
- ✓ Can be used at various temperatures (from -60°C to +260°C).
- ✓ Wide range functionalities (heat-, water- and noise-proofing, protection against rust, fire, mildew, dirt, and dust).

SAFETY AND RELIABILITY

- ✓ Environmental compatibility 100% (from production and application to disposal).
- ✓ Dielectric, does not sustain combustion.
- ✓ Protects against parasites.
- ✓ Warranty – 10 years.
- ✓ Service life – over 30 years.



TSMGROUP

A group of Russian companies which develop and distribute innovation energy saving solutions for construction works on the global market. The Group's strategy is associated with production, implementation, and distribution of innovation energy saving materials under TSMCERAMIC trade mark for industrial, infrastructure, and civil construction.

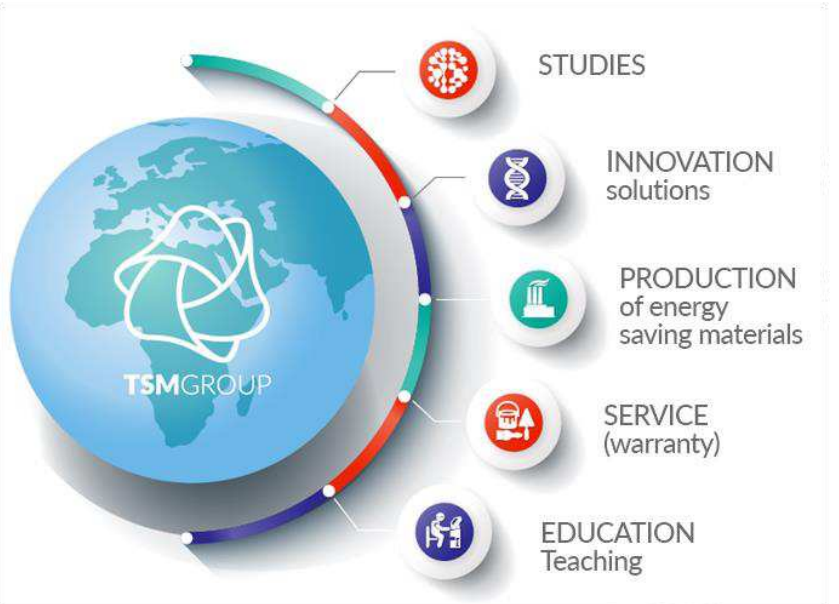
OUR BUSINESS PROFILE:

✓ Scientific studies and development of innovation energy saving materials.

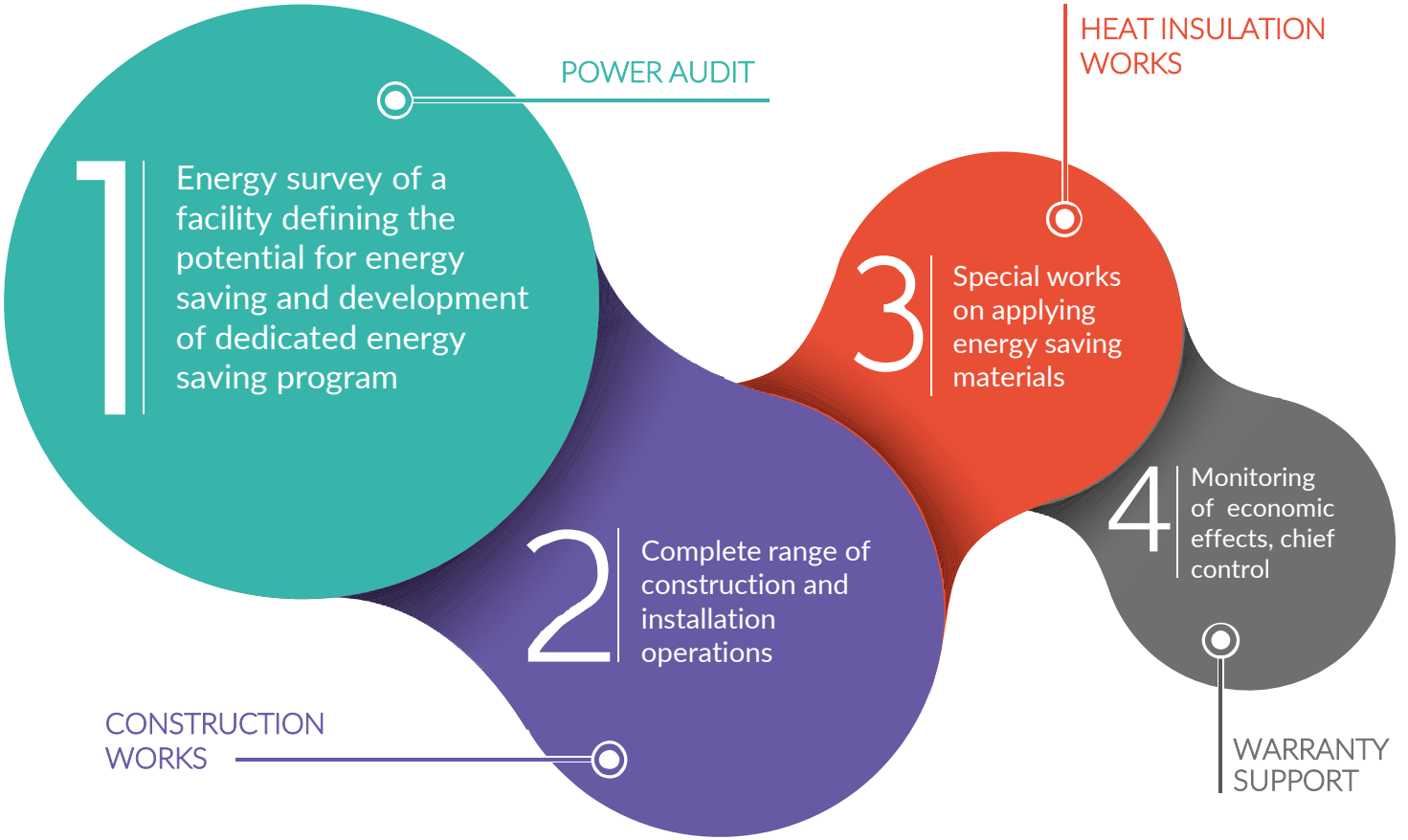
✓ Production and shipment of energy saving materials under TSM trade mark.

✓ Services (power auditing, complex of construction and heat insulation works, warranty support).

✓ Teaching and educational activities in the field of use of energy saving materials.



INTEGRATED TURN-KEY SOLUTION



OUR EXPERIENCE

OIL AND GAS INDUSTRY

«ROSNEFT»

Oil Refinery, Achinsk, 2007, April-September

Heat insulation of storage tanks for process water and POL.

FINISHED PROJECTS:

- ✓GAZPROM
- ✓TRANSNEFT
- ✓TATNEFT
- ✓LUKOIL
- ✓SHELL

POWER GENERATION

«MOSENERGO»

2010-2015

Protection and heat insulation of thermal distribution network pipelines, exhaust pipes, tanks for process water and cooling towers.

FINISHED PROJECTS:

- ✓ Serov SDPP (State District Power Plant)
- ✓ Cherepovets SDPP (State District Power Plant)
- ✓ Nizhneturinsk SDPP (State District Power Plant)
- ✓ Krasnoyarsk SDPP (State District Power Plant)
- ✓ «Krasnoyarsk Heat and Power Generation Company»
- ✓ Moscow United Energy Company (MOEK)
- ✓ Sayano-Shushensk Hydro-Electric Power

MECHANICAL ENGINEERING

«RZD»

2007-2015

Winterizing of rolling stock cabins and coaches.

FINISHED PROJECTS:

- ✓ AVTOVAZ
- ✓ Mercedes-Benz (EVOBUs Russland)
- ✓ MAZ
- ✓ SKODA

SHIPBUILDING

SHIP REPAIR YARD

2014, August

Protection and heat insulation of POL tanks and hulls of oil tankers.

FINISHED PROJECTS:

- ✓ Naval Forces (Ministry of Defense)
- ✓ Krasnoyarsk shipyard
- ✓ Krasnoyarsk ship repair yard
- ✓ Krasnoyarsk river shipping company
- ✓ NOVOFISH Fishing Company (Khabarovsk)

FOOD-PROCESSING INDUSTRY

«TOMSKOYE PIVO»

Tomsk
2007, April-May

Protection from condensate and heat insulation of beer tanks, vessels, and plant facilities.

FINISHED PROJECTS:

- ✓ Coca-Cola (Novosibirsk, Krasnoyarsk)
- ✓ «Baltika» (SPb, Krasnoyarsk («Pikra"), Novosibirsk)
- ✓ «Milko» diary plant (Krasnoyarsk)
- ✓ «Krasota. Sila. Molodost» (juices of «Krasota SM», Tomsk)
- ✓ Krasnoyarsk cold storage facility
- ✓ «Slavitsa» ice-cream factory (Krasnoyarsk)

METALLURGY

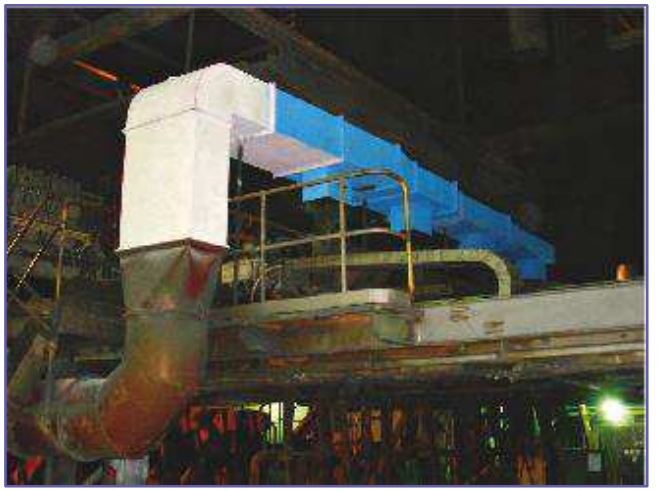
«NOVOKUZNETSK IRON AND STEEL WORKS»

Novokuznetsk
2006, June-August

Heat protection of power generation facilities and air ducts.

FINISHED PROJECTS:

- ✓ «RUSAL»
- ✓ «SAYANAL»
- ✓ «Norilsk Nickel»
- ✓ «Khakasskiy Aluminum Plant»
- ✓ «Mariupol Iron and Steel Works named after Ilich»



WATER SERVICES

«MOSVODOKANAL»

Moscow
2010-2013

Removal of condensate, heat insulation of pipelines, correction of frost susceptible pipes, winterizing of sewage conduits, internal and external walls, ceilings, and roofs.

FINISHED PROJECTS:

- ✓ «Rosvodokanal»
- ✓ «Vodokanal of Saint-Petersburg»
- ✓ «Vodokanal of Naberezhnye Chelny»
- ✓ «Kraskom» (Vodokanal of Krasnoyarsk)
- ✓ «Vodokanal of Krasnogorsk»

CONSTRUCTION

HISTORICAL MONUMENTS

«GREAT CONCERT HALL»

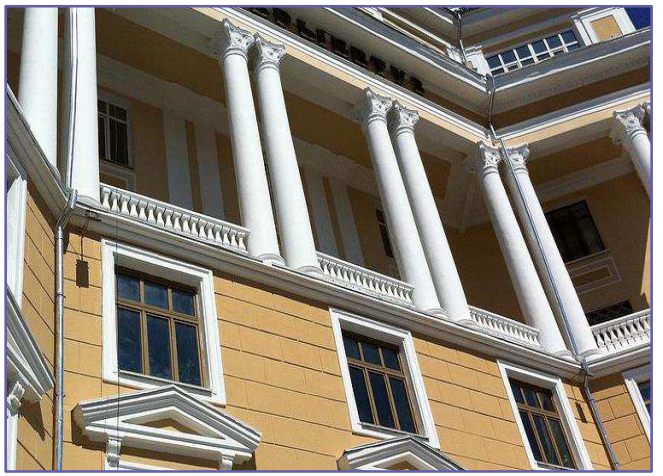
Krasnoyarsk
2008-2009

Heat insulation of facade and roof.

«FAR EASTERN TECHNICAL INSTITUTE OF FISHERIES INDUSTRY»

Vladivostok
2012

Reconstruction and heat insulation of facade.



CONSTRUCTION

EDUCATIONAL BUIDLINGS

«PROGYMNASIUM 1882»

Moscow
2009

Repair and heat insulation of facade, removal of condensate, and heat insulation of pipes.

«SCHOOL No.709»

Moscow
2015

Repair and heat insulation of facade.

CONSTRUCTION

APARTMENT BUILDINGS

Yuzhno-Sakhalinsk
2009, June-August (47 days)

Protection and heat insulation of facades of 28 buildings, repair of frost susceptible walls.

FINISHED PROJECTS:

- ✓ «Morton» (Москва)
- ✓ «Monolitstroy»
- ✓ «Eniseylesstroy» (Krasnoyarsk)
- ✓ «Kultbytstroy» (Krasnoyarsk)

CONSTRUCTION

PRIVATE HOUSES AND COTTAGES

Internal heat insulation of walls and facade.

Hungary, 2015

Samara, 2007

Moscow region, 2015

CONSTRUCTION

INTERNAL HEAT INSULATION OF WALLS, FLOORS, BALCONIES, HOUSEHOLD UTILITIES

Krasnoyarsk, 2008-2010

CONSTRUCTION

FACADE PAINTINGS

2015-2016
«Krasivoye Podmoskovie» – a program for renovation, heat insulation, and decorating facades of 54 residence buildings in the settlements of Ramenskoye, Sergiev Posad, Shchelkovo, Reutov (Moscow region).

CONSTRUCTION

SPORT VENUES

«LUZHNIKI» STADIUM

Moscow
2016-2017

Heat insulation of abutment between walls and floor, beams, walls, slabs, as part of the reconstruction of the stadium for FIFA World Cup.

«ICE PALACE»

Krasnoyarsk
2010

Heat insulation of internal and external walls, pipelines.

TSMGROUP

GROUP OF COMPANIES

Saving energy for life

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