



Application of new materials in construction

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NATIONAL CHAMBER OF ENGINEERS

NCE

NATIONAL CHAMBER OF ENGINEERS OF THE RUSSIAN FEDERATION



THE NATIONAL CHAMBER OF ENGINEERS (NCE) UNITE PROFESSIONAL ENGINEER-ENTREPRENEURS, WHO HAVE REALIZED THEIR POTENTIAL IN DIFFERENT SECTORS, RUN THEIR OWN BUSINESSES, AND HAVE THE ABILITY TO MINIMIZE THE CHANNELS OF COMMUNICATION FOR THE OPENING OF NEW INDUSTRIES, CREATION OF NEW GOODS OR ADAPTATION OF THE MASS PRODUCTION TO THE DEMANDS OF SPECIFIC CUSTOMERS



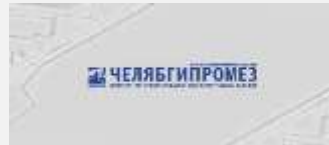
NATIONAL CHAMBER OF ENGINEERS
HARD SKILLS AND INTERNATIONAL EXPERIENCE



КОМПЛЕКС ГРАДОСТРОИТЕЛЬНОЙ ПОЛИТИКИ И СТРОИТЕЛЬСТВА ГОРОДА МОСКВЫ



ЗАО "Сервис ВМФ"



РГУ нефти и газа имени И.М. Губкина



ЭКСПЕРТЫ ПОЖАРНОЙ БЕЗОПАСНОСТИ

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Ultimatum. Light Group

.01 **ULTIMATUM:
LIGHT GROUP**





AN OBJECT WHICH STANDS OUT, TRANSFORMS TO A CENTER OF ATTRACTION, APPEARS IN PHOTOS, BECOMES POPULAR. OBJECTS REQUIRE UP TO 12 HOURS ILLUMINATION A DAY NOT TO FADE INTO DARKNESS. FOR 15 YEARS WE COME UP WITH ORIGINAL SOLUTIONS, WHICH SHOW HIGH QUALITY ARCHITECTURE IN THE BEST LIGHT, ATTRACT ATTENTION TO THE OBJECTS, CAUSE APPROVAL OF PROFESSIONALS AND ADMIRATION OF SPECTATORS.

WE STUDY INTERACTION OF AN OBJECT WITH IT'S SURROUNDINGS, TO UNDERSTAND WHICH EMOTIONS THE LIGHT AWAKENS.



Krasnoyarsk city

Russia's first system combining 3 large-scale objects into one light-musical performance: Grand Concert Hall, cultural historical center and cable-stayed bridge.

All this works in the most difficult conditions of the Siberian winter (-43° C).



Accurate lighting of every detail of one of the oldest science and technology museums in the world.

The work was carried out in a large professional consortium.

Reconstruction was carried out according to the concept proposed by the Japanese architect and visionary Junya Ishigami

URSC

United
Rocket and Space Corporation
SPACE TECHNOLOGIES MADE SIMPLE

.02

URSC:
UNITED ROCKET
AND SPACE
CORPORATION

THE COMPANY'S EMPLOYEES ARE HIGHLY QUALIFIED SPECIALISTS IN SPACE TECHNOLOGIES AND IT. THE ENTERPRISE HAS 4 OFFICES AND 2 PRODUCTION SITES OPERATED BY MORE THAN 200 EMPLOYEES.

IT IS OUR TRACK RECORD AND RELIABLE CREDITS THAT ALLOW US TO CREATE COMPLEX SOLUTIONS AND EFFECTIVE TOOLS PROVIDING OUR CUSTOMERS WITH TIMELY SERVICE WORLDWIDE.

The company employs

268
 PEOPLE

Including:

2 Holders of Advanced Doctorate
16 Doctors of Science



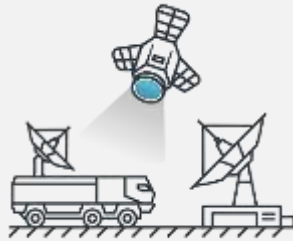
GEOGRAPHIC INFORMATION SYSTEMS



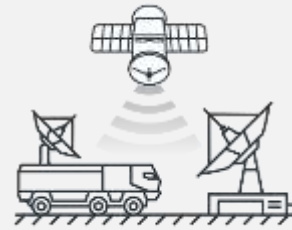
EARTH OBSERVATION SYSTEMS

SATELLITE COMMUNICATION SYSTEMS

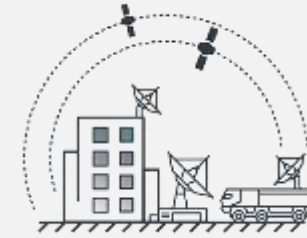
LINES OF BUSINESS



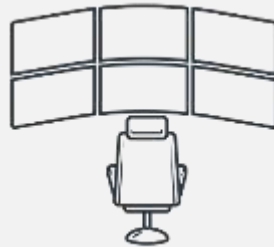
Fixed and Mobile Ground Complexes for
ERS Data Reception and Processing



Fixed and Mobile Satellite
Communication Complexes



Spacecraft Mission Control Centers
and Mobile Complexes



Situation Centers and Automated
Control Systems



Dedicated Software



GIS-Based Complex Information
Analysis Solutions

KEY TECHNOLOGIES



GROUND SEGMENT



**MOBILE EARTH OBSERVATION AND
COMMUNICATION UNITS**



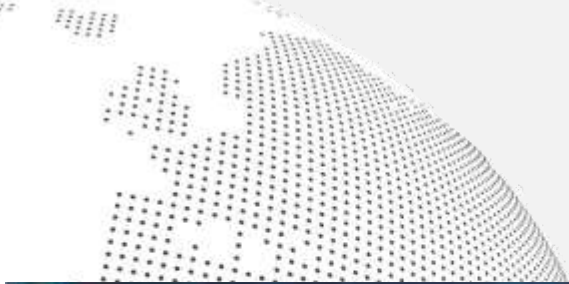
DEMODULATORS



EARTH OBSERVATION CENTERS



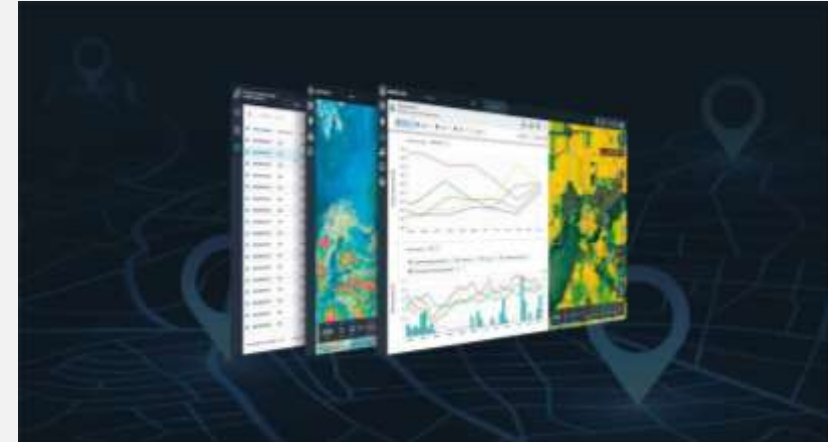
MOBILE MISSION CONTROL UNITS



ULTIMATE SOFTWARE AND TOOLS



MISSION CONTROL CENTERS



ONLINE GIS-BASED SOLUTIONS

GROUND SEGMENT



SMALL EARTH OBSERVATION SATELLITE PROGRAM (SEOS)

SPACE SEGMENT



РОСКОСМОС

.03

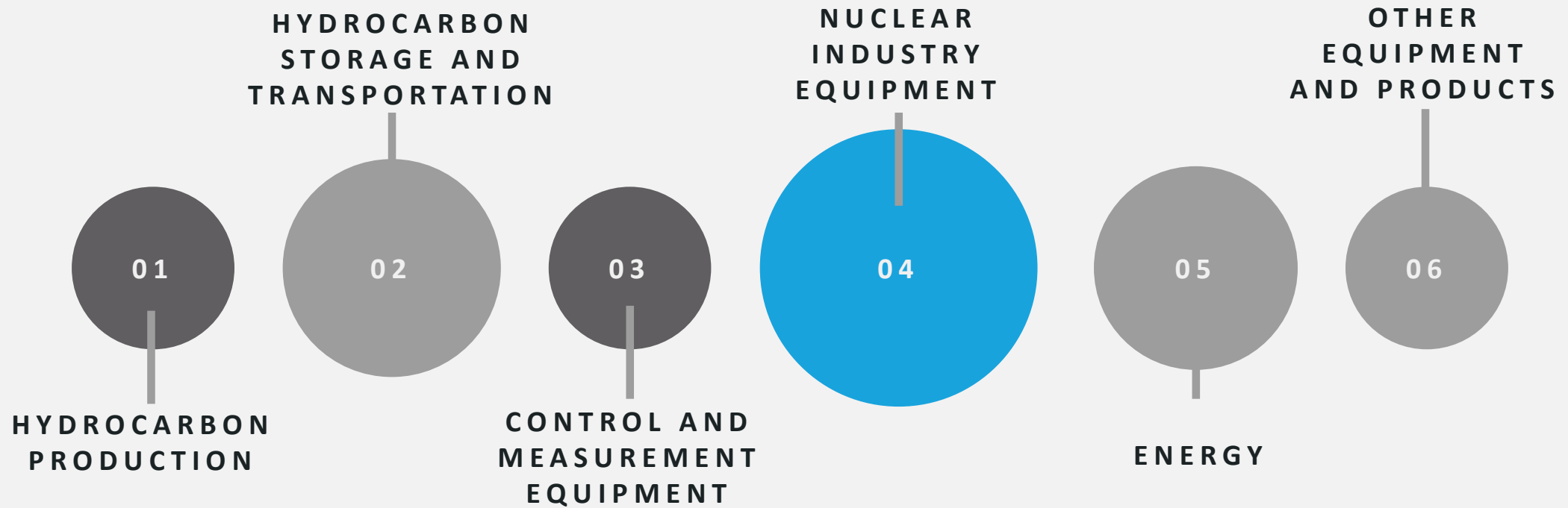
ROSKOSMOS

Roscosmos is a state corporation established in August 2015 to carry out a comprehensive reform of the rocket and space industry in Russia.

Roscosmos State Corporation ensures the implementation of state policy in the field of space activities and its legal regulation, and also places orders for the development, production and supply of space technology and space infrastructure facilities.

The functions of the state corporation also include the development of international cooperation in the space sector and the creation of conditions for using the results of space activities in the socio-economic development of Russia.







.04

**GEOSYNTHETICS
GEOSTEP OF
PRESTORUS LLC**



LANDSLIDES AND SPLITS AS A RESULT
OF PHYSICAL AND CHEMICAL
WEATHERING PROCESSES

.01



EROSION AS A RESULT
OF RAIN AND SURFACE
WATER

.02

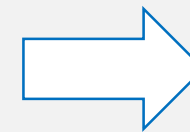
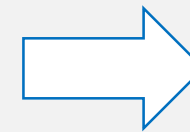
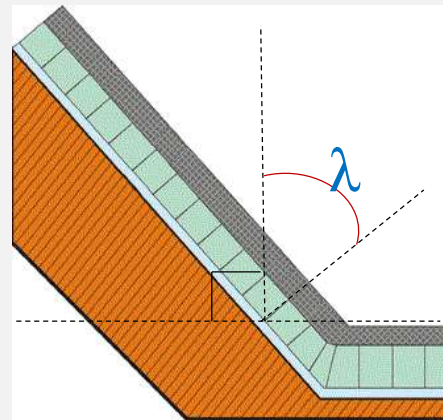


MECHANICAL AND SUFFOSION
SOIL REMOVAL AS A RESULT OF
GROUNDWATER

.03

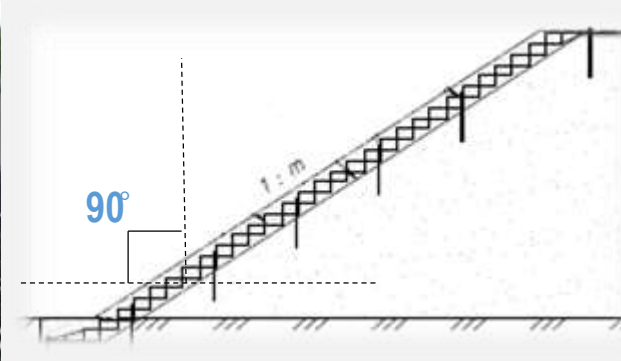
SLOPES STABILITY **PROBLEMS**

TRADITIONALLY, TO STRENGTHEN THE SLOPES USED GEOCELLS, AS THEY MOST EFFECTIVELY STABILIZE AND PREVENT THE DEVELOPMENT OF EROSION PROCESSES. HOWEVER, GEOCELLS HAS A SIGNIFICANT DRAWBACK. DUE TO THE FACT THAT THE WALLS OF THE CELLS ARE INSTALLED ON THE SLOPE IS NOT PERPENDICULAR TO THE HORIZON, THIS LEADS TO A PARTIAL PRECIPITATION OF THE FILLER FROM THE CELLS. AS A RESULT, AFTER EACH RAINY SEASON WASHED OUT OF THE CELLS OF THE FILLER ACCUMULATES AT THE BASE OF THE SLOPE, AND THE CELLS ARE FORMED VOIDS, AND THEREFORE HAVE TO ANNUALLY CARRY OUT A SET OF CORRECTIVE WORKS.



TRADITIONAL GEOCELLS **DISADVANTAGES**

**YOU CAN SAVE UP TO
10% ANNUALLY ON THE
OBJECT MAINTENANCE**



THIS DISADVANTAGE HAS BEEN COMPLETELY ELIMINATED WITH IMPROVED DESIGN OF **GEOSTEP®**.

THE WALLS OF **GEOSTEP®** CELLS ARE PERPENDICULAR TO THE HORIZON, SO THE FILLER MATERIAL IS NOT SUBJECT TO PRECIPITATION FROM THE CELLS, AND THEREFORE DO NOT NEED TO CARRY OUT AN ANNUAL SET OF CORRECTION WORKS.

THE FILLER MATERIAL IS SECURELY HELD IN THE GEOSTEP® CELLS





FIG. 1
GEOSTEP® IN THE
FOLDED STATE.

FIG.2.
APPEARANCE OF
THE ROLL.

FIG.3.
GEOSTEP® IN
WORKING
CONDITION.

GEOSTEP® IS A MODERN AND MORE EFFICIENT VOLUMETRIC GEOCELL FOR STABILIZATION AND ANTI-EROSION PROTECTION OF SLOPES. IT IS A POLYMER SHEET WITH LONGITUDINAL SECTIONS ARRANGED IN A STAGGERED ORDER (FIG.1). TO FACILITATE TRANSPORT AND STORAGE, **GEOSTEP®** IS DELIVERED IN ROLLS (FIG.2). WHEN THE SHEET IS STRETCHED ON THE SLOPE, A VOLUME CELLULAR STRUCTURE IS FORMED (SECTION, FIG.3) INTENDED FOR FILLING WITH SOIL OR FRACTIONAL MATERIALS

ADVANTAGES



PRESENTS



NCC

.05

**NCC:
NANOTECHNOLOGY
CENTER OF
COMPOSITES**

MORE THAN **40** UNITS OF HIGH-TECH EQUIPMENT
MORE THAN **60** UNITS OF MEASURING EQUIPMENT



TOTAL EQUIPMENT INVESTMENTS ARE
25 000 000 EUR

MANUFACTURING CAPACITY

REPRESENTED TECHNOLOGIES:

- INFUSION
- PULTRUSION
- WINDING
- AUTOCLAVE
- RTM
- LFI
- SMC / BMC MOLDING
- SPRAYING
- INJECTION MOLDING
- THERMOFORMING
- WEAVING
- RESIN PRODUCTION

MACHINING:

- TRIMMING OPERATIONS
- TURNING-MILLING PROCESSING
- WELDING OPERATIONS
- WATERJET CUTTING
- VARNISH-AND-PAINT WORKS



- TIME AND LABOR COSTS REDUCTION
- WORK'S EXECUTION WITHOUT INTERRUPTING PRODUCTION OR TRAFFIC
- REPAIR COSTS REDUCTION, INTERREPAIR TIME INCREASE
- CORRECTION POSSIBILITY OF DESIGN AND CONSTRUCTION ERRORS
- DOES NOT WEIGH DOWN THE ORIGINAL CONSTRUCTION



BENEFITS:

- LIGHTWEIGHT
- CORROSION RESISTANCE
- MINIMAL MAINTENANCE COSTS
- OWN DESIGN LOAD REDUCTION
- DURABILITY
- COLORS VARIETY
- VARIOUS CROSS SECTIONS

FIBERGLASS PROFILES T.M. MONSTERPROFILE



RAILINGS AND STAIR DESCENTS EXAMPLES

BENEFITS:

- **LIGHTWEIGHT**
- **CORROSION RESISTANCE**
- **MINIMAL MAINTENANCE COSTS**
- **EASY TO REPLACE**
- **DURABILITY**
- **A VARIETY OF SOLUTIONS**



DRAINAGE TRAYS MADE OF COMPOSITE MATERIALS ARE USED IN INDUSTRIAL AND CIVIL CONSTRUCTION.

NCC DEVELOPS AND MANUFACTURES COMPOSITE WATER DRAINAGE TRAYS OF ANY SIZE AND LOAD, DEPENDING ON CUSTOMER'S REQUIREMENTS.

APPLICATION OF COMPOSITE DRAINAGE TRAY ALLOWS YOU TO:

- *REDUCE INSTALLATION TIME;*
- *INCREASE OPERATION PERIOD;*
- *ELIMINATES MAINTENANCE COSTS.*

WATER DRAINAGE TRAYS



FIBERGLASS REBARS APPLICATION EXAMPLES

REBAR TYPES:

ACK – FIBERGLASS COMPOSITE

AБK – BASALT COMPOSITE

AУK – CARBON COMPOSITE

PRODUCED DIAMETERS:

4 – 32 MM

BENEFITS:

- STRENGTH, LOW WEIGHT
- CORROSION RESISTANCE
- ACID, SEA WATER RESISTANCE
- RADIO TRANSPARENT, MAGNET-INERT
- DURABLE IN CONCRETE ENVIRONMENT



НЦК



.06 NEOSUN
ENERGY



01 SOLAR PANELS

02 DOUBLE GLASS PV PANELS

03 LI-ION BATTERY STORAGE

04 COMMERCIAL SOLAR
POWER SOLUTIONS



NEOSUN ENERGY IS AN INTERNATIONAL HIGH-TECH COMPANY, SOLAR PANEL MANUFACTURER, DEVELOPER AND INSTALLER OF COMPREHENSIVE SOLAR ENERGY SOLUTIONS FOR INDUSTRIAL AND AGRICULTURAL USE, REMOTE VILLAGES, TELECOMMUNICATION OR MINING INDUSTRY.

NEOSUN ENERGY ISN'T JUST A COMPONENT MANUFACTURER – WE ALSO DESIGN AND BUILD COMMERCIAL SOLAR POWER STATIONS WORLDWIDE WITH CAPACITY FROM 20KW TILL 4MW.



OUR CUSTOMISED SOLAR PV OR DIESEL-HYBRID ENERGY SYSTEMS OFFER AN INDEPENDENCE FROM RISING ELECTRICITY OR DIESEL PRICES AND REDUCE OPERATING COST.

INDUSTRIES:

- AGRICULTURE & WATER PUMPING
- LOGISTICS DISTRIBUTION CENTERS & WAREHOUSES
- SEAPORT OR AIRPORT TERMINALS
- SCHOOLS & HIGHER EDUCATION
- GOVERNMENT & MILITARY
- CONSTRUCTION & MINING
- RETAILERS & SUPERMARKET CHAINS
- HOSPITALITY & HEALTHCARE
- TELECOMMUNICATIONS
- HOME BUILDERS

.01

PRODUCTION



.03

CONSTRUCTION



DESIGN & ENGINEERING

.02

OPERATIONS & MAINTENANCE

.04



.07

3DsTILE TECHNOLOGY

3D STILE LLC – THE RUSSIAN COMPANY ON PRODUCTION OF INNOVATIVE FINISHING MATERIALS WITH 3D AND DYNAMIC IMAGES: TILES, PANELS, MOSAICS, MURALS FOR INTERIORS AND FACADES. THE COMPANY IS A DEVELOPER OF PRODUCTS THAT HAVE NO ANALOGUES IN THE WORLD, WITH MORE THAN 20 YEARS OF EXPERIENCE.

APPLICATION: WALLS, FLOORS AND CEILINGS, SWIMMING POOLS, SIDEWALKS, FACADES, ETC. FINISHING MATERIALS 3D STILE CAN BE SUPPLIED IN THE FORM OF READY-MADE COLLECTIONS, AND MADE ON ORDER FROM 1 PIECE. WITH OBVIOUS VISUAL BENEFITS OVER STANDARD DECORATIVE MATERIALS, MATERIALS 3D STILE ARE IN THEIR TECHNOLOGICAL (MEET INTERNATIONAL STANDARDS), ENVIRONMENTAL AND PRICE LEVELS.

3D STILE LLC IS INNOVATIVE COMPANY No1
IN RUSSIA IN THE FIELD OF DESIGN,
ARCHITECTURE, CONSTRUCTION AND DEVELOPMENT OF URBAN INFRASTRUCTURE, AS
WELL AS THE WINNER OF MANY INTERNATIONAL COMPETITIONS





- WALL AND FLOOR TILES



- PANELS AND MURALS



- CURTAIN WALLS



- TRANSLUCENT FACADES



- MOSAIC



- DECORS (WALL POSTERS,
KITCHEN PANELS ETC.)



- HOUSES AND APARTMENTS



- SPORTS FACILITY



- EDUCATIONAL, CHILD AND
OTHER INSTITUTIONS



- POOLS AND HOTELS



Application of new materials in construction

Igor Meshcherin