DESIGNING OF INDUSTRIAL PLANTS

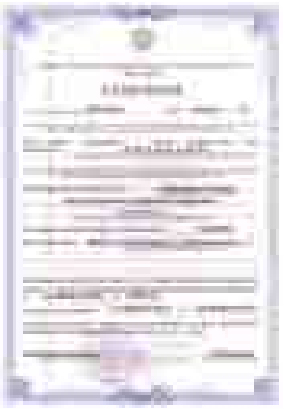
JOINT STOCK CORPORATION
SHIPBUILDING & SHIPREPAIR
TECHNOLOGY CENTER

Joint Stock Corporation “Shipbuilding & Shiprepair Technology Center” (JSC SSTC) is a general designer in the shipbuilding industry and the only Russian company involved in all-in designing of shipbuilding and ship repair yards, hydraulic facilities, shipbuilding machinery and instrument engineering plants, as well as in development of renovation, conversion and re-equipment of existing plants and production facilities.

Design Company Soyuzproyektverf is a structural division of JSC SSTC.

DESIGN OBJECTS AND SERVICES OF DC SOYUZPROYEKTVERF

Shipbuilding yards	Ship repair yards	Marine engineering enterprises
Hydraulic facilities	Electric wiring shops, electric /radio/ automation shops	Marine instrument engineering facilities
Port and waterfront structures	Facilities for nuclear-powered submarine disposal, spent nuclear fuel unloading, solid/liquid radioactive waste storage and processing	Ship disposal facilities
Construction/launching and cargo handling equipment	Equipment for production of drilling platforms and other shelf development equipment	Facilities for shore basing of submarines, surface ships and marine equipment
Non-standard and customized equipment	Management, engineering and laboratory buildings	Residential and civil buildings
Independent power facilities, utility networks	Evaluation of environmental impacts	Waste treatment facilities, environmental protection measures
Engineering services, investment feasibility studies	Concept phase developments, business plans	Development of tender documents



BRIEF BACKGROUND

- DC Soyuzproyektverf (JSC SSTC), from 1994
- GPI Soyuzproyektverf, 1991–1994
- GSPI Soyuzproyektverf (coded as P/O box A-3907), 1966–1991
- Institution coded as P/O box 202, 1960–1966
- State Union Design Institute GSPI-2, 1936–1960
- Proyektverf, 1931–1936

1932	Design of the pioneering USSR shipyard – Amur Shipyard and Komsomolsk-on-Amur city
1936	Designs of Sevmashpredpriyatiye (SMP) and Severodvinsk city
1937–1938	Leningrad and Nikolayev shipyards renovation projects
1944–1945	Projects of restoration of devastated plants of the USSR
1946–1947	Designs of plants in the towns of Kherson and Vyborg
1951	First projects of foreign shipyards (China, Egypt, India)
1965	Designing of Zaliv and Okean Shipyards; dry dock designs
1968	The first industry-specific regulations for shipyard workshop process engineering
1970	Design of Volga complex in Zelenodolsk with dock and heated waterpool
1972	Designs of two drydocks in Constanta (Romania)
1973	Designs of Nerpa Shiprepair Yard and Snezhnogorsk city
1974–1975	The Optima-90 general layout for development and allocation of shipbuilding industry
1979	Design of Lotos shipyard in Narimanov city
1996	Design of X-51 shipbuilding and shiprepair yard in Vietnam
1998–2000	Feasibility study and design of nuclear-powered submarines disposal in the North and Far-East Regions of Russia
2001	Feasibility study of a nuclear submarine reactor compartment temporary storage facility at Zvyozdochka Shipyard and JSC “FES “Zvezda”
2002	Renovation and expansion of Marine Heat Engineering Research Institute (NII Morteplotekhnika)
2003–2004	Feasibility study of renovation and re-outfitting of FES “Zvezda” for repair of the 3rd generation ships
2003–2004	Design of the nuclear submarine reactor compartment long time storage facility at Saida Bay (Nerpa Shiprepair Yard)
2004–2005	Designs of facilities for foreign customers (India, Iran)
2006	Feasibility study of a construction and launching complex for the Viktoria shipyard in Kaliningrad
2007	Design of renovation of Admiralty Shipyards to enable construction of non-nuclear submarines
2008	Renovation of steam generator shop in I.I. Afrikantov’s Design Bureau
2009	Yantar Shipyard (Kaliningrad) general development layout
2009	Design of FES Zvezda facilities expansion for construction of sea transport vessels
2010	Draft proposals for construction of a new shipbuilding complex at the Kotlin island
2011	Design of X-52 shiprepair yard in Vietnam
2012	Design of Zvyozdochka Shipyard facilities re-equipment and reconsrtuction for medium repair and modernization of 3rd generation submarines
2013	Design of building berths, launching complex and mechanical facilities re-equipment for PO Sevmach
2013–2016	Development of working design documentation for Shipbuilding Complex Zvezda in the city of Bolshoy Kamen, Primorskii Krai Region
2014–2015	Concept design of facilities perspective development for United Shipbuilding Corporation yards
2016–2018	Design project for construction of high-technology shipyard in Zhatay township. Development of design documentation “Technological re-equipment and re-construction of facilities of specialized complex for non-nuclear submarines at JSC “Admiralty Shipyards“

DC Soyuzproyektverf and its employees were awarded by the government: 18 were awarded a State Prize; 47 were awarded a USSR Council of Ministers Prize; 6 were awarded the “Honorary Constructor” and “Honorary Architect“ titles; 41 were awarded the “Honorary Constructor, Power Engineer and Mechanical Engineer of the USSR” title; 4 employees became laureates of the contest “Engineer of the year“.

SHIPBUILDING AND SHIP REPAIR YARDS

Based on DC Soyuzproyektverf designs dozens of shipbuilding and ship repair yards in Russia, former Soviet Union and other foreign countries were constructed.

JSC PO Sevmash, Severodvinsk

Pella Shipyard, Saint-Petersburg

Zvyozdochka Shipyard, Severodvinsk

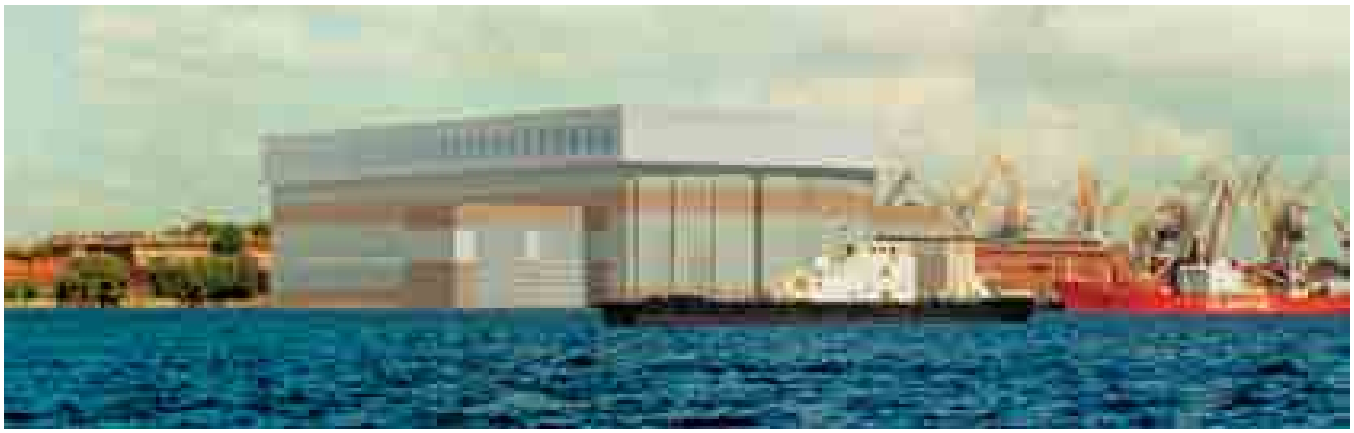
Amur Shipbuilding Plant, Komsomolsk-on-Amur

Yantar Shipyard, Kaliningrad

Enterprise «Sudoremont-Baltika» in Kaliningrad (design project)

Based on the company's design, a new hull plating shop with roofed steel storage was constructed in 2003, in the course of renovation and re-outfitting of Baltic Shipyard. The renovation project includes construction of a hull plating shop with steel storage, two-aisle building hangar, pipe shop, and associated facilities.

In 2006, a project for renovation of the Sudoremont-Baltika Shipyard in Kaliningrad was developed. Two layouts were proposed mainly differing in dry dock design (open-air or roofed).



Baltic Shipyard (building hangar design)

At present the company is preparing advanced projects for the purpose of development of existing Russian shipyards.

New shipyard at the Kotlin island (project)

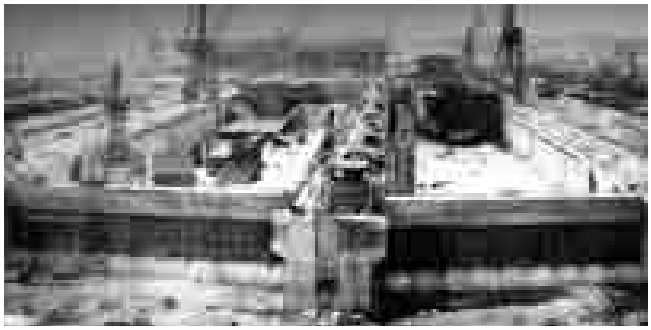
Western Shipbuilding Center, Kaliningrad (project)

JSC "FES "Zvezda", Bolshoy Kamen

HYDRAULIC ENGINEERING

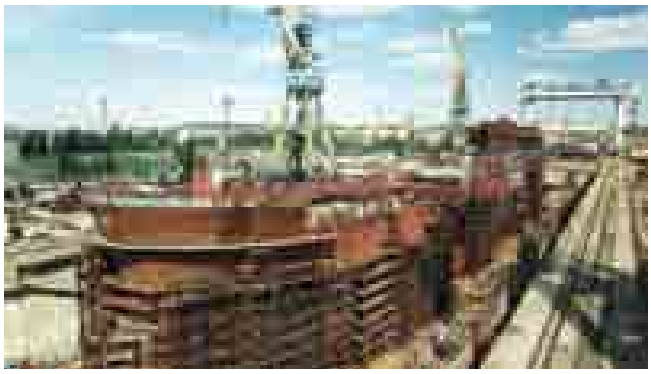
DC Soyuzproyektverf is focused on hydraulic engineering within shipbuilding and ship repair yard projects and on designing of various separate hydraulic facilities. The following hydraulic facilities were constructed under the Soyuzproyektverf designs:

DRY DOCKS



Building of dry docks in Constanta (Romania)

Zaliv Shipyard, dock dimensions (l×b×h) 354×60×13 m



Okean Shipyard, dock dimensions (l×b×h) 354×60×17 m

SHIPBUILDING AND SHIPREPAIR COMPLEXES WITH TRANSFER DOCKS UP TO 25,000 T

Yards:	Zaliv Shipyard PO Sevmash Okean Shipyard “Severnaya Verf” Shipbuilding Plant Admiralty Shipyards Almaz Shipbuilding Company Almaz Marine Yard Nerpa Shipyard FES Zvezda X-51 Shipyard, Vietnam Baltic Shipyard Yantar Shipyard Amur Shipbuilding Plant Baltija Shipbuilding Yard, Lithuania Black-Sea Shipyard, Ukraine

In 2003–2004, design documentation was prepared for the complexes with transfer docks for the Russian North and Far-East Regions, for the disposed nuclear submarine reactor compartment long-term storage facilities.

Zvyozdochka Shipyard

Kostroma Shipbuilding and Ship repair Yard

Krasnoye Sormovo Shipyard

Vishakapatnam, India

WATER FILLED LIFT BASINS

Water filled lift basins constructed under the company's designs.

Yards	Dimensions (L×B), meters
Vyborg Shipyard	141.3×54
Zvyozdochka Shipyard	191×128
FES Zvezda	141×102.5
Kherson Shipyard	211×160.6
Zelenodolsk Shipyard	156×135

SLIPWAYS

Slipways constructed under the DC Soyuzproyektverf's designs

Yards	Capacity, tons
Kherson Shipbuilding Production Association	8000
Krasnoye Sormovo Shipyard	6000
Khabarovskiy Shipbuilding Plant	1000
Lotos Shipbuilding Plant	6000

A 2400-ton slipway for the Kostroma Shipbuilding and Ship repair yard was designed in 2003.

SLOPED CONSTRUCTION BERTHS

Based on Soyuzproyektverf designs, sloped construction berths were constructed at Alexandria Shipyard (Egypt) and renovated construction berths were constructed at Baltic Shipyard and Admiralty Shipyards (Saint-Petersburg), Black Sea Shipyard and 61 Kommunar Shipyard (Nikolayev, Ukraine).

OUTFITTING, REPAIR AND CARGO HANDLING WATERFRONT STRUCTURES

A lot of outfitting, repair and cargo handling waterfront structures of various types (overpass, bridge, gravity, sheet pile) with wall height up to 19 m were designed for various geotechnical conditions in Russia and abroad.

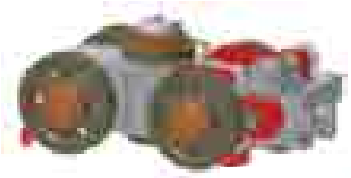
SHIP CONSTRUCTION AND TRANSFER EQUIPMENT

Design engineering of systems for construction, transfer, launching and lifting of ships and vessels.

Ship relocating transborder bridges may run on the horizontal or slope tracks. transborder bridges may be of various load capacity and length depending on ships to be transported.

Zvyozdochka Shipyard

SELF-PROPELLED UNDERSHIP BOGIES



Self-propelled bogie

VLG-400l hydraulically driven bogie

UNDERSHIP BOGIE SPECIFICATIONS

Load capacity (tons)	Motion speed (m/min)	Track gauge mm	Weight (tons)	Dimensions (L×B×H), mm	Power (kw)
75	6.87	1524	4.5	1480×2200×1400	7.0
100	10	3000	4.0	2140×3450×770	4.2
125	4.6	1000	4.85	3855×1525×1000	10.5
200	4.2	1000	3.88	2500×1290×1100	hydraulic motor VLG-400a
250	4.2	1000	6.2	2570×1290×1100	—
320	4.0	1000	4.7	2750×1300×985	—

Yantar Shipyard

PRODUCTION EQUIPMENT FOR DRILLING RIGS AND OFFSHORE STRUCTURES

Offshore platform outfitting quay, Vyborg Shipyard

Under DC Soyuzproyektverf design, the Lotos Shipbuilding Plant was constructed in the lower reach of Volga river (the town of Narimanov) for construction of offshore platform topsides, and Vyborg Shipyard was renovated for construction of offshore platforms.

SHIPBUILDING MACHINERY ENGINEERING AND MARINE INSTRUMENT ENGINEERING PLANTS

A number of large shipbuilding machinery engineering and marine instrument engineering plants was built under DC Soyuzproyektverf designs: Kaluga Turbine Plant, Southern Turbine Plant (Krivoy Rog, Ukraine), Askold Plant (Arseniev), Concern Avrora Scientific and Production Association (Saint-Petersburg), Navigation Aid Plant of Research and Production Firm Meridian (Saint-Petersburg), Marine Electronics Plant (Ulyanovsk) and others.

In the 2000's the testing facility for NII Morteplotekhnika (Lomonosov) was built, feasibility study was prepared for RPC Agat (Moscow) and other industrial research institutes and design bureaus.

Renovation and re-outfitting of some shipbuilding machinery engineering plants (for example Proletarskiy Zavod in Saint-Petersburg) is underway. Ship boiler and steam generator workshop (Baltiyskiy Zavod) and propeller workshop (Zvyozdochka Shipyard) are examples of established specialized production departments at shipyards.

Baltic Shipyard

Propeller machining workshop

Propeller dressing worksite

FACILITIES FOR NUCLEAR SUBMARINE DISPOSAL, SNF REMOVAL, SOLID AND LIQUID RADIOACTIVE WASTE STORAGE AND PROCESSING

DC Soyuzproyektverf offers designing of complexes and individual facilities for nuclear-powered submarine disposal, removal of spent nuclear fuel, solid and liquid radioactive waste storage and processing.

By the present time, such complexes have been created at the Ship repair Center «Zvyozdochka» and at the Far-Eastern Shipyard «Zvezda».

On the basis of documantation developed by Design Company Soyuzproektverf, storage facilities for nuclear reactor compartments have been built at Saida Bay and in Ustrichnyi township.

FES Zvezda

Zvyozdochka Shipyard

FES Zvezda

Nuclear submarine reactor compartment storage facilities were built at Saida Bay and in Ustrichnyi township under DC Soyuzproyektverf design.

SHIP HANDLING AND DISPOSAL EQUIPMENT

Zvyozdochka Shipyard

The company has offered the ship handling and disposal objects for the Zvyozdochka, Zvezda and Nerpa shiprepair yards (previously built under DC Soyuzproyektverf's designs). The projects take into account the launching and recovery structures available at the yards.

INTERNATIONAL COOPERATION

Geothermal power plant in Nicaragua (project)

Shiprepair Yard in Alexandria (Egypt)

After the World War II, Soyuzproyektverf began design of objects for foreign customers. The People's Republic of China was the first country to receive designs of shipyards. Afterwards, designs were made for North Korea.
Under Soyuzproyektverf's design, shipbuilding and ship repair yards were constructed in Egypt (Alexandria Shipyards), India (Visakhapatnam Shipbuilding and Ship repair Yards), Bulgaria (Burgas Shipyard), Vietnam (X-51 Shipyard), Romania (two drydocks), Hungary (floating crane yard); technical assistance was rendered to the German Democratic Republic, Poland Republic, Yugoslavia, Morocco etc.

Onshore fleet basing facilities were designed for Algeria, Libya, Angola, Cuba, Ethiopia and other countries. Furthermore, projects not typical for Soyuzproyektverf were designed, like geothermal power plant in Nicaragua.
In 2005–2006, projects were completed in re-outfitting of the Indian Naval Dockyards in Mumbai and Visakhapatnam and Eksila specialized facility for repair of the type 11356 ships, as well as re-outfitting of the Indian basing facilities for the type 11430 aircraft carrier.
Totally, Soyuzproyektverf has designed facilities for 22 countries. today the company continues such a fruitful cooperation.

DC Soyuzproyektverf has published the “Projects and Yards” book dedicated to shipbuilding organization issues, the projects completed, and shipbuilding facility designer teams.

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