





## List of design and survey activities on the Russian territory carried out by GT Morstroy Design Institute in 1997–2016

## Results in the period 1997–2016:

- cargo turnover of the transshipment terminals built upon GT Morstroy design 175,2 M tonnes;
- cargo turnover of the transshipment terminals being designed and under construction according GT Morstroy design 139,1 M tonnes;

## List of design and survey activities on the Russian territory carried out by GT Morstroy Design Institute in 1997–2016

as of 10.02.2016

No.	Client	Object	Facilities	Design stage*	Status of construc- tion / operation	Technical indices  Design cargo turnover, million tons/year
		Oil, gas and oil	products reloading complexes			
1	LLC TsUP VSTO, OJSC "AK Transneft"	Specialized oil seaport "Kozmino". First stage of a pipeline system "Eastern Siberia —Pacific ocean".	Marine facilities of the port	DD, FS	1 Phase constructed in 2009. Full develop- ment in 2012	15,0 — first stage, 30,0 — complete- ly developed
2	OJSC "Taganrogsky sudoremontny zavod"	Taganrogsky shipyard. Oil products reloading complex.	Hydrotechnical facilities of the complex	DD, FS	Constructed in 2006	0,5
	OJSC "Lukoil- Severozapadnefteprodu ct "	Vysotsk port. Oil products distribution and transshipment complex LUKOIL-II.	Hydrotechnical facilities of the complex	DD, FS	Constructed in 2004	10,5
4	LLC "NT Belokamenka"	Offshore oil reloading complex in Belokamenka village area at Kolsky bay basin.	Offshore anchorage of storage tanker	DOI, DD, FS	Constructed in 2004	12,0
5	CJSC "PNT"	St-Petersburg seaport. Peterburg oil terminal.	Hydrotechnical facilities of quays No. 1, 2, 3, 4, 112, 112-a	DD, FS	Constructed in 1998–2003	15,3
	LLC "Murmanskoy morskoye parokhodstvo"	Offshore oil reloading complex at inner road of Kola bay, southward of Mishukov cape.	Offshore anchorage of carrier-tanker	DOI, DD, FS	Constructed in 2003	5,0

7	MPA St-Petersburg , LLC "Arktur", OLGI TRADE TRANSPORT & CON- STRUCTION AG, CJSC "PNT"	Offshore oil products reloading complexes at Gulf of Finland basin	Offshore quays for oil products reloading at anchorage No. 5a, in the crossing area of navigable channel No. 16a and St-Petersburg sea channel.	DOI, DD, FS	Constructed in 1998–2003	5,2
8	LLC "Sibur-Portenergo"	Ust-Luga Trade seaport. LPG transshipment complex.	Offshore and onshore complex facilities	DOI, PD, DD	Constructed in 2013	4,0
9	LLC "Severo-Zapadny Alians"	Russian bulk oil complex "Vistino" at the Ust-Luga port.	Offshore and onshore complex facilities	DOI, PD	According to Client's plans	10,0–18,0
10	Multiconsult Shtokman Develop- ment AG	Port transport and processing complex of integrated development of Shtokman gas condensate field phase 1.	Offshore complex facilities	FEED	According to Client's plans	7,5
11	Multiconsult Shtokman Develop- ment AG	Port transport and processing complex of integrated development of Shtokman gas condensate field phase 1.	Site preparation for onshore objects construction	PD	According to Client's plans	-
12	CJSC "NIPI InzhGeo"	Pipeline system "Eastern Siberia— Pacific Ocean". Bulk oil terminal in Perevoznaya bay.	Terminal marine facilities	DD	Relocated to Kozmina bay	80,0
13	LLC TSUP VSTO, OJSC "AK Transneft"	Specialized oil sea port "Kozmino". First stage of pipeline system "Eastern Siberia —Pacific Ocean"	Options of remote loading facility, type CALM	PD	Fixed berths op- tion accepted	30,0

14	LLC "Neste St- Petersburg"	St-Petersburg sea port. Marine cargo district Bronka. Oil products reloading terminal	Marine facilities	DOI	Converted into Ro-Ro terminal	2,4
15	LLC "RPK-Nord"	Temporary roadstead transshipment complex in the waters of the middle knee of Kola Bay between Cape Tuhmachkin and Cape Krasnoscel'e	Temporary roadstead trans- shipment complex of storage tanker "Umba"	DOI, PD, DD, FS	Constructed in 2015	12,0
	Total:					
	Oil, gas and oil produ	ucts reloading complexes has designed	15			
		Of which:				
		Constructed	9			94,5 million tons/year
		Under construction	-			-
		Prospective	6			135,5 million tons/year

No.	Client	Object	Facilities	Design stage*	Status of construc- tion / operation	Technical indices
						Design cargo turnover, million tons/year
		General, bulk and	universal cargo reloading com	plexes		
16	LLC "Gazprom invest Zapad", OJSC "Giprospetsgaz"	North European gas pipeline "Russia—Germany" (Nord stream)	Reloading quays for heavy- weight and construction cargo "Portovaya"	DD, FS	Constructed in 2010	0,5
17	OJSC "Compania Ust- Luga"	Ust-Luga Trade sea port. Multi- functional reloading complex	Offshore and onshore complex facilities	PD, DD	First Phase constructed in 2008	4,8
18	LLC "Avant"	Football stadium in western part of Krestovsky island, St-Petersburg (Kirovsky stadium)	Construction quay	PD, DD, FS	Constructed in 2008	0,5
19	LLC "PO Kirishinefteorgsintez"	Chernaya river, Leningrad region.	LLC "KINEF" reloading point of large-capacity equipment	DD	Constructed in 2005	0,5
20	OJSC "Taganrogsky sudoremontny zavod"	Taganrogky shipyard. Grain terminal	Ship repairing quay — capital repairs	DD	Constructed in 2002—2005	2,0
21	OJSC "Taganrogsky sudoremontny zavod"	Azov. Grain terminal	Berthing facilities of grain terminal	DD	Constructed in 2003	0,7
22	OJSC "Murmansky morskoy torgovy port"	Murmansk. Coal terminal at No. 4 quay	Additional equipment of the quay for accepting "Panamaks" type ships	DD	Constructed in 2003	2,0
23	MPA "Eysky morskoy port", OJSC "Eysky MTP", MA of Eyskoye shipping company, LLC "Direktoria-NMP"	Eysk sea port	Bank slopes, berth, quay No. 2 — capital repairs	DD	Constructed in 1999—2002	4,0

24	St-Petersburg MPA	St-Petersburg sea port. Baltic bulk terminal.	Quay No. 107 in the coal port	TEO-project, DD, FS	Constructed in 2002	5,0
25	CJSC "Kronimeksport"	Kronshtad. Reloading complex for general and refrigerated cargo	Offshore and onshore complex facilities	DOI, PD	According to Client's plans	2,3
26	LLC "Feeding ingredients"	Grain terminal complex "Taman"	Cargo quay No. 3 and No. 4	DD	Constructed in 2011	5,5
27	LLC "NPF "GT Inspect"	Shipbuild plant "Red barricades", Ikryansky region, Astrahan	Assembly site with specialized quayage	PD	Under construction since 2013	0,1
28	OJSC "MMC "Norilsk nickel"	Reloading terminal, Murmansk, Kol'skiy bay	Repair of quay No. 1 and reconstruction of quay No. 2	PD	1, 2, 8 Phases constructed in 2011, 4, 5, 9 Phases constructed in 2014	1,5
29	SC "Yamal LNG", LLC "MRTS Engineering"	Sea port in the district of Sabetta settlement on the Yamal Peninsula, including the creation of the navigable approach channel in the Gulf of Ob	The objects of the preparatory period. Berths and onshore facilities	PD, DD	Quays 1, 2, 3, 4 constructed in 2015	2,5
30	The FSUE "Rosmorport" Saint Petersburg branch	Sea port of Saint-Petersburg. The third district of sea port. litera BF, road to Turukhtannye islands	Berthing complex for icebreakers moorage	FEED, PD, DD, FS	Constructed in 2015	-
31	SC "Yamal LNG", LLC "ZapSibGidrostroy"	Sea port of Sabetta on the Yamal Peninsula. Objects of the preparatory period	Quays No. 5 and No. 6	PD, DD, FS	Under construction since 2015	1,0 (60 modules per year)
32	FTI "Rostrans- modernization"	Development of transport hub "Vostochny-Nakhodka" (Primorsky Krai)	Universal production- transshipment complex "North". Marine part	PD	Under construction since 2015	1 Phase – 14; full development – 20
	Total General, bulk and universigned	rsal cargo reloading complexes has	16			
		Of which:				
		Constructed	13			29,5 million tons/year
		Under construction	2			21,1 million tons/year
		Prospective	1			2,3 million tons/year

No.	Client	Object	Facilities	Design stage*	Status of construc- tion / operation	Technical indices
						Design cargo turn- over, million tons/year
			Container terminals			
33	OJSC "St-Petersburg sea port», CJSC "Pervy kontainerny terminal"	St-Petersburg sea port. First container terminal.	Development and modernizing of technologies and equipment, reconstruction of pavement and engineering utilities	DD, DD, FS	Constructed in 1999–2007	1,0 million TEU or 12,0 million tons
34	FSUE "Rosmorport", LLC "Baltyskaya stividornaya compania"	Container terminal included in ferry complex of Baltysk, Kaliningrad region	Quays 1, 2 — paving	PD, DD	1 Stage constructed in 2006, 1 phase constructed in 2011	0,2 million TEU or 2,4 million tons
35	CJSC (OJSC) "Ust- Luzhsky kontainerny terminal"	Ust-Luga Trade sea port. Container terminal of Ust-Luga	Marine and onshore facilities	PD, DD, FS	1 Stage constructed in 2011	0.4 million TEU or 5,2 million tons
36	CJSC (OJSC) "Ust- Luzhsky kontainerny terminal"	Ust-Luga Trade sea port. Container terminal of Ust-Luga	Marine and onshore	PD, DD, FS	2–4 Phase under construction since 2011	2,56 million TEU or 30,7 million tons
37	CJSC "Pervy kontainerny terminal"	St-Petersburg sea port. Petersburg container terminal	Quay No. 88 — area expansion	DOI, PD, DD	Beginning of construction in 2013	0,6 million TEU or 7,2 million tons
38	LLC "Fenix"	St-Petersburg sea port. Offshore cargo district Bronka. Compound container terminal	Marine and onshore facilities	DOI, PD, DD	1 Stage constructed in 2015 2 Stage under construction since 2013	1 Stage – 0,5 million TEU or 6,0 million tons. Full development: 1,45 million TEU or17,0 million tons and 130 thousand cargo units Total: 20 million tons
39	CJSC "Yantar", CJSC "Lomonosovsky gruzovoy terminal"	St-Petersburg sea port. Container terminal in Lomonosov	Marine and onshore facilities	PD	According to Client's plans	1 million TEU or 12,0 million tons

		T				
40	CJSC "BSK"	Container terminal in the area of	Reconstruction of Quay No. 2.	PD,	<b>1, 2, 3 Stages</b>	Increase from 0,2 to
		quays No 1, 2 of ferry complex in	Area expansion. Onshore facili-	DD	constructed	0,4 million TEU
		Baltysk, Kaliningrad region	ties		in 2014,	or from 2 to 5 mil-
					4, 5, 6 Stages under	lion tons
					construction since	
				T	<b>2016</b>	
41	OJSC "Compania Ust-	Container terminal included in mul-	Berthing and onshore com-	DOI,	1 Phase constructed	0,12 million TEU
	Luga"	tifunctional reloading complex	plex facilities. Second stage	PD,	in 2008;	or 1,4 million tons
		"Yug-2"	of construction.	DD	2 constructed in 2010	
42	OJSC "Compania Ust-	Container terminal in the	Berthing and onshore	DD	<b>Under construction</b>	4,09 million tons
	Luga"	composition of the multipurpose	facilities of the complex. The		<b>since 2010</b>	
		reloading complex "South-2"	third phase of construction			
43	OJSC "Nacionalnay	St-Petersburg sea port. Transportation	Marine and onshore complex	DOI	<b>According</b>	18,0, including
	Refrizheratornaya	logistics center in Bronka area –	facilities.		to Client's plans	1 million TEU
	Compania"	Lomonosov				
44	CJSC "Container ter-	Site No. 4 on the territory of CJSC	Logistics and warehouse facili-	PD,	1 Stage constructed	0,23 million TEU
	minal Saint-	"Container terminal Saint-Petersburg"	ties	DD,	in 2015,	or 2,7 million tons
	Petersburg"			FS	2 Stage under	
					construction since	
					<b>2014</b>	
	Total					
	Container terminals h	as designed	12			
		Of which:				
		Constructed	4			29,7 million
						tons/year
		Under construction	<u></u>			58,0 million
						tons/year
		Prospective	2			30,0 million
						tons/year

No.	Client			Status of construc- tion / operation			
						Design cargo turnover, million tons/year	Passenger turnovert, million pas- senger/year
			Ferry and passenger co	omplexes			
45	SI MPA Kaliningrad	Cargo-and-passenger fer- ry terminal in the basin No. 3, Baltysk, Kalinin- grad region	Quays.No. 1, 2. Onshore facilities	TEO, DD, FS	Constructed in 2003	4160 units a/tr or 0,1 million t	0,017
46	CJSC "Baltyskiye transptnie sistemy"	St-Petersburg sea port	Compound terminal for rolling cargo and containers at the quay No. 101	DD, FS	Constructed in 2003	0,7	-
47	FSUE "Rosmorport"	Rail and road ferry complex in Ust-Luga trade sea port	Complex of hydrotechnical and on-shore facilities	TEO- project, DD, FS	Constructed in 2006	5,5	-
48	FSUE "Rosmorport"	Rail road ferry complex in the basin No. 4, Baltysk	Complex of hydrotechnical and onshore facilities	TEO- project, DD, FS	Constructed in 2006	0,8	-
49	LLC "Morskoy Fasad Sankt-Peterburg"	Offshore passenger terminal at Vasilievsky island	Complex of hydrotechnical facilities, onshore buildings and facilities	TEO-project	Constructed in 2010	718000 units a/tr or 14,4 million tons	4,0

50	CJSC "River port	Marine passenger terminal	The complex of	PD	According	-	1,5
	"Marine facade"	on Vasilievsky island	hydroengineering and onshore facilities		to Client's plans		
51	CJSC "Institut "Stroyproject"	Bridge crossing the river Neva in the area No. 2 of the first stage of St-Petersburg RMW	Quay for river passenger ships and ice protecting dam	TEO- project, DD	Constructed in 2003	-	0,1
	Total	IXII II					
	Ferry and passenger	complexes has designed	7				
		Of which:					
		Constructed				21,5 million	<b>4,117 million</b>
						tons/year	passenger/year
		<b>Under construction</b>	_			_	_
		Prospective					1,5 million
							passenger/year

No.	Client	Object	Facilities	Design	Status of construc-	Technical indices
				stage*	tion / operation	Dredging volume million m <sup>3</sup>
		Dredging works for	r approach channels and navigat	tional basins		
52	MPA of St-Petersburg	St-Petersburh sea port. Petersburg oil terminal	Dredging works at the terminal operational basin	DD, FS	Constructed in 2003	7,4
53	FSUE "Rosmorport"	Reconstruction of St- Petersburg sea channel	Dredging works at navigable passage and Petersburg oil terminal and Baltic bulker terminal basins	DOI, DD, FS	Constructed in 2003	0,2
54	OJSC "RPK Vysotsk "LUKOIL II"	Vysotsk port. Distributing and transshipment oil prod- ucts complex LUKOIL - II	Dredging works at navigable passage and terminal basin	DD, FS	Constructed in 2005	1,3
55	OJSC "Petrolesport"	St-Petersburg sea port. Barochny basin.	Dredging works at navigable passage and basin area	DD, FS	Constructed in 2005	0,9
56	FSUE "Rosmorport"	Offshore passenger terminal at Vasilievsky island	Dredging works at navigable passage and terminal basin	DD, FS	Constructed in 2008	22,5
57	FSUE "Rosmorport"	Rail-road ferry complex in Ust-Luga trade sea port	Dredging works at operational basin of the complex	DD, FS	Constructed in 2006	4,0
58	FSUE "Rosmorport"	Railroad ferry complex in the basin No. 4, Baltysk	Dredging works at navigable passage and complex basin	DD, FS	Constructed in 2006	0,2
59	LLC "PSA Perspektiva"	Offshore passenger terminal at Vasilievsky island	Dredging works from processing channel to construction quay	DD, FS	Constructed in 2005	0,2

60	LLC "NK Rosneft NTC"	Loading-offloading district "Ekonomia". Arkhangelsk oil terminal	Dredging works at navigable passage and complex basin	DD, FS	Constructed in 2008	1,9
61	OJSC "Compania Ust-Luga"	Ust-Luga trade sea port. Multipurpose terminal "Yug-2"	Dredging works at the operational complex basin	DD, FS	Constructed in 2011	3,4
62	FSUE "Rosmorport"	Ust-Luga trade sea port. Container terminal of Ust-Luga	Dredging works at operational basin of the first start-up complex	PD, DD, FS	Constructed in 2009	4,0
63	FSUE "Rosmorport"	Ust-Luga trade sea port Terminal for liquefied hydro- carbon reloading	Dredging works at operational basin of the first start-up complex	PD, DD, FS	Constructed in 2013	1,4
64	FSUE "Rosmorport"	Ust-Luga trade sea port. Reconstruction of southern approach channel	Dredging works at navigable passage and turning basin	PD, DD, FS	Constructed in 2009	7,3
65	FSUE "Rosmorport"	St-Petersburg marine chan- nel. Approach channel and basin of "Bronka"	Dredging works at operational complex basin	PD	1 Stage constructed in 2015 2 Stage — Under construction since 2013	18,7 10,6
66	FSUE "Rosmorport"	Ust-Luga trade sea port. Container terminal of Ust-Luga	Dredging works at 2, 3, 4 operational basins of the start-up complex	PD, DD, FS	1 Stage constructed in 2013 3, 4 Stage — Under construction since 2011	2,4 5,4
67	FSUE "Rosmorport"	Ust-Luga trade sea port. Northern approach channel	Dredging works at northern approach channel	PD, DD, FS	Constructed in 2011	7,0
68	FSUE "Rosmorport"	Ust-Luga trade sea port. Service harbour fleet	Dredging works at operational basin	PD, DD, FS	Under construction since 2011	2,9

69	CJSC "LGT", Firm "HOHTIF Aktsiengezelshaft"	Lomonosovsky cargo terminal	Dredging works at approach channel and operational basin of the terminal	PD	According to Client's plans	15,9
70	FSUE "Rosmorport"	Ust-Luga trade sea port. Bolshoy Korabelny fairway	Dredging works in the vicinity of Seskar island	PD, DD, FS	Constructed in 2011	0,2
71	FSUE "Rosmorport"	Ust-Luga trade sea port. The Western approach channel	Dredging works on approach channel and operating water area of the terminal	PD, DD, FS	Constructed in 2011	1,3
72	FSUE "Rosmorport"	Olya sea port of Astrakhanskaya region	Dredging works at operational basin for rolling and general cargo reloading complex	PD	Constructed in 2010	0,1
73	Boskalis BV	St-Petersburg sea port. New section of approach channel to the navigable passage C-1	Dredging works at the area of entrance buoy near the bench mark PK 352	DD	Constructed in 2008	8,3
74	LLC "Ratibor"	St-Petersburg sea port. Re- construction of northern Kronshtadsky channel	Dredging works at navigable channel	DD	Constructed in 2009	0,1
75	FSUE "Rosmorport"	St-Petersburg trade sea port	Reconstruction of St-Petersburg sea channel	JI	Beginning of construction — 2012–2025	84,2
76	FSUE "Rosmorport"	St-Petersburg trade sea port	Reconstruction of St-Petersburg sea channel	PD, FS	1.1 Stage constructed in 2013 1.2, 1.3 Stage — under construction since 2014	0,4 2,2

77	FSI "Directorate of State Contracting Authority for Marine Transport Develop- ment Programes"	Deep-water port in Baltysk, Kaliningrad region (Hub)	Dredging works at approach channel and port basin	JI	According to Client's plans	102,2
78	OJSC "Compania Ust-Luga"	Ust-Luga trade sea port	Dredging works at approach channels and port basin	Plot plan scheme of the port	Beginning of construction — 2008–2025	58,0
79	JSC "Yamal LNG"	Seaport near the Sabetta set- tlement on the Yamal Penin- sula, including creation of a navigable approach channel in the Ob Bay	Objects of the preparatory period. Approach channel and water area	PD	Constructed in 2015	13,0
80	FSUE "Rosmorport"	Seaport Big port of St. Petersburg	Construction of berthing complex for holding of icebreaking fleet in the Seaport of Saint-Petersburg	PD, DD	Constructed in 2015	0,2
	Total					
	Dredging works for approach channels and navigational basins has designed		27			
		Of which:				
		Constructed	21			106,6 million m <sup>3</sup>
		Under construction	4			21,1 million m <sup>3</sup>
		Under design	2			142,2 million m <sup>3</sup>
		Planned	2			118,1 million m <sup>3</sup>

No.	Client	Object	Facilities	Design stage*		Status of construction / operation
0.1	FOLIE (ID		and facilities of sea port infrast			
81	FSUE "Rosmorport", LLC "Baltyskaya dnouglubitelnaya kompania"	Offshore passenger terminal at Vasilievsky island, St-Petersb (Waterfront)	Navigational beacons on foundation of approach of	•	PD, DD, FS	Constructed in 2008
82	FSUE "Rosmorport", LLC "Baltyskaya dnouglubitelnaya kompania"	Offshore passenger terminal at Vasilievsky island, St-Petersh (Waterfront)		Navigational beacons on hydrotechnical foundation of Petrovsky channel		Constructed in 2007
83	Boskalis BV, FFE "Directorate of KZS Rosstroy"	Approach area of Kronshtadsky channel in navigable passage C-		Rear navigational beacon RNB – 2: 45 m height on hydrotechnical foundation		Constructed in 2008
84	FSUE "Rosmorport"	Ust-Luga Trade Sea Port	Service harbour fleet	Service harbour fleet		Under construction since 2011
85	FSUE "Rosmorport"	Ust-Luga Trade Sea Port	foundation of southern ap	Navigational beacons on hydrotechnical foundation of southern approach channel "Luzhsky reverse leading line"		Constructed in 2010
86	FSUE "Rosmorport"	Ust-Luga Trade Sea Port	C	Navigational beacons on hydrotechnical foundation of northern approach channel		According to Client's plans
87	FSUE "Rosmorport"	Ust-Luga Trade Sea Port	linear navigational range rine Western"	Lugskiy Ma-	PD	Constructed in 2012

88	FSUE "Rosmorport"	Ust-Luga trade sea port	Reconstruction of navigational safety system at outer marine approaches, I stage	PD	Constructed in 2010
89	FSUE "Rosmorport"	Ust-Luga trade sea port	Reconstruction of navigational safety system at outer marine approaches, II stage (Luga western channel. Luga western fairway)	PD	Constructed in 2013
90	FSUE "Rosmorport"	Bolshoy port St-Petersburg sea port	Construction of berthing complex for icebreakers moorage in St-Petersburg sea port	PD, DD	Constructed in 2015
91	FSUE "Rosmorport"	Ust-Luga trade sea port	Port protecting facility of southern basin area	PD	1 Stage constructed in 2014 2 Stage — under construction since 2012
92	JSC "Yamal LNG", LLC "MRTS Engineer- ing"	Sea port of Sabetta on the Yamal Peninsula. The main objects of the sea port	Artificial land. Southeast icebarrier	PD, DD, FS	Constructed in 2016
93	FSUE "Rosmorport"	Sea port of Saint-Petersburg. Marine cargo district Bronka	Linear alignments of "Bronka-2" and "Bronka-3"	PD, DD	Constructed in 2015
	Total Objects and facilities of sea port infrastructure has designed Of which:				
			13		
		Constructed Under construction	10		
		Under design	1		
		Under design			

	Total	Cargo turnover of design projects					Dredging
No.		Reloading complexes for oil, gas and oil products (million tons)	Reloading complexes for general, bulk and univer- sal cargo (million tons)	Container ter- minals (million tons)	Ferry and passenger complexes (million tons)	Total cargo turnover (million tons)	Dredging on ap- proach channels and navigational basins (million m³)
1	Constructed	94,5	29,5	29,7	21,5	<b>175,2</b>	106,6
2	Under construction	-	21,1	58,0	-	<mark>79,1</mark>	21,1
3	<b>Under design</b>	-	-	-	-		142,2
4	<b>Prospective</b>	135,5	2,3	30,0	-	<mark>167,8</mark>	118,1

## \* Legend

Design stages:

**JI** — justification of investments;

C — concept;

**DOI** — declaration of Intentions;

**FEED** — front-end engineering design;

**TEO** (**project**) — technical and economic substantiation (project);

**PD** — project documentation;

**DD** — detailed design;

**AS** — architectural supervision