

# List of the basic packet drawings

Page	Name	Annotation
1	general data	
2	specification of rolled metal products	
3	location diagram of fencing elements At level +11500 Panel P1;P2 Node point 1;2	

## Materials for connection steel works and their design resistance Welding materials corresponding to steel

Groups of structures	Steel	welding materials			
		Submerged-arc		In carbonic gas (GOST 8050-85) or its mixed with argon (GOST 10157-2016)	Covered with electrodes types (GOST 9467-75)
		fluxing materials (GOST 9087-81)	Electrode wire (GOST 2246-70)		
3	C245	AH-348-A	CB-08A	CB-08T2C	342

## List of types of work for what necessary making acts of inspection hidden works

N <sup>o</sup>	NAME	Annotation
1	Fastening without racks	
2	Realization physically method of control welds	
3	Cleaning, primer and application of anti-corrosion protection of structures	
4	Installation and realization interface node of frame elements. It is hidden by fencing elements	

Working project was made in accordance with technical rules and national code what are acting on the territory of the Republic of Kazakhstan and providing technical solutions which are providing requirements of environmental standards, fire and explosion safety of building with established rules and regulations.

Project leader

Mokrov D.A

## 1. General notes

- 1.1 This production project of steel structure brand "metal structures" was made on the basis of the design assignment and is the basis for the development of working detail drawings of the brand "steel structures details"
- 1.2 Climate and environmental conditions of the construction site :
  - climatic region of construction site - 1B (code of practice of Republic of Kazakhstan 2.04-01-2017);
  - temperature of the coldest five-day period 0.92 - minus 28.9 degrees ( code of practice of Republic of Kazakhstan 2.04-01-2017);
  - rated wind velocity for the second wind area - 0.39 kPa;
  - standard weight value of the snow cover for the third area -1,5 kPa;
  - seismic activity in the area of construction - 6 points.
- 1.3 The degree of aggressive impact of the environment on metal structures - non-aggressive.
- 1.4 Metal structures are designed in full in full accordance with requirements :
  - Construction Directives and Rules RoK 2.02-05-2009\* "Fire safety of buildings and structures";
  - STP RoK 01-01-3.1(4.1)-2017 " Loads and effects on the buildings. Snow load. Wind action.;"
  - Code of practice of Republic of Kazakhstan EN 1993-1-1:2005/2011 Design of structural steel Part 1-1. General rules and rules for buildings.
  - Code of practice of Republic of Kazakhstan EN 1993-1-8:2005/2011 Design of structural steel Part 1-8 : Connection calculation
  - STP RoK 03-01-1.1-2011 Design of structural steel. Part 1-1. General rules for buildings
  - Construction standards RoK 2.01-01-2013 "Protection building construction from staining".
- 1.5 Temporary fencing is installed at level +11500

## 2. Constructive solution

- 2.1 Steel posts are designed from structural channels
- 2.2 Removable shuttering panel from sheet-iron plate with reinforcements beams from a corner and a strip. Attached to racks through screw connection.
- 2.3 Racks are attached by expansion bolts Rockbolt 20x20043 GOST 28778-90  
to existing concrete pavement at level +11500

## 3. Construction material

- 3.1 The steel grade of structural elements is taken according to "List of components". Steel grades are not specified in the "List of elements" on hitch plates are ordered in the specification of rolled metal, taking into account the requirements  
Code of practice of Republic of Kazakhstan EN 1993-1-1:2005/2011 Design of structural steel Part 1-1. General rules and rules for buildings.

## 4. Connection elements

- 4.1 All factory connections are welded. Wire-logic connection - welded and permanently bolted with M16 to GOST 7798\* or GOST 7796-70\*resistance class 5.8 to GOST ISO 8673-2014 resistance class 5 to GOST ISO 898-2-2015, Coronet washer to GOST 11371-78\*  
Accept the leg of fillet according to Code of practice of Republic of Kazakhstan EN 1993-1-8:2005/2011 "Protection building construction from staining. Connection calculation."
- 4.2 Information about welding materials are given in the table on this sheet.  
Welding materials are taken on stronger steel In the compounds of steel different strength
- 4.3 Welded joints shall be made according to GOST 5264-80 " Hand arc welding. Welded joint. Basic type, structural parts and size", GOST 14771-76\* "Shielded arc welding. Welded joint. Basic type, structural parts and size".
- 4.4 All unspecified off-calculation fillet weld shall be taken with thickness 6 mm but not more 1,2 the smallest thickness of the welded elements

## 5. Structure fabrication

- 5.1 Produce the structure fabrication in accordance with instructions:
  - Code of practice of Republic of Kazakhstan EN 1993 " Design of structural steel";
  - GOST 23118-2012 "Steel building structures. General technical conditions";
  - Additional technical requirements of installation organization;
- 5.2 Fundamental decisions of the main details of steel construction were designed in the working documentation.  
Size of joint welds, joint plates and etc. are designed in the brand project "detailed design"

## 6. Requirements for installation arrangement and acceptance of structures

- 6.1 Make assembly and erection in accordance with requirements
  - Construction code RoK 5/03-07-2013 Code of practice of Republic of Kazakhstan 5.03-107-2013 Bearing and enclosing structures
  - Construction code RoK 1.03-05-2011Code of practice of Republic of Kazakhstan 1/03-106-2012Occupational safety and health in project construction of working performance project. It must be in coordination with management and relevant services of the plant.Work is not allowed without performance project.
- 6.2 Make final fixing (structural welding) after final checking position accuracy and trueing construction
- 6.3 Client and contracting company make acts of inspection hidden works by quantity and volume in full accordance with current SNiP, GOST and other regulatory documents on the organization, production and acceptance of work.  
List of type of work for which it is necessary to make acts of inspection hidden works are indicated in the table on this sheet.
- 6.4 Using of established structures for fixing to them tackles , fairlead blocks and other load-lifting mechanisms are not allowed.
- 6.5 After finishing of installation all mounting hardware, tack welds, temporary fixes must be removed.  
Their place of attachment must be grinded. Grinded direction along the edges.

## 7. Corrosion-resistant coat

- 7.1 Make anti-corrosion protection of metal structures, cleaning and preparing them for painting in accordance with :
  - Construction code RoK 2.01-01-2013 "Protection building structures from staining ".
  - GOST 12/3/005-75\* " System of standard of work safety. Painting works. General safety requirements"
- 7.2 Make cleaning surface of metal constructions from corrosion and oxide scale before applying primer with mechanical and hand brushes.  
Degree of purification must be not lower than second and must be made with accordance to requirements tabl. 9 GOST 9/402-2004\* "One system of protection from staining and age-hardening. Paint coatings. Preparing steel surface to painting." Quality of cleaning of surface from greasy dirt must be with accordance to the first degree of degreasing.
- 7.3 Paint all metal structures with enamel PF-115 on GOST 6465-76\* two times on the primer GF-021 on GOST 25129-82\* ( 1 coat of paint).

312-1_2-03- Structural steel					
Steel industry. BOF. Installation of converters 1-2. "Arcelor Mittal Temirtau"					
Chang. numb. of part	sheet / N doc	sign	date	stage	page
Project leader	Mokrov		08.22	Converter N1, N2. Temporary fencing elements at level +11500	1
Section leader	Zakharova		08.22		
Designed	Poletaeva		08.22		
Checked	Zakharova		08.22		
Head of control	Djhusupov		08.22	Sheets	3
General information				Limited liability partnership "Kurylysexpertproekt"	

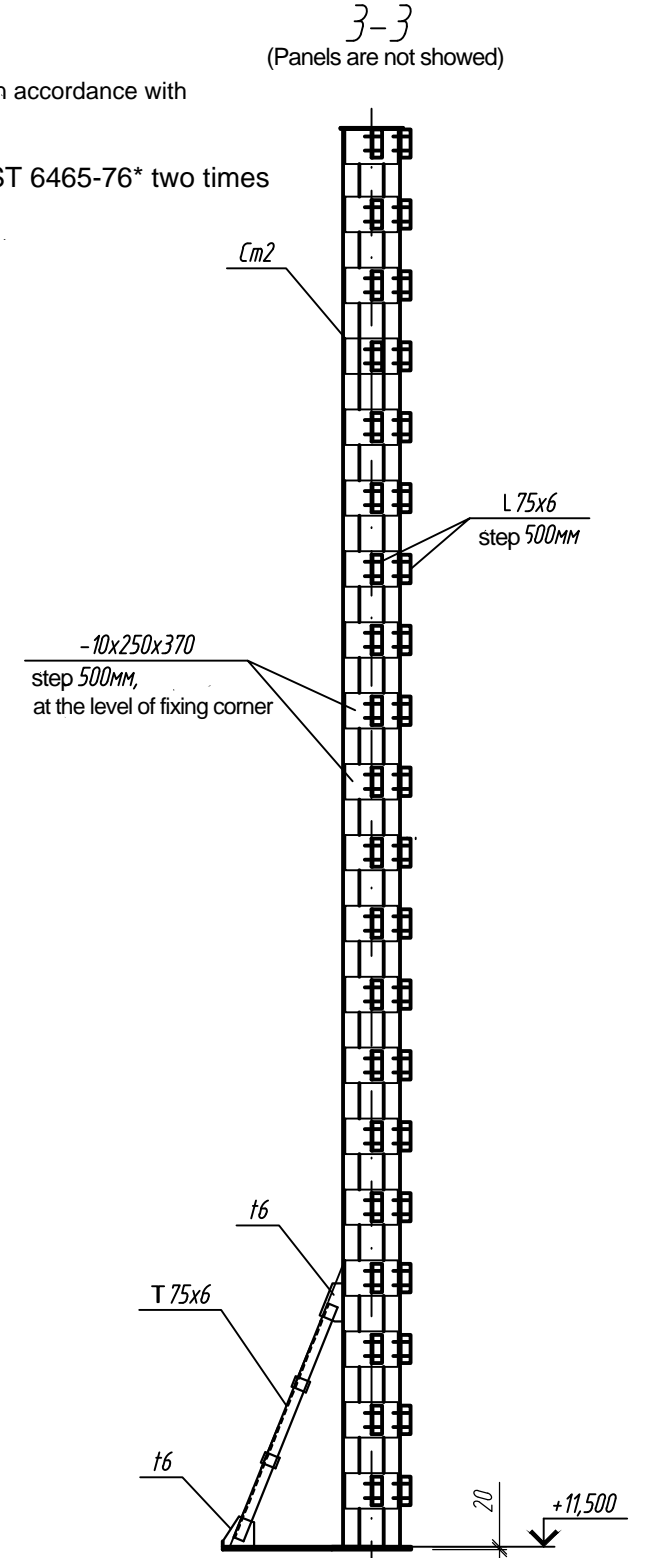
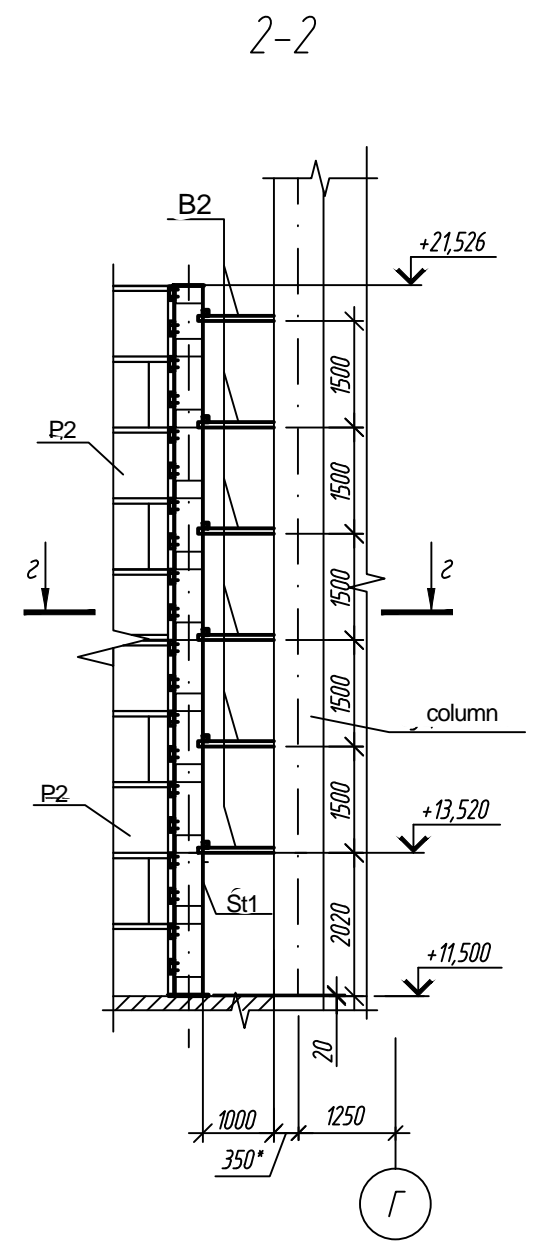
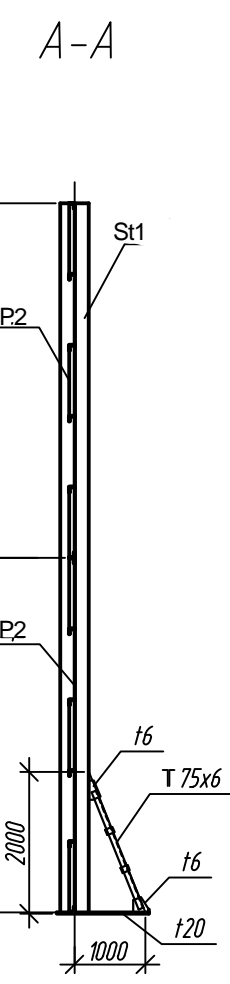
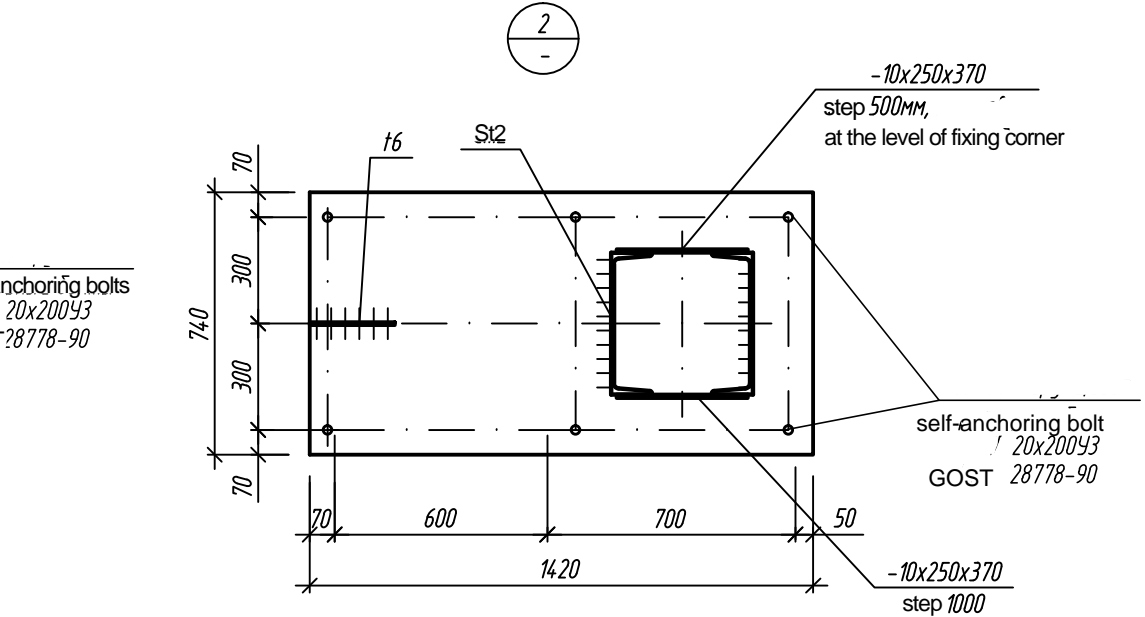
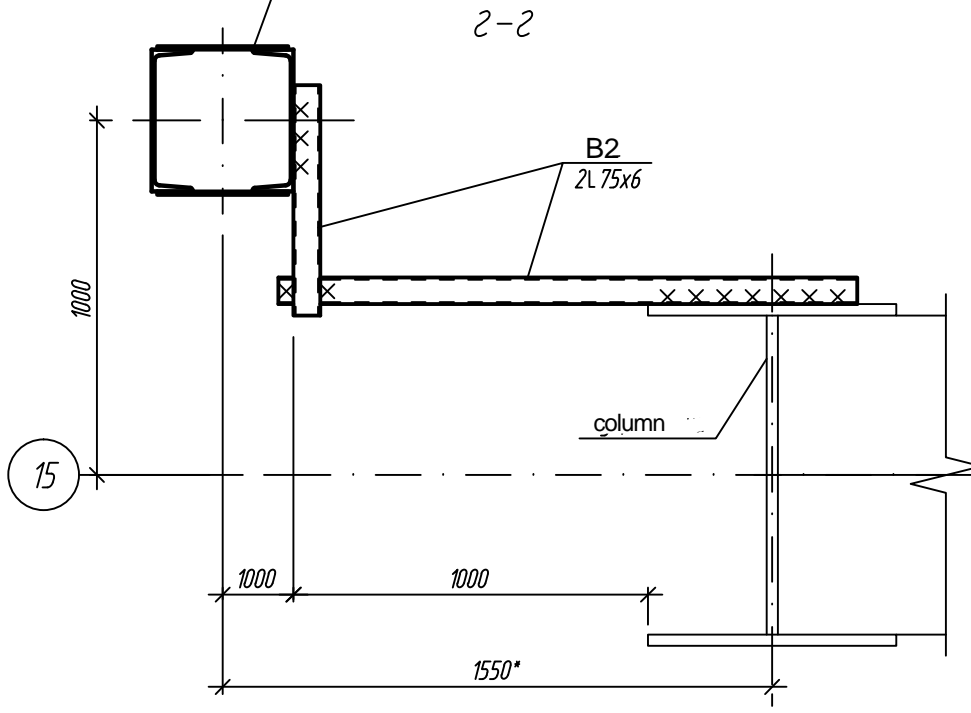
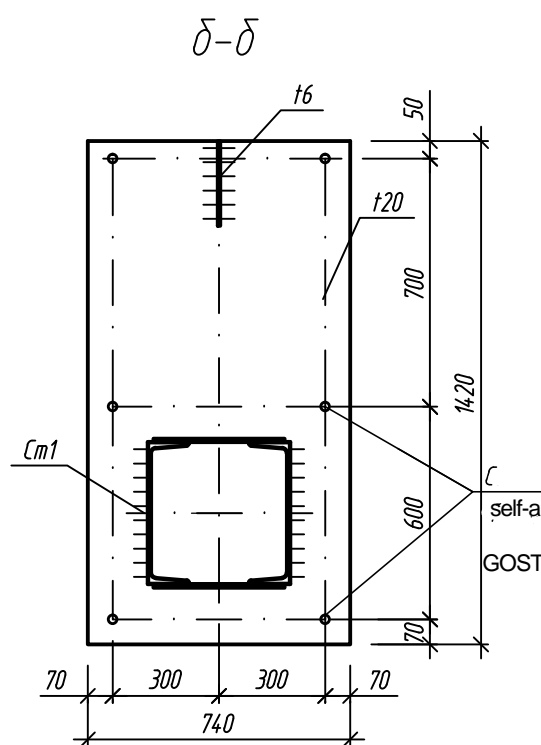
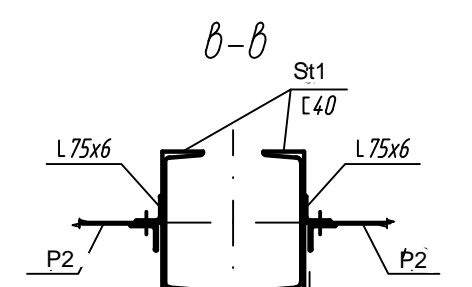
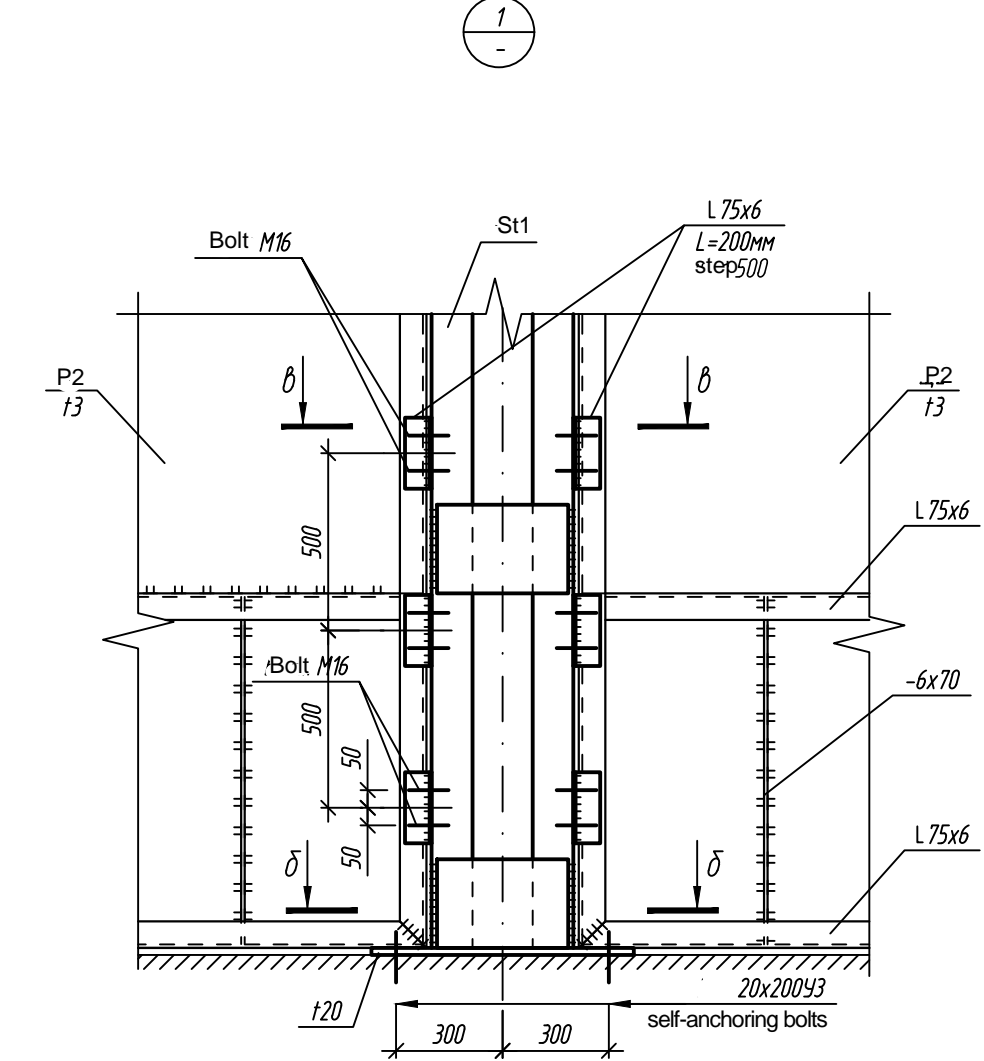
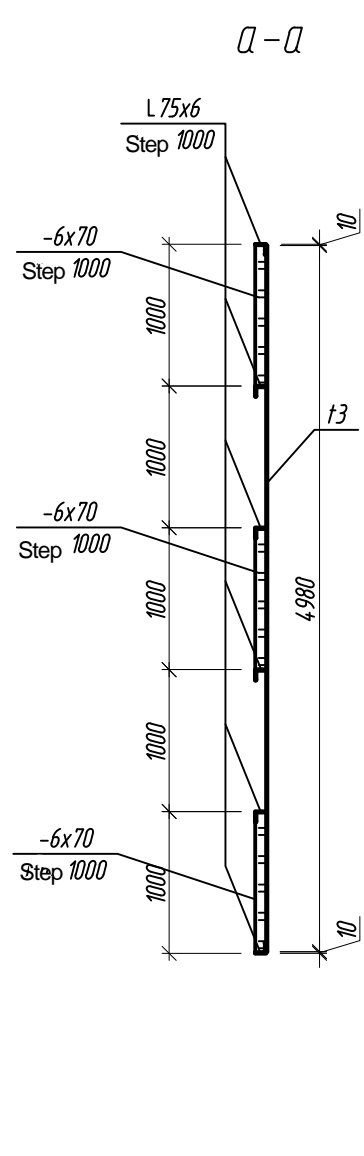
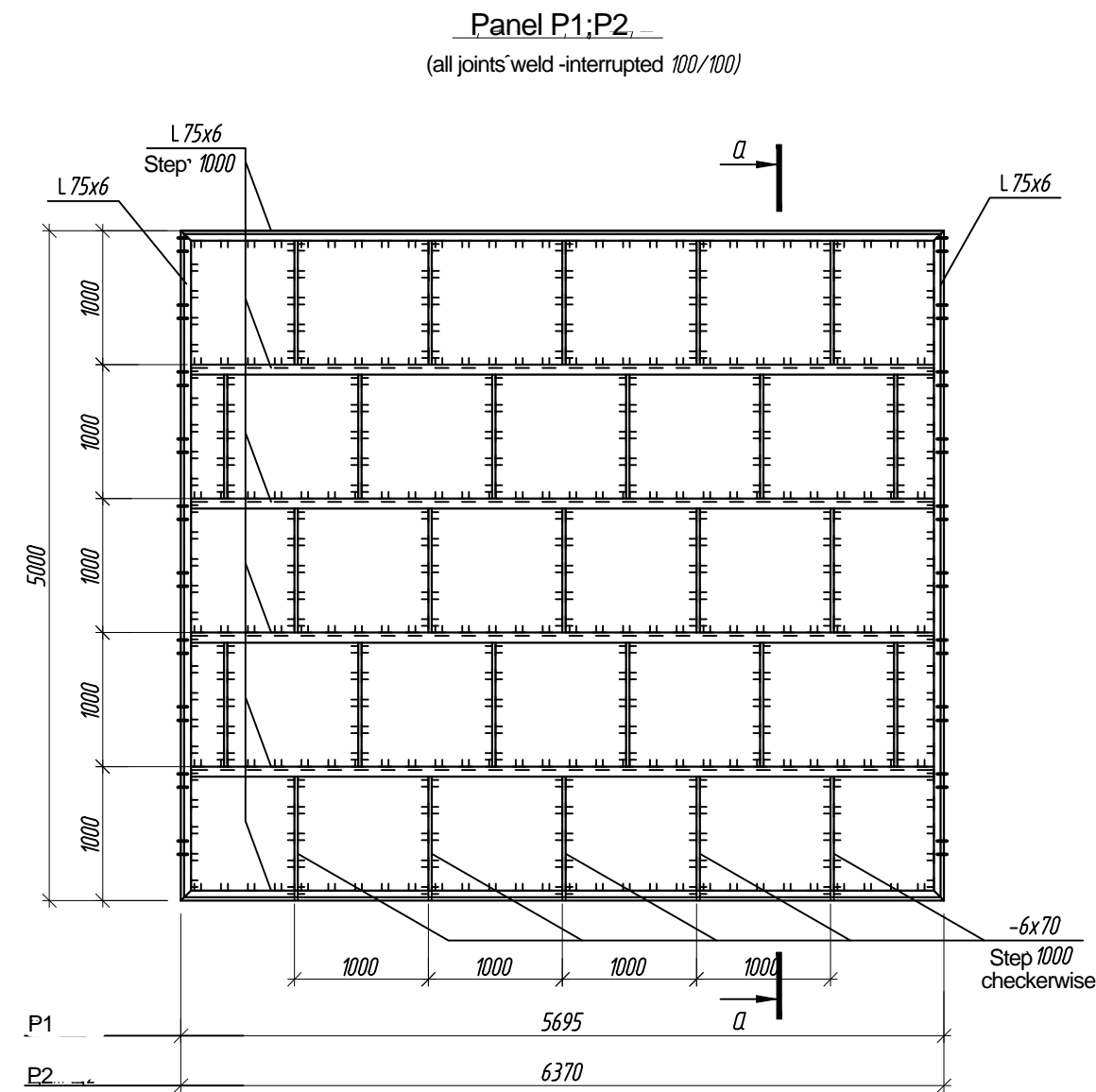
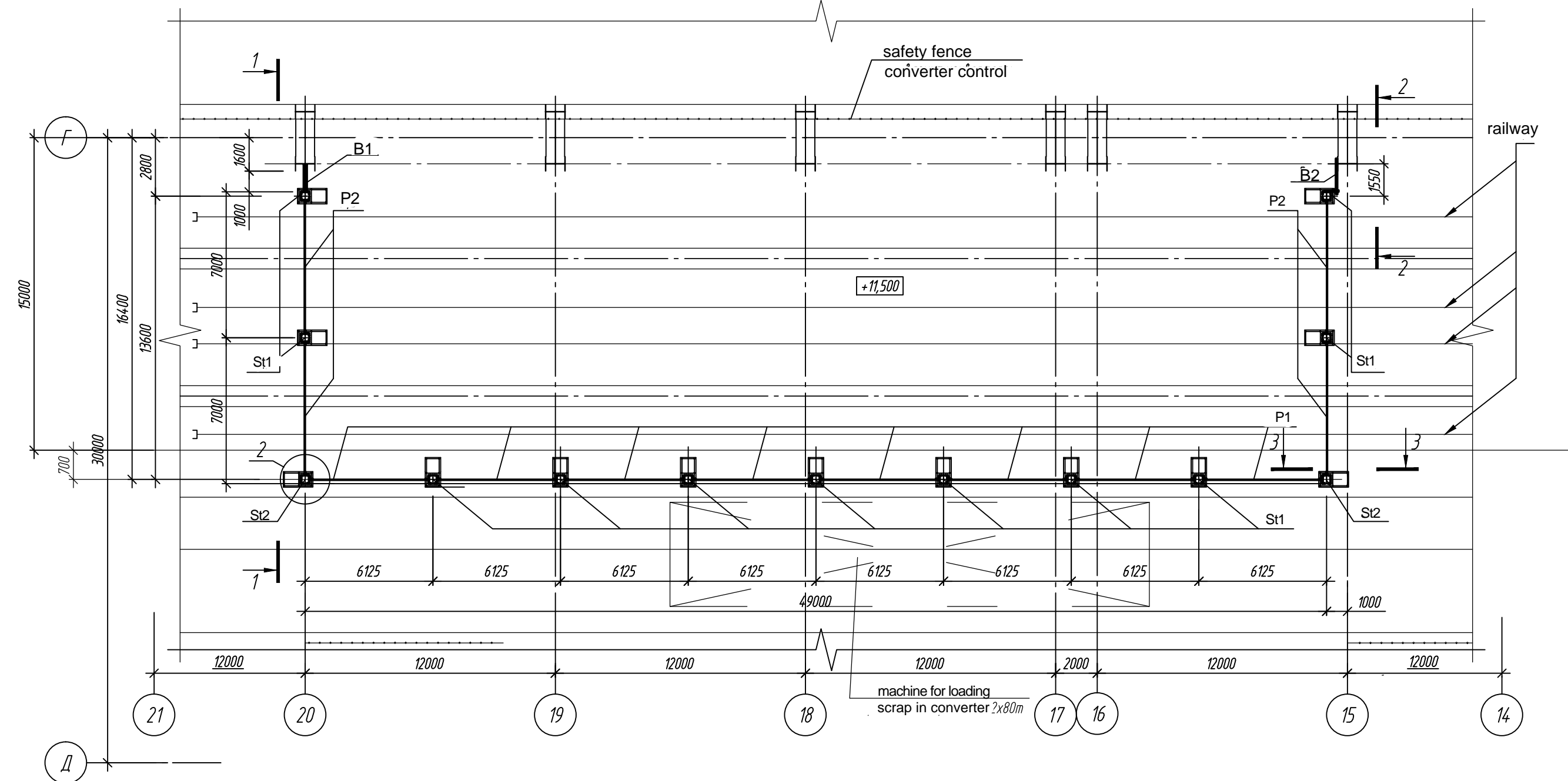
Section steel type, CODE GOST TR	Metal type and code GOST	Notation and profile size (mm)	№	Metal mass by structural elements, m					Total mass, m
				Racks	Panels	Blocking			
1	2	3	4	5	6	7	8	9	10
Rolled steel channel GOST 8240-97	C 245 GOST 27772-2021	C40	1	12,56					12,56
			2						
			3						
			4						
	Total		5						
Total rolled section			6	12,56					12,56
Total metal mass	C245		7	12,56					12,56
Hot-rolled steel corners GOST 8509-93	C245 GOST 27772-2021	L75x6	8	0,96	7,58	0,24			8,78
			9						
			10						
	Total		11						
Total rolled section			12	0,96	7,58	0,24			8,78
Total metal mass	C245		13	0,96	7,58	0,24			8,78
Hot-rolled sheet metal GOST 19903-2015	C245 GOST 27772-2021	t20	14	2,15					2,15
		t10	15	2,22					2,22
		t6	16	0,19	2,22	0,05			2,46
		t3	17		16,76				16,76
	Total		18						
Total rolled section			19	4,56	18,98	0,05			23,59
Total metal mass	C245		20	4,56	18,98	0,05			23,59
	C235		21						
			22	18,08	26,56	0,29			44,93
Including steel brands	C245		23	18,08	26,56	0,29			44,93
	C235		24						
			25						

inst. of inv.  
Date and sign  
inven. orig.

1. General information p. Structural steel-1
2. In the specification of rolled metal mass of elements structures are indicated excluding mass of weld metal of joint weld at the rate of 1% and 3% for weight adjustment during design drawings of steel structures details.

						312-1_2-03- Structural steel				
						Steel industry. BOF. Installation of converters 1-2. "Arcelor Mittal Temirtau"				
Chang.	numb. of part	page	N doc	Sign	Date	Converter №1; №2. Temporary fencing elements at level +11500		stage WP	page 2	sheets
Designed	Poletaeva				08.22	Спецификация металлопроката		Limited liability partnership "Kurylysexpertproekt"		
Checked	Zakharova				08.22					
Head of control	Djhusupov				08.22					

Layout diagram of fencing elements At level +11500



List of components of this sheet

Brand	Sectional drawing			Support force			Group constr.	Brand of metal	Annotation
	ЗКЛУЗ	ноз.	состаб	M	N	Q			
S1		1	C40	on flexibility			3	C245	step 1000
		2	-10x250x370						
		3	-10x250x370						
S2		1	C40	on flexibility			3	C245	section 3-3
		2	-10x250x370						
		3	-10x250x370						
P1;P2		1	L75x6	structurally			3	C245	step 1500
	2	-6x80x110							
B2		1	L75x6	structurally			3	C245	step 1500

- Bridging, B1, B2 install in place at the installation
- Specify size with mark "" in place
- To weld with electrodes 3-42 GOST 9467-75 in accordance with GOST 14098-2014.
- To paint metal structures with enamel PF-115 GOST 6465-76\* two times on primer GF-021 GOST 25129-82\* (1 coat)

3-3 (Panels are not showed)

312-1_2-03- Structural steel					
Steel industry. BOF. Installation of converters 1-2. "Arcelor Mittal Temirtau"					
Change numb.	Page	Wdoc	Sign	Date	
					Stage Page Sheets
					WP 3
Designed	Poletaeva			07.22	location diagram of fencing elements At level +11500 Panel P1:P2, Node point 1.2
Checked	Zakharova			07.22	
Head of control	Djhusupov			07.22	
					Limited liability partnership "Kurylysexpertproekt"
					Формат А3х3

Inven. orig. sign and date inst. of inv.