

Product Catalog **2020**

individual precast concrete







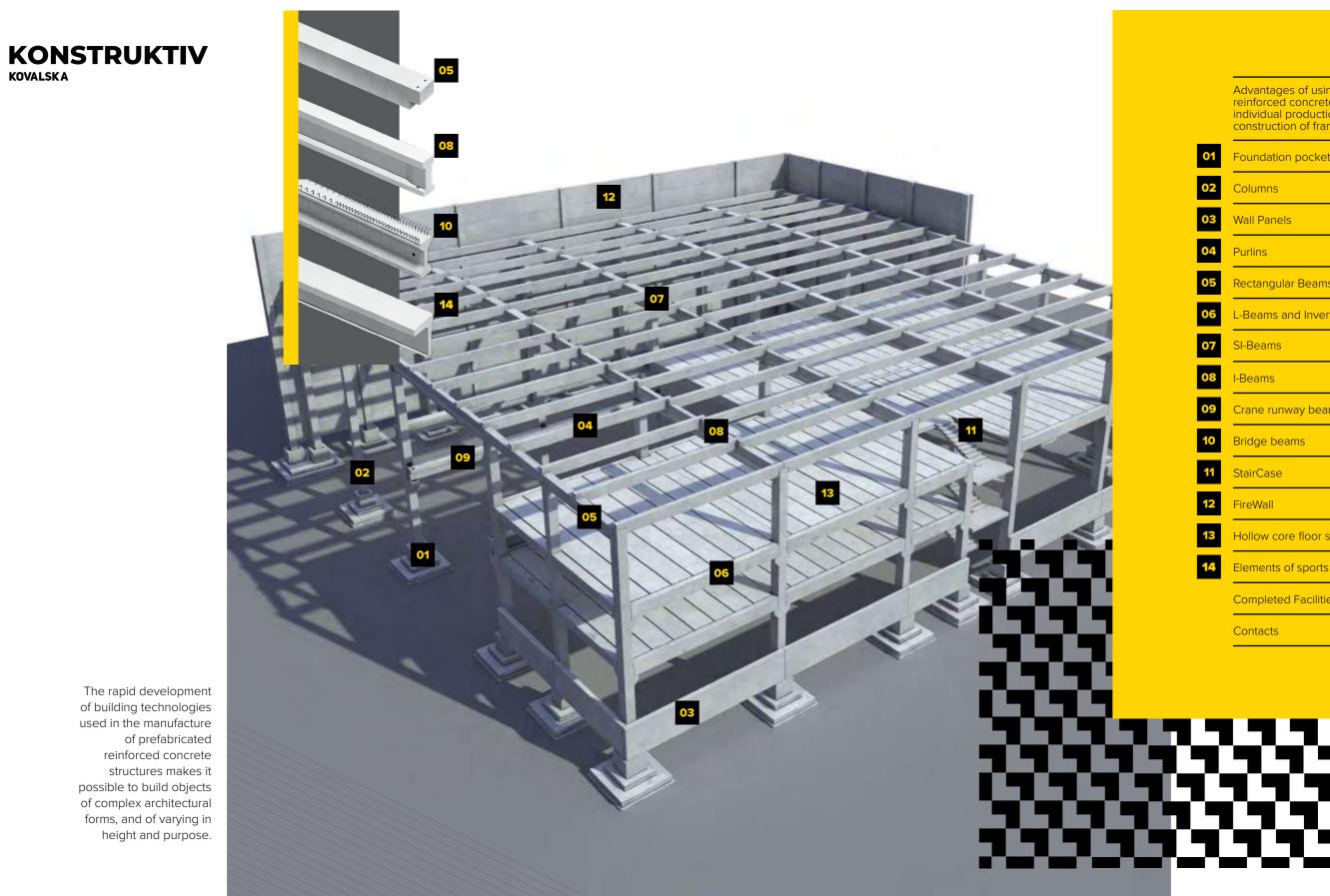
2 hollow core slab production lines



Over 250 completed facilities







The rapid development of building technologies used in the manufacture of prefabricated reinforced concrete structures makes it possible to build objects of complex architectural forms, and of varying in height and purpose.

KOVALSKA

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Advantages of using prefabricated reinforced concrete structures of individual production for the construction of frame structures

Project efficiency

- Arbitrary design of a frame structure without reference to outdated series
- Possibility of covering large spans (up to 33 m)
- Minimal material consumption of structures

High Quality and Aesthetics

- The quality of structures is guaranteed by plant production
- The prefabricated reinforced concrete elements can take any shape, size and color while maintaining high quality of the product surface

Reduced construction costs

- Possibility to pre-fabricate frame elements prior to commencement of works on a construction site
- Simple structural connections
- No electric welding
- Possibility of installation at low temperatures
- Reduced number of assembly operations and people on a construction site

Fire resistance

— Ensuring fire protection requirements for structures without additional special measures to increase fire resistance

Low operating costs

- No need for additional finishing of reinforced concrete frame elements without a threat of their damage by atmospheric influence
- The internal surfaces of prefabricated concrete elements are almost not susceptible to damage and are easy-to-wash

Foundation pockets

Foundation for frame structures may be made of prefabricated reinforced concrete and castinplace version. The disadvantage of the latter is the complexity of maintaining the required accuracy of arranging the cast formwork for high-density reinforcement concrete and high labor input at the construction site. Application of foundation pockets makes the construction and operation much economic and considerably increases its rate.

A prefabricated reinforced concrete foundation pocket is installed on the lean concrete base by mounting pipes. It has connection bars, which are concreted together with the slab part of the foundation, which ensures precision of its design position and reliable connection with the foundation structures. It is possible to prefabricate a foundation pocket with the slab part.

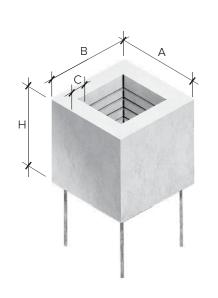
Types of foundations pockets

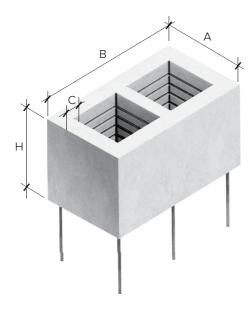
The Kovalska Industrial and Construction Group has developed sets of foundation pockets for columns of different sizes and types, as well as pockets for structures with expansion joints. Foundation pockets are designed for the installation of columns with a cross section from 300 x 300 mm to 600 x 600 mm.

Foundation pockets of three main types are being manufactured: single, double (if expansion joints are necessary) and quadruple pockets (in the case of expansion joints intersection). In addition, it is possible to manufacture individual foundation pockets for columns with a larger cross section.

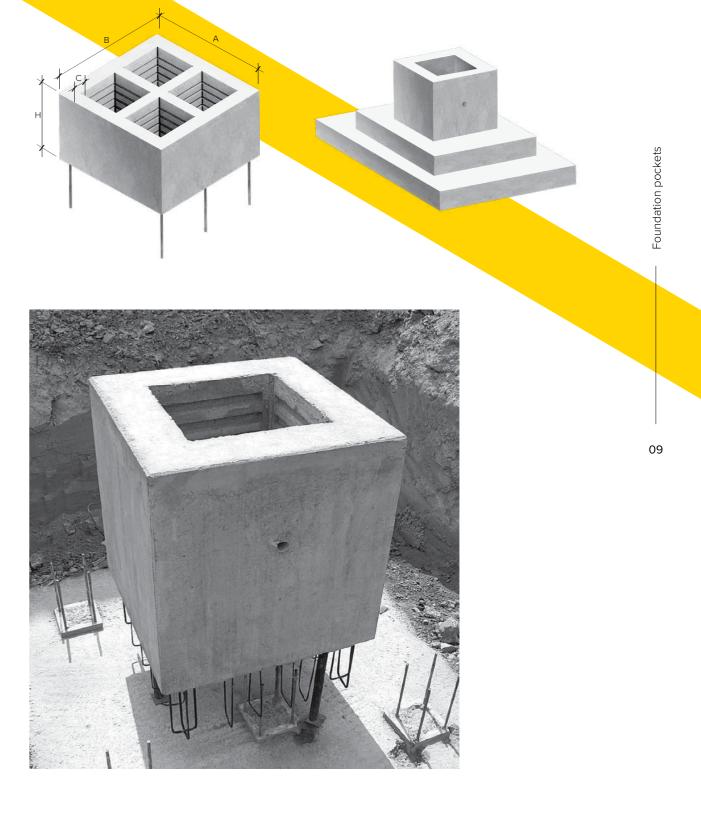
SINGLE. TYPES 1950, 1990

DOUBLE. TYPES 1995





QUADRUPLE. TYPE 1999

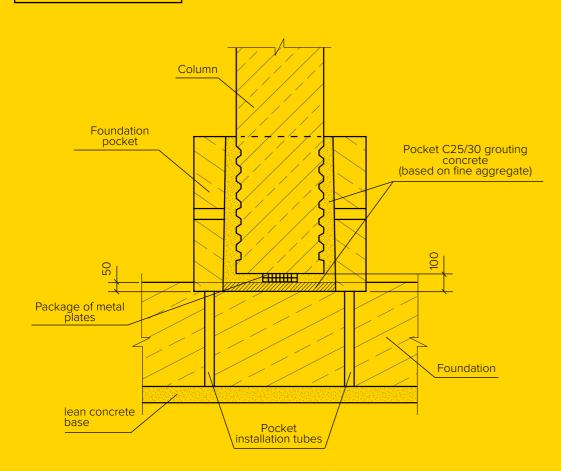


FOUNDATION POCKET WITH THE SLABPART

Standard Sizes

Туре	A mm	B mm	H mm	C mm	Weight mm	Maximum Column Size mm
1950	1000	1000	900	190	1,325	500
1990	1160	1160	1000	220	1,955	600
1995	2160	1160	1000	220	3,445	600
1999	2160	2160	1000	220	6,025	600

CONNECTION NODE



Columns

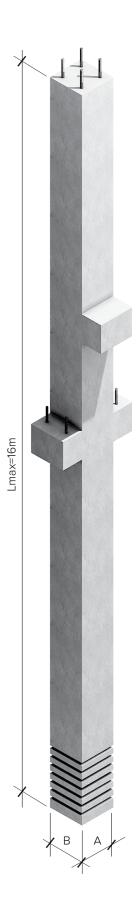
Prefabricated reinforced concrete columns are designed to receive load from elements of floor, roof and wall elements. Columns are used both for single-story and for multi-story buildings and structures.



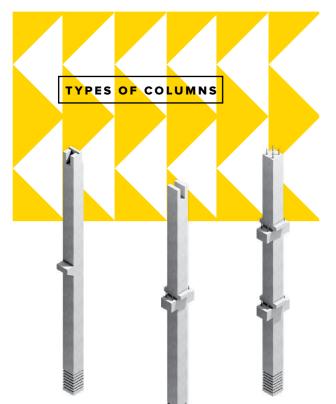
Depending on the overall dimensions, columns provide fire resistance of up to 2.5 hours, enabling the use of these structures in a variety of buildings and structures.

Reinforcement conditionally not shown

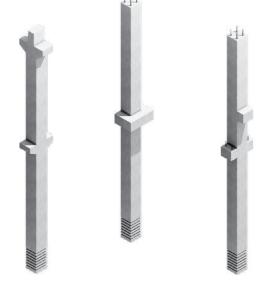








Prefabricated reinforced concrete columns have standard dimensions (A, B) from 300 mm to 800 mm, but individual production of columns of larger dimensions is also possible. The length of the deliverable assembly is up to 16 m. Columns can be designed with any number of different corbels, cutouts, embedded parts, anchor bolts and other additional elements.

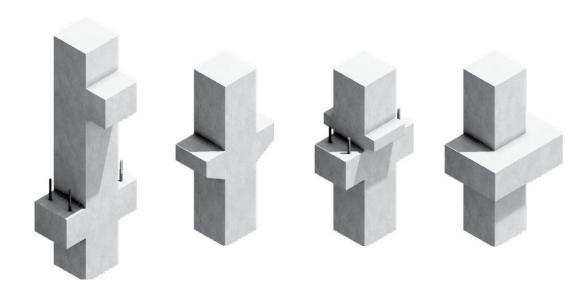


Columns

12

Corbels

The classic scheme of connection beams or purlins to columns involves their resting on corbels, which are located completely below or within the beam. The corbels can be positioned within columns at different markings and different column planes, allowing columns to be used in buildings with tiered flooring and ceiling.







CONNECTION

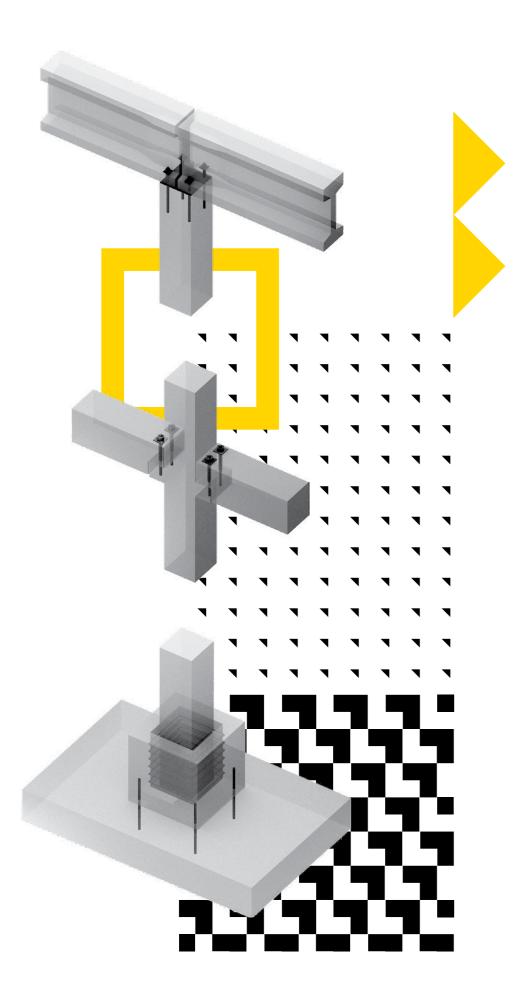
Reinforced concrete columns are connected to foundation structures by way of grouting in reinforced concrete pockets or by connecting the embedded parts of columns with anchor bolts of the foundation.

Connection of columns in height (extension) is performed through the anchor bolts released from the column head of the 1st tier and through the embedded parts (shoes), which are located in the base of the column of the 2nd tier.

Columns are connected to horizontal interfloor beams according to the classical scheme through corbels.

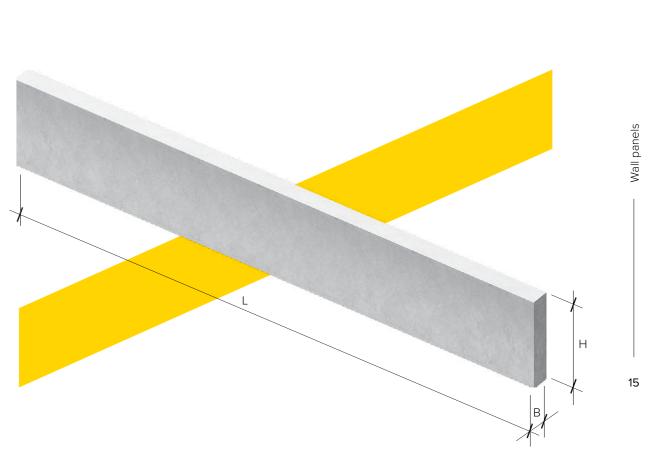
Connection of columns with horizontal ceiling beams is performed on anchor pins.





Wall panels

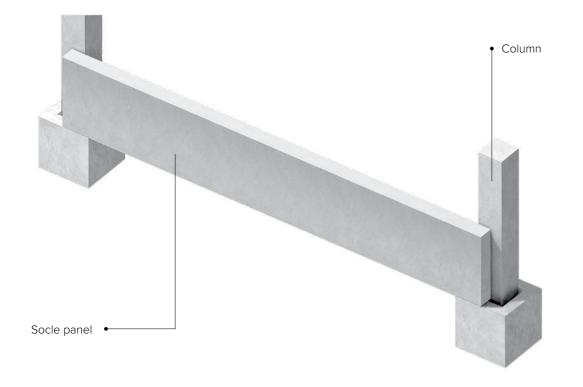
Wall panels are a single-layer or three-layer rectangular section structure. They are intended for single- and multi-storey heated and unheated buildings of various purposes.



Standard Sizes		
L	н	В
mm	mm	mm
6000-12000	500-1800	200-400



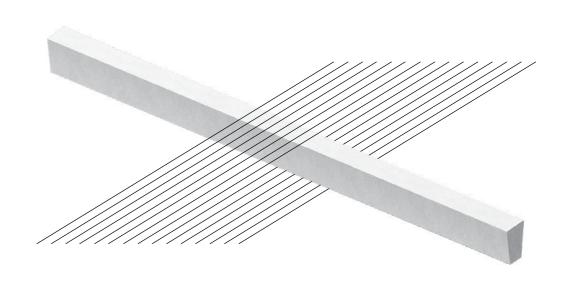
CONNECTION



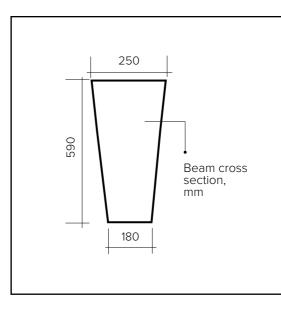
Purlins

Purlins are horizontal secondary beams that carry loads from light roofing material and transfer it to the main beams. Reinforcement of the purlins is prestressed strands. Concrete cover provides a fire resistance limit of up to 60 minutes.

Purlins have a wide scope of application: warehouses, industrial shops, logistics and shopping centers, where light roofing materials are used for covering. As a rule, the spacing of the purlins is 3 to 4.5 m.



Standard Sizes



 Beam Length

 mm

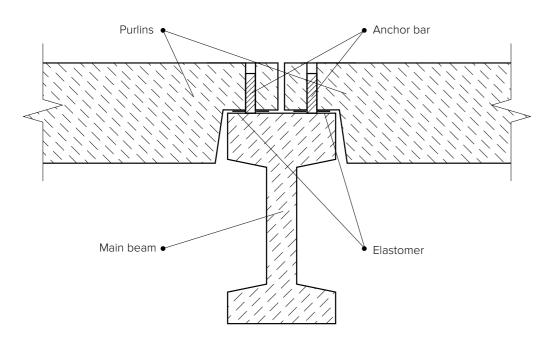
 2000-14000

Purlins

CONNECTION

The connection of the purlins with the main beams passes through the anchors. The purlins are mounted on anchors released from the main beams. Before mounting the purlins, in order to prevent the destruction of the beam edges, elastomer support pads are installed.





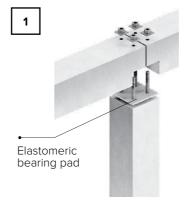
Rectangular Beams

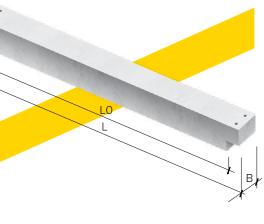
Rectangular Beams may be used as floor beams, roof beams, as well as foundation beams. They are made of both reinforced concrete and prestressed reinforced concrete.



CONNECTION

Beams are connected to the columns using anchors. Beams are mounted on anchors released from the columns and tightened with nuts through steel washers, or the anchors are filled with the anchor mixture. Before mounting the beams, in order to prevent the destruction of the edges, elastomeric bearing pad are installed.





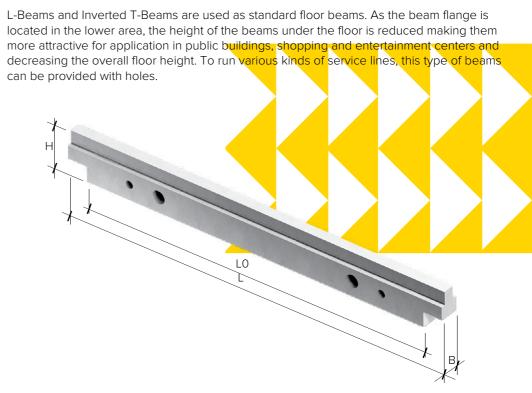


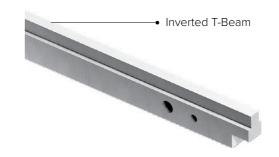
RectBeams

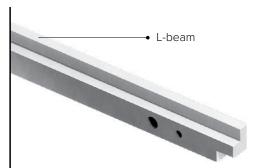


L-Beams and **Inverted T-Beams**

can be provided with holes.



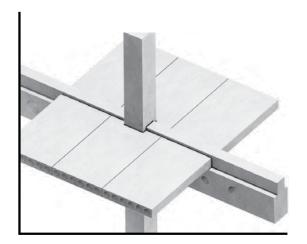


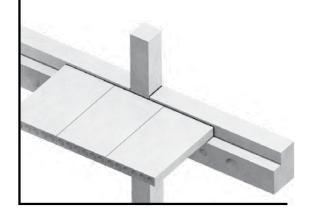


L-Beams and Inverted T-Beams

CONNECTION

Beams are connected to the columns according to the classical scheme of resting on the corbel. Beams are connected to the columns by corbels, the beam is mounted on anchors and tightened with nuts through metal washers, or the anchors are filled with the mortar. Before mounting the beams, in order to prevent the destruction of the edges, elastomer support pads are installed.



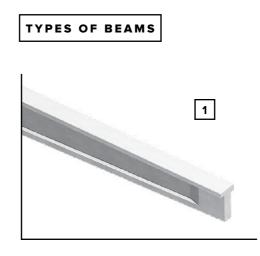




SI-Beams

SI-beams are used as roof beams in heated and unheated buildings with spans of 18–33 m, such as industrial and production buildings, warehouses, retail spaces, halls of public buildings (children's schools, sports and event halls), etc. The slope of the upper faces is from 1:33 (3%) to 1:20 (5%). The beams are used together with reinforced concrete or steel purlins, hollow-core or ribbed slabs. I-section is typical and most rational for prestressed beams. The fire resistance of such I-beams equals to 60 minutes. To run various kinds of service lines, this type of beams can be provided with holes.

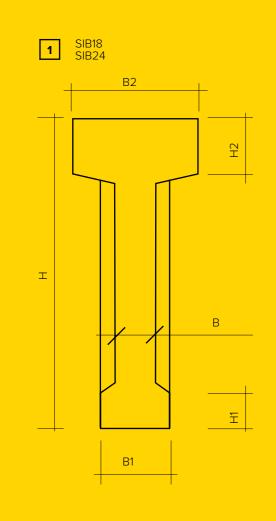


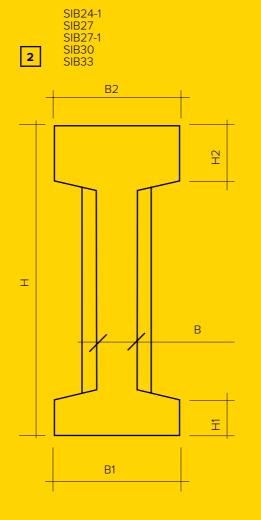






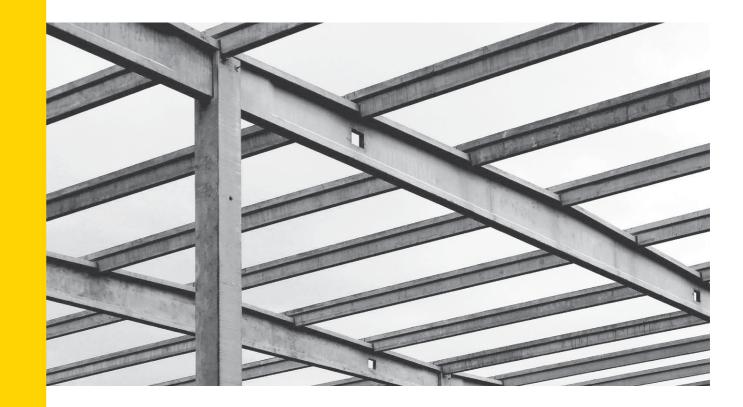
Standard Sizes





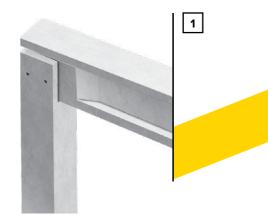
24	

Beam Type	Support H mm	H mm	H1 mm	H2 mm	B mm	B1 mm	B2 mm	L mm	Weight m
SIB18	1100	1370	180	160	130	300	600	17980	13,6
SIB24	1100	1454	180	160	130	300	600	23980	18,2
SIB24-1	1400	2000	180	170	120	540	540	23980	22,8
SIB27	1400	2070	180	170	120	540	540	26980	25,8
SIB27-1	1500	2175	170	200	140	540	600	26980	33,2
SIB30	1500	2250	170	200	140	540	600	29980	37,1
SIB33	1500	2325	170	200	140	540	600	32980	41,2



CONNECTION

Beams are connected to columns through anchors. Beams are mounted on anchors released from columns and are tightened with nuts. Before mounting the beams, in order to prevent the destruction of the edges, elastomer support pads are installed in the places where the beams rest.



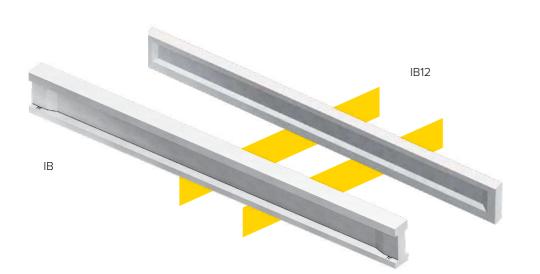




I-Beams

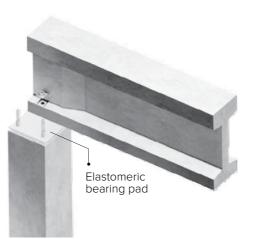
Standard Sizes

I-beams are used as horizontal roof beams in buildings with significant spans and as floor beams subjected to high loads. I-section is typical and most rational for prestressed beams. The fire resistance of such I-beams equals to 60 minutes. To run various kinds of service lines, this type of beams can be provided with holes. IB are used to cover spans of up to 24 m; IB12 are used to cover spans of 12 m.



CONNECTION

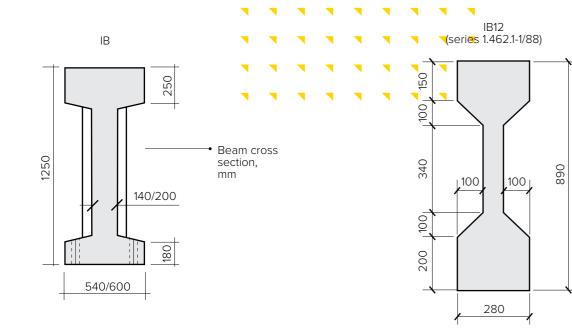
Beams are connected to columns by installing the beam on the head of the column. IB are mounted on anchors and tightened with nuts through metal washers, and IB12 are welded to the embedded part of the column. Before mounting the IB, in order to prevent the destruction of the edges, elastomer support pads are installed.







l-Beams

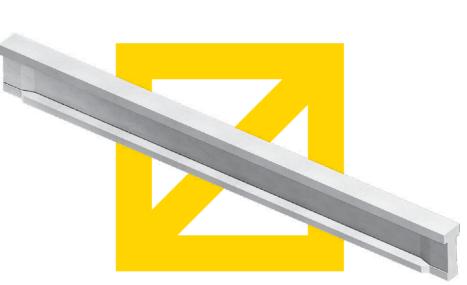




Crane runway beams

Beams with a length of 6 m (T-Beam, with a height of 800 mm) and beams with a length of 12 m (I-Beam, with a height of 1250 mm).

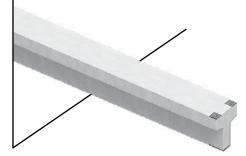
Depending on the design of the production premises, the beams can be designed and manufactured individually in accordance with the type of loading and lifting mechanisms.

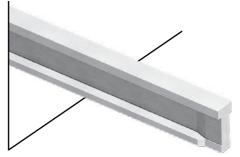






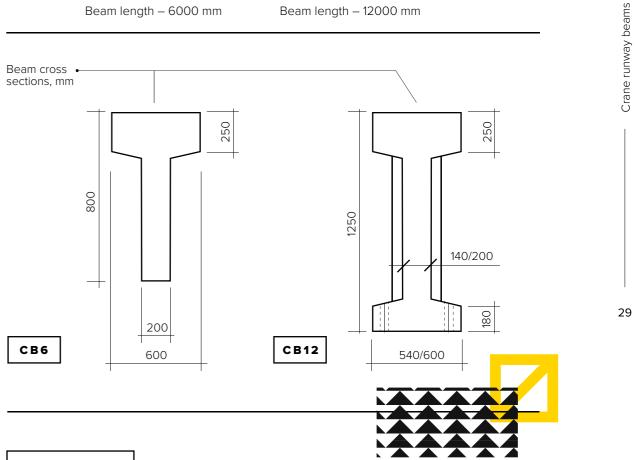
CB12







Standard Sizes



CONNECTION

When mounting, crane runway beams are bolted to the columns, followed by welding of the beam embedded parts to the embedded parts in the columns. For fastening the rails, beam flanges are provided with holes. Metal tubes are laid within the holes to protect concrete from destruction during the transmission of horizontal crane loads.

Bridge Beams

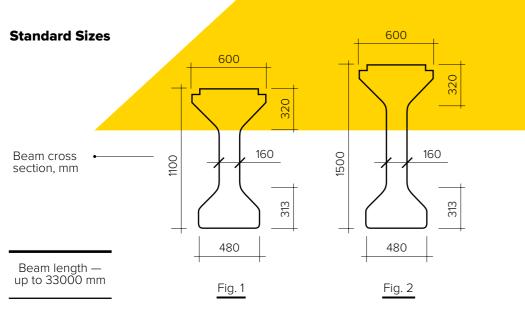
Bridge beams are intended for construction, reconstruction and repair of highway bridges. Kovalska ICG produces prestressed I-shaped bridge beams for prefabricated monolithic reinforced concrete spans of bridges and overpasses, which are designed for current temporary loads A-15, NK-100 as per requirements of DBN V.1.2-15:2009 "Bridges and pipes. Loads and effects".

When arranging the transverse dimension of the structure, the maximum pitch in the axes between the beams is as follows: for beams with a height of 1.1 m — not more than 1.9 m; for beams with a height of 1.5 m — not more than 1.6 m. The minimum thickness of the roadway monolithic slab is 20 cm.

Beton Complex Plant also produces other elements that are used for the construction of bridges and roads, namely: driving piles, headwall blocks, cornice blocks, bridge boards, stair flights, attachment blocks, backwalls, transition slabs, road slabs, trays, utility network rings, elements of pedestrian underpasses, curb blocks, individual structures.

In 2017, Darnytskyi Reinforced Concrete Constructions Plant, JSC started production of bridge beams with a length of up to 33 meters (Fig. 2).





Certification and Quality Control

BB-24 and BB-33 bridge beams have undergone a series of special tests and examinations to obtain a certificate of conformity (No. UA 1.003.0173568-11).

Structures are manufactured in accordance with state building regulations: DSTU BV 2.6-2:2009 "Concrete and Reinforced Concrete Products. General Specifications" and are certified by the State Committee of Ukraine for Technical Regulation and Consumer Policy.

The certificate was issued by the state certification body of Ukrmetrteststandart, SE on the basis of test reports* conducted by the research department of the Research Institute of Building Structures.

In addition, the quality service of the laboratory of Beton Complex maintains comprehensive control over the quality of raw materials and products at all production stages: input, operational and output control. This allows getting the highest quality of the final product.

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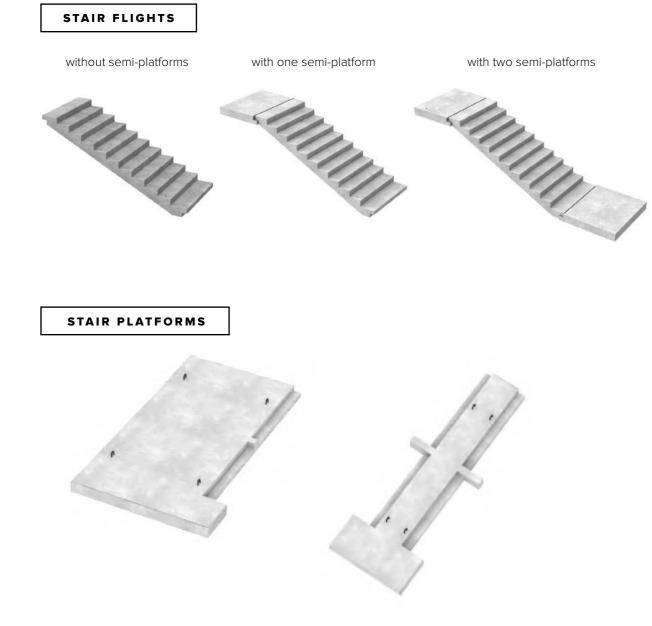
Bridge Beams

StairCase

StairCase

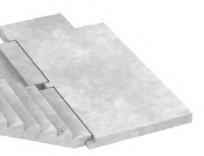
32

Kovalska ICG manufactures a broad range of staircase elements: stair flights, stair flights with one or two semiplatforms, stair platforms. For transportation and installation operations, both lifting hooks and non-eye means (mounting holes, anchor sling systems) may be provided.



STAIR PLATFORMS





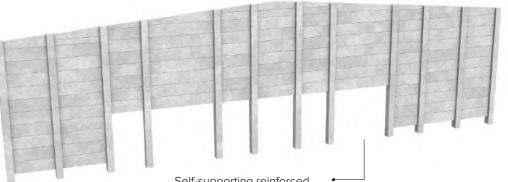




FireWall

Fire walls are designed to separate buildings into separate compartments and to limit the area of fire spread. The presence of fire walls in a building significantly reduces the damage caused by fire and allows evacuating people in time before the arrival of the fire brigade.

Kovalska ICG manufactures a broad range of fire wall elements of individual design.



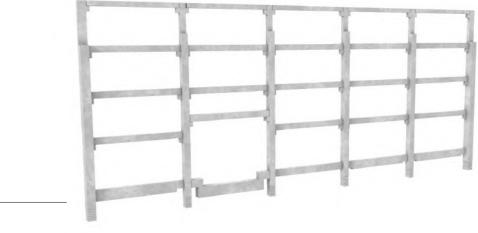
Self-supporting reinforced concrete firewall (One-level columns, wall panels. Overall height: 13.5 m)



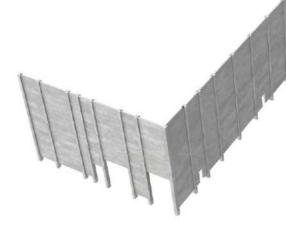


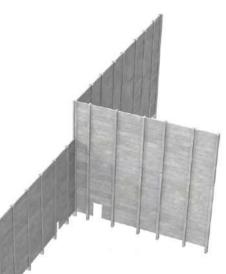
34





Combined load-bearing reinforced concrete frame firewall (Columns, beams, filling — brick. Overall height: 11.5 m)





35

FireWall

Self-supporting reinforced concrete firewall (Two-level columns, wall panels. Overall height: 27.6 m)

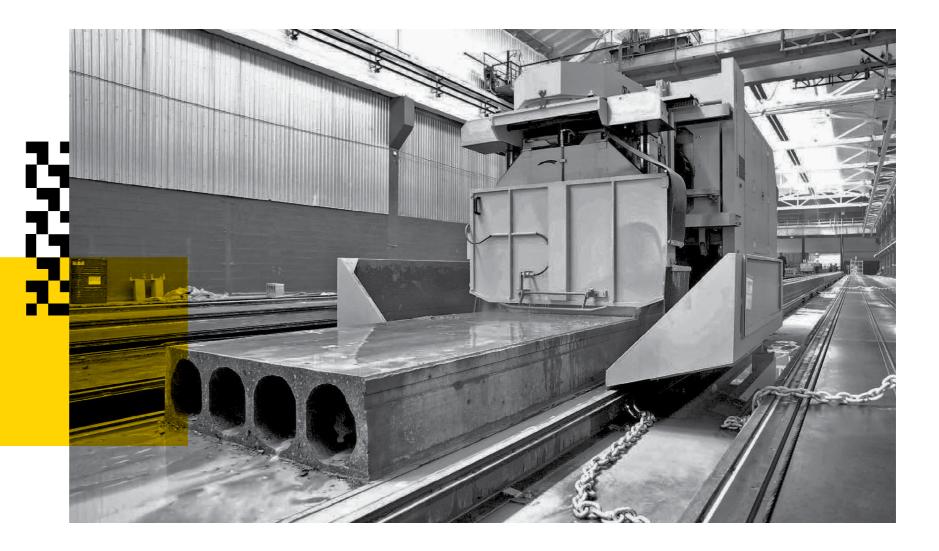
Hollow core floor slabs

Kovalska ICG produces a wide range of floor slabs by applying the extrusion method on the up-to-date technological line for the off-form slab formation manufactured by Nordimpianti System S.r.I. (Italy). These are multi-cavity prestressed slabs made of heavy concrete by applying the method of continuous long-line extrusion process*.

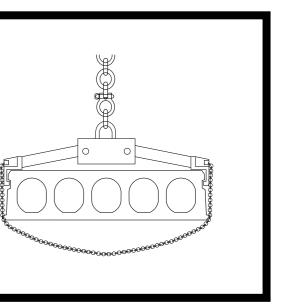
Hollow core floor slabs may be used to arrange load-bearing structural floor and roofing elements of buildings and structures for various purposes. Slabs manufactured by applying the extrusion method are used in construction of residential and industrial facilities with load-bearing walls made of bricks or blocks, as well as in frame or frame and monolithic structures to cover spans of up to 20 m inclusive. They are an alternative to slabs manufactured by applying conveyor-type production method or conveyor technologies.

Slabs are made with a height of 200, 220, 265, 320, 400 and 500 mm, and a width of 550, 750, 950, 1100, 1350 and 1500 mm with a height of 220 mm. Slabs with a height of 200, 265, 320, 400 and 500 mm can be made with a width of 1200 mm, or shortened in width according to an individual order.

> *Extrusion (pushing out) is the technology of manufacturing reinforced concrete products by forcing concrete mortar through forming holes.



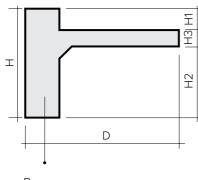
In lifting and carrying out erection operations without lifting hooks, special traverses with clip-on chucks are used.



Hollow core floor slabs

Elements of Sports Facilities

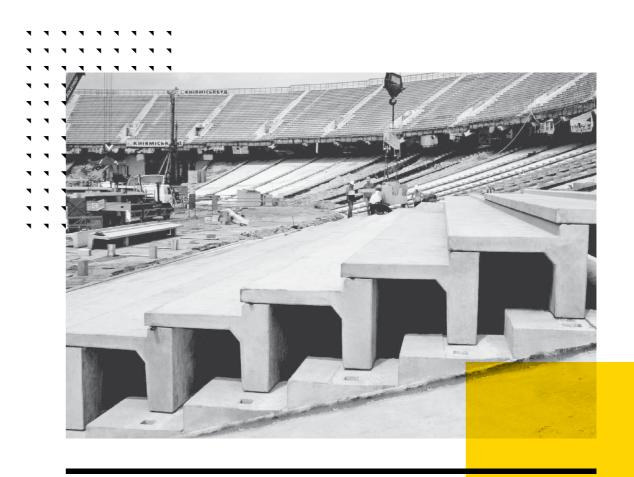
Tribune steps are the most common element used in construction of all types of stadiums. Step shape is determined by the place of their installation at the stadium.



(step length: 5000–9000 mm)

Beam cross section, mm



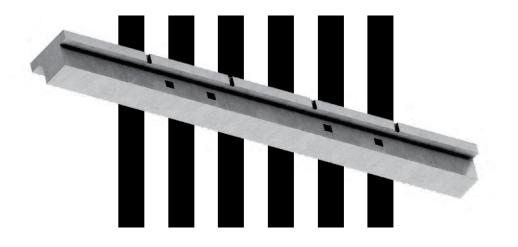


Support Beams

Support beams serve as the starting point for erection of tribune steps. They, similarly to the steps, may be 5 to 9-m long and made-to-measure for an appropriate project.

Standard Sizes

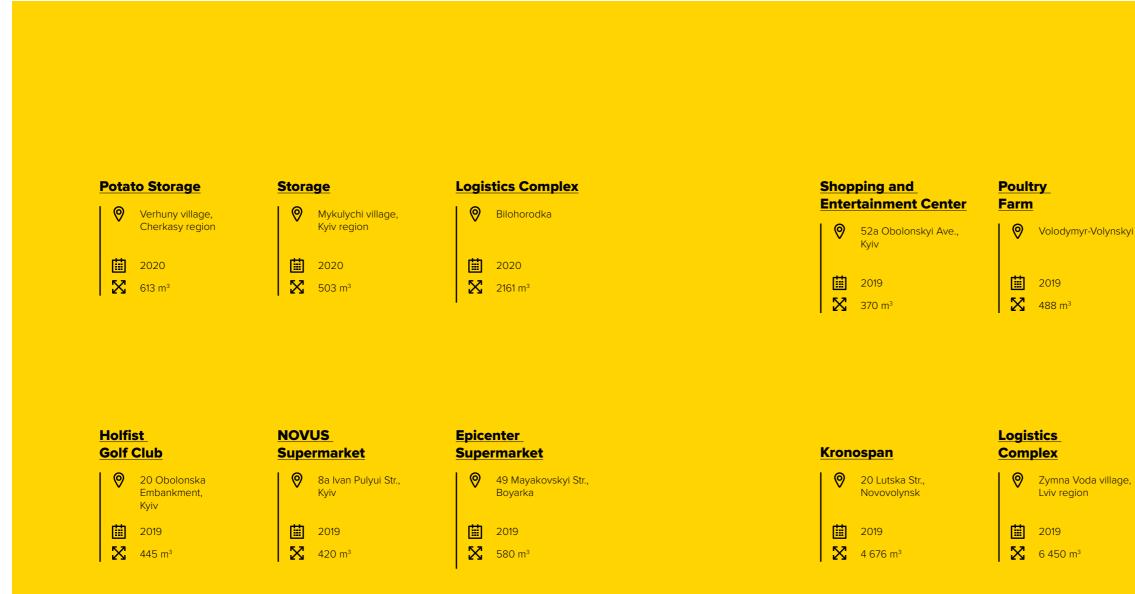
Name	H1 mm	H2 mm	H3 mm	H mm	D mm
		min	mine	none	mine
CK-1	70	510	110	700	1040
СК-2	80	500	110	700	1040
СК-3	95	485	110	700	1040
СК-4	110	470	110	700	1040
CK-5	125	455	110	700	1040
СК-6	140	440	110	700	1040
CK-7	155	425	110	700	1040
СК-8	170	410	110	700	1040



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orts Facilities

Today, Beton Complex is proud to present the most significant facilities that were erected due to the supply of high quality concrete products of its own production:





Retroville Shopping and Entertainment Center

9 47 Pravdy Ave, Kyiv

2019 🔀 720 m³

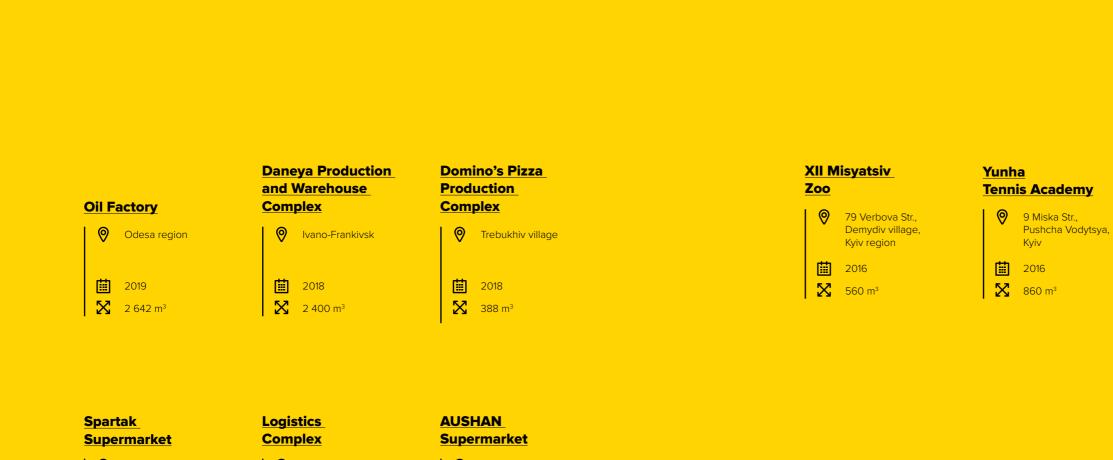
Logistics **Complex**

Murovane village, Lviv region

2019

🔀 280 m³

Completed Facilities





Completed Facilities

Parking



Sofia Rusova Str., Kyiv

2015▲ 410 m³

Completed Facilities

43

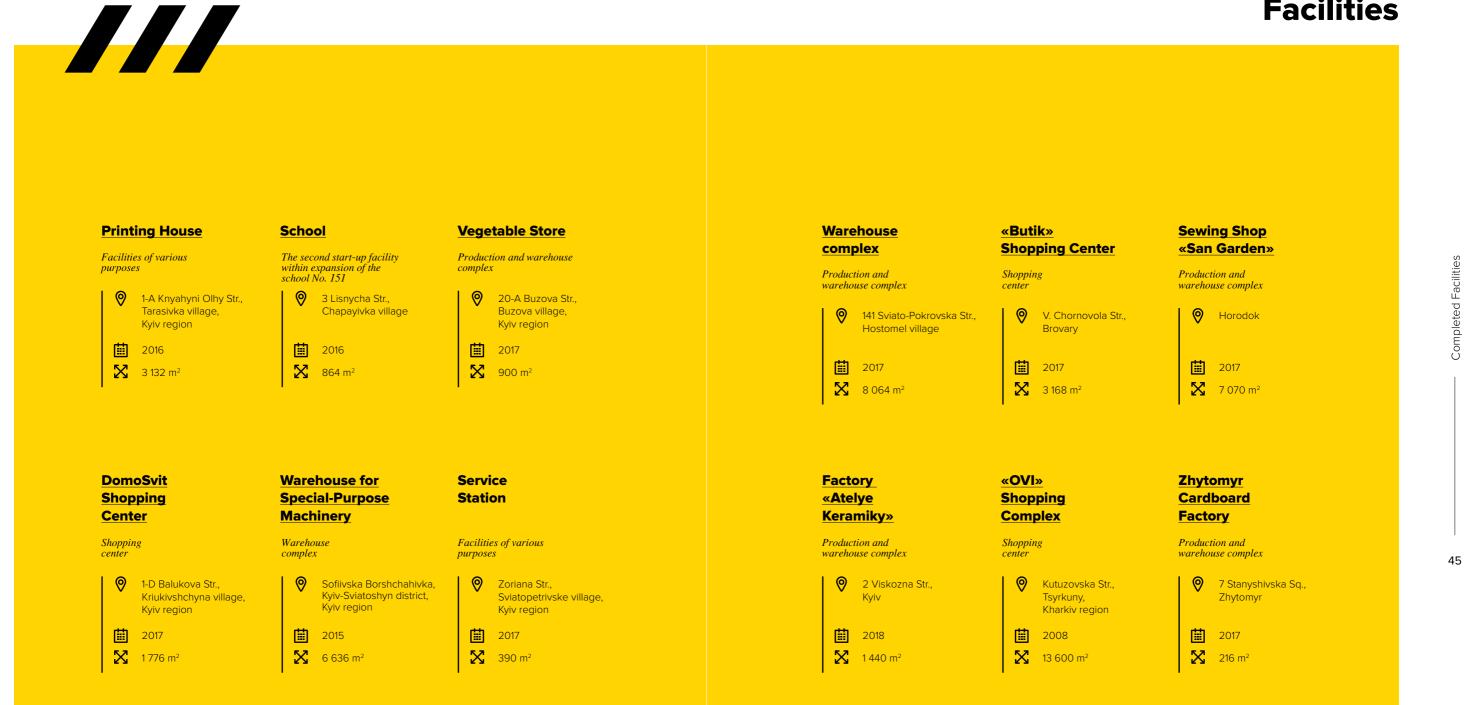
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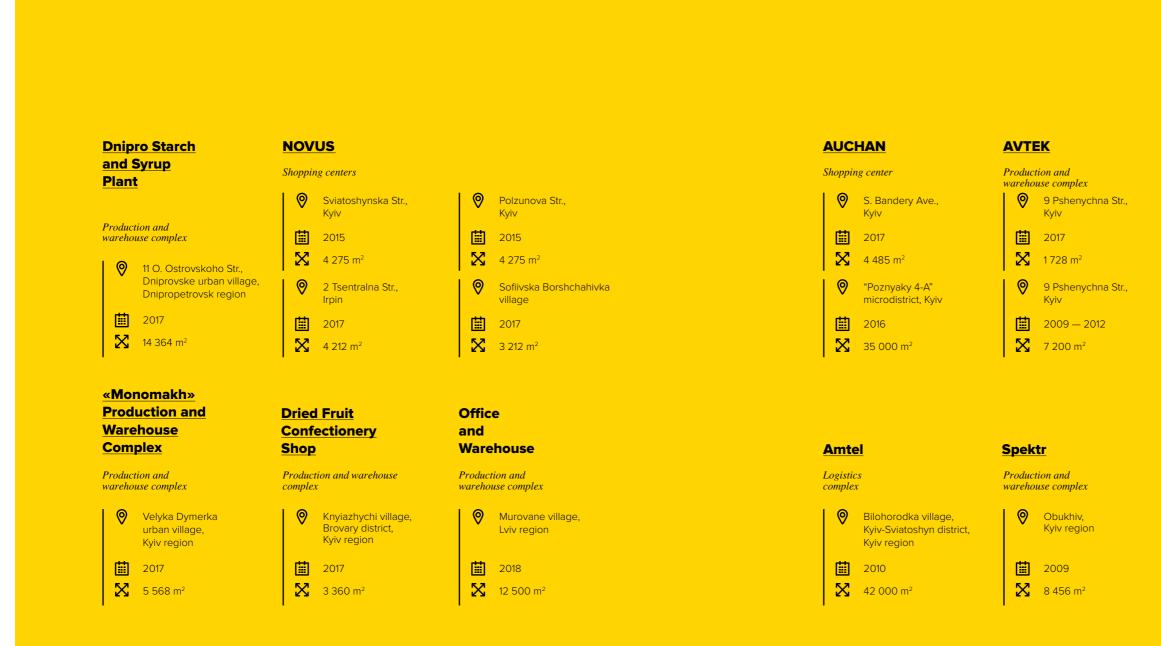
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Office, Warehouse and **Production** Complex

Production and warehouse complex



Sofiivska Borshchahivka village

2017 **X** 900 m²

Academ City

Shopping and entertainment center



Ak. Palladina Str., Kyiv

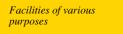
2016

5 472 m²

Completed Facilities

-

Residential **Estate with** Public **Facilities**





Center for the **Preparation of Agricultural Goods**

Facilities of various purposes

0	Martusivka village, Boryspil district, Kyiv region
	2008
X	12 500 m ²

«Oriyentyr» **Building Materials** Manufacturing Company

Facilities of various purposes

0 28-A Nezalezhnosti Str., Brovary, Kyiv region 2009

15 264 m² **«Vinnytsia**

Broiler» **Poultry Farm**

Facilities of various purposes

0	Vinnytsia
曲	2010
\mathbf{X}	3 090 m ²

	Kyiv region
曲	2016
\boxtimes	46 000 m ²

Boryspil,

Production and warehouse complex

Flour

Products

Factory

Production and Warehouse Building with Offices

Production and warehouse complex

0	Simyi Sosninykh Str., Kyiv
₿	2016
X	4 032 m ²

Igor Sikorsky Kyiv International Airport

Facilities of various purposes

0 Kyiv 2011 🔀 8 184 m²

Building Materials Production Shop

Production and

warehouse complex

Medova Str.,

0 Obukhiv, Kyiv region 2015

X 1984 m²

«Vinnytsia

Broiler»

Administrative and Logistics Complex

Sofiivska Borshchahivka,

Kyiv-Sviatoshyn district,

Kyiv region

2016

18 280 m²

Logistics complex

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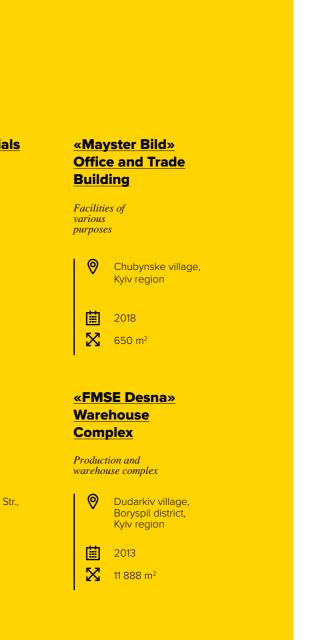
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Poultry Farm Production and warehouse complex 6 Promyslova Str.,

	Zhytoniyi
	2016
X	17 526 m ²

Completed Facilities

Completed Facilities



Completed Facilities





Agricultural Products Warehouse Complex

Production and warehouse complex

O Cherkasy region, Geronimov village council 2017

X 4 320 m²

Lavina Mall

Shopping and

entertainment center 🛛 6 Berkovetska Str., Kyiv

2013 13 400 m²

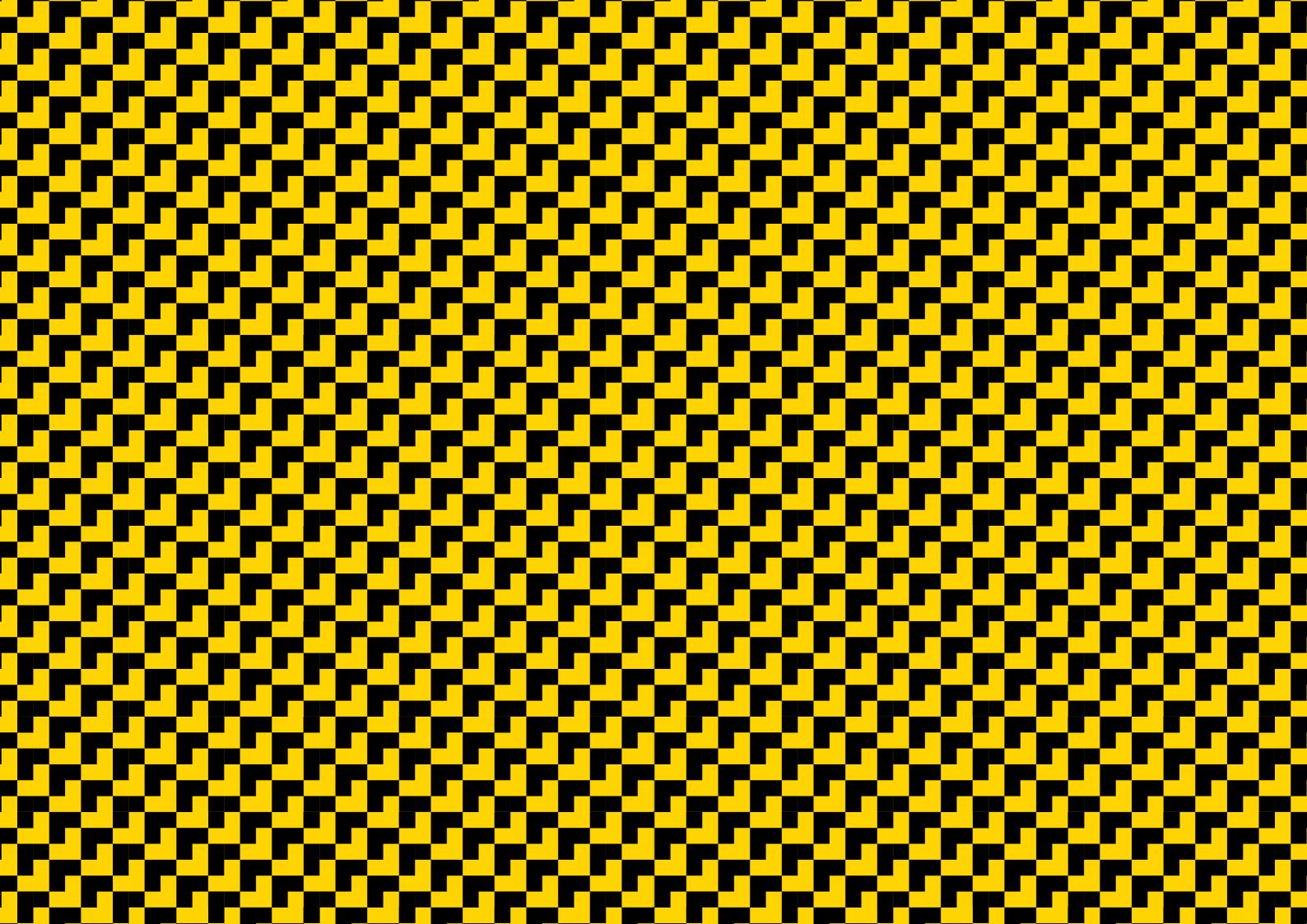
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Completed Facilities



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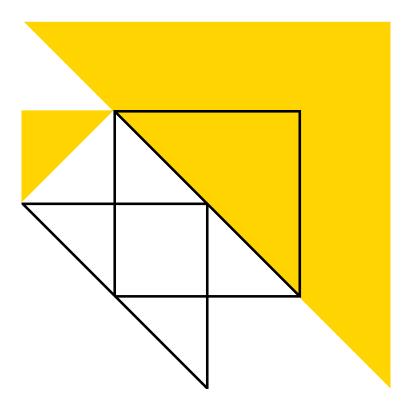




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