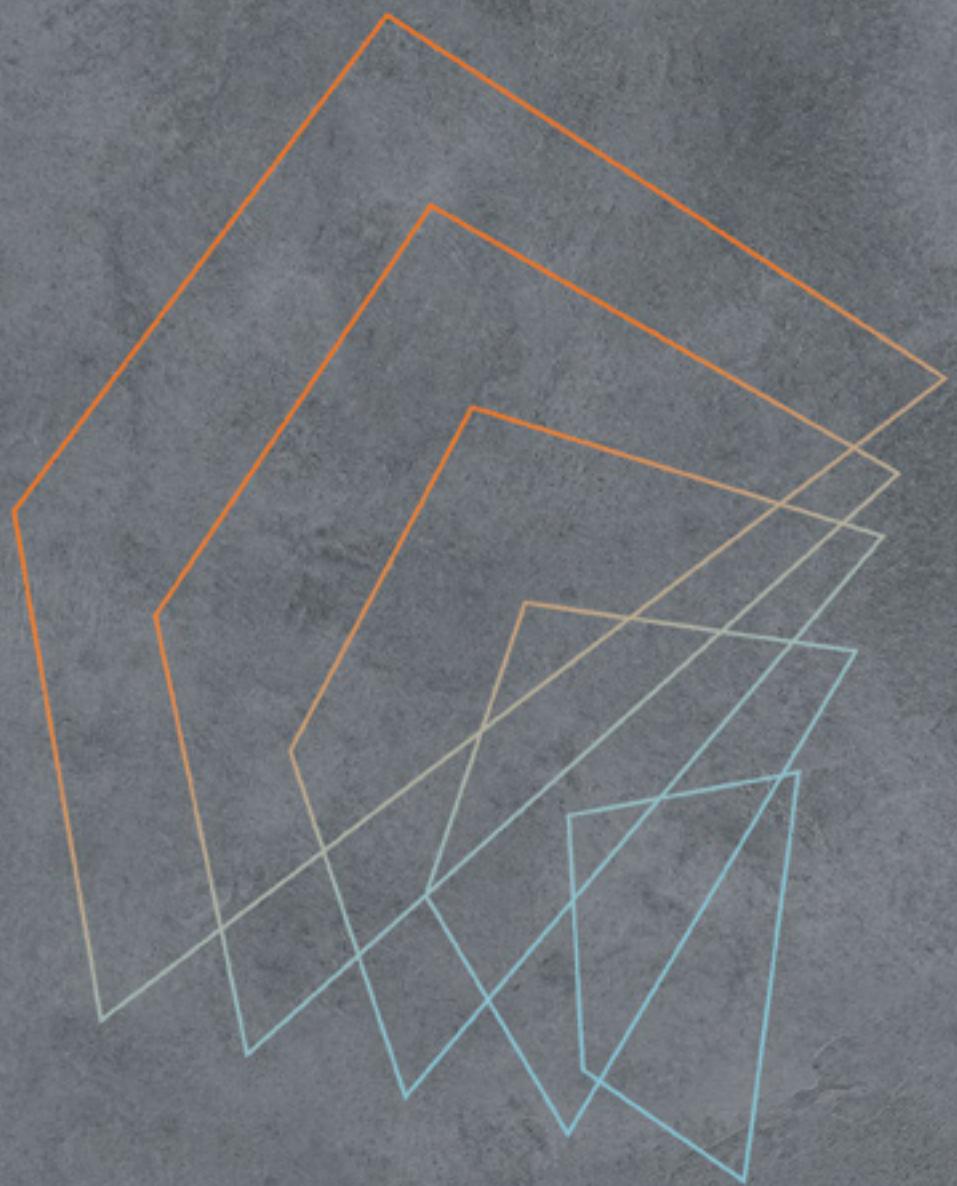




■ KATALOG MONTAŽNIH ELEMENATA
■ CATALOG OF PREFABRICATED ELEMENTS



M O B E C O

MONTAŽNE
BETONSKE
KONSTRUKCIJE







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ZAŠTO ODABRATI NAS

:: gradimo poverenje

NAJBOLJA STRUČNA PODRŠKA

Naše znanje i iskustvo su vam stalno na raspolaganju. Tesna saradnja je od ključne važnosti još u fazi projektovanja. Optimalna rešenja su isplativa sve do završetka izgradnje objekta. Vrednost dobre stručne podrške je neprocenljiva.

BEST PROFESSIONAL SUPPORT

All our knowledge and experience are always at your disposal. Close collaboration is crucial all the way from the design phase. Optimal solutions are cost-effective until the end of construction. Good professional support is invaluable.



WHY CHOOSE US

:: we build trust

PRILAGODLJIVOST

Sistem montažnih betonskih konstrukcija sastoji se od tipskih proizvoda od kojih lako sastavljamo konstrukciju koja u potpunosti odgovara vašim zahtevima. Razumemo sve vaše potrebe i možemo ih predvideti. Naša proizvodnja je dovoljno prilagodljiva da može da zadovolji i najspecifičnije zahteve. Da bi zadovoljili vaše zahteve, uvek smo spremni otići korak dalje.

ADAPTABILITY

The system of prefabricated concrete structures is composed of standard products from which we can easily assemble a structure that fully meets your requirements. We understand all your needs and we can anticipate them. Our production is flexible enough to meet even the most specific requirements. We are always ready to go one step further to meet your requirement.

POUZDANOST

Svaki objekat ima svoje osobnosti i predstavlja potpuno nov izazov. Zato revnosno proveravamo kvalitet i postojano tražimo mogućnosti za unapredjenje. Dogovorene standarde uvek postižemo, a još radite ih prevazilazimo, jer je odlično izgrađen objekat naše najveće zadovoljstvo.

KOREKTNOST

Našu firmu stvaraju ljudi koji se neprestano obučavaju, razmenjuju iskustva, ideje i znanje i tako doprinose poboljšanju kvaliteta poslovanja. Obavezali smo se i na visoku poslovnu kulturu. Svaki dan i na svakom koraku, kako u preduzeću, tako i sa svojim poslovnim partnerima gradimo dobre odnose zasnovane na poštovanju i poverenju.

RELIABILITY

Each facility has its own characteristics and presents a completely new challenge. We therefore diligently check the quality and constantly seek possibilities for improvement.

We always achieve the agreed standards or rather exceed them, because a superbly built facility is our greatest satisfaction.

CORRECTNESS

Our company is created by people who are constantly trained, who exchange experience, ideas and knowledge and thus contribute to improving the quality of business. We are also committed to a high business culture. Every day and at every step, both in the company and with our business partners, we build strong relationships based on respect and trust.

UBEDLJIVI RAZLOZI

:: montažna gradnja je gradnja budućnosti

CONVINCING REASONS

:: prefabricated construction is the construction of the future

NAJJEDNOSTAVNIJA

Montažni sistemi pružaju najjednostavnija rešenja za sve građevinske izazove, kako u industriji, tako i u izgradnji poslovnih zgrada, javnih objekata i poljoprivredne infrastrukture. Čak i više od toga! Ova jednostavna rešenja imaju niz dodatnih prednosti. Upravo zato je montažna gradnja toliko zastupljena.

THE SIMPLEST

Prefabricated systems provide the simplest solutions to all the challenges in construction in industry, as well as in the construction of business or public buildings and agricultural infrastructure. Even more! These simple solutions have a number of additional benefits. That is why prefabricated construction is so prevalent.

EKONOMIČNO

Jednostavnost rešenja, brzina izvođenja radova i celokupni kvalitet presudno utiču na ekonomičnost gradnje. Stručna pomoć naših inženjera dodatno pojednostavljuje izvođenje projekata. Montažne betonske konstrukcije nude najbolji odnos cene i kvaliteta.



ECONOMICAL

Simplicity of solutions, speed of execution and overall quality of have a decisive impact on the economical construction. Professional support of our engineers further simplifies the execution of projects. Prefabricated concrete structures offer the best ratio between price and quality.

EFIKASNO

Naša tehnologija, iskusni stručnjaci i unapredena organizacija, garancija su za vrhunski kvalitet betonskih proizvoda i procesa izgradnje. Precizno osmišljene, i pod strogim nadzorom izradene prefabrikovane građevinske elemente prilagodavamo zahtevima projektanata i posebnim željama investitora. Ispunjavamo obećanja i prevazilazimo očekivanja.



EFFICIENT

Our technology, experiences experts and improved organization are a guarantee for top quality of concrete products and process of construction. We adapt precisely designed and under strict supervision made prefabricated building elements to the requirements of designers and special wishes of investors. We keep our promises and exceed expectations.

EKOLOŠKI

Proizvodnja montažnih betonskih konstrukcija u kontrolisanim uslovima, u fabriči, u osnovi je već ekološka. Naša odgovornost prema životnoj sredini obuhvata i više od toga. Pažljivim planiranjem smanjujemo opterećenje prirodnog okruženja u fazi montaže objekata, a posebnu pažnju posvećujemo reciklaži objekata, nakon isticanja njihovog veka trajanja. Razmišljamo trajno, delujemo odgovorno.

ENVIRONMENTAL

Manufacture of prefabricated concrete structures in controlled conditions in the factory, is environmentally friendly in its essence. Our responsibility towards the environment includes even more. The burden on the environment at the stage of assembly is reduced through meticulous planning, whereas special attention is also devoted to the recycling of structures after the end of their useful life. We think sustainably, we act responsibly.

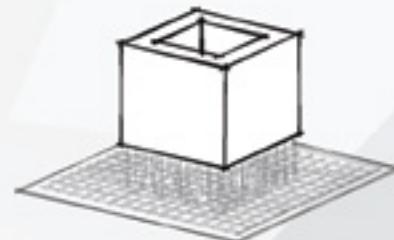
BRZO

Koncept montažne gradnje zasniva se na svesti o izuzetnoj važnosti brzine realizovanja ideja. Naš sistem podrazumeva projektovanje, proizvodnju betonskih elemenata, transportovanje i montažu objekta u veoma kratkom vremenskom roku. S obzirom na to da radimo sa prefabrikovanim elementima, garantujemo kvalitetnu izgradnju i tokom zimskog perioda.

QUICKLY

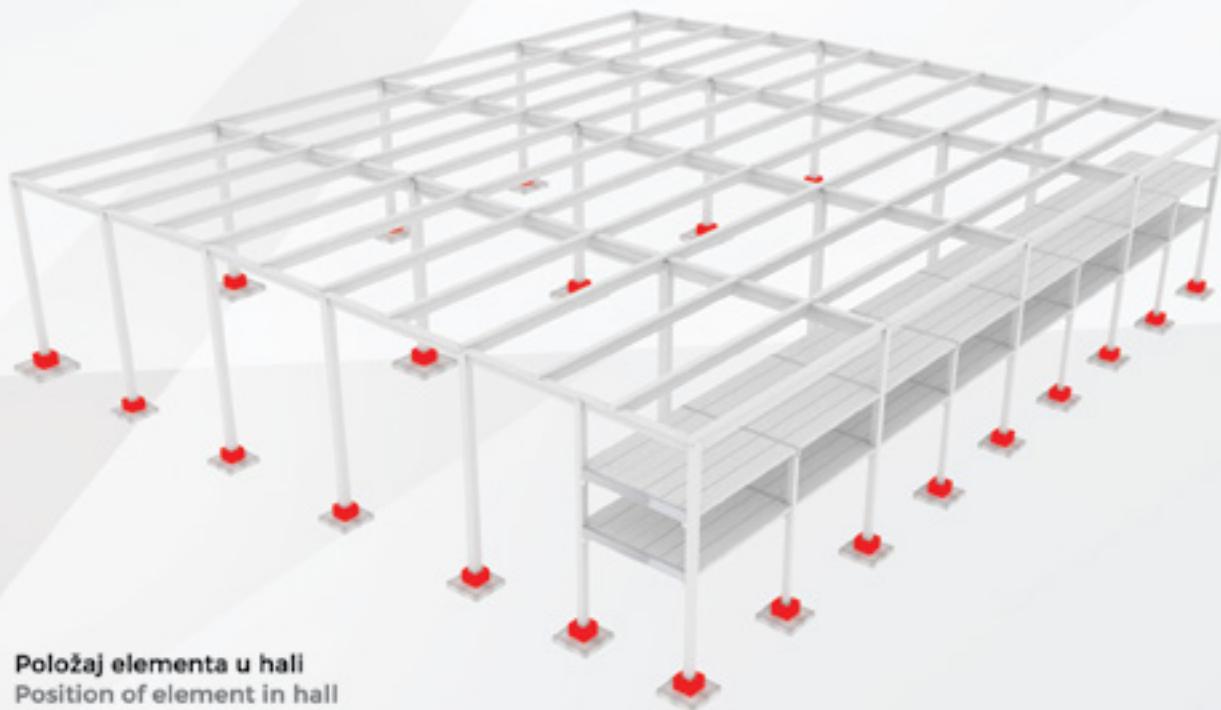
The concept of prefabricated construction is based on the awareness of high importance of the speed of the realization of ideas. Our system includes design, production of concrete elements, transportation and installation in a very short time. Given that we work with prefabricated elements, we guarantee quality construction in the winter time as well.

■ TEMELJNE ČAŠICE / ■ FOUNDATION SOCKETS

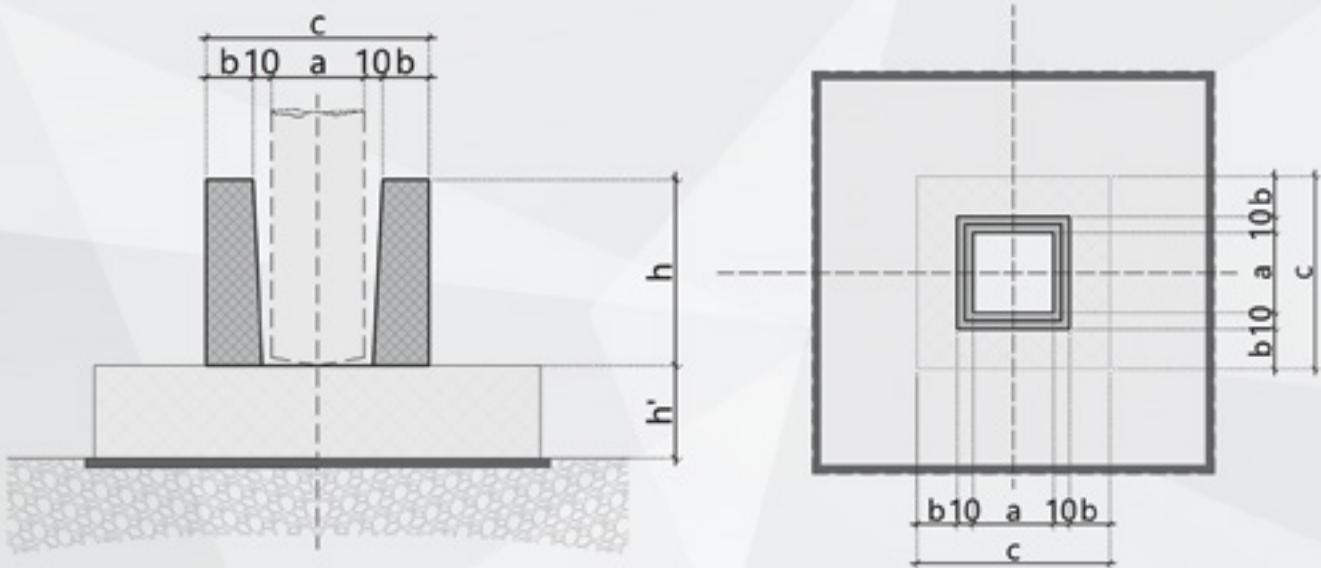


Temeljne čašice su prefabrikovani elementi koji se izrađuju u posebnim kalupima, u našim pogonima, uz odgovarajući nadzor. Njihovom upotrebom se značajno smanjuje vreme realizacije temelja, a samim tim su skraćeni i rokovi izgradnje određenog objekta. U zavisnosti od statickog proračuna čašice se izrađuju od klase betona $C \geq 30/37$, dok su dimenzije date tabelarno, u zavisnosti od dimenzije stubova. Unutrašnjost čašica je otrebrena i zakošena, zbog bolje monolitizacije i montaže stubova. Gotovi prefabrikovani elementi se odvoze transportnim sredstvima do mesta ugradnje. Montaža čašica se postavlja na prethodno postavljen tanak beton, nakon postavljanja odgovarajuće armature temeljne stope. Temeljne stope se izlivaju na licu mesta i zajedno sa temeljnim čašicama čine fundamentalnu celinu.

Foundation sockets are prefabricated elements that are made in special molds in our plants with appropriate supervision. Their use significantly reduces the time of realization thus shortening the deadlines for the construction of a particular facility. Depending on the static calculation, foundation sockets are made of concrete $C \geq 30/37$, while the dimensions are given in the table, depending on the dimensions of the columns. The inside of the foundation sockets is ribbed and sloped because of better monolithization and assembly of columns. Finished prefabricated elements are transported to the place of installation. The foundation sockets are installed on the previously placed lean concrete after setting the appropriate reinforcement of the foundation footings. Foundation footings are poured on the site, and together with the foundation sockets they form a fundamental whole.



Položaj eleminta u hali
Position of element in hall



tipovi temeljnih čašica-geometrijske karakteristike
type of foundation socket-geometric characteristics

	dužina/ length (cm)						
a	40	50	60	70	80	90	100
b	25	25	20	25	25	25	25
c	100	120	140	150	160	170	
h	80-100		100-140				
h'	40-60		50-80				



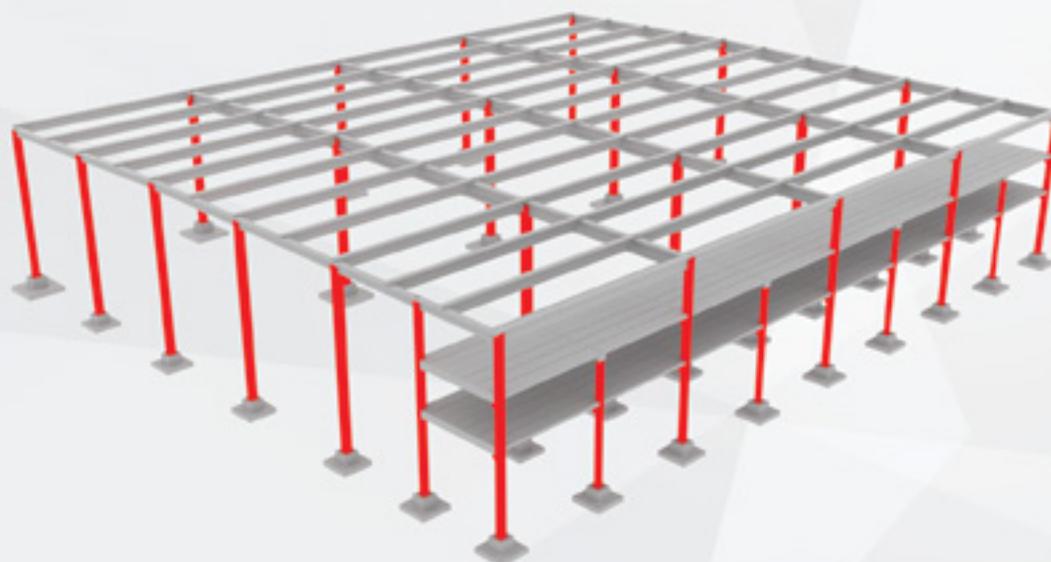
■ STUBOVI

■ COLUMNS

Prefabrikovani stubovi su vertikalni konstruktivni elementi koji nose elemente krova, meduspratne konstrukcije objekata, obodne grede, nosače kranskih staza. Mogu biti kvadratnog, pravougaonog i kružnog poprečnog preseka. Stubovi se montiraju na prethodno pripremljene temelje sa temeljnim čašicama. Klasa betona stubova je C \geq 30/37, u zavisnosti od statičkog proračuna. Deo stuba koji ulazi u temeljnu čašicu je orebren zbog bolje monolitizacije, a na dnu je pozicioniran "trn" za precizno centriranje stuba prilikom same montaže. Na vrhu stuba, na mestu gde ulazi glavni nosač ostavlja se otvor za vezu.

Prefabricated columns are vertical structural elements that support the roof elements, floor structures of the facility, edge beams, crane girders. They can be square, rectangular and circular in cross-section. Columns are mounted on pre-prepared foundations with foundation socket.

Concrete class of columns is C \geq 30 / 37. The part of the column that enters the foundation socket is ribbed for better monolithization, and a "mandrel" is positioned at the bottom for precise centering of column during assembly. At the top of the column, at the place where the primary girder enters, there is an opening for connection.



Položaj elementa u halli
Position of the element in the hall

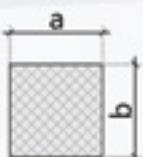
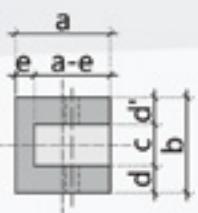


AB MONTAŽNI STUBOVI (samo za prijem glavnih nosača) AB MOUNTING COLUMNS (only for receiving the primary girders)



TIP 1 / TYPE 1

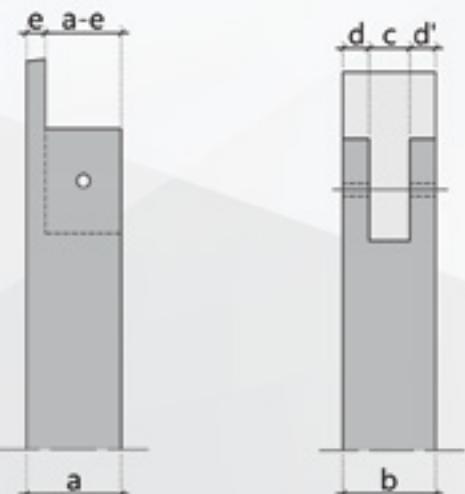
Prikaz glave stuba
Preview of the capital of the column



tipovi stubova-geometrijske karakteristike
types of columns-geometric characteristics

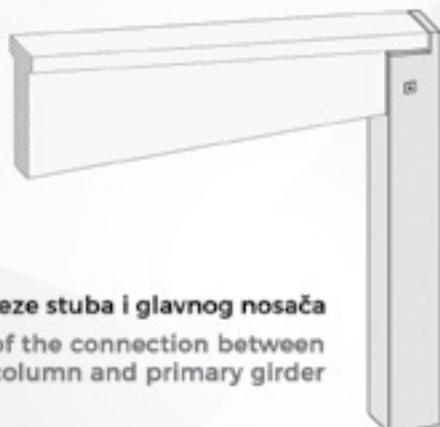
	dužina/ length (cm)						
a	40	50	60	70	80	90	100
b	40	50	60	70	80	90	100
c					(b-d-d')		
d,d'					min. 12		
e						min. 12	

3D model



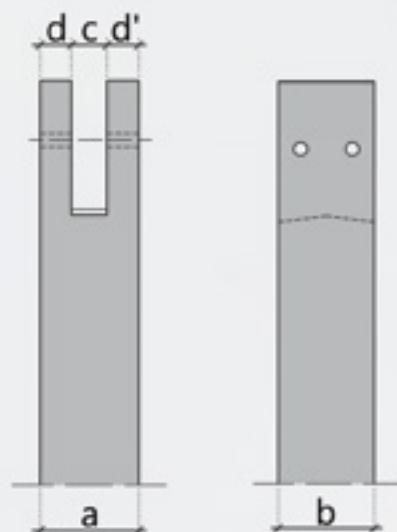
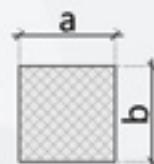
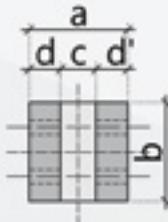
Detalj veze stuba i glavnog nosača

Detail of the connection between the column and primary girder



TIP 2 / TYPE 2

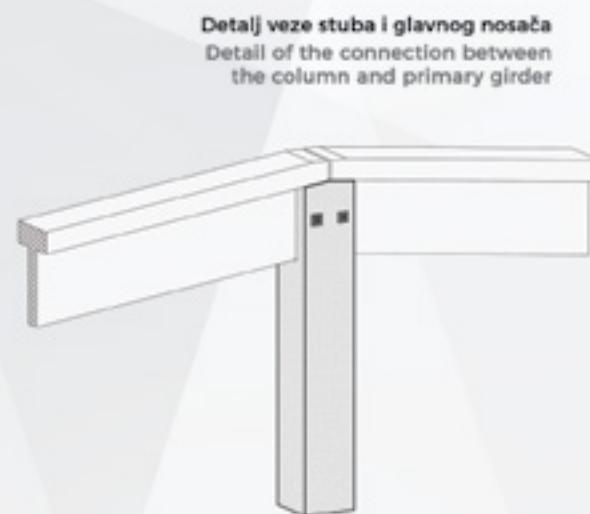
Prikaz glave stuba
Preview of the capital of the column



tipovi stubova-geometrijske karakteristike
types of columns-geometric characteristics

	dužina/ length (cm)						
a	40	50	60	70	80	90	100
b	40	50	60	70	80	90	100
c	(a-d-d')						
d,d'	min. 12						

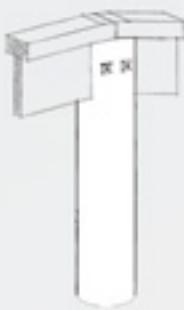
3D model



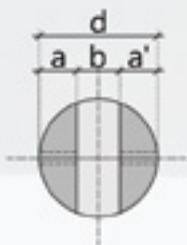
Detalj veze stuba i glavnog nosača
Detail of the connection between the column and primary girder



TIP 3 / TYPE 3



Prikaz glave stuba
Preview of capital of a column



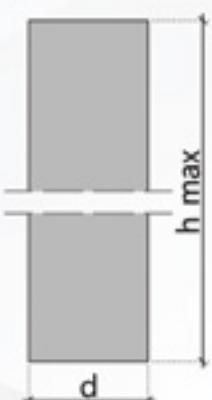
tipovi stubova-geometrijske karakteristike
types of columns-geometric characteristics

	dužina/length (cm)	
d	40	50
h _{max}	600	900
a,a',b	vrednosti se menjaju, u zavisnosti od dimenzije nosača	

3D model



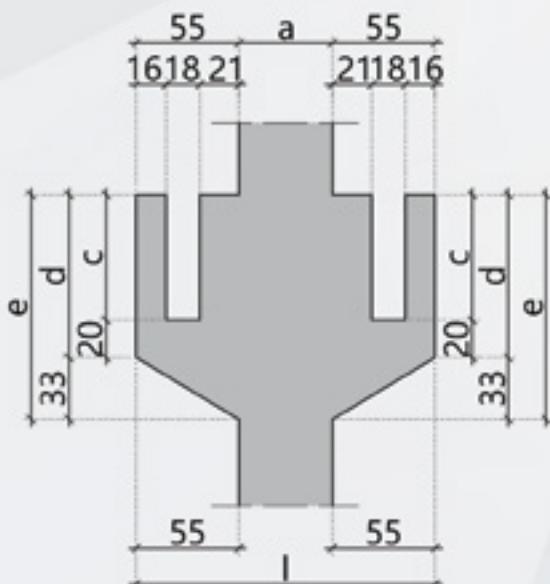
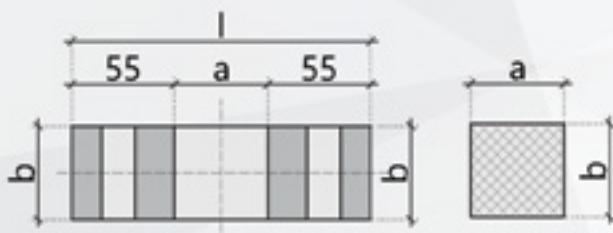
Detalj veze stuba i glavnog nosača
Detail of band between column and primary girder



AB MONTAŽNI STUBOVI / AB MOUNTING COLUMNS

TIP 1 (dodatno primaju kranske staze) TYPE 1 (additionally receive crane tracks)

Prikaz glave stuba
Preview of capital of a column



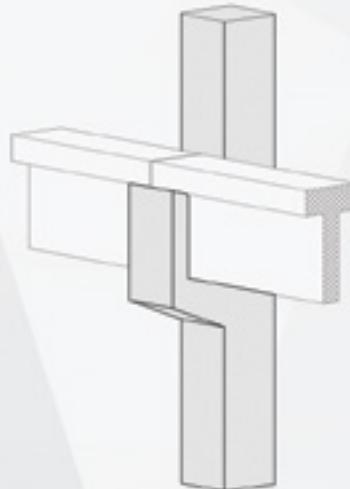
tipovi stubova-geometrijske karakteristike
type of columns-geometric characteristics

	dužina/ length (cm)							
a	40	50	60	70	80	90	100	
b	40	50	60	70	80	90	100	
c					67, 77, 87			
d				(c+20)				
e					(d+33)			
I						(a+110)		

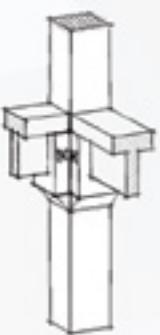


3D model

Detalj veze stuba i kranske staze
Detail of band between column and crane girders



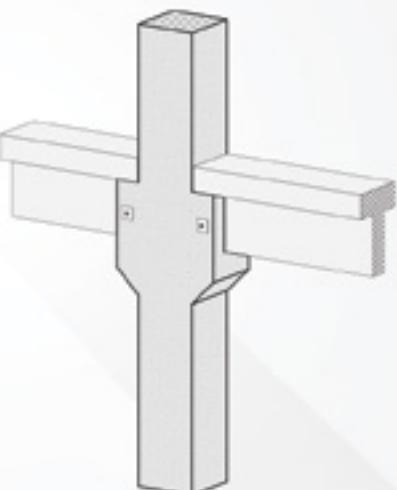
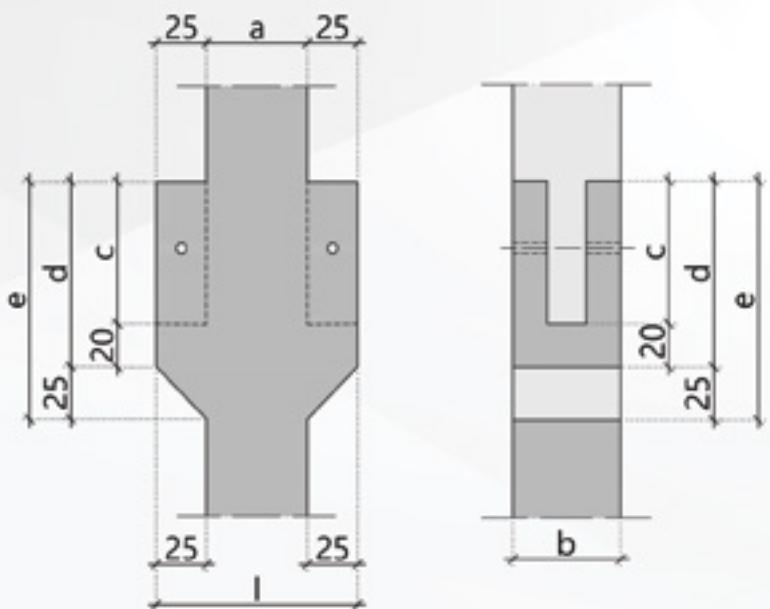
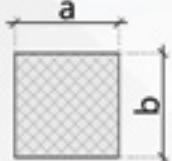
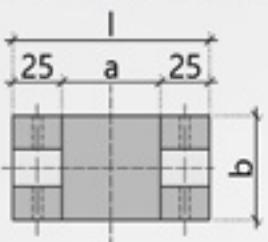
TIP 2 (dodatno primaju glavne nosače na međunivo)
TYPE 2 (additionally receive girders on intermediate level)



tipovi stubova-geometrijske karakteristike
types of columns-geometric characteristics

	dužina/ length (cm)						
a	40	50	60	70	80	90	100
b	40	50	60	70	80	90	100
c				67, 77, 87			
d				(c+20)			
e				(d+25)			
-				(a+50)			

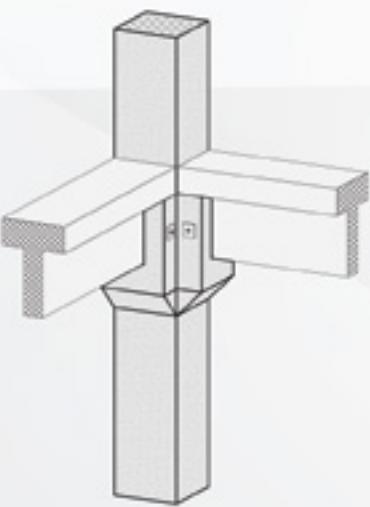
Prikaz glave stuba
Preview of capital of a column



3D model



Detalj veze stuba i glavnog nosača
Detail of the connection between the column and the primary girder

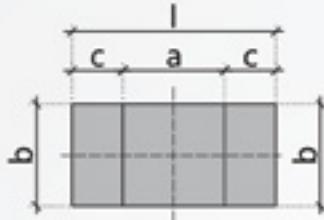


AB MONTAŽNI STUBOVI / AB MOUNTING COLUMNS

(dodatno primaju meduspratne grede) /
(additionally receive floor beams)

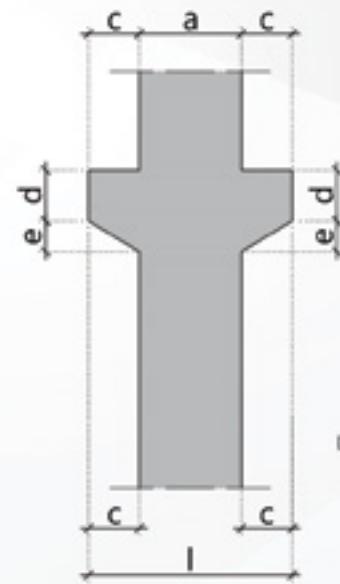
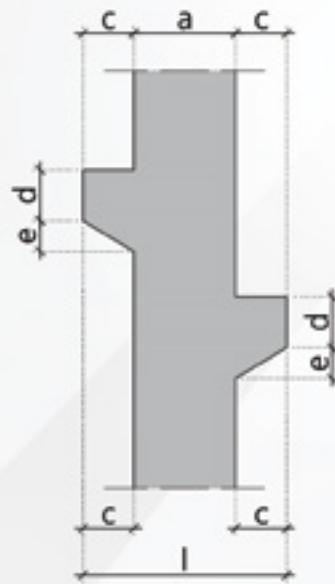
TIP 1 / TYPE 1

Prikaz glave stuba
Preview of the capital of the column

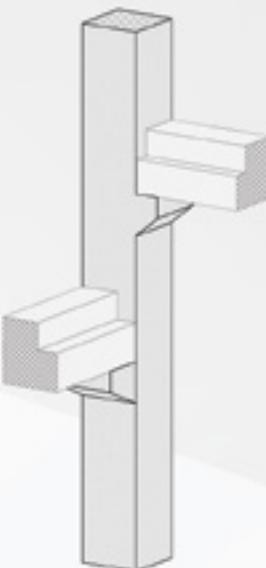


types of columns - geometric characteristics

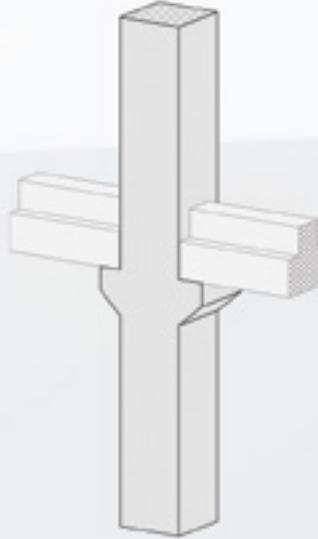
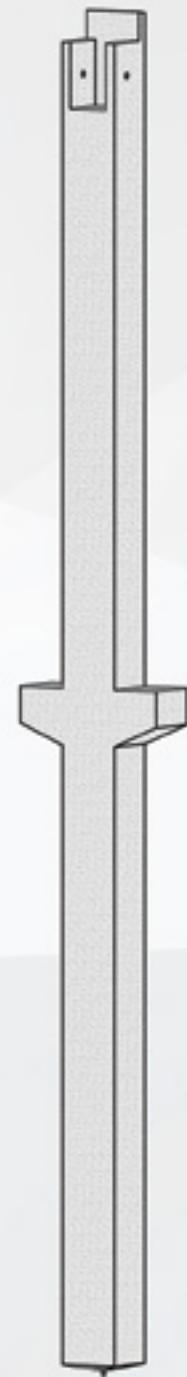
	dužina/ length (cm)						
a	40	50	60	70	80	90	100
b	40	50	60	70	80	90	100
c			25, 40				
d			25, 40				
e			15, 20				
l							(a+2c)



3D model



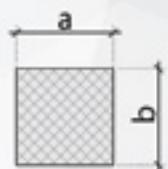
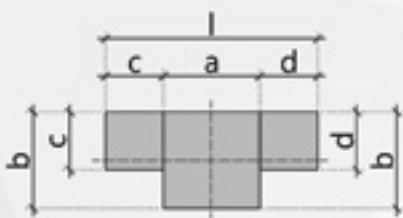
Detalj veze stuba i grede
Detail of the connection between
the column and the beam



TIP 2 / TYPE 2

Prikaz glave stuba

Preview of the capital of the column

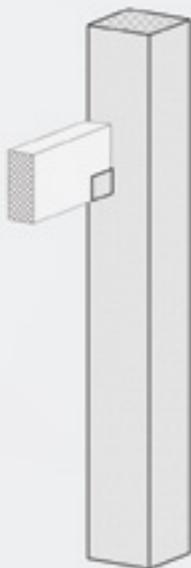


tipovi stubova-geometrijske karakteristike
types of columns - geometric characteristics

	dužina/ length (cm)						
a	40	50	60	70	80	90	100
b	40	50	60	70	80	90	100
c					25 - 50		
d					25 - 50		
i					(a+d+c)		

Detalj veze stuba i grede
Detail of band between column
and beams

3D model



VIJČANE VEZE MONTAŽNE KONSTRUKCIJE

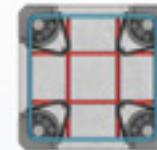
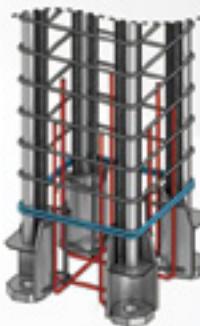
ANCHOR CONNECTIONS OF PREFABRICATED CONSTRUCTION

Vijčane veze montažne konstrukcije je široko prihvaćen i primenjivan sistem veza. Težnja što većoj industrijalizaciji, prefabrikaciji i smanjivanju potrebnih radova na gradilištu, doveđa je do razvoja veza montažne betonske konstrukcije koje su po konstrukciji veoma slične vezama kod čeličnih konstrukcija. Ovaj način izvođenja veza podrazumeva primenu čeličnih ugradnih elemenata u oba betonska elementa koja se spajaju. Donja konstrukcija (konstruktivni element koji se spaja sa gornjim montažnim delom) može da bude monolitna (temeljna ploča, temeljna greda, monolitni donji deo stuba) ili montažna (montažni deo stuba, montažna greda) u koju je prethodno, pri betoniranju, ugrađen potreban broj sidrenih vijaka. Gornja konstrukcija (montažni stub) se izvodi sa ubetoniranim papučama za stub. Tip papuča na stubu po dimenziji i nosivosti mora da odgovara dimenziji i nosivosti ugrađenog aknera u donju konstrukciju.



ANKER PAPUĆA /
ANCHOR SHOE

VIJAK ZA SIDRENJE /
ANCHOR BOLT

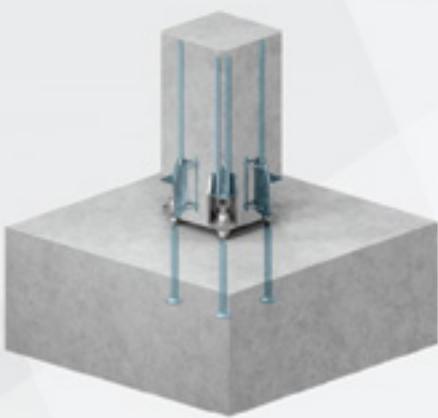


prikaz veze armaturne mreže i anker papuća /
the connection of the reinforcement grid
and the anchor shoes

The screw connections of prefabricated construction is a widely accepted and applied connection system. The desire for greater industrialization, prefabrication and reduction of necessary works on the construction site, has led to the development of connections of prefabricated concrete structures, which are very similar in structure to connections in steel structures. This way of making connections involves the use of steel built-in elements in both concrete elements that are joined. The lower structure (structural element that connects to the upper prefabricated part) can be monolithic (foundation slab, foundation beam, monolithic lower part of the column) or prefabricated (prefabricated part of the column, prefabricated beam) in which the required number of anchor bolts was previously installed during concreting. The upper structure (prefabricated column) is made with the shoes that are concreted into the column. The type of the shoes on the column in terms of dimensions and load-bearing capacity must correspond to the dimensions and load-bearing capacity of the built-in shoes in the lower structure.

Vijčane veze stubova primenjuju se kao efikasna zamena klasične veze montažnog stuba sa temeljom i primenom čašice. Veza je ekvivalentna monolitnoj krutoj vezi i ispitivanja su pokazala veoma dobru duktilnost veze pri cikličnom opterećenju, te je pogodna za primenu u seizmički aktivnim područjima.

Veza je primenljiva pored spomenute primene (veza za temeljnu ploču ili jastuk) i kod nastavka monolitnih donjih spratova montažnom konstrukcijom, kao i kod nastavaka montažnog na montažno (pogodan kod stubova izuzetne dužine ili težine - razdvajanje u dva dela sa mogućnošću redukcije poprečnog preseka).



vijčana veza stuba i temeljne ploče /
the screw connection of the column
and the foundation slabs



vijčana veza stubova /
the screw connection of the columns

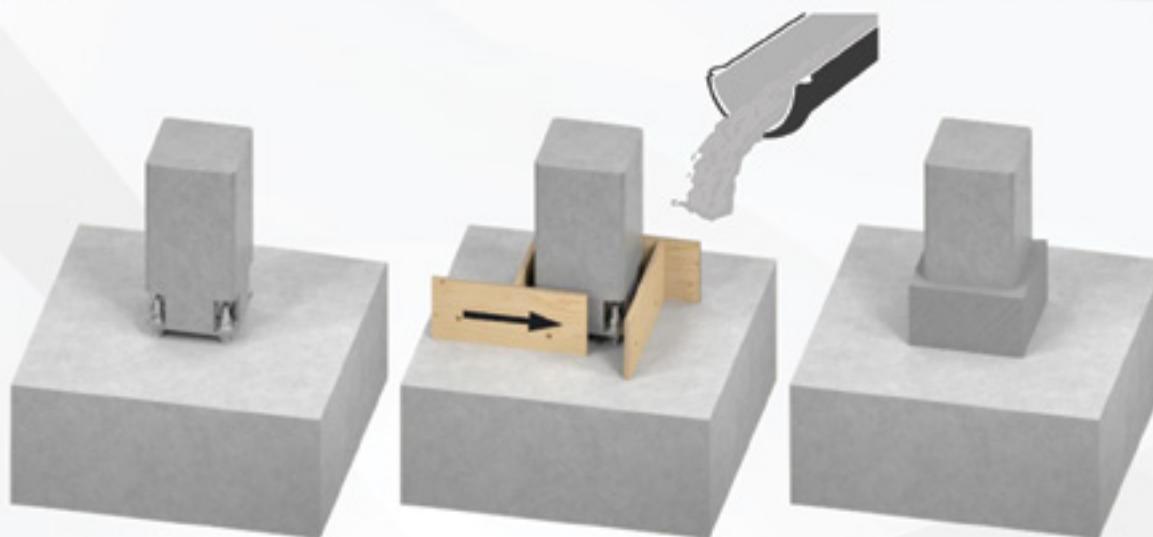
The screw connections of the columns are used as an efficient replacement of the classic connection of the prefabricated column with the foundation and the use of a foundation socket. The bond is equivalent to a monolithic rigid bond and tests have shown very good ductility of the bond under cyclic loading and it is suitable for use in seismically active areas.

The connection is applicable in addition to the mentioned application (connection for the foundation slabs or foundation pillow) and in the continuation of monolithic lower floors with prefabricated construction, as well as in the continuation of prefabricated on prefabricated (suitable for columns of exceptional length or weight - separation into two parts with the possibility of reducing cross section).



Montaža stubova na gradilištu vrši se na unapred nivelišane matice i podloške koje su navrnute na sidrene vijke. Stub se spušta na sidrene vijke, proverava se vertikalnost u dva ortogonalna pravca, postavljaju se gornje podloške i maticе. Maticе se pritežu običnim vilastim ili moment ključem. Pritezanje se može izvršiti i udaranjem čekićem na vilasti ključ i dovodi se do "snug-tight" pritegnutosti. Nakon toga stub se može otkačiti sa dizalice kojom je izvršena montaža.

Pre opterećivanja stuba ostatkom konstrukcije, koja se na njega oslanja, potrebno je izvršiti podливаве споја висококвалитетним бетоном са нескупљајућим својством и који је за једну класу већи од класе бетона од које су израђени stubovi. Удубљење код папуће се испуњава истим материјалом. Уколико се веза налази у агресивној средини обавезно се ради заштита папућа од корозије, тако да се подливаве врши 5cm шире од димензије стуба и до висине да покрије челични део папуће.



Prikaz procesa podливавања стуба након монтаже /
Process overview of pouring the columns after installation

The installation of the columns on the construction site is done on pre-leveled nuts and washers that are screwed on the anchor bolts. The columns are lowered, the verticality is checked in two orthogonal directions, the upper washers and nuts are placed. The nuts are tightened with an ordinary fork or torque wrench. Tightening can also be done by hitting the fork wrench with a hammer and leading to "snug-tight" tightening. After that, the pole can be detached from the crane with which the installation was performed.

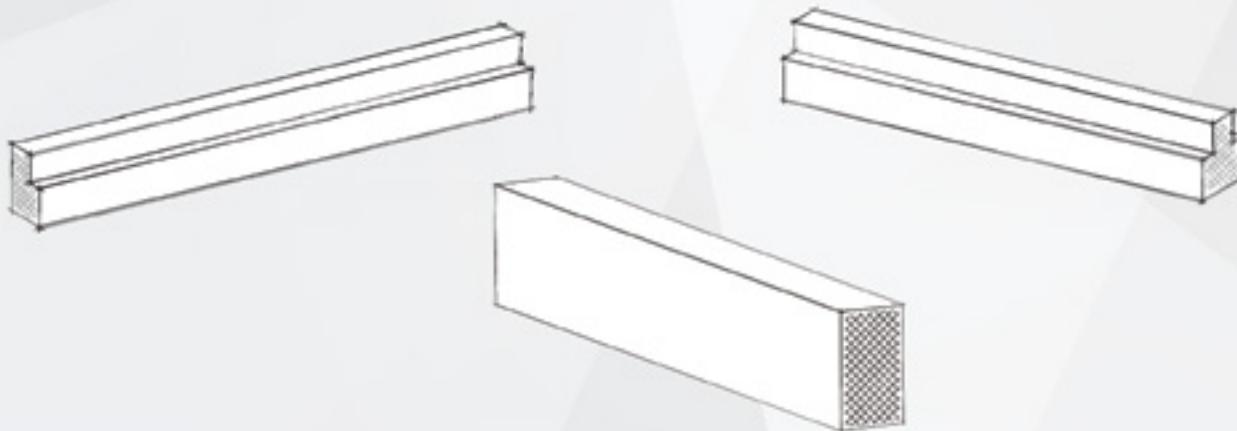
Before loading the column with the rest of the structure, which relies on it, it is necessary to fill the joint with high-quality concrete with non-shrinking properties and which is one class higher than the class of concrete from which the columns are made. The recess in the shoe is filled with the same material. If the connection is in an aggressive environment, it is obligatory to protect the slipper from corrosion, so that the underlay is 5 cm wider than the dimension of the column and up to the height to cover the steel part of the shoe.



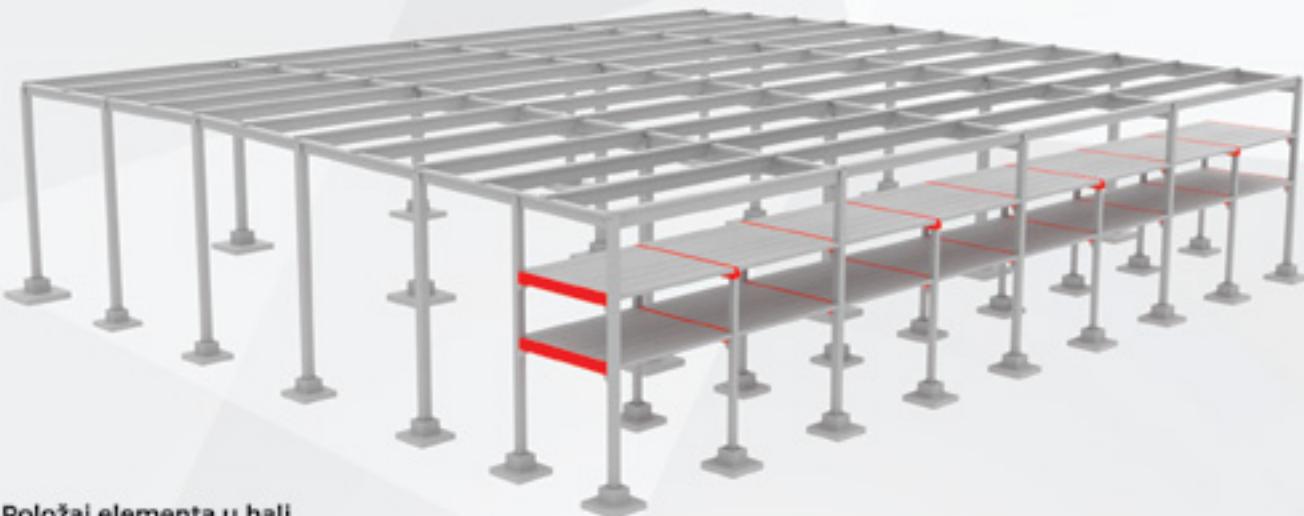
■ MEĐUSPRATNE GREDE

■ FLOOR BEAM

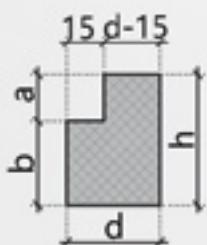
Međuspratne grede su konstruktivni elementi za prijem šupljih i TT ploča. Naležu na kratke elemente ili na vrhove stubova. Izrađene su od betona klase C \geq 40/50. Dimenzije su date tabelarno i zavise od statičkog proračuna i visine šupljih ploča. U zavisnosti od načina oslanjanja ploča i oblika poprečnog preseka imamo tri tipa međuspratnih greda. Prvi tip su grede „L“ poprečnog preseka (šuplje ploče se oslanjaju samo sa jedne strane), a drugi obrnuto „T“ (šuplje ploče se oslanjaju sa obe strane), a treći tip pravougaonog poprečnog preseka (šuplje ploče prelaze preko nje).



Floor beams are structural elements for receiving hollow core slabs and TT slabs. They lay down on short elements or on the tops of columns. They are made of concrete class C \geq 40 / 50. The dimensions are given in the table and depend on the static calculation and the height of the hollow core slabs. Depending on the way the slabs are supported and the shape of the cross section, we have three types of floor beams. The first type are beams "L" of cross section (hollow core slabs lay supported on one side only), and the second type is reversed "T" (hollow core slabs supported on both sides), and the third type is of rectangular cross-section (hollow core slabs go over beams).



Položaj elementa u hali
Position of the element in the hall

MEĐUSPRATNA GREDA "L" PRESEKA - TIP 1**FLOOR BEAM "L" CROSS-SECTION - TYPE 1**

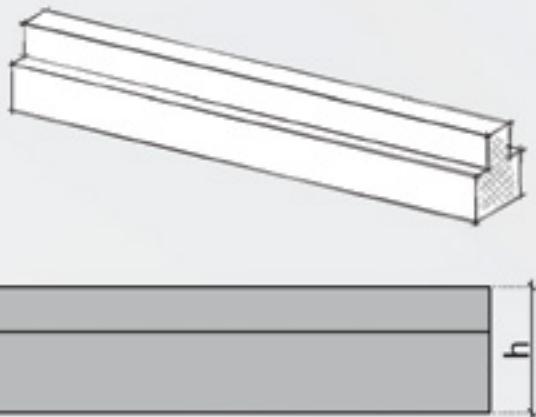
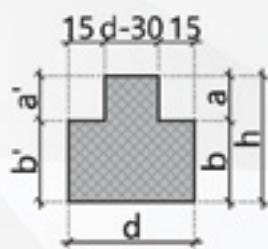
tipovi meduspratnih greda - geometrijske karakteristike
types of floor beams - geometric characteristics

	dužina/ length (cm)
a	20-50
b	(h-a)
h	50-140
d	40-90



MEĐUSPRATNA GREDA OBRNUTO "T" - TIP 2

FLOOR BEAM REVERSE "T" - TYPE 2



tipovi meduspratnih greda - geometrijske karakteristike
types of floor beams - geometric characteristics

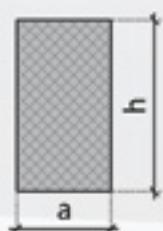
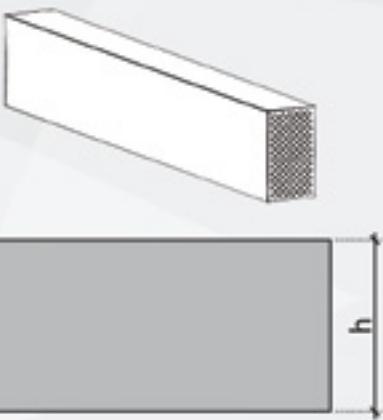
dužina/ length (cm)

a	20-50
b	(h-a)
a'	20-40
b'	(h-a')
h	50-140
d	40-90



MEĐUSPRATNA PRAVOUGANA GREDA - TIP 3

RECTANGULAR FLOOR BEAM - TYPE 3

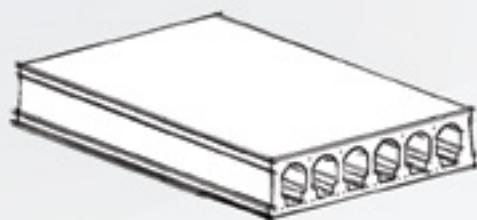


tipovi meduspratnih greda - geometrijske karakteristike
types of floor beams - geometric characteristics

	dužina/length (cm)
a	50-100
h	50-120

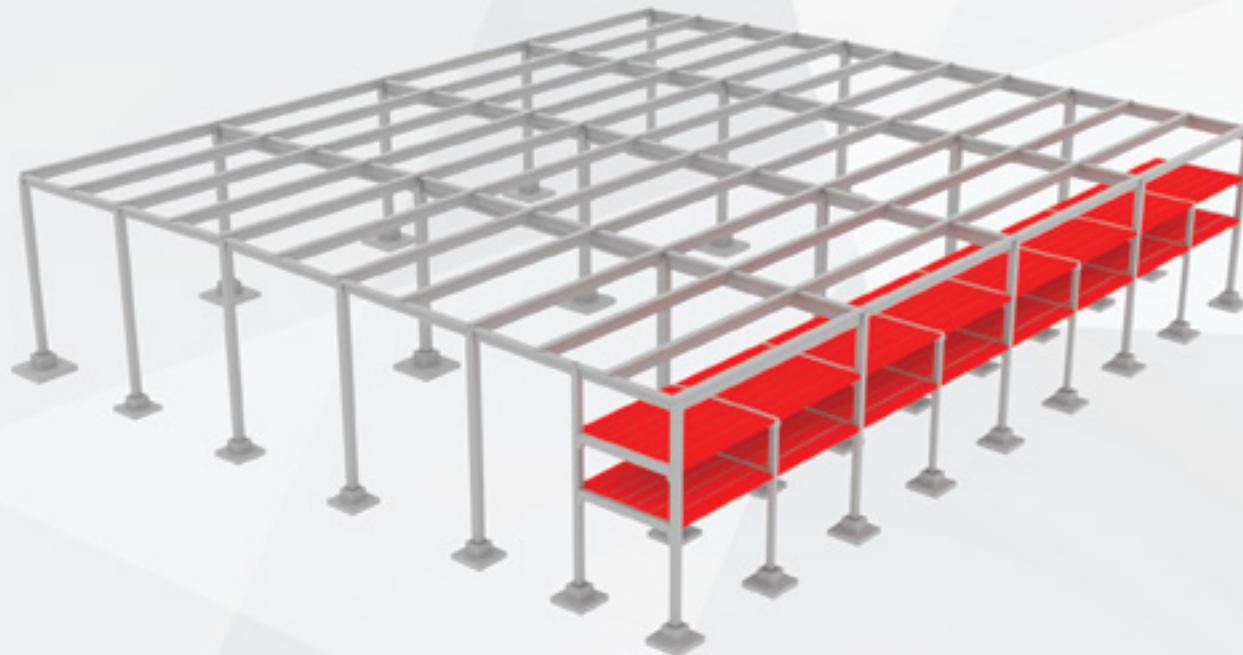


■ ŠUPLJE PLOČE ■ HOLLOW CORE SLABS



Prednapregnute šuplje ploče su montažni međuspratni konstruktivni elementi sa kontinuiranim unutrašnjim šupljinama, koje znatno umanjuju težinu elemenata. Proizvode se u širini 1200 mm, uključujući i uzdužne spojeve, dok se u zavisnosti od raspona i opterećenja određuje debljina i tip utezanja. Izrađuju se od betona klase C=50/60. Nakon montaže prednapregnutih šupljih ploča radi se monolitizacija. Standardne šuplje ploče imaju vatrootpornost od 60min do 120min. Jedna od glavnih prednosti ovih ploča je brza ugradnja, bez potrebe za podupiranjem. Težina ovih ploča je od 37% do 54% manja od uobičajenih monolitnih ploča, što smanjuje potrebne dimenzije ostalih elemenata noseće konstrukcije.

Pre-stressed hollow core slabs are prefabricated floor structural elements with continuous inner holes, which significantly reduce the weight of the elements. They are produced in the width of 1200 mm, including longitudinal joints, while depending on the range and load, the thickness and type of weights are determined. The hollow core slabs are made of concrete C=50/60. After the assembly of prestressed hollow core slabs, the monolithization is performed. Standard hollow core slabs have a fire resistance of 60 -120min. One of the main advantages of these slabs is fast installation, with no need for support. The weight of these slabs is from 37-54% less than the usual monolithic slabs, which reduces the required dimensions of other elements of the supporting structure.



Položaj elementa u hali
Position of the element in the hall

tipovi šupljih ploča - geometrijske karakteristike
types of hollow core slabs - geometric characteristics

ECHO		ELEMATIC	
SC 15x120 dužina do 7M		HCS 20x120 dužina do 11M	
SC 20x120 dužina do 11M		HCS 26.5x120 dužina do 12M	
SC 25x120 dužina do 12M		HCS 32x120 dužina do 14M	
SC 30x120 dužina do 14M		HCS 40x120 dužina do 17M	
SC 35x120 dužina do 15M		HCS 50x120 dužina do 20M	
SC 40x120 dužina do 17M			



otporne na zvuk
sound resistant



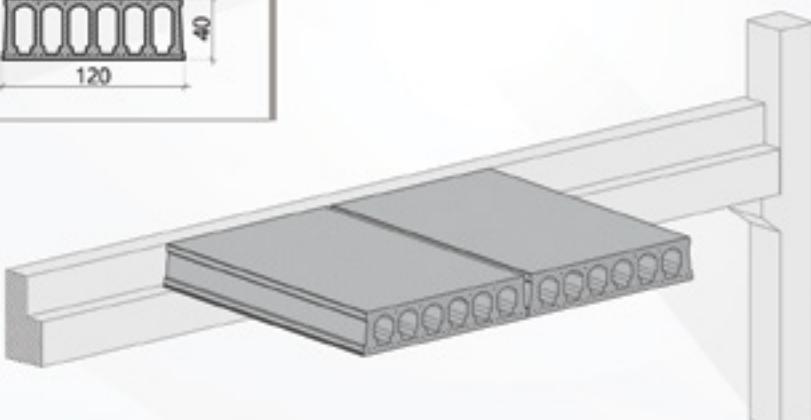
otporne na toplostu
heat resistant



otporne na vatru
fire resistant

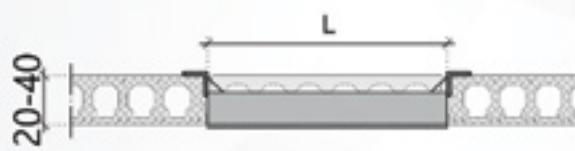
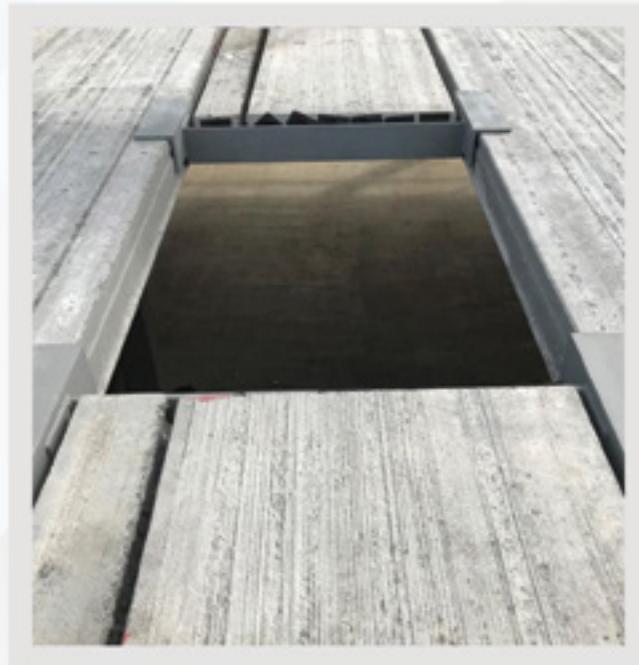


mala težina
light weight

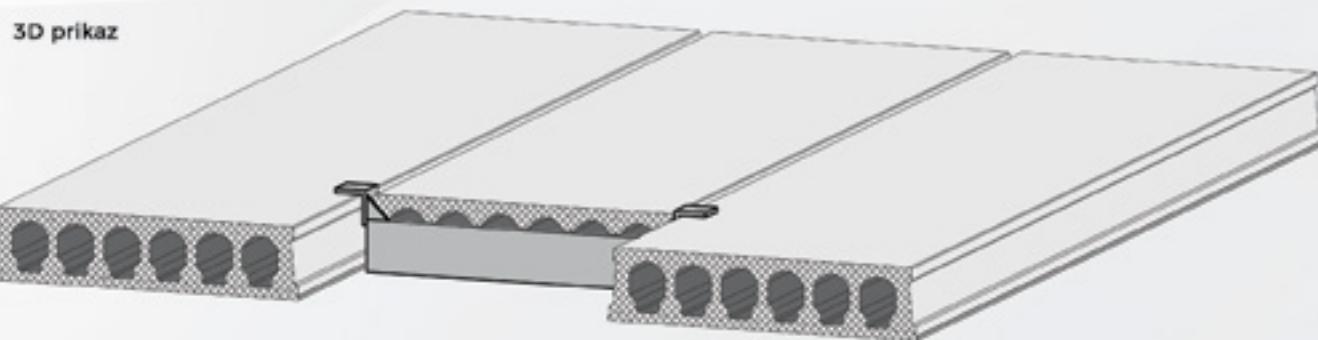
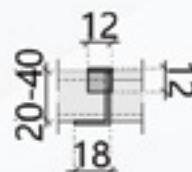
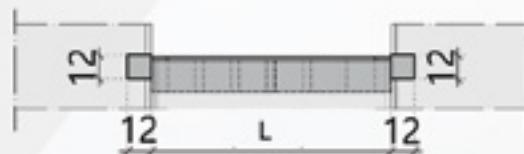


Otvori za stepenice, kamine i krovne prozore, ako nema druge potpore, mogu se napraviti konstrukcijom zamenskih nosača (vekslom). Zamenski nosač se isporučuje zajedno sa prednapregnutim šupljim pločama.

Openings for stairs, fireplaces and roof windows, if there is no other support, can be made by the construction of replacement girders. The replacement girder is supplied with hollow core slabs.

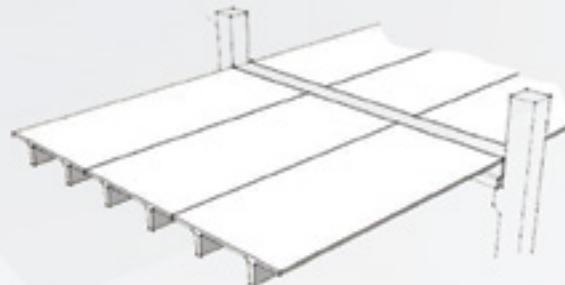


zamenski nosač (veksla)
replacement girder



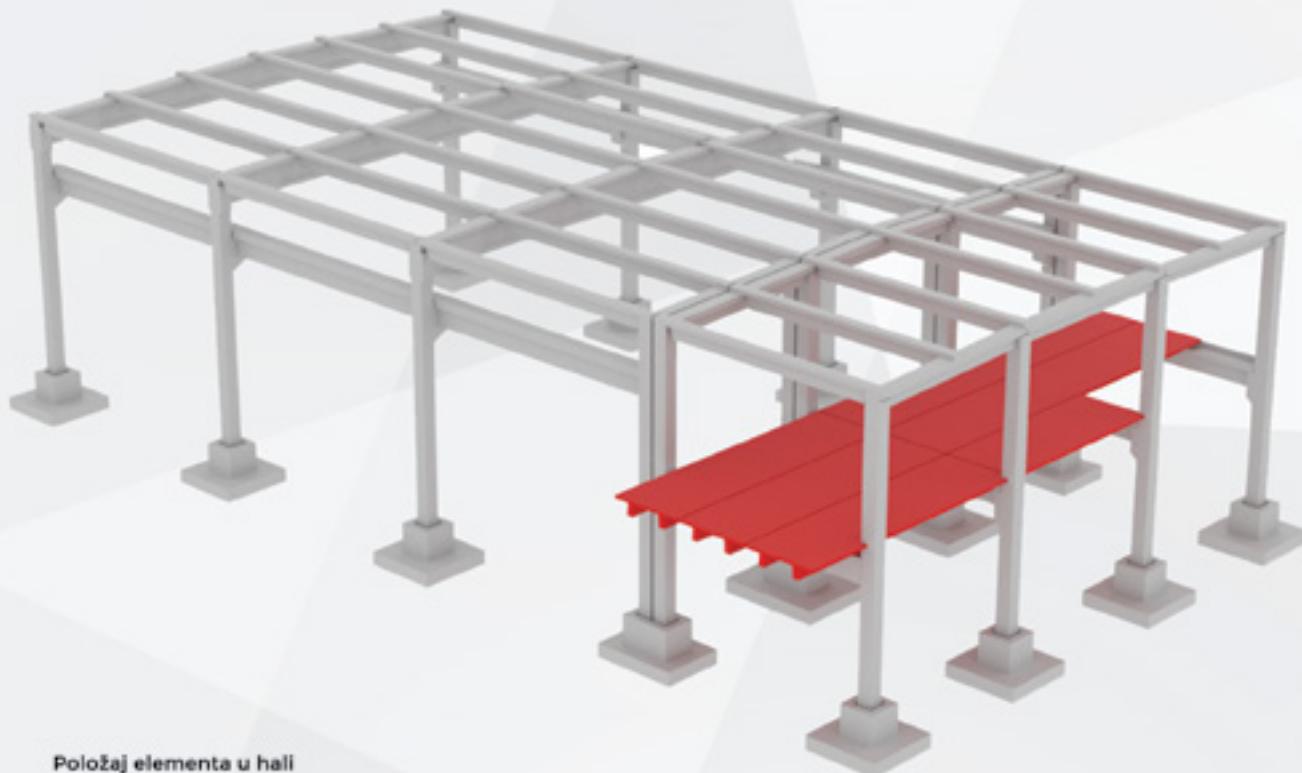


- TT (pi) PLOČE
- TT (pi) SLABS

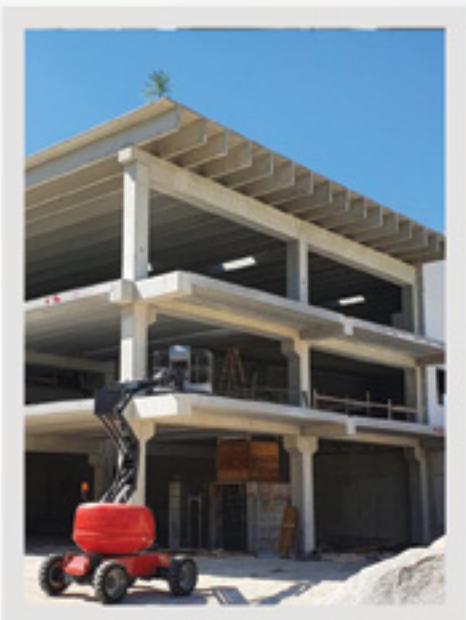
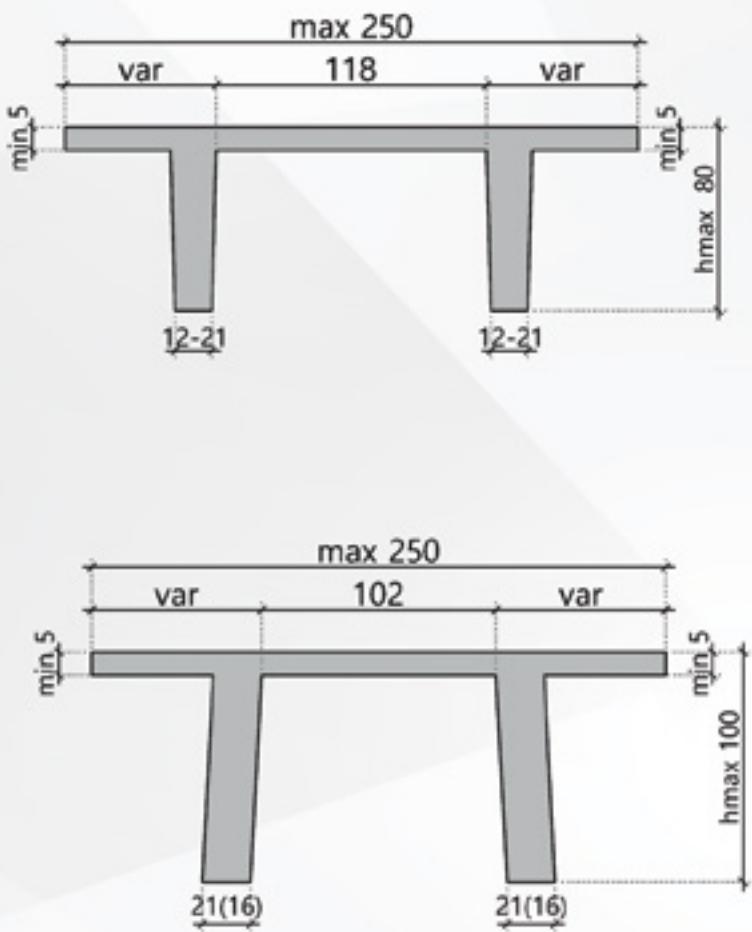


TT ploče omogućavaju brzu izgradnju i fleksibilnost u dizajnu. Ove prefabrikovane - prednapregnute betonske jedinice su idealne za podne i krovne sisteme koji zahtevaju duge, neprekidne raspone. Imaju visoku otpornost na požar. TT ploče su montažni elementi izrađeni od prednapregnutog betona klase C=50/60. Standardne širine TT ploča su do 250cm, sa rebrastim poprečnim presekom. Na pločama se mogu profilisati udubljenja. Na ivicama se mogu napraviti i okrugli otvori za različite vrste instalacija. Položaj i dimenzije udubljenja i otvora moraju biti unapred definisani, jer smanjuju nosivost ploče.

TT slabs enable rapid construction and flexibility in design. These prefabricated - pre-stressed concrete units are ideal for floor and roof systems that require long, continuous ranges. They have high fire resistance. TT slabs are prefabricated elements made of prestressed concrete C = 50/60. Standard width of TT slabs is 250cm, with a ribbed cross-section. Indentations can be profiled on the slabs. Round openings can be made on the edges for different types of installations. The position and dimensions of the indentations and openings must be pre-defined, because they reduce the load-bearing capacity of a slab.



Položaj elementa u halli
Position of the element in the hall

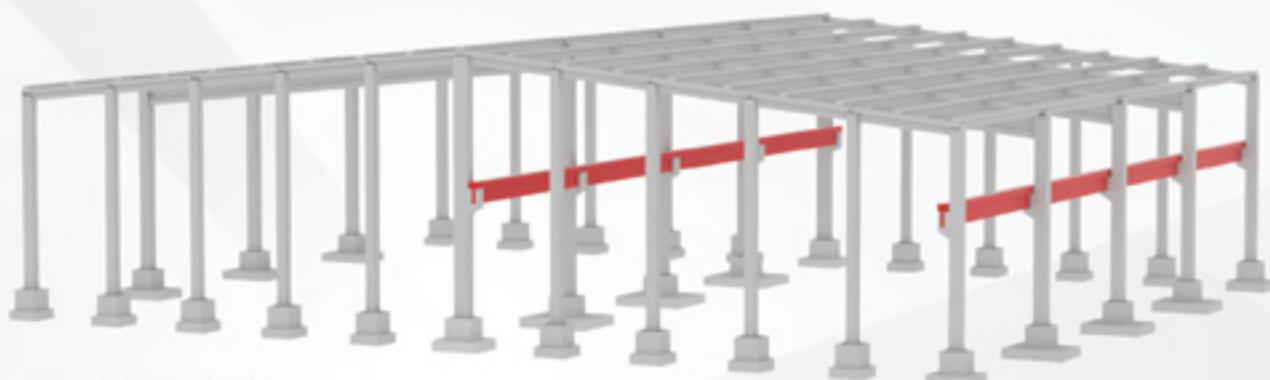
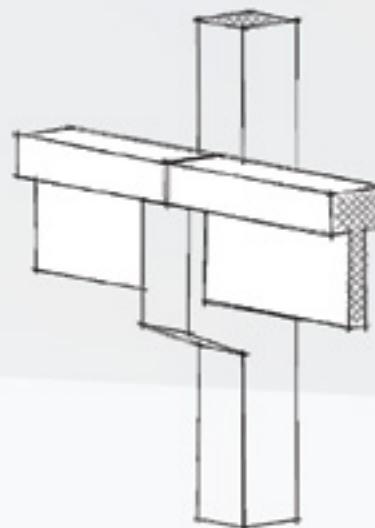


KRANSKE STAZE

CRANE GIRDERS

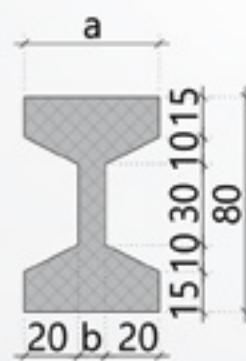
Kranske staze su elementi na koje se postavljaju šine, po kojima se kreću mosni kranovi. Oslanjanje kranskih staza se vrši direktno preko glave stubova ili preko konzola (kratkih elemenata) stubova. Izradene su od betona klase C $\geq 40/50$. Postoje više tipova kranskih staza i to su: I80, T80, T90, T100 i T120.

Crane girders are elements on which rails are placed, and the bridge cranes move on them. The support of the crane girders is done directly over the head of the columns or over the cantilever (short elements) of the columns. They are made of concrete class C $\geq 40 / 50$. There are several types of crane girders and they are: I80, T80, T90, T100 and T120.

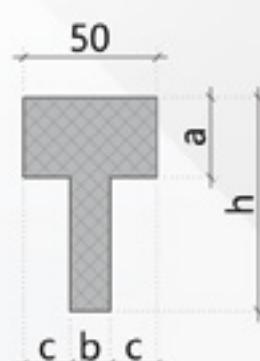


Položaj elementa u hall
Position of the element in the hall

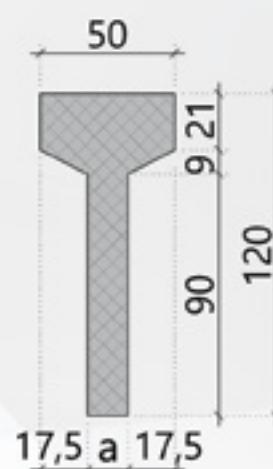
tipovi kranskih staza - geometrijske karakteristike
types of crane girders - geometric characteristics



	dužina/length (cm)		
a	50	55	60
b	10	15	20



	dužina/length (cm)		
h	80	90	100
a	20	20	30
b	20	20	30
c	15	17.5	17.5



	dužina/length (cm)	
a	15	(20)

ABOUT
US

FOUNDATION
SOCKET

COLUMNS
BEAMS

FLOOR
SLABS
HOLLOW CORE
SLABS

ITSLABS
CRANE
GIRDERS

PRIMARY
GIRDERS

SECONDARY
GIRDERS

MULTIPURPOSE
RECTANGULAR
BEAMS

FACADE
PANELS

LOADING
DOCKS

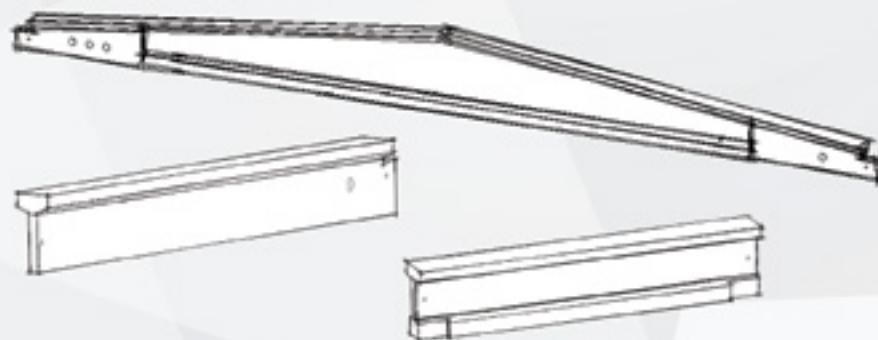
DOUBLE
WALLS AND
OMNIA SLABS

REFERENCES



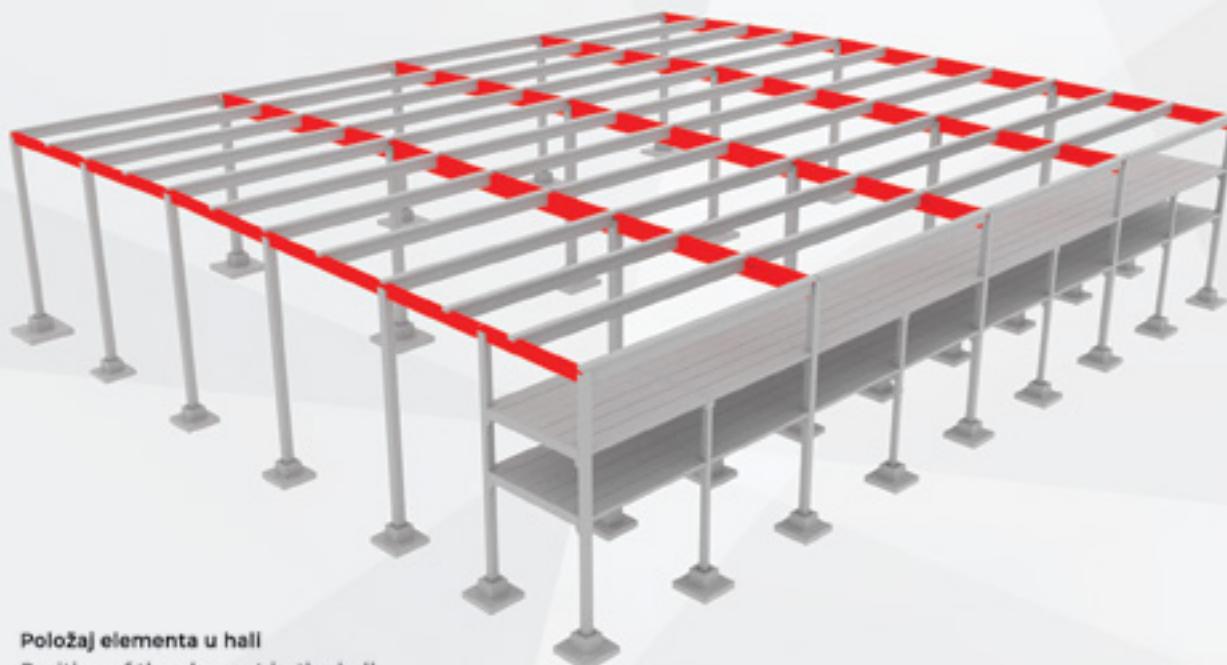
■ GLAVNI NOSAČI

■ PRIMARY GIRDERS



Glavni nosači su prednapregnuti, horizontalni, noseći konstruktivni elementi, za prijem sekundarnih nosača, šupljih ploča. Izrađeni su od klase betona C \geq 40/50 i različitog su tipa utezanja, u zavisnosti od statičkog proračuna. Dimenzije poprečnog preseka su date tabelarno i zavise od raspona i pripadajuće noseće površine. Naležu na vrhove stubova ili konzolne elemente stubova kod denivelacije.

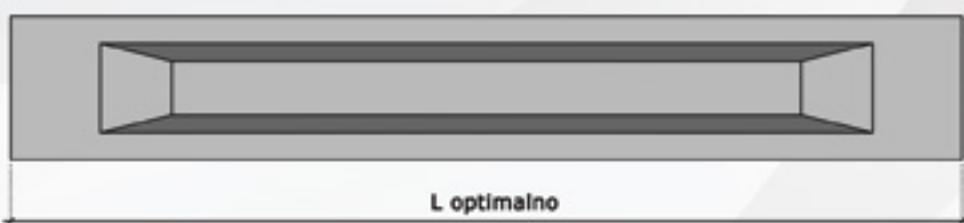
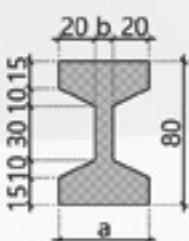
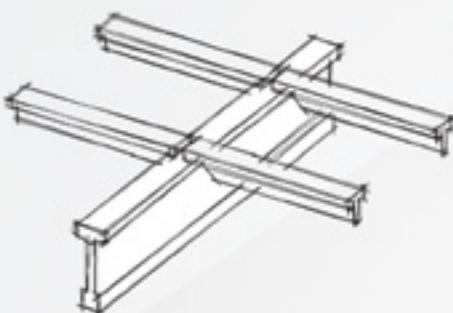
Primary girders are prestressed, horizontal, bearing structural elements for receiving secondary girders, hollow core slabs. They are made of concrete class C \geq 40 / 50 and are of different types of shrinkage depending on static calculation. The cross-section dimensions are given in a table below and depend on the span and the associated bearing surface. They lay down on the top of the columns or the cantilever elements of the columns when there is denivelation.



Položaj elementa u hall
Position of the element in the hall

PREDNAPREGNUTI "I" NOSAČ PRESTRESSED "I" BEAM

I80



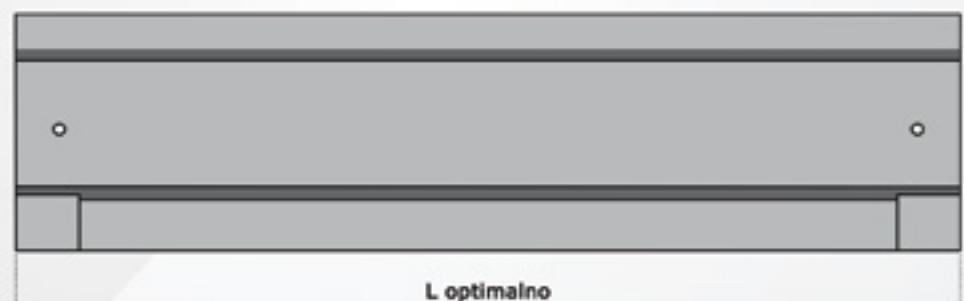
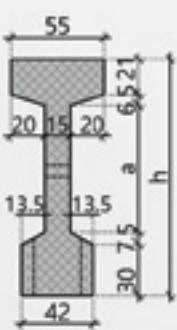
L optimalno

tipovi nosača - geometrijske karakteristike
types of girders - geometric characteristics

	dužina/length (cm)		
a	50	55	60
b	10	15	20
L optimalno			1500 - 1800



I140, I170, I180



L optimalno

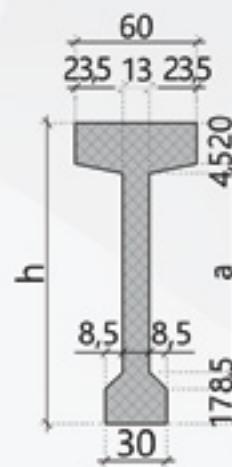
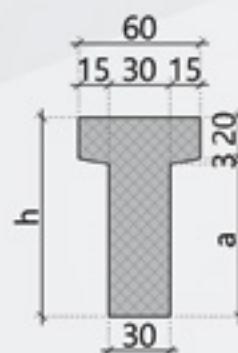
tipovi nosača - geometrijske karakteristike
types of girders - geometric characteristics

	dužina/ length (cm)		
a	75	105	115
h	140	170	180
L optimalno	2200	2500	2800

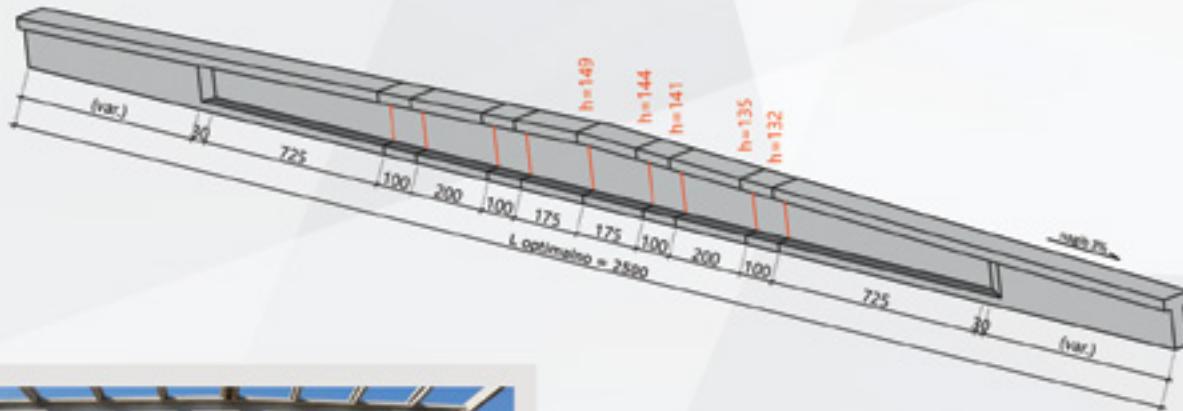
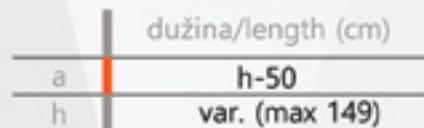
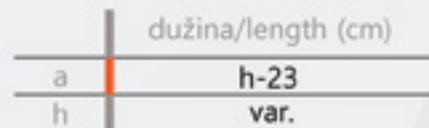


PREDNAPREGNUTI "A" NOSAČ PRESTRESSED "A" BEAM

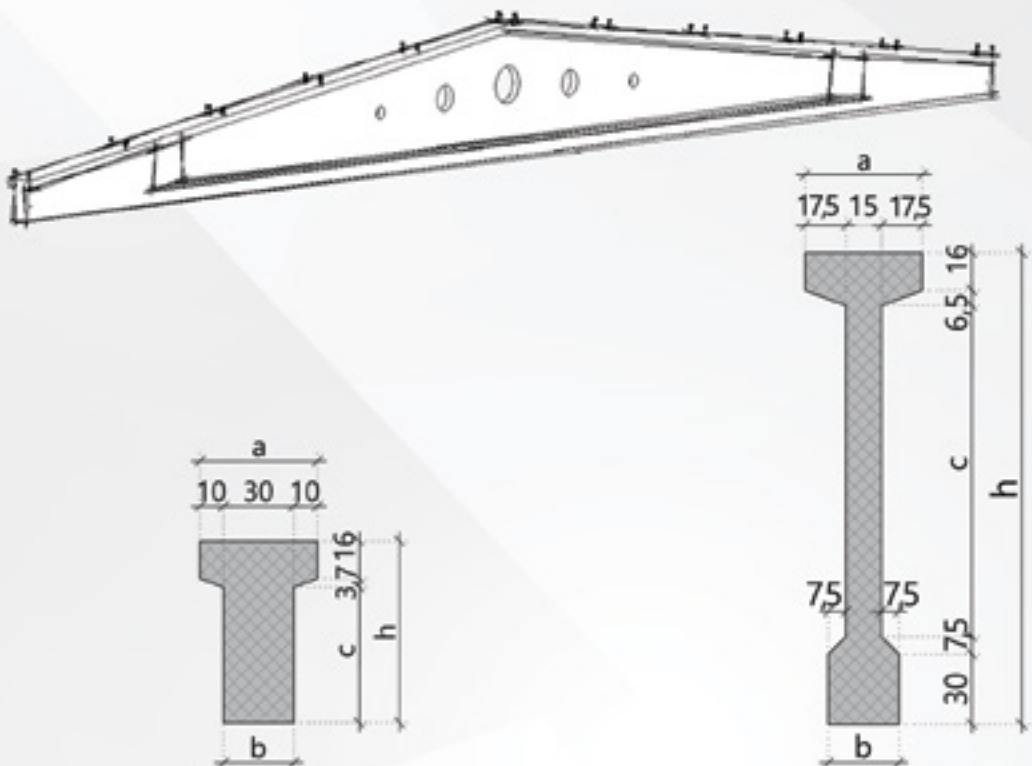
3% nagiba / 3% slop



tipovi nosača - geometrijske karakteristike / types of girders - geometric characteristics



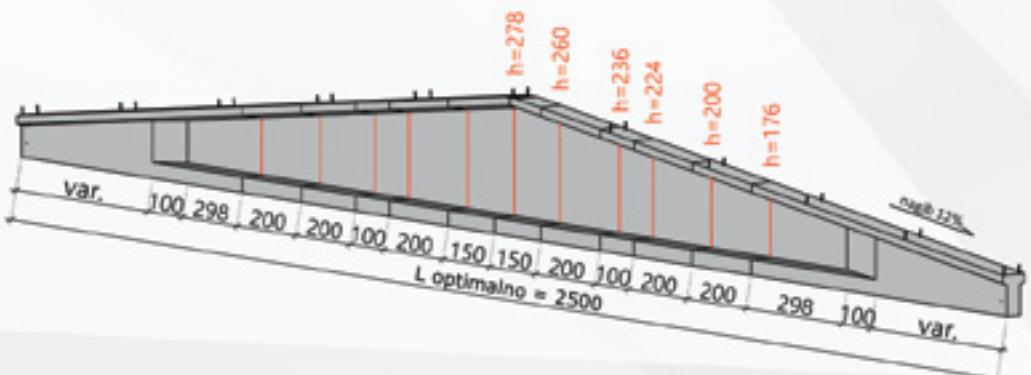
12% nagiba / 12% slope



tipovi nosača - geometrijske karakteristike / types of girders - geometric characteristics

	dužina/ length (cm)
a	50(55)
b	30(35)
c	(h-60)
h	var.(max 278)

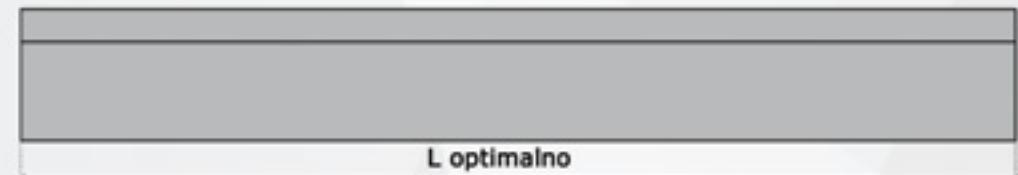
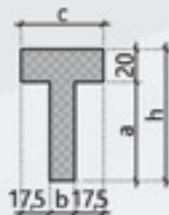
	dužina/ length (cm)
a	50(55)
b	30(35)
c	(h-19,7)
h	var.



GLAVNI NOSAČI "T" PRESEKA PRIMARY GIRDERS "T" CROSS

T60, T70, T80, T90

(klasično armirani nosači)
(classically reinforced girders)

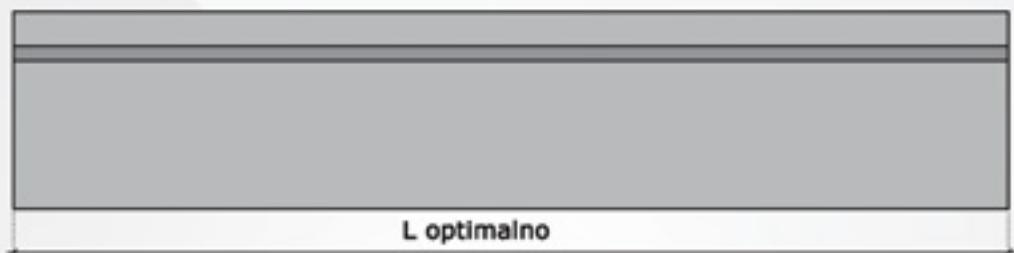
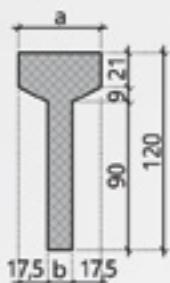


tipovi nosača - geometrijske karakteristike
types of girders - geometric characteristics

	dužina/ length (cm)			
a	40	50	60	70
b		15		
c			50	
h	60	70	80	90
L optimalno	700	800	900	1000



T120 (prethodno napregnuti nosači)
(prestressed girders)



tipovi nosača - geometrijske karakteristike
types of girders - geometric characteristics

	dužina/ length (cm)	
a	50	55
b	15	20
L optimalno	1500	1800

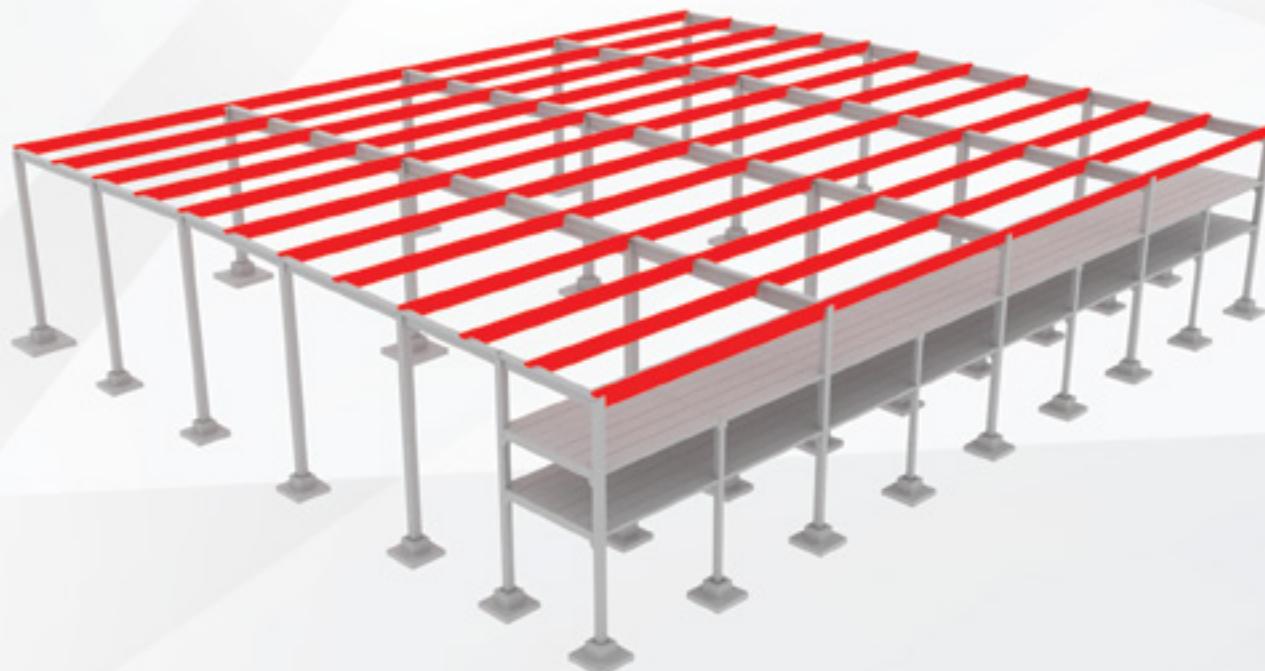


■ SEKUNDARNI NOSAČI ■ SECONDARY GIRDERS

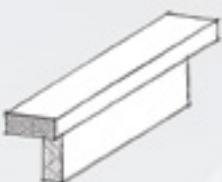


Sekundarni nosači su prednapregnuti ili klasično armirani elementi. Predstavljaju se kao krovna konstrukcija. Izrađuju se od betona klase C \geq 30/37 i različitog su tipa utezanja, u zavisnosti od statičkog proračuna. Dimenziije poprečnog preseka su date tabelarno i zavise od raspona i pripadajuće površine. Sekundarni krovni nosači naležu na glavne nosače krovne konstrukcije.

Secondary girders are prestressed or classically reinforced elements. They are used as roof construction. Secondary girders are made of concrete class C \geq 30 / 37 and are of different types of shrinkage depending on the static calculation. The cross-sectional dimensions are given in the table below and depend on the span and the corresponding surface. They will be located on the main supports of the roof structure.

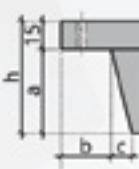
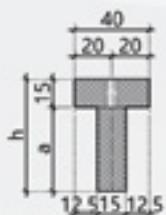


Položaj elementa u hali
Position of the element in the hall

Sn45, Sn60

b
otvor #50mm
12,5 20 20
51
12,5 15 12,5

b
otvor #50mm
12,5 20 20
51
12,5 15 12,5



L optimalno

tipovi sekundarnih nosača -
geometrijske karakteristike
types of secondary girders -
geometric characteristics



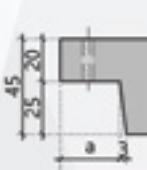
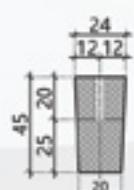
dužina/ length (cm)

a	30	45
b	28, 55	
c	7,5	11,30
h	45	60
L optimalno	1000	1200

SnTr45 - trapezni / SnTr45 - trapezoidal

a
otvor #50mm
24 12 12
57
20

a
otvor #50mm
24 12 12
57
20



L optimalno

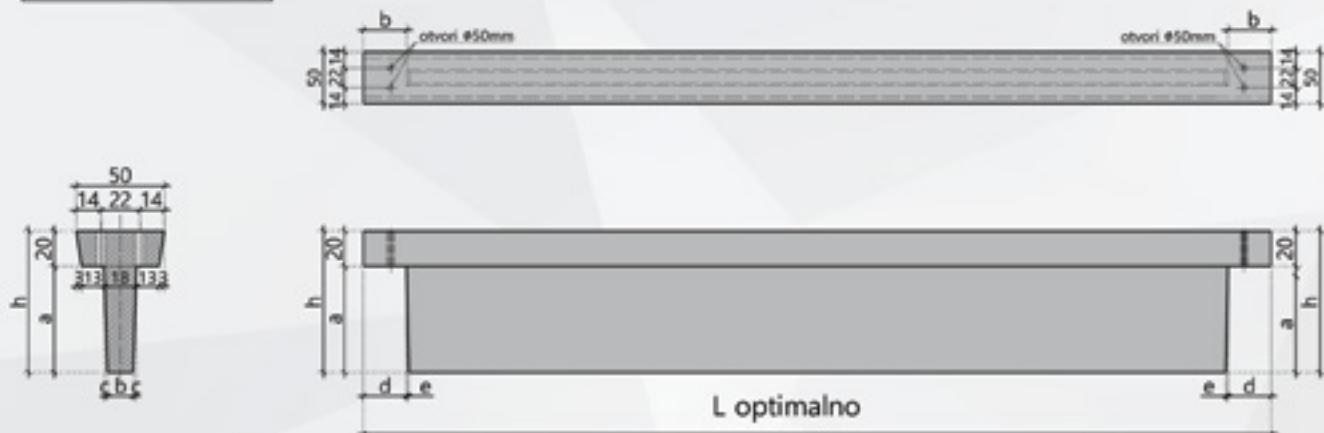


tipovi sekundarnih nosača -
geometrijske karakteristike
types of secondary girders -
geometric characteristics

dužina/ length (cm)

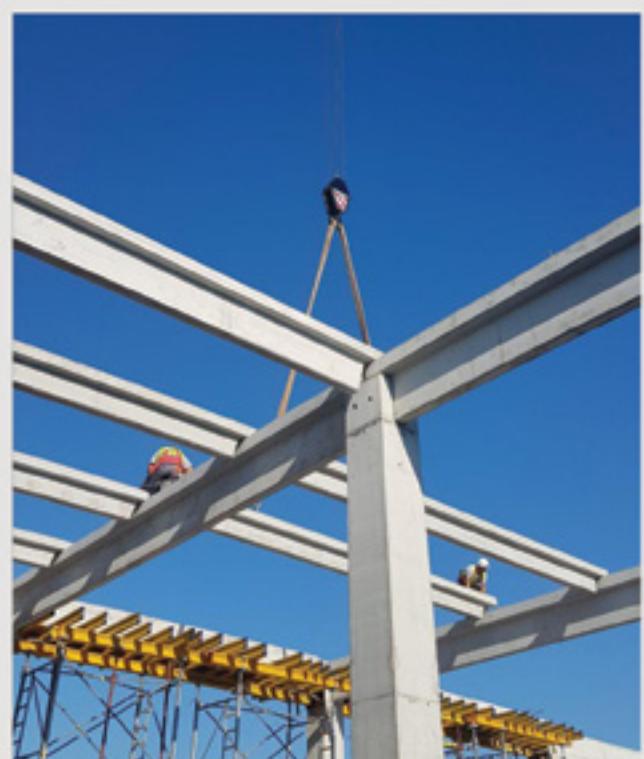
a	28, 55
L optimalno	1000

Sn80, Sn100



tipovi sekundarnih nosača -
geometrijske karakteristike
types of secondary girders -
geometric characteristics

	dužina/ length (cm)	
<i>a</i>	60	80
<i>b</i>	14.3	13
<i>c</i>	1.9	2.5
<i>d</i>	25, 34, 49, 60	
<i>e</i>	2.3	3
<i>h</i>	80	100
<i>L</i> optimalno	1600	2000

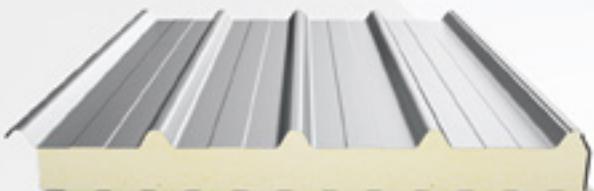


TIPOVI KROVNIH POKRIVAČA

TYPE OF ROOF COVERS

Za pokrivanje prefabrikovanih objekata, koriste se krovni paneli ili sistem slaganog krova. Krovne panele primjenjujemo kod objekata gde su krovne ravni sa većim padom (min. 7% pada) i neophodno je da sekundarni nosači budu gusto raspoređeni, dok slagane krovove koristimo za manje padove (min. 1,5% pada, a najčešće za krovove sa 3%) i kod njih su sekundarni nosači rede postavljeni.

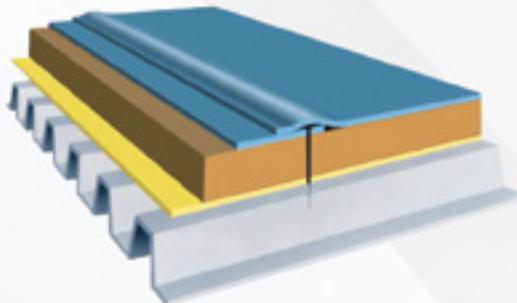
To cover prefabricated facilities, roof panels and a tile roofing system are used. Roof panels are used in facilities where roof tiles are with a higher fall (min 7% fall) and the secondary girders need to be densely distributed, while we use a tile roofing system for smaller falls (min. 1,5% falls, and most often for 3% fall) and the secondary girders are placed less frequently.



Izgled krovnih panela
appearance of roof panels

Krovni sendvič panel trapezoidne geometrije sastoji se od izolacionog jezgra od PUR ili PIR pene, debljine do 60mm i obostrano je obložen pocinkovanim i prethodno lakiranim čeličnim limom. Jednostavna i brza instalacija je u skladu sa najstrožim zahtevima termičkih propisa. Spojevi su dizajnirani da obezbede nepropusnost i minimiziraju toplotne mostove. Korisna širina je 1000mm.

Roof sandwich panel with a trapezoidal geometry, consisting of a PUR or PIR foam insulation core, up to 60mm thick and coated on both sides with galvanized and pre-lacquered sheet steel. Simple and fast installation complies with the most stringent requirements of thermal regulations. Joints are designed to ensure impermeability and minimize thermal bridges. Useful width is 1000mm.



Izgled slaganog krova
appearance of a stacked roof

Slojevi slaganog krova (odozgo na dole)

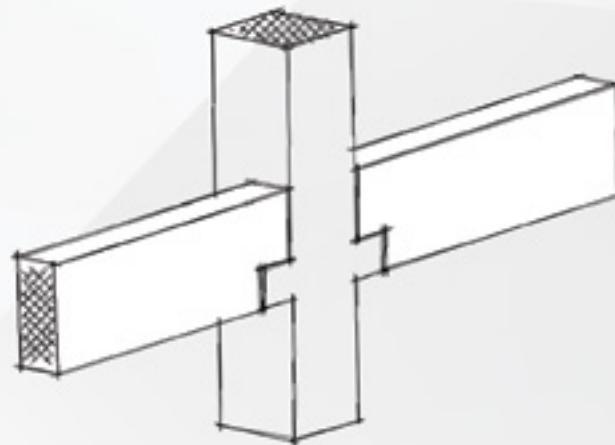
- hidroizolaciona membrana (otporna na atmosferske uticaje i UV zračenje)
- kamena vuna (debljine 6-24cm)
- parna brana - polietilenska (PE) folija debljine 15µm - 20µm
- samonosivi čelični trapezni (TR) lim, postavlja se preko konstrukcije (visine 85mm-154mm, debljine 0,75-1,25mm) vezuje se vijcima ili ankerima.

Layers of stacked roof (top to bottom)

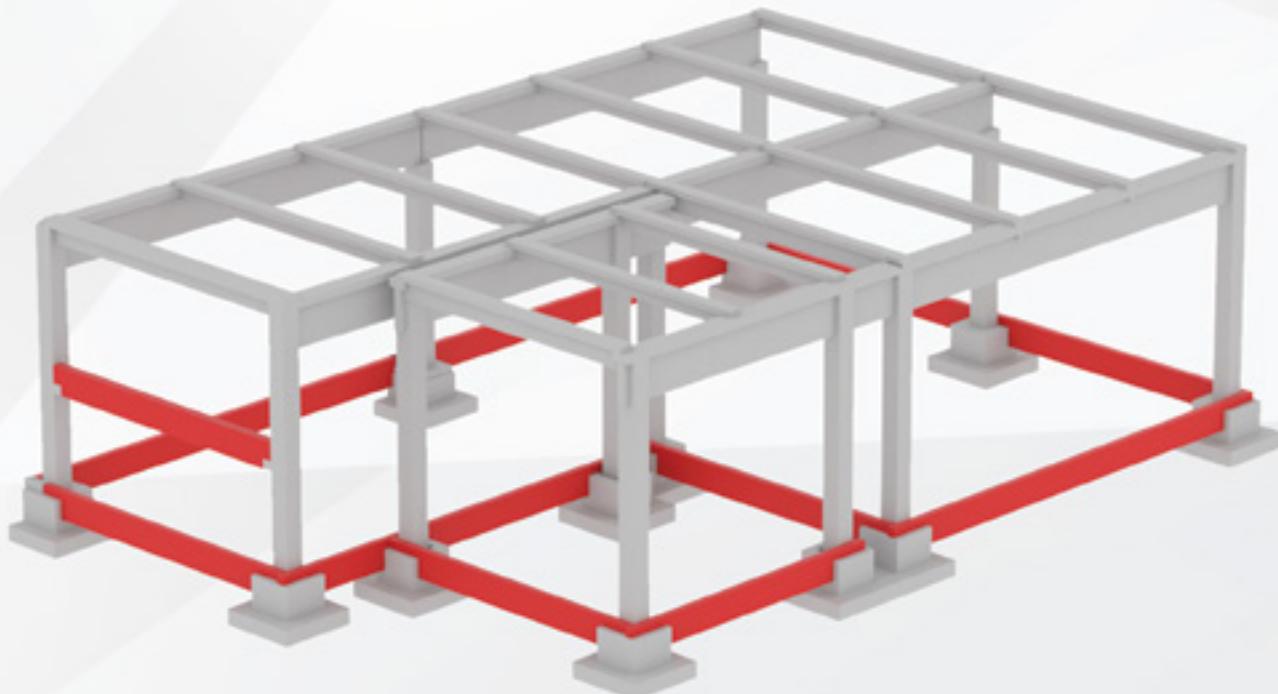
- waterproofing membrane (resistant to atmospheric influences and UV radiation)
- stone wool (thickness 6-24cm)
- steam dam - polyethylene (PE) foil 15µm - 20µm thick
- self-supporting steel trapezoidal (TR) sheet metal, placed over the construction (height 85mm-154mm, thickness 0.75-1.25mm) is connected with screws or anchors.

■ VIŠENAMENSKE PRAVOUGAONE GREDE ■ MULTIPURPOSE RECTANGULAR BEAMS

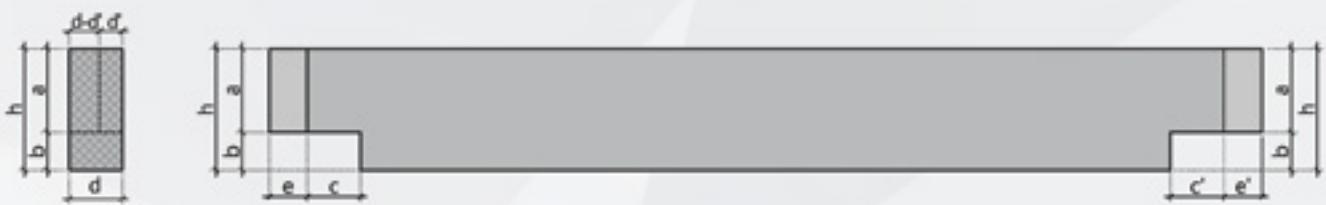
Višenamenske pravougaone grede su prefabrikovani elementi, pravougaonog poprečnog preseka i različitih dužina. Izrađene su od betona klase C 30/37, koja varira u zavisnosti od statičkog proračuna. Dimenzije su date tabelarno. Javljuju se u vidu temeljnih, meduspratnih i obodnih greda za fasadnu konstrukciju.



Multipurpose rectangular beams are prefabricated elements of rectangular cross section and different lengths. They are made of concrete of class C 30/37, which varies depending on the static calculation. The dimensions are given in the table. They appear in the form of foundation beams, floor beams and perimeter beams for facade construction.

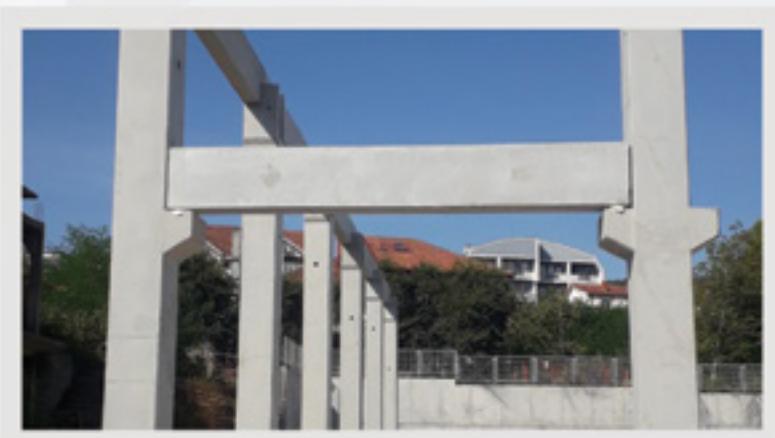


Položaj elementa u halli
Position of the element in the hall

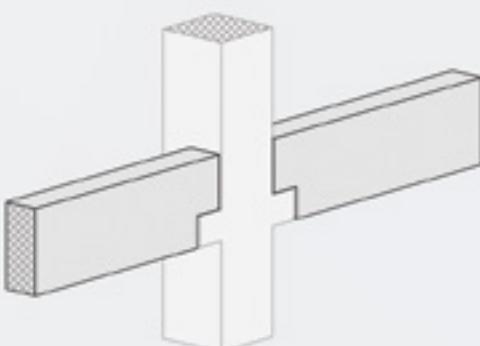
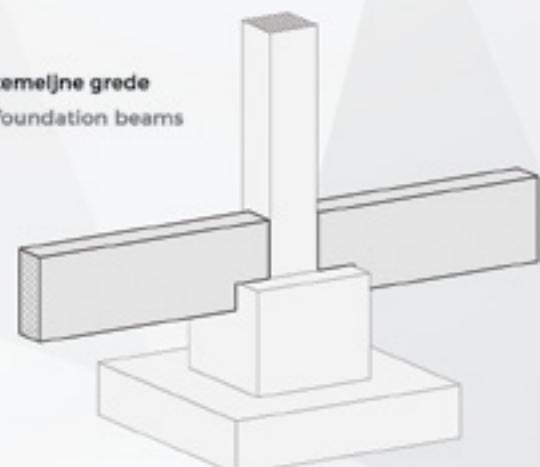


tipovi greda - geometrijske karakteristike
types of beams - geometric characteristics

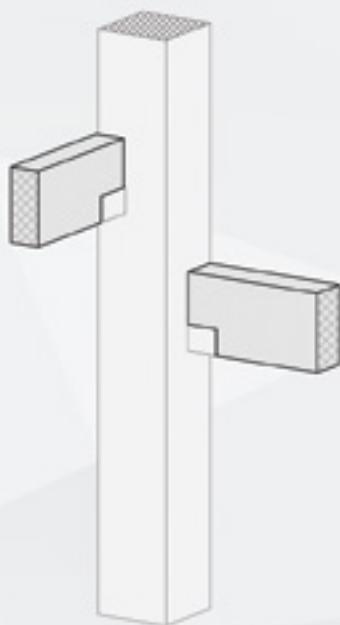
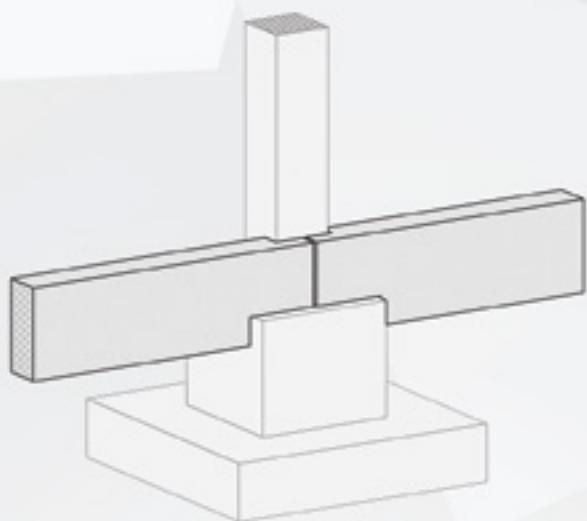
	dužina/ length (cm)
a	(h-b)
b	20-40
h	50-100
d	20-40
c,c'	0-40
e,e'	0-100



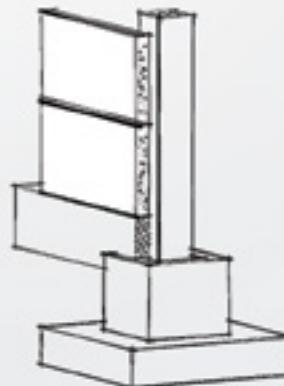
temeljne grede
foundation beams



fasadne grede
facade beams

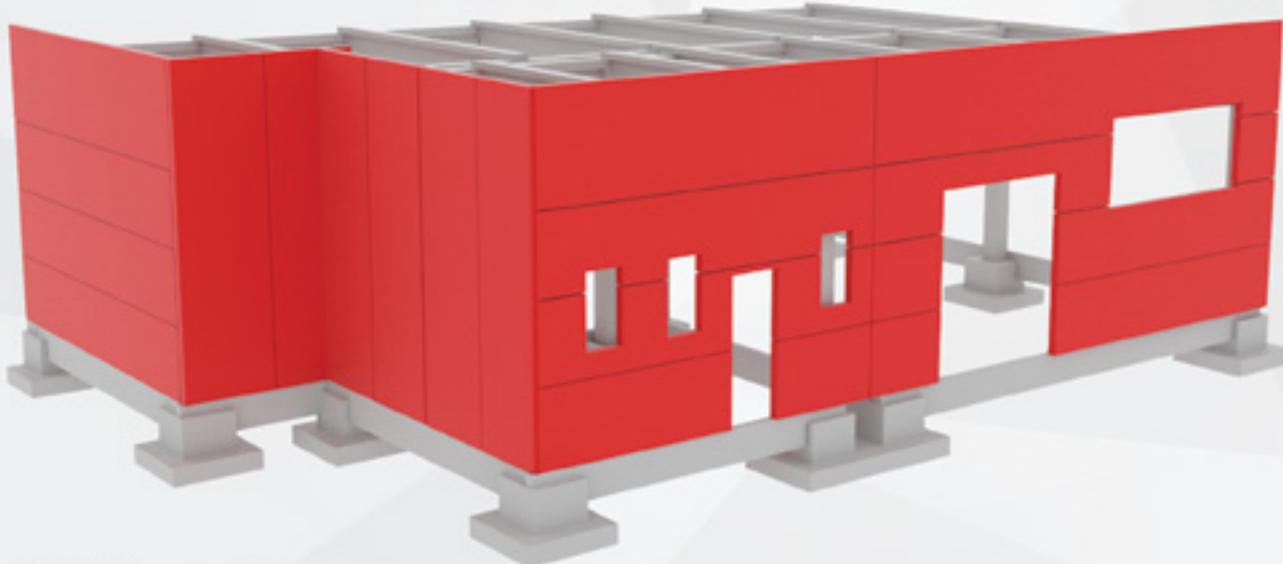


■ FASADNI PANELI ■ FACADE PANELS

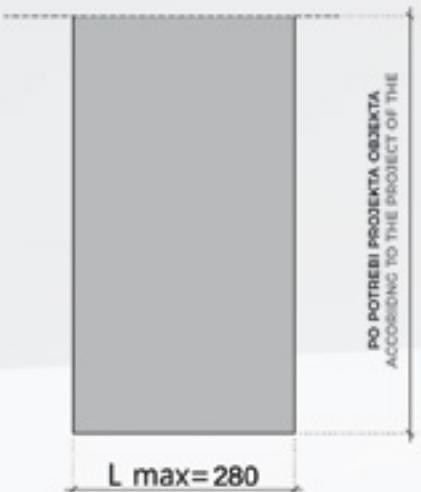
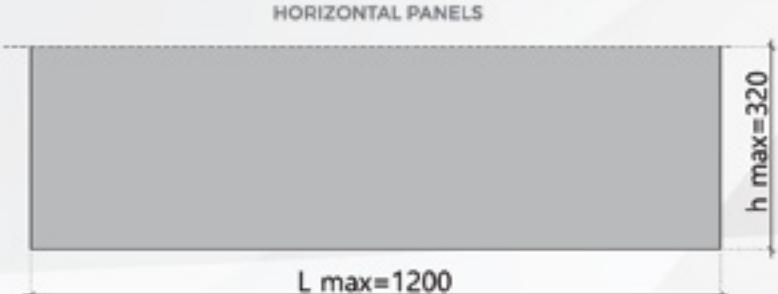
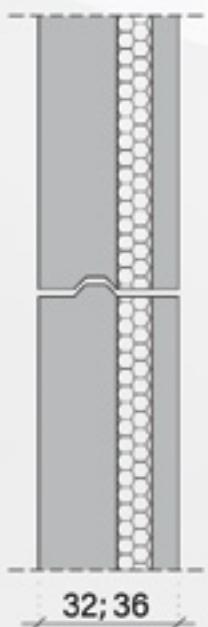
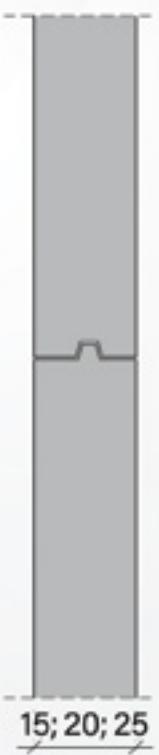


Prefabrikovani betonski paneli se koriste kod izrade spoljašnjih, pregradnih i parapetnih zidova (u kombinaciji sa sendvič panelima). Montiraju se horizontalno, vertikalno ili u kombinaciji. Izraduju se sa i bez izolacije. Prvi red panela se oslanja na vrhove čašica, a mogu se montirati sa spoljašnje strane, unutrašnje ili između stubova. Koeficijent toplotne provodljivosti λ spoljašnjih zidova, dostiže vrednost i do $0.28 \text{ W/m}^2\text{K}$. Zaptivanje horizontalnih i vertikalnih spojeva obezbeđuje se upotrebom trajno elastičnih zaptivnih masa. Kačenje panela za stubove vrši se putem "Halfena" koji se ugrađuju u panele i stubove u fazi proizvodnje. Fasadni elementi se proizvode puni ili sa otvorima za prozore i vrata. Završna obrada može biti natur beton, obojeni beton, pikovan, uglačan, beton u boji i obrada površine u kuliru.

Prefabricated concrete panels are used in the manufacture of exterior, partition and parapet walls (in combination with sandwich panels). They are mounted horizontally, vertically and in combination. They are made with and without insulation. The first row of the panels relies on the tops of the foundation socket, and can be mounted on the outside, inside or between the columns. The thermal conductivity coefficient λ of the outer walls reaches a value of up to $0.28 \text{ W/m}^2\text{K}$. The sealing of horizontal and vertical joints is provided by the use of permanently elastic sealing compounds. The hanging of the panels for columns is done via "Halen" which is installed in panels and columns at the production stage. Facade elements are manufactured full or with openings for windows and doors. Finishing can be natural concrete, colored concrete, pickled, polished, colored concrete and surface treatment in the "kulir".



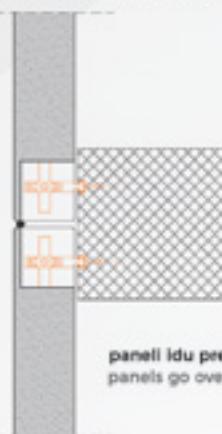
Položaj elementa u halli
Position of the element in the hall

VERTIKALNI PANELI
 VERTICAL PANELS

HORIZONTALNI PANELI
 HORIZONTAL PANELS

SENDVIČ PANELI (TERMO PANELI)
 SENDWICH PANELS (TERMO PANELS)

JEDNOSLOJNI PANELI
 SINGLE PANELS


moguća izrada sa i bez olakšanja
 possible production with and without relief

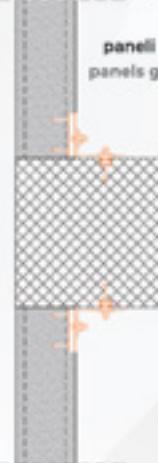
DETALJ VEZE HORIZONTALNOG FASADNOG AB PANELA I NOSEĆEG STUBA
DETAIL OF THE CONNECTION BETWEEN THE HORIZONTAL FACADE AB PANEL AND THE SUPPORTING COLUMN

prikaz veze stuba i fasadnog panela u osnovi (skrivena veza)
presentation of the connection between the column and the facade panel in the base (hidden connection)



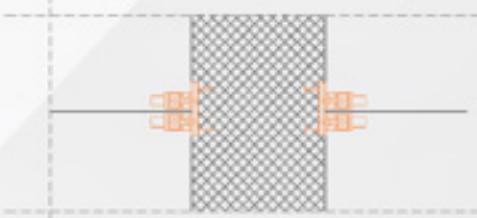
paneli idu preko stuba
panels go over the column

prikaz veze stuba i fasadnog panela u osnovi (vidljiva veza)
presentation of the connection between the column and the facade panel in the base (visible connection)

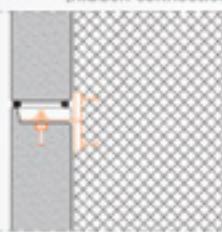


paneli idu do stuba
panels go up to the column

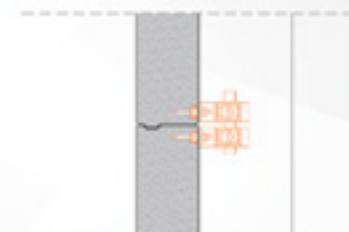
prikaz veze stuba i fasadnog panela u podužnom
preseku (vidljiva veza)
presentation of the connection of the column and the facade panel in the longitudinal section (visible connection)



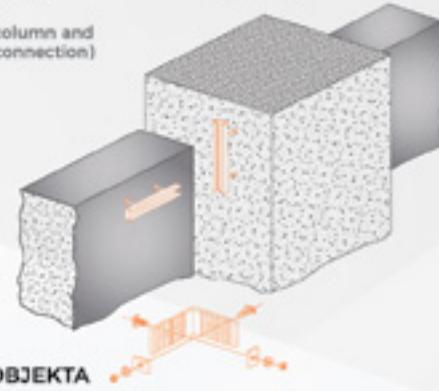
prikaz veze stuba i fasadnog panela u poprečnom
preseku (skrivena veza)
presentation of the connection between the column and the facade panel in a cross-section (hidden connection)



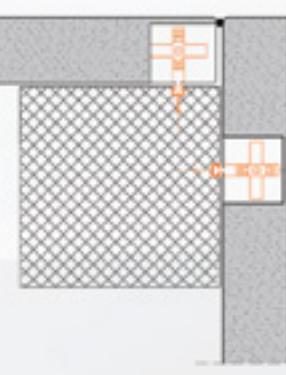
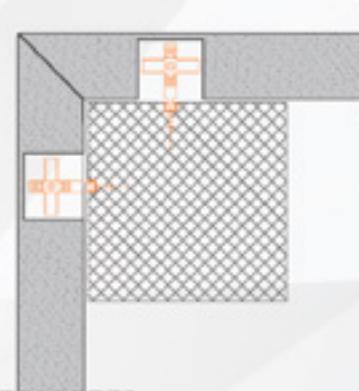
prikaz veze stuba i fasadnog panela u poprečnom
preseku (vidljiva veza)
presentation of the connection between the column and the facade panel in the cross-section (visible connection)



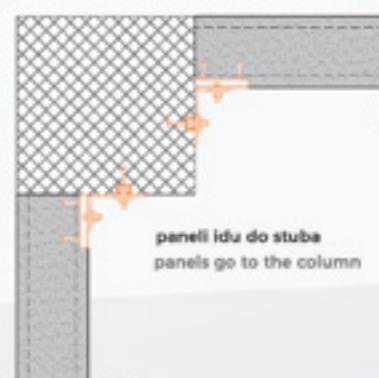
3D model


DETALJ VEZE DVA HORIZONTALNA FASADNA AB PANELA NA UGLOVIMA OBJEKTA
DETAIL OF THE CONNECTION OF TWO HORIZONTAL FACADE AB PANELS AT THE CORNERS OF THE BUILDING

prikaz ugaone veze stuba i fasadnog panela u osnovi sa gerovanjem
panela i bez (skrivena veza)
presentation of the angular connection of the column and the facade panel at the base with cutting panel under angle of 45° and without cutting (hidden connection)

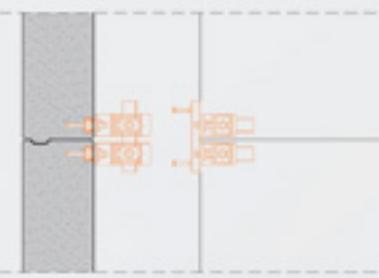


prikaz ugaone veze stuba i fasadnog panela
u osnovi (vidljiva veza)
presentation of the angular connection of the column and facade panel in the base (visible connection)



paneli idu do stuba
panels go to the column

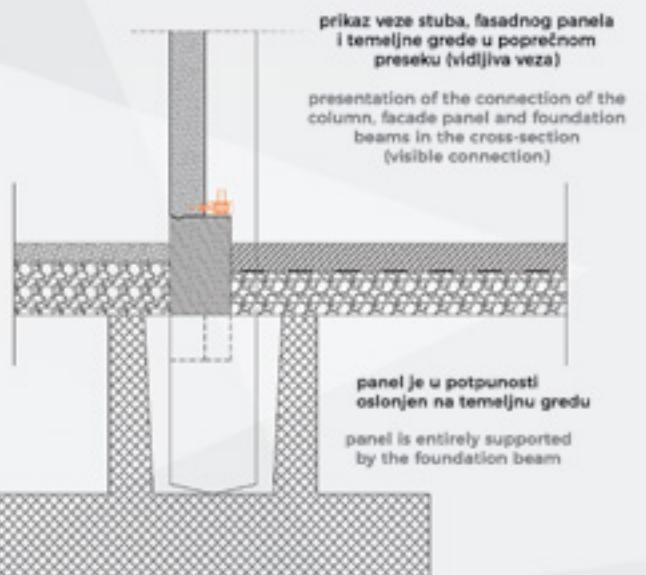
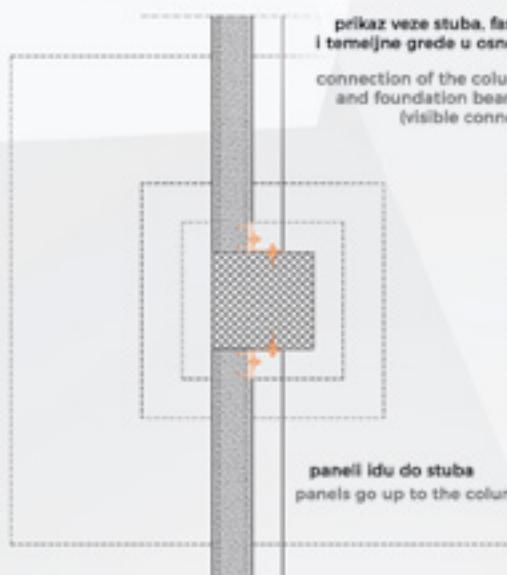
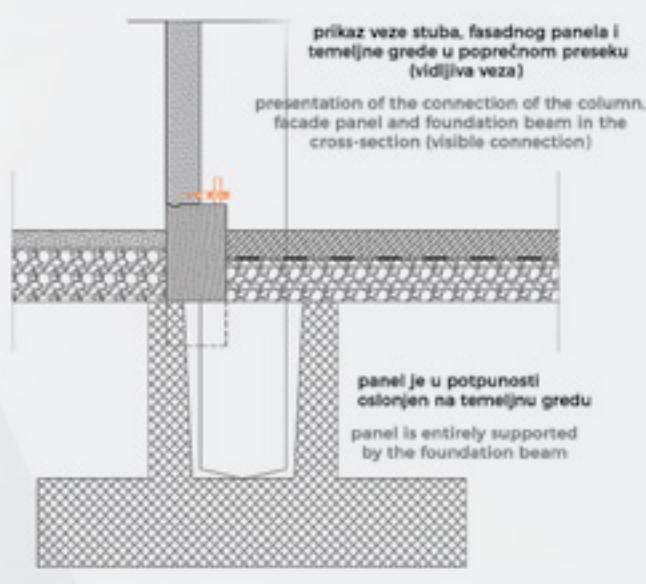
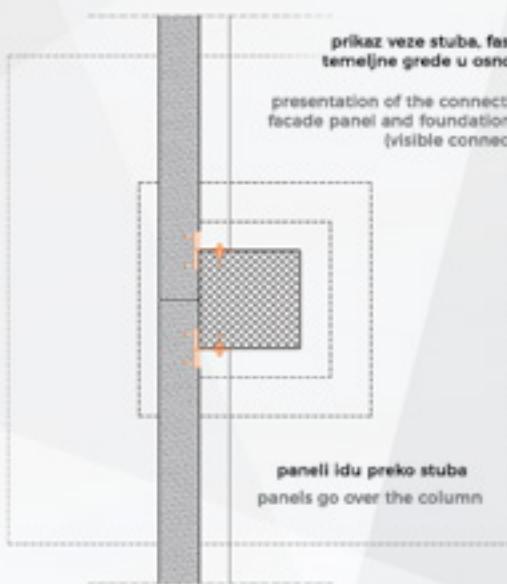
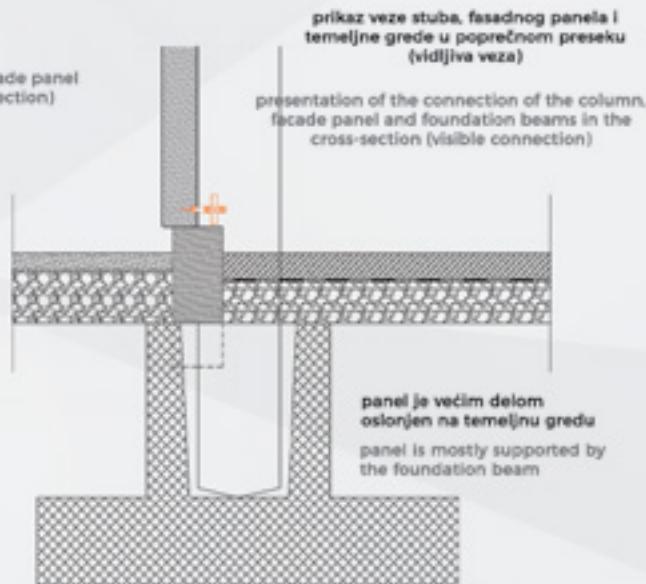
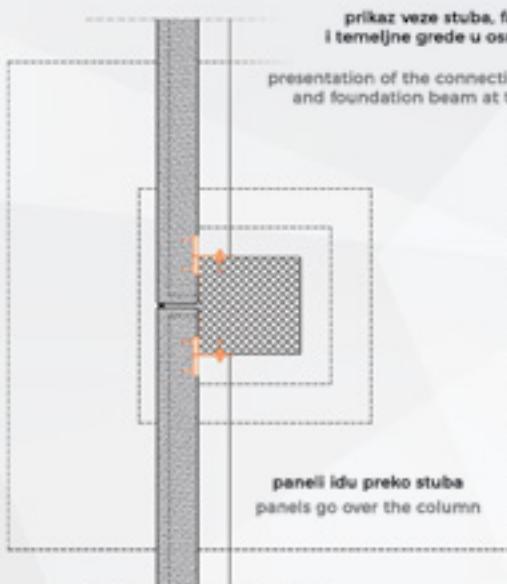
prikaz ugaone veze stuba i fasadnog panela
u poprečnom preseku (vidljiva veza)
presentation of the angular connection of the column and facade panel in the cross-section (visible connection)



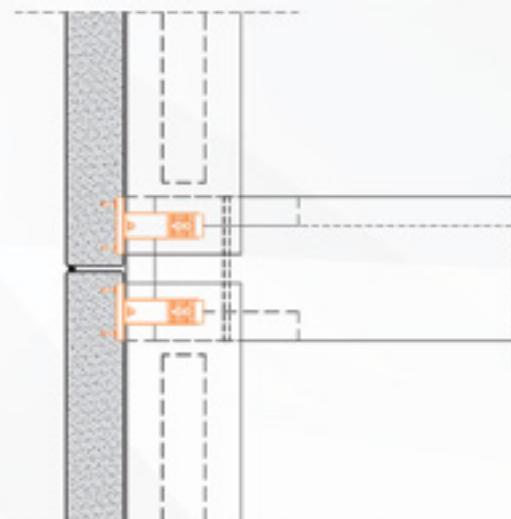
prikaz ugaone veze stuba i fasadnog panela u
poprečnom preseku (skrivena veza)
presentation of the angular connection of the column and the facade panels in the cross-section (hidden connection)

presentation of the angular connection of the column and the facade panels in the cross-section (hidden connection)

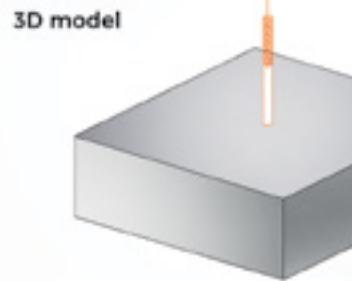
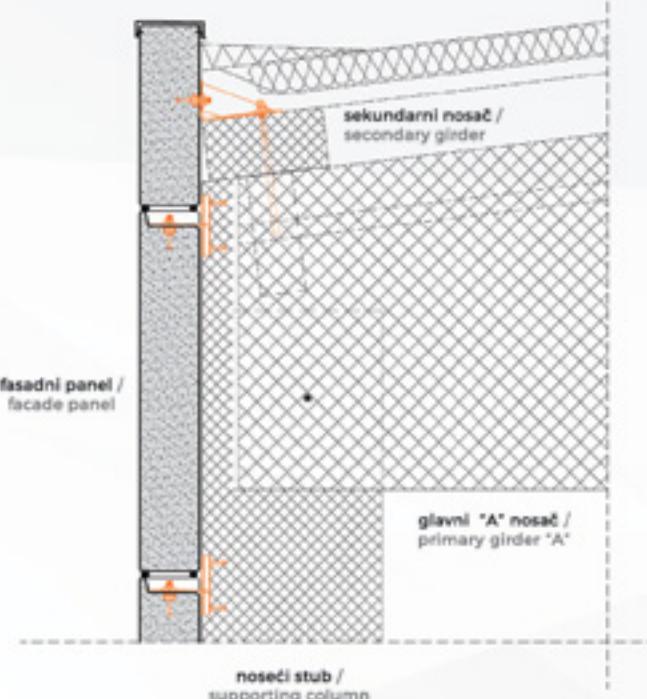
- DETALJ VEZE HORIZONTALNOG FASADNOG AB PANELA SA NOSEĆIM STUBOM I TEMELJNOM GREDOM
- DETAIL OF THE CONNECTION OF THE HORIZONTAL FACADE AB PANEL WITH THE SUPPORTING COLUMN AND THE FOUNDATION BEAM



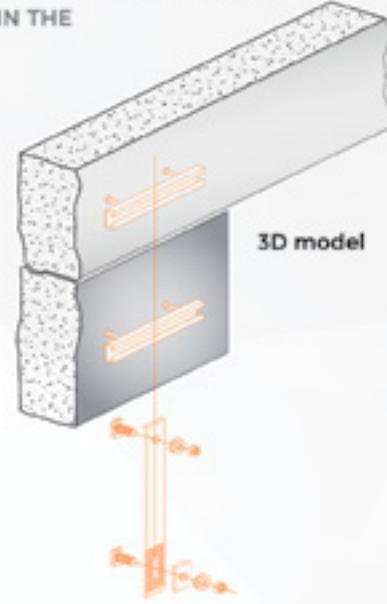
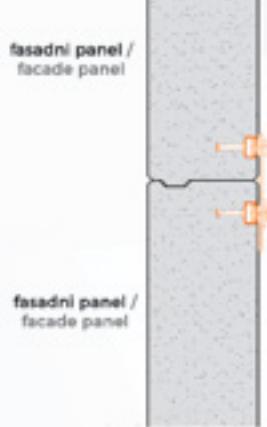
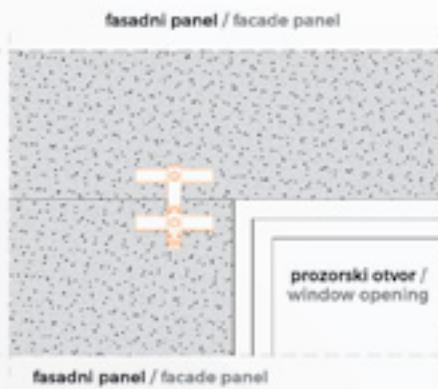
prikaz veze fasadnog panela i sekundarnog nosača u osnovi
presentation of the connection of the facade panel and the secondary girders at the base



prikaz veze fasadnog panela i sekundarnog nosača u preseku
presentation of the connection of the facade panel and the secondary girders in the cross section



DETALJ VEZE DVA HORIZONTALNA FASADNA AB PANELA U DELU FASADE NA KOM SE JAVLJA OTVOR
DETAIL OF THE CONNECTION OF THE TWO HORIZONTAL FACADE AB PANELS IN THE PART OF THE FACADE WHERE THE HOLE APPEARS



ABOUT
US

FOUNDATION
SOCKET

COLUMNS
BEAMS

FLOOR
HOLLOW CORE
SLABS

TTSLABS
GIRDERS

CRANE
PRIMARY
GIRDERS

SECONDARY
GIRDERS

MULTIPURPOSE
RECTANGULAR
BEAMS

FACADE
LOADING
PANELS

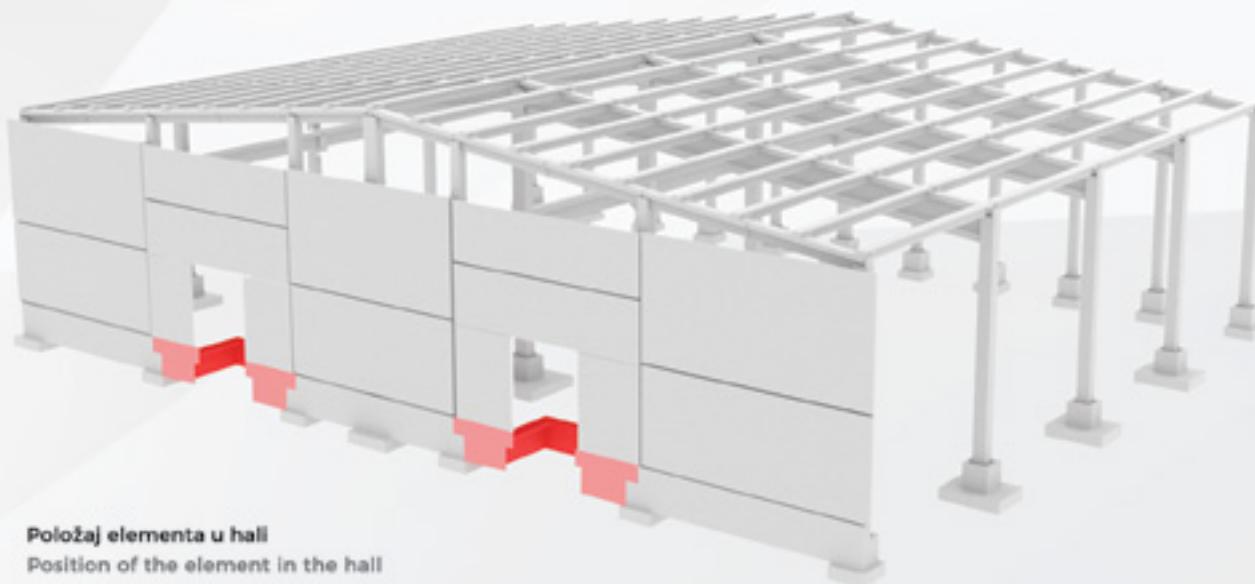
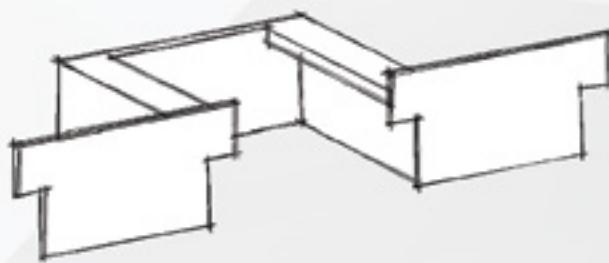
DOUBLE
WALLS AND
DOCKS

OMNIA SLABS
REFERENCES

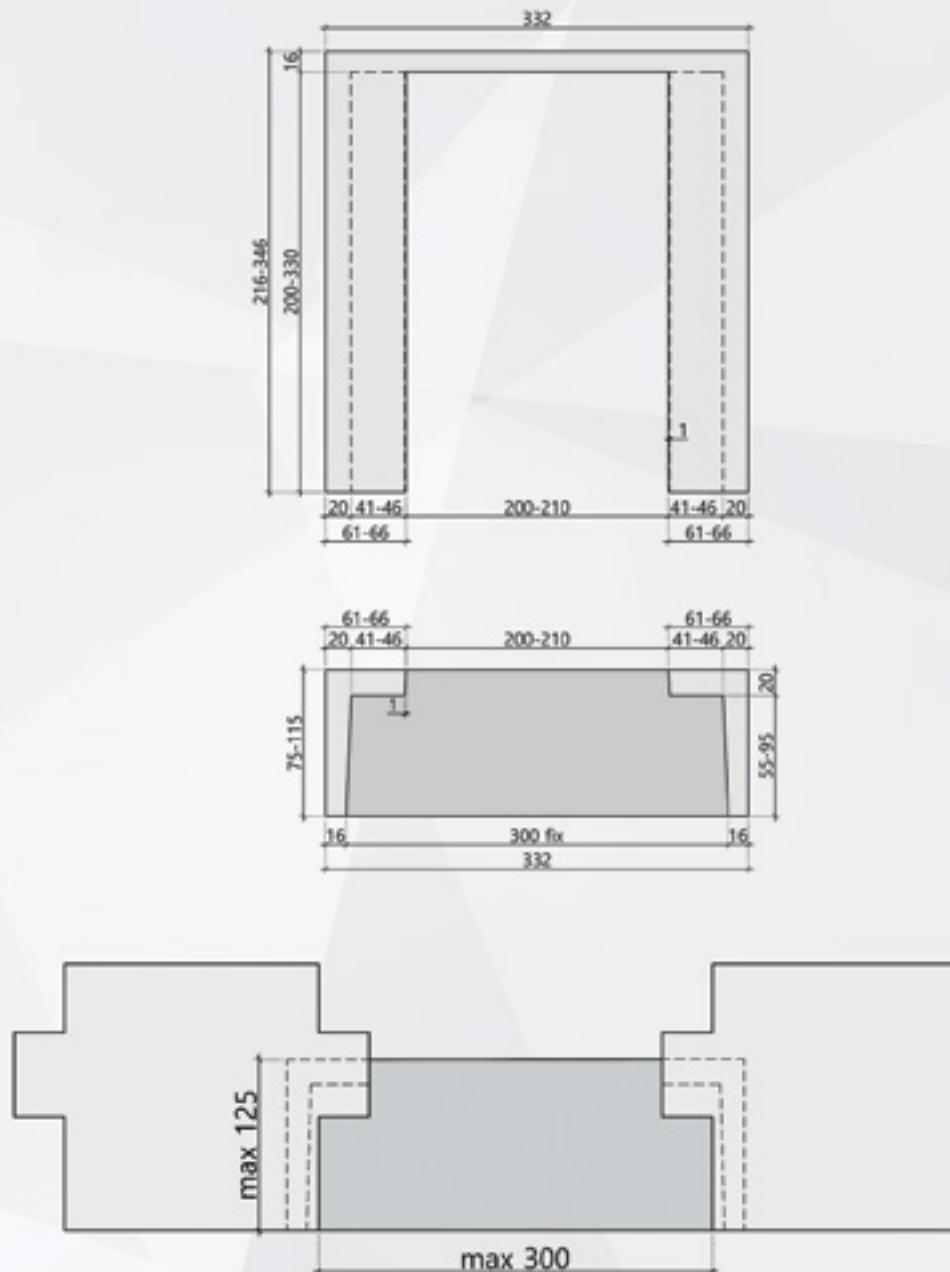


■ UTOVARNE RAMPE ■ LOADING DOCKS

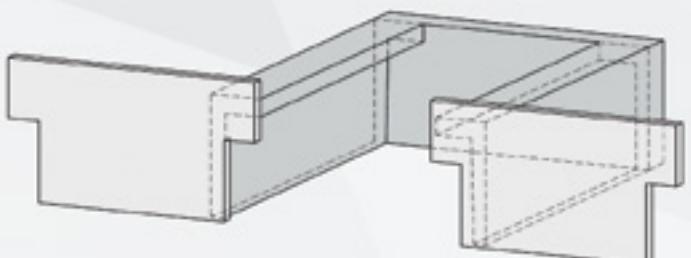
Utovarne rampe predstavljaju betonske platforme, dizajnirane da budu postavljene između magacina i kamiona ili prikolica, i da obezbede brzo i neometano kretanje viljuškara za vreme utovara i istovara. Prefabrikovane u tovarne rampe su dizajnirane, proizvedene i instalirane u skladu sa zahtevima klijenata. Naše u tovarne rampe odlikuje visok kvalitet završne obrade, preciznost i brzina montaže.



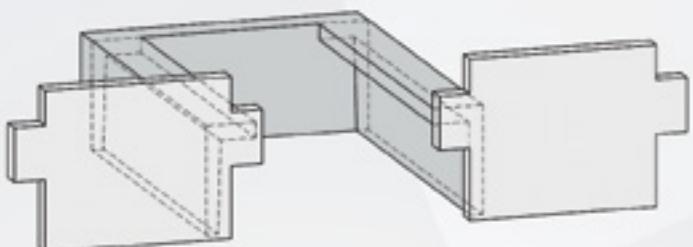
Položaj elementa u halli
Position of the element in the hall



TIP 1 / TYPE 1



TIP 2 / TYPE 2



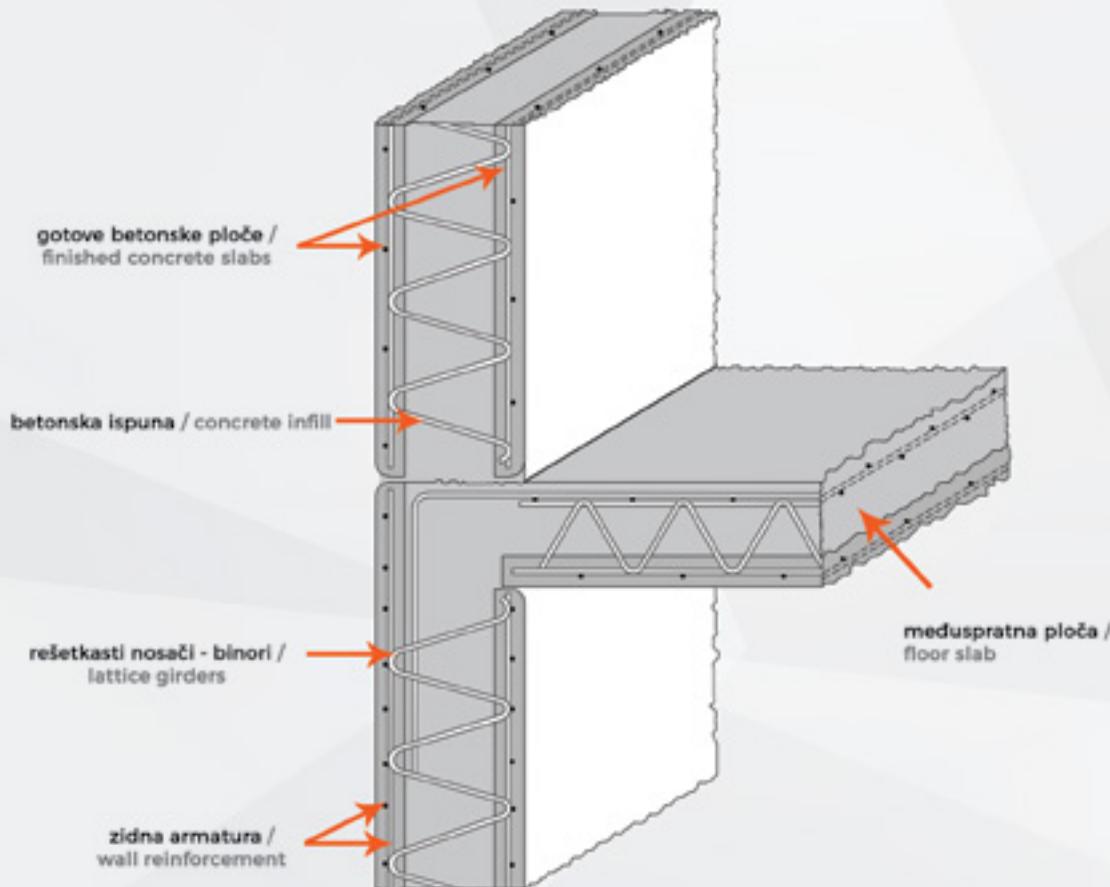
■ DUPLI ZIDOVNI I OMNIA PLOČE

■ DOUBLE WALLS AND OMNIA SLABS

Dupli zidovi / Double walls

Dupli betonski zid ili skraćeno dupli zid je prefabrikovani zidni element, koji se sastoji od dva armirano betonska platna (segmenta), koja su medusobno povezana rešetkastim nosačima. U segmente je ugradena konstruktivna armatura, prema statičkom proračunu. Na gradilištu se ovaj gotovi deo montira, a prostor između segmenata naliva lokalno proizvedenim betonom (in situ). Nakon očvršćavanja betona nastaje monolitni statički zidani sistem. Izrada i primena vrši se prema važećim standardima. Brza montaža duplih zidova velikih površina eliminira skupe oplate i značajno smanjuje vreme izrade, a pritom se obim radova na gradilištu redukuje.

A double concrete wall, or abbreviated double wall, is a prefabricated wall element consisting of two reinforced concrete sheets (segments) interconnected by lattice girders. Structural reinforcement, according to the static calculation, is installed inside the segments. The finished part is mounted on the construction site, and the space between the segments is filled with locally produced concrete on the construction site (in situ). After the concrete hardens, a monolithic static wall system is formed. Production and application are performed according to the applicable standards. Quick installation of double walls of large areas eliminates expensive formwork and significantly reduces construction time while reducing the scope of works on the construction site.



Zato što svaki dizajn ima svoja specifična svojstva, tj. specifičan je na svoj način, naši dvostruki zidovi se proizvode u skladu sa zahtevima projekta. Ne samo da svaki zid ima svoje jedinstvene dimenzije, otvore za vrata i prozore, već i ugradni delovi za završnu obradu mogu biti ostavljeni na licu mesta. Ovaj vid izgradnje objekta je jako fleksibilan i brz. Na slici je prikazan jedan od primera.

Because each design has its own specific properties, i.e. it is specific in its own way, our double walls are produced in accordance with the requirements of the project. Not only does each wall have its own unique dimensions, door and window openings, but the built-in parts for finishing can also be left on site. This form of building a facility is very flexible and fast. The picture shows one of the examples.



1 Otvori, prolazi / Openings, passageways

2 Prozorska okna / Window openings

3 Električni priključci / Electrical fittings openings

4 Otvor predviđen za vrata / Door frames

5 Ojačanje za spojeve zaliiveno betonom na licu mesta / Reinforcement for joints with concrete poured on-site

6 Cev za vertikalno napajanje električnih instalacija / Pipe for the vertical powering of electrical installations

PREDNOSTI

- Proizvodnja u fabrički nezavisno od vremenskih uslova
- Nema čekanja za uklanjanje oplate
- Ugradni elementi kao što su prozori, vrata, okviri vrata, kablovski kanali i električne kutije mogu se postaviti u fabrički
- Posebno glatke površine površine iznutra i spolja
- Dobra zvučna izolacija
- Jednostavno povezivanje podne ploče i plafona sa armaturom u betonu

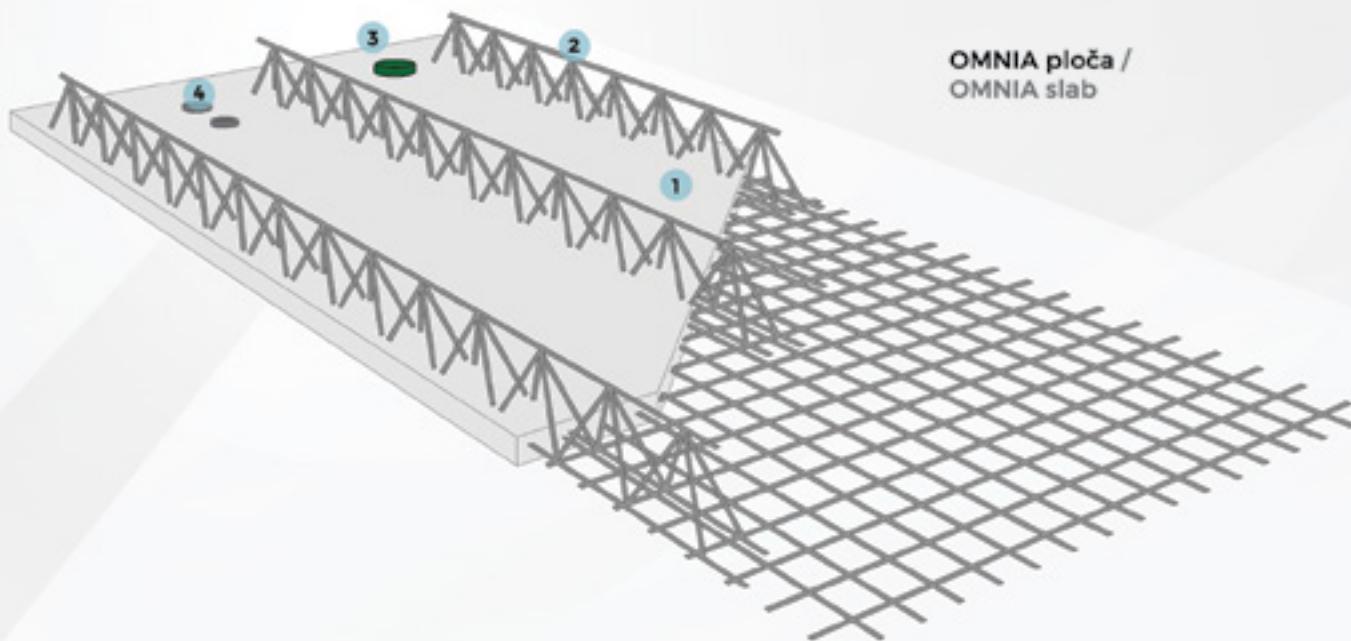
ADVANTAGES

- Production at the factory independent of weather conditions
- There is no waiting for removal of the formwork
- Built-in elements such as windows, doors, door frames, cable ducts and electrical boxes can be installed at the factory
- Particularly smooth surfaces inside and outside
- Good sound insulation
- Easy connection of floor slabs and ceilings with reinforcement in concrete

Omnia ploče / Omnia slabs

Omnia ploče (tavanice) su tanke prefabrikovane armirano betonske ploče minimalne debljine 5cm. Proizvode se u fabričkim uslovima, i potom transportuju i montiraju na gradilištu. Omnie se redaju jedna do druge, a zatim se postavlja armatura donje zone u poprečnom pravcu. Posle postavljanja armature i u gornjoj zoni, beton se izliva do projektovane visine, a sam proces se naziva monolitizacija. Svi neophodni otvor, električne kutije, ugradni delovi i ostalo je uzeto u obzir. Opremanje omnia tavanica sa elementima instalacija postala je uobičajena praksa. Inovativno je područje za postavljanje raznoraznih instalacija, kablova, sistema za grejanje i hlađenje.

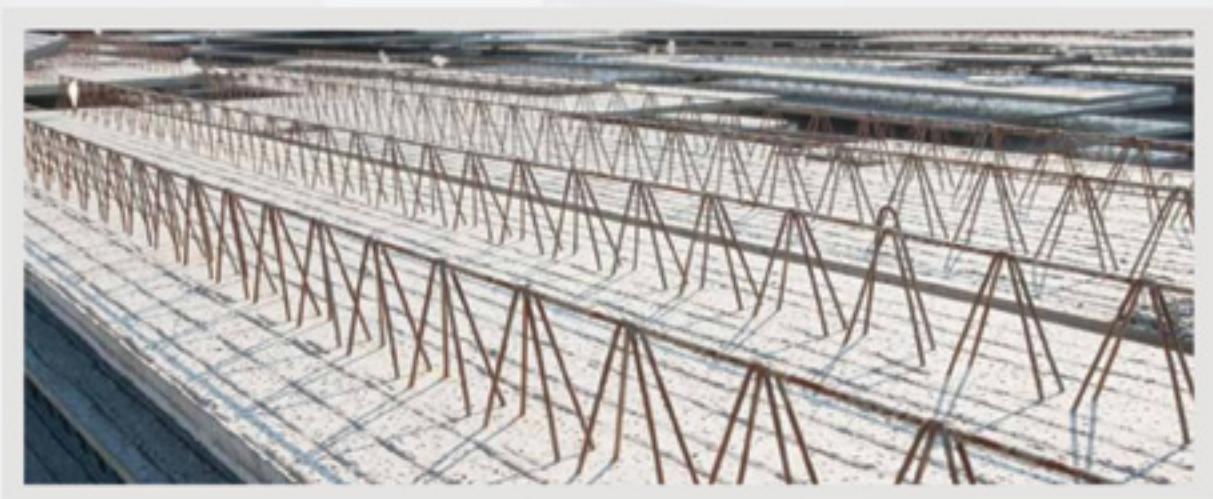
Omnia slabs (ceilings) are thin prefabricated reinforced concrete slabs with a minimum thickness of 5cm. They are produced in factory settings and then transported and installed on the construction site. Omnia slabs are lined up next to each other, and the reinforcement of the lower zone is placed in the transverse direction. After installing the reinforcement in the upper zone, the concrete is poured up to the projected height, and the process is called monolithization. All necessary openings, electrical boxes, builtin parts, etc., are taken into account. Equipping omnia slabs with installation elements has become a common practice. It is an innovative area for setting up various installations, cables, heating and cooling systems.



- 1. Armirana betonska ploča koja je totalno fleksibila;
 - Dostupan je dvosmerni dizajn koji omogućava smanjenje debljine poda;
 - Vatrootpornost ploča iznosi 60 minuta, i može se povećati promenom debljina ploča;
 - Završna verzija poda odgovara najvišim standardima zvučnih propisa;
 - Mogu odgovarati objektima različitih namena;
 - Može se koristiti sa gotovo svim vrstama konstrukcija.

- Reinforced concrete slab that is completely flexible;
 - Two-way design is available to reduce the thickness of the floor;
 - The fire resistance of the hollow core slabs is 60 minutes, and can be increased by changing the thickness of the slabs
 - The final version of the floor meets the highest standards of sound regulations;
 - Can suit to facilities of different purposes;
 - Can be used with almost all types of constructions.

- 2 • Fleksibilnost rešetkaste konstrukcije može da se koristi za modifikovanje rasporeda podupiranja.
• The flexibility of the lattice structure can be used to modify the support schedule.
- 3 • Ugrađeni otvor za mehaničku ventilaciju
• Built-in opening for mechanical ventilation
- 4 • Centralne kutije za električne vodove
• Central electrical conduit boxes

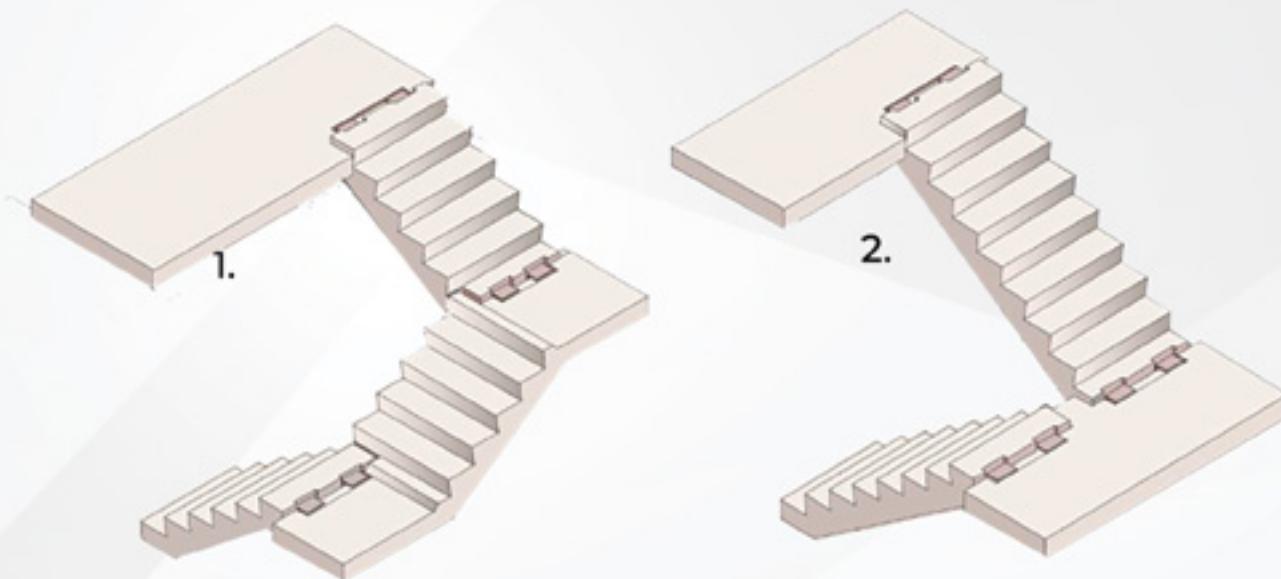


Stepenice / Stairs

Prefabrikovane betonske stepenice imaju značajne prednosti, u odnosu na klasičan, tradicionalan način izrade. Predstavljaju efikasniju i isplatiljiviju opciju, smanjujući broj radnika na gradilištu i brzinu ugradnje. Pružaju sigurnu vertikalnu komunikaciju između etaža, pa su samim tim pogodne za primenu i kod objekata većih spratnosti. Odličan su izbor i za protipožarne stepenice. Projektovane su i proizvedene za bilo koju visinu poda, namenu objekta i raspoloživi stepenišni prostor.

Dostupno je kao:

1. Stepenice sa gornjim ili donjim podestom
2. Stepenice bez podesta



Prefabricated concrete steps have significant advantages over the classic, traditional way of making. They are a more efficient and cost-effective option, reducing the number of workers on the construction site and the speed of installation. They provide secure vertical communication between floors, and are therefore suitable for use in buildings with higher floors. They are also an excellent choice for fire escape stairs. They are designed and manufactured for any floor height, purpose of the building and available stair space.

Available as:

1. Stairs with upper or lower landing
2. Stairs without landing



■ REFERENCE

30 godina apsolutne posvećenosti i predanosti fer poslovanju vremenom je rezultiralo proširenjem proizvodnog kapaciteta, poslovni uspehom i ostvarivanjem jakih veza sa našim saradnicima i klijentima

30 years of absolute commitment and dedication to fair business over time has resulted in the expansion of production capacity, business success and strong relationships with our associates and clients.

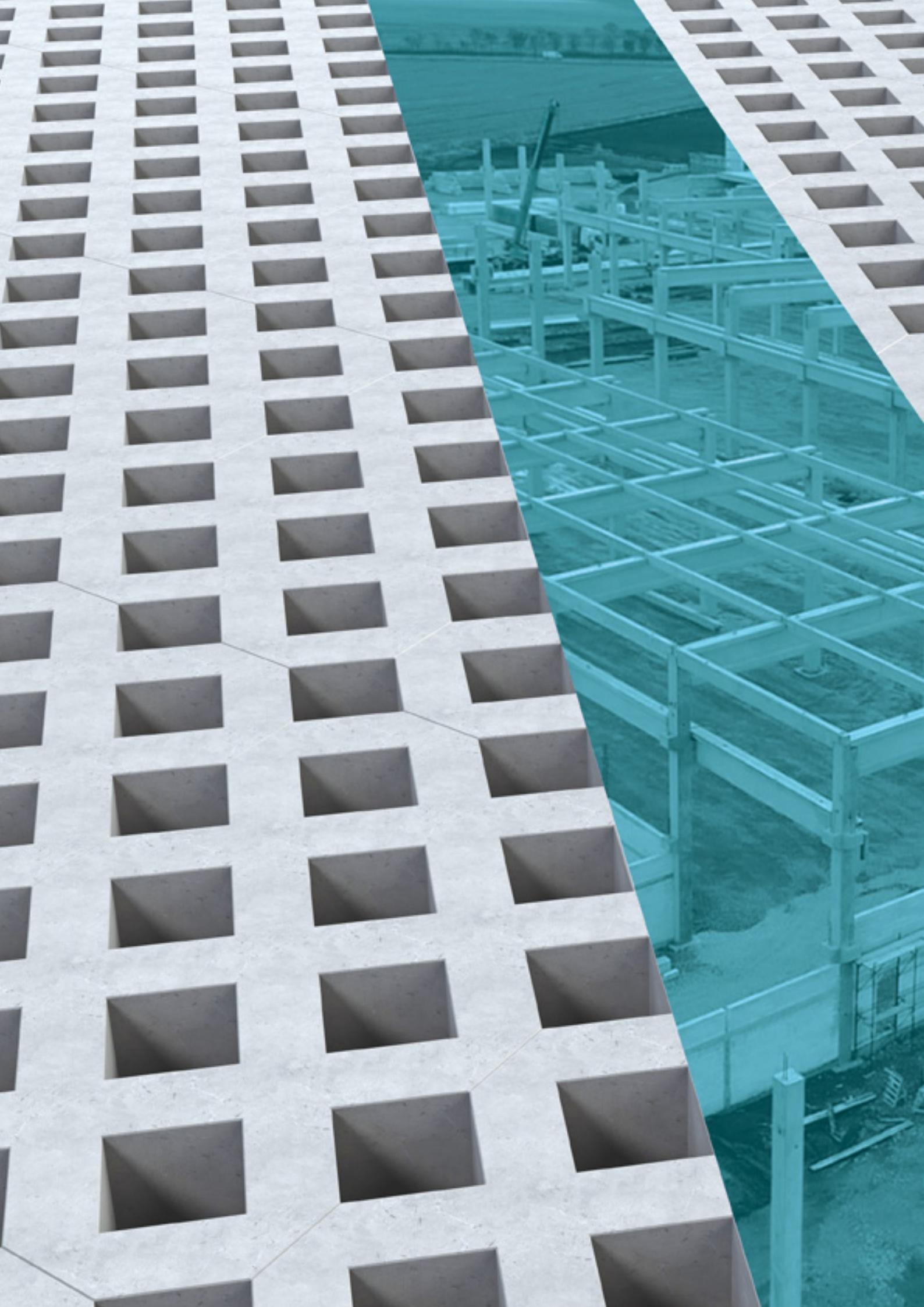
■ REFERENCES

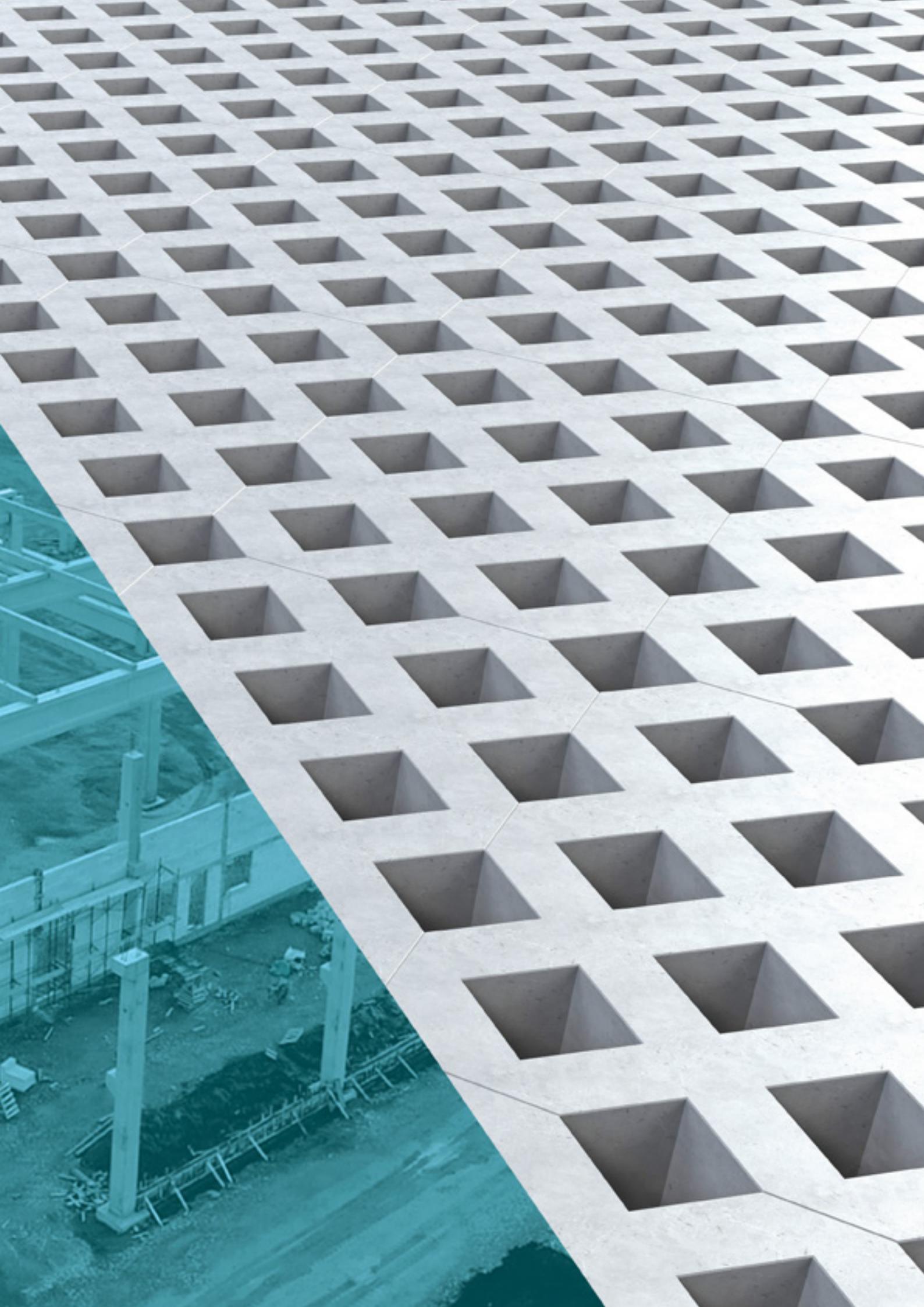
Klijenti / Clients	Mesto / Location	Godina / Year	Površina m ² / Size m ²
"NITON"	Novi Banovci	2011	2.000
"SHINWON"	Niš	2011	16.000
"YURA"	Niš	2011	22.000
"SAVABIEN"	Indija	2011	790
"HT&L FITTING FACTORY"	Kragujevac	2011	5.060
"PKB"	Pančevac	2012	5.280
"PKB"	Beograd	2012	7.165
"PKB"	Indija	2012	2.160
"DUNKERMOTOREN"	Subotica	2012	5.000
"CAPITOL GROUP"	Ruma	2012	1.550
"POVI-COM"	Niš	2012	2.000
"MAXI"	Smed. Palanka	2012	1.000
"HAJ APARAT"	Niš	2012	2.160
"HT&L FITTING FACTORY"	Kragujevac	2012	2.200
"INTEREX"	Vajjevo	2012	2.350
"ALWAC"	Bačka Palanka	2012	2.400
"D-COMPANY"	Pirot	2012	2.100
"COOPER TIRE & RUBBER FACTORY"	Kruševac	2013	17.200
"MARCONIS"	Niš	2013	1.600
"MILŠPED"	Krnješevci	2013	16.250
"ALMONT"	Beograd	2013	5.080
"YUGOIMPORT"	Velika Plana	2013	2.470
"HENKEL"	Kruševac	2013	8.365
"URADI SAM"	Novi Sad	2013	3.430
"SOKO TIM"	Novi Sad	2013	1.095
"STREIT NOVA"	Stara Pazova	2013	8.000
"FRESENIUS MEDICAL"	Vršac	2013	15.000
"AUTORITAS"	Niš	2013	1.860
"JOHNSON ELECTRIC"	Niš	2013	11.500
"TURBO GAS"	Vrbovsko	2013	1.000
"PKB"	Crepaja	2013	3.265
"SRPSKA FABRIKA STAKLA"	Paradin	2013	8.300
"VIVO SHOPPING PARK"	Jagodina	2014	10.000
"AVIV PARK"	Pančevac	2014	2.315
"HENKEL"	Kruševac	2014	6.000
"JUGO-IMPEKS"	Niš	2014	1.000
"FRIGONAI'S"	Kuršumlija	2014	400
"VELE VIVA"	Kruševac	2014	1.200
"EYEMAXX"	Novi Banovci	2014	10.955
"BORBENI SLOŽENI SISTEMI"	Velika Plana	2014	6.500
"TETRA PAK"	Gornji Milanovac	2014	6.000
"STAKLO ZORIĆ"	Stara Pazova	2014	2.355
"AL PACK"	Subotica	2014	1.300
"ALATNICA KRSTIĆ"	Pirot	2014	600
"SZUTR STOJANOVIC"	Pirot	2014	1.000
"DUNKERMOTOREN"	Subotica	2015	750
"STREIT NOVA"	Stara Pazova	2015	5.525

Klijenti / Clients	Mesto / Location	Godina / Year	Površina m ² / Size m ²	ABOUT US		FOUNDATION SOCKET		COLUMNS BEAMS		FLOOR BEAMS		HOLLOW CORE SLABS		TTS LABS		CRANE GIRDERS		PRIMARY GIRDERS		SECONDARY GIRDERS		MULTIPURPOSE RECTANGULAR BEAMS		FAÇADE PANELS		LOADING DOCKS		DOUBLE WALLS AND OMNI SLABS		REFERENCES																									
				Knjaževac	Kragujevac	Zrenjanin	Pirot	Subotica	Pirot	Pirot	Leskovac	Novi Banovci	Priština	Niš	Valevo	Pirot	Sečanj	Jagodina	Vranje	Subotica	Borča	Novi Sad	Subotica	Raška	Mačkat	Beograd	Leskovac	Barič	Pirot	Babušnica	Pirot	Beč, Austria	Niš	Smederevo	Pirot	Surdulica	Prižren	Sopot	Sombor	Leskovac	Zrenjanin	Trstenik	Kruševac	Požarevac	Kragujevac	Čatež	Kruševac	Niš	Kruševac	Kragujevac	Brnik, Slovenia	Velika Plana	Kosovo	Vrbas	Velika Plana
"SCS PLUS"		2015	810																																																				
"AGROHIM"		2015	720																																																				
"AVIV PARK"		2015	10.750																																																				
"D-COMPANY"		2015	2.345																																																				
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"AD TIGAR"		2015	1.710																																																				
"MICHELIN"		2015	475																																																				
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"STATOVAC"		2015	900																																																				
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"BUCAJ SHPK"		2015	10.935																																																				
"JOHNSON ELECTRIC"		2015	13.225																																																				
"POLYMARK"		2015	1.050																																																				
"VIVA FRESH"		2015	13.185																																																				
"STOP SHOP"		2015	13.000																																																				
"STOP SHOP"		2015	6.130																																																				
"D-COMPANY"		2015	1.365																																																				
"AGROHIM"		2016	8.620																																																				
"JELA JAGODINA"		2016	6.200																																																				
"TOP SOFA"		2016	4.770																																																				
"BAMBINO"		2016	1.600																																																				
"SHOPPI"		2016	11.400																																																				
"LEAR"		2016	26.135																																																				
"SMB"		2016	10.500																																																				
"FABRIKA TEKSTILA-RAŠKA"		2016	11.285																																																				
"ZLATIBORAC"		2016	1.460																																																				
"T.C. BIG"		2016	23.000																																																				
"YURA"		2016	7.090																																																				
"MEI TA"		2016	17.300																																																				
"MICHELIN"		2016	14.100																																																				
"D-COMPANY"		2016	1.300																																																				
"JLB SOULIER"		2016	2.200																																																				
"HOTEL CRYSTON"		2016	700																																																				
"ELEKTRO SERDO"		2017	945																																																				
"SHOPPI"		2017	7.200																																																				
"SZUTR STOJANOVIC"		2017	400																																																				
"ROSA"		2017	2.250																																																				
"KABASHI"		2017	14.600																																																				
"METALICA"		2017	750																																																				
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"ALMEX"		2017	3.040																																																				
"POLYSEAL"		2017	1.660																																																				
"HENKEL"		2017	5.300																																																				
"BRANKO MORAVAC"		2017	2.350																																																				
"TODOROVIĆ"		2017	3.340																																																				
"TEM"		2017	3.030																																																				
"KROMBERG & SCHUBERT"		2017	17.970																																																				
"AMAN"		2017	2.160																																																				
"LIDL"		2017	2.810																																																				
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"EDONI"		2017	5.430																																																				
"KEMA INC."		2017	12.800																																																				
"KUEHNE+NAGEL"		2017	1.340																																																				
"BORBENI SLOŽENI SISTEMI"		2017	35265																																																				
"BRICKOS"		2017	710																																																				
"KM MONT"		2017	1.890																																																				
"KRUNA KOMERC"		2017	5.970																																																				
"ŠIŠKO"		2017	2.890																																																				
"DARK TRANS"		2017	1.500																																																				

Klijenti / Clients	Mesto / Location	Codina / Year	Površina m ² / Size m ²
"LIDL"	Slovenija	2017	35.175
"ISKRA"	Zaščite, Slovenia	2017	11.820
"ZUMTOBEL"	Niš	2017	27.430
"IMI"	Niš	2017	13.970
"ALATNICA KRSTIĆ"	Pilot	2018	690
"ALUMIL"	Nova Pazova	2018	6.060
"UNIPROMET"	Čačak	2018	5.500
"UNIPROMET"	Kraljevo	2018	2.660
"LESNINA"	Novi Sad	2018	17.050
"MLEKARA GRANICE"	Mladenovac	2018	3.010
"MIND REAL ESTATE"	Kragujevac	2018	7.600
"HENKEL"	Kruševac	2018	6.510
"MELEXIS"	Sofia, Bulgaria	2018	17.140
"YURA"	Leskovac	2018	15.260
"YASKAWA"	Slovenija	2018	9.000
"DELPHI"	Leskovac	2018	27.900
"NOVINEC"	Slovenija	2018	1.575
"ADA COMPUTERS"	Bački Petrovac	2018	4.685
"FORMA IDEALE"	Pilot	2018	1.530
"VIZUS"	Niš	2018	1.370
"ARHIBET"	Sopot	2018	1.250
"EHO"	Slovenija	2018	2.185
"JUCOMETAL"	Kraljevo	2018	1.140
"BLATNIK"	Slovenija	2018	2.275
"DOBRAVAC"	Slovenija	2018	1.285
"RECIKLAŽA"	Dimitrovgrad	2018	1.540
"MOBECO"	Nova Pazova	2018	22.700
"MEI TA"	Barić	2018	18.615
"BORBENI SLOŽENI SISTEMI"	Velika Plana	2018	3.575
"ZF"	Pančeva	2018	28.850
"VORWERK"	Preljina	2018	40.920
"SPORT VISION"	Šimanovci	2018	26.000
"ATL CARGO"	Brnik, Slovenia	2018	21.830
"AGRISER"	Sombor	2018	1.625
"VORWERK"	Preljina	2018	20.600
"BW GALERIJA"	Beograd	2018	50.000
"NEPI"	Kruševac	2019	8.015
"KEMOIMPEKS"	Novi Sad	2019	3.765
"EUROIMPEKS"	Čačak	2019	1.150
"LIDL"	Beograd	2019	5.280
"LIDL"	Železnik, Slovenia	2019	2.220
"KAMFOOD"	Skopje, N. Macedonia	2019	18.750
"REMONDIS"	Zrenjanin	2019	715
"MERANO"	Čačak	2019	500
"BORBENI SLOŽENI SISTEMI"	Požega	2019	1.200
"ZF"	Pančeva	2019	36.450
"CTP"	Kragujevac	2019	24.300
"CASAGRANDE"	Niš	2019	1.560
"GRINDEX"	Kikinda	2019	1.455
"DIS"	Gornji Milanovac	2019	960
"JELA JACODINA"	Jagodina	2019	15.850
"JELA JACODINA"	Jagodina	2019	8.960
"FESTINA"	Bela Palanka	2019	980
"UNIVEREXPORT"	Novi Sad	2019	760
"BOYSEN"	Subotica	2020	33.330
"SPORT VISION"	Šimanovci	2020	16.150
"PKC"	Smederevo	2020	9.560
"GUŠA"	Nova Pazova	2020	4.550
"HENKEL PICASO"	Kruševac	2020	3.825
"TIM SISTEM"	Stara Pazova	2020	3.810
"MBJ"	Indija	2020	730
"ZR MIĆIĆ BOBAN"	Pilot	2020	710
"BORBENI SLOŽENI SISTEMI"	Kuršumlija	2020	2.620
"ELIT INOX"	Čačak	2020	540
"MARIĆ"	Čačak	2020	2.160
"BECHISS OSIRIDE"	Kragujevac	2020	560
"ELEKTRO DJUROVIĆ"	Čačak	2020	4.600
"INTERWINDEL"	Kraljevo	2020	1.570
"PAVLE"	Pančeva	2020	10.400
"ZR MIODRAG STOJANOVIĆ"	Niš	2020	1.480
"ELEKTROVAT"	Čačak	2020	1.480
"STATOVAC"	Leskovac	2020	4.020
"KYUNGSHIN"	Smed. Palanka	2020	11.345
"GP3"	Surčin	2020	2.635

Klijenti / Clients	Mesto / Location	Godina / Year	Površina m ² / Size m ²	ABOUT US		FOUNDATION SOCKET		COLUMNS BEAMS		FLOOR BEAMS		HOLLOW CORE SLABS		TTS LABS		CRANE GIRDERS		PRIMARY GIRDERS		SECONDARY GIRDERS		MULTIPURPOSE RECTANGULAR BEAMS		FAÇADE PANELS		LOADING DOCKS		DOUBLE WALLS AND OMNI SLABS		REFERENCES	
				Foundation	Column	Slab	Core	Slab	Girders	Crane	Primary	Secondary	Rectangular	Façade	Loading	Double	References														
"XINGYU"	Niš	2020	32.000																												
"FELT"	Ruma	2020	7.500																												
"LIDL"	Nova Pazova	2020	2.175																												
"LIDL"	Mladenovac	2020	2.650																												
"ART SOFA"	Vranje	2020	1.655																												
"BELUS"	Niš	2020	2.600																												
"SZUTR STOJANoviĆ"	Pirot	2020	450																												
"SCS PLUS"	Knjaževac	2020	785																												
"TEL KABL"	Zaječar	2020	7.200																												
"ELEKTROMONT"	Jakovo	2020	880																												
"SMAJ"	Niš	2020	955																												
"AGENCIJA MIJAILoviĆ"	Indija	2020	660																												
"COVID BOLNICA"	Batajnica	2020	6.500																												
"COVID BOLNICA"	Kruševac	2020	15.630																												
"NEST"	Obrenovac	2020	8.000																												
"ALDAHRA"	Padinska Skela	2020	11.500																												
"DELTA AGRAR"	Zaječar	2020	17.000																												
"DELTA PLANET"	Niš	2020	8.000																												
"CTP"	Kragujevac	2020	27.000																												
"ALINC CONEL"	Gajdobra	2020	1.290																												
"TEHNOPLAST"	Stari Banovci	2020	2.700																												
"PRIMANOVA"	Leskovac	2020	5.330																												
"UNIVERZAL"	Batajnica	2020	2.250																												
"GEBI"	Subotica	2020	8.100																												
"GRONSKAR"	Stockholm, Sweden	2021	7.000																												
"NORTH LINE"	Subotica	2021	520																												
"AMATEC"	Subotica	2021	8.950																												
"BERRY CORP"	Ruma	2021	2.400																												
"LIDL"	Valjevo	2021	2.150																												
"LIDL"	Niš	2021	2.220																												
"JUCOMETAL"	Šimanovci	2021	6.500																												
"MILŠPED"	Niš	2021	1.750																												
"SUPER PLAST"	Stara Pazova	2021	1.450																												
"AGROMONDO"	Novi Sad	2021	1.200																												
"CIM GAS"	Subotica	2021	1.470																												
"KO6"	Kuršumlija	2021	1.600																												
"PRODANOVIĆ"	Šabac	2021	3.420																												
"JT2"	Šimanovci	2021	2.900																												
"SIM"	Novi Sad	2021	4.300																												
"MM99 - FAZA I"	Nova Pazova	2021	2.800																												
"MICHELIN"	Pirot	2021	12.000																												
"FRIGLO"	Sečanj	2021	1.800																												
"MN INVEST"	Ruma	2021	2.650																												
"HLADNJAČA"	Osiek, Croatia	2021	7.800																												
"TRANSFERA"	Novi Banovci	2021	29.000																												
"COM ŠPED"	Dobanovci	2021	1.400																												
"STAKLO SUBOTIĆ"	Stara Pazova	2021	1.570																												
"SCHIBEL"	Jagodina	2021	1.160																												
"AUSTROTHERM"	Niš	2021	670																												
"STATOVAC"	Leskovac	2021	4.340																												
"BAN SEK"	Mali Požarevac	2021	400																												
"DASA NAMEŠTAJ"	Dobanovci	2021	3.350																												
"MTU"	Nova Pazova	2021	35.200																												
"IPBS"	Šimanovci	2021	11.700																												
"STAKLO ZORIĆ"	Stara Pazova	2021	1.420																												
"IKEA RETAIL"	Beograd	2021	17.110																												
"LAKETA"	Niš	2021	3.000																												
"FRIGLO"	Sečanj	2021	1.800																												
"TODORoviĆ"	Kragujevac	2021	1.400																												
"POP INVEST"	Šimanovci	2021	12.100																												
"AML MILŠPED"	Šimanovci	2021	2.900																												
"MASTER SOLAR"	Beograd	2021	2.500																												
"TEHNOEXPORT"	Indija	2021	2.850																												







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