



STOKUĆA



STOKUĆA TEAM

Stokuća team	04
Licenses and certificates	04
Mission and vision	05



Our engineers are licensed for:

- Design, A category
- Revision, A category
- Construction, A category
- Construction Supervision, A category

Our company is licensed for:

- Design, A category
- Revision, A category
- Construction, A category
- Construction manager, A category
- Construction Supervision, A category

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HEAVY CIVIL CONSTRUCTION

Content of heavy civil construction	06
Content of heavy civil construction	07
Berliner Brücke, Halle - DE	08
Sloboda Bridge, Novi Sad - RS	09
Talbrücke, Einhausen - DE	10
Gelbebrücke, Duisburg - DE	11
Thyratalbrücke, Mansfeld - Südharz - DE	12
Mülheim Bridge, Cologne - DE	13
Rail Bridge Ijssel, Zwolle - NL	14
Pag Bridge, Pag - HR	15
Störbrücke, Itzehoe - DE	16
Moselle Bridge, Moselle - DE	17
Gablenz Brücke, Kiel - DE	18
Dalbro over funder Ådal, Skanderborg-DK	19
Geratalbrücke, Erfurt - DE	20
Deggendorf Brücke, Deggendorf - DE	21
Dilltalbrücke, Haiger - DE	22
Fuldataalbrücke, Kassel - DE	23
Recommendation, SEH	24
Recommendation, SEH	25

BUILDING CONSTRUCTION

Content of building construction	26
Content of building construction	27
Klimahaus 8°Ost, Bremerhaven - DE	28
Landesmesse, Stuttgart - DE	29
Ohridska banka, Skopje - MK	30
Rem center, Tetovo - MK	31
Ohridska banka, Skopje -MK	32

Green Market, Skopje - MK	33
Fermentation Tanks, Skopje - MK	34
MR. Bricolage, Skopje - MK	35

INDUSTRIAL CONSTRUCTION

Content of industrial construction	36
Content of industrial construction	37
Production Factory, Resen - MK	38
ALMA - M, Skopje - MK	39
Baumer, Skopje - MK	40
Recommendation, Baumer	41
ODW, Struga - MK	42
VIVAKS, Skopje - MK	43
PEKABESKO, Skopje - MK	44
ING LULI, Struga - MK	45
RENOVA, Tirana - AL	46
DANIEL RUCHTI, Skopje - MK	47
Radar Tower, Tripoli - LY	48
Recommendation, Indra	49
EXPANDA, Skopje - MK	50
JCS BARD LOGISTICS, Skopje - MK	51

OTHER CONSTRUCTION

Content of other construction	52
Content of other construction	53
Steel Crosse, Skopje - MK	54
VASIL CHAKALAROV, Skopje - MK	55
Roof for Theater, Tetovo - MK	56
ATRIUM REM CENTER, Tetovo - MK	57

TREND PLUS 3, Skopje - MK	58
TREND PLUS, Skopje - MK	59
ELBBRÜCKEN U4, Hamburg - DE	60
ELBBRÜCKEN U4, Hamburg - DE	61
Short extract Steel Innovation Award 2018	62
Short extract Steel Innovation Award 2018	63
FJORDS , Fjardabyggd - IS	64
ELBBRÜCKEN S4, Hamburg - DE	65
REK Bitola, Novaci - Bitola - MK	66
EDGE AMSTERDAM WEST, Amsterdam - NL	67

ARCHITECTURE DESIGN

Content of architecture design	68
Content of architecture design	69
PENZION SINJI VRH, Ajdovščina - SI	70
CALAMITY ATELIER, Trentino - IT	71



STOKUĆA TEAM

We have created an internally, homogeneous, creative and productive team where we build interconnectedness and bring ideas to reality. Experience and knowledge are the basic characteristics of one part of the Stokuća team, while the other, younger members offer new innovative vibrations. Working together, we represent a formula for success. We embrace and analyze in detail modern trends, which enables us to provide service to all our Investors in accordance with their wishes and requirements. That means that our professional staff is specialized in specific areas, constantly maintaining high quality of our services.

LICENSES AND CERTIFICATES

In order to provide high quality services and satisfy our Investors, we use an ISO system, including quality objectives, to continually improve our performance. We are an SLV Ha - EN1090, ISO 45001 : 2018, ISO 14001 : 2015 and ISO 9001 : 2015 TUV Austria certified company.

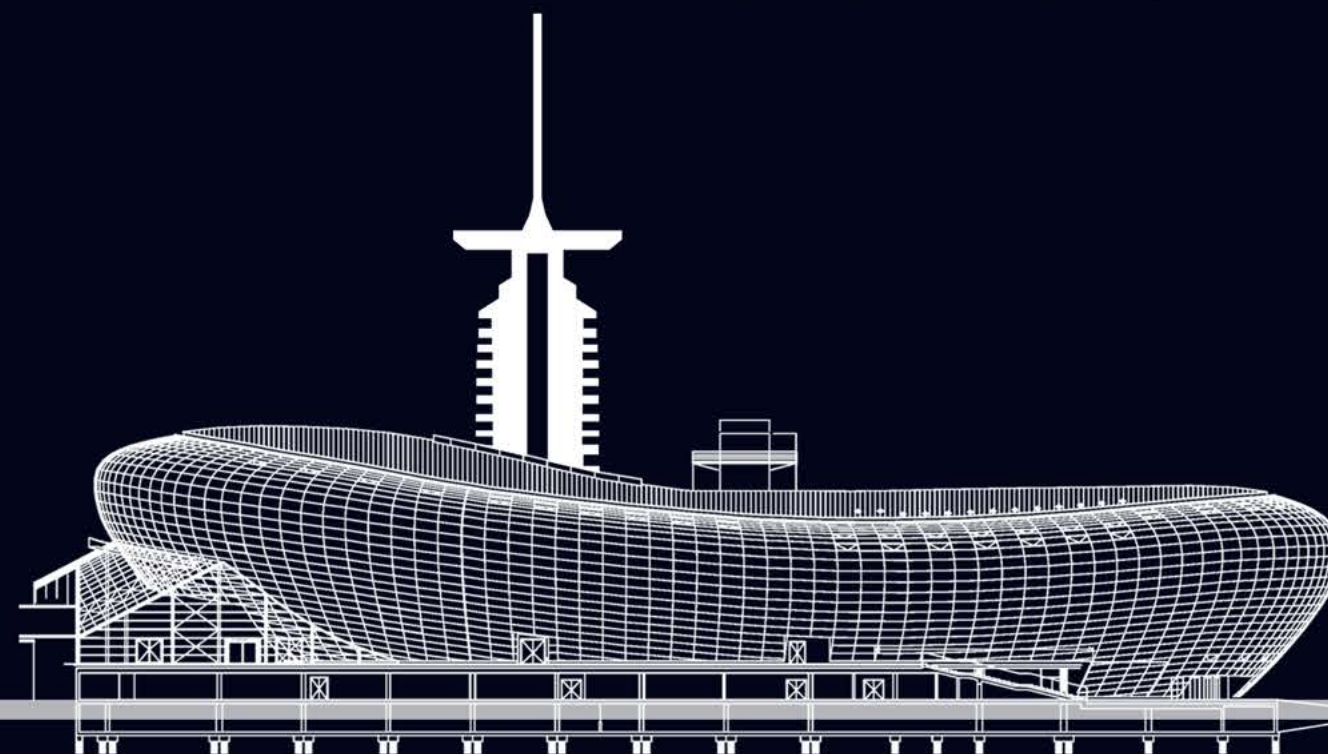
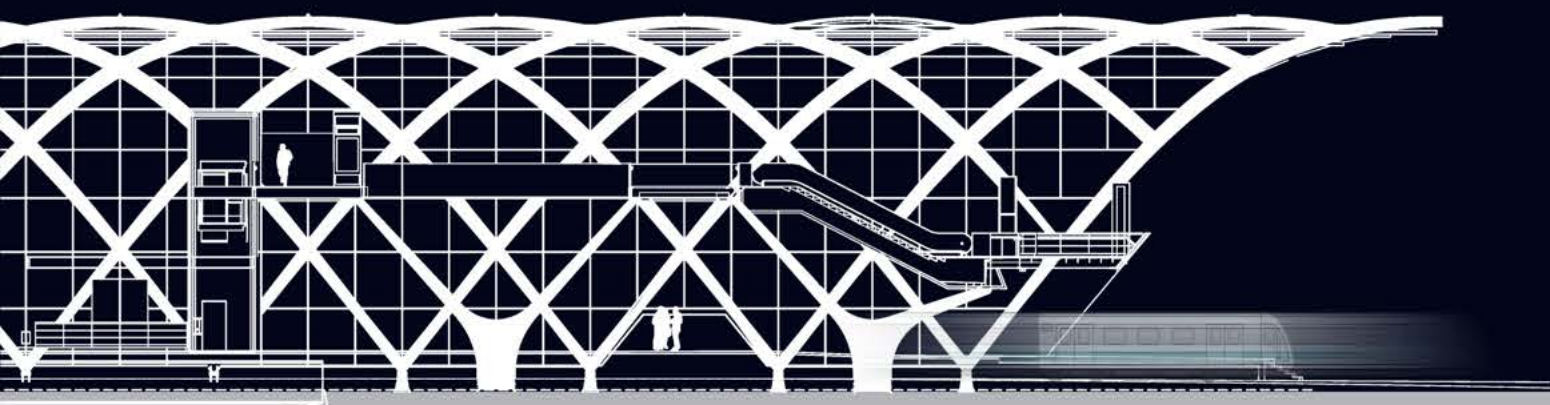
MISSION AND VISION

Our mission is to meet the expectations of the Investor through performance and efficiency and to create motivating working conditions for our employees.

Our tendency is to carry forward our build tradition with the emphasis on engineering (TURN-KEY projects) as well as to increase our presence and activities beyond Macedonia and our inclusion in overall European region.

The design process is at the center of our activities and in the phase of installation of the objects, we are very flexible in the day - to - day demands of the Clients. We accept challenges as an opportunity to expand our knowledge and experience. Investors recognize the company Stokuća as a reliable and stable company, whose image is based on its expertise and quality.

Zoran Stokuća, General Manager



HEAVY

Civil Construction



TABLE OF OBJECTS

- RAIL BRIDGE ACROSS THE IJSSEL - NETHERLANDS
- STORBRÜCKE ITZEHOE - GERMANY
- BERLINER BRÜCKE - GERMANY
- SLOBODA BRIDGE - SERBIA
- DALBRO OVER FUNDER ADAL SKANDERBORG - DENMARK
- GERATAL BRÜCKE - GERMANY
- THYRETALBRÜCKE VIADUCT, MANSFELD-SUDHARTZ - GERMANY
- DILLTALBRÜCKE VIADUCT NEAR HAIGER - GERMANY
- ELBEBRÜCKE RIESA - GERMANY
- RECONSTRUCTION OF "AIRCRAFT HANGAR" - LIBYA
- WERRATALBRÜCKE VIADUCT - GERMANY
- DAMBACH BRÜCKE - GERMANY
- GABLENZ BRÜCKE KIEL - GERMANY
- PAG BRIDGE - CROATIA
- MÜLHEIM BRIDGE - GERMANY
- MOSELLE BRIDGE - GERMANY
- FULDATAALBRÜCKE BERGSHAUSEN - GERMANY

Location : Halle, DE

Year : 2004 - 2006

01 BERLINER BRÜCKE

The "Berliner Brücke" in Halle - Germany, was originally built in the period from 1914 to 1916. The obsolete bridge was changed with the new one, whose construction started in 2004 and was completed in 2006. This is a cable - stayed bridge with inverted Y pylon. The „Berliner Brücke“ is 20,2 m wide, with the length of the main span of 171,0 m. The height of the pylons is 73,45 m and the length of stay cables is 43,0 m - 96,0 m.



Location : Novi Sad, RS

Year : 2003 - 2005

02 SLOBODA BRIDGE

"Sloboda" bridge is a cable - stayed bridge on the river Danube in Novi Sad - Serbia. The bridge was heavily damaged beyond use in NATO bombing in 1999 and was rebuilt and reopened on October 7 2005. Rebuilding lasted for 2 years and 22 days. The total length of the bridge is 1312 m and the width 27,60 m. The main span is 315,0 m.



Location : Duisburg, DE

Year : 2018 - 2019

04 GELBE BRÜCKE

"Gelbe Brücke" is a new railway bridge over the Ruhr Canal in Duisburg in the state of North Rhine Westphalia, Germany. The bridge is 134 meters long and weighs about 1600 tons. The total width of the bridge is 8,65 m and the height is 15,05 m.

Location : Einhausen, DE

Year : 2000 - 2003

03 TALBRÜCKE WERRATAL (A 71)

The "Talbrücke Werratal (A 71)" with its 1194,4 m is the second longest bridge of the Federal Highway 71. The spans of the 18 - field superstructures are 50 m + 61 m + 65 m + 70 m + 75 m + 75 m + 80 m + 85 m + 80 m + 75 m + 70 m + 65,3 m + 4 x 62,72 m + 55,22 m + 37,0 m. The width of the bridge is 28,5 m. Bridge area is 34029 m². 7600 t of steel was built into the construction.



Location : Mansfeld-Südharz, DE

Year : 2002 - 2005

05 THYRATAL VIADUCT

"Thyratalbrücke" with its 1115 m is the longest bridge of the highway A38. It lies in the "Mansfeld-Südharz" region Germany. The overpass spans at a height of 40 m. The abutments and piers are flat. The Y-shaped concrete piers with a maximum height of 35 m have a full cross-section. The steel was installed by means of incremental launching method, and it forms one-piece structure with an open cross section.



Location : Cologne, DE

Year : Reconstructed in 2019

06 MÜLHEIM BRIDGE

The Mülheim Bridge in Cologne is a suspension bridge on the river Rhine in western Germany. It has a main span of 315 m. The bridge was originally completed in 1929. On October 14 - 15, 1944 the bridge was damaged beyond use, but was rebuilt between 1949 and 1951. Finally, it was reconstructed in 2019 to meet the current demands for traffic. The bridge was rebuilt between 1949 and 1951. It connects the city district Riehl on the west side of the river with Mülheim on the east side.



Location : Zwolle, NL

Year : 2007 - 2012

07 RAIL BRIDGE OVER THE RIVER IJSSEL

The new rail bridge over the river IJssel – the Netherlands has a striking appearance. The elegant red bridge is approximately 1km long. Its distance from the water (NAP) is 26 m, so ships can pass easily underneath. The total length of 938 m, arc length of 150 m, headway of 9 m, 763 concrete piles, 9100 t structural steel and concrete pillars from 18 to 15000 m³, are the reasons why this bridge belongs to the bridges called giants.

Location : Pag, HR

Year : Reconstructed in 1999

08 PAG BRIDGE

This reinforced concrete bridge is located on the island of Pag - Croatia. The “Pag Bridge” was thoroughly reconstructed because of heavy damage caused by reinforcement corrosion. This bridge over the Fortica strait provides the fixed road link from the mainland to the island of Pag. The total length of the bridge is 301 m and the width is 9 m. The main span is 201 m.



Location : Itzehoe, DE

Year : 2006 - 2009

09 STÖRBRÜCKE ITZEHOE

This outstanding bridge is on the highway A23. The bridge is 1160 m long and divided into two parts: foreshore bridge South (452,3 m) and North (582,5 m). It is distributed on 18 fields. In the middle section, a steel arch of 22 m is placed. Architecturally well designed elements give the building a unique appearance that fits in the lowland area. 2846 t of steel was built into the construction.



Location : Moselle, DE

Year : 2011 - 2018

10 MOSELLE BRIDGE

The Hochmoselbrücke is a major new road bridge, that cross the valley of the Moselle south of Ürzig and north of Zeltingen - Rachtig in Rheinland - Pfalz, Germany. The design called for a 1702,4 m long steel box beam bridge that crosses the river at a maximum height of 158,0 m. The width of the bridge is 29,0 m to allow four - lane traffic. Ten monolithic pylons made from concrete support the bridge, their height varies between 15 m and 150 m.



Location : Skanderborg, DK

Year : 2009 - 2010

12 DALBRO OVER FUNDER ÅDAL

The bridge over the valley in Skanderborg - Denmark is the biggest bridge of the new highway A66. Several solutions were applied to this building, such as setting two steel A - frames, which are actually two tubes of 50 m height and Ø 1400. Total length of this bridge is 727 m, with 3,5 m to 3,9 m high. The amount of steel used for finishing the structure is 3600 t, as well as 970 t of steel for prestressing.

Location : Kiel, DE

Year : 2007 - 2012

11 GABLENZ BRÜCKE

The old "Gablentz Brücke" has dominated the urban landscape in the centre of Kiel - Germany since 1910. Due to the increase in traffic volume, in 2009 the bridge was replaced by the 340 m long steel girder bridge. It consists of a single arch over the railway tracks and it is approachable from both sides. Abutments and supports, which include staircases and ramps for the disabled, define the structure at both ends. The new structure is an inspiring replacement for the old landmark of the city.



Location : Erfurt, DE

Year : 2002 - 2005

13 GERATALBRÜCKE BISCHLEBEN

The rail bridge is located five kilometers west of downtown Erfurt between the districts Hochheim and Bischleben. The longest span is 78,3 m. The height of the arch is 12,55 m, the construction height is 14,45 m. The assembly of the 625 t bridge was carried out by two mobile cranes.



Location : Deggendorf, DE

Year : 2008 - 2010

14 DEGGENDORF BRÜCKE

The single-track main railway line crosses the Danube River in Deggendorf along a five-span truss bridge. The superstructure was constructed on a pre-assembly site on the western riverbank and was slid over the western abutment and concrete pillars using the incremental launching method. Total length of the bridge is 466,72 m. The main span is 84 m - 95,5 m - 106 m - 106 m - 74,5 m. 2450 t of steel was built into the construction.



Location : Kassel, DE

Year : Reconstructed in 2018

16 FULDATAALBRÜCKE BERGSHAUSEN

The Fuldataalbrücke Bergshausen is a large, seven-field viaduct of the A44 Motorway that crosses Fulda river. Start of construction is in 1959, and completed in 1962. The system height is 6,0 m with a beam spacing of 6,1 m. The total span of the seven-span bridge is 699,68 m, with individual support widths of 79,2 m - 91,2 m - 107,8 m - 143,2 m - 107,8 m - 91,2 m - 79,2 m.

Location : Haiger, DE

Year : 1999 - 2002

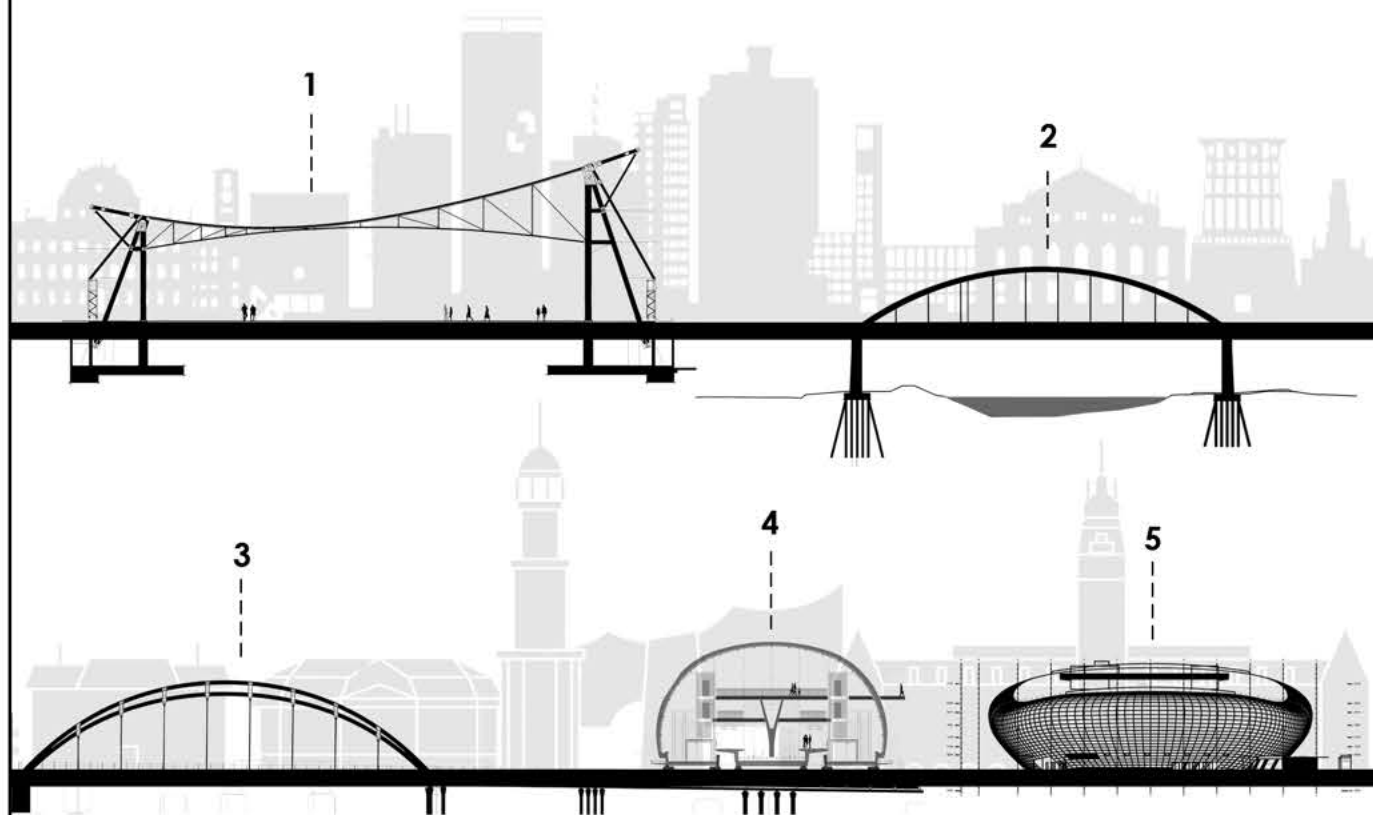
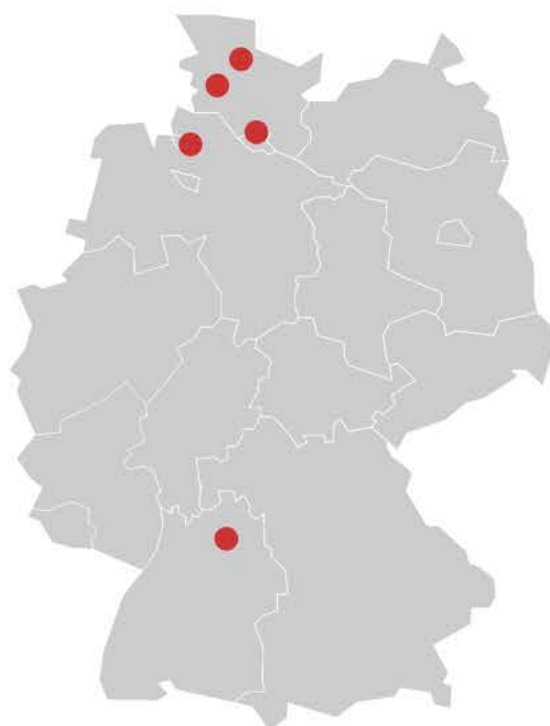
15 DILLTALBRÜCKE HAIGER

"Dilltalbrücke" is a highway bridge and a part of the 45th Federal Highway. It is located near the town Haiger - Germany. This is the second bridge built at the place of where another bridge had been and it is a box girder bridge. The previous bridge was built between 1965 and 1968. It consisted of 15 fields of plate girders 53,40 m long. Thus, they had a total length of 801 m. The current bridge consists of a total of 13 fields with the length of 45 m - 85 m.



LIST OF OBJECTS:

1. LANDESMESSE STUTTGART
2. STÖRBRÜCKET ITZHOE
3. GABLENZBRÜCKE KIEL
4. ELBBRÜCKEN HAMBURG
5. KLIMAHaus BREMERHAVEN



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to whom it may concern

Issue: letter of reference for STOKUCA dooel

It is my pleasure to provide the letter of reference for STOKUCA dooel.

Although SEH Engineering GmbH is a company with an annual turnover of 90 mil EUR and thus much larger than STOKUCA dooel, we know that in them we have a partner on which we can rely on.

Even though the history between SEH Engineering GmbH and the employees in STOKUCA does dates back a decade and has a portfolio of many bridges, *Gablensbrücke Kiel, Itzehoebrücke BA1, Landesmesse Stuttgart, Klimahaus Bremerhaven 8 ° Ost* etc, in this reference letter only the projects in the last year will be discussed.

Currently, STOKUCA dooel is in the final phases of completing the detail engineering on the *S-Bahnhof Elbrücken*. Having in mind the complexity of the project, as well as the constant alterations from the client, STOKUCA dooel has demonstrated flexibility to always deliver the required documentation. With this being said, STOKUCA dooel has proven itself to be a valued partner that does not back down from a given task and will not leave the project until seeing it to completion.

Having in mind the above, in the beginning of this year, STOKUCA dooel was given a new project for detailed engineering – the bridge *Tiefenbachtal* on highway A61 in Germany with approximately 4.500 tons of steel. This project encountered issues regarding the substation changes in the input information from the client at the last minute, but STOKUCA dooel has not missed a deadline yet.

Finally, in short, we recommend that you also find the reliable partner you are looking for in STOKUCA dooel.

For any questions do not hesitate to contact me.
Bei Rückfragen stehen wir Ihnen gerne zur Verfügung.

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BUILDING

Construction



TABLE OF OBJECTS

- RECONSTRUCTION ON GREEN MARKET - MACEDONIA
- TRADE, BUSINESS CENTER MR. BRICOLAGE - MACEDONIA
- TRADE AND BUSINESS CENTER REM CENTAR - MACEDONIA
- POST CENTER LJUBLJANA - SLOVENIA
- CITY STADIUM, SKOPJE - MACEDONIA
- OFFICER'S CLUB P 700 - IRAQ
- BORDER PASS CANOPIES - MACEDONIA
- ELLIPTIC HALL - SLOVENIA
- GYM HALL ISO - MACEDONIA
- AQUA CENTER MOSCOW - RUSSIA
- LANDESMESSE STUTTGART - GERMANY
- KLIMAHaus 8°OST BREMERHAVEN - GERMANY
- BUSINESS CENTER MERKATOR - SERBIA

Location : Bremerhaven, DE

Year : 2005 - 2009

01 KLIMAHHAUS 8°OST

The "Klimahaus Bremerhaven 8° East" is a science exhibition hall in Bremerhaven Germany. It is situated in the old port and is a part of Havenwelten. Its shape resembles a boat. Its four exhibition areas cover about 18800 m². The building, 125 m long and 82 m wide, is composed of two separate parts. The heavy steel construction weighing 1200 t equalises elements from shipbuilding. This "Klimahause" building presents a unique experience.



Location : Stuttgart, DE

Year : 2000 - 2007

02 LANDESMESSE STUTT GART

The "Landesmesse" in Stuttgart Germany was the biggest building site in Europe at the time of its construction. It is the state of the art exhibition center, architecturally and functionally justified. The showground with a total area of 100000 m² is located in the vicinity of the Stuttgart airport and consists of seven exhibition halls with 10500 m² exhibition space, and an extra high exhibition hall with about 26800 m² space. 65000 t of steel was erected in the exhibitions center steel structure.





Location : Skopje, MK

Year : Extension in 2017

03 OHRIDSKA BANKA

The existing building is a reinforced concrete construction designed in 1997 consisting of a basement, ground floor and two upper floors. With the reconstruction in 2013 elevator shaft, ladder core and ventilation cores have been added. The net surface of the existing levels is 2076,36 m². In the upgrade another floor was added to the steel structure. The upgrading was done with complete dismantling of the roof and roof construction. The surface of the added floor is 494,86 m².

Location : Tetovo, MK

Year : 2010 - 2014

04 REM CENTER

REM Center is located in the downtown area of Tetovo, between the Green market and Vero. The useful area is 25000 m². The REM Center is a multipurpose complex that is divided into nine sections and has: ground, nine floors and three underground levels. It contains five - star hotel, shopping center and residential area with around hundred residential units.



Location : Skopje, MK

Year : 2018

05 OHRIDSKA BANKA

The branch office of Ohridska banka in Aerodrom, Skopje is an existing office space with global dimensions of 10,96 m x 9,24 m and total net surface of 59,4 m². This project defines the equipping and renovation of the branch office at the level of standard and unified positions.



Location : Skopje, MK

Year : Reconstructed in 2011

06 GREEN MARKET

The reconstruction and adaptation consists of three segments: a) reconstruction of existing facilities in order to modernize the building. b) dislocation of the Green Market on the East side. c) reconstruction and adaptation of the South side building. The construction has dimensions of 55,66 m in length, 36,3 m in width, 6,2 m in height on the outside surface, and a floor surface of 2020 m².



Location : Skopje, MK

Year : 2011

08 MR. BRICOLAGE

The building consists of two units intended for exhibition and sales (unit "Neptun" and unit "Mr. Bricolage"). The roof is solved with a main longitudinal beams with tension cord on which roof girders are relied (beam with tension cord). 17 lanterns for the ventilation are set on the roof. The total area of the building is 4500 m².

Location : Skopje, MK

Year : 2017 - 2018

07 FERMENTATION TANKS

This facility is built for the needs of Brewery Skopje. It is a steel structure made of steel beams, columns, purlins, rafters and bracing. The object span in the x-direction is 23,8 m = 7 x 3,4 m and in the y-direction 24,5 m = 7 x 3,5 m. The lower part of the structure, the towerless section is H1 = 8,00 m, and the higher part is H2 = 13,80 m. Vertical communication is solved with U-shaped and circular stairs and a steel profile lift.



INDUSTRIAL

Construction



TABLE OF OBJECTS

- FACTORY FOR DRY MORTAR RENOVA - ALBANIA
- FACTORY FOR DRY MORTAR ING LULI - MACEDONIA
- FACTORY FOR PROCESSING MEAT PEKABESKO - MACEDONIA
- FACTORY FOR BRICKS ORANZERII - MACEDONIA
- RADAR TOWER FOR TRIPOLI INTERNATIONAL AIRPORT - LIBYA
- ROOF CONSTRUCTION ALMA M - MACEDONIA
- WAREHOUSE SOLOPROM - MACEDONIA
- ELECTRIC POWER PLANT PLOMIN - CROATIA
- REFRIGERATOR "NOVORUSISK" - RUSSIA
- SILO SUVAFIX - MACEDONIA
- MUSHROOMS PRODUCTION HALL BONUM - MACEDONIA
- WASTE POWER PLANT ANSALDO - DENMARK
- TANK REPAIR HALLS TAJI - IRAQ
- PRODUCTION HALL FOR PAINTS ALKALOID - MACEDONIA
- PIPE SUPPORT BRIDGES PLIVA - CROATIA
- BATTERY PRODUCTION HALL SVETLOST BUJANOVAC - SERBIA



Location : Resen, MK

Year : 2008

01 AD ORANZERII HAMZALI PRODUCTION FACTORY

Location of the facility is in a village near the town Resen Macedonia. The hall is intended for brick production and has layout dimensions of 60 m x 132 m. Polyurethane panel is installed as a roof cladding. The hall has a brick wall on the outside. The total gross area of this object is 11000 m² and 450 t of steel construction was used.

Location : Skopje, MK

Year : 2008

02 ALMA – M WAREHOUSE

This facility is located in the village near the city of Skopje Macedonia. The dimensions of the warehouse are 66,9 m x 34,5 m. The construction is made of main roof steel beams with a raster of 6 m, spans of 17,5 m and columns with the height of 6 m. Total area of the facility is 2300 m². 65 t of steel construction was built into this warehouse hall.



Location : Skopje, MK

Year : 2018 - 2019

03 BAUMER SENSOR FACTORY

"BAUMER" is a building consisting of one base entity with an administrative unit within the manufacturing unit. The production plant has a span of 13 m + 14 m + 13 m and a free height of 4,5 m. The administrative part is on the same level with the production plant. On one side there is an overhang with a length of 27 m and a width of 4,4 m. 194 t of steel construction was used.



Passion for Sensors

The Baumer Group is one of the worldwide leading manufacturers of sensors, encoders, measuring instruments and components for automated image-processing. As an owner-managed family business, we employ about 2700 workers worldwide in 38 subsidiaries and 19 countries. Our customers include small, highly specialized plant and machine construction companies, large industrial enterprises and groups of companies operating at global level. The best in their field. In Europe and throughout the world. For over 60 years.

For our new production plant in Macedonia, we selected STOKUCA as our partner for the design and complete construction of the building in the Free Zone in Skopje.

The process for the 4000m² plant started in February 2018 with conceptual design that underwent several iterations and resulted with the building permit from the Directorate of the Zones being valid on 21st June 2018.

Even of our high requirement to the building, the material and the complexity of technical equipment like electricity and room conditions, construction started in early July 2018. The turn-key construction process with all phases was finished in April. Technical inspection from the government bodies as well as full documentation and adjustment of technical equipment was completed in July 2019, thus making the building phase in nine months and the completion of the full project in exactly one year.

The build process itself was monitored closely by the STOKUCA engineers and all necessary information was relayed to BAUMER which resulted in an open working environment which was completed as a success story.

From the experience we had during the construction process, we can say that the engineers from STOKUCA were up to the task and when we do an extension of the plant in the future, we look forward to work with them again.

Having in mind the information listed above, we fully recommend STOKUCA as a very reliable partner for your construction needs, whether they are design or construction.

Matthias Reinbold
Senior Project Manager
Baumer Group



Location : Skopje, MK

Year : 2013

05 VIVAKS FACTORY

The object, in X - direction is made of spans of 3,85 m; 6,00 m; 5,90 m and 5,85 m, and in Y-direction of a span of 19,80 m, together making a whole of axial dimensions 69,80 m x 19,80 m i.e. 1382 m². The outside dimensions of the object are in X - direction 70,00 m and in Y - direction 20,00 m thus forming an area of 1400 m². G = 70 t of steel construction was used.

Location : Struga, MK

Year : 2019

04 ODW ELEKTRIK

The facility is located in the village Misliševo near the city of Struga. The dimensions of the Production Building are 27,0 m x 90,0 m with a free height of 6,6 m. The construction is made of main roof steel truss with a raster of 6m. Total area of the facility is 2340 m² and 170 t of steel construction was used.



Location : Skopje, MK

Year : 2009 - 2012

06 PEKABESKO A.D. FACTORY

Location of these facilities is in the village near the city of Skopje. This warehouse for meat processing and distribution of meat products is divided into four technical units. The bearing structure of the building is a steel roof set on the reinforced concrete columns. The total gross area of the facilities is 20000 m². For this building 1000 t of steel construction was used.



Location : Struga, MK

Year : 2008 - 2010

07 ING LULI FACTORY

The location of the facilities is near the town of Struga. Facilities are intended for the production of dry mortar, liquid products and XPS, as well as the distribution of finished products. Next to the main facilities there are also auxiliary facilities such as administrative buildings, workshops, guard shack and substation. The total gross area of all facilities is 7372 m². 600 t of steel construction was used.



Location : Tirana, AL

Year : 2006

08 RENOVA FACTORY

The building (silos and silos supporting construction for the industrial complex for production of dry mortar), is divided into three sections. Section A has dimensions of 46,2 m + 2,7 m in the X direction, and 32,6 m + 2 x 2,5 m in Y direction. Section B, the tower silos, has the basic dimensions of 15 m x 12 m, which has the silos volume of 9 x 100 m³. Section C, the tower silos has the basic dimensions of 15 m x 3,75 m and a volume of 4 x 100 m³. 550 t of steel construction was used.

Location : Skopje, MK

Year : 2013 - 2014

09 DANIEL RUCHTI

The facility has two units, facade carpentry production plant and administrative/office space. The maximum dimensions of the object footprint is 88,8 m / 40,0 m with a maximum elevation of 6,53. Production facility forms a whole of 40,0 m x 78,4 m, or 3136 m². Administration space forms a whole of 40,0 m x 10,0 m or 400,0 m². G = 120 t steel structures was used.



Location : Tripoli, LY

Year : 2008

10 RADAR TOWER FOR INTERNATIONAL AIRPORT

The object consists of two parts a reinforced concrete foundation with the dimensions of 8,5 m x 8,5 m x 3,5 m and a steel tower with the dimensions of 6 m x 6 m x 30 m. The tower is divided into 9 sections, where the first is 3,2 m, the last 2,3 m, while the others are 3,5 m high.



Madrid, 19th April 2017

To Whom it May Concern:

Indra Sistemas, S.A. is a Spanish information technology and defence systems company that employs over 35 000 professionals worldwide and has an average annual turnover of over 2.5 billion EURO in the last decade.

Indra's portfolio ranges from consultancy, project development, and systems and applications integration to outsourcing of IT systems and business processes.

As part of a project developed between Indra and the Libyan Civil Aviation Authority for the improvement of air space surveillance, the company STOKUCA doel from Skopje, Macedonia, performed the works of design, delivery and installation of a 30m high radar tower in Tripoli, Libya.

The works were carried out initially in 2008 with the design phase, of which STOKUCA doel took charge, and in 2009 with the delivery and installation on site. Installation was executed in a remarkably short time which allowed Indra to complete a very important milestone of the project.

Afterwards the tower was significantly damaged during the 2011 war in Libya, and required maintenance and re-construction works. For this purpose, STOKUCA doel carried out a temporary solution on site on late 2011, followed by a complete replacement of the last 6 meters of the tower which were rendered unusable by the damage on 2012.

During all the works on this project STOKUCA doel met all the deadlines in the contract and fulfilled the works in an orderly fashion.

Having in mind the information listed above, we recommend STOKUCA doel as a reliable partner for design and construction needs.

Domingo José Pestana Puerta

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Location : Skopje, MK

Year : 2016

12 JCS BARD LOGISTICS WAREHOUSE

The facility is located in the municipality Ilinden in the city Skopje. Dimensions of the warehouse are 97,10 m x 45,00 m. The construction consists a ground floor whose height is 10,40 m. In the longitudinal direction the frames are set at a distance of 6,00 m, and in the transverse direction are at a distance of 22,5 m.

Location : Skopje, MK

Year : 2012 - 2013

11 EXPANDA WAREHOUSE

The facility is located in the village of Vizbegvo. The facility is comprised of two parts : a warehouse and offices with an overall area of 2376 m² out of which 1512 m² belong to the warehouse, and 432 m² to the offices which are on two stories, thus making an overall area of the offices 864 m². Overall weight of the steel construction is G = 130 t.



OTHER

Construction



TABLE OF OBJECTS

- VASIL CHAKALAROV SCULPTURES - MACEDONIA
- ATRIUM REM CENTER - MACEDONIA
- OVERHANG TREND PLUS - MACEDONIA
- RESTAURANT REM CENTER - MACEDONIA
- CROSS - MACEDONIA
- OVERHANG TREND PLUS, ŠPAJZ - MACEDONIA
- ELBBRÜCKEN U4 UNDERGROUND STATION - GERMANY
- BASISWEG 10 - NETHERLANDS
- ELBBRÜCKEN S4 UNDERGROUND STATION - GERMANY

Location : Skopje, MK

Year : 2013 - 2014

01 STEEL CROSS

The structure is intended as reinforced concrete pedestal with a height of 5,2 m which represented as 12 bracket, inscribed in a circle with diameter $d = 7,00$ m. From 5,2 m elevation of the base steel construction begins at the cross with a cross section of $4,00$ m x $4,00$ m. The cross has a total height of 56,45 m. $G = 65$ t steel structure is used.



Location : Skopje, MK

Year : 2012 - 2013

02 VASIL CHAKALAROV SCULPTURES

Sculpture Vasil Chakalarov is about 5 m in height and length of 8 m. The entire sculpture is made of bronze with a thickness of about 7 mm. The sculpture is placed on a pedestal foundation which is approximately 1,7 m in height and visible dimensions of 325 cm width and 750 cm length. The whole sculpture is standing on two points: on the mantle of the horseman and the horse's front right leg.



Location : Tetovo, MK

Year : 2012 - 2013

04 ATRIUM REM CENTER

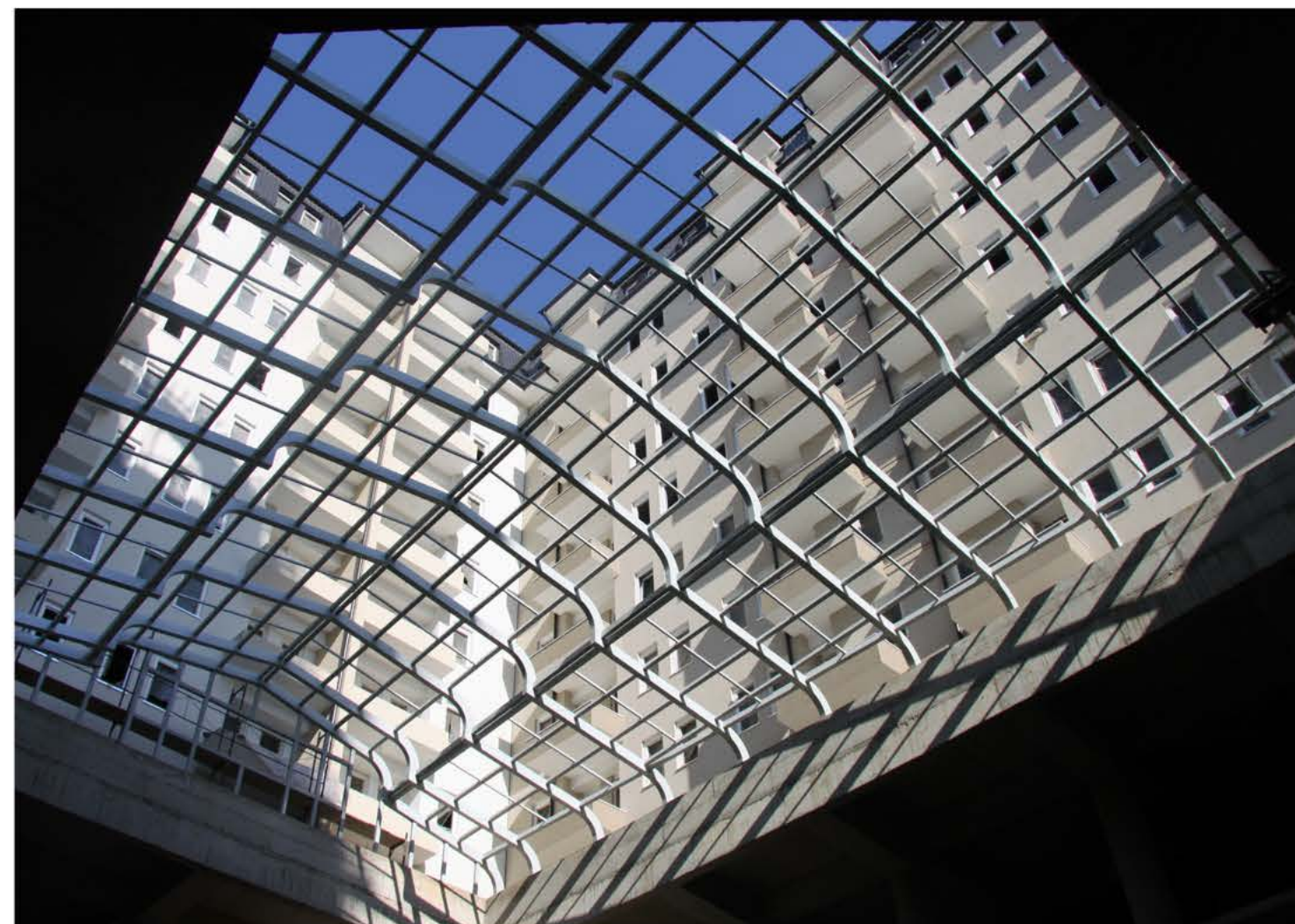
The atrium, which is the REM Center in Tetovo is diamond shape. The irregular shape dictates dimensions that vary from 14 m to 17 m width, and 21 m to 23 m length. The cross - section varies along the atrium. The total weight of the steel structure is 23 t.

Location : Tetovo, MK

Year : 2019

03 ROOF STEEL STRUCTURE FOR THEATER

The roof steel structure is part of the new Theater in the city of Tetovo and consist of three separate steel structures. The largest is located on the roof with dimensions of 12,8 m x 11,3 m and weight of 15,7 t. The other two are with dimensions 11,8 m x 10,3 m and weight of 9 t, and 5,4 m x 5,4 m and weight of 2 t.



Location : Skopje, MK

Year : 2019

05 TREND PLUS 3

The extension of the restaurant is planned to be done on the ground floor on both sides of the existing building. The extension spans in both directions are $A = 10,95\text{ m}$ and $B = 25,85\text{ m}$. The height of the pillars of the extension is $H = 3980\text{ mm}$.

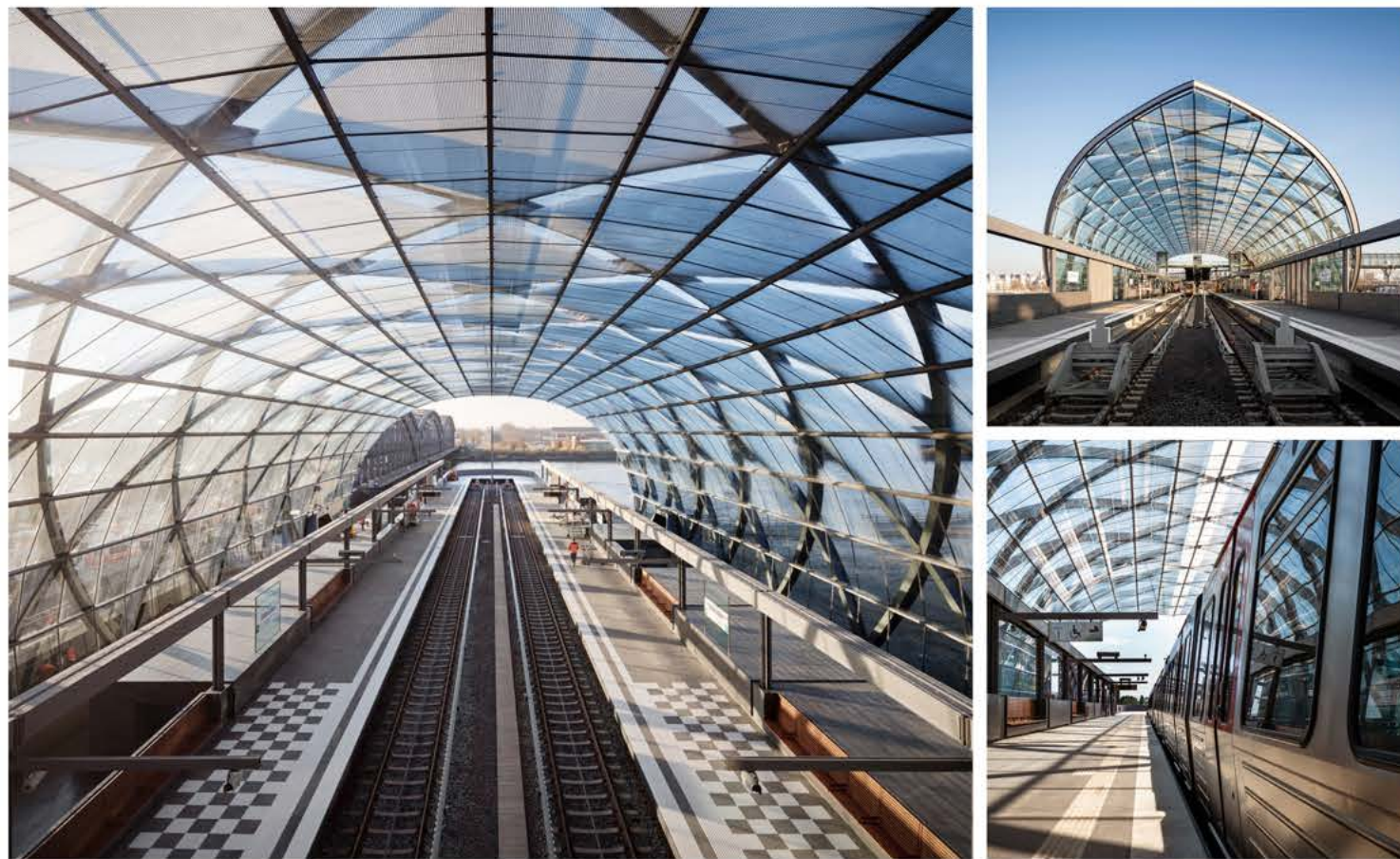


Location : Skopje, MK

Year : 2012

06 TREND PLUS

Location of the overhang is inside of the Skopje City Mall for the needs of Food Bar Trend. The shape of the overhang has the form of a mushroom with clear height of $3,3\text{ m}$ and covers an area of 185 m^2 i.e. the dimensions of the layout are about $13,6\text{ m} \times 13,6\text{ m}$. The complete construction is made of tubular box profiles. Spatial positioning of profiles is defined from the aesthetic requirements of the Investor and the Contractor.



Location : Hamburg, DE

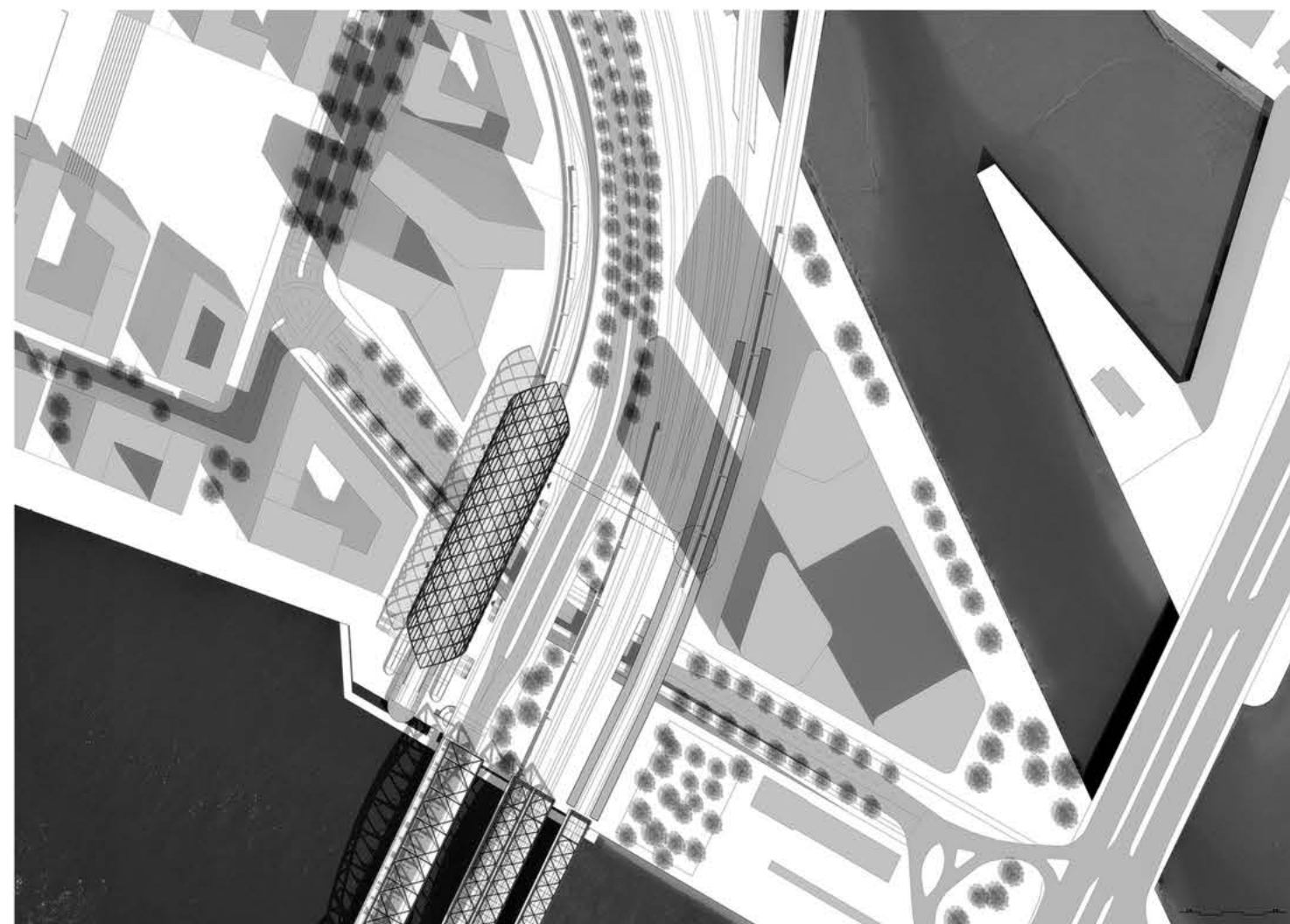
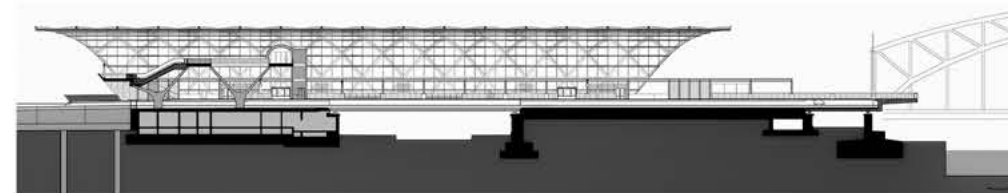
Year : 2016 - 2018

07 ELBBRÜCKEN U4 UNDERGROUND STATION

On December 6, 2018, the new Elbbrücken Underground station of the U4 line was ceremonially opened. The station was designed by architects von Gerkan, Marg and Partners (gmp). Located at the Elbbrücken bridges at the end of the new HafenCity district, the Underground station with its conspicuous roof construction is a milestone in the development of HafenCity.



A special feature of the new Underground station is the fact that the railway track emerges from underground and continues above ground in parallel to the Elbbrücken bridges. The roof construction with its ellipsoidal arch profile is created from crossing arched steel frames. The different levels of the ticket hall, the platforms, and the two bridges for crossing the tracks are accessed via staircases, escalators, and elevators. The top steel bridge provides access to the skywalk that will connect the Underground station with the S-Bahn station. In this project, architecture and structural engineering are closely interconnected; the synthesis of these two disciplines is mandatory for the optimal development of such a project.



Stahl im Bauwesen

1. Preis

Fertigungsverfahren für Überdachung U4-Haltestelle Elbbrücken in Hamburg

SEH Engineering GmbH, Hannover



Jurybegründung

Weite Stahlbögen und viel Glas lassen die Bahnsteigüberdachung in Gestalt eines Rautennetzes trotz enormer Ausmaße leicht und transparent erscheinen. Die segmentierten Binder variieren in ihrer Höhe entsprechend dem Momentenverlauf – das minimiert den Materialeinsatz. Die besondere Herausforderung zeigte sich bei ihrer Fertigung, da sie den Verkehrsweg diagonal und verdreht gekrümmt überspannen. Die Ingenieure von SEH Engineering nutzten dazu selbst entwickelte Biege- und Montagevorrichtungen, mit denen sich der Profilverlauf der geschweißten Bogenbinder durch Kaltumformung maßgenau realisieren ließ. Entstanden ist ein markantes Infrastrukturbauwerk von hoher Funktionalität und außergewöhnlicher gestalterischer Eleganz.

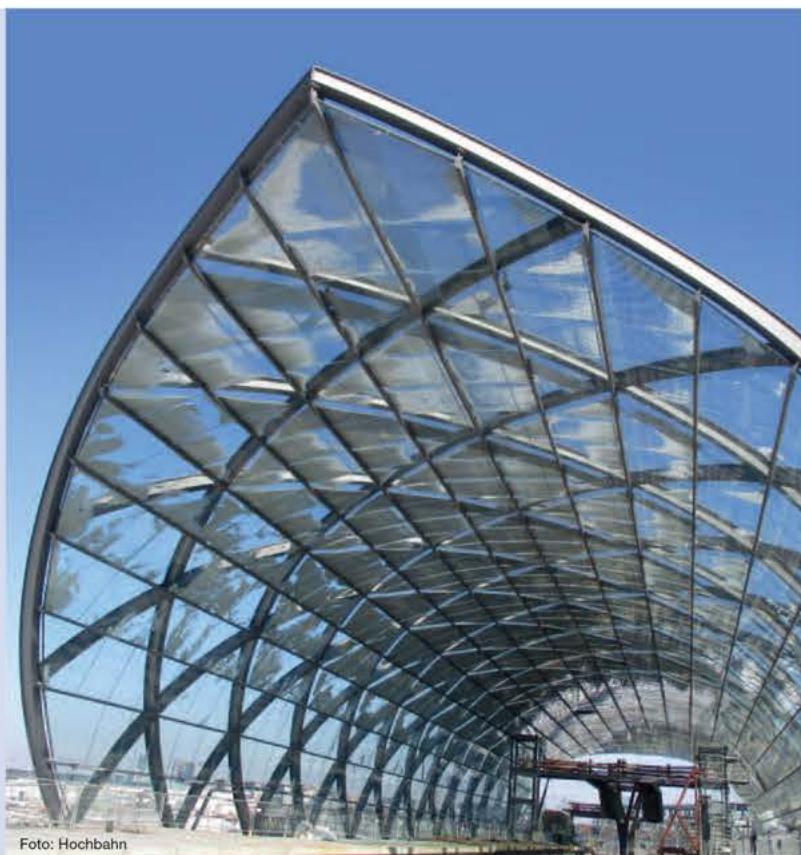


Foto: Hochbahn

Ein bedeutendes Infrastrukturprojekt für die Anbindung der östlichen Hafen City an die Hamburger Innenstadt nimmt Gestalt an. Das Ensemble aus U- und S-Bahn-Haltestelle sowie der neuen Verbindungsbrücke als zentraler Halte- und Umsteigepunkt „Elbbrücken“ wird mit seiner futuristischen Architektur zum städtebaulichen Highlight. Mit der Verlängerung der Bahntrasse führt der Weg der fast vollständig oberirdisch verlaufenden Linie U4 weiter Richtung Südosten. Die Fahrt endet in dem neuen U-Bahnhof der Hamburger Hochbahn AG, der Ende 2018 fertig gestellt sein wird und als Pendant zu den nahe gelegenen Elb-

brücken geprägt ist durch ein markantes Hallendach aus gebogenen Stahlrahmen. Verantwortlich für die Realisierung des komplexen Stahlbaus ist das Unternehmen SEH Engineering aus Hannover.

Als horizontal ausgerichtetes Bauwerk inmitten der zukünftigen Skyline des Quartiers „Elbbrücken“ besteht das von den Architekten von Gerkan, Marg und Partner und den Tragwerksplanern schlaich bergermann partner geplante Dachtragwerk aus einer rautennetzartigen Halbtone. Die maximale Grundflächenabmessung beträgt 135 x 33 m. Doppel-T-förmige



Bogenbinder sind im Raster von 8 m verschränkt und sich gegenseitig höhengleich durchdringend angeordnet. Ein diagonal verlaufender Bogen ist 64 m lang bei einem Stich von 15,50 m. Dem statischen Kraftfluss folgend, variiert die Bauhöhe der Profile und beträgt am Fußpunkt sowie Dachscheitelpunkt 350 mm, dazwischen wächst sie auf bis zu 600 mm an. Dadurch konnte der Querschnittsverlauf optimiert und der Stahleinsatz minimiert werden. Nach innen abgehängte und von der Tragkonstruktion getrennte Verglasungselemente schützen die späteren Nutzer der U-Bahn-Station vor Wind und Wetter.

Die besondere technologische Herausforderung bestand in der Fertigung der Struktur der Doppel-T-Schweißprofile, die infolge der zur Dachlängs-

achse diagonalen Anordnung verdreht gekrümmt verlaufen. Alle Flanschbleche mussten aus ebenen Stahlflachstähen durch Krümmung hergestellt werden, auch die nur gering verwundenen Stegbleche. Herkömmliche Kantpressen zur Herstellung einer homogenen Krümmung schieden aus, da hiermit nur scharfe Kanten möglich waren. Stattdessen wurde eine vorhandene Presse so umgebaut, dass „weiche“ Biegelinien durch Kaltumformung realisiert werden konnten.

Für den Zusammenbau und als Schalablonde für die Herstellung der Bogenbinder dienten 6 dem Bogenverlauf exakt angepasste Montagevorrichtungen. Zunächst wurde darauf der Untergurt fixiert, dann das Stegblech und zuletzt der Obergurt angeheftet. Die Schweißung erfolgte außerhalb der

Vorrichtung hauptsächlich durch Parallelschweißung mit Weldycars zur Minimierung möglichen Schweißverzugs.

Die kreuzförmige Anordnung der Rahmen ergibt ein korbartiges System mit Bögen, die sich gegenseitig stabilisieren. Der stirnseitige Abschluss des Daches folgt der Orientierung des Rautennetzes mit einer architektonischen Raffinesse, einer spitzförmigen Auskragung und gekürzten Bindern. Luftig, leicht und röhrig: Wenn Ende 2018 der Fahrgastbetrieb startet, ist ein modernes Infrastrukturbauwerk entstanden, das sich hinsichtlich Funktionalität, architektonischer Eleganz und effizientem Einsatz des Baustoffs Stahl abhebt von der tristen Sachlichkeit so vieler anderer Bahnhöfe.



Rendering: Gärtner+Christ Architekturdarstellung

Location : Fjarðabyggð, IS

Year : 2004 - 2007

08 FJARÐAÁL ALUMINUM SMELTER

Fjords aluminum is located in Iceland in Fjarðaál. The facility contains a smelter, cast house, rod production and deep-water port, where the two main buildings have dimensions of 1100 m x 28 m. The smelter reached full production capacity in April 2008. It employs 450 people and produces 940 tons of aluminum a day, with capacity of 346,000 metric tons of aluminum per year.



Location : Hamburg, DE

Year : 2018 - 2019

09 ELBBRÜCKEN S4 UNDERGROUND STATION

On December 15, 2019, trains stopped for the first time at the new Elbbrückenmetropolitan railway (S-Bahn) station. The roof structure of the S-Bahn station creates an ellipsoidal arch profile consisting of crossing arched steel frames. The twisted steel beams are arranged to form a diamond-shaped grid pattern, in which the individual arches stabilize each other. The top steel bridge provides access to the Skywalk that connects the Underground station with the S-Bahn station. This 70-meter-long pedestrian bridge provides a barrier-free crossing over Versmannstrasse and the long-distance railway tracks.



Location : Novaci - Bitola, MK

Year : Renovation 2019

10 REK BITOLA

Reinforced concrete cooling tower 2 is part of the Power Plants of Macedonia in Novaci. The height of the tower is $H = 108$ m. The radius of the cooling tower is variable, and at an elevation of 81 m the diameter is $D = 80$ m. The reinforced concrete shell elements have variable diameter and variable thickness along the height of the cooling tower. It is supported on 40 pairs of diagonal reinforced concrete columns with dimensions $a / b = 50$ cm / 50 cm, and height of + 6,50 m above the ground.

Location : Amsterdam, NL

Year : Renovation 2018

11 EDGE AMSTERDAM WEST

EDGE Amsterdam West is a 48.000 sqm redevelopment of an office building from the 1970's. The building has been upgraded to become an advanced and sustainable office space. A new and spectacular glazed dome has been placed to cover the atrium, transforming the unused exterior space into the new heart of the building and bringing lots of natural daylight into the working spaces.



ARCHITECTURE

Design



TABLE OF OBJECTS

- FRECONSTRUCTION ON GREEN MARKET - MACEDONIA
- TRADE, BUSINESS CENTER MR. BRICOLAGE - MACEDONIA
- FACTORY FOR DRY MORTAR ING LULI - MACEDONIA
- OHRID BANK BRANCH OFFICE, SKOPJE - MACEDONIA
- INDIVIDUAL RESIDENTIAL BUILDING , SKOPJE - MACEDONIA
- RESIDENTIAL HOUSE MAVROVO - MACEDONIA
- INDIVIDUAL HOUSE, SKOPJE - MACEDONIA
- RECONSTRUCTION OF INDIVIDUAL HOUSE, SKOPJE - MACEDONIA





03

PIVARA
SKOPJE

Location : Skopje, Macedonia
Year : 2019

MEETING ROOM 2





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