



WHITEBOARD

The information magazine about White cement | 2017-2





Editorial

Dear Ladies & Gentlemen,

after a very nice summer/autumn the winter season is coming very soon. We can say already that business wise 2017 is once again a successful year. The business economic and by that the growth is supporting you and us in almost all european countries where we are supplying our White cement to.

Is the crisis now behind us? I think we can answer this question with yes. But it doesn't mean that we can relax and slow down. Constant work and focus is needed to be ahead. Differentiation, deliver excellence in white and to be customer focused is our base and we will continue that. I have to say a big thank you to the CRH White cement team, who is following those values.

In 2014 we implemented our new CEM II A-LL White cement. With it we had plans and visions and today we can be proud to say, that the CEM II White cement sales are 40% of our annual volume.

With this product we are helping to secure resources, saving our environment by lowering CO² emissions and opening a new business field - Ready mix producing White concrete for new applications like tunnel renovations. In this edition of our Whiteboard you can find nice articles about our latest projects across Europe.

As Christmas and New Year's Eve is getting closer the CRH White Team wishes you all the best for a successful 2018. I wish you a happy reading.

With kind regards,

Ing. Josef Nowak
Head of White Cement



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Introducing CRH White team

Kurkowa 14
Office-apartment complex
Wrocław, Poland





Kurkowa 14

A beautiful building enhances the shoreline of the Odra river in Wrocław.

Mgr Inż. Łukasz Andrzejewski
Betard sp. z o.o.



Modern architecture design requires modern construction solutions. Prefabrication significantly accelerates the completion of all stages of construction, eliminating the need for complicated and time-consuming formwork and reinforcement on site. It allows a much higher quality of individual elements and, what is also very important, their precise reproducibility. Prefabricated elements - from the piles and columns, beams, ceilings, walls, stairs or balconies - are exactly according to the requirements of the architect and constructor according to the projected geometry and technical specifications. Prefabricated concrete can meet very high requirements for waterproofing and frost resistance as well as fire resistance - without the need for additional and costly protection.

In addition to the advantages of technical parameters,

prefabricates help to achieve certain aesthetic intentions. The unique white color that can be obtained when using CRH White cement adds a fine note to the elements and allows to achieve an effective white prefabrication. The possibilities of obtaining a variety of textures and methods when finishing the concrete surface are practically unlimited. Original shapes and surfaces of concrete, used in modern construction, create a picture of the creativity of our designers.

The project at Kurkowa, designed by Maćków Pracownia Projektowa from Wrocław, is an excellent example of the possibility of forming and constructing reinforced concrete elements. The prefabricated elements were made based on an executive design expanded by our factory for a workshop project. The building has nearly 100 internal stairs 462 cornices and 155 balconies. CRH White cement from Slovakia, prefabricated in combination with a glass facade, gives the buildings an attractive look.

The original architecture of the surroundings is complemented by a combination of concrete, such as: pavements, fencing walls, signboards, exposed gears, footbridges and vents.

Concrete material and prefabricated elements offer great possibilities. It is difficult today to outline the construction of cubature buildings, including residential, industrial, utility and other infrastructure investments, without the use of prefabricated elements.

The apartment complex 'Kurkowa 14' was commissioned in March 2016. It has nine terraces and one underground garage with parking spaces and cellars. On the ground floor of the investment are serviced apartments and apartments with gardens.

The building has a total of 209 apartments of varying sizes - from 25 to 91 m². On the last floors are two floor apartments with large terraces overlooking the Odra river. Access to the common areas, including the patio and the observation deck leading up to the Odra River, determines the shape of the building itself. Entrance is only possible through the main gate or from the garage level.





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Duna Medical Centre

Façade with a view

The Duna Medical Center (DMC) is located on the beautiful Pest side of the Danube with a magnificent view to the Gellért Hill and the fascinating fort, Citadella.

Duna Medical Center is one of the best equipped private health care facilities in Hungary, staffed by internationally acknowledged medical experts dedicated to the health of their patients. To broaden the services provided by its Ambulatory and Surgery Center, a new hospital is to open in 2018. The architectural design of the building is planned by TUS Architects, the developer is the Universal Builders Ltd., and the implementation of the façade is executed by IVANKA. During the imposing investment, customized L and U profile panels have been used in over a 3.755 m² surface altogether.

IVANKA is specialized in providing customer-focused services, examining and considering its Clients' needs and creating personalized solutions to any type of ideas. IVANKA offers complete, full circle services to its Clients from the feasibility study to the concrete implementation of the projects. Besides the serial production and custom manufacturing of high-quality concrete products, IVANKA delivers high standard services and top solutions in architecture, design, engineering, research and development, technological innovation, packaging, worldwide shipping, project management and installation.

In this case of Duna Medical Center, the related services were project management, customized factory production, packaging, delivery services and installation. IVANKA also provided a unique color and interface development with economical ways of production throughout the entire project, due to the particularly larger items used during the works.

The installation consists of 6,000 items and panels, using 330.440 kg of concrete. The heaviest panel weights 120 kg.

And one more interesting data to add to the DMC project: currently, more than 100 people are employed in its dynamic, young international team of IVANKA, including 15 engineers and project managers. During the period of the five-month long construction, a number of 20 people a day were working on this project, installing an average of 40 m² façade per day.



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WHITE TUNNELS

The general renovation of two tunnels in Vienna was carried out with concrete front covers made out of CRH White cement.

The renovation of two tunnels in Vienna located on the highway 23 (A23) was finished recently. This was a special challenge for an average of 170.000 cars are passing through this important arterial road every day. The project was carried out by the austrian company ASFINAG who is responsible for the administration and maintenance of all austrian highways. The goal was an all-round renewal of currently two tunnels in Vienna for a longer service life and a sustainable tunnel remediation with a newly developed refurbishment concept.

Until the end of 2017 bridges, roadways and retaining walls as well as the two tunnels were thoroughly renovated.

Thanks to the renovation the tunnels now offer a more safe passage due to the modern LED lighting as well as the bright white walls. The fire protection was increased and now meets the latest security standards. A new roadway ensures more comfort and an added underneath crossing for bicycles takes care of other road users.

In the second year of the general renewal of 2017, ASFINAG is also renovating the roadways, the retaining walls and the bridges. The two tunnels are brought to state-of-the-art technology by fire protection. During the renovation of the tunnel walls and retaining walls until summer 2017 two lanes remain open during the day. A lane is closed during the night hours between 9 pm and 5 am.

The Stadlau and Hirschstetten tunnels in the project area got equipped with fire protection technology in the course of the general renovation. For this purpose, the tunnel walls are provided with a fire-resistant cover plate made of a special light concrete.

For this purpose, a special call for tender was made by ASFINAG according to the austrian standard B 3327-1 with the cement requirement CEM II, 42,5R WT42 and

a bright white color. This was carried out by us with over 2 years of preparation work through various cement and concrete tests in our facilities in the Rohoznik cement plant.

For this the White cement CEM II / LL 42,5R WT 42 was chosen. The concrete surface of the prefabricated shells has been hydrophobed to prevent contamination and to enable easier tunneling cleaning. This is above all to save time, which a considerable cost factor for ASFINAG during maintenance work.

These facing layers are without enforcements, the concrete composition is a C30 / 37 GK22 exposure class XC4/XD2/XF2/XA1L/SB (A) according Austrian standard B 4710-1.



The water cement ratio is 0.50 with an air pores content of 2.5-5%. Per cubic metre of concrete there were used 400kg of white cement and 1.2kg of synthetic fibers for reinforcement which were supplied by our C³ Atelier partner Brugg Contec.

The water repellent was Si-kagard-706 Thixo from Sika.

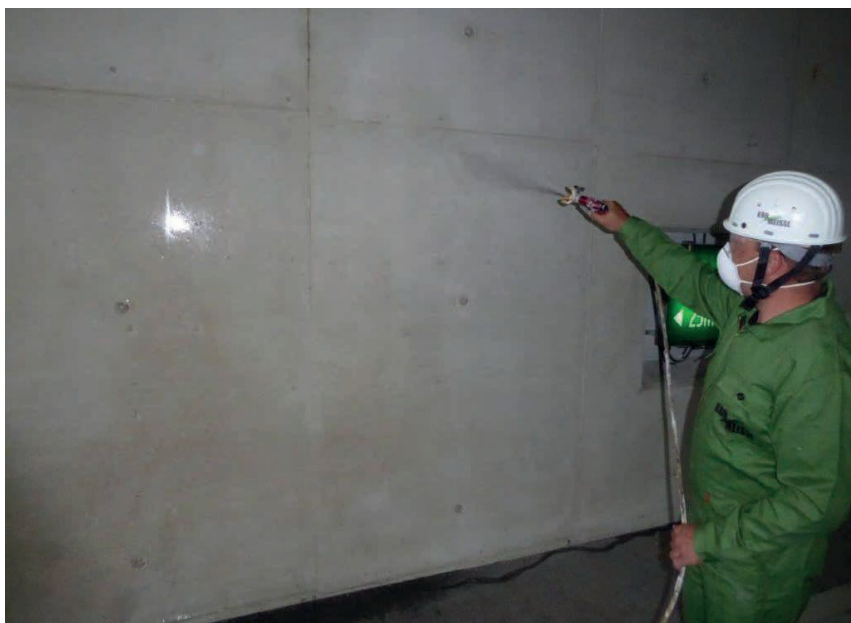
The tunnel ceiling is additionally covered with fire protection panels. On both sides of this section high retaining walls are located. Those are also being refurbished in the course of the construction work with front shells. The electromechanical equipment of the tunnel chain is brought up to the latest state of the art.

The middle strip area in the open-air area can be extended over and equipped with a new lighting. The road cover is redeveloped in the entire section, and a new bicycle path crossing for the city of Vienna will be erected in the vicinity of the Hirschstetten junction.

As conclusion we can sum up that ASFINAG is very satisfied with the performance of our White cement who played a vital role in the sustainable refurbishment concept and will apply it as well to other future restorations in Austria.



Contrast between the old and new concrete front covers. On the left side the new white ones, while right the old grey ones, though not illuminated in this picture.



ASFINAG (Autobahnen- und Schnellstraßen-Finanzierungs-Aktiengesellschaft) was founded in 1982 and is an Austrian publicly owned corporation which plans, finances, builds, maintains and collects tolls for the Austrian autobahns. To this belongs a high-grade road network 2,200km highways and expressways. Preservation over road tolls and no donations by the federal government. R&D is of great importance and is being driven by a dedicated innovation department.

www.asfinag.at

MEGA-EM & MEGA-TRANS

Strong partners in Bosnia and Herzegovina

Since 1996, when it was established, company Mega-Em d.o.o. Visoko represents synonym for wholesale on the field of trade and distribution of materials and additives for production of construction systems.

A good strategy and vision of the future has enabled quick develop of company Mega Em.

Mega Em is a representative of large and recognized companies - manufacturers.

We started our business with the distribution of white cement from the well-known company Holcim Slovakia, now CRH, and the expansion of the activities took place in the direction of distribution of additives for the construction industry.

Among other things, it is worth mentioning our cooperation with following companies: Ashland - Belgium, Alberdingk - Germany, Mipa SE - Germany, Du Pont - Belgium and others.

With modern office and storage space and a diversified sales network, over own wholesale and retail companies continue to grow and grow because we are working on it. The continuous improvement of business quality is the primary task of all employees and management in company Mega Em.

Our work is characterized by accuracy, reliability, responsibility, flexibility and quality. We have a young and dynamic team of employees whose primary task is to meet customers' demands. There is a constant emphasis on improving quality and service.

Mega Em is trying to get close and adapt to the wishes of customers, we carefully choose the appropriate products, we advise professionally and provide the best relationship between prices and services.

www.mega-em.com

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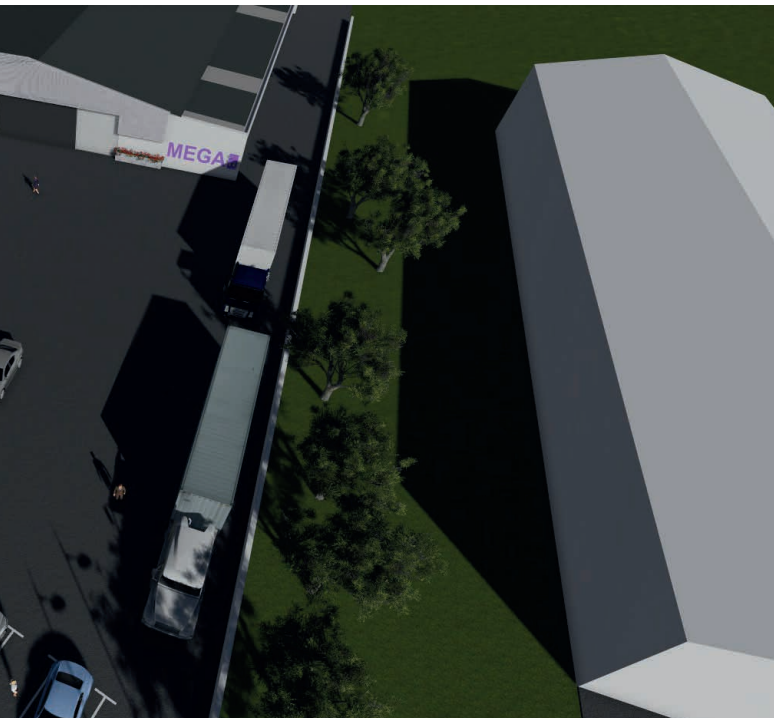
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Company MEGA TRANS d.o.o. was founded in 2000. The main activity of the company is to provide logistic services including transport/transportation, warehousing, distribution, customs clearance as well as consultancy activities on design feasibility studies as well as consulting in the field of optimization of logistic processes and costs. We have our own warehouse space of 1000 m² and we are able to carry out storage services.

Our work is characterized by accuracy, reliability, accountability, flexibility, quality and speed. We have a young and dynamic team of employees who are always ready to meet customer requirements. We are constantly working on improving service quality. Our core goal is the satisfaction and best recommendation from our clients.

We specialize in the transport of volumes and all vehicles with MEGA trailers are 3.0 m effective loading height and 100 m³ loading space. In addition, all semitrailers are in "coil" designs that allow us to transport rollers (mulda) and all vehicles as well as drivers are equipped to transport ADR goods in complete and aggregate loads. We are currently present in all European countries, and we are also able to arrange transports for Russia and other Baltic countries. We particularly emphasize the short transit times and the best prices in the aggregate transport from the Benelux countries (Holland, Belgium, Luxembourg), Germany, Poland, the Czech Republic and Slovakia.

In particular, we point out the short transit times and the best prices in the aggregate transport from the Benelux countries (the Netherlands, Belgium, Luxembourg), Germany, Poland, the Czech Republic and Slovakia. We provide a real-time tracking service that allows you to track the movement of your goods from the moment of loading to the unloading.

www.mega-trans.ba







SBM White S

a material with future

Stanislav Belanec

Product Manager | Sales White Cement



After last year's trial operations we are nearly over one full year of normal operation of our blending station for white hydraulic binders. We may say that the sales of our white binders, which go under the label SBM White S, went well and according to our expectations. We sold approximately ten thousand tons of this material. 90% of it was SBM White S 80/20, mostly to our customers in Germany.

Our SBM White S are being sold with a variety of 10, 15 and 20% content of slag. Based on feedback from our clients we can say that this material is very suitable for the production of vibro-pressed pavement stones made of semi-dry concrete. The white ground granulated blast furnace slag that we use in our SBM is besides its cost advantage also suitable from the rheological properties point of view for this kind of concrete products.

The construction of the white blending station enables us not only to enlarge our product portfolio and increase our customer focus and flexibility, but also to provide the market with valuable material for a reasonable price and a good price-performance ratio.

At the same time, the white blending station provides us with the opportunity to increase our production capacity with a positive impact on the CO₂ emission and thus, reduce the carbo footprint in our cementitious materials.

For the upcoming year 2018 we plan to increase the sales of SBM White S, therefore we would like to encourage our clients to think about the use of this high quality and progressive material in their products in the future.



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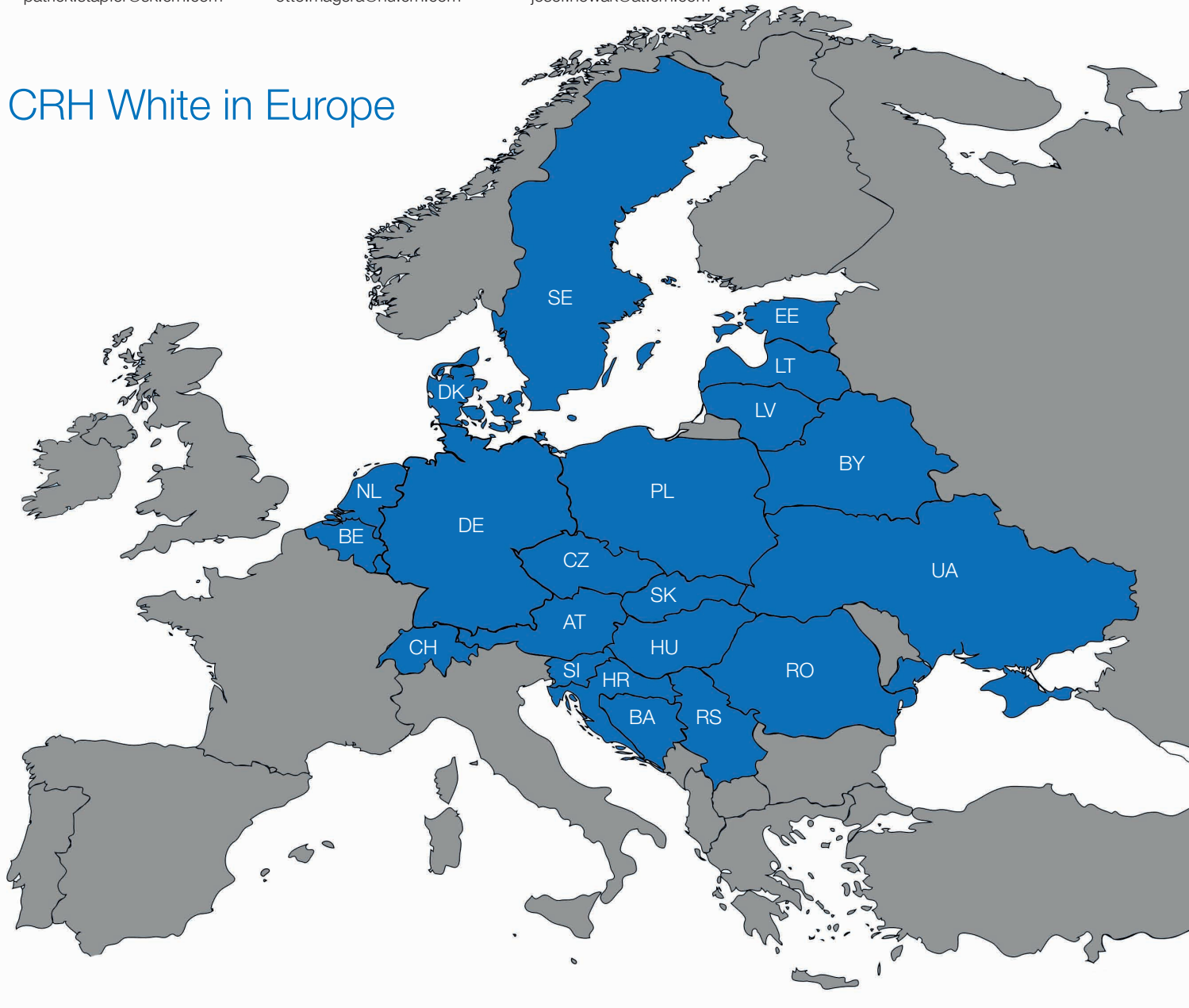


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Whiteboard 2017-2

CRH Whiteboard is a dialogue-oriented customer magazine published by CRH (Slovensko) a.s. It focuses on providing open and helpful information about white cement and the activities of CRH (Slovensko) a.s. within Europe.

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