



LAFARGE | NEWS

LAFARGE IRAQ CORPORATE MAGAZINE
No: 9 - June 2019

Lafarge Iraq supplies high performance concrete for Zaniary Towers in Erbil

**AI-JESR OPC:
Lafarge Iraq's New Cement Product**

**Rebuilding Mosul:
"The main challenge is financial funding"**

 **LAFARGE**

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LafargeHolcim



This is a complimentary quarterly magazine published by
Lafarge Iraq for its employees and external readers

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CEO's Message



Dear Colleagues and
the Readers of Lafarge News,

2019 is the first year of Lafarge's second decade in Iraq and as Lafarge Iraq team, we all are dedicated to mark this second decade with new achievements throughout the country. 2019 is another challenging year following the recent difficult years. That means sincere efforts of each one of us, as ONE TEAM ONE DIRECTION. We consider our customers, contractors, suppliers, business partners, and all other stakeholders as a part of Lafarge Iraq Team, sharing common goals and values.

We had a solid start in 2019 despite some challenges; we need to keep the focus and alignment in delivering results; over achieving our first quarter of the year's targets is a key milestone for how the rest of the year will look like. Our key strategic priorities defined for 2019 will guide us along the year to achieve our objectives for this year and beyond. I am confident that we, as one team, will further strengthen our position on a country level. As a fresh example, our new cement product, AL-JESR OPC, has been recently launched as Lafarge Iraq's another contribution to the Iraqi cement market. Lafarge Iraq more and more contributes to large construction projects in the country as the new Central Bank in Baghdad, Karbala Refinery, Karbala Airport, Mosul Dam, Bismayah City Project, and Zaniary Tower in Erbil.

We are proud of being a leading example in the Iraqi cement industry not just through production & quality mastery but also as a country leader in health & safety, corporate social responsibility, and environment protection measures in our industry, which means sustainable business in a healthier environment. Running our operations in a safe and sustainable manner is a worldwide priority for LafargeHolcim Group. Beside sustainability, the other pillar in doing our business following our code of business conduct i.e. compliance & integrity. Whatever we do, we do in line with country legal legislations and our company's code of business conduct and values.

I am very pleased to share the great news that Lafarge Iraq's Bazian Cement Plant has been ranked as the BEST CEMENT PLANT in the MIDDLE EAST REGION based on LafargeHolcim Group's Industrial Performance Benchmark 2018.

This benchmark of the Group documents the manufacturing performance of LafargeHolcim cement plants and provides insights to define improvement actions for 2019. The potential is identified for the 176 cement plants by rating the sites on an overall index, which is the average of the following three categories: Efficiency, Cost and Sustainability.

In this respect, Bazian Cement Plant's score was identified as 77 that ranks it as the first plant in Middle East, third best plant in the Middle East-Africa Region, and ranked as the 25th. among whole cement plants within the Group.

This is a remarkable achievement indeed, not for Bazian Cement Plant's team and Lafarge Iraq only; it also confirms that Bazian is by far the leading cement plant in the Iraqi cement industry; it is now an official fact approved by the world's leading cement group, LafargeHolcim.

Our company's most valuable asset is our people. As management, we look forward to seeing more cross organizational engagement, ownership and empowerment. speak up culture to further enhance business performance and environment. In the coming pages, you will read great stories of our people from different locations and teams. You will also read about how we support the educational background of our industry, collaborating with the local universities, supporting their projects and events in civil engineering and building materials among other activities and engagements.

On behalf of myself and the management team, we wish you all the best and success.

Sincerely yours,

Khaled El Dokani

Country CEO, Lafarge Iraq



Global Health & Safety Days at LafargeHolcim

Health & Safety is a core value above all business priorities for LafargeHolcim that means each and every LafargeHolcim employee in the world pays utmost attention to health & safety each and every day. On the other hand there are special occasions and events which help to increase awareness, knowledge and sense of urgency regarding health & safety such as Global health & Safety Days. The Global Health & Safety Days is one of the most important regular yearly events of LafargeHolcim Group that is being organized worldwide in all Group countries including Iraq between the end of April and the end of May.

During the Health & Safety Days, country teams organize special events such as training, workshop, and site visits, which are supported by special printed or digital communication materials. The event is also a unique opportunity to involve surrounding communities, customers, suppliers, and other stakeholders in common events focusing on health & safety. In Iraq, for example, our teams visit primary schools to give some lectures about health & safety; also road safety teams organize “on the road” events distributing informative materials to the drivers. Global H&S Days’ event has each year a special theme to focus on.

This year’s theme is 7 Minimum Safe Behaviors.

HEALTH & SAFETY

Road safety
Health Action



Distracted Driving or Machinery Operation



Lockout/Tagout



Safe Work Permits



Seatbelts



Personal Protective Equipment



Drugs and Alcohol



Reporting of Incidents



Road and transportation safety is vital for keeping our supply chain sustainable

We apply special tracking systems and training programs to develop our transporters and their drivers



Mohamed Obyed, Lafarge Iraq Road Safety Manager, tells us about the systems and programs carried out by Lafarge Iraq to maintain a safe transportation of people and products.

ROAD SAFETY

Lafarge News: Why is road transportation safety so important for Lafarge Iraq?

M. Ubed: As a member of LafargeHolcim Group, Lafarge Iraq implements high level international standards and rules in health and safety. All of our employees and contractors must follow these standards and rules to make sure that we run our operations without accidents causing fatalities or heavy injuries. Looking at accidents records, we see that most of the fatal accidents happen on road during transportation. On the other hand, building materials producers, like our company, are highly depending on transportation. We produce cement and concrete in different locations of the country and we need to transport these products to our customers' sites on time without harming people involving in this process and without damaging products and vehicles. These facts make road safety our number one priority without any exception.

Lafarge News: How do you ensure road transportation safety in your operations?

M. Ubed: It is a highly challenging task in countries like Iraq where well trained drivers respecting traffic rules and well maintained vehicles are hard to find and to keep in a long term business partnership mean while road infrastructure in Iraq is in poor conditions. Our company slogan of safety is "Safety by Choice Not by Chance, I Chose Safety", so we always choose safe side by taking necessary measurements, building systems and teams.



Road Safety Team - NORTH

Therefore, beside Health & Safety Department, we have a dedicated road safety team as a part of Supply Chain unit. Our ultimate goal is to ensure a safe and sustainable supply chain, meaning delivering our products to our customers in a safe and sustainable way. We have a country Road Transportation Health & Safety Policy on place.

Lafarge News: What systems and initiatives have you on place to ensure road transportation safety?

M. Ubed: We have four headlines under which we initiate our road safety actions:

- 1) Transporter Development Program
- 2) Driver Qualification Program
- 3) iVMS Program
- 4) Reward and Consequence Program

Transporter Development Program aims to develop our transportation contractors' capability regarding road and transportation safety. It includes regular audits, corrective action plans, and a maintenance monitoring. We rank the development level of our transporters by giving stars. Five stars represent the highest level, and in Iraq we only reached three-stars level yet.

Driver Qualification Program includes safe driving trainings, In-vehicle assessment and health fitness check-ups for drivers and we allow only qualified drivers to work for our operations.

We have a "In Vehicle Monitoring System" (iVMS) integrated with our dispatch system. All the trucks under in this system are being

constantly monitored in terms of road safety violations such as speed, harsh break etc. The system records all violations made during a journey and it reflects as performance rating of the drivers.

Finally, Reward and Consequence Program aims to encourage safe behaviors and actions by rewarding while responding to violations with certain sanctions.

Lafarge News: What are the achievement you reached so far through your systems and programs targeting road and transportation safety?

M. Ubed: I can summarize our achievements regarding the four points mentioned above as follows:

- 1) On country level, one transporter reached to -3stars level and two other transporters have been reached to 3* in 2018 but that should be confirmed through cross functional audit team, the rest have to reach to the same level by Q2 .2019
- 3) Most of our drivers on country level are qualified, qualified drivers including cement

transportation, HFO transportation and RMX drivers are covering 85% country driven distance, we have to reach to 90% in 2019. Digitalized Driver database locally developed and integrated with dispatch system to control and allow qualified drivers only to work with us. %38 (3 country driven distance are covered under iVMS score card system, and drivers average score card was 4. By Q2019 3 we have to cover %85 driven distance under iVMS system.

4) Reward and consequence management applied on more than 2100 drivers, that affecting on drivers behavior significantly. In parallel on road patrolling program developed to apply more control on driver on road behaviors.

In addition to these 4 points, rout hazard mapping are developed for %60 key destinations in the country and risk assessment conducted for customer sites and most of the rest area as a part of fatality eliminations.



Road Safety Team - SOUTH

Lafarge Iraq initiated a first aid training for the school teachers in Bazian district, Sulaimaniyah



Lafarge Iraq Health & Safety and Community Relations teams initiated a common action and organized a first aid training course for the teachers working in the three primary schools located in Tainal, a small village near to Bazian Cement Plant.

Total 24 teachers attended in the training course that was organized in two sections conducted in two days. All participants were granted a personal first aid kit in addition the large first aid boxes donated to each school. Ranjdar Akram Kareem, Medical Doctor at Bazian Cement Plant and Lafarge Iraq Health Coordinator, Amange Racheed, Head of Health & Safety, and Hawre Mahmoud, Community Relations Manager, organized and attended in the event.

First Aid Training for surrounding communities

“Lafarge Iraq’s new product ‘**AI-JESR OPC**’ is furthermore manufactured according to the strict process and quality control systems of LafargeHolcim Group, which ensure that the quality parameters of the product are tightly controlled”



AL-JESR OPC: Lafarge Iraq's New Cement Product



George Elias, Lafarge Iraq Marketing Director, gives information about AL-JESR OPC, Lafarge Iraq's new cement product"

Lafarge News: What differentiates Lafarge’s new OPC product, who is the target audience of this product, for which kind of applications?

George Elias: The new OPC which we launched in January 2019 from Karbala Cement Plant, is a high performance OPC, in terms of higher strength - both early strength after 3-1 days, and late strength after 28 days. This is what differentiates it from regular OPCs on the market, and our own OPC branded “Tasluja”.

We launched this new product to target a specific segment of the market looking for higher strength development. This segment includes the following applications: block factories, tile factories, roof masons and high performance RMX batching plants.

Lafarge News: Why customers should prefer Lafarge's new OPC?

George Elias: The AI-JESR OPC provides better production efficiencies in these applications, related to faster cycle times for block and tile factories, and quicker removal of shuttering and time savings for masons, all due to its higher early strength. Moreover, AI-JESR OPC helps RMX batching plants optimize their mix design, especially for high strength concrete, a key competitive advantage on high-rise and infrastructure projects.

AI-JESR OPC is furthermore manufactured according to the strict process and quality control systems of LafargeHolcim Group, which ensure that the quality parameters of the product are tightly controlled. Less quality fluctuation means that the end-user (mason, RMX or tile/Block factory) can better manage and optimize their operations, leading to reduced costs and lower quality claims by their customers.

Lafarge News: What is the contribution we aim to make to the market through this new product?

George Elias: AI-JESR OPC is on offer now from our Karbala Cement Plant, and an important addition to our current product portfolio (AI Gist SRC, Karasta, and Tasluja OPC) to have a complete offering for all cement applications in the Iraqi market today.

LOOKING AT CEMENT MARKET

"Second quarter of the year seems more optimistic compared to the first quarter"



Ruslan Aghabayli, Lafarge Iraq Sales Director, shares his comments about the market and Lafarge Iraq's newly launched product "AI-JESR OPC"

"WE ARE GLAD TO SEE THAT CEMENT MARKET IN IRAQ STARTED SHOWING SOME POSITIVE INDICATORS TO GROW"

Lafarge News: Can you give us some information about the product development process of Lafarge Iraq's newly launched product "AI-JESR OPC"?

Ruslan Aghabayli: The development of our new product AI-JESR OPC (CEM I) is the result of an effective team work between Lafarge Iraq's sales, production, and technical marketing teams. Product quality specification process and technical adaptation arrangements in the production line have been successfully complemented at the end of 2018 and the product has been delivered to the market in January 2019. Now we have two products under the "AL-JESR" brand offered through our Karbala Cement Plant: AL-JESR SRC and AL-JESR OPC.



Lafarge News: How is the feedback you got from customers about the new product?

Ruslan Aghabayli: The feedback we received from our customers about AI-JESR OPC is very positive so far; especially ready mixed concrete and precast producers are very happy with the performance of our product. We are glad to support Iraqi cement market with this new high performing product and to meet our customers' expectations.

Lafarge News: How do you see the cement market's current picture in Iraq?

Ruslan Aghabayli: We are glad to see that cement market in Iraq started showing some positive indications to grow. Second quarter of the year seems to be more optimistic compared to the first quarter. However, this positive movement needs to be supported through governmental actions such as strict control of cement import. Now there are 19 active cement plants in the country and the Federal Government has been working on rehabilitation of some other cement plants. That means the available capacity of cement production in Iraq is more than enough for the construction needs in the country. Beside reliable delivery and quality issues, cement and clinker import affects the country in two areas: Firstly, all affords and investments of the Federal Government to rehabilitate cement plants and

to develop national cement industry negatively impacted. Secondly an important opportunity for creating more jobs for the Iraqi people gets lost. As a member company of the Iraqi Cement Producers' Association (ICPA) we look forward to seeing concrete actions in this manner.

Lafarge News: How do you ensure customer satisfaction and what differentiates Lafarge Iraq Sales Team in this manner?

Ruslan Aghabayli: Lafarge Iraq's sales team consists of highly skilled, experienced, and energetic professionals who are available in all regions of Iraq; they make a difference through their technical expertise as well as Lafarge Iraq's customer – centric approach; they act not as company employees but the owner of the business having passion and integrity. We recently launched a representative office in the Babylon Hotel in Baghdad in order to be closer to our customers and to serve them in a more structured and professional manner. Although our sales team is on front, our entire team at Lafarge Iraq acts as one team one direction. That means we all know that customer satisfaction is not sales team's job only; it is our job as a team; it starts at cement plant's quarry and it ends at the customer site; all departments and functions have a role to play in this chain and we all are aware of the fact that each and every one of us contributes customer satisfaction in some way.



Lafarge Iraq Sales Office at Baylon Hotel, Baghdad



REBUILDING MOSUL

THE MAIN CHALLENGE FOR REBUILDING MOSUL IS TO SECURE FINANCIAL FUNDING



Dr. Suhaib Al Darzi, Assistant Professor & Senior Lecturer at the University of Mosul*, Head of Engineering Consultant Bureau and a member in the Consulting Committee that has prepared a -10years rebuilding plan for Mosul.

Dr. Al Darzi got his bachelor and master's degrees from Mosul University and holding a PhD obtained at Tongji University, Shanghai, China.

Lafarge News: How many engineering departments do you have at the University of Mosul?

Dr. Al Darzi : We have seven engineering departments including Civil, Architectural, Electrical, Mechanical, Computer, Environmental, Water Resource and Mechatronics. The university serves to 2000 students approximately at the moment. I believe that our university provides with a good quality of education however we lack of opportunities of engaging our students in real projects and experiments so they can be more ready for the work life after graduation.

Lafarge News: What is the function of the Engineering Consulting Committee, who are the members?

Dr. Al Darzi : The aim of the Engineering Consulting Committee is to give the solutions and support the projects of rehabilitation of Mosul city including architectural design and civil engineering processes. The committee does review and suggest the construction projects submitted for consultancy. The consulting includes researches, site and soil investigations, and renovation reports. Our committee consists of 16 people out of which 10 academics from the University of Mosul and six experts from other institutions including three civil engineers, an architect, an archeologist and an electrical engineer.

The Engineering Consulting Committee has prepared a -10years rebuilding/rehabilitation plan for Mosul that started in 2017 after defeat of ISIS. The plan includes large scale infrastructure projects, as well as agricultural, commercial and many other projects as a major plan to rebuild the city all over again. The plan has been reviewed and approved by the prime minister's office. On the other hand, in the Engineering Consultant Bureau, we are currently supervising and planning the rehabilitation of several bridges. We just signed a contract with Saad Company to have a site investigation, rehabilitation and support the company to reconstruct the Mosul 2nd bridge, one of the five bridges that Mosul has over the Tigris River. We are also providing consultancy for renovation of the Shurkhat Bridge and Tikrit – Al-Alam bridges. In Mosul, we have three government buildings about which we recently completed comprehensive renovation reports and submitted them; the projects will be implemented by the Governorate of Mosul with the support of UNDP. We works with UNESCO in rehabilitation of Al-Nori Mosque and Al-Hadbaa Minarets.

In fact, we also have an agreement with the University of Pennsylvania to rehabilitate some of the historical civil heritage of Mosul which is quite important for the city.



Lafarge News: What is the most urgent need of Mosul in terms of rebuilding the city?

Dr. Al Darzi: The main challenge we face in terms of rebuilding the city is to secure financial support i.e. funding the projects. Although security might seem another problem looking from outside, the city is safe and secure in general.

We do not have problem regarding the availability of construction materials except for cement and steel. We usually need to provide these materials from outside of Mosul although there are active cement plants in Mosul such as Hamam Al Alii. If we can overcome these issues, we are positive that we can implement the rehabilitation projects smoothly.

Lafarge News: How do you see the construction quality in Iraq?

Dr. Al Darzi: When it comes to the quality of construction process, we deal with two main points; firstly the quality of the construction materials and secondly the quality of the construction implementation process. Both points require technical knowledge and close supervision. If international companies with worldwide know how and experience involve in a project, we actually get more positive results, I would say. On the other hand, lack of technical experts, experience and strict supervision make local companies weaker in this manner. Therefore, we need support from official bodies and experienced professional construction companies to implement our projects in a more reliable manner. It is needed not only for financial reasons but also guide and train our local engineers for the future projects. We have talented students and young engineers eager to grow in the construction area but they need guidance of well-educated and experienced technical experts as well as project management experience through involving in projects carried out by large-scale companies.

()The University of Mosul is a public university located in Mosul. It is one of the largest educational and research centers in the Middle East, and the second largest in Iraq, behind the University of Baghdad.*

The University of Mosul was closed by the ISIL group in 2014 but reopened just after a few months with new buildings and courses. Over 8,000 books and 100,000 manuscripts in its library were believed to have been destroyed. The university was considered to have been used as a base by ISIS and was hit by Combined Joint Task Force airstrikes in March 2016. Iraqi forces recaptured it in January 2017. (Source: Wikipedia)



LAFARGE PROVIDED CONTENT- AND MATERIAL SUPPORT FOR AN EVENT ORGANIZED BY THE MOSUL UNIVERSITY

The federal government of Iraq and the people living in Mosul are keen to take every necessary step to accelerate re-building the city and to re-establish the city's social and economic climate before the war

Mosul is a major city in northern Iraq. Located some 400 km north of Baghdad, stands on the west bank of the Tigris, opposite the ancient Assyrian city of Nineveh on the east bank. Historically and economically Mosul has been very important for Iraq until ISIS's brutal invasion ruined the whole city. Mosul was liberated from ISIS in 2017 however the full security has still not been established in the city which stands as an obstacle in front of the investments and efforts for rebuilding the city.

On the other hand the federal government of Iraq and the people living in Mosul are keen to take every necessary step to accelerate to re-build the city and to re-establish the city's social and economic climate before the war.

One of the recent events in this respect was organized by the Engineering Consultation Office of the Mosul University in collaboration with Lafarge Iraq. The event was about Local cement and its roles to rehabilitate Mosul with a special focus on Lafarge's multipurpose cement product branded "Karasta" and its compliance with international standards.

Lafarge Iraq's Marketing Team was involved in the event arrangements remotely without physical attendance due to Group's security procedures, providing all necessary technical content as well as promotional items and information materials about Lafarge Iraq, its products and references.

Ahmed Hanafi, Technical Marketing Manager, stated that the event was an important opportunity to establish a good relationship with the Engineers in such potential market.



LAFARGE IRAQ SIGNS CONTRACT TO SUPPLY CONCRETE FOR CONSTRUCTION OF ZANIARY TOWER IN ERBIL, THE SECOND TALLEST BUILDING COMPLEX IN THE COUNTRY

The Zaniary E1 Tower that Lafarge will supply concrete for, is one of the four towers to be built by the Kirmanj Construction Company in the Zaniary district of Erbil, the capital city of the Iraqi Federal Region of Kurdistan. The project includes residential units and a large business center.

The Zaniary E1 Tower will be built on 1.300 m² area and the total built up area is 65.000 m² with the height of 165 m (44 floors) that makes it the second tallest building in the country after Central Bank of Iraq which is another project that Lafarge Iraq supplies concrete for. The Zaniary Towers project is planned to be completed in coming three years.

Lafarge Iraq is going to supply 30.000 m³ high performance concrete to this tower. About 10.000 m³ concrete already supplied for the last two residential towers in 2018 and the concrete works will complete after a month.

KIRMANJ CONSTRUCTION EXECUTIVE MANAGER ENG. SABAH NOORI ALI: "LAFARGE MEETS OUR EXPECTATIONS AT HIGHEST LEVEL STARTING WITH PRODUCT AND SERVICE QUALITY"

"We need high performing concrete meeting technical standards required by the project specifications which is provided by Lafarge. Lafarge teams deliver the concrete on site exactly on time as concrete operation scheduled; they have all equipment needed on the site like big mobile concrete pumps, stationary pumps and hydraulic distributor.

Beside product & service quality, Lafarge has a good customer service; they treat with project owner and engineers professionally; they always listen to them and answered their questions and claims. Also Lafarge's quality control team has good experience to take concrete slump and samples. There is no quality issue as cracks or failures in concrete; all test results are above our expects"



LAFARGE IRAQ COMPLETED POURING FOUNDATION CONCRETE OF ZANIARY TOWER THROUGH A NON-STOP OPERATION LASTED FOR 26 HOURS

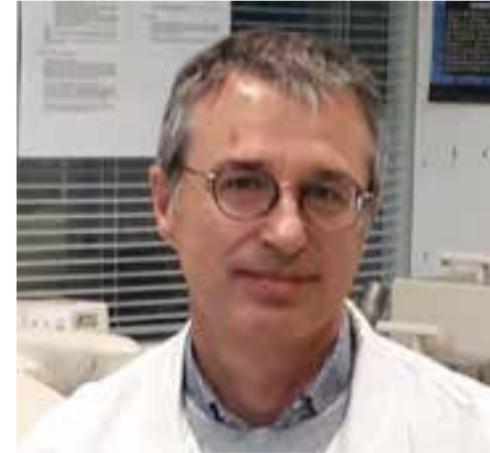
Lafarge Iraq Concrete teams completed pouring foundation concrete of, Zaniari E1 Tower, the second-tallest building in Iraq through a non-stop operation lasted for 26 hours. Total 3.517 m³ concrete of C50-40 have been poured using 20 truck mixers and three concrete pumps; the operation included total 430 trips of truck mixers from two RMX plants.

Wahid Imam, GM - Lafarge Iraq Concrete Operations, stated that the operation has been conducted with utmost attention to the safety measurements as well as high level of quality control.





CEMENT & CONCRETE



DOES THE COLOR OF CEMENT IMPACT ON ITS QUALITY?

“Cement quality and color are completely independent, all cements, whatever their color, comply with the same standards that govern the performances and the composition”

INTERVIEW with Pascal Dion

Research&Development Engineer - Cement Manufacturing Dpt
LafargeHolcim Research Center – France

LAFARGE NEWS: What determines the color of cement? There can be color differences between exactly the same cement products produced in different facilities, why?

The color of cement mainly finds its origin in the iron oxide of the clay deposit used to produce the clinker. Let's recall that Portland clinker

is produced by burning of a blend of limestone (Calcium provider) and clay (Silicon, Alumina, and Iron oxide provider) in proportions close to %20 /80 in order to form the reactive phases of the cement. During clinker manufacturing, iron oxide plays a role of burning facilitator, as well as alumina. Their presence is essential to form the calcium silicate phases that are sought to bring the mechanical strengths and their overall amount is finely managed by the cement producer. At the end of the process, iron oxide and some trace elements are concentrated in a calcium aluminate ferrite phase (called C4AF) which is the only colored phase of the clinker (brown to black). Note that a white cement is made with raw materials free of iron oxide.

Thus, depending on the local clay deposit chemistry of the cement plant, the proportion of iron and alumina may vary a bit and lead to different amounts of C4AF, then to cements more or less dark. That's why the same cement produced in different facilities will not have exactly the same color.

In addition, cements may contain additions in order to adapt their properties to the market needs, additions that will modify a bit the color of the cement. Depending on their nature and origin, these additions may be rather light (limestone, slag) or rather dark (pozzolans, fly ashes).

A last parameter that has an influence on the color of the cement is its fineness: as cement gets finer it becomes lighter.

LAFARGE NEWS: Is there a relation between cement color and its quality/specifications?

No, cement quality and color are completely independent, the performances being mostly driven by the silicate phases (white), aluminates (white) and alkalis (white). C4AF is even considered to have a quite low reactivity. There are dark cements with more or less resistance as it is for light cements. Moreover, at the extreme, white cements cover the same range of products than gray ones.

Anyway, all cements, whatever their color, comply with the same standards that govern the performances and the composition.

LAFARGE NEWS: Why do you think there is a conception in some markets that dark color cement has better quality and light color not?

This conception is very different from one area to another. For instance, African markets will prefer darker cements while in Western Europe customers are looking for light products.

Regarding a preference for dark products, an assumption is that light cements are sometimes suspected to be less pure and consequently less good.

In addition, the color of the final product (block, mortar, or concrete) being influenced by the color of the cement, one can imagine that the end customer may suspect a low cement dosage in its mortar/concrete when it appears lighter. Then products with darker cement inside would be easier to sell.

LAFARGE NEWS: Does cement color affect color of concrete and/or quality of it?

The quality of a concrete has got no direct link with the color of the cement.

Regarding the color of concrete, it results from the color and proportions of all its constituents. Cement, sand and all fines have a decisive influence on the final shade of raw concrete. In the case of concretes that have undergone a surface treatment (washed concrete, deactivated concrete, bush-hammered concrete, and polished concrete), the color is related to the color of aggregates and large grains of sand.

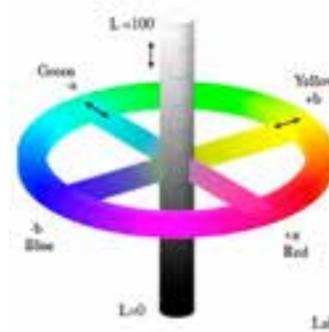
Note that with time, concrete skin lightens due to a carbonation phenomenon, thus the difference between cements fades.

LAFARGE NEWS: White cement is quite popular in some markets; do they use white cement just for architectural purposes?

Architectural concrete is an important market for white cements, but one can add decorative concrete elements, and of course dry mortars in which white cement allows a wide management of the color in association with pigments (can be the main use, as it is in Europe for instance). Other applications such as adhesive for tile joints also use white cement.

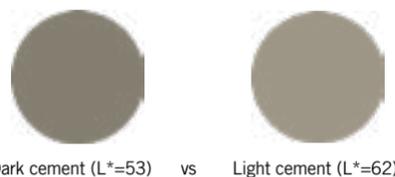
LAFARGE NEWS: What should be the main criteria for cement customers to decide which type of cement to use?

Clearly, the customer should forget the cement color for his choice, except when is it a key attribute of the final product. He should choose the product according to the most critical property required for his application. For instance, the strength class is determinant for concrete applications (high early strengths for precast), whereas a cement highly workable with a good water retention capacity and minimizing crack formation should be preferred for masonry. My advice for them is to refer to the product sheets and brochures edited by the cement producer.



	L*	a*	b*
CEM I darkest grey	52.8	0.7	10.3
CEM I lightest grey	64.7	0	10.5
CEM II darkest grey (fly ash)	50.8	0.2	7.4
CEM II lightest grey (limestone)	71.5	0.3	10.6
White cement	94.1	1.1	12.3

Color measurements: Typical cement L*a*b* values and associated color patches. L* is the parameter which is used to compare the darkness of the cements (the lower L*, the darker the cement).



BAZIAN CEMENT PLANT'S CONCRETE LABORATORY REINFORCED ITS CAPABILITY TO BETTER SERVE CUSTOMERS

Bazian concrete laboratory, launched in 2011, prides itself to be the most advanced concrete laboratory in Iraq. The laboratory's capability has been increased through recently installed new equipment.

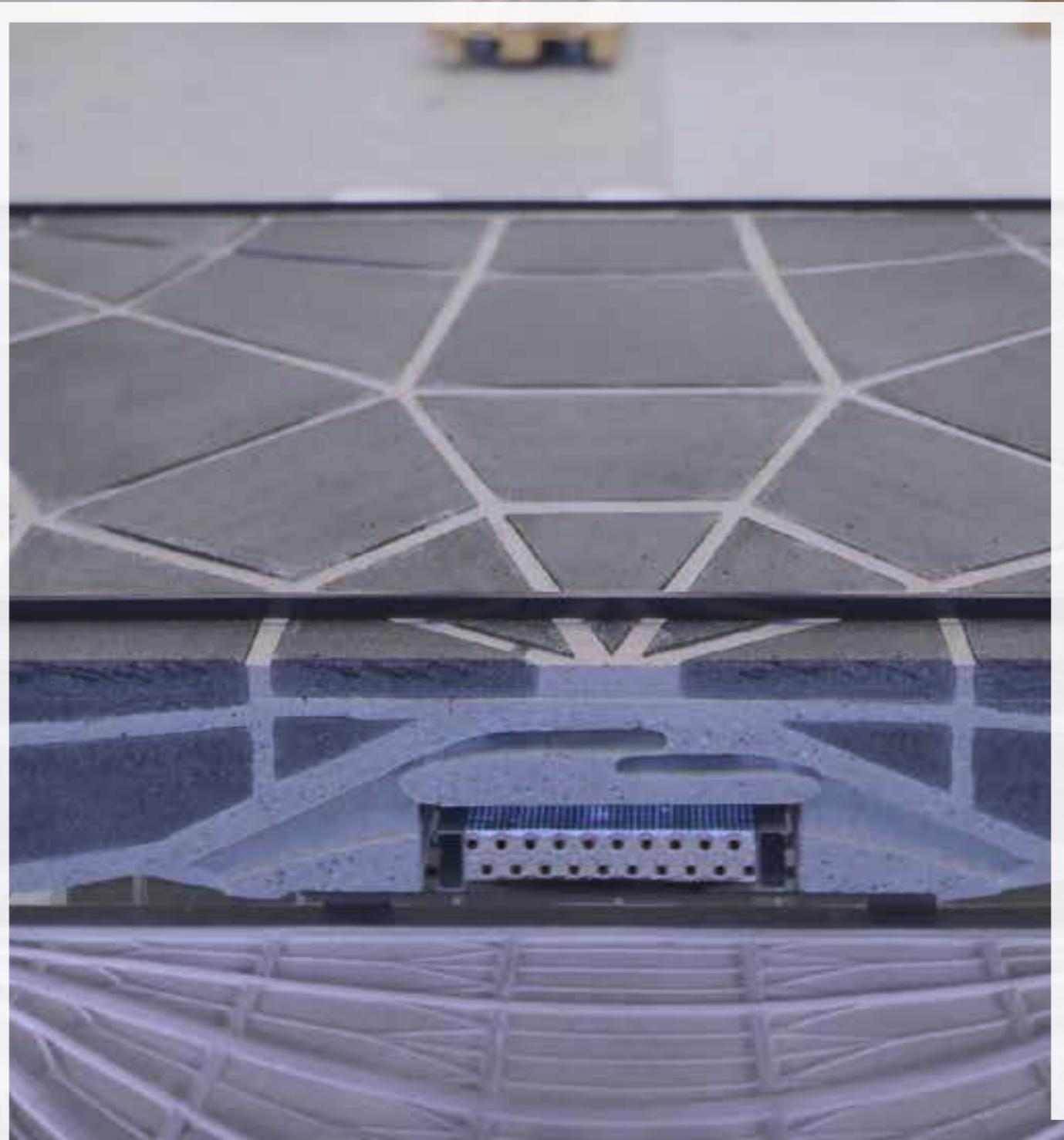
Azad Omer, Technical Support Manager, who is in charge of the Bazian concrete laboratory states that the laboratory is managed by highly skilled and trained team; international and local technical standards are used to conduct the tests as well as Lafarge Iraq's health and safety rules and standards are applied within the facility for the staff and visitors.

"Our purpose is to provide best technical support to all our customers and to provide them with the solutions as quick as possible including Lafarge concrete operations and other cement-customers producing concrete" says Azad Omer." Our laboratory is a competent research & test center for both cement and concrete products as well as a center to develop capabilities of employees in concrete field, besides we support local universities to prepare scientific researches about concrete specifications"

The testing units available in the laboratory perform aggregate, cement, concrete, and curing testing based on many different parameters. Concrete testing unit for example, works on designing concrete mixes, according to the concrete specification with consideration of cost and other most important fresh and hardened concrete properties. The concrete curing unit on the other hand includes curing tanks to cure the concrete cubes as per local and international standards, in respect to different projects.

In addition to the tests performed in the laboratory, customers are also offered on site-testing such as obtaining & testing drilled cores of concrete, pulse velocity through concrete (ultra-sonic test), and rebound number of hardened concrete (Schmidt Hammer).





GROUP NEWS

HOLCIM SWITZERLAND OFFERS ENHANCED SUSTENOBILITY THROUGH CEMENT FOR IMPRESSIVE PROTOTYPE AT WEF

Increasing greenhouse gas emissions and the scarcity of natural resources are forcing architects and civil engineers to rethink their approach to building materials.

Holcim Switzerland has participated in a project led by ETH Zurich's research teams to harness the huge potential in the building sector for technologies that encourage a more efficient use of materials in concrete structures. With its purpose-made mix for a self-leveling and easy-to-use concrete, Holcim has made a significant contribution to a Block Research Group project. The newly developed and resource-efficient cement, Susteno 3R was used for a prototype of a slender concrete element, created under the leadership of Professor Philippe Block Philippe Block, Professor at ETH Zurich and member of the Academic Committee of the LafargeHolcim Foundation, at ETH Zurich's Institute of Technology in Architecture.

The thermally active floor and ceiling system with a lightweight concrete skeleton enables substantial savings in building materials and significantly reduces a building's energy requirements thanks to an integrated heating and cooling system. A prototype of this lightweight floor element is being exhibited in the ETH pavilion at the World Economic Forum in Davos.

Susteno 3R, which is unique in Switzerland, is an integral component of the concrete used in this project. With it, our teams are introducing another innovation for sustainable building materials. Susteno 3R is made of high-quality processed mixed granulate from demolition projects, resulting in a cement that fulfills all aspects required for a closed material cycle for the first time.

"The delicate structure of the floor elements places high demands on the concrete. It must be fluid enough to fill the whole formwork, while also meeting strict quality requirements," Tomas Schmidt, Head of Building Segment at Holcim Switzerland.

Concrete mix with Susteno 3R for HiLo

In collaboration with ETH Zurich's Block Research Group, Holcim Switzerland will also use the mix design, i.e. the composition for the concrete components of the prototype at the WEF, for the ceiling elements in the HiLo project which is scheduled to be erected from spring 2019 on the NEST research building of Empa and Eawag. Further information about the prototype from ETH Zurich's Block Research Group can be found [here](#).

Susteno

Learn more about the resource-efficient cement Susteno at [Holcim Partner.net](#)

This is how our production innovations close new material cycles

HiLo

The HiLo project focuses on implementing high-performance products (Hi) with low energy use and low carbon footprints (Lo) in the production of extremely lightweight and resource-efficient structures and manufacturing processes. Three ETH research groups are involved in the project: Block Research Group, Prof. Dr. Philippe Block / Architecture and Building Systems, Prof. Dr. Arno Schlüter / Digital Building Technologies, Prof. Dr. Benjamin Dillenburger. You can find out more about the HiLo project on the [ETH website](#).



NEW MAJOR HIGHWAY CONTRACT IN CANADA

LafargeHolcim has been awarded infrastructure contracts worth over CAD 100 million as part of a major highway improvement project in Vancouver, Canada. The Highway 1 area is a vital local, regional and provincial corridor for people, services and goods.

LafargeHolcim will be the prime contractor on this project awarded by the British Columbia Ministry of Transportation and Infrastructure, offering an integrated solution that builds on its extensive expertise in supporting challenging infrastructure projects. The contracts allow LafargeHolcim to strengthen the contracting portion of its Solutions & Products segment.

René Thibault, Region Head North America: “We are excited to be providing general contracting services on this important infrastructure upgrade which is the largest general contracting project managed by LafargeHolcim in North America. We were able to offer a comprehensive solution

for one of the most sustainable road projects in Canada. It illustrates our expertise in construction, leveraging a network of experts across many countries who are able to address solutions from paving to soil treatments and sustainable recycling techniques.”

LafargeHolcim has developed an integrated solution for the Highway 1 project building on several products and services. Recycled aggregates that are produced by turning construction and demolition waste into new materials will prevent more than 200,000 tonnes of waste from ending up in landfills. In addition, with a supplementary cementitious material which enhances the desired properties of concrete, long-term durability of the highway will be ensured. To further improve quality and reliability, LafargeHolcim also uses sensors within the structural walls of the interchanges which monitor the complete concrete pour. The use of these sensors further reduces construction time thanks to improved formwork stripping.

Leveraging its logistics network in the area including several marine assets, LafargeHolcim provides an efficient and environmentally-friendly solution moving materials by barge thereby limiting trucking to the job site.

The project is expected to be completed in 2021.

GRAND PARIS

LafargeHolcim wins contracts for Europe's largest transport infrastructure project in Paris

LafargeHolcim has been awarded major long-term contracts worth EUR 110 million as part of the Grand Paris Express (GPE) project. The GPE is the largest transport infrastructure project in Europe and represents a total investment of about EUR 38.5 billion. The project will meet the growing city's needs for an improved transport infrastructure and will prepare Paris for the 2024 Olympic Games.

To help realize the GPE's anticipated 200 kilometers of new railway and 68 new rail stations, LafargeHolcim will deliver 600,000 tonnes of aggregates and 260,000 tonnes of cement to produce 650,000 cubic meters of ready-mix concrete. Further LafargeHolcim will use barges on the Seine to sustainably manage excavated earth equal to six times the weight of Burj Khalifa, the tallest building in the world.

Jan Jenisch, CEO: “We are proud to be a key partner on this historic project. With this partnership we are demonstrating our leadership in the building materials industry, making a lasting contribution to improving the transport experience of the people living and working in the Paris area. The project once more shows our capacity and reliability in delivering a large amount of high-quality concrete and our ability to provide efficient logistics and supply solutions. As part of our Strategy 2022 - ‘Building for Growth’ we have committed to grow our Aggregates and Ready-Mix Concrete segments and the GPE is a major milestone in the delivery of this commitment.”

To meet the project's challenging schedule, LafargeHolcim has added mobile ready-mix concrete plants to its existing Parisian ready-mix concrete network, enabling an average production of 300 cubic meters per hour for the GPE. Further LafargeHolcim will remove

and treat at least 3 million tonnes of earth from the construction site, then use the excavated material to re-landscape its nearby quarries. For the transportation of both aggregates coming from nearby quarries situated in the Seine valley and the excavated earth, LafargeHolcim will use barges on the Seine River. This solution is more efficient and sustainable than road transportation as two barges can handle the load of 220 trucks. With this concept LafargeHolcim will also meet the challenge of transporting large amounts of material through an urban area with over seven million inhabitants.



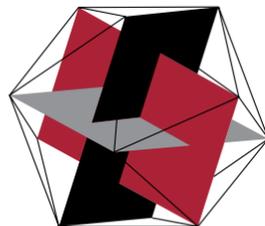
LafargeHolcim Awards

www.lafargeholcim-awards.org



The International LafargeHolcim Awards recognize innovative projects and forward-looking concepts that exhibit ideas for sustainable design and construction throughout all stages of their lifecycle.

The competition is open to everyone involved in the construction value chain and is offering a financial reward of 2 million USD.



LafargeHolcim Awards

Quick Guide for the submission of Awards entries

WHAT PROJECTS CAN BE SUBMITTED?

The 6th International LafargeHolcim Awards celebrates projects and visions that contribute to a more sustainable built environment and features total prize money of USD 2 million. The competition is open for projects in architecture, building and civil engineering, landscape and urban design, materials, products and construction technologies that contribute to the five "target issues" for sustainable construction: www.lafargeholcim-awards.org/target

The competition has two categories with the following main requirements:

LafargeHolcim Awards (main category):

- Project has reached an advanced stage of design with high probability of execution
- Execution of the project may not have started before June 6, 2019
- All authors must be at least 18 years of age (date of birth February 25, 2001 or earlier)

Next Generation (young professionals and students category):

- Visionary projects and bold ideas
- All authors must be between 18 and 30 years of age (date of birth between June 4, 1987 and February 25, 2001)
- Execution of the project (if applicable) may not have started before June 6, 2019

HOW TO ENTER THE COMPETITION?

Process

- Entries must be in English using the web-based form www.lafargeholcim-awards.org/enter
- Registration deadline: February 25, 2020 at 14:00 hrs (UTC)

Key requirements

- Author and contact details of all team members
- Technical details: location, dimensions, materials, costs and other key data
- Project summary: background and project concept (text up to 800 characters)
- Statements on sustainability: response to the "target issues" for sustainable construction (3 statements up to 800 characters each)
- 5-10 project images (high resolution image files with captions)
- Image of author/team (high resolution image file with caption)

Step-by-step guide

- Comprehensive manual explaining all steps and requirements of the entry process at: www.lafargeholcim-awards.org/guide

HOW ARE WINNERS SELECTED?

Competition regions

Projects are evaluated and awarded according to their location in five geographical areas: Europe, North America, Latin America, Middle East Africa, and Asia Pacific.

Juries

In each region, a jury of independent experts is hosted by an internationally renowned technical university and evaluates all submissions: www.lafargeholcim-awards.org/juries

Prize money

Prize money totals USD 2 million per competition cycle. The prize money for each of the five regional competitions is USD 330,000, including USD 70,000 for Next Generation prizes.

Awards, Acknowledgement and Next Generation prizes will be handed over at events within the regions of Europe, North America, Latin America, Middle East Africa and Asia Pacific between September and November 2019. The prize money of the Global LafargeHolcim Awards in 2020 is USD 350,000. Winners are selected from the winning projects of the regional competitions in 2019.



A THIRST FOR URBAN IMPROVEMENT

Global LafargeHolcim Awards winning project honored as “best architectural intervention of the year for Mexico City”

The main stages of construction for Hydropuncture: La Quebradora Water Park in Iztapalapa, Mexico City have been completed. The Global LafargeHolcim Awards Gold 2018 winning project represents a change in the paradigm of water management, and is coordinated by Manuel Perló of the Institute of Social Research (IIS) at Universidad Nacional Autónoma de México (UNAM) with architect Loreta Castro of Taller Capital. After winning the top LafargeHolcim Awards prize, the project also received the Premio Ciudad for the best architectural intervention of the year for Mexico City in November 2018. The project diverts rainwater from the Sierra de Santa Catarina area to prevent urban flooding that would normally inundate Ermita Iztapalpa Avenue. Hydropuncture also improves the quality of water that infiltrates the subsoil and increases the volume of water that replenishes the water

table by %35. Captured rainwater runoff is treated through a combined system of biological anaerobic ponds and wetlands. The water management infrastructure also creates public, recreational, coexistence and landscape space that celebrates water – but at the same time it will help solve the water problems in the area, characterized paradoxically by both a lack of drinking water and the impact of urban flooding. The site doubles the public space available for the 28,000 residents to almost three square meters per person and triples the number of trees. The public park also promotes a civic culture of water appreciation, which is critical to improving Mexico City’s capacity to implement sustainable water use practices. Water pumps and public lighting are powered by solar panels on site. Following the elections and resulting changes in the composition of the governmental bodies

of Mexico City, the Mayor’s Office of Iztapalapa was instructed to suspend the finalization of La Quebradora Hydrological Park project in December 2018 due to the lack of relevant studies and documents that are believed to be missing due to omissions by the former local administration. The administrative issues are in the process of being resolved, so that the project praised by the Global Jury as “foregrounding the importance of water as a resource in urban contexts” can be brought to completion



PEOPLE



Lafarge Iraq has a young team fully dedicated to Customer Call Service

Lafarge might be the only building materials company in Iraq having a team fully dedicated to its customer care service that is available 24/7. The team consists of 9 young employees speaking Arabic, Kurdish, and English fluently; their job is to listen to the customers carefully, to understand their need and to alert the related company people for creating immediate solutions for the customers.



From left to the right: Pari Rauf, Shvan Miqdad, Prusha Mohamed, Arivan Kamaran, Lina Haji Aram Ghareeb, Parwar Mohamed, Aras Anwar, Sheelan Omed



“Lafarge Iraq taught me about the importance of customer satisfaction”

Ali Talib Abdullah - AL Tajiyat (Baghdad) – RMX Plant Manager

I graduated as civil engineer from Technology University. I joined Lafarge in 2018. I chose to work for Lafarge because it is an international company that brings new challenges and helps me develop in my field professionally. I am responsible for managing the plant's raw materials, providing concrete, quality, and checking maintenance of (Plants, mixers, pumps, and generators). I have worked for several local and international companies; Lafarge's Health and safety programs are among the best standards among all the companies that I have worked with by targeting zero incident. As ReadyMix team of Lafarge Iraq, we work with private and public facilities; what differentiates us from the rest is that we care about quality, budget, time, scope, resources and risk in order to meet our customer's satisfaction.



“I am proud of Lafarge's utmost attention on Health and safety.”

Ali Nuhaad Khazaal Al-Khuzai
Mechanical Maintenance Engineer - Execution Team – Karbala Plant

I graduated from Mechanical Engineering department at Al Mustansiriya University in Baghdad. I had two years job experience before joining Lafarge in 2013. I was involved in different positions and responsibilities during my 6 years' experience here. Started as Mechanical Maintenance Execution engineer, Mechanical Project Engineer at Raw Mills area, crusher area, and burning line. Working at Lafarge Iraq has helped my self-development not only in maintenance activities but also sharing knowledge and experience of different people of different backgrounds. Lafarge's attention to Health and Safety is one of the things that I am very proud of. Karbala cement plant's rehabilitation has an essential impact on the local market of the area.



“I am proud to work in a professional environment and organization within Lafarge Iraq.”

Fadhil Tariq Mahdi
Sales Supervisor - Karkh

I joined Lafarge Iraq in June 2015 as Technical Field Officer. I have a Ms.c Degree in Structural Engineering obtained from the Building and Construction Engineering Department at the University of Technology in Baghdad.

Before joining Lafarge Iraq, I worked in the construction of a strategic project titled “Siphon Shatt Al-Arab” as a site manager in Basra 2013; I also worked in Badra Oil field in 2014 as a construction engineer.

I am proud to work in a professional environment and organization within Lafarge Iraq. Working in Lafarge is a wonderful experience to a great extent where we work hard to overcome the challenges in sales department, especially. Our customers' profile is quite different and market conditions can change quickly, so we need to support our customers in many ways whenever they need our assistance. It includes not only products but also technical support which differentiates us from others and makes our customers satisfied.



“My experience at Lafarge Iraq has been amazing, it added a lot to my professional profile.”

Brwa TAHA AHMED
Senior Engineer – Cement Grinding & Packing – Bazian Plant

I graduated as Metallurgy Engineer from the Polytechnic University of Sulaimani. I did not have any job experience before Lafarge Iraq, my job career began at Bazian Plant after having joined Lafarge in December 2013. I started first at the mechanical workshop; now I am responsible for cement grinding, packing, palletizer and conveyor belts in the plant. My experience at Lafarge Iraq has been amazing, it added a lot to my professional profile. I would describe my company as a highly developed work-space with utmost attention on health & safety and people development. Thanks to that, we have a strong local team in the plant that is given every opportunity to develop professional and personal skills required for the job.



WINNERS OF THE **MOSUL HOUSING COMPETITION** ADDRESS THE HOUSING CRISIS IN IRAQ*

In Iraq, as an estimated 900,000 people return home to the city of Mosul after liberation, many of the returnees will only find desolation. The Tamayouz Excellence Award, Rifat Chadirji Prize focuses on bringing global awareness as well as global talent toward addressing the social issues Iraq faces through design. This year's theme, "Rebuilding Iraq's Liberated Areas: Mosul's Housing Competition" asked applicants design prototypes for affordable housing. The winning housing proposals selected by the jury are practical, inspiring, and scalable, while adding capacity and density. The competition received 223 submissions from 42 countries. The Top 20 entries will be featured in a traveling exhibition that will visit Amman, Baghdad, Boston, Beirut, Milan, and London. Read on to learn about the three winning proposals and seven honorable mentions.

The Rifat Chadirji Prize got its namesake from Iraqi architect, theorist and author, Dr Rifat

Chadirji. Chadirji's work, both in thought leadership and built projects, has influenced the built environment and holds significance today. The founder of the Tamayouz Excellence Award, Ahmed Al-Mallak said, "all contributing ideas responding to the humanitarian crisis is heartwarming. This competition had the value of reflecting difficult and controversial situations but through a reasonably optimistic lens. Although the competition finished, our work starts now to help organizations responsible for the reconstruction efforts."

FIRST PLACE RE-SETTLEMENT BY ANNA OTLIK OF WROCLAW, POLAND



The tessellating and evolutionary project, Re-Settlement by Anna Otlík, takes into consideration the immediate needs of the city of Mosul, as the anticipated 900,000 displaced citizens return, but also longer-term needs for community and public services. The first phase of re-settlement is an informal process, with catalyst points determined organically by the returning community. With a matrix of modules, the settlements can then grow, densify, and evolve through the proposed rule-set. The judges panel states that Re-Settlement "considers the situation at all the relevant scales and stages, from initial emergency housing to a full-fledged neighborhood." Otlík's design takes inspiration from the vernacular Iraqi architecture, with the incorporation of outdoor spaces "it complements the fabric and the density of the city," as described by the Judging Panel.



● SECOND PLACE

BY MARIIA CHORNA & OLEKSANDR KOSTEVYCH OF WROCLAW, POLAND

“It has a kind of familiarity. It has got variety and expandability. It encourages self-build, but not manufacturing. It is a building approach, not industrial. It brings it to a personal level,” commented the Judging Panel. Two students of the Wroclaw University of Science and Technology came together to make this proposal. It begins with a 5x5x3 meter grid infrastructure provided by the city, that then will be fitted-out by the tenants. Having the individual returnees build their own partitions creates an aesthetic diversity but also creates a sense of ownership. The infrastructure allows family units to take on as many modules as needed for the number of occupants. The team designed fit-outs for these units for as few as 3 and as many as 8 occupants.

THIRD PLACE:

THE FIVE FARMING BRIDGES BY VINCENT CALLEBAUT ARCHITECTURES OF PARIS, FRANCE

The Five Farming Bridges is a proposal to rebuild the 5 Mosul bridges that crossed the Tigris River which were destroyed to encircle ISIS. With a reference to the hanging gardens of Babylon, this proposal “offers a vision of a positive future to restore the self-confidence of war refugees” as described by Vincent Callebaut Architectures. The new bridges are to be inhabited and contain urban farms and agriculture for food production. The design proposes many passive systems for a sustainable future and improved quality of life for the tenants. The Judging Panel selected the Five Farming Bridges because “this proposal directed to two of Mosul’s most immediate needs: housing and the reconsideration of its bridges, and yet at the same time uses the historical precedent of an inhabited bridge and yet speaks to the future in its morphology and construction”.

*Source: ARCHDAILY

<https://www.archdaily.com/882476/winners-of-the-mosul-housing-competition-address-the-housing-crisis-in-iraq>

The First concrete bridges in the world

The first concrete bridge in the world, built by Joseph and Louis Vicat in Grenoble's Jardin des Plantes (France) in 1855.

The Alvord Lake Bridge was the first reinforced concrete bridge built in America. It was built in 1889 by Ernest L. Ransome, an innovator in reinforced concrete design, mixing equipment, and construction systems.

The bridge was constructed as a single arch 64 feet (20 m) wide with a 20-foot (6.1 m) span. Ransome is believed to have used his patented cold-twisted square steel bar for reinforcement, placed longitudinally in the arch and curved in the same arc. The face of the bridge was scored and hammered to resemble sandstone, the interior features calthemite "stalactites" (concrete derived secondary deposits) which have subsequently grown in later years after the initial construction. E. L. Ransome was however frustrated and bitter at the building community's indifference to concrete construction and left the city where he built the his concrete bridge. Ironically, the city's few reinforced concrete structures, including the Alvord Lake Bridge, survived the big earthquake and fire in remarkable shape (1906), vindicating Ransome's faith in the method. The bridge was designated a civil engineering landmark by the American Society of Civil Engineers in 1969.

Can you guess where is
Alvord Lake Bridge located
in US?

- a) New York
- b) Washington
- c) San Francisco
- d) Boston

You can send your answers to:
info.iraq@lafargeholcim.com



Winners of the previous quiz:

1. **Banw Hawre** | HR Coordinator - Suli Office
2. **Ahmed Raheem** | Environment Supervisor - Karbala Cement Plant
3. **Zanyar Abubakr** | AP Accountant - Bazian Cement Plant



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LAFARGE

The Right Choice



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