BHNA Plus

CORPORATE MAGAZINE of LAFARGE IRAQ

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Lafarge supports local agriculture in Iraq

Mobile phone application for Lafarge Iraq's customers

Bahar Abdulrahman: Story of a young civil engineer

LAFARGE
Building better cities™

A member of
LafargeHolcim

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BINAPlus

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

Rachid Benyakhlef
Country CEO

Our Health & Safety vision is
"Zero harm to people"
to become our safety culture

Our Health & Safety vision is based on the following two main components

Everyone must take care of their own Health & Safety

- Respect all rules and regulations
- **STOP** before undertaking any task
- No compormising on health & safety

Everyone must care of each other's Health & Safety

- Immediately stop any unsafe act and eliminate unsafe conditions whenever and wherever they occur
- Give sincere feedback to colleagues and accept their feedback sincerely
- Contribute actively to health & safety improvements

Bazian Agriculture Project

HIGHLIGHTS

Lafarge Iraq supports local agriculture with training for greenhouses and organic farming

Lafarge Iraq supports local agricultural sector by providing training on greenhouse and organic farming practices

Once home to a vibrant farming industry, in recent years, Iraq has become heavily dependent on imported agricultural and food goods. Years of conflict and chronic underinvestment in the sector have stymied local production.
However, in the last few years, there has been a massive uptick in local greenhouse operations. Nonetheless, many of these greenhouse owners have minimal training and thus fail to maximise their crop yields. Until the financial crisis, the Kurdistan Regional Government had been providing significant support and training initiatives, but those options are no longer available to local farmers.

As part of its efforts to promote sustainable cities, Lafarge Iraq – together with Regional Agricultural Administration, a large local NGO – has launched an initiative to train greenhouse operators and investors, improving both their technical and business skills.

In the Sulaymaniyah province, there are currently 10,000 operational greenhouses; to date, Lafarge Iraq's training program has already provided support to 300 of these local producers. In addition to technical and business development training, the scheme is also promoting the use of organic farming techniques.

Husam Hakem Barzinji

General Director of KEDO (Kurdistan Economic Developmental Organization)

Can you tell us about the NGO you are managing? What is its main purpose? What are your activities?

-Our NGO, the Kurdistan Economic Development Organization (KEDO), was established in 1994. Our vision is to achieve a better future for underprivileged families and individuals across Kurdistan. We work to elevate the capacities of these underprivileged individuals, in order to empower them to generate income and develop their social and cultural lives, while influencing local decision-makers to consider the interests and wellbeing of the poor.
Since we were first established, these have been our key priorities, both in rural areas and in the cities of Sulaymaniyah, Erbil, Dohuk, Kalar, Khanaqin, and Kirkuk. Since 1999, we have also worked on a series of income-generating projects for widows in rural areas like Kalar, Rizgar, and Bazian. We provide microfinance loans for these widows and invest money in small projects. One of the beneficiaries is from Rizgary; thanks to our support, she is now quite wealthy and entirely economically independent.

How is your NGO involved in the agricultural sector in general, and the greenhouse industry in particular?

We try to support private-sector agricultural operations, including local greenhouses and greenhouse owners. In doing so, we have noticed that these farmers are facing many problems, both in management and in the application of fertilizers.

Additionally, they are facing serious problems in marketing their products – which at this point are primarily just cucumbers – and they are struggling with quality as well.
Through our training courses, which we are carrying out with Lafarge's support, we are working to teach greenhouse operators about effective marketing strategies for promoting their products. In addition, we encourage these farmers to produce other types of produce, such as tomatoes and peppers. With the knowledge and insights of our trainers, we are trying to help local greenhouse operators market outside the Kurdistan region.
Now, they export their produce to southern and central Iraq. However, production is starting to exceed the demands of the country. Maybe we have to look to new markets outside Iraq to export our products. However, our key priority to improve the quality and diversity of produce being grown in these greenhouses.

How is this training program contributing to the long-term future of the greenhouse industry?

We have conducted several meetings with the General Director of Agriculture, the Association of Greenhouses, and the Syndicate of Agricultural Engineering in order to identify the most pressing problems. We have also met with many of the program participants, who say they have problems with marketing, using fertilisers, and setting up and managing the greenhouses.
With these insights, we can prepare training materials that address these specific problems.

Nawroz Ali Said

Chief Officer of the Department of Greenhouses, Sulaimania, Directorate of Gardening

What kinds of products do we get from greenhouses?

According to our primary statistics, there are approximately 10,000 greenhouses within the Sulaymaniyah province. Cucumbers are the most commonly grown produce, followed by winter vegetables, as farmers use these greenhouses for three seasons: spring, summer, and winter. In winter, all types of leafy vegetables and onions are produced, including cabbage, lettuce, cauliflower, and celery, among others. This year they have also started growing broccoli in Bazian and other regions.

Do you think greenhouse projects be able to meet the needs of the region for the coming years?

In 2016, we had 8,000 greenhouses in the Sulaymaniyah province. The production of vegetables, especially cucumbers, exceeded the needs of the province. We have actually achieved self-sufficiency for cucumbers in Sulaymaniyah city: we produce much more than what is required. However, these produce are seasonal, and thus these results are only for certain months, and not for the whole year. This is one of the problems with greenhouses in our country: they don't currently produce yields throughout the year.

What are the main challenges facing your work today?

The biggest challenge we are currently facing is that the environment of a greenhouse must be carefully controlled in order to achieve production across all seasons. However

However, because we cannot control more than %20 of the environment within these greenhouses, we cannot produce throughout the year in order to consistently to meet the needs of the entire city.

Could you please give us a brief overview of your experience in the greenhouse industry?

Here at the Kurdistan Regional Government (KRG)'s Ministry of Agriculture, we wanted to capitalize on the use and potential of greenhouses. In the past, when we first set out to do this, local farmers did not have sufficient information about this particular farming method. In order to encourage them, we supplied them with greenhouses, seeds, and pesticides, free of charge. We also appointed supervisors to oversee the greenhouse operations. For several years, out budget allowed us to provide farmers with greenhouses, supplies, supervision, and ongoing support. We had supervisors across the region working to ensure the success of these operations. In a field like agriculture, you need the support and supervision of the government; you can't depend on individual efforts to accurately meet the demands on the market. However, because we do not have a sufficient budget now, we can't currently assign supervisors for this purpose, but we do maintain up-to-date statistical data, and we can grant official greenhouse licenses to those who wish to obtain an official license from the KRG. As long as the necessary conditions are met, we will always allow farmers to start working with greenhouses.

What is the official procedure for opening such business?

If a farmer wants to start a greenhouse project, nowadays, he can do it himself: the technology is now widespread enough that it's easy to come by, and there are many NGOs and private-sector contributors who are willing to invest in these ventures. We grant greenhouse licenses to any farmer or investor who owns a piece of agricultural land, a water source, and who meets a series of additional conditions related to other administrative departments. For example, the project should be a certain distance away from main roads and monuments, and it should not be within the municipal boundaries. The investor or the farmer should also have the right to dispose of the land, whether the property is owned or leased. Once the official license is granted, the government provide them with support.

Rzgar Mohamed Agha

Director of Gardens Sulaimani Governorate Agriculture Department

One of our main goals now is to encourage the adoption of organic practices in the agricultural sector. To achieve this, we need the right mindset, will, and perseverance.

Do you have inspections from time to time to check if they meet the technical standards?

As mentioned before, we used to supervise all local greenhouse farmers, providing them with support from the moment of sowing the seeds until harvest; we were even providing them with all seeds and pesticides. We provided guidance in a very scientific way: for example, we encouraged best practices, such as sterilising the greenhouse soil after two to three years before re-planting. In the first year, few farmers were on board with this recommendation, but they soon came to realise that the process of sterilisation and fertilisation make the land more powerful and reduces the risk of agricultural diseases.
One of our main goals now is to encourage the adoption of organic practices in the agricultural sector. To achieve this, we need the right mindset, will, and perseverance.
There are projects like this in Erbil and Dohuk as well, but they have not grown at the same rate as the projects here in Sulaymaniyah.

Wasfi Khalil

Consultant at the Greenhouse Development Association

Can you tell us about the progress of implementing greenhouses, particularly in Sulaymaniyah? What is the success rate?

Before I became a consultant, I was the General Director of the Department of Agriculture. After retiring from government, I joined this field. At that time, around 2006, there was a Minister of Agriculture who wanted to bring in greenhouse technology; he had already purchased a group of greenhouses and distributed them to farmers across Kurdistan. Some of the farmers benefited from these greenhouses, especially in Sulaymaniyah. However, the economic crisis affected the momentum of these projects. Two years ago, we had 3,000 greenhouses in Sulaymaniyah; after the crisis, that number increased to 10,000.

What are the main challenges and issues facing the industry?

The most difficult challenge we face is that our farmers are very traditional in their practices, and thus do not have strong awareness of greenhouse processes and practices. We are planning to hold another training course targeting agricultural engineers, with the support of the Chamber of Commerce. I am an agriculture consultant for the Chamber of Commerce and I have submitted this proposal to them; they are now looking to provide this training to 20 agricultural engineers, so that each supervisor can oversee 50 greenhouses.

How will this training program impact local greenhouse operations and businesses?

This training program works to educate farmers in a way that really resonates with their experiences.

We try to speak to them in their own language, and we provide them with a platform for asking questions, so that we can help them identify any problems and develop appropriate solutions. Many of these participants are new to the field, so this training program is a great opportunity to introduce them to best practices.

TRAINERS contributing to the program

- **Mohammed Karem:** He has a master's degree in economics and project management and runs his own greenhouse company

- **Hama Ali Darwesh:** He has a bachelor's degree in agriculture and is an expert for the General Directorate of Agriculture in the field of fertilizer and hormone training and awareness

- **Salam Mahmud:** He has a master's degree in agriculture and is both a teacher and a PhD candidate at the University of Sulaimani

- **Karzan Yasen:** He holds a bachelor's degree in agriculture and works as an expert for the General Directorate of Agriculture in plant protection training and awareness

- **Oral Musa:** He holds a bachelor's degree in agriculture and is currently studying for a master's degree, while working as a greenhouse expert

- **Amanj Mohammed:** He has a bachelor's degree in agriculture and is an expert for the General Directorate of Agriculture in the field of fertilizer and hormone training and awareness

Lafarge 4545 Mobile Apps

Download it for free in IOS & Android

- Check your account
- Place your orders
- Track your orders
- Access to financial statements
- Submit feedbacks

Available on the App Store

ANDROID APP ON Google play

24h
4545 is available all the time

EN KU AR
The application is available in three languages English, Kurdish and Arabic

Lafarge Iraq launched a mobile phone application to serve its customers more effectively

Lafarge Iraq's customers are now able to place and track their orders easily through a special application in their mobile phones

Lafarge Iraq, a member of LafargeHolcim Group, keeps transferring its worldwide know how into Iraq that goes beyond production process with international technical standards.

"Customer First" is a countrywide program implemented by the company that aims to complete more than 20 development projects within the company in order to increase the customers' experience. The success of the program was recognized by the Group management as well and the Customer First Program has been awarded as "the best commercial transformation program" in the Middle East – Africa Region.

Supply chain management, in other words to make sure that all the orders will be delivered to customers on time - as requested, is a significant part of Lafarge Iraq's Customer First Program. One of the initiatives created by Lafarge Iraq's Supply Chain Team in in this respect is the mobile phone application called "Lafarge 45-45". The application is named after Lafarge Iraq's customer call service number (0771 45 45 345) that is another unique service of Lafarge Iraq launched few years back. "Customer call service phone number is already well known and trusted by our customers, printed on all our bags, used in our communication with the clients, and this application appears to be an obvious upgrade of this excellent service" says Aram Gareeb, Head of Customer Service.

Rachid Benyakhlef, Country CEO of Lafarge Iraq, states that "this mobile application reflects a real breakthrough in the commercial approach of Lafarge Iraq". "It is a big step in our commercial transformation journey" says Tarek Sehnoui, Country Sales Director. George Elias, Country Marketing Director, confirms these two opinions saying "we are now one step closer to our customers".

Rozhgar Barzan
Lafarge Iraq's Country Supply Chain D. Director, answers few questions to tell us more about this unique initiative:

Why has Lafarge Iraq's Supply Chain Department developed such an application; how will it contribute the efficiency of your work in supply chain?

This initiative of Lafarge4545 Application is an extension of the current customer service of Lafarge Iraq. Through this project, we aim to develop IOS and android base application, which gives customer flexibility of accessing their account 7/24 via their smartphones.
The purpose of this APP development is "to be at one click service distance from customers and ensure 7/24 full service availability in-term of order, credit , e-statement and claim management. A bridge directly connects us with the customers for a better customer service and account management.
It also represent a major milestone achievement in our commercial transformation and bring LH IRAQ further steps towards customers and end users.
Nevertheless, this APP will definitely take LH IRAQ customer satisfaction to another level with a constant reliable service level including during rush hours, which result in higher customer satisfaction and minimize pressure on customer service team.

What will be the benefit of this application for customers; why should they use it?

Customers, customer representatives and retailers will benefit from this round a clock service and enjoy some extra services such as historical order status & truck positioning with a very user-friendly tool

Jovan Othman
Lafarge Iraq IT Manager
Lafarge 45-45 Application Project Manager:

Lafarge 45-45 application is result of a high level and strong team-work efforts and team collaboration among different functions of supply chain, IT, communication, sales, marketing and regional IT team. It started with several brain storming sessions, weekly project team meeting and several workshop and proposals in commercial steerco and customer first steerco and after several piloting with different target groups and audience in which we concluded the current version of the aplication.

The development of this application reflects key values of LafargeHolcim Group's business transformation program (ACE) demonstrating Lafarge Iraq's ability to collaborate within departments, agility and accountability, resulting in this unique application

Moataz Mahmoud
Application Team Leader

Mobile application launch meeting with customers in Baghdad

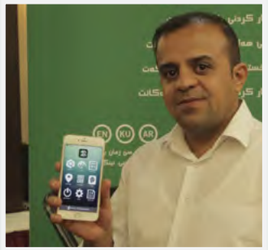
WHAT DO **CUSTOMERS** SAY?

Muhannad Basim
Basra Province:

“This application saves time for us. We can check our balances and submit new orders whenever we want, even at late hour of the night. This application is making our business life easier”

Sardar Salih
Wasit Province:

“This application is cost efficient, since we no longer have to make calls, we can check our information through the application. I feel this application helps me to be more in control of my work”



Salah Harki
Duhok Province:

“Customer service of Lafarge is only available from 8:00 AM- 8:00 PM, while this application is available 7/24. It is significantly useful for checking our balance, credits, and the quantities we have ordered”

Satar Sajid
Babil Province:

“This application is exactly what we needed for our businesses. The fact that I can check my balance, credit, and submit inquiry complaint and suggestions at any desired time is the best thing about the application”

HIGHLIGHTS

My building is in a risk

Why does concrete crack?

Do's and Don'ts in concrete application

Concrete and Cement

“My building is in a risk”

It is a hard time when site engineers tell the project manager that we have a problem with concrete quality, and will even be tougher if we already cast it…

This is typically what is any project manager will say when it comes to concrete quality “My building is under risk”, however, a variety of factors impact concrete quality but many of which are somehow linked to the main component, cement.

Cement is the main source of concrete’s compressive strength, but cement also plays a part in the workability of concrete, which is a concern about the length of time where the concrete is still workable after mixing and ‘rheology’, which is described flow-ability & viscosity.

Generally we monitor concrete quality properties in two states;

Fresh state and Hardened state

However, cement plays many roles and impacts on the concrete quality in both states.

The fresh concrete state, is the state between adding water to concrete mix and the setting of the concrete. In this state there are some important quality issues we must watch out for as these quality parameters' impact on the lifetime of the building.

Rheology is the main parameter to be controlled in the fresh concrete state, where it mainly deals with flow-ability and viscosity and with an eye on bleeding. All of us want to have flow-able concrete to make sure that it will be compacted well and fill all the gaps “No caves in the concrete structure”, and at the same time viscous enough to not separate the fine particles from the coarse one- otherwise we will have either caves, voids in the concrete structure and/or cement will leave the concrete mix going away with fluids.

Concrete quality managers work hard to provide the right concrete mix that guarantees flow-ability within the main constraint, which is the water: cement ratio, where excess water will add more voids and generate capillary in the concrete structure. This results in a decrease in the concrete strength and its resistance to exposed weathering conditions, which mean less durable buildings with lower service lifetime than planned.

Cement plays an important role in concrete rheology through adjusting the physical and chemical parameters that will help in flow-ability & eliminate bleeding. Adjusting particle size distribution plays an important role to eliminate bleeding especially when we have two or more materials with respectable amounts from different grind-ability. A chemical balance between elements in cement will impact on choosing admixture type & dose that will support the concrete quality team to decrease W/C by adding a lower dose of admixtures from a variety of sources in order to achieve the flow-ability target.

Workability is another important quality parameter for fresh concrete, where it is mainly known on the job site as slump.
Both the initial and retention slump are determined whilst pouring the concrete into form work and the purpose is to make sure that the concrete will remain workable for long enough to complete the whole placing process; otherwise the concrete will lose its strength and voids will be formulated where it is already settled before complete placing.

The cement’s early stiffening has to be controlled through adjusting chemical, production & process point of view, it is highly critical to harmonise between all three functions to make sure that your cement will not be false or flash set or even dehydrated during the production process.

The list is too long, but we must talk about heat of hydration, water retention and DEF when linked with ambient temperature during casting, which is very important in Iraqi weather.

The hard concrete state is the one we all know about after stiffening the concrete, removing the form-work and could take years after casting. It is about strength, expanding, shrinkage and permeability (water, gases & chlorides).

Cement has a big role in ensuring the continuous development of concrete strength and controlling concrete volume stability to avoid cracks, this is linked with the right particle size distribution, clinker reactivity, gypsum phases and grinding process. It is not easy at all to control them where they are linked, for example, clinker reactivity is linked with a type of gypsum added, grinding and storing conditions.

Simply all physical, chemical and mechanical cement quality parameters impact fresh and hardened concrete properties, which makes cement quality parameters complicated. For this reason, LafargeHolcim pays significant attention to all cement quality figures above and beyond what is listed in international standards, we even take about what could happen in concrete, in both fresh and hardened states using Iraqi materials in Iraqi weather considering the big gaps in different construction competencies across the country. It is not just about quality control though, it also about consistency. Sending two different cement quality batches to a concrete site would impact negatively on concrete quality & durability even if we provide a better quality, it is not about the highest quality, it is about suitable and consistent quality.

With our world-class expertise though, we take some of those worries away from the customer, so that they can be rest assured when using LafargeHolcim cement, they don’t need to worry about quality and consistency- we do that for them.

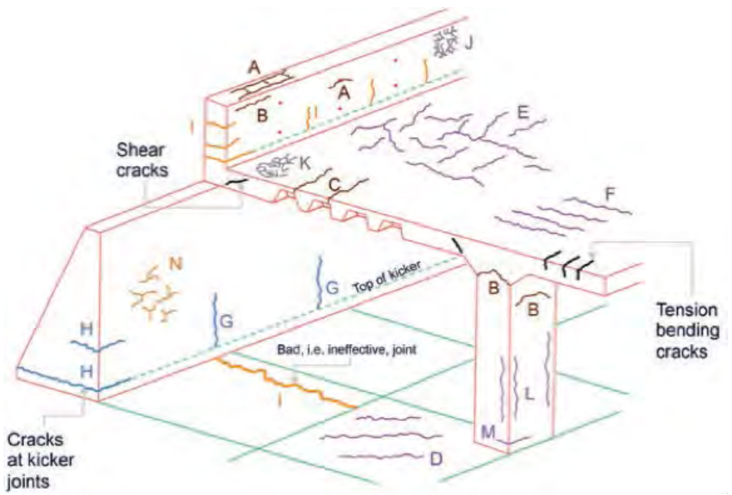
Ahmed Hanafi
Technical
Marketing Manager
Lafarge Iraq

Concrete
Pathology
Non-Structural
Cracks

WHY DOES CONCRETE CRACK?

One of the most common questions homeowners and property owners ask is why cracks are developing in newly poured concrete, causing them to question the professionalism of the work.

When installed properly, concrete is one of the most durable and long-lasting products you can use around your home. However, it is important that concrete contractors follow well-established guidelines with respect to concrete placement. Durable, high-strength, and crack-resistant concrete does not happen by accident.



Time to appearance:

		Time of appearance					
Type of cracking	Most common location	Hours	Days	Weeks	Months	Years	Decades
Plastic settlement *A - B - C*	Deep Sections						
	Top of Columns						
	Trough and waffle slabs						
Plastic shrinkage *D - E - F*	Roads and slabs						
	Reinforces concrete slabs						
Early thermal contraction *G - H*	Thick walls						
Long term drying shrinkage *I*	Thin slabs and walls						
Crazing *J - K*	Fair-faced concrete						
	Slabs						
Corrosion of reinforcement *L - M*	Columns and beams						
	Precast concrete						
Alkali-silica reaction *N*	(damp locations)						

Reason #1: Excess water in the mix

Concrete does not require much water to achieve maximum strength. The vast majority of concrete used in residential work has too much water added to the concrete on the job site, as on-site workers will add extra water in order to make the concrete easier to install. However, this excess water also greatly reduces the strength of the concrete.

Shrinkage is a main cause of cracking: as concrete hardens and dries, it also shrinks, due to the evaporation of excess water in the mix. The wetter the concrete mix, the greater the shrinkage. Concrete slabs can shrink as much as 2/1 inch per 100 feet. This shrinkage puts excess force on the concrete, which literally pulls the slab apart, with cracks as the end result.

In short, the ratio of water to cement is vital in ensuring the quality of the mix and the longevity of the finished product. Excess water significantly reduces the quality of the mix and subsequently the quality of the cement once it has been laid.

What can you do about it?

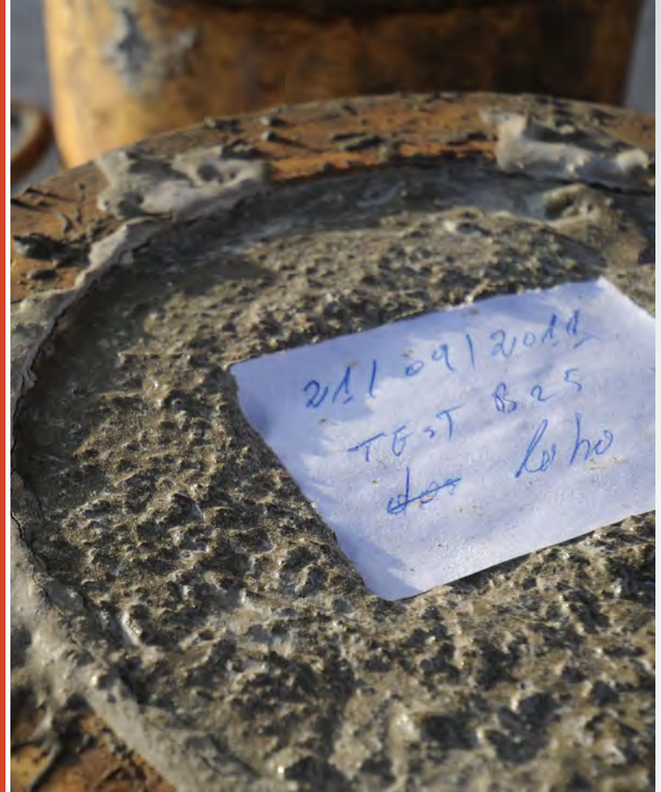
Concrete does not require much water to achieve maximum strength. The vast majority of concrete used in residential work has too much water added to the concrete on the job site, as on-site workers will add extra water in order to make the concrete easier to install. However, this excess water also greatly reduces the strength of the concrete.
Shrinkage is a main cause of cracking: as concrete hardens and dries, it also shrinks, due to the evaporation of excess water in the mix. The wetter the concrete mix, the greater

Reason #2:
Rapid drying of the concrete

Rapid drying of a concrete slab will significantly increase the chances of cracking. The chemical reaction that causes concrete to go from a liquid or plastic state to a solid state requires water. This chemical reaction continues to occur for days and weeks after the concrete mixture has been poured.

What can you do about it?

All the desirable properties of concrete are improved by proper curing!
To prevent this kind of cracking, it's important to adequately cure the slab. Curing serves two main purposes: it retains moisture in the slab, so that the concrete continues to gain strength, and it delays the shrinkage process until the concrete is strong enough to resist severe shrinkage and cracking.
Properly curing concrete improves strength, durability, water tightness, and general resistance.



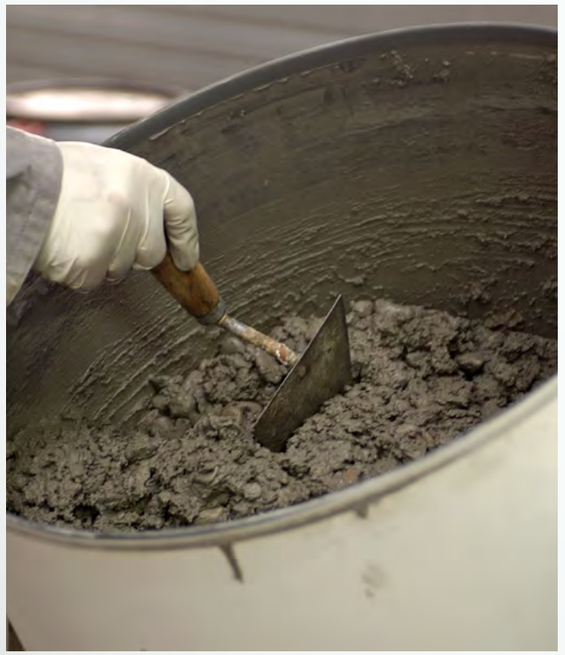
How to cure concrete

Water curing: The concrete is flooded, ponded, or misted. This is the most effective curing method for preventing water evaporation. Make sure you allow for the required amount of time for successful curing.

Water retaining methods: Use coverings such as sand, canvas, burlap, or straw, which should be kept continuously damp throughout the curing process.

Waterproof paper or plastic film seal: Applied as soon as the concrete is hard enough to resist surface damage. Plastic films may cause discolouration of the concrete, so do not apply to concrete where appearance is important.

Chemical membranes: The chemical application should be made as soon as the concrete has been laid. Please note that curing compounds can affect the adherence of resilient flooring, and thus the flooring contractor should be consulted before any chemical compounds are applied.



Reason #3:
Lack of control joints

Control joints help concrete crack where you want it to. The joints should be the depth of the slab and no more than 25 percent of thickness.
Control joints are planned cracks that allow for movements caused by temperature changes and drying shrinkage. In other words, if the concrete does crack, you want to be able to play an active role in deciding where it will crack, while ensuring that it will crack in a straight line instead of randomly.
In hot weather, concrete might crack if joints are not cut within six to 12 hours after laying the concrete. In these conditions, if you don't want to use a grooving tool to cut joints, there are early-entry dry-cut lightweight saws that can be used almost immediately after the concrete has been laid.

Golden Rules

- Non-structural cracks are often closely linked to the concrete mix, but may also be linked to the structural design and construction techniques. Always take into account the concrete's final use, construction methods, and environmental conditions (such as temperature, wind, and humidity).
- It's important to avoid excess bleeding in the concrete mix, which could cause sediment to settle in the formwork.
- Make sure that considerations are taken for factors such as concrete gradation during the mix phase.
- Applying a curing agent after the concrete has been laid is crucial.
- For highly restrained elements or large pours (e.g. dams), take into consideration the temperature rise in the element. It is preferable to use a low-heat cement (e.g. blended cement like KARASTA) and try to minimize cement content.
- Use the minimum water content required for a particular concrete mix in order to mitigate against shrinkage.
- Concrete paste content should be carefully controlled in order to avoid segregation on surfaces, which increases drying sensitivity.

Do's and don'ts

IN CONCRETE APPLICATIONS

- **Do not** order concrete before finishing steel bar and mold works
- **Avoid** pouring & placing the concrete in windy, snowy & rainy weathers
- **Avoid** pouring & placing concrete if ambient temp. is less than 5 °C or higher than 35 °C
- Hardened concrete must be cured for 3 days, and should be kept wet for 7 days at least

- **Check** the weather conditions before ordering concrete
- **Check** the amount of concrete required before ordering
- **Check** the concrete delivery note to be sure
- **Protect** the concrete in **first 24 hours against freezing** during cold weather
- Place the concrete within **2 hours** after the first contact of cement and water
- **Keep** the surface of concrete **moist** at least **5 days** during hot weather
- **Never** allow water addition on construction site

Amjad Burnieh
Country Industrial Segment Manager
Lafarge Iraq

Bahar Abdulrahman Hassan

A promising young professional with a strong desire to pursue a future career as a civil engineer

Bahar Abdulrahman Hassan is a young civil engineer from the city of Kalar, in the Kurdistan Region of Iraq, who recently graduated from Salahaddin University in Erbil. She currently works at Action contre La Faim (ACF) as a Distribution & FSL Team Leader.

Bahar's graduation project was a comparison of the ACI 318 standard and the EC2-standard for slabs, beams, and columns, and was ranked the third most successful graduation project in the entire country. In addition to being presented at an exhibition organized by Salahaddin University's Civil Engineering department, where is ranked second place, Bahar's research was published in Concrete International Magazine (USA) and Zanko Press Magazine (Erbil).

Following the success of her graduation project, Bahar was surprised and excited when her professor suggested that she work on another project in her field. This one was a worldwide competition hosted by the American Concrete Institute (ACI) and open to participants in the 120 countries (including Iraq) where an ACI has country representation. Competitors could choose from 10 different project topics, all of which aimed to promote concrete and concrete applications. Bahar chose the topic "Decorative Concrete" for her entry to ACI's global competition. "There were two reasons I agreed to take on this project," says Bahar.

"Firstly, I wanted to develop myself as a civil engineer. It's not easy to find suitable jobs in this field in Iraq – and being both a fresh graduate and female doesn't help. But I wanted to overcome these challenges and become a knowledgeable, experienced civil engineer.

Secondly, **I wanted to be a part of something that is supporting the development of our country. The construction sector is very important in this respect. Developing new, innovative products and solutions will help our contractors, engineers, and architects work more efficiently.** Decorative concrete is one such innovative solution."

With the support and guidance of her professor, Bahar's initial research about decorative concrete led her to Lafarge Iraq, the only international industrial group in Iraq with experience in decorative concrete applications. That's how Amjad Burnieh, Lafarge Iraq's Industrial Segment Manager, and Bahar Abdullah first met in November 2015.

Amjad Burnieh supported the young civil engineer during her research about the production and application of decorative concrete. As Bahar explains, "I was so glad to work with such a respected and knowledgeable team of experts."

After completing her research, Bahar toured around a number of universities in Iraq in order to present her findings about decorative concrete. She organised interactive presentation sessions at the universities of Komar (Sulaymaniyah), Isik, (Erbil), and Garmiyan (Kalar), where she addressed senior students and academics who were highly interested in the topic.

Bahar admits that she was surprised by the reactions to her work. "When I was a student, I was uninterested in seminars and sessions like these," she says. "But being actively involved in this project showed me that these kinds of activities are very valuable for both students and academics. I was also very happy to see the positive reactions from the students during my presentation sessions. I am proud that I was able to provide this kind of support for their studies."

Members of the Lafarge Iraq Marketing Team and Binastore staff also enjoyed these events. **"It was like receiving additional training on new methods and techniques that can be employed by our team members,"** says Amjad.

Bahar has continued to prove her commitment to pursuing a career in civil engineering, attending two training courses about concrete and laboratory practices organised by the Lafarge Academy in order to further increase her knowledge and experience in the field.
Bahar's ambition and drive are the very same qualities cultivated by Lafarge Iraq: one of the strategic priorities of LafargeHolcim Group is to develop the capacities of both employees and local communities. "She is a talented, ambitious young lady with a great deal of potential; she sets a very good example for the educated young women in this country," says Amjad Burnieh. "At Lafarge Iraq we have always supported civil engineering students at the Master's or PhD level who are conducting research projects about cement and concrete. We know that this support impacts not only individual academic or professional careers, but also the future of engineering work in the country. I believe that Bahar will reach her personal career objectives in a near future and will be a great mentor to other young engineers like herself. We have already discussed a number of different research projects with her, and I can see that she has a lot of creative ideas in this field."

NEW IRAQI
PARLIAMENT COMPLEX

New Iraqi Parliament Complex

Iraqi Parliament Development design by Assemblage Architects

Assemblage Architects has won the international architecture competition for its design of the new Iraqi parliament complex in Baghdad. The USD one billion project includes the parliamentary chambers, a large complex of buildings surrounding these chambers, and a masterplan for the adjacent part of the city. The London-based architecture firm succeeded in winning the bid against more than 130 international architectural firms competing for the prestigious project, and was awarded 1st prize of USD 250,000.

The project itself is currently on hold, due to economic crisis and civil unrest surrounding the site area.

The design competition was advertised globally in November 2011 and judged by an independent international panel. To ensure a meritocratic outcome, both the entrants and judges remained anonymous throughout the process. There are plans to host a public exhibition with all of the submitted projects on display.

This achievement is one in a series of major accomplishments for Assemblage; in 2012, the firm won a United Nations HABITAT international design competition for housing in Iraq.

Design Scheme

For Assemblage's design, the parliamentary complex was reimagined as a work of urban design, as opposed to one large architectural object. The majority of the complex comprises an intricate pattern of streets – both indoor and outdoor – and green courtyards, connecting an arrangement of buildings that serve a variety of functions. Key landmark buildings and plazas, such as the Council of Representatives and the Federal Council, are given emphasis against this urban fabric.

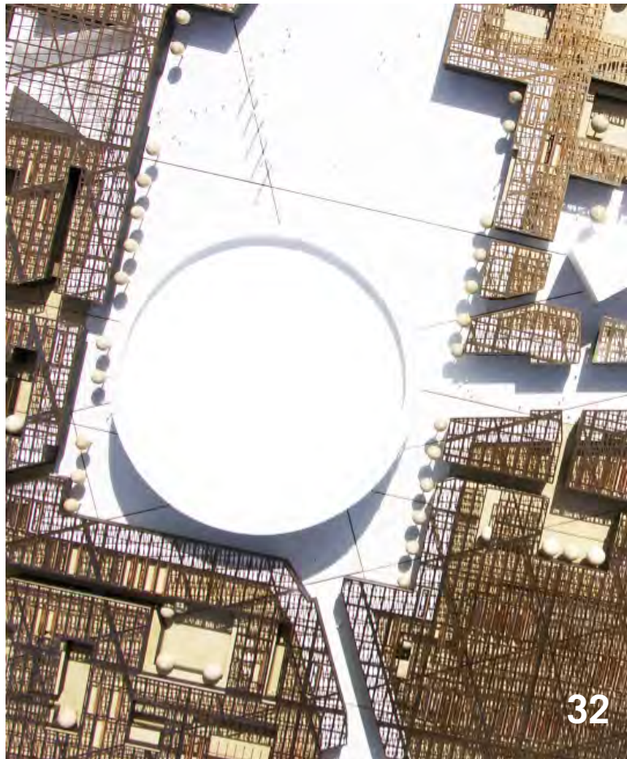
The dialogue of landmark buildings against a low-rise urban grain makes the complex easily navigable. is the design is also highly flexible, making it easy to phase, zone, and replace various components. The many courtyards and streets allow nearby buildings to benefit from natural sunlight and easy service access. An extensive horizontal brise-soleil structure extends across the two-storey fabric, providing shade as well as a roof-level service zone. A major architectural component in its own right, the brise-soleil creates a plane of continuity across the project.

The Council of Representatives building serves as the key landmark in the arrival plaza, on axis to the Zawra Park approach. Its circular outer shell of brise-soleil protects the building and casts deep shadows that provide respite from the intense Iraqi sun.

Encased within are the two great hemicycles that comprise the Great Hall and the Council Chamber, with technical spaces and services embedded in the spine walls. The Entrance Foyer between these two hemicycles is illuminated by raked skylights, and a press conference hall is situated on the lower ground level. Navigation is simple and intuitive. Visitors can look down into the Great Hall and Entrance Foyer from the perimeter areas, witnessing the intricate motions of government. This modern design embodies the transparency that must exist between citizens and their government in a democratic society: visitors can simultaneously look out across the land and its citizens, and at those who represent and serve.

The Council of Representatives building is formed in the shape of a circle: in the context of the State, it is a symbol of convergence and stability. A circle has no single point of elevation, presenting the same face to all. The building's circular facade echoes the shapes of the hemicycles within – themselves a geometry of agreement – and provides views out across all directions from the generous perimeter areas. Direct reference is also made to the historic City of Peace, from which Baghdad takes its name. Having stood just north of the parliament site, this ancient circular city was built by the Abbasid Caliph al-Mansour in 766 AD, at a time when Baghdad was at the peak of its power and prestige.

The Council of Representatives building is formed in the shape of a circle: **in the context of the State, it is a symbol of convergence and stability.**



Lafarge Iraq's Al Samah Plant

is one of the leading concrete suppliers to the Karbala province

Producing ready-mix concrete (RMX) and aggregates designed to meet the rapidly growing demands of the residential and commercial markets. The plant supplies concrete to the majority of Karbala's residential building projects, as well as the province's most significant commercial projects across both the public and private sectors.

Since it became operational in June 2015, Al Samah RMX Plant has has witnessed rapid growth and expansion. In the first year and a half of its operations, Al Samah's production increased from 600 m3 to 3,200 m3.

When Al Samah RMX Plant first opened, the local market was struggling to meet the increasing demand for ready-mix concrete – particularly as construction and development were flourishing. The plant enabled Lafarge Iraq to meet these market requirements, while adhering to the highest international standards of quality and excellence.

Al Samah RMX Plant produces high-quality ready-mix concrete, delivered with the utmost customer care and service. More than that, Al Samah is building on Lafarge's global reputation by using its insights and expertise to enrich the lives and wellbeing of its employees and the local community.

As with all of Lafarge's operations, **Al Samah RMX Plant adheres to the highest global safety standards and practices,** applying best practices and implementing a comprehensive range of health and safety measures, in order to prevent workplace accidents.

Meanwhile, the plant's integrated quality control laboratory works to guarantee the consistently superb quality of all raw materials and all concrete produced.

Al Samah's sales department always follows up with customers in order to acquire their general feedback on the company's products and services. By maintaining these post-sales communication channels, Lafarge Iraq is able to continuously assess and improve upon its performance, in order to achieve even greater customer satisfaction.

From its operations at Al Samah RMX Plant, Lafarge Iraq has worked to supply ready-mix concrete for numerous projects in Karbala. The company has long enjoyed a strong, cooperative partnership with Karbala's local government, which has helped ensure that the province's building material needs continue to be met.

One of the most successful examples of this was when the plant managed to provide Al-Ayn Social Care Foundation with 1,200 m3 of concrete in one day – all delivered to the highest standards of quality, commitment, and efficiency.

Another key project supported by Al Samah was the installation of the water outlet project for the Karbala Oil Refinery (KWI). The plant supplied the project with more than 5,500 m3 of high-quality, ready-mix concrete. It was also Al Samah's very own Artevia ornamental concrete was was used to construct the entrances of the Khatam Al-Anbiya Hospital and Al-Hujja Charitable Hospital.

Al Samah RMX Plant was also the key contributor to Lafarge Iraq's pioneering project, 'complete your house in installments.' By providing citizens with affordably priced ready-mix concrete in installments, this initiative enabled Karbala residents to complete their houses without taking on an extraordinary financial burden.
Both Lafarge Iraq and Al Samah RMX Plant aim to actively contribute to the development of the community, by providing the best products and engineering solutions for construction and renovation projects across the province. Furthermore, they are eager to invest in human capital by developing the capacities of engineers and employees working in the public and private sectors, as well as individuals working in middle management. In 2016, in cooperation with Lafarge Academy, the company held an expanded conference in Karbala designed to tackle the issue of sustainable construction. This highly successful conference brought together

delegates from the public and private sectors, as well as members of the academic community and professionals working in intersecting industries and fields.

As members of the local community, Lafarge Iraq and Al Samah RMX Plant work to support underprivileged families and youth throughout the province.

Along with helping underprivileged families carry out construction on their homes, the company also hosts celebrations for Karbala's orphaned children, treating them to fun activities and gifts.

Regional **LafargeHolcim Awards 2017** Middle East Africa

The winners of the LafargeHolcim Awards 2017 winners for Middle East Africa have been announced in Nairobi, Kenya. The eleven winning projects share in USD 330,000 prize money, and illustrate how sustainability in building is rapidly gaining significance in the Middle East Africa region.

Main Category prizes

LafargeHolcim Awards Gold 2017 Middle East Africa – USD 100,000
Legacy Restored: Religious and secular complex, Dandaji, Niger
A reinterpretation of traditional local construction for a new mosque and community center, creating a space in the village open to all.
By Mariam Kamara, atelier masomi, Niger and Niamey, Niger; and Yasaman Esmaili, studio chahar, Iran

LafargeHolcim Awards Silver 2017 Middle East Africa – USD 50,000
Weaving and Stamping: Elementary school and craft training center, Aït Benhaddou, Morocco
A learning complex that uses architecture, form, and space to claim artisanship and handiwork as living and modern traditions.
By Fatima-azzahra Bendahmane, Ecoactiva, Casablanca, Morocco

LafargeHolcim Awards Bronze 2017 Middle East Africa – USD 30,000
Pavilion Re-claimed: Adaptive reuse for refugee education, the El Marj, Lebanon
Located in an informal settlement for Syrian refugees, the project creates a dignified school environment using a repurposed pavilion.
By Joana Dabaj, CatalyticAction, El Mina Tripoli, Lebanon; Riccardo Conti, Matteo Zerbi, and team, CatalyticAction, London, United Kingdom

Acknowledgement prizes

LafargeHolcim Awards Acknowledgement prize 2017 Middle East Africa – USD 20,000
Ascending Array: Miracle for Africa Foundation central library, Lilongwe, Malawi
Gently curving roof elements and screen enclosures for a library transcending sustainable construction into one integrated design.
By Steven Holl, Steven Holl Architects, New York, USA

LafargeHolcim Awards Acknowledgement prize 2017 Middle East Africa – USD 20,000
Reel to Real: Maisha Film Lab headquarters, Kampala, Uganda
A film training center in East Africa conceived as a cinematic series of spaces wrapped in brick to empower a new generation of filmmakers.
By TAMassociati, Trieste and Venice, Italy

LafargeHolcim Awards Acknowledgement prize 2017 Middle East Africa – USD 20,000
Refrigerating Jar: Shea butter storage for Nyingali community, Karaga District, Ghana
The striking towers of the storage units are designed for passive cooling and allude to traditional local architecture.
By Wonjoon Han, Gahee Van, VHAN; and Sookhee Yuk, Make Africa Better, Seoul, South Korea

LafargeHolcim Awards Acknowledgement prize 2017 Middle East Africa – USD 20,000
Through the Looking-Glass: Odek Center for Nodding Disease, Odek, Uganda
Exuberant and playful transformation of traditional type forms for a healing center for children aimed at community-building after decades of conflict.
By Andrew Amara, Studio Flame, Kampala, Uganda

Next Generation prizes

LafargeHolcim Awards Next Generation 1st prize 2017 Middle East Africa – USD 25,000
Brick-Works: Brick kiln and incremental development project, Soshanguve, South Africa
A proof that brick-making can be technically sustainable and deliver a social contribution to community-making.
By Heidi van Eeden, University of Pretoria, Cape Town, South Africa

LafargeHolcim Awards Next Generation 2nd prize 2017 Middle East Africa – USD 20,000
Recovering Aleppo: Rubble recycling units, Aleppo, Syria
Rubble recycling units combining the rebuilding of the constructed habitat with the rebuilding of devastated communities.
By Nour Madi; Jad Melki, and Ghaith Abi Ghanem, Ghaith&Jad, Beirut, Lebanon

LafargeHolcim Awards Next Generation 3rd prize 2017 Middle East Africa – USD 15,000
(In)formal Pattern Language: Designing processes for informal settlements, Cairo, Egypt
Design of an "(in)formal pattern language" to improve the conditions of poverty-stricken and fast-growing informal neighborhoods.
By Nada Nafeh, The American University in Cairo, Egypt

LafargeHolcim Awards Next Generation 4th prize 2017 Middle East Africa – USD 10,000
Steps of Amman: Urban stair and library, Amman, Jordan
An urban stair and library transcending disciplinary boundaries by simultaneously being a building, an urban infrastructure, and patch of landscape.
By Noor Marji, German Jordanian University, Amman, Jordan

Training about **concrete cracks** by **Lafarge Academy**

Lafarge Academy organized in collaboration with Sales Department- Nameer Sami-a technical training about concrete cracks for the Mason Club of Lafarge Academy (causes, evaluation, process, treatment, how to avoid) that took place at the Binastore facility in Tasluja, Sulaimaniyah.

Engineer Amjad Burnieh, Lafarge Iraq Industrial Segment Manager, trained these customers from Salahadin-Shrqat (masons, mixer owners and retailers) and answered all their questions. The feedback was very positive and they were very satisfied.

One of our commitments in the country is to develop the local community and train those working in construction.

Lafarge Academy regularly conducts training courses for Masons, Engineers, contractors etc.

For further information: lafargeacademy@lafargeholcim.com

GROUP NEWS

LafargeHolcim

Jan Jenisch appointed new CEO of LafargeHolcim Group

LafargeHolcim announces the appointment of Jan Jenisch as the company's new CEO, effective as of October 2017 ,16. Jenisch comes to LafargeHolcim from Sika AG, a Swiss company and global leader in the development and manufacture of products for the building sector and automotive industry.

Serving as the CEO of Sika AG since January 2012, Jenisch's leadership helped to drive the development and expansion of Sika's operations, allowing the company to thrive in new markets and set new performance standards for sales and profitability. As a result, the market capitalisation of Sika has more than tripled, and the company recently gained admission to the Swiss Market Index.

Commenting on the announcement, Beat Hess, Chairman of LafargeHolcim, said, "As a CEO, Jan Jenisch is widely respected for his ability to consistently deliver strong business results, and he comes to LafargeHolcim with a deep understanding of the building sector. Jenisch's agile leadership style and strong personal skills will fit perfectly with our company culture and with the rest of the management team of LafargeHolcim. I look forward to working with him as we accelerate the execution of our corporate strategy and vision."

Also speaking on the occasion, Jan Jenisch, CEO designate, said, "I am delighted to have the opportunity to join LafargeHolcim. It is an iconic company and a global leader in the building material industry, with enormous future potential. I look forward to joining the global management team and to helping lead the company into a very successful future."

Read more:
http://www.lafargeholcim.com/new-ceo-jan-jenisch#ixzz4mhMm13GR

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About **Jan Jenisch**

Jan Jenisch joined Sika AG in 1996 and has held a number of management roles and functions for the company, across various countries. He was appointed to the company's Management Board in 2004 as Head of the Industry Division, and he served as President of the Asia Pacific region from 2007 to 2012, before his appointment as CEO.

Jan Jenisch studied in Switzerland and the USA, and received his MBA from the University Fribourg, Switzerland. He is a non-executive director for publicly listed company Schweiter Technologies AG and for the privately held company Glas Troesch AG. He is married with two children.

LafargeHolcim invests **€100 million** in France to modernize the **Martres-Tolosane** cement plant

In its latest endeavour to make its operations more efficient and environmentally sustainable, LafargeHolcim is investing €100 million into the modernisation of its Martres-Tolosane cement plant in France. This investment will allow the company to better serve its customers, enhance its waste recycling abilities, and reduce its CO2 footprint and energy consumption – all in one go!

A year after LafargeHolcim announced a new €300 million investment plan in France, the group has committed €100 million to a large-scale modernisation of the Martres-Tolosane plant, located in the southwest region of the country. As the largest investment the group has made in France in 40 years, the modernisation will also include a new kiln for clinker, the key component of cement. This will increase the plant's productivity and reduce its environmental impact, while promoting and supporting local industries and businesses.

The know-how and expertise of the Lafarge France teams will be a driving force for the project, which will see the new kiln equipped with the latest in sustainable technology, installed and implemented with the support of local, French, and European businesses. Special care will be taken to ensure that the project is carried out in alignment with the particular environmental, financial, and social constraints of the region.

Ultimately, this modernisation project will enable more efficient recycling and recovery of waste, helping the Martres-Tolosane plant reduce its energy consumption and carbon footprint through the use of alternative fuel sources. Work on the project will begin in the final third of 2018 and will be completed by mid-2020, with the hope that by that time, the plant will be running on 80% alternative fuels, in line with the group's 2030 sustainability strategy.

LafargeHolcim plant in **Hungary** wins **GOLD** at **WORLD PRIX D'EXCELLENCE**

LafargeHolcim's Kiralyegyhaza cement plant in Hungary has been named the World Gold Winner in the Industrial category at the 2017 World Prix d'Excellence Awards, hosted by the International Real Estate Federation (FIABCI). The plant received the top award in its category thanks to its outstanding environmental performance and the exceptional architectural quality of the plant's facilities. FIABCI represents the world's real estate professionals across all disciplines; its annual World Prix d'Excellence Awards recognize state-of the-art architectural projects across numerous categories, including heritage renovations and restorations, residential buildings, retail projects, public infrastructure, and more.

Speaking about LafargeHolcim's Kiralyegyhaza plant, Alexander Romanenko, President of the FIABCI World Prix d'Excellence Awards Committee, said, "The jury was impressed with this very unique building design. The whole complex is built compactly, occupying minimum arable land in order to enable sustaining agricultural activity. In a heavy industry like the building material industry, this project is exceptional for being so environmental friendly."

Roland Köhler, LafargeHolcim's Region Head for Europe, Australia/New Zealand and Trading, said, "We are proud to have received this important award. Kiralyegyhaza was the first new greenfield cement plant built in Europe in 20 years, and is LafargeHolcim's most modern cement plant in all of Europe. The plant is a prime example of how we at LafargeHolcim are able to combine superior operational efficiency with high environmental performance – all within an architecturally distinctive facility."

The plant's state-of-the art manufacturing equipment was designed to meet the highest standards of environmental sustainability. Since the launch of Kiralyegyhaza's operations, LafargeHolcim has continuously worked to further reduce the environmental impact of the plant. As a result, both CO2 emissions and power consumption have been reduced by more than 20 percent over the last five years. The group also significantly increased its use of alternative fuels in the production process. Today, almost 60 percent of the plant's thermal energy needs are met by using alternative fuels, thus significantly reducing the amount of fossil fuels needed.

At the same time, with attractive façade, clean lines, and contrasting materials, the plant showcases how an industrial building can meet high aesthetic standards while fulfilling all functional requirements. The facades of the plant buildings are dominated by stripes, which serve as recurring and connecting design elements, while the use of limestone in both the external and internal construction provide an architectural connection to the key raw material used in the production of cement.

Art in the workplace:

A new dimension to our customer service

At Lafarge Iraq we pride ourselves on providing an efficient service to our customers, we like to ensure that there is minimum waiting time for the highest quality product and excellent customer service. A comfortable experience at the plant further enhances customer satisfaction and loyalty.

However, we understand that the plant's surroundings may not always be the most aesthetically exciting environment, until now.
Taeb Abdulrahman, a contracted technician working for the Bazian Cement Plant (Sulaimania, Iraq) had the idea of improving the aesthetics of the dispatch area and in turn customer satisfaction. Thanks to his artistic skills and experience, Taeb painted a "visual welcoming" at the dispatch area, which is quite unusual for a cement plant- where people are used to seeing a more "gray landscape". Taeb tells us the story of the painting:

"The company did not ask for this; the management did not even know that I am an amateur painter; it was my personal initiative supported by my supervisors. I just wanted to make our working environment more colourful and joyful for us and for our customers."

He adds that people were surprised at first glance to see a large painting at the dispatch area of a cement plant, but they liked it.

"The appreciation that I received from my colleagues and customers made me very happy. I was also pleased that as a result of my initiative, Lafarge Iraq have decided to help me put on an exhibition of my art work and I will launch it very soon."

The largest un-reinforced concrete dome ever built

Commissioned by Rome's Emperor Hadrian and completed in 125 AD, this structure boasts the largest un-reinforced concrete dome ever built. The dome is 43.2 metres in diameter and features an -8.2metre hole, called an oculus, at its peak, which sits 43.2 metres above the floor. The mastermind of this unique piece of architectural history was Apollodorus of Damascus, a Syrian-Greek engineer, architect, designer, and sculptor.

What is the name of this unique work of architecture and where is it located?

a) The Roman Temple – Romania
b) Hadrian's Temple – Turkey
c) The Pantheon – Italy
d) The Roman Temple – France

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

The winners for the previous quiz question are:

Barez Othman
Bazian Cement

Shvan Najim
The American University of Iraq Sulaimani

Araz Abdul
Rzgari Office

BHNAPlus

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