

# BHNA Plus

Country Corporate Magazine of Lafarge Iraq

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The plant's \$270 million rehabilitation has equipped it with a capacity of 2.1 million tons of cement per year

Faruk Holding invests further in the Iraqi cement industry



Construction quality issues in Iraq

**LAFARGE**  
Building better cities™

A member of  
**LafargeHolcim**

# TOGETHER WE'RE BUILDING A BETTER FUTURE



We have invested over 1 billion USD in the cement sector to develop infrastructure, build houses and ensure a consistently high standard of quality in building materials and construction.

We're building a unique recycling facility in Sulaimaniyah to solve the city's growing waste problem and provide an alternative source of energy.



We support our local communities through our social responsibility projects dedicated to education, health and culture.

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**Dear Colleagues  
and Friends,  
I am very pleased to  
welcome you to the  
new issue of our  
corporate magazine,  
filled with interesting  
stories and news.**



*Rachid Benyakhlef - Country CEO Lafarge Iraq*

**A close-up look at quality in the construction sector**

Product and implementation quality in construction is a crucial factor for the safety and security of buildings and cities. While Iraq has seen progress in this regard, the country still has a long way to go. At Lafarge, we pay the utmost attention to quality issues, not only in our production process, but also in our events and activities geared towards official bodies, construction companies, universities, and

technical staff in general. We have a special unit called the “Lafarge Academy” that is responsible for organizing such events and training programs.

In this issue, two university professors and one expert that have previously collaborated with our technical seminars will share with you their experience and opinions on product and process quality in Iraq’s construction sector. You will also enjoy reading the interview with the head engineer of the Besmaya Project, the largest residential project in Iraq.

**Celebrating a year of a remarkable achievements**

One year ago, Lafarge and Holcim, two leading groups in the global cement industry, made history by creating a new world leader, LafargeHolcim. Today, LafargeHolcim operates in 90 countries and has 100,000 employees, 374 MT of installed capacity worldwide, and 2,500 plants, including over 1,500 in ready mix concrete, 600 in aggregates, and 200 in cement and grinding plants. Such a large scale merger has not been an easy process, and has been guided by two main pillars: the common values and work principles shared by the two groups, including health, safety, human resource development, and innovation, and the sincere, dedicated efforts of our people all over the world.

Our operations in countries where both groups were already present were reorganized under LafargeHolcim, and operations in non-overlapping countries like Iraq implemented this change with equal enthusiasm and dedication. One of the core components of this transition process is commercial transformation, of which our “Customer First” project in Iraq is a leading example, guiding us towards becoming a more customer and end-user centered organization.

**The Karbala Cement Plant is ready to operate at full capacity**

Over the past six years, the Karbala Cement Plant has undergone a fundamental rehabilitation process that proved costly and ridden with challenges, ranging from health and safety to

major security issues. We are all glad and proud to see that the plant is ready to operate both of its lines. We expect to reach full capacity by the end of this year with a better yield than expected. You are welcome to read more about this successful rehabilitation process in the interview with CEO Michael Tabchouri in this issue of our magazine. Please join me in thanking and congratulating Michael and his team on this remarkable achievement. It is also crucial to mention the valuable contribution of Mike Watson, former COO of Karbala Cement Plant.

**GCC: A new cement plant joins the industry**

Gasim Cement Plant in Sulaymaniyah, a Faruk Group investment, began its operations in August. The LafargeHolcim Engineering Center contributed to the plant’s construction process, which began in 2013. We were happy to see Faruk Group, our local business partner in the Kurdistan region of Iraq, adding the cement industry to its long list of investments that, despite the ongoing crisis, add economic and social value to the region and country. We believe that the GCC will contribute to raising the bar for technical standards in products and service quality as well as for environmental requirements.

All of these new developments, investments, and projections reinforce our belief in the bright future of this country, a future we are honored to be a part of.

I would like to take this opportunity to wish you and your loved ones a blessed Eid-Al Adha. Let’s hope this Eid symbolizes a step towards permanent peace and further development in the region and in Iraq.

We hope you enjoy this issue.



## Developing supervisors' health and safety management skills

The Supervisory Development Program "Frontiers," launched by Lafarge Iraq's Learning & Development Department and Health & Safety Department, aims to develop the health and safety leadership and management skills of supervisors and team leaders. The training provides them with the practical tools and methods they need to effectively implement health and safety procedures and lead their teams towards achieving business objectives.

Launched in November 2015, the program has since trained 120 supervisors across all of Lafarge's operations. The program's most recent session was held in August 2016 and was attended by 45 supervisors from Cement and Concrete BUs in the South.

The Frontiers program consists of four modules that focus on the following four health and safety leadership principles: advisories and standards, risk management, VFL-visible felt leadership, and RCA-root cause analysis. It also address

the following managerial skills: communication, active listening, feedback, effective coaching, role of supervisor, planning, organization, time management, problem solving, responsibility, accountability, and ownership.

Country H&S Manager Abedrahman Naghawi believes that the Frontiers program meets the fundamental need for health and safety leadership in front line management. According to Naghawi, "they must lead by example at every single moment they're at work. To achieve this, we need them to perceive health and safety as a personal value and commitment. This is the only way we can stop violations and unsafe acts." Similarly, Learning & Development Manager Aso Salih believes that the Frontiers program is a unique opportunity to equip supervisors and team leaders with the know-how they need to effectively implement Lafarge's health and safety rules and lead their teams to achieve business objectives.



## KARBALA CEMENT PLANT

**The plant's \$270 million rehabilitation has equipped it with a capacity of 2.1 million tons of cement per year**

In September 2010, the state-owned Karbala Cement Plant was leased to LafargeHolcim Group and its partner MerchantBridge. Under this lease agreement, LafargeHolcim Group completely renovated the cement plant and improved its operational capabilities.

The group invested \$270 million in the rehabilitation process, surpassing its originally intended target production capacity of 1.8 million tons of cement per year and equipping the plant with a production capacity of 2.1 million tons of cement per year.

In addition to considerably increasing the plant's production capacity and health and safety conditions, the plant's staff of over 1,229 government employees underwent significant training and development programs as part of the rehabilitation process.

## HIGHLIGHTS | Karbala Cement Plant



Michael Tabchouri, CEO of KCML

### Michael Tabchouri, CEO of KCML (Karbala Cement Manufacturing Limited Company), tells us about the process of rehabilitating the Karbala Cement Plant.

#### 1. What were the main steps of the 6 year rehabilitation period?

• The first step was to give birth to a business unit by reviving cement production (average production was less than 200,000 tons per year between 2003 and 2011) and uniting people to have one focus, as one family. This was the most meaningful and difficult step to take. While executing the rehabilitation sequence of Engineering, Procurement and Construction (EPC), the production facility was badly damaged and work culture very difficult. The process was very costly due to high expenses and low income from the erratic production of only one line during five years. This step allowed us to prepare for the future.

#### • In short, we achieved this first step through the following:

- Integration with the community (our own employees choosing the right ones, Karbala Provincial Council, Al Átaba Al Hussainiyah and Ain Tamer's leaders) and Iraqi government institutions (National Cement partners, ministries, the army).  
- Reshaping work practices, organization, induction and implementation of safety standards, quality control, IT infrastructure and systems, internal controls, KPIs, and whole group prints.

- Human resource development, particularly of Iraqi nationals, to prepare them for leadership roles.  
- Creating a better work environment to alleviate the harshness of living in a remote desert area, including a clinic with two doctors and 24/7 paramedic staff, security measures, fiber optic Internet, restaurants, camps, and mosques.

• The second step was executing the project, which was delayed due to multiple factors, most notably forced evacuation during the country's security crisis in June 2014, and earlier by local administrative routines, as well as setting up the company and financing the project. The effective start date was in February 2013. Making sure we were able to supply equipment to the location was a daily challenge, as was employing foreign workers, because of the frequently changing rules and regulations (in 2015, 947 visas were obtained).

• Negotiating the lease contract with the government was a crucial step in ensuring the economic viability of the business. Drastic changes in the business environment, such as the continuous price decreases (a price drop of over 45% between 2010 and 2016 – see chart C) and higher energy costs resulting from government non-compliance on contractual fuel prices, drove the plant lease cost to proportions that didn't fit with the original business plan. Even with substantial cost reductions, the business could not be brought back on track without a revision of the lease contract in 2015, which was achieved due to the Federal Government's understanding and willingness to make this agreement successful.

• Other notable steps were our big achievements. Installing a world-class 52-MW power plant, water wells, and a water network exclusively for the site, fire protection tools and systems, achieving highest national product quality, an efficient supply chain, and the latest technologies in automation, all helped to achieve autonomy and better working conditions to serve the customer.



#### 2. What will be the total budget for the rehabilitation project? (If you can disclose).

Despite more than a two year delay, I'm pleased to say that the project will be completed within the original budget of \$270 million, with additions in design capacity of 300,000 tons of cement per year, an automatic control of the mix quality, and an emissions control system that meets international standards.

#### 3. What major challenges did you face during the 6 year rehabilitation?

• In the beginning, compliance with safety rules was very difficult and while it has significantly improved, it remains an uphill battle.  
• The timing of funds was also a hindrance, delaying the project and jeopardizing operations.  
• Convincing contractors and specialists to work on site was challenging because of the country's security image. This delayed the set-up of the power plant and the post-evacuation return of most foreign contractors to site.  
• Logistics was difficult because of the ever-changing regulations in customs and security checkpoints. Road closures due to military operations and religious holidays (more than 50 days per year) were an additional hindrance.

#### 4. Is the plant now ready to operate at full capacity as planned?

The plant will be ready to operate both lines from September 2016 and full capacity should be reached before the year's end. The rehabilitated second line has already passed the level of full design capacity at 105%.

#### 5.5. What products will be produced in the plant?

Since the plant began its operations in 1985, it has been producing Sulfate Resistant Cement (SRC) because of the high quality of limestone and clay quarries. Karasta, our special cement product, will also be produced to give customers a wider choice and increase our market share. ISO certifications (9001 and 14001) are in progress.

#### 6. How is the Karbala Cement Plant rejoining the sector important for both LafargeHolcim Group and Iraq?

For the cement sector, the Karbala Cement plant will add additional capacity to national supply (6 to 8% of total country demand) and high quality cement. It will also increase people's quality of workmanship and technical qualifications. Following the government and Al Átaba in the Karbala province, the Karbala plant is a major employer.

For LafargeHolcim, the importance for sales and market share lies in the plant's location. It will become an anchor cement source to cover the needs of some of the provinces farther to the South of the country.

Most of all, it will be a showcase, a model of operations and of people's trust in the group. It will serve as evidence of the fact that investments and investors could succeed in Iraq and benefit Iraq.



# GASIN CEMENT PLANT



## Faruk Holding invests further in the Iraqi cement industry



Faruk Mustafa Rasoul - Faruk Holding Chairman

GASIN, a new state-of-the-art cement plant, was opened in July 2016. The plant is Faruk Holding's third major investment in the Iraqi cement industry.

The Gasin Cement Plant has a 1.7 MT yearly cement production capacity. It was built by Sinoma of China in collaboration with the LafargeHolcim Engineering Center, and construction on the plant began in 2013. The plant aims to have a minimal environmental impact and create minimal pollution within its locale. It has thus been fitted with a modern and highly effective filtering system, similar to the major upgrade made to the Tasluja plant early this year.

According to Faruk Holding Chairman Faruk Mustafa Rasoul, that Gasin Cement Plant will significantly contribute to economic development in the Federal Region of Kurdistan, creating direct and indirect job opportunities for the local community.

Faruk Holding also has a business partnership with LafargeHolcim Group in the Bazian and Tasluja cement plants, which are, like the Gasin Cement Plant, located in Sulaymaniyah.

The Gasin Cement Plant will produce different types of cement, like ordinary Portland cement, sulfate resistant cement, and others, based on market and customer demand.

## EXPERTS' INTERVIEW



### Dr. Alaa H. Al-Zuhairy

**CEB-Labs Manager** - University of Baghdad  
**Assistant Professor**

In Structural and Civil Engineering Department  
College of Engineering-University of Baghdad

- Civil Engineering BSc (1987), University of Baghdad, Iraq.
- Geotechnical Engineering MSc (2000), University of Baghdad, Iraq.
- Structural Engineering PhD (2005), University of Baghdad, Iraq.

### “Concrete and cement are the two materials I have worked on the most”

My practical experience has focused on construction materials, their usage and application, and testing and developing the materials. Concrete and cement are the two materials I have worked on the most. Having worked in a testing lab for a long time, I also have experience with other construction materials such as steel, PVC pipes, ceramics, rubbers, etc. In addition, I am a consultant and work in the field of lab rehabilitation for accreditation according to ISO 17025. I am also a technical auditor at IQAS (Iraq Accreditation System).

“In the near future, we may see slow economic recovery or improvement”.

As you know, the Iraqi government has adopted a 'rentier state' economic policy, through which it depends on financial returns from oil exports. Unfortunately, this economic policy has failed to account for or protect against the crash in crude oil prices. Consequently, this directly affected the reconstruction process. We have found that most construction projects, both large infrastructure projects and relatively small ones, have been halted. I think the situation will not remain like this for long. In the near future, we may see a slow economic recovery or improvement, leading

to movement in the construction industry, which would be important for Iraq.

“One can definitely see the major differences between the present construction processes and methods applied in the past”

In Iraq, there is great variety in the quality levels of materials used in construction. This may be attributed to the weakness of local legislation in this sector, as well as to the inadequate quality control process for imported construction materials at border entry points.

The application or execution of construction projects may suffer from the same problem. However, many construction companies have supplied or executed construction materials and items with a high degree of quality control, particularly in the Kurdistan region.

**I think that the three main issues in the construction industry are construction material production and importing, level of construction quality, and modernity of designs.**

## Professor Omar Qarani Aziz

Professor, Civil Engineering Department, College of Engineering, University of Salahaddin

1993 – Present, College of Engineering, University of Salahaddin, Erbil. Academic staff.

MSc and PhD in Structural Engineering, Building and Construction Department, University of Technology, Baghdad-Iraq, 1993 and 1997

- 1990 BSc, University of Salahaddin.
- 1993 MSc, University of Technology, Baghdad-Iraq
- 1997 PhD, University of Technology, Baghdad-Iraq



**“We can now source the required concrete type for the project’s special properties”**

In the past two years, reconstruction projects have moved very slowly, the reasons for which are apparent to all. Personally, I do not think that the reconstruction program meets the real needs of the region or the country.

In recent years, the construction process and technology has developed more in terms of material production and equipment, making certain positive differences. For instance, we can now source the required concrete type for the project’s special properties, or we can use high strength concrete, which wasn’t readily available in the past. We are lucky to now have international and specialized concrete production companies in the region, such as Lafarge Iraq, allowing us to plan, design, and construct special structures with greater ease. Also, high quality construction materials can be acquired when needed for new projects.

**“Good design, good on-site quality control, and high-quality construction materials are the three main issues”**

Good design, good on-site quality control, and high-quality construction materials are the three main issues currently facing the construction industry in Iraq. My suggestions for achieving fast progress in the sector are as follows:

- Prepare complete plans and designs before moving projects into the construction phase
- Obtain reliable, specialized companies for construction
- Use concrete and other construction materials from specialized and experienced companies
- Good quality control by expert consultant engineers
- Prepare payment or project budget without delays

## Falah Hassan

General Manager of the Falah Hassan Company



The Falah Hassan Company collaborates with Lafarge Academy Iraq for its professional training programs, such as the ‘Concrete Repair Training’ they offer to their engineers.

**“Our company currently specializes in construction chemicals and has executed many projects for the government”**

I am a civil engineer and graduated from the University of Baghdad in 1980. Although I have been working in the construction sector since 1988, our company currently specializes in construction chemicals. We have executed many projects for the government, including the Zargata Underpass, the Chamchamal-Shorsh Overpass, and others. We have also worked on many private sector projects, including the Rasan Pharmaceutical Factory in Bazian.

**“One of the biggest problems stems from a lack of necessary measures being taken to protect the structure of buildings”**

Since 2005, there has been a great deal of progress in the construction sector; however, suitable policies and planning have not been implemented to ensure the high quality of this process in the long run. One of the main issues stems from a lack of necessary measures being taken to protect the structure of buildings. Given our field of expertise, we encounter quite a large number of buildings and structures that lack necessary waterproofing measures, well-performing concrete, and the rest of the construction items required to ensure their structures’ long life. However, we are very optimistic and happy to see that the desire for quality is increasing step-by-step in our sector.

**“The construction processes in our region today are moving forward from where they were in the past”**

The construction projects of today are of a far larger magnitude than before. Towers, malls, and housing projects are now being constructed, requiring a highly skilled workforce. This has led to the employment of many foreign experts in the region and the creation of a more skilled local workforce. In that sense it is certainly more positive.

There is a wide range of low-quality products in our market. Many projects encounter major issues because they focus on low prices rather than high-quality products. Due to such issues, companies are now starting to focus on high-quality products and trained professional applicators.

**“It is vital to educate our sector’s workforce”**

We suggest that project designers pay increased attention to taking the necessary measures for protecting building structures from the first to the final step. This is very important in ensuring that the construction in our country has a long and sustainable life. We suggest that project owners, whether in the private or public sector, implement suitable budgets for protecting building structures. We also believe that it is vital to educate our sector’s workforce in the fact that conducting continuous courses and trainings through both the public and private sectors is key to making progress in the construction sector.

## Haider Talib Nasir | Basmaya City Project Manager



### Academic and Professional Background:

- Civil Engineering BSc, Al-Nahrain University 1994
- Supervising Engineer, Kirkuk Housing Compounds 1995
- Supervising Engineer, Residential Buildings, Diala Governorate
- Resident Engineer, Babil Governorate
- Director, Buildings Department, Maysan Governorate (4 years)

### Can you tell us a bit about your role in the Basmaya City Project (BCP)?

As the project manager, I oversee the development of the whole city, which consists of building 100,080 housing units as well as service facilities including schools, hospitals, etc. We have a staff of 130,90 engineers.

### Basmaya City is an ambitious project. Can you tell us a bit about it?

As you know, we have a housing crisis in Iraq. Major cities like Baghdad are severely overcrowded. Building a completely new city like Basmaya will ease the congested nature of those cities and serve as a model for other governorates in Iraq to follow. Basmaya City will be able to house 500,000 people, offering a much better alternative in terms of living conditions and job prospects.



### Given that you have been the Project Manager for four months, what do you think are the biggest challenges to successfully completing such an ambitious project?

I think that there are three main challenges facing the project. The first is the economic crisis in Iraq, which we are severely affected by because this is a government-funded project. Second, we must communicate that our partner in this project, the Korean Company 'Hanwa,' has brought a lot of expertise and very high implementation standards to the project, making this the first project in Iraq to be fully implemented by a foreign company. People must have confidence in the project's quality. Third, we must ensure that the government builds a good road network to connect Basmaya to Baghdad. It will otherwise be difficult to attract people to move there, and the government has so far done little in this regard.



Visit to the Bazian Cement Plant, Sulaimani

### How far along is the project and when will it finish?

By now the project should be 35% completed, but due to the difficulties I mentioned, we are only 15% finished. The city is meant to be fully completed by 2031.

### How many people have Hanwa employed to work on the project?

They have 7,000 workers and 250 Korean engineers working on the project.

### What would you say are the main technical challenges facing the construction industry in Iraq?

There are three areas in which we face challenges. First, there is a lack of skilled labor, which means that you have to adapt your design to be 'overly safe' to account for the poor workmanship of the average laborer. Second, we need much better laws for health and safety in the workplace, along with the enforcement of these laws. Lafarge is an excellent example of how this should be done. I haven't seen anything in this country like your plants, and it's great that all staff members must adhere to strict health and safety policies. Third, there has to be stricter quality control of building materials, and it is especially difficult to trust those that are imported. A quality assurance certificate shall be mandatory for importing them.

### In general, what do you think of the quality of education that engineering students receive in Iraq?

The quality is decent, but the main problem is that while they have good theoretical knowledge, they have little or no practical experience when they graduate, yet become licensed as engineers! A book will only teach you 20% of what you need to know. After graduating, there should be some form of practical certification before they can fully practice. I hear that Lafarge has such a technical institute/university in France, but we need companies here to do that too. Perhaps one day, you will develop your Lafarge Academy into something bigger.

### What do you think of the support Lafarge has given to the Basmaya City Project?

I'm extremely pleased with the quality of cement Lafarge has provided for the project. This is not my first time working with Lafarge, so I knew that the quality would be good. The product is further enhanced by the good systems and services Lafarge implements with which no one in Iraq can compete. My only criticism would be that you don't offer enough products, and I hope to see more mortar and concrete products in the future.



## KHABAT POWER PLANT

### Cüneyt Gökçe, PMP

Site Manager  
Gama Power Systems Engineering and Contracting Inc.

I graduated from the Middle East Technical University in Ankara, Turkey as a civil engineer and have been working at GAMA for over eight years. I have been involved in five power plant projects in different countries. I currently work as the Site Manager for the Khabat Power Plant Project in Erbil, Iraq.

**“This is a very important project and investment for the region, where a stable electricity supply is one of the main needs”**

The Khabat Power Plant Project (KPP) is the first large-scale project we are working on in Iraq after a recent break following the completion of several projects, including recently completed refineries and pipelines. There are some other projects in Northern and Southern Iraq that we are following closely and aiming to work on.

The KPP is a 2 X 150 MGW power plant we are building in Erbil that operates on fuel oil. GAMA is the contractor for the engineering, installation, and start-up, including the purchasing of all necessary equipment and materials. This is a very important project and investment for the region, where a stable electricity supply is one of the main needs, a fact that related authorities and local communities, just like us, are well aware of.

Approximately 70% of the project has been completed, and we are planning to start commissioning activities by the end of 2016.



**“We are confident that Lafarge Iraq is a good business partner, providing solutions on time and in full”**

We chose Lafarge because we know that the company is one of the strongest industrial business partners in the region. We collaborate closely with the Lafarge teams and they support us in our all concrete supply needs and related issues on the site. Together with Lafarge’s technical teams, we are preparing concrete mix designs according to our needs and international technical standards. Regardless of some minor issues in our collaboration, we are confident that Lafarge Iraq is a good business partner, providing solutions on time and in full.

## Internship Program



**26 university students completed Summer internship programme**

Lafarge Iraq welcomed students from different universities in Sulaymaniyah to its yearly internship program. Twenty six students in their third and final years of university participated in a month-long internship program, with each student assigned to different departments in the Bazian and Tasluja cement plants. The program is a collaboration between Lafarge Iraq and four universities in Sulaymaniyah.

Upon completion of the program, a closing event was held for all of the interns, academics from the universities, and a selection of Lafarge Iraq managers. During the event, the students gave presentations about the projects they worked on and the skills and knowledge they gained. They in turn had to field questions about the projects from their professors and other audience members.

At the end of the event, all of the interns received a special certificate to recognize their completion of the internship.

The followings are some of the academics and interns from participating universities share their thoughts about and experience with the internship program.



**Twana A. Tahir**  
Assistant Lecturer  
Environmental  
Engineering Department  
Komar University of  
Science and Technology,  
Sulaimania

Overall, the internship program is considered an important component of equipping university students with workplace skills and enriching their practical knowledge in their fields. Having such a link between universities and private sector companies is essential for fostering a fruitful relationship that is beneficial to both the companies and the students. Furthermore, the company may retain skilled and talented students by hiring them upon graduation. Therefore, a company like Lafarge should promote their internship program and allow for more students from related fields to participate.



**Dr. Bassim A. Khidhir**  
Head of Department of  
Production Engineering  
and Mechanics  
Polytechnic University  
of Sulaimani

This internship program is very important. It really benefits all of the students and universities that participate. I found that many of the students learned new interpersonal skills, like how to present their work publically. The students will sometimes come up with new ideas that may benefit the company as well. Having access to all of the departments and specialties gives them a good indication of how a plant really functions, and how to share ideas and information.



**Dr. Sarbast Rasheed**  
Assistant professor of  
Engineering - System  
Design  
The American University  
of Iraq, Sulaimania

Internships at LafargeHolcim are a wonderful opportunity for students from AUIS to gain worksite experience that will benefit them in their future careers. Meeting skilled people, field engineers, and administrative personnel provides them with ideas and thoughts on how to be responsible in their future careers. Distributing the students in groups to work on projects also helps them reflect on the experiences they gain in their academic courses when they return to school. Overall, it is good and beneficial for all students to participate in the LafargeHolcim internship.



**Dr. Hamed D.**  
Polytechnic University of Sulaimania

The summer trainings and internship program is a powerful tool that results in motivating students to learn more about the nature of their work in the future, giving them an idea of how to solve problems that may arise in real life or work. Incorporating the following would make the internships even more beneficial:

1. Students should first learn how to manage their work life
2. Students should learn about roles and duties of the management
3. Students should learn how to write technical reports related to their work
4. The training should be supported by a fee to help students participate more in internship programs.

**Heran Sherko** | Intern - AUIS

During this internship, I learned a lot of new information and gained many new skills that benefited me greatly both inside and outside of work. I was very happy to know that we had the freedom to choose the topic we wanted to learn or practice. I chose a topic that I had zero information about and that was very challenging to learn. However, the people in my department, especially Mr. Moataz, Mr. Jovan, and Mr. Saman, provided me with enough guidance and tools to produce the mobile application. I am very grateful for this opportunity because I learned a lot from it. I hope this internship is offered in the future so that more students can learn about topics they haven't had the chance to learn about.

**Qais Ali** | Intern - AUIS

The whole accounting department was very nice and helpful. They made me feel at home, and my manager was extremely supportive. I had the chance to apply the theoretical principles I had learned. On the other hand, I sometimes had to go around and ask about certain topics, but the department was very busy due to the accounting closing period.

**Daban Rauf** | Intern - University of Sulaimania

I gained many benefits from this program. I gained new knowledge from most of the departments in the company, but especially from the electrical department. What caught my interest was that safety is everything at Lafarge. You have to make sure that everything is safe.

**Aryan Ali** | Intern - University of Sulaimania

My internship was in the accounting department. I learned a lot of new information and implemented it practically. The employees are very good and qualified people. During this month, they gave us a lot of knowledge and we practiced what we learned.

**Riyadh Mohammed** | Intern - AUIS

The most interesting thing I learned here is teamwork between Lafarge employees. I was surprised to know that the company's system is so greatly connected. Also, aside from all the knowledge I gained, I was happy to know how much Lafarge cares about safety, as they always told me, "safety is not first, safety is everything here."

**Kathryn Omer** | Intern - University of Sulaimania

Through my internship I not only learned more about my subject, but I also improved my practical knowledge as an engineer. I was able to operate many devices that I have never used before. It was a really good way to put into practice the things I study in college.

**Amanj Mahdi Rahim** | Intern  
University of Polytechnic Sulaimania

My opinion about Lafarge and Bazian is amazing. I am very happy because I saw how Lafarge cares about safety, and their great team spirit among the employees. I learned how the product is manufactured and about all parts of the plant. Lafarge helped me start dreaming bigger. I can now transfer my knowledge from theoretical to practical, and work as part of a team.

**Kany Mahmood** | Intern  
Komar University of Science and Technology

The internship program gave us insight into the actual work process and how what we have learned can be used in the business world. There were also many systems, documents, and procedures that we became familiar with that we didn't know before. The program prepared us for our future in the business world.



Hezha Hawre Project Engineer

**“Working and living in a different culture always brings with itself challenges and new perspectives”**

**Tell us a little bit about your background.**

I gained a Master of Science in Industrial Engineering and Management from the University of Karlstad, Sweden in 2011.

My professional journey started at ABB Sweden in 2011 (a multinational corporation based in Sweden). I joined ABB’s seven-month-long trainee program. The purpose of the trainee program was to provide graduate engineers with experience with ABB’s values, leadership, technology, and business through close meetings with employees, leaders, and managers from the entire organization. During the trainee program, we undertook assignments in marketing and sales, production management, and operational excellence divisions. After the trainee program, I began working as a project engineer in ABB’s power system division. I was working with converter valves on a project called ‘LitPol,’ which connects the Polish and Lithuanian grid. At the beginning of the project, I spent three months in Chennai, India, as the converter valves were mechanically and electrically designed at ABB’s engineering center in Chennai.

I joined Lafarge Iraq through ECOCEM in Sulaymaniyah in January 2015 as a planning and progress controller. My areas of responsibility in the project were the overall planning of the project and on-site progress monitoring. A few months later, I joined the Cement BU North project team, working on different projects at the Tasluja Cement Plant.

**What are your responsibilities at work?**

I have mainly been working as a project engineer on three projects. I started working with the cement mills improvement project, where our focus has been on improving the reliability and performance factors of the mills, reducing dust emission, and improving the skills of the people.

The Hangaw (step) project was started in February 2016 as the Tasluja Plant’s contribution to an interpretation of the customer transformation project. We have been working on increasing the reliability of the equipment, reducing dust emission, image building, contractor alignment, customer complaints, and skills improvement of the team. The project has shown that the packing area in a cement plant could be environmental friendly, with many green areas putting the customer first when it comes to service, quality, and customer satisfaction.

Working on these projects, I have learned a lot from my colleagues, since we have been working with technical challenges as well as people management.

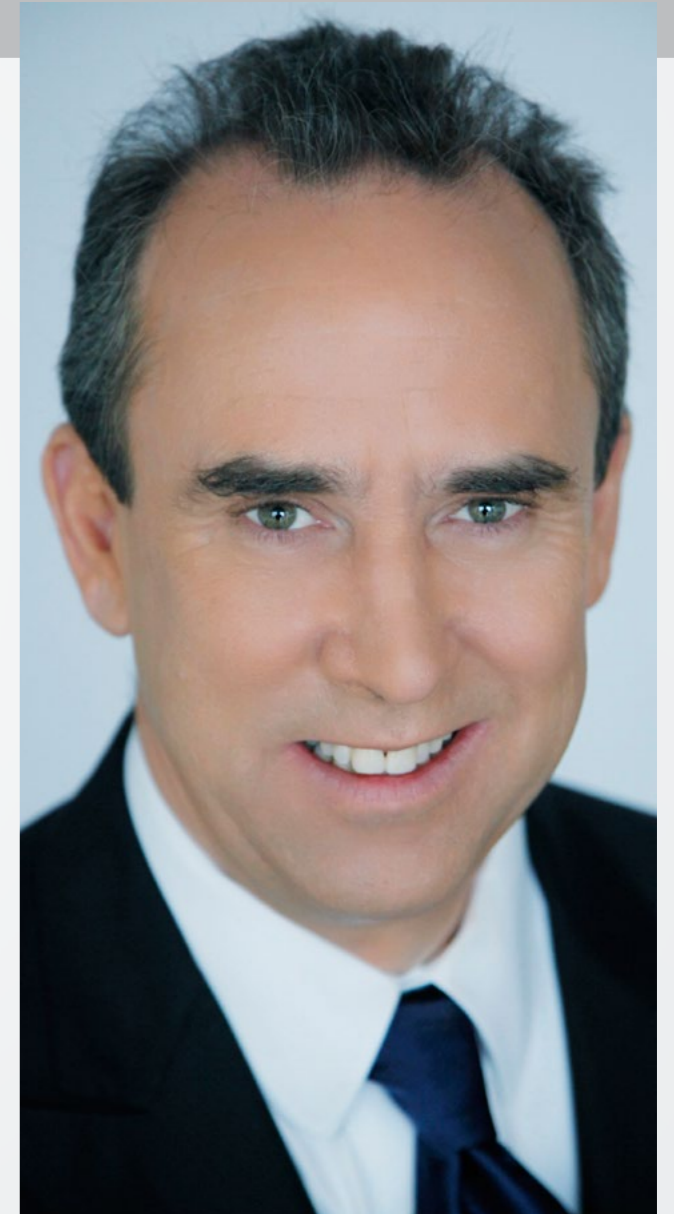
**What were your expectations and what is the reality that you have encountered here?**

Working and living in a different culture always brings with itself challenges and new perspectives. The challenges were to understand and identify the cultural codes at work. One thing that has helped me in adapting is the diversity and multicultural work environment. Another thing is that LafargeHolcim is an international company and differs from other local companies when it comes to taking responsibility for its employees, local communities, the environment, etc. Given that the country is going through a tough economical period, this is not something I expected. The fact that we can run, maintain, and develop the business with expert support was the most unexpected experience. This gives hope for Iraq’s future during these tough times.

**What are your future plans?**

My plan is to develop in my professional background, project management, and combine it with cement technology. Cement technology is a complex technology and one can spend an entire career in the business and continue to learn and develop.

**LafargeHolcim  
CEO’s Message**



Eric Olsen-LafargeHolcim Group CEO

**Celebrating  
a year of  
LafargeHolcim**

*“With your commitment and determination I am confident that we will achieve our goals.”*

One year ago, we celebrated the creation of LafargeHolcim after an extended process to meet the requirements of authorities all over the world. When I look back, the last twelve months have flown fast as we have dealt with the challenges of bringing together the two market leaders in our industry. I know that I am probably not alone in reflecting that it has been exciting and challenging in equal measure.

Thanks to your hard work and dedication, we have completed the integration phase and we have made good progress on the priorities we set ourselves a year ago. Let me remind you what we set out to achieve.

Our people being key to our success, the staffing and nomination process was our first priority to ensure having the individuals and teams in place as quickly as possible to lead us to success.

The implementation of our new organization and operating model, our second priority, is also in place. We have introduced an effective management cycle including a strategic review, marketing plans, Human Resources reviews and a budget cycle. All of them are key in enabling us to operate efficiently and effectively.

The synergies that we identified during the merger preparation are on track for 2016 and I am confident that we can deliver the rest of the program in 2017. As part of this, the implementation of the synergy acceleration program covering activities such as cement industrial performance, purchasing, cross-selling products, mix-design optimization and network optimization, has ensured that we were able to focus on target areas to deliver results.

Our fourth priority was to define common policies, processes and tools. This work is well underway with a set of shared policies in the functions, a common financial and reporting system (LHARP) and a common Human Resources process, Workday, which will be applied everywhere from next January. These common systems, once they are introduced, will make all our lives easier and enable us to do our jobs better.

Finally our fifth priority was to start building a new culture based on our values and our strategic priorities: commercial transformation, cost leadership, asset light approach and sustainability. Excellent initiatives have been conducted at all levels throughout this first year.

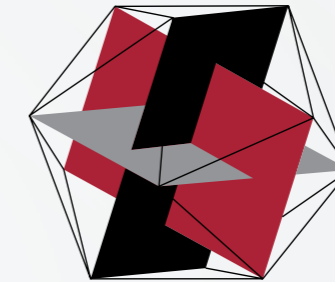
Regarding Health & Safety, I was delighted to see the mobilization around our two-week event in May/June. However, we need to improve our results as our Health & Safety trend since the beginning of the year is a real concern to me. All countries have now defined Health & Safety Improvement Plans and ensuring the translation of these plans into our results must be a daily commitment. We have also launched the first LafargeHolcim sustainability strategy, The 2030 Plan, and our first sustainability report, an important milestone for the new company.

With the Pulse survey, we have started a regular listening process. The results of the first wave we conducted over the first quarter show that people everywhere are doing what it takes to make this merger a success. The survey also revealed that some people feel uncertain about the future and their roles and responsibilities in the new organization. This is understandable. The next step is now launched and we need to derive from this survey concrete actions that we will measure on a regular basis. The second wave of the Pulse survey will take place in October.

We have made a lot of progress in our first year, and I would like to thank everyone for your contribution to building our new company. I have had the opportunity to travel to a number of countries in the past twelve months and I have been delighted to see that our customer relationships are as strong as ever. We have still got a lot to do to build on these early foundations but with your commitment and determination I am confident that we will achieve our goals.

Eric Olsen,  
CEO of LafargeHolcim

## LafargeHolcim Awards Announcement



## LafargeHolcim Awards

5th International LafargeHolcim Awards seeks smart solutions for cities and the built environment

Two million dollar sustainable construction competition open

The LafargeHolcim Awards is the most significant global competition in sustainable design. It seeks leading projects of professionals as well as bold ideas from the Next Generation that combine sustainable construction solutions with architectural excellence. Organized by the LafargeHolcim Foundation for Sustainable Construction, the competition identifies the ideas with the highest potential to tackle today's challenges to increasing urbanization and to improve quality of life. Projects and concepts from the fields of architecture, landscape architecture, urban design, planning, technology, and civil and materials engineering are eligible to be entered online in the USD 2 million Awards competition; it closes for submissions on March 21, 2017.



The competition's main category is open to architects, planners, engineers, students of related disciplines, project owners, builders and construction firms that showcase sustainable responses to technological, environmental, socioeconomic and cultural issues within contemporary building and construction. Projects must have reached an advanced stage of design, have a high probability of execution, and may not have started construction before July 4, 2016. Participants up to the age of 30 years of age can also submit visionary concepts and bold ideas in the competition, irrespective of the probability of actual implementation of the project: the Next Generation category specifically seeks "blue-sky" solutions by students and young professionals. The competition is divided in five geographic regions – each with its own jury of renowned specialists. Projects are evaluated according to the region in which they are to be built, and are measured against the five "target issues" for sustainable construction which look at a project from a holistic perspective and take its entire lifecycle into account. The criteria cover innovation and transferability; ethical standards and social inclusion; resource and environmental performance; economic viability and compatibility; and, contextual and aesthetic impact. The juries are headed by Harry Gugger (for region Europe), Ray Cole (North America), Angelo Bucci (Latin America), Nagwa Sherif (Middle East Africa) and Donald Bates (Asia Pacific). The winners will be announced at a series of five consecutive Awards ceremonies in the second half of 2017. Winners automatically qualify for the global Awards competition in 2018. Entry in the competition is free and must be made in English using a web-based form to provide information on authorship, a project summary, technical details, as well as project images or illustrations. A comprehensive "Step-by-step" guide explains the evaluation criteria in detail and gives instructions on how to prepare an entry at [www.lafargeholcim-awards.org](http://www.lafargeholcim-awards.org).

#### Media contact

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Phone +41 58 858 82 92 – [news@lafargeholcim-foundation.org](mailto:news@lafargeholcim-foundation.org)  
[www.lafargeholcim-foundation.org](http://www.lafargeholcim-foundation.org)

#### Support by world-renowned technical universities

The LafargeHolcim Awards is conducted in partnership with some of the world's leading technical universities. The Swiss Federal Institute of Technology (ETH Zurich and EPFL Lausanne) leads the Academic Committee of the LafargeHolcim Foundation. Other affiliated universities are: American University of Beirut (AUB), Lebanon; American University of Cairo (AUC), Egypt; Ecole Supérieure d'Architecture de Casablanca (EAC), Morocco; Indian Institute of Technology (IIT Bombay) in Mumbai, India; Massachusetts Institute of Technology (MIT) in Cambridge, USA; Tongji University (TJU) in Shanghai, China; Tsinghua University (THU) in Beijing, China; Universidad Iberoamericana (IBERO) in Mexico City, Mexico; Universidade de São Paulo (USP), Brazil; University of British Columbia, Vancouver, Canada; University of Melbourne, Australia; and University of the Witwatersrand (Wits) in Johannesburg, South Africa.

#### LafargeHolcim Foundation for Sustainable Construction

Since 2003 the Foundation advances the discourse on sustainable construction through its international Awards competitions, academic Forums and publications. The Foundation is supported by LafargeHolcim, the world leader in the building materials industry, but remains independent of commercial interests.

#### Useful Links

- Access the Awards entry form 2016/17: [www.lafargeholcim-awards.org/enter](http://www.lafargeholcim-awards.org/enter)
- Download Step-by-step guides on how to enter a project: [www.lafargeholcim-awards.org/guide](http://www.lafargeholcim-awards.org/guide)
- Full list of jury members at: [www.lafargeholcim-awards.org/juries](http://www.lafargeholcim-awards.org/juries)
- Details on "target issues" for sustainable construction: [www.lafargeholcim-awards.org/target](http://www.lafargeholcim-awards.org/target)
- Browse through more than 200 previous LafargeHolcim Awards prize winning projects at: [www.lafargeholcim-foundation.org/projects](http://www.lafargeholcim-foundation.org/projects)

## LafargeHolcim Awards

### Quick Guide for the submission of Awards entries

#### WHAT PROJECTS CAN BE SUBMITTED?

The 5<sup>th</sup> 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](http://www.lafargeholcim-awards.org/target)

#### 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 July 4, 2016
- All authors must be at least 18 years of age (date of birth March 21, 1999 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 July 5, 1985 and March 21, 1999)
- Execution of the project (if applicable) may not have started before July 4, 2016

#### HOW TO ENTER THE COMPETITION?

##### Process

- Entries must be in English using the web-based form [www.lafargeholcim-awards.org/enter](http://www.lafargeholcim-awards.org/enter)
- Registration deadline: March 21, 2017 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](http://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](http://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 2017. The prize money of the Global LafargeHolcim Awards in 2018 is USD 350,000. Winners are selected from the winning projects of the regional competitions in 2017.

# REINFORCED CONCRETE

Reinforced concrete is a composite material in which concrete's relatively low tensile strength and ductility are counteracted by the inclusion of reinforcement with higher tensile strength and/or ductility. Modern reinforced concrete may contain various reinforcing materials made of steel, polymers, or alternate composite material, either in conjunction with rebar or not. Reinforced concrete may also be permanently stressed (in compression), so as to improve the behavior of the final structure under working loads. For strong, ductile, and durable construction, the reinforcement needs to at least have the following properties:



- High relative strength
- High toleration of tensile strain
- Good bond to the concrete, irrespective of pH, moisture, and similar factors
- Thermal compatibility, not causing unacceptable stresses in response to changing temperatures
- Durability in the concrete environment, irrespective of corrosion or sustained stress

**François Coignet** was a French nineteenth century industrialist. He was a pioneer in the development of structural, prefabricated, and reinforced concrete. Coignet was the first to use iron-reinforced concrete as a technique for constructing building structures. Coignet built the first iron reinforced concrete structure, a four story house at 72 rue Charles Michels in the suburbs of Paris.

**Joseph Monier**, a French gardener known as one of the principal inventors of reinforced concrete, was granted a patent for reinforced flowerpots by means of mixing a wire mesh with a mortar shell. In 1877, Monier was granted another patent for a more advanced technique of reinforcing concrete columns and girders with iron rods placed in a grid pattern.

Source: Wikipedia

## REWARD QUIZ

When do you think the aforementioned first iron-reinforced building in Paris was built?

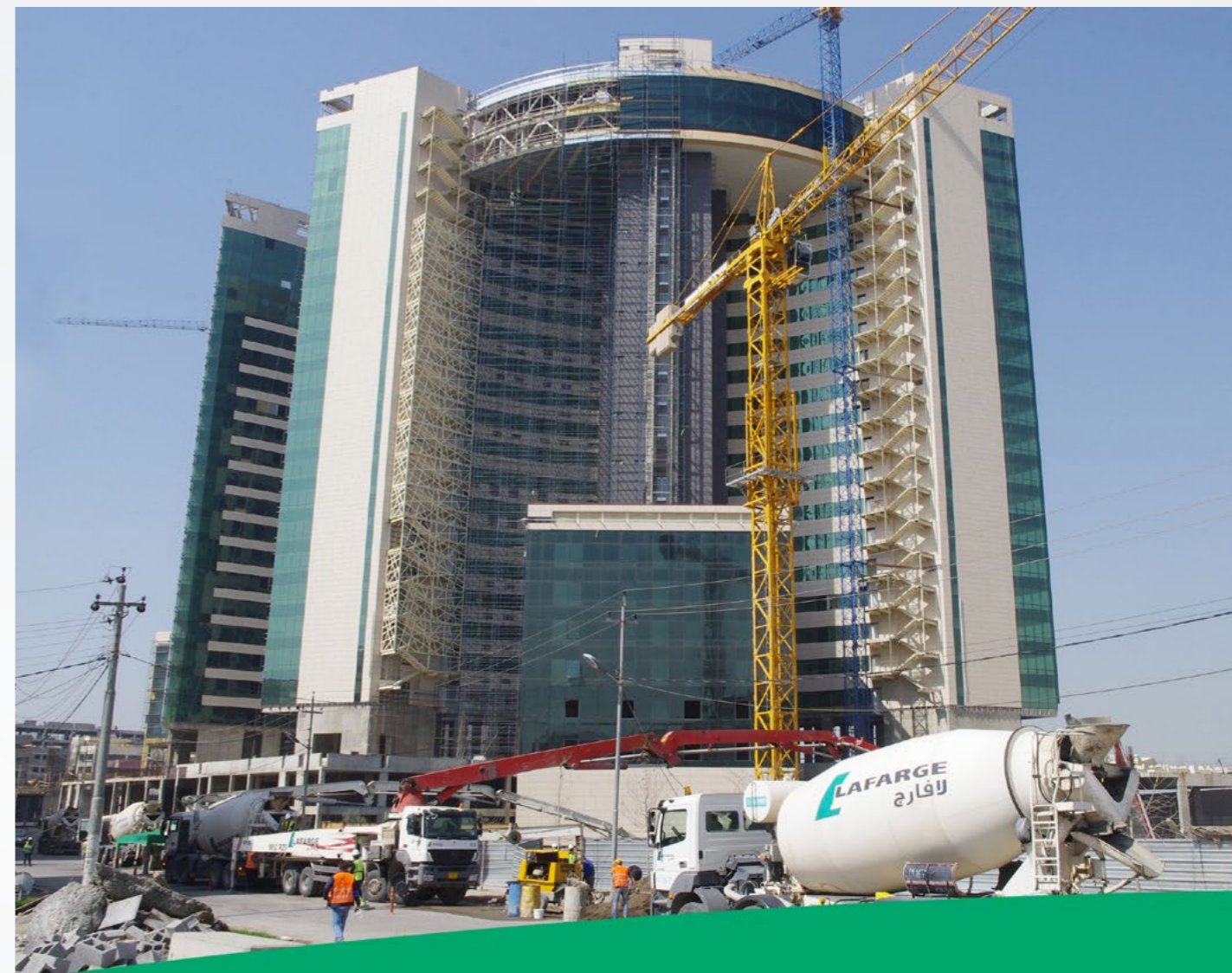
- a) 1618    b) 1723  
c) 1853    d) 1908

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

The three winners of the reward quiz in the previous issue are:

- 1) Rizwan Aziz (Bazian Cement Plant)
- 2) Darya Ali (Bazian Cement Plant)
- 3) Saad Kadhum (Karbala Cement Plant)

The correct answer of the previous quiz was b (250-300 kg)



## 5 reasons why Lafarge should be your building materials supplier

1. Our standard and special concrete products including: Artevia Coloured Concrete, Ultra High Strength Concrete and Hydromedia Flow concrete to name just a few, offer you a wide range of design and structural solutions.
2. Our five cement products; Al-Gesr, Karasta, Mateen, Oilwell and OPC, cover all your construction application needs.
3. We offer country-wide expert technical support and a 24/7 customer service line.
4. We offer solutions for all kinds of customers' and end-users' needs.
5. We offer the expertise of the world's largest building materials group, LafargeHolcim.

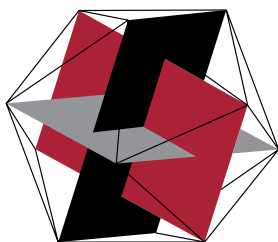


“The LafargeHolcim Awards have not only brought awareness, but have also raised the standard for how we deal with sustainability.”

Alejandro Aravena, Partner Architect at Elemental, Chile.  
LafargeHolcim Foundation Board member since 2013.  
Pritzker Prize laureate 2016.

## 5<sup>th</sup> International LafargeHolcim Awards for sustainable construction projects. Prize money totals USD 2 million.

Competition open  
from July 4, 2016  
till March 21, 2017



LafargeHolcimAwards

[www.lafargeholcim-awards.org](http://www.lafargeholcim-awards.org)

Renowned technical universities lead the independent juries in five regions of the world. They evaluate projects at an advanced stage of design against the “target issues” for sustainable construction and allocate additional prizes for visionary ideas of young professionals and students. Find out more at [www.lafargeholcim-awards.org](http://www.lafargeholcim-awards.org)

The LafargeHolcim Awards is an initiative of the LafargeHolcim Foundation for Sustainable Construction and is supported by LafargeHolcim, the world leader in the building materials industry. The Group has a well-balanced presence in 90 countries.



LafargeHolcim