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Engineering and Construction companies suffer from low margins and relatively low productivity, which is a result of the industry's traditional operating model that is not as efficient as it could be.

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Delegates from MAN Group attended the AUB Job Fair to assist the students and graduates.

EDITORIAL

Survival of the Fittest Performing in a Sluggish Market



RAYAN NAJJAR

In light of the economic and political turmoil that is affecting global markets (and in particular the MENA markets), phrases such as survival of the fittest, it's a cruel market, and cut-throat competition have become part of our regular vocabulary.

However, does performing in a sluggish market necessitate social and economic Darwinism? Can a company's well-being be achieved only through brute force? Is crushing the competition the means to sustainability?

History has proven again and again that survival of the fittest does not mean survival of the brutal and strong. In recent years alone, we have witnessed what seemed to be untouchable giants fall while other companies outperform expectations.

Moreover, with globalism eliminating the proximity requirement for competition to be relevant, adopting an aggressive strategy that focuses on reactive short-range tactical maneuvers to destroy competition might prove to be futile and extremely costly in times when companies are operating at subsistence levels.

The fact of the matter is that the world is continuously changing and now, faster than ever. We have no chance of controlling our competition let alone our business environment. Survival and sustainability in such conditions are for the most relevant, most flexible and most adaptive to change. Company success will depend on a variety of elements. These include the companies that:

- Understand the particulars and dynamics of their internal, transactional and contextual environments and harvest such understanding through developing differentiating attributes to stand out amongst the crowd
- Utilize strategic selections based on gain through serving others and society
- Find value in reputation and base their operations around ethics, truth, transparency and integrity
- Recognize that customers are at liberty to make decisions concerning their assets and wealth, and that they can spend their money in any way they please. At the end of the day, with so many companies bidding for the same piece of the pie, it is the customers (and only the customers) who will decide with their dollar. As a result, the focus must revolve around decisions based on customer service, care and satisfaction.
- Understand that core logic adds value and work to continuously develop their operating architectures, processes, and activities and do so efficiently and effectively
- Appreciate the importance of proactive partnerships in increasing the strength and agility of the business model and understand the importance of these partnerships in pooling capital investment, know-how, and resources in the service of one's self and others
- Acknowledge people as a core value, encourage employee engagement, value employee satisfaction, and maintain long lasting high-performance teams
- Display high levels of leadership and low levels of debt

Unfortunately, human memory is short and clouded with anxiety. To date, there is an alarming tendency for companies to retract into survival mode when faced with hardship and change. Within this mode, companies intentionally default in the very principles that have proven to be the basis for sustainability, all for the sake of preserving the status-quo. Companies still try to control change when change is not the problem. Change is natural. Failing to adapt to change quickly or not doing so at all is the root of the problem.

It is operating in line with the requirements of the above recommendations that has allowed MAN to thrive in good times and outplay the competition in difficult ones.

MAN's flexibility, responsive, willingness to adapt, ability to cope, and speed to change are manifested in the company's several metamorphoses throughout its history that has transformed MAN from a family business to a family of businesses while maintaining the same employeecustomer core values.

Today, MAN continues along the same path with MAN management and staff advocating and embracing change. It is presented through introducing leaner and more effective concepts in order to streamline and upgrade present businesses on one hand, while on the other, exploring promising possibilities in other service sectors.

Accordingly, it is only fitting that this issue of MAN News puts emphasis on the changes that MAN is entertaining at present.

Rayan Najjar Operations Manager



UPDATES FROM THE FIELD

Newly Awarded Projects

EL NAHR BEIRUT, LEBANON

General Contractor: MAN Enterprise

Client: Society El Nahr Construction Management Investment S.A.L.

Consultant: Samir Khairallah & Partners

Engineer: KOPIBAT

Duration: 30 months

Start Date: September 2016

This multipurpose iconic project is a mixed use development encompassing office areas, retail areas and residences.

The project consists of three basements, a ground floor, mezzanine, technical floor, and 20 upper floors.

The project features an ultra high performance concrete perforate facade covering the north elevation of the tower.







BU FSILA LOGISTIC VILLAGE BU FSILA, QATAR

General Contractor: MAN Enterprise

Client: Ali Bin Ali Logistics SPC Consultant: Erga Qatar Duration: 18 months Start Date: March 2015

The Project is implemented in an area of 499,181 m² at Bou Fsila, Qatar.

This project consists of the construction of eight warehouses of total builtup area 107,690 m², each warehouse consists of a concrete substructure, slab on grade, block walls up to 3.5m height and steel structure with sandwich panel from 3.5 m to 12.5 m height and roof.

Amenity buildings, annex zone consisting of Mousalla, technical car repair and shops, 14 service blocks, sewage treatment plant, four gates with guard houses, labor accommodations, labor mosque and labor utilities including all MEP services, infrastructure utilities, hard and soft landscaping works and roads with an approximate asphalt area of 90,700 m² and concrete parkings with an approximate area of 51,000 m².











UPDATES FROM THE FIELD

Newly Awarded Projects

UMM OBAIRIYAH COMPLEX UMM OBAIRIYAH, QATAR

General Contractor: MAN Enterprise

Client: HE Ahmed Bin Abdulla Al-Mahmoud Consultant: Architectural Consulting Group Engineer: Hill top MEP Contractor: Metrix Qatar Duration: 12 months Start Date: August 2015



Umm Obairiyah complex is a private development project that extends over almost 275,000 m² land plot featuring in its first part a vegetation farm land with animal shed, store building, and facilities including an irrigation pumping station.

In the second part it consists of a 6,000 m² castle, 2,200 m² Majlis, a 2,000 m² club house overlooking a 8,000 m² artificial lake and bridge, a guest villa, mosque, executive Majlis, staff accommodation, service garage. The different buildings are surrounded by a full landscape extension with hardscape, water features and soft plantation and benefit from a 5 km internal road network which is finished in granite and supported by all the necessary infrastructure services.

MAN scope covers the full construction from Infrastructure & landscape, to buildings superstructure & MEP systems until complete fit out and interior finishes.









VILLAS AHMAD BIN ABDULLAH DOHA, QATAR

General Contractor: MAN Enterprise

Client: HE Ahmed Bin Abdulla Al-Mahmoud Consultant: Architectural Consulting Group Engineer: Hill top MEP Contractor : Metrix Qatar Duration: 7 months Start Date: October 2015





The project consists of the refurbishment of H.E. Sheikh Ahmad bin Abdullah Al Mahmoud Private Residence Villas at Pearl Island, Fanar Fayrouz Area. The Residence erected over 5 plots with a total area of around 6,500 m² for villa 13 and 1,600 m² for villa 12 and include a basement, a ground floor, first floor and penthouse.

MAN Enterprise scope of work is to apply all necessary rectification and adjustment to the existing works inside the villas and continue the remaining necessary concrete works, block works and execute all finishing, stone cladding and MEP Works.









UPDATES FROM THE FIELD

Newly Awarded Projects

VIVA BAHRIAH TOWERS 14 & 15 AT THE PEARL DOHA, QATAR

General Contractor: MAN Enterprise

Client: Al Arrab Trading and Contracting Company

Consultant: Shaker Consultancy Group

MEP Contractor: Metrix Qatar

Duration: 24 months

Start Date: April 2016

The Viva Bahriya Towers 14 & 15 Project consists of two residential towers in Viva Bahriya, Pearl, Doha, Qatar with a built up area of 90,000 m².

Each tower consists of two levels of car parking, four chalets, a ground floor with landscaped areas and swimming pools, 23 floors of studio apartments, one bedroom apartments, two-bedroom apartments, three-bedroom apartments, general and common areas, three roof levels of mechanical floors, and a roof dome.

MAN Enterprise's scope is the turnkey construction including testing and commissioning for both Tower 14 with 234 apartments and chalets and Tower 15 comprising 235 apartments and chalets, completing the reinforced concrete structure, and all the façade works and finishing.

Metrix Qatar's scope of work includes the complete electro-mechanical works, external hard and soft landscaping including pools and water features, parking signage and road markings, vertical transportation such as elevators, waste disposals and garbage chutes, internal and external services such as lighting, hot and cold water installation, a fire suppression system, plumbing and sanitary-foul and surface water, and an irrigation system connected to authority mains for a complete and operative building.







Handed Over Projects

MOEVENPICK AMBASSADOR HEIGHTS ACCRA, GHANA

General Contractor: MAN Enterprise





The Ambassador Heights Residences is a residential development located off Independence Avenue near the Mövenpick Ambassador Hotel in Accra, Ghana. The project is a design-build of 18 high-end residential villas known as city homes. The scope included design, enabling, architectural, structural, and electro-mechanical works.

After a year and half, MAN Enterprise Ghana was proud to hand over the Ambassador Heights Project on February 15, 2016, to the client KHI Ghana 01.













UPDATES FROM THE FIELD

Handed Over Projects

BEIRUT TERRACES

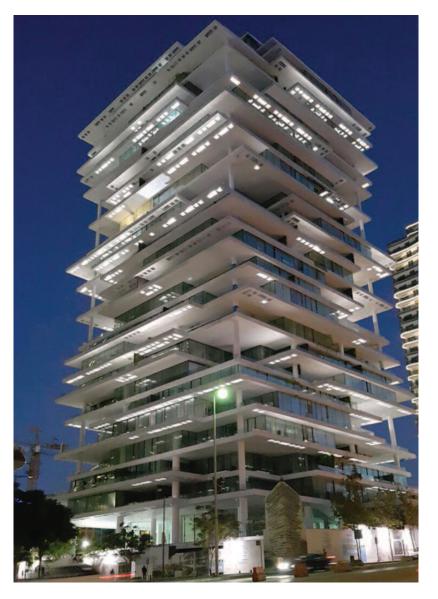
BEIRUT, LEBANON

General Contractor: MAN Enterprise

Located in the Beirut Central District, the most prominent residential area in Lebanon, Beirut Terraces is surrounded by a waterfront, prestigious residences, green pedestrian corridors to the sea, and a renowned hotel district. Designed by Swiss architects Herzog & DeMeuron, developed by Benchmark, and built by MAN Enterprise, the Beirut Terraces mark the introduction of the first-ever vertical village concept in the region.

The plot area is about $5,000m^2$. The built-up area is $100,000m^2$ spread over 27 floors, and six basements.

Many new technologies were incorporated within the project, such as U-boot structural slabs, composite column structures, special aluminum minimal profiles, giant glass panels, round ducts, and green walls, among others.





COMPOSITE COLUMNS









Tecman Industry's scope of work:

The wood and steel works throughout the project were achieved by Tecman Industry. Thousands of doors, closets, and pantries with high-end finishes were produced and installed. Special requirements from tenants for each individual apartment were implemented to their satisfaction.

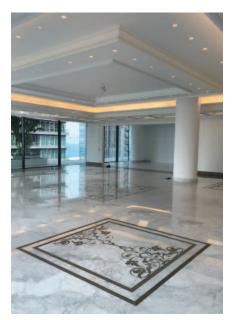














UPDATES FROM THE FIELD

Ongoing Projects

ABC VERDUN

BEIRUT, LEBANON

The ABC Verdun is designed to be a landmark shopping mall in the heart of Beirut. ABC Verdun is a lifestyle destination offering a mood of conviviality and warmth while enhancing community life. A village within a city, it will serve as a family refuge against the backdrop of Lebanon's capital.

The construction work includes all related infrastructure, external works, and the handing over of the project on a core and shell basis. The substructure consists of six basements mainly composed of underground parking and service areas, with the first basement combined of both retail and service areas for a built-up area of approximately 83,000 m2. The superstructure includes a ground floor, levels F1, F2, F3, F4, level F4 mezzanine, and a cinema for a

built-up area of approximately 63,900 m². The shopping mall includes retail units of different sizes, the multi-level ABC Department Store, movie theaters at the top level with hosting screens, 6m and 9m high entertainment areas encompassed within a food and beverage zone, and outdoor seating areas.

Concrete Works are completed, MEP Works: embedded Works, high level piping, firefighting systems, cables trays, and ducting works almost completed whereas plant and equipment are to be delivered and installed. All 55 project escalators are set out of conveying systems. Masonry and plaster works are completed. Works are launched and in progress in B1. Architectural works are to start soon, steel works being completed, aluminum and glass are to be



installed. Exterior stone cladding works are now launched and the landscaping works are procured and shop drawings are being completed.



MEET THE TEAM



Nadine Moufarrej

HR COORDINATOR

Tecman Industry

My journey with Tecman Industry started in 2008 when I was a fresh graduate in the Human Resources Department. My responsibilities were limited to assistance level HR tasks such as recruiting, training, and development.

With time, I became the Training and Development Coordinator responsible for identifying the areas of weakness among employees and providing training sessions conducted by experienced and renowned instructors.

By 2011, I was promoted to Recruitment Coordinator, therefore having a greater opportunity to help Tecman Industry by recruiting skillful and diligent manpower reflecting the culture and vision of our beloved company.

In 2012, I had the challenge of being designated as the Human Resources Coordinator, exposing me to wider responsibilities in this domain. I had the chance to utilize a variety of skills and competencies acquired over the past years.

Currently, I am the Management Representative for the implementation of ISO 9001 standards.

I feel very lucky to be a member of this family where I am able to use my knowledge and experience to face daily challenges and build a promising future.

I remain loyal and grateful to Tecman Industry.



PROCUREMENT OFFICER

Hanna

Abi Saab

MAN Enterprise Lebanon

Shortly after I graduated from college in 2010, I started my career with MAN Enterprise. MAN Enterprise's reputation has always been respected and this was driving me to join the firm. One always seeks to be the best in their field and I knew by joining the company, a leader in the industry, the bar would be set high.

I started as a site engineer at the I. Sursock Residence project, a 25 story tower where I handled finishing and landscaping activities.

A year later, after the completion of the project, I was assigned as the Procurement Engineer at the Head Office. I was intrigued by this part of the contracting field; however, my brief site experience compelled me to request a transfer to site. Beginning in 2012, I moved to the Damac project and it was a huge boost to my career and gave me additional knowledge. I helped to execute the project from raft to turnkey where I handled mobilization, concrete, finishing, and landscaping works. I was also following- up the procurement process from site.

At the beginning of 2015, I was promoted to Section Engineer. In August of 2015, after handing over the Damac project, I was transferred to the Sama Beirut project to handle finishing works from B6 to F13 which was comprised of basements activities, landscaping, main entrance finishing works, and the core and shell work for 11 office floors.

In January of 2016, I was appointed as Procurement Officer at the Head Office where my current challenge is handling the procurement for ongoing projects. Returning to this department is very rewarding for my career where I'm widening my financial acumen skills.

Having reached my seventh year with MAN Enterprise, I can truly say that there have been rewarding challenges. The company has given me a strong base, wide experience, and developed my passion for the engineering field.



Abdel Karim Dergham

MEP PROJECT MANAGER

Metrix Qatar

I was first introduced to MAN Enterprise in 2003 from the City Mall project in Beirut, where I was working as a Client Representative. The commitment and the enthusiasm of the MAN Enterprise project team encouraged me to join this energetic, ambitious company.

In late 2005, I joined MAN Enterprise Qatar as a Senior Electrical Engineer in the Amwal Tower project. My first challenges were the time line of the project and dealing with multinational project teams.

Having succeeded in the challenge of the Amwal Tower, I moved to the Aljazeera Tower then to Porto-Arabia, a prestigious project on Pearl Island.

In late 2007, I was assigned as the Electrical Project Manager for the Science & Technology Park project, a large scale infra-structure project in Qatar Foundation - Education City. In 2009, I joined Metrix team as the MEP Project Manager for the National Convention Center Car Park project, a high end car park and the first of its kind in Qatar.

In 2011, I was assigned as the MEP Project Manager for two infrastructure projects, the Infrastructure Priority Package and the North Side Wide Infrastructure project.

Currently, I am managing two projects: the West Car Park, a first class VIP parking lot, and Oxygen Park, a unique open space park within the Education City. Both projects are in the final handingover stage.

Throughout my 11 years of experience with MAN Enterprise and Metrix, I have faced many construction site challenges and it has enriched both my technical and managerial experience. With the support of management team in Qatar and Beirut Head Office, we are now one of the most respected MEP contractors in Qatar. I feel proud to be part of MAN Group.





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Lean Construction The MAN Way

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"I am impressed with what you have accomplished in terms of Lean implementation. This is a huge differentiator and will surely take you to the next level."

F.H - AUB Professor

"The latest innovations and implementations that you are working on will make you the leaders in Lebanon and the region, and at the level of the top 1% of construction companies in the US." M.A - Arizona State University Professor and Data Scientist

"We are glad to see how MAN is continuously improving, and we will support them whenever needed."

B.M - Owner Representative

"This new system ensures proper and continual communication between all project team members, and therefore, improves teamwork. It also increases visibility – all project information that is difficult to capture in one person's mind is now available through this system."

W.C - Project Director

"I have always envisioned a workplace such as this. You have now created a system which exploits the full capabilities of each employee."

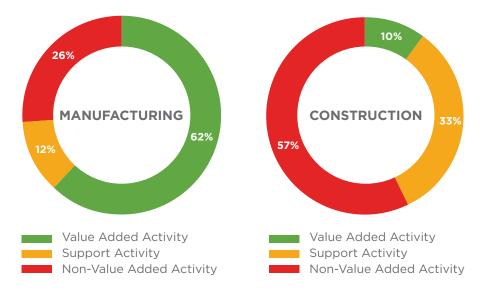
C.R - Foreman

IN FOCUS

Introduction

ngineering and Construction companies suffer from low margins and relatively low productivity, which is a result of the industry's traditional operating model that is not as efficient as it could be.

Many of the optimization tools and systems that other industries adopted decades ago are only now becoming widespread in the construction sector; manufacturing companies had already spent billions of dollars to implement improvement programs in order to decrease their waste by just a few percentage points, while construction companies, with their high level of waste, weren't attempting a serious enhancement.



COMPARISON BETWEEN MANUFACTURING AND CONSTRUCTION PROCESS EFFICIENCY Source: Construction Industry Institute

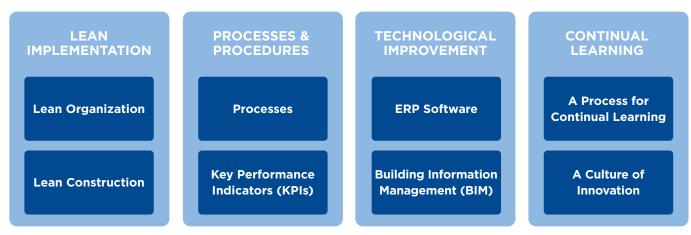
Aiming to always being pioneers in the adoption of the latest practices in the construction industry, we have decided to act, and benefit from the improvements that new systems and technologies can bring to our operations.

We have therefore decided to start by understanding our potential and areas of strength, set priorities and act upon them.

In order to achieve the above, an internal team of managers and operation engineers were assigned by the company to research and implement the Business Improvement Program (BIP), and optimize the way we deliver projects – The MAN Way.

The priorities that we set and which we have started to act upon are the following; standardizing and optimizing our processes, creating an integrated and transparent data and performancemanagement system using the relevant technologies and software, improving talent development and harvesting innovations.

The chart below categorizes the current transformational initiatives; each of these initiatives is essential, however there is a special emphasis on Lean implementation in this article, since its impact is immediate as it reaches the largest number of employees and stakeholders.



CURRENT TRANSFORMATIONAL INITIATIVES

LEAN IMPLEMENTATION

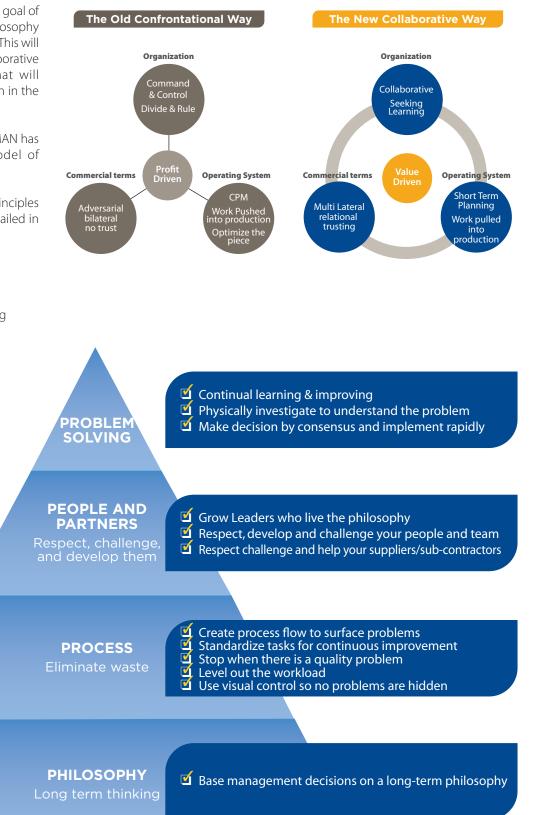
LEAN ORGANIZATION

At the core of the initiative is the goal of creating a culture built on a philosophy of becoming more value driven. This will be achieved by creating a collaborative and learning organization that will engage customer trust as shown in the illustrations.

In order to achieve this target, MAN has been inspired by the 4P model of Toyota.

Toyota organizes their 14 key principles into four sections which are detailed in the figure below:

- Long-Term Philosophy
- Processes
- People and Partners
- Continual Root Problem Solving



THE 4P MODE

LEAN CONSTRUCTION

Overview

Lean production started in 1950. It was invented by Toyota and adapted for construction by researchers associated with the International Group for Lean Construction (IGLC).

Lean construction, as a philosophy and a set of principles, was introduced to construction in order to maximize customer value through waste reduction and continuous improvement.

Case studies have reported a 20% to 30% reduction in construction time, a 5% to 12% reduction in cost, and an increase in client satisfaction for projects implementing Lean construction.

Implemented Elements

A pilot implementation, in addition to other implementations, has already taken place on construction sites: DAMAC Tower Residences/finishing phase, ABC Verdun Mall, District S Residences project in Lebanon, and the Logistic City project in Qatar.

Below is a selection of the key system elements that were developed and implemented to date in addition to an overview of their benefits and pictures from the workplace.

The Last Planner System

The Last Planner System (LPS) is a production planning and control system invented and successfully applied in firms and construction companies. It is based on the concept of Lean production.



THE LAST PLANNER SYSTEM

The War Room

The War Room is where the teams meet on a weekly basis. It is a place where the communication board and the project dashboard are posted.

Waste Walks

A form including the 8 wastes is placed in the common hall of each project.



Efforts caused by rework, scrap, and ncorrect information

Transportation

Unnecesary

movements of

products & materials.

THE 8 WASTES

Overproduction Production that is more than needed or before it is needed.



8

Inventory Excess products and materials being processed.

tory

Unnecessary movements by per (e.g. walking).

Each employee is encouraged to identify waste in their daily work and pin them on the board.

Other employees are then encouraged to provide suggestions for solutions for the waste and pin them on the form. In the weekly meeting, the recurring waste and potential solutions are discussed and corrective action is taken.



Waiting

Wasted time waiting

for the next step

in a process

Motion



Non-Utilized Talent Underutilizing people's talents, skills, &

knowledge.



Extra-Processing More work or higher quality than is required by the customer.



PROJECT DASHBOARD AND COMMUNICATION BOARD



PROJECTS WHERE LEAN WAS INTRODUCED

Visual Management

This element provides real-time visual information on the project status. It allows employees at all levels to understand their influence on the project's overall performance and inspire improvement.

The Project Communication Board

The board was developed to communicate the implemented processes, systems, tools, techniques and their benefits, in addition to any other updates.

The Project Dashboard

The dashboard is used to communicate the site Key Performance Indicators (KPIs) and make it attainable for all levels.



PROJECT KPIS DASHBOARD

The Weekly Review and Planning

The site team meets once a week in the War Room to review the last week's performance, collaboratively plan the week, and discuss the resolution of the identified constraints.

All team members are involved in the planning from foremen to project managers, in addition to subcontractor representatives.

Plans are registered as "promises" on a weekly work log and are tracked throughout the week.

Daily Huddles

These sessions are conducted in the mornings between the site engineers, foremen, and their teams.



WEEKLY COLLABORATIVE PLANNING SESSION



DAILY HUDDLE AND TOOLBOX MEETING

The engineer communicates the results of the previous day as well as the plan for that day.

Responsibilities are given to each unit and the teams are commissioned. Once a month, a safety induction is conducted for all teams at once.

The Project Key Performance Indicators (KPIs)

The KPIs are accessible to all project staff and cover time, cost, quality and safety to keep everyone involved and informed about the project performance and aware of any pending issues.

Other System Elements

In addition to the above, other system elements have been developed and implemented:

- Location based schedules
- Risk registers
- Action lists
- Weekly work plans
- Visual schedules and milestones
- Threats and opportunity logs
- Safety review and planning sessions



WEEKLY REVIEW AND PLANNING MEETING

PROCESSES AND PROCEDURES

Overview

In conjunction with the new Lean implementation, the company processes are being mapped and reviewed. The main questions to be considered:

- How can the processes be designed to ensure automatic and seamless flow of information and eliminate non-value adding activities and bottlenecks?
- How can responsibilities and accountabilities be distributed to ensure that the right people are in the correct place with the needed skill set?
- What Key Performance Indicators should be tracked for each process to ensure top performance and continual improvement in all divisions?

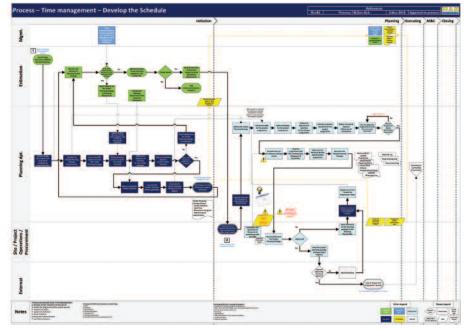
The final material will form the company's improved processes and procedures, and will be continuously challenged and improved to reach business excellence.

Processes

- Most of the major processes in the company are mapped
- The project management processes are developed in accordance with the project management knowledge (PMBOK5)
- Inefficiencies and non-value adding process steps and bottlenecks are identified
- Improvement opportunities have been highlighted
- Multiple sessions are being held with the relevant stakeholders in order to draft the new set of improved processes



COMMUNICATION AND WORKSHOP SESSIONS

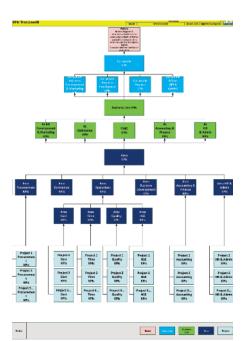


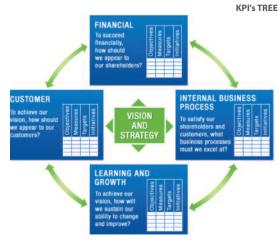
SAMPLE PROCESS FLOW CHART

Key Performance Indicators -KPIs

KPIs are designed from the bottom up as demonstrated in the KPI tree. Projects report KPIs related to various functions which are consolidated along the hierarchy.

To accomplish the vision and strategy, the KPIs are measured across the four dimensions of the balanced scorecard, as shown in the illustration.





BALANCED SCORECARD

CONTINUAL LEARNING

"I never teach my pupils; I only provide the conditions in which they can learn."

Albert Einstein

At its core, MAN Enterprise believes in the continual education of its employees. Perhaps that originates from our Chairman having once been a University Professor.

A Process for Continual Learning

MAN has chosen to supplement its systematic trainings with other potential solutions for continual learning; the online courses/learning is being currently evaluated.

After having taken trainings/courses, the teams with similar roles would conduct workshops in order to strategize and assess how their work could be improved by adopting what they have learnt; in this manner the innovation would come from the specialists on the ground.

A Culture of Innovation

"Learning and Innovation go hand in hand. The arrogance of success is to think that what you did yesterday will be sufficient for tomorrow." William Pollard

While innovation used to be considered only by the directors of the company, it has now been embraced at all levels.

Any member with an idea for improvement within their field can propose the idea along with a list of potential benefits. It is then forwarded to management to be reviewed and possibly implemented.







Contract Law: From Trust to Promise to Contract

ontracts are a part of our everyday life, ar n collaboration, trust, promise and credit. How are contracts formed? What makes a contract inforceable? What happens when one party aks a pro





Learn how to effectively lead in a technologydriven world, define your personal leaderst ourney, and make your career choices.



I I I Internet



Supply Chain Dynamics

Learn how to manage and harness the dynamics and interactions between firms and entities within a supply chain part of the MITx Supply Chain Management MicroMosters



ust 31, 2016 - Self-Paced



ONLINE COURSES FROM LEADING UNIVERSITIES



IN FOCUS

Technological Improvement

ERP Software

While still mostly unheard of in Lebanon, MAN Enterprise is implementing a fullscale ERP software (Enterprise Resource Planning) in order to build an integrated and transparent data management system and manage its business processes in the Cloud.

ERP is an online software that employees use to streamline processes and consolidate data. Users login from a computer at any location using a username and password. The user will then be connected to all responsibilities online.

Having an ERP will increase visibility through live KPI reporting and automatic scheduled reporting.

It is the company's vision to become the most technologically advanced construction company in the Middle East.



ERP SOFTWARE FEATURES

			Const	al Ledger Dechboard		
	0	The second se				
GENERAL LEDGER	14	1	Aged Payables			
	80K		A		700K	
ACCOUNTS PAYABLE	64K		/		560K	
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	32K				420K	
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CHANGE MANAGEMENT	- Mar 20	16 Apr 201		16 AUG 2016		
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JOB BILLING					Mar Apr May Jun Jul Aug	
WORK ORDER BILLING					2016 2016 2016 2016 2016 2016	
			Account Balances			
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O IMAGING

SAMPLE ERP AUTOMATICALLY GENERATED DASHBOARD

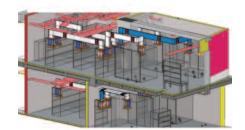
Building Information Management

MAN has started utilizing BIM in a number of projects in Qatar and Lebanon. Here below 3D images produced using Revit software taken from the ABC Verdun 3D-model.

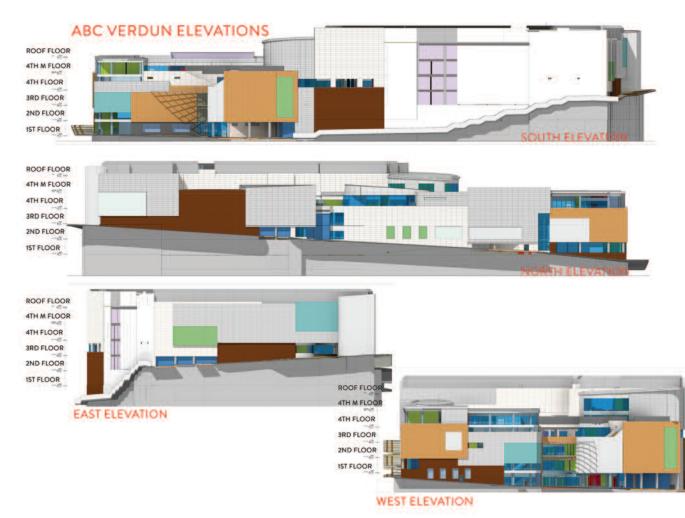
The model was analyzed in Navis works and BIM 360 to detect clashes, issue RFIs, visualize the project, issue shop drawings, and extract quantities. In the future, BIM will be used to manage time, perform the Last Planner System, and manage cost and procurement.



BIM will transform the way we deliver projects, collaboratively addressing technical solutions with the architect and strategic planning with the site team. This will definitely assist us in delivering waste-free projects to the client.







Collaborations and Publications

In lieu of the listed accomplishments, and specifically Lean Implementation, MAN Enterprise started a collaboration with AUB, a leading university in the Middle East, and more precisely with professors from the Department of Civil and Environmental Engineering.

To date, the two organizations have co-authored a paper which will be published and presented in the International Group for Lean Construction - IGLC - 2016 Conference in Boston, USA.

The paper is titled "The First Extensive Implementation of Lean and LPS in Lebanon: Results and Reflections." It describes what MAN Enterprise has accomplished in terms of adoption and implementation of Lean Construction on one of our largest projects, ABC Verdun Project, and which is a premiere in Lebanon. This paper also describes the challenges, learnings, additional improvement opportunities and next steps.

We are looking forward to more positive outcomes and other significant publications from the new collaboration with AUB and IGLC.

Hamzeh, F.R, Kallassy, J., Lahoud, M., and Azar, R. (2016). "The First Extensive Implementation of Lean and LPS in Lebanon: Results and Reflections." In: *Proc.* 24th Ann. Conf. of the Int'l. Group for Lean Construction, Boston, MA, USA, pp. xx-xx. Available at: <www.iglc.net>.

THE FIRST EXTENSIVE IMPLEMENTATION OF LEAN AND LPS IN LEBANON: RESULTS AND REFLECTIONS

Farook Hamzeh¹, Jessica Kallassy², Marvin Lahoud³, and Ralph Azar⁴

ABSTRACT

Lean construction as a philosophy and set of tools has been successfully implemented in construction to reduce waste and improve customer value. The Last Planner System (LPS) has enriched the construction industry with a production and planning system that aims at improving the reliability of construction planning and workflow. However, several developing countries have not started implementing lean construction or LPS. This paper presents a reflection on the first implementation of lean principles in general and the LPS in particular on a large scale project in Lebanon. The study employs case-study analysis to investigate the implementation process by the General Contractor's team as well as the various subcontractors. Results highlight the team's satisfaction despite the several challenges faced. Improvements to the reliability of planning and project's progress are clearly presented through a longitudinal cross section of the main key performance indicators measured on the project. The paper also highlights the major barriers faced during implementation. This study serves as a reflection process for the general contracting company implementing lean and LPS while forming a basis for future implementations in Lebanon and the Middle East.

KEYWORDS

Lean Construction, implementation, Last Planner System, production planning and control.

INTRODUCTION AND LITERATURE REVIEW

Lean construction (LC) as a philosophy and a set of principles was introduced in construction to maximize customers' value through waste reduction and continuous improvement (Koskela, 1992). The literature is rich in case studies describing the successful implementation of LC on real projects. Garnett et al. (1998) reported a 25% reduction in construction time, an increase in client satisfaction, and a decrease in the

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A SNAPSHOT OF THE AUB-MAN PAPER

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شراكة بين MAN Enterprise اللبنانية وGrundon البريطانية لمعالجة النفايات

وقعت شركة MAN Enterprise، إحدى أبرز شركات قطاع البناء في لبنان، اتفاقاً مع شركة Grundon البريطانية لادارة النفايات الصلبة يهدف إلى تطوير منشآت معالجة النفايات في منطقتي الشرق الأوسط وافريقيا.

واعتبر نائب رئيس مجلس إدارة Grundon نيل غرندن أن "هذه الشراكة تتيح للشركة البريطانية توسيع عملياتها على الساحة الدولية فيما الفرص في هذا

القطاع محدودة جداً في أسواق المملكة المتحدة وأوروبا".

وبموجب الإتفاق، ستقترح Grundon أفضل التقنيات المتاحة التي تسمح بانشاء بنية تحتيّة حديثة لمعالجة النفايات، وستتولى تصميم منشآت معالجة النفايات وبناءها وتركيبها وتشغيلها، كتلك الخاصة بفرز النفايات وتحضيرها لإعادة التدوير (MRF)، أو تلك الخاصة بإعادة تدوير النفايات وتسبيخها وإنتاج

الوقود منها (RDF)، أو منشآت إنتاج الطاقة من النفايات (EfW). وأبدى رئيس مجلس إدارة MAN Enterprise ميشال أبى نادر ارتياحه إلى الشراكة مع Grundon، ملاحظاً أنها

"تجمع بين التميّز البريطاني

والبراعة اللبنانية". وإذ أشار إلى

أن الشركتين "تتشابهان في

قِيَمِهما وتاريخهما من النجاحات"،

رأى أن "منطقتي الشرق الأوسط

وأفريقيا تشهدان حاليا نموأ كبيرا

في عدد سكانهما واقتصاداتهما، ممايشكّل تحديا إضافياً في قطاع النفايات الصلبة الذي يفتقر أصلأ إلى حلول فاعلة ومستدامة". وأضاف: "نحن نعتبر تحالفنا مع Grundon بمثابة خطوة استراتيجية تكفل تغيير هذا الوضع، إذ أن خبرة Grundon الواسعة وشبكة MAN Enterprise سیساهمان فى تطوير البنية التحتية لمعالجة النفايات في كل أنحاء المنطقة".

An Nahar | 07-04-2016

IN BRIEF

IN GOOD COMPANY

(BRHIA). The Civil Aviation Department is expected to give its approval soon. Turkish firm MNG Airlines has also started making regular cargo flights to BRHIA. "MNG used to serve Beirut opportunistically. Now it comes on a regular basis. civil aviation official said. The intensifying cargo traffic is due to the recent inauguration of the cargo center, according to the source. Cargologic and MNG Airlines have fleets of ten and nine planes, respec-tively, made up of Airbus and **Boeing planes** O L0515-05

HIKATI LAUNCHES VIA MINA HOTEL

utique hotel Via Mina opens for business in Mina, Tripoli. for business in Mina, Tripoli. The hotel, owned by a company that is controlled by a hold-ing company owned by Taha Mikati and his brother, former Prime Minister Najib Mikati, has been classified by the Ministry of Tourism as a historical boutique hotel. Located on a total land area of 1,000 squ meters, the building dates back to the 19th century and was purchased by the Mikati family many years ago. A French colonial-style hotel, Via Mina is managed by Fadi al Sidauri and consists of 16 standard

The second second



MAN ENTERPRISE **GRUNDON PARTNER** IN WASTE TREATMENT

An agreement to develop waste facilities across the Middle East and Africa has been signed by local construction firm MAN Enterprise and UK-based Grundon Waste Management. According to the agreement, MAN Enterprise is the exclu-sive partner for waste management projects that Grundon bids for in the region. The bid-ding will not be related to the waste crisis in the local market. Grundon will provide recom-mendations on Best Available Technology (BAT) and knowledge transfer on the technical aspects of establishing waste infrastructure, including the design, build, installation and commissioning of waste treatment facilities, such as Materials Recovery Facilities (MRFs), recycling, composting, Refuse



Provided b

Derived Fuel (RDF), and En ergy from Waste (EfW) facili-ties. It will also provide expertise in health and safety, environmental mitigation, and the development of effective and sustainable working practices. Michel Abi Nader, MAN En-terprise Chairman, said: "The Middle East and Africa regions are currently witnessing tre-mendous growth in their populations and economies. This is posing additional challenges to a solid waste sector that is already suffering from a lack of efficient and sustainable solutions." Grundon Waste Management is the UK's larg-est family-owned supplier and operator of integrated waste management and environmental solutions O L0616-08

ICAL PLATFORM SEEKS FUNDS

Lebanon Opportunities | 05-2016

Accord entre MAN Enterprise et Grundon, le spécialiste britannique de gestion des déchets

Le leader dans le domaine de la construction MAN Le reduct dans le domaine de la constitución mark Enterprise annonce la signature d'un accord global avec Grundon Waste Management visant l'installation et le fonctionnement de centres de traitement de déchets au Moyen-Orient et en Afrique.

Le vice-président de Grundon Weste Management, Neil Grundon, a déclaré sur ce plan : « Nous sommes particulièrement ravis de cet accord avec MAN Enterprise, par lequel nous espérons agrandir nos opérations au niveau international au moment où les opportunités manquent cruellement en Grande Bretagne et dans les marchés européens.»

Grundon fournira des recommandations sur l'utili de la meilleure technologie disponible et veil Grundon fournira des recommandations sur l'utilisation de la meilleur technologie disponible et veillera à transférer les savoirs techniques nécessaires pour l'établissement de centres de traitement de déchets issus des technologies les plus récentes. Les services fournis incluent la conception, la construction, l'installation et la mise en service de ces centres qui comprendront le

L'Orient Le Jour | 12-04-2016

recyclage, le compostage, le traitement mécano-biologique, les combustibles dérivés des déchets, la gazéification et l'incinération.

gazencason et incineration. Pour sa part, le président de MAN Enterprise, Michel Abi Nader, a soulight : Nous sommes ravis de ce partenariat avec Grundon Waste Management qui joint l'excellence bitannique au soulo-faire libranis. Ces deux ont eu un parcours impecable. Actuellanais. Ces deux ont eu un parcours impecable. Actuellement, le Moyen-Orient et l'Afrique sont sujets à une croissance remarquable de leux populations et économie; ce ciop présente encore plus de defís au secteur des déchets solides qui souffre déjà de defís au secteur des déchets solides qui souffre déjà de defís au secteur des déchets solides qui souffre déjà de révolutionne fondamentalement le socceur des déchets à revolutions dynoblement le socceur des déchets situation au Moyen Orient et en Afrique oo nous sommes actuation subveyo noient et en Afrique oo nous sommes actuation et de torte magagement à améliorer la autation au Moyen Orient et en Afrique oo nous sommes actifs et fortement présents.*

Publi-info

CAREER DEVELOPMENT

Trainings

MAN ENTERPRISE | LEBANON

JOB DESCRIPTION, COMPE-TENCY-BASED RECRUITMENT AND INTERVIEWING FEBRUARY 11 AND 18, 2016 BEIRUT, LEBANON

Job descriptions, competency-based recruitment, and interviewing tactics were covered during the two-day training which involved role playing and interactive activities.

MANAGEMENT REVIEW MEETING MAY 10, 2016 BEIRUT, LEBANON

MAN Enterprise Lebanon held its 18th Management Review Meeting, part of the ISO 9001 Quality Management System, on May 10, 2016, at MAN's Conference Hall in Sin El Fil. The meeting hosted 38 managerial level attendees and lasted approximately five hours. The agenda included the opening statement by the Chairman, a speech by the Area General Manager of MAN Lebanon, and presentations by Operations, Planning, Estimation, Procurement and the Business Development Department.

During the meeting, management emphasized the necessity of adjusting the company's business model in light of the major changes in the economical and political situation worldwide. Furthermore, they reminded the attendees of the importance of improving the company's processes and organization during the actual deflation period so that all would be ready when the circumstances improved.



MAN ENTERPRISE | QATAR

FIRE MARSHAL COURSE DECEMBER 5 AND 29, 2015 DOHA, QATAR

This course provided training with regard to assessing fire risks and implementing fire controls. Moreover, it directed the four participants on how to lead their teams and take proper action during emergencies. The topics included the use of fire doors, clearing fire exits, fire extinguishers, reporting faulty emergency lighting and fire alarms, certifying safe escape routes, and properly placing fire safety signs.

AUTHORIZED GAS TESTING DECEMBER 24, 2015, JANUARY 18, 2016, AND JANUARY 24, 2016 DOHA, QATAR

Eight employees from MAN Enterprise Qatar attended the Authorized Gas Testing where they learned how to perform tests for oxygen, flammable and toxic gases, ensure safe working conditions in particular areas such as confined spaces, and monitor atmospheric conditions at the entrance of confined spaces.



BASIC TOWER CRANE ERECTION AND DISMANTLING SAFETY AWARENESS COURSE JANUARY 2, 2016 - DOHA, QATAR

The Basic Tower Crane Erection and Dismantling Safety Awareness Course taught four MAN employees how to perform on-site tower crane inspections, prepare the erection of tower cranes safely, and assemble, dismantle, maintain, and trouble-shoot.





SCAFFOLDING INSPECTOR JANUARY 21, 2016, FEBRUARY 4,

2016, AND MARCH 10, 2016 DOHA, QATAR

Five participants attended the course which focused on the methodology for the safe erection of scaffolding. It covered the inspection and monitoring of scaffolds through the entire building process, overseeing the erection of the scaffold, conducting the final inspection of the scaffold prior to initial occupation for use, and giving refresher training to the scaffold erectors and users.

CONFINED SPACE SUPERVISOR MARCH 13 AND 23, 2016 BEIRUT, LEBANON

The course provided awareness of the hazards and requirements associated with entering confined spaces on the construction site. Four employees attended the training.







AUTODESK REVIT ARCHITECTURE MARCH 20, 2016 - DOHA, QATAR

This course reviewed the Revit building design software specifically built for Building Information Modeling (BIM), including tools and features for architectural design, MEP and structural engineering. This software enables coordination between all the disciplines. One attendee was chosen to attend the training.

EMERGENCY FIRST AID WITH CPR AND AED

MARCH 22, 2016 - DOHA, QATAR

During construction, operatives are exposed to the risk of injury that requires immediate intervention and support. The training reviewed necessary techniques and procedures relevant to on-the-job injuries providing emergency treatment and calling on professional help when needed. In addition, the first aid kit and emergency assessment were discussed. Ten participants attended the course.



Promotion

Paul Bou Rjeily



Paul Bou Rjeily joined MAN Enterprise Ltd. in January of 2006 and has managed various projects as Operation Manager. He was promoted to General Manager for Tecman Industry in March 2016.



ACTIVITIES & EVENTS

Job Fairs

ESIB JOB FAIR 2016

MARCH 1, 2016 MAR ROUKOZ, LEBANON

The ESIB Job Fair was held on March 1, 2016 at the ESIB Campus.

Delegates represented MAN Group at the event. The delegates conducted brief on-the-spot interviews with the students.

ESIB students showed great interest in MAN Enterprise and were motivated to join the company, whether for an internship, "LIFE Program" or to apply for the Graduate Under-Development Program.















BEIRUT, LEBANON

The AUB Job Fair was held on april 14-15, 2016, at the AUB Campus in Beirut.

Eight delegates represented MAN Group and interacted with more than 280 students and graduates interested in applying for various jobs in MAN Group. Brief interviews were conducted on the spot.













SOCIAL NEWS



| MAN Enterprise |

- Abhin Abraham & Jinu Raju
- Salu Elias & Jipsa K Joy
- Fabrienne Sybil Carrillo & Larry C. Dorado Jr.
- Riju Akkarakunnath & Dilna Kunimal
- Prasanth Puthenveetil & Isha Prasanth
- Aditya Kiran More & Arundhati Aditya More
- Arrop Gopi & Anuha Devi

January 6, 2016 January 7, 2016 January 9, 2016 January 11, 2016 January 27, 2016 February 11, 2016 May 4, 2016

December 4, 2015

December 17, 2015

January 1, 2016

January 2, 2016

January 13, 2016

January 22, 2016

January 23, 2016

February 1, 2016

February 17, 2016

March 7, 2016

March 10, 2016

April 1, 2016

April 13, 2016



| MAN Enterprise |

- Hassan Mustapha, Zeina
- Michel Raad, Charbel
- Antoine Obeid, Yara
- Fady Chalhoub, Chloé
- Issam Madi, Mona
- Naim Merheb, Rita
- Simon Nouneh, Rita
- Selim Abou Mahdi, Christopher
- Ghadir El Youssef, Sam
- Joe Jeha, Naï
- Marwan Lahoud, James
- Alfredo Alumbro, Venus Randa
- Elie Asmar, Joe

| Tecman Industry |

- Christiane Manih, Cali
 Novemb
- Roy Chiha, Christa-Maria
- November 16, 2015 April 21, 2016

CERTIFICATES

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M/s, Man Enterprises P-Q, Box 22373, Dohe-Gater Tat: https://doi.org/10.1016/j.com Fax: https://doi.org/10.1016/j.com Email: Matter, Advaulationarentegrise.com;	M/s. Man Enterprises P.O. Box 22373, Dohe-Gaser Test: 4474, 44653300 Pax: 14974, 44653300 Pax: 14974, 44653300
Attention : Mr. Michel Achkouti-Project Manager	Attention : Mr. Michel Achkouti-Project Manager
Project : Mix 52 Merina	Project : Mix 52 Marine
Subject : KSE Award -Invitation to Nominees	Subject : HSE Award -Invitation to Nominees
Dear Mr. Achikouti.	Dear Mr. Achkouli,
We would like to congratulate Mis. Man Enterprises for being reminuted as Best Health Care Faellity Award 2016. Your hard work and dedication have been noticed and LRECC could like to cooption such achievement.	We would like to congratulate Mis. Man Enterprises for being nominated as Beet HSE Project. Your hard work and dedication have been noticed and LREDC would like to recognize such abservement.
Three (3) representatives from your organization are invited to the eventual, continue of the disease assumed will be presented with a topoly & a certificate of recorplion by Lusell. The announcement of awards will be on the $g^{th} = \frac{1}{4} $	Three (3) representatives from your organization are invited to the available oremnony and the obsers awardes will be presented with a incipity it a cettification of recognition by Lusal. The announcement of awards will be on the <u>6th of January 2010 which will be</u> laid at the intercontinential Hotel, Weal Bay from (1330m) (13.00m)
Many congratulations for your achievement.	Many congratulations for your achievement.
We look forward to meeting you at the ceremony.	We look forward to meeting you at the ceremony.
Respectfully,	Respectfully.
eSiguty Youssel – Luest, CAC Director Hans Staphens – Col, Cespaneter HSL Anker Historiel Fander – Sa HBE Intergen Jochty: Relptiches – Land HSE Auditor	500 May Kagehera - Cakad Chreety May Kagehera - Call, Cottgamer HSK Advisor Mercard York - Lussid - Call Col Kanager Jocatyn Hojanters - Lussit Least HSE Austron
ും മുപ്പെൽ പ്പെട് മും	لالمحمد المحمد (180-000 من 180-000 من 180-000 2. من 180-000 من 180-00 Розволязова акак ака та, нак цанке мус накодата ак ко адоа такжи адоа акак акак пол октор да тараов а
t Health Care Facilities	Best HSE Project

Best Health Care Facilities



12/13/2015 4:56:38 PM PAGE 3/005 Fax Server Qatari Diar Fax No Ref. No: LUS/HSSEL&Q/L/2015/1226 Date: 13 December 2015 Attention : Mr. Dioneslo Basane Project : Mix 52 Marina Subject : HSE Award -Invitation to Nominees Dear Mr. Thomas, We would like to congratulate you for being nominuted as Nealth Ditempion 2015. Your find work and dedication have been noticed and LREDC would like to recognize euch achievement. All nominees together with 2 representatives from tradi organization are invited to the available ceramony and the chosen available will be presented with a trophy & a certificate of recognition by Lussil. The announcement of availors will be an the <u>gP of</u> <u>January 2014 which will be held at the intercontinental Hotel</u>, West Rev from 1;30pm (813:30pm). Many congratulations for your echievement. We look forward to meeting you at the caremony. (கூர்) தமில் புலக்கு (கு. 1970) குடுக்கு (க. 1970) புலக் பிலக்கு (க. 1970) குடுக்கு (க. 1974) பிலக்கு பிலக்கு (க. 1971) குடுக்கு (க. 1974) பிலக்கு பிலக்கு (க. 1971) குடல் கல்கு (க. 1974) கல்கை பிலக்கு (க. 1971) குடல் கல்கைக்கு (க. 1974)

Environmental Champion

Health Champion



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