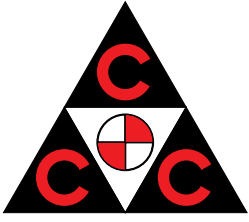


2nd Quarter 2017

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bulletin

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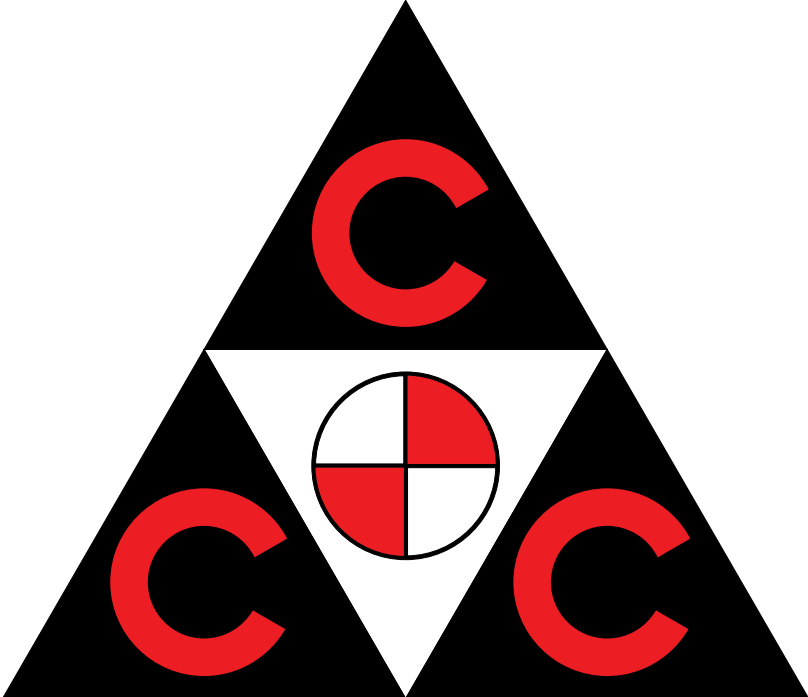


LEEDers of the pack ...

[Leadership in Energy and Environmental Design]



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THE AGE OF SUSTAINABILITY

The world population is growing fast and the increase in urbanization requires more housing, utilities, water and natural resources. If we are to safeguard our planet, we have to find ways to conserve more of our resources or our civilization will face dire consequences.

Sustainable development through sound LEED (Leadership in Energy and Environmental Design) specifications and practices on efficient buildings, clean transportation systems and clean energy sources, are promising ways of protecting the future.

CCC is a leader in LEED implementations on many of these fields as demonstrated in this Bulletin feature, putting us well ahead in professional and social responsibility terms. I urge all of you, each in his/her own domain, to keep innovating hard in that direction.

My advice to all of you and your families is to let us work to change our ways and habits so we are striving to achieve less resource consumption with a stronger focus on recycling in all aspects, as this is for the good of your children, your grandchildren and mankind's future.

City Centre Al Zahia

UAE



The City Centre Al Zahia is a retail mall with shops and an entertainment centre. The total plot area is approximately 183,500m². The project consists mainly of a 3-level mall with a total built-up area of 248,300m², over 400 units, entertainment areas, food courts, restaurants, cinema, an adjacent 3-level car park (5,200 cars) connected to the mall by bridges, the energy centre housing the primary MEP plant and equipment, a 33KV substation, infrastructure works and hard and soft landscaping.

The works comprise the procurement, delivery, coordination and construction of the mall, including EPC and maintenance of employer and consultant offices and associated external site office area.

The client is Majid Al Futtaim Properties LLC.

The cost consultants are Faithful & Gould Limited and the contract administrator is Mace International Limited (Dubai).

The contract was awarded on 26 February 2017.

The project start was 1 May 2017 for a duration of 32 months ending on 30 December 2019.

Cairo West Supercritical Power Station - 1x650 MW

Egypt



The scope of work includes the civil works for the construction of a 650 MW steam turbine generator, two condensers, chimney, pump house / intake / discharge.

Major quantities: concrete 72,759m³; structural steel 4072 ton; reinforcement 6465 ton; concrete piping 777m; piling 30,000m.

The client is Cairo Electricity Production Company (CEPC).

The consultants are Power Generation Engineering and Services Company (PGESCO).

The contract was awarded on 28 May 2017.

The project start was 28 May 2017 for a duration of 37 months ending in July 2020.



Quality Control

Introduction

The main function of the quality control operation is to confirm that products or services meet specified requirements. This is carried out by actual measurement and testing of a product or a service and comparing the results to established acceptance criteria generated from applicable specifications or a data sheet. In this process, defects or deviations may be identified that require correction.

Before covering this subject with in more detail, we would like to provide some definitions for certain terms popular in the world of quality:

At the initial stage of introduction of quality concepts in the industry, the term quality control was very popular. The **quality control** process was applied after the fact (after the product or service is complete), therefore a high percentage of defective products were identified at the final stage and the cost of such failure was usually passed on to consumers. With additional competition introduced in the world market, organizations were forced to absorb the failure cost leading many of them to lose market share and close down.

Organizations in many industrial countries realized that the quality control operation will never deliver the desired results. Failure is not necessarily related to the production or the construction operation only; rather it could be the result of poor design or poor selection of materials. When this concept became clear to leading industries worldwide, the concept of quality assurance was introduced.

Quality assurance as defined in the ISO 9000 standard is that part of quality management focussed on providing confidence that quality requirements will be fulfilled. This means that the organization will provide further control on design and development processes, engineering and procurement processes and the total operation required to deliver the final product or service to ensure customer satisfaction.

Introduction of quality assurance was a major step towards improvement in relation to quality. However, after many years of implementation of quality assurance concepts, it was clear that such systems will never deliver the desired results without top management support and commitment. It means quality concepts must be integrated in the company business and not be a side operation run by a quality manager. This situation led to the introduction of the quality management concept as we know it today.

Quality management as defined by ISO 9000

standard are coordinated activities to direct and control the organization with regard to quality. Therefore, quality management is a process approach to management involving the methods and techniques of management of overall company processes that contribute to customer satisfaction with major emphasis on quality and improvement that may lead to customer commitment.

Implementation

Upon the award of the contract, the first step in project realization is to identify the controlling requirements. Controlling requirements for each type of equipment or system or for each construction activity may be derived from the following documents:

- Contract specifications.
- Contract requirements.
- Applicable codes and standards.
- Statutory and regulatory requirements.
- Company internal standards.

It is important to mention that codes / standards and statutory and regulatory requirements must be considered even if not mentioned in contract requirements.

The next step is identifying controlling documents for project realization. These requirements may be summarized in the following items:

- Quality Management Plan.

The quality management plan provides an overall description of the quality management operation for the whole project which may include the following:

 - ↳ Quality policy.
 - ↳ Quality objectives and method of measurements.
 - ↳ Quality planning.
 - ↳ Quality assurance.
 - ↳ Quality control.
 - ↳ Measurement, analysis and improvement.
 - ↳ Requirements for final handover of the projects.
- Design Management Plan.

The design management plan provides overall information related to design organizations and how the design will be managed. In particular, the following items should be covered:

 - ↳ Design organizations and interface.
 - ↳ Design planning.

- ↳ Identification of design inputs and design outputs.
- ↳ Design review process.
- ↳ Design verification process.
- ↳ Design validation process.
- ↳ Design changes.
- ↳ Review and approval cycle.
- Procurement Management Plan

The procurement management plan describes how the organization will manage the procurement of materials and equipment. This process requires interface with many organizations outside the project and its success is very important for subsequent processes of production or construction. In particular, the following items should be covered:

 - ↳ Identification of procurement packages.
 - ↳ Identification of qualified suppliers.
 - ↳ Identification of quality control requirements.
 - ↳ Purchase order processing.
 - ↳ Expending and transportation to site.
 - ↳ Other items as required by the specification or industry standards.
- Construction Management Plan

The construction management plan covers the overall requirements of construction activities and in particular:

 - ↳ Construction organization.
 - ↳ Construction planning.
 - ↳ Progress measurement and control.
 - ↳ Method statements for specific construction activities.
 - ↳ Quality control procedures for specific construction activities.
 - ↳ Inspection and test plans for specific construction activities.
- Commissioning Management Plan

Projects consist of many systems, usually built by specialized subcontractors; each subcontractor will provide its commissioning plan and specific commissioning procedures. The commissioning management plan describes the overall philosophy of the commissioning operation for a project and consolidates all the commissioning activities done by specialised subcontractors into one single commissioning management plan. The overall commissioning management plan is developed by the contractor.

Quality Objectives

In order to verify the implementation process of the above mentioned plans, quality objectives have to be developed for the project. This is carried out to ensure that products and services for project realization meet or exceed all specified requirements to the mutual satisfaction of our customer on time and within budget. Therefore, the Quality Management System (QMS) must be based on **prevention** with identification and management of risks.

Therefore, the quality management operation consists of quality planning (controlling requirements and controlling documents), followed by a quality assurance process and implementation of quality plans, and finally by applying quality control to confirm that specified requirements are met. In all phases, PDCA (plan-do-check-act) should be implemented to ensure continual improvement. This is illustrated in Figure 1.

Figure 1



Quality Control Operation

Unfortunately, the concept of quality control is misunderstood in the construction industry. While the construction industry depends on inspection and testing, Deming* in his 14 point approach to management recommended that organization should cease dependence on inspection and seek evidence using statistical process control. Although there seems to be some contradiction between the construction industry's and Deming's recommendations, the new approach for quality justifies the Deming approach: simply by controlling overall processes for product realization, organizations can cease dependence on inspection and obtain evidence of conformance by applying statistical process control. In simple words, Deming recommended that organizations do their homework before launching a project.

We need also to recognize that some products require 100% inspection and testing as required by applicable codes and standards. (For example, pressure vessels designed in accordance with ASME code, section VIII, division 1 with joint efficiency equals 1), or where failure may be of catastrophic nature, such requirements can't be waived under any circumstances and must be implemented.



Identification of Controlling Requirements for the QC Process

The first step in this process is identification of controlling requirements which represent the input data used to develop the controlling documents for field inspection and testing. The following items represent the controlling requirements usually used for any project:

- Scope of work and contract requirements.
- Codes and standards.
- Rules and regulations.
- HSE requirements.
- Quality requirements.
- Contractors' requirements.

Most construction projects are of a complex nature. Therefore, it is recommended that input requirements be reviewed by specialized departments or personnel in order to define the controlling documents for inspection and testing. This review will cover all the requirements for the project including those specified in the codes and standards, and rules and regulation of the country in question.

Controlling Documents for the QC Process

Controlling documents are generated following the review process of controlling requirements. For every major construction or installation work the following documents must be developed:

Method Statement

The method statement is developed by the Construction Department and reviewed by the Quality Department and the HSE Department. The following items, as a minimum, should be included in a method statement:

- Purpose and scope.
- Methodology: this may include the following:
 - ↳ Description of work.
 - ↳ Materials and equipment.
 - ↳ Work methodology and sequence.
 - ↳ Work force requirements and qualification.
 - ↳ Site planning and preparation.
 - ↳ Requirements for supervision.
- Safety requirements and risk assessment.
- Quality requirements.
- References.

Inspection and Test Plan

The inspection and test plan is developed by

the Quality Department and reviewed by the Construction Department. The inspection and test plan should include the following items:

- Contract specifications reference/requirements.
- Sequence of work.
- Applicable codes and standards
- Inspection and testing requirements.
- Acceptance standards,
- Inspection level and responsibilities.
- Checklist to be used.
- Method of recording.

Quality Control Procedure

The quality control procedure may be developed for construction work of a complex nature. This document is developed by the Quality Department and reviewed by the Construction Department. The quality control procedures include the following requirements:

- Applicable contract specifications.
- Reference to method statement.
- Reference to applicable codes and standards.
- Requirements for qualification of personnel and equipment.
- Description of inspection and testing activities.
- Acceptance standards/criteria.
- Responsibilities.
- Recording requirements.

These requirements are illustrated in Chart 2.

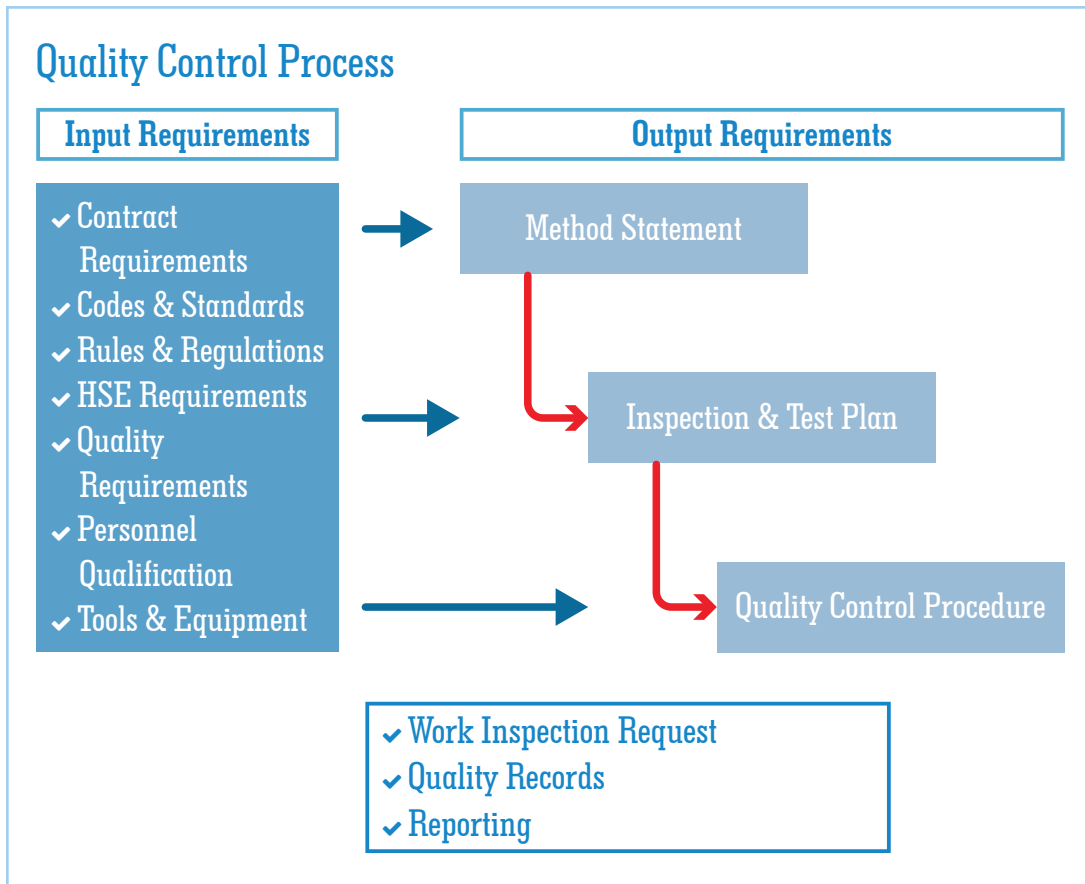
The first step in the above process is preparation of a method statement that describes all the requirements to do the work including risk assessment. The method statement in addition to construction issues must cover HSE requirements and must make reference to quality requirements, such as the inspection and test plan.

The second step is preparing the inspection and test plan based on the method statement requirements. The Quality Department is required to identify inspection and testing requirements and the interface of all parties involved in this process.

In addition to the inspection and test plan a quality control procedure may be produced for construction or installation activities of a complex nature.

Processing the Work Inspection Request

A Work Inspection Request (WIR) is used to coordinate inspection and testing processes conducted on site. Many organizations are



involved in this process. For this reason, they need to be officially notified when and where inspection and testing is carried out. This notification is usually carried out in a form of Work Inspection Schedule for next day activities.

Construction Role

Inspection and testing is planned and carried out in accordance with approved Inspection and Test Plan (ITP). Upon completion of work, the WIRs are issued by the site engineer for all hold and witness points identified in the associated ITP. The WIRs, at specified agreed times, are forwarded to the quality control engineer in charge of the work. The site engineer will ensure that all the required documents are attached to the WIR and the completed work is in accordance with specified requirements.

Quality Department Role

The quality control engineer will compile a list of inspection requests in an inspection schedule for the next day. A separate list will be generated for each discipline by the respective quality control engineers. The inspection schedule will be forwarded to the employer’s representative

(the customer) 24 hours in advance of the scheduled inspection. In addition to the scheduled inspection, quality control inspectors conduct daily surveillance of the facilities under construction to ensure compliance with the requirements. The quality control inspector and the site engineer coordinate with the employer’s representative and attend a joint inspection. Upon satisfactory inspection, the WIR and associated reports will be signed by all parties.

Customer’s Representative Role

Upon completion of inspection, the customer’s representative may record observations on the WIR. For minor observations that may be corrected immediately or within few hours, the same inspection request will be used. In case of a major observation that may lead to rejection of the inspection request, a new inspection request will be issued “upon satisfactory completion of work” using the same original number with a new revision.

Controlling Software

During the life of any project tens of thousands of WIRs are issued for each discipline that are



Quality Control

required for handover to customer. The whole operation can be controlled by ATLAS software (in-house software application). ATLAS is very important software that enables the project to control the following operations:

- The WIR tracking system.
- Forecast for handover process for systems and areas.
- Punch list processing.
- Pre-commissioning and commissioning.
- Final handover process.

WIR processing is described in Chart 3.

Conclusion

The quality control operation including statistical process control has been used from the beginning of the 20th century by all types of industries. However, experience proved that the quality control operation would not deliver the desired results that industry aimed for. We need to realize that quality control is not meant to discover faults and problems; on the contrary, if all systems are properly implemented, quality control is used to confirm that a product or a service meets specified requirements. In order to achieve the desired results, the organization must control all its processes including design, procurement, construction and commissioning.

*Deming: William Edward Deming was an American statistician, professor, author, consultant, best known for his contribution to the success of Japanese industry by introduction of total quality management principles, and the 14 points of management recommended to the American industry.

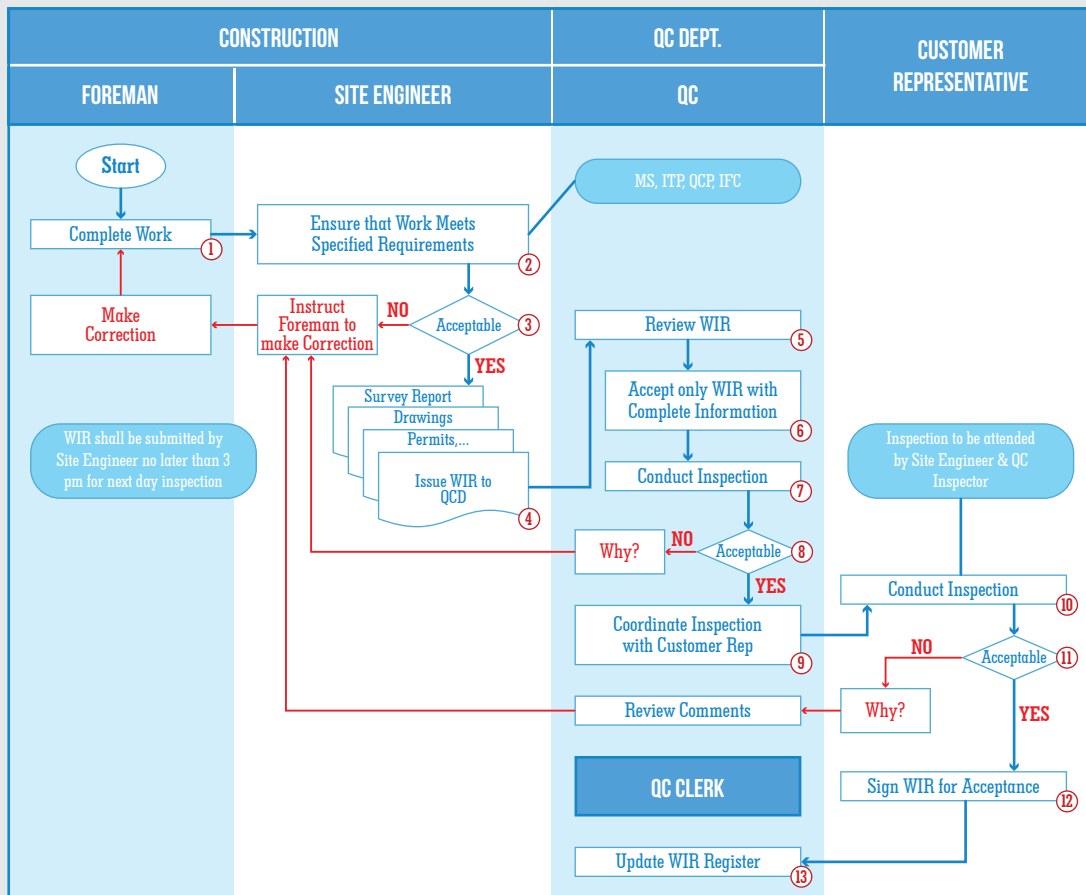


Chart 03

CCC Oman Head Office

FEATURE



The new corporate head office in Oman demonstrates CCC's commitment to sustainable building practices. These new offices in Muscat have been constructed in accordance with the standards of green design and technology and achieved a LEED-2009 certification from the U.S. Green Building Council (USGBC). The location of the new building is Shatti Al Qurum in Muscat. It features eight floors (three levels underground parking, ground floor, three typical floors and a penthouse) with total built up area of 62,172 square feet.

Being one of the first LEED-certified buildings in Oman the project is a model of sustainable and economic development, which minimizes environmental impacts and seeks to restore ecological resources.

Aiming for LEED certification, CCC applied and included numerous environmentally friendly elements, such as:

Sustainable Sites

- Construction Activity Pollution: the project has implemented an Erosion and Sedimentation Control Plan that conforms to the 2003 EPA Construction General Permit.
- Alternative Transportation: bicycle racks and shower facilities are provided on site. Also, located on site are designated preferred parking spaces for car pool and low-emission/fuel efficient vehicles.
- Heat Island Effect: high solar reflectance roof cement tiles are used to reduce the heat island effect. Also, a three level underground parking was constructed to reduce the heat island effect.

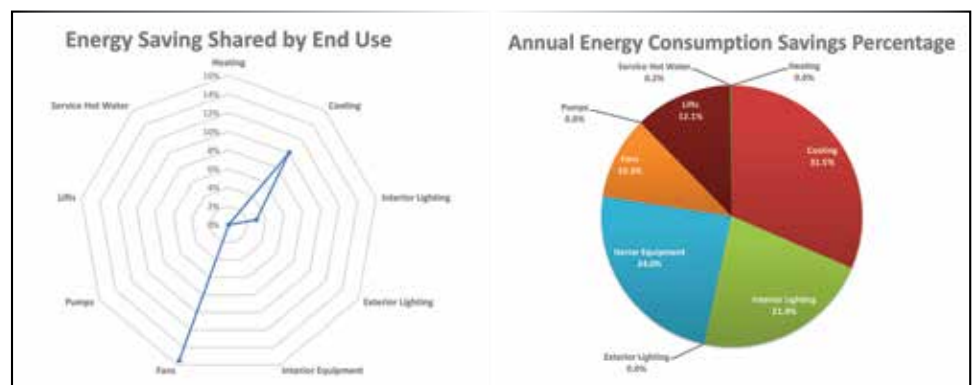


Water Efficiency

- Water Use Reduction: the project reduced the quantity of water needed by at least 53% over baseline (EPA Act 1992) standards by specifying ultra-low flow fixtures.
- Innovative Wastewater Technologies: water is conserved via dual flush toilets, waterless urinals and ultra-low flow faucets, saving 159,570 gallons of the potable water typically used.

Energy and Atmosphere

- Optimize Energy Performance: the project has achieved an energy cost saving of 19.85% (based on ASHRAE 90.1-2007) using an efficient HVAC system (variable refrigerant flow system with one outdoor condensing unit and multiple indoor unit (evaporators) and an energy recovery wheel that recycles heat byproduct from the system), a high efficiency glazing system and high efficiency lighting controlled by motion sensitive occupancy sensors.
- Enhanced Commissioning: all building systems are fully commissioned by a third party, who verified that the building is designed, constructed and calibrated to operate as intended.



- Measurement and Verification: the project has developed and implemented a Measurement and Verification plan consistent with option D: Calibrated simulation in the IPMVP Volume III.

Materials and Resources

- Storage and collection of recyclables: within the building are dedicated areas for the storage and collection of recyclables, including paper, plastic, metal, glass and cardboard.
- Regional Materials: more than 20% of the construction materials were extracted, harvested or recovered and manufactured within 500 miles of Muscat.
- Certified Wood: most of the wood specified in this project is certified to be sustainably harvested by the Forestry Stewardship Council (FSC).

Indoor Environmental Quality

- Minimum Indoor Air Quality Performance: the ventilation system has met the minimum requirement of ASHRAE 62.1-2007.
- Construction IAQ Management Plan: during construction, all absorptive materials are protected from moisture damage and sealed ductwork prevented all dust /particulates from contaminating the ventilation system; construction filtration media will be replaced before occupancy.
- Healthy Indoor Environment: Interior finish materials were carefully selected to provide a higher standard of indoor air quality (low volatile organic compounds (VOC's) in adhesives, sealants, paints, coatings, carpet, composite wood materials and furniture).

- Thermal Comfort: The HVAC layout and equipment selection is designed based on ASHRAE standard 55-2004 for human occupancy. A monitoring system is provided through the building management system to ensure that the building performs to the desire comfort criteria as determined in the design.

In March 2016 CCC's new Oman Headquarters was honoured as the Sustainable Project of the Year at the Construction Week Oman Awards 2016. The Construction Week's panel of industry judges congratulated CCC for the sustainable features embedded in the project, especially since there is little demand for LEED in Oman. As stated by one panel member: "It's nice to see a contractor leading by example and investing in its own sustainable facilities."

In March 2017, the U.S. Green Building Council (USGBC) confirmed that the project achieved LEED Accreditation (Certified Level) for new construction (V2009) by achieving 44 points (see the relevant LEED Certification Review Report).



LEED Certification Review Report

This report contains the results of the technical review of an application for LEED® certification submitted for the certified project. LEED certification is an official recognition that a project complies with the requirements prescribed within the LEED rating systems as created and maintained by the U.S. Green Building Council (USGBC). The LEED certification program is administered by the Green Business Certification Inc. (GBCI).

CCC Headquarter Building

Project ID: 1000032000
 Rating system & version: LEED-NC v2009
 Project registration date: 04/16/2013

Certified (Certified)
 CERTIFIED: 44 OF 110 POINTS, 100% (100% OF 44 OF 44)
 LEED V2009

LEED FOR NEW CONSTRUCTION & MAJOR RENOVATIONS (V2009)
 ATTEMPTED: 98, DENIED: 1, PENDING: 0, AWARDED: 44 OF 110 POINTS

Category	Points Available	Points Earned	Points Missed
1. SUSTAINABLE SITES	10 OF 20	10	0
2. WATER EFFICIENCY	10 OF 20	10	0
3. ENERGY EFFICIENCY	10 OF 20	10	0
4. MATERIALS & RESOURCES	10 OF 24	10	14
5. INDOOR ENVIRONMENTAL QUALITY	10 OF 20	10	0
TOTAL	60 OF 110	44 OF 110	16 OF 110

Palestinian Museum Palestine

FEATURE



The Palestinian Museum is a flagship project of the welfare association, Taawon, a not for profit organization set up by members of the Palestinian and Arab business and intellectual communities. CCC completed the construction of this modern historical museum dedicated to preserving and commemorating the Palestinian heritage with PROJACS International and Arabtech Jardaneh.

Museum is located in Birzeit, Palestine, seven kilometres north of Ramallah and the total land area is 40,000m². It consists of:

- **Main Building:** the Building, with a total built up area of 3085m², includes a climate-controlled gallery space, amphitheatre, cafeteria with outdoor seating, library, classrooms, storage, gift shop and staff offices.

The Palestinian Museum is Palestine's first green building with LEED certification, presenting an example of long-term sustainability in accordance to internationally benchmarked standards. Although the initial target was a LEED Silver certification in the end the project was awarded a higher rating level: Gold LEED Certificate (see the LEED scorecard).

The Palestinian

1000038721, Ramallah.		The Palestinian Museum		GOLD, AWARDED MAY 2017	
LEED BD+C: New Construction (v2009)					
SUSTAINABLE SITES	AWARDED: 16 / 26	MATERIAL & RESOURCES	CONTINUED		
SSc1 Site selection	1/1	MRc6 Rapidly renewable materials	0/3		
SSc2 Development density and community connectivity	0/5	MRc7 Certified wood	0/3		
SSc3 Brownfield redevelopment	0/1				
SSc4.1 Alternative transportation - public transportation access	0/6	INDOOR ENVIRONMENTAL QUALITY	AWARDED: 10 / 15		
SSc4.2 Alternative transportation - bicycle storage and changing rooms	0/1	EQc1 Outdoor air delivery monitoring	0/3		
SSc4.3 Alternative transportation - low-emitting and fuel-efficient vehicles	3/3	EQc2 Increased ventilation	0/3		
SSc4.4 Alternative transportation - parking capacity	2/2	EQc3.1 Construction IAQ Mgmt plan - during construction	1/3		
SSc5.1 Site development - protect or restore habitat	0/1	EQc3.2 Construction IAQ Mgmt plan - before occupancy	1/3		
SSc5.2 Site development - maximize open space	1/1	EQc4.1 Low-emitting materials - adhesives and sealants	1/3		
SSc6.1 Stormwater design - quantity control	1/1	EQc4.2 Low-emitting materials - paints and coatings	1/3		
SSc6.2 Stormwater design - quality control	1/1	EQc4.3 Low-emitting materials - flooring systems	1/3		
SSc7.1 Heat island effect - nonroof	0/1	EQc4.4 Low-emitting materials - composite wood and agrifiber products	1/3		
SSc7.2 Heat island effect - roof	1/1	EQc5 Indoor chemical and pollutant source control	0/3		
SSc8 Light pollution reduction	0/3	EQc6.1 Controllability of systems - lighting	1/3		
		EQc6.2 Controllability of systems - thermal comfort	1/3		
WATER EFFICIENCY	AWARDED: 8 / 10	EQc7.1 Thermal comfort - design	1/3		
WEc1 Water efficient landscaping	2/4	EQc7.2 Thermal comfort - verification	1/3		
WEc2 Innovative wastewater technologies	2/2	EQc8.1 Daylight and views - daylight	0/3		
WEc3 Water use reduction	4/4	EQc8.2 Daylight and views - views	0/3		
ENERGY & ATMOSPHERE	AWARDED: 11 / 35	INNOVATION	AWARDED: 6 / 6		
EAc1 Optimize energy performance	2/19	Idc1 Innovation in design	5/5		
EAc2 On-site renewable energy	2/7	Idc2 LEED Accredited Professional	1/3		
EAc3 Enhanced commissioning	2/2				
EAc4 Enhanced refrigerant Mgmt	0/2	REGIONAL PRIORITY	AWARDED: 4 / 4		
EAc5 Measurement and verification	3/3	EAc1 Optimize energy performance	0/3		
EAc6 Green power	2/2	EAc3 Enhanced commissioning	1/3		
		EAc5 Measurement and verification	0/3		
MATERIAL & RESOURCES	AWARDED: 6 / 14	WEc1 Water efficient landscaping	1/3		
MRc1.1 Building reuse - maintain existing walls, floors and roof	0/3	WEc2 Innovative wastewater technologies	1/3		
MRc1.2 Building reuse - maintain interior nonstructural elements	0/1	WEc3 Water use reduction	1/3		
MRc2 Construction waste Mgmt	2/2				
MRc3 Materials reuse	0/2	TOTAL	61 / 110		
MRc4 Recycled content	2/2				
MRc5 Regional materials	2/2				



Palestinian Museum (Palestine)



- **External Area:** including division stone walls (senasel) and landscape for educational functions, café and seating areas in addition to parking areas.

Main Building	Lower Ground Floor	Area = 1053m ²
	Mezzanine Floor	Area = 77m ²
	Ground Floor	Area = 77m ²
	Lower Ground Floor	Area = 1053m ²

External Area	Senasel & Retaining Walls
	Irrigation Tanks
	Main & Access Roads
	Parking Area & Landscape

The museum building and its surroundings are a model for environmental sustainability on the Palestinian level by implementing LEED in the design and construction phase:

Design Phase

Potable Water use Reduction

- Three water tanks to harvest rainwater for collecting and reusing rain water.
- Wastewater treated and reused for landscape irrigation and flushing.
- Use of efficient plumbing fixtures.
- Gardens planted with native plants, that will not require large amounts of water.

Energy Use Reduction

- Building's orientation minimizes heating and cooling demand.
- Hot water solar energy system used to heat water for public use.
- Efficient envelope saving energy use.
- Building Management System controlling and reducing energy use.
- Efficient lighting fixtures (LED Lighting).

Green Materials

- Materials exposed to the public such as paint, carpet, adhesives and so on contain less toxic substances (low VOCs content), thus creating a healthier environment for museum users.
- Use of materials with recycled content such that the sum of postconsumer recycled content plus ½ of the pre-consumer content %, based on cost, of the total value of the materials in the project.
- Building materials or products have been extracted, harvested or recovered, as well as manufactured within a 500 mile (800 kilometres) radius of the project site.

Construction Phase

Erosion and Sedimentation Control (ESC Plan) & Dust Control

- Watering the site during excavations to prevent dust transmission.
- Covering the stockpiles of backfill and excavated materials.
- Single size aggregates covering non-construction exposed areas.
- Erosion and sedimentation control using silt fence.
- Washing station for cars and trucks.

Construction Waste Management (CWM) Plant

- The plant was constructed on site to collect construction waste material.
- The collected material is segregated by the type of material for recycling (steel, wood, plastic, cardboard, concrete).
- Recycling specialists transport each type of material from site for recycling facility.

Indoor Air Quality Plan (IAQ).

IAQ Guidelines for Occupied Buildings under Construction for the items listed below:

- HVAC Protection.
- Source Control.
- Housekeeping.
- Material storage.
- Labourers' health, dust or medical masks.

City Centre Almaza Cairo Egypt

FEATURE

Almaza City Center Summary LEED Credit Points by Category

Majid Al Futtain Properties Egypt (MAFP Egypt) is developing a 126,658m² convenient sub-regional centre as a retail destination, known as Almaza City Centre. The 147,845m² site is located inside the ring road between the relatively affluent Heliopolis and Nasr City districts of Cairo at the intersection of the Suez Road and Autostrad Road: a five-minute drive from City Stars. The commercial retail centre has been planned to house a variety of tenants and is seeking to achieve Leadership in Energy and Environmental Design (LEED) Certification with the U.S. Green Building Council (USGBC).

The project is targeting silver certification. However, the client is aiming to achieve gold certificate.

LEED Credit Category	Possible Achievable Points	Points Pending	Not Achievable	Total Available Points
Total No. of Sustainable Sites Credits Points	16	8	4	28
Total No. of Water Efficiency Credits Points	6	0	4	10
Total No. of Energy and Atmosphere Credits Points	13	0	24	37
Total No. of Materials and Resources Credits Points	6	0	7	13
Total No. of Indoor Environmental Quality Credits Points	5	2	5	12
Total No. of Innovation in Design Credits Points	6	0	0	6
Total No. of Regional Priority Credits Points	4	0	0	4
Total Number of Almaza City Center Credits	56	10	44	110

Listed below are selected practices applied to meet the project's LEED certification requirements:

Sustainable Sites

- Alternative transportation through public transportation - bicycle storage and changing rooms - low emitting and fuel efficient vehicles.
- Heat island effect - non roof: 50% of parking spaces will be placed under cover.
- Heat island effect -roof: all roofing material will have high solar reflective index (SRI >= 78).

Water Efficiency

- Water consumption reduced by more than 20% over baseline standards (EPA Act 1992) by specifying low flow fixtures.

Energy & Atmosphere

- Efficient HVAC system.
 - High efficiency glazing system.
- Advanced lighting fixtures with low wattage.



Materials and resources

- Over 75% of all construction waste scheduled to be recycled.
- Storage and collection of recyclables.
- More than 40% of construction materials extracted and manufactured within 500 miles of Cairo.
- More than 30% recycled content inside construction material.
- More than 30% of the wood used certified as sustainably harvested by the Forestry Stewardship Council (FSC).

Indoor Environmental Quality

- Sensors installed to monitor building ventilation and CO2 content.
- During construction, all absorptive materials protected from moisture damage and sealed ductwork prevented all dust/particulates from contaminating the ventilation system.
- Construction filtration media replaced before occupancy.
- Interior finish materials carefully selected to provide a higher standard of indoor air quality with low volatile organic compounds (VOCs).



Automated People Movers (APM) Head House

Abu Dhabi, UAE



“The APM Head House, Phase 1 will be a high specification state-of-the-art automated people mover hub where passengers arrive, depart and go through immigration and baggage handling on entry and exit to the MTB (Midfield Terminal Building).”

- **Client:** Abu Dhabi Airports Company (ADAC).
- **Consultant:** AECOM.
- **Contractor:** Consolidated Contractors Engineering & Procurement (CCEP).

The project has been developed by ADAC as part of the full development of the new Abu Dhabi Airport. The Automated People Mover Head house is located between Gatehouse 19 & 20 of Piers (2&3) of the MTB project as demonstrated in the graphic.

- **Starting Date:** 01/09/2015.
- **Completion date:** 31/10/2017.

The APM Phase 1 Project is being constructed

by CCEP to develop the skeleton of the people mover head house which will provide connection for commuters to travel between the new Midfield Terminal Building and the old terminal of Abu Dhabi Airport. CCEP is responsible for the Phase 1 scope of construction for the APM Project which includes the following:

- Excavation 20 meters below OGL and disposal of extra soil within Abu Dhabi Airport boundary (approximately 700,000m³ excavated soil).
- Dewatering and discharging to temporary drainage network.
- Shoring piling activities.
- RCC concrete casting for substructure of the head house.
- Application of waterproofing membranes on substructure elements.
- Backfilling 3 meters above roof slab.

It is clear from the above that Phase 1 of the construction scope is limited and it represents the construction of the skeleton without any internal construction activity for the services or the fit-out finishing elements.

ADAC requires CCEP to implement sustainability at every stage of the project. The construction works will be executed to meet the requirements detailed in the client specification “Sustainability and Environment” Dev.01 and in accordance with Employer’s Programme Construction Environmental Management Plan (P-CEMP), the Environmental Agency, Abu Dhabi (EAD) Guidelines and all other related rules and regulations of Abu Dhabi and particularly Estidama.



Estidama Requirement

CCEP is required to meet and implement Estidama principles which encompass the requirements for 1 Pearl for all works undertaken by the contractor within the airport boundaries including temporary buildings and structures. The project must achieve the Pearl rating as set during the design stage. The contractor has a duty to comply with all mandatory and optional requirements as per the “List of Targeted Credits” (see the table). The APM Project, Phase 1 has been found eligible to undergo the Early Works Protocol for Estidama, since it involves works that exclude all MEP insulations and fit-out.

Early Works Protocol for Estidama

The APM Project, Phase 1 has applied for an early works protocol NOC from the UPC Estidama team. The application process is a simplified Estidama building rating system covering all the credits relevant to early works (please refer to the list of targeted credits). Estidama packages are delivered in two packages: early works and main works.

The intention is to ensure that all works are carried out in compliance with Estidama requirements (including optional credits the project may later pursue) and guarantee proper hand-off so that each credit can be properly documented at later phases.

Practices implemented to achieve Estidama mandatory and credits required at APM-Phase 1 are as following:

• Integrated Development Strategy - IDP R1

All project team members participate weekly in Estidama progress meetings that are chaired by the construction Pearl Qualified Professional (PQP). The purpose of these meetings is to ensure proper synergy of development and construction progress between all team members towards achieving the required Estidama credits.

• Guest Worker Accommodation - IDP 2

All construction labourers need to be accommodated in labour camps that meet the requirements of Abu Dhabi Decision No (19) of 2009. In addition, the contractor must appoint individuals to form the workers’ representative committee who will look after the requirements of workers and develop a social and welfare programme of activities. Also, a monthly camp inspection is expected to take place to ensure that the camp meets the requirements and to highlight any issues within the facility that would require maintenance or improvement.

Item		Target
IDP	Integrated Development Process	
IDP-R1	Integrated Development Strategy	Required
IDP-2*	Guest Worker Accommodation	2 credit points Note: Division 01 Specification Section 01 30 00 is in line with IDP-2 requirements.
IDP-3*	Construction Environmental Management	2 credit points
NS	Natural Systems	
NS-R2	Natural Systems Protection	Required
LB	Livable Buildings	
LBo-R2	Urban System Assessment	Required
LBi-3*	Construction Indoor Air Quality Management	2 credit points
SM	Stewarding Materials	
SM-R1	Hazardous Materials Elimination	Required
SM-R2	Basic Construction Waste Management	Required
SM-1*	Non-Polluting Materials	2 credit points, for: <ul style="list-style-type: none"> • Zero ODP, Low GWP Insulation (1 point); • Chlorine Free Materials (1 point).
SM-9*	Regional Materials	2 credit points, for: <ul style="list-style-type: none"> • Cost of regional materials equal to 20% of total material cost.
SM-10*	Recycled Materials	4 credit points, for: <ul style="list-style-type: none"> • At least 80% or rebar or stressing steel has 90% post-consumer recycled content (1 point); • Concrete mixes with embodied Green House Gases (GHG) (1 point); • Only recycled aggregate is used as base, sub-base or backfill (2 points).
SM-12*	Reused or Certified Timber	2 credit points, for: <ul style="list-style-type: none"> • At least 70% (by cost) of all timber used on the project is reused or certified.
SM-13*	Improved Construction Waste Management	2 credit points, for: <ul style="list-style-type: none"> • A minimum of 70% of waste (by weight or volume) is recycled/salvaged. Note: Division 01 Specification Section 01 35 43 requires a 90% diversion rate.

*Note that the optional credits included are also required even if the project may not ultimately target them.



Automated People Movers (APM) Head House, Abu Dhabi, UAE

• **Construction Environment Management - IDP 3**

The contractor must hold a valid ISO 140001 certification. Moreover, a Construction Environmental Management Plan (CEMP) ought to be developed by a class “A” environmental agency that is registered under the Environmental Agency – Abu Dhabi (EAD). An Environmental Auditor has to perform environmental audits on a quarterly basis. The contractor must conclude all Non-Conformance Reports (NCRs) and environmental issues raised by the environmental auditor during the full duration of construction.

• **Natural System Protection - NS R2**

There are no valuable assets available within the project plot that would require any protection. Hence, no further action will be needed during construction stage. Credit narrative will be updated to confirm the same by end of construction.

• **Construction IAQ Management - LBi-3**

An IAQ plan, specific to the Phase 1 scope has been developed by the contracting team as a commitment to maintaining proper indoor air quality during construction. Further to this, the contractor must perform weekly IAQ inspections.

• **Hazardous Material Elimination - SM-R1**

CCEP is required to guarantee that all materials to be used in the project are free from asbestos, or Chromated Copper Arsenate (CCA). This is to be ratified by an official confirmation letter.

• **Basic Construction Waste Management Plan (CWMP) - SM-R2**

A CWMP has been developed and it includes best approaches for managing waste during construction including details on achieving 90% waste diversion from landfill. Project management and the entire construction team are obliged to ensure the CWMP is implemented during the complete duration of construction. The construction team along with the waste hauler is required to provide a dedicated waste storage area with specific waste skips for every type of waste. The appointed waste hauler will be responsible for transferring all generated waste to the recycling facilities in order to achieve at least 90% diversion rate from landfill. A dedicated workforce is trained and assigned to manage construction site waste to make sure that

waste is properly managed and segregated before transferring it to approved facilities.

• **Regional Materials - SM-9**

CCEP must calculate the total material cost to identify if the materials (applicable under Divisions 3 to 10 of the CSI Master Format) will be procured from local manufacturers and cover more than 20% of the total cost of materials (excluding the cost of labour and equipment).

• **Recycled Material - SM-10**

↳ For Steel:

The contractor must demonstrate that 80% of the steel used in the reinforcement has 90% post-consumer recycled content or is certified by CARES (UK Certification Authority for Reinforcing Steels).

↳ For Cement Replacement:

The contractor must propose mix designs that can contribute to reducing the overall GHG and reward the project two points. All concrete mixes that have 28 days strength between 25N to 60N are applicable to this requirement.

↳ For Recycled Aggregate:

The contractor must demonstrate that 100% of aggregates used in base, sub-base, or backfill, are recycled aggregates.

• **Re-used or Certified Timber - SM-12**

The Phase 1 scope excludes all MEP and Fit-out materials. Therefore, the target for the contractor is to ensure that at least 70% of temporary timber material (by cost) should be FSC (Forest Stewardship Council) certified or re-used from a previous project. Detailed calculations are conducted to show the total quantity of temporary timber material required for construction, highlighting the nominated material that will be FSC certified or re-used from previous projects to achieve the 70% target.

Opera Grand Tower Dubai

UAE



The Opera Grand Tower Dubai is an exclusive residential tower located near the Dubai Opera and Burj Khalifa. The construction of the 66-storey Opera Grand Tower is comprised of 60 residential storeys, two levels of residential amenities, two floors of cafes, restaurants, a shop outlet and a grand entrance lobby at the lower level. The two, three and four bedroom homes feature spacious living areas. The scope also includes four car park basements and six town houses in the podium area. The plot area is 7,227m² with a total built-up area of 107,000m².

This project is designed to conform to Dubai Municipality Green Buildings Regulations (DMGBR). The project's materials and systems are selected to comply with the requirements stipulated in these regulations, especially the performance criteria under both the Material and Buildings Vitality categories that address construction waste management, elimination of hazardous materials and the use of low VOC materials as prescribed by the system's credits.

A new green building rating system has recently been launched by the Dubai Municipality, established upon the Arabic definition of 'Al-Safat'. Nevertheless, the Opera Grand Tower project is still under Dubai Municipality Green Buildings Regulations (DMGBR).

Objectives

During the construction phase of this project the team will implement the following procedures singly or in combination:

- Select products that minimize consumption of non-renewable resources, consume reduced amounts of energy and minimize pollution, and employ recycled and/or recyclable materials. To help purchasers incorporate environmental considerations into purchasing decisions, it is the intent of this project to conform to

EPA's (Environmental Protection Agency) Five Guiding Principles on environmentally preferable purchasing.

The Guiding Principles focus on the following five areas:

- Employ integrated design, assessment, operation and management principles.
- Optimize energy performance.
- Protect and conserve water.
- Enhance indoor environmental quality.
- Reduce the environmental impact of materials.

Ecology and Planning

- The project promotes the use of low-emitting, fuel efficient vehicles and shared transportation such as carpooling by providing designated preferential parking for these vehicles and encourages alternative types of transportation (bicycle storage and changing rooms).
- Using plants which require minimal water supply to reduce the use of water.
- The project will help to reduce light pollution and night glow with associated benefits including allowing people to enjoy the view of the night sky.
- Heat island effect: Building Design using materials with higher solar radiation index (SRI) will help to reduce both absolute urban temperature and reduce the day time temperature range.
- Green roof (at least 30% of the total roof area) improves the appearance of the cityscape and encourages biodiversity. In addition, green roofs provide thermal and acoustic insulation, reducing the heat and noise transmitted to the roof.



Building Vitality

- The project aim is to eliminate indoor air quality problems resulting from construction activities and ensure a suitable level of indoor air quality.
- The building's occupants and systems must be protected from airborne contaminants which are generated or spread during construction or renovation inside the buildings.
- All ducts and other related air distribution component openings must be covered with tape, plastic, sheet metal or other methods to prevent dust or debris from collecting in the system.
- Immediately prior to occupancy, the temporary return air filters must be removed and replaced with permanent filters having Minimum Efficiency Reporting Value (MERV).

- The use of low volatile organic compound (VOC) materials will help provide satisfactory indoor air quality.
- Provision of daylight can reduce energy use for artificial lighting, therefore contributing to the reduction of carbon emissions and energy expenditure.

Resource Effectiveness: Energy

- The project will ensure that *HVAC equipment and systems* used in Dubai are manufactured and operated according to Dubai Municipality



- standards for minimum energy efficiency.
- Improving the performance of a *building thermal envelope* will result in lowered air conditioning requirements; reduce energy use and reduce the load on building machinery.
- The project intent is to control the electricity used in buildings by restricting the amount of electricity which is used to provide adequate lighting and to encourage the use of *energy efficient lights*.

Resource Effectiveness: Water

- Water efficient fitting, efficient irrigation and water metering to reduce the amount of water used in Dubai.
- Waste water reuse will contribute to water resources conservation.

Resource Effectiveness: Materials and Waste

- The proper specification, protection and installation of insulation material ensure that the materials perform in an efficient manner, reducing heat and sound transfer and contributing to energy conservation.
- At least (25%) by volume of the timber and timber-based products used during construction must be from certified/accredited sources approved by the Dubai Municipality.
- Materials containing asbestos will not be used.
- All paints and materials containing lead or other heavy metals must be accredited / certified by the Dubai Central Lab or any source approved by Dubai Municipality.
- Installations of heating, ventilation and air conditioning (HVAC) and refrigeration equipment must contain refrigerants with zero ozone depletion potential (ODP) or with global warming potential (GWP) less than 100.
- The project target is to have at least five percent recycled content materials out of the total cost of materials.
- The project target is to have at least five percent of construction materials extracted and manufactured within the *Gulf Cooperation Council (GCC)*.
- Composite wood products used in the interior of the building must not contain added urea-formaldehyde resins.
- At least 50% by volume or weight of waste material generated during the construction and/or demolition of buildings must be diverted from disposal in landfills.

New Port Project

Qatar

Package: Container Terminal Infrastructure and Utility Buildings (NPP0026).

Client: New Port Project Steering Committee (NPPSC).

Contractor: Teyseer Contracting Company W.L.L Consolidated Contractors Group S.A.L (Offshore) (CCC).

The New Port Project supports the country’s ambitious expansion plans envisioned as part of the Qatar National Vision 2030 and other significant events including the 2022 World Cup. It is a mega project and a major development for Qatar 2022 FIFA World Cup Games. The scope of work includes the construction of 28 kilometres of port roads and fifteen major intersections; the development of a 72Ha paved container terminal with 1200 meters of quay, refrigerated container and hazardous material container handling facilities; the development of a 340 MW electrical distribution network, and port administration and operations buildings namely:

1. Administration and Amenities Building.
2. Driver’s Reception Building.
3. Quay Side Amenities North Building.
4. Quay Side Amenities South Building.
5. Equipment Maintenance Workshop.
6. Mosque.

Requirements of GSAS for NPP0026:

Global Sustainability Assessment System (GSAS) is the first performance-based system in the MENA region, developed for rating the green buildings and infrastructures. The primary

objective of GSAS is to create a sustainable built environment, considering the specific needs and context of the region. One of the main prerequisites from the client (NPPSC) was to design and construct all the above listed buildings as per GSAS criteria and obtain a certificate for each stage.

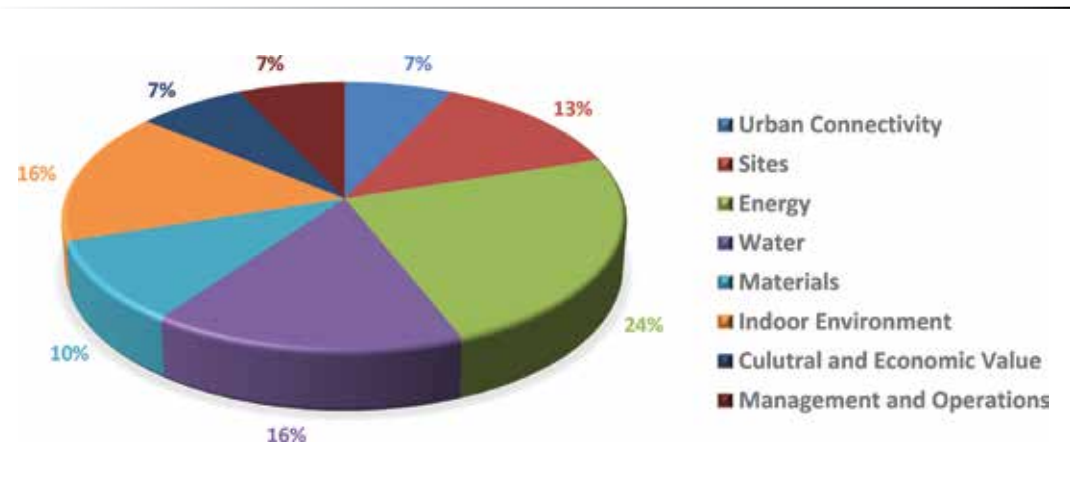
GSAS Design & Build certification is intended to evaluate the sustainability of newly constructed or majorly renovated buildings, districts and infrastructures. The GSAS Design & Build certification process consists of two stages:

- **Stage 1** Obtaining the Provisional Design & Build Certificate in the form of a Letter of Conformance (LOC) following the design phase; and
- **Stage 2** Pursuing the Conformance to Design Audit (CDA) during the construction phase. The successful completion of Stages 1 and 2 of the certification process will qualify the project to obtain the final GSAS Design & Build Certificate.

In this context, below are the criteria and procedures which were adopted by our project team at each stage for achieving all the parameters as per GSAS requirement in seriatim:

GSAS Categories & Weights

The comprehensive GSAS rating system measures and evaluates every project on eight key aspects or categories that have a direct impact on environmental stress mitigation. Each category is assigned a weight based on Analytical Hierarchy Process (AHP). The categories are then broken down into specific criteria that measure and define these individual issues. A score is then awarded to each criterion based on the level of compliance.



GSAS Overall Rating

- GSAS Toolkit illustrates points achieved and the maximum attainable points for each category.
- Allows user to see which category can be improved upon to obtain desired amount of points and rating level.
- Displays the GSAS star level achieved by the project.

Cumulative or Aggregated Score (X)	GSAS Star Rating (*)
$x \leq 0$	Failed (No Certificate)
$0.00 < x \leq 0.50$	*
$0.50 < x \leq 1.00$	**
$1.00 < x \leq 1.50$	***
$1.50 < x \leq 2.00$	****
$2.00 < x \leq 2.50$	*****
$2.50 < x \leq 3.00$	*****

Process and Methodology Incorporated by the Project Team

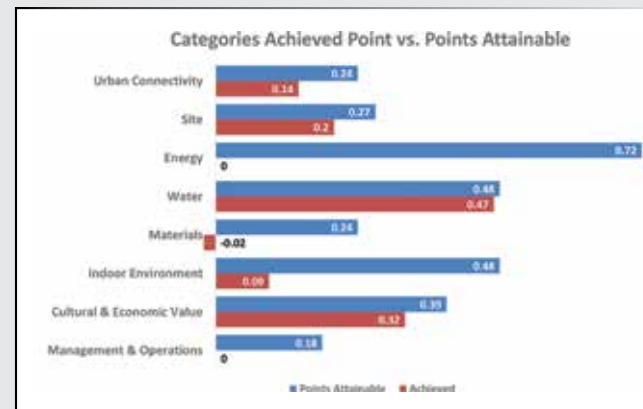
During construction and commissioning, GSAS Trust conducted a number of routine and random audits which were facilitated by the client representative. The goal of these audits was to verify the validity of information provided during the design stages as well as to ensure that the sustainability performance objective of the project is adequately met as per the initial design assessment. Audit visits were conducted by GSAS Trust or its Authorized Representative on a Routine or Random basis. In the Routine audit the time and scope is agreed beforehand, while in the Random audit, a short notice is given to the client representative. Audit visits were served as GSAS Trust audit protocol where the compliance requirements submitted during the design development are validated during construction. Audit visits were conducted for sampling purposes, as part of the GSAS Trust quality assurance process. During the CDA, the pursued criteria levels were verified against appropriate submittals and evidences, consequently the level can be maintained, upgraded or downgraded.

Accomplishment for GSAS at NPP0026 PROJECT BY TCC/CCC JV:

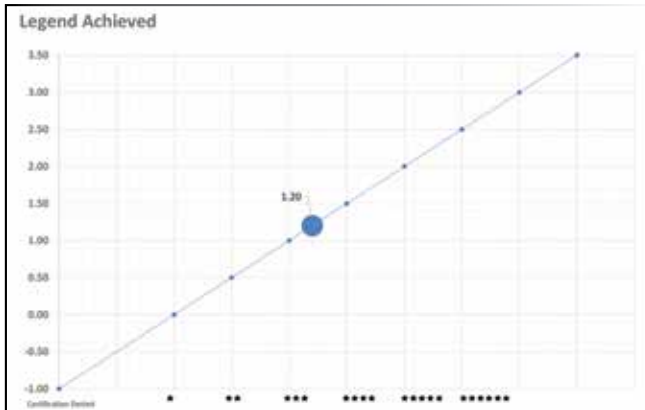
The TCC/CCC JV project team has pleasure in announcing that the joint efforts of all the parties concerned have resulted in the Final Certification by GSAS for all the six Design and Build Buildings with star ratings are shown in the table.

Typology	Building Name	Gross Area	Points Achieved	Rating
Major Typology	Equipment Maintenance	6,830.00	1.257	3 Stars
Commercial	Administration & Amenities	3,961.00	1.149	3 Stars
Commercial	Quayside Amenities Building	605.00	0.971	2 Stars
Commercial	Drivers Reception Building	541.00	1.071	3 Stars
Mosques	Mosque	289.00	1.124	3 Stars

No	Category	Point 1.197
UC	Urban Connectivity	0.138
S	Site	0.196
E	Energy	0.002
W	Water	0.472
M	Materials	-0.022
IE	Indoor Environment	0.091
CE	Cultural & Economic Value	0.318
MO	Management & Operations	0.000



New Port Project, Qatar



Level	Range
-	$x \leq 0$
*	$0.00 < x \leq 0.50$
**	$0.50 < x \leq 1.00$
***	$1.00 < x \leq 1.50$
****	$1.50 < x \leq 2.00$
*****	$2.00 < x \leq 2.50$
*****	$2.50 < x \leq 3.00$



GSAS Plaque and Certificate at the Administration and Amenities Building

Abu Dhabi Plaza Mixed Development (ADP) Kazakhstan

FEATURE

Consolidated Contractors Company and Arabtec Joint Venture is the main Contractor (Design-Build) of Abu Dhabi Plaza Project in Astana, Kazakhstan. ADP is one of the iconic projects in the Astana theme for EXPO 2017 and an example of Kazakhstan-United Arab Emirates investment partnership.

ADP is a mixed development complex with a total area of approximately 500,000m² consisting of seven assets with individual asset (except basement) targets and follow individually either LEED V3 New Construction or LEED V3 Core & Shell certification as detailed below:

1. 14-Level Hotel (LEED C&S Certified).
2. 2-Level Mall (LEED C&S Certified).
3. 29-Level Business Center (LEED C&S Silver).
4. 31-Level Business Center (LEED N.C Silver).
5. 17-Level Residential Building (LEED N.C Certified).
6. 76-Level Residential-Offices Tower (LEED N.C Silver).
7. 4-Level Parking.

As the main design-build contractor of such a multi-LEED certification development, ACCL JV is fully responsible for meeting and complying



with both LEED certification stages (design and construction) by following prerequisites and targeted credit requirements for in design, procurement and construction stages of the project.

In order to meet these requirements, the LEED responsibility workflow is followed during all project stages connecting different parties as shown in Figure 1.

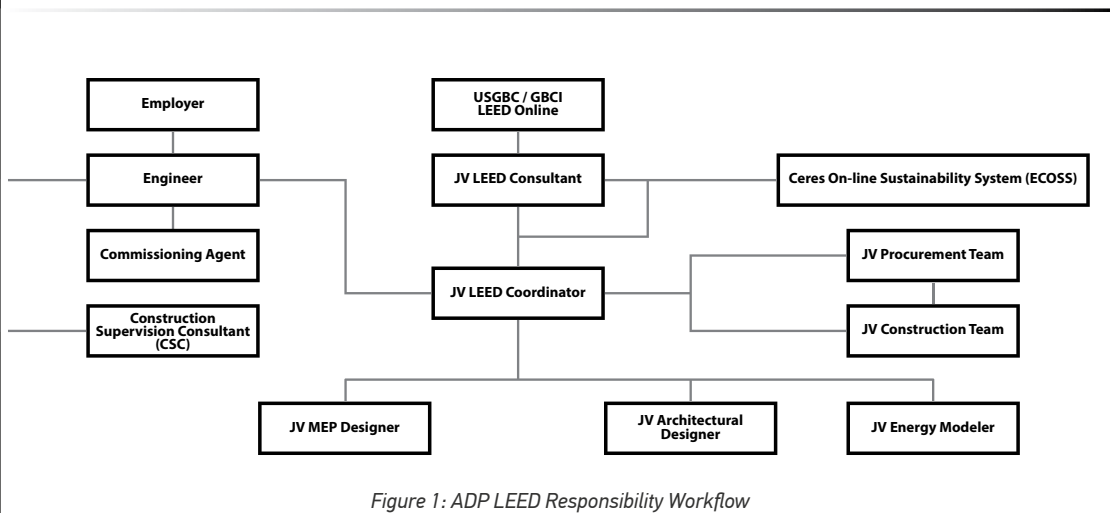


Figure 1: ADP LEED Responsibility Workflow

Energy and Atmosphere

14-20 % energy reduction via:

- Efficient HVAC systems.
- Optimized façade systems.
- Low U-Value insulation.
- Strict measurement and verification plans.
- Low LPD lighting systems.
- Enhanced commission of all systems.

Materials and Resources

- Special garbage collection system to guarantee highly efficient recycling process during occupancy.
- 10-20 % recycled material.
- 50% of the wood will be FSC Certified (Forest Stewardship Council).

Indoor Environmental Quality

- Better indoor environment for future occupants.
- Very strict non-smoking policy.
- Indoor air quality management plan during construction and before occupancy.
- Very low VOC and urea formaldehyde emissions for indoor material.
- Thermal comfort assurance for occupants.
- A minimum of 90% of the assets' occupants will have an outdoor view (except the mall).

Finally, in order to follow and meet ADP LEED requirements in all structural, architectural and MEP material and equipment during the procurement stage, a LEED review is done on each material by the LEED AP who issues the related LEED report approving or rejecting the material (Figure 3). After getting the LEED approval, the JV continues with approving the material by the engineer following similar procedure at other projects.

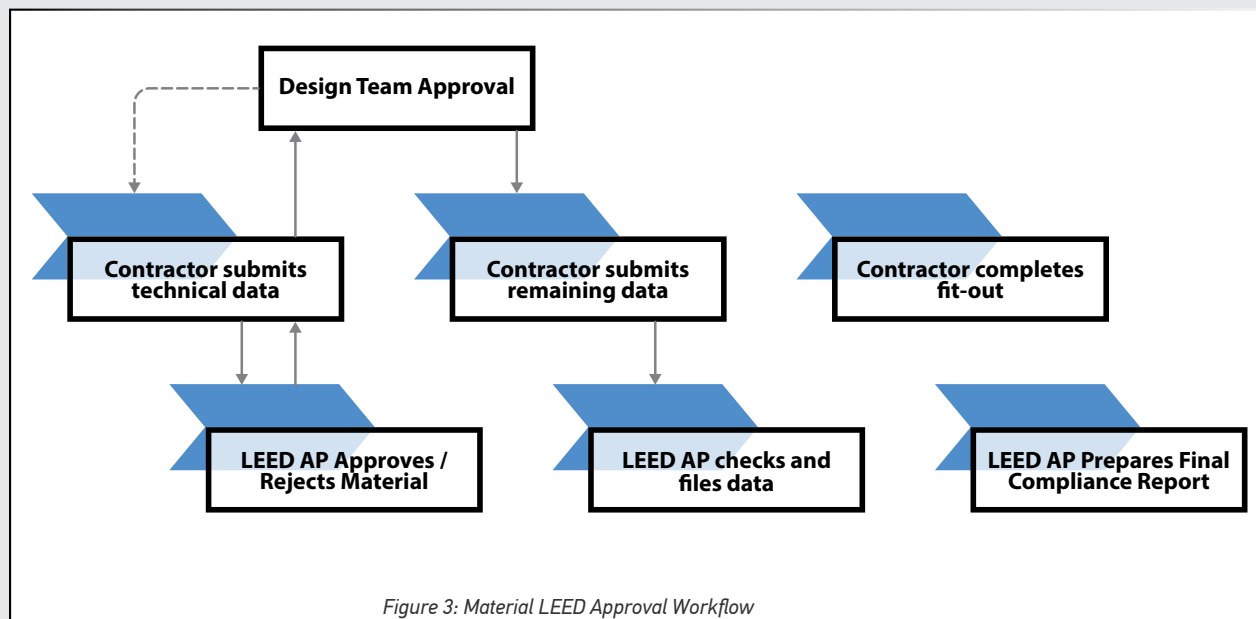


Figure 3: Material LEED Approval Workflow



Insights from CCC Certified Green Building Professionals

Since this issue of the Bulletin is dedicated to CCC's experience in the Green Building movement, we wanted to incorporate the perspective of CCC employees familiar with the green building professional credential process.

Colleagues contributed their point of view in a brief commentary:

S. Yehya, Building Information Modeling (BIM) Engineer, Greece

As a BIM architect leaning towards green building and sustainable design, I believe LEED Certifications are of added value to my knowledge and to CCC. LEED has opened my eyes to new ideas on how to be more efficient; it has expanded my views on current and future technologies, practices and strategies.

You will be surprised to find out how everyday habits can have such a substantial impact on the quality of our lives and the environment; building new is not the key point to being sustainable, but rather it is making the best with what we already have i.e. the three "Rs" rule: Reduce, Re-use & Recycle.

As for the certification and examination process, it needs time and dedication. There is quite a lot of information to process. However, once you come to understand the different topics, everything will fall right into place.

The market is moving towards green practices. Companies that employ LEED certified engineers are at an advantage and will be better suited for the future as sustainability is becoming the norm. Of course, in CCC, this can be applied in many ways onsite and offsite, such as construction waste management, debris control, water runoffs, recycling, optimizing energy performances and so on.

BIM, within CCC, has a great advantage in the green building movement. BIM data are able to be integrated with building performance simulations in order to achieve better sustainable scenarios and outcomes.

Long story short my major driving force in choosing LEED was that it showed promise in green design and practices which would insure a more favorable and sustainable life outcome of our future generations.



J. Maksad, Sr. Mechanical Engineer, E/M Estimation, Greece

I first got exposed to LEED in 2009 while working on the construction site for The Princess Noura University Project in Saudi Arabia. The concepts of energy efficiency, water use reduction, reduction in emissions, waste management and others transformed the construction site and attracted me to pursue a LEED certification. I would recommend people interested in LEED to begin by pursuing the LEED GA (Green Associate) certification which provides an introduction to the concepts of LEED and highlights the impact of each LEED category on the planet, on people and on profit (the three Ps). I would then recommend them to pursue the LEED AP (Accredited Professional) certification which provides a solid foundation for the LEED concepts by delving into the details and the calculations on which these concepts are based.

As a mechanical engineer for building systems, LEED concepts provide a life cycle approach beginning from conceptual design and continuing until testing, commissioning, and project handover. LEED has not only transformed the way I approach a construction project, but has also affected my daily life by encouraging me to minimize my carbon footprint and my use of consumable material while improving the air quality of my immediate environment. In our present world, understanding LEED has become essential for understanding the way our built environment is created and how it functions to improve the quality of life for mankind.

D. Far, BIM Architect, UAE

Building on my interest in sustainable construction and stemming from the growing need to implement internationally acknowledged measurable strategies and solutions for green buildings, I pursued the Leadership in Energy and

Environmental Design Accredited Professional credential with a specialty in Building Design and Construction. The LEED AP BD+C credential provided me with an invaluable overview of all subject areas of green construction and sustainable development with considerable focus on energy and water efficiencies. Attaining the credential has raised my awareness of the interdependency and potential synergies and tradeoffs between the different design and implementation strategies. It also helped me develop a more holistic view and gain familiarity of the overall certification process throughout the lifecycle of the green buildings, from the design and construction to operation and maintenance.

As a BIM architect, I believe in the significance of interconnectedness of processes. Consequently, the needed adoption of BIM and sustainability together provide a portrayal of opportunities that should be captured and that could raise the bar for time, cost and energy efficiencies in the AEC industry. Such collaboration will maximize building performance, optimize environmental and sustainable metrics and result in cost efficiency.

M. Elsayed, Environmental and Sustainability Engineer, Qatar

I have the LEED Accredited Professional credential with a specialty in Building Design and Construction (AP BD+C) and Estidama Pearl Qualified Professional (PQP) certificate for green building rating systems, with work experience as an environmental and sustainability engineer. One of the important goals of green building rating systems is protecting the environment through different disciplines (climate change, human health, water resources, biodiversity and material resources). In essence, green building rating systems have gone the environmental aspects to include the whole effect of the project. Usually the environmental work focuses on the construction activities of the project, but for the green building rating, the scope expands to different factors using a measureable rating system that gives scores for complying with credit intent. The number of green projects has significantly increased in the Middle East over the past few years. Project owners are setting targets for green building certification (LEED, GSAS, Estidama, Safat and so on). As a result, an increasing need for professionals to be aware of green building rating systems arises.



CCC wins MENA Green Building Award



CCC was conferred the award Contractor of the Year at the MENA Green Building Awards.

On Wednesday 17 May 2017, at a carbon-neutral awards ceremony held at Roda Al Murooj hotel in Dubai, Nabil Hamdan and Samir Thabet received the award on behalf of the CCC Group.

The awards were organized by the Emirates Green Building Council (EmiratesGBC) in partnership with JordanGBC and LebanonGBC and supported by WorldGBC. The EmiratesGBC is an independent organization founded in 2006, with the goal of protecting the environment by advancing green building principles.

The awards honour organizations for their innovative and outstanding sustainable building practices. As a result, they have become a significant gathering for industry professionals committed to promoting sustainable built environments.

The MENA Green Building Awards, previously known as the EmiratesGBC Awards, were reintroduced in 2017 to have greater influence throughout the region. The ultimate ambition is to help with the establishment of a regional sustainable building model that is world class and replicable.

This year, with record submissions from six nations across the MENA region, the awards highlighted the growing focus of industry stakeholders to promote sustainability through innovation and best practices.

For the Contractor of the Year Award CCC competed against numerous players from the region. CCC received this award for being a contractor whose achievements and priorities align with improving the sustainability of the built environment. It was also granted in recognition of demonstrating high green standards on project sites and within the company, with adherence to national and international regulations and codes.

Some quotes from the Award Ceremony:

“We congratulate the winners of the 2017 MENA Green Building Awards not only for their demonstrated excellence in driving the sustainable built environment of the region but also for their commitment and dedication to innovation and promoting green best practices.”

Saeed Al Abbar, Chairman of EmiratesGBC

“The 2017 MENA Green Building Awards highlight the dedication of the regional construction industry stakeholders to pursue environment-friendly practices. The innovations and best practices that winners present are uniquely suited for the region and can be replicated in similar environments globally.”

Lee Siang, Chairman of WorldGBC



Nabil Hamdan (center) and Samir Thabet (right) receiving the award on behalf of the CCC Group





Palestine

The Bethlehem Development Foundation

AREA NEWS

The Bethlehem Development Foundation (BDF) founded by the late Muallem Said Khoury held its third General Assembly Conference in Bethlehem, Palestine on 21 April 2017.

The Chairman of the Board of Trustees, Samer Said Khoury, thanked all the attendees for their continued commitment and urged everyone to continue their efforts to achieve BDF's goals.

The meeting focused on BDF's fundraising activities, the purpose of which is to secure the necessary financing for future projects.

The Chairman of the Board of Directors, Ziad Al Bandak, highlighted CCC's financial support and the need to exert more efforts to secure additional external funding taking into consideration the current financial difficulties and the limited sources of funding. Mazen Karam, Managing Director/CEO, presented the BDF status report 2013-2017 which includes a brief about the ten projects completed and selected future projects.

The latest audit report (for the year 2015) was presented by Marwan Saca, BDF Financial Administrator.

Ahead of the General Assembly meeting Samer Khoury, Suheil Sabbagh, Walid Salman and Ziad Al Bandak visited the Nativity Church. In his capacity as Head of the Palestinian Presidential Committee for the restoration of the Nativity Church, Mr. Al Bandak briefed the visiting team about the progress of work funded by the Arab Fund for Economic and Social Development through the Bethlehem Development Foundation.



It is worth mentioning that the initial restoration studies and contractor selection process were funded by the late Said Khoury who also spearheaded the fundraising efforts for the execution of the restoration works with a very generous donation.



2nd Iraq-Europe Conference

Greece



AREA NEWS

It has been more than 35 years since the Arab-Hellenic Chamber of Commerce was founded in Greece and since then CCC has been one of its major supporters, an element which can be clearly observed in the Chamber's structure. And it is worth mentioning that even nowadays, following in the footsteps of the founders, the current leadership of CCC continues this significant support.

Once more CCC participated as a Strategic Sponsor in the Second Annual Iraqi-European Business and Investment Forum held on 18 May 2017 at the Divani Caravel Hotel.

The Forum was held under the auspices of the President of Iraq, the Ministries of Economy and Development, Foreign Affairs of Greece, the Union of Arab Chambers and the Federation of Iraqi Chambers of Commerce.

The main speakers were consecutively Mr. Jaafar Al Hamadani, Chairman of the Federation of Iraqi Chambers of Commerce, Mr. Tawfic S. Khoury, Executive Vice Chairman of Consolidated Contractors Company (CCC), H.E. Prof. George Katrougalos, Alternative Minister of Foreign Affairs of Greece, H.E. Mr. Sharwan Kamel Alwaeli, Advisor to and Representative of the President of the Republic of Iraq, and H.E. Mr. Dimitris Papadimitriou, Minister of Economy and Development of Greece. All keynote speakers welcomed this initiative and referred to the excellent relations between Iraq and Greece, highlighting the great potential and opportunities for Greek businesses to be part of Iraq's reconstruction projects.

The three sessions started with Iraq's Investment Opportunities which were presented by high level Iraqi speakers, followed by Iraq's Oil & Gas and Sustainable Energy Sectors and the third session on Potential for Infrastructure Projects in Iraq. The last two sessions were presented by

high level Iraqi, Greek and European speakers, outlining the potential of these sectors in light of the fact that Iraq is heading towards a new era of security, stability and reconstruction.

CCC, as always, had a quite distinctive participation in this event, while Mr. Tawfic S. Khoury as a main speaker highlighted the significant role of the Chambers and their relations with Consolidated Contractors Company, also remarking on how this kind of initiative promoted Greek-Arab and Greek-European relations.

Dr. Khalil Barakat, Business Development Director GCC (CCC) made a circumstantial presentation regarding the history of projects which took place and still do in the country while Dr. Saleh Jallad, Financial Consultant (CCC) and Publisher of Middle East Economic Survey (MEES) was a noteworthy participant in this forum as a speaker.

CCC's presence was also supported by two essential elements:

- Supervisor engineers who participated in B2B meetings with Greek and Iraqi companies for the development of potential cooperation, and
- The CCC stand with its bright and notable appearance, being visited by all the attendees of the forum.





USA

Project News from Morganti

AREA NEWS

5 April 2017

Wall Street Theater, Norwalk, Connecticut

Morganti was pleased to attend the soft opening of the Wall Street Theater in Norwalk, Connecticut, a project we've worked enthusiastically on in order to live up to its historic past.

Over 100 years old, the theater has hosted greats such as Wu-Tang Clan, David Lee Roth, The Go-Gos, Violent Femmes and Waylon Jennings. Today, it will combine live shows, interactive entertainment, cinema, digital production, art space and a community arena in which to play.



24 April 2017

Connecticut National Guard's Civil Support Team at Camp Hartell, Windsor Locks, Connecticut

Morganti is honored to help lead the way and support the 14th CST on Sealaska Constructor's team! Planned to be completed in spring of 2018, the building will include an operations center, classroom, locker rooms, ready bays for vehicles, and administrative offices.

"This is actually the first nationwide purpose-built facility for the Civil Support Team, so Connecticut is kind of leading the way," Lt. Col. Ben Neumon of the Connecticut National Guard said.



16 June 2017

SeaWorld San Antonio Wave Breaker, San Antonio, Texas

Wave Breaker, a joint venture with Casias Construction, opens on 16 June. Inspired by the SeaWorld Rescue Team, this multiple-launch ride is the only coaster that looks and feels like a high-speed, jet ski adventure. This is the first roller coaster added to the park in almost 20 years.



C C C

The Ramadan Rounds ...

UAE, Qatar, Saudi Arabia



In keeping with our longstanding Ramadan tradition of making the rounds to the Areas, we headed out on three super-fast Iftar stops in Abu Dhabi, Doha and Jazan.

The first night was in the UAE combining also our senior colleagues from Kuwait and Oman as well.

Doha and Jazan were purely the respective area senior staff.

Times are tough and the main messages that the President, Engineering & Construction passed on were definitely hard ... but realistic and reflecting a tight market.

The main highlights were:

- Improving PRODUCTIVITY through better planning, more time on site, and related incentives and work-packages.
- Reducing PROJECT COSTS by lowering both staff and labour costs, lowering material and subcontract costs. The market is down and we should leverage this.
- Better CASH FLOW Management through working with the clients to gain more revenue generated/recognized from work in progress in a timely and fair manner.
- YOUNG LEADERSHIP now in place on country management. Next we have to empower the new generation project managers, control and construction managers. We have to carefully choose and coach these young men who are our future promise.

Yes, we have to tighten our belts. The construction landscape around us is shaky.

We are coping well while giants are failing. We are still there hanging tough because of our resiliency. We have a couple of hard years ahead of us before we return to normalcy after which we can emerge even stronger given the shakeup in the Middle East construction players.



AREA NEWS



UAE

Management Review Meeting

AREA NEWS

On 25 May 2017, the Executive Management Meeting held the yearly Management Review Meeting in Abu Dhabi, UAE to discuss various management topics in their continuous endeavour to improve CCC operations and performance to cope with the huge challenges imposed by the current market decline and low oil prices and to mitigate the effects of the market recession on CCC.

Mr. Samer Khoury led the meeting. In his introduction, he highlighted the current strengths and weaknesses of CCC. He pointed out that CCC is in a good position in the market compared to the other competitors due to its huge backlog and the new projects recently awarded. However, he stated the issues and concerns that needed to be addressed to tailor the strategy that should be followed to meet the targets of the meeting, emphasizing the need for exceptional efforts of all attendees to improve the performance and operations each in his area.

The meeting started by presenting the HSE status, achievements and concerns for all CCC projects with emphasis on safety awareness, the target of zero incidents, implementation of all CCC HSE procedures and the application of IVMS on all projects and vehicles in order to save lives, minimize incidents and improve CCC's safety record.

Quality issues and achievements were raised and all attendees reconfirmed once again their commitment to delivering a high quality job knowing that this is what differentiates CCC from its competitors. All attendees are aware of the importance of doing a high quality job right from the start as it is the fastest and most economical way. The importance of implementing CCC's in-house systems to help achieve these targets was emphasized.

The question of CCC sales and revenues was also raised and the recent awards of 2017 show a positive trend in 2017, especially since more awards are expected before the end of the year. Despite this fact, all attendees realize that at this period the projects are very tight in terms of schedule, budget and profit margin. CCC is determined to cope with the above challenges.

Furthermore, discussions emphasized the importance of reducing our costs, expenses and overheads and the timely collection of our payments and dues from clients. Similarly, the need to submit claims and variations upon



occurrence and follow up their early finalization and settlement was highlighted, bearing in mind that currently our clients have also limited budgets which makes claim agreement and payment a major achievement in itself.

The subject that was discussed the most was productivity as it is the pillar of profitability. Several perspectives have been addressed covering all stages of a project i.e. from pre-bid through execution and completion. Two current projects were talked over as case studies and attendees came up with a series of recommendations for implementation and follow up/feedback. Discussions focused on how mobilization and construction activities should follow the project schedule and the three-week look ahead schedule in order to improve productivity and use resources efficiently with early mobilization of proper staff.

The Balanced Scorecards have been reviewed and corrective actions have been agreed to be taken on the projects to improve results.

Another pillar to the success of a project and the increase in productivity are the staff motivation and recognition awards. This was discussed and it was agreed to reward good performers and differentiate them from the others in order to motivate them. In addition, staff relocation and Arab and local content issues were raised. Also,

Management Review Meeting



the need to comply with a country's local labour laws and agree on a strategy for staff relocation considering the various constraints imposed by some countries against other nationalities and so on was discussed.

The Risk Management presentation showed the importance of identifying the potential risks at any stage of the project before their occurrence and working to mitigate them to improve our performance and minimize their negative effects in terms of safety, quality, cost and time. For this reason, the attendees agreed to reinforce the implementation of the Risk Management system on all projects and update it periodically during the life of the project. To support the implementation, a list of common and most critical risks of all categories was sent to all projects to study and check what is applicable to each project. Each project is to report on its risks and their register on a monthly basis.

Dashboard and Knowledge Management issues have been raised to ensure that company and project data is properly and securely saved for easy access by the authorized staff. All attendees were urged to ask their project managements to timely submit all their reports; meanwhile, all projects were encouraged to use the Dashboard / Fanous to find useful documents for their tasks.

A new concept, which proved to be very useful in improving project execution and minimizing faults, is the 50% On-Project Lessons Learned Workshop. This concept is meant to apply lessons learned on the project itself at 50% progress in order to apply the lessons learned on the project itself during its remaining period till completion. Attendees were asked to start using this concept on all projects.

Furthermore, a session of the meeting was dedicated to the Lessons Learned from projects with focus on two major running pioneer projects where a thorough study was conducted on both of them and the recommendations for corrective actions were distributed to all projects to avoid repetitive flaws.

The President's initiatives have also been discussed, mainly, Client Satisfaction Survey, Productivity Survey, Employee Satisfaction Survey, GUD Satisfaction Survey and Camp Satisfaction Survey. The feedback of each of these surveys was presented and discussed including the comments received by clients and employees. All attendees agreed that clients' and employees' satisfaction is a

top priority and that more efforts and special attention are required to improve the areas with low ratings, bearing in mind that this is a long process.

Similarly, the progress on the President's initiative of Innovation and R&D was discussed. This initiative has two main tasks, the first is Identification of Business Opportunities and the second is Internal Process Improvement. Various proposals were approved for these tasks and committees were appointed to follow up on each proposal and report on them.

The cost control report and work packaging distribution issues were raised and all attendees emphasized the importance and usefulness of applying the work package system. It was also agreed that Estimates should detail the work packages and involve the Area/Project Management in reviewing the production norms. Moreover, it was agreed that all projects should use the CCC control tools and software for better control of the project.

Finally, the outstanding issues from the previous meeting were reviewed and all agreed to continue working on their implementation.

Safety Bazaar & Practical Training



HEALTH, SAFETY & ENVIRONMENT



On 30 March 2017, CCC RHOP (Rabab Harweel Integrated On-Plot Construction Project) Oman launched the project's Safety Bazaar which was attended by the CCC project management, engineers and the client (PDO).

The Safety Bazaar is a collection of common tools and equipment on site displayed in pairs "one good, one bad". It is intended to be a practical demonstration of how to identify hazards and targets the whole workforce on the project, as well as visitors and vendors, to increase awareness by showing the items that are safe and those that are unsafe to use. Increasing the awareness of personnel reduces the probability of incidents from happening on site.

The Safety Bazaar is different because unlike conventional training methods where workers sit and listen to lectures in the training room, the bazaar presents an environment where trainees can actively interact with the objects making it more of a hands-on activity.

A tour of the bazaar is mandatory for all newly-engaged personnel as part of the Project Site Specific HSE Induction Course similar to other practical training courses such as Work at Heights and Dropped Object Awareness. Complete scaffolding platforms and a Dropped Object Awareness board were especially erected near the CCC Training Centre so that newly-engaged personnel, guided by HSE trainers, will have first-hand experience in performing critical activities safely and efficiently.



Safety Bazaar & Practical Training

More practical safety training will be adopted as the project is manning up in order to achieve the objective of finishing the project "Safely, Efficiently and on Time" and to attaining our ultimate goal of "Going Back Home Safely to our Families".



HEALTH, SAFETY & ENVIRONMENT



Contribution to CSR Initiative

CCC Staff are encouraged to come up with ideas and activities related to CCC's CSR Initiatives including **Going Green** and community involvement events. Please send your ideas, initiatives and achievements to "CSR-CCC" email address csr@ccc.net.

SAUDI ARABIA

Beach Cleaning Activity at Baysh City



As part of our CSR agenda, around 120 CCC employees from the JRUP Project-EPC 13 gathered at the beach of Baysh City which is monitored and controlled by Saudi Aramco in order to create an environmental awareness event on how to protect the environment while participating in cleaning the beach.

This awareness day was led by Abdallah Attari, Abbas Said & Methqal Qallab, CSR representatives with the participation of 120 employees: daily workers and staff from different nationalities including Saudis. It was in cooperation with our client HITACHI and our main contractor Saudi Aramco.

CCC'S awareness event was organized by Abdul Ghani Ghorabi who arranged for the kayak with two divers who cleaned the adjacent seawaters. The 2.5km long beach was totally cleaned within four hours.

Blood Donation at Khobar Camp

A successful Blood Donation was organized at Khobar Camp. Many thanks and appreciation go



to our colleagues who donated blood, as well as to all those who initiated and participated in the preparations which as usual added value to the success of the campaign.

Annual Iftar Event



The annual Iftar event organized by KDO was held on 10 June 2017 in Al Khobar, attended by a number of employees located at Khobar locations. All the attendees were happy and expressed their thanks and appreciation to the CCC owners and area management and wished them many happy returns.

Hepatitis A - a Preventive Campaign in CCC



As part of its CSR programme, JSRU held a Hepatitis A preventive campaign, through awareness training sessions, at the project mess hall for Food Handlers & Housekeeping employees. The sessions were organized and conducted by Modassir K. Ekhlague (the HCCP Coordinator & Food inspector).

Cooked Food Distribution

As part of RMP's CSR initiatives and in



association with ETTAM (a charity organization in Riyadh) food parcels are prepared from the surplus cooked food at the South Camp mess halls, for the purpose of distributing the parcels to needy people by ETTAM. The packing process is handled in a very professional way and under hygienic conditions.

USA - MORGANTI

AGC Second Annual Safety Excellence Awards Lunch, West Palm Beach, Florida



Several members of our West Palm Beach team recently attended the Second Annual Safety Excellence Awards Lunch sponsored by the Associated General Contractors of America Inc., Florida East Coast Chapter, in West Palm Beach, Florida.

We wish to extend a job well done and congratulations to our MWBE Construction Partner Cooper Construction Management for receiving a Safety Award of Excellence. It is well-deserved, recognizing their continuous attention to detail and high caliber in construction safety protocols. Congratulations to all involved!

Learn @ Lunch with TMS Structures, Danbury, Connecticut



TMS Structures came in for Part 2 of our Learn @ Lunch series, showing us their technology and products so we can better serve our clients. TMS offers prefabricated building structures, specializing in wood framed and light gauge steel walls, wood and light gauge steel trusses, structural steel and concrete, and metalwork.

By bringing in manufacturers and distributors to share new products that we can offer a client, we are working toward a better solution and savings.

Learn @ Lunch with USA LED Lighting Solutions, Danbury, Connecticut



USA LED Lighting Solutions came in for Part 3 of our Learn @ Lunch series, showing us their technology and products so we can better serve our clients.

AIA Houston Chapter Sandcastle Competition, Galveston, Texas



Our Texas team had a blast at Galveston's East Beach at the AIA Houston Chapter 2017 Sandcastle Competition. Teammates included employees from FS Group Architects, Infrastructure Associates, and Isani Consultants.

CSR Volunteers of the Quarter



We are pleased to acknowledge the participation and continued support of volunteers towards CSR Initiatives in their respective areas during the Second Quarter of 2017.

GREECE

Omar Alfatyan

Whether you call them refugees, migrants or asylum seekers for us they are just humans seeking safety away from all the madness in the conflict zones.

As I always believe “no one puts their children in the boat of death unless the water is safer than the land”.

Everything started in December 2015 when I and my friend Naim Trabelsi responded to the urgent need for volunteers in Lesbos, Greece. In six days we managed to help countless families in the front-line to survive the freezing weather with shelter, warm clothes and some food. Our life changed since that day and volunteering became our beautiful addiction.

We mainly aim to help vulnerable families with housing projects and with basic needs (food, clothes and toys) and most importantly to give them the feeling of safety they lost since the day they became refugees.

We wouldn't have been able to continue our efforts if it hadn't been for generous donations from our colleagues who helped us from the beginning. Now we have expanded our work to support the refugee crises in Lebanon, and north and west Iraq.

Omar Faouri

I started my volunteering work back in 2013. I used to visit refugee camps that accommodate unaccompanied children ranging from approximately 8 to 15 years old of age. The visits were coordinated with NGOs operating in Athens and Europe such as IASIS & NOSTOS.

The children were of different backgrounds and origins such as the Middle East, North Africa, West Africa and Afghanistan. The majority of my work was related to translation from Arabic to English and vice versa when Arabic speaking children had to attend weekly meetings with assigned lawyers and psychotherapists. This was very helpful to both; the children themselves and the camp administration who faced a challenge dealing with the language barrier between them and the children. In addition to translation, spending some quality time with children by playing games and engagement in simple conversations helped them overcome their feeling of discomfort due to the new environment they had to adapt to in a very short period of time as well as the language barrier they had with the administration and the other children they shared the camp with.

I also managed to coordinate between CCC's CSR group and one of the NGOs that was operating at the Eleonas refugee camp located in Athens. CSR thankfully donated 200 sleeping bags that were a necessity for the big number of refugees suffering from the shortage in the number of beds in the camp. The CSR members were very helpful and acted promptly and efficiently when informed about the need for such a commodity.

On a personal level, this experience gave me a feeling of purpose and achievement. It also helped influence my peers and colleagues to contribute in fulfilling their humanitarian social responsibilities towards less fortunate people who suffered from the tragedies of war and / or social injustice. I encourage every person to spend some time and effort in attempting to improve the lives of other human beings in this world, not only through fiscal aid, but also by engagement, effort and direct contact with people in need.



Refugees Have No Choice: We Do



Spending Quality Time with Unaccompanied Refugee Children in Mellon House Refugee Camp

Nauryz 2017 Charity Event, Kazakhstan



On the occasion of Nauryz 2017 and in the spirit of Solidarity and Cooperation, CCIC/CCEP Kazakhstan, in line with the CSR initiative, continued its charity programme in different cities and villages.

In Kulsary City the Head of the Labour Department & Social Programme, Serik Hamedulalh together with the Area General Manager of Consolidated Contracting Engineering & Procurement SAL – Offshore CCEP in Kazakhstan. Hisham Kawash, Mohammad Jabr (Project Manager), Amin Mushtaha (Head of PR) and Farukh Ismailov (Head of IR) organized a charity event for disadvantaged people, pensioners and low-income people at the Social Programme Association.

Mr. Kawash alone distributed 100 vouchers (each voucher valued at 10.000 Tenge) to those people in order to help them to purchase the required products.

The CCEP Management wished all the people of Kazakhstan a prosperous future and a life full of happiness. Mr. Kawash said

“It was very important to support and help people who are in very hard life conditions. Even a slight help makes people feel happy.”

Gylsari residents, who received the vouchers, expressed their appreciation to the organizers of the event and in particular to the donations made by CCEP.

The Deputy of Akim, Serik Hamedulalh, and all the disadvantaged families appreciated CCEP Management and their help, especially at that time and during of the celebration of the great Nauryz.



LFP Basketball Tournament, Kuwait



CORPORATE SOCIAL RESPONSIBILITY

On 16-17 February CCC LFP basketball team participated in the Red Bull Reign Basketball Tournament organized at the Marina Outdoor Court, Salmiya. As part of our CSR campaign and in a bid to create harmony between the CCC workforce and the local community, four of the best basketball players joined forces and created the team. Konstantinos Alevizopoulos, Bahaa El Dbaisy, Moussa Khairallah

and Anastasios Papavasileiou started training in the LFP camp basketball court weeks before the tournament to ensure that they would be ready to compete against other teams. Moreover, their colleagues joined the training sessions and helped the team with their practice games.

Confidence, team spirit, management and coworkers' support were the secret weapons of our team. During the tournament and despite the 90 minute road trip, 30 passionate fans were present at the Marina Courts to cheer on their players. A great ambiance was created and many neutral fans joined us in cheering the boys. As a reward, the tournament organizers named LFP



Fans the best in the competition as they gained the approval of all attendees. At the end of the tournament CCC LFP had won seven games and lost only four as they ended in the top 10 ranking teams.

A special thank you goes to the CCC LFP management team and especially to Hamzi Nasser El Deen for his continuous team support. In conclusion, our four talented players made us proud and succeeded in their CSR mission. We will definitely look forward to cheering for them in upcoming sports events.



The Corps Africa Model, Morocco



Corps Africa responds to the basic needs of African communities and offers opportunities for personal and professional development for young people by mobilizing them in order to fight poverty and facilitate community development.

Corps Africa offers ambitious and brilliant young Africans the opportunity to serve their own countries (and possibly other countries) as volunteers, like the Peace Corps model.

Corps Africa believes that development efforts should be focused on the needs of the community. It gives volunteers the opportunity to determine what needs to be done and take the initiative to accomplish it. To do this, we aspire to exploit the idealism of young women and men to achieve it, while giving them the opportunity to experience something new. In addition, Corps Africa aims to help these young volunteers shape their vision of the world and their own future.

Volunteers will be the transmission lines between communities and development partners. Their mission will be to raise awareness of each other's concerns and priorities. This will enable them to acquire skills and experience through working in partnership with international organizations and focusing on development. We recruit young African university students and send them to well-chosen locations with strong training, focused on participatory development and with the necessary resources. We have a clear model and process in place to ensure the success of the programme.



CCC - CSR

As part of CCC's contribution to Corps Africa and at 70 kilometres from the city of Marrakesh, in addition to our corporate social responsibility for better education, CCC Morocco was one of the main sponsors to donate construction material from available material at CCC stores for the refurbishment and furnishing of two rooms, one for a kindergarden and the second a room for programmes in overcoming illiteracy.

CORPORATE SOCIAL RESPONSIBILITY



Hospital Upgrade, Errachidia, Morocco



CORPORATE SOCIAL RESPONSIBILITY

This is a very old hospital located in Errachidia, Morocco. Upon the commencement of Phase 3 of the CCC EMAG Project which included the material supply only of two complete common patient rooms and realizing that the existing rooms are not available to receive of the modern and up-to-date material supply, the CCC Morocco team and under our area CSR activities decided to do the necessary work to upgrade the two rooms including all finishing works and standard MEP work in addition to an adjacent toilet facility which was also upgraded, full finishing activities with toilet accessories.

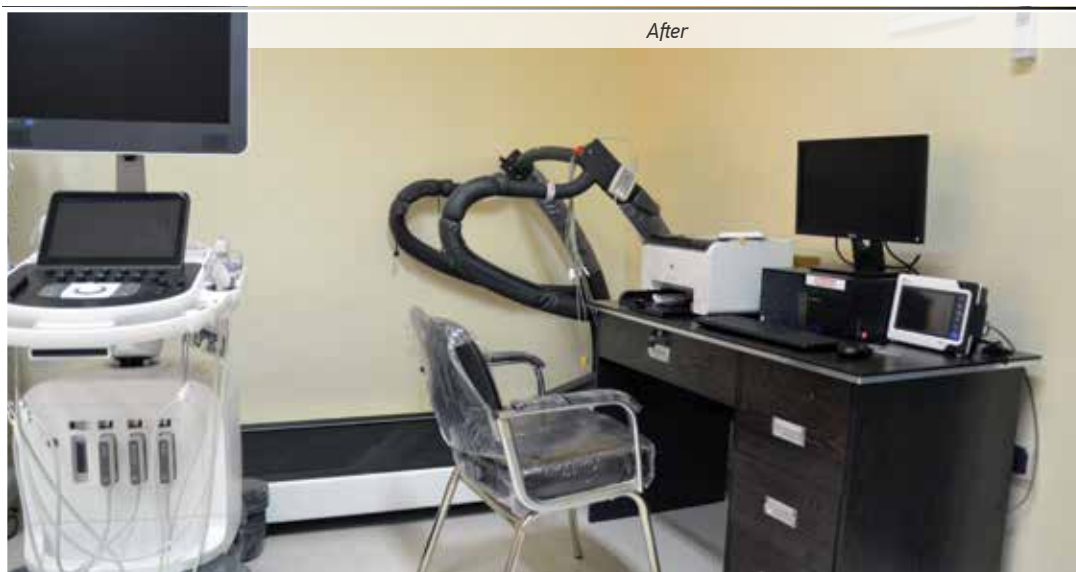
The result was two new rooms renovated at a minimal cost as we managed to use some surplus material available in our stores and staff from our existing workforce.



Before



After



After



Overcoming Illiteracy in Errachidia, Morocco



As part of our CSR activities, specifically in trying to help provide a better grounding for a better education for all, we raised the subject of overcoming illiteracy in Errachidia, Morocco.

After we felt the interest of our labour force, we recruited two young instructors at the minimum wage who were looking forward to this new type of challenge. We started this programme by giving private lessons after work for several hours in both the Arabic and French languages. Whoever needed education from the CCC sites' staff was welcomed. Groups were formed accordingly.



Instructors

This programme was carried out for five months successfully and we had to stop it when the project came to an end. It was a good experience and we might hopefully do it again in future projects.

Morocco without Plastic Bags

On the 1 July 2016 The Moroccan government started applying the law prohibiting the fabrication, importation, selling and use of all kinds of plastic bags that are used extensively in Morocco since they are not recyclable and do a lot of harm to the environment.

Each bag may live in the environment for up to a hundred years before breaking down. Moroccans use 26 billion plastic bags annually, making the country the second-largest consumer of plastic bags in the world, after the United States. The Moroccan government and nonprofit organizations have repeatedly attempted to raise awareness in Moroccan society of the negative impacts of using plastic bags. Mawarid organization was behind Morocco without Plastic Bags a nationwide awareness campaign that sought to halt the circulation of non-biodegradable plastic bags in Moroccan cities. The campaign promoted the adoption of fair-trade, eco-friendly bags instead.



CCC Oman Sports Tournament 2017



On 2 April 2017 we launched the 2017 sports tournament. This year, in addition to football, we included other sports in the tournament in order to increase the involvement of the employees in such an event. The new added sports are volleyball, billiards and table tennis.

Two groups formed in the football tournament, each group contained three teams playing in a league system in the first round.

The first and the second teams from each group qualified to the second round. The winners from the second round qualified for the final. The final match was between the White Camp team and

DMIA Project team A. The White Camp team won the final by three goals to nil.

In the volleyball tournament four teams played as a league and the winner was DMIA Project team A.

As for the billiards, 16 players competed in a knock-out game and the winner was Hussain Taha. In the table tennis 12 players competed in a knock-out game and the winner was Joel Silva.

On 18 April 2017 the football match took place, followed by the final ceremony where Mr. Bassam Addada distributed the trophies and medals to all the winners from all the sports.



Bowling Tournament



At the beginning I wasn't sure that what I declared as "Bowling for Fun" was going to be a successful event, because a week passed after the declaration and no one registered for the event and I thought it would end by canceling the whole idea.

Then I decided to follow a different strategy by personal communication to promote the idea and that the event is all about fun, group and families gathering; even if you do not know how to bowl, come and enjoy yourself because there are other things to do other than the bowling such as billiards, air hockey, PlayStation and baby foot, and even if none of the above appeals, just come and share the fun with us.

The new strategy started to pay off and I began to receive requests to join. The idea was that the registration should be by teams and in the beginning each team was formed by four players. 12 teams were registered, which is the maximum because the bowling club has only 12 lanes. Then

we started to add more players for some of the teams, upon their request to be a maximum of six in each team.

Knowing the size of the event and that I couldn't manage it by myself, four employees volunteered to share the responsibility of managing it with me.

We rented the entire bowling club facility for three hours. On the day and at the time of the event which was Wednesday 26 April 2017 at 7 pm, everything at the bowling club was ready.

The employees and their families started to come and it took us 15 minutes to organize the teams and assign them to the lanes, then they had 10 minutes to warm up by making some bowl shots.

At 7:30 pm the competition began. Each team had to play three games and the teams with the highest scores were the winners! During that time the bowling club hall was filled with the employees and their families and they were enjoying themselves and playing the other games available.

Just before 9 pm all the teams finished their three games and during the time that we were checking the teams' scores, we invited everybody to enjoy the snack buffet we prepared for them.

The results of each team were calculated and the winners were announced. Our Area General Manager, Bassam Addada, who shared the night with us, distributed the trophies and medals to the winners amidst a lot of fun and laughter: everybody was celebrating.

The event night "Bowl for Fun" thus ended and everybody left after they had a very nice night and they all asked me to repeat such nights more frequently.



Ramadan is the Month of Charity



A few days before the holy month of Ramadan we launched a campaign to collect donations from company employees for charity during the holy month.

The original idea was to encourage the employees be involved in charity activities and to let them feel with the people and families in need. Our target in the beginning was to donate foodstuff for the families in need.

When the donation email was circulated, we started to receive donations from each project and department in Oman. The amount of the donations was beyond our expectations and it was very generous. Total donations amounted to around \$23,000.

With this generous amount in hand, we started to consider widening our donation activities to cover more than the foodstuff to the families in need and we donated the money to the following charity activities:

1. Foodstuff for 220 families in need in Muscat area.
2. Items as requested to the Omani Cancer Association (Dar Al Hanan).
3. Items as requested to the seniors' home.
4. An amount to cover some of the Dar Al Aata Association's needs.
5. An amount to go to the Al Rahma Association for Motherhood and Childhood Care.

Foodstuff Donation

That was the first activity we undertook and we intended to do it before the start of the holy month of Ramadan in order to be beneficial. We bought the foodstuff and packed it in carton boxes.

In coordination with the Muscat Volunteering team and with a group of volunteer employees we distributed the foodstuff boxes on Thursday 25 May 2017 and that was over a wide area from Riyam to Seifah. To cover that wide area we divided ourselves into two groups. It took us more than four hours for each group to complete their assignment.

Seniors' Home

For the seniors' home we donated the following items:

- One heavy duty washing machine.
- Eight wheel chairs.
- Five water dispensers.
- Fifteen electric insect killers.

We visited the senior home at Ristaq on Wednesday 14 June 2017 with a group of volunteer employees and there were nine of us: three men and six women.

We met with the seniors, chatted with them and gave them simple gifts of personal items.



**Oman Cancer Association
(Dar Al Hana)**

Dar Al Hanan is a hosting home for children with cancer who cannot afford to stay in hospital to take the required treatment, and in some cases they host the children's mothers as well.

We donated to Dar Al Hanan, as per their request, special types of bed sheets and covers and an amount of money to cover the cost of special medical equipment.

We visited Dar Al Hanan with a group of volunteer employees on 18 June 2017 to give them the donated material and a cheque for the medical equipment.

For Dar Al Aata and Al Rahma Associations, we just prepared cheques in the amounts we wanted to donate to them to be used in their many charity programmes.

Furthermore, we plan to donate some money to Al Amal School for Deaf Children but that will be at the beginning of the coming academic year.



Ethics Compliance Local Training Program



ETHICS COMPLIANCE

Compliance with CCC's Ethics & Anti-Corruption Program (EACP) and spreading the awareness towards its implementation is a mandatory requirement. Regular interactive training workshops are being presented to staff in positions of authority including those who could be exposed to corruption situations at the different locations - Areas / Projects and Athens Office.

In order to expose the maximum number of employees to the requirements and commitments of EACP, a pilot campaign was carried out in Oman last February. This consisted of a Train the Trainer Workshop for qualifying area and project staff to conduct the local training of their staff on understanding the commitments and implementation of EACP. Sixteen staff members attended the training workshop and were qualified for the purpose. So far four projects have conducted the pilot exercise and 200 staff members have attended the local training sessions.

The pilot campaign in Oman was a great success. It has now been decided that similar Train the Trainer sessions will be conducted in the different areas for the purpose of maximizing the awareness of our employees about the implementation of CCC's Ethics & Anti-Corruption Program (EACP).



Ethics & Anti-Corruption Whistleblowing Portal



The Whistleblowing & Reporting Procedure is one of the main topics covered in CCC's Ethics & Anti-Corruption Program (EACP): it encourages an open line of communication for the employees to convey any questions or concerns they might have to members of their senior management or to compliance team members directly and in full confidentiality through the Company's Ethics & Anti-Corruption Hotline The Ethics & CSR Open Box.

Recently, the hotline reporting channels were enhanced by introducing a new online reporting channel through a secured and confidential website which is hosted externally and linked directly to the office of the President (Engineering & Construction).

The reporting channels are as shown in the graphics.



ETHICS & CSR "OPEN BOX"

*For conveying your
Suggestions, Ideas, Comments & Observations*



Online



Online

www.ethicsweblines.com

By Email



openbox@ethicsweblines.com

By Mail



President (Engineering & Construction)

By Fax



+30-210-619-9223



Friendship with the Sun

We almost all know that sunlight can be converted into electricity, yet we still look at it as a hard thing to implement at the personal or even business level.

Let's break into the topic here and start the story from the beginning. The main problem now is not only that the conventional energy sources (fossil fuels) will run out sooner or later, but the very dangerous global warming issue which is knocking at all our doors.

Global warming will, according to most scientists, bring a lot of new problems to earth and to human life: ice melting, rising sea levels and increasing temperatures to mention but a few.

So we are in urgent need to look for cleaner and more sustainable energy sources. Solar energy is among the strongest trends here.

A solar panel consists of photovoltaic (PV) cells which when in sunlight produce electrical DC current i.e. energy. An array of solar panels can produce a considerable amount of electrical energy and when used with other components (inverters, batteries) they form a solar energy system (PV system) that produces electrical energy in a usable format.

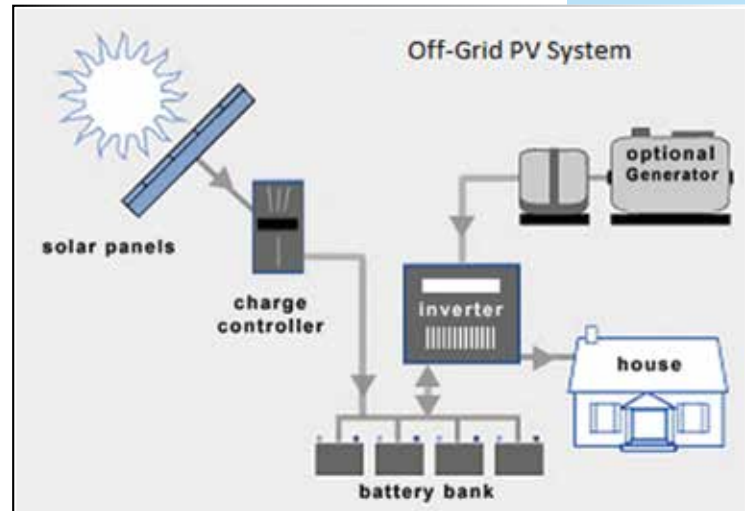
PV systems basically come in two forms:

- **On-Grid PV Systems (Grid-Tie)**

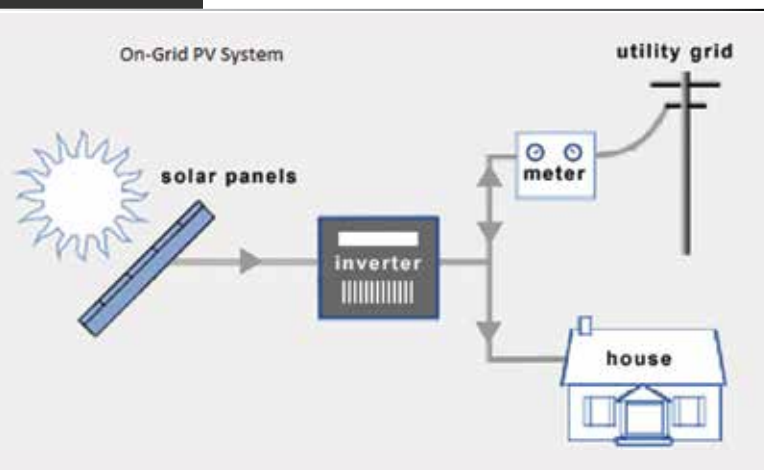
As the name implies, these are connected to the power grid or the electrical service provider. Their main advantage is that they don't use batteries (which are costly and need periodic replacement). On-Grid systems follow the country regulations and need the approval of the electricity service provider. They basically consist of solar panels and an inverter to convert the DC current into an AC and to synchronize the power coming out of the system with the grid power.

- **Off-Grid PV Systems**

These are the systems which are not connected to the utility grid and therefore, in most cases, need batteries to store the produced energy.



It is indeed a great benefit when a country has regulations for on-grid connected systems. This allows the elimination of the need for batteries. When the system has some excess power, it goes to the grid and you can use later when needed (this is done using a meter that counts in both directions).



Friendship with the Sun

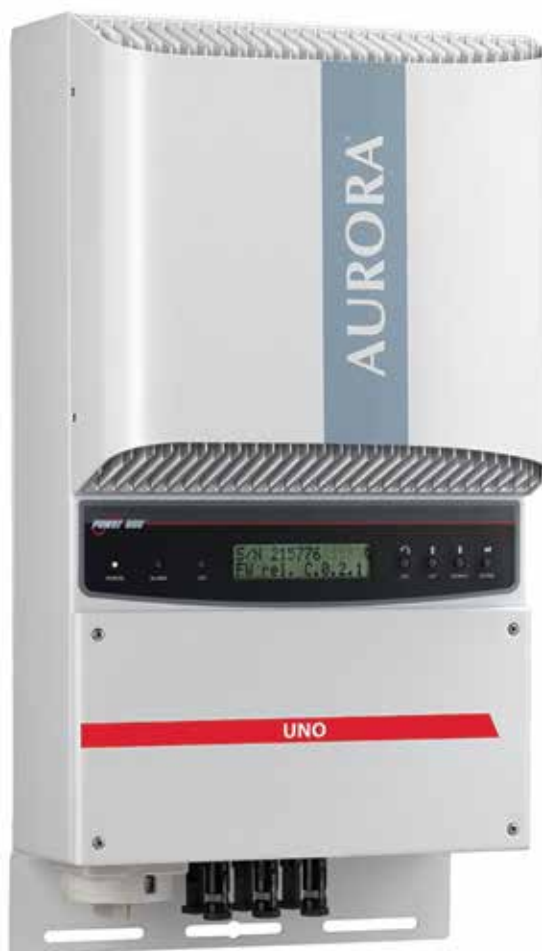
Jordan is one of the countries that have regulations for grid connected systems. And here I have personal experience with a PV system in my home! It really makes you happy when you turn on an electrical appliance and know it's using the sun. It also makes you proud when you look at what you have produced up to now and what you have saved for the environment.

With this humble personal setup, the following has been proudly achieved (until now):

- Almost 15 MWh produced.
- Approximately saved earth 10.6 tons of CO² emission according to EPA (the US Environmental Protection Agency).
- The CO² emissions saved equals what approximately ten acres of US forests would absorb in one year, again according to EPA.

CCC started the friendship with the sun early! We have already taken great steps towards using solar power and a lot of further steps are waiting us.

The solar power plant installed in UAE Qusahwira as early as 2012 and then transferred to Habshan is a clear example on how we look at and deal with the "Going Green" goal, and how serious we take steps to achieving CCC's sustainability policies and objectives.



SUSTAINABILITY



CCC's Go Green 100 % Off-Grid Portable Cabin, Interim Report

President (E&C) Innovation and R&D Initiative*

A project's mobilization period varies from one to three months depending on the availability of the services at the remote area. At two projects in Oman (Bausher Wastewater-Madinat Sultan Qaboos and Al Amerat Wastewater) we tried to find a solution to minimize this time by setting up a portable power unit ready for operation upon installation.

Traditionally, remote construction areas and sites depend on generators to produce electricity. However, after investigation we realized that between PV modules and generators, the latter would in fact cause higher running costs to perform the same job. Considering our prior experience in solar systems and to promote an ecofriendly approach, we wanted to avoid generators for the portable power unit.

The idea was to use solar technology and recyclable ecofriendly material to set up a conventional portable power cabin that will be fully equipped and furnished (plug and play). After securing the support of project management, we started working on a mobile green cabin to power appliances that are required for office and camp use with high availability and dependability.

We started working on **CCC's Go-Green 100 % off-grid portable power cabin** in March 2017 and concluded it in May 2017. Using an existing cabin as a basis we carried out several modifications to transform it into the PV powered cabin we had envisioned. These minor and major adjustments included:

- Dismantle wood from original cabin to clean and reuse.
- Remove chemical paint and replace it with ecofriendly paint.
- Weld battery boxes and PV module frame mounts.
- Prepare and place cellulose insulation frames.
- Experiment with external design options.
- Assemble PV setup equipment.
- Assemble and redesign office furniture from scrap material (pallets and a cable drum).

Such a facility can completely cover the power needs of remote areas, especially in the Gulf region that is exposed to optimal sunshine nearly all year round. In addition, as a PV powered mobile cabin it minimizes running expenses and CO2 emissions since there is no dependence on biofuel or any source of electricity. In the future, further advancements can be made on the cabin such as: foldable portable cabins to minimize transportation expenses and CO2 emissions

as well as rainwater harvesting to clean PV modules as well as WC measures using solar powered DC water pumps, water heating and so on.

Components:

The information mentioned below refers to the initial calculation stage of this initiative and varies based on several factors e.g. direct sunlight, angle and position of modules, shading design architecture and so on.

- 12 polycrystalline PV modules (250 watts) with open circuit voltage of 32 volts.
The modules were previously used in other systems and were re-used in this portable cabin.
- 12 deep cycle maintenance free (sealed batteries) AGM (of 150 amps).
These batteries recharge and discharge faster than the normal flooded batteries used in cars and are most commonly used in PV setups.
- Solar Cables
Special cables for the connection between PV modules and charge controllers, battery storage, charge controller and the inverter.
The selected cables are UV and temperature resistant in order to minimize energy losses from the heat.
- PV connectors to connect PV modules to solar cables (PV-SC01, PV-SC02, PV-SC03, PV-SC-06).
- Three charge controllers (2: 60A MPPT and 1: 45A PWM). Three controllers were selected to ensure that each system functions separately, simplifying testing and troubleshooting.



CCC's Go Green 100 % Off-Grid Portable Cabin, Interim Report

- Two inverters (1000 watts) used as mentioned below for lights, desktop computer and networking.

The entire system is divided into three sub-systems:

- Air-condition (12000 BTU "Cooling" 48 volts DC air-condition including: split unit, compressor and 45A PWM charge controller without the use of the inverter, directly connected).
- IT (consisting of desktop computer, UPS battery to protect and stabilize the electricity voltage fed into the desktop, 3G modem and switch for local area network measures, a 1000 watts inverter and a 60A MPPT charge controller).
- Lighting (consisting of six LED AC lights, 1000 watts inverter and 60A MPPT charge controller).

Materials

While developing the portable cabin we made sure that the materials used have the lowest Co2 emissions.

- **Wood:** 80% of the wood used came from the existing cabin wood.
- **Steel:** 60% of steel used was scrap steel.
- **Paint:** Low VOC "volatile organic compound" ecofriendly paint.
- **Insulation:** Cellulose Insulation
This is an environmentally friendly form of insulation with thermal and noise reduction properties. It is composed of 80% recycled newspaper and 20% boric acid. In the absence of a supplier in the Gulf region offering this type of insulation we decided to buy the raw materials and produce it ourselves.
- Meeting table, made out of cable drum.
- Office desk, made out of pallets.
- Aluminium door with glass.

Calculations

This initiative began operation in May 2017 and therefore is very recent. We are in the testing phase and we have successfully completed three weeks of testing.

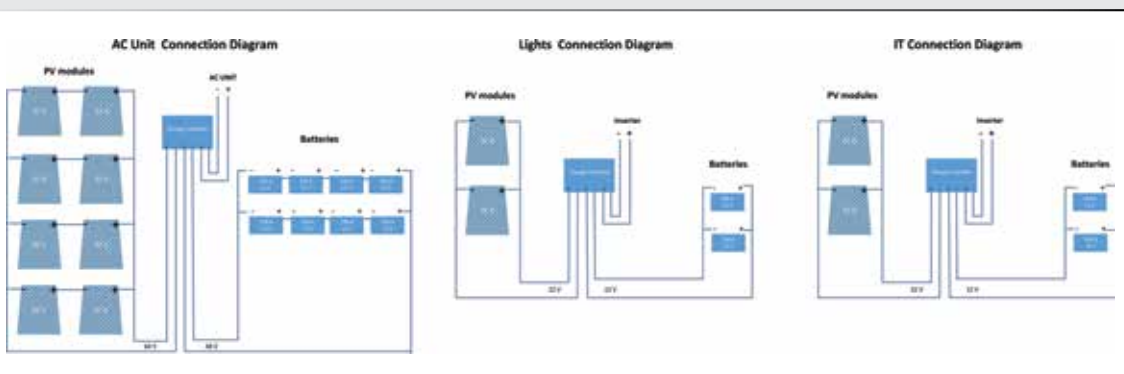
The results are:

- The first week we set the operation time of the cabin for ten continuous hours daily for five days and it operated successfully.
- The second week we set the operation time of the cabin for twelve continuous hours daily for five days and it operated successfully.
- The third week we set the optimum operation time of the cabin for sixteen hours daily for five days and it operated successfully.

Further testing methods and observation reports are in process. The results will be presented in detail in a future issue of the Bulletin.



** As part of the 2017 Initiatives, the President (E&C) launched CCC's Innovation and Research, Development Committee. The purpose is to focus on the future of the construction industry, investigate leading examples and explore how CCC can be more sustainable. With the global commitment to sustainable development growing stronger, the committee will research and test opportunities related to several topics such as energy efficiency, renewables, affordable housing, circular economy and so on.*





Engagements and Marriages

Syed Ayaz Hussain (JSRU @ SARU Jazan Project, Saudi Arabia) is pleased to announce his marriage to Syeda Tania Naqvi. The wedding ceremony took place on 23 February 2017 in Karachi, Pakistan.



Baby Boys

Abdul Shakoor (SARU, Saudi Arabia) and his wife are happy to announce the birth of their baby boy **Faiq Ahmed** who was born on 20 November 2016 in Tehsil Burewala District Vehari in Pakistan.

Althaf (JSPP, Qatar) and his wife Shaheela are pleased to announce the birth of their first baby, a boy named **Izaan**. He was born in Kerala, India on 27 March 2017. Family and friends are delighted with the new arrival.

Loay Shadid (JRTF Project, Saudi Arabia) and his wife Manal Al Bitar are very happy to announce the birth of their first child **Salah**. He was born on 1 May 2017 in Amman, Jordan. All the family are very happy with the new arrival.



Baby Girls

Mohammed Adil (JSRU/SARU, Saudi Arabia) and his wife are pleased to announce the birth of their daughter **Summayyah Fatima**. She was born on 6 April 2017 in Hyderabad, India.

Reyad Ismail (City Centre Almaza Project, Egypt) and his wife are pleased to announce the birth of their first baby, a girl named **Anne** on 5 July 2017 in Egypt.

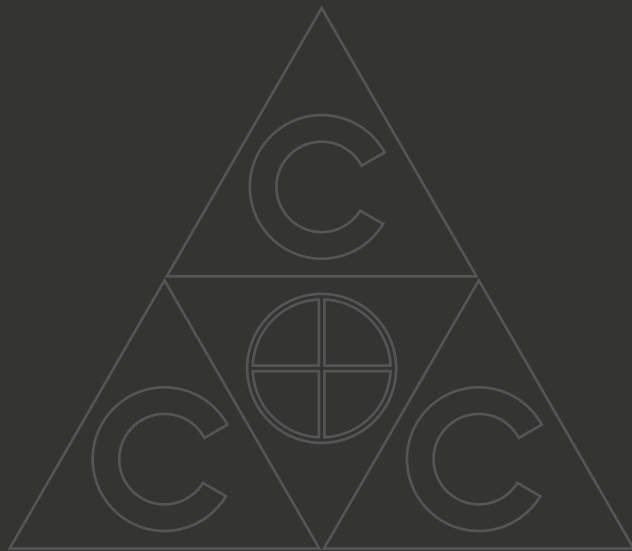


Baby Twins!

Bang Lin Gu (SRO, China) and his wife Ying Cen are very glad to announce the birth of our twins, a boy named **Cenhua Gu** and a girl named **Cenjia Gu**. The twins were born on Feb 10th 2017 in Shanghai in the Chinese Year of the Rooster. All the family is very happy with their arrival.







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