

Has more than 17 years hands-on experience working in HSE field at several Power Plants and other industrial projects.

PERSONAL DATA

Nationality : Egyptian
Birth Date : 20/11/1976
Gender : Male
Marital Status : Married
Residence : Damietta

EDUCATION

: Faculty of Education (English Department)

LANGUAGES

Arabic : Native Language
English : Very Good
French : Good

COMPUTER SKILLS

: Windows, MS Office (Word, Excel), Internet

TRAINING COURSES AND CERTIFICATIONS

- : NEBOSH International Diploma in Occupational Safety and Health (ongoing).
- : NEBOSH National General Certificate in Occupational Safety and Health.
- : NEBOSH Technical Oil and Gas Certificate.
- : OHSAS 18001:2007 Occupational Health and Safety Assessment Series Lead Auditor Course, IRCA Certified No. ITP-0400 (Issue Date: 31/05/2012):
 - RABQSA-OH: Auditing Occupational Health and Safety Assessment Series.
 - RABQSA-AU: Managing Systems Auditing.
 - RABQSA-TL: Leading Managing System Auditing Teams.
- : OSHA Manager certificate in Occupational Safety and Health (American University of Cairo).
- : Egyptian Governmental Certified HSE SPECIALIST (Egyptian Syndicates Union).
- : Egyptian HSE committee certified membership (National Institute of Occupational Safety and Health, NIOSH).

- : Occupational Health and Safety Administration (OSHA) certificate (Outreach Training program) "General industrial safety, health standards", OSHA ID Number 60004132.
- : OSHA certificate (Outreach Training Program) "Construction health and safety standards", OSHA ID Number 900022134.
- : NASP (National Association of Safety Professional) in:
 - Safety Diploma in work place live plant occupational health and safety.
 - Safety Management Certificate.
 - OSHA haz-w-oper-DOT-Chemical Safety.
- : Environmental Management on (EGYPT LNG PROJECT).
- : Confined Space training (EGYPT LNG PROJECT).
- : Firefighting Award from (EGYPT LNG PROJECT).
- : First Aid Certificated Course (DODSAL).
- : HSE Certification of recognition (Achievement of 2000000 man hours without lost time incident) (DODSAL).
- : Hygiene inspection Certificate (EGYPT LNG PROJECT).
- : Fall protection Trainer Certificate (EGYPT LNG PROJECT).
- : Safe Use of Lifting Gears (QATAR ABS Training Center).
- : HSES supervision and leadership training certificate (Dolphin upstream and compression gas project).
- : Accident investigation certificate (Dolphin upstream and compression gas project).
- : Approved HSE trainer certificate (Dolphin upstream and compression gas project).
- : HSE certificate of recognition (TECHNIP ITALY, ORYX GTL PROJECT).
- : HSE certificate of appreciation (Achievement of 28, 238, 429 man-hours without LTI) (JGC).
- : Certificate of Membership JGC SNATCH SQUAD (Emergency Response Team) (JGC).
- : Medical first aid Training Program (Basic Version 6.0) (QATAR, Medic First Aid International, Inc).
- : Fire Safety (2nd Level) certificate of completion (QATAR, Total safety L.L.C.).
- : Advanced Fire Fighting & Rescue Training (EGYPT, SILPA Training) (Emethanex).
- : Open Water Certified Diving Course (Underwater Diving Center, PADI, HURGHADA).
- : Tap Root and Top sit Accident/Incident investigation certified training (Egypt, ThyssenKrupp).
- : Introduction to ISO 18001, 14001 auditing training (EGYPT, ThyssenKrupp).
- : HSE training courses:
 - PPE.
 - Lifting and Rigging Safety.
 - Excavation.
 - Working at Height.
 - Permit to work.
 - Confined Space.
 - Electrical Safety basic.
 - Handling of Gas Detectors.
 - Scaffolding.

- Accident / Incident Investigation and Reporting.
- : Courses:
 - Industrial hygiene.
 - Stairs/ladder.
 - Machines Safeguards.
 - Fork Lift Safety.
 - Job Hazard Analysis.
 - Flammable, Combustible Liquids.
 - Walking and Working Surface.
 - Fire Safety.
 - Hazard Classified Location.
 - Compressed Gas Safety.
 - Radiation.
 - Sling Safety.
 - Means of Egress.
 - Safety Cranes.

CHRONOLOGICAL EXPERIENCE RECORD

- Dates** : From Jul. 2016 till now
- Employer** : SIEMENS
- Project** : Construction and operation of 4800MW Power Plant, the client is North and East Government Electricity Company
- Job title** : HSE Team Lead
- Job Description** :
- Coordinate and formulate EHS improvement plans in response to company, industry, regulatory and customers' requirements.
 - Promote behavioral based safety for continual safety improvement.
 - Manage the continuous process improvement system within the division, tracks and reports result.
 - Assure the development of annual EHS compliance goals, EHS performance target, EHS budget and workers compensation budget.
 - Conduct and document pre-planning safety meetings with each subcontractor safety representatives and/or foremen to establish safety procedures prior to subcontractor's activity on site.
 - Establish and conduct regular (weekly) safety meetings with subcontractor representatives and issue minutes of meeting and interface with Project Staff and each Subcontractor Safety Representatives relating to safety regulations to ensure proper compliance.
 - Ensure that Subcontractors are conducting the proper training requirements as per the HSE standards. If necessary, facilitate training for site personnel for compliance with Federal and State standards.
 - Review each Subcontractors Safety Program and ensure that it meets or exceeds the project Safety Program requirements.
 - Ensure that each Subcontractor designates a Safety Representative that is properly trained in the HSE standards and that person is considered by HSE standards, competent for the Subcontractors scope of work and has the proper authority to correct safety issues and hazards relating to their safety compliance. Receive the names of their competent person(s) for their specific work in writing and file.

- Conduct regular (daily) jobsite and work area inspections. Conduct formal weekly jobsite inspections and complete the safety checklist noting safety violations and corrective actions.
- Record, notify and prepare written report of any unsafe acts, conditions and practices to Subcontractors for immediate correction actions.
- Investigate all incidents and generate proper reports.
- Establish and maintain all required job safety records.
- Conduct a monthly overview safety meeting.

Dates : From Jan. 2015 till Jun. 2016

Employer : ALSTOM

Projects :

- Construction and operation of West Damietta 220KV, 500MW Power Station, the client is North and East Government Electricity Company, in consortium with General Electric (GE)
- Construction and operation of Beni Suef 1650MW CP-104 GIS, GIB and related gantry, the client is UPPER EGYPT ELECTRIC PRODUCTION COMPANY, the consultant is PGESCO

Job title : Site HSE Manager

Job Description :

- Participate in tendering phase to ensure that Construction, commissioning and operation of the power plant will be executed as per ALSTOM HSE Policy and procedures.
- Promotion of good HSE practice to stakeholders and helping to establish a positive safety culture, and supporting the development of improvements in HSE performance.
- Support the development and implementation of integrated management systems. Ensure that ALSTOM HSE training complies with ISO 9001, ISO 14000 and OHSAS 18000 requirements.
- Reviewing and approving subcontractors HSE plans to ensure compliance with the project requirements, local and international law, and common practice.
- Responsible for conducting all required HSE Training such as, induction, working at height, loto, confined space entry, electrical safety, lifting safely, incident investigation, commissioning and start-up.....etc.
- Participate in designing and translating training sessions, awareness's and quizzes for assessing trainees and analyze the data collected to improve the whole HSE system.
- Ensure that each ALSTOM employee has an equal opportunity to undergo required HSE training, communicate all related hazards, risks and control measures to perform his duty in healthy and safe way.
- Participate in auditing site HSE management systems, safe working practices, induction records, and permit to work systems to ensure training program effectiveness.
- Responsible for preparing weekly and monthly HSE reports.
- Providing support to the HSE Team, as requested, including the maintenance of management system certifications.
- Overseeing the organization and implementation of ALSTOM HSE requirements related to the site activities.
- Ensuring client HSE requirements are implemented.
- Ensure that Company HSE POLICY has been passed to the target employees through use of various strategies and training programs related to HSE.

- Ensuring all activities and those of employees and subcontractors are carried out in accordance with the company Environmental Management System. Active promotion of environmentally responsible work practices.

Dates	:	From Jan. 2013 till Aug. 2014
Employer	:	HITACHI
Project	:	Construction and operation of BANHA 750MW Steam Turbine Generator, the client is North and East Delta Electric Company, the consultant is PEGESCO (BECHTEL Company) and the Main contractor is HITACHI, Japanese Company
Job title	:	Site HSE Manager
Job Description	:	<ul style="list-style-type: none"> • The identification of hazards and assessment of risk associated with injury to, or ill-health of, personnel, damage to plant, equipment, materials, fire and explosion. • Improvement of existing working by the introduction of safe systems of work and performance standards. • Implementation of legal requirements affecting safety, health and hygiene and welfare. • Responsible for Provision and use of protective clothing and equipment. • Inspecting Safety and suitability of new and hired plant and equipment; ensuring all appropriate test Certificates and technical instructions are obtained. • Identifying Potential hazards on new processes before work starts, and on the safety organization required. • Identifying the New methods of safe working arising from current technological development. • Prepare fire and rescue procedures. • Assisting with the prevention of accidents by raising the safety awareness of other employees. • Advising managers on the implementation and monitoring of safety programs. • Regularly inspecting the workplace and work equipment to see that standards are being achieved, and making recommendations for improvements. • Investigating all accidents, including dangerous occurrences and near-misses, filling out the relevant forms and notifying appropriate authorities. • Assessing new and/or unusual processes for associated risks. • Keeping informed as to health and safety legislation, and informing the management of recommendations to ensure compliance. • Assistance with the health and safety training of other employees. • Monitoring the effectiveness of the company safety policy in respect of the health and safety at work of its employees, members of the public and those affected by the work, including its administration and organization. • The monitoring and assessment of the overall effect of the safety policy. • Improving the company's safety performance. • Enhancing the company's reputation in accident prevention. • Creating within the company a positive safety and health awareness and attitude at all levels of employees, from directors to operatives.

- Carrying out inspections (in association with the manager or foreman) to ensure that all regulations are being observed; statutory notices have been posted; only safe systems of working are in operation; mess rooms, washing facilities and other welfare amenities have been provided and are properly maintained.
- Investigating the causes of any accidents or dangerous occurrences and recommending means of preventing recurrence.
- Supervising the recording and analysis of information on injuries, ill-health, damage and production losses; assessing accident trends and reviewing overall safety performance.
- Keeping contact with official and professional bodies, e.g. HSE, EMAS, fire authority, local government authorities, Institution of Occupational Safety and Health, voluntary organizations.
- Liaison with safety representatives and safety committees, and assisting in management/operative consultations.
- Fostering within the firm an understanding that injury prevention and damage control are integral parts of business and operational efficiency.
- Keeping up to date with recommended codes of practice and new safety literature; circulating the relevant information to each level of employee.
- Liaison with contractors at times of joint responsibilities; checking of safety policies; monitoring and advising as necessary on safety matters related to their operations.
- Liaison with employer's insurance company(s).

Dates	:	From Sep. 2011 till Dec. 2012
Employer	:	QCS (QATARGAS, CONOCOPHILIPS, SHELL)
Project	:	Construction of waste water disposal surface facilities, the owner is QCS (Joint venture between QATARGAS, CONOCOPHILIPS and SHELL), the main contractor is QCON, Located in Ras Laffan Industrial City (QATAR)
Job title	:	HSE Officer
Job Description	:	<ul style="list-style-type: none"> • Member of the Site Construction Management Team, demonstrating effective overall leadership and partnership with other peers; taking active role in the total management of the construction plant site. • Ensure Implementation of project procedures by site contractors and personnel during Construction, Commissioning and Start-up of WWDSF PROJECT with Emphasis in "following written procedures" and management of change processes. • Participate in method of statement, risk assessment; job safety analysis and RLC consolidated Permit to work revision and exclusion. • Coordinating with HSE team (QCON) in enforcing the CHP and all supplementary procedures and programs. • Develop continuous improvement and full understanding of activities risk assessments, job safety analysis and QATARGAS, RLC PTW for contractors Arabic speaking personnel. • Work with QCON to develop an improvement plan and champion its implementation for continuous improvement. • Demonstrate leadership in establishing strategic alliances with the Main Contractor and Sub Contractors HSE organizations to build a strong work force as integrated team driven by the project priorities: HSE, Quality, Schedule and Cost. • Supporting IIF (Incident and injury free program) implementation.

- Responsible for monitoring, inspecting and Auditing QATARGAS, RLC PTW Execution.
- Ensuring all activities and those of employees and subcontractors are carried out in accordance with the company Environmental Management System. Active promotion of environmentally responsible work practices.

Dates : From Jan. 2010 till Aug. 2011

Employer : THYSSENKRUPP-XERVON

Project : Construction of Egyptian Nitrogen Product Company (ENPC), the main Contractor is a ThyssenKrupp-Uhde Company specialized in the petrochemical industry and is the main engineering, construction and erection for the UREA and AMONIA DAMIETTA TRAINS

Job title : Project HSE Manager

Job Description :

- I witnessed the completion of 15 million man hours Lost Time Incident free.
- Developing HSE procedures, risk assessments, and internal HSE policies.
- Identifying hazards and preventive measures needed to ensure minimization/elimination of risk and safe construction and commissioning.
- Plan and implement HSE Training program for all Thyssenkrupp-Xervon employees and ensure that all related data base is available for auditing purpose as per company Quality requirements.
- Reviewing and approving subcontractors HSE plans to ensure compliance with the project requirements, local and international law, and common practice.
- Reviewing subcontractor's Risk Assessments, Method Statements and Work Instructions.
- Internally auditing site HSE management systems, safe working practices, induction records, and permit to work systems.
- Hold and manage weekly site HSE meetings.
- Internally auditing emergency plans, exercises and training.
- Organizing a site HSE training, targeting improvement of HSE awareness to all ThyssenKrupp-Xervon plant manpower (and initiated data base system to maintain records).
- Overseeing the organization and implementation of ThyssenKrupp-Xervon HSE training relative to the site activities.
- Ensuring client HSE requirements are implemented.
- Negotiating with managers and operators to eliminate conflict between production and safety considerations.
- Reviewing HSE inspections of construction tools and equipment.
- Carrying out scheduled Site Loss Prevention Inspections, management HSE walkthrough inspections and HSE audit, and documenting their findings, and monitoring the implementation of the corrective actions.
- Reporting and investigating incidents to the head office, ensuring that all incidents are reported by subcontractor, and maintaining HSE statistics and data breakdown.
- Maintaining and updating the project HSE Documentation System.
- Managing a group of 15 HSE field officers and supervisors.

Dates : From Sep. 2009 till Dec. 2010
Employer : EMETHANEX
Project : Construction and process of Emethanex Methanol Plant, Emethanex (USD \$810MM), is Egypt's first and largest Methanol producer, a joint venture between Methanex (CANADIAN global lead in Methanol Production 60%), ECHEM (Egyptian Petrochemical Holding Company, 12%), EGAS (Egyptian Gas Holding Company, 12%), GASCO (National Company for gas distribution, 9%) and APICORP (Arab Petroleum Investments Company, 7%), Located in Damietta Port

Job title : Senior HSE Coordinator

Job Description :

- Member of the Site Construction Management Team, demonstrating effective overall leadership and partnership with other peers; taking active role in the total management of the construction plant site.
- Demonstrate leadership in establishing strategic alliances with the Main Contractor and Sub Contractors HSE organizations to build a strong work force as integrated team driven by the project priorities: HSE, Quality, Schedule and Cost.
- Demonstrate leadership in establishing and maintaining the Emethanex Responsible Care Culture on site with all of its aspects, including Environment, Health, Safety, Responsible Care Culture, Security and Emergency Preparedness.
- Ensure Implementation of project procedures by site contractors and personnel during Construction, Commissioning and Startup of Damietta I Plant with Emphasis in "following written procedures" and management of change processes.
- Develop best working practices for HSE function and personnel during Construction, Commissioning and Start-up.
- Spread the RC spirit among Manufacturing, process and maintenance teams.
- Active promotion and participation of HSE standards and safe work practices.
- Ensuring all activities and those of employees and subcontractors are carried out in accordance with the company Environmental Management System. Active promotion of environmentally responsible work practices.
- Responsible for conducting Induction, working at heights, confined space, PTW, electrical safety (construction and commissioning), LOTO, SIMOPS and H2S training for EMETHANEX in ARABIC and ENGLISH languages.

Dates : From Jan. 2007 till Aug. 2009

Employer : QCS (QATARGAS, CONOCOPHILIPS, SHELL)

Project : Construction of QATARGAS LNG Train 6 & 7, the trains, each with nominal capacity of 7.8 million tons of liquefied natural gas (LNG) per annum will bring the total production capacity at QATARGAS to 42mtpa, the owner is QCS (Joint venture between QATARGAS, CONOCOPHILIPS and SHELL), the main contractor is CHYIODA-TECHNIP France joint venture, Located in Ras Laffan Industrial City (QATAR)

Job title : HSE Officer

- Job Description** :
 - Coordinating with HSE Superintendents (CTJV and sub-contractors) in enforcing the CHP and all supplementary procedures and programs.
 - Participate in the project Audit schedule 2008.
 - Develop continuous improvement coaching program for contractors Arabic speaking HSE personnel.
 - Champion the understanding and use of site observation card by QG Arabic speaking personnel.
 - Work with CTJV (main contractor) to develop an improvement plan and champion its implementation for continuous improvement.
 - Participate in accident investigation and translate into Arabic/English during interviews if required.
 - Supporting IIF (Incident and injury free program) implementation.
 - Responsible for monitoring, inspecting and Auditing PTW Execution in LNG Train 7.
- Dates** : From Jan. 2005 till Dec. 2006
- Employer** : JGC (JAPANESE GAS COMPANY) Middle East FZE
- Project** : Dolphin upstream and compression gas onshore facilities project (construction, commissioning and start-up) located in RAS LAFFAN Industrial City (QATAR), 1.6 billion \$ project which the OWNER is Dolphin energy limited and the main contractor is JGC (Japanese Gas Company Corporation) Middle East. FZE
- Job title** : HSE Officer
- Job Description** :
 - Take a proactive approach to the implementation of HSE culture within JGC and contractor personnel.
 - Implementing and monitoring the construction/commissioning and Simops health and safety plan (CHP) and all procedures/programs developed under the umbrella of this CHP.
 - Coordinating with HSE Supervisors (JGC and Subcontractors) in enforcing the CHP and all supplementary procedures and programs.
 - Familiar with all applicable HSE legislations and regulations and the requirements of this plan.
 - Inspect construction, commissioning area frequently to identify hazards, on conformance and non-compliances.
 - Take appropriate corrective action and prepare such reports to JGC HSE Manager.
 - Coordinating with JGC Construction/commissioning Managers, Supervisors and Foremen in respect of construction and commissioning activities concerning HSE matters.
 - Maintaining inspection program and report findings and recommendations to JGC Site HSE Manager, JGC Construction Manager and Subcontractor for prompt corrective action.
 - Conducting and participate in job safety meeting.
 - Assisting Site HSE Manager in training the work force.
 - Support and anticipate in the implementation of HSE training program (responsible for conducting Induction, working at heights, confined space, PTW, electrical safety (construction and commissioning), LOTO, SIMOPS and H2S training for JGC and subcontractor's employees (in ARABIC and ENGLISH languages).
 - Investigate into all incidents/accidents as defined in the CHP and ensure such reports are timely submitted to JGC Site HSE Manager.

- Maintaining publicity materials on site bulletin boards, posters, safety signs, banners and suggestion box on regular basis.
- Responsible for translating HSE training materials, warning signs and governmental formal letters and required accident's reports into Arabic for the work force and local authorities.
- Member of JGC SNATCH SQUAD (Emergency Response Team).
- Coordinate site first aid, rescue and emergency services.
- In addition to rescue team's responsibilities as a member, I have the responsibility to communicate with fire and emergency local authorities and translate to them into Arabic if required in the emergency situations.
- Worked as Security Coordinator (from Oct. 2007 till Feb. 2008).

Dates	:	From Dec. 2004 till Dec. 2005
Employer	:	Lahoud Engineering Co. LTD
Project	:	Erection of pipe lines and structures on two x 2170 Tons weight Vertical Slurry Bed Reactors of height 58.8 M and two x 220 Tons weight Vertical Catalyst Slurry Hoppers height 47.06 M and associated pumps, vessels and equipment's (unit 30-07-08-09-10), wax plant (unit 45) and water treatment and sewage unit (unit 77), the owner is ORYX (QATAR Petroleum – SASOL joint venture) GTL (gas to liquid) and the main contractor is TECHNIP ITALY
Job title	:	HSE Leader
Job Description	:	<ul style="list-style-type: none"> • Responsible to the project manager for all HSE activities at site. • Facilitate in the implementation of project HSE plan. • Participate with the supervisory personnel in the preparation and review of job hazard analysis with method statement. • Provide HSE induction to all new employees. • Organize and conduct HSE training program. • Monitor that HSE supervisors/officers are carrying out continuous site HSE inspection, to ensure that only safe working methods/procedures are applied. • Ensure that HSE supervisor/officers are inspecting safety equipment and first aid facilities. • Ensure the availability of protective clothing in suitable amount for the use when required and ensure that all the site personnel wear the basic required personnel protective equipment. • Ensure that the flammable materials are stored in well ventilated, restricted area away from any source of ignition. • Investigate and determine the cause of any accident or near misses with the line management and make necessary recommendations to prevent recurrences. • Maintain the records of accidents/incidents that occur in the project including detail analysis of each injury and damage. • Submit monthly HSE statistics report/HSE performance of LEC to the main contractor. • Ensure that HSE supervisors/officers are inspecting the fire extinguishers and the other firefighting equipment. • Ensure that, the HSE officers/supervisors are carrying out regular scaffolding inspection for erected scaffolds, for install of green tag on approved scaffolds and the scaffolding supervisor sign the scaff tag. • Ensure that only contractor certified approved agent are installing the scaffolds.

- Ensure that contractors work permit system being implemented and followed by LE supervisors.
- Ensure that all LE construction equipment are inspected and verify that each equipment including man lift/basket have a valid third party certificate and comply with contractor requirements
- Verify licenses for all drivers, crane operator's, riggers and ensure that they are in compliance with Requirements.
- Ensure that good housekeeping is maintained throughout the period of work.
- Maintain project relevant HSE records.

Dates : From Mar. 2003 till Dec. 2004

Employer : Damietta LNG Construction (DLC Company)

Project : Damietta LNG Project (KBR, JGC, TR) in Damietta Port (Construction, commissioning and start-up), a 2.5Milliard Euro project which the owner is Union fenosa & the main contractor is Damietta LNG construction (DLC) J.V between KBR Kellogg Brown&Root (a Halliburton Company) & JGC Japanese Gas Company & TR Tecnicas Reunidas

Job title : Safety Officer

Job Description :

- Full knowledge of site HSE regulations and specifications.
- Full supervision for two LNG tanks and jetty construction and commissioning activities and ensure of project safety onshore/offshore precautions.
- Full awareness of COSHH assessment, MSDS and Material properties.
- Ensure that risk assessment for activities with a high potential for loss and completed before work commence.
- Inspect and monitor the place of work on continuous basis ensuring that all procedures, safe working practice, authorization system or permit to work systems are being carried out properly.
- Responsible for conducting hygiene inspection for the contractor's offices and caterings.
- One member of firefighting & rescue team.
- Assist in organizing and carrying out emergency safety exercises and training.
- Inspecting generators, welding machines, hand tools and other facilities in order to classify its safety statues.
- Inspection of the work place to make sure that all the permit requirements are provided prior to work commence (Safety precaution, Emergency procedures ...etc.).
- Responsible for conducting regular safety training sessions for subcontractors, construction personnel and maintain records for attendance.
- Inspect all kinds of commissioning testing for ex: hydro test and pneumatic test.

Dates : From Feb. 2000 till Nov. 2002

Employer : DODSAL Ptl. Limited

Project : Construction of Damietta LNG

Job title : Safety Officer

- Job Description** :
- Responsible to establish, implemented and maintain safety system in accordance with safety policies and procedures to achieve the objective of the Client.
 - Issuing safety permits in each plant for starting the work.
 - Looking after the housekeeping of the plants.
 - Imparting safety training to regular employees and contractor employees.
 - Representing DODSAL Company in all safety meeting events.
 - Ensuring the implementation of (EMS) plan.
 - Ensuring that all precautions are in place prior to start and at the end of the job (confined space entry, hot work, cold work.....etc.).
 - Reporting all reportable & non-reportable accident and near miss, preparation of safety report).
- Field of experience** : Over 17 years experience in Construction, Oil and Gas fields, have a good exposure in working with ISO 14001 and OSHAS 18001 companies and experienced in conducting HSE, training, inspections and audits, in addition to Commissioning, Simops, Start-up, Shut down and process HAZOP, HSE & PTW Regulations and specifications in depth experience.