

**.YOUR 'ONE STOP SHOP'**  
**FOR ALL YOUR**  
**ELECTRICAL NEEDS**



ENGINEERING, EVALUATION & CONTRACT MANAGEMENT CONSULTANTS

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## INTRODUCTION

Our electrical design engineers have the experience, knowledge and expertise to design most types and sizes of electrical installations to suit our client's needs, fully complying with the British Wiring Regulations BS7671.

Electrical design solutions are tailor made to our client's requirements in a practical and cost effective manner. We have had extensive experience in the design of electrical systems for many and varied applications. These include: hospitals with emergency backup, alarm systems; medical facilities; theatres and restaurants; schools and other educational facilities; laboratories; computer facilities with uninterruptable power supplies (UPS); sports facilities; elderly housing; offices, domestic properties, residential housing developments, commercial warehousing and industrial property.

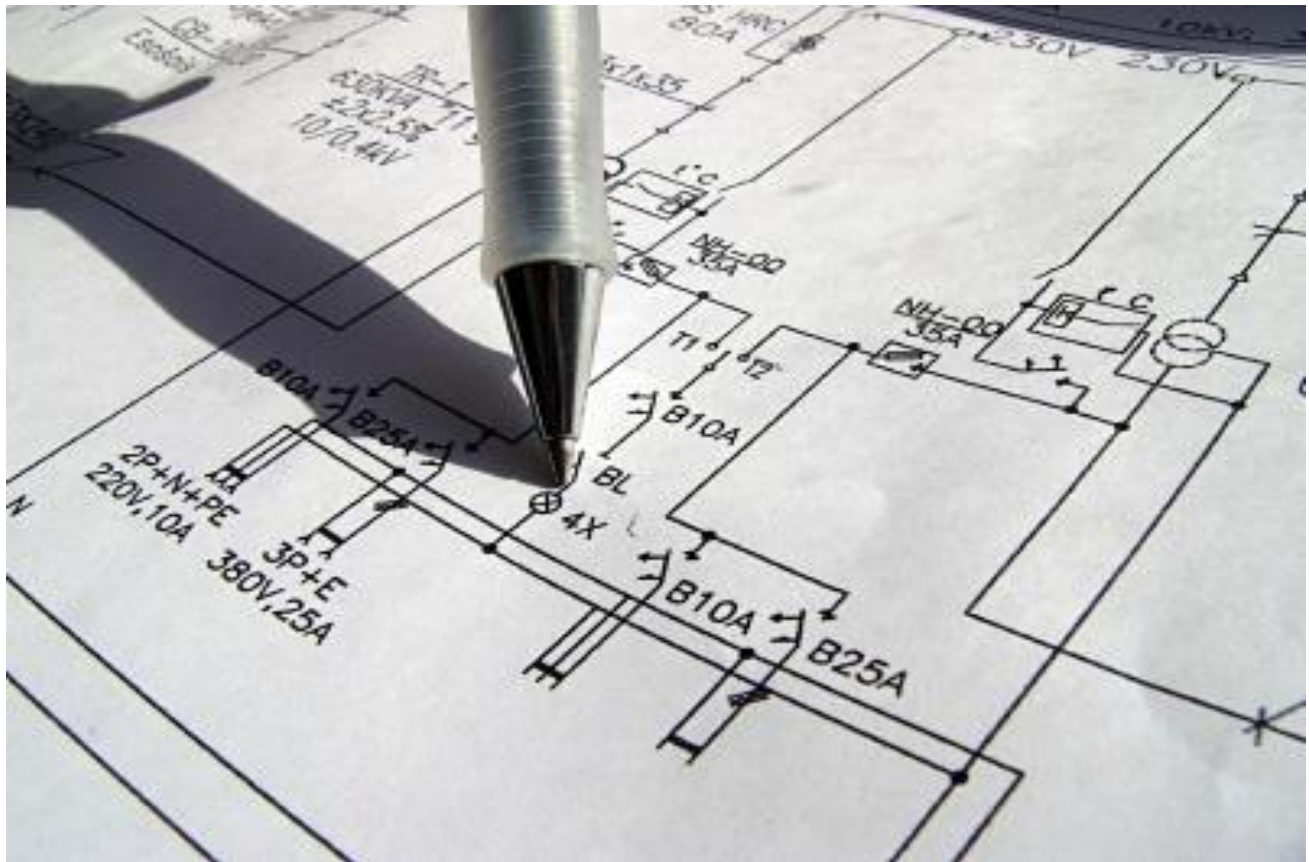
In addition to designing your electrical installation we also offer consultancy and final inspection/testing and certification services. Please feel free to contact us to discuss your requirements with no obligation.

Electrical Installation Design • CAD Drafting and Computer Aided Design Drawings • Electrical Installation Cable Calculations • Power Demand Studies • Emergency Lighting Design • Lighting Scheme Designers • Design & Wiring Regulations Consultants





Elektr



Elektro





Elektu

We specialize in the design of electrical installations

We have the experience, knowledge and expertise to design most types and sizes of electrical installations to suit our client's needs, fully complying with UK Wiring Regulations BS7671.

Designs solutions are tailor made to our client's requirements in a practical and cost effective manner.

Cable calculations and if required, full design drawings and circuit schedules can be provided. We can provide distribution system design and verification to BS 7671 / IEC 364, up to a massive 400 distribution boards.

Our services include:

- Design Advice and Consultancy
- Single/Multiple Cable calculations to BS 7671
- Distribution System Design
- Medium and low voltage protection studies and device selection
- Fault level analysis
- Circuit protection Discrimination Studies
- Lighting Calculations
- Final Installation Verification

Our Design services are offered in the Pakistan and Worldwide.

## ENERGY MANAGEMENT

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Energy bills are rocketing due to the increasing cost of fuel. Most companies can save up to 20% on their energy bills, simply by managing their energy use and investing in cost-effective energy efficiency measures.

Every rupee saved is a rupee on the bottom line and using less energy also means paying less Climate Change Levy (CCL). There are many other ways a company can reduce its environmental impact and save money, i.e. by using less lighting or cutting down on paper usage. The following five-step approach can run in parallel with other management programmes

- Obtaining commitment from the top levels in the company
- Understanding the energy saving programmed objectives
- Developing and organizing an effective management programme
- Implementing the energy saving programme and initiatives
- Controlling and monitoring energy saving performance

## FIELD OF DESIGN.

Commercial complexes & shopping malls.



Industrial electrical distribution and control.



Modern townships & urban electrification.



Institutional, government & educational building complexes.



Hotels & hospitals.



Area, street, landscape & façade lighting design.



Internal Electrical Design

We design electrical systems using the latest technologies considering specific project requirements along with compliance of all relevant Indian and International codes. We take into account fundamental principles of energy conservation and safety that encompass protection against electric shocks, thermal effects, over current, fault current and over voltage. All these potential hazards are addressed at the time of design, resulting in an installation that is essentially free from hazards, convenient in operation and adequate for a long trouble-free service. Dimmers are provided for lighting circuits to reduce the lux level at times when higher lighting level is not required. Also sensors are provided to switch off lighting when the space is not occupied or where natural light is available to achieve the required lux level.

External Electrical Installation

We recommend the use of astronomical time switches for controlling external lighting. These switches are programmable on the basis of sunrise and sunset, and work without the use of light sensor. Programming is done at the project site to switch the external lighting ON and OFF automatically at a preset time and also switch OFF 50% lighting at midnight or another preset time. This saves substantial amount of electricity and increases the life of lamps.

Sub Station

We recommend the setting-up of sub-stations, as far as possible, near the load centers to minimize installation cost and voltage drops. Transformers are selected on the basis of 'minimum load loss' and 'no load-loss' and these are type tested. To avoid the possibility of fire, Dry-type transformer and vacuum circuit breakers/SF6 breakers are deployed.

Standby Power Generation System

Generators are provided in compliance with project requirement and to supply power automatically within 12 to 14 seconds on interruption of grid power supply. In projects where more generators are installed, we deploy automatic

load management system to ensure that only the required amount of power is produced at any time to avoid fuel wastage. We also give special emphasis to issues of noise and air pollution.

Elevators, Escalators and Moving Walks

To support high level of building operation services, we perform a performance/traffic analysis which considers factors such as the number of elevators/escalators, their type, speed and capacity. We also place high emphasis on the safety of passengers against fire and elevator/escalator breakdown.

Voice & Data Networking

We plan Voice and Data Networking systems based upon project specific requirements. We deploy the latest technology cabling system that is adaptable to new requirements. We follow the practice of housing the Voice and Data system cabling termination in the same rack to provide for greater flexibility in future.

MATV System

Based upon the latest technology and project specific requirement, our MATV systems are designed to minimize signal losses and ensure excellent audio/video quality.

UPS System

We deploy the latest technology UPS systems to provide uninterrupted power supply for computers, servers, data centers and other low voltage equipment. Factors like mode of operation and back-up time are proposed based upon project requirement.

Spectral offers consulting solutions in the following areas:

- Feasibility Study
- Conceptual Planning
- Preliminary Design Report and Budget Estimates
- Detailed Planning
- Working Drawings
- Specifications
- Schedule of Quantities
- Detailed Cost Estimates
- Notice Inviting Tender
- Comparative Statement for Tenders-Commercial & Technical
- Recommendation for Award
- Contract Agreement
- Verification of Shop Drawings
- Periodic Site Supervision
- Testing and Commissioning Participation
- Assistance with As-Installed/Built Drawings

- Assistance with Operation & Maintenance Manuals & Log Books

## Objectives

- To use technical design excellence to design sustainable buildings which can enhance the environment
- To work with clients, architects, contractors, societies and the community to create awareness about the environment
- To consider implications to the society and environment while making strategic business decisions
- To maximize resources to provide for the future
- To minimize wastage of water, energy and other resources
- To set new standards of quality and perfection in building services design
- To optimize time, efficiency, resources and manpower to deliver comprehensive building engineering solutions

## Outcome

- Live up to its reputation for efficient, accurate and effective design
- Maintain excellence in building services design
- Drive environmental awareness and lead the Green Building Movement and concern for the ecosystem
- Continuously improve internal processes, technology and communication
- Deploy comprehensive software technology, document management systems and integrated regional offices
- Bridge the Industry and Academia gap with a synergized approach to building services
- Contribute actively to professional societies and the community at large

## Combining expertise with experience

After a customer builds a facility, someone is hired to run it and keep it running. Although we provide complete preplanning, design, and construction services, we also offer turnkey services for startup, O&M, facility assessment, planning, design, commissioning, and decommissioning for unique, mission-critical structures. We deliver engineering, construction, and environmental solutions to meet the challenges facing government organizations—including contractors, site contractors, subcontractors, and facility managers working on and for federal and commercial contracts worldwide.

Parsons' exceptional position in the industry puts us ahead of our competition. Our strength is based on our skill in offering commercial best practices, as well as integrating interdependent portfolio management, which is a key factor in extending the life of a facility and reducing its daily costs.

## Achieving short-term requirements while maintaining long-term vision

We develop solutions for all kinds of O&M contracts. Whether a customer is planning for a change, wants to maintain the status quo, or tries to preserve what is already there, each decision requires both short-term and long-term solutions. Elektro SERVE achieves the short-term, immediate goals while maintaining the long-term vision for reliability—ensuring the facility or system is ready for future missions. Our expertise in best management practices gives our customer an engineering-based approach to O&M, especially in the following areas:

- Maintenance engineering
- Recurring work programs
- Preventative maintenance programs

- Sustainable design

Our proven proactive approach emphasizes more time on scheduled O&M—creating less of a need to respond to unplanned system failures. By supporting the concept of a sustainable design, we reduce maintenance costs—a win-win for our customers and for us—because our efficient solutions reflect work executed while improving the long-term reliability of their facilities and infrastructure.

Developing life-cycle solutions for our customers goes hand-in-hand with our passion for sustainability and green building design, construction, and O&M. In fact, *Building Design + Construction* magazine ranked Elektro SERVE as one of the leading project management firm focusing on green building, based on our percentage of LEED-accredited staff. And we're putting our reputation to work.

## STAFF

ES employs design and CAD operations personnel with many years of widely diversified electrical experience. Each has well developed problem solving skills and years of providing creative solutions in difficult or unusual situations. ES takes pride in its employee's ability to find the right balance between conflicting design constraints, and in providing unique, creative solutions where flexibility exists. The approach to design and other engineering activity is always tailored to the needs of the project and the general philosophy of the client.

### ASAD MALIK – Manager Partner

Asad Malik has over 32 years experience as a project manager and electrical design professional. He has had extensive experience in the design of electrical systems for many and varied applications. These include: hospitals with emergency backup, alarm and paging systems; medical facilities; theaters and restaurants; schools and other educational facilities; laboratories; computer facilities with UPS; amateur and professional sports facilities; elderly housing; and correctional facilities. Additionally, Asad has performed electrical engineering design for numerous commercial and industrial applications. Detailed CV is being given.

### Feb 2001- UPTODATE

Self employed with M/s. Elektro SERVE as Principal Engineer/Manager Partner.

### November 1989- to June 1992.

Employed with M/s. ECON as junior Electrical Engineer.

Served as Junior Engineer Electrical from November 1989 to June 1992 and was assigned to plan, design and supervise the electrical services of different projects, responsible for preparation of tender documents.

### July 1992 to September 1993.

Employed with Ittefaq Hospital (Trust) as a Hospital Engineer

Served in Ittefaq Hospital (Trust) as a Hospital Engineer responsible for the preventive Maintenance of existing electrical equipment and installation, Medical Gases record. Designed new panel to distribute electrical load on two transformers. Also responsible for the preventive maintenance of all other general services like plumbing, Air Conditioning, painting, wood work etc. Supervised the erection testing and commissioning of Electro Medical equipment in new theater and CCU/ICU.

September 1993 to June 1995.

Employed with NES PAK at Quetta.

Worked in NES PAK at Quetta on Operation and Maintenance project of water supply for Balouchistan – WASA (B-WASA). As Site Engineer, responsible for the preventive maintenance for operation of tube wells and pumping stations, electrical panels etc. Rehabilitated and maintained 80 to 225 KVA generators for emergency electric supply. Designed the motor control centers and operating switchgears for the Municipal Corporation tube wells after handing over to B-WASA. Supervised the erection testing and commissioning of new electrical panels of the same. Improved the Electrical system for the residential colony of B-WASA.

July 1995 to June 1997.

Employed with NES PAK at Lahore.

Worked in NES PAK at Lahore office on various projects. Complete electrical design of various pumping stations comprising electrical panels, electrification of pumping station & preparation bill of quantities. Some of the projects are:

- Fort Manro water supply scheme Dera Ghazi Khan.
- Improvement and modification of water supply scheme for Skardu .
- Pumping station at IBRI town- OMMAN.
- Greater Faisalabad water supply scheme.

July 1997 to Jan 2001.

Employed with M/s. ECON as Senior Electrical Engineer.

Serving as Senior Engineer Electrical from July 1997 to January 2001, I have designed and supervised the electrical installations of various projects and got sufficient experience in the illumination design, low tension power distribution, motor control centres and switch gear installation, all kinds of internal and external wiring, telephone and fire alarm conduit layout, coordination between other services, preparation of tender documents & engineer's cost estimate.

### **Usman Mahmood – Electrical Engineer Manager Partner**

Mr. Usman Mahmood has 15 years of experience of Electrical Designing/Project Management and Planning. Usman is BSc engineer from Air university Islamabad. He is currently doing his MBA (Executive) with his job to polish his Managerial/ Business abilities. His communication has been his strength. He looks after the business development part of ES. He keeps an eye on the latest technologies and vendors in the market. Recommendation to the client about the suitable product in the market with best price has been his area of expertise. His other duties include Preparation of Bids, Proposals, Feasibility Reports, Project time line on MS project.

With his business development abilities with technical background, Usman has become an asset for ES.

## M. Aqeel Sheikh. - Electrical Engineer

Mr Aqeel Sheikh has over 20 years of electrical engineering, project engineering and leadership experience. He has planned, designed and directed teams during the design and construction of various medium voltage (4, 12, 21 and 35kV) projects. He has specified and procured many types of equipment including transformers, switchgear, capacitors, regulators, and reclosers. His experience also includes 69kV long term planning and bulk substation planning. Mr. Aqeel is also experienced with power systems analysis, distribution systems expansion planning, design utilizing construction standards, and operations support. He is a subject matter expert in utility distribution systems.

Areas of expertise include: Project Engineering, Project Management, Construction Standards Development, Medium Voltage Design Standards Development, 4, 12, 21 and 35kV Planning & Design, 69kV Long Term Planning and Routing, Bulk Substation sizing, 69/12kV Substation Planning and Installation, Medium Voltage Equipment and Material Specifications, Renewable (Photo Voltaic) Generation Station.

Mr. Aqeel is BSc in Electrical Engineering from the University of Engineering and Technology Lahore in 2001.

Muhammad Jabbar – Project Coordinator

Jabbar has over 18 year experience. His primary emphasis has been design and management of various electrical engineering projects throughout the country encompassing a variety of High Rise, Educational, Institutional, and Industrial facilities.

Jabbar's strengths are his ability to communicate clearly and often by maintaining a close relationship with the team members. Jabbar is able to quickly recognize the immediate needs as well as specify future goals that need to be obtained.

Muhammad Hashim- Electrical Designer

Hashim has over 8 year experience in engineering computer aided drafting and design. He has 3 year experience in management and has completed his electrical design study. Mr. Azam is currently an electrical design engineer in training and cad operator for ES. His primary focus has been on Lighting Design while also learning power design at the same time. Azam is among one of ES's young and upcoming design engineers that will be an integral part of ES's future.

Muhammad Deen - Lighting Designer

Deen is senior manager responsible for the daily operation of the Technical Support Department. In addition, he is responsible for CAD Operations and the ES Quality Control Program.

With over 16 year experience in the AutoCAD and drafting field, Deen has an in-depth knowledge of all the software releases including the current 2006 version. He has assisted in the implementation of third-party software products to provide creative solutions to complex design challenges. Din is knowledgeable in writing and implementing lisp routines and menu customization in order to maximize CAD capabilities. With his experience in project management, Deen has set the company CAD standards for projects to run smoothly and efficiently.

Elektro SERVE

LIST OF PROJECTS DESIGNED DURING JOB IN ECON ASSOCIATES

2. Schon Bank, Saddar, Rawalpindi
3. Habib Bank Branch, Main Market, Gulberg, Lahore
4. Habib Bank Branch, Panorama Centre, Shahrah-e-Quaid-e-Azam, Lahore
5. Platinum Commercial Bank, Shahrah-e-Faisal Karachi
6. Platinum Commercial Bank, Circular Road, Lahore
7. Bank Alfalah, Clifton Branch, Karachi
8. Bank Alfalah, Shahrah-e-Faisal, Karachi
9. Muslim Commercial Bank, Saddar, Rawalpindi
10. Bank Alfalah, Peshawar
11. Bank Alfalah, Main Gulberg Lahore
12. Bank Alfalah, Faisalabad
13. Bank Alfalah, Islamabad
14. Platinum Commercial Bank, Main Boulevard, Gulberg, Lahore
15. Allied Bank - Sherpao Bridge, Lahore
16. Bank Alfalah - Main Boulevard Gulberg, Lahore
17. 16 Storeyed Building Eden Heights, Lahore
18. 7 Storeyed Ahad Height Mini Market, Gulberg-II, Lahore
19. 6 Storeyed H. Karim Buksh - Departmental Store Liberty Market, Gulberg, Lahore
20. 12 Storeyed Etemmad Trade Centre, Davis Road, Lahore
21. 16 Storeyed Siddique Trade Centre Main Boulevard, Gulberg, Lahore
22. 16 Storeyed Eden Tower, Main Boulevard, Lahore
23. 12 Storeyed Central Plaza, Barkat Market, Garden Town, Lahore
24. 13 Storeyed Century Tower, Main Boulevard, Gulberg, Lahore
25. 12 Storeyed Hotel Grand, Davis Road. Lahore
26. 4 Storeyed Waheed Trade Centre LCCHS, Lahore
27. 4 Storeyed H. Karim Buksh Departmental Store, LCCHS Defence, Lahore
28. Departmental Store for Mr. Haseeb Mehmood & Mr. Khalid Mehmood, Lahore
29. Office Block for Pepsi Cola, International, Lahore
30. 15 Storeyed Epoch Heights, Main Boulevard, Gulberg, Lahore

31. 5 Storeyed Gold Plaza, LCCHS, Lahore
32. 15 Storeyed AHAD Arcade, Hussain Chowk, Gulberg, Lahore
33. Defence Shopping, Mall, LCCHS, Lahore
34. Raja Center, Mirpur Azad Kashmir
35. Jamal Rug Weavers, Lahore
36. Muhammad Nawaz Sharif, Technical Training Institute, Raiwind Road, Lahore
  - 35.1 Main Entrance
  - 35.2 Academic Block for Women-2 Blocks
  - 35.3 Academic Block for Men-2 Blocks
  - 35.4 Admin Block
  - 35.5 Auto Workshop
  - 35.6 Resource Centre
  - 35.7 Women's Hostel
  - 35.8 Men's Hostel
  - 35.9 Canteen
  - 35.10 Mosque
  - 35.11 Residence for Principal, Chief Instructor, Instructor, Assistant and 5 Flats.
37. Girls School for Punjab Province Workers Welfare Board - Gujrat
38. Boys School for Punjab Province Workers Welfare Board - Gujrat
39. Girls School for Punjab Province Workers Welfare Board – Sialkot
40. Muslim Commercial Bank Rawalpindi
41. Bank Alfalah Peshawar
42. Bank Alfalah Islam Abad
43. Bank Alfalah kati Korangi
44. Muslim Commercial Bank Mengora Swat
45. Boys School for Punjab Province Workers Welfare Board - Sialkot
46. SNGPL, Building, Peshawar
47. First Floor of SNGPL, Head Office, Lahore
48. SNGPL, SMS-II, Defence Road, Lahore

49. 100 Beds Fauji Foundation Hospital Badian Road, Lahore
50. Pediatric Hospital Diagnostics, Services Block & Admin Block, Lahore
51. 400 Bed Saudi German Hospital Kingdom of Saudi Arabia, ABHA
52. 100 Beds Doctors Hospital & Medical Centre, Johar Town, Lahore
53. 200 Beds - Muhammed Nawaz Sharif Kidney Institute for Workers at Sheikh Zayed Medical Complex, Lahore
54. Extension of Zainal Textiles, Lahore
55. Office Block for Leather Connection
56. Punjab Drug House, Pharmaceutical Unit, Lahore
57. Midas Chemical, Lahore
58. Coca Cola Bottling Plant for Rahman Beverages at Raiwind Road, Lahore
59. Pak. German Joint Venture, ELTEK Instruments (Pvt) Ltd. Sialkot
60. Extension of Tapal Tea Ltd., Raiwind
61. Mosque, Sri Lanka
62. About 50 Houses for different person. Lahore / Islamabad
63. Residential Colony for FJFC Township, Bin Qasim Karachi
64. PARCO- Mid Country Refinery Project, Control Rooms & eight Sub Stations, Mahmood Kot
65. Javed textile Mills Bahrain.
66. Ghazi Fabrics Spinning Mill - 18240 Spindles Unit –I BhaiPhero.
67. Ghazi Fabrics Spinning Mil - 18240 Spindles Unit –II BhaiPhero.
68. Sarah Speciality Textile Mills - 28800 Spindles
69. Sheikh Spinning Mills -18240 Spindles. Raiwind Manga
70. Shafi Spinning Mill,
71. Aziz Spinning Mills - 17280 Spindles
72. Punjab Drug House Ferozepur Road Lahore
73. Pharmagen Beximco Ferozepur Road Lahore

## D - SCOPE OF WORK

Our services are based on the following scope of work.

### D.1) Electrical Works.

#### D.1.1 Sub-Station

- D.1.1.1 Detailed sub station layout plans regarding selection and location of:
- D.1.1.2 Wapda H.T. Panel Room.
- D.1.1.3 Routing of 11 Kv-XLPE cable from Wapda Panel to Consumer's sub station.
- D.1.1.4 Consumer 11 Kv H.T. Panel.
- D.1.1.5 Location, selection and other installation details of Transformer.
- D.1.1.6 Designing and selection of cables or Bus Tie Duct from Transformer to Main L.T. Panel.
- D.1.1.7 Design and location of Main L.T. Panel, Sub-Main Panel Boards, Motor Control Centers.
- D.1.1.8 Designing and selection of Power Factor Improvement Plant.
- D.1.1.9 Designing, sizing and proper selection of Main, Sub-Main Cables and its routing from Sub-Station to various load points.
- D.1.1.10 Designing and location of Power Distribution Boards and its detailing.

#### D1.2 Assessment of Electrical Load:

- D1.2.1 Data collection from Client regarding electrical load of machineries and equipment.
- D1.2.2 Obtaining information on process.
- D1.2.3 Obtaining information on particular requirements.
- D1.2.4 Calculating load requirement for lighting.
- D1.2.5 Obtaining load information on special systems.
- D1.2.6 Tabulation of total load.

#### D1.3 Schematic Diagram.

- D1.3.1 Preparation of schematic diagram showing the following.
- D1.3.2 Overall system network.

- D1.3.3 Schematic diagrams for Power and Lighting Systems.
- D1.3.4 Schematic diagram for other systems.
- D1.4 Illumination Design.
  - D1.4.1 Internal Illumination Design.
    - a) Selection of proper internal levels of illuminations.
    - b) Design of illumination system.
    - c) Selection of proper light fixtures to meet the illumination design requirements.
    - d) Preparation of lighting layout plans.
    - e) Routing and conduiting of light wiring with all necessary details.
    - f) Selection and location of wiring accessories.
    - g) Detailing of Distribution Boards for lighting system.
  - D1.4.2 External Illumination.
    - a) Selection of proper external illumination levels.
    - b) Selection of proper light fixtures and designing of the number of lights to meet with the required level of illumination.
    - c) Selection of proper steel poles.
    - d) Routing and conduiting for external lighting system.
    - e) Preparation of external lighting layout plan depicting all necessary details.
    - f) Detail of Distribution Boards for control of external lighting system.
- D1.5 Power Layout.
  - D1.5.1 Selection and location of power distribution equipment.
  - D1.5.2 Selection of method for installation of power cables.
  - D1.5.3 Detailed layout plan of machineries as given by Client, alongwith necessary power layout plans.
  - D1.6.4 Detailing of power distribution board.
- D1.6 Earthing System.

- D1.6.1 Selection of material for earthing system.
- D1.6.2 Selection of type of the earthing system.
- D1.6.3 Detailing of earthing system to be adopted.
- D1.6.4 Selection of proper circuit protective conductors (CPC).
- D1.6.5 Routing and conduiting of earthing system.

D1.7 Co-Ordination.

For evolution of an economical and fault free design co-ordination are carried out with the following:

- D1.7.1 Architect and Planner.
- D1.7.2 Structural Engineer.
- D1.7.3 Public Health Engineer.
- D1.7.4 HVAC System.
- D1.7.5 Co-ordinations are carried out at Lahore or at Clients expense outside Lahore.

D1.8 Tender Documents.

- D1.8.1 Preparation of tender documents consisting of:
- D1.8.2 Instruction to bidders.
- D1.8.3 Technical provisions.
- D1.8.4 General Specifications.
- D1.8.5 Detailed Bill of Quantities.

D1.9 Prequalification of Contractors.

- D1.9.1 Pre-qualification of contractors.
- D1.9.2 Invitation to tender.
- D1.9.3 Receipt and opening of tenders.
- D1.9.4 Appraisal of tenders.
- D1.9.5 Preparation of report and recommendations.

D1.10 Shop Drawings

- D1.10.1 Scrutiny of shop drawings submitted by Contractors / Manufactures.
- D1.10.2 Approval of Shop Drawings.
- D1.10.3 Supervision towards conformity to shop drawings.
- D1.11 Preshipment Inspection.
  - D1.11.1 Inspection of Transformers, Switchgear, PFI Plant etc.
  - D1.11.2 Carrying out routine tests on aforesaid equipment.
  - D1.11.3 Inspection and testing of cables and wires.
  - D1.11.4 Inspection and testing of bare conductors.
  - D1.11.5 All inspection and tests are carried out at the works of the manufacturers / suppliers at their / Client expenses.
- D1.12 Bills of Contractors.
  - D1.12.1 Scrutiny of bills of contractor.
  - D1.12.2 Comparison with measurement books mentioned at project.
  - D1.12.3 Mathematical check with rates.
  - D1.12.4 Deduction for defective works.
  - D1.12.5 Recommendations for payment.
- D1.13 Manual of Design Datas.
  - D1.13.1 A Manual in Bound Book form as a permanent record is produced for assistance during construction, application for maintenance and safeguard against pilferage, containing the following information.
  - D1.13.2 Rating of all switchgears.
  - D1.13.3 Connected load of all associated circuits.
  - D1.13.4 Rating of all appliance / machineries.
  - D1.13.5 Length, size and type of cables.
  - D1.13.6 Length, size and type of circuit protective conductors (Earthing).
  - D1.13.7 Type of conduits / cable trays for passage of cables.

D2) Generator Power Supply System.

- D2.1 Evaluation of electrical loads for proper selection of Generator.
- D2.2 Planning and preparation of plans of lighting system and other equipment to be connected on generator supply.
- D2.3 Selection of proper location for under ground storage tanks, daily fuel tank, generator burnt gases, hot air exhaust and fresh air in take.
- D2.4 Detailed generator room layout plans (excluding design of any Civil & RCC works).
- D2.5 Routing and designing of power cables from generator panels to various panels / Dbs.
- D2.6 Bill of Quantities.

D3) Communication System.

- D3.1 Planning and preparation of layout plans showing wiring and routing of conduits for Telephone and Intercom systems.
- D3.2 Proper selection and location of EPABX.
- D3.3 Installation of Main Telephone Distribution Frame (MDF).
- D3.4 Installation and routing of Main Telephone Cables from MDF to Telephone Distribution Boards.
- D3.5 Installation / location of telephone distribution boards (TDB) on various floors.
- D3.6 Wiring of telephone and intercom points.
- D3.7 Routing and selection of incoming cable to EPABX and outgoing cables to TDBS.
- D3.8 General specifications and detailed Bill of Quantities.

D4) Fire Alarm And Security System.

- D4.1 Location of Fire Alarm Control and Repeater Panels.
- D4.2 Wiring and routing of conduits for fire alarm system.
- D4.3 Preparation of layout plans showing location of detectors, manual stations, alarm sounders, fire alarm control panels.
- D4.4 General specification and detailed Bill of Quantities.

D5) Lightning Protection.

- D5.1 Planning and detailing of lightning arrestors on roof.
- D5.2 Planning and routing of down conductors.
- D5.3 Location of earthing pits, details of earthing system.

D5.4 Bill of Quantities.

D6) Motor Control Centres (MCC).

Designing and planning of complete Motor Control Centers consisting of:

D6.1 Selection of Breakers corresponding to Motor load.

D6.2 Selection of contactors according to the mode of start of motors i.e. DOL or ASDS.

D6.3 Selection of timer and other necessary accessories.

D6.4 Selection of location for installation of MCD

D6.5 Complete specifications and detailed Bill of Quantities.

D6.6 Selection and routing for incoming and outgoing cables.

D6.7 Complete earthing system for MCC and other electrical equipment.

D7) Other Systems.

D7.1 Besides the above mentioned services, planning, designing are also provided for the following:

D7.2 Paging system.

D7.3 MATV and Multi-channel Music System.

D7.4 L.T. overhead distribution system.

D7.5 Any other system as per Client's requirement.

D8) Documentation.

The following documentation are provided.

D8.1 Agreed number of sets of preliminary / final drawings.

D8.2 Agreed number of tender documents.

D8.3 Additional copies of drawings and documents are made available against payment.

D9) Issue Of Documents To Contractors.

D1.9 Tender documents are supplied to prequalified Electrical Contractors at a nominal price to be determined after accessing the volume of works.

D10) Supervision.

D10.1 Supervision is provided on the project in the following manner.

D10.1.1 Resident supervision.

D10.1.2 To monitor day to day progress of the work.

D10.1.3 To Co-ordinate with daily activities of other contractors.

D10.1.4 To record measurements / resolution of day to day difficulties.

D10.1.5 Certification of bills.

D10.2 Top Supervision.

D10.2.1 Periodic supervision as agreed to.

D10.2.2 Assessment of general quality of works.

D10.2.3 Demolition of bad workmanship.

D10.2.4 Co-ordination meetings.

D10.2.5 Resolution of difficulties experienced.

D10.2.6 Resident or periodic supervision is made available commensurate with fees and remuneration.

## PROJECT DESIGNED OF ELEKTRO SERVE

1. Mosque for Habib Rafiq Pvt. Ltd
2. Residence for Mr. Safdar Hussain at LCCHS, Lahore
3. Clinic for Dr. Zahid Akbar at LCCHS, Lahore
4. Toll Plaza Gugranwala
5. Control Room for AJK Hydro Electric Board, Out Door Sub Station Jagran.
6. Sub Stations for Pak Arab Refinery Mahmood Kot.
7. Extension of School & Hostel of AES Lal peer.
8. Ideal Carpets
9. Allied Bank Wapda House Branch Lahore
10. Allied Bank LDA Plaza Branch Lahore
11. King Embroidery Kot Lakhpat Lahore
12. Residence for Mr. Abdul Rahman at Gulberg Lahore
13. Commercial Building for Mr. Zulfiqar at Mall Lahore
14. Residence for Ch. M. Akram at Cavalry Ground, Lahore
15. Residence for Dr. Munir, Lahore
16. Bahawal Pur Institute of Advance Technologies, Bahawalpur
  - a. Registration Building
  - b. Recreation Building
  - c. Computer Building
  - d. Administration Building
  - e. Library
  - f. Chairman Residence
  - g. Vice Chairman Residence
  - h. Residences for senior & junior staff
  - i. Boys Hostel
  - j. Girls Hostel
  - k. Married Student Hostel
  - l. Boys School Complex
  - m. Girls School Complex
17. Prime Minister Housing Scheme Dera Ghazi Khan, C, D & E type houses.
18. Swiss College of Medicine & Dentistry at Fatima memorial Hospital, Shadman, Lahore
19. Nurses & Doctors Hostel for Fatima memorial Hospital, Shadman, Lahore.
20. Proposed Building of Pakistan Gloves Manufacturers & Exporters Association Sialkot.
21. International Campus for Advance Studies-Extension, Zafar Ali Road Lahore
22. Newage Fashion – stitching unit Lahore

23. MRI centre Multan
24. Tritex Textiles
25. Iras – II, commercial center Sahiwal
26. Residence for Khawaja Bilal Gulberg Lahore
27. Muslim Commercial Bank Circular Road Lahore
28. Residence for Dr. Javed
29. Khan Medical City Multan
30. Five Star Textile Faisalabad
31. Residence for Mr. Hassan Raza Faisalabad
32. Sangan Nagar School, Feroze pur Road Lahore
33. Rohtas Shopping Complex Jehlum
34. Office Building for AruJ Garments Raiwind road Lahore
35. Union Bank LDA Plaza Lahore
36. Extension of Highnoon Textile Mills
37. Master Tiles Pvt. Ltd.
38. Safina Foods Pvt. Ltd. Kala Shah Kaku
39. Nishat Centre Sandah
40. Commercial Building for Mr. Muzaffar Haider at LCCHS
41. Mess for Chunian Cantt
42. Software office for Manzoor Textiles Lahore.
43. Visa Section for Saudi Embassy Islam Abad
44. Lasmo Oil Field
45. Muslim Commercial Bank Pind Dadan Khan
46. Zahra Heights, Main Market Gulberg Lahore.
47. Rearing Form for M. Artal International
48. Hatchery for M. Artal International
49. Office building for Sarfaraz Mahmood (Pvt.) Ltd.
50. Industry for Abbas Corporation Raiwind Road Lahore.
51. AWHs Shopping Plaza Rawalpindi.
52. Gujranwala Institute of Future Technology.
53. Divisional Public School Sialkot.
54. Clinic for Dr. Rasheed Khokhar Gujranwala.
55. Cospo Pvt Ltd. Gloves factory Sialkot.

56. Klass Textile Defence Raiwind Road Lahore.
57. Kia Shalimar Motors Jail Road Lahore.
58. Sialkot Public School & Staff Residences Sialkot.
59. Office building for M/s World Trade Net at Multan Road Lahore
60. Friends Pharmaceutical 31-kM Lahore Kasur Road.
61. SB Electronics Ferozepur Road Lahore.
62. Lahore University of Management Sciences (LUMS) Faculty Apartment-IV.
63. China Market –Commercial Building at Link Model town Road Lahore.
64. Renovation of Shirkat Gah – Women's Resource Centre Garden Town Lahore.
65. Prix Pharmaceutical Lahore.
66. Usman Carpets Raiwind Road Lahore.
67. Multi Storeyed Building Karakaram Enclaves Phase –I, Islamabad.
68. Rahat Shopping Mall Rawalpindi Cantt.
69. Office Building for M/s Adsell's Lahore
70. Aniq Arcade Rawalpindi
71. Sports Complex LUMS (Vetting Consultant)
72. Sports Complex Aitchison College (Vetting Consultant)
73. Female Hostel – III LUMS
74. Central Park NFC Cooperative housing society
75. School for EME Coop Housing Society
76. Cardiology Block at CMH Lahore.
77. Pharmacy for Dr. M. Awais Main Market
78. Marriage Hall for Mr. Tariq Mahmood
79. Pharmix Laboratories Lahore
80. Multi Storeyed Apartment Building Karakaram Enclaves Phase II Islamabad.
81. Multi Storeyed Apartment Building Savoy Residences Islamabad.
82. National Furnitures GT Road Gujrat.
83. Gurdwara Shaheed Ganj Lahore.
84. Rashid Trading Lahore.
85. Diagnostic centre at W block D. H. A Lahore
86. Commercial Building at 115 Shadman Lahore.
87. Commercial Building for Mr. Ayub Sheikh DHA Lahore.

88. Male Hostel –V at LUMS
89. Farm House for Mr. Tanveer at 303 West Canal Lahore
90. TMA commercial building Gujrat Phase I & II
91. 8 Storeyed Aleena Centre Gujranwala
92. 15 storeyed Ahad Tower Kalma Chowk Lahore
93. Zainab Tower Model town link road Lahore (H.T and LT switchgear design)
94. Daily Khabrain Multan
95. Office building for Daily Times Lahore
96. 3 Nos. Residential block for Gurdwara tambu sahib Nankana.
97. Central Academic Block- Kohat University of science and technology Kohat.
98. Envoy Pharmaceutical Multan road Lahore.
99. Beaconhouse School Sialkot Campus.
100. MDA UK Hospital @ Muzafar Abad Azad Kashmir
101. Beaconhouse School Walton Campus.
102. United Bank Ltd. Ichra Branch.
103. MCB Sumandri
104. Guest House, Office Building, Control Room for United Ethanol Industries Sadiq Abad
105. Beaconhouse School Sheikupura
106. Beaconhouse School Faisalabad.
107. Ejaz Dying & Finishing – stitching unit 4, 5, 6 & 7. washing and printing hall
108. MRRD new office building in Darulaman area at Kabul - Afghanistan.
109. 9 Storeyed Alina Centre Gujrat
110. United Bank Ichra, Nankana Sahib and Sialkot branches
111. Commercial building for Mr. Khurshid at 32 Davis Road Lahore
112. Media Gateway Building for Telenor at Multan
113. Divisional Public School Chichawatni
114. Multipurpose Hall at Divisional public School Sahiwal
115. Haleeb Foods (Pvt.) Ltd. Raheem Yar Khan Plant
116. Zarina's Shopping Mall Liberty Market Lahore
117. EFL Milk Process and Packing Plant at Sukker- A project of Engro Chemicals
118. Brothers Associates -Stitching unit at Muridkey
119. Custom and Revenue Building Afghanistan
120. S. A Pharma Multan road Lahore
121. Sharik Pharma Sadiqabad Gound floor only

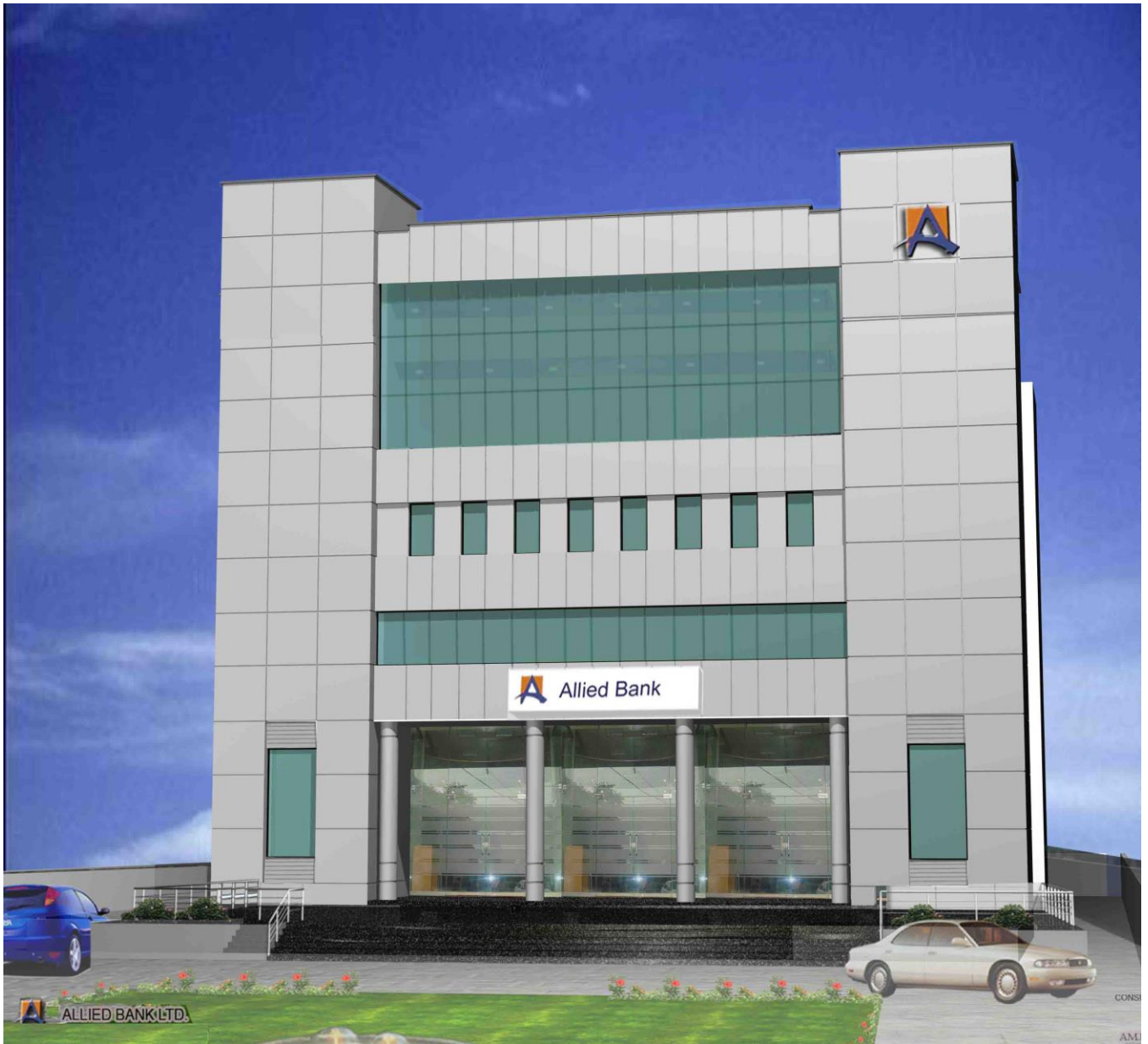
122. The Rising Sun Institute D. H. A Lahore
123. B-Mess, library and restaurant at Muneer Road Lahore
124. Warid Customer Care centre Okara and Sahiwal
125. Asiatics Carpet Industries, Industrial Area Kot Lakhpat Lahore
126. Cantt Shopping Mall Sialkot
127. Hussain memorial Trust hospital .
128. Berger Paint Ltd., Multan Road Lahore.
129. Reyan Packaging Multan Road Lahore.
130. Office Building for Mr. Monis Elahi (CSK Building) Lahore.
131. A.A.A Complex at Khyaban-e-Iqbal D. H. A Lahore.
132. Niazi medical Complex Johar Town Lahore.
133. 3-Star Hotel at Nankana Sahib covered area 225,000 sft.
134. Regional head office Allied Bank of Pakistan Peshawar.
135. Regional head office Allied Bank of Pakistan Gujranwala.
136. Allied Bank of Pakistan Wahdat Road Lahore.
137. Allied Bank of Pakistan F-10 Islamabad.
138. Allied Bank of Pakistan Awan Town Lahore.
139. Allied Bank of Pakistan Garden Town Lahore.
140. Allied Bank of Pakistan Link Road Model Town Lahore.
141. Allied Bank of Pakistan D. H. A. Phase-V, Lahore.
142. Allied Bank of Pakistan G. M. Abad Faisalabad.
143. Allied Bank of Pakistan Wapda Town Gujranwala.
144. Allied Bank of Pakistan F-11 Islamabad.
145. United Bank Ltd., Wazir Abad
146. Commercial building at Murree Road Islamabad
147. Beaconhouse School Walton permanent Campus, covered area 85,000 sft
148. Beaconhouse School Gujrat Campus covered area 110,000 sft..
149. School of Excellence Peshawar.
150. Set up of 700 computers at Kot lakhpat for Data Entry project.
151. **Hospital at Safari Homes Bahria Rawalpindi.**
152. Froebell's international school system Lake city Lahore.
153. 15 Storey commercial building – Corporate Tower Garden town Lahore.
154. Hazara Phosphate Plant –Extention
155. Coca-cola Bottling Plant Raiwind road Lahore-Production Hall

156. Coca-cola Bottling Plant Raiwind road Lahore-Office Building
157. Coca-cola Bottling Plant Raheem yar Khan-Office Building
158. Gharibwal Cement office building
159. Danum II Ferozpur Road Lahore
160. Police Station Peshawar
161. Office Building for LDA at Quaid-e-Azam town
162. Office building for National insurance Co. Karachi
163. Office building for National insurance Co. Islamabad
164. Parliament Lodges Islamabad
165. BRDB Golf Club at DHA Phase VI Lahore
166. Pak China Investment Co office building at Islamabad.
167. Engro Supply Food Project at Murid key Sheikhura Road
168. Head Office Building for Allied Bank Lahore
- 169. 3 floors Apartments at Regent Shopping Mall Faisalabad**
- 170. Jinnah Mall @ Izmeer Housing Society Lahore**
171. Banquet Hall @ Nespak housing society Lahore
172. Banquet Hall @ Garrison Club Lahore
173. Glow Pharma @ Sundar Industrial Estate.
174. CEPHTEX Pharma @ Sundar Industrial Estate.
175. Safemed @ Sundar Industrial Estate. Project of Medipak
176. Staff Lodging Building for Turkish Embassy Islamabad
177. China Centre Ferozpur road Lahore
178. Asia Hatchery Sahiwal
- 179. Fazal Centre at Circular road Gujrat**
180. Commercial Building for Mr. Tahir Sabir @ D. H. A Lahore
181. ISI project at Islamabad
182. Zeta Pharma Sundar Industrial Estate
- 183. Awan Lab Faisalabad**
- 184. The Lost Paradise – Theme Park at Bahria Town Lahore (Area 386 Kanal)**
185. Karakoram Diplomatic Enclave Islamabad
186. 130 Beds Mian Meer Hospital Lahore (design vetting)
187. New Lahore City Housing scheme @ Multan road Sundar ( Joint venture with Hamza Engineers)
188. The Diabetes Centre ( TDC) Islamabad

189. Planning & designing of buildings @ Marbel City Risalpur for Pakistan Stone Development Company Islamabad
190. Chaplet industries Ferozpur road Lahore
191. Pilot Treatment Plant Dadu 8 mega watt electrical load
192. Makki Complex at Ferozpur Road Lahore
193. Albert Pharmaceutical
194. Fatima Energy Housing colony External & Internal electrical work
195. Pepsi Cola office building @ Gujranwala
196. Komex Industry @ Sunder
197. Jeans company new set up ( Partly design for Leads Certifications)
198. Commercial building for Mr. Pervaiz @ DHA Lahore
199. Mushtaq Ahmed Gormani trust buildings at Thatta.
200. Muzaffar Abad medical college External electrical work
201. Peoples University Nawab Shah External electrical work
202. SBBU Sindh External electrical work
203. Loft commercial Pvt. Ltd.
204. SICAS @ DHA phase VI campus
205. Tea plant ext. @ Khaniwal
- 206. Cube Tower Apartment building Bahria Town Islamabad**
- 207. Apartment building for Mr. Jawad Manj 81-C, Gulberg Lahore**
208. Diagnostic centre @ jail Road Lahore
- 209. Bahria Orchard hospital (Design Vetting**
210. Horizon hospital for Dr. Shamim at Johar Town (design review)
- 211. Extansion of hospital at Bahria Town Lahore**
- 212. Mall of Sialkot Sialkot Cantt.**
213. Sapphire outlet at Nishat Emporium Mall Lahore
214. Sania Maskatiya at Nishat Emporium Mall Lahore
215. Subway + Buzkash at Nishat Emporium Mall Lahore
216. Life style at Nishat Emporium Mall Lahore
217. Life style at Packages Mall Lahore
218. HUB + FHS Retail at Packages Mall Lahore
219. Office building & warehouse for Allied marketing
220. Zonal office of Nestle @ Islamabad
221. Engro foods Sahiwal (Warehouses, Office block, External road lighting network)

222. Darusalam Scholars Institute Sheikupura
223. **Commercial building 27-K Gulberg Lahore**
224. **Commercial LOTSHOP for DRGCC DHA Lahore**
225. **Ali square & Malik Circle Bahria Town Karachi**
226. KIPS office building at Johar town Lahore
227. Commercial building for Mr. Haroon Sheikh at 23 K Model town Lahore
228. Residence for Gen. Tariq Ghafoor
229. Commercial building for Gen Maqsood DHA Lahore
230. **Apartment building for Mr. Mohsin Naqvi**
231. SMC factory at Sundar industrial Estate
232. **Commercial buildings @ Bahria Town 150 Nos.**
233. **Sana Mall Bahria Enclave Islamabad covered area 350,000.00 sq feet**
234. **Saleem memorial Trust Hospital (SMTH) Lahore Area 325,000.00 Sq Feet**
235. DPO Office Kasur
236. **Paradise Apartment Building Ferozpur Road Lahore**
237. **Sahiwal Galleria Sahiwal**
238. **Pilot Mall Lahore**
239. **Shangrilla Industry at Sahianwal Industrial Estate Faisalabad**
240. **Nestle Milking Plant Layyah**
241. **Alpha Packages Faisalabad**
242. **SAK villa @ bahria Town Covered area 70,000 sq feet**
243. **Farmhouse for Mr. Shahid Qureshi**
244. Warda head office Gulberg Lahore
245. Power house ext. Bahria town Lahore
246. **Accommodation block at Bahria Orchid Lahore covered area 80,000 sq feet**
247. **School at Bahria Orchid Lahore covered area 120,000 sq feet**
248. Eehabs Engineering services
249. Nutible industries at Sundar Industrial Estate
250. Unilever packing and production hall Karachi
251. **SQ commercial at Bahria town Karachi, covered area 350,000.00 sq feet**
252. **SQ commercial at Bahria town Lahore, covered area 150,000.00 sq feet**
253. Apartment Building at plot no. 176, Abubakar Block Garden Town Lahore
254. Apartment Building at plot no. 17, Abubakar Block Garden Town Lahore
255. **SQ-99 Bahria Town Lahore**

256. **Ultra Kraft at FEDMIC**
257. Toyota Gujrat
258. Toyota Gujranwala
259. Toyota Mandi Baha u Din
260. **SQ-9 Bahria Orchard Lahore covered area 385,000.00 sq feet**
261. **30 storey Rafi Height Bahria Town karach covered area 500,000.00 sq feet**
262. **Park Central Apartment Building Shah Jamal Shadman covered area 385,000.00 sq feet**
263. DG Khan Hospital
264. Beacon House School System Rahimyar Khan
265. Industrial Building Ultra Craft
266. Social Block of English Biscuits
267. DFL Apparel Village Sapphire covered area 350,000.00 sq feet
268. ZURAACO Residency Bahria Town Karachi.
269. American School of International Academics Gulberg Lahore
270. Bahria Town Head Office @ Bahria Town Phase – 8 Islamabad
271. Form House of Mr. Zain Malik Bahria Town Karachi
272. Mr. Faisal Qureshi Farm house at Bahria Town Islamabad
273. **Monitor Health FIDMEC Faisalabad**
274. Farm House for Mr. zain malik Bahria Town Karachi
275. Office building at 160 - P Gulberg II, Lahore.
276. Mr. Saqib Qadri Farm House- Plot,07,08, Bahria Town Karachi covered are 70,000 sq feet
277. Mr. Asif Farm House Bahria Town Karachi covered are 35,000 sq feet
278. Hospital at New Metro City Gojjar Khan
279. Corporate office at New Metro City Gojjar Khan
280. Industrial project of UNIWORTH Lahore
281. Stitching unit of NANBA group Sialkot
- 282.



ALLIED BANK REGIONAL HEAD OFFICE PESHAWAR



ALLIED BANK REGIONAL HEAD OFFICE ABDALI ROAD MULTAN



BRDB GOLF CLUB DHA PHASE VI



Elektro S





DEFENCE PUBLIC SCHOOL  
DHA PHASE-VI LAHORE

CONSULTANT :  
STUDIO III  
27-28 SYED MARATIB ALI ROAD, GULBERG IV, LAHORE

Elektro



BANQUET HALL SIALKOT



Elektronika



Elektronika



Elektronika



Elektronika



Elektronika



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GUEST ROOM BUILDING

YOUSAF ATHAR ASSOCIATES







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