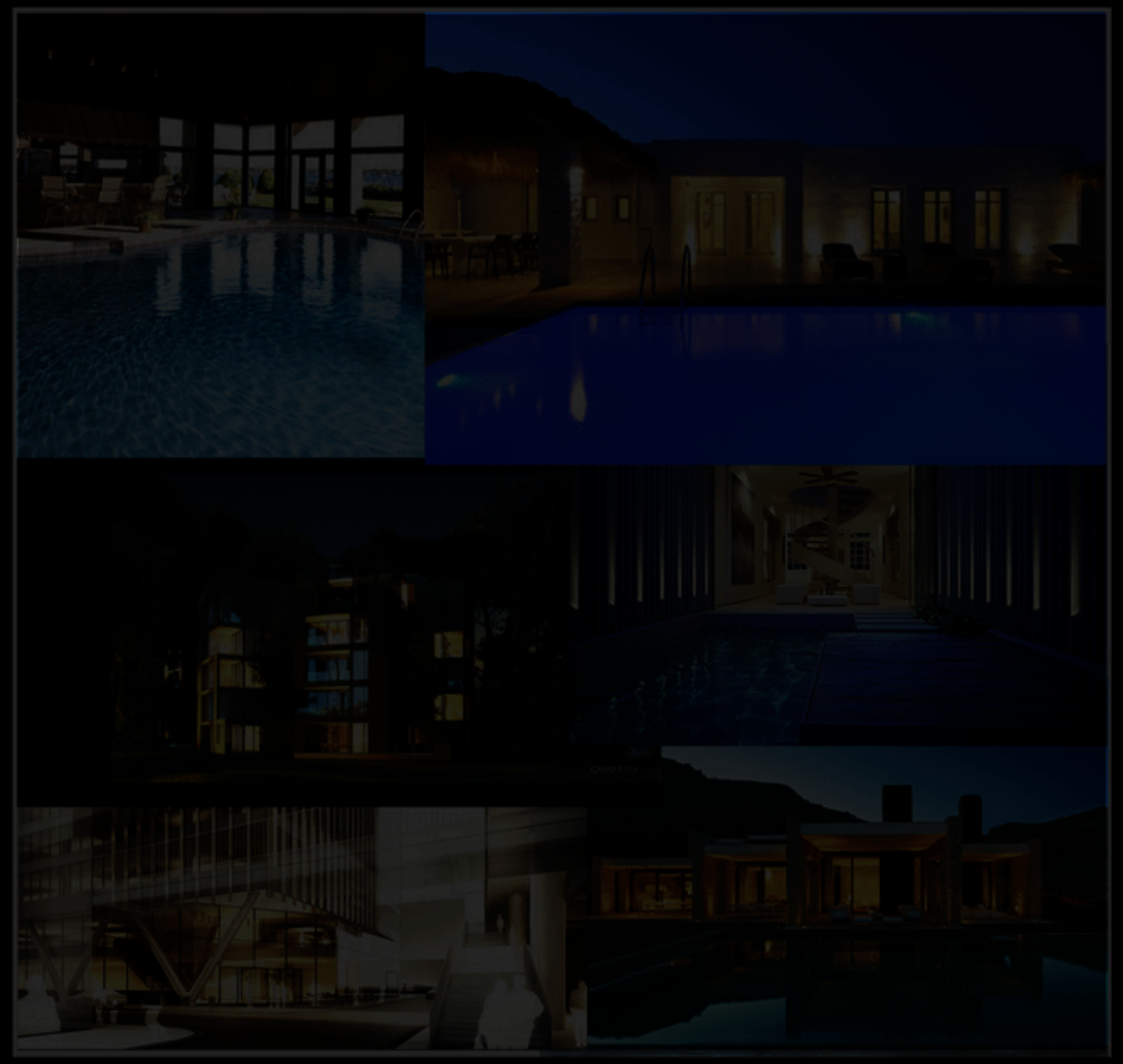
IMPULSIVE TECHNOLOGIES PVT LTD



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Company Profile

Message from CEO

No. of years spent on engineering works in terms of Design, Project Management and Execution and a realization point came across of building up an organization which deals with multiple technologies, architects, project management, design consultancy with advanced technologieswhile integrating pro-found inventions and hence the concept of Impulsive Technologies Pvt. Ltd. was built-up.
The services being started by us from 2008 onwards.

Once again it took no. of years in defining resources & clients. Finally I along with my engineers & my associates have reached to outline unbelievable value engineering defined in all technological applications emphasized upon whole advanced technologies spectrum. My approach shall remain to offer services of advanced time of decades and centuries.

We offer to our esteemed clients the following services : Glossary

- Project Designing
- Project Management on behalf of Project Authorities
  - -Non EPC Working Module
  - -EPC Projects Strategies Working Module
- Projects Execution Plan Conventional
- Projects Execution Plan Phenomenal
- Astonishing Project Management Systems Offered By us
- Fields of offering Project Management Services
- Inclusions of Our Project Management Deliverables in General
- Examining multiple parameters to Construction Works
- Examining Multiple parameters of Design Works
- Cost Estimations Services offered by us
- Our Planning Management Services
- Electrical and Extra Low Voltage Design –Construction Management
- Extra Voltage System Glossary connected with our specialties to be undertaken by us
- Design and Project Management of Air-conditioning according to glossary of terminologies connected with our specialties
- Design and Project Management of HVAC Glossary of Terminologies in Elaborated form connected with our super specialties
- Offering of Nano Technology Management to Hospitality Industry
- Interior Turn-key Fit-outs Design and Project Management
- Cathodic Protection Design Services
- Business Development Services Offered by us Integrating Investors, Consultants, Clients, Contractors & Inventors.
- Comprehensive Approach to Design Deliverables
- Comprehensive Approach to Project Management Deliverables
- Inclusion & Exclusions of Services

Impulsive technologies Pvt. Ltd. Featuring

Project Designing consisting of
- Residential Projects
- Commercial Projects
- Industrial Projects
- Water Management Projects
- Power Projects
- Infrastructural Projects

Consisting the following Design Deliverables
- Scope of Works
- Design Philosophy
- Conceptual Design Report
- Preliminary Design Report
- Detailed Design Report
- Design Calculations
- Schematics Diagrams
- Floor Layouts
- Bill of Quantities
- Project Contractual Documents

Project Management Services on behalf of the Project Authorities
- The prospective projects shall be existing in Residential, Commercial & Industrial Sector.
- Project Categories

The projects can be categorized into EPC {Design and Built} & Non EPC

Non EPC Projects Working Module
- Design Evaluation
- Quantity Evaluation
- Studies of Contractual Documents
- Studies of Projects Specifications
- Studies of Predefined Bill of Quantities
- Studies of Project Drawings
- Listing out discrepancies among
    - Design/Quantity Survey
    - Contractual Documents
    - Project Specifications
    - Drawings
- Inviting Materials Quotations
- Computerizing price comparisons Sheets
- Putting up Installations Prices
- Working out margins and Overheads
- Calculations to be done in 3 to 5 modules
- Pricing
- Capturing the Project
- Awarding the sub-contracts

EPC Projects Strategies Working Module
- Evaluation of feasibility of Project
- Inviting Turn-key Contractors
- Developing Raw Designs Segmented

EPC Projects Strategies Working Module
- Developing Raw Estimations Segmented
- Comparisons Turn-key and Segmented Quotes
- Pricing
- Capturing the Project
- Awarding the Segmented or Turn-key Contracts

Projects Execution Plan Conventional
- Project definition and brief
- Roles, responsibilities and authorities
- Project cost plan and cost management procedures
- Risk and sensitivity analysis
- Programme Management
- Contracting and Procurement
- Administrative systems and procedures
- Safety and environmental issues such as construction designs and management regulations
- Quality Assurance
- Commissioning and
- Post Projects Evaluations

Projects Execution Plan Phenomenal
- Dividing Project into Logistics and Intellectual Support Portion @65% and 35% @to site Execution Support
- Enhancing Intellectual support
- Compacting Project to the Smallest Volume through specialized Techniques in terms of documents and drawings

- Keeping Shop Drawings+ Coordinated Layouts Approved for Construction
- Keeping Procurements Predefined
- Exercising Project/Planning /Control to the extent of animated form
- Keeping Project Financials Healthy

Astonishing Project Management Systems Offered By us with the following deliverables
- Value Engineering / Design Evaluations
- Cost Estimations
- Project Planning
- Project Financial Modules
- Lead Items Procurements
- Shop Drawings
- Coordination Layouts + BIM Modeling
- As Builts
- Billing Cycle
- Testing Commissioning Norms
- Project Handover

In the fields of
- Structural, Architectural & Electromechanical Engineering
- Extra Low Voltage Engineering
- Water Management Engineering
- Power Engineering
- Infrastructural Engineering

Our Project Management Deliverables shall include in General

Project Finances Management: Every project has a budget whether it is clearly defined or not.We shall ensure that client don't spend more than entitled.We shall manage finances carefully by listing every expense and ensuring that they are budgeted upfront.If unbudgeted expenditure takes place, we shall inform the client as soon as possible to avoid complications down the track.

Control Change: We shall be one who control all change to the Project Scope tightly as we know that "Scope Creep" kills the Projects. We shall define or follow scope the Scope of Project upfront then review very strictly to ensure that no unauthorized works are done any time. If client demands comes in we shall stand on our ground to define more time and budget to cater for it.

Progamme of action: As a Project Management Team we shall be setting goals and we shall strive upmost to get it done as every Project has a defined delivery date so we along with our team shall be the most goal oriented.

Setting of Priorities: We shall set up list of priorities on behalf of you while making consideration of day to day critical tasks.

Target Orientation: Our team shall build up the Project goals smart, specific, measurable, attainable, realistic and timely.

Project Progress: We shall make focus of tracking the Project Progress. We shall not allow any kind of slippage in between planned and achieved phases. If any slippage is caught then we shall strive upmost to bring back the slippage back to the track.

Investigations: While undertaking the Project Management we shall participate into each and every defined and undefined complications. We shall put up investigations to occurrence of such complications and their impacts on Project Management. We shall assure that such kind of complications are not repeated.

Contributing of the Decision: We shall put up our either detailed engineered or spontaneous solution to every decision.

Commitment: We shall put up the commitment that we shall adhere with the solutions given by us during the Project Management.

Structured Project Documentations: We shall deliver Project documentations in simple, focused and well structured manner.

Flow Diagrams: We shall make submission of flow diagrams.on every staging of Project Execution

Defining List of Tasks: Being Project Management team we shall define list of tasks to be performed by contractors, clients, third party inspectors, client representative and project consultants.

Critical Path: We shall define activities with critical path method time to time to ensure that focus of whole team remains to sharp Project Management in well defined way.

Performance Assessment: As a Project Management Team we shall take up Project Performance Assessment which shall include over all factors comprising of time, budget, quality.

Project Planning Structure: Our Project Management Team shall assure that Project Planning is created with Project Resource Plan, Project Financial Plan, Project Quality Plan, Project Risk Management Plan, Project Procurement Plan and Project Implementation Plan.

Project Work Breakdown Structure: We shall assure that all our Project planning is given with Project Work breakdown Structure with Micro Management.

Project Milestone Interpretations: We shall ensure that Project Milestones are interpreted by us in detailed manner. We shall put up an auto alert system to all associated contractors of reminding them to time to time Project Milestones.

Project Constraints: We shall interpret all Project Constraints in well advanced manner while informing to the client the challenges involved in the Project Management.

Schedule of Expenditures: We shall guide to our clients to define precisely the Schedule of Expenditures. While receiving the comments from client we shall put up to profound rectification process.

Financial Process: We shall handover to client definition of Financial Processes involved in the project. We shall put up our recommendations to the client about intensified version of the Financial Processes.

Project Risk Management: We shall deliver to client detailed documentations to Project risk management with definition of low, high and medium risks involved in the Project while defining strategies to define to combat the involved risks.

Job costing
- Submitting project (Job) Costing at the end of the project

Domination
- Recognizing & evaluation Civil Works programme & deeply interfacing continuous interpretation of works of all extensive trades alignment while convincing civil contractor to get aligned with limitations-consequences versus expansion of activities while putting up dominant advice to Civil Works

Specialized Skills
- Innovative recommendations to value engineering & cost saving
- Putting up influential advises to project management Team

Comprehensive Solutions
- Exercising complete engineered solution and generating comprehensive solutions to arguments run in different phases consisting no. of deviations given by mechanical-architectural & different contractors suggesting bunch of controversial and complex solutions at the single spot

Dealing Critical situation
- Evaluating – materializing-bringing spontaneous decisions versus detailed engineered decisions to the state of equilibrium justified to the current situations of ongoing project versus time-line. Holding execution till finalization materialized from detailed engineering

Foreseeing
- Foreseeing complications in advance and taking sufficient precautions to combat forthcoming situations

EXAMINING
Multiple Parameters to Construction Works
- Design Evaluations
- Contractual Documents Evaluations
- BOQ Evaluations
- Project Financials Evaluations
- Project Milestone Evaluations Project-Planning-Control Resources
- Allotments Progress of Works
- Evaluation of Execution Policies
- Review of Project Financials with respect to Progress of Works
- Coordination of Services
- Procurements Control etc

Coordination Layouts
- Services Levels Fixing for services above False Ceiling (Eletro-mechanical) synchronized with structural and Architectural Layouts along with generation of BIM Modeling
- Underground Services Electromechanical Coordination Works- External Works Infrastructure & Coordination

Progress of works
- Developing progress monitoring charts & Quality Control of Works under execution

Quantity survey & invoicing
- Dealing with Variation Orders
- Quantity Surveys (Based Upon Submitted As Builts)
- Invoicing Running Invoices & Final Invoices Submission of Claims for Variation Works

- Financial implications & cost control
- Detailed Analysis of Project Financial Implications
- Detailed Analysis of Project Cost Control
- Detailed Analysis of Project Time-line
- Developing constant –continuous feed back to Computerized Project Accounting-
- Cash-Flow to Project Works aligned with Materials Inventory Control

Multiple Parameters to Design Works to be settled by us
- Basic Inputs
- HV Network
- Tapping of Services
- Electricity
- Water
- Electrical Designs
- Telecommunication
- Architectural Designs
- Interior Designs
- HVAC Designs
- Plumbing Designs
- Fire Fighting Designs
- Mechanical Designs (Industrial)
- Process Designs (Industrial)
- Mechanical Layouts
- Structural Layouts

Enhanced Coordination
Coordination to changes In
- Architectural Designs
- Mechanical Designs
- Process Designs etc.

Material Procurement
- Review, Approval of Supplier's Submittals & Scheduling material procurement
- Scheduling assessment of shipping & transport

Cost Estimations Services
Our Cost Estimations Services to include
- Pricing
- Computerizing Project Price Comparison Schedules
- Interpreting Project Construction, Electrical-Mechanical Specifications & Drawings

Quantity Take Off
- Raw Estimations
- Final Estimations
- Careful studies of Project Contractual documents & taking up Contractual Stand

Cost Estimations Expert Services
- Defining Discrepancies
- Pointing out & Exploring Project Design Deficiencies & drawbacks at the Tender stage i.e. discrepancies among BOQ, Specifications Drawings, Contractual Clauses & Consultant's design versus applicable design

Project Planning Services

- Preparation of detailed Project Planning
- Developing
    - Excel based feedback to Primavera programming Consisting
- Interpretation of Project Millstones
- Constituting Detailed Construction Programme
- Constituting Detailed MEP Construction Programme
- Constituting Interiors Construction Programme
- Converting Excel based Programme to Primavera Programming

Our Design and Project Management Engineering : To Construction Works

Our Process of Architectural Designs: and Civil Engineering Project Management

Architectural Design
As with all forms of technological design, Architectural Design is concerned with satisfying human needs. The outcome or result of architectural design usually should be emphasized upon a large-scale environmental building. The activity of our architectural design shall consists of certain kinds of tasks done in a specific order,

The Architectural Design Process.
The Architectural Design Process begins when a client identifies a need to accommodate new or expanded activities with a new building, or the enlargement of an existing building. We shall prove to client our competence in order to determine the client that we have the combination of experience, skill and resources that will make them the best choice to design the building.

Client Interface:
We shall work closely with the client in order to clearly understand their needs. Then as a architect we will produce a Design Program. This is a written document which will spell out the characteristics of that the new building. The Design Program shall be a design brief for the building. It will begin with a Problem Statement - design objectives - describing the general characteristics of the proposed building. Its style or overall appearance will be directly connected to the subject how it relates to its surroundings energy and environmental impacts.

Design Requirements:
The Program shall also include Design Requirements. These will be in the form of detailed and specific properties of that the building must encompass.

These are also referred to as design criteria.
The Design Requirements shall include
- Space List - the functional areas that are to be provided. Sizes and Dimensions - the floor area and critical lengths and heights of the spaces. Proximity Relationships - how close the spaces must be to each other and the type of access between them.
- Fixtures and Fittings - detailed built-in features and equipment required to support the functions of the spaces. Special Features - anything unusual that will be provided in order for the spaces to function properly.
- Working with the client we as a architect we will also identify the budget (maximum cost) for the project, divided into individual cost elements, such as site services, parking and roadways, landscaping, foundations, structure, building envelope, etc.
- Working with the client we as a architect will also determine the project schedule, including critical dates and lengths of time required for various parts of the design and construction work.

Schematic Design
Schematic Design shall be a search for an essential organizing principle. An idea that will suggest the overall arrangement and form for individual and groups of spaces that make up the building. There will be the series of steps to the Schematic Design phase: Schematic Design shall make the creation of 'Bubble Diagrams' illustrating the approximate size and relative position of spaces, both the horizontally and vertically ; Schematic Design shall be. 'fleshing out' the Bubble Diagrams into two-dimensional rough Schematic Plan layouts and three-dimensional Massing Models, by incorporating specified floor areas and critical dimensions consisting lengths and heights of Spaces;

Schematic Design shall make out studying the Massing Models on the site considering: the location of the building relative to property lines inclusive of setbacks, topography and other physical features the orientation of the building to sun, winds, other buildings and surroundings access to/from the building and site. Schematic Design shall make adjustments to the Schematic Plans and Massing Models to closely integrate the building and site the building is shaped to fit the site and/or the site is altered to accommodate the building. During Schematic Design, a number of alternative design ideas shall be generated, and brought to the same level of resolution. This process involves switching back-and-forth between two-dimensional Schematic Plans and three-dimensional Massing Models checking that the requirements of the design Program are generally being satisfied. The alternative Schematic Designs shall be presented to the client who shall comments on, select and approve the 'best' design alternative for further elaboration in the Design Development stage of the processDuring Design Development we shall revise the approved design in response to the client's comments and needs and the Schematic Design shall be developed to a greater level of detail During Design Development.

Coordination:

• We shall coordinates the work of other design professionals who are responsible for different aspects of the building Engineers who design the structural, mechanical and electrical services inside the building. We shall coordinate with Civil engineers and landscape architects who design the grading, drainage, planting and site features outside the building. We do possess all services in-house under one roof.

Building Envelope:

• During Design Development decisions shall be made about the materials and methods of construction to be used especially with respect to the building

envelope in order to 'realize' the design concept that was established by the Schematic Design.

Space plan:

• During Design Development the space plan shall be worked out in detail to ensure that the layout of the interior and circulation spaces, will allow the building to function the way it is intended to prove its functionality and building service systems shall be designed that will support the function of individual spaces.

Cost Estimations:

• During Design Development a cost estimate is prepared to ensure that the design is within the established budget. Also, the project schedule is reviewed again to make sure that it can still be achieved.

Approval:

• The developed design shall be presented to the client for review and approval, At this point, the overall design, and the budget, shall be 'frozen'. Design work will now proceed to the next stage:

Contract Documents:

• The Contract Documents shall be the stage is when working drawings and specifications shall be produced. However on other side working drawings can be kept to Construction Contractors. The documents shall use a combination of graphics e.g. drawings and written information like notes, schedules and specifications which shall describe the building thoroughly and precisely enough that it will be possible to construct it. In order to describe

the building thoroughly and precisely enough that it will be possible to construct it, we shall carry out a enormous amount Of Detail Design.

Detail Design

• Detail design shall be of the many construction details of the building, such as the way that the materials and components of the building envelope are joined together to create a continuous air and vapor barrier. Detail Design shall be the design of the many construction details of the building, such as the arrangement, size and shape of stairs, ramps, elevators and other parts of the building's circulation system. Detail Design shall be the design of the many construction details of the building, such as the fabrication of doors and screens and the assembly of the partitions that create the interior space plan of the building. Detail Design shall also includes the design of the many fixtures and fittings – built-in components of the building - such as cabinets and counters and the selection of interior finishes such as floor coverings, ceilings, paint and coatings. For this work the we may engage the services of another design professional our in house an interior designer.

Quotations:

• The Contract Documents will be used by potential constructors to prepare quotations - to tender competing bids - setting out the price they would charge to construct the building. Once a constructor has been selected, the documents will form part of a legal agreement – a contract – between the constructor and the client/owner.

• Portions of the documents will be used by each of the many sub-trades that carry out specific parts of the work like concrete forming and pouring, structural steel erection, carpentry, plumbing, HVAC, electrical work, etc. The constructor will use the contract documents to coordinate and schedule the work of the sub-trades so that everything is done safely and on-time.

• During the Construction stage of the project, the architect we shall make periodic site visits to review and report on the progress of the work, and to help resolve any problems that come up.

• At this time, the we will refer the Contractual Documents to verify that the work has been done correctly.

Construction Project Management:

• The Construction Cycle shall involve the main stages which can be identified as Planning,Design, Tendering, Construction Process, Handover and Evaluation

Planning

• We shall carry out studies to determine the feasibility of the Client's requirement and provide information for report on cost implication. We shall make the Identification of Client's requirements and of possible constraints on development. We shall do proper studies to enable the Client to decide whether to proceed and select the probable procurement method

Project Brief :

We shall make Project Brief on behalf of the Client confirming key requirements and constraints including:

- Outlining of drawing
- Outlining of specifications
- Providing of approximate costs for construction

• Obtaining Client approval of Outlined Proposals

Supportive Structure:
While preparing Complete development of Project Brief we shall Prepare:

- Detailed drawings
- Detailed specifications
- Preparation of Cost Estimate
- Support client in Consulting statutory authorities of Building Regulations
- Prepare tender documentation including a Bill of Quantities.
- Obtain Client approval to the Detailed Proposals showing spatial arrangements, materials and appearance and a cost estimate.
- We shall support in Preparing and submitting application for full planning permission
- We shall prepare tender documents in sufficient detail to enable a Tender or Tenders to be obtained for the construction of the Project.
- We shall provide Quantity Surveying while providing the Bill of Quantities.
- We shall Seek fixed price tender to see which contractor will be selected to construct the building.
- We shall adhere that the quality of the completed building is often an important part of this process.
- We shall certify with the Client the appointment of a Contractor.
- We shall constitute the responsibilities of all the involved the parties
- We shall build up the Contract and arrange for it to be signed while appointing the Contractor
- We shall be issuing of Production Information to the Contractor, and arranging site handover to the Contractor.

Monitoring
We shall monitor
Preparation of site including

- Principal roads and drainage
- Excavations and foundations
- Building of substructure to ground floor level or basement levels
- Pouring of sub-floor concrete.
- Building of wall construction to subsequent floor levels
- Slab Concreting
- Proceeding to roof level
- First fix building shell in preparation for plastering
- Plastering of all internal and external walls.
- Installing of second fix components, including doors skirting, radiators, light switch covers etc.
- Installing of kitchen and bathroom accessories
- Cleaning, testing and handing over of the building.

Our Design and Project Management to Electrical and Extra Low Voltage Design –Construction Management

Quick Load Assessments

Developing
- Preliminary Sketch Stage Design
- Coordinating with Architectural and HVAC designs
- Coordinating with Mechanical Designs (Industrial)
- Coordinating with Instrumentation Designs & Developing Scope of works

Design-Development
- Developing Lighting Design
- Small l Power Design Equipment Power Design Industrial Power Design & MV power Design
- Project Electrical Schematics
- Developing Load Schedule and Distribution Schedules, Developing MCC Control Diagrams & Street Lighting Designs

Calculations
- Cable Sizing Calculations
- Voltage drop Calculations
- Breakers Sizing Calculations-
- Starting Voltage drop Calculations
- Fault Level Calculations-
- Primary Substation Design
- Sizing Transformers
- Sizing Generators
- Emergency Power Supply Design

Development Of
- External Cable Layouts Coordination

Coordination
- Coordinating with architectural changes & Coordinating with Machineries Layouts
- Quality Control : Verifying design to practical implementation & Quality Control before design submission

Software Interface to Electrical Designs
- Enhanced Software Interface to Electrical Designs Switching over to software based design development
- Softwares interpretation, studies & analysis

LV Design:
- LV Design Western Power Corporation & Volts Programming Control, Dolphin Software Advanced Interpretations
- LV Design Software from Schneider Electric: Ecodial LV design Software

Comparisons
Excel based
- Breaker Sizing
- Cable Sizing
- Voltage Drop
- Starting Voltage Drop
- Fault Level calculations compared at customized default values for analysis and interpretations

Single Line Diagrams
- Fastest way to development of large nos. multiple Single Line Diagram With software interface

Extra Low Voltage Design
Developing
- ELV Schematics,
- Developing ELV Specifications,
- ELV System Integration,
- HVAC Controls
- E&I Diagrams
- Interpreting-Developing E& I Diagrams Interpreting Control Diagrams

Extra Low Voltage Designs BMS
- Developing BMS Schematics - Floor Layouts &Specifications
- Setting up BMS network & Selecting BMS Protocol Bacnet/Lontalk/Modbus/EIB/KNX
- Defining Control Modules
- Defining BMS network topologies
- Deriving relations among Sensors-Controllers & Controlled Devices & Deriving relations among Input- Interpretation (logic)- Output of BMS control panels
- Assigning BMS Control Stations
- Assigning BMS Master Control Station Defining BMS input/output points
- PLCs : Proposal of Implementing PLCs in Industrial Automation

Fire Alarm System
- Developing Fire Alarm System Schematics &Floor Layouts & Specifications
- Defining ionized & optical smoke detectors
- Defining Laser Technology Smoke Detectors & Defining Smoke Detectors for difficult environments
- Defining Duct Application Smoke Detectors & Defining Heat Detectors

- Fire Alarm Integration to Fire Protection System Integrating flow switch-tamper switches to Fire alarm system
- FM 200 & Halon Gas Extinguishing Systems
- Developing Raw design Works to FM 200 & Halon Gas Extinguishing Systems

ELV Systems Integration
- Developing ELV System Architecture to Systems Integration
- Integrating HVAC systems with fire alarm through hard wired interface
- Integrating Security System with Fire Alarm system
- Integrating Fire Alarm System to HVAC MCCs Systems through BMS interface
- Integrating Fire Alarm System with Lift Controls through hard-wired interface
- Integrating Security System with Lighting Control Systems
- Integrating Security System with HVAC systems Integrating BMS to fire alarm, lift control & security system with respect to secondary or back-up operations & controls

Lighting Design:
- Software Based Setting of Layouts: Results of Setting of Lighting Layouts & Selection of luminaries
- Interpreting results based on the room Size, room index & utilization factor
- Exercising variety of Luminaries preserved as preliminary exercise to lighting design .
- Injecting Setting of Layouts to Interface of Dialux Software injected plug-in selection from available fifty types of plug-ins From different manufacturers

Lighting Design Software Based
- Setting of Layouts
- Coordinating Results of Setting of Lighting Layouts to Selection of luminaries

Interpretation
- Interpreting results on the based of room Size, room index & utilization factor
- Exercising variety of Luminaries preserved as preliminary exercise to lighting design.

Placement of Luminaries
- Placement of Luminaries on AutoCAD Layout :
- Based on Setting of Layouts Luminaries placed on AutoCAD drawings & Importing AutoCAD Layouts
- Interface of Dialux Software injected
- Selecting plug-in from available fifty types of plug-ins from different manufactures.
- Auto CAD based files are imported to Dialux Software and luminaries
- Injecting Luminaries from selective plug-
- Exercising of angles –positions of luminaries continued till observation of adequate results
- Selection of five to ten nos. of calculations sheets to printouts are set out of available eight hundred fifty types print Option to placement of luminaries.
- Developing 3d views if files are converted 3d & to SAT extension.

Utilizing Quick Lighting Design Software Features
- Utilizing Quick Lighting Design Software Features:

Utilizing of Quick Lighting Design Format while giving room size, selective reflectances and selection of luminaries

Lighting Design basic Classifications
Softwares interface
- Dialux
- Philips
- Thorn
- Disano

Preparation of Shop drawings
Industrial
Industrial and utility clients :
- Analyzing, specifying and designing electrical substations and distribution systems industrial control systems,
- Management of projects from conception through construction,
- Acting as a client liaison,
- Medium Voltage Distribution,
- Low Voltage Distribution,
- Motor control including VFD's, Soft starters, etc.
- Lighting and Ground Systems,
- Interpreting High voltage substation design and relay protection design.
- Interpreting short-circuit, load flow and coordination studies.

Specification and design of Shop drawings industrial
- 415V MCCs
- 415V switchgear
- Medium voltage MCCs
- VFD's and switchgear
- Lighting systems

Specification and design of Shop drawings industrial

- Special systems.
- Preparation of single lines schematics diagrams for switchgear and MCCs,
- Layouts, panel schedules and connection drawings
- Lighting and receptacle layouts,
- Grounding plans and lightning protection
- Motor control, drive systems,
- Operator interfaces and PLC's
- Developing schematic diagrams, panel design and narrative specifications.

Commercial, Residential shop drawings

Commercial-Residential

- Electrical Lighting, Power, Small Power, Equipment Power
- Developing BMS, Audio Visual, Public Address,Fire Alarm, CCTV, Video Surveillance, Access Control Systems Shop Drawings
- Developing Infrastructure & Shop Drawings to Electrical -ELV System-- ELV Cabling Works
- Quality Control of Shop drawings productions

Testing-commissioning

- Setting up Norms of Testing Commissioning
- Analyzing Testing Commissioning Reports

Project Handover

- Formalizing job handover Norms and Check List
- Job completion Certificate from Client

Extra Voltage System Glossary of Terminologies & brief Descriptions Specialized by us

Building Automation Systems

- Building automation systems (BAS) provide automatic control of the conditions of indoor environments
- The historical root and still core domain of BAS is the automation of heating, ventilation and airconditioning of large functional buildings

Primary Goal

Their Primary goal is to realize significant savings in energy and reduce cost.

- Yet the reach of BAS has extended to include information from all kinds of building
- Systems, working toward the goal of "intelligent buildings"

Functionalities

It shall be necessary to define the task of

- Building automation and the systems and Communications infrastructure integrated to address it

Optimization : Building Automation Optimizes

- The administration Operations And performance of HVAC Equipments & Alarm systems with purpose built networks and protocols
- BAS greatly increases the interaction of mechanical subsystems with in a building improves occupant comfort, lowers energy use, and allows off-site building control

Performance

- Building Automation System and Controllers that operate an entire facility and can be integrated with all aspects of a facility to control

- o The building security
- o Lighting
- o And life safety systems
- o for optimum building performance

Definition of intelligent Building

Modern Building Automation Systems use computer based monitoring

- To coordinate Organize and Optimize building control sub-systems such as
- Security
- Fire/life safety
- Elevators etc.

Interpretation of intelligent Building

There are many interpretations and definitions of intelligent functions building

- An intelligent building can be defined by the
- o Information and Control services that meet the needs of the occupants
- o The software that controlst elecommunications & building automation functions
- o By the actual electronic hardware and devices implemented within the structure

Integration

It should be visualized to have all of these components to create such a facility and structured connectivity solution can be considered the common ingredient required to integrate

- Telecommunications
- Voice
- Data
- Video etc.
- and Building Automation Systems

Developing System Architecture

- Power bus
- Design Architecture
- Definition of control modules
- Communication Bus
- Placement of network elements
- Programming
- Configuring of system
- Systems Integration
- Testing, commissioning

Defining System Architecture

- It will be necessary to define
- Building Topology
- Applicable Systems
- Point Definitions
- Point Functions
- Point Locations along with
- Operational & Control parameters to achieve status of Intelligent Building
- Defining the System Architecture at Multiple Building. Level
- To design and Configure complete automation system
- Over Multiple Building level
- Building Level
- Plant Level

Achievements

- Enhanced Data Interaction

The system design shall be bringing

- Data Acquisition
- Data Handling
  Data-base like
- Detections & Diagnosis
- Data Presentation
- Graphical Interface
- Data Transfer which shall be connected to multiple interfaces
- Automation Phenomena Monitoring process

Monitoring systems collect data about

- The observed objects with different sampler frequency
- Real-time & Non-real time peripheries and data processing software

Peripheries

The peripheries can be

- Input {Sensors} or
- Output {Controlled} devices. - Monitoring System

Monitoring systems collect information only from

- Input devices
- Automation Control Systems
- Use the gathered information to make decisions and control the output devices
- Input Peripheries
- CCTV movie-camera [video (and audio) data
- Microphone [audio],
- Thermometer [temperature],
- Smoke Trigger [Smell]
- Motion Sensor [Motion] [*even laser,infrared sensors]
- Door state sensor [state :opened,closed ,key -in,etc]
- Moistuer, Air-Pressure [weather]

- GPS [geo-position],
- Glass break Detector
- Door/Window Magnetic Contact, etc.
- Power failures,
- Low battery [6]
- Output Periheries
- Switches [e.g. lightning control],
- HVAC [heating, air- conditioning],
- Audio output,
- Video output,
- Computer output [e.g. monitor]
- Control Strategy
- Building Automation System as a major system included in the plan to implement Controls over the entire integrated automation while integrating
- Data management,
- Communicstion,
- Programming &
- Configuring - In Commercial as Well as
  - Residential complexes
- This highly intelligent Building Automation major System on single platform will be having features of
- Unlimited range of applications &

Inputs integrating no. Of systems in the

- Commercial and
- Residential buildings &
- Having comfortable user friendly interface
- Leveraging digital intelligence & Utilizing predictive intelligence to performance and competency

Security Systems

- Access Control
- Alarm Management Systems
- Perimeter Protection Systems
- Sensors & Intruder Alarm Systems
- Key Management System

Video Surveillance Systems

- CCTV Systems
- Convert Camera Systems
- Infrared Camera Systems

Detection Systems

- Counter Surveillance Systems
- Thermal Imaging Systems
- Explosive/Narcotics Analysis Systems

Scada Systems

- Sub-station Automation
- Systems Scada
- Scada Water Management Systems

Traffic Management System

- Traffic Management & Enforcement Systems
- Air Traffic Control Systems

Safety Systems

- Conventional Hard-wired and Addressable Fire Alarm Systems
- Emergency Voice Evacuation Systems
- Gas Extinguishing Systems
- Fire Proofing Systems
- Fire Protection Systems

Sound-Allied Systems

- Public Address Systems
- Sound Reinforcement Systems
- Background Music Systems
- Wireless Microphone Systems
- Mobile Amplifiers Digital Mixing Systems

Industrial Systems

- Industrial Automation Systems
- Industrial Instrumentations

Electrical Allied System

- Emergency Lighting System
- Lighning Protection UPS System

Audio-Visual Allied

- Audio Visual Systems
- Conference/Simulation Interpretation Systems
- Video Projection Systems
- Conference Systems

Communication Systems

- Nurse Call Systems
- Office Intercom Systems & Audio-Intercom Systems
- Wireless On Site Paging Systems
- Airport Paging and Information Systems

MATV/SMATV Systems

- DTH-MDU-MATV Cable Systems

IT Systems

- IT Security Systems

Home Automation

- Single Individual Small Control Panel Box possessing high-powered ingenuity
- Single individual small control panel box features of Fire Alarm , Access Control, HVAC Control, Lighting Control, motion detector, barrier control integrated
- Lights & AC Split Units controlled by Hand held remote as well as single portable wall control panel , overriding manual switches

PLCC and Instrumentation & Control

- Industrial Installations
- Oil Installations

Process Control Instrumentation

- Above Projects
- Industrial Automations
- Integrating process instrumentation into computerized control systems

Design and Project Management
Air-conditioning Glossary of Definitions, briefs comes under our specialties

HVAC Comprehensive Glossary of Terminologies

- Typical HVAC processes
  - Air handling units, fan coil units, exhaust fans
- Typical plumbing systems
  - Transfer pumps, sump pumps, water tanks
- Typical chilled water systems
  - Chillers, secondary pumps, HEX systems
- Field equipment
  - Sensors, valves, actuators, relays, variable frequency drives

HVAC

- Heating, Ventilation, Air conditioning
- Controls temperature, humidity and air quality inside a building
- Especially important in medium to large buildings such as office/residential towers
- All preferably integrated into one system
- In warm climates usually no need for a heating system

Heating

- Central heating often used in cold climates to heat private houses and public buildings
- Heating systems usually comprise of a boiler, furnace, heat pump or district hot water to heat water, steam or air
- Piping distributes heated fluid and radiators transfer this heat to air and structures, e.g. floor heating system

Ventilation

- The process of "changing" or replacing air in any space to control temperature or remove moisture, smoke, carbon dioxide, etc

- Ventilation includes both the exchange of air to the outside as well as circulation of air within the building
- One of the most important factors for maintaining acceptable indoor air quality in buildings
- Supply air used for ventilation is filtered and cooled and/or heated inside air handling units

Air conditioning

- Refers to the cooling and dehumidification of indoor air for thermal comfort
- Air conditioning systems are designed to stabilise the air temperature and humidity within an area
- Excess heat from the circulating air is usually removed by a cooling coil that is supplied with cold water
- To decrease relative humidity the circulating air needs to be cooled to a temperature below the dew point and then heated back to meet the requirement

Major terms

- Air handling unit (AHU) – a central unit consisting of a blower, heating and cooling elements, filters, etc. that are in direct contact with the airflow
- Chiller – a device that removes heat from a liquid. The cooled liquid flows t hrough pipes and passes through coils in air handling units, FCUs, etc
- Coil – equipment that performs heat transfer inside an AHU etc.
- Damper – a plate or gate placed in a duct to control airflow
- Fan coil unit (FCU) – a small terminal unit that is often composed of only a blower and a cooling coil
- Variable air volume (VAV) – an HVAC system that has a stable supply air temperature and varies the airflow rate with dampers and adjusting fan speeds to meet the temperature requirements

Typical HVAC processes - AHU

- Air handling units are used for circulating air inside a building or a part of a building
- Typically consists of two fans (exhaust and supply), filters, a heat recovery unit, and one or more coils for heating/cooling
- To improve air quality circulating air is mixed with fresh air
- Usually equipped with a heat recovery unit for energy saving purposes
- Supply air temperature kept constant so that temperature can be adjusted locally with thermostats

Typical HVAC processes - FAHU

- Fresh air handling units are used for supplying fresh air inside a building or part of a building
- Indoor air quality is improved as the serving area is treated with 100% fresh air
- Usually takes more energy to heat/cool fresh air to target temperature
- Usually equipped with a heat recovery unit for energy saving purposes
- Can also be used for supplying precooled air for FCUs

Typical HVAC processes – Exhaust fans

- Used for extracting air from the building or part of a building
- Ventilated areas are usually toilets, kitchens and other areas where fumes should be extracted directly outside
- Parking areas are usually equipped with exhaust fans that are controlled according to carbon monoxide measurements or time schedules

Typical HVAC processes – FCUs

- Fan coil units are used for cooling purposes in small areas
- Consist of a blower and a cooling coil

- Can either circulate the air inside the serving area or are supplied with precooled air from an air-handling unit
- Controlled with a Lonix room module and a thermostat for local setpoint adjustment

Typical HVAC processes - VAV

- Variable air volume systems are used for controlling the air flow of constant temperature in different parts of the building
- Dampers inside ducts regulate the flow of air to different serving areas

- Pressure difference measurements accross supply and exhaust fans are used for maintaining a constant pressure inside ducts
- Thermostats inside serving areas are used for local setpoint adjustments that affect the air flow through dampers

Typical plumbing processes – Transfer pumps

- Transfer pumps are used for pumping liquid from one place to another
- In residential and office buildings they are typically used for maintaining adequate supply of water in water tanks
- Usually On/Off controlled according to liquid level switches

Typical plumbing processes – Booster pumps

- Booster pumps are used in applications where the normal system pressure is low and needs to be increased
- Typical in high rise buildings where domestic water pipeline pressure needs to be high to better serve tenants in the upper floors
- Pipeline usually divided into a high and low pressure zone (lower and higher floors)
- Either PRV or VSD controlled

Typical plumbing processes – Sump pumps

- Sump pumps are used to remove water that has accumulated in a sump pit
- Sump pumps are usually controlled with two level switches, higher switch for indicating when the pump should start and a lower switch for indicating when the pump should stop
- Pump should not be let run dry so the lower level switch should be above the pump, upper level switch should be located near the top

Typical plumbing processes – Water tanks

- Water tanks are used for storing e.g. domestic water in high rise buildings
- High and low level switches are used for alarming and controlling transfer pumps
- More accurate level indication can be obtained with a pressure difference transducer

Typical chilled water processes – Chillers

- Chillers transfer heat from a liquid to the surrounding air
- Consist of a primary pump and a heat exchanger
- Chilled fluid is used by air handling units and FCUs to cool supply air temperature
- Usually more than one chiller is used so that some of them are on standby and are taken into use when more cooling power is needed.
- Usually controlled according to return temperature

Typical chilled water processes – Secondary Pumps

- Secondary pumps maintain adequate system pressure in a chilled water system
- Usually a pump set that consists of several pumps equipped with variable frequency drives are used
- As with chillers, when the cooling power (pressure) needed is very low only one pump should be running and the others on standby
- When more cooling is needed more pumps should be started

- Controlled according to the pressure difference between the return and supply headers

Field equipment – Temperature sensors

- Different types
  - Pt1000 Resistance temperature detector (RTD) – Ni1000 RTD
  - Active 0-10V transducer
  - (0/4 – 20 mA transducer)
- Duct sensor mounted on duct, probe inside
- Protection pocket for measuring liquids
- Room sensors
- Outdoor

Field equipment – Pressure sensors

- Active 0-10V transducers or pressure switches
- Typically for measuring gases (ventilation) or liquids (plumbing processes)
- Sensor measures the difference between two pressures introduced as inputs to the sensing unit, for example, measuring the pressure drop across a filter in an AHU
- When selecting an appropriate transducer it is important to know the measured range

Field equipment – Relative humidity sensors

- Active 0-10V transducers
- Usually includes temperature measurement as most relative humidity sensors use temperature compensation to reach more accurate results
- In HVAC mostly used to monitor/control relative serving area humidity (measured either locally in the serving area or in the return air duct)

Field equipment – Concentration sensors

- Typically carbon monoxide (CO) or carbon dioxide (CO2) concentrations are measured
- Active 0-10V transducers
- Carbon dioxide is a good measure of indoor air quality (if concentration exceeds 700 ppm more ventilation is needed)
- Carbon monoxide measurements are usually used in parking areas for controlling exhaust fans. In areas where people stay longer periods a limit of 25 ppm is recommended

Field equipment – Relays

- An electrical switch that is used for controlling electrical circuits with other circuits
- Usually a hard current circuit is controlled with a weak current circuit e.g. a 230Vac circuit can be controlled with 24Vdc
- Used for controlling devices that need to be powered off completely e.g. light groups, pumps, VFDs etc

Field equipment – Valves & valve drives

- Valves are used to control the flow of fluids in pipes
- Valve drives are used to open and close valves with an electrical input command (digital, 0-10V)
- Valve selection can be difficult and usually valve types need to be approved by the designer
- Valve drives are purchased from the valve manufacturer

Field equipment – Variable frequency drives

- Variable frequency drive is a system for controlling the rotational speed of an alternating current (AC) electric motor by controlling the frequency of the electrical power supplied to the motor

- In automation perspective, the speed of the electric motor can be controlled with a 0-10Vdc control signal
- In BMS, variable frequency drives are mostly used for controlling fans and pumps
- variable-frequency motors on e.g. fans save energy by allowing the volume of air moved to match the system demand

Starter panels

- Most motors (fans, pumps) are controlled through starter panels
- Connections: modules -> starter panel -> motor
- Starter panels usually include
  - Run status indication
  - Trip alarm indication (and reset) – H-O-A indication
  - On/Off control (power)
  - VFD control signal and feedback

Data Point Schedule

- Describes all the needed I/O points and field devices for BMS
- Very important for a project as some other documents and especially the bill of quantity (BoQ) are based on it
- Should always be kept up to date

HVAC Design & Project Management Glossary of Terminologies Elaborated which comes under our super specialties

Comfort Requirements:
- Temperature
- Humidity
- Air movement
- Fresh air
- Clean air
- Noise levels
- Lighting
- Furniture and work surfaces

Proportional:
Comfort Requirements directly proportional to :
- Dry-bulb temperature
- Humidity
- Air movement
- Fresh air
- Cleanliness of the air
- Noise levels

System Loops:
- The Five System Loops
- Airside
- Chilled water
- Refrigeration
- Heat rejection
- Controls

Airside Loop:

- Supply Fan and Filter
- Cooling Coil
- Chilled-Water Cooling Coil

Part-load operation
- Constant-Volume System
- Constant supply-air quantity
- Variable supply-air temperature

Part-load operation
Variable-Air-Volume (VAV) System
- Variable supply-air quantity
- Constant supply-air temperature

Fan-Coil Unit
- cooling coil
- supply fan
- return-air inlet
- supply-air outlet
- filter

Central Air Handler
- supply-air outlet
- return-air dampers
- outdoor-air dampers
- cooling coil
- supply fan
- filters

Supply-Air Distribution System
- Central air handler
- Sheet-metal supply duct
- VAV terminal
- Flexible sheet-metal supply duct
- Diffuser
- Outdoor-air inlet

Evaporator & Refrigeration Loop
- Shell-and-Tube Evaporator
- Pump and Control Valve
- Compressor
- Condenser
- Expansion Device

Control Valve
- Coil with two-way control valve
- Coil with three-way control valve

Small Chilled-Water System
- Water Chiller
- Pump
- Cooling Coil
- Control Valve

Helical-Rotary Water Chiller
- Compressor
- Condenser

- Condenser water
- Evaporator

Finned-Tube Evaporator (Coil)
- Liquid Refrigerant
- Airflow
- Refrigerant Vapor

No Chilled Water Loop
- Cooling coil (evaporator).
- Expansion Device
- Air-cooled Condenser
- Compressor

Packaged Rooftop Air Conditioner
- Propeller-type condenser fans
- Compressors
- Supply Fan
- Filters
- Exhaust Fan
- Cooling coil (evaporator)
- Air-cooled condenser

Heat-Rejection Loop
- Shell-and-Tube Evaporator
- Pump and Control Valve
- Compressor
- Condenser

- Expansion Device
- Cooling Tower

Cooling Tower
- Propeller Fan
- Sprayers
- Fill
- Outdoor Air
- Sump

Water Chiller and Cooling Tower
- Cooling Tower
- Pump
- Bypass Pipe
- Control Valve
- Water-cooled Condenser

Packaged Air-Cooled Chiller
- Propeller-type Condenser Fans
- Air-cooled Compressor Condenser
- Evaporator
- Compressor

Rooftop VAV System
- Packaged Rooftop Air Conditioner
- VAV terminals
- System-level controller

Air-Cooled Chiller, Fan-Coil System
- Dedicated outdoor-air unit
- Fan-coil units
- Exhaust fan
- System-level Controller
- Air-cooled chiller
- Hot-water boiler
- Pumps

Direct Expansion (DX)
- Airflow
- Evaporator
- Refrigerant Vapor
- Liquid Refrigerant
- Expansion Valve

Air-Cooled DX System
- Cooling Coil (evaporator)
- Expansion device
- Compressor
- Air-cooled condenser

Packaged DX Air Conditioner
- Air-cooled condenser
- Cooling coil (evaporator)
- Exhaust fan
- Filters

- Supply fan
- Propeller-type condenser fans
- Compressors

Split DX System
- Air-cooled condenser
- Compressors
- Cooling coil (evaporator)
- Supply fan
- Refrigerant piping

Packaged Water Chillers
- Water-cooled
- Air-cooled

Split Chilled-Water System
- Air-cooled condensing unit
- Refrigerant piping
- Remote evaporator

DX versus chilled water
- Installed cost
- Energy consumption
- Space requirements
- Freeze prevention
- Building height, size, shape
- System capacity

- Centralized maintenance
- Stability of control
- Individual tenant billing

Common HVAC System Types
- System Categories
- Single zone constant volume
- Single zone variable volume
- Multiple zone constant volume
- Multiple zone variable volume
- Air volume delivered by supply fan

Single-zone systems
- Single Thermostat
- Single zone, constant volume Packaged Terminal Air Conditioner
- Single zone, constant volume Packaged DX Rooftop System

Single zone, constant volume Split DX System
- Air-cooled condenser
- Compressors
- Cooling coil (evaporator)
- Supply fan
- Refrigerant piping

Single zone, constant volume
- Chilled-Water Terminal System

Single zone, constant volume
- Four-Pipe Versus Two-Pipe System

Assorted Systems
- Dedicated Outdoor-Air System
- Single zone, constant volume Water-Source Heat Pump
- Single zone, constant volume Water-Source Heat-Pump System
- Single zone, constant volume Water-Source Heat-Pump System
- Single zone, constant volume Ground-Source Heat-Pump System
- Single Zone, Variable Volume

System Categories
- Single zone constant volume
- Single zone variable volume
- Multiple zone constant volume
- Multiple zone variable volume
- Multiple Zones, Constant Volume
- Multiple zones, constant volume Multi-zone Air Handler
- Multiple zones, constant volume Changeover–Bypass System
- Multiple zones, constant volume Changeover–Bypass System
- Multiple Zones, Variable Volume
- Multiple zones, variable volume VAV Terminal Units
- Multiple zones, variable volume DX Rooftop VAV System
- Multiple zones, variable volume Self-Contained DX VAV System
- Multiple zones, variable volume Central Chilled-Water VAV System
- Multiple zones, variable volume Two-Fan, Dual-Duct VAV System
- Multiple zones, variable volume Dual-Duct VAV Terminal Unit

Factors That Affect Selection of the HVAC System
- Preference of Building Owner
- Available Construction Budget
- Size and Shape of Building

Function of Building
Comfort requirements
- Temperature
- Humidity
- Air movement
- Fresh air
- Clean air
- Noise levels
- Number of tenants
- After-hours usage
- Extra Low Voltage Design and Project Management

Nano Technologies :
Nano Technologies To hospitality industry

- An advanced materials developed innovative polymer related chemistries treatments to enhance and create superior performance in fabrics
- Chemistries developed for use at the nano scale are revolutionary in their ability to attach to fibers and permanently bond to the fabric at the molecular level.
- Products offering that enhance fabric performance and durability not previously attainable Environmental Impact
- While the nano scale size of treated chemistries provide unique and advanced performance characteristics in fabrics, the foundation of our chemistries is known, familiar and consistent with applications of more traditional textile treatments.
- The chemicals and processes utilized by Nano-Tex are subject to world wide environmental, health, safety and regulatory requirements.
- Nano formulations and fabrics optimized with technologies meet or exceed all environmental, health and safety standards mandated by the Environmental Protection Agencies, the Occupational Safety & Health Administration and the Consumer Product Safety Commissions
- Nano formulations Resists spills with Dura Block does not negatively impact a fabric's ability to be recycled or biodegrade

Interior Turn-key Fit-outs Design and Project Management

- Interiors Group specialized in the supply of contemporary office, hotel furniture and interior fit-outs
- Offer to contract interior design and move management services.
- Offering a wide range of furniture designed for offices, commercial premises and Hotels and kitchen Fit Outs.
- Support to design consultancy, furniture solutions, fit-out, move management and hire buildings and hotel industry
- Independent view of interior design styles by sourcing products from world class companies and own manufacturing
- Ooze quality, innovation and creativity
- Professional and productive work environments
- Interior design services providing an inspirational and productive environment to commercial/residential

Client Brief
- Project Management & design team to oversee the initial client brief to ensure that it addresses all construction issues and covers all client needs.
- The design presentation shall be preceded by a summary documentation that confirms that client's brief and objectives are well understood.

Values
- Understand the client business and values so to meet successfully needs of client.

Aspiration
- Deserve contentment through exceeding client's aspirations and expectations.

Objectives
- Recognize and understand client’s financial objectives.

Technical Survey

• Site survey is conducted by specialist team of - Project Managers
- Designers
- M & E Specialists

In order to make necessary assessments

Space Evaluation

• Key to the success of every project understands of client's working practices and an evaluation of maximizing the work space.

• Design service to cover minimum space allowances, storage access, and primary circulation, departmental analysis, and travel distances by analyzing the client's space requirements

Cost Evaluation

• To evaluate the costs for project after all the initial checks and surveys being completed

• Enabling to determine what can realistically be achieved within budget or what changes can be made effectively to meet client's budget and objectives

Draft Layout

• Designers to produce the draft layouts and initial concept designs. This shall be the standard procedure to make sure that client & designer are confident with design process and direction.

• Ensuring conformity and promote best practice

Design Presentation

• Upon completion of concept designs, a presentation to be arranged which can cover all aspects of the project

• "Sample boards can be used in the presentation to confirm all finishes, colors, lighting, partitioning, flooring and other executions."

• The process may continue till client signs off the chosen design.

Visual Designs

• This may be including -Hand drawn visuals
-Photo realistic renders
-Animations and walkthrough
-Advanced software like 3-d studio max

Creative Solutions

• The client to be benefited from extensive knowledge and experience

• The design team to turn an interior into an enlivened environment

• The careful placement and specification of furniture, use of colour, texture and lighting stimulate through project a culture and encourage creativity it-self.

Budget

The budgeting shall be emphazized upon

• Client's satisfaction and endeavors

• To keep all concept designs with in budget offering a choice of 'fit-out' solutions that shall compliment the client achieving the perfect result

Programme

• Full turn-key projects shall be seamlessly managed with all services including furniture installations and works management

• The project managers and planners to manage and coordinate all aspects of the programme to release to do best

Final Designs

• Before commencing a project, designs are fully worked and signed off ensuring all parties are fully aware of the works to be carried out

• Clients shall be informed throughout the build process to coordinate for changes

Finish Schedules

• Finish schedules and sample boards may be provided as a visual aid along with final designs to ensure all parties understand what the finished product shall look like

Quality

• It is thought to deliver consistent quality across all services. It is aspired to deliver seamless quality to all clients. All the projects are undertaken to be underpinned with the same drive and commitment to quality

Contracts

• The experience in contracting has often allowed to get explored with value engineer schemes and provide clients with more financially attractive end results

Handovers

• The objective remains, via the use of monitoring system, to deliver as complete and defect – free project as is practically possible

Cathodic Protection Design Services

• Cathodic Protection (CP) is a technique to control the corrosion of a metal surface by making it work as a cathode of an electromechanical cell

• This is achieved by placing in contact with the metal to be protected another more easily corroded metal to act as the anode of the electromechanical cell

• Cathodic protection systems are most commonly used to protect steel, water/fuel pipelines and storage tanks, steel pier piles, ships, offshore oil platforms and onshore oil well casings

• Cathodic protection can be in some cases, an effective method of preventing stress corrosion cracking

• Our Consulting Engineering Firm to provide professional corrosion engineering services.

• Coverage to include Oil & Gas Companies/Projects, Utilities, Government Agencies, Pipe-line Companies, Storage facilities, airports, convenience stores and LNG manu-facturing plants, underground pipelines jetties, storage tanks, power station Cathodic Protection and process plant, steel piling and foundations.

• Vision of providing viable, cost efficient and effective services.

Business Development Services Offered by US

Business Development Strategies

Classical Inheritance
- Putting up support for Classical Inheritance in the Business Development Engine
- One of the key features of Object Oriented Business Planning is inheritance
- Inheritance is the ability to use all of the functionality of associated experts and extend those capabilities
- The business rules frame work supports two types of classical inheritance
  - o Implementation Inheritance
  - o Interface Inheritance
- Implementation Inheritance
- Refers to the ability to update the enhancing characteristics of business planning implementations
- Interface Inheritance
- Refers to the ability to update the enhancing characteristics of business planning implementations.

Process
- The business proposals thought under implementation are required to go through the process of classical as well as intellectual inheritances.

Business Strategies Development Factors
- Vision
- Mission
- Objectives
- Values
- Strategies
- Goals
- Programs

Deliverables:
Comprehensive Approach to Design Deliverables:

- Drawings
- Specifications
- Scope of Works
- Bill of Quantities
- Project Contractual Documents

Comprehensive Approach to Project Management Deliverables

- Value Engineering
- Cost Estimations
- Project Planning on Primavera Mode
- Project Financial Engineering
- Project Procurement Engineering (Lead Items)
- Shop Drawings
- Coordination Layouts and BIM Modeling
- Project Quality Assurance & Quality Control Plan
- Project Health and Safety Plan
- As Builts by third party and conversion to proper form
- Quantity Survey based upon As builts
- Billing Cycle based upon Quantity Survey
- Financial Variations and Billing
- Project Testing Commissioning Norms
- Project Handover Criterias
- Job Costing

Services Included: In General

- All deliverables in advance month of staring construction activities and Visiting Project Manager at Site

Services Excluded : In General

- Direct Interactions with Project Regulatory Authorities
- Provision of Site Engineers

Services Excluded

As a Project Management Team from Client or Contractor Side:
- Site Inspections

Services included

As a Project Management Team from Client or Contractor Side
- Project Management Deliverables
- Visiting Project Manager

Services included

As a Project Management Team from Client As a Project Inspection Team:
- Site Inspections
- Examination of Project Management Deliverables from the Contractors

Services excluded

As a Project Management Team from Client or Contractor Side As a Project Inspection Team:
- Project Management Deliverables
- Visiting Project Manager

Exclusions and Our Client's Own Risk Assessment :

Our visiting Project Managers are strictly meant to exclusive High Intelligence Oriented Client Interface only which must not be taken as their role to any kind of Site Observations or Site Supervisions

We are completely excluding Material Inventory Control Programme from our Programme of Construction Management and our Procurement programme shall be restricted to Lead Items Procurements only. We are excluding of developing of Raw As Builts at Site.We shall not deploy our Project Managers at the site unless and until all health and safety measurements are found intact at the site. We shall not exercise from our side to explore Geo-technical surveys in case of Civil Engineer -ing, source fault level and upstream relay coordination in case of Electrical Engineer -ing and the volume of occupancy in case of HVAC and Plumbing Designs.

If such critical data(s) are not made available to us then we shall not take responsibility of our assumptions.

We shall reserve rights to utilize predetermined sofwares of designing comfortable to us. Making validation of manual designs or software based design shall be our own choice.

We shall not entertain unreasonable imposing of any kind of revision of works to us. We shall reserve right to investigate whether the imposed revision of works are either reasonable or not.

We are excluding Involvement to Construction Equipments, temporary power facility, site facilities, sign boards, traffic diversions, consulting to tapping of permanent or temporary electrical, water ,drainage, telecommunications services at the site.

Our design services shall remain with in proximity of maximum 50 mtrs. from the exact project premises in terms of electrical, water ,drainage, telecommunications services at the site.

We shall not be responsible in case of site is deviated from either drawings approved from construction due to abnormal causes or drawings approved for construction are failing at the stage of implementation at site due to abnormal causes.

We shall also be not responsible if project planning is not followed by Main Construction Contractor or all Sub trades of all other contractors.

We strictly strike off our responsibilities if project finances are not maintained according to our consultations or project lead procurements either not approved or delayed in procurement approval from the client. We shall not entertain too heavy acceleration or idling of site activities, frequent imposing of change orders or variation orders, non-compliance to our project management system on implementation phase.

In such cases we shall be constrained to impose penalties to even our own clients also and all the subcontracting trades. Rectifications to uncontrollable situations developed due to non compliance to our predefined Design Management and Project Management System shall enter to additional cost and time implications to control the situation and charges to be levied by us shall be three times higher than our normal quote of design management and construction management.

We shall not be contractually bound with immediate effect if either of our design management and construction management programme if not followed by the client.

Once again in such case we are not assuring any kind of guarantee, warrantee of our services related to Project Design Management, Planning Management, Cost Management, Procurement Management , Construction Management, Quality Management.. All the change orders shall have cost implications and it will be our sole decision to restrict or approve or not client's proposal to change orders according to site running conditions. We may either reject the change orders or impose additional cost & time implications to client.

We shall not undertake any kind of design management or project management responsibility if Projects Commissioning reports are not delivered to us.

To enter in the Construction Management we shall recommend providing to us breathing time of at least four weeks to prepare partial Construction Management Deliverables in advance along with at least three weeks of time for getting approved for Construction. Above then this we will suggest two weeks of idle time to keep reserved as buffer time between stage of time point of approval of Construction deliverables and actual construction activities.

While entering to ongoing, current Projects before entering to subject of Construction Management Programme to be delivered by us we shall examine the viability of entering to the Project. If our project viability studies doesn't match our own criteria(s) set up by us then we shall make rejection of taking up of the Project from our end.

If the project is found viable to get entered at certain point of Construction then we shall declare viability from our side according to our terms and conditions. We shall put up contingency programme from which stage of Construction we shall impleme nt our system of Construction Management.

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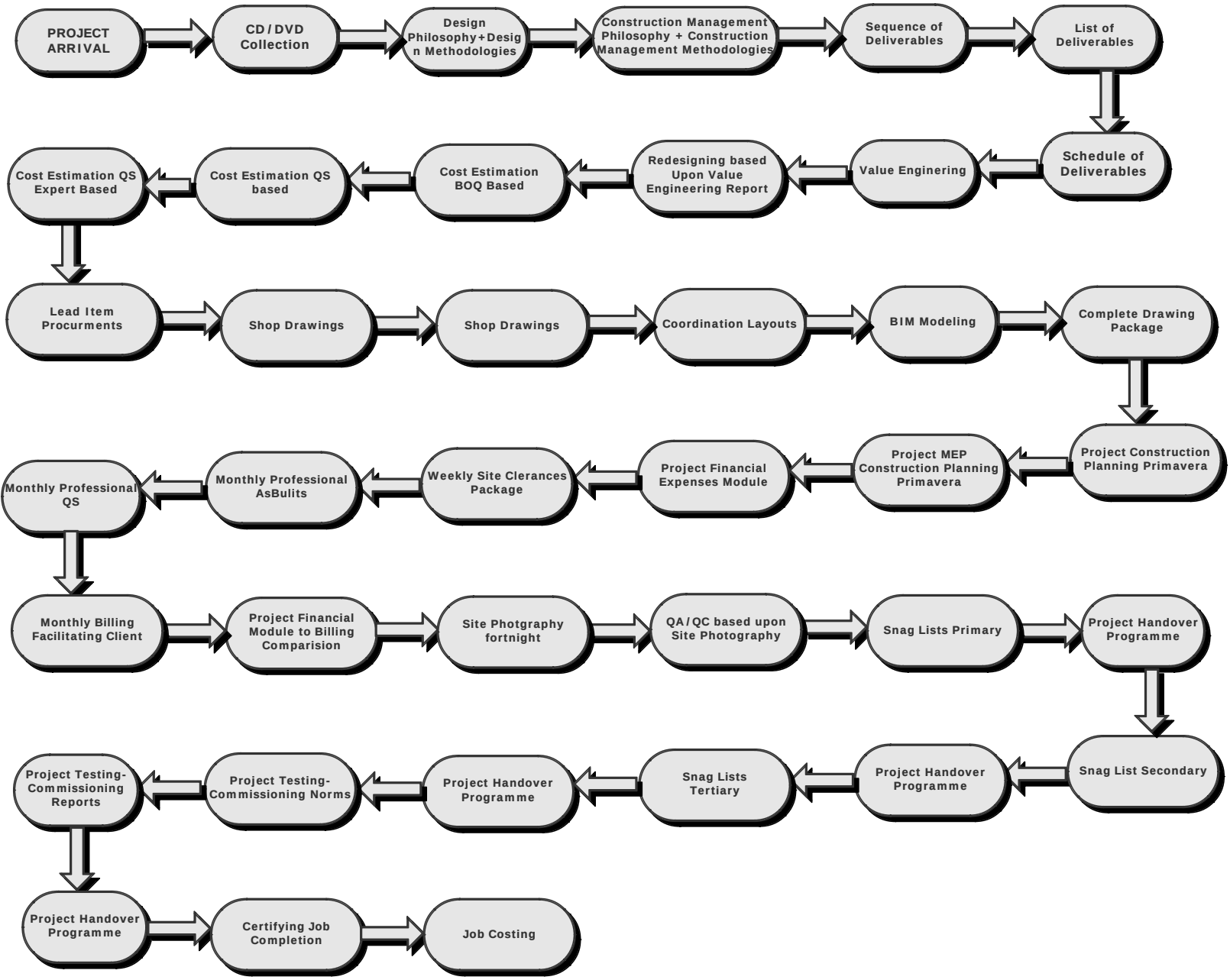
Integrated Project Management System
Impulsive Technologies Private Limited
Work Flow Diagram



Preface:

It is hard to define Design and Construction Management at a single point threshold. In the design sector so many inputs are getting integrated in terms of structural, architectural, electromechanical engineering in the residential, commercial and industrial sectors. These inputs are getting multiplied to at least 100 times more while staging the construction management. The building design works starts at profound interface with the clients.

Stage of Bidding:

On completion of the design stage Engineering Companies and Contractors possess the stage of tendering. Engineering Companies and Contractors strive hard to get acquired the targeted Project. There is a bid and there is a bid evaluation after that. In order to ensure that targeted Projects are getting arrived to Engineering Companies or Contractors door step once again they strive hard in the bidding process by the virtue of picking up series of tenders together. The logic behind picking up the series of tenders is that every tender passes through competitive bidding. There can be five bidders or ten or fifty and some times number of bidders can reach to hundred numbers.

Stretched Resources:

Let us review the another situation of Engineering Construction Companies. If these are the new companies then of course they do possess limited staff to estimation section as projects have not yet arrived to Companies and expenditures of office overheads, administration overheads to Engineering Construction Companies are accumulated to them above than the cost of Estimation section.

Also running Construction Companies can not keep unlimited staff to Cost Estimation Section. As in the Engineering Companies staffing are classified to Top Management Levels, Middle Management Levels, Project Management Levels, Administration Levels, Supervisory Level, Technicians Level.

All these levels have their own proportions of staffing. Suppose a Construction Company is having overall staffing of 100 people then in proportion to that maximum 5 people shall be deployed to Estimation Section.

Once again while reviewing the complications the Estimations Section being stretched by the management in terms of resources those are asked to deal with multiple tenders.

Bidding Complexities Assessments :

In this case most probably the estimation section deals with quoting according to BOQ. In few of the exceptional cases it goes to make Quantity Survey based upon drawings. Once the quantified figures and BOQ figures are compared then most probably Estimation Section closes their mode to go to more advanced stage. During the time while bidding series of large no. of Projects by the virtue of equation of probability few of them fall to them. The Projects fallen to the Construction Company lacks exploring of discrepancy among BOQ, Drawings, Specifications, Scope of Works and Contractual Documents. Even if such discrepancies are pointed out then the client remains silent. As to draw out the design companies from the Design stage clients had done equal exercises to keep moulding designs frequently. At this stage client is not in position to mould again the Project Design stage means bringing back Projects from Tender stage to Design Stage. As Project had reached to the Tender stage in the consent of client only.

Design Complexity Assessments:

Like wise the kind of complexities observed by us at the bidding stage are having equivalent complexities at design stage also. Every Project is having budget and every Project is time bound. When design works are getting started that time both the sides client as well as consultant works in the relaxed form. Client demands more & more and the plate of client is not getting filled up by varieties of foods. As design advances, the time also advances. Suddenly client alarms the Consultants to finalize the design according to contractual terms and put up to the Tender stage. Consultants who had passed their 80% of time under client's amnesty suddenly start to get bothered about Contractual Terms of finishing of design. At this stage lot

of detailed designs and specifications are thrown to contractor's side to get materialized then once again Consultants start to relax.

The complexity of the subject starts here. About 80% of time clients and consultants celebrate as the time of intimacy among them and the during the rest 20% of time period all intimacy of clients and consultants start to get disappeared.

If it is one year design programme then about nine months of time period most of the clients pass the time in celebrating intimacy with consultants. Once about nine months time is getting passed then client starts to take contractual stand.

Number of things were not developed during the last nine months, now consultants are obliged to finish it in during rest of the three months. Once again in these three months Consultant gets very busy to declare Architectural designs during the next two months of the time period.

Then these consultants leave designs of MEP on their own mercy of last one month. During the time last whole month is getting consumed in preparation of Mechanical Designs.

Then whole the Electrical and ELV designs part runs under heavy screaming of the clients. This scenario is usual every where. There can be float of 50% in the situation as described above.

The result of which can be scraps in Construction Designs and MEP Construction Designs. The consultants know well that what kind of scrap they have entered to the design works however they are unable to confess the details of scraps to the clients. Consultants usually keep silent about scraps developed by them and transfers the design to the tender stage smoothly.

Integrated Complexities:

Before we observe complexities to design works we had already observed complexities to the cost estimations works. Now let us say the design was passed through the tender stage and let us consider that 5% critical scraps were diluted to the design works. Here dilution is

terminology is used. Diluted scrap means no body knows about this scrap except experts of the industry.

As discussed earlier when Contractors are quoting series of multiple Projects that time where do their estimation section is having time to detect such critical scraps. By means of theory of probabilities contractor wins the particular Project out of series of biddings. In such acquired or won Project is possessing severe deficiency at Estimation stage. First of all discrepancies among drawings, boqs, specifications, scope of works and contractual documents were not detected. When there is no time to quote the Project then where to bring the extra time to detect discrepancies among drawings, boqs, specifications, scope of works and contractual documents.

Like wise Consultants keep quiet about their scraps generated by them at the design stage similarly at the same time estimation sections of the contractors keep quiet about these discrepancies.

Now in this situation detecting design deficiency is very far away from the contractors. The works are passed from the Design stage to Cost Estimation Stage to the implementation stage.

Implementation Phase Complexities:

The clients usually afraid of the Contractors hence bring their own team in the name of 'Client Representative'. The design consultant is already there in supervision of the Project contractually. Above than that in very sensitive Projects clients recruit 'third party' inspection team. Along with all these agencies client recruits 'Project Management' agency.

The concept of keeping 'Project Management' Agency is that it monitors the Project activities which were basically not monitored by the Project Consultants, third party inspection team, client representative.

In this situation it becomes difficult to declare which one agency is more superior than other agency. With involvements of all the supervisory agencies contractor possess their own Project Mangers, Design Engineers, Site Engineers and Supervisors.

Now in order to coordinate with all agencies some times Coordination Engineers are recruited. These coordination engineers tries to make coordination among all agencies.

However the project which was suppose to start at normal phase starts at the normal phase but gradually gets converted to racing phase.

The racing phase means there is no racing of accelerating the works. The racing is established among different agencies. Among these all agencies the "Project Management" agency takes front line to establish the most worst roles.

All the Project Management Companies established worldwide they do possess their own black faces which they never expose to clients and contractors.

Superimposed Situation:

With integration of all circumstances particularly in the middle east Projects go to different stage of variation orders. In the middle east clients are loaded with heavy money. When they do possess over flooding of money with them then the question of where to diversify their money comes then they always find out the ways to diversify their money into construction works.

During the process of construction they become dreamy and every day they do not get relaxed until and unless they issue the change orders. While putting the change orders they do not limit the no. of change orders. These change orders are unlimited. In this situation Client Representative, Project Management Team, Consultant get together and they discuss how to survive to the extent of five years if the Project Time was limited to two years. They make nice plot of dragging project of two years life to give it life of five years.

Advanced Complex Stage:

Usually with integration of all the agencies gradually project starts to go to mess up. Contractor possess very smart and experienced Project Managers. Their Project Managers day starts with complications. When they take up the charge at the site usually number of people are ready to make them walked to particular places of sites to show the mess up. On other side complaints comes to them that number of materials are out of stock. Site Equipments are not arranged yet. Consultant and Project Management Team together have not approved the shop drawings to start with. Particular procurements are not made or the particular procurements are not approved by the client. No. of Request for Information are not answered.

With composition of no. of issues and frequent site visits the number of agencies from client's side calls the Contractor's Project Managers for meetings. Usually these Construction Managers do not get time to make well studies of on going issues. Hence their answers are getting shorten to certain time-line always that with in a week they will revert back to particular issues.

The engineers require sharp guidelines of Construction Managers to develop shop drawings. But they hardly make presence to design section in supporting them to make shop drawing. These Construction Managers know well that to make survival they need to keep the site in running condition. To keep the site in running condition they convert all detailed engineered solutions to spot solutions while knowing well that all the spot solutions will go to the process of reworks but they don't mind to rework at the same place frequently. At all the sites all detailed engineered decisions are getting converted to spot decisions only and cycle of reworks are highly common.

While composition of all junctures at a single point suppliers make queue to Project Mangers to get approved their materials. Consultants become dishonest during all the times. For example normally Electrical Consultants approve the ELV systems. When they receive any submittals from suppliers about their ELV systems, first they start to scratch the submittals. If they do not scratch the submittals then they are not consultants. Usually if Electrical Consultant is reviewing telecommunication submittals from supplier then he should know BISCI if he or she

doesn't know BISCI then he or she should call the suppliers and get explanation of their telecommunication & security system.

If Electrical consultant is reviewing Fire Alarm supplier's submittal then he/she should know NFPA. Usually Electrical Consultant shifts detectors here and there in the drawing and that is their knowledge about NFPA.

When they review the lighting submittals they ask the suppliers to bring the samples of the light fittings. Normally softwares are strong enough to replace the samples.

On other side Project Management team is very keen to scratch all submittals and make frequent rejection of works at the site under the name of quality control.

Extreme Complex Level:

Gradually client smells all ongoing mess up and calls all the agencies that if their performances are not found adequate then the client was strong enough to expel all of them.

At this stage these agencies start to make coordination which each other while knowing that they have made enough mess up at the site and making more site messed up means getting expelled from the Project.

Stage of Extreme Mess-ups:

Gradually they call contractors of all trades and give the statements that they are rapidly going to approve all suppliers submittals, shop drawings, coordination layouts in a bulk and they ask contractors to follow time lines after having made up enough mess up at the site.

Something was not achieved at the site during past 100 days now Project Authorities ask contractors to finish up in 10 days irrespective of quality controls. All the quality control programmes are getting diluted during the time.

Mean while sometimes Client asks all involved agencies to get passed through ISO certifications. Once again contractor's administration was enough loaded now starts to get loaded with ISO certifications.

Finally all these developments cause terrible health & safety violence at the sites. Number of Project Managers, Supervisors and Engineers start to get involved in **job burns** situations. Either they have to get works exported to their homes or they have to present themselves at the site 24 hrs.

Families of people involved in **job burns** situation suffer. Child doesn't comes to know why daddy remains so tensed last no. of weeks, gets angry in each and every matter.

For the Wives of these Project Managers Saturday, Sundays become equivalent to normal working days. No of supervisors and foreman sleep at the sites in stead of their accommodations.

Know body knows what is the root cause of this situation. The global impact of this kind of environment is so common that people do not try to investigate the root cause of the problems.

Once one Project gets handed over they switch to another project.

Motivations:

Did any body has thought of that one efficient Project Engineer is equivalent to one thousand inefficient Project Managers? Do any body has thought that the Project can pass smoothly through the phase of design, estimation and construction.

At this stage we need to remember the story of Napoleon Bonaparte no.3. The person was selling his war strategies at the position of Soldier and became **emperor** of the France just by means of selling his war strategies. In fact it was not just only his war strategies but number of

so many millions of characteristics of Napoleon were attached to this phenomena. But his base line to this phenomena was directly proportional to selling of his war strategies.

Strategies:

Exactly all the war strategies are getting applied to the Construction Industry also. Napoleon was doing very hard work of roaming to hundreds of miles of geographical areas and putting down the geographic maps to his note pads. He was making war strategies without use of laptops or computers.

Now days we are well equipped with science and technologies along with softwares even though the Construction Industry is in big mess up. All the unusual matters are happening as listed above despite of latest science and technologies.

So the Construction is a science and construction is ware fare also. Gradually construction has got converted from one of the most standard Science to ware fare and the stage of politics.

When politics is getting involved at that time it doesn't allow any agency at the site to stay with their own well versed visions. If any clever, honest Construction Manger enters to the Project who knows well the scrap produced by the consultants, client representatives, third party inspectors, project management teams, contractor's project managers & engineers and if he starts to report about these scraps then all the involved agencies survival come to danger.

At this stage as first job all these agencies do enough to expel such kind of talented Project Managers or they do not allow to make their schemes successful.

The question is that do we need so many agencies at one place just to happen the Construction. The answer is strictly no. There is need of single agency in the Project who can perform all the tasks.

Basically if we divide the Project Administration and site activities into two phases then at least 65% part of that comes to Project Engineering Administration and 35% of the rest of which comes to Project Pure Site Implementations . Something was not decided in air-conditioning office has to get decided in the hot temperatures after fighting with so many agencies. Our Extreme Engineered Solutions say that we decide ourselves every thing in our air-conditioned office itself instead of at the site without fighting with so many agencies.

Advanced Strategies:

So what is the way of making over all situation comfortable. First of all let us theoretically expel client's representative from the Project, Let us expel the Project Consultant from the Project after Design Phase, Let us expel design managers & Engineers from Construction Companies and MEP Construction Companies, Let us expel third party inspection company from the site and let us expel so called Project Management Companies from the site.

Let us make the ground clear for us. We do not need any involvement of any agencies in the Projects undertaken by us. This is very clear matter we need to convey to the clients.

Even if such agencies are involved then we would like to stage at the top of all Project Authorities even at the top of clients also.

Charge of the situation:

At this stage we would like to put up our conclusions. Who are the best people who can take the charge of the sites. Our conclusions says that Consultants are the best people who can take the charge of the sites.

When Consultants develop their designs they need to give budgetary costs to clients in order to process the tenders. When consultants can prepare the budgetary costs then they can prepare the detailed cost estimations also.

At the site Consultants are approving the financial claims produced by the Contractors if Consultants can approve the financial claims then they can prepare the financial claims also.

Also once the Project Programmes are delivered to the clients then Clients send these programmes for the approval of the Consultants only.

If Consultants can approve the Project programmes then Consultants can prepare the Project Planning also.

Now once again matter comes to Procurements. Consultants usually approves the Project procurements. If they can approve the Project Procurements then they can make the Project procurements also.

Normally when Project Consultants are given the charge of particular sites then they limit their exposures to shop-drawings and coordination layouts. So their outcome looks like a outcome of drafting company.

We are going to take up the full charge as being Construction Manager of the Projects being Consultant Organization.

We ourselves willing to declare the most Supreme Authority of the Project hence we would like to declare ourselves as clients representatives and the intense brain engines of Contractors. We don't let detailed engineered decisions to be taken by Construction Managers at the sites. We believe that if water is supplied at 160 psi then it serves the purpose of serving fountain water of the garden while accelerating the water pressure to 60000 psi, it serves the purpose of metal cutting. Our intense brain-storming exercises being provided to our clients and contractors are equivalent to situation of accelerating of water psi to the extent of 60000.

We know the limitations of Construction Managers at the sites. Construction Managers probably dealing with workforce of about 3000 people at the sites and about 30 trades of

Subcontracting Divisions. Their most of the energies are getting spent in work force management then where do they possess the time of detailed engineering.

So once we take up the charge of the Projects then we take the responsibility of all detailed engineering. We also give profound relaxation to Construction Mangers at the sites and by means of such relaxation we expect that these Construction Managers should not exploit their own teams while putting them under severe tortures. The background of such severe tortures are hidden in the improper detailed engineering, project planning, procurements.

We also believe that our methodologies are not just going to give relaxation to Construction Managers at the sites but we would like to train them on weekly basis while giving them the multilayered brief of events which are going to happen in the next week.

Our Starting Phase:

Now let us start with any Project. Let us assume that Project Design Phase is over and Project Cost Estimation Phase is also over. The Project is awarded to certain contractor and now we integrate our approach to interface the Construction Contractor and the clients.

What we do offer:

First of while taking the charge of the Project we would like to take the responsibility of whole the Project on our own shoulder. Once the Project is handed over to us then we shall collect the Project CD or DVD comprising the BOQ, Drawings, Specifications, Scope of Works and Project Estimations made by the contractors along with the quotations of subcontractors and all vendors. Once we undertake the Project then we would like to deliver to the client the following deliverables.

Sl	Description	Sl	Description
01	Design Philosophy	02	Design Methodologies
03	Construction Management Philosophy	04	Construction Management Methodologies.

Once these deliverables are approved by the clients then we will send to clients the "Project Brief". On sending the Project brief, we shall list out the deliverables along with we shall list out the sequence of deliverables.

Once the list of deliverables and sequence of the deliverables are approved by the client then we shall give to the client the schedule of deliverables.

After getting approved the schedule of deliverables our contract shall be getting activated.

We shall issue the Project Value Engineering. At this stage if any design deficiency are remained then we shall draw attention of the client and we shall make redesigning of the whole project or the partial project.

During the process of the value engineering if we find any alternative designs to make cost reduction of the Project then we shall issue to the client the alternative design either partial or in the completer volume according to report of our value engineering.

Once we cross the stage of Value Engineering then we shall offer to client Cost Estimation Services into three phases, in the first phase we shall deliver to the client the conventional cost estimations based upon boq then in the second phase we shall issue to the client cost estimation based upon our quantity survey and in the third expert oriented phase we shall detect discrepancy among BOQ, Specifications, Scope of Works and Contractual Documents. For this purpose we shall coordinate with all USA as well as Middle East based vendors.

On completion of our estimation analysis we shall declare to the client that the particular Project was either over quoted, under quoted or adequately quoted.

We shall deliver to the client module of expenses to be occurred at the site at the different stages of construction. On completion of Value Engineering, Cost Estimation Phase and

declaration of Module of Expenses we shall start to coordinate with USA as well as Middle East based vendors for lead items procurements.

We shall send to the client the procurements sought by us based upon cost, quality and tender specifications.

While passing the procurement phase we shall start to deliver Project Construction along with MEP Construction Planning.

Once getting approved Project Planning developed by us on Prima Vera software we shall start to develop shop drawings and coordination layouts.

Further to these drawings we shall enhance all the drawings by BIM Modeling. At the technical core of BIM is the software that enables 3D modeling and information management. Extensive use of the software eventually leads to a more complete understanding of the technical core.

After having developed BIM Modelling we shall issue ICCET and AREATLES version of the Project. We shall compress the project to the smallest possible volume and we shall enable the Project Managers at the sites to keep whole Project with them like a small note book of 100 pages maximum.

Once we have gone through making BIM Modeling we shall ensure that all the deliverables are approved by the client at least one month before starting of the construction activities.

At the time of starting Construction Activities we shall declare the site clearances programme weekly. Then we shall invite at every stage of construction site photography and we shall declare our quality management programme according to that.

At the interval of 15 to 20 days we shall invite raw as builts from the sites and which we shall convert to professional as builts. By means of these Professional As Builts we shall make

periodic Quantity Survey and issue the invoices to our clients to get approved finances according to works progress.

While preparing such Invoicing we shall compare module of expenses pre-declared by us. We shall draw attention of client if expenses were incurred were more than the site progress. For this purpose we shall invite from the client total sum of the expenditures incurred at the site during the particular month of execution.

On progress of the Project to the completion stage we shall declare commissioning programme.

We shall invite the client to send to us the Project Commissioning Report. During the time we shall invite the snag lists to be developed by third party at the site. Based on the snag lists we shall deliver the norms of Job Handover Programme.

Our dedicated Project Manager shall make the periodic and specific visit of site for real time client interface during the phase of construction. We shall invite primary, secondary and tertiary snag lists from the site in three stages at the time of Project Handover.

Once again based upon primary then secondary then tertiary snag lists we shall keep modulating the Project Handover norms. Once our Project Handover Norms are fulfilled by means of site handover report on completion of snag list we shall certify the Job Completion.

During whole the process we are not going to deploy Site Engineers from our side, we shall not develop Raw As Built developing at the site, we shall not take up the Project Photography on our own shoulder, we shall not participate in Project Testing Commissioning but we shall declare from our side the Project Testing Commissioning and Handover Norms and we shall observe the fulfillment of such norms from our side.

On handover the project we shall issue to the client the job completion certification. After handing over the job completion we shall issue to the client Job costing.

The analysis of budgeted and incurred expenses. So very complicated industry of Construction we shall make it very simple.

We are offering
(i)Scientific Management of Constructions
(ii)Time Saving Management of Constructions
(iii)Cost Saving Management of Constructions
(iv)Upmost Quality form of Constructions
(v)Energy Saving form Constructions by the virtue of Green Building Designs.