Solution for Plastic Processing Industry

INFRA TECH Solutions

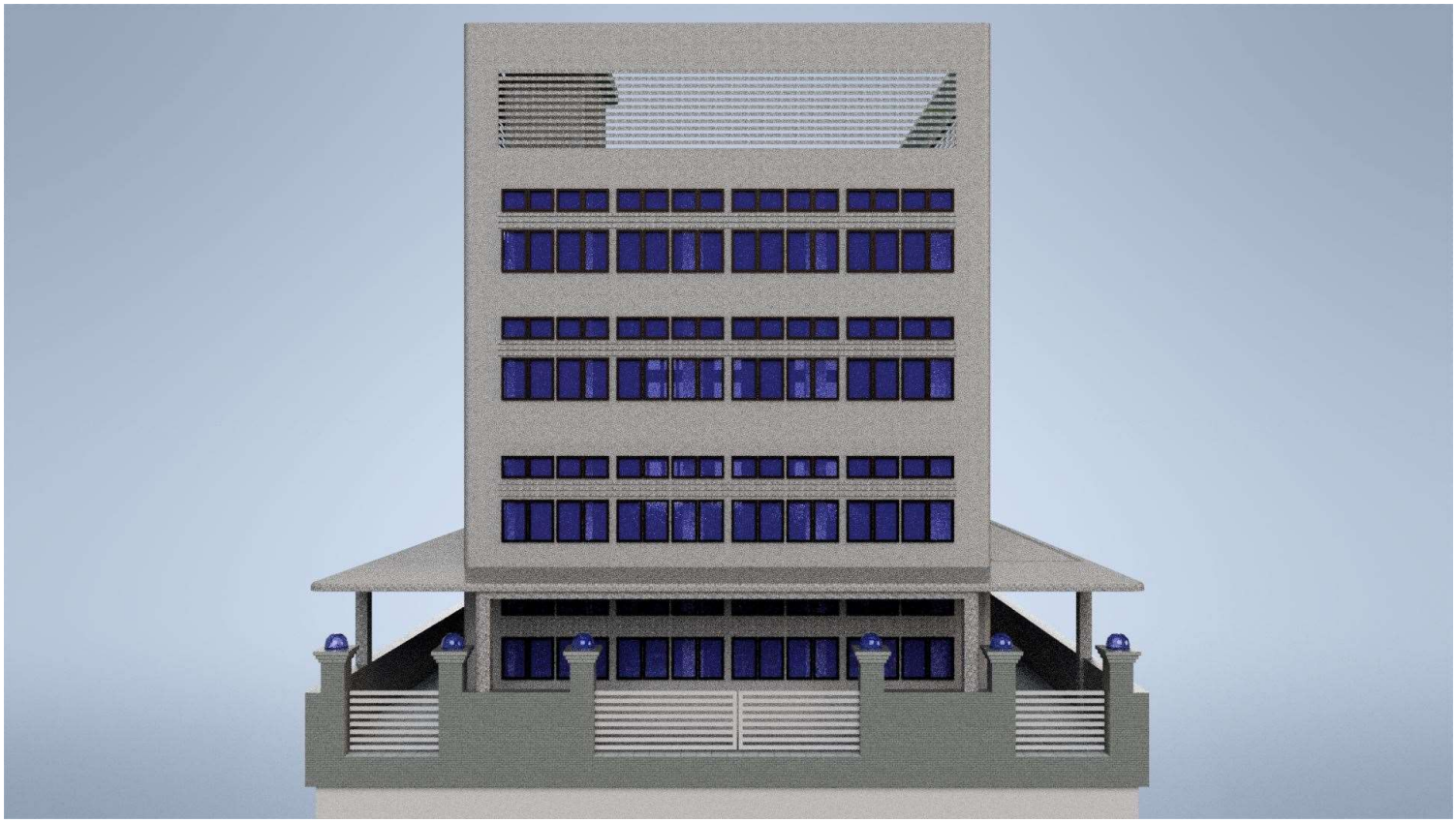
Customized Solution for **Factory / Plant Design**

Solution for Plastic Processing Unit

A Small Factory of 1000 Sq. Ft to Large Unit covering 400000 sq. Ft

Go Green.....

JR consultancy



Infrastructure / Factory / Production Facility ~ Design

Whether you are planning for a Very Small Manufacturing Unit, covering just **1000 square feet** or Just a Organized Medium Sized Factory or just a Efficient Semi Large Factory or else a large Manufacturing infrastructure covering millions of square feet area, each of the concept has one critical point in common and it is the Design, Concept and Construct of the facility. And this will dictate, whether your true plans for the said entity can be achieved or not.

When designing such a infrastructure, one has to make sure it accommodate every single requirement in terms of Work flow, Machinery and Equipment's, Communication, Management and all possible expansions scope, which is planned for the final built unit. Any miscalculation or omission or mistakes can result in a exceptional painful and costly bottleneck, which can virtually derail your best efforts, so as to achieve the intended results.

At **JR Consultancy**, having Absolute and In-depth knowledge of the manufacturing processes and manufacturing unit, has given us an unique and exceptional capability to design a facility, which can accommodate all conceivable requirements of the processing unit and importantly have full flexibility and Modularity for every expansion in foreseeable future.

We methodically carry out the entire designing on a 3 dimensional environment, which allows us to virtually build the entire facility in the digital world, providing our customer to inspect, assess, validate every stage of the built , as we continue to built the entire infrastructure digitally. This process eliminates all risks and possible losses that are normally seen in traditional method where actual construction are carried out until the customer has a real sense of the end result.

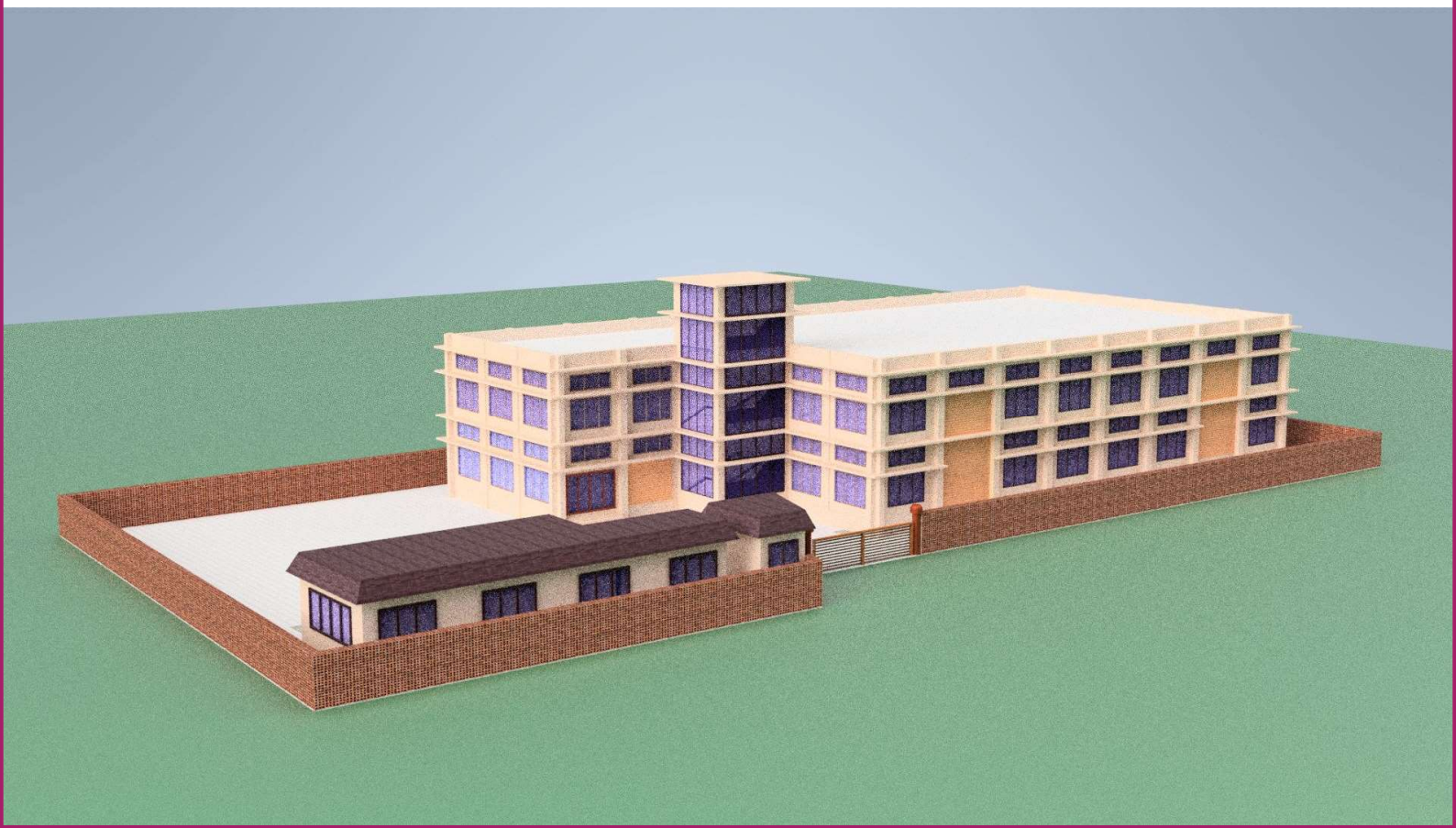
In short, we at JR Consultancy, offer our customer a real life, fully built, fully accessorised manufacturing unit, in the digital world, which can be inspected, assessed, validated, only after which real activity can be commenced. This virtually guarantees a successful result……

Green Technology…..

INFRA TECH

Journey

- **Conceptualization - Journey Starts Here**
- Activity Overview
- Site Evaluation
- Optimum Plant Work Flow
- Raw Material Journey Entry - Exit
- Machinery /Equipment's / Utilities
- Projected Layout Schematic
- Digital Layout as per Plant Work Flow Schematic
- Digital Internal Construct
- Structural Format
- Virtual Infra
- Virtual Infra Validation
- Infra Commercial
- **Final Execution**



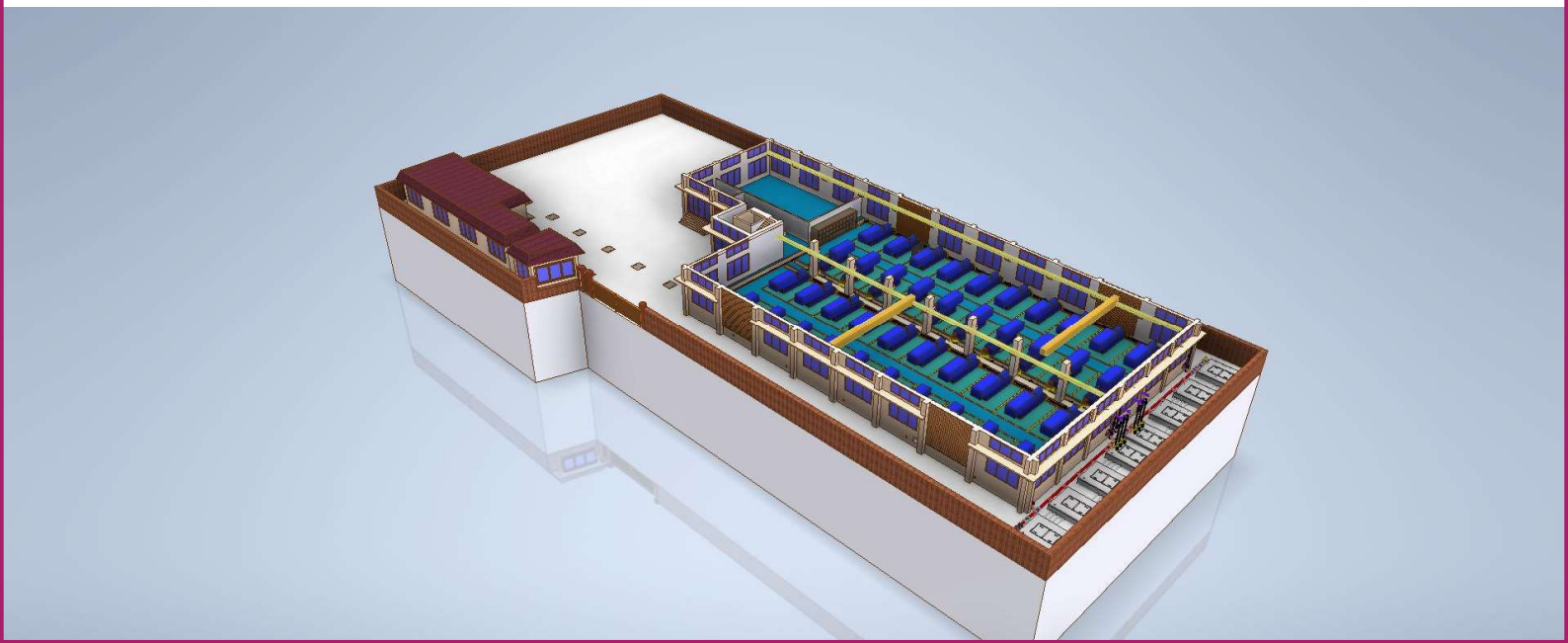
Conceptualization

A new Project can be seen as a journey. A journey to realization of ones vision. So this journey starts with a "Concept". Conceptualization translates to defining ones vision in a materialistic form. At **JR Consultancy,** we commence the project by having a in-depth discussion with our customer, on his vision of the proposed Project. The proposed project, in all its form, is and will always be the customers baby. We as a consultant, carry the responsibility to translate this vision into reality, which, in the end will reflect his dream in totality. So our first task is to have a very clear understanding of the customers vision.

For a plastic processing project, todays technology offer us unique and exceptional choices of Infrastructure Concepts which can truly reflect the proposed projects Standard, Efficiency, Capability, Uniqueness, Sophistication and Technological strength.

As a consultant this stage gives us the opportunity to demonstrate our strength in terms of converting the customers thought process in to a real entity and converging this with most modern and sophisticated infrastructural concept on current times. Manufacturing standards and practises has drastically changed in the past 15 years. Now Sophistication and technological strength seems to be the core criteria for considering a given infrastructure / business as relevant or viable. Growth and success are directly tied up to the concerned infrastructure capability, which is mostly reflected by its design and concept.

At this stage, the entire emphasis is on formulating a design concept, which take vital clues, Inputs, preferences, from the customer and convert them into a structured reference document. This document is then taken as a reference to do an in-depth research on all available sophisticated and technologically advance infrastructure concept, which can accommodate all points and offer the customer a latest, Efficient and sustainable infrastructure module.

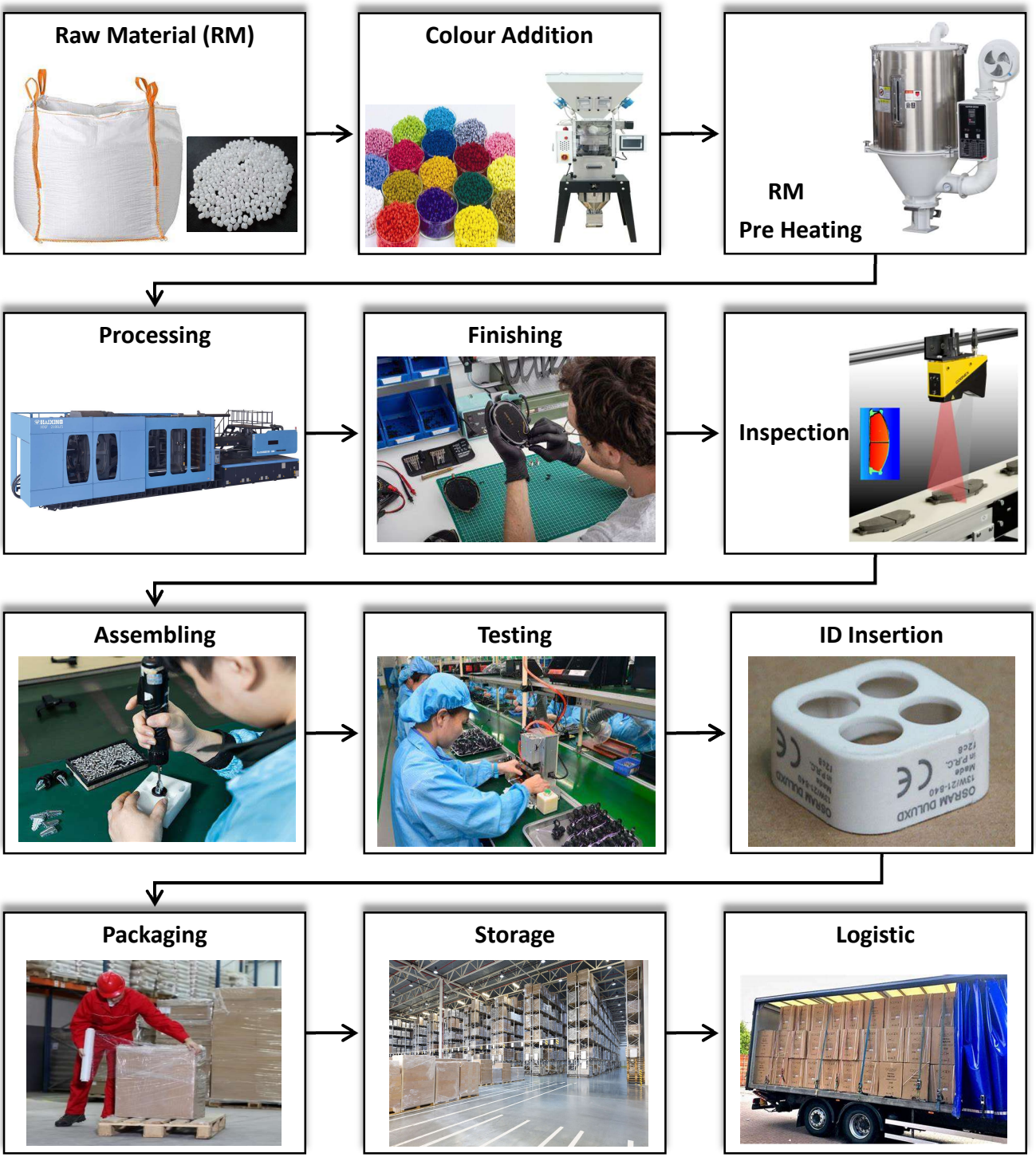


Activity Overview

Once the Infrastructure concept is precisely conceived, the next step would be to have a very clear understanding of the Planned activity for the said project. Conceptualization only defines the direction of the design, where as the planned activity would dictate the detailing of the activity planned for the said project.

Plastic Processing activity mostly belongs to 4 basic category, being Injection Moulding Process, Blow Moulding Process and Extrusion. Each of the category dictates some basic pattern of activity. At this stage, we at **JR Consultancy**, assist our customer to sketch out the intended activity for the given application and while doing so educate them on all the latest technological advancement available and its implication on the end performance of the project. This outline for the planned activity would now become the guide on which a comprehensive design format would be framed.

Injection Moulded Product Activity Sequence



Activity Overview

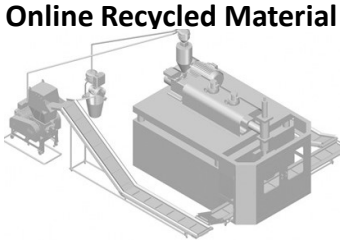
Blow Moulded Product Activity Sequence

Raw Material (RM)

Colour Addition

Addition

Online Recycled Material



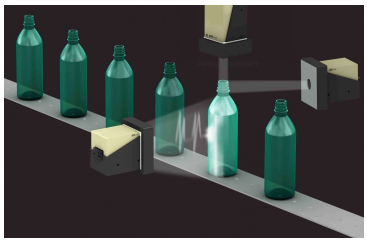
Processing

DE flashing

Pinch Off Recycling

Leak Testing

Inspection



Recycling Reject

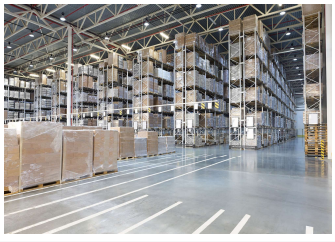
Labelling / Printing

ID Insertion

Final Inspection

Packaging

Storage



Logistic

Activity Overview

Extrusion Product Activity Sequence

Raw Material (RM)

Shredding

Crushing

Metal Inspection

Cleaning

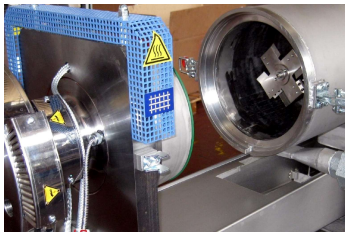
Pre Heating

Colour Addition

Force Feeding

Processing

Granule Sizing



Size Sorting

Material Collection

Packaging

Storage

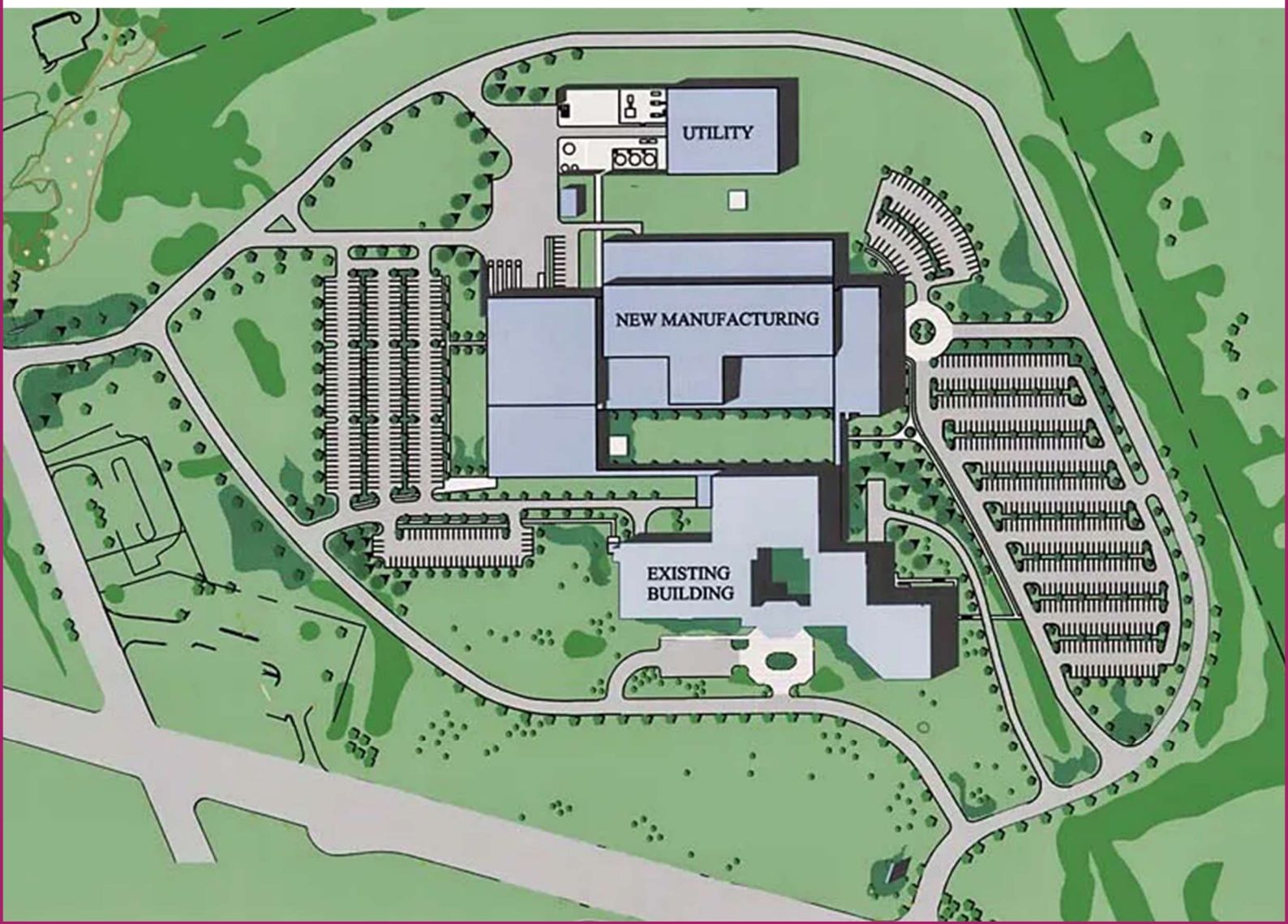
Logistic

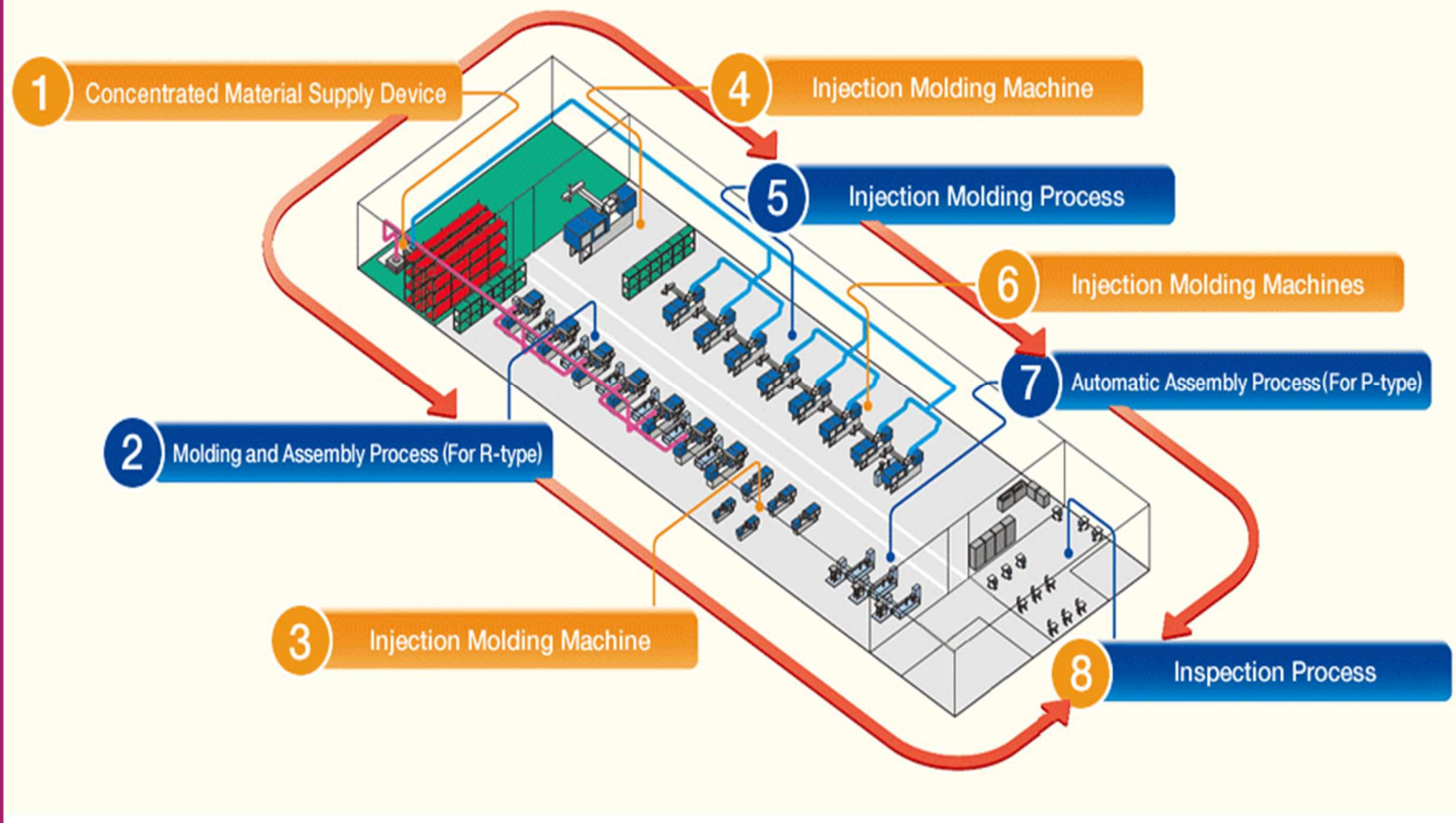
Site Evaluation

Site of a Infrastructure dictates whether the intended build, with the formulated concept, can be achieved in its totality. Infrastructure are not mere independent modules but it's a part of comprehensive Eco structure. Eco structure can be defined as group of critical utilities working together in a synchronized formula. Utilities include access roads, Water connectivity, Electrical Access route, Vehicular movement, Air circulation, etc. Further, site information plays a vital role in demarcation of build up area following rules and regulation of local statutory bodies. Adding to this, all supporting requirements such as access road, Vehicular access & Parking, Green Coverage, Safety area allocation and Emergency Service access are to be incorporated in a articulated and well defined manner so as to retain the intended conceptual reflection.

Reference documents supporting the intended Infra Concept and similar set of document highlighting the activity schematics, is now taken in as a blue print for the Infrastructure Spread. This stage is all about framing a structured build up area with bifurcation of all sections and subsection. Extra care needs to be taken so as the intended design concept seamlessly converge with the bifurcated built area at the same time adhered to the local infrastructure regulation and requirements.

We at JR Consultancy take pride in our capability to manage this convergence of Conceived Concept with real-time structural entity, retaining every single input / Suggestion by the customer .





Optimum Plant Work Flow

Processing Economic is and will be dominated by the **Work Flow Design** and Work Flow Construct of the facility. And this will dictate the true economics for said entity and Business as a whole. All said and done, the final goal for any business house is of Profitability and Economics.

Design concept and Construct of a facility is a reflection of the standard and status of a business venture, but the true success is always reflected in the Economics. Being a processing facility, the actual activity carried out in the said facility is the true revenue generator. Work flow design / Work Flow construct virtually dedicates the true efficiency of the entire process chain. It's a blue print on how the entire activity of the project is synchronized to achieve optimum efficiency.

Infra Concept along with the activity overview documentation, becomes the foundation to a robust and precise Plant Work Flow Design. This design accommodates any and every requirement of the customer in terms of Processing Procedures, Quality Standard Expectation, Utilization of construct area and all related supporting activity.

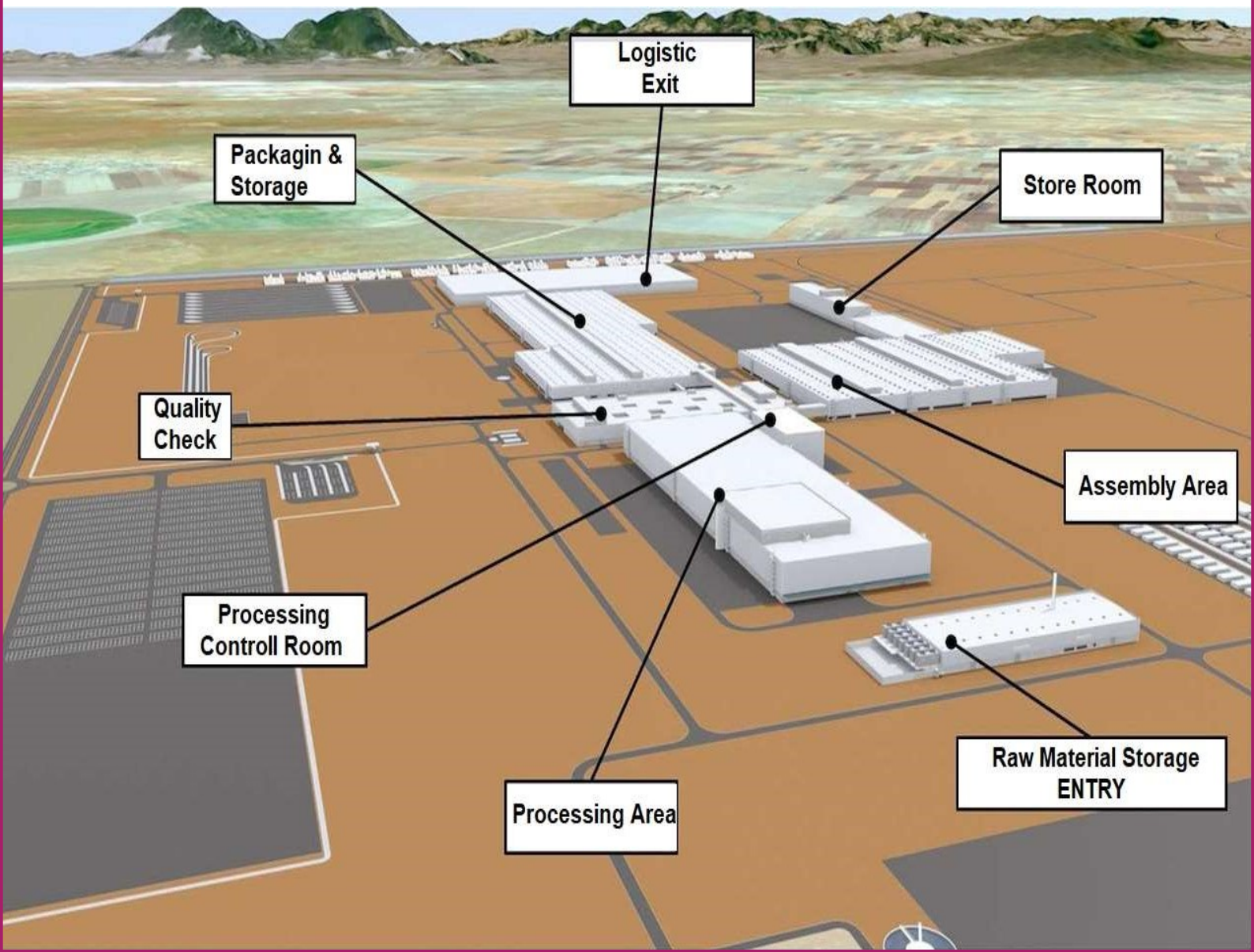
At **JR** Consultancy, having Absolute and In-depth knowledge of the manufacturing processes and manufacturing unit, has given us an unique and exceptional capability, to Conceptualize and design a work flow sequence, which can accommodate all conceivable requirements of the planned processing unit and importantly have full flexibility and Modularity for every expansion in foreseeable future.

Raw Material Journey - Entry <> Exit

This phase would now start to show some real structural form for the proposed entity. This stage is all about carving all intended section and subsection in the project as concluded in the work flow design. Reference document from Activity Overview and finalized Work Flow Design is taken as a guide to allocate required sections for each group of activity as dictated by customers activity projection.

Referring to the Work Flow Design & Activity Overview document, we can conclude that for a processing unit, the entire operation in centred on 1 principal foundation, which is, End to End Process… Which translates to the Journey of Material, from entry into to the infrastructure to Exit of the said material from the infrastructure. In this journey, the entry happens in form of Raw Material and Exit take place in form of final finished product.

For maintaining a disciplined structural flow, a clear and precise understanding of this End to End Process is of prime importance. Each manufacturing establishment has its own category, type, sequence and nature of activity, which basically defines the End to End process. A transparent, precise and conclusive assessment of this process is generated, which is then reflected in a structured Outline of the facility having all needed sectional bifurcation.



Machinery / Supporting Equipment's / Utilities

Having achieved a well defined outline of the planned facility the next step is to have a extensively detailed information on all Machinery, Supporting Equipment's, Accessories and Utilities which is planned to be installed in the said infrastructure. Structural Design or Concept cannot stand by its own and needs to comprehensively accommodate any and every items that needs to be installed / added to it. This would translate to a detailed set of document for every single Machinery, Supporting Equipment's, Accessories, Plant Utilities, Tools and such. This document would be considered most critical input in this whole project as going forward this will be referred to while formulating any of the consecutive individual phase.

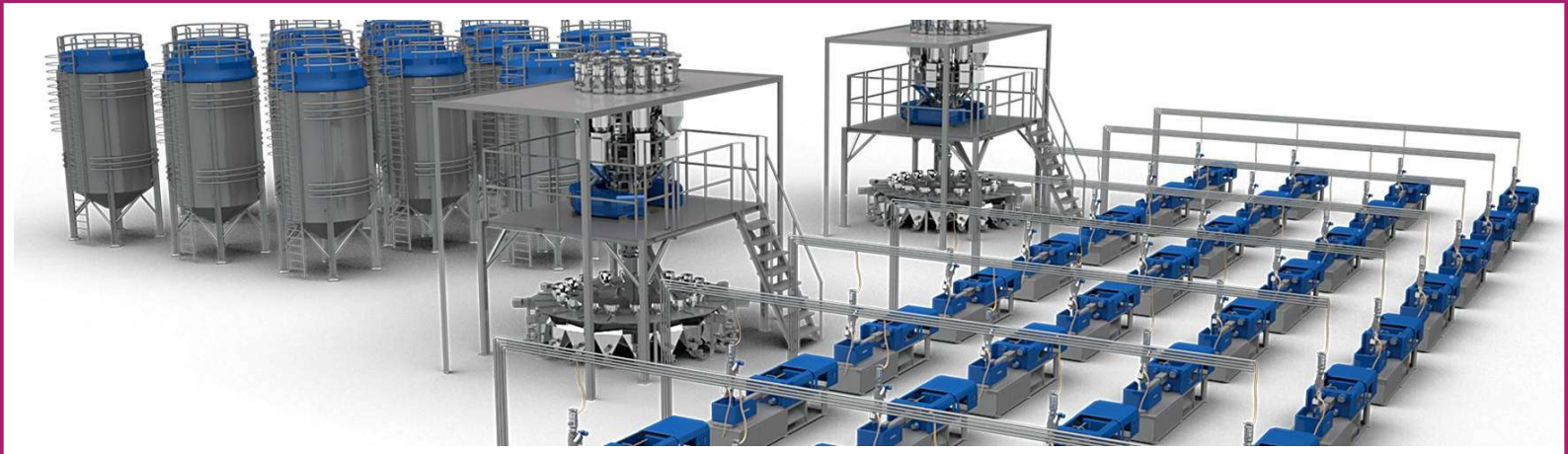
At JR Consultancy, we carry the unique advantage of more than 36 years of machine building experience, which in turn empowers us to offer exceptionally detailed and in-depth information on such items and its behaviour in a processing environment. This practically give us a absolute command in placement of all mentioned items in a robust production facility while retaining the original conceptual image.

Primary Machine

- **Injection Moulding Machine**

- **Blow Moulding Machine**

- **Extrusion Machine**



Supporting Equipment's & Utilities

- **Mixing Devices**


- **Material Transfer Devices**


- **Material Pre Heat Devices**


- **Material Recycle Devices**


- **Material Take Out Devices**

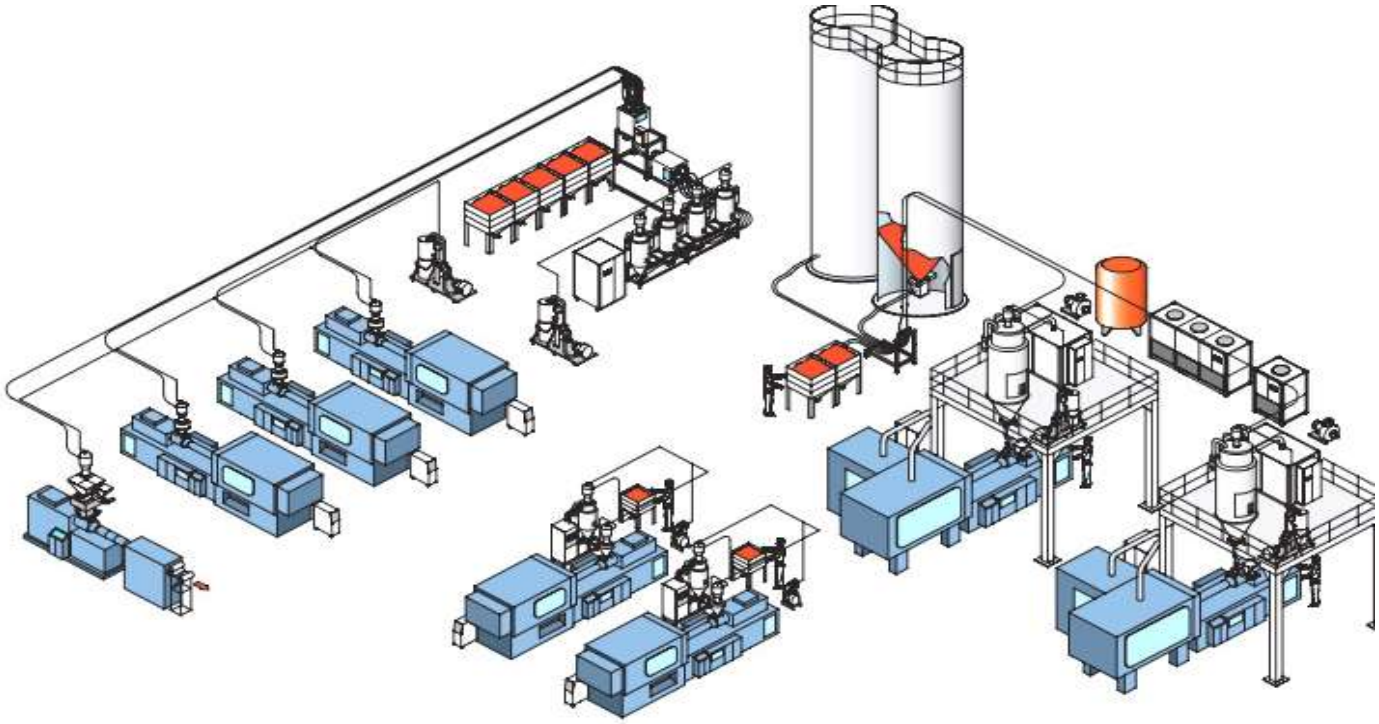

- **Cooling Devices**


Green Technology.....

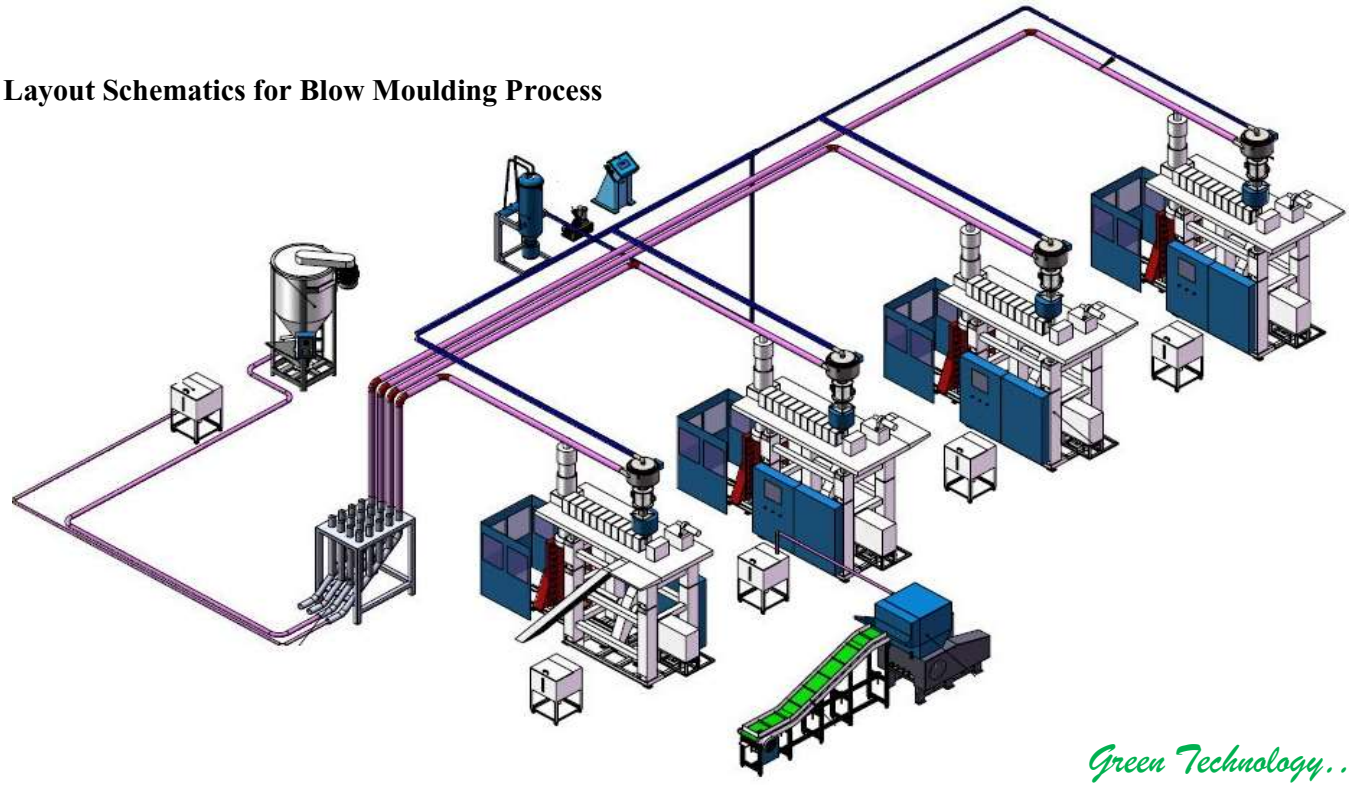
Projected Layout Schematic

Having achieved detailed information on all Intended Machinery, Supporting Equipment's, Accessories and Utilities for the planned facility, the next phase is to generate a robust layout schematics while refereeing the Activity Overview documentation. This phase reflects a effective collaboration with the customer to finalize the best suited Layout Concept which would accommodate both the sequence of activity process and the planned infra concept

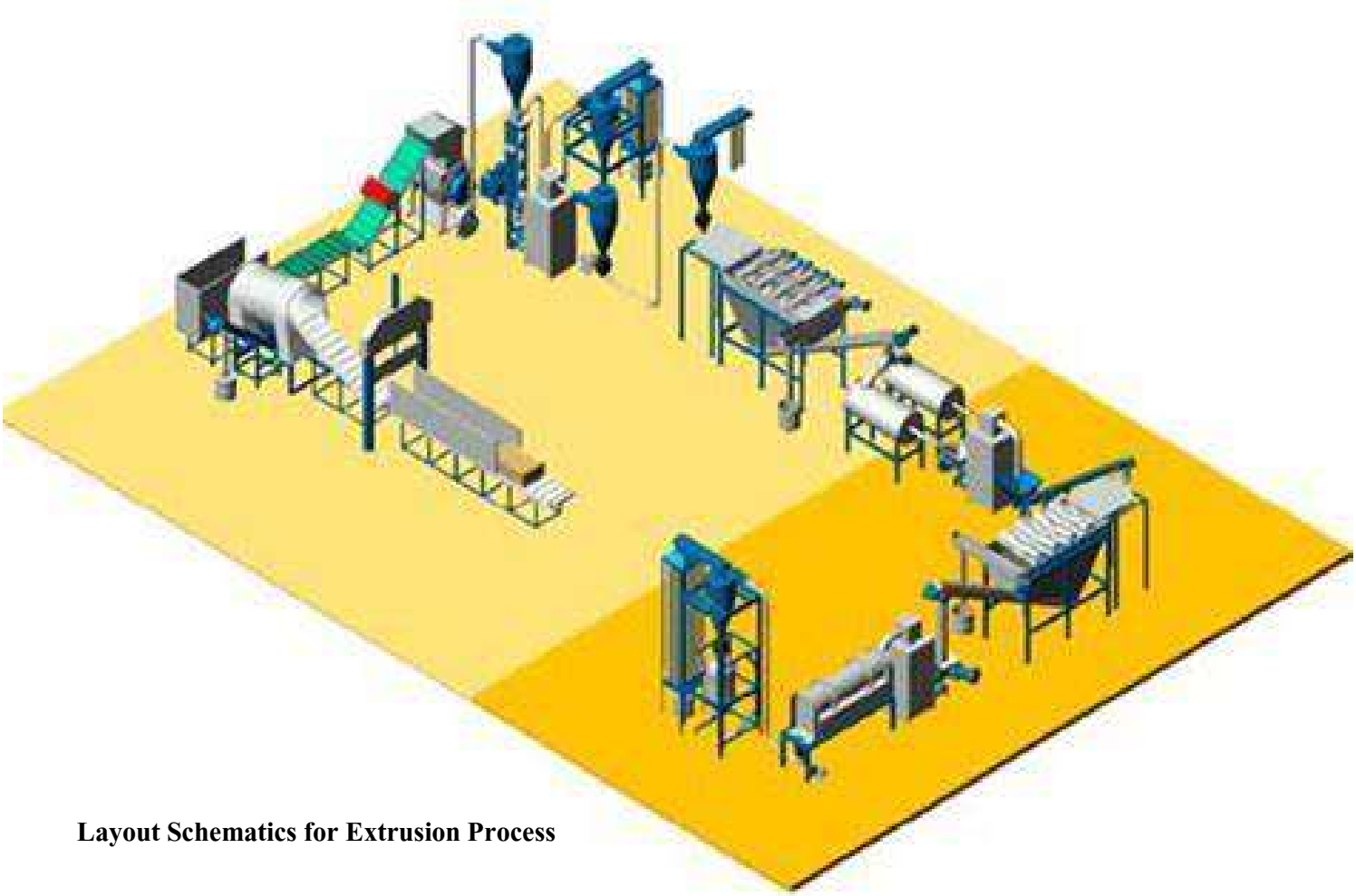
Layout Schematics for Injection Moulding Process



Layout Schematics for Blow Moulding Process



Projected Layout Schematic

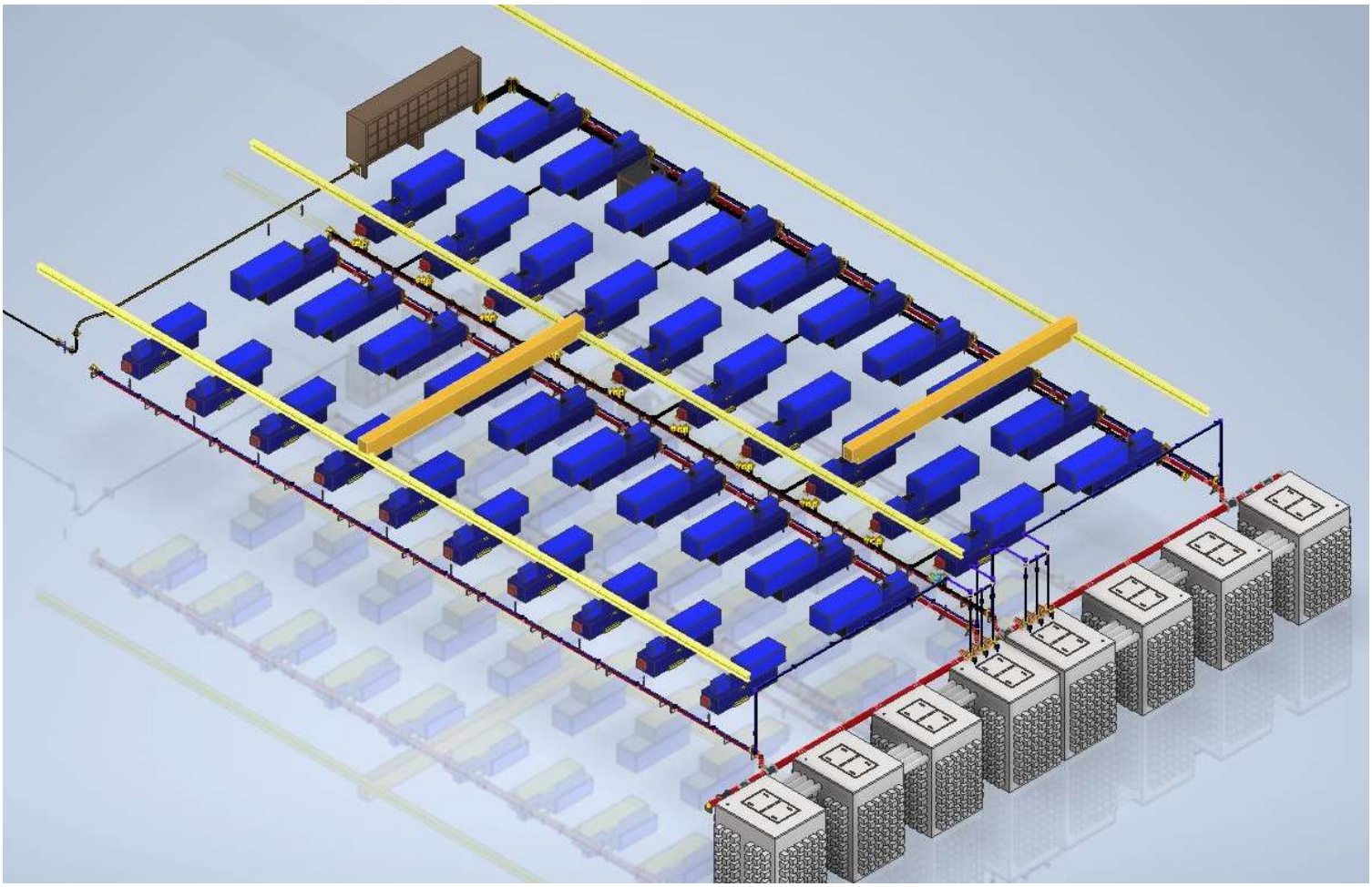


Layout Schematics for Extrusion Process

This phase is unique and offers a opportunity to truly assess the role of every single items that goes into the production facility. When we talk of Production Facility being sophisticated, technological advanced and of premium standard, this basically translates to the selection of every single items involved in the facility and most importantly how they are configured / utilized / manipulated / sequenced in the entire chain of processing sequence.

At JR Consultancy, we being a extended branch of machine builders, has given us the exceptional strength, Knowledge and capability to configure a robust, precise, efficient, Innovative and most importantly economical layout, which can carry all the expectation of the customer, while reflecting latest technological concept.

This phase will conclude with a clear picture on all items which is to be a part of the processing facility along with the precise placement and utility of each of them. If needed, this phase can also empower the customer to have a detailed study on the commercials for the items and its energy foot print in the actual processing action. Such study enables the customer to carry out any correction to the given schematics or selection of items, so as to achieve intended end result.



Digital Layout as per Plant Work Flow Schematic

At all previous stages, the Work Flow Design, Layout Schematics, mostly reflected outline view. Although being very informative, still it lack a sense of reality for a customer. At JR Consultancy we pride ourselves in offering customer a true sense of reality by generating a 3 dimensional virtual shopfloor which includes any and every items which would exist in the final built.

At this stage the customer starts to have a clear view on processing infrastructure he has selected and a real time visuals as it would be on its completion. This further empowers the customer to assess the entire set of items placed in a shopfloor and carry out placement analysis so as to reconfirm the true effectivenss of the work flow sequence. Further the placement analysis also gives clear understanding of the floor space utilization and physical relativity between items and its surrounding.

Structural Format

Structural format translates to the infrastructures external design. External design of any structure is a reflection of its status in relation to its surroundings and the activity for which it has been built. For the Plastic processing infrastructure this design need to reflect the entities / business Standards, Strength, Sophistication, Market Position and Growth direction.

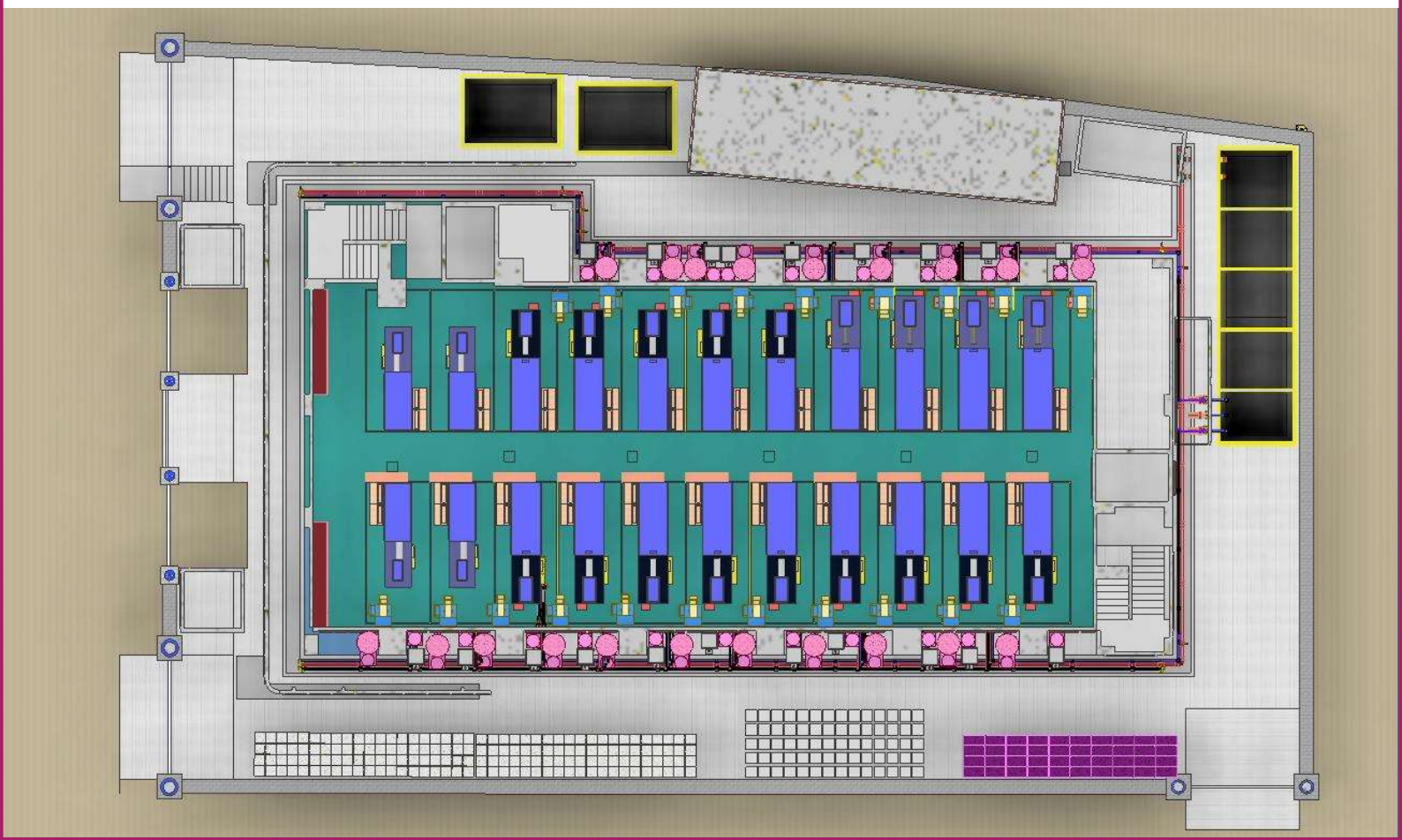
At JR Consultancy we explore latest design concept which can accommodate all expectations of the customer and converge the same with the utility requirement for the given project. Structural design do effect the internal floor plan so extreme effort has to be deployed to make sure utility and aesthetic of the project has a seamless conversion in all its form.

This stage is more or less dominated by the customer as it needs to reflect his preference and vision. As a consultant we carry the responsibility to offer some unique choices and options which is truly inclined to the customer needs, at the same time, can reflect the most innovative and one of a kind design, offering true justice to the project.

Virtual Infrastructure

This phase reflects the conversion of all previous stages and creation of something, which is unique in all its form. Virtual Infrastructure, by its definition, means a existence of Infrastructure in a virtual form. To be precise, in this phase, the entire infrastructure is build in a sequential manner, exactly as it would have been built in the real world. Starting with a bare landscape, the infrastructure construct is initiated with the Land Preparation. Land preparation reflects the initial ground work done to support the structure and its utilities like, Structure Foundation, Sewage access, Electrical Access, etc. This task is carried out resembling the ground reality so as to mimic all foreseeable eventuality's in the said process. Once the Land area is prepped, the structural build is executed sequentially by layers, as it would be done in real time. This is then followed with the structural finish and finally the plot enclosure detailing. At this stage the entire virtual entity would reflect a real structural entity.

The final stage to this process would be, adding all items to the establishment, which includes, utilities, Machinery's, Equipment's, Accessories, etc. The final result would be a virtual Infrastructure, which resembles a real entity, right down to the smallest details. This virtual entity is now available for the customer to inspect, evaluate, explore and assess in a fashion and manner as if he is doing so in the real world. Even at this stage, the customer carry the option to alter, adjust or enhance any aspect of the complete infrastructure, without having to be concerned or restrained. This unique capability of building a virtual entity, without even having to touch the soil, gives the customer a exceptional tool to guarantee a successful build and this, exactly as he had visioned.



Virtual Infrastructure Validation

- Starts with validation of statutory requests based on local Construction law.
- Structural Validation so as to confirm compliance with respect to structural engineering
- Validation of connectivity for supporting infrastructure and facility
- Validation of safety compliance external structure
- Validation of all utilities functionality
- Validation of Work Flow Sequence
- Machinery, Supporting Equipment and Accessories placement validation
- Validation of Total Energy Foot Print.
- Infrastructure Management Provision validation
- Internal & External Supervision system validation
- Workforce Safety provision Validation
- Remote Plant Management Provision Validation
- Infrastructure Commercials Final Validation.

Infra Commercials

The sole purpose of Business are for Profits and Growth. So business commercials are the core to any venture. Infrastructure Cost is one of the biggest capital input for the said project. Adding to this, the design concept of the infrastructure influences certain daily recurring cost, which the infrastructure absorbs. These 2 specific cost are the one which truly effects the business for its life and supersedes all capital input for the Project. Having a clear understanding of this Commercials at the very start of any new venture takes upmost priority. This gives a prospective investor opportunity to assess the projects viability, even before he spends a single rupee in the said. Many a times, people initiates the build without any clear view on the net resource needed to build and then sustain the infrastructure, resulting in it becoming the biggest liability in the project. This lack of understanding would be considered one of the few reasons, few of projects fail. Further, a clear understanding on the commercials involved in the Infrastructure, helps the customer to have a very practical and holistic approach to the entire process.

We at **JR consultancy** make it a point to educate the customer on the venture commercials in totality and make them aware of all factors effecting the said process.

Final Execution

Having a transparent and well defined plan, the customer can now comfortably executed the project. At this stage the customer is empowered with knowledge, information, understanding and capability to visualize the entire built, simultaneously implementing the construct process based on his comfort.

JR consultancy