WALONI GROUP

WE WORK TO MAKE IT WORTH

WALONI PREFAB SYSTEM PVT. LTD.

YOUR TRUSTED PARTNER IN PRE-ENGINEERED
BUILDINGS & STRUCTURAL STEEL SOLUTIONS

BUILDING SMARTER. INSPIRING PROGRESS. SUSTAINING THE FUTURE.

ACHIEVEMENTS AT A GLANCE

400+

PROJECTS COMPLETED

Delivering excellence across industrial, commercial, and infrastructure sectors with precision and innovation.

25+

RUNNING PROJECTS

Ongoing ventures showcasing our commitment to quality, speed, and sustainable construction excellence.

DIRECTOR'S MESSAGE

Sumit Agrawal

Yash Soni

Our journey is driven by vision, innovation, and a steadfast commitment to building a better tomorrow. We continue to set new benchmarks in quality, technology, and sustainable growth - creating structures that serve a purpose, inspire people, and respect the planet.

Building the Future, the Waloni Way

At Waloni Group, we are redefining the future of construction with our innovative pre-Engineered Building (PEB) solutions that blend engineering precision,quality craftsmanship, and sustainable practices. Guided by a vision to buildsmarter, stronger, and greener, we believe construction is not just about creatingstructures but shaping environments that inspire progress and stand the test of time.

Our unwavering commitment to innovation, technology, and customersatisfaction drives everything we do. Each project undertaken by Waloni Groupreflects our passion for excellence and our dedication to delivering valuebeyond expectations. With decades of combined expertise, we offer customizedPEB solutions that ensure speed, strength, and cost-effectiveness, withoutcompromising aesthetics or performance.

We take pride in our team of skilled engineers, architects, and professionalswho bring creativity and precision to every project. Their relentless pursuit ofperfection, backed by advanced design tools and modern production facilities,allows us to meet diverse client needs across industrial, commercial, andinstitutional sectors.

Sustainability remains at the core of our philosophy. Our environmentallyresponsible construction processes and energy-efficient designs contributeto a better future for both business and society. By embracing innovationand adhering to the highest quality standards, we continue to strengthen ourposition as a trusted name in the PEB industry.

We extend our gratitude to our clients, partners, and associates for theircontinued trust and collaboration. Together, let us build a future defined byintegrity, innovation, and excellence - the enduring hallmarks of Waloni Group.

WALONI GROUP
WE WORK TO MAKE IT WORTH

WALONI PREFAB SYSTEM PVT. LTD.

Building Smarter. Delivering Faster. Engineering Excellence.

WALONI GROUP is specialized in design, manufacturing and installation services of Pre-Engineered Buildings and Structural Steel projects. The foundation of the company has been laid by professionals having rich experiences in business development, project management, project execution and customer relationship.

The necessity to meet the growing demand of Pre-Engineered Buildings in India and to provide complete end to end solution to clients for their building requirements has been the main reason for emergence of WALONI GROUP.

Our aim is not merely to supply the buildings to customers but to put in use our expertise at each and every stage of project right from the initial stage i.e. concept and planning, designing, detailing, manufacturing and execution of projects to provide customer an economical and a superfast solution for his requirement.

TRANSFORM SPACES WITH INNOVATIVE PEB STRUCTURES

OUR VISION

To be recognized as the most reliable and innovative solution provider in the field of Pre-Engineered Buildings, Structural Steel, and Civil Construction projects. At Waloni Group, our vision is to redefine industry standards through engineering excellence, sustainable practices, and unwavering commitment to quality. We strive to build lasting partnerships by delivering superior design, precision manufacturing, and on-time execution that exceed client expectations. Our goal is to contribute to India's infrastructure growth by creating smart, durable, and future-ready structures — ensuring that every Waloni project stands as a symbol of trust, innovation, and long-term value.

OUR MISSION

Our mission is to deliver complete end-to-end solutions for our clients' steel building requirements through innovation, precision, and integrity. We aim to provide seamless services across design, manufacturing, and installation, ensuring efficiency, economy, and excellence at every stage. At Waloni Group, customer satisfaction is our highest priority - we strive to enrich every client's experience with quality craftsmanship, timely delivery, and unwavering professional commitment.

OUR VALUES

At Waloni Group, we are guided by four core values - Safety, Timeliness,Quality, and Cost-effectiveness. We ensure secure work environments, deliver projects on schedule, maintain uncompromised standards, and optimize costs to provide clients with efficient, reliable, and value-driven construction solutions.

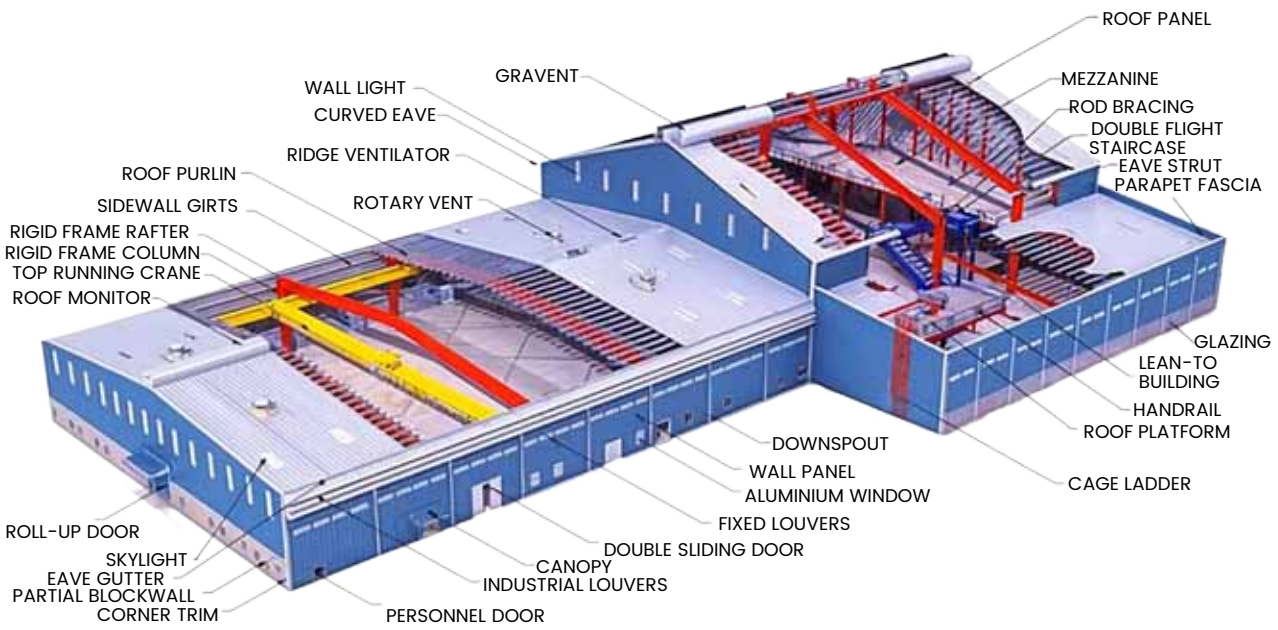
ABOUT - PRE-ENGINEERED BUILDINGS – THE FUTURE OF SMART CONSTRUCTION

A Pre-Engineered Building (PEB) is a modern construction solution where structural components are pre-designed, factory-fabricated, and assembled on-site for faster and more efficient project completion. Built primarily from high-strength steel, PEBs combine innovation, durability, and design flexibility, offering a smarter alternative to traditional building methods.

Each element — from columns and rafters to roof and wall panels — is precisely engineered for perfect fit and performance. Since most fabrication occurs in a controlled environment, quality remains consistent while on-site time and labour costs are drastically reduced. The result is a structure that is strong, cost-effective, and ready in a fraction of conventional construction time.

PEBs are ideal for a wide range of applications such as industrial sheds, warehouses, commercial complexes, showrooms, and logistics hubs. Their modular design allows for future expansion, energy efficiency, and minimal maintenance.

At Waloni Group, we believe PEBs represent the future of construction — combining speed, strength, and sustainability. Through advanced engineering and precision manufacturing, we deliver customized PEB solutions that help clients build faster, operate sooner, and achieve long-term reliability in every project.



OUR SIGNIFICANCE

Industrial Turnkey Projects:

Complete solutions from design to installation, ensuring timely delivery of industrial facilities.

Residential and Commercial Buildings:

Customized, high-quality construction for homes and commercial spaces.

Heavy Fabrication & PEB Structures: Cost-effective, robust steel structures and heavy fabrication for diverse applications.

Cold Storages & Warehouses:

Scalable, energy-efficient spaces for storage and distribution needs.

Schools, Hotels, Motels:

Safe, functional buildings for education and hospitality industries.

Power Plants & Factories:

Specialized construction for efficient, sustainable industrial plants and factories.

Villas, Cottages & Farmhouses:

Premium residential construction with personalized designs.

Roads & Highways:

Durable, well-planned infrastructure for transportation projects.

KEY ADVANTAGES OF PEBS

Faster Construction

Pre-manufactured components speed up assembly, reducing project timelines and allowing quicker business operations.

Design Flexibility

Customizable to meet various needs, from industrial to commercial and residential applications.

Cost-Effective

Standardized parts and efficient production minimize material waste and labor costs.

Energy Efficiency

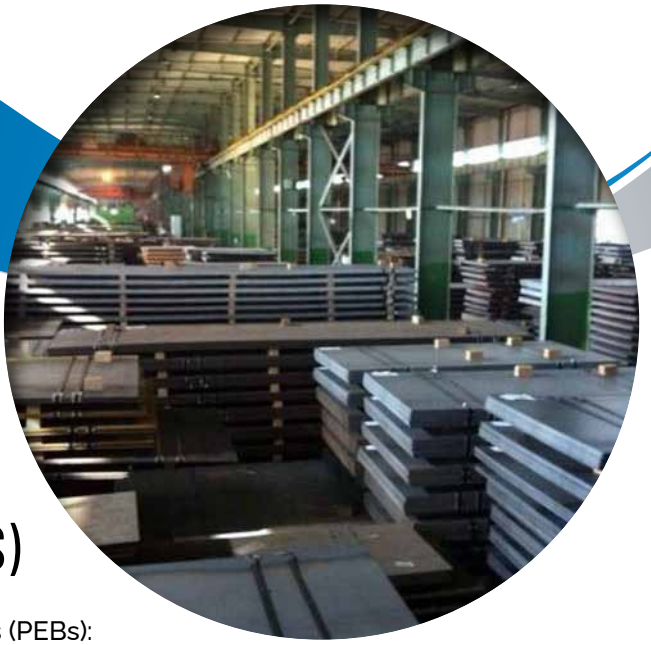
Insulating materials reduce heat loss, improve energy efficiency, lower costs, and enhance overall building performance.

Durability

Made of high-quality steel, PEBs are built to withstand weather, corrosion, and wear, ensuring longevity with low maintenance.

Versatility

Suitable for diverse applications, including warehouses, offices, retail stores, and more.



RAW MATERIALS USED IN PRE-ENGINEERED BUILDINGS (PEBS)

The list of raw materials used in Pre-Engineered Buildings (PEBs):

- **Steel:** Primary material for the structure, including columns, beams, and frames.
- **Profile Sheets:** For roofing, wall cladding, and other components, providing structural support and weather protection.
- **Galvanized Sheets:** For additional roofing and cladding requirements.
- **Paint and Coatings:** Protective coatings for steel components.
- **Fasteners:** Bolts, nuts, and screws for assembly.
- **Insulation Materials:** For thermal and acoustic insulation.
- **Doors and Windows:** Standard or customized components.
- **Sealants and Adhesives:** For weather-tightening and bonding.
- **Turbo Fans:** For ventilation and airflow management.
- **Louvers:** For natural ventilation and airflow control.
- **Skylights:** For natural lighting and energy efficiency.
- **Flashings:** For weather-tightening and protecting joints and edges.
- **Gutter:** For water management and drainage.
- **Trims:** For finishing and covering edges, joints, and gaps.
- **Brace Rods:** For structural bracing and stability.
- **Pipe Bracing:** For supporting and stabilizing pipes and ducts.
- **Cage Ladder:** For safe access and maintenance.
- **Sag Rods:** For supporting and stabilizing purlins and girts.

These materials are often pre-fabricated and engineered to precise specifications, ensuring efficient assembly and high-quality construction. Waloni Group, being a PEB specialist, likely sources high-quality materials to ensure durability and performance.

PEB OVERTAKE POINTS

Pre-Engineered Steel Buildings (PEBs) have emerged as one of the most efficient, modern, and cost-effective solutions in the steel construction industry. With their precision design and factory-fabricated components, PEBs have revolutionized the Indian civil construction landscape by offering faster completion times, reduced material wastage, and enhanced structural performance.

A defining feature of PEBs is the use of tapered members for columns and rafters, which optimize material usage and improve load distribution. The web-tapered design enhances overall efficiency, resulting in lighter yet stronger structures compared to conventional buildings.

Although the Indian codes have certain limitations regarding the design of tapered members, the industry widely adopts methodologies aligned with American design standards, ensuring higher flexibility and safety.

This study provides an in-depth review of existing literature on PEB concepts, design methodologies, and relevant code provisions. It highlights how PEB technology continues to outperform traditional construction methods, making it the preferred choice for industrial, commercial, and infrastructural applications across India.

ACCELERATING INDIA'S GROWTH WITH PRE-ENGINEERED BUILDINGS (PEBS)

In today's fast-paced era, India's development depends on speed, innovation, and efficiency and the construction industry stands at the heart of this progress. As cities expand and industries evolve, there is a growing need for rapid, reliable, and cost-effective construction solutions across both RCC and steel structures.

Rapid Progress

Pre-Engineered Buildings (PEBs) enable swift project completion through factory-fabricated components and quick on-site assembly—saving crucial time in large-scale developments.

Cost Efficiency

Optimized design and material usage make PEBs significantly more economical than conventional methods, ensuring higher returns on investment.

Smart Structural Design

Unlike Conventional Steel Buildings (CSBs) that rely on heavy trusses, PEBs use column and rafter systems, achieving strength with reduced weight.

Building the Future

With speed, sustainability, and precision engineering, PEBs represent the future of modern infrastructure-empowering India's journey toward rapid, resilient, and responsible growth.

STRUCTURAL ADVANTAGES AND DESIGN APPROACH

Pre-Engineered Buildings (PEBs) stand apart from Conventional Steel Buildings (CSBs) due to their innovative structural design and global engineering standards.

Use of Web-Tapered Members

PEBs utilize web-tapered members—steel components with varying web depths designed in specific proportions. This feature reduces excess material usage, optimizes load distribution, and enhances the overall structural efficiency—something not found in CSBs.

Global Design Standards

While Indian Standard IS 800:2007 lacks provisions for web-tapered member design, PEB manufacturers often adopt American codes such as AISC-ASD 9 and AISC 2010, which use the Allowable Stress Design (ASD) method. Typically, load calculations follow Indian codes, but design and detailing follow American standards, ensuring safety and precision.

Precision and Prefabrication

PEBs are pre-planned, factory-fabricated structures requiring only on-site connections. Every component—from columns to bolts—is meticulously detailed through shop drawings, resulting in economical, accurate, and time-efficient construction with advanced bracing systems for stability.

PRECISION FABRICATION AND DESIGN EFFICIENCY IN PRE-ENGINEERED BUILDINGS (PEBS)

Pre-Engineered Buildings (PEBs) are designed and fabricated with high precision and pre-planned detailing, making them one of the most efficient construction systems in modern engineering.

Precision Fabrication

All fabrication is executed strictly as per detailed shop drawings, ensuring accuracy in every component. PEB manufacturers strive for zero material wastage, achieving maximum efficiency through exact cutting, welding, and assembly processes carried out in controlled factory environments.

Cold-Formed Secondary Members

PEBs incorporate cold-formed members as secondary components, offering higher strength-to-weight ratios and reduced overall structural weight. Their design follows IS 801:1975, ensuring reliability and performance.

Rapid Erection and Pre-Planning

Unlike Conventional Steel Buildings (CSBs), PEBs require no on-site fabrication—only assembly of pre-made connections. Every bolt, joint, and path of execution (fabrication > transportation > erection) is pre-planned, reducing project timelines drastically.

Smart Structural Optimization

PEBs use tapered members that vary in depth based on bending moments—thicker at points of higher stress and lighter elsewhere. This moment-based design results in lighter, more economical, and efficient structures.

PEB Frame and Bending Moment Relation:

The PEB frame efficiently distributes bending moments across tapered sections, minimizing excess material usage while maintaining superior strength and stability.

PEB Frame and Respective area Bending Moment

COMPONENTS OF PRE-ENGINEERED BUILDINGS (PEBS)

A Pre-Engineered Building (PEB) is a combination of carefully designed and fabricated structural elements that together form a strong, lightweight, and efficient system. The structure is broadly divided into two main categories: Primary Members and Secondary Members, along with several auxiliary components.

Primary Members

These form the main structural framework of the building and include columns and rafters.

- Usually hot-rolled or built-up tapered sections, designed to carry major loads such as dead load, live load, and wind pressure.
- Their tapered geometry optimizes material use, reducing weight while maintaining strength and stability.

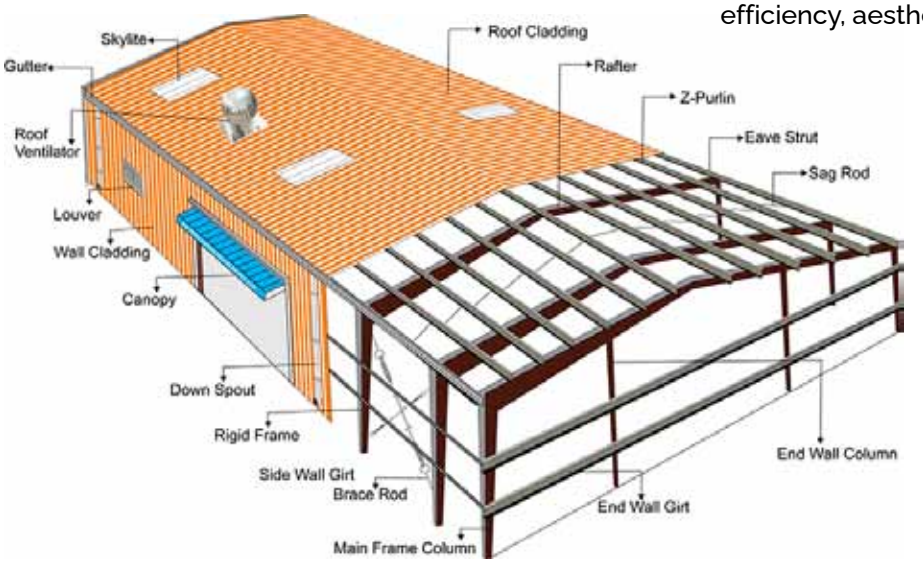
Secondary Members

These include purlins, girts, and eave struts, functioning as roofing and wall support elements

- Generally made of cold-formed sections, they provide excellent strength-to-weight ratio.
- They transfer loads from sheeting to primary members while adding rigidity.

Other Components

PEBs also comprise sheeting, trims, gutters, louvers, skylights, and other accessories—mostly cold-rolled and lightweight, ensuring structural efficiency, aesthetics, and ease of installation.



Components of PEB
Following are some main parts of the PEB

KEY STRUCTURAL COMPONENTS OF PRE-ENGINEERED BUILDINGS (PEBS)

A Pre-Engineered Building is composed of several precisely designed components that together form a lightweight, strong, and efficient structure. Each element plays a vital role in ensuring durability, performance, and ease of construction.

Column

- These are hot-rolled I-sections with flanges and web plates welded together.
- Minimum yield strength: 345 N/mm^2.
- Serve as the main vertical load-bearing members of the structure.

Rafter

- Horizontal beam elements that support roof sheets and purlins.
- Similar to columns but may vary in size depending on design requirements.
- Provide structural stability to the roof frame.

Girts

- Similar to purlins but positioned horizontally along columns to support wall sheeting.
- Offer strength with minimal weight, maintaining wall stability.

Purlin

- Cold-formed Z or C sections placed transversely over rafters.
- Minimum yield strength: 340 N/mm^2.
- Distribute roof loads and connect roofing sheets to rafters.

Roofing and Sheeting

- Cold-rolled steel sheets (0.5 mm thick) coated with aluminum/zinc alloy.
- Provide durable protection and weather resistance for roofs and walls.

Trims and Gutters

- Light-gauge metal components used for finishing and water management.
- Trims cover cut steel edges, while gutters ensure smooth drainage from the roof surface.

PARAMETERS OF PRE-ENGINEERED BUILDINGS (PEBS)

The performance and efficiency of a Pre-Engineered Building (PEB) depend greatly on several key parameters that define its geometry, design, and functionality. These parameters are carefully considered during the planning and design stages to ensure structural integrity, economy, and user satisfaction

Geometrical Parameters

These parameters define the shape, layout, and dimensions of the PEB structure. They are customized according to the owner's requirements, land availability, and building function.

- **Length of Building :**

  Refers to the longitudinal external dimension of the structure. It is determined by the operational and spatial needs of the owner.

- **Span of Building :**

  Represents the width of the structure and is influenced by site constraints, land size, and building configuration.

- **Bay Spacing :**

  The center-to-center distance between adjacent frames. It depends on building length and load intensity. Typical bay spacings are 6 m, 7.5 m, or 9 m.

- **Set Back :**

  The distance between the front face of the building and the plot boundary, as per local building by-laws. It ensures safety, ventilation, and accessibility.

- **Floor Finish Level (FFL) :**

  The height of the finished floor surface, usually kept low unless flood protection or functional needs require elevation.

- **Clear Height :**

  The vertical distance from FFL to the lowest point of the rafter. It depends on the operational requirements—especially for buildings using cranes or tall equipment.

- **Eave Height :**

  The distance from the base plate to the eave strut. Typically ranges between 3 m to 8 m, depending on clear height and load considerations.

- **Slope of Roof :**

  The angle of the roof surface, determined by aesthetic, functional, and wind load factors. While owners may specify preferences, designers ensure it meets structural efficiency and climatic suitability.

DESIGNING PARAMETERS OF PRE-ENGINEERED BUILDINGS (PEBS)

Designing parameters are crucial in ensuring the strength, stability, and economy of a Pre-Engineered Building (PEB). These parameters govern the selection of materials, section sizes, and overall structural performance under various load conditions. Each parameter must be precisely defined to achieve an efficient and safe design.

- **Loads**

  All possible loads acting on the structure must be considered, including dead load, live load, wind load, and seismic load, along with appropriate load combinations as per relevant design codes (IS 875, IS 1893, etc.). Proper load assessment ensures structural safety and serviceability.

- **Section Dimensions**

  The depth of web, flange width, and thickness of members must be optimized for strength and lightness. Sections should be designed for minimum weight while satisfying all load requirements. This also applies to secondary members, which must be designed carefully for wind load resistance.

- **Effective Length**

  The effective length of each member depends on its end conditions (fixed, pinned, or semi-rigid). It influences the buckling behavior and load-carrying capacity of the structure. Accurate estimation ensures stability and prevents failure.

- **Bracing**

  Bracing systems are vital for maintaining lateral stability under wind or seismic forces. Properly designed cross bracings or portal bracings prevent sway and buckling, ensuring the overall rigidity and durability of the PEB frame.

DETAILING PARAMETERS OF PRE-ENGINEERED BUILDINGS (PEBS)

The detailing stage is one of the most crucial phases in Pre-Engineered Building (PEB) design and execution. It involves preparing precise drawings and connection details for every structural component to ensure accuracy, ease of assembly, and long-term performance. Detailing parameters convert the design concept into a fully executable fabrication and erection plan, eliminating on-site confusion and material wastage.

- **Anchor Bolt Plan**

  This plan provides the exact positioning and dimensions of anchor bolts, ensuring perfect alignment between the steel structure and its foundation.

- **Roof Framing and Sheeting Plan**

  Shows the layout of rafters, purlins, and roof sheets, indicating spacing, overlaps, and fastening points for proper load distribution.

- **Ridge Frame Cross Section**

  Depicts the intersection of roof slopes at the ridge, showing details of joints, bracing, and waterproofing arrangements.

- **Endwall Framing and Sheeting Elevation**

  Illustrates the vertical framing arrangement on the building's end walls, including door openings and cladding positions.

- Sidewall Framing and Sheeting Elevation

  Displays the horizontal layout of purlins, girts, and wall sheets, ensuring uniform alignment and structural strength.

OUR CLIENTS & COMPLETED PROJECT

- Mayfair on Sea by Mayfair Group, Morjim, Goa
- Marino Food Products Pvt Ltd, Raipur Chhattisgarh
- Mahakal Body Works Private Limited, Bana, Raipur, Chhattisgarh
- R Logistics Park, Guma, Raipur, Chhattisgarh
- Maa Jagdamba Parboiling, Dondekala, Raipur, Chhattisgarh
- Kusum Smelters Private Limited, Chhattisgarh
- Avinash Developers Pvt Ltd, Raipur, Chhattisgarh
- Rama Group, Raipur, Chhattisgarh
- Central Cement Industries, Sarora, Chhattisgarh

OUR CLIENTS & COMPLETED PROJECT

- Greensphere Impex Pvt Ltd, Raipur, Chhattisgarh
- Seeta Sponge and Power Private Limited, Raipur
- Koshal Ceramics, Jharsugda, Orissa.
- Sunscent aromatics pvt ltd, Jota, Chhattisgarh
- Farmico Bio Fuel Tech Pvt Ltd, Raipur Chhattisgarh
- Global Metal and Alloys, Pirda, Chhattisgarh
- Suyash Biofuels Industries Private Limited, Raipur, Chhattisgarh
- Medlife Hospital, Raipur, Chhattisgarh

RUNNING PROJECTS

- 9M India Limited, Raipur, Chhattisgarh
- Dadu Logistics, Raipur, Chhattisgarh
- Shail Food Product Private Ltd, Raipur, Chattisgarh
- Khetan Extrusions, Jharkhand
- A V Infratech Structural System
- V K Agro and Foods, Sakti, Chhattisgarh
- Dalmia Foods , Sakti, Chhattisgarh

BUILD FASTER, STRONGER & SMARTER WITH WALONI GROUP!

WALONI PREFAB SYSTEM PVT. LTD.

FACTORY :
Near Bhairav Baba Mandir,
Beside Earthmet Resources Pvt. Ltd.,
Kapsada, Dharsiwa, Raipur (C.G.)- 493211

REGISTERED OFFICE :
H. No. 396, Phase - II, Sapphire Greens,
Ama Seoni, Raipur (C.G.) 492001

Sumit Agrawal - 7066418088
Yash Soni - 9993372411
Gaurav Soni - 9039191154

walonigroup@gmail.com

WALONI GROUP
Scan This to Visit our website