



[www.winfra.co.in](http://www.winfra.co.in)

# Trusted Partner

For grain storage silos and water storage tanks



**Winfra Buildtech Pvt Ltd**

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## About Us

Winfra Buildtech Pvt. Ltd. specializes in innovative modular technology for Storage solutions tailored for the Water, Agriculture, Renewable Energy, and Civil Infrastructure sectors.

With a strong legacy of innovation and execution excellence, Winfra offers a comprehensive portfolio that includes:

All products are entirely designed, manufactured, and assembled in-house at our expansive 1,50,000 sq. ft. manufacturing facility in Faridabad. This state-of-the-art plant is equipped with advanced machinery and automated systems for sheet processing, precision fabrication, and structural assembly. Each stage of the production process is governed by stringent quality assurance protocols to ensure exceptional performance, durability, and reliability. Our fully integrated setup enables us to maintain end-to-end control over quality, delivery timelines, and customization allowing us to deliver high-quality modular solutions precisely tailored to our clients' needs.

Supported by a dedicated team of over 250+ professionals, including engineers, project managers, QA specialists, and on-site experts, Winfra has successfully executed 3,500+ modular installations across India, serving both public and private sector projects.



Business  
Ethics



Customer  
Centricity



Pride



Quality



Respect



Teamwork

## Vision

Our vision is to become a leading global player across all our business verticals, driven by a steadfast commitment to our core values

## Values

At the core of everything we do are the six Winfra values that guide our decisions, actions, and organizational culture. We take great pride in living by these principles and expect the same dedication from everyone who works with or represents Winfra.



Water



Oil & Gas



Agriculture



Renewable



Factories &  
Warehouses



Organic



F & B



Healthcare



## Product Portfolio

Winfra delivers cutting-edge storage solution technologies designed for longevity, modular deployment, and high-volume applications across Water, Grain, Renewable Energy, and Civil Infrastructure sectors



### Zincalume® Tanks

Multi-purpose, modular tanks for water, industrial liquids, and food-grade applications offering 30+ years of service life with FDA-approved liners.



### Grain Storage Silos

Zincalume® / GI -based silos with superior thermal reflectivity and condition monitoring engineered for tropical and coastal conditions.



### Glass-Fused Steel Tanks (GFS Tanks)

Vitrified enamel-coated steel tanks ideal for sewage, effluent, leachate, and other aggressive liquids chemically inert and long-lasting.



### Precast OHT

Precast OHT Structures are fast, durable, and cost-effective solutions for water storage, offering quick installation, high strength, and long service life.



### Renewable EPC Projects

Turnkey EPC solutions for renewable energy projects delivering sustainable and efficient power systems.

## Silo



Winfra Buildtech is a trusted name in the manufacturing of high-quality Zincalume/ GI grain storage silos, serving agricultural, commercial, and industrial needs.

Located in Faridabad, North India, our modern production facility leverages cutting-edge technology to deliver durable, corrosion-resistant silos that ensure long-term grain protection and minimal post-harvest loss.

With a dedicated team of experts in silo design, fabrication, and installation, Winfra offers reliable and efficient storage solutions that meet the demands of today's grain handling and storage systems.



To be the trusted name in grain storage and handling solutions for all who prioritize quality, efficiency, and long-term value.



To uphold engineering excellence, timely delivery, and unmatched customer service at every stage of the project.



- Quality First
- Innovation
- Customer
- Focus
- Integrity
- Sustainability
- Teamwork



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## Design and Norms

When designing steel silos for grain storage, the following five factors play a crucial role

### 1. Type of Stored Material (Grain Characteristics)

- Bulk density, moisture content, flowability, angle of repose, and abrasiveness of the grain determine the structural design, wall thickness, and hopper angle.
- Different grains (wheat, rice, corn, etc.) exert varying pressures and may require specific aeration or fumigation systems.

### 2. Storage Capacity and Dimensions

- Required volume, height-to-diameter ratio, and storage duration affect the silo's structural load and foundation design.
- Larger silos need more robust structural reinforcement due to increased vertical and lateral pressure from stored material.

### 3. Environmental and Site Conditions

- Wind loads, seismic activity, temperature variations, humidity, and corrosion risk at the installation site influence material choice and structural safety margins.

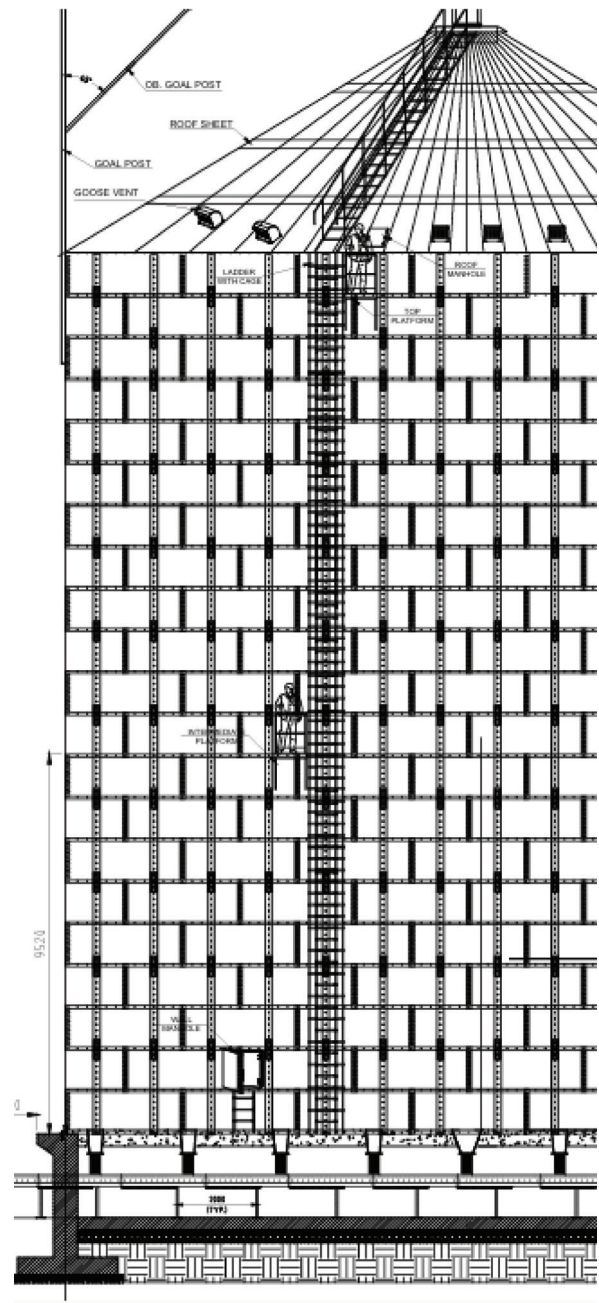
### 4. Discharge and Handling Requirements

- Whether the silo uses gravity discharge, mechanical extraction, or pneumatic systems impacts the design of the hopper, outlet valves, and conveyor interfaces.
- Consideration of flow patterns (mass flow vs. funnel flow) ensures smooth unloading and prevents material bridging or clogging.

### 5. Safety and Compliance Standards

- Design must adhere to local and international standards (e.g., IS, Eurocode, ASME) for structural integrity, worker safety, and fire protection.

Provisions for aeration systems, access ladders, inspection hatches, and safety railings also affect overall silo design.



## Highly Skilled & Qualified Workforce

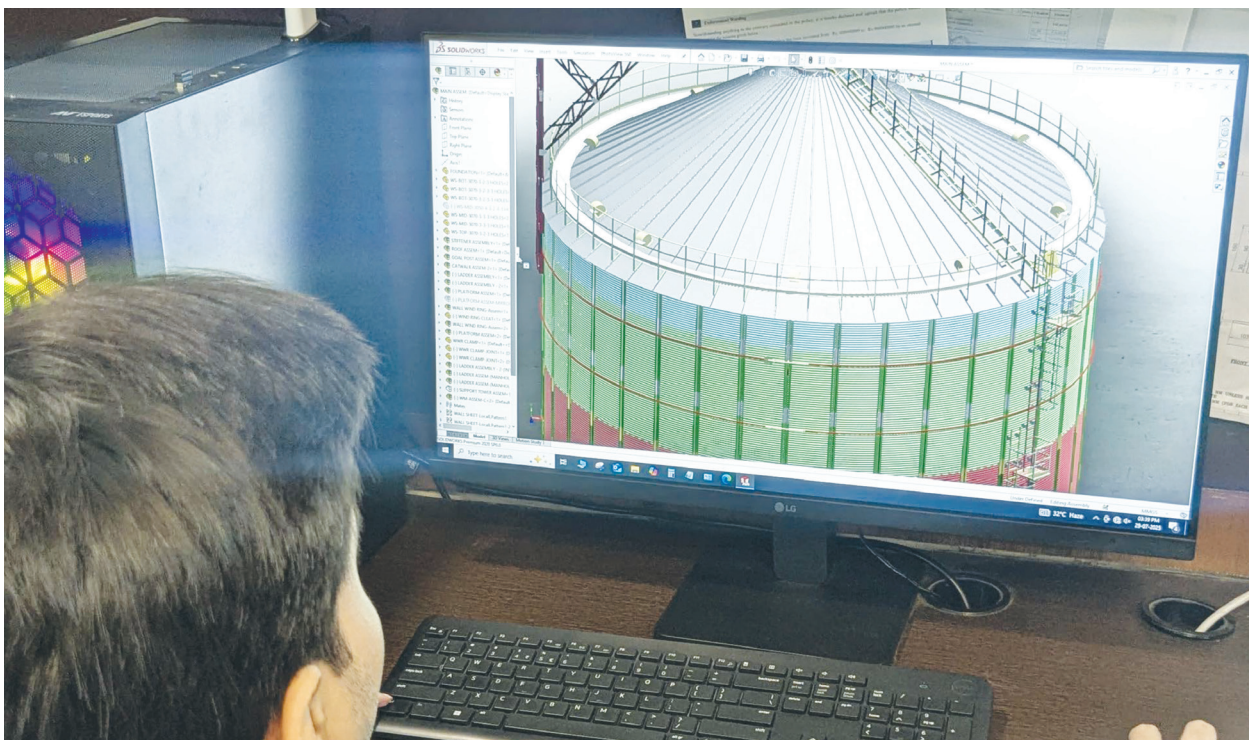
At Winfra, our Technical Department utilizes advanced tools such as AutoCAD, 3D modeling software, and specialized load calculation programs to ensure precision in both project planning and component design. We are dedicated to continuous improvement, regularly enhancing our designs and manufacturing processes to optimize cost efficiency for our clients while maintaining a strong focus on environmental sustainability and structural integrity.

Winfra is ISO 9001 certified for the design, manufacturing, and installation of grain storage silos, ensuring adherence to the highest quality standards at every stage of the project.

Winfra has achieved ISO 45001 certification for Occupational Health and Safety, ensuring that all activities including welding and site work are conducted under strict safety standards. This certification reflects our commitment to protecting our workforce and maintaining a safe, compliant working environment across all operations.



Winfra's in-house testing facility enables precise analysis of raw materials and finished products, reinforced by rigorous quality control and end-to-end traceability across the manufacturing process.





## Application with Features

### Grain Storage Silos Offered by Winfra

- Coffee Silo
- Soya Silo
- Wheat Silo
- Rice Silo
- Paddy Silo
- Maize Silo
- Corn Silo
- Cotton seeds Silos
- Barley Silo
- Malt Silo
- Seeds Silo

### Features of Winfra silos

- High-Strength Construction
- Modular Design
- Corrosion Resistance
- Precision Manufacturing
- Advanced Sealing Systems
- Efficient Grain Handling
- Compliance with International Standards
- Long Lifespan and Low Maintenance
- Safe and Easy Assembly



## Flat Bottom Silo

Winfra offers comprehensive grain storage solutions tailored to meet the diverse needs of both commercial and agricultural sectors. Our extensive range of Flat Bottom Silos is available in diameters ranging from 3.64 meters to 32.74 meters, with volumetric storage capacities exceeding 12500 m<sup>3</sup>. Detailed specifications are available upon request.

The silos feature a standard 30-degree roof pitch, allowing for maximum storage capacity, even for grains with high angles of repose. The integrity and quality of stored materials are preserved through the integration of a well-engineered aeration system, equipped with high-efficiency fans and an accurate temperature monitoring system.

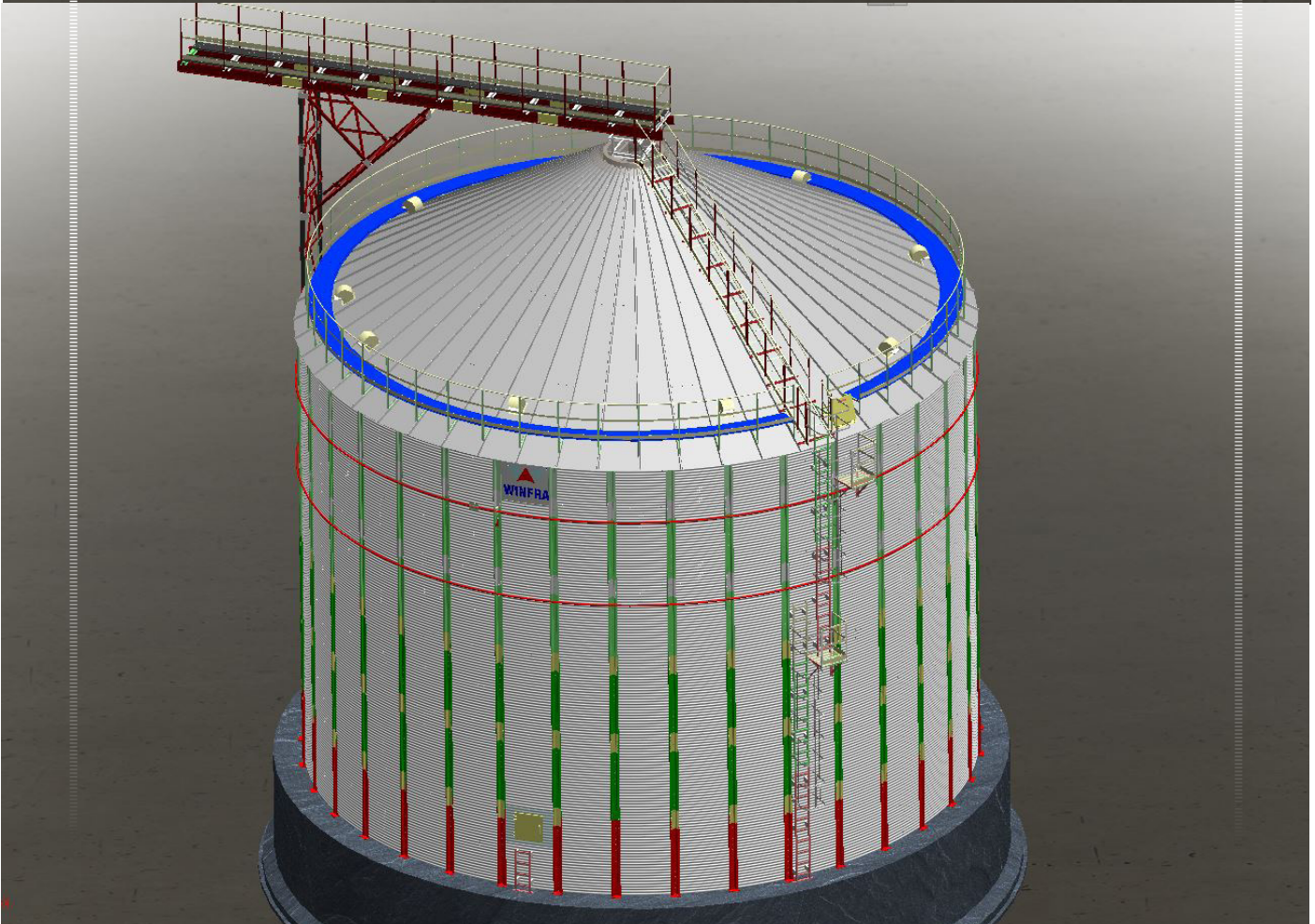
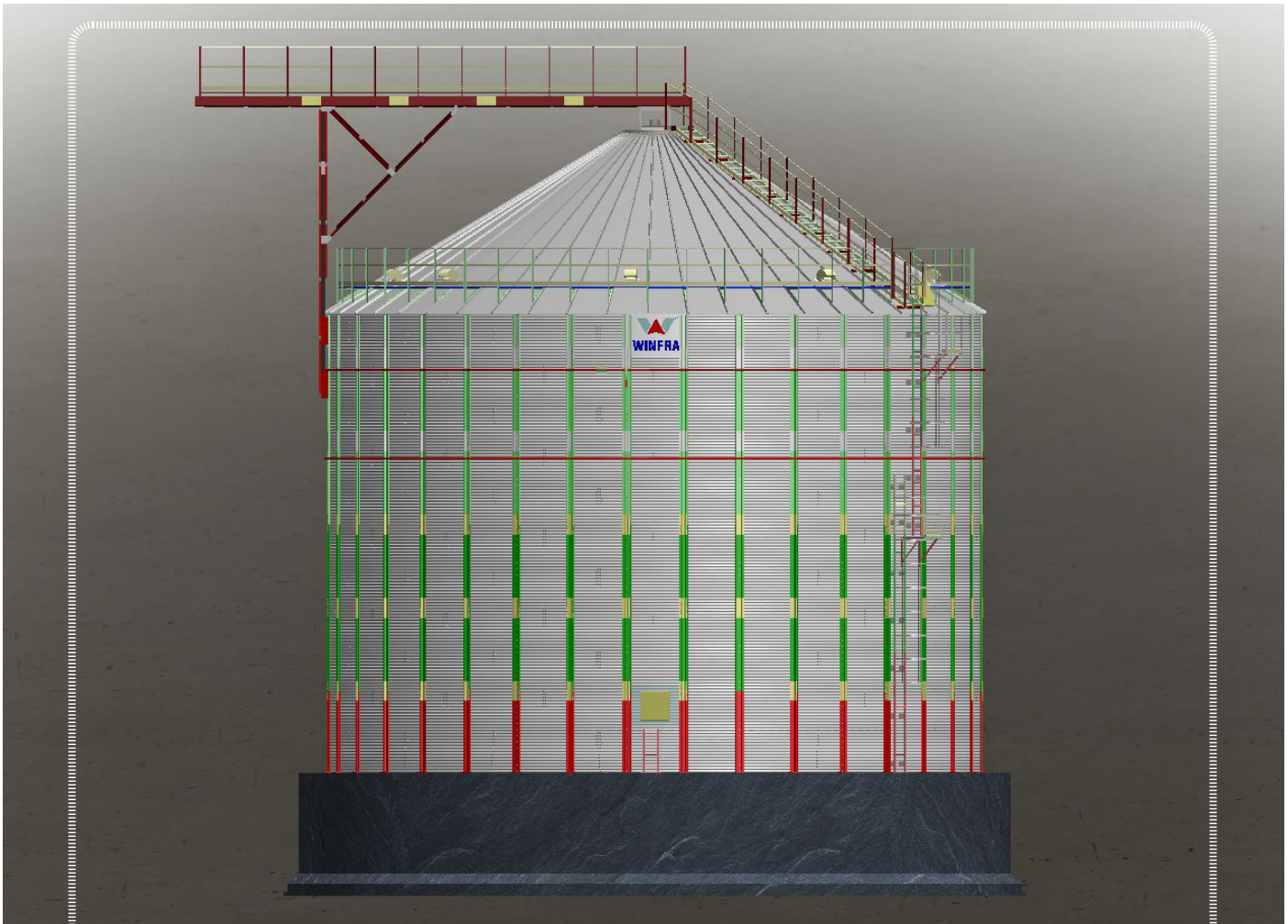
These silos are ideal for all free-flowing grains and cereals, including wheat, maize, barley, rapeseed, soybeans, rice, sunflower, canola, and even wood pellets.

A comprehensive selection of accessories is available to enhance functionality and operational efficiency, including but not limited to:

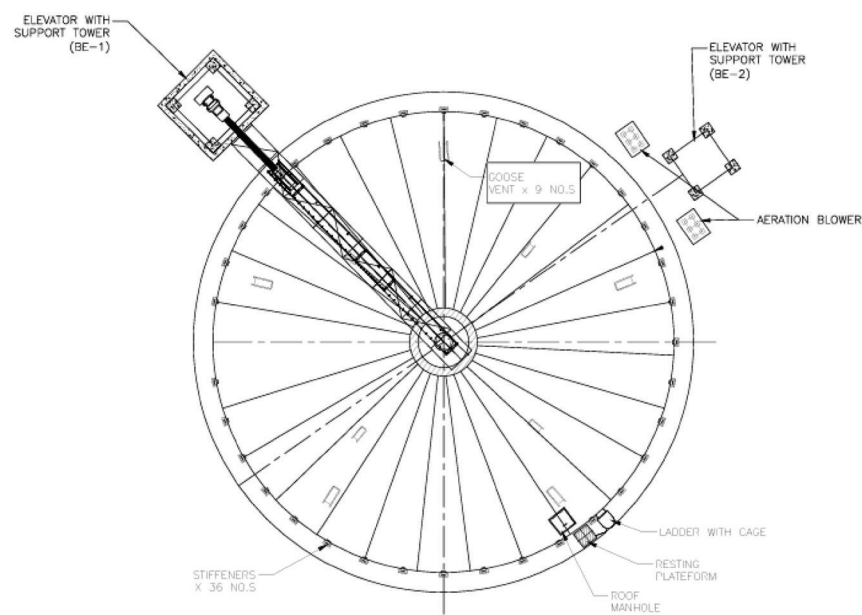
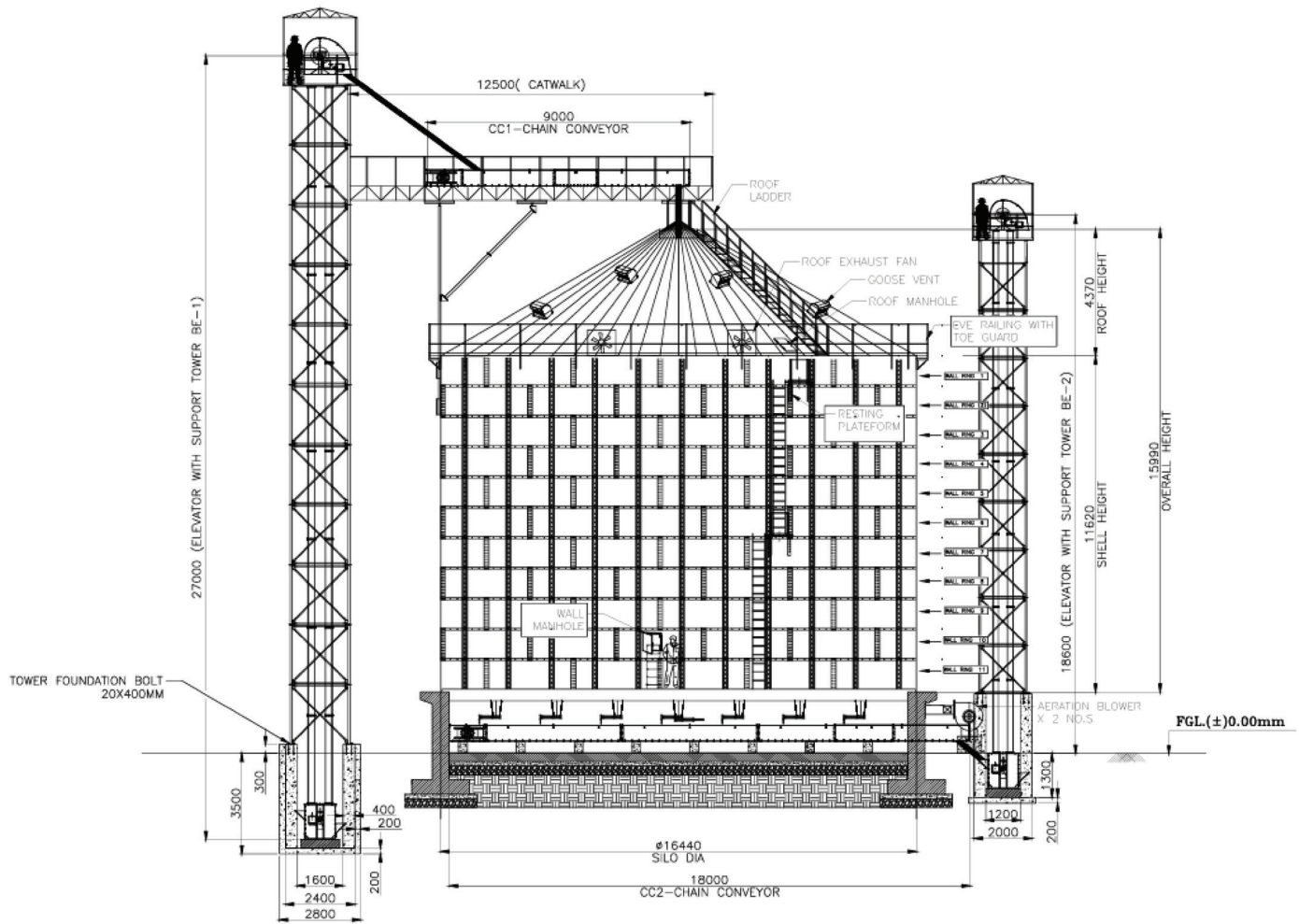
- Aeration
- temperature sensing systems
- Sweep augers
- Level sensors
- Moisture sensors
- Roof vents
- Catwalks in various widths
- Vertical ladders with safety cages
- Spiral stairways
- Roof ladders
- Stairs with double handrails
- Wind rings
- Service platforms
- Grain ladders
- Support towers
- Ventilated roof upgrade
- Manhole
- Conveyor systems
- Bucket elevators







## Drawing Flat Bottom





## Hopper Bottom Silo

Winfra's Hopper Bottom Silos offer fast installation, versatility, and a low cost per ton. Designed for frequent unloading cycles, they ensure complete discharge with minimal residue, reducing the need for mechanical unloading.

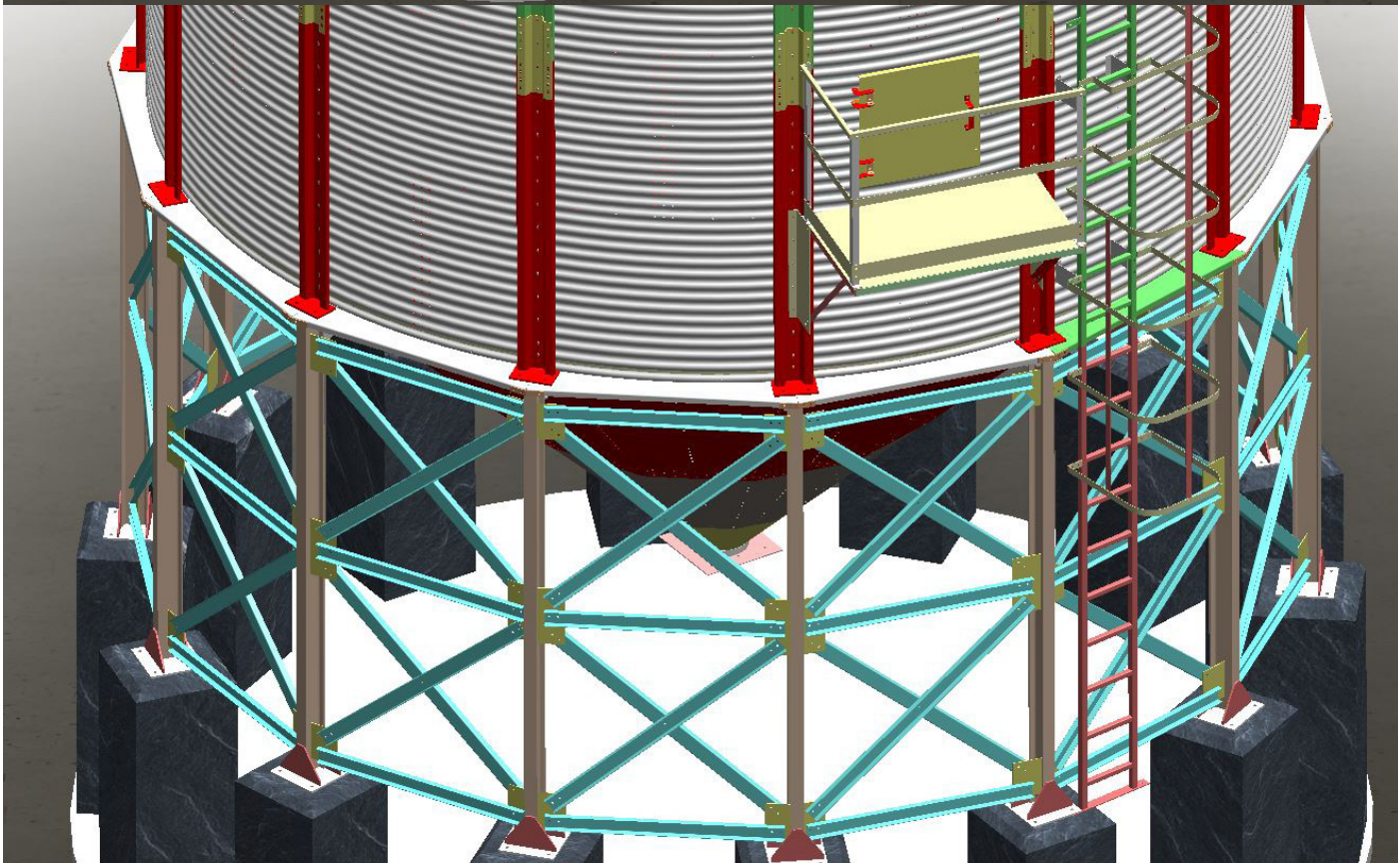
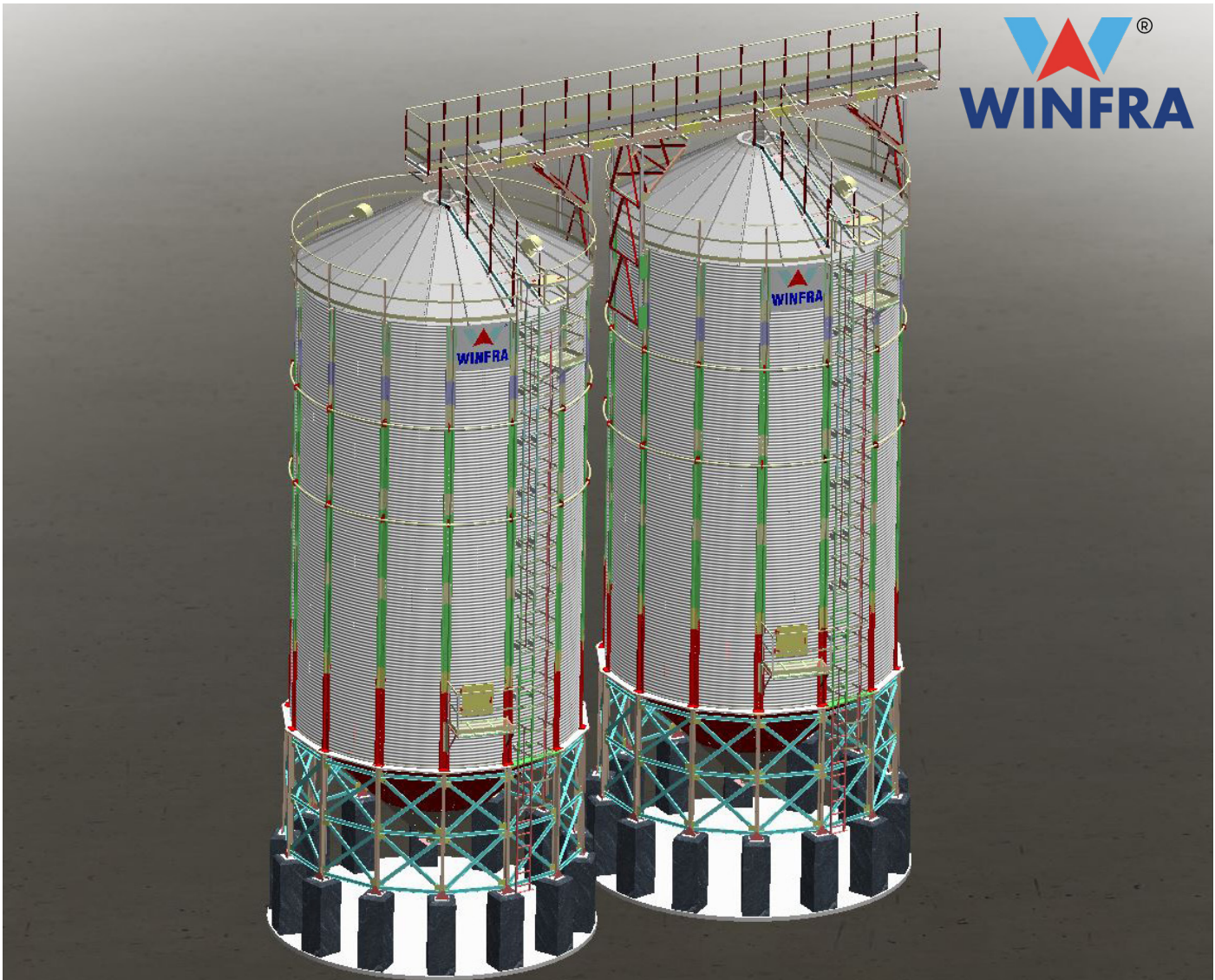
Available in 45° and 60° hopper angles, these silos handle a wide range of materials, including wet grains. Sizes range from 3.6 m to 14.55 m in diameter, with capacities up to 5,342 m<sup>3</sup> (45°) and 1,218 m<sup>3</sup> (60°).

Constructed with hot-dip galvanized sheets, stiffeners, and support steel, they feature mushroom-headed bolts for a clean interior. Smooth wall hoppers are available for non-free-flowing materials, and truck loading supports can be provided on request.

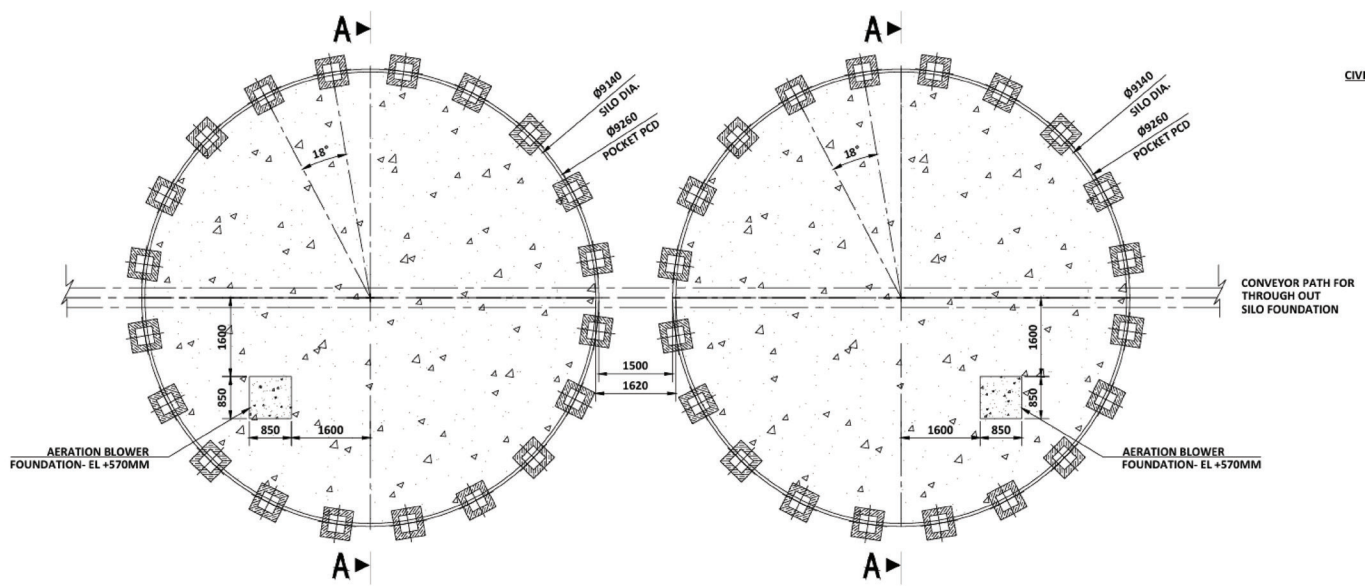
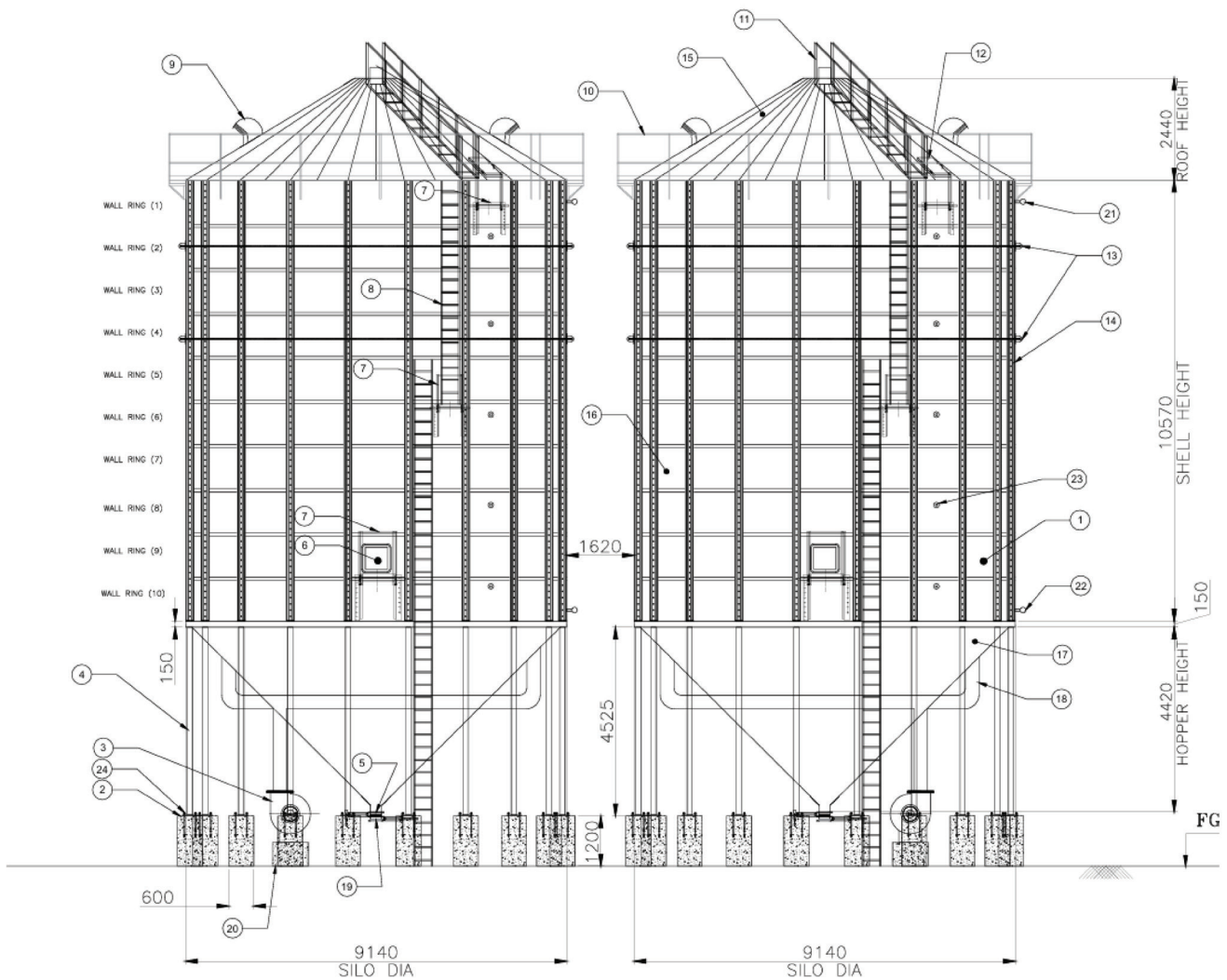
- A complete range of accessories can be
- offered, such as:
- Aeration system
- Temperature monitoring system
- Level sensors
- Moisture sensors
- Gravity discharge outlet with slide gates
- Sweep augers
- Pressure relief valves
- Roof vents
- Access ladders (vertical and spiral)
- Manholes (roof and sidewall)
- Wind rings
- Sidewall stiffeners
- Lightning protection system
- Control panels and automation systems











PLAN AT FOUNDATION LEVEL

PLAN AT FOUNDATION LEVEL

## Silo Roof

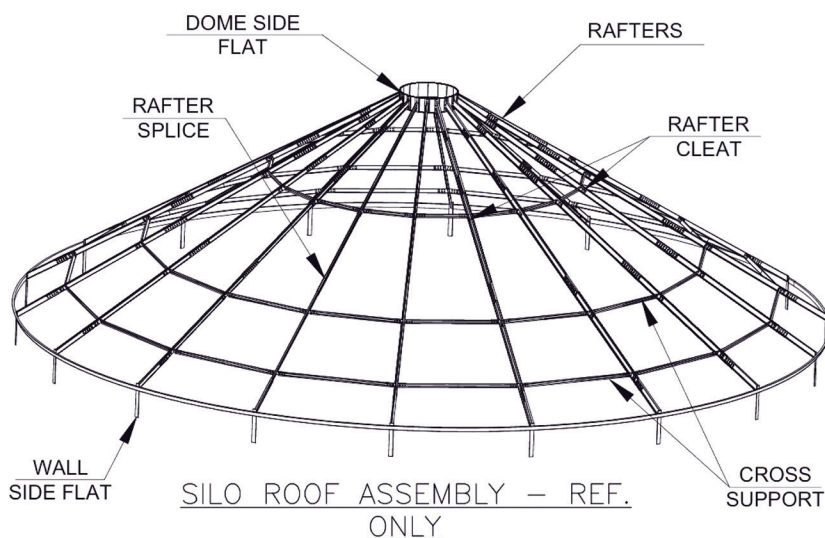
Winfra silos feature a durable roof system with a standard 30-degree pitch, maximizing storage capacity even for grains with high angles of repose.

- Roof segments, made from high-tensile ribbed steel, are precision-formed and punched on automated lines, creating a strong modular structure.
- Each roof includes a standard inspection/access manhole.

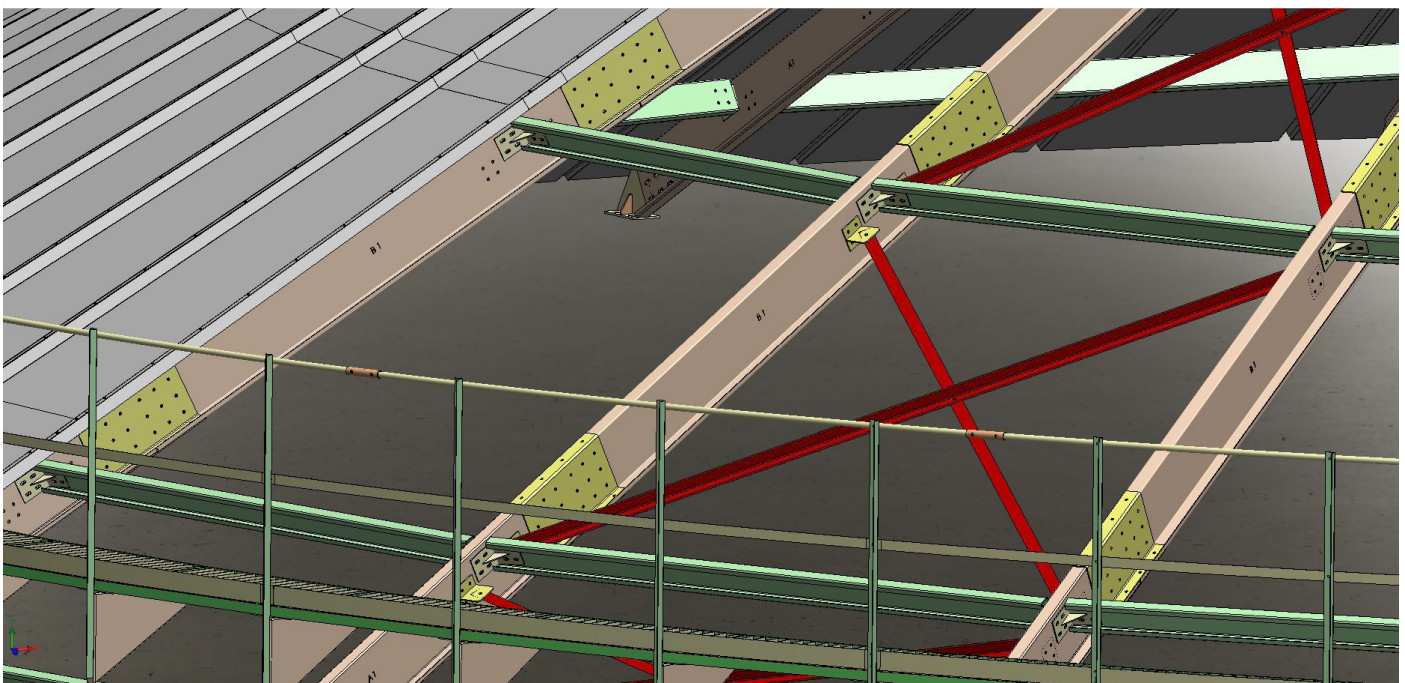
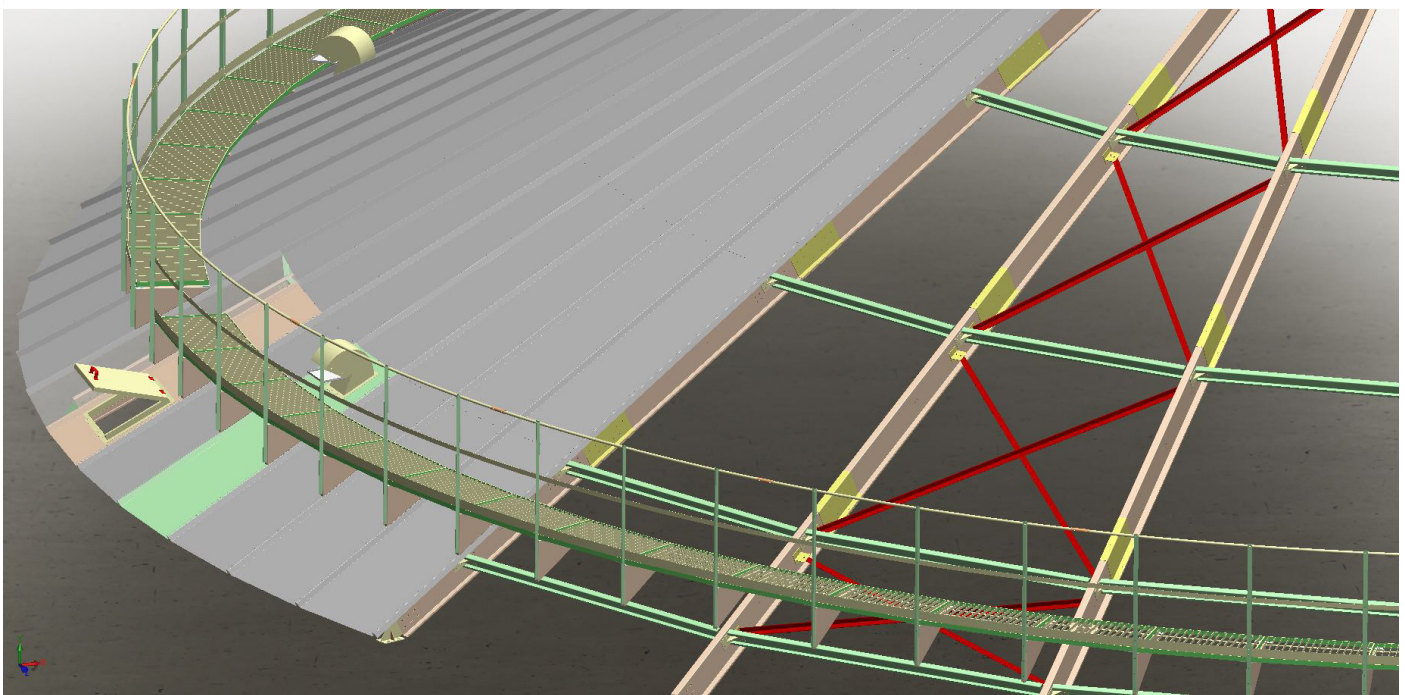
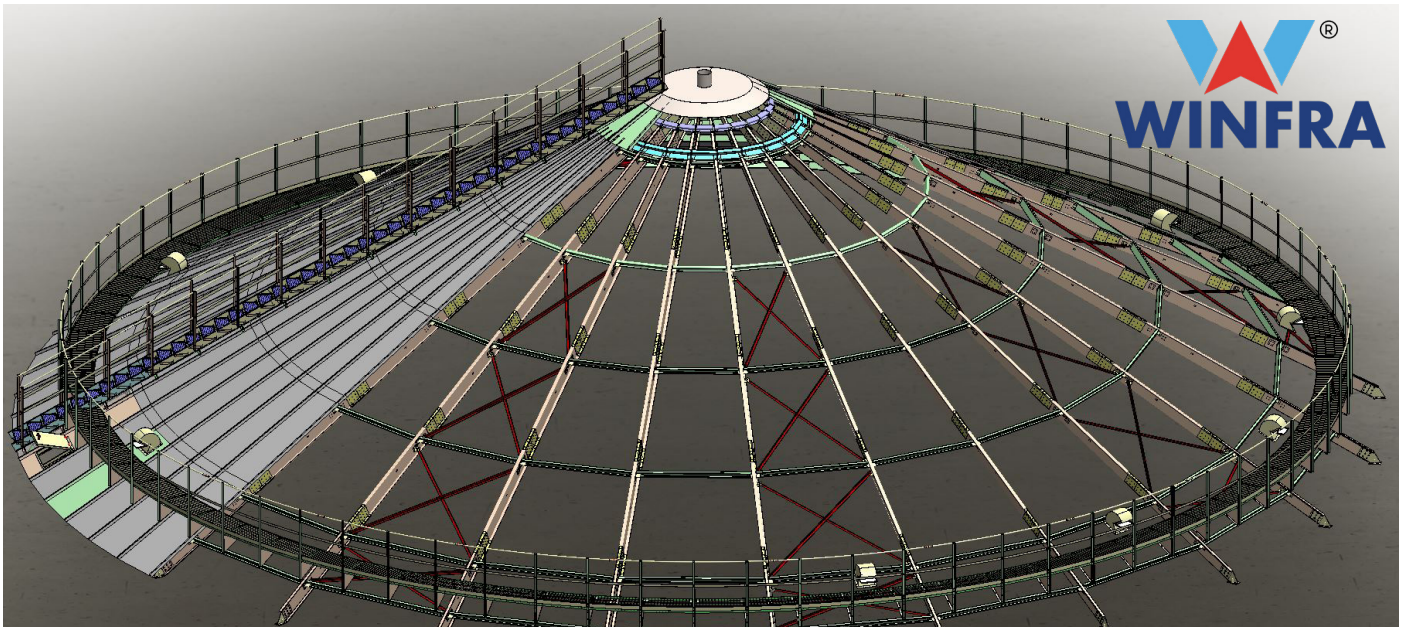
The roof uses galvanized “Z” OR “C” beams and A-frame bracing for stability during erection and use.

The center cap and inner ring assembly, available on FP 11 to FP 36, provides a strong load-bearing surface to support catwalks and accessories without on-site fabrication.

Winfra offers various roof vent options low-profile, curved, and powered vents designed to fit over pre-punched apertures with a pre-formed lip and gasket, ensuring a weather-tight seal.









## Stiffeners

**Material:** High-tensile galvanized steel with corrosion-resistant coating (typically 600 g/m<sup>2</sup> zinc)

**Thickness:** Matches sidewall requirements; typically ranges from 1.5 mm to 8.0 mm based on silo size and load

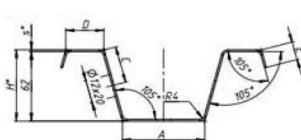
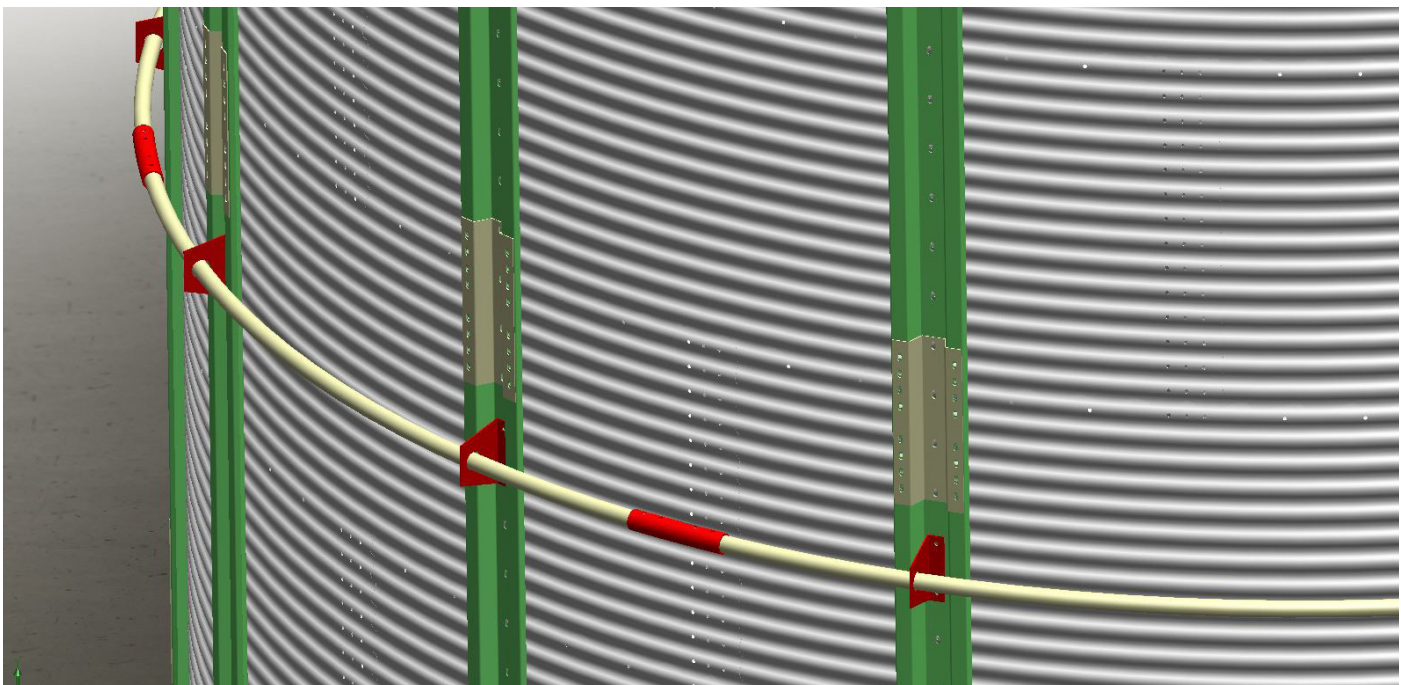
**Design:** Profiled for high load-bearing capacity with optimized cross-sectional area

**Connections:** Bolted splice joints with heavy-duty bolts (e.g., grade 8.8) for secure assembly

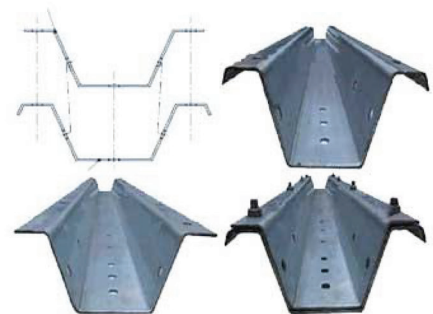
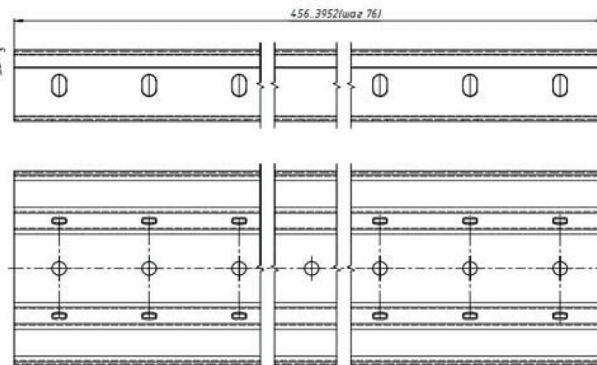
**Load Transfer:** Engineered to transfer vertical loads from silo walls to base/compression ring

**Corrosion Protection:** Hot-dip galvanized finish for durability in harsh environmental conditions

**Customization:** Designed to accommodate wind rings, catwalk support, and roof structures



| S   | A  | B   | H    | C    | D  | E  |
|-----|----|-----|------|------|----|----|
| 1.5 | 72 | 266 | 63.5 | 19   | 26 | 13 |
| 2.0 | 72 | 266 | 64   | 19   | 30 | 13 |
| 2.5 | 72 | 266 | 64.5 | 19   | 30 | 15 |
| 3.0 | 72 | 266 | 65   | 19   | 30 | 15 |
| 3.5 | 72 | 260 | 65.5 | 19   | 30 | 15 |
| 4.0 | 72 | 260 | 66   | 19   | 30 | 15 |
| 3.0 | 65 | 266 | 65   | 22   | 30 | 16 |
| 3.5 | 65 | 260 | 65.5 | 22.5 | 28 | 16 |





## Cat Walk

Catwalks are essential structural components in silo installations, providing safe and stable access for personnel and supporting conveying equipment between silos.

Constructed from high-strength galvanized steel for durability and corrosion resistance.

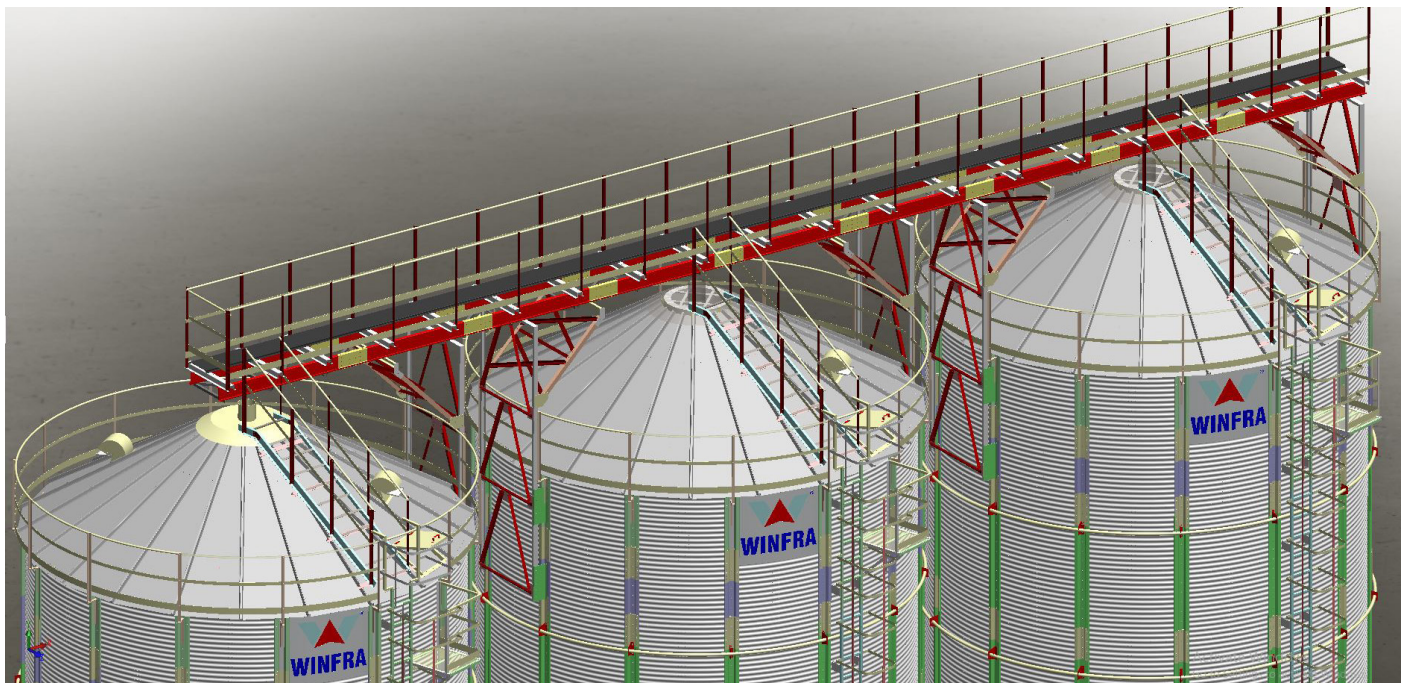
Designed in various widths and load capacities to support equipment such as belt conveyors, chain conveyors, or bucket elevators.

Includes anti-slip walkways, handrails, and toe boards for operator safety in compliance with OSHA/EN safety standards.

Catwalks are securely mounted to roof structures or support towers, allowing safe inspection, maintenance, and operation.

Modular design enables easy assembly and customization to meet specific plant layouts and operational needs.

Available with safety cages, access ladders, and service platforms for enhanced accessibility.



## Wind Rings

Curved galvanized tubular wind rings with flanged joints are securely fastened to the sidewall stiffeners, forming a continuous circumferential reinforcement system around the silo. These wind rings are engineered to enhance structural stability under high wind speeds and other elevated load conditions, and are available as required based on site-specific design criteria.



## Nut & Bolt

### Specifications:

- **Material:** High-tensile steel, hot-dip galvanized
- **Grade:** Typically 8.8 / 10.9 (ISO standard)
- **Types:** Hex bolts, mushroom-head bolts (for smooth interiors)
- **Sizes:** Commonly M10–M16
- **Washers:** Rubber-coated for weatherproof sealing
- **VStandards:** ISO 898-1, DIN compliant

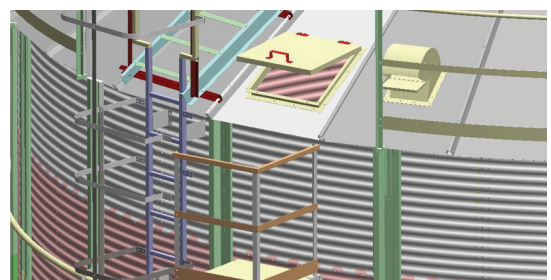


### Roles:

- Fasten sidewall sheets, stiffeners, roofs, and accessories
- Ensure structural integrity under load
- Enable modular assembly and maintenance
- Maintain airtight, watertight seals with sealing washers
- Resist corrosion for long-term durability

## Roof Manhole

Each silo roof includes a centrally located manhole for safe inspection and maintenance access. The weather-sealed cover is designed for easy operation and long-lasting protection against environmental elements.



## Sidewall Access

All Winfra Silos are equipped with a robust, hinged sidewall access door located at the second ring level as a standard feature. This single-ring door assembly includes a reinforced inner panel that opens smoothly, allowing unobstructed access to the silo interior.

The structural frame of the access door is precision-welded and hot-dip galvanized post-fabrication, ensuring enhanced durability and long-term corrosion resistance.







जल शक्ति मंत्रालय  
MINISTRY OF  
JAL SHAKTI



National Dairy  
Development Board



BIHAR URBAN  
INFRASTRUCTURE  
DEVELOPMENT  
CORPORATION



adani



■ WATER ■ ENVIRONMENT ■ ENERGY

& many more..



# THANK YOU

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