PAITHAN MEGA FOOD PARK

AT VILLAGE,DHANGAON NO.53,55,56&62/2
WAHEGAON,TQ,PAITHAN,DIST.AURANGABAD.

TENDER DOCUMENT

FOR

PRE ENGINEERED WORKS IN MSME SHEDS

Submitted to :

PAITHANMEGAFOOD PARK
C/o NATH SEEDS Pvt.Ltd,NATH RD,
PAITHAN AURANGABAD RD,AURANGABAD

Prepared by :
(PMC)

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PAITHAN MEGA FOOD PARK

VILLAGE,DHANGAON NO.53,55,56&62/2
WAHEGAON,TQ,PAITHAN,DIST.AURANGABAD.

TECHNICAL SPECIFICATIONS

FOR

PRE ENGINEERED METALLIC BUILDING WORKS IN MSME SHED

Submitted to :

PAITHANMEGAFOOD PARK
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1. INTRODUCTION AND OVERVIEW

The scope of work involves the design, supply, fabrication and installation of Pre-engineered Metal Building, with cladding system for the following:-

The contractor will need to be working in close coordination with the other agencies and will need to comply to all the rules and the norms as per OWNER's standards including all the authorities requirements in a timely manner to meet the project programme.

The following Clauses shall be read in conjunction with the drawings and Design Brief and other relevant documents to ascertain the total works. These documents are listed in a section of this document.

Contractors who are not familiar with the site conditions are required to visit site prior to submitting their bid. No consideration shall be given to contractors who are unaware of the workplace conditions.

2. GENERAL INCLUSIONS

The works in this scope comprises, but is not limited to, the provision of design, fabrication, installations, supervision, labour, materials (offsite storage until such time as required to suit the schedule which may change from time to time &/or as advised by ABHYUDAY/SEMAC/SPV transport (including material handling), any relevant fees or taxes, plant and equipment necessary for erections at site to complete this scope of work as indicated on the drawings and in accordance with the Design Brief , contract conditions, relevant BIS codes provisions and to the satisfaction of ABHYUDAY/SEMAC/SPV

Bidder shall provide/perform following, Experienced competent Engineers, Supervisors & site team shall be posted at site until satisfactory completion of the works.

Cleaning all elements after installation/construction as required by the Specification & again at final completion.

a) The contractor is to be clearing, removing & separating their own debris/rubbish from the site.
b) Necessary signs, barricades &/or protection of works areas as per prevailing safety standard & rules as well as (as requested by **ABHYUDAY/SEMAC/SPV**) related to their scope of works.
c) Necessary provision for drinking and portable water and sanitation arrangements for their own labourers/ staff and for the site work purpose shall be arranged by the contractor at his own cost and arrangements.
d) Contractor to make his own arrangements for distribution of Power from a single point of source given by **ABHYUDAY/SEMAC/SPV** free of cost for site erection work only and contractor must ensure water- proof, lockable power boards (to OWNER/ CONSULTANT

standards) & cables (water-proof &/or buried safely).

e) Allowance for inspections, proto-types, samples, mock-ups, testing data submissions, shop drawings, as-built, all as nominated &/or as requested by OWNER/ CONSULTANT.

f) All penetrations to be sealed with Fibre Reinforced Polymer (FRP) (if required) approved by ABHYUDAY/SEMAC/SPV

g) For ceiling penetrations, the contractor is to mark the location & size. Cutting will be by the ceiling contractor. Allow for all trimming required to the perimeter of roof and wall penetrations.

h) Dewatering of the work area 24 hours per day including maintaining safe and clean access for all trades to the work area following wet weather is to be carried out by the contractor to the satisfaction of OWNER prior to the commencement of productive works.

i) Any lifting machines and lifting method statement need be reviewed and approved by **ABHYUDAY/SEMAC/SPV** prior to load, unload and should be accompanied by fitness certificate by competent authority.

j) All electrical sockets need to be weatherproofed.

k) The contractor is to allow providing and completing all works at all heights using a scissor lift, cranes or any other safe method areas as per prevailing safety standard & reles & GCC as well as, requested by **ABHYUDAY/SEMAC/SPV** related to their scope of works, Contractor has obligation to get the work plan/ erection methodology approved by **ABHYUDAY/SEMAC/ SPV** well in advance before start of work.

3. INSTRUCTIONS TO BIDDERS

3.1. DESCRIPTION OF WORK:

The work to include the design, supply, fabrication, testing and erection of the following buildings and as further defined by the Architectural Drawings and the Design Brief documents issued.

3.1.1 MSME SHED :

Single storey steel structure building as shown in drawing having, but not limited to,gable frame structure, structural steel portal frames etc as per the drawing, whichever is the cost effective solution by the PEMB contractor, including but not limited to holding down bolts, Ridge height of 10.12 m with the roof slope of 1:10, portal frames, beams, jack beams ,girders, bracings, purlins and cladding runners, Single skin

metallic roof, Single skin metallic cladding sheets, Gravent system, Turbo Ventilator, Roof extractors flashing, provision for bargeboard, translucent polycarbonate sheets in roofing and Cladding, all accessories including, Profiled sheet gutters, rainwater Headers and down take pipes sealaris with necessary supports, clamps, high strength bolt (UNBRAKO / TVS make) etc., safety railings at roof level, roof maintenance access ladder, painting as per specifications , framed opening and supports for Louvers, doors, windows, rolling shutters etc., within the cladding areas, Finishing neatly around all framed openings and cutouts after completion of installation of Doors /Rolling Shutters / Louvers with mesh/ service units etc using flashing and bargeboard sheets, all service related cutouts, openings and provision for fixing of various units attach to PEMB structures.

Single skin metallic roofing, Single skin metallic cladding sheets, provision for bargeboard, Flashing all accessories including, FRP gutters, Header, rainwater down take pipes with necessary supports, clamps, high strength bolt (UNBRAKO / TVS make) etc.,

Details given above are not limited, however the contractor to provide all necessary design drawing/ items for successful completion / commissioning of the project to the satisfaction of **ABHYUDAY/SEMAC/ SPV** The shed shall be Leak proof , water proof structure.

3.2. CONTRACT WORKS

3.2.1 Design

The scope of this package includes the design of the following components or elements:

a) PEMB Design shall be based on the loads as indicated in drawings and Structural design brief.

b) The Main structural steel frame including column, beam and bracing, roof purlins and wall grits, holding down bolts, roof metal sheeting and wall metal cladding, gutter and down take pipes, and all accessories etc, for all mentioned Building.

c) All other associated items such as steel ladders, steel supports, etc. required to meet the requirements of design, specification, codes and regulations.

d) The contractor shall prepare and submit all the necessary detailed design and drawing, hard copies and soft copy along with the calculation details as per the software package as mentioned in the design brief, for Design Verification Process, Which will be scrutinized and rechecked by Design CONSULTANT. **3D analysis shall be carried out. Design calculation and drawings to be approved**

by ABHYUDAY/SEMAC/ SPV.

e) The contractors shall prepare and submit additional copies of drawings and details as required by ABHYUDAY/SEMAC/SPV for obtaining relevant approvals/certification for construction and subsequent operations, within their own work scope.

f) The Contractors design responsibilities shall provide for all nominated elements as defined in the drawings, design brief and the scope detailed in this tender document.

g) Design means drawings, calculations, diagrams, illustrations, schedules, performance charts, brochures or other data that may be required by ABHYUDAY/SEMAC/SPV

h) The Contractor shall review all Drawings Prior to submission. By this review the Contractor confirms the determination and verification of all field dimensions, field construction criteria, materials, catalogue numbers and similar data and that the Contractor has checked and co-ordinated each Shop Drawing with other disciplines like Architectural, Electrical, Mechanical, HVAC, equipment etc.

i) Shop Drawings shall show all materials, methods of construction, erection diagrams, connections, attachments or anchorages and other details necessary to complete the work.

j) The review by ABHYUDAY/SEMAC/SPV is for the sole purpose of determining conformance with the general design concept. The review shall not mean that ABHYUDAY/SEMAC/SPV approve the design detail inherent in the shop drawings. The responsibility for the design shall remain with the Contractor submitting the drawings and such review shall not relieve the Contractor of responsibility for errors and omissions in the drawings or of responsibility from meeting all requirements of the Contract Documents.

k) The Contractor is responsible for submitting shop drawings as per Programmed and take prior approval before fabrication from design verification ABHYUDAY/SEMAC/SPV.

l) The drawing shall have the stamp or seal and signature by ABHYUDAY/SEMAC/SPV before it is being taken for fabrication work at the workshop.

m) The contractor should check the requirements of other contractors of the Project before preparing shop drawings, like the holes, cutouts, openings for other trades, the structure for roller shutter doors/sliding doors, windows/ventilators, the supporting system for all the various services, etc.

n) Mile stones intermediate for monitoring of work progress are to be submitted by vendor as per **ABHYUDAY/SEMAC/ SPV** requirement:

3.2.2 .STRUCTURAL STEEL FABRICATION AND ERECTIONS:

The scope of this package includes the supply and erection of the following elements with details

3.2.2.1 Structural Steel System

The steel material shall be used as described in the design brief for various elements of the work.

a) Supply and fabricate primary structural steel framing including column, base plate, rafters, bracings, Purlins, rafter and grits etc to complete the entire scope of work as described.
b) All welding to the structural steel members shall be conforming to AWS D1. Welding shall be carried out by qualified welder wherever manual welding is adopted.
c) Supply and fabricate connections including anchor bolts, high strength bolts, angle, clip plates, etc.
d) Supply engineered stair systems include stringers, treads (chequered plate), handrails, landing framing, landing chequered plate, toe guard (150 x 6 mm) and all parts/pieces required to connect stairs to structure.
e) Supply and fabricate chequered plates, steel plates, platform and handrails if required in drawing.
f) Supply and delivery to site of anchor bolts (Installation by civil contractor). Approved templates for each type of base plate are to be provided, prior to the delivery to site of anchor bolts and cast in plates, with drawing showing Reduced Levels, orientation to grids and all relevant details to allow setout and installation.
g) Supply and delivery to site of cast in connections and the like which are to be cast into the concrete structure.
h) Structural steel protection system.
i) The contractors to check and verify the anchor bolts location and position and convey approval for civil Contractor for concreting and grouting accordingly.
j) The necessary supporting system, scaffoldings, mobile crane, mechanical lifting machines etc required to lift the structures as approved by ABHYUDAY/SEMAC/SPV.
k) All associated material to perform and complete the contract work.
l) Contractor shall deliver the materials to the site as per agreed schedule with ABHYUDAY/SEMAC/SPV.
m) Contractor shall make arrangements to allow for inspection of the materials and the workmanship quality from time to time for ABHYUDAY/SEMAC/SPV representatives at any given time of the contract period.

3.2.2.2 Metal Sheet Roof System

The work comprises all roof sheets, wire mesh, gutter system, polycarbonate sheets, PVC (4kgf/cm^2) rain water down take pipe to ground level, seals, flashing, barge boards, ridges etc wherever required as per specifications to ensure completion of work .The work scope is more described as below :

a) Cutting, sealing, and trimming of any roof and wall penetrations.
b) The polycarbonate sheeting of 2 mm thickness with guard mesh for natural lighting shall be as per the size and locations as shown in the drawing (about 5% of the total roof area) & the make of material is GE or equivalent approved by ABHYUDAY/SEMAC/SPV The flashing sheets, ridge piece shall be of 0.5 mm TCT and other accessories like rainwater down take pipes (PVC) up to ground level etc shall be designed and fabricated and installed to match the profile of the cladding and roof sheets.
c) Provisions shall be made in the roofing system for including the service requirements as and when needed and as indicated by the ABHYUDAY/SEMAC/SPV Sealing of all service cutouts and the openings to make it water tight, at overlapping of sheet use bitumastic tape.
d) The roof shall be provided with minimum slope as per drawing.

All associated material to perform and complete the contract work & make it leak proof.

Insulation Material :

Insulation material for Metal Roof shall be 24 Kg/cu.m density and 50mm thickness lightweight blanket of Bonded Fiber Glass Wool Insulation (Twiga Insul make or equivalent after approval of owner/ consultant) ,suitably factory laminated with Aluminum foil backed up by Scrim and Kraft-paper (FSK), on both faces of the insulation. The Glass wool Insulation material shall have thermal conductivity 0.034 W/m.K at 25 deg mean temperature, non toxic, low smoke emitting, chemically inert, free from impurities like sulphar, chloride and metal shots. Material made of steel plants slag shall not be acceptable.

Insulation materials should meet the fire ratings as mentioned below.

BS 476 : part 4 -Non combustible

BS 476: part 5 - Not easily ignitable/Class P

BS 476: Part 6 - Fire propagation ($I \leq 12$; $i1 < 6$)

BS 476: Part 7 - Surface spread of flame (Class 1)

Class ‘O’ as per BS 476 part 6&7 together.

Bottom 1.6mm GI weld mesh (mesh size 50mm x 50mm) with supporting MS angles and necessary flat of approved quality with suitable securing arrangements

3.2.2.3 Metal Sheet Wall / Cladding System

The work comprises all cladding sheets, gutter, polycarbonate sheets, seals, flashing, barge boards, framed opening only for doors, windows, rolling shutters etc wherever required as per drawing and specifications. The work scope is described as below:

a) Supply water tightness metal sheet wall system including frames.
b) The single skin galvalume colour coated wall cladding sheet must be of 0.5 mm TCT.
c) The flashing sheets, barge board shall be pre-painted matching with the cladding colour and shall be of 0.5 mm TCT.
d) Only Framed openings for the doors / rolling shutters are to be made as per the opening sizes and dimensions as indicated in architectural drawings including neat finishing around the framed opening with ISMC BOX 150 and the service cutouts using required flashing and bargeboard sheets.
e) The polycarbonate sheeting of 2 mm thickness in Two layers for natural lighting with necessary steel frame work and GI weld mesh of size 25x25x3 mm thick below polycarbonate sheet etc., as per the size and locations as shown in the drawing & the make of material to be GE or equivalent approved by ABHYUDAY/SEMAC/ SPV.

f) Turbo Ventilator and Gravent, Roof extractors flashing, provision for bargeboard, Profiled sheet gutters with proper support arrangements, rainwater Headers and down take pipes with necessary supports, clamps etc., railings, roof maintenance access ladder, painting as per specifications, birdproof

Turbo Ventilators:

Design, Supply and fixing of Natural Wind Driven Rotary Ventilators having effective throat diameter as per the design, the design of turbine ventilator shall be done to take advantage of the wind to create a positive flow through the throat of the ventilator. Fixing it to the galvalume roofing sheet with base matching to the existing roof profile .The shaft shall be of stainless steel other components are of aluminium grade AA1100 including Rivets & others accessories, zinc plated steel screws, bolts and nuts and cealed & lubricated steel top and bottom bearing. It should be a leak proof. The design and drawing shall be submitted for approval of the ABHYUDAY/SEMAC/SPV before execution at site.

Deck sheet:

Design, Supply and fixing (1.0 mm thick) 250Mpa Minimum yield stress , cold rolled steel as per IS 513 (D - Quality or approved make Decking Profile (PIL 52 / 271) of PENNAR Industries limited or of approved equivalent and laid width 812mm with three crests of 52mm spaced and 271mm centre having "V" shaped shear dents of 91mm at both crest and valley with side lap arrangements of 22mm at one side and 18mm on other side on steel structures complete with necessary rivets /bolts as directed with minimum 100mm end laps wherever required including providing fusion welding in 2.5 thick X 22 dia washer @ 260mm c/c (Puddle weld) over the secondry beam, dimpling, shear connectors and

ribs. The sheet shall be manufactured from hot dip galvanized having strength as stated herein and galvanization thickness of275Gms per sq mtr as per triple spot test of IS 277.

MS Railing:

Design, Supply and fixing of MS hand railing (wherever applicable) height up to 1.mt made out of standard medium quality MS pipes 40mmdia as Top rail and 32mmdia as Verticals at every 1m c/c and one mid rail of 25mmdia MS pipe ,including cutting, welding and erection of 100mm X 6 mm thick MS kick plate using chequered plate attach to railing supports , including cutting, welding and erection of 100mm X 6 mm thick MS kick plate using chequered plate attach to railing supports , including cutting , hoisting ,welding , drilling holes and applying a shop coat of zinc chromate primer and two coats of synthetic enamel paint at all levels and locations etc., complete all as per drawing and specifications

Dye penetration test :

Dye penetration test has to be carried out in random For each truss member in the welding areas shown by representative ABHYUDAY/SEMAC/ SPV. This test has to be carried out before applying Zinc chromate primer.

3.2.2.4.Painting:

Painting should be strictly according to IS. 1477-1971 (Part-I-Pretreatment) and IS 1477-1971 (part- II painting). Painting should be carried out on dry surfaces free from dust, scale etc. The paint shall be approved by the ABHYUDAY/SEMAC/SPV.

Once coat of shop paint approved PRIMER as per manufacturers specifications shall be applied on steel, except where it is to be encased in concrete or where surfaces are to be field welded.

All structural steel material shall be Shot blasted conforming to Sa 2.5, prior to the first coat of primer at the work shop and second coat of recommended paint as described in painting section of this document shall be applied at site before erection.

Contractor shall touch up damages due to transportation and handling problems at site at no extra cost. Such touchups shall match the surrounding painted surface.

Scope of Work:

The work covered under these specifications consist of furnishing the various types of paints and also the workmanship for these items, in strict compliance with these specifications, which are given in detail hereinafter with the item of schedule of quantities.

Materials:-

Enamel Paints, etc. of approved brand and manufacture shall be used. Ready mixed paints as recovered from the manufacturer without any admixture shall be used.

If for any reason, thinning is necessary in case of ready mixed paint, the brand of thinner recommended by the manufacturer or as instructed by the ABHYUDAY/SEMAC/SPV shall be used. Approved Enamel paint shall be brought to the site of work by the contractor in their original containers in sealed condition. The materials shall be brought in at a time in adequate quantities to suffice for the whole work.

The contractor shall associate the chemist of paint manufacturers before commencement of work, during and after the completion of work who shall certify the suitability of the surface to receive painting and the paint before use etc.

Commencing Work:

Painting shall not be started until and unless the ABHYUDAY/SEMAC/SPV has inspected the readiness of safety norms, the items of work to be painted, satisfied himself about their proper quality and given his approval to commence the painting work. The painting area should be thoroughly swept out entire building cleaned up at least one day in advance of the paint work being started.

Preparation of Surface:

The surface shall be thoroughly cleaned by shot blasting method before primer application. All dirt, rust, scales, smoke and grease shall be thoroughly removed before painting is started. The prepared surface shall have received the approval of the ABHYUDAY/SEMAC/SPV, before painting is commenced.

Application:

Before pouring into smaller containers for use, the paint shall be stirred thoroughly in its containers. When applying also, the paint shall be continuously stirred in the smaller containers so that consistency is kept uniform. The contractor will make suitable samples at site for ABHYUDAY/SEMAC/SPV approval before taking up the work in hand and they will be allowed to proceed with the work only after getting ABHYUDAY/SEMAC/SPV approval for the same.

Where so stipulated, the painting shall be done with Enamel paint etc., complete as per manufacturer's specifications Skilled and experienced workmen shall be employed for this class of work. No left over paint shall be put back into the stock tins. When not in use, containers shall be kept properly closed. The final painted surface shall present a uniform appearance and no streaks, blisters, hair marks from

the brush or clogging of paint puddles in the corners of panels, angles of moldings etc. shall be left on the work.

The specifications for primer of paints shall be as in accordance to the detailed specifications as per the manufacturer's specification. Any damage caused during painting work to the existing works / surfaces shall be made good by the contractor at his own cost.

Precautions:

All furniture, lightings, fixture, sanitary, fittings, glazing, floors etc. shall be protected by covering and stains, smears, splashing, if any shall be removed and any damage done shall be made good by the contractor at his cost.

3.2.2.5 Samples:

Samples should be displayed and mock up to be prepared for the following samples, but not limited to:

a) Allowance is to be made for the provision of samples, off-site & in-site tests and prototypes in accordance with the specification. Approval is required prior to commencement of manufacture.
b) Synthetic enamel Paint for structural steel
c) Miscellaneous materials: Handrail, Stair, Ladder, Catwalk, chequered plates etc.
d) Bolts
e) Metal roof sheet,
f) Roof gutter, outlet & down pipes, Headers
g) Metal wall sheet
h) Purlins
i) Girt
j) Sealing of any penetrations
k) Any samples required by OWNER at any time

3.2.2.6 Reports:

Contractor shall furnish progress reports at the following times for the following items:

a) Design schedule weekly report
b) Test Report for all materials
c) Overall contractor's schedule to show all major activities
d) Short range schedule on a weekly basis to display short term planning of three weeks (passed current and next weeks).
e) Micro schedule for daily activities
f) Structural steel fabrication report (welding records & test records)
g) Metal sheets fabrication report

h) Daily construction/ erection report to show daily activity, manpower and equipment
i) Weekly construction/ erection report to show weekly activity, schedule status, manpower and equipment
j) Monthly construction/ erection report to show monthly activity, schedule status, manpower and equipment

3.2.2.7 Storage:

The following special storage and protection requirements will apply to materials supplied by the installer or received on-site by the installer:

a) Anchor bolts are to be packaged to prevent damage during transport and allow ease of installation in the formwork prior to the pouring of concrete. Such items are to be supplied in advance to correspond with the Construction program and as directed by ABHYUDAY/SEMAC/SPV. All threads of anchor bolts need to be suitably covered to prevent concrete cover during pours
b) The structural steel & associated works must be adequately protected with a protection system suitable for the project environment.
c) The contractor is to allow for provision of a protective treatment to the whole external façade panels to prevent damage from building materials, concrete slurry, water, etc. Protection is to be maintained until practical completion.

3.2.3 INSPECTION AND TESTING:

Generally, the contractor shall allow satisfying, but not being limited to, the following:

a) Fabricate, transport to site all structural steel members, inclusive of columns, primary and secondary beams, purlins, bridging pieces, sag rods, trimmers base plates, lugs, cleats, connectors, fixings, braces, shear studs, grits, bolts, nuts, washers, structural connectors and the like as required to complete the works.
b) Miscellaneous materials as shown on the drawings and described in the specifications including but not limited to stairs, ladders, cages, supports, catwalks, grating, chequered plate, steel plate, handrails.

c) The contractor is to provide evidence of accreditation as well as an inspection test plan for the manufacturing process for approval prior to commencement to ABHYUDAY/SEMAC/SPV
d) Contractor shall take necessary tests for the quality of material at interval and frequency as described under Indian standard code of practice and shall be submitted to ABHYUDAY/SEMAC/SPV. Contractor shall make arrangements to perform any additional tests as needed by the OWNER at no extra cost.
e) With the exception of steel to be left bare for concrete encasing, the structural steel work is to be

painted offsite in accordance with the requirements of the specifications. The contractor is to allow for and complete all paint touch up .work required as a result of damage during transport, and erection on site.

f) Prior to delivery to site of all structural steel, contractor to allow ABHYUDAY/SEMAC/SPV to verify that the structural steel has been fabricated welded and painted in accordance with the design drawings and specification.

g) Carriage shall be provided by the contractor for lifting the materials from the truck to loading platforms/areas. The contractor shall provide all materials to site packaged in means suitable for craning in accordance with the carriage plan.

h) The contractor must provide all trade specific handling equipment for the loading, movement and installation of their work. All equipment is to be certified by ABHYUDAY/SEMAC/SPV and sized to enable movement between floors.

i) All panels/sheets delivered to site are to be on steel pallets. Timber panels will not be used without the approval of OWNER.

j) The contractor is responsible for protection of all materials brought to site loading platforms will not to be provided by OWNER. The relocation of platforms (if required by the contractor) will require OWNER approval & in accordance with program requirements and the carnage plan.

k) TORQUE Testing should be done.

3.2.4 ERECTION :

3.2.4.1 Structural Steel System

a) Perform all structural steel work according to contract documents, design drawings, specification and all related local specifications.
b) Erect all structural steel members, inclusive of columns, primary and secondary beams, purlins, bridging pieces, sag rods, trimmers base plates, lugs, cleats, connectors, fixings, braces, shear studs, grits, bolts, nuts, washers, structural connectors and the like as required to complete the works.
c) Miscellaneous materials as shown on the drawings and described in the specifications including but not limited to accessories, stairs, ladders, cages, supports, catwalks, grating, steel plate, handrails.
d) Submit all technical documentation and samples for approval and authorization to proceed.
e) Site measurement of all necessary areas required to complete the works.
f) The contractor is to check and signoff all the cast-ins (anchor bolts, etc.) installed by the CIVIL contractor prior to the concrete being poured and after that. Any discrepancies to design position are to be identified and advised to ABHYUDAY/SEMAC/SPV in sufficient time to allow for rectification to be completed. All out of sequence work and return work required to complete the contract work is to be allowed for.
g) Completion of task-offs and responsibility for all quantities of materials including, but not limited to wastage, cuts, losses, etc.
h) The contractor is responsible for all coordination with ABHYUDAY/SEMAC/SPV and all other trades.
i) Allow for full set out and survey in three dimensions and get it approved by the ABHYUDAY/SEMAC/SPV The contractor shall be responsible for all set out from bench marks and grid lines provided by ABHYUDAY/SEMAC/SPV
j) Provision of access as required for erection of all members including, but not limited to, boom lifts, scissor lifts and stairs. The contractor shall ensure that access equipment does not overstress the adjacent structure and shall inform OWNER of all access equipment loads fourteen (14) days prior to work commencement on site.
k) Protect adjacent surfaces during installation of structural steel (and whilst cleaning).
l) Provision for access at regular intervals for ABHYUDAY/SEMAC/SPV for inspection of the works both on and off site as required. All necessary plant and equipment, including paint micrometers, to perform this activity is deemed to be included. Contractor shall inform the ABHYUDAY/SEMAC/ SPV 7 day prior notice for the inspection of material & fabrication at factory.
m) Details of erection sequence and site-specific safety procedures for steel erection are to be provided to ABHYUDAY/SEMAC/SPV 14 days prior to erection.
n) Site supervision: provide experienced, professional, on- site supervision of erection / installation contractor/Engineer during all erection/installation activities through completion and acceptance.

o) The contractor must crosscheck with total station for alignment tolerances which should be within +/- 5 mm.

Unload, verify receipt, stage, transport from staging area to erection area all materials associated with this scope of work. Supply, temporary enclosures, required to safely and properly store the materials of this contract to protect from damage.
Provide all crane, forklifts, trucks, tools, scaffolding, scissor lifts, manpower, etc. required to perform erection Installation.

Provide protective devices to prevent damage to slabs on grade. Verify location of cast-in-place anchor bolts by means of survey 2 week prior to start of erection work. Perform all cleaning of steel prior to and after erection. Erect all structural steel includes torquing of all connections.

Supply and field fabricate as necessary and install miscellaneous painted channel and angle iron for framing of openings.

Perform field welding as required by the contract drawings

a) Install stairs and stair framing assemblies.
b) Install catwalks with steel framing, grating, chequered plate, steel plate, platforms and handrails.
c) Perform all field touch-up of steel coatings.
d) Perform all test and inspection of installations.
e) The contractor shall provide and install all temporary props, braces and ties required to support the structural steel during the erection process. All temporary works are to be duly designed by the ABHYUDAY/SEMAC/SPV:- Said temporary works shall remain in place until the permanent structure is braced, aligned and bolts fully tightened.
f) All structural steel is required to be surveyed as built and drawings submitted to ABHYUDAY/SEMAC/SPV on completion of each section showing the as built location and deviation.
g) Co-ordination of the installation of the down pipe system to ground level within the structural steel &/or any other items such as roof platforms, etc.
h) The contractor shall allow for all testing as noted in the specifications and detailed in relevant codes.
i) Columns are to be securely fixed and suitable braced by steel erector to prevent movement.
j) The contractor is to allow for the removal of temporary cleats, stiffeners and the like to the columns after steel erection and pouring of the concrete and touch up as required.
k) Installation of safety lifelines and safety netting during erection in accordance with the safety standards and rules.

l) The installed wall &roof system must be tested and be verified to pass the water tightness test.

The contractor must provide documented proof that each installer has been inducted into the work method statements and understands them prior to commencement on site.

a) The contractor is responsible for water tightness around the any external permanent &/or temporary ties fixed through the facade/roof. Detail of water tightness is to be approved by ABHYUDAY/SEMAC/ SPV.
b) The contractor must allow for the water tightness of all junctions to substrate and adjacent cladding/roofing elements in the building envelope.
c) The contractor must allow for the structural framing required over and above what is shown on the structural drawings, to enable installation of the external cladding/roofing system, i.e. sub structures.
d) Provision shall be made for any signage elements to be suspended or affixed to the external wall members.
e) The contractor must allow for trade clean. The trade clean includes removal of all stickers, marks, notation, set out marks on all elements that constitute the work.
f) The contractor must allow for final clean of the works to the approval of ABHYUDAY/SEMAC/SPV for OWNER handover.
g) Final clean of the building facade & roof.
h) Contractor must allow for the handover of the external cladding/roofing system in accordance with the requirements of the specification so that the finished quality of the project can be ascertained.
i) Allow for & assist OWNER carrying out final inspection or several inspections to ascertain the quality & integrity of the project.
j) The contractor must allow for protection of their works on site installed or otherwise until practical completion. The contractor will allow for removal of the same. Method of protection is to be approved prior to application and all protection must be maintained through to completion.
k) Installation of a permanent safety lifeline for use during the ongoing Operation of the facility.
l) Provide System for cleaning of cladding.

3.2.5 HANDOVER

Test Report

Contract works related test report as per the specifications and relevant Indian Standards (but not limited to):

a) All kinds of high strength bolts confirming with IS 4000-1992, Class 8.8 Type I for joining of various Structural componenets like Column, Rafters, Jack Beams, Purlins etc., (GI Material UNBRAKO / TVS Make) and connection plates and purlin.
b) Weld seam test

c) Grouting material strength test related to structure under this tender document
d) Water tightness test of external Roof and wall system
e) Allow for the provision of testing for all non-typical facade elements to ensure conformance to specification.
f) Allow for the provision and testing of sub assemblies or individual components enabling verification of design.

Close-out Submittals

a) As Built drawings.
b) Construction and inspection record.

Project Manuals

The contractor has to prepare and submit three hard copies and one soft copy of As-built drawings, to OWNER one month prior to the substantial completion of the contractor's works. As a minimum, the Project manuals must include the following sections:

Section 1: As Built Drawings.

Section 2: Scope of Works - A summary of the works undertaken, and a description of the methods of construction/ installation.
Section 3: Product Guide - A schedule of the products used, and any product Technical information.
Section 4: Maintenance - A description of the cleaning and maintenance requirements including a schedule of the maintenance periods.

Section 5: Supplier - A schedule of all of the suppliers details for the products nominated in

Section 6: Brochures - Any relevant brochures relating to the work undertaken.

Section 7: Warranties - Signed copies of any warranties, including as a minimum the contractor and supplier warranties required under the contract.

Section 8: Drawings hard and soft copies.

3.3. WORK BY OTHERS

The contractor shall verify the correctness or any deviation from the drawings and the work executed by other agencies specially the Sub structure package, any deviations shall be identified by the contractor and intimated to OWNER well in advance for specific items that can/could impact the work of this trade such as:

a) Incorrect location of anchor bolts, cast in &/or steel elements
b) Misalignment of cast in elements
c) Concrete out of tolerances
d) Site installation access

3.4. GUARANTEE

All materials and workmanship in above work shall be guaranteed for periods mentioned below (unless otherwise specified) from the date of handling over. Any defect found during the guarantee period shall be replaced / made good to the original conditions / positions entirely at the cost of the contractor.

For Structural Steel: 50 Years

For Roofing and cladding: Leak proof warranty for outer skin for 25 Years

Approved make list :

S.N.	ITEM	MANUFATURER
1	ENAMAL PAINT	M/s ASIAN /NEROLAC/DULUX / BERGER (Ist Quality only)
2	GALVALUME SHEET (Al-Zn alloy Coated Steel	Sourced from parent material from _____ (to be specified by vendor)
3	TAPPING SCREWS , FASTENERS etc	HILTI
4	Flashing, barge board, gable board, gable wall flashing, apron flashing, corner flashing, sill trim	Sourced from parent material from _____ (to be specified by vendor)
5	Wall Sheets	Sky Blue (RAL 5012)
6	Gutters	Off white (RAL 9002)

NOTE:

1. There should not bracing below 5 m on any side wall.
2. There should not be any bracing on the center columns/ column lines.
3. Steel Structure colour is Smoke Grey (Shade No 634 of Berger/ equivalent)

4. The colours of the sheets are as follows:-

Roof Sheets	Bare Galvalume
Downspouts	Profiled Off White
Corner Trim	Off White
Other Trims & Flashings	Off white
Canopy Roof	Sky Blue
Canopy Wall	Sky Blue
Canopy Trims & Flashings	Off white

PAITHAN MEGA FOOD PARK

VILLAGE,DHANGAON NO.53,55,56&62/2
WAHEGAON,TQ,PAITHAN,DIST.AURANGABAD.

STRUCTURAL DESIGN BRIEF

FOR

MSME SHED

Submitted to :

PAITHANMEGAFOOD PARK
C/o NATH SEEDS Pvt.Ltd,NATH RD,
PAITHAN AURANGABAD
AURANGABAD

Prepared by :
(PMC)

ABHYUDAY TECHNO ECONOMIC CONSULTANTS Pvt.Ltd.
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INDEX

1.REPORT

Project Description:

The project undertaken is the structural design of Industrial Building for the proposed MEGA FOOD PARK AT WAHEGAON VILLAGE, PAITHAN TALUKA, DIST. AURANGABAD, INDIA. The proposed structure is MSME shed.

2. SCOPE OF WORK

S.NO	BUILDING	DIMENSIONS		
		LENGTH (m)	WIDTH (m)	HEIGHT (m)
1	MSME Shed	104.5	24	7 (Bottom of Truss)

Analysis:

The above Building is analyzed as a 'Space Frame'. The modelled space frame is analysed for dead loads (DL), live loads (LL), wind loads (WL) and seismic loads (EQ) and their combinations (as per AISC) and designed for limit states of Strength, serviceability including load combinations as per IS: 1893(part-1). Effective lengths of columns are considered as per the standard codes of practice. This structure is designed and detailed as per Indian codes of practice only. The considered support condition for the F&V processing unit is pinned.

3. LOADS

Note: Wherever reference to IS Code is made, the same shall be taken as the latest revision (with all amendments issued) on the notified date of submission of tender.

- **Dead load -** The dead loads shall be considered according to IS-875 (Part 1)-1978 **[**Code of Practice for Design Loads (Other than Earthquake**]** For Buildings and Structures] and according to densities of the possible dead loads. (Ref. Annexure. A Table-1).

- **Live load -** The live loads shall be considered according to IS-875 (Part 2)-1987 **[**Code of Practice for Design Loads (Other than Earthquake**]** For Buildings and Structures]**.** (Ref. Annexure. A Table-2).
- **Earthquake Load-** Earthquake loads are considered as per IS-1893:2002 **[**Code for Earthquake Resistant Design of Structures**]**.
- **Wind Load-** Wind Loads are considered according to IS-875 (Part 3)-1987 **[**Code of Practice for Design Loads (Other than Earthquake) For Buildings and Structures**]**.

4. STRENGTH OF MATERIALS

The structural steel for the building is

- Hot rolled sections = 250 Mpa.
- Purlins and Girts = 345 Mpa.
- Tube sections = 240/340 Mpa.
- Galvalume Sheet = 550 Mpa.
- Structural steel of building = 345 Mpa.
- For built-up plates complying with

Thickness of Plate	Grade
< 20	345
20 - 40	330
> 40	320

5. METHOD OF DESIGN

All the structural Steel elements in the building are designed with **"AISC-ASD**" as per MBMA standards.

All the structural RCC elements in the building are designed with "IS 456 -2000" as per Indian standards.

6. LOAD COMBINATIONS

The following load combinations are considered with their respective load factors as per the codes. For RCC Design

- 1.5(DL+LL)
- 1.5(DL+LL+CL)
- 1.2(DL+LL+CL±EQX)
- 1.2(DL+LL+CL±EQZ)
- 1.5(DL±WL)
- 1.2(DL+LL±WL)
- 1.2(DL+LL)±0.6(EQX)
- 1.2(DL+LL)±0.6(EQZ)
- 1.2(DL+LL)±0.6(WL)
- 0.9(DL+CL)±1.5 EQX
- 0.9(DL+CL)±1.5 EQZ
- Limit state of serviceability combination for R.C.C
- (DL+LL)
- (DL+LL+CL)
- (DL+LL+CL+CR)
- (DL+CL+CR±EQX)
- (DL+CL+CR±EQZ)
- (DL+LL+CL+CR±EQX)
- (DL+LL+CL+CR±EQZ)
- (DL+LL+CL+CR)
- (DL+WL+CR)
- (DL+LL+WL+CR)

DL - Dead Load
LL - Live Load
CL - Collateral Load
EQ - Earthquake load
WL - Wind Load

The following load combinations are considered with their respective load factors as per MBMA codes. For Steel Design

- DL+LL
- DL+LL+CL
- 0.75(DL+CL±EQX)
- 0.75(DL+CL±EQZ)
- 0.75(DL+CL±WL)

7.MATERIAL SAFETY FACTORS

Partial Safety Factors for Concrete:

- For Concrete – 1.5
- For Reinforcement Steel – 1.15

8. SERVICEABILITY CHECKS FOR STEEL BUILDINGS

For Vertical Deflections

Live/Wind load deflections

Purlins (Elastic cladding)	Span /150
Rafter (Elastic cladding)	Span /180

For Lateral Deflections

Wind load deflections (Elastic cladding)	Height /150
Earth quake deflections	Height /250

Special Concentrically Braced frames should be shown to withstand inelastic deformation corresponding to a joint rotation of at least 0.04 radians without degradation in strength and stiffness below the yield value.

9. EARTHQUAKE ANALYSIS: (GENERAL)

The proposed structure in this site shall be analysed for seismic forces. Earthquake analysis shall be carried out using STAAD as per the provisions of IS-1893: 2002 (Part 1 and 4). The nodal mass shall be obtained as per the recommendations of IS-1893: 2002 regarding the load combinations.

As per IS 1893 base shear shall be calculated as

$$\mathbf{Vb = Ah \times W}$$

Where Ah is base shear co-efficient and W is the nodal mass of all the floors

$$\mathbf{Ah = Z \times I \times Sa / (2 \times R \times g)}$$

	Analysis Parameters	Clause/Table of IS-1893:2002(part 1 & 4)
Zone factor, Z	0.1	Table 2 (P.No. 16)
Importance factor, I	1.5	Table 5 (P.No. 13) Part4
Response factor, RF	4.5	Table 23 (P.No. 87)
SS	2	-
ST	2	-
DM	0.02 for Steel	-
Px	To be calculated for each structure individually	Clause 7.6.2 of IS 1893 – Part I
Pz	To be calculated for each structure individually	Clause 7.6.2 of IS 1893 of Part - I
DT	As per soil report analysis	2.5 meters

Where:

SS = Rock or soil sites factor (=1 for hard soil, 2 for medium soil, 3 for soft soil). Depending on type of soil, average response acceleration coefficient S_a/g is calculated corresponding to 2% damping. Refer Clause 6.4.5 of IS: 1893 (Part 1).

ST = Optional value for type of structure (1 for RC frame building, 2 for Steel frame building, 3 for all other buildings).

DM=Damping ratio to obtain multiplying factor for calculating S_a/g for different damping. Damping will be considered based on type of structures corresponding to which multiplying

factor will be taken referring Table 3 of IS: 1893(Part 1).

DT= Depth of foundation below ground level

Px & Py= 0.085 x (h) $^{0.75}$ Clause 7.6.2 of IS: 1893(Part 1).

Time period calculation:

Px = Py = 0.085 x 7^0.75 = 0.365

Sa/g = 2.5 for 0.1 < T < 0.55

Horizontal seismic coefficient

Ah = 0.1/2 x 1.75/4.5 x 2.5 = 0.0486

10. WIND ANALYSIS

The proposed structure shall be analysed for wind forces as per IS: 875-1987. Analysis is carried out by using Staad Pro and the coefficients and wind pressure are calculated as per the provisions made by IS: 875-1987.

As per IS: 875-1987 Design Wind Speed can be calculated as

$$\mathbf{Vz = k1 \times k2 \times k3 \times Vb}$$

Where k1- Risk Coefficient (Table 1)

k2 - Terrain, Height and Structure Size Factor (Table 2)

k3 – Topography Factor (As per Clause 5.3.3.1)

Vb – Basic Wind Speed

Design Wind Pressure

$$\mathbf{Pz = 0.6 \times Vz^2}$$

Where Pz - Design Wind Pressure in N/m2 at a height z

Vz – Design Wind Velocity in m/s at a height z

Wind Force on Building/Structure

$$\mathbf{F = (Cpe - Cpi) \times A \times Pd}$$

Where Cpe – External Pressure Coefficient

Cpi – Internal pressure Coefficient

A – Surface area of structural unit/cladding unit

Pd – Design wind pressure

	Analysis Parameters	Clause/Table of IS-875:1987(Part 3)
City	Aurangabad	
Basic Wind Speed	39 m/s	Clause 5.2
k1	1	Table 1 (P.No. 11)
k2	0.93 (for 10m Ht)	Table 2 (P.No. 12)
k3	1	Clause 5.3.3.1

11. DESIGN

Super Structure: Steel

All the structural steel elements are designed as per AISC-ASD using the fundamentals of **MBMA.** All the frames and beams are checked for deflection as per the allowable limits.

Sub Structure: RCC

The isolated foundation forces are obtained from the STAAD analysis. The foundations are manually designed corresponding to the critical load case.

12. DETAILING

Proper curtailment details are followed to get the economy and ease in construction at site. The general arrangement of steel is as detailed as per SP-40 & SP-34.

13.SPECIAL NOTES FOR PEB

- 3D- Analysis modelling required.
- Internal pressure coefficient shall be ± 0.5.

- Max rainfall of 100mm/hr shall be considered for the gutter.
- For bracing, only angle or channel bracing shall be considered.
- Bottom of base plate shall be 250mm below FFL.

14. LIST OF CODES & REFERENCES

1. **IS: 456–2000**: Code of practice for plain and reinforced Concrete.
2. **AISC-ASD:** General construction in steel & code of practice (Allowable Stress Design).
3. **MBMA 1996:** Manual for Low Rise Building Systems
4. **IS: 875 – 1987:** Code of practice for design loads (other than earthquake) for Buildings & structures.
   - **IS: 875 – Part 1:** Dead Loads
   - **IS: 875 – Part 2:** Imposed Loads
   - **IS: 875 – Part 3:** Wind Loads
   - **IS: 875 – Part 5:** Special Loads & Load Combinations
5. **IS: 1893 (Part 1) 2002:** Criteria for earthquake resistant design of Structures.
6. **IS: 1893 (Part 4) 2005**: Criteria For Earthquake Resistant Design of Structures – Industrial Structures Including Stack Like Structures.
7. **SP – 38:** Hand book of Typified Designs for Structures with steel Roof trusses.
8. **SP – 40:** Hand book on Structures with Steel Portal frame.
9. **SP – 64:** Explanatory Hand book on Indian Standard code of practice for design loads (other than earthquake) for Buildings and Structures Part 3 Wind Loads.

ANNEXURE – A

DEAD LOADS

1. GI Sheets (double skin) = 0.0005 x 7850x2 = 7.85kg/m^2
2. Bracings = 3Kg/ m^2
3. Purlins = 6.5 kg/ m^2

All together Dead load of 20 kg/m^2 (including the weight of insulating material) shall be considered.

Table-1 Density of Materials:

S.No	Description	Unit	Value	Remarks
1	RCC	kN/m^3	25	-
2	Steel	kN/m^3	78.5	-
3	Saturated soil	kN/m^3	20	-
4	Precast Panels	kN/m^3	26	-

Table-2 Live Loads

	Description		
1	Roof Load		0.75

`

Collatéral Loads

A suspended load of 20 kg/ m^2 was considered for various services like HVAC ducts, Light fixtures and Supply pipe lines like sprinkler pipes, gas pipelines, cable trays.

Solar Panels

A load of 25 kg/ m^2 was considered for solar panels.

ANNEXURE - B

Wind Loads Calculations:

Design wind Speed (vz) = Vb* K1* K2 *K3 m/sec

Basic wind speed (Vb) = 39 m/sec

Probability Factor (K1) = 1.0 (Refer Table-1, page 11, IS 875-Part 3)

Terrain Height and Structure size factor (K2) = 0.93 (Table-2, page 12, IS: 875-part 3)

Topography factor (K3) =1.0 (Refer clause 5.3.3.1, IS 875- part 3)

Vz =39*1.0*0.93*1.0

= 39 m/sec

Design wind Pressure Pz = $0.6*Vz^2$

= $0.6*39^2$

= 0.79 kN/m^2

Wind load on individual members

F = (Cpe +/- Cpi) * A * Pz

Cpe = External Pressure Coefficients

Cpi = Internal Pressure Coefficients = +/- 0.5 (for Medium openings)

A = Surface Area of Structural elements or Cladding units

IS: 875 Part (3) we can obtain external pressure coefficients from the following data

H = Height of Building = 7 m

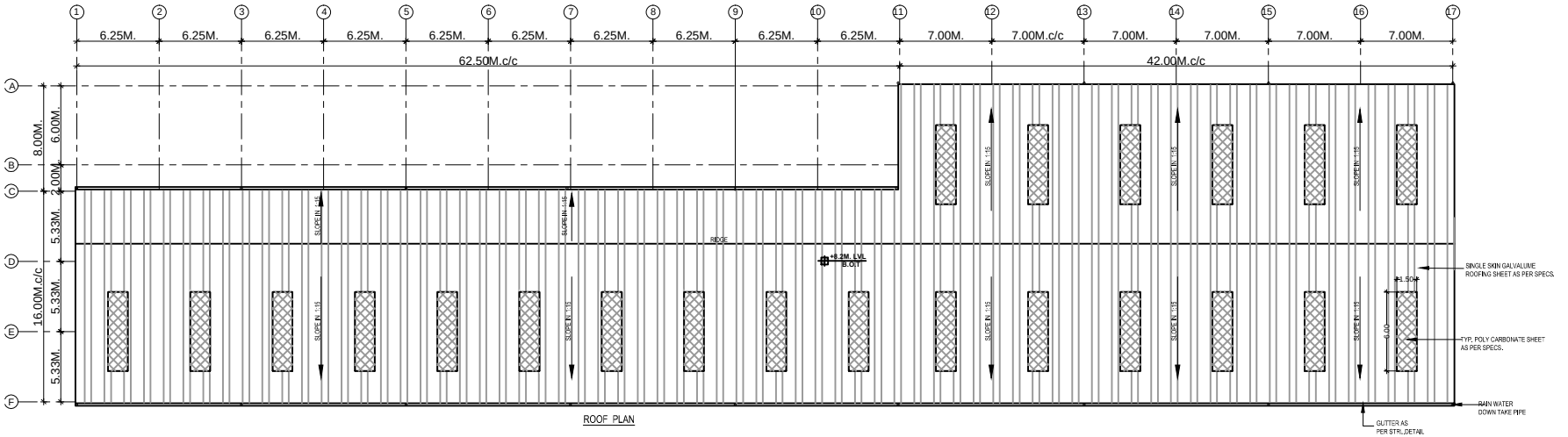
W= The lesser horizontal dimension of Building = 24 m.

L= The greater horizontal dimension of Building = 104.5 m.

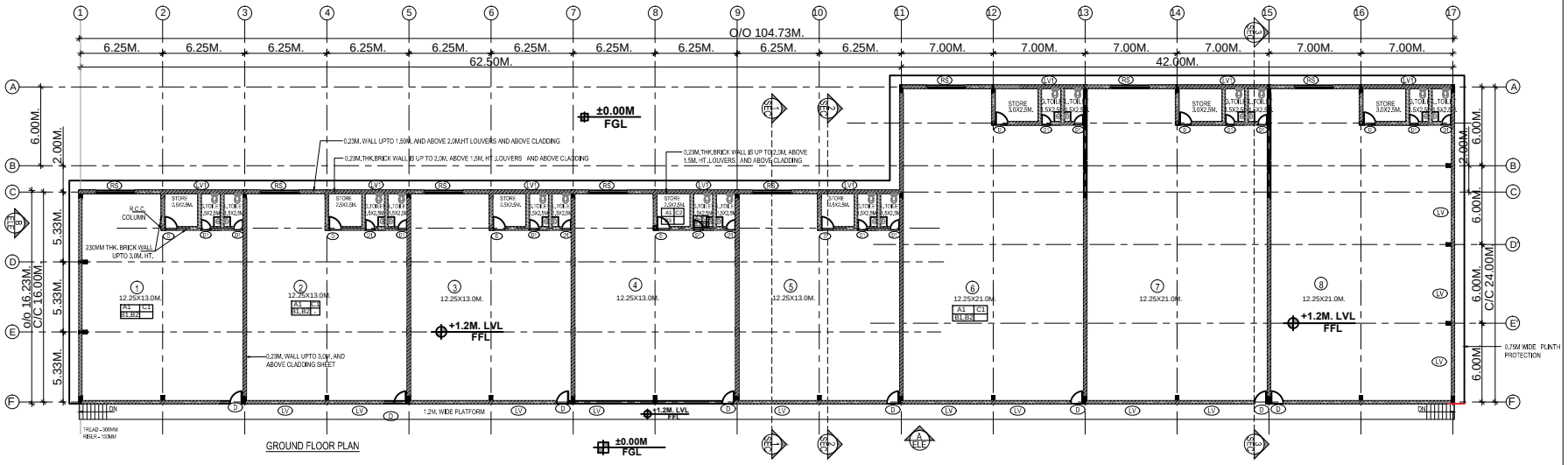
h/w = 7/24 = 0.29

l/w = 104.5/24 = 4.35

Roof Slope = 3.81^o



ROOF PLAN



GROUND FLOOR PLAN

COMMENTS	KEY MAP
1. ALL DIMENSIONS ARE IN MTS. & ARE TO BE READ NOT MEASURED. 2. DISCREPANCY FOUND IN DRG SHOULD BE BROUGHT TO THE NOTICE OF UNDERSIGNED IMMEDIATELY BEFORE COMMENCEMENT OF WORK. 3. ARCH. DWGS. TO HAVE PRECEDENCE OVER STRL. DWGS. FOR LVLS & DIMENSIONS. 4. GRSE. SCALE DRGS TO HAVE PRECENDCE OVER SMALL SCALE DRGS. 5. ALL DIMENSIONS ARE TO THE FINISHED SURFACE DIMENSIONS. 6. ALL LEVELS ARE TO THE FINISHED FLOOR LEVELS. 7. FINISHES THICKNESS TO BE DEDUCTED OR ADDED IF REQUIRED. 8. ± 0.00M LVL CONSIDERED AS SURROUNDING FFL.	

REFERENCE	S.NO	DRAWING NO.
	1	FPA-AR-SP-101
	2	FPA-AR-MSME-102

REVISIONS	REV.	DESCRIPTION	DATE	DRWN	CHKD
	A	TENDER	26/02/2015	VBS	CKS

FINISHING SCHEDULE

A - FLOORING
A1 - VACCUME DEWATERED FLOORING
A2 - ANTI SLIP CERAMIC TILE FLOORING
A3 - KOTA STONE
B - BRICK WALLS AND WALL FINISHINGS
B1 - 1.5m HT. BRICK WALL & ABOVE 2.0m HT. MS LOUVERS & ABOVE CLADDING
B2 - 0.23M HT. BRICK WALL UPTO 3.0M HT.& ABOVE CLADDING,
B3 - 0.23M THK. BRICK WALL UPTO 3.0M HT.
B4 - CERAMIC TILE DADO UP TO 2.1M.
C - CEILING
C1 - SINGLE SKIN BARE GALVALUME ROOFING SHEET WITH INSULATION
C2 - FALSECEILING

SCHEDULE OF OPENINGS

TYPE	DESCRIPTION	SIZE	QTY
D	AL. FRAME WITH NOVAPAN SINGLE SHUTTER DOOR	1.0X2.1M.	16
D1	AL. FRAME WITH NOVAPAN SINGLE SHUTTER DOOR	0.75X2.1M.	16
R/S	MS. ROLLING SHUTTER	3.0X3.5M.	8
LV	AL. LOUVERED VENTILATOR	COL.TO COL.X2.0M.	
LV1	AL. LOUVERED VENTILATOR	COL.TO COL.X1.5M.	

PROJECT :
PAITHAN MEGAFOOD PARK AT VILLAGE, DHANGAON NO.53,55,56&62/2 WAHEGAON, TQ,PAITHAN,DIST.AURANGABAD.

CLIENT :
PAITHAN MEGAFOOD PARK Pvt Ltd
C/o NATH SEEDS Pvt.Ltd,NATH RD, PAITHAN AURANGABAD RD, AURANGABAD.

PMC :
ABHYUDAY TECHNO ECONOMIC CONSULTANTS Pvt, Ltd,
211-212, PATEL AVENUE, NR. GURUDWARA,S.G.HIGHWAY, THALTEJ, AHMEDABAD - 380054, GUJARAT, INDIA.
Phone: (o) +91 - 79 - 26856999,(M) +91 9714242226

A/E CONSULTANT :
SEMAC CONSULTANTS Pvt Ltd
CONJEEVARAM HOUSE,ARCHANA BLOCK,2ND FLOOR, 6-1-276PADMARAO NAGAR,SECUNDERABAD - 500 025 (A.P.)
TEL:27508968,27502088,FAX :040-27507733

TITLE : MSME SHED FLOOR PLANS

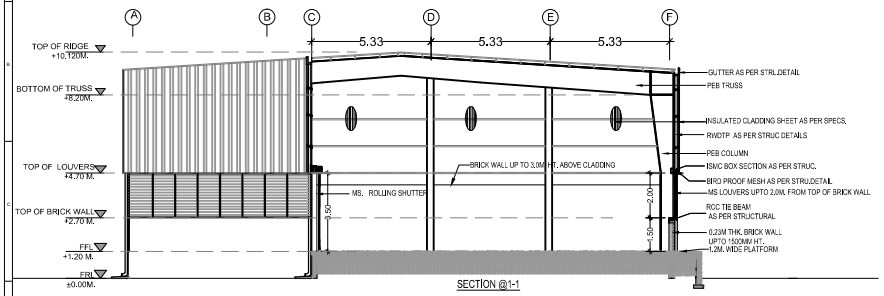
JOB NO : H-11-12/013 | SIZE : | RELEASED FOR

	NAME	SIGN	DATE
DSGN	CKS		26/02/15
DRWN	VBS		26/02/15
CHKD	CKS		26/02/15
APPD	CKS		26/02/15

SCALE - 1:150

- [ ] PRELIMINARY
- [ ] APPROVAL
- [x] TENDER
- [ ] CONSTRUCTION
- [ ] ASSBUILT

DRG NO : FPA-AR-MSME-101 | REV | 0



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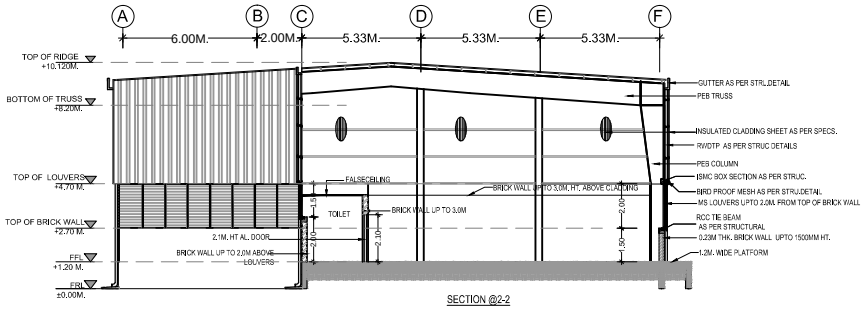

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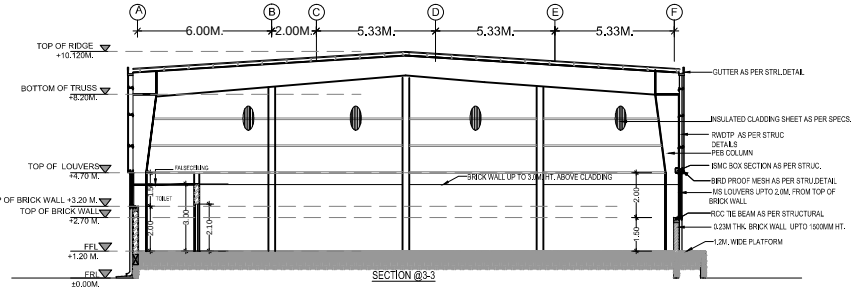

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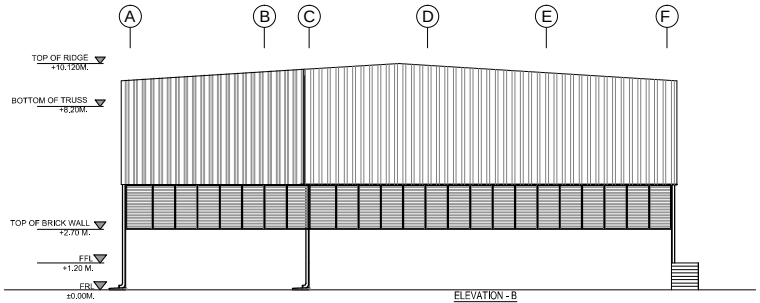
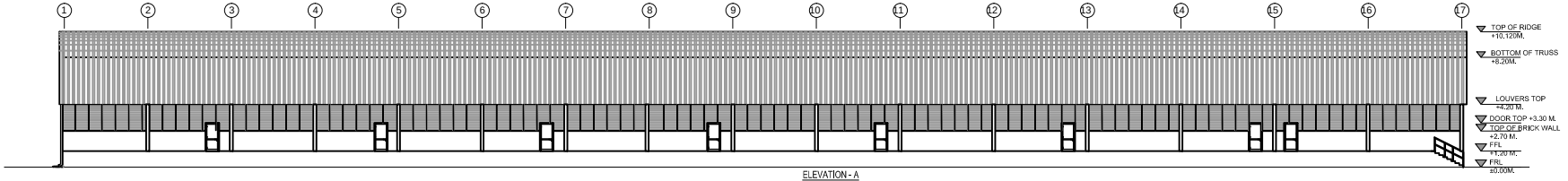


ELEVATION - B



ELEVATION - A

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KEY MAP

REFERENCE

S.NO.	DRAWING NO.
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2	FPA-AR-MSME-101

REVISIONS

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CLIENT :
PAITHAN MEGAFOOD PARK Pvt Ltd
C/o NATH SEEDS Pvt.Ltd,NATH RD, PAITHAN AURANGABAD RD, AURANGABAD.

PMC :
ABHYUDAY TECHNO ECONOMIC CONSULTANTS Pvt. Ltd.
211-212, PATEL AVENUE, NR. GURUDWARA,S.G.HIGHWAY, THALTEJ, AHMEDABAD - 380054, GUJARAT, INDIA.
Phone: (o) +91 - 79 - 26856999, (M) +91 9714242226

A/E CONSULTANT :
SEMAC CONSULTANTS Pvt Ltd
CONJEEVARAM HOUSE,ARCHANA BLOCK,2ND FLOOR, 6-1-276PADMARAO NAGAR,SECUNDERABAD - 500 025 (A.P.)
TEL:27508968,27502088,FAX :040-27507733

TITLE : MSME SHED ELEVATIONS AND SECTIONS

JOB NO : H-11-12/013 | SIZE : | RELEASED FOR

	NAME	SIGN.	DATE
DSGN	CKS		26/02/15
DRWN	VBS		26/02/15
CHKD	CKS		26/02/15
APPD	CKS		26/02/15

NORTH

☐ PRELIMINARY
☐ APPROVAL
☑ TENDER
☐ CONSTRUCTION
☐ ASBUILT

SCALE : 1:150

DRG NO : FPA-AR-MSME-102 | REV 0