

### **A. SCOPE**

CSIR-CMERI proposes to furnish a pre-engineered steel building as described below. The building will consist of all components required to construct the primary & secondary framing (wall & roof purlins) plus the wall and roof cladding Hardware of the building are included.

Interior partition walls, electrical plumbing, cooling, heating, foundation, masonry walls, concrete floor or materials not specifically referenced in this proposal are not included.

### **i) Structural Work Specification**

|                           |   |
|---------------------------|---|
| No. of buildings          | 1 (One) No.   |
| Building Usage            | INDUSTRIAL SHED   |
| AREA                      | 6460 SFT  |
| LOCATION                  | CSIR-CMERI, M.G Avenue<br>Durgapur-7132019, West Bengal , India |
| No of identical buildings | 1 no  |

### **ii) Basic Building Descriptions :**

|     |                                |   |                                 |
|-----|--------------------------------|---|---------------------------------|
| 1.  | Frame type                     | : | RIGID FRAME CLEAR SPAN          |
| 2.  | Width                          | : | 100'-0/O                        |
| 3.  | Length                         | : | 65'-0" O/O                      |
| 4.  | Eve height                     | : | 26'-24"                         |
| 5.  | Bay spacing                    | : | 21'-41 " C/C                    |
| 6.  | No of frames                   | : | 7                               |
| 7.  | No of bays                     | : | 6                               |
| 8.  | Cladding                       | : | 23'-29"                         |
| 9.  | End columns                    | : | Full Steel Columns              |
| 10. | Width module                   | : |                                 |
| 11. | Columns                        | : | Full Steel Columns              |
| 12. | Roof slope                     | : | 1:7                             |
| 13. | Interior column spacing        | : | NO                              |
| 14. | End wall column spacing        | : | As per drawing                  |
| 15. | Provision for future expansion | : | N.A.                            |
| 16. | Bracings                       | : | Rod bracing considered          |
| 17. | Roofing                        | : | 0.47TCT BGL sheet 150AZ, 550mpa |
| 18. | Wall cladding                  | : | PPGI 0.5tct                     |
| 19. | Purlin position at side walls  | : | 150MM                           |
| 20. | Block Masonry                  | : | By other                        |
| 21. | Crane hook height              | : | N.A                             |
| 22. | Curved sheets / eaves          | : | N.A                             |
| 23. | Gutter                         | : | PPGI                            |

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25/07/19

|     |                                |   |  |
|-----|--------------------------------|---|--|
| 24. | Down Spouts                    | : | PPGI   |
| 25. | Eave trim                      | : | N.A.   |
| 26. | Fascia                         | : | N.A.   |
| 27. | Fixed Louvers                  | : | Optional   |
| 28. | Crane Details / Special loads  | : | N.A.   |
| 29. | Mezzanine floor details        | : | N.A.   |
| 30. | Skylights                      |   | YES  |
| 31. | Wall Lights                    | : | N.A.   |
| 32. | Roof Monitor                   | : | N.A.   |
| 33. | Insulation                     | : | Optional   |
| 34. | Ridge / Rotary ventilator      | : | YES  |
| 35. | Framed openings for shutter    | : | Optional   |
| 36. | Finish paint for PEB structure | : | YES  |
| 37. | self-drilling screws           | : | Xylon coated   |
| 38. | Accessories                    | : | Water gutter, downspouts, ridges, etc.                           |
| 39. | Crane and crane accessories    | : | N.A.   |
| 40. | Material                       | : | Primary members: SAIL<br>PURLIN: ESSAR OR UTTAM<br>SHEET: JINDAL |

**B. Steel work finish:**

| Item | Description                                   | Finish   |
|------|---|--|
| 1.   | Frame built up / HR sections                  | Two coats of enamel paint over a coat of red oxide primer. |
| 2.   | Cold Formed HR Purlins / Girts / Rod Bracings |  |
| 3.   | Anchor bolts                                  | Black (unpainted)  |

**C. Design loads:**

| ITEM | DESCRIPTION             | FINISH   |
|------|-------------------------|--|
| 1    | Dead load on Roof       | Self-weight + 15 kg/sq mtr<br>Secondary members weight |
| 2    | Live Load               | 57 kg/Sq.mtr   |
| 3    | Wind Speed              | 47 m/s   |
| 4    | Seismic load (Zone no.) | III  |

**D. Special Notes:**

- Rainfall Intensity Considered as 150 mm.
- Design as per IS 875 / MBMA-96
- Minimum Thickness Criteria:-
  1. Primary member will be min. 4 mm thick to max. based on design calculation.
  2. Secondary members will be from 1.6 mm to 2.00 mm as per design calculation.

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25/09/19



#### **E. APPLICABLE CODES**

**1.0 The building included in this proposal are to be designed in accordance with the following codes:**

- **AISI Cold Formed Steel Design Manual.**
- **MBMA Low Rise Building Systems Manual.**
- **IS 800 code of practice for general construction in steel.**
- **IS 875 code of practice for design loads (except earthquake) for buildings.**
- **IS 816 code of practice for use of metal arc welding.**

**2.0 The building will be manufactured in accordance with the following codes:**

- **MBMA Manual for Fabrication Tolerances.**

#### **F. Approval of Drawings:**

The firm shall submit the approval drawing by 2 weeks from the date of signing contract/issue of Purchase Order.

Any revision (if any) in the drawing shall be communicated to the firm and the firm shall submit the revised drawing accordingly within one week.

#### **G. Completion period:**

**60 Days from the day of releasing Purchase Order.**

#### **H. Payments terms and condition:**

- **60% after delivery of all materials at site in Durgapur.**
- **40% after successful completion of the work.**

#### **I. Scope of work:**

- a. Basic Designing of the structure.
- b. Fabrication of primary and secondary sections,
- c. Supply it to the site,
- d. Painting,
- e. Erecting,
- f. Sheet supply and fixing.
- g. Installation of turbo vents & sky lights
- h. Transportation to ex-Durgapur.

*Jay L. Gupta*  
*25/08/19*

## PRODUCT SPECIFICATIONS

A standard pre-engineered structure system is made up of primary members, secondary members, connections, roof sheeting, wall sheeting, sheeting fasteners, sealer, closures, ridge caps, flashing and trim, gutter and downspouts.

**A. PRIMARY MEMBERS:** Primary structural framing shall include the transverse rigid frames, lean to rafter and columns, canopy rafter, interior columns (beam & column frames), bearing frame rafter and corner columns and end wall wind columns.

**B. SECONDARY MEMBERS:** Secondary structural framing shall include the purlins, girts eave struts, wind bracing flange bracing, base angles, clips and other miscellaneous structural parts.

**C. PAINT OF STRUCTURAL MEMBERS:** All structural members shall be cleaned by wire brushing to remove dirt, grease, oil and loose mill scale and given one shop coat of red oxide, air drying phenol modified alkyd resin primer. Any additional finish painting is not included in PRS scope of supply

**D. CONNECTIONS:**

- All field connections shall be bolted (unless otherwise noted)
- Primary bolted connections shall be furnished with high strength bolts conforming to the physical specifications of ASTM A325 (or equivalent)
- Secondary bolted connections shall be furnished with machine bolts conform to the physical specifications of ASTM A307 (or equivalent)

**E. PHYSICAL SPECIFICATIONS OF STRUCTURAL MEMBERS:**

- Members fabricated from plate or bar stock shall have flanges and webs joined on one side of the web by a continuous welding process and will conform to the physical specifications of ASTM A570(Grade 50) or equivalent and having a minimum yield strength of 50,000 P.S.I (345MPa)
- Members fabricated by cold forming process shall conform to the physical specifications of ASTM A570 (Grade 50) or equivalent and having a minimum yield strength of 50000 PSI (345 MPa)-Member fabricated from hot rolled structural shapes shall conform to the physical specifications of ASTM A572 (Grade 36) or equivalent and having a minimum yield strength of 36,000 P.S.I (250MPa)-Roof & angle bracing shall conform to the physical specifications of ASTM A36 or equivalent and having a minimum yield strength of 36,000 P.S.I (250MPa)

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-Roof and wall cladding shall conform to the physical specifications of ASTM A653 (Grade 50) or equivalent and having a minimum yield strength of 36,000 P.S.I (250MPa)

All other miscellaneous secondary members shall have a minimum yield strength of 36,000 P.S.I (250MPa)

**F.ROOF SHEETING /WALL SHEETING:** Roof and wall panels shall be of 26 gauge thick (0.45mm) profiled galvalume color coated steel sheeting. Each panel shall provide one meter coverage and can be shipped in any length up to 10m.color of exterior and interior faces shall be white /grey. Other materials, thickness and coating are available upon request. The material shall conform to ASTM A792 and the galvalume coating to ASTM A792-AZ150.The yield strength of material shall be 345 n/nm2 (minimum)

**G.SHEETING FASTENERS:** Standard fasteners shall be No.14, Type A, self-tapping sheet metal screws with metal and neoprene washers. All screws shall have hexagonal heads be colour coated to match roof and wall sheeting and made of zinc plated steel

**H. RIDGE CAP:** A formed panel matching the material color, slope and profile of adjoining roof panels.

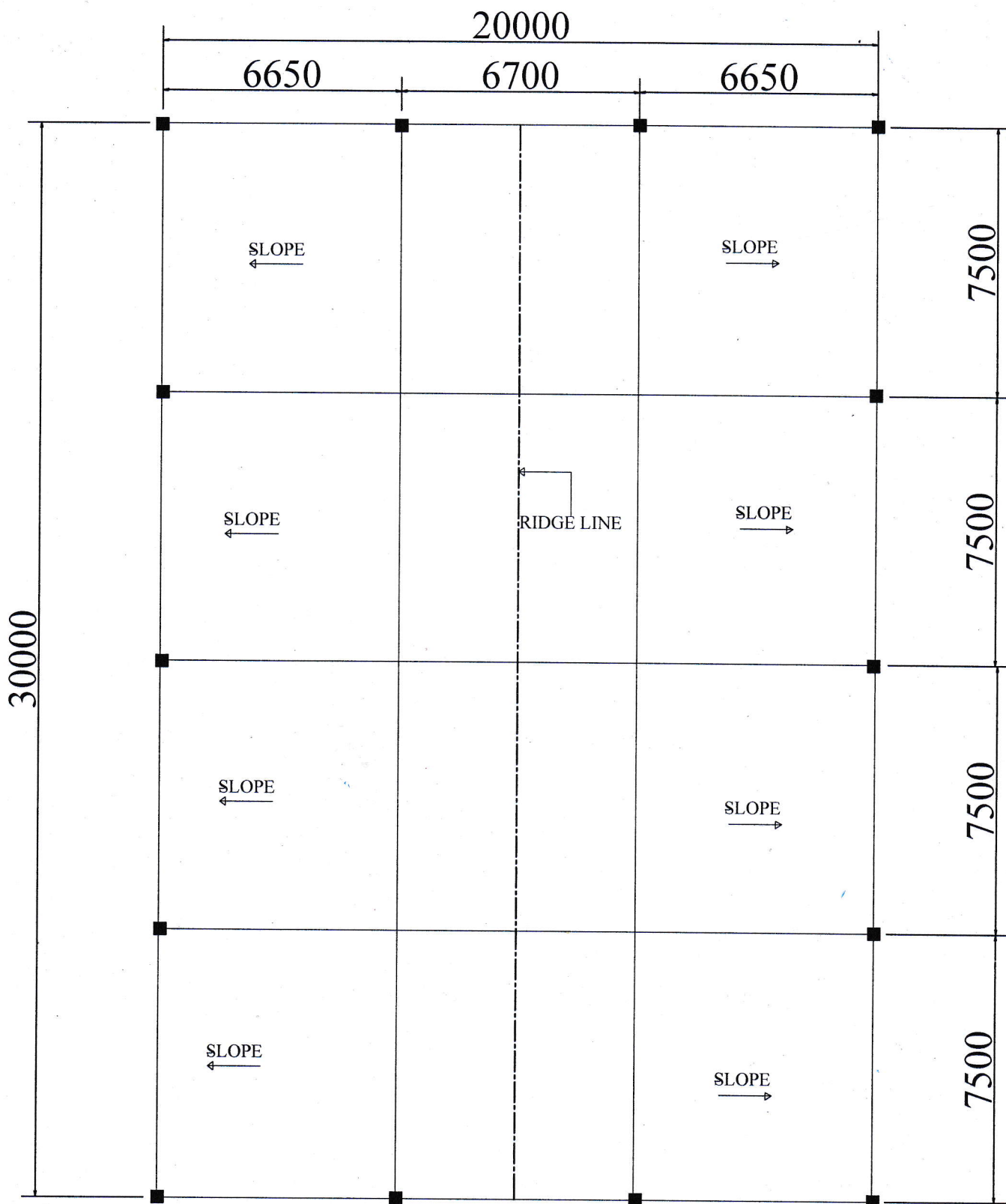
**I. FLASHING AND TRIM:** Flashing and/or trim shall be furnished at the rake , corners, eaves framed openings and where ever necessary to provide weather lightness and finished appearance. Color shall be white for rake and eave flashings and color of wall for corner flashings unless otherwise specified by client from one of Standard range of colors. Material shall be 26 G thick conforming to the physical specifications of ASTM A446 Grade C or equivalent and having minimum yield strength of 40,000 P.S.I (275 MPa)

**J. EAVE GUTTERS AND DOWNSPOTS:** Eave gutters shall be box shaped, color coated 0.47 mm nominal thickness

**K. ANCHOR BOLTS:**

These are normally supplied prior to the delivery of Pre-fabricated Buildings. Delivery will be made after receipt of anchor bolts setting plans (marked 'FOR CONSTRUCTION') from the supplying firm.

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*25/11/19*



## PROPOSED LAYOUT PLAN

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