

Sports Complex (BISE Peshawar)

Section 1. Construction of Roof Truss / Rafters of Gymnasium Hall **Specifications**

(Area 174' x 94' Total = 15660.00 Sft)

1.1 Building No: 01	Usage: Gymnasium	
	Quantity of identical buildings: One	
	Areas: The building is made up of 1 area	
1.1.1 Area No.	01	
Design Loads		
1	Design Live Load (kN/M ²) on Frame	0.57
2	Design Live Load (kN/M ²) on Purlin/Roof	0.57
3	Wind Speed (KM/Hr)	145
4	Additional Collateral Load (KN/M ²)	N/A
5	Earthquake Zone	2B
6	Maximum Rain Fall Intensity	150 mm/hr

The design data provided in this document must be considered as a reference to calculate the final sizes of the structural steel members i.e. mainframe members, secondary members and connection bolts.

Roof Sheeting		
1	Roof Panel	0.7 mm Thick Galvanized Polyester Pre-painted Standing-Seam Roof Panel profile for Roof.
2	Wall Panel	0.5 G.I Pre-Painted Sheet for the Sides Covering
Insulation (European Brand Only)		
50 mm thick Fiberglass Insulation Material (10 kg/m³ densities) for roof.		
Fiberglass Insulation supplied with facing which is reinforced and does not require wire mesh.		
Note: Insulation cannot be used at Roof Extension and Canopy		
Liner Panels		
1	Roof Liner	Area Full Roof and Wall Panel 0.5mm Thick Trapezoidal Profile Galvanized Polyester Pre-Painted Steel Sheets for Roof Liner Panel.

Important Notes

1. **NO SITE WELDING IS ALLOWED. All Members shall be fabricated in a factory.**
2. All the main frame members shall be fabricated in a hi-tech facility with following machinery in place inside the factory.
 - A – Plate Straightening with automated straightening line.
 - B – Automated section assembly line.
 - C – Submerged Arc Continuous Welding line
 - D – Flange straightening line
3. Roof Sheetting shall be 0.7 mm Thick Galvanized Polyester Pre-painted Standing-Seam profile Sheet with fully sealed over lapping details.
4. All the Flashing & Trims shall be the responsibility of the contractor.
5. A-325 High Strength Connection Bolts shall be supplied
6. Only Metal Closures shall be used at all locations.
7. Extreme Weather Resistant Bead Mastic Shall be used
8. Eave Gutters and Down Spouts shall be provided

Section 2. Applicable Codes & Deflection Criteria

COMPLIANCE WITH LATEST INTERNATIONAL CODES

Loads on all buildings are applied in accordance with:

1996 edition of the Low Rise Building Systems Manual (**MBMA1996 -2002**)

Manufacturing and Erection tolerances are applied as per:

1996 edition of the Low Rise Building Systems Manual (**MBMA1996**)

Cold formed members are designed in accordance with:

2001/2007 Edition of **AISI 2001/2007**- American Iron and Steel Institute

Welding is applied in accordance with:

2008 American Welding Society (**AWS 2008**)

DEFLECTION CRITERIA FOR REFERENCE

Deflection		Structural Member	Deflection Limitation	Load Case
Vertical Deflection	1	Main frame rafters	Span/ 180	Live or 10 years Wind
	2	Roof purlins	Span/ 150	Snow or 10 years Wind or Live
	3	Mezzanine beams and joists	Span/ 360	Dead Load
	4	Top running crane (TRC) beams	Span/ 600	Crane load
	5	Underhung crane (UHC) beams	Span/ 450	Crane load

	6	Monorail crane (MR) beams	Span/ 450	Crane load
Lateral Deflection	1	Main frame columns with eave height (EH) up to 9.0 m	Eave height/ 60	10 year Wind
	2	Main frame columns with eave height (EH) greater or equal to 9.0 m	Eave height/ 100	10 year Wind
	3	Main frames supporting top running cranes	Height/ 100	10 year Wind or Crane lateral
	4	Wall Girt	Span/ 120	10 year Wind
	5	End wall wind columns	Span/ 120	10 year Wind
	6	Portal frames	Height/ 120	10 Year Wind

Section 3. Material Specifications

The following is the list of the material standards and specifications for which the building components have been designed:

MATERIAL SPECIFICATIONS FOR PROJECT

Material Specifications					
No	Components		Specifications	Minimum yield strength	Applicable Design Code
1	Built –up (Plates)		ASTM A572 – Gr50 (or equivalent) <20mm	Fy = 34.5 kN/cm ²	AISC – American Institute of Steel Construction – Latest Edition
2	Hot Rolled	Angles	ASTM A-36 (or equivalent)	Fy = 24.5 kN/cm ²	AISC – American Institute of Steel Construction – Latest Edition
		Beams	ASTM A-36 (or equivalent)	Fy = 24.5 kN/cm ²	AISC – American Institute of Steel Construction – Latest Edition
3	Cold Form	Galvanized	ASTM A653M SS Grade 340 Class 1 (or equivalent.)	Fy = 34 kN/cm ²	AISI – American Iron & Steel Institute – 2001 Edition
4	Roof and Wall panel		AZ150 Zinc Aluminum Base ASTM A792 Gr. 50	Fy = 34 kN/cm ²	AISI – American Iron & Steel Institute – 2001 Edition
5	X-Bracing	Galvanized cable bracing	ASTM A475 – Extra High Strength Class A ($\Omega_t = 2.50$)	Pu = 90 kN	ASCE –American Society of Civil Engineers Standards

		(or equivalent)		
6	Anchor bolts (Galvanized)	ASTM A36 (or equivalent)	Fu = 40.0 kN/cm ²	AISC – American Institute of Steel Construction – Latest Edition
7	High strength Bolts (Galvanized)	ASTM A325 Type 1 (or equivalent)	Ft = 30.3 kN/cm ² Fu = 72 to 83 kN/cm ²	AISC – American Institute of Steel Construction – Latest Edition
8	Machine Bolts (Galvanized)	ASTM – A 307 (or equivalent)	Ft = 13.8 kN/cm ² Fu = 41.0 kN/cm ²	AISC – American Institute of Steel Construction – Latest Edition

Section 4. Steel Work Finish

- All primary members shall be **blast cleaned** in a blasting chamber up to Swedish standard SA-2 blasting.
- All primary members (columns and rafters) will be painted with 40 microns of Alkyd Primer paint
- All primary members (columns and rafters) will be painted with 25 microns of Alkyd Finish paint

Selection of firm marking criteria

A. Basic Eligibility

The firms fulfilling the following basic requirements shall only be considered for further evaluation (relevant documents to be attached):

i.	Registration with Income Tax Authorities
ii.	Taxpayer Status for the last three(3) Years
iii.	Income Tax Returns for Duration Correspondence with Taxpayer Status
iv.	Registration with Sales Tax Authorities-(KPR)
v.	Undertaking that firm is not blacklisted by any government department

B. Ranking and marking Criteria

Ranking and marking for eligible bidders will be based on the criteria given in succeeding paras regarding the *applicant's* Experience Record, Personnel Capabilities, Equipment Capabilities and Financial Soundness. The *Employer* reserves the right to waive minor deviations, if these do not materially affect the capability of an applicant to perform the contract. Sub-contractor's experience and resources shall not be taken into account in determining the Applicant's compliance with the qualifying criteria. The criteria for pre-qualification are provided below:

Table2-1: Break-up of marking / ranking Criteria

Sr. No.	Category	Marks
1.	Presentation of proposed structure design	50
2.	Experience Record	15

3.	Technical Capabilities of firm	15
4.	Relevant plant and equipment details with ownership certificate	10
5.	Financial Soundness	10
Total		100

Note: *The bidder must secure 50 Percent marks in total of all 4 (five) Categories.*

1. **Presentation of proposed structure design**

Marking will be assigned on the basis of presentation provided.

2. **Experience Record:**

Credit Marks for experience shall be awarded on the basis of following qualifications:

Table 2-2: General Experience

Sr. No.	Description	Maximum Points
i.	Projects of similar nature, complexity and financial Outlay of Rs. 15 Million each completed and in hand projects over latest Five (5) years. Projects marks for 1 st 2 nd & 3 rd Project are 7, 5, & 3 marks respectively.	15
Sub-total:		15

Note: *Bidders shall have to provide the Completion Certificates for the Completed Projects and Work Order for in hand project(s) for evidence.*

3. **Technical Capabilities of firm:**

Technical capabilities of the applicants shall be assessed of the following grounds with the marking criteria given asunder:

Table 2-3: Technical Capabilities

Sr. No.	Personnel	Minimum Qualification (Mandatory)	Required Experience and Expertise	Max. Marks
i.	Engineers Registered with Pakistan Engineering Council	B.Sc./B.E. Engineering in Mechanical, or any other process engineering related disciplines	Individual must have a minimum of 5 years' verifiable and documented experience in the relevant fields	10
ii.	Supervisor	DAE in Mechanical engineering or other related discipline	Individual Must have a minimum of 3 years' verifiable and documented experience in the relevant fields.	5
Sub-Total:				15

4. **Relevant plant and equipment details with owner ship certificate:**

The Bidder will be awarded marks on the basis of relevant plant and equipment details with ownership certificate: 10 marks

5. **Financial Soundness**

Credit marks shall be awarded on the basis of the following criteria:

Table 2-4: Financial Soundness

Sr. No.	Description	Maximum Marks
(i)	Available Bank Credit Line > Rs. 10 Million or Equivalent One mark for each million	10
	Sub-Total:	10